SubMenu

NOKIA

Counter Changes between Releases S10 and S10.5

Contents

List of tables

1 Introduction to Counter Changes between Releases S10 and S10.5

The purpose of this document is to describe the counters that are included in the BSC S10.5 software release. The counters have been introduced either to complement the new set of S10.5 features, or to improve the existing set of measurements.

The S10.5 software release includes improvements to the existing measurements and counters related to the following new features:

- BSS10101 GSM-WCDMA Inter-System Handover
- BSS10087 GSM/EDGE 800/1900 Dual Band
- BSS10087 GSM/EDGE 800/1900 Common BCCH

2 Overview of the new counters in S10.5

The BSC S10.5 software release introduces roughly one hundred new counters for monitoring the performance of the network. The new counters are either associated with a new feature that is present in the BSS10.5 software, or are improvements to the existing set of measurements.

The new counters in the existing measurements are:

Traffic Measurement	001191-001194
Resource Availability Measurement	002069-002072
Resource Access Measurement	003059-003063
Handover Measurement	004144-004173
TBF Observation for GPRS Trace	025005, 025010, 025071, 025072, 025177
BSC Level Clear Code (PM) Measurement	051151-051153
BSC Level Clear Code (SERLEV) Measurement	057039-057046
MS Capability Indication Measurement	071035-071036
Packet Control Unit Measurement	072107-072110
Non-BCCH Layer Offset Measurement	092043-092082

The new measurements are:

UTRAN Handover Adjacent Cell Measurement	093000-093007
	093248-093258
UTRAN Neighbouring Cell Signal Level Measurement	094000-094007
	094188-094193

For the purposes of this document the counters are divided according to the new BSS10.5 features that they relate to, rather than the measurement type. Each section in this document gives a brief description of each feature in the S10.5 release. It then details the counters associated with the new feature.

3 New counters due to BSS10101 GSM-WCDMA Inter-System Handover

GSM-WCDMA Interworking in GSM means Inter System handover from GSM BSS to WCDMA RAN and the same vice versa.

In order for an operator to provide seamless coverage in areas where WCDMA is not available, for example in rural areas, inter-system handovers provide a method of extending the radio network coverage area by making a handover from the WCDMA network to the GSM network.

Additionally, in situations where the WCDMA network and GSM network overlap, an inter-system handover from GSM to WCDMA can be made in order to release the traffic load in GSM system.

There are quite substantial benefits of having inter-system handovers in place. The benefits include seamless coverage extension for 3G with existing GSM network (or vice versa), capacity extension for GSM with load sharing between 3G and GSM, and 3G services to all dual-mode subscribers. Both the circuit switched (handover and MS cell re-selection) and packet switched (MS cell re-selection and Network controlled cell re-selection) modes will be supported.

For more information on the feature, see GSM-WCDMA Inter-System Handover Feature Description.

3.1 New counters in Handover Measurement

No	**004144**
COUNTER NAME	**MSC I TCH HO FROM WCDMA RAN ATTEMPT**
EXPLANATION	Number of incoming (WCDMA RAN to GSM) inter-system handover attempts.

No	**004145**
COUNTER NAME	**MSC I WCDMA RAN HO ATTEMPT UNSUCC DUE LACK**
EXPLANATION	Number of incoming (WCDMA RAN to GSM) handover requests rejected by the BSC due to lack of resources.

No	**004146**
COUNTER NAME	**MSC I WCDMA RAN HO ATTEMPT UNSUCC DUE BSS PROBLEM**
EXPLANATION	Number of incoming (WCDMA RAN to GSM) handovers which are unsuccessful due to BSS problems.

No	**004147**
COUNTER NAME	**MSC I WCDMA RAN END OF HO**
EXPLANATION	Number of the end of inter-system handover procedures in incoming (WCDMA RAN to GSM) HOs.

No	**004148**
COUNTER NAME	**MSC I UNSUCCESS HO WCDMA RAN DUE CONN**
EXPLANATION	Number of incoming (WCDMA RAN to GSM) Inter-System HOs which are unsuccessful due to a connection failure.

No	**004149**
COUNTER NAME	**MSC I HO WCDMA RAN TCH SUCCESS**
EXPLANATION	Number of successfully completed incoming (WCDMA RAN to GSM) handovers.

No	**004150**
COUNTER NAME	**MSC O TCH HO TO WCDMA RAN ATTEMPT**
EXPLANATION	Number of outgoing (GSM to WCDMA RAN) HO attempts controlled by the MSC. Signal strength (Ec/No) and the load of the serving GSM cell are above the thresholds.

No	**004151**
COUNTER NAME	**MSC O HO TO WCDMA RAN NOT ALLOWED**
EXPLANATION	Number of outgoing (GSM to WCDMA RAN) inter-system HOs controlled by the MSC which are unsuccessful because Hos are not allowed.

No	**004152**
COUNTER NAME	**MSC O END OF HO TO WCDMA RAN DUE BSS**
EXPLANATION	Number of the end of outgoing (GSM to WCDMA RAN) handover procedures due to BSS problems (outgoing HO controlled by the MSC).

No	**004153**
COUNTER NAME	**MSC O GEN INTER SYSTEM TO WCDMA RAN HANDOVER REQ MESSAGES**
EXPLANATION	Total number of HANDOVER_REQUIRED messages generated by outgoing (GSM to WCDMA RAN) inter-system HOs controlled by the MSC.

No	**004154**
COUNTER NAME	**MSC O GEN INTER SYSTEM TO WCDMA RAN HANDOVER COM MESSAGES**
EXPLANATION	Number of the INTER_SYSTEM_HANDOVER_TO_WCDMA_RAN_COMMAND messages generated by outgoing (GSM to WCDMA RAN) inter-system HOs controlled by the MSC.

No	004155
COUNTER NAME	**MSC O TO WCDMA RAN FAIL LACK**
EXPLANATION	Number of outgoing (GSM to WCDMA RAN) inter-system HOs controlled by the MSC which are unsuccessful due to no radio resources available in the target cell.

No	004156
COUNTER NAME	**MSC O END OF HO TO WCDMA RAN**
EXPLANATION	Number of the end of handover procedures for outgoing (GSM to WCDMA RAN) HO controlled by the MSC.

