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*Technical Report*



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Reference

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## Foreword

This Technical Specification has been produced by the 3GPP.

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of this TS, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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- x the first digit:
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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the specification;

## 1 Scope

This document is a collection of terms, definitions and abbreviations related to the baseline documents defining 3GPP objectives and systems framework. This document provides a tool for further work on 3GPP technical documentation and facilitates their understanding.

The terms, definitions and abbreviations as given in this document are either imported from existing documentation (ETSI, ITU or elsewhere) or newly created by 3GPP experts whenever the need for precise vocabulary was identified.

## 2 References

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
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A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

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|-----|---|
| [1] | ETR 309: "Vocabulary of terms for UMTS".  |
| [2] | UMTS 30.03 "Quality of service and dependability vocabulary".   |
| [3] | ETSI SMG2 UMTS L2&L3 Expert Group, Tdoc SMG2 UMTS-L23 033/98: "Vocabulary Used in Radio Interface Protocol Specifications". |

## 3 Terms and definitions related to UMTS Radio aspects

**Acceptable Cell:** This is a cell that the UE may camp on to make emergency calls. It must satisfy certain conditions.

**Access Stratum**

**Access Stratum SDU (Service Data Unit):** Unit of data transferred over the access stratum SAP (Service Access Point) in the Core Network or in the User Equipment.

**Active mode:** "Active mode" is the state of a User Equipment when processing a call.

**Active Set:** Set of radio links simultaneously involved in a specific communication service between an User Equipment and a UTRAN access point.

**Adaptive terminal:** An "adaptive terminal" is terminal equipment with the capability of adapting to more than one type or variation of network.

**ALCAP:** Generic name for the transport signalling protocols used to set-up and tear-down transport bearers.

**Allowable PLMN:** This is a PLMN which is not in the list of forbidden PLMNs in the UE.

**Available PLMN:** This is a PLMN where the UE has found a cell that satisfies certain conditions.

**Average power:** The average transmitter output power obtained over any specified time interval, including periods with no transmission.

*<Editors: This definition would be relevant when considering realistic deployment scenarios where the power control setting may vary. >*

**Average transmit power:** The average transmitter output power obtained over any specified time interval, including

periods with no transmission. <Editors: This definition would be relevant when considering realistic deployment scenarios where the power control setting may vary. >

**Average Transmitter Power Per Traffic Channel (dBm):** the mean of the total transmitted power over an entire transmission period.

**Cable, Connector, and Combiner Losses (Transmitter) (dB):** the combined losses of all transmission system components between the transmitter output and the antenna input (all losses in positive dB values).

**Cable, Connector, and Splitter Losses (Receiver) (dB):** These are the combined losses of all transmission system components between the receiving antenna output and the receiver input (all losses in positive dB values).

**Call Control:**

**Camped on a cell;** The UE is in idle mode and has completed the cell selection/reselection process and has chosen a cell. The UE monitors system information and (in most cases) paging information. Note that the services may be limited, and that the PLMN may not be aware of the existence of the UE within the chosen cell.

**Cell:** A cell is a geographical area that can be identified by a User Equipment from a (cell) identification that is broadcast from one *UTRAN Access Point*

**Coded Composite Transport Channel (CCTrCH):** A data stream resulting from encoding and multiplexing of one or several *transport channels*. The data stream of the CCTrCH is fed to a data splitter unit that splits the CCTrCH's data stream onto one or several *Physical Channel Data Streams*.

**Commonality:** "Commonality" is a measure of the degree to which two radio transmission technologies serving different test environments share the same attributes. These attributes include: access method, modulation scheme, duplexing method, equalization strategy, FEC, bit interleaving etc.

**Common Channel:**

**Contiguous coverage:** "Contiguous coverage" is a characteristic of a geographical zone in which UMTS service is uniformly provided and the service probability is above a certain threshold.

**Control channel:** A "control channel" is a logical channel that carries system control information.

**Controlling RNC:** A role an RNC can take with respect to a specific set of **UTRAN access points**. There is only one Controlling RNC for any **UTRAN access point**. The Controlling RNC has the overall control of the logical resources of its **UTRAN access point's**. (Check with SMG2 ARC same as serving RNC?)

**Coverage area:** The "coverage area" is the area over which a UMTS service is provided with the service probability above a certain threshold.

**Dedicated Channel:**

**Deployment scenario:** The "deployment scenario" is a description of assumed user density and traffic to be served by a system in simulations. In the radio transmission technology selection process, the deployment scenario serves as a representation of the ultimate UMTS deployment.

**Downlink:** A "downlink" is a unidirectional radio link for the transmission of signals from a **UTRAN access point** to a User Equipment.

**Drift RNS:** The role an RNS can take with respect to a specific connection between a User Equipment and UTRAN. An RNS that supports the Serving RNS with radio resources when the connection between the UTRAN and the User Equipment need to use cell(s) controlled by this RNS is referred to as Drift RNS.

**DRX cycle:** The individual time interval between reading initial paging information for specific UE.

**Equivalent Telephony Erlang:** "Equivalent Telephony Erlang" (ETE) is a comparative measure of traffic which no longer refers to a particular service type like voice or data.

