

**Agenda item:**

**Source:** Ericsson

**Title:** Text proposal for 25.215

**Document for:** Decision

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## 1 Introduction

The aim of this contribution is to cleanup some inconsistencies and unnecessary information in TS 25.215.

The following changes are proposed:

- Remove the purpose field in section 6 of 25.215.  
The purpose of a measurement is not an issue for WG1 and shall not be listed in the specification.
- Remove “TBD.” from the “Range/Mapping” field in section 6 of 25.215.  
It looks better to leave the field blank and fill it in later.
- Remove the notation for Idle and Connected mode (I/C) for UTRAN measurements in the table in section 6.2.  
Idle and Connected mode is not relevant for UTRAN.
- Remove the columns for Intra-frequency and Inter-frequency for UTRAN measurements in the table in section 6.2.  
Specification of measurement on intra-frequencies and inter-frequencies is not relevant for UTRAN.
- Section 7.1.1 and its subsections are not relevant for WG1 specs. No such sets are defined even by higher layers.  
The only relevant information found in these sections are what info the UE receives from higher layers when it should perform a measurement. This information belongs in the WG2 RRC specification. It is proposed to send a liaison to them indicating our preferences on this issue.
- Mentioning of any requirements of how many cells the UE should be able to detect in x ms have been removed, since this is covered by the WG4 TS 25.103 v2.0.0 “RF Parameters in Support of RRM”.
- Section 8 was to help the work when creating 25.215, it should now be removed.

Note that the proposed changes to 7.1.3 are really the minimum cleaning changes. Much more work is needed. Ericsson's opinion is still that this information should be removed from the WG1 specifications.

Text proposals for the changes can be found in section 2, while the proposed LS is found in section 3.

## 2 Text proposal for TS 25.215 V0.1.0

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## 4 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1]	3GPP RAN 25.211	Transport channels and physical channels (FDD)
[2]	3GPP RAN 25.212	Multiplexing and channel coding (FDD)
[3]	3GPP RAN 25.213	Spreading and modulation (FDD)
[4]	3GPP RAN 25.214	Physical layer procedures (FDD)
[5]	3GPP RAN 25.221	Transport channels and physical channels (TDD)
[6]	3GPP RAN 25.222	Multiplexing and channel coding (TDD)
[7]	3GPP RAN 25.223	Spreading and modulation (TDD)
[8]	3GPP RAN 25.224	Physical layer procedures (TDD)
[9]	3GPP RAN 25.302	Services provided by the Physical layer
[10]	3GPP RAN 25.303	UE functions and interlayer procedures in connected mode
[11]	3GPP RAN 25.304	UE procedures in idle mode
[12]	<del>XX.15, version 1.0.0</del>	<del>UTRA Handover</del>
[13]	<del>XX.07, version 1.0.0</del>	<del>UTRA FDD, Physical layer procedures</del>
[14]	<del>XX.13, version 1.0.0</del>	<del>UTRA TDD, Physical layer procedures</del>
[15]	<del>ARIB, Vol 3</del>	

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## 5 Control of UE/UTRAN measurements

<Editors note: In this chapter the general measurement control concept defined in WG2 shall briefly be described to get an understanding on how L1 measurements are initiated and controlled by higher layers. It shall be described how measurements are controlled both in idle and connected mode. In WG2 a measurement control concept are defined, where higher layers controls what to measure, how often to measure, when to report (criteria), filtering of measured value.>

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## 6 Measurement abilities for UTRA FDD

<Editors note: In this chapter definitions of measurements required by WG2, L1 measurements reported to higher layers, shall be made. Maybe also UE internal measurements (not reported over the air interface shall be defined?)>

<Editors note: Filtering/averaging is not included in the L1 specification at the moment. However, it would be beneficial to continue the discussion on this issue via email.>

[TEXT PROPOSAL: In all tables in 6.1 and 6.2 subsections defining measurements, the row with "Purpose" should be removed.]

[TEXT PROPOSAL: In all tables in 6.1 and 6.2 subsections defining measurements, in rows defining range, "TBD" should be deleted but the rows are to be kept empty.]

## 6.1 UE measurement abilities

---- SNIP ----

## 6.2 UTRAN measurement abilities

The following table provides an overview of the UTRAN measurement abilities:

Note: The term “Measurement target” refers to either physical channel(s), carrier, transport channel, channelisation code, etc.