No	004157
COUNTER NAME	**MSC O CALL DROP DURING HO TO WCDMA RAN**
EXPLANATION	Number of dropped calls during outgoing (GSM to WCDMA RAN) HOs after the HANDOVER COMMAND is received from the MSC.

No	004158
COUNTER NAME	**MSC O TO WCDMA RAN SUCCESS TCH HO**
EXPLANATION	Number of successful outgoing (GSM to WCDMA RAN) HOs controlled by the MSC.

Related topics

Handover Measurement

3.2 New counters in BSC Level Clear Code (PM) Measurement

No	**051151**
COUNTER NAME	**EXT IN ISHO**
EXPLANATION	Number of successful incoming inter-system (WCDMA RAN to GSM) handovers controlled by MSC.

No	**051152**
COUNTER NAME	**EXT OUT ISHO**
EXPLANATION	Number of successful outgoing inter-system (GSM to WCDMA RAN) handovers controlled by MSC.

Related topics

BSC Level Clear Code (PM) Measurement

3.3 New counters in BSC Level Clear Code (SERLEV) Measurement

No	**057039**
COUNTER NAME	**WCDMA RAN TO GSM HO FAILURE TARGET**
EXPLANATION	Number of failures during inter-system HO signalling on the target side (WCDMA RAN to GSM HO).

No	**057040**
COUNTER NAME	**WCDMA RAN TO GSM HO SUCCESS**
EXPLANATION	Number of successful inter-system handovers from WCDMA RAN to GSM.

No	**057041**
COUNTER NAME	**GSM TO WCDMA RAN HO FAILURE SOURCE**
EXPLANATION	Number of failures during inter-system HO signalling on the source side (GSM to WCDMA RAN HO).

No	**057042**
COUNTER NAME	**GSM TO WCDMA RAN HO SUCCESS**
EXPLANATION	Number of successful inter-system handovers from GSM to WCDMA RAN.

Related topics

BSC Level Clear Code (SERLEV) Measurement

3.4 New measurement: UTRAN Handover Adjacent Cell Measurement

No	**093000**
COUNTER NAME	**LAC/SAC 1**
EXPLANATION	Location Area Code and Service Area Code (LAC/SAC) pair of the adjacent WCDMA RAN cell 1.

No	**093001**
COUNTER NAME	**PLMN ID 1**
EXPLANATION	PLMN identification (MCC/MNC pair) of the WCDMA RAN cell 1.

No	**093002**
COUNTER NAME	**HO ATT TO WCDMA RAN CELL 1**
EXPLANATION	Number of inter-system handover attempts to the WCDMA RAN cell 1.

No	**093003**
COUNTER NAME	**HO SUCC TO WCDMA RAN CELL 1**
EXPLANATION	Number of successful inter-system handovers to the WCDMA RAN cell 1.

No	**093004**
COUNTER NAME	**HO FAIL DUE RES TO WCDMA RAN CELL 1**
EXPLANATION	Number of inter-system handovers failed due to lack of radio resources to the WCDMA RAN cell 1.

No	**093005**
COUNTER NAME	**HO ATT FROM WCDMA RAN CELL 1**
EXPLANATION	Number of inter-system handover attempts from the WCDMA RAN cell 1.

No	**093006**
COUNTER NAME	**HO SUCC FROM WCDMA RAN CELL 1**
EXPLANATION	Number of successful inter-system handovers from the WCDMA RAN cell 1.

No	**093007**
COUNTER NAME	**HO FAIL DUE RES FROM WCDMA RAN CELL 1**
EXPLANATION	Number of inter-system handovers from the WCDMA RAN cell 1 failed due to lack of resources.

These counters are repeated for WCDMA RAN neighbouring cells 1 .. 32

No	**093248**
COUNTER NAME	**LAC/SAC 32**
EXPLANATION	Location Area Code and Service Area Code (LAC/SAC) pair of the adjacent WCDMA RAN cell 32.

No	**093249**
COUNTER NAME	**PLMN ID 32**
EXPLANATION	PLMN identification (MCC/MNC pair) of the adjacent WCDMA RAN cell 32.

No	**093250**
COUNTER NAME	**HO ATT TO WCDMA RAN CELL 32**
EXPLANATION	Number of inter-system handover attempts to the WCDMA RAN cell 32.

No	**093251**
COUNTER NAME	**HO SUCC TO WCDMA RAN CELL 32**
EXPLANATION	Number of successful inter-system handovers to the WCDMA RAN cell 32.

No	**093252**
COUNTER NAME	**HO FAIL DUE RES TO WCDMA RAN CELL 32**
EXPLANATION	Number of inter-system handovers failed due to lack of radio resources to the WCDMA RAN cell 32.

No	**093253**
COUNTER NAME	**HO ATT FROM WCDMA RAN CELL 32**
EXPLANATION	Number of inter-system handover attempts from the WCDMA RAN cell 32.

No	**093254**
COUNTER NAME	**HO SUCC FROM WCDMA RAN CELL 32**
EXPLANATION	Number of successful inter-system handovers from the WCDMA RAN cell 32.

No	**093255**
COUNTER NAME	**HO FAIL DUE RES FROM WCDMA RAN CELL 32**
EXPLANATION	Number of inter-system handovers from the WCDMA RAN cell 32 failed due to lack of resources.

No	**093256**
COUNTER NAME	**HO ATT FROM UNDEFINED WCDMA RAN CELLS**
EXPLANATION	Number of inter-system handover attempts from the undefined WCDMA RAN cells.

No	**093257**
COUNTER NAME	**HO SUCC FROM UNDEFINED WCDMA RAN CELLS**
EXPLANATION	Number of successful inter-system handovers from the undefined WCDMA RAN cells.

No	**093258**
COUNTER NAME	**HO FAIL DUE RES FROM UNDEFINED WCDMA RAN CELLS**
EXPLANATION	Number of inter-system handovers from the undefined WCDMA RAN cells failed due to lack of resources.

Related topics

UTRAN Handover Adjacent Cell Measurement

3.5 New measurement: UTRAN Neighbouring Cell Signal Level Measurement

No	**094000**
COUNTER NAME	**LOWER EC/NO LIMIT**
EXPLANATION	Lower limit for Ec/No classification. Default value is used until user has given a value for this limit while modifiying this measurement.