**Evaluation criteria:** "Evaluation criteria" are a set of capabilities and characteristics of radio transmission technology which may be supported or exhibited by a candidate technology. These criteria form the comparative basis of the radio transmission technology selection process.

**Explicit Diversity Gain (dB):** This is the effective gain achieved using diversity techniques.

**Hand-off Gain/Loss (dB):** This is the gain/loss factor (+ or -) brought by hand-off to maintain specified reliability at the boundary. (Editors note: Boundary of what?)

**Handover:** The transfer of a user's connection from one radio channel to another (can be the same or different cell).

**Hard Handover:** Hard handover is a category of handover procedures where all the old radio links in the UE are abandoned before the new radio links are established.

**Home PLMN:** This is a PLMN where the Mobile Country Code (MCC) and Mobile Network Code (MNC) of the PLMN identity are the same as the MCC and MNC of the IMSI.



**Hot Spot Capacity:** Number of users who may be instantaneously supported per isolated cell (or satellite spot beam) per unit spectrum. This must be specified at a stated spectrum allocation, quality and grade of service.

**Idle mode:** "Idle mode" is the state of a User Equipment switched on but not actively processing a call.

**Information Capacity:** (Mbits/cell (or Mbits/satellite spot beam)) this is the total number of user-channel information bits that can be supported by a single cell (or spot beam) which is part of an infinite set of cells (or large number of spot beams) in a uniform two-dimensional (or three dimensional) pattern. The information capacity must be specified at a stated spectrum allocation, quality and grade of service, assuming an appropriate propagation model. This metric is valuable for comparing systems with identical user channel requirements.

**Information Rate (10Log(Rb)) (dBHz):** Information rate is the channel bit rate in (dBHz).

**Initial paging information:** This information indicates if the UE need to continue to read more paging information and eventually receive a page message.

**Initial paging occasion:** The paging occasion the UE use as starting point for its DRX cycle.

**Inter-cell handover:** An "inter-cell handover" is a handover between different cells. An inter-cell handover requires network connections to be altered. (Editors note: Is this terms used ??)

**Interference Signal Code Power (ISCP):** Given only interference power is received, the average power of the received signal after despreading to the code and combining. Equivalent to the RSCP value but now only interference is received instead of signal.

**Intra-cell handover:** An "intra-cell handover" is a handover within one sector or between different sectors of the same cell. An intra-cell handover does not require network connections to be altered. . (Editors note: Is this terms used ??)

**Island coverage:** "Island coverage" is a characteristic of a geographical zone in which UMTS service is provided in a number of separate isolated areas ("islands").

**Iu:** Interconnection point between an RNS and a Core Network. It is also considered as a reference point.

**Iub:** Interface between an RNC and a Node B.

**Iur:** A logical interface between two RNS. Whilst logically representing a point to point link between RNSs, the physical realisation may not be a point to point link. (Editors note: are Iu and Iub also logical interfaces)

**Location Registration (LR):** The UE registers its presence in a registration area, for instance regularly or when entering a new registration area.

**Logical Channel:** A logical channel is an information stream dedicated to the transfer of a specific type of information over the radio interface.

**Logical Model:** A Logical Model defines an abstract view of a network or network element by means of information objects representing network element, aggregations of network elements, the topological relationship between the elements, endpoints of connections (termination points), and transport entities (such as connections) that transport information between two or more termination points.

The information objects defined in the Logical Model are used, among others, by connection management functions. In this way a physical implementation independent management is achieved.

**Logical O&M:** Logical O&M is the signalling associated with the control of logical resources (channels, cells,...) owned by the RNC but physically implemented in the Node B. The RNC controls these logical resources. A number of O&M procedures physically implemented in Node B impact on the logical resources and therefore require an information exchange between RNC and Node B. All messages needed to support this information exchange are classified as Logical O&M forming an integral part of NBAP.

**LSA:** Localised Service Area. A LSA is an operator-defined group of cells for which specific access conditions applies. This may correspond to an area in which the Core Network offers specific services. A LSA may be defined within a PLMN or globally. Therefore, a LSA may offer a non-contiguous radio coverage.

**LSA exclusive access cell :** A UE may only camp on this cell if the cell belongs to the LSAs to which the user has subscribed. Nevertheless, if no other cells are available, the UE of non-LSA users may originate emergency calls from this cell.

**LSA ID:** Localised Service Area Identity.

**LSA only access:** When LSA only access applies to the user, the UE can only access cells that belong to the LSAs to which the user has subscribed. Outside the coverage area of the subscribed LSAs, the UE may camp on other cells and limited services apply.

**LSA preferential access cell:** A LSA preferential access cell is a cell which is part of the LSA. UEs of users that have subscribed to a LSA of a LSA-preferential-access cell have higher priority to resources than non-LSA users in the same cell. The availability of LSA preferential access cells impact the following procedure(s):

radio resource allocation (controlled by UTRAN-Access Stratum). This function is out of the scope of the standards.

**Macro cells:** "Macro cells" are outdoor cells with a large cell radius, typically a few tens of km. However, the range can be extended by the use of directional antennas or repeaters.

**Macro diversity:** "Macro diversity" is a operation state in which a User Equipment simultaneously has radio links with two or more UTRAN access points for the sole aim of improving quality of the radio connection or providing seamless handover.

