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Approved	Checked	Date	Rev	Reference
		12-02-2020	Ver1.0	

MOP of RF Module Failure of Nokia Site

Table of contents

Prepared (also subject responsible if other)		No.		
Suvendra Mohapatra				
Approved	Checked	Date	Rev	Reference
		12-02-2020	Ver1.0	

Activity Description

UNDERSTANDING RF MODULE FAILURE ALARM No - 7654

This activity is for E2E troubleshooting and alarm clearance of RF Module Failure Alarm in sites.

Following are the Alarm description along with supplementary info along and possible cause for this Alarm

Alarm Name	RF MODULE FAILURE: ALARM NO.: - 7654
Alarm Description	1. CELL OPERATION DEGRADED
	2. Configuration and RF Module mismatch for Reduced LTE Guard Band
	3. RF Module configuring failed
	4. RF Module critical file not found
	5. RF Module External Alarm and Control lines configuration failed
	6. RF Module faulty primary optical link
	7. RF Module file not found
	8. RF Module filter input power missing
	9. RF Module gain adjusting failure
	10.RF Module power input /output faulty
	11.SFP on RF Module faulty or unsupported
Possible Causes	1. Improper /loose Jumper connectivity leading to subsequent failure.
	2. SFP or Optical Cable connectivity between RF Module to System Module
	3. SFP/ Optical Cable / Jumper Faulty.
	4. RF Module Faulty.

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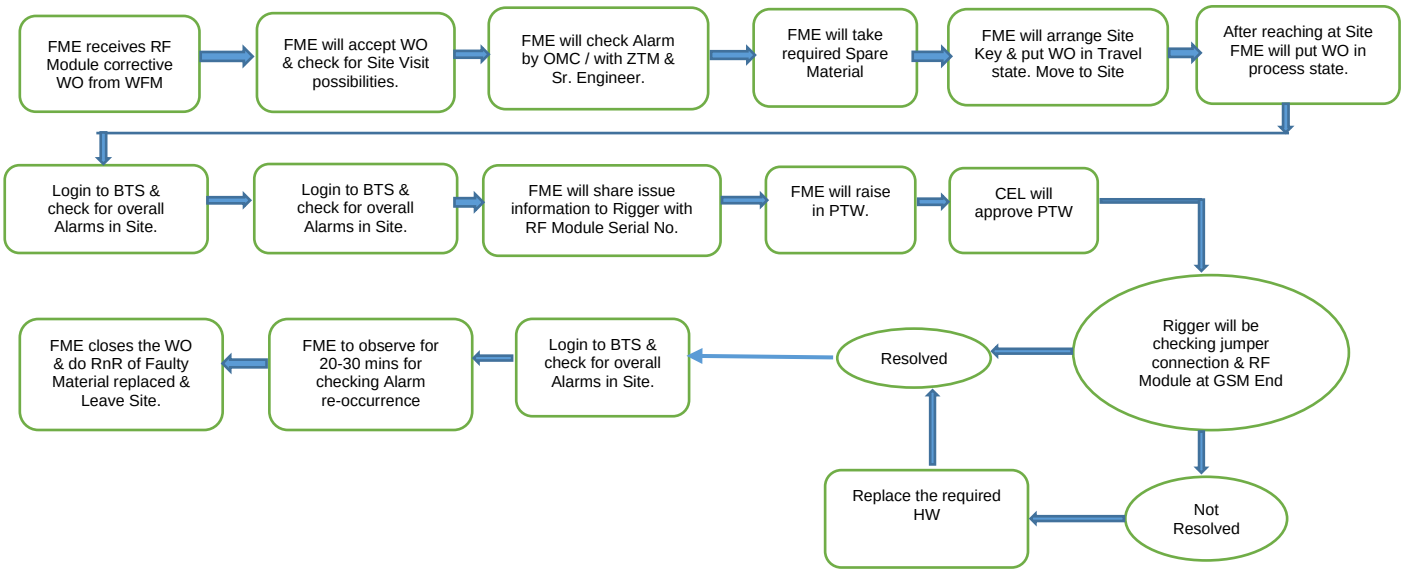
Flow Chart