No	**094001**
COUNTER NAME	**UPPER EC/NO LIMIT**
EXPLANATION	Upper limit for Ec/No classification. Default value is used until user has given a value for this limit while modifiying this measurement.

No	**094002**
COUNTER NAME	**LAC/RNC ID 1**
EXPLANATION	Location Area Code and Radio Network Controller identifier for WCDMA RAN adjacent cell 1.

No	**094003**
COUNTER NAME	**PLMN ID 1**
EXPLANATION	Public Land Mobile Network Identification of WCDMA RAN adjacent cell 1.

No	**094004**
COUNTER NAME	**CELL ID 1**
EXPLANATION	Cell Identification of WCDMA RAN adjacent cell 1.

No	**094005**
COUNTER NAME	**ECNO REPORTS BELOW LOWER LIMIT 1**
EXPLANATION	Number of Chip Energy per Total Received Channel Power Density (Ec/No) on Common Pilot Channel (CPICH) reports having a value below or equal to the lower limit.

No	**094006**
COUNTER NAME	**ECNO REPORTS BETWEEN LIMITS 1**
EXPLANATION	Number of Chip Energy per Total Received Channel Power Density (Ec/No) on Common Pilot Channel (CPICH) reports having a value between the given limits.

No	**094007**
COUNTER NAME	**EC/NO REPORTS ABOVE UPPER LIMIT 1**
EXPLANATION	Number of Chip Energy per Total Received Channel Power Density (Ec/No) on Common Pilot Channel (CPICH) reports having a value above or equal to the upper limit.

These counters are repeated for WCDMA RAN neighbouring cells 1 .. 32

No	**094188**
COUNTER NAME	**LAC / RNC ID 32**
EXPLANATION	Location Area Code and Radio Network Controller identifier for WCDMA RAN adjacent cell 32.

No	**094189**
COUNTER NAME	**PLMN ID 32**
EXPLANATION	Public Land Mobile Network Identification of WCDMA RAN adjacent cell 32.

No	094190
COUNTER NAME	**CELL ID 32**
EXPLANATION	Cell Identification of WCDMA RAN adjacent cell 32.

No	094191
COUNTER NAME	**EC/NO REPORTS BELOW LOWER LIMIT 32**
EXPLANATION	Number of Chip Energy per Total Received Channel Power Density (Ec/No) on Common Pilot Channel (CPICH) reports having a value below or equal to the lower limit.

No	094192
COUNTER NAME	**EC/NO REPORTS BETWEEN LIMITS 32**
EXPLANATION	Number of Chip Energy per Total Received Channel Power Density (Ec/No) on Common Pilot Channel (CPICH) reports having a value between the given limits.

No	094193
COUNTER NAME	**EC/NO REPORTS ABOVE UPPER LIMIT 32**
EXPLANATION	Number of Chip Energy per Total Received Channel Power Density (Ec/No) on Common Pilot Channel (CPICH) reports having a value above or equal to the upper limit.

Related topics

UTRAN Neighbouring Cell Signal Level Measurement

4 New counters due to BSS10087 GSM/EDGE 800/1900 Dual Band

Dual Band for GSM 800/GSM 1900 enhances the existing dual band capability of the Nokia BSS to cover the combining of GSM 800 and GSM 1900 frequency bands into the same network. This feature helps the GSM operators to cope with the GSM traffic when operating with these two frequencies bands in their spectrum limited networks. It will allow dual band mobile stations to use both GSM 800 and GSM 1900 bands of a single operator.

The BCCH can be configured in either bands, and this should be kept the same throughout the network, i.e., the BCCH should be configured in the same band for all the cells, which are using common BCCH. Handovers between GSM 800 and GSM 1900 are possible after GSM 800/GSM 1900 Common BCCH feature is taken into use.

For more information on the feature, see Dual Band Network Operation.

4.1 New counters in MS Capability Indication Measurement

The measurement gives information on the traffic distribution. In the measurement the Handover and Power Control (HO&PC) algorithm measures the cumulative TCH holding time of single band subscribers and of dual band subscribers. The measurement also counts the TCH reservations made by the single band and dual band subscribers.

No	**071035**
COUNTER NAME	**REP TIME BY GSM 1900 MS**
EXPLANATION	Cumulative reporting time made by single band GSM 1900 subscribers.

No	071036
COUNTER NAME	**TCH RESERV GSM 1900 MS**
EXPLANATION	Number of TCH reservations made by single band GSM 1900 subscribers.

Related topics

MS Capability Indication Measurement

5 New counters due to BSS10087 GSM/EDGE 800/1900 Common BCCH

Common BCCH Control for GSM 800/GSM 1900 allows the integration of resources from different frequency bands into one cell. TRXs of different frequency bands can be configured in the same cell by letting them share a common BCCH that has been allocated from one frequency band used in the cell.

The common BCCH of a cell is configured in GSM 1900 band in order for the Common BCCH Control to be useful in this environment.

The feature enhances the functionality of a cell to offer service to multiband mobile terminals in all the frequency bands, which they support. The feature provides improved trunking gain, tighter reuse of carriers, better quality due to decrease in number of handovers, and improved spectral efficiency.

Common BCCH Control for GSM 800/GSM 1900 will utilise the segment architecture. TRXs of different frequency bands are gathered as different BTSs within a cell and a cell of this kind is called a segment (for detailed description of segmentation, refer to BSS10046 Mutli BCF Control).

Note: GSM/EDGE 800/1900 Dual Band feature is required to have GSM/EDGE 800/1900 common BCCH feature.

For more information on the feature, see Common BCCH Control in BSC.

5.1 New counters in Handover Measurement

In S10 only two handover measurement counters were introduced related to load based TCH handovers. These counters are updated when load based TCH handover is attempted either between frequency bands or between BTS types. To allow the operators to monitor more closely the functioning of intra cell TCH handovers based on load four new counters are introduced in S10.5.

No	004159
COUNTER NAME	SUCCESSFUL HO INTER BAND TCH
EXPLANATION	Number of successful and completed TCH-TCH handovers between BTSs of different frequency bands of a segment due to load.

No	004160
COUNTER NAME	UNSUCCESSFUL HO INTER BAND TCH
EXPLANATION	Number of unsuccessful TCH-TCH handovers between BTSs of different frequency bands of a segment due to load.

