



BUNDESPATENTGERICHT

IM NAMEN DES VOLKES

URTEIL

Verkündet am
8. Juli 2021

6 Ni 46/19 (EP)
verbunden mit
6 Ni 47/19 (EP)
verbunden mit
6 Ni 48/19 (EP)

...

(Aktenzeichen)

In der Patentnichtigkeitssache

...

betreffend das europäische Patent 2 154 903

(DE 60 2008 038 149)

hat der 6. Senat (Nichtigkeitssenat) des Bundespatentgerichts auf die mündliche Verhandlung vom 8. Juli 2021 durch die Vorsitzende Richterin Friehe, die Richterin Werner M.A., den Richter Dipl.-Phys. Dr. Schwengelbeck, die Richterin Dipl.-Phys. Univ. Zimmerer und den Richter Dr.-Ing. Flaschke

für Recht erkannt:

- I. Das europäische Patent 2 154 903 wird mit Wirkung für das Hoheitsgebiet der Bundesrepublik Deutschland für nichtig erklärt.
- II. Die Beklagte trägt die Kosten des Rechtsstreits.
- III. Das Urteil ist gegen Sicherheitsleistung in Höhe von 110 % des jeweils zu vollstreckenden Betrages vorläufig vollstreckbar.
- IV. Der Streitwert für das Verfahren vor dem Bundespatentgericht wird auf 6.625.000,- € festgesetzt.

Tatbestand

Die Beklagte ist Inhaberin des auch mit Wirkung für das Hoheitsgebiet der Bundesrepublik Deutschland erteilten europäischen Patents 2 154 903 (Streitpatent), das am 3. Juni 2008 angemeldet worden ist. Ihm liegt die internationale PCT-Anmeldung PCT/JP2008/060184, die am 3. Juni 2008 eingereicht und am 11. Dezember 2008 als WO 2008/149849 A1 offengelegt wurde, zugrunde. Das Streitpatent beansprucht die Priorität der japanischen Anmeldungen JP 2007150992 vom 6. Juni 2007 und JP 2008021557 vom 31. Januar 2008. Der Hinweis auf die Erteilung des Streitpatents ist am 13. Mai 2015 veröffentlicht worden. Das Streitpatent ist in Kraft.

Das Streitpatent wird beim Deutschen Patent- und Markenamt unter dem Aktenzeichen 60 2008 038 149 geführt. Es trägt die Bezeichnung

„MOBILE COMMUNICATION SYSTEM, BASE STATION DEVICE,
AND MOBILE STATION DEVICE“
(auf Deutsch laut Streitpatentschrift:
„MOBILES KOMMUNIKATIONSSYSTEM SOWIE BASISSTATION
UND MOBILSTATION DAFÜR“)

und umfasst in der erteilten Fassung 3 Patentansprüche, die die Klägerinnen zu 1, 2 und 3 insgesamt und die Klägerin zu 4 im Umfang der Patentansprüche 1 und 3 angreifen.

Die angegriffenen erteilten nebengeordneten Patentansprüche 1 und 3 lauten gemäß Streitpatentschrift:

in der Verfahrenssprache Englisch:	auf Deutsch
<p>1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200).</p>	<p>1. Mobilstationsvorrichtung (200), die ausgebildet ist, durch Verwenden einer zugeordneten Signatur einen wahlfreien Zugriff auszuführen, wenn die durch eine Basisstationsvorrichtung (100) mitgeteilte zugeordnete Signatur durch die Mobilstationsvorrichtung (200) detektiert wird, und die ferner ausgebildet ist, durch Verwenden einer zufällig gewählten Signatur einen wahlfreien Zugriff auszuführen, wenn eine Signatur durch die Mobilstationsvorrichtung (200) detektiert wird, die durch die Basisstationsvorrichtung (100) mitgeteilt wurde und die nicht reserviert ist als eine zugeordnete Signatur.</p>
<p>3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200).</p>	<p>3. Verfahren durch Ausführen eines wahlfreien Zugriffs durch eine Mobilstationsvorrichtung (200), bei welchem die Mobilstationsvorrichtung (200) durch Verwenden einer zugeordneten Signatur den wahlfreien Zugriff ausführt, wenn die durch eine Basisstationsvorrichtung (100) mitgeteilte zugeordnete Signatur durch die Mobilstationsvorrichtung (200) detektiert wird, und</p> <p>durch Verwenden einer zufällig gewählten Signatur den wahlfreien Zugriff ausführt, wenn eine Signatur durch die Mobilstationsvorrichtung (200) detektiert wird, die durch die Basisstationsvorrichtung (100) mitgeteilt wurde und die nicht reserviert ist als eine zugeordnete Signatur.</p>

Der von den Klägerinnen zu 1 bis 3 ebenfalls angegriffene Patentanspruch 2 ist auf Patentanspruch 1 unmittelbar rückbezogen.

Die Klägerin zu 1 macht geltend, dass die in Anspruch genommenen Prioritäten des Streitpatents nicht wirksam seien. Die Klägerin zu 2 ist der Ansicht, dass die

Gegenstände der erteilten Ansprüche unter Zugrundelegung der Auslegung der Beklagten nicht ausführbar seien. Die Klägerin zu 3 rügt eine unzulässige Erweiterung, wobei die Gegenstände der erteilten Ansprüche 1 und 3 in unzulässiger Weise über den Inhalt der Anmeldung in der ursprünglich eingereichten Fassung hinausgingen. Alle Klägerinnen sind der Ansicht, das Streitpatent sei für nichtig zu erklären, da ihm die Patentfähigkeit fehle, da es weder neu sei noch auf erfinderischer Tätigkeit beruhe.

Den Einwand der fehlenden Patentfähigkeit stützen die Klägerinnen u. a. auf die folgenden Dokumente bzw. Druckschriften (Nummerierung und Kurzzeichen nach jeweiligem Klageverfahren):

Klägerin zu 1	Klägerinnen zu 2 und 3	Klägerin zu 4	Dokument
6 Ni 46/19 (EP)	6 Ni 47/19 (EP)	6 Ni 48/19 (EP)	
D4¹			R2-071303, 3GPP TSG-RAN WG2 Meeting #57bis, in St. Julian's, Malta, March 26 th - 30 th , 2007, „Non-contention based RA preamble“
D6¹			R2-071820, 3GPP TSG-RAN WG2 Meeting #58, Kobe, Japan, 7-11 May, 2007, „On the details of the dedicated preamble at intra-LTE handover“
D9¹	D3²		R2-071143, 3GPP TSG RAN WG2 Meeting #57bis in St. Julians, Malta, 26 th - 30 th March 2007, „Random Access Preamble signatures usage“, abrufbar unter https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_57bis/Documents/R2-071143.zip

		NK5	R2-071712, TSG-RAN Working Group 2 Meeting #57bis in St. Julian's, Malta, 26 th - 30 th March, 2007, abrufbar unter https://www.gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2.JS/Documents/R2-071712.zip
		NK8	R2-070029, 3GPP TSG RAN Working Group 2 Meeting #56bis in Sorrento, Italy, 15 th Jan.-19 th Jan., 2007, abrufbar unter https://www.gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_56bis/Documents/R2-07002Q.zip
		NK14	Auszug aus der Masterarbeit „E-UTRA RACH within the LTE system“

Die Klägerinnen zu 1, zu 2 und zu 3 beantragen jeweils,

das europäische Patent 2 154 903 mit Wirkung für das Hoheitsgebiet der Bundesrepublik Deutschland für nichtig zu erklären.

Die Klägerin zu 4 beantragt,

das europäische Patent 2 154 903 mit Wirkung für das Hoheitsgebiet der Bundesrepublik Deutschland im Umfang der Patentansprüche 1 und 3 für nichtig zu erklären.

Die Beklagte beantragt,

die Klagen abzuweisen,

hilfsweise die Klagen abzuweisen,

soweit sie sich auch gegen eine der Fassungen des Streitpatents nach den Hilfsanträgen 1 bis 1i, 1'a bis 1'i (ohne 1'e, 1'f), 3a bis 3i, 3'a bis 3'i (ohne 3'e, 3'f), 4b bis 4i und 5c bis 5f aus dem Schriftsatz vom 9. Juni 2021 sowie nach den Hilfsanträgen 4'b und 4'c aus dem Schriftsatz vom 1. Juli 2021 richten,

mit der Maßgabe, dass zunächst die Hilfsanträge 4b, 4c, 4'c und 1c geprüft werden

und sodann die übrigen Hilfsanträge in der numerischen Reihenfolge geprüft werden, d.h. in der Reihenfolge 1, 1', 3, 3', 4, 4' und 5 und dabei innerhalb eines Satzes ebenfalls gemäß Benennung, d.h. im Satz 1 vom Hilfsantrag 1 über den Hilfsantrag 1a bis zum Hilfsantrag 1i (ohne den vorab zu prüfenden 1c), im Satz 1' vom Hilfsantrag 1'a bis 1'i, im Satz 3 von 3a bis 3i, im Satz 3' von 3'a bis 3'i, im Satz 4 von 4b bis 4i (ohne die vorab zu prüfenden 4b und 4c) und dann 4'b und im Satz 5 von 5c bis 5f,

wobei alle Anträge als geschlossene Anspruchsätze gestellt sind.

Die Beklagte tritt der Argumentation der Klägerinnen entgegen und hält das Streitpatent in der erteilten Fassung, jedenfalls in der Fassung eines der Hilfsanträge, für schutzfähig. Soweit die Klägerinnen sich auf das Dokument D3² (= D9¹) stützen, gehöre dies nicht zum Stand der Technik, da es nicht vorveröffentlicht sei. Es könne nicht ausgeschlossen werden, dass hier nachträglich – also nach dem vermeintlichen Tag der Veröffentlichung – noch Modifikationen vorgenommen worden seien. Eine Excel-Tabelle auf der von den Klägerinnen genannten Webseite nenne ein späteres Upload-Datum nämlich den 20. Juli 2017, also nach dem ersten Prioritätstag des Streitpatents am 6. Juni 2017.

Die jeweiligen Patentansprüche 1 bis 3 der Hilfsanträge haben den Inhalt wie (zur besseren Lesbarkeit) aus der Anlage zum Urteil ersichtlich.

Mit Schriftsatz vom 27. Mai 2020 hat die Klägerin zu 3 ihren Klagebeitritt zur Nichtigkeitsklage der Klägerin zu 2 vom 25. September 2019 erklärt. Die Klägerin zu 3 sei eine Konzerngesellschaft der in dem Verletzungsverfahren vor dem Landgericht von der hiesigen Beklagten dort in Anspruch genommenen „A....Ltd.“ und nach der gegenwärtigen konzerninternen Aufgabenverteilung für die Verteidigung gegen Klageangriffe gegen den Konzern in Deutschland zuständig. Die Klägerin zu 2 hat dem Klagebeitritt mit Schriftsatz vom 24. Juni 2020 zugestimmt.

Der Senat hat die Nichtigkeitsverfahren mit den Az.: 6 Ni 46/19 (EP), Az.: 6 Ni 47/19 (EP) und Az.: 6 Ni 48/19 (EP) mit Beschluss vom 12. April 2021 zur gemeinsamen Verhandlung und Entscheidung verbunden. Der Senat hat den Parteien einen qualifizierten Hinweis vom 17. Mai 2021 zugeleitet und hierin Fristen zur Stellungnahme auf den Hinweis und auf etwaiges Vorbringen der jeweiligen Gegenpartei gesetzt.

Wegen der weiteren Einzelheiten wird auf den Akteninhalt verwiesen.

Entscheidungsgründe

A.

Auf die zulässigen Klagen ist das Streitpatent für nichtig zu erklären, weil den Gegenständen der Patentansprüche in erteilter Fassung und nach den Hilfsanträgen der Nichtigkeitsgrund der mangelnden Patentfähigkeit entgegensteht (Art. II § 6 Abs. 1 Nr. 1 IntPatÜG i. V. m. Art. 138 Abs. 1 Buchst. a), Art. 52, 54, 56 EPÜ).

Vor diesem Hintergrund kann letztlich dahinstehen, ob die Gegenstände der Ansprüche nach Hauptantrag und den Hilfsanträgen über die ursprünglich eingereichte Fassung hinausgehen und somit auf einer unzulässigen Erweiterung beruhen bzw. nicht ausführbar sind (Art. II § 6 Abs. 1 Nr. 3 IntPatÜG i. V. m. Art. 138 Abs. 1 lit. c) EPÜ).

I. Zulässigkeit

Der Beitritt der Klägerin zu 3 zur Nichtigkeitsklage der Klägerin zu 2 ist als subjektive Klagehäufung zulässig, nachdem die Klägerin zu 1 dem zugestimmt hat und der Klagebeitritt auch sachdienlich im Sinne von § 263 ZPO ist.

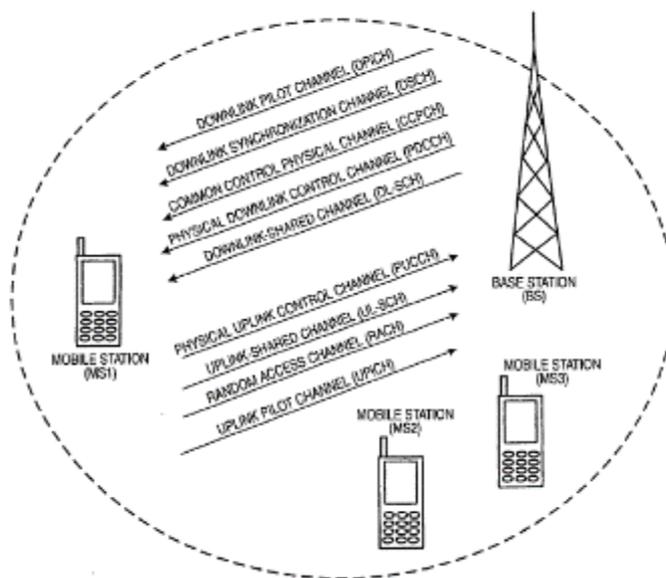
Für die Bestimmung der Sachdienlichkeit kommt es auf die objektiv zu bewertenden Interessen der Parteien sowie der Rechtspflege an.

Die Klägerin zu 3 ist eine Konzerngesellschaft der in dem Verletzungsverfahren vor dem Landgericht von der hiesigen Beklagten dort in Anspruch genommenen „A....Ltd.“ und unstreitig nach der gegenwärtigen konzerninternen Aufgabenverteilung für die Verteidigung gegen Klageangriffe gegen den Konzern in Deutschland zuständig.

Die Parteierweiterung verzögert die Erledigung des Prozesses nicht. Die weitere Klägerin kann das Streitpatent ohnehin aus eigenem Recht mit einer eigenen Nichtigkeitsklage angreifen. Im anhängigen Verfahren kann unter vollständiger Verwertung des gesamten Prozessstoffs geklärt werden, ob das angegriffene Patent für nichtig zu erklären ist; dies erspart ein weiteres, gesondertes Klageverfahren der weiteren Klägerin.

II. Zum Gegenstand des Streitpatents

1. Das Streitpatent (SP) betrifft gemäß Beschreibungseinleitung ein Mobilkommunikationssystem sowie eine Basisstationsvorrichtung und eine Mobilstationsvorrichtung, die ein zellulares Kommunikationssystem verwenden (vgl. Patentschrift Abs. 1).