**Maximum average power:** The average transmitter output power obtained over any specified time interval, including periods with no transmission, when the transmit time slots are at the maximum power setting. *<Editors: The average power at the maximum power setting would also be consistent with defining a long term average power>*

**Maximum DRX cycle:** The time interval for the longest possible DRX cycle in a cell.

**Maximum output Power:** This refers to the measure of average power at the maximum power setting.

**Maximum Path Loss (dB):** This is the maximum loss that permits minimum SRTT performance at the cell boundary.

**Maximum peak power:** The peak power observed when operating at a given maximum output power.

**Maximum Power Setting:** The highest value of the Power control setting which can be used.

**Maximum Range (km):** Maximum range,  $R_{max}$ , is given by the range associated with the maximum path loss.

**Maximum Total Transmitter Power (dBm):** the aggregate maximum transmit power of all channels.

**Maximum Transmitter Power Per Traffic Channel (dBm):** the maximum power at the transmitter output for a single traffic channel.

**Medium Access Control:**

**Mega cells / satellite cells:** "Mega or satellite cells" are outdoor cells served by a satellite. The individual sectors of a satellite cell may have radii of 500 to 1 500 km.

**Micro cells:** "Micro cells" are small outdoor cells with radii of up to 1 km.

**Mobile base station:** A "mobile base station" is a base station which is not located at a given fixed site. Such a base station could be located within a bus, train or aircraft for example. A mobile base station has two kinds of radio connections: one to the fixed part of UMTS, the other to the Mobile Stations.

**Mobile evaluated handover:** Mobile evaluated handover (MEHO) is a type of handover triggered by an evaluation made in the mobile. The mobile evaluates the necessity of handover based on the measured radio environment and based on criteria defined by the network. When the evaluation meets the hand-off criteria the necessary information is sent from the mobile to the network. The network then decides on the necessity of the handover based on the reported evaluation result and other conditions, eg. uplink radio environment and/or availability of network resources, the network may then execute the handover.

**Mobile Station:** A "Mobile Station" (MS) is an entity capable of accessing a set of UMTS services via one or more radio interfaces. This entity may be stationary or in motion within the UMTS service area while accessing the UMTS services, and may simultaneously serve one or more users. A user of a Mobile Station may also have several simultaneous connections with the network. (Editors Note: This is not clear.)

**Mobile Termination:** The "Mobile Termination" (MT) is the part of the Mobile Station which terminates the radio path at the mobile side and adapts the capabilities of the radio path to the capabilities of the terminal equipment. (Editors note: Is this terms used ??)

**Mobility Management:**

**MS-UTRAN connection:** A relation between the mobile station and the UTRAN that is used to set-up, maintain and release the various *physical channels*. (Editors note: Is this terms used ??)

**Network evaluated handover:** Network evaluated handover (NEHO) is a type of handover triggered by an evaluation made in the network. There are three cases. The first case is that the mobile measures and reports the measurement to the network upon request from the network either periodically or on demand, and the network then evaluates the necessity of handover. The second case is that the network measures and evaluates the necessity of handover. In the third case measurements are made in both the mobile and in the network. In all cases, the network decides the necessity of handover based on the measurements and other conditions, eg availability of network resources. The network always executes any handover.

**Node B:** A logical node responsible for radio transmission / reception in one or more cells to/from the User Equipment. Terminates the Iub interface towards the RNC.

**Non-Access Stratum:**

**Paging area:** A "paging area" is the geographical region in which a User Equipment will be paged as a part of incoming call establishment. A paging area may comprise one or more cells or sectors.

**Paging:** Paging is the act of seeking a User Equipment (Editors note: this needs further clarification)

**Paging occasions:** The time instances where it is possible to receive initial paging information

**Peak Power:** The instantaneous power of the RF envelope which is not expected to be exceeded for [99.9%] of the time

**Perch Channel:** P

**Physical channel data stream:** In the uplink, a data stream that is transmitted on one *physical channel*. In the downlink, a data stream that is transmitted on one *physical channel* in each cell of the *active set*.

**Physical Channel:** In FDD mode, a physical channel is defined by code, frequency and, in the uplink, relative phase (I/Q). In TDD mode, a physical channel is defined by code, frequency, and time-slot.

**Pico cells:** "Pico cells" are cells, mainly indoor cells, with a radius typically less than 50 metres.

**Power Setting:** The value of the control signal, which determines the desired transmitter, output Power. Typically, the power setting would be altered in response to power control commands

**Preselection criteria:** "Preselection criteria" are a set of capabilities and characteristics of a radio transmission technology, indispensable for UMTS. For a candidate technology, failure to meet the preselection criteria will result in elimination from the radio transmission technology selection process.

**Radio access bearer:** The service that the access stratum provides to the non-access stratum for transfer of user data between User Equipment and CN.

**Radio Access Mode:** Mode of the cell, FDD or TDD

**Radio Access Network Application Part:** Radio Network Signalling over the Iu.

**Radio Access System:** UMTS, GSM etc.

**Radio connection:** A "radio connection" is a logical association between one or more User Equipments and one or more UTRAN access points to establish point-to-point, point-to-multipoint, broadcasting communications or even macro diversity. A radio connection comprises one or more radio links.

