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MOP of RSSI Troubleshooting & Monitoring in Ultra Flexi /SBTS for Nokia Site

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Activity Description

Alarm Name	RSSI alarm is showing in SBTS/OSS with name “BASE STATION SERVICE PROBLEM Alarm "7604 BTS operation degraded“
Alarm Description	
Possible Causes	

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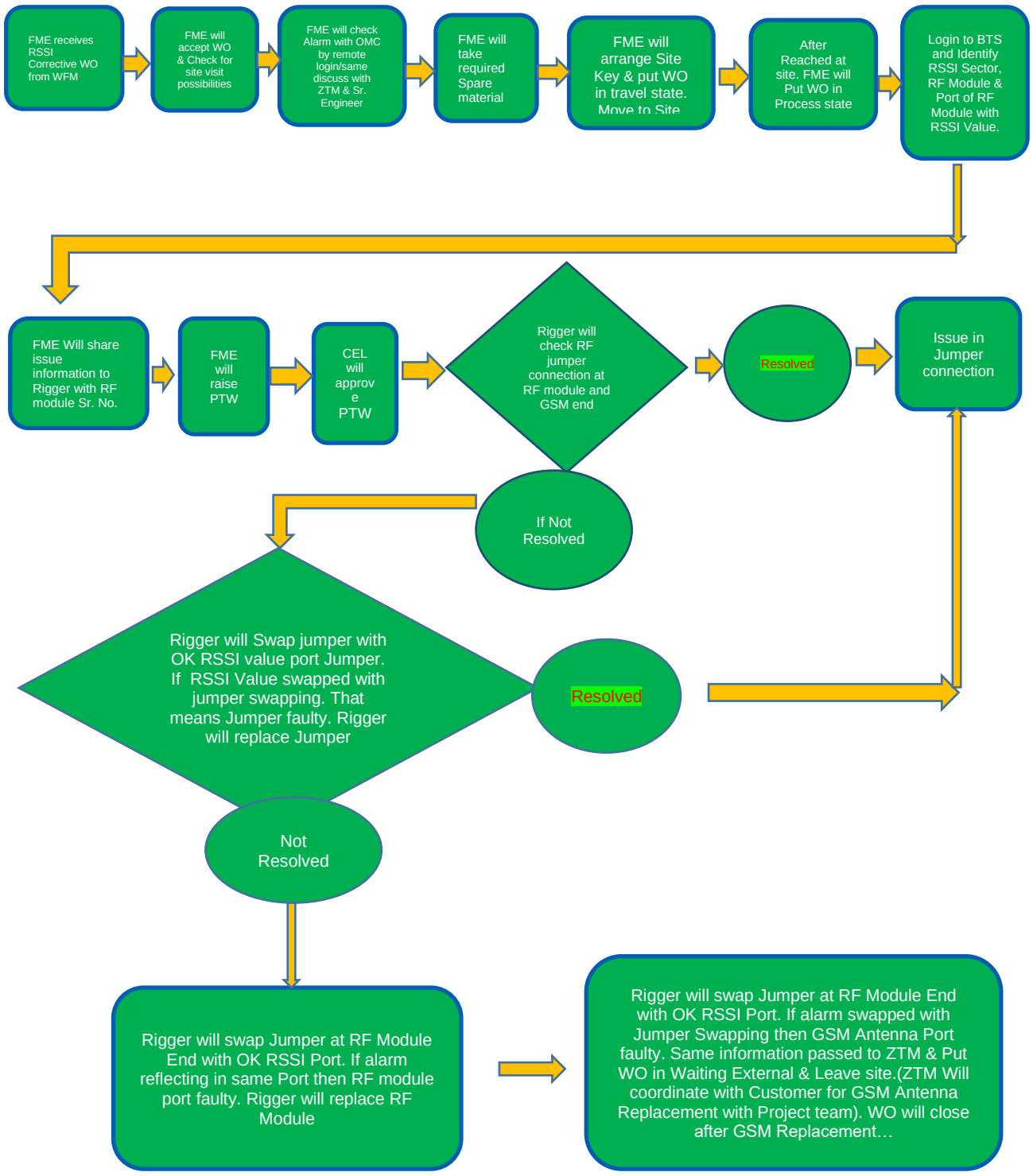
Flow Chart



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Activity Details

SBTS-2G RSSI Troubleshooting

1. RSSI alarm is showing in SBTS/OSS with name “BASE STATION SERVICE PROBLEM” & to get details of fault location additional information has to be analyze

2.BTS /SEG name in addition info.