[FIG. 17]

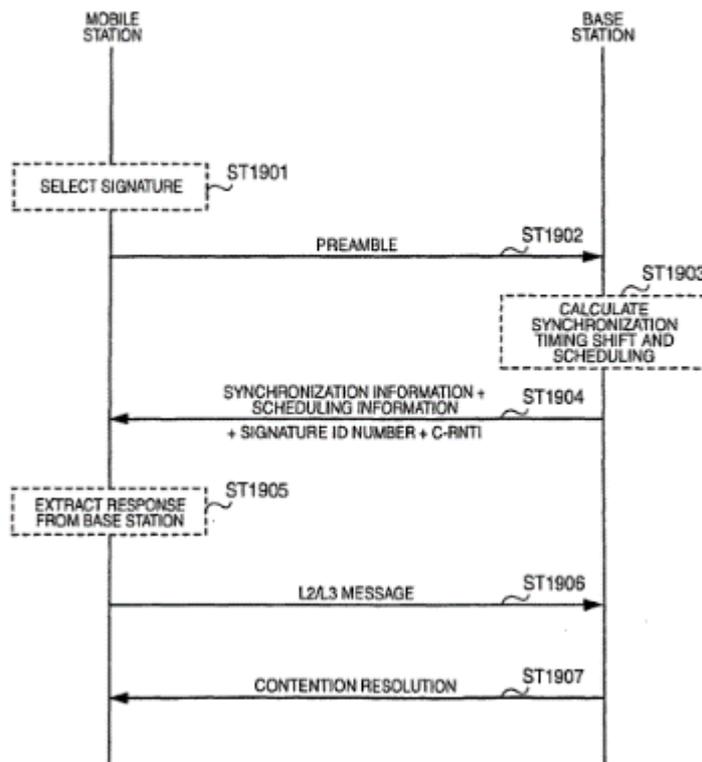
Eine Aufwärtsverbindung (*uplink*), wie sie in Figur 17 dargestellt sei, umfasse u. a. einen Kanal für einen sogenannten wahlfreien Zugriff bzw. Zugriffskanal (*Random Access Channel RACH*) sowie weitere Kanäle (vgl. Patentschrift, Abs. 4).

Der Kanal für einen wahlfreien Zugriff (*random access channel*) werde hauptsächlich zum Erreichen einer Synchronisation zwischen einer Mobilstation (*mobile station*) und einer Basisstation (*base station*) verwendet (vgl. Patentschrift Abs. 9). Bei einem wahlfreien Zugriff werde alleinig eine Präambel (*a preamble alone*) übertragen, um eine Synchronisation zu erreichen (*in a random access, a preamble alone is transmitted for attaining synchronization*). Die Präambel enthalte eine Signatur (*signature*), die einem Signalmuster entspreche, welches Information darstelle. Die Information von mehreren Bits könne durch Vorbereiten mehrerer Arten von Signaturen (*several ten kinds of signatures*) spezifiziert werden. Gegenwärtig werde die Übertragung von 6-Bit-Informationen und die Vorbereitung von 64 Arten von Signaturen vorausgesetzt (vgl. Patentschrift Abs. 10).

Das Streitpatent gibt an, dass bei einer 6-Bit-Information eine Anzahl von 5 Bits für eine zufällige Kennung (*random ID*) alloziert / reserviert seien, während das verbleibende 1 Bit für Information reserviert sei, die etwa den Grund für den wahlfreien Zugriff und einen Pfadverlust / *CQI* (*Channel Quality Indicator*) der Abwärtsverbindung (*downlink*) betreffe (vgl. Patentschrift Abs. 11).

Figur 19 stelle ein Sequenzdiagramm dar, welches zur Erläuterung einer beispielhaften Prozedur eines herkömmlichen wahlfreien Zugriffs verwendet werde. Bei diesem Zugriff wähle eine Mobilstation zuerst eine Signatur auf der Basis einer zufälligen Kennung (*random ID*) aus. Dann werde eine Präambel mit der ausgewählten Signatur unter Verwendung eines wahlfreien Zugriffskanals übertragen (vgl. Patentschrift, Abs. 12 und Fig. 19, *ST1902*).

[FIG. 19]



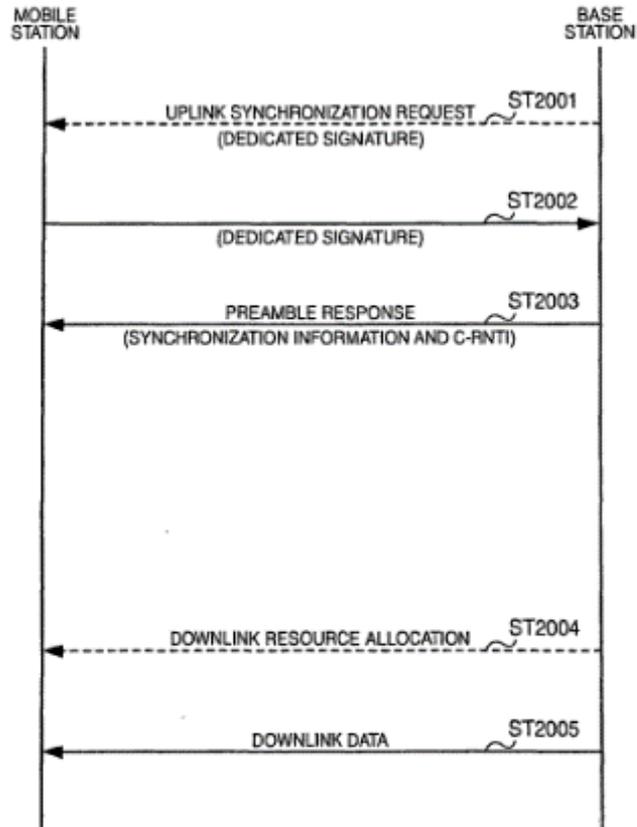
Wenn eine Basisstation die Präambel von der Mobilstation empfangt, berechne sie auf der Grundlage der Präambel die Synchronisationszeitverschiebung zwischen der Mobilstation und der Basisstation und führe eine Planung zum Senden einer L2/L3-Nachricht durch (vgl. Patentschrift, Fig. 19, *ST1903*). Wenn danach aufgrund eines wahlfreien Zugriffs festgestellt werde, dass von der Mobilstation eine *C-RNTI* (*Cell-Radio Network Temporary Identity*) als temporäre Identität des Mobilfunknetzes benötigt werde, weise die Basisstation der Mobilstation diese zu und sende eine Antwort einschließlich einer Synchronisationsinformation (*synchronization information*), Planungsinformation, einer Signatur-ID-Nummer und der *C-RNTI* (vgl. Patentschrift Abs. 13 und Fig. 19: *ST1904*). Falls die Mobilstation diese Informationen von der Basisstation empfangt, extrahiere sie eine Antwort von der Basisstation einschließlich der übertragenen Signatur-ID-Nummer (vgl. Fig. 19, *ST1905*). Anschließend sende die Mobilstation eine L2/L3-Nachricht unter Verwendung einer von der Basisstation geplanten Funkressource (*ST1906*). Wenn die Basisstation die L2/L3-Nachricht von der Mobilstation empfangt, sende sie eine Konfliktauflösung (*contention resolution*), um festzustellen, ob ein Konflikt mit einer anderen Mobilstation aufgetreten ist oder nicht (*ST1907*). Ein Problem eines solchen wahlfreien Zugriffs sei das Auftreten von Konflikten, die verursacht würden, wenn mehrere verschiedene Mobilstationen dieselbe Signatur und denselben Kanal für einen wahlfreien Zugriff auswählten. Wenn mehrere Mobilstationen dieselbe Signatur auswählten und eine Übertragung unter Verwendung eines Funkressourcenblocks zu derselben Zeit und mit derselben Frequenz durchführten, nämlich unter Verwendung desselben Kanals für einen wahlfreien Zugriff, trete ein Konflikt bezüglich der Präambel auf (vgl. Fig. 19, *ST1902*, sowie Abs. 14 und 15).

Wenn die Basisstation die Präambel aufgrund eines solchen Konflikts nicht erkennen könne, könne sie die Antwort einschließlich der Synchronisationsinformationen und dergleichen nicht übertragen (vgl. Fig. 19, *ST1904*). In diesem Fall solle die Mobilstation, da sie die Antwort von der

Basisstation nicht empfangen könne, erneut einen wahlfreien Zugriff durchführen, indem sie nach einer vorgeschriebenen Zeit eine Signatur und einen Kanal für einen wahlfreien Zugriff auswähle (vgl. Abs. 16). Für den Fall, dass ein Konflikt im Zusammenhang mit einem wahlfreien Zugriff nicht vermieden werden könne, werde angenommen, dass es lange dauern könne, bis die Downlink-Datenübertragung erneut aufgenommen werde (vgl. Abs. 20 und 21).

Um ein solches Problem zu vermeiden, sei ein Vorschlag zur Verhinderung von Konflikten bei einem wahlfreien Zugriff zur Wiederaufnahme der Downlink-Datenübertragung unter Verwendung einer Signatur zur Wiederaufnahme der Downlink-Datenübertragung gemacht worden (vgl. Patentschrift, Abs. 21 und Fig. 20).

[FIG. 20]



Wenn bestimmt werde, die Abwärtsverbindungsdatenübertragung (*downlink data transmission*) zu einer Mobilstation außerhalb der Aufwärtsverbindungs-synchronisation fortzusetzen, sende eine Basisstation eine Aufwärtsverbindungssynchronisationsanforderung an die Mobilstation (vgl. Abs. 22 und Fig. 20, ST2001). Die Aufwärtssynchronisationsanforderung werde unter Verwendung eines physikalischen Abwärtsverbindungssteuerkanals übertragen. Die Uplink-Synchronisationsanforderung enthalte eine Signatur-ID-Nummer eines wahlfreien Zugriffs, welche von der Mobilstation gesendet werden solle. In der folgenden Beschreibung werde dies als dedizierte Signatur bezeichnet (vgl. Abs. 22 und Fig. 20).

Wenn die Uplink-Synchronisationsanforderung von der Basisstation empfangen werde, sende die Mobilstation eine Zugriffs-Präambel (*random access preamble*) einschließlich der dedizierten Signatur, die in der Uplink-Synchronisationsanforderung empfangen werde, unter Verwendung eines Kanals für einen wahlfreien Zugriff an die Basisstation (vgl. Fig. 20, *ST2002*). Wenn die Präambel einschließlich der dedizierten Signatur von der Mobilstation empfangen werde, sende die Basisstation einen TA-Befehl (*Timing Advance*), der einer Synchronisationszeitverschiebung entspreche, als Antwort (*preamble response*) auf den wahlfreien Zugriff an die Mobilstation (vgl. Abs. 23 und Fig. 20, *ST2003*). Es sei auch u. a. ein konkurrenzbasierendes wahlfreies Zugriffsverfahren als Ersatz für den Fall vorgeschlagen worden, dass ein solches konkurrenzfreies Zugriffsverfahren fehlschlage (vgl. Patentschrift, Abs. 25 und 26).

Bei der Wiederaufnahme der Downlink-Datenübertragung könne keine Uplink-Synchronisationsanforderung übertragen werden, obwohl die Übertragung einer in einem L1/L2-Steuerkanal enthaltenen dedizierten Signatur geprüft werde, wenn nicht genügend dedizierte Signaturen vorhanden seien. In dem Fall, dass eine dedizierte Signatur nicht zugewiesen werden könne, trete daher das Problem auf, dass der L1/L2-Steuerkanal unbrauchbar werde. Ein solches Problem trete in ähnlicher Weise nicht nur dann auf, wenn beispielsweise die Fortsetzung der Aufwärtsverbindungssynchronisation mit einem Zeitgeber sowohl in einer Basisstation als auch in einer Mobilstation verwaltet werde, sondern auch, wenn eine Basisstation erkenne, dass eine Mobilstation keine Synchronisation der Aufwärtsverbindung aufweise (vgl. Abs. 27).

2. Dem Streitpatent liegt vor diesem Hintergrund die **Aufgabe** zugrunde, ein effizientes Zugriffsverfahren bereitzustellen, welches unabhängig davon durchgeführt wird, ob eine dedizierte Signatur (*dedicated signature*) zugewiesen werden kann (vgl. Patentschrift, Abs. 28).

3. Als zuständigen **Fachmann** sieht der Senat einen Ingenieur der Elektrotechnik mit Fachrichtung Nachrichtentechnik, der über eine mehrjährige Erfahrung auf dem Gebiet der Mobilfunksysteme im Zusammenhang mit Mobilfunkstandards und Übertragungstechnik in Mobilfunknetzen verfügt.
 4. Die Aufgabe soll gelöst werden durch eine Vorrichtung nach Patentanspruch 1, die ausgebildet ist, einen wahlfreien Zugriff auszuführen, sowie durch ein Verfahren nach Patentanspruch 3 durch Ausführen eines wahlfreien Zugriffs durch eine Mobilstationsvorrichtung.
- a) Die unabhängigen Patentansprüche 1 und 3 nach **Hauptantrag** (erteilte Fassung des Streitpatents) lassen sich wie folgt gliedern (Gliederungsziffern der Merkmale hier und im Folgenden entsprechend der Notation der Beklagten):

Patentanspruch 1:

- M1** A mobile station apparatus (200)
- M2** adapted to perform a random access
 - M2.1** by using a dedicated signature
 - M2.2** when the dedicated signature informed by a base station apparatus (100)
 - M2.3** is detected by said mobile station apparatus (200) and
- M3** further adapted to perform a random access
 - M3.1** by using a randomly selected signature
 - M3.2** when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature
 - M3.3** is detected by said mobile station apparatus (200).

Patentanspruch 3:

- N1** A method for performing a random access by a mobile station apparatus (200) in which
- N2** the mobile station apparatus (200) performs the random access
 - N2.1** by using a dedicated signature
 - N2.2** when the dedicated signature informed by a base station apparatus (100)
 - N2.3** is detected by said mobile station apparatus (200) and
- N3** performs the random access
 - N3.1** by using a randomly selected signature
 - N3.2** when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature
 - N3.3** is detected by said mobile station apparatus (200).

- b)** Die jeweiligen Patentansprüche 1 der Hilfsanträge lassen sich in der von der Beklagten in der mündlichen Verhandlung beantragten Reihenfolge wie folgt gliedern:

Anspruch 1 nach **Hilfsantrag 4b** weist gegenüber Anspruch 1 nach Hauptantrag eine Ergänzung bezüglich einer Anfrage zu einer Uplink-Synchronisation (*uplink synchronization request*) entsprechend den Merkmalen M2.2b, 2.3b sowie M3.2b und M3.3b auf und lautet damit wie folgt (Änderungen gegenüber Anspruch 1 nach Hauptantrag hervorgehoben):

- M1** A mobile station apparatus (200)
- M2** adapted to perform a random access
 - M2.1** by using a dedicated signature
 - M2.2^b** when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100)
 - M2.3^b** ~~is~~are detected by said mobile station apparatus (200) and

M3 further adapted to perform a random access

M3.1 by using a randomly selected signature

M3.2^b when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature

M3.3^b ~~is~~are detected by said mobile station apparatus (200).

Anspruch 1 nach **Hilfsantrag 4c** weist die Merkmale des Anspruchs 1 nach Hilfsantrag 4b auf unter Hinzufügung der folgenden Merkmale:

M5 wherein said signature not reserved as a dedicated signature

M5.1 is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and

M5.2 is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Anspruch 1 nach **Hilfsantrag 4'c** weist die folgenden Merkmale auf (Änderungen gegenüber Anspruch 1 nach Hauptantrag hervorgehoben):

M1 A mobile station apparatus (200)

M2 adapted to perform a random access

M2.0 to attain uplink resynchronization with a base station apparatus (100)

M2.1 by using a dedicated signature

M2.2^b when an uplink synchronization request and the dedicated signature informed by said a base station apparatus (100)

M2.3^b are is detected by said mobile station apparatus (200) and

M3 further adapted to perform a random access

M3.0 to attain uplink resynchronization with a base station apparatus (100)

M3.1 by using a randomly selected signature

- M3.2^b** when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature
- M3.3^b** are is detected by said mobile station apparatus (200),
- M5** wherein said signature not reserved as a dedicated signature
- M5.1** is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and
- M5.2** is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Anspruch 1 nach **Hilfsantrag 1c** weist folgende Merkmale auf (Änderungen gegenüber Anspruch 1 nach Hauptantrag hervorgehoben):

- M1** A mobile station apparatus (200)
- M2** adapted to perform a random access
- M2.1** by using a dedicated signature
- M2.2^b** when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100)
- M2.3^b** ~~is~~are detected by said mobile station apparatus (200), ~~and~~
- M2.4^b** wherein said uplink synchronization request and said dedicated signature is are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and
- M2.5^b** said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and
- M2.6** wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station

apparatus (100) by using said dedicated signature, and said mobile station apparatus (200)

M3 further adapted to perform a random access

M3.1 by using a randomly selected signature

M3.2^b when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature

M3.3^b ~~is~~are detected by said mobile station apparatus (200)

M3.4 wherein said randomly selected signature is randomly selected by said mobile station apparatus (200)

M3.5^b wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting an uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and

M3.6^b said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100). and

M3.7 wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature,

M5 wherein said signature not reserved as a dedicated signature

M5.1 is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and

M5.2 is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Anspruch 1 nach **Hilfsantrag 1** weist die Merkmale des Anspruchs 1 nach Hauptantrag auf unter Hinzufügung des folgenden Merkmals bezüglich der Auswahl der zufälligen Signatur in der Mobilstation:

M3.4 wherein said randomly selected signature is randomly selected by said mobile station apparatus (200).