[ERICSSON NOTE: There should be only one column under measurement target.]

Measurement ability	Measurement target on which the measurement shall be possible (Idle mode = I / Connected mode = C)	
	Intra-frequency	Inter-frequency
RSSI	UTRAN UL carrier	
SIR	DPCCH/DPDCH measured on DPCCH after RL combination in Node B-(C)	n.a.
Total Transmitted Power	Any carrier transmitted from an UTRAN access point	
Transmitted Code Power	Any channelisation code transmitted from an UTRAN access point	
Transport CH BLER	Transport channel DCH carried by physical channel DPDCH after RL combination in Node B-(C)	n.a.
Physical CH BER	Transport channel DCH carried by physical channel DPDCH after RL combination in Node B-(C)	n.a.
Round Trip Delay (RTD)	DPCH for each RL transmitted from an UTRAN access point and DPDCH/DPCCH for each RL received in an UTRAN access point-(C)	n.a.

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## 7 Measurements for UTRA FDD

### 7.1 UE measurements

#### 7.1.1 Overview of the different cell sets

<Editor’s note: The different cell sets should finally be described in the WG2 specifications, see e.g. TS 25.331. However, this section should list the different sets with their purpose and give some references to the relevant WG2 specifications.>

Since the cell sets for cell selection/reselection and handover in a TDD cell will probably be the same as in an FDD cell it has to be taken care that the text of 25.225 and 25.215 is consistent. Even if some doubling of idle mode description or handover monitoring set description is necessary.>

### 7.1.1.1 Cell selection/reselection

*<Editor's note. Measurement to support Cell selection and cell reselection rely on synchronisation acquisition procedures currently described in section related to the Initial cell search procedures in [4] and Physical layer procedures (FDD) and Physical layer procedures (TDD) [8] for FDD cells and TDD cells respectively.>*

When in active mode, the UE continuously searches for new base stations on the current carrier frequency. This cell search is carried out in basically the same way as the idle mode cell search.

#### 7.1.1.1.1 Cell selection monitoring frequency or cell set

*<Editor's note : this section should define how the frequencies or cells to measure for the cell selection process are determined. This set should be provided by higher layers in the primitive that triggers the measurement process. Two following two cases might be considered and would lead to two different cell selection monitoring as in GSM. This is to be discussed with WG2.>*

*—Normal cell selection : the UE has no information at switch on. It would perform measurements on frequencies/cell that correspond to the mode it support and that was manually selected if applicable.*

*—Cell selection from stored list. The UE stored some information at switch off. At switch on cell selection is performed based on this stored information.*

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#### 7.1.1.1.2 Cell reselection monitoring frequency or cell set

*<WG1 note : this section should define how the frequencies or cells to measure for the cell reselection process are passed to the physical layer of the UE by higher layers and what information is passed in terms of cell mode, frequency, synchronisation information, in form of scrambling codes.... This set should be provided by the MAC layer in the primitive that triggers the measurement process. This is referred to as the priority list as far as the FDD and TDD cell/frequencies are concerned.>*

From a very general descriptive point of view, when in idle mode, the UE continuously searches for new cells on the current and other carrier frequencies. The measurement for the cell reselection are performed in basically the same way as the cell selection. The main difference compared to the cell selection is that a UE has received a priority list from the UTRAN, called the cell re-selection monitoring set, which provides information relative to the cells to monitor.

As far as FDD cells are concerned, provision of the list significantly reduces the time and effort needed for the scrambling code search (step 3) (see [4]). Also the complexity in the second step may be reduced if the priority list only includes scrambling codes belonging to a subset of the total set of code groups. The priority list is continuously updated to reflect the changing neighbourhood of the moving UE.

*<Editor's note : this last sentence might be misunderstood. The cell reselection monitoring list is most probably cell specific rather than UE specific.>*

Content of the cell reselection monitoring set is further discussed in the following sections for FDD, TDD and GSM cells respectively.

##### 7.1.1.1.2.1 Content of the cell reselection monitoring set for FDD cells

The content of the cell re-selection monitoring set as far as FDD cells are concerned provides the list of FDD cells/frequencies including the downlink scrambling codes and the order in which they should be searched for.

*<Editor's note : it is to be confirmed that the list provides some indication of the order in which the cells have to be searched for.>*

##### 7.1.1.1.2.2 Content of the cell reselection monitoring set for TDD cells

The cell reselection monitoring set describes in which order to search for TDD cells.