3.RF & ANT line will identify from distinguished name.

Alarm Text	Distinguished Name	Supplementary Information	Additional Info
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-902394/EQM_R-1/APEQM_R-1/RMOD_R-3/ANTL_R-4	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:821
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-903572/EQM_R-1/APEQM_R-1/RMOD_R-1/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:990
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-901921/EQM_R-1/APEQM_R-1/RMOD_R-3/ANTL_R-5	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:679
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-900244/EQM_R-1/APEQM_R-1/RMOD_R-8/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:61
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-905295/EQM_R-1/APEQM_R-1/RMOD_R-3/ANTL_R-5	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:260
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-902101/EQM_R-1/APEQM_R-1/RMOD_R-2/ANTL_R-5	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:71
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-902101/EQM_R-1/APEQM_R-1/RMOD_R-7/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:72
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-902101/EQM_R-1/APEQM_R-1/RMOD_R-7/ANTL_R-1	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:72
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-900071/EQM_R-1/APEQM_R-1/RMOD_R-1/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:615
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-900313/EQM_R-1/APEQM_R-1/RMOD_R-2/ANTL_R-1	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:465
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-900522/EQM_R-1/APEQM_R-1/RMOD_R-5/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:413
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-903013/EQM_R-1/APEQM_R-1/RMOD_R-3/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:297
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-905152/EQM_R-1/APEQM_R-1/RMOD_R-5/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:472
BASE STATION SERVICE PROBLEM	PLMN-PLMN/MRBTS-905850/EQM_R-1/APEQM_R-1/RMOD_R-1/ANTL_R-3	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:552
BASE STATION SERVICE PROBLEM	MRBTS-902237/EQM_R-1/APEQM_R-1/RMOD_R-4/ANTL_R-6	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:636
BASE STATION SERVICE PROBLEM	MRBTS-902237/EQM_R-1/APEQM_R-1/RMOD_R-2/ANTL_R-4	RSSI difference between main and diversity paths exceed the threshold	degraded_cells=GSM:635