Anspruch 1 nach **Hilfsantrag 1a** lautet wie folgt (Änderungen gegenüber Anspruch 1 nach Hilfsantrag 1 hervorgehoben):

M1 A mobile station apparatus (200)

M2 adapted to perform a random access

M2.1 by using a dedicated signature

M2.2 when the dedicated signature informed by a base station apparatus (100)

M2.3 is detected by said mobile station apparatus (200),

M2.4 wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and

M2.5 said mobile station apparatus (200) is adapted to receive said dedicated signature from said base station apparatus (100), and

M2.6 wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200)

M3 further adapted to perform a random access

M3.1 by using a randomly selected signature

M3.2 when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature

M3.3 is detected by said mobile station apparatus (200).

- M3.4** wherein said randomly selected signature is randomly selected by said mobile station apparatus (200).
- M3.5** wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and
- M3.6** said mobile station apparatus (200) is adapted to receive said signature not reserved as a dedicated signature from said base station apparatus (100), and
- M3.7** wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Anspruch 1 nach **Hilfsantrag 1b** weist folgende Merkmale auf (Unterschiede gegenüber Anspruch 1 nach Hilfsantrag 1a hervorgehoben):

- M1** A mobile station apparatus (200)
- M2** adapted to perform a random access
- M2.1** by using a dedicated signature
- M2.2^b** when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100)
- M2.3^b** ~~is~~ are detected by said mobile station apparatus (200),
- M2.4^b** wherein said uplink synchronization request and said dedicated signature ~~is~~ are informed by said base station apparatus (100) by transmitting an uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and
- M2.5^b** said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and

- M2.6** wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200)_
- M3** further adapted to perform a random access
- M3.1** by using a randomly selected signature
- M3.2^b** when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature
- M3.3^b** ~~is~~are detected by said mobile station apparatus (200).
- M3.4** wherein said randomly selected signature is randomly selected by said mobile station apparatus (200),
- M3.5^b** wherein said uplink synchronization request and said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting an uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and
- M3.6^b** said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and
- M3.7** wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

In Anspruch 1 nach **Hilfsantrag 1d** ist im Vergleich zu Hilfsantrag 1c folgendes Merkmal M4 zwischen den Merkmalen M3.7 und M5 eingefügt:

- M4** wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures,

Bei Anspruch 1 nach **Hilfsantrag 1e** ist im Vergleich zu Hilfsantrag 1c folgender Disclaimer angefügt:

M5' wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

In Anspruch 1 nach **Hilfsantrag 1f** ist im Vergleich zu Anspruch 1 nach Hilfsantrag 1e das Merkmal M4 bezüglich einer Menge von 64 Signaturen zwischen Merkmal 3.7 und Merkmal M5 eingefügt (vgl. Anspruch 1 nach Hilfsantrag 1c bzw. 1d).

In Anspruch 1 nach **Hilfsantrag 1g** ist im Vergleich zu Hilfsantrag 1b noch im Anschluss an Merkmal 2.4b und im Anschluss an Merkmal 3.5b präzisiert, dass es sich um eine Re-Synchronisation für den Uplink handelt (Merkmalsänderungen bzw. -ergänzungen gegenüber Hilfsantrag 1b im Folgenden hervorgehoben):

M2.4^b wherein said uplink synchronization request and said dedicated signature ~~is~~ are informed by said base station apparatus (100) by transmitting an uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) ~~and~~

M2.4.1 for uplink resynchronization and
[...]

M3.5^b wherein said uplink synchronization request and said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting an uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) ~~and~~

M3.5.1 for uplink resynchronization and
[...]

In Anspruch 1 nach **Hilfsantrag 1h** sind im Vergleich zu Hilfsantrag 1g die Merkmale M5, M5.1 und M5.2 (vgl. Hilfsantrag 1c) bezüglich des Weglassens von Information in eine Signatur ergänzt.

In Anspruch 1 nach **Hilfsantrag 1i** ist im Vergleich zu Hilfsantrag 1h das Merkmal M4 bezüglich einer Menge von 64 Signaturen ergänzt (vgl. Hilfsantrag 1d).

In Anspruch 1 nach **Hilfsantrag 1'a** werden gegenüber Anspruch 1 nach Hilfsantrag 1a zusätzlich Funkeinheiten genannt (Ergänzungen gegenüber den Merkmalen des Anspruchs 1 nach Hilfsantrag 1a hervorgehoben):

M2.4' wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and

M2.5' said mobile station apparatus (200) is adapted to receive said dedicated signature from said radio unit (104) included in said base station apparatus (100), using said radio unit (207) included in said mobile station apparatus (200), and

M2.6 wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200),
[...]

M3.5' wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and

M3.6' said mobile station apparatus (200) is adapted to receive said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100). using said radio unit (207) included in said mobile station apparatus (200), and

M3.7 wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

In den jeweiligen Ansprüchen 1 der **Hilfsanträge 1'b bis 1'i** wird gegenüber den Ansprüchen 1 der Hilfsanträge 1b bis 1i ebenfalls mit den Merkmalen M2.4', M2.5', M3.5' und M3.6' präzisiert, dass die Kommunikation zwischen der Basisstation und der Mobilstation mit jeweiligen Funkeinheiten (radio unit 104, radio unit 207) durchgeführt wird, die in der Basis- und der Mobilstation angeordnet sind.

Anspruch 1 nach **Hilfsantrag 3a** fehlt gegenüber Anspruch nach Hilfsantrag 1a das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation.

Ebenso fehlt in den jeweiligen Ansprüchen der **Hilfsanträge 3b bis 3i** gegenüber den Ansprüchen der Hilfsanträge 1b bis 1i jeweils das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation.

Anspruch 1 nach **Hilfsantrag 3'a** weist gegenüber Anspruch 1 nach Hilfsantrag 1'a nicht mehr das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation auf. In gleicher Weise fehlt den jeweiligen Ansprüchen der **Hilfsanträge 3'b, 3'c, 3'd, 3'g, 3'h und 3'i** gegenüber den Ansprüchen der Hilfsanträge 1'b, 1'c, 1'd, 1'g, 1'h und 1'i jeweils das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation.

In Anspruch 1 nach **Hilfsantrag 4d** ist im Vergleich zu Hilfsantrag 4c das Merkmal M4 bezüglich einer Menge von 64 Signaturen zwischen den Merkmalen M3.7 und M5 eingefügt (vgl. Merkmal M4 im Anspruch 1 nach Hilfsantrag 1d).

Bei Anspruch 1 nach **Hilfsantrag 4e** ist im Vergleich zu Hilfsantrag 4c der folgende Disclaimer angefügt:

M5' wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

In Anspruch 1 nach **Hilfsantrag 4f** ist im Vergleich zu Anspruch 1 nach Hilfsantrag 4e wiederum das Merkmal M4 bezüglich einer Menge von 64 Signaturen hinzugefügt (vgl. auch Hilfsantrag 1d bzw. Hilfsantrag 1f).

In Anspruch 1 nach **Hilfsantrag 4g** ist im Vergleich zu Hilfsantrag 4b im Anschluss an Merkmal 2.4b und im Anschluss an Merkmal 3.5b jeweils präzisiert, dass es sich um eine Re-Synchronisation für den Uplink entsprechend Merkmal M2.4.1 bzw. M3.5.1 handelt (vgl. auch Hilfsantrag 1g).

Anspruch 1 nach **Hilfsantrag 4h** weist im Vergleich zu Hilfsantrag 4g die Merkmale M5, M5.1 und M5.1 (vgl. Hilfsantrag 1c) bezüglich des Weglassens von Information auf.

In Anspruch 1 nach **Hilfsantrag 4i** ist im Vergleich zu Hilfsantrag 4h das Merkmal M4 bezüglich einer Menge von 64 Signaturen ergänzt (vgl. Hilfsantrag 1d).

Anspruch 1 nach **Hilfsantrag 4'b** weist einen Teil der Merkmale des vorstehend genannten Anspruchs 1 nach Hilfsantrag 4'c auf – hier fehlen die Merkmale M5, M5.1 und M5.2 im Vergleich zu Anspruch 1 nach Hilfsantrag 4'c.

In Anspruch 1 nach **Hilfsantrag 5c** sind gegenüber Anspruch 1 nach Hauptantrag die vorstehend genannten Merkmale M5 bis M5.2 hinzugefügt.

In Anspruch 1 nach **Hilfsantrag 5d** ist im Vergleich zu Hilfsantrag 5c das Merkmal M4 zwischen den Merkmalen M3.7 und M5 eingefügt (vgl. Merkmale M4 im Anspruch 1 nach Hilfsantrag 1d):

Bei Anspruch 1 nach **Hilfsantrag 5e** ist im Vergleich zu Hilfsantrag 5c wiederum der Disclaimer M5' angefügt.

In Anspruch 1 nach **Hilfsantrag 5f** ist im Vergleich zu Anspruch 1 nach Hilfsantrag 5e das Merkmal M4 bezüglich einer Menge von 64 Signaturen hinzugefügt (vgl. Hilfsantrag 1f).

5. Der zuständige Fachmann versteht die Merkmale der jeweiligen Patentansprüche 1 nach Haupt- und Hilfsanträgen in der von der Beklagten in der mündlichen Verhandlung angegebenen Reihenfolge wie folgt:
 - a) Patentanspruch 1 nach **Hauptantrag** (erteilte Fassung des Streitpatents) betrifft eine Mobilstation (*mobile station MS / mobile station apparatus 200* / z.B. Mobiltelefon) und einen sogenannten wahlfreien Zugriff (*random access*), unter dem der Fachmann vorliegend einen direkten nicht-sequenziellen Zugriff einer Mobilstation auf ein Mobilfunknetzwerk mit einer Basisstation (*base station 100 / BS*) versteht (vgl. Merkmal M1 sowie Patentschrift, Fig. 17 (wie eingangs wiedergegeben) und Abs. 4 bis 6 sowie Bezugszeichenliste in Abs. 32). Die Begriffe Mobilstation (*mobile station*) und Mobilstationsvorrichtung bzw.

Mobilstationsgerät (*mobile station apparatus*) werden dabei als Synonyme verwendet; dies gilt ebenfalls für die Begriffe Basisstation (*base station*) und Basisstationsvorrichtung (*base station apparatus*) (vgl. Abs. 9: *a mobile station apparatus (hereinafter referred to as the "mobile station") and a base station apparatus (hereinafter referred to as the "base station")*).

Der wahlfreie Zugriff wird unter Verwendung einer dedizierten, d. h. zugeordneten Signatur (*dedicated signature*) durchgeführt (vgl. Merkmal M2). Eine Signatur ist gemäß Patentschrift in einer Präambel zur Erreichung einer Synchronisation enthalten und wird durch ein Signalmuster gebildet (vgl. Abs. 10: *a signature corresponding a signal pattern representing information [...] several bits [...] 6-bit information [...] preparation of 64 kinds of signatures*). Demnach ermöglicht beispielsweise ein üblicherweise verwendetes 6-Bit-Signalmuster die Bereitstellung von 64 ($= 2^6$) Signaturen als Kennung (vgl. Patentschrift a. a. O.). Die Benutzung der dedizierten / zugeordneten Signatur seitens der Mobilstation erfolgt nach Mitteilung bzw. Senden derselben durch die Basisstation und deren anschließende Detektion durch die Mobilstation (vgl. Patentschrift, Fig. 11 und 20, Schritte *ST2001* und *ST2002*, sowie Abs. 22 und 23 / Merkmale M2.1, M2.2 und M2.3).

Die beanspruchte Mobilstation ist zudem eingerichtet, einen wahlfreien Zugriff (*random access*) unter Benutzung einer zufällig ausgewählten Signatur (*by using a randomly selected signature*) auszuführen (vgl. Merkmal M3). Die Benutzung einer zufällig ausgewählten Signatur erfolgt, nachdem eine seitens der Basisstation mitgeteilte / gesendete Signatur von der Mobilstation detektiert wird (vgl. Merkmale M3.1 und M3.3) und letztere Signatur nicht als eine dedizierte bzw. zugeordnete Signatur (*dedicated signature*) reserviert ist (vgl. Patentschrift Fig. 10 und 14, Schritte *ST1009* und *ST1407*, sowie Abs. 127 und Merkmal M3.2: *signature [...] not reserved as a dedicated signature*). Eine solche von der Mobilstation empfangene Signatur, die nicht als dedizierte Signatur reserviert ist, stellt eine Information dar, die der Fachmann als

Bedingung dafür versteht, die Benutzung einer zufällig gewählten Signatur (*random signature*) auszulösen, wenn keine dedizierte Signatur zur Verfügung steht. Das Streitpatent lässt offen, ob die Formulierung „*when [...]*“ im Merkmal 3.2 bezüglich der Mitteilung einer Signatur, die nicht als dedizierte Signatur reserviert ist, im unmittelbaren zeitlichen Sinne (gleichzeitig) oder im logischen Sinne eines bedingten Ablaufs zu verstehen ist (vgl. Flussdiagramm gemäß Fig. 14). Entgegen der von der Beklagten vertretenen Auffassung ist die Formulierung mit „*when [...]*“ im Merkmal M3.2 nicht nur einschränkend im Sinne von „gleichzeitig“ zu verstehen. Vielmehr versteht der Fachmann dies – entsprechend der klägerseitigen Merkmalsauslegung – als eine allgemeinere logische Abfolge im Sinne einer von mehreren Bedingungen für die Benutzung einer zufälligen Signatur im Zusammenhang mit dem Auftreten eines Konflikts bei einem wahlfreien Zugriff (*contention base random access*) und mitgeteilten Daten (*data*) bzw. Information ohne eine dedizierte Signatur (vgl. Patentschrift, Fig. 14, Schritt *ST1407*, i. V. m. Abs. 122, 126 und 134 sowie Abs. 123: *Then, when the mobile station 200 detects the downlink resource allocation, an uplink synchronization request and the information of no dedicated signature (ST1306), it performs contention base random access processing by using a signature randomly selected*). Das Flussdiagramm gemäß Figur 14 und den zugehörigen Text versteht der Fachmann so, dass von der Mobilstation eine zufällige Signatur genutzt wird, wenn eine Prüfung ergibt, dass die mitgeteilten Daten keine dedizierte Signatur enthalten (vgl. Abs. 122 und 126, letzter Satz, sowie Abs. 127, erster Satz: *[...] the mobile station 200 further checks, whether or not a dedicated signature is included in the downlink data. At this point, when a dedicated signature is not included, the mobile station 200 transmits a preamble by using a signature randomly selected (ST1408)*). Der Fachmann entnimmt der Beschreibung des Streitpatents somit sinngemäß, dass die Mobilstation Daten empfängt bzw. detektiert und dann, wenn keine dedizierte Signatur verfügbar ist, die Nutzung einer zufällig gewählten Signatur ausgelöst wird.