*<Editor's note : it is to be confirmed that the list provides some indication of the order in which the cells have to be searched for.>*

### 7.1.1.1.2.3 ~~Content of the cell reselection monitoring set for GSM cells~~

~~To be added~~

### 7.1.1.2 ~~Handover~~

~~<WGI's note : A cell set corresponds a list of cells that the UE needs to monitors for a given period of time, with associated requirements, as seen from the physical layer. Several sets are defined since different requirements might be defined, e.g. some cells might need to be monitored more often than others...It is not clear at this stage how such sets will be provided by higher layers. The primitives that allow the higher layers to control the measurement process in the layer 1 are under definition by the RAN WG2. >~~

~~<editor's note : to illustrate the WGI's note before we would say that several cases might be considered:~~

~~— the MAC has a very fine control of the measurement, upto the frame level, decides on the measurement of particular cells at particular instant and the physical layer report measurement back to the MAC layer e.g. after a compressed frame, some processing being possibly needed by the MAC~~

~~— The MAC provides sets of cells to monitor and monitoring periods in the form of e.g. compressed frame or DTX period and it is up to the physical layer to organise the monitoring~~

~~In the following we consider the second case, because it is more in line with the available documentation from . It the first case of some intermediate case was to be considered in the future then some material of the section would need to be move to the relevant RAN WG2 documentation.~~

~~>~~

### 7.1.1.2.1 ~~Overview of the different sets~~

~~The physical layer of the UE should be provided by higher layers the following lists of cells:~~

~~— Handover Monitoring set : All cells (UTRA or from other systems like GSM) that the UE has been tasked by the UTRAN to monitor when in active mode.~~

~~— Active Set: The UTRA cells currently assigning a downlink DPCH to the UE, which corresponds to the cell between which the UE in a soft handover with. The active set may only correspond to UTRA cells.~~

~~— Handover candidate Set: The cells that are not currently in the Active Set but have been received by the UE with sufficient strength to indicate that the associated DPCHs could be successfully demodulated. These correspond to the cells that are effectively reported by the UE to the UTRAN. These cells may be on the same or different frequencies from the current frequency assignment. Cells in the handover candidate set may be UTRA or GSM cells.~~

~~<Editor's note : Since the scope of this specification to the measurement only, there might not be a need to define the same sets. Only set that would lead to different requirements or process for the measurement need to be defined. Here it is anticipated that cells in the active set, which are the serving cell are measured for each frame, whereas cell which are not part of the active set are not measured as often as every frame. Cells which have been identified by the higher layers as candidate cell may need to be measured more often than other cell, since they are among the x strongest. >~~

### 7.1.1.2.2 ~~Content of the sets~~

#### 7.1.1.2.2.1 ~~Handover monitoring set~~

~~The handover monitoring set contains the cells to be monitored by the UE in connected mode. It is provided to the physical layer by higher layers, as part of the primitives (see [8]). The handover monitoring set may contain cells on the same frequency and/or cells on different frequencies. The following sections indicate which information are included in the handover monitoring set for cell on the same frequency and cells on different frequencies.~~

#### 7.1.1.2.2.1.1 ~~FDD cells on the same frequency~~

~~For each cell to monitor at the same frequency, the handover monitoring list contains at least the following information:~~

~~— SFN measurement indicator which indicates whether the UE should read SFN of the target cell or not.~~

~~— The cell scrambling code used for downlink scrambling.~~

—The cell ID number

It is assumed that the mapping of the cell scrambling codes in relation to the synchronisation channel codes (groups indicated by the secondary synchronisation channel) is known with the code grouping being determined beforehand.

Additionally there can be the following information on the UTRANs where timing information between cells is used:

—The relative timing difference between the cell transmitting the handover monitoring list and each neighbouring cell on the same frequency.

—The estimated accuracy of the timing difference indication.

This can be given for example in the following format:

Example of the timing information with 16 bits reserved for the message.

Code	Measurement accuracy (step)	Estimate of timing difference
00	40 chips	0 to 38400 chips steps of 40 chips
01	256 chips (1/10 slots)	0 to 38400 chips in steps of 256 chips
10	2560 chips (1 slot)	0 to 38400 chips in steps of 2560 chips
11	More than 2560 chips	

*<editor's note : this may be better described in the WG2 documentation. Some text may be however useful here for explanatory purposes>*

#### 7.1.1.2.2.1.2 FDD cells on different frequencies

For each cell to monitor at another frequency, the handover monitoring list contains at least the following information:

—The cell scrambling code used for downlink scrambling.