SBTS Alarm Window

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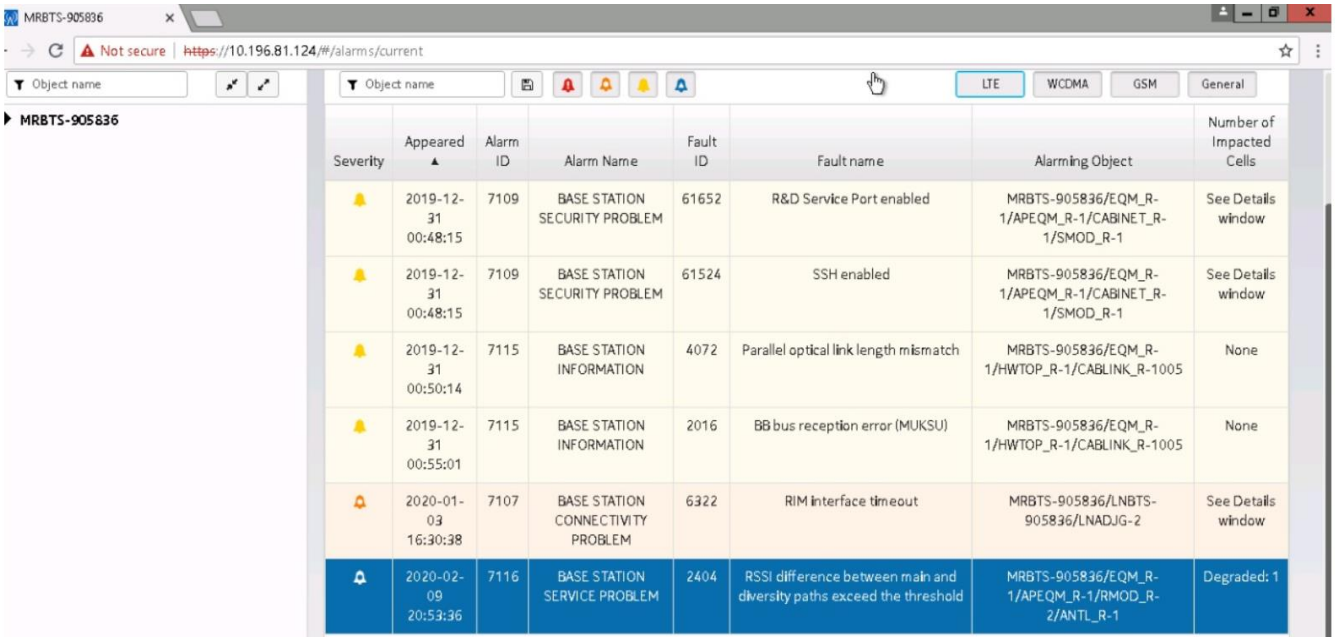
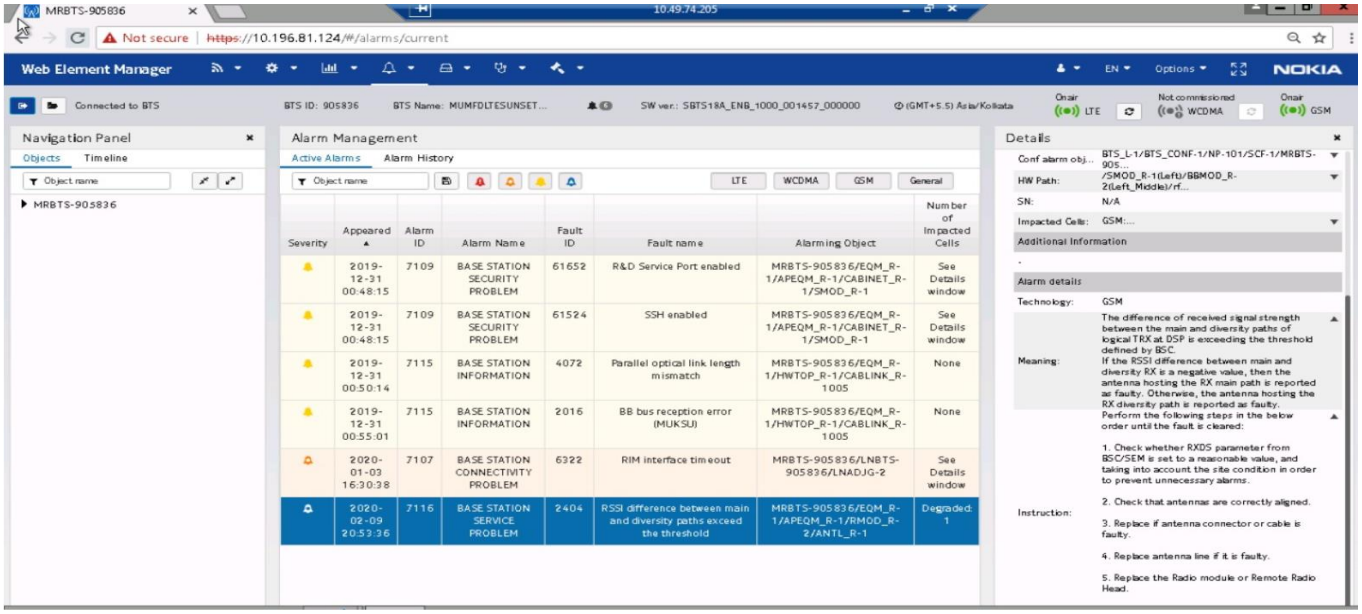