**Radio frame:** A radio frame is a numbered time interval of 10 ms duration used for data transmission on the radio physical channel. A radio frame is divided into 16 time slots of 0.625 ms duration. The unit of data that is mapped to a radio frame (10 ms time interval) may also be referred to as radio frame.

[Editor's note: This definition shall reflect present usage of this term in both the L1 and L23 expert groups. It needs to be checked and approved by both groups.]

**Radio interface:** The "radio interface" is the tetherless interface between a User Equipment and a UTRAN access point. This term encompasses all the functionality required to maintain such interfaces.

**Radio link:** A "radio link" is a logical association between a single User Equipment and a single UTRAN access point. Its physical realization comprises one or more radio bearer transmissions. (Editor's note: Is this not the same as a radio connection? What is a radio bearer transmissions?)

**Radio link addition** The procedure where a new *radio link* is added to the *active set*.

**Radio Link Control:**

**Radio link removal:** The procedure where a *radio link* is removed from the *active set*.

**Radio Network Controller:** This equipment in the RNS is in charge of controlling the use and the integrity of the radio resources. (SMG2 ARC)

**Radio Network Subsystem Application Part:** Radio Network Signalling over the Iur.

**Radio Network Subsystem:** Either a full network or only the access part of a UMTS network offering the allocation and the release of specific radio resources to establish means of connection in between an UE and the UTRAN.

A Radio Network Subsystem is responsible for the resources and transmission/reception in a set of cells. (SMG2 ARC)

**Radio Network Temporary Identifier (RNTI):** A Radio Network Temporary Identifier is an identifier for a UE when an *RRC connection* exists. It is e.g. used by the MAC protocol on common *Transport Channels* (RACH, FACH, PCH).

**Radio operating environment:** A "radio operating environment" is a classification for the UMTS operating regime, referring to differing radio related characteristics which affect the design of the radio interface necessary to provide service in that environment.

**Radio Resource Control:**

**Radio resource unit:** A "radio resource unit" is a single controllable resource employable for unidirectional information transfer over the radio interface. Typical examples for radio bearers are a time and frequency slot in a TDMA transmission scheme with frequency hopping, or the portion of radio resources characterized by a code sequence in a CDMA transmission scheme.

**Received Signal Code Power (RSCP):** Given only signal power is received, the average power of the received signal after despreading and combining.

**Receiver Antenna Gain (dBi):** the maximum gain of the receiver antenna in the horizontal plane (specified as dB relative to an isotropic radiator).

**Receiver Interference Density (  $I_o$  (dBm/Hz)):** Receiver interference density is the interference power per Hertz at the receiver front end. This is the in-band interference power divided by the system bandwidth. The in-band interference power consists of both co-channel interference as well as adjacent channel interference.

**Receiver Noise Figure (dB):** Receiver noise figure is the noise figure of the receiving system referenced to the receiver input.

**Receiver Sensitivity (dBm):** This is the signal level needed at the receiver input that just satisfies the required  $E_b/(N_o+I_o)$ .

**Registered PLMN (RPLMN):** This is the PLMN on which the UE has performed a location registration successfully.

**Registration Area:** A (NAS) registration area is an area in which the UE may roam without a need to perform location registration, which is a NAS procedure.

**Relay:** Terminal devices capable of ODMA relay communications.

**Relay/Seed Gateway:** *Relay* or *Seed* that communicates with the UTRAN, in either TDD or FDD mode.

**Relaylink:** Relaylink is a communications link between two ODMA relay nodes.

**Repeater:** A "repeater" is a radio transceiver used to extend the transmission of a base station beyond its normal range.

**Required  $E_b/(N_o+I_o)$  (dB):** The ratio between the received energy per information bit to the total effective noise and interference power density needed to satisfy the quality objectives specified in UMTS 30.03 Table 1.0 under condition of section 1.2.2 channel model.

**Root Relay:** ODMA relay node where communications originate or terminate.

**RRC Connection:** A point-to-point bi-directional connection between RRC peer entities on the UE and the UTRAN sides, respectively. An UE has either zero or one RRC connection.

**Seamless handover:** "Seamless handover" is a handover without perceptible interruption of the radio connection

**Sector:** A "sector" is a sub-area of a cell. All sectors within one cell are served by the same base station. A radio link within a sector can be identified by a single logical identification belonging to that sector.

**Seed:** Deployed ODMA relay node with or without a display/keypad.

**Selected PLMN** This is the PLMN that has been selected by the non-access stratum, either manually or automatically.

**Service Access Point:**

**Serving RNS:** A role an RNS can take with respect to a specific connection between an UE and UTRAN. There is one Serving RNS for each UE that has a connection to UTRAN. The Serving RNS is in charge of the radio connection between a UE and the UTRAN. The Serving RNS terminates the  $I_u$  for this UE. (SMG2 ARC)

**Set of Radio Transmission Technologies:** A complete combination of radio transmission technologies that encompass the transmission dependent functions of a radio system, which has potential capabilities to meet UMTS minimum requirements in one or more test environments.

**Shared Channel:**

**Signalling connection:** An acknowledged-mode link between the user equipment and the core network to transfer higher layer information between the entities in the non-access stratum.