Ob die zufällige Auswahl der Signatur in der Mobilstation oder in einer Basisstation erfolgt, lässt der Wortlaut des Anspruchs 1 in der erteilten Fassung (Hauptantrag) ebenfalls offen – im Gegensatz zu jeweiligen Ansprüchen 1 nach einzelnen Hilfsanträgen wie beispielsweise Hilfsantrag 1c, in dem die Mobilstation als Ort der zufälligen Auswahl einer Signatur genannt wird (vgl. Merkmal M3.4). Aus der Beschreibung des Streitpatents geht jedenfalls hervor, dass eine zufällig gewählte Signatur von der Mobilstation benutzt wird (*using a randomly selected signature*), wenn in Downlink-Daten keine dedizierte Signatur enthalten ist (vgl. Patentschrift, vgl. Abs. 74: *[...] when the mobile station 200 detects the download resource allocation and [...] no dedicated signature is allocated, it transmits a preamble of a random access channel by using a randomly selected signature [...]*; vgl. auch Abs. 30 sowie Abs. 107 und Abs. 109 zu einem konkurrenzbasierten Zugriff; vgl. hierzu auch Fig. 10). Die Mobilstation benutzt damit eine zufällig gewählte Signatur, die für den konfliktbasierten Zugriff benötigt wird, wenn ihr von der Basisstation nur eine Information bzw. Signatur gesendet wird, die nicht als zugeordnete / dedizierte Signatur reserviert ist (vgl. Patentschrift, Abs. 74 sowie Merkmale M3.1, M3.2 und M3.3).

- b)** Anspruch 1 nach **Hilfsantrag 4b** weist gegenüber Anspruch 1 nach Hauptantrag eine Präzisierung bezüglich einer Anfrage zu einer Uplink-Synchronisation (*uplink synchronization request*) – d. h. einer Synchronisationsanfrage bezüglich einer Verbindung von der Mobilstation in Richtung der Basisstation (sog. Aufwärtsstrecke) – entsprechend den Merkmalen M2.2^b, 2.3^b sowie M3.2^b und M3.3^b auf.
- c)** Die zusätzlichen Merkmale M5 bzw. M5.1 und M5.2 des Anspruchs 1 nach **Hilfsantrag 4c** beinhalten, dass den von der Basisstation an die Mobilstation gesendeten Daten bezüglich einer nicht als dedizierte Signatur reservierten Signatur keine weitere Information – wie von der Beklagten ausgeführt – in Form eines Statusindikators bzw. Flags zu deren Signalisierung beigefügt wird (*without [...] adding further information to said data [...]*).

- d)** Anspruch 1 nach **Hilfsantrag 4'c** konkretisiert in den Merkmalen M2.0 und M3.0, dass es sich um eine Uplink-Resynchronisation (*uplink resynchronization*) mit der Basisstation (*base station*) handelt. Darunter versteht der Fachmann, dass es sich um eine wiederholte bzw. erneute Synchronisation einer Aufwärtsstreckenverbindung (*uplink*) von der Mobilstation in Richtung der Basisstation handelt.
- e)** Anspruch 1 nach **Hilfsantrag 1c** beinhaltet, dass die zufällige Signatur seitens der Mobilstation ausgewählt wird (*randomly selected signature is randomly selected by said mobile station apparatus* / Merkmal M3.4). Des Weiteren kommt in den weiteren Merkmalen des Anspruchs entsprechend den Angaben der Beklagten zum Ausdruck, dass es sich um eine (gezielte) Kommunikation zwischen *der einen* genannten Basisstation (*said base station apparatus*) und *der einen* Mobilstation (*said mobile station apparatus*) handelt, wobei eine zufällige Signatur bei einem wahlfreien Zugriff dann von der Mobilstation im Zusammenhang mit einer Präambel an die Basisstation gesendet wird. Zudem ist hier präzisiert, dass die jeweiligen Signaturen im Zusammenhang mit einer Uplink-Synchronisierungs-Anfrage (*uplink synchronization request*) verwendet werden (vgl. Merkmale M2.2^b bis M2.5^b und M2.6 sowie M3.2^b, M3.3^b, M3.5^b und M3.6^b und M3.7). Die Merkmale M5 bzw. M5.1 und M5.2 des Anspruchs 1 nach Hilfsantrag 1c beinhalten, dass den von der Basisstation an die Mobilstation gesendeten Daten bezüglich einer nicht als dedizierte Signatur reservierten Signatur keine weitere Information wie etwa ein Statusindikator bzw. Flag zu deren Signalisierung beigefügt wird (vgl. vorherige Ausführungen zu Hilfsantrag 4c).
- f)** Anspruch 1 nach **Hilfsantrag 1** beinhaltet im Vergleich zum Hauptantrag zusätzlich, dass die zufällige Signatur seitens der Mobilstation ausgewählt wird (*randomly selected signature is randomly selected by said mobile station apparatus* / vgl. vorstehende Ausführungen zur Auslegung des Merkmals M3.4).

- g)** In Anspruch 1 nach **Hilfsantrag 1a** kommt mit den Merkmalen M2.4 bis M2.6 bzw. M3.5 bis M3.7 darüber hinaus zum Ausdruck, dass es sich um eine Kommunikation zwischen *der einen* genannten Basisstation (*said base station apparatus*) und der beanspruchten Mobilstation handelt, wobei eine zufällige Signatur bei einem wahlfreien Zugriff dann von der Mobilstation im Zusammenhang mit einer Präambel an die Basisstation gesendet wird (vgl. vorstehende Ausführungen zur Merkmalsauslegung, die hier in gleicher Weise gelten).
- h)** Anspruch 1 nach **Hilfsantrag 1b** weist gegenüber Anspruch 1 nach Hilfsantrag 1a wiederum eine Präzisierung bezüglich einer Anfrage zu einer Uplink-Synchronisation (*an uplink synchronization request*) entsprechend den Merkmalen M2.2^b bis 2.5^b sowie M3.2^b bis M3.6^b auf (vgl. vorstehende Ausführungen zur Auslegung der Merkmale, die hier ebenso gelten).
- i)** Merkmal M4 des Anspruchs 1 nach **Hilfsantrag 1d** beinhaltet die zusätzliche Beschränkung gegenüber Anspruch 1 nach Hilfsantrag 1c, dass Signaturen in Form der dedizierten Signatur, der zufällig gewählten Signatur und der nicht reservierten Signatur konkret aus derselben Menge von 64 Signaturen (*same set of 64 signatures*) stammen.
- j)** Anspruch 1 nach **Hilfsantrag 1e** beinhaltet gegenüber Anspruch 1 nach Hilfsantrag 1c einen Disclaimer (Merkmal M5'), der die Signatur, die nicht als dedizierte Signatur reserviert ist, betrifft. Danach ist diese Signatur nicht als maximale Signatur (*maximum signature*) definiert. Dies ist so auszulegen, dass die reservierte Signatur keine maximale Signatur bzw. einen Höchstwert einer Menge von Signaturen (*maximum signature of a set of signatures*) definiert. Dieses Merkmal erweist sich zudem nicht als technisch relevant.
- k)** In Anspruch 1 nach **Hilfsantrag 1f** ist im Vergleich zu Anspruch 1 nach Hilfsantrag 1e das Merkmal M4 bezüglich einer Menge von 64 Signaturen

hinzugefügt; vgl. vorherige Ausführungen zu Anspruch 1 nach Hilfsantrag 1d bzw. Hilfsantrag 1e, die hier in gleicher Weise gelten.

- l)** Anspruch 1 nach **Hilfsantrag 1g** spezifiziert in den Merkmalen M2.4.1 und M3.5.1, dass es sich um eine Uplink-Resynchronisation handelt, Darunter versteht der Fachmann, dass es um sich eine wiederholte bzw. erneute (nicht-initiale) Uplink-Synchronisation handelt im Zusammenhang mit einem konfliktbasierten Zugriff und der Wiederaufnahme bzw. Fortsetzung einer Datenübertragung (vgl. Patentschrift, Abs. 20-23, 30, 112, 114 und 117).
- m)** In Anspruch 1 nach **Hilfsantrag 1h** sind im Vergleich zu Hilfsantrag 1g die Merkmale M5, M5.1 und M5.1 bezüglich des Weglassens bzw. Einfügens von Information in eine Signatur ergänzt, weshalb an dieser Stelle auf die Ausführungen zur Auslegung des Hilfsantrags 1c bzw. des Hilfsantrags 1g verwiesen wird, die hier ebenso gelten.
- n)** In Anspruch 1 nach **Hilfsantrag 1i** ist im Vergleich zu Hilfsantrag 1h das Merkmal M4 bezüglich einer Menge von 64 Signaturen eingefügt (vgl. Hilfsantrag 1d). Die Ausführungen zu den Merkmalen der Ansprüche des Hilfsantrags 1d und 1h gelten hier ansonsten in gleicher Weise.
- o)** In den jeweiligen Ansprüchen 1 der **Hilfsanträge 1'a bis 1'i** kommt gegenüber den Ansprüchen 1 der Hilfsanträge 1a bis 1i gemäß den Merkmalen M2.4', M2.5', M3.5' und M3.6' zum Ausdruck, dass die Kommunikation zwischen der Basisstation und der Mobilstation mit jeweiligen Funkeinheiten (*radio unit 104*, *radio unit 207*) durchgeführt wird, die in der Basis- bzw. auf der Gegenseite in der Mobilstation angeordnet sind.
- p)** Anspruch 1 nach **Hilfsantrag 3a** fehlt gegenüber Anspruch 1 nach Hilfsantrag 1a das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation. Damit ist Anspruch 1 nach Hilfsantrag 3a breiter gefasst als Anspruch 1 nach

Hilfsantrag 1a. Dies gilt in Analogie für die jeweiligen Ansprüche der **Hilfsanträge 3b bis 3i**, in denen gegenüber den Ansprüchen der Hilfsanträge 1b bis 1i auch jeweils das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation fehlt.

- q) Auch Anspruch 1 nach **Hilfsantrag 3'a** weist gegenüber Anspruch 1 nach Hilfsantrag 1'a nicht mehr das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation auf. Damit ist der Anspruch des Hilfsantrags 3'a breiter gefasst als der entsprechende Anspruch des Hilfsantrags 1'a. Dies gilt in Analogie für die jeweiligen Ansprüche der **Hilfsanträge 3'b, 3'c, 3'd, 3'g, 3'h und 3'i**, in denen gegenüber den Ansprüchen der Hilfsanträge 1'b, 1'c, 1'd, 1'g, 1'h und 1'i jeweils das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation fehlt.
- r) Bezüglich der Merkmale der jeweiligen Ansprüche 1 der **Hilfsanträge 4a, 4d bis 4i, 4'b** und **5c bis 5e**, welche die vorstehend zu den anderen Hilfsanträgen genannten Merkmale in verschiedenen Kombinationen umfassen, wird auf entsprechende vorherige Ausführungen zur Auslegung der einzelnen inhaltsgleichen Merkmale verwiesen, die hier in gleicher Weise gelten.
- s) Patentanspruch 2 in der erteilten Fassung ist auf ein mobiles Kommunikationssystem mit einer Basisstation und einer Mobilstation gemäß Anspruch 1 gerichtet, wobei die Merkmale dieses Anspruchs ansonsten inhaltlich mit den Merkmalen des auf eine Mobilstation gerichteten Patentanspruchs 1 übereinstimmen. Dies gilt ebenso für die jeweiligen Ansprüche 2 der Hilfsanträge.
- t) Der erteilte Patentanspruch 3 ist auf ein Verfahren zum Ausführen eines wahlfreien Zugriffs durch eine Mobilstationsvorrichtung gerichtet, wobei die Merkmale dieses Anspruchs ansonsten inhaltlich mit den Merkmalen des auf eine Mobilstation gerichteten Patentanspruchs 1 übereinstimmen (vgl. Merkmale

N2 bis N3.3 des erteilten Anspruchs 3 mit den Merkmalen M2 bis M3.3 des erteilten Anspruchs 1). Dies gilt ebenso für die weiteren Merkmale der jeweiligen Ansprüche 3 der Hilfsanträge.

III. Zur erteilten Fassung

Das Streitpatent in der erteilten Fassung ist nach Art. II § 6 Abs. 1 Nr. 1 IntPatÜG i. V. m. Art. 138 Abs. 1 Buchst. a), Art. 52, 54 EPÜ für nichtig zu erklären, da der Gegenstand von Patentanspruch 1 aufgrund fehlender Neuheit nicht patentfähig ist.

1. Das Dokument R2-071143 aus dem LTE-Standardisierungsverfahren (D3² = D9¹), das auf dem 3GPP TSG RAN WG2 Meeting #57bis vom 26. bis zum 30. März 2007 in St. Julien's, Malta diskutiert worden ist, ist zur Überzeugung des Senats am 22. März 2007 auf dem FTP-Server von 3GPP öffentlich zur Verfügung gestellt worden und trifft das Streitpatent in der erteilten Fassung als vorveröffentlichten Stand der Technik neuheitsschädlich.
- a) Entgegen der Annahme der Beklagten ist das Dokument R2-071143 (D3² = D9¹) vorveröffentlicht.

Laut Internetseite von 3GPP ist das Dokument R2-071143 aus dem LTE-Standardisierungsverfahren als Zip-Datei mit einem Zeitstempel vom 22. März 2007 auf dem FTP-Server von 3GPP öffentlich zur Verfügung gestellt worden.

Die auf dem 3GPP-Server hinterlegte Zip-Datei mit dem Dokument D3² gibt die auf dem Meeting vom 26. bis 30. März 2007 in St. Julians's auf Malta diskutierten Inhalte wieder und hat auch später keine Änderung erfahren hat, wie sich aus dem Zeitstempel ergibt.

3/22/2007	5:48 PM	68168	R2-071134.zip
3/22/2007	5:48 PM	34234	R2-071135.zip
3/22/2007	5:48 PM	118299	R2-071136.zip
3/22/2007	5:48 PM	84177	R2-071137.zip
3/22/2007	5:48 PM	17103	R2-071138.zip
3/22/2007	5:48 PM	22495	R2-071139.zip
3/22/2007	5:48 PM	22056	R2-071140.zip
4/2/2007	4:59 PM	118233	R2-071141.zip
3/22/2007	5:48 PM	17285	R2-071142.zip
3/22/2007	5:48 PM	98276	R2-071143.zip

https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_57bis/Documents/

Soweit die Beklagte das Vorbringen der Klägerin pauschal bestreitet, ist ihr Vortrag nicht geeignet, Zweifel an der Richtigkeit des Klägervortrags zu begründen. Die Klägerinnen haben im Einzelnen dargelegt, dass das Dokument u. a. als Zip-Datei mit einem Zeitstempel am Prioritätstag allgemein zugänglich zur Verfügung stand. Angesichts dessen lag es an der Beklagten, nachweisliche Anhaltspunkte dafür aufzuzeigen, dass dieses Dokument nicht vorhanden bzw. nicht zugänglich war. Dass das Dokument R2-071143 (D3² = D9¹) nicht verfügbar oder nicht zugänglich gewesen sei, ist weder konkret vorgetragen noch sonst ersichtlich.

Der dahingehende Vortrag der Beklagten ist als prozessual nicht zu berücksichtigende „Behauptung ins Blaue hinein“ zu werten.

Nach der Rechtsprechung des Bundesgerichtshofs ist es unzulässig, eine Behauptung "ins Blaue hinein" aufzustellen (BGH, Urteil vom 20. September 2002 – V ZR 170/01 –, NJW-RR 2003, 69-71 Rn. 9). Bei der Annahme eines solchen rechtsmissbräuchlichen Verhaltens ist zwar Zurückhaltung geboten (BGH, Beschluss vom 2. April 2009 – V ZR 177/08 –, NJW-RR 2009, 1236 Rn. 11). Einer Partei muss es auch möglich sein, im Zivilprozess Tatsachen zu behaupten, über die sie keine genaue Kenntnis haben kann, die sie aber für wahrscheinlich hält. Eine zivilprozessual unzulässige Ausforschung ist aber dann erreicht, wenn eine Partei Behauptungen ohne greifbare Anhaltspunkte für

das Vorliegen eines bestimmten Sachverhalts willkürlich aufs Geratewohl aufstellt (vgl. BGH, Urteil vom 20. September 2002 – V ZR 170/01 –, a. a. O. Rn. 9 m. w. N.).

Die von der Beklagten aufgezeigten Vermutungen werden der Anforderung an zulässigen Vortrag nicht gerecht. Objektive Anhaltspunkte, dass das Dokument R2-071143 (D3² = D9¹) erst nach dem 6. Juni 2007 veröffentlicht worden sei, sind dem Vortrag der Beklagten nicht zu entnehmen.

