

**3GPP TSG RAN Meeting #17**  
**Biarritz, France, 3 – 6, September 2002**

**RP-020575**

**Title:** Agreed CRs (Rel-4 and Rel-5 Category A) to TS 25.215

**Source:** TSG-RAN WG1

**Agenda item:** 7.1.4

No.	Spec	CR	Rev	R1 T-doc	Subject	Phase	Cat	Workitem	V_old	V_new
1	25.215	120	-	R1-02-0893	Measurements for observed time difference to GSM cell	Rel-4	F	TEI4	4.4.0	4.5.0
2	25.215	121	-	R1-02-0893	Measurements for observed time difference to GSM cell	Rel-5	A	TEI4	5.0.0	5.1.0
3	25.215	129	-	R1-02-1153	Compressed mode limitation	Rel-4	F	TEI4	4.4.0	4.5.0
4	25.215	130	-	R1-02-1153	Compressed mode limitation	Rel-5	A	TEI4	5.0.0	5.1.0

CR-Form-v7

## CHANGE REQUEST

⌘ **25.215 CR 120** ⌘ rev **-** ⌘ Current version: **4.4.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Measurements for Observed Time difference to GSM cell		
<b>Source:</b>	⌘ TSG RAN WG1		
<b>Work item code:</b>	⌘ TEI4	<b>Date:</b>	⌘ 26/06/2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>2</b> (GSM Phase 2)	
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R96</b> (Release 1996)	
	<b>B</b> (addition of feature),	<b>R97</b> (Release 1997)	
	<b>C</b> (functional modification of feature)	<b>R98</b> (Release 1998)	
	<b>D</b> (editorial modification)	<b>R99</b> (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<b>Rel-4</b> (Release 4)
			<b>Rel-5</b> (Release 5)
			<b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ The definition of the measurement on the P-CCPCH is misleading (the P-CCPCH must be measured from cell i and not on frequency i).
<b>Summary of change:</b>	⌘ The P-CCPCH frame is received from Cell i and not on frequency i
<b>Consequences if not approved:</b>	⌘ The definition of measurement on which the Observed time difference to GSM cell is based will remain erroneous.

<b>Clauses affected:</b>	⌘ 5.1.11										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications	⌘
Y	N										
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		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

### How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 5.1.11 Observed time difference to GSM cell

<b>Definition</b>	<p>The Observed time difference to GSM cell is defined as: <math>T_{RxGSMj} - T_{RxSFNi}</math>, where:</p> <p><math>T_{RxSFNi}</math> is the time at the beginning of the P-CCPCH frame with SFN=0 from cell i. Cell i is an intra-frequency cell.</p> <p><math>T_{RxGSMj}</math> is the time at the beginning of the GSM BCCH 51-multiframe from GSM frequency j received closest in time after the time <math>T_{RxSFNi}</math>. If the next GSM multiframe is received exactly at <math>T_{RxSFNi}</math> then <math>T_{RxGSMj} = T_{RxSFNi}</math> (which leads to <math>T_{RxGSMj} - T_{RxSFNi} = 0</math>). The reference point for the Observed time difference to GSM cell shall be the antenna connector of the UE.</p> <p>The beginning of the GSM BCCH 51-multiframe is defined as the beginning of the first tail bit of the frequency correction burst in the first TDMA-frame of the GSM BCCH 51-multiframe, i.e. the TDMA-frame following the IDLE-frame.</p> <p>The reported time difference is calculated from the actual measurement in the UE. The actual measurement shall be based on:</p> <p><math>T_{MeasGSM,j}</math>: The start of the first tail bit of the most recently received GSM SCH on frequency j</p> <p><math>T_{MeasSFN,i}</math>: The start of the last P-CCPCH frame received on frequency from cell i before receiving the GSM SCH on frequency j</p> <p>For calculating the reported time difference, the frame lengths are always assumed to be 10 ms for UTRA and (60/13) ms for GSM.</p>
<b>Applicable for</b>	Idle, URA_PCH inter-RAT, CELL_PCH inter-RAT, CELL_DCH inter-RAT

CR-Form-v7

## CHANGE REQUEST

⌘ **25.215 CR 121** ⌘ rev **-** ⌘ Current version: **5.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Measurements for Observed Time difference to GSM cell		
<b>Source:</b>	⌘ TSG RAN WG1		
<b>Work item code:</b>	⌘ TEI4	<b>Date:</b>	⌘ 26/06/2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The definition of the measurement on the P-CCPCH is misleading (the P-CCPCH must be measured from cell i and not on frequency i).
<b>Summary of change:</b>	⌘ The P-CCPCH frame is received from Cell i and not on frequency i
<b>Consequences if not approved:</b>	⌘ The definition of measurement on which the Observed time difference to GSM cell is based will remain erroneous.