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		12-02-2020	Ver1.0	

Activity Details

RF Module Alarm Information & Checking for Corrective Action

1. FME receive work order in WFM of RF Module alarm as a corrective work order
2. FME accept WO as received/WO acceptance time should < 45 Min...
3. FME check the alarm with help of OMC by remote login of BTS and discuss with ZTM and senior engineer about resolution…
4. If possible FME visit site on same day otherwise will plan on next day (Need to verification Required Rigger can access Tower after reached site as per OHS Rules).
5. ZTM will suggest taking required Spare Material

Site Movement & Spare Arrangement

1. FME arrange key of site from respective Infra partner.
2. FME take required materials to resolve the alarm (As per Remote Login Observation & ZTM suggestion) …
3. Now FME move to site and put WO in Travel state

Alarm Issue Identification & Rectification

1. When FME reached at site, he put WO in progress state.
2. FME will login to the BTS & check for alarm issue /RF Module port /SFP & verify all connectivity.
3. FME also verifies VSWR Value of all connected RF Module Ports. If getting any other port VSWR value High. Then will resolve at same time
4. FME will share same information to rigger (RF Module Sr. No. details)
5. FME will ensure the PPE kit, work at height certificate, medical certificate, present healthy physical condition, site condition including hygiene
6. Raise PTW request.
7. ZTM check the PTW and approve it.
8. Rigger will climb the tower and check below Points for actual issue identification.
   A. RF Jumper connection at RF Module & GSM End.
   B. Rigger will check for Jumper port faulty or not . Rigger will replace Jumper if found faulty.
   C. Rigger will simultaneously check for RF module port faulty & GSM Antenna Port faulty
      - If GSM antenna Port Faulty, then same information is passed to ZTM & Put WO in Waiting External & Leave site. (ZTM Will coordinate with Customer for GSM Antenna Replacement with Project team)
      - If RF Module faulty then replace RF Module.
9. FME check the alarm in BTS whether it is clear & verify & clear if any other Alarm persists.
10. If alarm is cleared, then rigger will come down
11. FME will observe for 20-30 min whether alarm appearing again or not.
12. If alarm don't appear again it means alarm resolved, then FME inform to ZTM or Senior engineer about the same
13. FME closes the WO as resolved and update the resolution remarks in WO if any hardware or consumable material used.
14. FME will do R&R of used Modules in FEAT & same Information will pass to ZTM for SRN.

15. FME leave the site.

Alarm Specific Activity as per Supplementary Information

RF MODULE FAILURE.

- Refer to the instructions for the root BTS fault reported in the alarm on how to handle the failure reported in the alarm.

1.Configuration & RF Module Mismatch for Reduced LTE Guard Band

- Confirm if the referenced radio HW supports "Reduced LTE Guard Band" function.
- If radio supports "Reduced LTE Guard Band" function, configure an acceptable reduced frequency offset that is within the radio HW capabilities.

2.RF Module Configuring Failed

- Check BTS connections and commissioning settings

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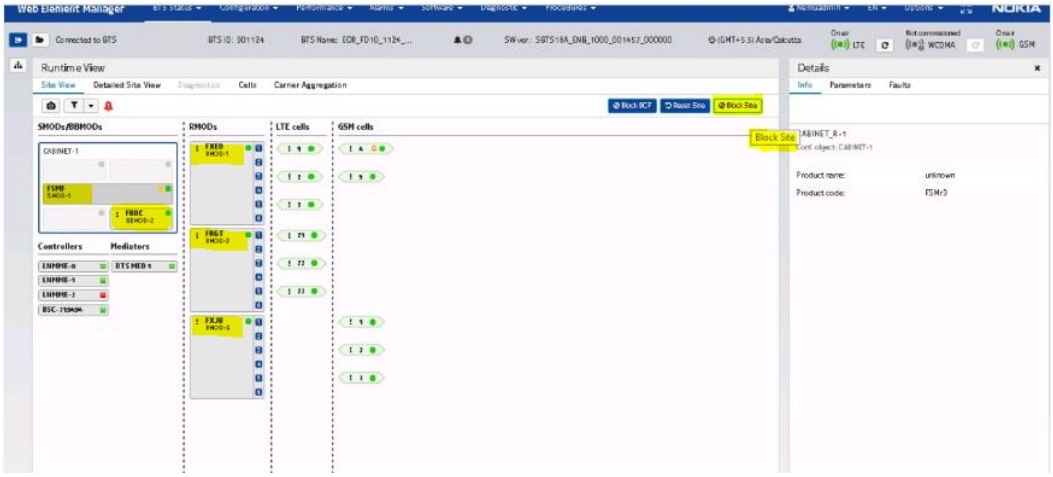
		12-02-2020	Ver1.0	