—The cell ID number

—The carrier centre frequency of the cell

Additionally there can be the following information on the UTRANs where timing information between cells is used:

—The relative timing difference between the cell transmitting the handover monitoring list and each neighbouring cell.

—The estimated accuracy of the timing difference indication.

#### 7.1.1.2.2.1.3 TDD cells

The handover monitoring set contains for each cell to monitor:

—The carrier center frequency information

—an information field for the cell parameters ( $t_{\text{offset}}$ , basic midamble code, scrambling code)

—the timeslot number of the PCCPCH

—Observed time difference of the target cell if available

Each UE has stored a 'cell parameter list' which maps the information field value value to one out of 128 sets of cell parameters. The list is common to all TDD systems and is described in TS 25.223.

#### ~~7.1.1.2.2.1.4 GSM cells~~

~~<editor's note : to be added>~~

#### ~~7.1.1.2.2.2 Active set~~

~~<editor's note : to be added>~~

#### ~~7.1.1.2.2.3 Candidate set~~

~~<editor's note : to be added>~~

## 7.1.2 Compressed mode

### 7.1.2.1 Use of compressed mode/dual receiver for monitoring

A UE shall, on upper layers commands, monitor cells on other frequencies (FDD, TDD, GSM). To allow the UE to perform measurements, upper layers shall command that the UE enters in compressed mode, depending on the UE capabilities.

In case of compressed mode decision, UTRAN shall communicate to the UE the parameters of the compressed mode, described in reference [2], 25.212.

A UE with a single receiver shall support downlink compressed mode.

Every UE shall support uplink compressed mode, when monitoring frequencies which are close to the uplink transmission frequency (i.e. frequencies in the TDD or GSM 1800/1900 bands).

All fixed-duplex UE shall support both downlink and uplink compressed mode to allow inter-frequency handover within FDD and inter-mode handover from FDD to TDD.

*< WGI's note : the use of uplink compressed mode for single receiver UE when monitoring frequencies outside TDD and GSM 1800/1900 bands is for further study >*

UE with dual receivers can perform independent measurements, with the use of a "monitoring branch" receiver, that can operate independently from the UTRA FDD receiver branch. Such UE do not need to support downlink compressed mode.

The following section provides rules to parametrise the compressed mode.

### 7.1.2.2 Parameterisation of the compressed mode

In response to a request from upper layers, the UTRAN shall signal to the UE the compressed mode parameters.

The following parameters characterize a transmission gap :

- TGL : Transmission Gap Length is the duration of no transmission, expressed in number of slots (e.g. used for switching frequency, monitoring).
- SFN : The system frame number when the transmission gap starts
- SN : The slot number when the transmission gap starts

With this definition, it is possible to have a flexible position of the transmission gap in the frame, as defined in [2].

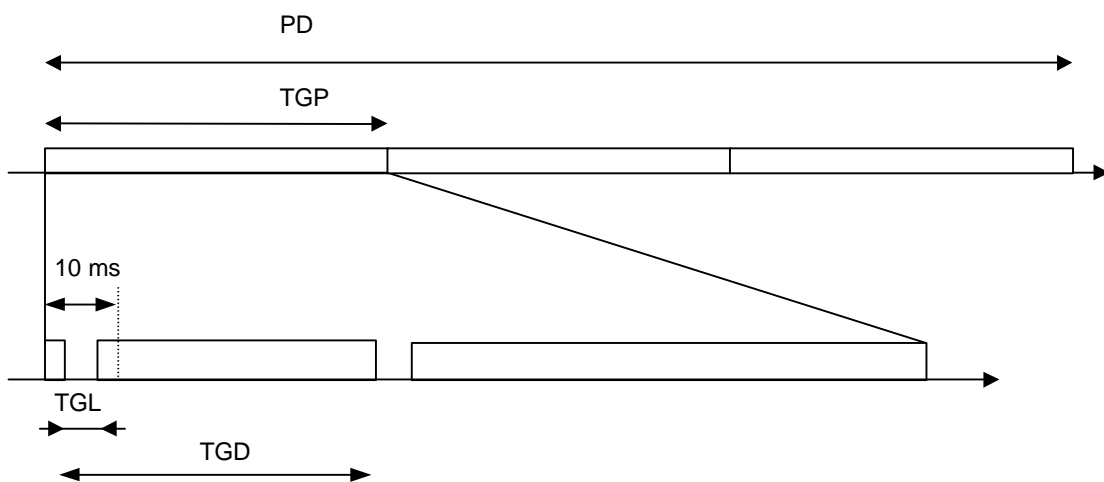
The following parameters characterize a compressed mode pattern :