So steht einer allgemein zugänglichen Veröffentlichung am 22. März 2007 nicht entgegen, dass auf dem Dokument selbst nur eine Datumsangabe (*26th – 30th March*) ohne Jahreszahl vermerkt ist. Denn die Jahreszahl 2007 ergibt sich bereits aus dem vorgenannten Zeitstempel der abrufbaren Datei. Zudem ist, wie Dokument NK5 belegt, zum selben Zeitpunkt in St. Julian's auf Malta ein zweites Meeting abgehalten worden mit der gleichen Nummer #57bis und der expliziten Zeitangabe *26th – 30th March 2007*. Dem steht auch nicht entgegen, dass auf dem Dokument D3² lediglich R2-07xxxx als Nummer mit Platzhaltern angegeben ist, da die zugehörige Datei die vollständige Angabe R2-071143 im Namen trägt. Weiter steht dem auch nicht entgegen, dass – wie von der Beklagten in der mündlichen Verhandlung behauptet – eine damit verbundene Excel-Tabelle ein anderes Upload-Datum nennt. Eine als Anlage beigefügte Excel-Tabelle gibt keine Auskunft darüber, wann das rückbezogene Dokument veröffentlicht worden ist. Entsprechendes gilt für die Behauptung, die Word-Dateien zu dem Dokument D3² wiesen wesentlich später liegende Veröffentlichungsdaten auf. Es kann dahinstehen, ob der Inhalt des Dokuments D3² erst später auch als Word-Datei zur Verfügung gestellt worden ist, denn die entsprechende Zip-Datei hat unstreitig einen Zeitstempel vom 22. März 2007-

- b) Dokument D3² beschreibt eine Mobilstation in Form von User Equipment (*UE*), wobei die Mobilstation einen wahlfreien Zugriff (*Random Access*) durchführt (vgl. S. 1, Titel und Kapitel 2 / **Merkmale M1 und M2**). Dazu wird eine zugeordnete /

dedizierte Signatur (*dedicated signature*) entsprechend **Merkmal M2.1** verwendet, welche der Mobilstation (*UE*) seitens einer Basisstation (*eNB*) im Rahmen einer Information mitgeteilt (**Merkmal M2.2**) und dabei auch unstreitig von der Mobilstation empfangen bzw. entsprechend **Merkmal M2.3** detektiert wird (vgl. S. 1, Kap. 2, *Dedicated signatures usages*, Abschnitt 2.1 zu *UL sync procedure*, vgl. dazu auch S. 2, Abschnitt 2.2, *Case 1*, dritter Aufzählungspunkt).

Die Mobilstation ist ebenfalls dazu eingerichtet, einen wahlfreien Zugriff (*Random access*) gemäß **Merkmal M3** unter Nutzung von nicht zugeordneten / nicht-dedizierten Signaturen (*non-dedicated signatures*) durchzuführen. Der Fachmann liest hier mit, dass die nicht-dedizierten Signaturen zufällige Signaturen im Zusammenhang mit Random-Access-Präambeln darstellen, wie sie auch im Streitpatent genannt werden (vgl. D3² a. a. O. und Abschnitt 2.2, einleitender Absatz zu *Usage of Random Access Preamble signatures*). Die Basisstation (*eNB*) teilt den in einer Mobilfunkzelle (*cell*) erreichbaren Mobilstationen (*UEs*) im Falle eines Konflikts bzw. konkurrenzbasierten Zugriffs bei gleichzeitiger Nutzung von Ressourcen eines Random-Access-Channels (*same RACH time/frequency resources are used*) durch eine Information (*information*) mit, welche nicht zugeordneten bzw. nicht-dedizierten Signaturen benutzt werden können (vgl. Abschnitt 2.2 zu *Usage of Random Access Preamble signatures*, zweiter Aufzählungspunkt, zweiter Spiegelstrich: *eNB need to transmit [...] Signatures which can be used for non-dedicated usage*).

Case 1: same RACH time/frequency resources are used for dedicated signatures and non-dedicated signatures

- Some signatures within one RACH time/frequency resource are reserved for dedicated signatures, and remaining signatures in the RACH time/frequency resource are for UEs which don't have dedicated signature (i.e. non-dedicated usage)
- eNB needs to transmit following information in system information for all UEs within the cell
 - RACH time/frequency resource for Random Access Preamble transmission,
 - Signatures which can be used for non-dedicated usage, and
 - Separation point within non-dedicated signatures for 1 bit information.
- eNB additionally needs to inform UEs which use dedicated signature of following information
 - Signature which UE should use in specific case, potentially with some limitation in time domain (e.g. only one TTI is allowed for handover).

Aus der Perspektive der Mobilstation wird dann entsprechend **Merkmal M3.1** eine nicht-dedizierte, d. h. zufällige Signatur für einen wahlfreien Zugriff (*random access*) benutzt, wenn keine dedizierten Signaturen vorhanden bzw. nutzbar sind. In diesem Zusammenhang wird der Mobilstation (*UE*) seitens der Basisstation (*eNB*) eine Information mit Signaturen gesendet, die nicht als dedizierte Signaturen reserviert sind und deshalb für die Nutzung als zufällig gewählte Signatur in Frage kommen (vgl. Abschnitt 2.2, *Case 1*, zweiter Aufzählungspunkt, zweiter Spiegelstrich: *for UEs which don't have dedicated signature [...] eNB needs to transmit following information [...] Signatures which can be used for non-dedicated usage*). Als Auslöser für die Wahl bzw. Nutzung einer nicht-dedizierten, d. h. zufälligen Signatur seitens der Mobilstation dient hier damit die Konstellation, dass keine dedizierte Signatur zur Verfügung steht, und dass zu der dann notwendigen Nutzung einer zufälligen Signatur zumindest eine von der Basisstation im Rahmen der Information gesendete Signatur von der Mobilstation empfangen und detektiert wird, die nicht als dedizierte Signatur reserviert ist (vgl. a. a. O. / **Merkmale M3.2** und **M3.3**).

Entgegen der von der Beklagten in der mündlichen Verhandlung vertretenen Auffassung entspricht dies einem Ausführungsbeispiel des Streitpatents, bei dem im Rahmen einer Uplink-Synchronisation seitens der Basisstation Informationen bzw. Daten an die Mobilstation gesendet werden, die keine dedizierte Signatur darstellen, und bei dem keine dedizierten Signaturen mehr zugeordnet bzw. genutzt werden können (vgl. Patentschrift, Abs. 122). Dem steht auch nicht entgegen, dass – entsprechend den Ausführungen der Beklagten in der mündlichen Verhandlung mit Verweis auf Abschnitt 2.2 der D3² – dort dedizierte und nicht dedizierte Signaturen aus dem gleichen Set bzw. der gleichen Menge von Signaturen stammen, und dass im dritten Aufzählungspunkt von *Case 1* noch aufgeführt ist, dass einer Mobilstation im Falle der Verfügbarkeit von dedizierten Signaturen zusätzlich mitgeteilt wird, welche die Mobilstation in bestimmten Fällen (wie etwa einem limitierten Zeitbereich) nutzen soll (*eNB additionally needs to inform UEs which use dedicated signature of following information [...] – Signature which UE should use in specific case [...]*). Vielmehr betrifft eine solche zusätzliche Information bezüglich der Nutzung dedizierter Signaturen lediglich den Fall, dass solche auch zur Verfügung stehen (vgl. a. a. O. und S. 3, Fig. 1).

Damit weist die aus D3² bekannte Mobilstation sämtliche Merkmale der Mobilstation gemäß Patentanspruch 1 nach Hauptantrag auf.

2. Die Patentfähigkeit der übrigen Ansprüche 2 und 3 kann dahinstehen, da die Beklagte das erteilte Patent als geschlossenen Anspruchssatz verteidigt (vgl. BGH, Urteil vom 29. September 2011 – X ZR 109/08, GRUR 2012, 149 – Sensoranordnung).
3. Bei dieser Sachlage kann auch dahinstehen, ob der Patentfähigkeit der erteilten Ansprüche weiterer Stand der Technik – wie beispielsweise durch D3¹, NK5 und NK8 dokumentiert – entgegensteht.

IV. Zur Verteidigung nach den Hilfsanträgen

Die Beklagte kann das Streitpatent auch in der Fassung der Hilfsanträge nicht erfolgreich verteidigen, weil sowohl die danach beanspruchten Vorrichtungen als auch die beanspruchten Verfahren ungeachtet der von den Klägerinnen bestrittenen Zulässigkeit, die daher dahinstehen kann, gegenüber dem Stand der Technik nicht neu sind bzw. nicht auf einer erfinderischen Tätigkeit beruhen (Art. II § 6 Abs. 1 Nr. 1 IntPatÜG i. V. m. Art. 138 Abs. 1 lit. a), Art. 52, 54, 56 EPÜ).

1. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 4b** ist nicht neu gegenüber dem Stand der Technik gemäß Dokument D3² (= D9¹).

Die Einschränkung gemäß den Merkmalen M2.2^b, 2.3^b sowie M3.2^b und M3.3^b im Anspruch 1 nach Hilfsantrag 4b beinhaltet, dass es sich um eine Anfrage zu einer Uplink-Synchronisation (*uplink synchronization request*) handelt. Der durch D3² dokumentierte Stand der Technik lehrt bereits die Benutzung von Signaturen für einen wahlfreien Zugriff im Zusammenhang mit einem Verfahren zur Aufwärtsstrecken- bzw. Uplink-Synchronisation (*UL sync procedure*) und dedizierten Signaturen (vgl. Abschnitt 2.2 sowie S. 3, Fig. 1, i. V. m. Abschnitt 2.1). Der Fachmann liest dabei mit, dass hier in der gleichen Weise wie beim Streitpatent zwingend eine Anfrage zu der zitierten Uplink-Synchronisation (*UL sync procedure*) vorhanden sein muss, die der Mobilstation (*UE*) seitens der Basisstation (*eNB*) mitgeteilt wird (vgl. a. a. O.).

Damit weist die aus Dokument D3² bekannte Mobilstation auch sämtliche Merkmale des Patentanspruchs 1 nach Hilfsantrag 4b auf.

2. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 4c** gilt ebenfalls als nicht neu gegenüber dem Stand der Technik gemäß Dokument D3².

Die zusätzlichen Merkmale M5 bzw. M5.1 und M5.2 des Anspruchs 1 nach Hilfsantrag 4c beinhalten, dass den von der Basisstation an die Mobilstation gesendeten Daten bezüglich einer nicht als dedizierte Signatur reservierten Signatur keine weitere Information wie ein Statusindikator bzw. „Flag“ zur Signalisierung bzw. Spezifizierung beigefügt wird (vgl. vorherige Merkmalsauslegung). Der von der Beklagten in der mündlichen Verhandlung vorgetragene Auffassung, dass es sich hier um eine neuartige Zweckentfremdung eines Datenfeldes handelt, welches zur Information bezüglich einer nicht zugeordneten bzw. reservierten / dedizierten Signatur dient, trifft nicht zu. Denn der Stand der Technik gemäß D3² kommt offensichtlich ebenfalls ohne einen Statusindikator bzw. ein „Flag“ aus, das einer Information mit nicht-dedizierten Signaturen als Zusatzinformation beigefügt ist (vgl. Abschnitt 2.2, Case 1). Vielmehr basiert der aus D3² bekannte wahlfreie bzw. konkurrenzbasierte Zugriff (*same RACH time/frequency resources are used*) darauf, dass keine dedizierten Signaturen nutzbar sind und von der Basisstation nicht-dedizierte Signaturen im Rahmen einer Information mitgeteilt werden (vgl. a. a. O.).

Die Merkmale M5 bzw. M5.1 bis M5.2 sind damit nicht geeignet, die beanspruchte Mobilstationsvorrichtung vom Stand der Technik gemäß Dokument D3² im Hinblick auf eine Neuheit abzugrenzen.

3. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 4'c** beruht nicht auf einer erfinderischen Tätigkeit.

Die Ergänzung im Anspruch 1 nach Hilfsantrag 4'c, dass es sich bei der Uplink-Synchronisierung mit der Basisstation um das Erreichen einer erneuten Synchronisierung (*uplink resynchronization*) handelt (vgl. Merkmale M2.0 und M3.0), kann eine erfinderische Tätigkeit nicht begründen. Wie bereits vorstehend in Bezug auf Hilfsantrag 4b und die Merkmale M2.2^b, 2.3^b sowie M3.2^b und M3.3^b

ausgeführt, lehrt der durch D3² dokumentierte Stand der Technik bereits die Benutzung von Signaturen für einen wahlfreien Zugriff im Zusammenhang mit einem (allgemeinen) Verfahren zu Aufwärtsstrecken- bzw. Uplink-Synchronisierung und dedizierten Signaturen (vgl. Abschnitt 2.2 i. V. m. Abschnitt 2.1, zu einem Vorgang der Uplink-Synchronisierung / *UL sync procedure*). Der Fachmann überträgt die allgemeine Lehre von D3² zur Durchführung eines wahlfreien Zugriffs mittels dedizierten und nicht-dedizierten Signaturen in naheliegender Weise auch auf eine erneute (nicht-initiale) Uplink-Resynchronisation mit der Basisstation, die nichts anderes als eine erneute Synchronisation der Verbindung mit der Basisstation darstellt. Bezüglich der weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 4'c wird auf die vorstehenden Ausführungen zu Hilfsantrag 4c verwiesen, die hier in gleicher Weise gelten (vgl. insbesondere Abhandlung der Merkmale M5 bzw. M5.1 und M5.2).

Der Fachmann gelangt folglich in Kenntnis des Stands der Technik gemäß D3² zu einer Uplink-Synchronisation (*UL sync procedure*) in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4'c inklusive des Verfahrensmerkmals einer Uplink-Resynchronisation, ohne dabei erfinderisch tätig werden zu müssen.

4. Auch die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 1c** beruht nicht auf einer erfinderischen Tätigkeit.

Anspruch 1 nach Hilfsantrag 1c beinhaltet einerseits, dass die zufällige Signatur seitens der Mobilstation ausgewählt wird (*randomly selected signature is randomly selected by said mobile station apparatus* / Merkmal M3.4). Andererseits kommt hier in den Merkmalen M2.4^b bis M2.6 bzw. M3.5^b bis M3.7 entsprechend den Angaben der Beklagten zum Ausdruck, dass es sich um eine (gezielte) Kommunikation zwischen *der einen* genannten Basisstation (*said*

base station apparatus) und der Mobilstation (*said mobile station apparatus*) handelt, wobei eine zufällige Signatur bei einem wahlfreien Zugriff dann von der Mobilstation im Zusammenhang mit einer Präambel an die Basisstation gesendet wird. Zudem ist präzisiert, dass die jeweiligen Signaturen im Zusammenhang mit einer Uplink-Synchronisierungs-Anfrage (*uplink synchronization request*) verwendet werden (vgl. Merkmale M2.2^b bis M2.5^b sowie M3.2^b, M3.3^b, M3.5^b und M3.6^b und vorherige Merkmalsauslegung).

Im Hinblick auf die Merkmale M2.4^b bis M2.6 bzw. M3.5^b bis M3.7 handelt es sich auch bei dem aus D3² bekannten Ablauf zur Durchführung eines wahlfreien Zugriffs um eine Kommunikation zwischen einer „besagten“ („said“) Basisstation (*eNB*) und einer damit in Verbindung stehenden Mobilstation (*UE*), wobei eine zufällige Signatur, die nicht dediziert bzw. zugeordnet oder reserviert ist (*non-dedicated*), bei einem wahlfreien Zugriff dann von der Mobilstation im Zusammenhang mit der Nutzung einer Präambel (*Usage of Random Access Preamble signatures*) an die Basisstation gesendet wird (vgl. Abschnitt 2.2). Wie vorstehend dargelegt, liegt hier auch zwingend eine Uplink-Synchronisierungs-Anfrage im Zusammenhang mit einem Vorgang zur Uplink-Synchronisierung (*UL sync procedure*) vor (vgl. vorstehende Ausführungen zu den Merkmalen M2.2^b bis M2.5^b sowie M3.2^b, M3.3^b, M3.5^b und M3.6^b des Anspruchs 1 nach Hilfsantrag 4b, die hier in gleicher Weise gelten). Insofern ist hier kein Unterschied zwischen der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 4^c und der aus Dokument D3² bekannten Mobilstation zu sehen. Bezüglich der Merkmale M5 bzw. M5.1 und M5.2 wird auf vorstehende Ausführungen zu Hilfsantrag 4c und den Stand der Technik gemäß D3² verwiesen, die hier in gleicher Weise gelten.