No	004161
COUNTER NAME	HO ATTEMPT INTER BAND DUE LEVEL
EXPLANATION	Number of attempts to perform a TCH-TCH handover from non-BCCH layer between BTSs on different frequency bands of a segment due to weak downlink signal level.

No	004162
COUNTER NAME	UNSUCC HO INTER BAND DUE LEVEL
EXPLANATION	Number of unsuccessful attempts to perform a TCH-TCH handover from non-BCCH layer between BTSs on different frequency bands of a segment due to weak downlink signal level.

No	004163
COUNTER NAME	SUCC HO INTER BAND DUE LEVEL
EXPLANATION	Number of successful attempts to perform a TCH-TCH handover from non-BCCH layer between BTSs on different frequency bands of a segment due to weak downlink signal level.

No	**004164**
COUNTER NAME	**INTER SEGMENT SUCCESS SDCCH HO BETWEEN BANDS**
EXPLANATION	Number of completed and successful SDCCH-SDCCH handovers between two BTSs on different frequency bands between two segments.

No	**004165**
COUNTER NAME	**INTER SEGMENT SUCCESS TCH HO BETWEEN BANDS**
EXPLANATION	Number of completed and successful TCH-TCH handovers between two BTSs on different frequency bands between two segments.

Related topics

Handover Measurement

5.2 New counters in BSC Level Clear Code (PM) Measurement

One new success counter in the BSC Level Clear Code (PM) Measurement is introduced due to the new handover type.

No	**051153**
COUNTER NAME	**INTRA INTER BAND DUE LEV**
EXPLANATION	Number of completed and successful TCH-TCH handovers from non-BCCH frequency layer between BTSs on different frequency bands of a segment due to weak downlink signal level.

Related topics

BSC Level Clear Code (PM) Measurement

5.3 New counters in Non-BCCH Layer Offset Measurement

In S10 a new BTS specific measurement called non-BCCH layer offset measurement was introduced. The measurements are used for non-BCCH layer offset optimisation. In S10 it was specified that RCSPRB collectes the samples for the measurement from each MS with an ongoing call on GSM 1800 BTS in Common BCCH segament. In S10.5 this is generalized so that RCSPRB collects the samples for the measurement from each MS with an ongoing call on a BTS using different frequency band than BCCH-BTS of the segment.

Note

PGSM 900 and EGSM 900 are regarded as one frequency band. Because in S10.5 the BCCH can be on the frequency band with less coverage more counters are needed to this measurement so that also negative samples can be collected. New counters are defined for absolute offset values from -1 to -40 dB. In S10 there was a special counter which collected all the sample values below 0 dB. In S10.5 this counter can be changed so that all the samples that are below -40 dB are collected into the counter. The logic of the optimisation itself does not change. Only new counters are introduced to collect also the negative samples accurately. The statistics are collected BTS specifically in every BTS that uses different frequency band than the BCCH-BTS of the segment.

Note

PGSM 900 and EGSM 900 are regarded as one frequency band.

No	**092043**
COUNTER NAME	**OFFSET SAMPLE OF -40**
EXPLANATION	Number of the measured offset samples of -40 dB.

No	**092044**
COUNTER NAME	**OFFSET SAMPLE OF -39**
EXPLANATION	Number of the measured offset samples of -39 dB.

No	**092045**
COUNTER NAME	**OFFSET SAMPLE OF -38**
EXPLANATION	Number of the measured offset samples of -38 dB.

No	**092046**
COUNTER NAME	**OFFSET SAMPLE OF -37**
EXPLANATION	Number of the measured offset samples of -37 dB.

No	**092047**
COUNTER NAME	**OFFSET SAMPLE OF -36**
EXPLANATION	Number of the measured offset samples of -36 dB.

No	**092048**
COUNTER NAME	**OFFSET SAMPLE OF -35**
EXPLANATION	Number of the measured offset samples of -35 dB.

No	**092049**
COUNTER NAME	**OFFSET SAMPLE OF -34**
EXPLANATION	Number of the measured offset samples of -34 dB.

No	**092050**
COUNTER NAME	**OFFSET SAMPLE OF -33**
EXPLANATION	Number of the measured offset samples of -33 dB.

No	092051
COUNTER NAME	**OFFSET SAMPLE OF -32**
EXPLANATION	Number of the measured offset samples of -32 dB.

No	092052
COUNTER NAME	**OFFSET SAMPLE OF -31**
EXPLANATION	Number of the measured offset samples of -31 dB.

No	092053
COUNTER NAME	**OFFSET SAMPLE OF -30**
EXPLANATION	Number of the measured offset samples of -30 dB.

No	092054
COUNTER NAME	**OFFSET SAMPLE OF -29**
EXPLANATION	Number of the measured offset samples of -29 dB.

No	092055
COUNTER NAME	**OFFSET SAMPLE OF -28**
EXPLANATION	Number of the measured offset samples of -28 dB.

No	092056
COUNTER NAME	**OFFSET SAMPLE OF -27**
EXPLANATION	Number of the measured offset samples of -27 dB.

No	**092057**
COUNTER NAME	**OFFSET SAMPLE OF -26**
EXPLANATION	Number of the measured offset samples of -26 dB.

No	**092058**
COUNTER NAME	**OFFSET SAMPLE OF -25**
EXPLANATION	Number of the measured offset samples of -25 dB.

No	**092059**
COUNTER NAME	**OFFSET SAMPLE OF -24**
EXPLANATION	Number of the measured offset samples of -24 dB.

No	**092060**
COUNTER NAME	**OFFSET SAMPLE OF -23**
EXPLANATION	Number of the measured offset samples of -23 dB.

No	**092061**
COUNTER NAME	**OFFSET SAMPLE OF -22**
EXPLANATION	Number of the measured offset samples of -22 dB.

No	**092062**
COUNTER NAME	**OFFSET SAMPLE OF -21**
EXPLANATION	Number of the measured offset samples of -21 dB.

No	092063
COUNTER NAME	**OFFSET SAMPLE OF -20**
EXPLANATION	Number of the measured offset samples of -20 dB.

No	092064
COUNTER NAME	**OFFSET SAMPLE OF -19**
EXPLANATION	Number of the measured offset samples of -19 dB.

No	092065
COUNTER NAME	**OFFSET SAMPLE OF -18**
EXPLANATION	Number of the measured offset samples of -18 dB.