**Signalling link:** Provides an acknowledged-mode link layer to transfer the MS-UTRAN signalling messages as well as MS - Core Network signalling messages (using the *signalling connection*).

**Soft Handover:** Soft handover is a category of handover procedures where the radio links are added and abandoned in such manner that the UE always keeps at least one radio link to the UTRAN.

**Spectrum efficiency:** "Spectrum efficiency" is a comparative measure characterizing the extent to which a radio interface is able to support a given number of users of a given UMTS service. Spectrum efficiency can be measured in ETE per cell per MHz or ETE per square kilometre per MHz.

**Spot coverage:** "Spot coverage" is a characteristic of a geographical zone in which UMTS service is provided only in small, isolated areas, perhaps individual cells.

**SRNS Relocation:** The change of  $I_u$  instance. It should be noted that SRNS Relocation was previously known as Streamlining.

**Streamlining:** Process which changes the role of an RNS (serving and drift) when one or multiple drift RNSs are involved in a connection.

**Suitable Cell:** This is a cell on which an UE may camp. It must satisfy certain conditions. [Note: These certain conditions are FFS.]

**Test environment:** A "test environment" is the combination of a test propagation environment and a deployment scenario which together describe the parameters necessary to perform a detailed analysis of a radio transmission

technology. A test environment allows direct comparison of various radio transmission technologies.

**Test propagation environment:** The "test propagation environment" is a description of the radio channel which will be used in simulations of the operation of radio transmission technologies during the radio transmission technology selection process. The test propagation environment is supposed to represent propagation conditions of the ultimate UMTS deployment.

**Thermal Noise Density, No (dBm/Hz):** the noise power per Hertz at the receiver input.

**Total Effective Noise Plus Interference Density (dBm/Hz):** the logarithmic sum of the receiver noise density and the receiver noise figure and the arithmetic sum with the receiver interference density, i.e.  $j = 10 \text{ Log} (10^{((g+h)/10)} + I)$

**Traffic Capacity:** (Erlangs/cell (or Erlangs/satellite spot beam)) this is the total traffic that can be supported by a single cell (or spot beam), which is part of an infinite set of cells (or large number of satellite spot beams) in a uniform two-dimensional (or three dimensional) pattern. The traffic capacity must be specified at a stated spectrum allocation, quality and grade of service, assuming an appropriate propagation model. This metric is valuable for comparing systems with identical user channel requirements.

**Traffic channel:** A "traffic channel" is a logical channel which carries users information like speech or data.

**Transmission Time Interval:** Transmission Time Interval is defined as the inter-arrival time of *Transport Block Sets*, i.e. the time it should take to transmit a *Transport Block Set*. It is always a multiple of 10ms (the length of one *Radio Frame*).

**Transmitter Antenna Gain (dBi):** the maximum gain of the transmitter antenna in the horizontal plane (specified as dB relative to an isotropic radiator).

**Transmitter e.i.r.p. (dBm):** the summation of the total transmitter power (dBm), transmission system losses (-dB), and the transmitter antenna gain (dBi).

**Transmitter e.i.r.p. Per Traffic Channel (dBm):** the summation of transmitter power output per traffic channel (dBm), transmission system losses (-dB), and the transmitter antenna gain (dBi), in the direction of maximum radiation.

**Transport Block :** Transport Block is defined as the basic unit passed down to L1 from MAC, for L1 processing. An equivalent term for Transport Block is "MAC PDU".

**Transport Block Set :** Transport Block Set is defined as a set of *Transport Blocks* which is passed to L1 from MAC at the same time instance using the same *transport channel*. An equivalent term for Transport Block Set is "MAC PDU

**Transport Block Set Size:** Transport Block Set Size is defined as the number of bits in a *Transport Block Set*

**Transport Block Size :** Transport Block Size is defined as the size (number of bits) of a *Transport Block*

**Transport channel:** The channels offered by the physical layer to Layer 2 for data transport between peer L1 entities are denoted as Transport Channels. Different types of transport channels are defined by how and with which characteristics data is transferred on the physical layer, e.g. whether using dedicated or common physical channels are employed.

**Transport Format:** A Transport Format is defined as a format offered by L1 to MAC for the delivery of a *Transport Block Set* during a *Transmission Time Interval* on a *Transport Channel*. The Transport Format constitutes of two parts – one dynamic part and one semi-static part.

**Transport Format Combination:** A Transport Format Combination is defined as the combination of currently valid *Transport Formats* on all *Transport Channels* of an MS, i.e. containing one *Transport Format* from each *Transport Channel*.

**Transport Format Combination Set :** A Transport Format Combination Set is defined as a set of *Transport Format Combinations* to be used by an MS.

**Transport Format Combination Indicator (TFCI) :** A Transport Format Combination Indicator is a representation of the current *Transport Format Combination*.

**Transport Format Identification (TFI):** A label for a specific *Transport Format* within a *Transport Format Set*.

**Transport Format Set:** A set of *Transport Formats*. For example, a variable rate DCH has a Transport Format Set (one Transport Format for each rate), whereas a fixed rate DCH has a single Transport Format.