RSSI Alarm Description

click on alarm description window to get T-Shooting standard steps



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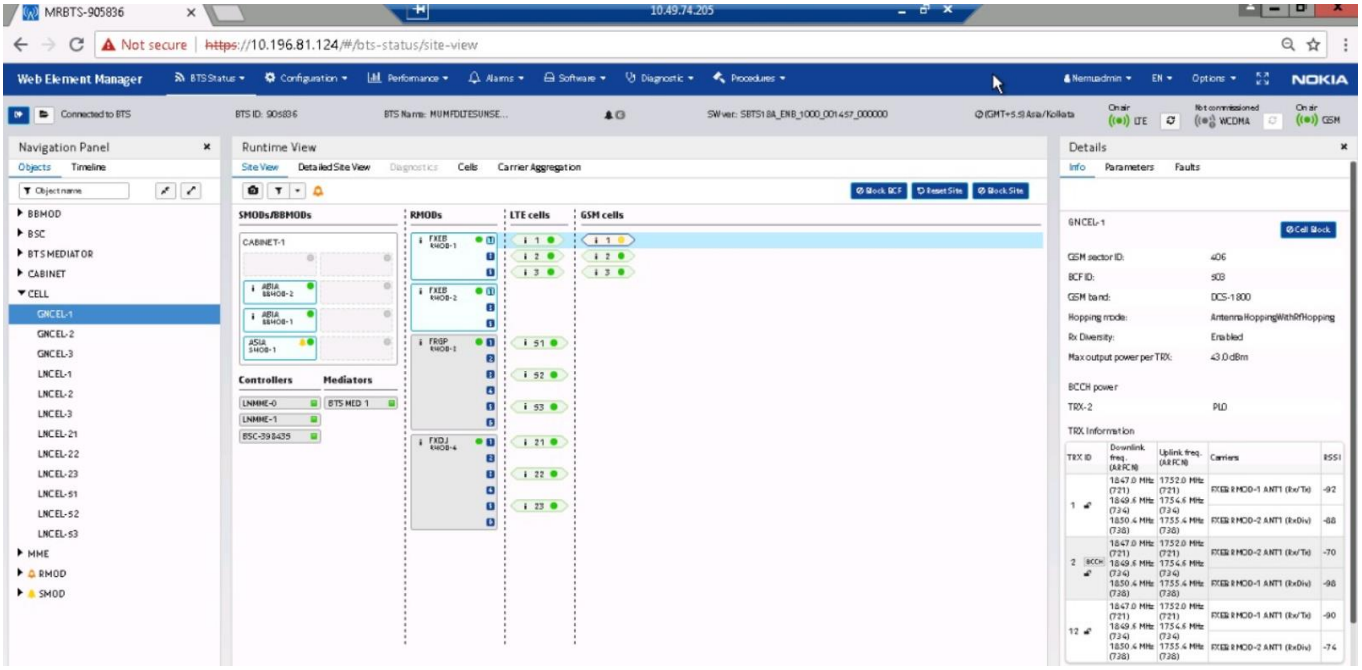

Steps for rectification

1. Reconnectoriztion –RF jumper connection at RF module and GSM end .
2. Cable bend check-e2e.
3. TxRx cable e2e check-In Commissioning.
4. Rx-div cable connection correction & commissioning check according to RX diversity cable & RF module type.
5. Cable e2e swap to identify RF module /Antenna port fault.
6. RF module replacement
7. Antenna/Feeder cable replacement Swap Jumper at RF Module End with OK RSSI Port. If alarm reflecting in same Port then RF module port faulty. Rigger will replace RF Module.
8. Check external interference.