No	092066
COUNTER NAME	**OFFSET SAMPLE OF -17**
EXPLANATION	Number of the measured offset samples of -17 dB.

No	092067
COUNTER NAME	**OFFSET SAMPLE OF -16**
EXPLANATION	Number of the measured offset samples of -16 dB.

No	092068
COUNTER NAME	**OFFSET SAMPLE OF -15**
EXPLANATION	Number of the measured offset samples of -15 dB.

No	**092069**
COUNTER NAME	**OFFSET SAMPLE OF -14**
EXPLANATION	Number of the measured offset samples of -14 dB.

No	**092070**
COUNTER NAME	**OFFSET SAMPLE OF -13**
EXPLANATION	Number of the measured offset samples of -13 dB.

No	**092071**
COUNTER NAME	**OFFSET SAMPLE OF -12**
EXPLANATION	Number of the measured offset samples of -12 dB.

No	**092072**
COUNTER NAME	**OFFSET SAMPLE OF -11**
EXPLANATION	Number of the measured offset samples of -11 dB.

No	**092073**
COUNTER NAME	**OFFSET SAMPLE OF -10**
EXPLANATION	Number of the measured offset samples of -10 dB.

No	**092074**
COUNTER NAME	**OFFSET SAMPLE OF -9**
EXPLANATION	Number of the measured offset samples of -9 dB.

No	**092075**
COUNTER NAME	**OFFSET SAMPLE OF -8**
EXPLANATION	Number of the measured offset samples of -8 dB.

No	**092076**
COUNTER NAME	**OFFSET SAMPLE OF -7**
EXPLANATION	Number of the measured offset samples of -7 dB.

No	**092077**
COUNTER NAME	**OFFSET SAMPLE OF -6**
EXPLANATION	Number of the measured offset samples of -6 dB.

No	**092078**
COUNTER NAME	**OFFSET SAMPLE OF -5**
EXPLANATION	Number of the measured offset samples of -5 dB.

No	**092079**
COUNTER NAME	**OFFSET SAMPLE OF -4**
EXPLANATION	Number of the measured offset samples of -4 dB.

No	**092080**
COUNTER NAME	**OFFSET SAMPLE OF -3**
EXPLANATION	Number of the measured offset samples of -3 dB.

No	**092081**
COUNTER NAME	**OFFSET SAMPLE OF -2**
EXPLANATION	Number of the measured offset samples of -2 dB.

No	**092082**
COUNTER NAME	**OFFSET SAMPLE OF -1**
EXPLANATION	Number of the measured offset samples of -1 dB.

Related topics

Non-BCCH Layer Offset Measurement

6 Other new counters in S10.5

6.1 New counters in Traffic Measurement

No	**001191**
COUNTER NAME	**SPARE001191**
EXPLANATION	Spare

No	**001192**
COUNTER NAME	**SPARE001192**
EXPLANATION	Spare

No	**001193**
COUNTER NAME	**SPARE001193**
EXPLANATION	Spare

No	**001194**
COUNTER NAME	**SPARE001194**
EXPLANATION	Spare

Related topics

Traffic Measurement

6.2 New counters in Resource Availability Measurement

No	**002069**
COUNTER NAME	**SPARE002069**
EXPLANATION	Spare

No	**002070**
COUNTER NAME	**SPARE002070**
EXPLANATION	Spare

No	**002071**
COUNTER NAME	**SPARE002071**
EXPLANATION	Spare

No	**002072**
COUNTER NAME	**SPARE002072**
EXPLANATION	Spare

Related topics

Resource Availability Measurement

6.3 New counters in Resource Access Measurement

No	**003059**
COUNTER NAME	**CALL ASSIGN AFTER SMS**
EXPLANATION	Number of calls started directly after an SMS on the already reserved SDCCH.

No	003060
COUNTER NAME	SPARE003060
EXPLANATION	Spare

No	003061
COUNTER NAME	SPARE003061
EXPLANATION	Spare

No	003062
COUNTER NAME	SPARE003062
EXPLANATION	Spare

No	003063
COUNTER NAME	SPARE003063
EXPLANATION	Spare

Related topics

Resource Access Measurement

6.4 New counters in Handover Measurement

No	004166
COUNTER NAME	SUCCESSFUL HO INTER BTS TYPE TCH
EXPLANATION	Number of successful and completed TCH-TCH handovers between different BTS types of a segment due to load.
RELATED TO A FEATURE	BSS10046 Multi BCF Control

No	004167
COUNTER NAME	**UNSUCCESSFUL HO INTER BTS TYPE TCH**
EXPLANATION	Number of unsuccessful TCH-TCH handovers between different BTS types of a segment due to load.
RELATED TO A FEATURE	BSS10046 Multi BCF Control

No	004168
COUNTER NAME	**INTER SEGMENT SUCCESS SDCCH HO BETWEEN BTS TYPES**
EXPLANATION	Number of completed and successful SDCCH-SDCCH handovers between two different types of BTSs between two segments.
RELATED TO A FEATURE	BSS10046 Multi BCF Control

No	004169
COUNTER NAME	**INTER SEGMENT SUCCESS TCH HO BETWEEN BTS TYPES**
EXPLANATION	Number of completed and successful TCH-TCH handovers between two different types of BTSs between two segments.
RELATED TO A FEATURE	BSS10046 Multi BCF Control

No	004170
COUNTER NAME	**SPARE004170**
EXPLANATION	Spare

No	004171
COUNTER NAME	**SPARE004171**
EXPLANATION	Spare

No	**004172**
COUNTER NAME	**SPARE004172**
EXPLANATION	Spare

No	**004173**
COUNTER NAME	**SPARE004173**
EXPLANATION	Spare

Related topics

Handover Measurement

6.5 New counters in TBF Observation for GPRS Trace

No	**025005**
COUNTER NAME	**TBF ALLOCATION CALENDAR TIME**
RELEASE/CHANGED	**S10.5**
EXPLANATION	Time stamp for the allocation of the TBF. Coded in BCD (binary coded decimal). Hundredths of seconds : byte Seconds : byte Minutes : byte Hours : byte Day : byte Month : byte Year : word
UPDATED	When TBF is allocated.
RELATED TO A FEATURE	BSS10089: System Level Trace