<b>Clauses affected:</b>	⌘ 5.1.11										
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		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 5.1.11 Observed time difference to GSM cell

<b>Definition</b>	<p>The Observed time difference to GSM cell is defined as: <math>T_{RxGSMj} - T_{RxSFNi}</math>, where:</p> <p><math>T_{RxSFNi}</math> is the time at the beginning of the P-CCPCH frame with SFN=0 from cell i. Cell i is an intra-frequency cell.</p> <p><math>T_{RxGSMj}</math> is the time at the beginning of the GSM BCCH 51-multiframe from GSM frequency j received closest in time after the time <math>T_{RxSFNi}</math>. If the next GSM multiframe is received exactly at <math>T_{RxSFNi}</math> then <math>T_{RxGSMj} = T_{RxSFNi}</math> (which leads to <math>T_{RxGSMj} - T_{RxSFNi} = 0</math>). The reference point for the Observed time difference to GSM cell shall be the antenna connector of the UE.</p> <p>The beginning of the GSM BCCH 51-multiframe is defined as the beginning of the first tail bit of the frequency correction burst in the first TDMA-frame of the GSM BCCH 51-multiframe, i.e. the TDMA-frame following the IDLE-frame.</p> <p>The reported time difference is calculated from the actual measurement in the UE. The actual measurement shall be based on:</p> <p><math>T_{MeasGSM,j}</math>: The start of the first tail bit of the most recently received GSM SCH on frequency j</p> <p><math>T_{MeasSFN,i}</math>: The start of the last P-CCPCH frame received on frequency from cell i before receiving the GSM SCH on frequency j</p> <p>For calculating the reported time difference, the frame lengths are always assumed to be 10 ms for UTRA and (60/13) ms for GSM.</p>
<b>Applicable for</b>	Idle, URA_PCH inter-RAT, CELL_PCH inter-RAT, CELL_DCH inter-RAT

CR-Form-v7

## CHANGE REQUEST

⌘ **25.215 CR 129** ⌘ rev **-** ⌘ Current version: **4.4.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Compressed mode limitation		
<b>Source:</b>	⌘ TSG RAN WG1		
<b>Work item code:</b>	⌘ TEI4	<b>Date:</b>	⌘ 2002-08-21
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>2</b> (GSM Phase 2)	
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R96</b> (Release 1996)	
	<b>B</b> (addition of feature),	<b>R97</b> (Release 1997)	
	<b>C</b> (functional modification of feature)	<b>R98</b> (Release 1998)	
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	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<b>Rel-4</b> (Release 4)
			<b>Rel-5</b> (Release 5)
			<b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ The current assumption of compressed mode pattern is two transmission gap in one frame is not allowed. The different compressed mode sequence is checked in RRC spec but the same compressed mode pattern sequence is not explicitly limited.
<b>Summary of change:</b>	⌘ Two transmission gap in one frame is not allowed is explicitly specified.
<b>Consequences if not approved:</b>	⌘ What type of compressed mode pattern is allowed is not clear. This may bring interoperability problem.

<b>Clauses affected:</b>	⌘ 6.1.1.2										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	⌘	X	⌘	X	⌘	X	Other core specifications	⌘
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⌘	X										
		Test specifications									
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<b>Other comments:</b>	⌘										

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### 6.1.1.2 Parameterisation of the compressed mode

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

A transmission gap pattern sequence consists of alternating transmission gap patterns 1 and 2, each of these patterns in turn consists of one or two transmission gaps. See figure 1.