Check RSSI values (Given in next slide) for further T-shooting /Monitoring

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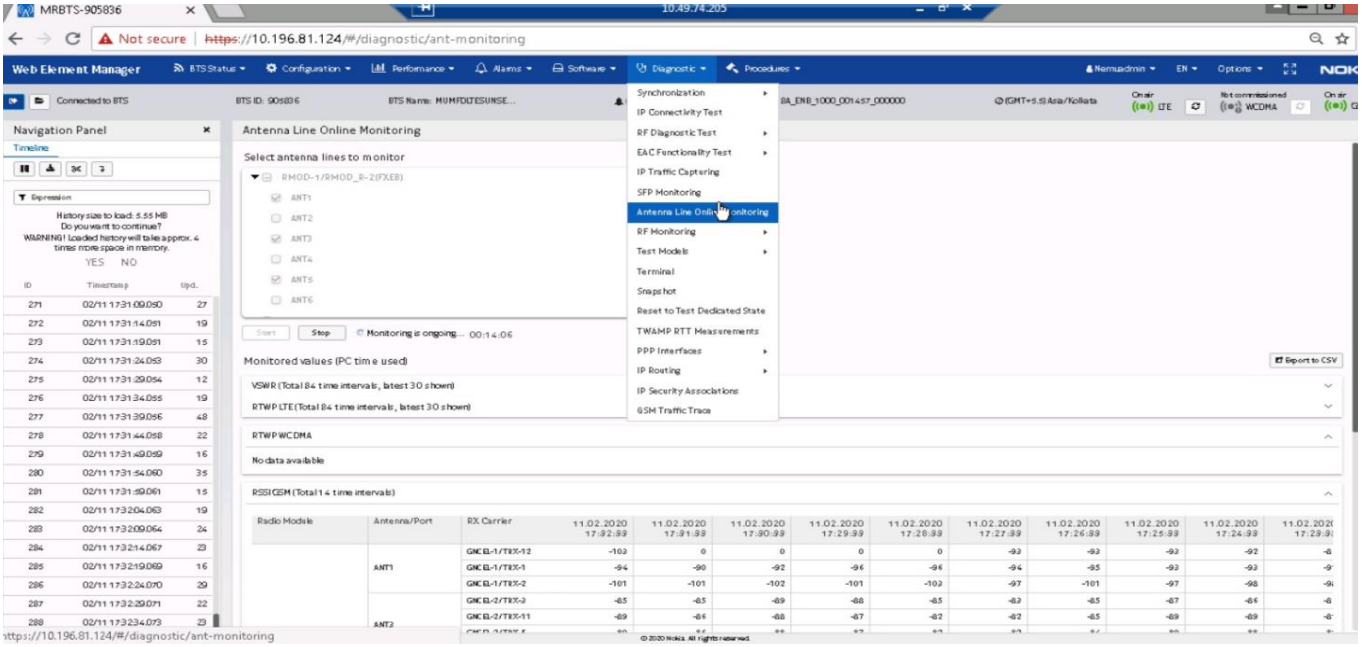

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ULTA/FLEXI RSSI

Alarm "7604 BTS operation degraded“ due the Rx Antenna Supervisory by Comparing RSSI Value (2) &
• For each sector, the differences outlined below are calculated:-

* Average differences
* Relative difference
* Antenna based difference

• Alarm "7604 BTS operation degraded”, “RX levels differ too much between main and diversity antennas” is generated for alarming BTS (sector) and sent to BSC if any of the differences in the sector is above the threshold.

• NOTE ! If both antenna lines or antennas are damaged simultaneously, there will be no RSSI difference and no alarms can be generated.

• NOTE ! RSSI measurement is a “trendsetting” type of measurement. In order to get more accurate results about both the RX path and the RX level, external test equipment should be used.

Conditions for full functionality

• RSSI Supervisory needs a definite number of samples from phone call(s) in order to operate. Sample rating is per TRX, the RSSI alarm is generated per sector.

• Min. 750 000 samples per TRX / hour are needed for an RSSI calculation. This can be achieved by either one continuous phone call (in average) or by 6 continuous phone calls, each of 10 minutes in length.

• First measurements results are available one hour after the BTS has reached a supervisory state. The measurements are then repeated every hour. The samples are collected simultaneously from both main and diversity branches from all TRX’s and stored as “sample pair”. The sample pair is accepted if as long as the other sample’s RSSI level is over –95 dBm.

• To allow RSSI in sector the diversity must be activated (command ZEQM in BSC).