No	**025010**
COUNTER NAME	**FLOW CTRL CHANGE TIME 0**
RELEASE/CHANGED	**S10.5**
EXPLANATION	Flow control change time. Coded as system time of PCU plug-in unit. Seconds : dword Nanoseconds : dword
UPDATED	When MS flow control is changed.
RELATED TO A FEATURE	BSS10089: System Level Trace

No	**025071**
COUNTER NAME	**NBR OF REALLOC**
RELEASE/CHANGED	**S10.5**
EXPLANATION	Number of TCH reallocations during TBF. This counter gives the number of reallocation data groups (the following five counter sets) with relevant data.
UPDATED	When TBF is reallocated.
RELATED TO A FEATURE	BSS10089: System Level Trace

No	**025072**
COUNTER NAME	**REALLOC TIME 0**
RELEASE/CHANGED	**S10.5**
EXPLANATION	TBF reallocation time. Coded as system time of PCU plug-in unit. Seconds : dword Nanoseconds : dword
UPDATED	When TBF is reallocated.
RELATED TO A FEATURE	BSS10089: System Level Trace

No	**025177**
COUNTER NAME	**MCS CHANGE TIME 0**
RELEASE/CHANGED	**S10.5**
EXPLANATION	MCS change time. Coded as system time of PCU plug-in unit. Seconds : dword Nanoseconds : dword
UPDATED	When MCS is changed.
RELATED TO A FEATURE	BSS10089: System Level Trace

Related topics

TBF Observation for GPRS Trace

6.6 New counters in BSC Level Clear Code (SERLEV) Measurement

No	**057043**
COUNTER NAME	**SPARE057043**
EXPLANATION	Spare

No	**057044**
COUNTER NAME	**SPARE057044**
EXPLANATION	Spare

No	**057045**
COUNTER NAME	**SPARE057045**
EXPLANATION	Spare

No	**057046**
COUNTER NAME	**SPARE057046**
EXPLANATION	Spare

Related topics

BSC Level Clear Code (SERLEV) Measurement

6.7 New counters in Packet Control Unit Measurement

No	**072107**
COUNTER NAME	**SPARE072107**
EXPLANATION	Spare

No	**072108**
COUNTER NAME	**SPARE072108**
EXPLANATION	Spare

No	**072109**
COUNTER NAME	**SPARE072109**
EXPLANATION	Spare

No	**072110**
COUNTER NAME	**SPARE072110**
EXPLANATION	Spare

Related topics

Packet Control Unit Measurement

7 Changed counters in S10.5

Many of the explanations of the following counters are modified to be more general. This way they are applicable regardless of the frequency bands used in network.

7.1 Changes in Handover Measurement

No	004133
COUNTER NAME	**HO ATTEMPT INTER BAND SDCCH**
NEW UPDATED	At the source BTS on BCCH frequency band whenever a handover attempt is made to move a call to an SDCCH on another frequency band of the segment. PGSM 900 and EGSM 900 are here regarded as different bands.
OLD UPDATED	At the source BTS on the PGSM 900 band (or EGSM 900 when no PGSM 900 band exists) whenever a handover attempt is made to move a call to an SDCCH on another frequency band of the segment. PGSM 900 and EGSM 900 are regarded here as different bands.

No	004134
COUNTER NAME	**INTRA CELL SUCCESS SDCCH HO BETWEEN BANDS**
NEW EXPLANATION	Number of completed and successful SDCCH-SDCCH handovers between two BTSs on different frequency bands of a segment. PGSM 900 and EGSM 900 are regarded as parts of the same GSM 900 frequency band.
OLD EXPLANATION	Number of completed and successful SDCCH-SDCCH handovers between two BTSs on different frequency bands of a segment. PGSM 900 and EGSM 900 are regarded as parts of the same GSM 900 frequency band. The possible cases include handovers from PGSM 900 to GSM 1800, from EGSM 900 to GSM 1800, from GSM 1800 to PGSM 900 and from GSM 1800 to EGSM 900.

No	004135
COUNTER NAME	**HO ATTEMPT INTER BAND TCH**
NEW UPDATED	At the source BTS whenever a handover is initiated in order to move a call to another band of the segment and, as a result, to decrease the load of the source BTS. PGSM 900 and EGSM 900 are regarded here as different bands.
OLD UPDATED	At the source BTS on PGSM 900 or EGSM 900 band whenever a handover is initiated in order to move a call to another band of the segment and, as a result, to decrease the load of the source BTS. PGSM 900 and EGSM 900 are regarded here as different bands. The possible cases include handovers from PGSM 900 to GSM 1800, from EGSM 900 to GSM 1800 and from PGSM 900 to EGSM 900.

No	004136
COUNTER NAME	**INTRA CELL SUCCESS TCH HO BETWEEN BANDS**
NEW EXPLANATION	Number of completed and successful TCH to TCH handovers between two BTSs on different frequency bands of a segment. PGSM 900 and EGSM 900 are regarded as parts of the same GSM 900 frequency band.
OLD EXPLANATION	Number of completed and successful TCH to TCH handovers between two BTSs on different frequency bands of a segment. PGSM 900 and EGSM 900 are regarded as parts of the same GSM 900 frequency band. The possible cases include handovers from PGSM 900 to GSM 1800, from EGSM 900 to GSM 1800, from GSM 1800 to PGSM 900 and from GSM 1800 to EGSM 900.

7.2 Changes in Handover Adjacent Cell Measurement

No	**015001**
COUNTER NAME	**HO ATT TO ADJ0**
NEW EXPLANATION	Number of the intra-cell handover attempts. NOTE! This counter shows the number of intra-cell handover attempts to the target side.
OLD EXPLANATION	Number of the intra-cell HO attempts to the adjancent cell. NOTE! Intra-cell HOs are shown in this field.

No	**015002**
COUNTER NAME	**HO SUCC TO ADJ0**
NEW EXPLANATION	Number of the successfull intra-cell handovers. NOTE! This counter shows the number of successfull intra-cell handovers to the target side.
OLD EXPLANATION	Number of the successful intra-cell HOs to the adjacent cell. NOTE! Intra-cell HOs are shown in this field.