**UMTS Terrestrial Radio Access Network:** UTRAN is a conceptual term identifying that part of the network which consists of RNCs and Node Bs between Iu and Uu. The concept of UTRAN instantiation is currently undefined. (SMG2 ARC)

**Uplink:** An "uplink" is a unidirectional radio link for the transmission of signals from a Mobile Station to a base station, from a Mobile Station to a mobile base station or from a mobile base station to a base station.

**URA updating:** URA updating is a family of procedures that updates the UTRAN registration area of a UE when a RRC connection exists and the position of the UE is known on URA level in the UTRAN.

**User Equipment:** A Mobile Equipment with one or several UMTS Subscriber Identity Modules(s).

**UTRAN Registration Area (URA):** The UTRAN Registration Area is an area covered by a number of cells. The URA is only internally known in the UTRAN.

**UTRAN access point:** A conceptual point within the UTRAN performing radio transmission and reception. A UTRAN access point is associated with one specific *cell*, i.e. there exists one UTRAN access point for each cell. It is the UTRAN-side end point of a *radio link*.

**Uu:** The Radio interface between UTRAN and the User Equipment.

**Visited PLMN of home country:** This is a PLMN, different from the home PLMN, where the MCC part of the PLMN identity is the same as the MCC of the IMSI.

## 4 Abbreviations

AAL	ATM Adaptation Layer
AAL2	ATM Adaptation Layer type 2
AAL5	ATM Adaptation Layer type 5
ACCH	Associated Control Channel
ACIR	Adjacent Channel Interference Ratio
ACK	Acknowledgement
ACLR	Adjacent Channel Leakage Power Ratio
ACP	Adjacent Channel Protection
ACS	Adjacent Channel Selectivity
AESA	ATM End System Address
AI	Acquisition Indication
AICH	Acquisition Indication Channel
ALCAP	Access Link Control Application Part
ARP	Address Resolution Protocol
ARQ	Automatic Repeat Request
AS	Access Stratum
ASN.1	Abstract Syntax Notation One
ATM	Asynchronous Transfer Mode
AWGN	Added White Gaussian Noise
BCCH	Broadcast Control Channel
BCFE	Broadcast Control Functional Entity
BCH	Broadcast Channel
BER	Bit Error Rate
BID	Binding Identity
BLER	Block Error Rate
BPSK	Binary Phase Shift Keying
BS	Base Station
BSC	Base Station Controller
BSS	Base Station System
BTS	Base Transceiver Station
C-	Control-
CA	Capacity Allocation
CAA	Capacity Allocation Acknowledgement
CB	Cell Broadcast
CBR	Constant Bit Rate
CC	Call Control
CCCH	Common Control Channel
CCH	Control Channel

CCPCH	Common Control Physical Channel
CCTrCH	Coded Composite Transport Channel
CD	Capacity Deallocation
CDA	Capacity Deallocation Acknowledgement
CDMA	Code Division Multiple Access
CFN	Connection Frame Number
CN	Core Network
CP	Chip Period
CPCH	Common Packet Channel
CPCS	Common Part Convergence Sublayer
CPS	Common Part Sublayer
CRC	Cyclic Redundancy Check
CRNC	Controlling Radio Network Controller
CS	Circuit Switched
CTCH	Common Traffic Channel
CTDMA	Code Time Division Multiple Access
CTP	Common Transport Protocol
CW	Continuous Wave (unmodulated signal)
DC	Dedicated Control (SAP)
DCA	Dynamic Channel Allocation
DCCH	Dedicated Control Channel
DCH	Dedicated Channel
DHO	Diversity Handover
DL	Downlink (Forward Link)
DPCCCH	Dedicated Physical Control Channel
DPCH	Dedicated Physical Channel
DPDCH	Dedicated Physical Data Channel
DRNC	Drift Radio Network Controller
DRNS	Drift RNS
DRX	Discontinuous Reception
DS-CDMA	Direct-Sequence Code Division Multiple Access
DSCH	Downlink Shared Channel
DTCH	Dedicated Traffic Channel
DTX	Discontinuous Transmission
EIRP	Equivalent Isotropic Radiated Power
FACH	Forward Access Channel
FAUSCH	Fast Uplink Signalling Channel
FBI	Feedback Information
FCS	Frame Check Sequence
FDD	Frequency Division Duplex
FDMA	Frequency Division Multiple Access
FEC	Forward Error Correction
FER	Frame Erasure Rate, Frame Error Rate
FN	Frame Number
FP	Frame Protocol
GC	General Control (SAP)
GMSK	Gaussian Minimum Shift Keying
GP	Guard Period
GPRS	General Packet Radio System
GSM	Global System for Mobile communications
GTP	GPRS Tunneling Protocol
HCS	Hierarchical Cell Structure
HO	Handover
HHO	Hard Handover
HO	Handover