- TGP : Transmission Gap Period is the period of repetition of a set of consecutive frames containing up to 2 transmission gaps (\*).
- TGL : As defined above
- TGD : Transmission Gap Distance is the duration of transmission between two consecutive transmission gaps within a transmission gap period, expressed in number of frames. In case there is only one transmission gap in the transmission gap period, this parameter shall be set to zero.
- PD: Pattern duration is the total time of all TGPs expressed in number of frames.
- SFN : The system frame number when the first transmission gap starts
- PCM: Power Control Mode specifies the uplink power control algorithm applied during recovery period after each transmission gap in compressed mode. PCM can take 2 values (0 or 1). The different power control modes are described in TS 25.214.

In a compressed mode pattern, the first transmission gap starts in the first frame of the pattern. The gaps have a fixed position in the frames, and start in the slot position defined in [2].

(\*) : Optionally, the set of parameters may contain 2 values TGP1 and TGP2, where TGP1 is used for the 1<sup>st</sup> and the consecutive odd gap periods and TGP2 is used for the even ones. Note if TGP1=TGP2 this is equivalent to using only one TGP value.

In all cases, upper layers has control of individual UE parameters. The repetition of any pattern can be stopped on upper layers command.



*Figure 1 : illustration of compressed mode pattern parameters*



## 7.1.3 Measurements for Handover

### 7.1.3.1 Monitoring of FDD cells on the same frequency

During the measurement process of cells on the same frequencies, the UE shall find the necessary synchronisation to the cells to measure using the primary and secondary synchronisation channels and also the knowledge of the possible scrambling codes in use by the neighbouring cells.

### 7.1.3.2 Monitoring cells on different frequencies

#### 7.1.3.2.1 Monitoring of FDD cells on a different frequency

Upper layers may ask FDD UE to perform preparation of inter-frequency handover to FDD. In such case, the UTRAN signals to the UE the handover monitoring set, and if needed, the compressed mode parameters used to make the needed measurements. Setting of the compressed mode parameters defined in section 7.1.2.2 for the preparation of handover from UTRA FDD to UTRA FDD is indicated in the following section. The compressed mode for IFHO preparation from UTRA-FDD to UTRA-FDD has two different modes. One is "selection-mode". The UE must identify the cell during this mode. The other is "reselection-mode". The UE measures signal strength by the scrambling code already known. Selection mode / reselection mode parameter sets are described in section 7.1.3.2.1.1 / 7.1.3.2.1.2 respectively.

Measurements to be performed by the physical layer is defined in section 6.

#### 7.1.3.2.1.1 Setting of the compressed mode parameters for selection mode

During the transmission gaps, the UE shall perform measurements so as to be able to report to the UTRAN the frame timing, the scrambling code and the Ec/Io of Primary CCPCH of up to the [x] FDD cells in the handover monitoring set.

*<Editor's note : the sentence before is inconsistent with the following section. This inconsistency needs to be solved>*

When compressed mode is used for cell acquisition at each target FDD frequency, the parameters of compressed mode pattern are fixed to be :

	TGL	TGD	TGP1	TGP2	PD
Pattern1	7	24/15	4	20	M
Pattern2	7	24/15	4	140	M
Pattern3	7	2	4	Not Used	M
Pattern4	7	2	4	20	M
Pattern5	7	2	4	140	M
Pattern6	14	3	6	18	M
Pattern7	14	3	6	138	M

~~<Note1: Frame method and transmission gap position of each pattern will be proposed in R1-99b99>~~

~~<Note2: The frequency switching time required for UE is assumed to be 666us (equal to the slot duration) which includes implementation margin. This assumption means UE will consume 1slot of TGL for frequency switching (go and return) time.>~~

#### 7.1.3.2.1.2 Setting of the compressed mode parameters for reselection mode

This parameter sets are used for UE which has already known the downlink scrambling code. UTRAN indicate which pattern will be used by UE.. According to the result during reselection mode, If needed, UTRAN will indicate the transition back to the selection mode.