The following parameters characterise a transmission gap pattern:

- TGSN (Transmission Gap Starting Slot Number): A transmission gap pattern begins in a radio frame, henceforward called first radio frame of the transmission gap pattern, containing at least one transmission gap slot. TGSN is the slot number of the first transmission gap slot within the first radio frame of the transmission gap pattern;
- TGL1 (Transmission Gap Length 1): This is the duration of the first transmission gap within the transmission gap pattern, expressed in number of slots;
- TGL2 (Transmission Gap Length 2): This is the duration of the second transmission gap within the transmission gap pattern, expressed in number of slots. If this parameter is not explicitly set by higher layers, then  $TGL2 = TGL1$ ;
- TGD (Transmission Gap start Distance): This is the duration between the starting slots of two consecutive transmission gaps within a transmission gap pattern, expressed in number of slots. The resulting position of the second transmission gap within its radio frame(s) shall comply with the limitations of [2]. If this parameter is not set by higher layers, then there is only one transmission gap in the transmission gap pattern;
- TGPL1 (Transmission Gap Pattern Length): This is the duration of transmission gap pattern 1, expressed in number of frames;
- TGPL2 (Transmission Gap Pattern Length): This is the duration of transmission gap pattern 2, expressed in number of frames. If this parameter is not explicitly set by higher layers, then  $TGPL2 = TGPL1$ .

The following parameters control the transmission gap pattern sequence start and repetition:

- TGPRC (Transmission Gap Pattern Repetition Count): This is the number of transmission gap patterns within the transmission gap pattern sequence;
- TGCFN (Transmission Gap Connection Frame Number): This is the CFN of the first radio frame of the first pattern 1 within the transmission gap pattern sequence.

In addition to the parameters defining the positions of transmission gaps, each transmission gap pattern sequence is characterised by:

- UL/DL compressed mode selection: This parameter specifies whether compressed mode is used in UL only, DL only or both UL and DL;
- UL compressed mode method: The methods for generating the uplink compressed mode gap are spreading factor division by two or higher layer scheduling and are described in [2];
- DL compressed mode method: The methods for generating the downlink compressed mode gap are puncturing, spreading factor division by two or higher layer scheduling and are described in [2];
- downlink frame type: This parameter defines if frame structure type 'A' or 'B' shall be used in downlink compressed mode. The frame structures are defined in [2];
- scrambling code change: This parameter indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'. Alternative scrambling codes are described in [3];
- RPP: Recovery Period Power control mode specifies the uplink power control algorithm applied during recovery period after each transmission gap in compressed mode. RPP can take 2 values (0 or 1). The different power control modes are described in [4];
- ITP: Initial Transmit Power mode selects the uplink power control method to calculate the initial transmit power after the gap. ITP can take two values (0 or 1) and is described in [4].

The UE shall support simultaneous compressed mode pattern sequences which can be used for different measurements. The following measurement purposes can be signalled from higher layers:

- FDD
- TDD
- GSM carrier RSSI measurement
- Initial BSIC identification
- BSIC re-confirmation.

The UE shall support one compressed mode pattern sequence for each measurement purpose while operating in FDD mode, assuming the UE needs compressed mode to perform the respective measurement. In case the UE supports several of the measurement purposes, it shall support in parallel one compressed mode pattern sequence for each supported measurement purpose where the UE needs compressed mode to perform the measurement. The capability of the UE to operate in compressed mode in uplink and downlink is given from the UE capabilities.

The GSM measurements Initial BSIC identification and BSIC re-confirmation are defined in [20].

Higher layers will ensure that the compressed mode gaps do not overlap and are not scheduled to overlap the same frame. The behaviour when an overlap occurs is described in [11]. UE is not required to support two compressed mode gaps in a frame.

In all cases, higher layers have control of individual UE parameters. Any pattern sequence can be stopped on higher layers' command.

The parameters TGSN, TGL1, TGL2, TGD, TGPL1, TGPL2, TGPRC and TGCFN shall all be integers.