No	**015003**
COUNTER NAME	**HO ATT FROM ADJ0**
NEW EXPLANATION	Number of the intra-cell handover attempts. NOTE! This counter shows the number of intra-cell handover attempts from the source side.
OLD EXPLANATION	Number of the intra-cell HO attempts from the adjacent cell. NOTE! Intra-cell HOs are shown in this field.

No	015004
COUNTER NAME	**HO SUCC FROM ADJ0**
NEW EXPLANATION	Number of the successfull intra-cell handovers. NOTE! This counter shows the number of successfull intra-cell handovers from the source side.
OLD EXPLANATION	Number of the successful intra-cell HOs from the adjacent cell. NOTE! Intra-cell HOs are shown in this field.

7.3 Changes in TBF Observation for GPRS Trace

No	025004
COUNTER NAME	**TBF ALLOCATION TIME**
RELEASE/CHANGED	**S10**
NEW EXPLANATION	Time stamp for the allocation of the TBF. Coded as system time of PCU plug-in unit. Seconds : dword Nanoseconds : dword
OLD EXPLANATION	Time stamp for the allocation of the TBF. Coded in BCD (binary coded decimal) Hundredths of seconds : byte Seconds : byte Minutes : byte Hours : byte Day : byte Month : byte Year : word

No	**025006**
COUNTER NAME	**TBF RELEASE TIME**
RELEASE/CHANGED	**S10**
NEW EXPLANATION	Time stamp for the release of the TBF. Coded as system time of PCU plug-in unit. Seconds : dword Nanoseconds : dword
OLD EXPLANATION	Time stamp for the release of the TBF. Coded in BCD (binary coded decimal) Hundredths of seconds : byte Seconds : byte Minutes : byte Hours : byte Day : byte Month : byte Year : word

7.4 Changes in BSC Level Clear Code (PM) Measurement

No	**051135**
COUNTER NAME	**INTRA INTER BAND TCH HANDOVER**
NEW UPDATED	When the call has been successfully transferred to the target TCH and the handover was between bands and initiated due to load reasons. PGSM 900 and EGSM 900 are regarded as different bands.
OLD UPDATED	When the call has been successfully transferred to the target TCH, the handover was between bands, and it was initiated due to load reasons. PGSM 900 and EGSM 900 are regarded as different bands. The possible cases include handovers from PGSM 900 to GSM 1800, from EGSM 900 to GSM 1800, and from PGSM 900 to EGSM 900.

No	051136
COUNTER NAME	**INTRA INTER BAND SDCCH HANDOVER**
NEW UPDATED	When the call has been successfully transferred from the BCCH frequency band to a BTS on another frequency band on the basis of the SDCCH reservation duration in the source BTS.
OLD UPDATED	When the call has been successfully transferred from the BCCH frequency band to a BTS on another frequency band on the basis of the SDCCH reservation duration in the source BTS. When the BCCH is on the PGSM 900 the possible cases include handovers from PGSM900 to GSM 1800 and from PGSM 900 to EGSM 900. When the BCCH is on the EGSM 900 the only possiblity is a handover from EGSM 900 to GSM 1800.

7.5 Changes in Dual Band Measurement

The following text added: The counters of this measurement are updated on TCH only.

7.6 Changes in MS Capability Indication Measurement

The following text added: The counters of this measurement are updated on TCH only.

No	071007
COUNTER NAME	**REPORTING TIME BY DUAL BAND MS**
NEW EXPLANATION	Cumulative reporting time made by dual band GSM subscribers. This counter is updated with all dual band combinations, e.g. 900/1800, 800/1800 and 800/1900.
OLD EXPLANATION	Cumulative reporting time made by dual band GSM subscribers.

No	071008
COUNTER NAME	**REPORTING TIME BY TRI BAND MS**
NEW EXPLANATION	Cumulative reporting time made by tri band GSM subscribers. Tri band means here the combination of P900, E900 and 1800 MHz GSM bands.
OLD EXPLANATION	Cumulative reporting time made by tri band GSM subscribers.

No	071012
COUNTER NAME	**TCH RESERV BY DUAL BAND MS**
NEW EXPLANATION	Number of TCH reservations made by dual band GSM subscribers. This counter is updated with all dual band combinations, e.g. 900/1800, 800/1800 and 800/1900.
OLD EXPLANATION	Number of TCH reservations made by dual band GSM subscribers.
NEW UPDATED	When a BSC is started in a call setup or in handover
OLD UPDATED	In a call setup or in handover

No	071013
COUNTER NAME	**TCH RESERV BY TRI BAND MS**
NEW EXPLANATION	Number of TCH reservations made by tri band GSM subscribers. Tri band means here the combination of P900, E900 and 1800 MHz GSM bands.
OLD EXPLANATION	Number of TCH reservations made by tri band GSM subscribers.

7.7 Changes in Packet Control Unit Measurement

No	072077
COUNTER NAME	**RLC MAC CNTRL BLOCKS DL C**
NEW UPDATED	When a downlink RLC/MAC control block is sent. The MS can send an UL data block only if it has received its USF in the preceding DL block.
OLD UPDATED	When a downlink RLC/MAC control block is sent. The MS can send an UL data block only if it has received its USF in the preceding DL block. If there is nothing more to be sent, the network will send a Packet DL Dummy Control Block to carry the USF. These blocks are not triggering this counter since S9 CD7.0. There is a separate counter to see the number of dummy blocks.

No	072081
COUNTER NAME	**DISC UL LLC DATA DUE TO NSE**
NEW UPDATED	When an uplink LLC data is discarded because of the unavailability of the supporting NSE. Triggered both in acknowledged and unacknowledged RLC mode.
OLD UPDATED	When an uplink LLC data is discarded because of the unavailability of the supporting NSE. Triggered in acknowledged RLC mode only.

7.8 Changes in Non-BCCH Layer Offset Measurement

The following text added: The counters of this measurement are updated on TCH only.

No	092000
COUNTER NAME	**OFFSET SAMPLE BELOW -40**
NEW EXPLANATION	Number of the measured offset samples that are below -40 dB.
OLD EXPLANATION	Number of the measured offset samples that are below 0 dB.
NEW UPDATED	As the BSC receives a measurement report from the MS on a non-BCCH frequency band TCH and the signal level difference between the BCCH and the TCH is below -40 dB. Thus the reported TCH signal level is more than 40 dB stronger than that of the BCCH of the segment.
OLD UPDATED	When the BSC receives a measurement report from the MS on a GSM 1800 TCH and the signal level difference between the BCCH and the TCH is below 0 dB. Thus, the reported TCH signal level is stronger than that of the BCCH of the segment.