	TGL	TGD	TGP1	TGP2	PD
Pattern8	7	0	72	Not Used	M
Pattern9	7	0	144	Not Used	M

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*for descriptive purposes to illustrate how to set the compressed mode parameters. Such requirements should be found in the WG4 documentation>*

#### 7.1.3.2.3.1 Setting of compressed mode parameters for Power measurements

When compressed mode is used for GSM BCCH power measurements, the parameters of compressed mode pattern are fixed to be :

Pattern No.	TGL	TGD	TGP	PD
1	3	0	8	128
2	tbd	tbd	tbd	tbd

3	tbd	tbd	tbd	tbd
4	tbd	tbd	tbd	tbd

Pattern 1 allows measuring all the adjacent cell signal levels even with the maximum of 32 frequencies, if two measurements are done during each transmission gap. The pattern can be repeated by sending the measurement request again, if more measurement data is desired.

< NOTE: Further compressed mode patterns with more and/or longer gaps for making more measurements will be introduced soon. >

In order to fulfil the expected GSM power measurements requirement, the UE can get effective measurements samples during a time window of length  $T_{meas}$ , equal to the transmission gap length reduced by an implementation margin of  $[2*500 \mu s + 200 \mu s]$ , which includes the maximum allowed delay for a UE's synthesizer to switch from one FDD frequency to one GSM frequency and switch back to FDD frequency, plus some additional implementation margin.

#### 7.1.3.2.3.2 Setting of compressed mode parameters for first SCH decoding without prior knowledge of timing information

The setting of the compressed mode parameters is described in this section when used for first SCH decoding of one cell when there is no knowledge about the relative timing between the current FDD cells and the neighbouring GSM cell.

On upper layers command, UE shall pre-synchronise to the each of GSM cells in the handover monitoring set and decode their BSIC. < Note : the proper reference to GSM specs should be added here >

When compressed mode is used to perform initial FCCH/SCH acquisition, the compressed mode pattern belongs to the list of patterns in table .

In order to fulfill the expected GSM SCH speed requirement, the UE can get effective measurements samples during a time window of length  $T_{meas}$ , equal to the transmission gap length reduced by an implementation margin of  $[2*500 \mu s + 200 \mu s]$ , that includes the maximum allowed delay for a UE's synthesizer to switch from one FDD frequency to one GSM frequency and switch back to FDD frequency, plus some additional implementation margin.

	TGL	TGD	TGP	PD parallel search / serial search
Pattern 1	7	0	2	40/64
Pattern 2	7	0	3	39/63
Pattern 3	7	2	9	63/252
Pattern 4	7	3	12	99/123
Pattern 5	14	0	2	12/26
Pattern 6	14	2	6	24/48
Pattern 7	14	2	8	34/58
Pattern 8	14	2	12	60/84
Pattern 9	10	12	48	108/828
Pattern 10	10	0	48	240/1440

*Table .- List of compressed mode patterns used for initial GSM FCCH/SCH acquisition without timing information*

The pattern duration for the parallel search (time until a GSM FCCH or SCH burst is found) and for the serial search (time until a FCCH burst is found) is given.

The patterns 5...8 should mainly be used in such cases where the present signal level suddenly drops and very little time to execute the handover is available. Patterns 1...4 are significantly more optimal from the point of view of the transmission power control than the other ones, while patterns 5...8 consume less slots for the measurements on the average.

Patterns 1...4 may use any pattern described in specification 25.212 chapter 4.4.3.1. Patterns 5...10 must use the double frame method.

The patterns 9 and 10 are optimised for least consumption of slots for the measurements on the average using the parallel search. The patterns 9 and 10 achieve about the same or half the speed of the synchronisation to GSM from GSM. ~~They must use the double frame method, the compression can be achieved by changing the coding rate from 1/3 to 1/2.~~

Each pattern corresponds to a different compromise between speed of GSM SCH search and rate of use of compressed frames. On upper layers command, the repetition of the selected pattern can be stopped and/or replaced by one of the other listed patterns. Upper layers may also decide to alternate the use of different patterns periods.

Depending on the UE's capabilities, the search procedure may be sequential (tracking of FCCH burst before decoding of the first SCH) or parallel (parallel tracking of FCCH and SCH bursts). The latter solution achieves SCH decoding faster than the first one, thus decreasing the needed number of repeated patterns.