Der Beklagten ist zuzustimmen, dass aus D3² nicht explizit hervorgeht, ob die zufällige Wahl einer Signatur – die jedenfalls von der Mobilstation genutzt wird – auch in der Mobilstation stattfindet oder bereits in der Basisstation, welche der Mobilstation im Falle eines konfliktbasierten Zugriffs und eines Mangels an

dedizierten Signaturen eine Information bezüglich nicht-dedizierter Signaturen sendet (vgl. Abschnitt 2.2, *Case 1: [...] for UEs which don't have dedicated signature [...] eNB need to transmit [...] Signatures which can be used for non-dedicated usage*; vgl. auch diesbezügliche Ausführungen zum Hauptantrag). Der Fachmann, der folglich vor der Entscheidung steht, die zufällige Auswahl der nicht-dedizierten (*non-dedicated*) Signatur zur Vermeidung eines Konflikts in der Basisstation oder der Mobilstation vorzunehmen, hat somit Veranlassung, sich im Stand der Technik nach einer konkreten Realisierung der zufälligen Auswahl einer Signatur im Rahmen eines wahlfreien Zugriffs bei einer Mobilfunkverbindung umzusehen. Näheres zu einer solchen Auswahl findet der Fachmann beispielsweise im Stand der Technik gemäß Druckschrift NK14, in der beschrieben wird, dass die Mobilstation (*UE*) im Falle eines solchen wahlfreien Zugriffs die zufällige Auswahl einer Signatur trifft (vgl. S. 42, Kap. 5.8, *Random access procedure* i. V. m. Abschnitt 5.8.1, letzter Aufzählungspunkt: *The UE selects randomly a signature*).

5.8 Random access procedure

5.8.1 UE procedure

This section proposes to develop the random access procedure at the UE side. The steps in italic are still under consideration.

- The UE listens to a downlink broadcast signal to obtain the transmission timing. It is also informed of the available signatures, frequency bands and time slots for a random access.
- *Open-loop power control can be used to obtain a suitable transmission power. The path loss is estimated from a downlink signal and the UE estimates the transmission power to achieve a certain SNR target. The uncertainty comes from the shadowing variance which is different from uplink to downlink (different carrier frequency).*
- The UE selects randomly a signature, a time slot and a frequency band among the available set.

Es liegt daher für den Fachmann nahe, die eigentliche zufällige Wahl einer nicht-dedizierten (*non-dedicated*) Signatur, welche an sich aus D3² ohne Nennung

des Ortes der Zufallsauswahl bekannt ist, nach dem Vorbild der Druckschrift NK14 in der Mobilstation (*UE*) vorzunehmen (Merkmal M3.4).

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1c.

5. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 1** beruht ebenfalls nicht auf einer erfinderischen Tätigkeit.

Anspruch 1 nach Hilfsantrag 1 weist gegenüber Anspruch 1 nach Hauptantrag zusätzlich das vorstehend abgehandelte Merkmal M3.4 auf. Damit ist der Anspruch 1 nach Hilfsantrag 1 andererseits noch breiter gefasst als der zuvor abgehandelte Anspruch 1 nach Hilfsantrag 1c.

Wie vorstehend dargelegt, ist aus Dokument D3² bereits eine Mobilstation bekannt, die sämtliche Merkmale des Anspruchs 1 nach Hauptantrag aufweist. Entsprechend obigen Ausführungen zu Hilfsantrag 1c geht aus D3² nicht explizit hervor, ob die zufällige Wahl von nicht-dedizierten Signaturen (*non-dedicated signatures*) in der Mobilstation oder der Basisstation stattfindet. Es liegt aber für den Fachmann nahe, die zufällige Wahl einer nicht-dedizierten Signatur, wie sie aus der aus D3² bekannt ist, nach dem Vorbild der Druckschrift NK14 in der Mobilstation (*UE*) vorzunehmen (vgl. a. a. O. / Merkmal M3.4). Folglich gilt das auch für den Gegenstand gemäß Hilfsantrag 1.

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1.

6. Auch die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 1a** beruht nicht auf einer erfinderischen Tätigkeit.

Wie zuvor in Bezug auf Anspruch 1 nach Hilfsantrag 1 dargelegt, ergibt sich eine Mobilstation mit den Merkmalen M1 bis M3.3 sowie dem zusätzlichen Merkmal M3.4 für den Fachmann in naheliegender Weise aus der Kenntnis des Stands der Technik gemäß D3² und NK14. Darüber hinaus ist aus Dokument D3² auch bereits bekannt, eine Mobilstation gemäß den Merkmalen M2.4 bis M2.6 und M3.5 bis M3.7 einzurichten (vgl. diesbezügliche Ausführungen zu Hilfsantrag 4b, die hier in gleicher Weise gelten).

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 gleichfalls in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1a inklusive des Merkmals M3.4 und der bereits aus D3² bekannten Merkmale M2.4 bis M2.6 und M3.5 bis M3.7.

7. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 1b** beruht ebenfalls nicht auf einer erfinderischen Tätigkeit.

Wie vorstehend dargelegt, ergibt sich eine Mobilstation mit den Merkmalen des Anspruchs 1 nach Hilfsantrag 1a in naheliegender Weise aus der Kenntnis des Stands der Technik gemäß D3² und NK14. Die zusätzliche Einschränkung gemäß den Merkmalen M2.2^b, 2.3^b sowie M3.2^b und M3.3^b im Anspruch 1 nach Hilfsantrag 1b, dass es sich um eine Anfrage zu einer Uplink-Synchronisation (*uplink synchronization request*) handelt, kann keine Patentfähigkeit begründen. Denn Dokument D3² lehrt bereits die Benutzung von Signaturen für einen wahlfreien Zugriff im Zusammenhang mit einem Verfahren zu Aufwärtsstrecken- bzw. Uplink-Synchronisation und dedizierten Signaturen (vgl. Abschnitt 2.2 sowie S. 3, Fig. 1, i. V. m. Abschnitt 2.1, *UL sync procedure*). Der Fachmann

liest dabei mit, dass hier in der gleichen Weise wie beim Streitpatent – zwingend – eine Anfrage zu Uplink-Synchronisation vorhanden ist, die der Mobilstation (UE) seitens der Basisstation (eNB) mitgeteilt wird (vgl. a. a. O. und diesbezügliche Ausführungen zu Hilfsantrag 4b).

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1b.

8. Das zusätzliche Merkmal M4 des Patentanspruchs 1 nach **Hilfsantrag 1d** kann ebenfalls keine erfinderische Tätigkeit begründen.

Der Fachmann geht im Hinblick auf Merkmal M4 davon aus, dass die im Stand der Technik gemäß D3² und NK14 genannten Signaturen – dedizierte wie nicht als dedizierte Signaturen reservierte Signaturen – aus der gleichen Menge (set) mit Signaturen stammen (vgl. D3², Abschnitte 2.1 und 2.2, sowie NK14, S. 42, letzter Aufzählungspunkt: *The UE selects randomly a signature [...] among the available set*; vgl. auch vorstehende Ausführungen zum Hauptantrag und D3²). Dass eine solche Menge konkret aus einer Anzahl von $2^6 = 64$ Signaturen besteht, ist als eine fachübliche Maßnahme anzusehen. So nennt beispielsweise Dokument D4¹ (paralleles Meeting zu D3²) insgesamt 5+1 Bits, was für den Fachmann eine Menge von insgesamt $2^{5+1} = 64$ Signaturen ergibt (vgl. Kap. 2, erster und zweiter Satz). Ebenso offenbart beispielsweise Dokument D6¹ (Nachfolge-Meeting zu D3²) eine solche Menge mit 64 Random-Access-Präambeln bzw. Signaturen als Standard (vgl. S. 2, zweiter Abs.: *altogether 64 RA preambles*; vgl. auch NK5, Abschnitt 10.1.5.1, *contention based access [...] 1) Random Access Preamble on RACH in uplink: 6 bits to carry, a 5 bit random ID and 1 bit to indicate information on size of message 3*).

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² und NK14 unter Anwendung einer fachüblichen Maßnahme bezüglich dedizierten und nicht-dedizierten Signaturen aus einer Menge von 64 Signaturen in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1d.

9. Der im Vergleich zu Patentanspruch 1 nach Hilfsantrag 1c hinzugefügte Disclaimer M5' des Patentanspruchs 1 nach **Hilfsantrag 1e** kann ebenfalls keine Patentfähigkeit begründen.

Der vorstehend in Bezug auf Hilfsantrag 1c zur Begründung einer mangelnden erfinderischen Tätigkeit genannte Stand der Technik gemäß D3² und NK14 definiert unstreitig keine Signatur, die nicht als dedizierte Signatur reserviert ist, als eine maximale Signatur (vgl. u. a. Zitatstellen a. a. O.). Von daher kann der Disclaimer M5' auch nicht zur Abgrenzung gegenüber dem Stand der Technik gemäß Druckschrift D3² und NK14 dienen.

In Kenntnis des Stands der Technik gemäß D3² und NK14 gelangt der Fachmann somit auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1e.

Bei dieser Sachlage kann dahinstehen ob der Disclaimer M5', wie klägerseitig vorgetragen, zulässig ist (vgl. BGH X ZB 5/16 – Phosphatidylcholin, Rdn. 25, 26; vgl. auch GRUR 2017, 1105).

10. Das im Vergleich zu Patentanspruch 1 nach Hilfsantrag 1e hinzugefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen in Patentanspruch 1 nach **Hilfsantrag 1f** kann ebenfalls keine Patentfähigkeit begründen.

Wie bereits zu Anspruch 1 nach Hilfsantrag 1d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² und NK14 unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge ebenfalls in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1f, ohne dabei erfinderisch tätig werden zu müssen.

- 11.** Das im Vergleich zu Patentanspruch 1 nach Hilfsantrag 1b hinzugefügte Merkmal des Patentanspruchs 1 nach **Hilfsantrag 1g** bezüglich einer erneuten Synchronisierung (*uplink resynchronization*) (vgl. Merkmale M2.4.1 und M3.5.1), kann ebenfalls keine Patentfähigkeit begründen.

Wie zuvor zu Anspruch 1 nach Hilfsantrag 4'c ausgeführt, überträgt der Fachmann die allgemeine Lehre von D3² zur Durchführung eines wahlfreien Zugriffs mittels dedizierten und nicht-dedizierten Signaturen in naheliegender Weise auch auf eine erneute (nicht-initiale) Uplink-Resynchronisation mit der Basisstation, die nichts anderes als eine erneute Synchronisation der Verbindung mit der Basisstation darstellt. In Bezug auf die weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 1g wird auf vorstehende Ausführungen zu Hilfsantrag 1b und den Stand der Technik gemäß D3² und NK14 verwiesen, die hier in gleicher Weise gelten.

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1g.

- 12.** Die Merkmale M5 bzw. M5.1 bis M5.2, die dem Anspruch 1 nach **Hilfsantrag 1h** im Vergleich zum Hilfsantrag 1g hinzugefügt sind, sind ebenfalls nicht geeignet,

eine erfinderische Tätigkeit gegenüber dem Stand der Technik gemäß D3² und NK14 zu begründen.

Zur Vermeidung von Wiederholungen wird auf die Ausführungen zu Anspruch 1 nach Hilfsantrag 4c und die Merkmale M5 bzw. M5.1 bis M5.2 verwiesen, die hier in gleicher Weise gelten wie die vorstehenden Ausführungen zu Hilfsantrag 1g und den weiteren Anspruchsmerkmalen.

Der Fachmann gelangt damit ebenso in Kenntnis des Stands der Technik gemäß D3² und NK14 in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1h.

13. Das in Patentanspruch 1 nach **Hilfsantrag 1i** im Vergleich zu Patentanspruch 1 nach Hilfsantrag 1h hinzugefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen kann wiederum keine Patentfähigkeit begründen.

Wie vorher bereits zu Anspruch 1 nach Hilfsantrag 1d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Bezüglich der weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 1i wird auf die Ausführungen zu Hilfsantrag 1h verwiesen, die hier in gleicher Weise gelten.

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² und NK14 unter Anwendung einer fachüblichen Maßnahme in Bezug auf dedizierte und nicht-dedizierte Signaturen aus einer Menge von 64 Signaturen in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1i.

14. Auch die in Anspruch 1 nach **Hilfsantrag 1'a** gegenüber Hilfsantrag 1a zusätzlich aufgeführten Merkmale M2.4', M2.5', M3.5' und M3.6', in denen zum

Ausdruck kommt, dass es sich bei der Kommunikation zwischen Basisstation und Mobilstation um eine Funkverbindung mit jeweiligen Funkeinheiten (*radio units*) in der Basisstation bzw. der Mobilstation handelt, können keine erfinderische Tätigkeit gegenüber dem Stand der Technik gemäß D3² und NK14 begründen.

Dass es sich bei der Verbindung zwischen einer Basisstation und einer Mobilstation um eine Funkverbindung mit zugehörigen *radio units* auf beiden Seiten handelt, liest der Fachmann in dem vorstehend zu Hilfsantrag 1a genannten Stand der Technik mit (vgl. D3², Abschnitt 2.2: [...] *UEs radio condition*). In Bezug auf die weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 1'a wird auf die vorherigen Ausführungen zu Hilfsantrag 1a verwiesen, die hier in gleicher Weise gelten.

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 ebenfalls in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 1'a.

15. Vorstehende Ausführungen zur mangelnden erfinderischen Tätigkeit gelten auch in Bezug auf die jeweiligen Ansprüche der **Hilfsanträge 1'b, 1'c, 1'd, 1'g, 1'h und 1'i**, die gegenüber den Hilfsanträgen 1b, 1c, 1d, 1g, 1h und 1i ebenfalls bezüglich der Kommunikation mittels Funkeinheiten in der Basisstation bzw. Mobilstation ergänzt sind (Merkmale M2.4', M2.5', M3.5' und M3.6'), wie es bei Hilfsantrag 1a' der Fall ist. Bezüglich der übrigen Merkmale der jeweiligen Ansprüche 1 der Hilfsanträge 1'b bis 1'i wird auf die vorstehenden Ausführungen zu den inhaltsgleichen Merkmalen der Ansprüche 1b bis 1i und den Stand der Technik gemäß D3² und NK14 verwiesen, die hier ebenso gelten.

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² und NK14 ebenfalls in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen der jeweiligen Ansprüche 1 nach den Hilfsanträgen 1'b bis 1'i, ohne erfinderisch tätig werden zu müssen

16. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 3a** ist nicht neu.

Anspruch 1 nach Hilfsantrag 3a fehlt gegenüber Anspruch 1 nach Hilfsantrag 1a das Merkmal M3.4 zur zufälligen Auswahl einer Signatur in der Mobilstation. Wie in Bezug auf Anspruch 1 nach Hauptantrag dargelegt, ist aus dem durch D3² dokumentierten Stand der Technik bereits eine Mobilstation mit den Merkmalen M1 bzw. M2.1 bis M2.3 sowie den Merkmalen M3 bzw. M3.1 bis M3.3 bekannt (vgl. Zitatstellen a. a. O.). Bei dem aus D3² bekannten Ablauf zur Durchführung eines wahlfreien Zugriffs handelt es sich ebenfalls um eine Kommunikation zwischen einer Basisstation (*eNB*) und einer damit in Verbindung stehenden Mobilstation (*UE*) entsprechend den Merkmalen M2.4 bis M2.6 bzw. M3.5 bis M3.7, wobei eine zufällige Signatur, die nicht dediziert bzw. zugeordnet oder reserviert ist (*non-dedicated*), bei einem wahlfreien Zugriff dann von der Mobilstation im Zusammenhang mit der Nutzung einer Präambel (*Usage of Random Access Preamble signatures*) an die Basisstation gesendet wird (vgl. Abschnitt 2.2 sowie entsprechende Ausführungen zu den Merkmalen M2.4 bis M2.6 bzw. M3.5 bis M3.7 des Anspruchs 1 nach Hilfsantrag 1a).