7.9 Changes in Power Control Measurement

The following text added: The counters of this measurement are updated both on TCH and on SDCCH added.

7.10 Changes in Underlay-Overlay Statistics Measurement

The following text added: The counters of this measurement are updated on TCH only added.

8 New features and functionalities in BSC S10.5 Change Delivery

This section provides information on documents delivered separately in pdf file format during the autumn of 2002.

8.1 BSC Counters: BSC Level Clear Code (SERLEV) Measurement

Changed counters:

No	**057043**
COUNTER NAME	**SPARE057043**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Number of all the failures on SDCCH in phase 3 that do not trigger any TCH failure counter in the same phase.

No	**057045**
COUNTER NAME	**SPARE057045**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Number of Error indication messages received during Location Update procedure.

8.2 BSC Counters: Traffic Measurement

Changed counters:

No	**001191**
COUNTER NAME	**SPARE001191**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Number of assignment and handover commands sent in intracell, inter-cell and external handovers.

No	**001192**
COUNTER NAME	**SPARE001192**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Number of TCH releases due to radio failures, updated in phases 9-11 only (Outgoing handovers before connect_ack). Same DX causes as in counter 001139.

9 New features and functionalities in BSC S10.5 Enhancement Delivery

9.1 MS Location Services

BSC Counters: Position Based Services Measurement

New counters:

No	**078020**
COUNTER NAME	**NBR OF CITARX CALCULATIONS**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Number of requests of CITARX procedure with Rxlev data.
UPDATED	When CITARX procedure has been requested with all Rxlev data.
RELATED TO A FEATURE	BSS10012: MS Location Services

No	**078021**
COUNTER NAME	**SUCC CITARX CALCULATIONS**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Number of the succesful calculations made by CITARX procedure with Rxlev data.
UPDATED	When CITARX procedure is successful.
RELATED TO A FEATURE	BSS10012: MS Location Services

Changed counters:

No	**078000**
COUNTER NAME	**NBR OF LOC REQ FROM LCS**
RELEASE/CHANGED	**S10**
EXPLANATION	Number of location requests.
UPDATED	When the SMLC has received a location request and the feature is on.
RELATED TO A FEATURE	BSS10012: MS Location Services

No	**078001**
COUNTER NAME	**SUCC LOC CALC BY LCS REQ**
RELEASE/CHANGED	**S10**
EXPLANATION	Number of successful location calculations.
UPDATED	When a location calculation is completed and successful.
RELATED TO A FEATURE	BSS10012: MS Location Services

9.2 Enhanced GPRS

BSC Counters: Packet Control Unit Measurement

New counters:

No	**072111**
COUNTER NAME	**AVER EGPRS TBFS PER TSL UL**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Average number of uplink EGPRS TBFs per timeslot.
UPDATED	Every 20 seconds
DEPENDENCIES	This counter is updated along with counter 072112
RELATED TO A FEATURE	BSS10091 EDGE
COUNTER TYPE	BSS10083 Enhanced GPRS Average

No	**072112**
COUNTER NAME	**AVER EGPRS TBFS PER TSL UL DEN**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Denominator of average number of uplink EGPRS TBFs per timeslot.
UPDATED	This counter is updated along with counter 072111.
DEPENDENCIES	BSS10091 EDGE
RELATED TO A FEATURE	BSS10083 Enhanced GPRS

No	**072113**
COUNTER NAME	**AVER EGPRS TBFS PER TSL DL**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Average number of downlink EGPRS TBFs per timeslot.
UPDATED	Every 20 seconds
DEPENDENCIES	This counter is updated along with counter 072114.
RELATED TO A FEATURE	BSS10091 EDGE
COUNTER TYPE	BSS10083 Enhanced GPRS Average

No	**072114**
COUNTER NAME	**AVER EGPRS TBFS PER TSL DL DEN**
RELEASE/CHANGED	**S10.5 ED**
EXPLANATION	Denominator of average number of downlink EGPRS TBFs per timeslot.
DEPENDENCIES	This counter is updated along with counter 072113.
RELATED TO A FEATURE	BSS10091 EDGE BSS10083 Enhanced GPRS

9.3 System Level Trace

BSC Counters: TBF Observation for GPRS Trace

The following table added:

Table 1. CS and MCS codecs in the initial coding scheme and new MCS fields

Counter value	Codec (Modulation and user data rate)
0	GPRS CS1 (GMSK 8 kbps)
1	GPRS CS2 (GMSK 12 kbps)
2	GPRS CS3 (GMSK 14.4 kbps)
3	GPRS CS4 (GMSK 20 kbps)
4	dummy value, bad header in ack mode
5	EGPRS MCS1 (GMSK 8.4 kbps)
6	EGPRS MCS2 (GMSK 11.2 kbps)
7	EGPRS MCS3 (GMSK 14.8 kbps)
8	EGPRS MCS4 (GMSK 16.8 kbps)
9	EGPRS MCS5 (8-PSK 22.5 kbps)
10	EGPRS MCS6 (8-PSK 29.6 kbps)
11	EGPRS MCS7 (8-PSK 44.8 kbps)
12	EGPRS MCS8 (8-PSK 54.4 kbps)
13	EGPRS MCS9 (8-PSK 59.2 kbps)

Changed counters:

No	**025011**
COUNTER NAME	**BUCKET SIZE 0**
RELEASE/CHANGED	**S10**
EXPLANATION	Indicates the maximum bucket size (Bmax) in bytes for an MS in RLC data buffer. Description of the Flow Control of Traffic from an SGSN to BSS in GSM specification 08.18, chapter 8.2.3.
UPDATED	When MS flow control is changed.
RELATED TO A FEATURE	BSS10089: System Level Trace

No	**025012**
COUNTER NAME	**LEAK RATE 0**
RELEASE/CHANGED	**S10**
EXPLANATION	Current transmission rate from RLC data buffer in bytes per second for an MS. Description of the Flow Control of Traffic from an SGSN to BSS in GSM specification 08.18, chapter 8.2.3.
UPDATED	When MS flow control is changed.
RELATED TO A FEATURE	BSS10089: System Level Trace