IMA	Inverse Multiplexing on ATM
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IP-M	IP Multicast
ISCP	Interference Signal Code Power
ITU	International Telecommunication Union
JD	Joint Detection
kbps	kilo-bits per second
ksps	kilo-symbols per second
L1	Layer 1 (physical layer)
L2	Layer 2 (data link layer)
L3	Layer 3 (network layer)
LAC	Link Access Control
LAI	Location Area Identity
LCD	Low Constrained Delay ??
LLC	Logical Link Control
LSA	Local Service Area
MA	Multiple Access
MAC	Medium Access Control
MAHO	Mobile Assisted Handover
MCC	Mobile Country Code
Mcps	Mega-chips per second
MDS	Multimedia Distribution Service
ME	Mobile Equipment
MEHO	Mobile evaluated handover
MER	Message Error Rate
MUI	Mobile User Identifier
MM	Mobility Management
MNC	Mobile Network Code
MO	Mobile Originated
MOHO	Mobile Originated HandOver
MS	Mobile Station
MSID	Mobile Station Identifier
MSC	Mobile Services Switching Center
MT	Mobile Terminated
MTP	Message Transfer Part
MTP3-B	Message Transfer Part level 3
MUI	Mobile User Identifier
NAS	Non-Access Stratum
NBAP	Node B Application Part
NEHO	Network evaluated handover
NNI	Network-Node Interface
NRT	Non-Real Time
NSAP	Network Service Access Point
Nt	Notification (SAP)
OCCCH	ODMA Common Control Channel
ODCCH	ODMA Dedicated Control Channel
ODCH	ODMA Dedicated Channel
ODMA	Opportunity Driven Multiple Access
OFF	Frame Offset
O&M	Operation and Management
OMC-B	Operation and Maintenance Centre for Node B
ORACH	ODMA Random Access Channel
ODTCH	ODMA Dedicated Traffic Channel
OVSF	Orthogonal Variable Spreading Factor



PC	Power Control
PCCH	Paging Control Channel
PCH	Paging Channel
PCPCH	Physical Common Packet Channel
PCS	Personal Communication System
PDH	Plesiochronous Digital Hierarchy
PDSCH	Physical Downlink Shared Channel
PDU	Protocol Data Unit
PG	Processing Gain
PHS	Personal Handyphone System
PHY	Physical layer
PhyCH	Physical Channel
PI	Paging Indicator
PICH	Page Indication Channel
PID	Packet Identification
PLMN	Public Land Mobile Network
PMD	Physical Media Dependent
PN	Pseudo Noise
PPM	Parts Per Million
PRACH	Physical Random Access Channel
PS	Packet Switched
PSCCCH	Physical Shared Channel Control Channel
PTM	Point-to-Multipoint
PTM-G	PTM Group Call
PTM-M	PTM Multicast
PU	Payload Unit
PUF	Power Up Function
QoS	Quality of Service
QPSK	Quadrature (Quaternary) Phase Shift Keying
RAB	Radio Access Bearer
RACH	Random Access Channel
RANAP	Radio Access Network Application Part
RF	Radio Frequency
RL	Radio Link
RLC	Radio Link Control
RLCP	Radio Link Control Protocol
RNC	Radio Network Controller
RNS	Radio Network Subsystem
RNSAP	Radio Network Subsystem Application Part
RNTI	Radio Network Temporary Identity
RRC	Radio Resource Control
RRM	Radio Resource Management
RSCP	Received Signal Code Power
RSSI	Received Signal Strength Indicator
RT	Real Time
RU	Resource Unit
RX	Receive
SAAL	Signalling ATM Adaptation Layer
SACCH	Slow Associated Control Channel
SAP	Service Access Point
SAR	Segmentation and Reassembly
SCCH	Synchronization Control Channel
SCH	Synchronization Channel
SDCCH	Stand-Alone Dedicated Control Channel
SDH	Synchronous Digital Hierarchy

SDU	Service Data Unit
SF	Spreading Factor
SFN	System Frame Number
SIR	Signal-to-Interference Ratio
SMS	Short Message Service
SMS-CB	SMS Cell Broadcast
SP	Switching Point
SRNC	Serving Radio Network Controller
SRNS	Serving RNS
SS7	Signalling System No. 7
SSCOP	Service Specific Connection Oriented Protocol
SSCF	Service Specific Co-ordination Function
SSCF-NNI	Service Specific Coordination Function – Network Node Interface
SSCS	Service Specific Convergence Sublayer
SSDT	Site Selection Diversity TPC
SSSAR	Service Specific Segmentation and Re-assembly sublayer
STC	Signalling Transport Converter
STTD	Space Time Transmit Diversity
TC	Transmission Convergence
TCH	Traffic Channel
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
TFC	Transport Format Combination
TFCI	Transport Format Combination Indicator
TFCS	Transport Format Combination Set
TFI	Transport Format Indicator
TFS	Transport Format Set
TMSI	Temporary Mobile Subscriber Identity
TN	Termination Node
TPC	Transmit Power Control
TRX	Transmitter/Receiver
TSTD	Time Switched Transmit Diversity
TX	Transmit
U-	User-
UARFCN	UTRA Absolute Radio Frequency Channel Number
UARFN	UTRA Absolute Radio Frequency Number
UDD	Unconstrained Delay Data
UDP	User Datagram Protocol
UE	User Equipment
UE <sub>R</sub>	User Equipment with ODMA relay operation enabled
UL	Uplink (Reverse Link)
UMTS	Universal Mobile Telecommunications System
UNI	User-Network Interface
UP	User Plane
URA	User Registration Area
USCH	Uplink Shared Channel
USIM	UMTS Subscriber Identity Module
UTRA	UMTS Terrestrial Radio Access
UTRAN	UMTS Terrestrial Radio Access Network
VA	Voice Activity factor
VBR	Variable Bit Rate
VC	Virtual Circuit
WCDMA	Wideband Code Division Multiple Access