Damit weist die aus D3² bekannte Mobilstation sämtliche Merkmale der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 3a auf, welche folglich nicht neu ist.

17. Auch die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 3b** ist nicht neu.

Die zusätzliche Einschränkung gemäß den Merkmalen M2.2^b, 2.3^b sowie M3.2^b und M3.3^b im Anspruch 1 nach Hilfsantrag 3b gegenüber Hilfsantrag 3a, dass es sich um eine Anfrage zu einer Uplink-Synchronisation (*uplink synchronization request*) handelt, kann keine Neuheit begründen. Denn Dokument D3² lehrt bereits die Benutzung von Signaturen für einen wahlfreien Zugriff im Zusammenhang mit einem Verfahren zur Aufwärtsstrecken- bzw. Uplink-Synchronisation (vgl. Abschnitt 2.2 sowie S. 3, Fig. 1, i. V. m. Abschnitt 2.1, *UL sync procedure*). Der Fachmann liest mit, dass hier – in der gleichen Weise wie beim Streitpatent – eine zugrundeliegende Anfrage zu Uplink-Synchronisation vorhanden ist, die der Mobilstation (*UE*) seitens der Basisstation (*eNB*) mitgeteilt wird (vgl. a. a. O. und diesbezügliche Ausführungen zu Hilfsantrag 1b).

Damit weist die aus dem Stand der Technik gemäß D3² bekannte Mobilstation auch sämtliche Merkmale der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 3b auf.

18. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 3c** ist ebenfalls nicht neu.

Wie bereits zu Hilfsantrag 4c bzw. Hilfsantrag 1c ausgeführt, beinhalten die zusätzlichen Merkmale M5 bzw. M5.1 und M5.2, dass den von der Basisstation an die Mobilstation gesendeten Daten, die nicht als dedizierte Signatur reserviert sind, keine weitere Information wie etwa ein Statusindikator bzw. „Flag“ zur Signalisierung bzw. Spezifizierung beigefügt wird. In gleicher Weise kommt auch der Stand der Technik gemäß D3² ohne einen solchen Statusindikator bzw. ohne ein solches „Flag“ aus (vgl. Ausführungen zu Hilfsantrag 4c und den Merkmalen M5 bzw. M5.1 und M5.2, die hier in gleicher Weise gelten). In Bezug auf die

weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 1c wird auf vorstehende Ausführungen zu Hilfsantrag 1a bzw. Hilfsantrag 1b verwiesen, die hier in gleicher Weise gelten.

Damit weist die aus dem Stand der Technik gemäß D3² bekannte Mobilstation auch sämtliche Merkmale der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 3c inklusive der zusätzlichen Merkmale M5 bzw. M5.1 und M5.2 auf.

19. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 3d** beruht nicht auf einer erfinderischen Tätigkeit.

Wie zuvor dargelegt, weist die aus D3² bekannte Mobilstation auch die Merkmale M1 bis M5.2 auf. Entsprechend den Ausführungen zu Hilfsantrag 1d geht der Fachmann im Hinblick auf das zusätzliche Merkmal M4 davon aus, dass die in D3² genannten dedizierten Signaturen sowie die nicht als dedizierte Signaturen reservierten Signaturen aus der gleichen Menge (set) von Signaturen stammen (vgl. D3², Abschnitte 2.1 und 2.2). Dass eine solche Menge konkret aus einer Anzahl von $2^6 = 64$ Signaturen besteht, ist als eine fachübliche Maßnahme anzusehen (vgl. beispielsweise D4¹, Kap. 2, erster und zweiter Satz, D6¹, S. 2, zweiter Abs.: *altogether 64 RA preambles*, oder NK5, Abschnitt 10.1.5.1, *contention based access [...] 1) Random Access Preamble on RACH in uplink: 6 bits to carry [...]*).

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 3d.

20. Auch der im Patentanspruch 1 nach **Hilfsantrag 3e** im Vergleich zu Hilfsantrag 3c hinzugefügte Disclaimer M5' kann keine erfinderische Tätigkeit begründen.

Der Stand der Technik gemäß D3² definiert keine Signatur, die nicht als dedizierte Signatur reserviert ist, als eine maximale Signatur (vgl. u. a. Zitatstellen a. a. O. und vorherige Ausführungen zu Disclaimer M5'). Von daher kann der Disclaimer M5' auch nicht zur Abgrenzung gegenüber dem Stand der Technik, wie er durch D3² dokumentiert ist, dienen (vgl. Ausführungen zu Hilfsantrag 1e, die hier in Analogie gelten).

Der Fachmann gelangt somit auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 3e.

21. Auch das in Patentanspruch 1 nach **Hilfsantrag 3f** im Vergleich zu Patentanspruch 1 nach Hilfsantrag 3e eingefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen kann keine Patentfähigkeit begründen.

Wie bereits zu Anspruch 1 nach Hilfsantrag 3d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge ebenfalls in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 3f.

22. Die im Vergleich zu Patentanspruch 1 nach Hilfsantrag 3b hinzugefügten Merkmale M2.4.1 und M3.5.1 im Patentanspruch 1 nach **Hilfsantrag 3g** bezüglich einer erneuten Synchronisierung (*uplink resynchronization*) können eine erfinderische Tätigkeit nicht begründen.

Wie zuvor zu Anspruch 1 nach Hilfsantrag 4¹c ausgeführt, überträgt der Fachmann die allgemeine Lehre von D3² zur Durchführung eines wahlfreien Zugriffs mittels dedizierten und nicht-dedizierten Signaturen in naheliegender Weise auch auf eine erneute (nicht-initiale) Uplink-Resynchronisation mit der Basisstation, die nichts anderes als eine erneute Synchronisation der Verbindung mit der Basisstation darstellt. Bezüglich der weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 3g wird auf vorstehende Ausführungen zu Hilfsantrag 3b und den Stand der Technik gemäß D3² verwiesen, die hier in gleicher Weise gelten.

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 3g.

23. Die Merkmale M5 bzw. M5.1 bis M5.2, die dem Anspruch 1 nach **Hilfsantrag 3h** im Vergleich zum Hilfsantrag 3g hinzugefügt sind, sind ebenfalls nicht geeignet, eine erfinderische Tätigkeit gegenüber dem Stand der Technik gemäß D3² zu begründen.

Zur Vermeidung von Wiederholungen wird wiederum auf die Ausführungen zu Anspruch 1 nach Hilfsantrag 4c und die aus D3² vorbekannten Merkmale M5 bzw. M5.1 bis M5.2 verwiesen, die hier in gleicher Weise gelten wie die vorstehenden Ausführungen zu Hilfsantrag 3g und den weiteren Anspruchsmerkmalen.

Der Fachmann gelangt von daher auch in Kenntnis des Stands der Technik gemäß D3² in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 3h.

24. Das im Vergleich zu Patentanspruch 1 nach Hilfsantrag 3h hinzugefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen in Patentanspruch 1 nach **Hilfsantrag 3i** kann ebenso keine Patentfähigkeit begründen.

Wie zuvor bereits zu Anspruch 1 nach Hilfsantrag 3d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Bezüglich der weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 3i wird auf die Ausführungen zu Hilfsantrag 3h verwiesen, die hier in gleicher Weise gelten.

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 3i.

25. Die in Patentanspruch 1 nach **Hilfsantrag 3'a** gegenüber Hilfsantrag 3a zusätzlich genannten Merkmale M2.4', M2.5', M3.5' und M3.6', in denen zum Ausdruck kommt, dass es sich bei der Kommunikation zwischen Basisstation und Mobilstation um eine Funkverbindung mit jeweiligen Funkeinheiten (*radio units*) handelt, können keine Neuheit gegenüber dem Stand der Technik gemäß D3² begründen.

Dass es sich bei der Verbindung zwischen einer Basisstation (*eNB*) und einer Mobilstation (*UE*) um eine Funkverbindung mit zugehörigen *radio units* handelt, liest der Fachmann im Stand der Technik gemäß D3² ohne Weiteres mit (vgl. Abschnitt 2.2: [...] *UEs radio condition*). In Bezug auf die weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 3'a wird auf die vorherigen Ausführungen zu Hilfsantrag 3a verwiesen, die hier in gleicher Weise gelten.

Die aus dem Stand der Technik gemäß D3² bekannte Mobilstation weist damit auch sämtliche Merkmale der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 3'a.

26. Die Ausführungen zu den Merkmalen M2.4', M2.5', M3.5' und M3.6' der Patentansprüche 1 nach Hilfsantrag 3b bzw. Hilfsantrag 3c gelten in gleicher Weise in Bezug auf die Gegenstände der jeweiligen Ansprüche der **Hilfsanträge 3'b** und **3'c**, die gegenüber den Hilfsanträgen 3b und 3c ebenfalls im Hinblick auf eine Kommunikation mittels Funkeinheiten in der Basisstation bzw. Mobilstation konkretisiert sind, wie es bei Hilfsantrag 3'a der Fall ist. Bezüglich der übrigen Merkmale der jeweiligen Ansprüche 1 der Hilfsanträge 3'b und 3'c wird auf die vorstehenden Ausführungen zu den inhaltsgleichen Merkmalen der Ansprüche 3b und 3c sowie den Stand der Technik gemäß D3² verwiesen, die hier ebenso gelten.

Damit ist aus dem Stand der Technik gemäß D3² auch eine Mobilstation bekannt, die sämtliche Merkmale der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 3'b bzw. der Mobilstation gemäß Anspruch 1 nach Hilfsantrag 3'c inklusive der Merkmale M2.4', M2.5', M3.5' und M3.6' aufweist.

27. Vorstehende Ausführungen zu den Merkmalen M2.4', M2.5', M3.5' und M3.6' der Patentansprüche 1 nach Hilfsantrag 3b bzw. Hilfsantrag 3c gelten in gleicher Weise in Bezug auf die Gegenstände der jeweiligen Ansprüche der **Hilfsanträge 3'd**, **3'g**, **3'h** und **3'i**, die gegenüber den Hilfsanträgen 3d und 3i ebenfalls bezüglich der Kommunikation mittels Funkeinheiten in der Basisstation bzw. Mobilstation konkretisiert sind. Bezüglich der übrigen Merkmale der jeweiligen Ansprüche 1 der Hilfsanträge 3'd bis 3'i wird auf die vorstehenden Ausführungen zu den inhaltsgleichen Merkmalen der Ansprüche 3b bis 3i und den Stand der

Technik gemäß D3² und eine mangelnde erfinderische Tätigkeit verwiesen, die hier ebenso gelten.

Der Fachmann gelangt damit auch in Kenntnis des Stands der Technik gemäß D3² in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen der jeweiligen Ansprüche 1 nach den Hilfsanträgen 3'd bis 3'i.

28. Das zusätzliche Merkmal M4 des Patentanspruchs 1 nach **Hilfsantrag 4d**, welches gegenüber dem weiter oben abgehandelten Anspruch 1 nach Hilfsantrag 4c hinzugefügt ist, kann eine erfinderische Tätigkeit nicht begründen.

Der Fachmann geht – wie bereits zuvor dargelegt – im Hinblick auf Merkmal M4 davon aus, dass die in D3² genannten Signaturen (dedizierte sowie nicht als dedizierte Signaturen reservierte Signaturen) aus der gleichen Menge (*set*) von Signaturen stammen (vgl. D3², Abschnitte 2.1 und 2.2). Dass eine solche Menge aus $2^6 = 64$ Signaturen besteht, ist als eine fachübliche Maßnahme anzusehen, wie es beispielsweise durch D4¹, D6¹ oder NK5 belegt ist. So nennt beispielsweise Dokument D4¹ eine solche Menge mit Signaturen (vgl. Kap. 2, erster und zweiter Satz); Dokument D6¹ nennt eine ebensolche Menge mit 64 Random-Access-Präambeln bzw. Signaturen als Standard (vgl. S. 2, zweiter Abs.). Ebenso findet sich – wie zuvor schon ausgeführt – in NK5 eine Signatur bzw. Random-Access-Präambel auf der Basis von 6 Bits, was einer Menge von 64 Signaturen entspricht (vgl. Abschnitt 10.1.5.1).

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4d.

29. Der im Vergleich zu Patentanspruch 1 nach Hilfsantrag 4c hinzugefügte Disclaimer M5' in Patentanspruch 1 nach **Hilfsantrag 4e** kann keine Neuheit begründen.

Der vorstehend in Bezug auf Hilfsantrag 4c genannte neuheitsschädliche Stand der Technik gemäß D3² definiert ebenfalls keine Signatur, welche nicht als dedizierte Signatur reserviert ist, als eine maximale Signatur (vgl. u. a. Zitatstellen a. a. O. und vorherige Ausführungen zu diesem Disclaimer). Von daher kann der Disclaimer M5' auch nicht zur Abgrenzung gegenüber dem Stand der Technik gemäß Druckschrift D3² dienen.

30. Das im Vergleich zu Patentanspruch 1 nach Hilfsantrag 4e hinzugefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen in Patentanspruch 1 nach **Hilfsantrag 4f** kann wiederum keine erfinderische Tätigkeit begründen.

Wie bereits zu Anspruch 1 nach Hilfsantrag 4d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge ebenfalls in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4f, ohne erfinderisch tätig werden zu müssen.

31. Die im Vergleich zu Patentanspruch 1 nach Hilfsantrag 4b hinzugefügten Merkmale M2.4.1 und M3.5.1 in Patentanspruch 1 nach **Hilfsantrag 4g** bezüglich einer erneuten Synchronisierung (*uplink resynchronization*) können ebenfalls keine Patentfähigkeit begründen.

Wie bereits zuvor in Bezug auf Anspruch 1 nach Hilfsantrag 4¹c ausgeführt, überträgt der Fachmann die allgemeine Lehre von D3² zur Durchführung eines wahlfreien Zugriffs mittels dedizierten und nicht-dedizierten Signaturen in naheliegender Weise auch auf eine erneute (nicht-initiale) Uplink-Resynchronisation mit der Basisstation, die nichts anderes als eine erneute Synchronisation der Verbindung mit der Basisstation darstellt. Bezüglich der weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 4g wird auf vorstehende Ausführungen zu Hilfsantrag 4b und den Stand der Technik gemäß D3² verwiesen, die hier in gleicher Weise gelten.

Der Fachmann gelangt damit in Kenntnis des Stands der Technik gemäß D3² in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4g.

32. Die Merkmale M5 bzw. M5.1 bis M5.2, die dem Anspruch 1 nach **Hilfsantrag 4h** im Vergleich zum Hilfsantrag 4g hinzugefügt sind, sind wiederum nicht geeignet, eine erfinderische Tätigkeit zu begründen.

Zur Vermeidung von Wiederholungen wird auf die Ausführungen zu Anspruch 1 nach Hilfsantrag 4c und die Merkmale M5 bzw. M5.1 bis M5.2 verwiesen, die hier in gleicher Weise gelten wie die vorstehenden Ausführungen zu Hilfsantrag 4g und den weiteren Anspruchsmerkmalen.

Der Fachmann gelangt damit in gleicher Weise in Kenntnis des Stands der Technik gemäß D3² in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4h.

33. Auch das in Patentanspruch 1 nach **Hilfsantrag 4i** im Vergleich zu Patentanspruch 1 nach Hilfsantrag 4h hinzugefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen kann keine Patentfähigkeit begründen.

Wie zuvor im Hinblick auf Anspruch 1 nach Hilfsantrag 4d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Bezüglich der weiteren Merkmale des Anspruchs 1 nach Hilfsantrag 4i wird auf die Ausführungen zu Hilfsantrag 4h verwiesen, die hier in gleicher Weise gelten.

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4i.

34. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 4'b** beruht nicht auf einer erfinderischen Tätigkeit.