• It is essential that the BTS is commissioned correctly by the HW configurator in order to ensure full functionality of RSSI Rx Antenna Supervisory.

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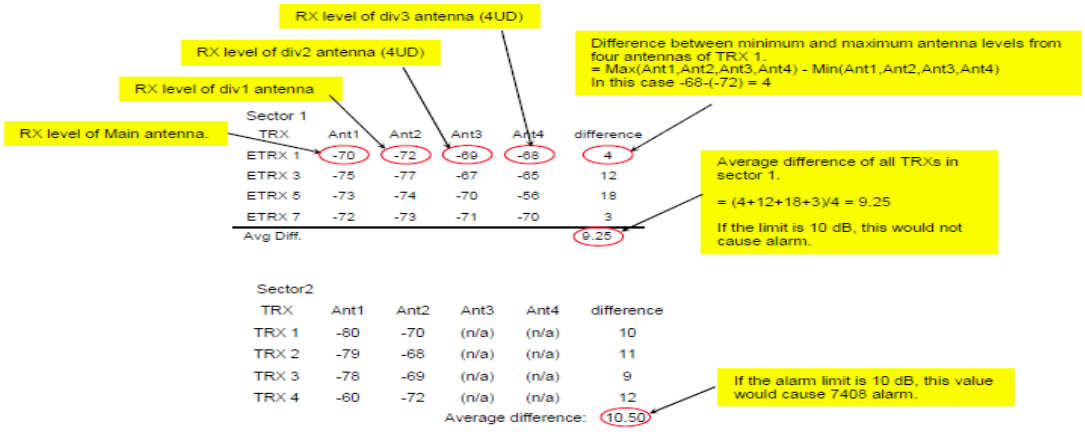
Average difference

A TRX difference comparison is carried out so that the difference between minimum and maximum antenna levels from four antennas (two antennas when 4-way diversity is not in use) are compared together.

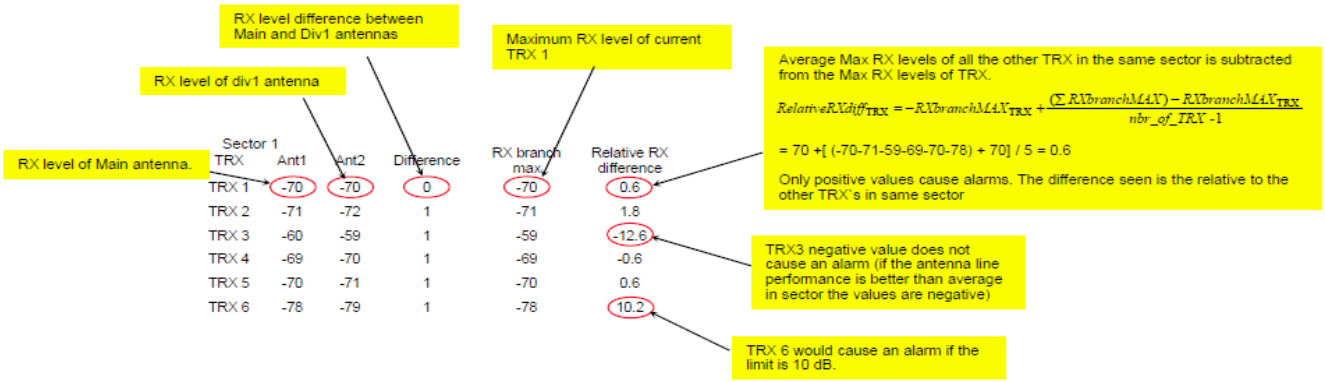
If average difference is bigger than the limit, the alarm is activated.



Summary: TRX Difference can detect broken or poor antennas or antenna lines

Relative difference

Relative difference calculation detects individual failures when the number of units per sector is high. Relative difference is calculated to each TRX in the sector.



Summary: Relative Difference can detect TRX Receiver faults or Antenna filter fault

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BTS manager and RSSI measurement

In the BTS manager it is possible to see two different RSSI values:

- *Newest*: Shows the latest measurement result
- *Reliable*: Shows the latest succesfull measurement result