<b>Chip Rate</b>	Chip rate of W-CDMA system, equals to 3.84 M chips per second.
<b>SCCPCH</b>	Secondary Common Control Physical Channel.
<b>SCCPCH <math>_E_c</math></b>	Average energy per PN chip for SCCPCH.
<b>Data <math>_E_c</math></b>	Average energy per PN chip for the DATA fields in the DPCH.
<b>Data <math>\frac{E_c}{I_o}</math></b>	The ratio of the received energy per PN chip for the DATA fields of the DPCH to the total received power spectral density at the UE antenna connector.
<b><math>\frac{Data\_E_c}{I_{or}}</math></b>	The ratio of the average transmit energy per PN chip for the DATA fields of the DPCH to the total transmit power spectral density.
<b>DPCH</b>	Dedicated Physical Channel
<b>DPCH <math>_E_c</math></b>	Average energy per PN chip for DPCH.
<b><math>\frac{DPCH\_E_c}{I_{or}}</math></b>	The ratio of the received energy per PN chip of the DPCH to the total received power spectral density at the UE antenna connector.
<b>DCH</b>	Dedicated Channel, which is mapped into Dedicated Physical Channel. DCH contains the data.
<b><math>E_b</math></b>	Average energy per information bit for the PCCPCH, SCCPCH and DPCH, at the UE antenna connector.
<b><math>\frac{E_b}{N_t}</math></b>	The ratio of combined received energy per information bit to the effective noise power spectral density for the PCCPCH, SCCPCH and DPCH at the UE antenna connector. Following items are calculated as overhead: pilot, TPC, TFCI, CRC, tail, repetition, convolution coding and Turbo coding.
<b><math>E_c</math></b>	Average energy per PN chip.
<b><math>\frac{E_c}{I_{or}}</math></b>	The ratio of the average transmit energy per PN chip for different fields or physical channels to the total transmit power spectral density.
<b>FACH</b>	Forward Access Channel
<b><math>F_{inv}</math></b>	Frequency of unwanted signal
<b>Information Data Rate</b>	Rate of the user information, which must be transmitted over the Air Interface. For example, output rate of the voice codec.
<b><math>I_o</math></b>	The total received power spectral density, including signal and interference, as measured at the UE antenna connector.
<b><math>I_{oc}</math></b>	The power spectral density of a band limited white noise source (simulating interference from other cells) as measured at the UE antenna connector.
<b><math>I_{or}</math></b>	The total transmit power spectral density of the Forward link at the base station antenna connector.
<b><math>\hat{I}_{or}</math></b>	The received power spectral density of the Forward link as measured at the UE antenna connector.
<b>ISCP</b>	Given only interference is received, the average power of the received signal after despreading to the code and combining. Equivalent to the RSCP value but now only interference is received instead of signal.
<b><math>N_t</math></b>	The effective noise power spectral density at the UE antenna connector.
<b>OCNS</b>	Orthogonal Channel Noise Simulator, a mechanism used to simulate the users or control signals on the other orthogonal channels of a Forward link.
<b>OCNS <math>_E_c</math></b>	Average energy per PN chip for the OCNS.
<b><math>\frac{OCNS\_E_c}{I_{or}}</math></b>	The ratio of the average transmit energy per PN chip for the OCNS to the total transmit power spectral density.
<b>PCCPCH</b>	Primary Common Control Physical Channel
<b>PCH</b>	Paging Channel
<b>PCCPCH <math>\frac{E_c}{I_o}</math></b>	The ratio of the received PCCPCH energy per chip to the total received power spectral density at the UE antenna connector.

$\frac{PCCPCH\_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the PCCPCH to the total transmit power spectral density.
$Pilot\_E_c$	Average energy per PN chip for the Pilot field in the DPCH.
$Pilot \frac{E_c}{I_o}$	The ratio of the received energy per PN chip for the Pilot field of the DPCH to the total received power spectral density at the UE antenna connector.
$\frac{Pilot\_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the Pilot field of the DPCH to the total transmit power spectral density.
$TFCI\_E_c$	Average energy per PN chip for the TFCI field in the DPCH.
$TFCI \frac{E_c}{I_o}$	The ratio of the received energy per PN chip for the TFCI field of the DPCH to the total received power spectral density at the UE antenna connector.
$\frac{TFCI\_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the TFCI field of the DPCH to the total transmit power spectral density.
<b>RSCP</b>	Given only signal power is received, the average power of the received signal after despreading and combining
$TPC\_E_c$	Average energy per PN chip for the Transmission Power Control field in the DPCH.
$TPC \frac{E_c}{I_o}$	The ratio of the received energy per PN chip for the Transmission Power Control field of the DPCH to the total received power spectral density at the UE antenna connector.
$\frac{TPC\_E_c}{I_{or}}$	The ratio of the average transmit energy per PN chip for the Transmission Power Control field of the DPCH to the total transmit power spectral density.

## History

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Editor:	
Peter Okrah Motorola SPS  Tel. : +1 480-413-6414 Fax : +1 480-413-6480 Email : Peter.Okrah@motorola.com	
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