Once the UE has completed the search it signals the UTRAN with FCCH-found or SCH-found, both with the timing of the associated SCH burst, or with FCCH/SCH-not-found (see < *Editor's note : reference to be inserted here* >).

In case of FCCH-found, the UTRAN can continue the current pattern until also SCH is found or stop it and schedule a single, properly aligned gap for SCH search as described in 7.1.3.2.3.3.

Whenever UE receives a new neighbour cell with a sufficiently high power level (see < *Editor's note : reference to be inserted here* >), it shall perform a new SCH search procedure.

When a compressed mode pattern is available, then it is up to the UE to trigger this search procedure with the available transmission gaps. In this case, no specific signalling is needed between the UE and the UTRAN.

When a compressed mode pattern is not available, the UE shall initiate the search procedure by sending a "request new cell search" message to the UTRAN. Based on the UE's capabilities for serial or parallel search as described above, the UTRAN then determines a suitable compressed mode pattern and signals this to the UE. The upper layers can delay the onset of this pattern depending on the timing priority the Network Operator has set for new BSIC identification.

#### 7.1.3.2.3.3 Setting of compressed mode parameters for first SCH decoding with prior timing information between UTRAN serving cells and GSM target cells

UTRAN or UE may have some prior knowledge of timing difference between some FDD cells in UE's active set and some GSM cells in the handover monitoring set. When this information is acquired by the UE (e.g. after initial FCCH/SCH detection) and on upper layers command, the UE shall report it to the upper layers for verification of UTRAN's information, and feedback of this information from UTRAN to the other UE.

When UTRAN or UE have this prior timing information, the compressed mode shall be scheduled by upper layers with the intention that SCH (or FCCH if needed) on a specific GSM band can be decoded at the UE during the transmission gap.

The transmission gap parameters used for GSM FCCH/SCH tracking with prior timing information are :

TGL	SFN	SN
4	(calculated by UTRAN)	(calculated by UTRAN)

In addition to normal compressed mode parameters, UTRAN signals the following information to the UE :

- The GSM carrier for which the particular compressed frame is intended (BS ID, carrier no, etc.)

Once the UE has completed the search, it signals the UTRAN with the timing of the associated SCH burst or with SCH-not-found.

#### 7.1.3.2.3.4 Setting of compressed mode parameters for SCH decoding for BSIC reconfirmation and procedure at the UE

In this paragraph it is assumed that the UE has successfully decoded one SCH burst of a given neighbouring GSM cell during the call.

When a compressed mode pattern is available, then it is up to the UE to trigger and perform the BSIC reconfirmation procedure with the available transmission gaps. In this case, no specific signalling is needed between the UE and the UTRAN for BSIC reconfirmation procedure.

When no compressed mode pattern is available then it is up to the UE to trigger and perform the BSIC reconfirmation procedure. In that case, UE indicates to the upper layers the schedule of the SCH burst of that cell, and the size of the necessary transmission gap necessary to capture one SCH burst. The Network Operator decides the target time for BSIC reconfirmation and the upper layers uses this and the schedule indicated by the UE to determine the appropriate compressed mode parameters.

The compressed mode parameters shall be one of those described in section 7.1.3.2.3.3.

#### 7.1.3.2.3.5 Parametrisation of the compressed mode for handover preparation to GSM

Whereas section 7.1.3.2.3.2 described the compressed mode parametrisation for the initial synchronisation tracking or reconfirmation for one cell and the compressed mode parameters for power measurement for one of multiple cells, there is a need to define the global compressed mode parameters when considering the monitoring of all GSM cells.

*<Editor's note : the overall description for the handover to GSM preparation is still missing>*

### ~~7.1.3.3 Overall handover preparation at the UE~~

~~This section should explain how the inter frequency handover preparation from UTRA FDD to UTRA (either FDD or TDD) and from UTRA to GSM are co-ordinated in terms of measurement and reporting at the UE. Whereas Section 7.1.3.2.1, 7.1.3.2.2, and 7.1.3.2.3 give some principle for the monitoring of a given cell type and requirement in e.g. the dimensioning of the slotted mode, this section provides the overall requirement and measurement procedure.~~

### ~~7.1.4 Measurements for cell selection/reselection~~

## 7.2 UTRAN measurements

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# ~~8 Removal of paragraphs from the original TS 25.231 v0.3.1~~

~~The following paragraphs in the original 25.231 v0.3.1 have been deleted or moved to another section.~~