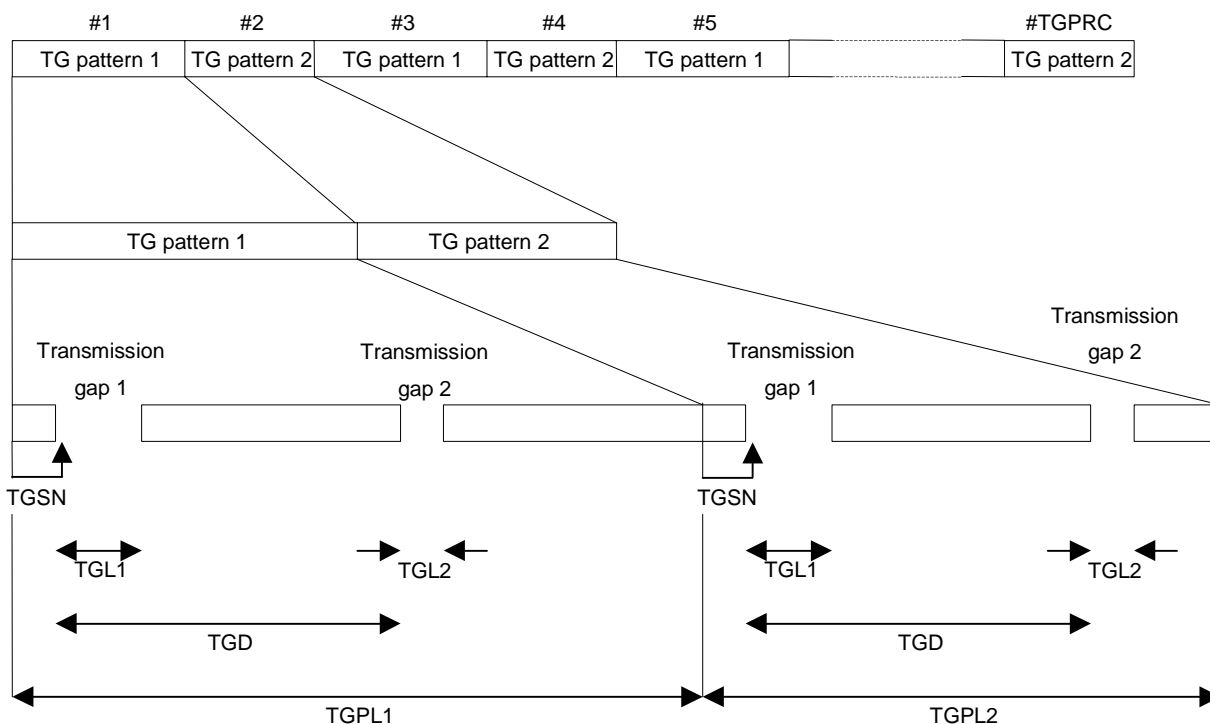


Figure 1: Illustration of compressed mode pattern parameters

## CHANGE REQUEST

⌘ **25.215 CR 130** ⌘ rev **-** ⌘ Current version: **5.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

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<b>Title:</b>	⌘ Compressed mode limitation		
<b>Source:</b>	⌘ TSG RAN WG1		
<b>Work item code:</b>	⌘ TEI4	<b>Date:</b>	⌘ 2002-08-21
<b>Category:</b>	⌘ <b>A</b>		<b>Release:</b> ⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
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<b>Summary of change:</b>	⌘ Two transmission gap in one frame is not allowed is explicitly specified.
<b>Consequences if not approved:</b>	⌘ What type of compressed mode pattern is allowed is not clear. This may bring interoperability problem.

<b>Clauses affected:</b>	⌘ 6.1.1.2										
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In response to a request from higher layers, the UTRAN shall signal to the UE the compressed mode parameters.

A transmission gap pattern sequence consists of alternating transmission gap patterns 1 and 2, each of these patterns in turn consists of one or two transmission gaps. See figure 1.

The following parameters characterise a transmission gap pattern:

- TGSN (Transmission Gap Starting Slot Number): A transmission gap pattern begins in a radio frame, henceforward called first radio frame of the transmission gap pattern, containing at least one transmission gap slot. TGSN is the slot number of the first transmission gap slot within the first radio frame of the transmission gap pattern;
- TGL1 (Transmission Gap Length 1): This is the duration of the first transmission gap within the transmission gap pattern, expressed in number of slots;
- TGL2 (Transmission Gap Length 2): This is the duration of the second transmission gap within the transmission gap pattern, expressed in number of slots. If this parameter is not explicitly set by higher layers, then  $TGL2 = TGL1$ ;
- TGD (Transmission Gap start Distance): This is the duration between the starting slots of two consecutive transmission gaps within a transmission gap pattern, expressed in number of slots. The resulting position of the second transmission gap within its radio frame(s) shall comply with the limitations of [2]. If this parameter is not set by higher layers, then there is only one transmission gap in the transmission gap pattern;
- TGPL1 (Transmission Gap Pattern Length): This is the duration of transmission gap pattern 1, expressed in number of frames;
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The following parameters control the transmission gap pattern sequence start and repetition:

- TGPRC (Transmission Gap Pattern Repetition Count): This is the number of transmission gap patterns within the transmission gap pattern sequence;
- TGCFN (Transmission Gap Connection Frame Number): This is the CFN of the first radio frame of the first pattern 1 within the transmission gap pattern sequence.