Severity	Appeared ▲	Alarm ID	Alarm Name	Fault ID	Fault name	Alarming Object	Number of Impacted Cells
	2019-12-23 10:26:53	7109	BASE STATION SECURITY PROBLEM	61652	R&D Service Port enabled	MRBTS-901124/EQM_R-1/APEQM_R-1/CABINET_R-1/SMOD_R-1	See Details window
	2019-12-23 10:26:53	7109	BASE STATION SECURITY PROBLEM	61524	SSH enabled	MRBTS-901124/EQM_R-1/APEQM_R-1/CABINET_R-1/SMOD_R-1	See Details window
	2020-02-05 00:38:15	7112	BASE STATION CONFIGURATION PROBLEM	2403	Configuration mismatch between BSC and BTS	BSC-319494/BCF-44/BTS-264	Degraded: 1
	2020-02-08 23:37:29	7107	BASE STATION CONNECTIVITY PROBLEM	6322	RIM interface timeout	MRBTS-901124/LNBTS-901124/LNADJG-2	See Details window
	2020-02-10 16:38:26	7103	BASE STATION EXTERNAL ALARM NOTIFICATION	1403	DG Start Fault	MRBTS-901124/EQM_R-1/APEQM_R-1/CABINET_R-1/SMOD_R-1/EAC_R-3	None
	2020-02-10 17:19:45	7103	BASE STATION EXTERNAL ALARM NOTIFICATION	1411	Dg On load	MRBTS-901124/EQM_R-1/APEQM_R-1/CABINET_R-1/SMOD_R-1/EAC_R-7	None

- Block and/or unblock the BTS



- Confirm if the currently applied configuration is within the configured RF HW capabilities.
- If the HW configuration is confirmed as correct, this problem is caused by the BTS SW. Check other active alarms.

Severity	Appeared ▲	Alarm ID	Alarm Name	Fault ID	Fault name	Alarming Object	Number of Impacted Cells
	2019-12-23 10:26:53	7109	BASE STATION SECURITY PROBLEM	61652	R&D Service Port enabled	MRBTS-901124/EQM_R-1/APEQM_R-1/CABINET_R-1/SMOD_R-1	See Details window
	2019-12-23 10:26:53	7109	BASE STATION SECURITY PROBLEM	61524	SSH enabled	MRBTS-901124/EQM_R-1/APEQM_R-1/CABINET_R-1/SMOD_R-1	See Details window

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3.RF Module critical file not found

- Verify if the HWP1 file is present in the RF module. Download the file if it is missing. Reset the RF module.
- If the file is present, block and/or unblock the RF HW unit.
- If the problem continues after performing replace the RF HW unit

4. RF Module Faulty Primary Optical Link

- Check the small form-factor pluggable (SFP) from both ends (the system module and the radio unit) and replace if one or both is faulty or unsupported.

- Clean the connectors, test the fiber cable, and replace them if they are faulty.

- If the previous steps do not help, replace the alarming radio unit hardware.

5. RF Module File not found

- Check that the TEMP and CALI files are present. Upload any missing files. Reset the RF Module.
- If the files are present, reset the RF HW unit.
- If the problem is still observed after performing step 1, replace the RF HW unit.

6. RF Module Gain Adjusting Failure

- Reset the RF HW unit.
- If the problem is still observed after performing step 1, replace the RF HW unit

7. RF Module Power Input Faulty

- Check the power supply to the affected radio module

- If the alarm persists, replace the radio module that is generating the alarm.

8. RF Module Power Supply Output Faulty

- Reset the RF HW unit.
- If the problem continues after performing step 1, replace the RF HW unit.