Die Präzisierung im Anspruch 1 nach Hilfsantrag 4'b, dass es sich bei der Uplink-Synchronisierung mit der Basisstation um das Erreichen einer erneuten Synchronisierung (*to attain uplink resynchronization*) handelt (vgl. Merkmale M2.0 und M3.0), kann eine erfinderische Tätigkeit nicht begründen. Wie vorstehend in Bezug auf Hilfsantrag 4b und die Merkmale M2.2^b, 2.3^b sowie M3.2^b und M3.3^b ausgeführt, lehrt der durch D3² dokumentierte Stand der Technik bereits die Benutzung von Signaturen für einen wahlfreien Zugriff im Zusammenhang mit einem (allgemeinen) Verfahren zu Aufwärtsstrecken- bzw. Uplink-Synchronisierung und dedizierten Signaturen (vgl. Abschnitt 2.2 i. V. m. Abschnitt 2.1, zu einem Vorgang der Uplink-Synchronisierung / *UL sync procedure*). Der Fachmann überträgt – wie vorstehend bereits dargelegt – die allgemeine Lehre von D3² zur Durchführung eines wahlfreien Zugriffs mittels dedizierten und nicht-dedizierten Signaturen in naheliegender Weise auch auf

eine erneute (nicht-initiale) Uplink-Resynchronisation mit der Basisstation, die eine erneute Synchronisation der Verbindung mit der Basisstation darstellt.

Der Fachmann gelangt daher in Kenntnis des Stands der Technik gemäß D3² in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 4'b.

35. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 5c** gilt nicht als neu gegenüber dem Stand der Technik.

Wie bereits zu Anspruch 1 nach Hauptantrag ausgeführt, weist die aus dem Stand der Technik gemäß D3² bekannte Mobilstation die Merkmale M1 bis M3.3 auf (vgl. insbesondere Kap. 2, Abschnitte 2.1 und 2.2). Dabei kommt der Stand der Technik gemäß D3² – wie schon zuvor bezüglich Hilfsantrag 4c und den Merkmalen M5, M5.1 und M5.2 ausgeführt – ebenfalls ohne Statusindikator bzw. „Flag“ aus, welche einer Information mit nicht-dedizierten Signaturen als Zusatzinformation beigefügt sind (vgl. Abschnitt 2.2, *Case 1*). Vielmehr basiert der aus D3² bekannte wahlfreie Zugriff bzw. konkurrenzbasierte Zugriff (*same RACH time/frequency resources are used*) darauf, dass keine dedizierten Signaturen nutzbar sind und von der Basisstation nicht-dedizierte Signaturen im Rahmen einer Information mitgeteilt werden (vgl. a. a. O.).

Die Merkmale M5 bzw. M5.1 bis M5.2 sind von daher nicht geeignet, die beanspruchte Mobilstationsvorrichtung vom Stand der Technik gemäß Dokument D3² im Hinblick auf eine Neuheit abzugrenzen.

36. Die Mobilstation gemäß Patentanspruch 1 nach **Hilfsantrag 5d** beruht nicht auf einer erfinderischen Tätigkeit.

Wie bereits zuvor in Bezug auf die Hilfsanträge 1d und 4d ausgeführt, geht der Fachmann im Hinblick auf Merkmal M4 davon aus, dass die in D3² genannten Signaturen (dedizierte sowie nicht als dedizierte Signaturen reservierte Signaturen) aus der gleichen Menge an Signaturen stammen (vgl. D3², Abschnitte 2.1 und 2.2). Dass eine solche Menge aus $2^6 = 64$ Signaturen besteht, ist als eine fachübliche Maßnahme anzusehen, wie beispielsweise durch D4¹, D6¹ oder NK5 belegt (vgl. vorherige Ausführungen, die hier in gleicher Weise gelten).

Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 5d.

- 37.** Der im Vergleich zu Patentanspruch 1 nach Hilfsantrag 5c hinzugefügte Disclaimer M5' in Patentanspruch 1 nach **Hilfsantrag 5e** kann keine Neuheit begründen.

Bei dem vorstehend in Bezug auf Hilfsantrag 5c genannten neuheitsschädlichen Stand der Technik gemäß D3² wird ebenfalls keine Signatur definiert, welche nicht als dedizierte Signatur reserviert ist und eine maximale Signatur darstellt (vgl. Ausführungen zu den Hilfsanträgen 1e und 4e, die hier ebenfalls gelten). Von daher kann der Disclaimer M5' auch nicht zur Abgrenzung gegenüber dem Stand der Technik gemäß Druckschrift D3² dienen.

- 38.** Das wiederum in Patentanspruch 1 nach **Hilfsantrag 5f** im Vergleich zu Patentanspruch 1 nach Hilfsantrag 5e hinzugefügte Merkmal M4 bezüglich einer Menge von 64 Signaturen kann keine erfinderische Tätigkeit begründen.

Wie bereits zu Anspruch 1 nach Hilfsantrag 4d und 5d dargelegt, ist das Merkmal M4 als eine fachübliche Maßnahme anzusehen. Damit gelangt der Fachmann in Kenntnis des Stands der Technik gemäß D3² unter Anwendung einer fachüblichen Maßnahme bezüglich der Anzahl an Signaturen in einer Menge auch in naheliegender Weise zu einer Mobilstation mit sämtlichen Merkmalen des Anspruchs 1 nach Hilfsantrag 5f, ohne dabei erfinderisch tätig werden zu müssen.

- 39.** Die weiteren Patentansprüche 2 und 3 der Hilfsanträge bedürfen keiner weiteren isolierten Prüfung, weil die Beklagte in der mündlichen Verhandlung angegeben hat, dass sie diese Anträge jeweils als geschlossene Anspruchssätze versteht und das Streitpatent in der genannten Reihenfolge jeweils nur als Ganzes verteidigt (vgl. BGH, Urteil vom 29. September 2011 – X ZR 109/08, GRUR 2012, 149 – Sensoranordnung; BPatG, Urteil vom 29. April 2008 – 3 Ni 48/06 (EU), BPatGE 51, 45 – Ionenaustauschverfahren, BGH, Urteil vom 13. September 2016 – X ZR 64/14, GRUR 2017, 57 – Datengenerator).

B. Nebenentscheidungen

Die Kostenentscheidung beruht auf § 84 Abs. 2 PatG i. V. m. § 91 Abs. 1 ZPO. Die Entscheidung über die vorläufige Vollstreckbarkeit beruht auf § 99 Abs. 1 PatG i. V. m. § 709 ZPO.

Vor dem Hintergrund der bei Klageerhebung anhängigen Verletzungsklagen beim Landgericht mit Streitwerten von 5.000.000,- € und 300.000,- € ist ein Streitwert für das Nichtigkeitsverfahren von 6.625.000,- € angemessen.

Der Streitwert im Patentnichtigkeitsverfahren ist nach § 2 Abs. 2 Satz 4 PatKostG i. V. m. § 51 Abs. 1 GKG nach billigem Ermessen zu bestimmen. Maßgeblich für die Bestimmung des Streitwerts ist das Interesse der Allgemeinheit – also nicht nur der einzelnen Nichtigkeitsklägerin – an der Nichtigkeitsklärung des angegriffenen Patents im beantragten Umfang. Dementsprechend kommt es u. a. nicht darauf an, in welchem Umfang eine einzelne Nichtigkeitsklägerin vom Streitpatent wirtschaftlich betroffen ist. Das Allgemeininteresse ist nach ständiger Rechtsprechung mit dem gemeinen Wert des Streitpatents bei Erhebung der Klage zuzüglich des Betrags der gerichtlich oder außergerichtlich geltend gemachten Schadensersatzforderungen zu bemessen (BGH, Beschluss vom 12. April 2011 – X ZR 28/09, GRUR 2011, 757 – Nichtigkeitsstreitwert I; BGH, Beschluss vom 27. August 2013 – X ZR 83/10, GRUR 2013, 1287 f. – Nichtigkeitsstreitwert II). Ist das Streitpatent wie hier bereits Grundlage eines bzw. mehrerer anhängigen Verletzungsstreitverfahren, legt der Bundesgerichtshof den Streitwert des Verletzungsverfahrens bzw. die Summe der Streitwerte der Verletzungsverfahren zugrunde, der bzw. die zur Berücksichtigung des darüber hinausgehenden gemeinen Werts des Streitpatents um einen Aufschlag von in der Regel 25 % zu erhöhen ist (BGH a. a. O. – Nichtigkeitsstreitwert I). Dieser Betrag beziffert regelmäßig das Interesse an der bei Erhebung der Klage erstrebten Vernichtung des Streitpatents, mit der der bzw. den Patentverletzungsklagen die Grundlage entzogen werden soll. Eine Streitwertfestsetzung im Nichtigkeitsverfahren unterhalb dieses Betrages kommt grundsätzlich nicht in Betracht (grundlegend: BGH, Beschluss vom 12. April 2011 – X ZR 28/09, GRUR 2011, 757, Rn. 2 f. – Nichtigkeitsstreitwert; Beschluss vom 16. Februar 2016 – X ZR 110/13, CIPR 2016, 69 Rn. 7), ebenso keine Aufteilung des Streitwertes unter mehreren Klägern, da der Wert des Patents für jeden Kläger gleich hoch ist (BGH a.a.O. Rn. 5 - Nichtigkeitsstreitwert II).

C. Rechtsmittelbelehrung

Gegen dieses Urteil ist das Rechtsmittel der Berufung gegeben.

Die Berufungsschrift muss innerhalb eines Monats schriftlich beim Bundesgerichtshof, Herrenstraße 45a, 76133 Karlsruhe eingereicht oder als elektronisches Dokument nach Maßgabe der Verordnung über den elektronischen Rechtsverkehr beim Bundesgerichtshof und Bundespatentgericht (BGH/BPatGERVV) vom 24. August 2007 (BGBl. I S. 2130) in die elektronische Poststelle des Bundesgerichtshofes (www.bundesgerichtshof.de/erv.html) übertragen werden. Die Berufungsfrist beginnt mit der Zustellung des in vollständiger Form abgefassten Urteils, spätestens aber mit dem Ablauf von fünf Monaten nach der Verkündung.

Die Berufungsschrift muss von einer in der Bundesrepublik Deutschland zugelassenen Rechtsanwältin oder Patentanwältin oder von einem in der Bundesrepublik Deutschland zugelassenen Rechtsanwalt oder Patentanwalt unterzeichnet oder im Fall der elektronischen Einreichung mit einer qualifizierten elektronischen Signatur nach dem Signaturgesetz oder mit einer fortgeschrittenen elektronischen Signatur versehen sein, die von einer internationalen Organisation auf dem Gebiet des gewerblichen Rechtsschutzes herausgegeben wird und sich zur Bearbeitung durch das jeweilige Gericht eignet. Die Berufungsschrift muss die Bezeichnung des Urteils, gegen das die Berufung gerichtet wird, sowie die Erklärung enthalten, dass gegen dieses Urteil Berufung eingelegt werde. Mit der Berufungsschrift soll eine Ausfertigung oder beglaubigte Abschrift des angefochtenen Urteils vorgelegt werden.

Friehe Werner Dr. Schwengelbeck Zimmerer Dr. Flaschke

Anlage zum Urteil - verkündet am 8. Juli 2021 - in dem Nichtigkeitsverfahren 6 Ni 46/19 (EP) verbunden mit 6 Ni 47/19 (EP) und 6 Ni 48/19 (EP)

Patentansprüche nach Hilfsantrag 4b:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200).
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200).

Patentansprüche nach Hilfsantrag 4c:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said signature not reserved as a

dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 4'c:

1. A mobile station apparatus (200) adapted to perform a random access to attain uplink resynchronization with a base station apparatus (100) by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by said base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access to attain uplink resynchronization with said base station apparatus (100) by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access to attain uplink resynchronization with a base station apparatus (100) by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by said base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access to attain uplink resynchronization with said base station apparatus (100) by using a randomly

selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1c:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to

said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said

randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200).
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200).

Patentansprüche nach Hilfsantrag 1a:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 1b:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station

apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 1d:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a

dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station

apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1e:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding

further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said

uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 1f:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station

apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink

synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 1g:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 1h:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base

station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request

and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1i:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved

as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to

said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1'a:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station

apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 1'b:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by

transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile

station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 1'c:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by

transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein

said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1'd:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by

transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected

by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1'g:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile

station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile

station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 1'h:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile

station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly

selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 1'i:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile

- station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed

by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said randomly selected signature is randomly selected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3a:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus

(100) by transmitting said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 3b:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station

apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 3c:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by

the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the

base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3d:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated

signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble

to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3e:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station

apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access

by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 3f:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base

station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature

not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 3g:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station

apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 3h:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding

further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access

by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3i:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without,

compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said base station apparatus (100) to said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature

not reserved as a dedicated signature from said base station apparatus (100), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3'a:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200), wherein said dedicated signature is informed by said base station apparatus (100) by transmitting said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by said base station apparatus (100) by transmitting said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 3'b:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 3'c:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said

signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated

signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3'd:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said

dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed

by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3'g:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform

said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not

reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature.

Patentansprüche nach Hilfsantrag 3'h:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not

reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting

said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 3'i:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus is adapted to perform said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) is adapted to receive said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) is adapted to perform said random access by transmitting a preamble to said base station apparatus

(100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said dedicated signature from a radio unit (104) included in said base station apparatus (100) to a radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus performs said random access by transmitting a preamble to said base station apparatus (100) by using said dedicated signature, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink

synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) by transmitting said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) to said radio unit (207) included in said mobile station apparatus (200) for uplink resynchronization and said mobile station apparatus (200) receives said uplink synchronization request and said signature not reserved as a dedicated signature from said radio unit (104) included in said base station apparatus (100) using said radio unit (207) included in said mobile station apparatus (200), and wherein said mobile station apparatus (200) performs said random access by transmitting a preamble to said base station apparatus (100) by using said randomly selected signature, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 4d:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station

apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 4e:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station

apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 4f:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access by using a

randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 4g:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) for uplink resynchronization.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a

dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) for uplink resynchronization.

Patentansprüche nach Hilfsantrag 4h:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said

mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 4i:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, and said mobile station apparatus (200) further adapted to perform a random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a

dedicated signature when an uplink synchronization request and the dedicated signature informed by a base station apparatus (100) are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, and said mobile station apparatus (200) performs the random access by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200), wherein said uplink synchronization request and said signature not reserved as a dedicated signature are informed by said base station apparatus (100) for uplink resynchronization, wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 4'b:

1. A mobile station apparatus (200) adapted to perform a random access to attain uplink resynchronization with a base station apparatus (100) by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by said base station apparatus (100) are detected by said mobile station apparatus (200) and further adapted to perform a random access to attain uplink resynchronization with said base station apparatus (100) by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200).
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access to attain uplink resynchronization with a base station apparatus (100) by using a dedicated signature when an uplink synchronization request and the dedicated signature informed by said base station apparatus (100) are detected by said mobile station apparatus (200) and performs the random access to attain uplink resynchronization with said base station apparatus (100) by using a randomly selected signature when an uplink synchronization request informed by the base station apparatus (100) and a signature informed by the base station apparatus (100) and not reserved as a dedicated signature are detected by said mobile station apparatus (200).

Patentansprüche nach Hilfsantrag 5c:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 5d:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for

specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data.

Patentansprüche nach Hilfsantrag 5e:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.

3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.

Patentansprüche nach Hilfsantrag 5f:

1. A mobile station apparatus (200) adapted to perform a random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and further adapted to perform a random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.
2. A mobile communication system comprising a base station apparatus (100) and a mobile station apparatus (200) according to claim 1, the base station apparatus (100) being adapted to inform the mobile station apparatus (200) of a dedicated signature or a signature not reserved as a dedicated signature.
3. A method for performing a random access by a mobile station apparatus (200) in which the mobile station apparatus (200) performs the random access by using a dedicated signature when the dedicated signature informed by a base station apparatus (100) is detected by said mobile station apparatus (200) and performs the random access by using a randomly selected signature when a signature informed by the base station apparatus (100) and not reserved as a dedicated signature is detected by said mobile station apparatus (200), wherein said

dedicated signature, said randomly selected signature and said signature not reserved as a dedicated signature stem from the same set of 64 signatures, wherein said signature not reserved as a dedicated signature is informed by the base station apparatus without, compared to the case that said dedicated signature is informed by said base station apparatus by including information for specifying it into data, adding further information to said data and is instead informed by the base station apparatus by including said signature not reserved as a dedicated signature into said data, wherein said signature not reserved as a dedicated signature does not define a maximum signature of a set of signatures from which said randomly selected signature is randomly selected.