In addition to the parameters defining the positions of transmission gaps, each transmission gap pattern sequence is characterised by:

- UL/DL compressed mode selection: This parameter specifies whether compressed mode is used in UL only, DL only or both UL and DL;
- UL compressed mode method: The methods for generating the uplink compressed mode gap are spreading factor division by two or higher layer scheduling and are described in [2];
- DL compressed mode method: The methods for generating the downlink compressed mode gap are puncturing, spreading factor division by two or higher layer scheduling and are described in [2];
- downlink frame type: This parameter defines if frame structure type 'A' or 'B' shall be used in downlink compressed mode. The frame structures are defined in [2];
- scrambling code change: This parameter indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'. Alternative scrambling codes are described in [3];
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The parameters TGSN, TGL1, TGL2, TGD, TGPL1, TGPL2, TGPRC and TGCFN shall all be integers.

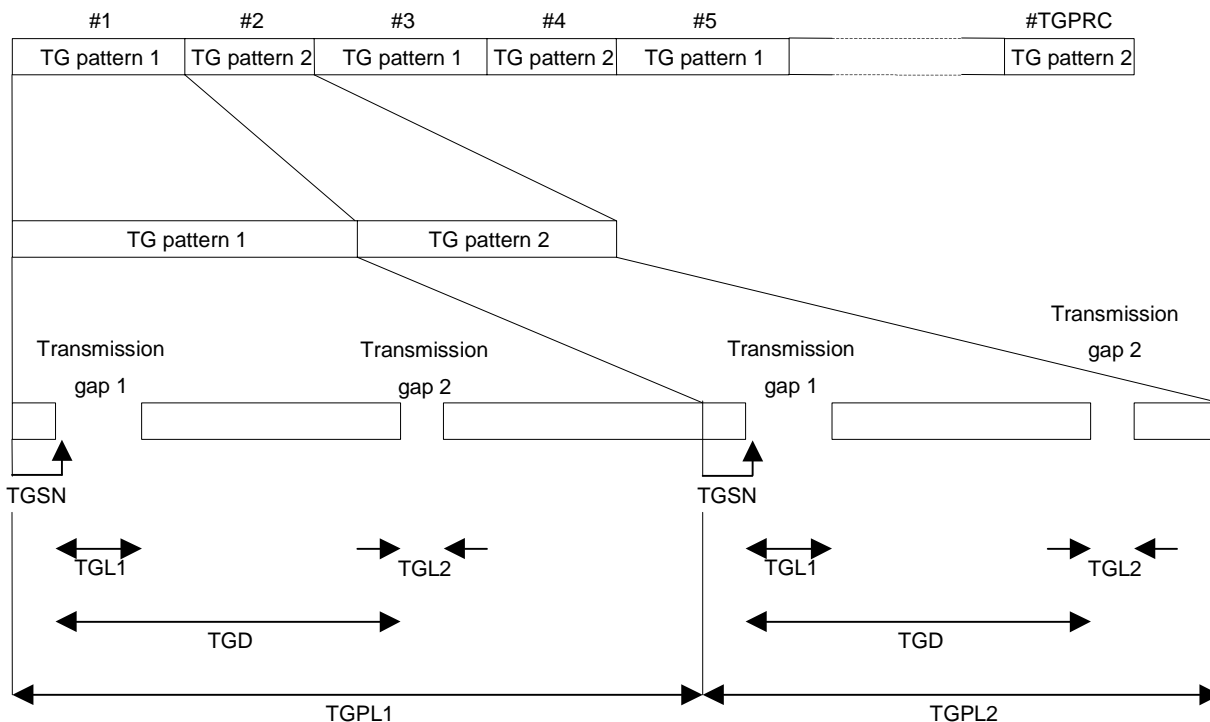


Figure 1: Illustration of compressed mode pattern parameters