<del>Paragraph</del>	<del>Comment</del>
<del>5.1</del>	<del>Heading 5.1 replaced by heading 5.1.1 in this new structure. Some of the editor text between section 5.1 to 5.1.1 removed.</del>

Paragraph	Comment
5.1.1	Moved to 7.1.1.1, minor editorial changes (e.g. to wrong references).
5.1.2	Measurement abilities defined in section 6.
5.2	Heading 5.2 replaced by heading 7.1.1 in this new structure.
5.2.1	Moved to 7.1.1.1, minor editorial changes (e.g. to wrong references).
5.2.2	Measurement abilities defined in section 6.
6	Measurements at call set-up, DCA measurements, TDD only, removed.
7.1	Heading 7.1 replaced by heading 7.1.1.2 in this new structure.
7.1.2	Removed. Not a WG1 issue.
7.1.3	Heading removed.
7.1.3.1	Removed, empty section.
7.1.3.2	Partly removed, this section also contained what to measure for handover, the measurements are now described in section 6.
7.1.3.3	Heading 7.1.3.3 replaced by heading 7.1.3 in this new structure.
7.1.3.3.1	Moved into section Compressed mode, 7.1.2
7.1.3.3.2	Moved into section Compressed mode, 7.1.2
7.1.3.3.3	Measurement requirements handled by WG4.
7.1.3.3.4.2	Measurement abilities defined in section 6.
7.1.3.3.5.2	Measurement abilities defined in section 6.
7.1.4	Measurements for the Handover preparation in FDD at the UTRAN side (empty section), removed; measurement quantities handled in section 6.
7.1.5	TDD section
7.1.6	TDD section
7.1.7	TDD section
7.2	Measurement for cell reselection in active mode <sup>2</sup> , section not needed, editor's note deleted; contents (one descriptive sentence) moved to 7.1.1.1
7.3	Measurement for power control <sup>1</sup> was interpreted as power control measurements reported over the radio; empty section, deleted.
7.4	TDD section
7.5	Measurements on adjacent channels, removed, not needed?
7.6	Measurements for radio link time out (or syne loss) deleted.
8	Radio Link Measurement section not needed. Measurement quantities are defined in section 6 instead.
Annex 1	Handover scenarios. Completely removed, not an WG1 issue.
Annex 2	Handover execution. Completely removed.

### 3 Proposed LS to WG2

RAN WG1 has reviewed the specification TS 25.215 (Measurements, FDD), and come to the conclusion that some contents in that specification should be described in the WG2 documentation, and more specifically probably in the RRC specification, TS 25.331. RAN WG1 would like to ask RAN WG2 to take the information below into account when updating TS 25.331, since it is WG1's belief that some information needs to be added to the measurement control RRC messages.

RAN WG1 has already as a consequence of this liaison statement removed the information below from TS 25.215.

For **FDD to FDD handover measurements on the same frequency**, and **FDD to FDD handover measurements on other frequencies**, WG1 has identified the need for the UE to have at least the following information:

- The cell scrambling code used for downlink scrambling.
- The cell ID number. This may not be necessary if the scrambling code is known, and certain assumptions can be made about the cell planning.
- The carrier centre frequency. (Only for measurements on other frequencies)
- SFN measurement indicator which indicates whether the UE should read SFN of the target cell or not. (Only for measurements on same frequency)

Additionally there can be the following information if timing information between cells is used:

- The relative timing difference between the cell transmitting the handover monitoring list and each neighbouring cell on the same frequency.
- The estimated accuracy of the timing difference indication.

This timing information can be given for example in the following format, where 16 bits are used for the message:

Code	Measurement accuracy (step)	Estimate of timing difference
00	40 chips	0 to 38400 chips steps of 40 chips
01	256 chips (1/10 slots)	0 to 38400 chips in steps of 256 chips
10	2560 chips (1 slot)	0 to 38400 chips in steps of 2560 chips
11	More than 2560 chips	

For **FDD to TDD handover measurements on other frequencies**, WG1 has identified the need for the UE to have at least the following information:

- The carrier center frequency information.
- An information field for the cell parameters ( $t_{\text{offset}}$ , basic midamble code, scrambling code)
- The timeslot number of the PCCPCH.
- Observed time difference of the target cell if available

Each UE has stored a 'cell parameter list' which maps the information field value to one out of 128 sets of cell parameters. The list is common to all TDD systems and is described in TS 25.223.