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Harish Kumar				
Approved	Checked	Date	Rev	Reference
		25-01-2020	Ver1.0	

MOP of VSWR Alarm for Nokia Site

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Activity Description

This activity is for E2E troubleshooting and alarm clearance of VSWR of the antenna feeder abnormal.

Attached is the details to be followed. As this need to be followed as guideline.

Alarm Name	1. VSWR major alarm 2. VSWR minor alarm 3. Antenna line switched off due to high VSWR 4. Transmission path failure.
Alarm Description	1. CELL OPERATION DEGRADED 2. BASE STATION ANTENNA LINE PROBLEM
Possible Causes	1. The connectors of the antenna and feeder cables are substandard, are not connected tightly, are penetrated by water, or have foreign objects such as metal fragments. 2. The antenna and feeder cables are squeezed or bent, or the feeder cable is damaged. 3. The RRU hardware / RRU Port is faulty. 4. Antenna port faulty

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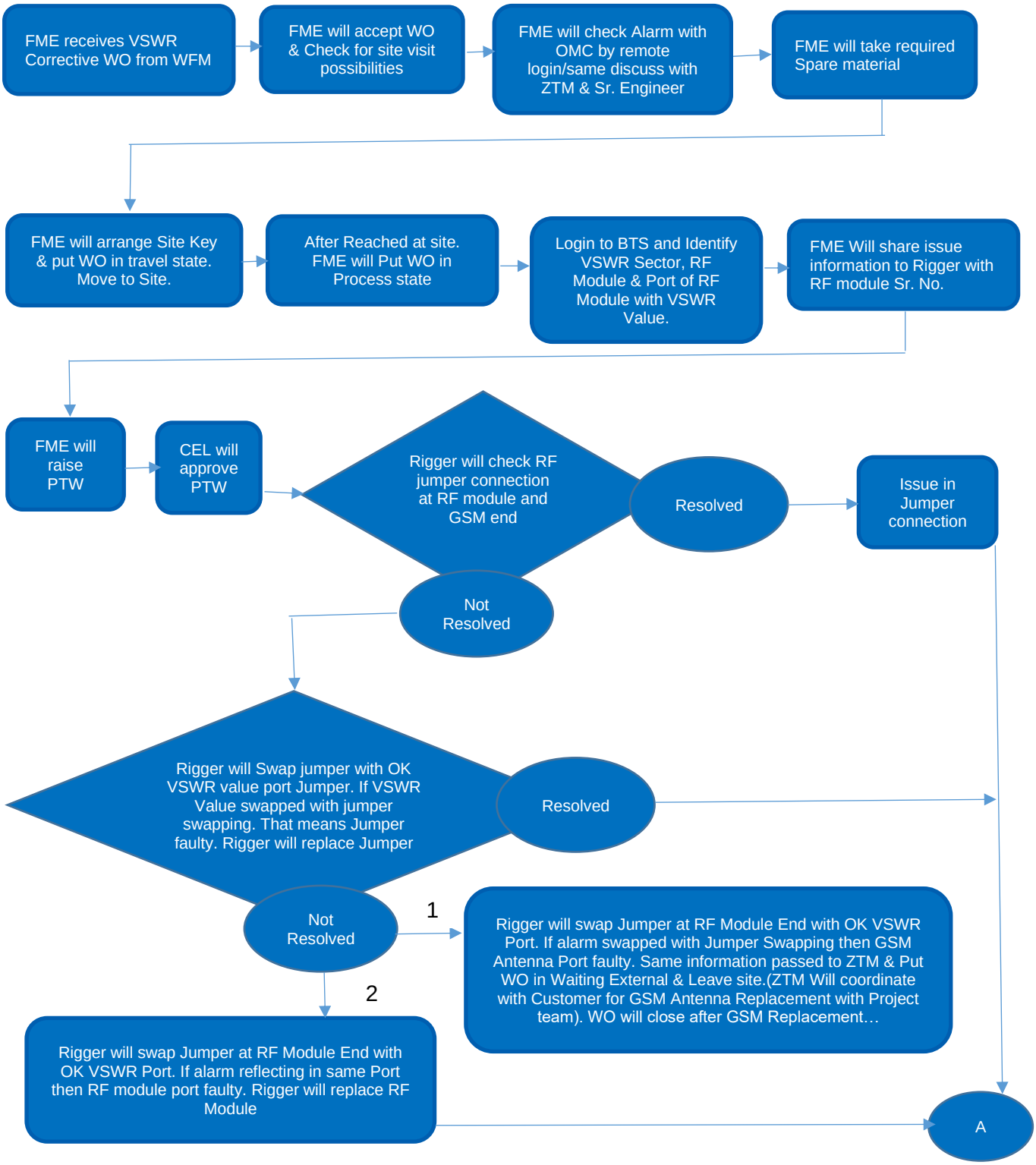
Flow Chart



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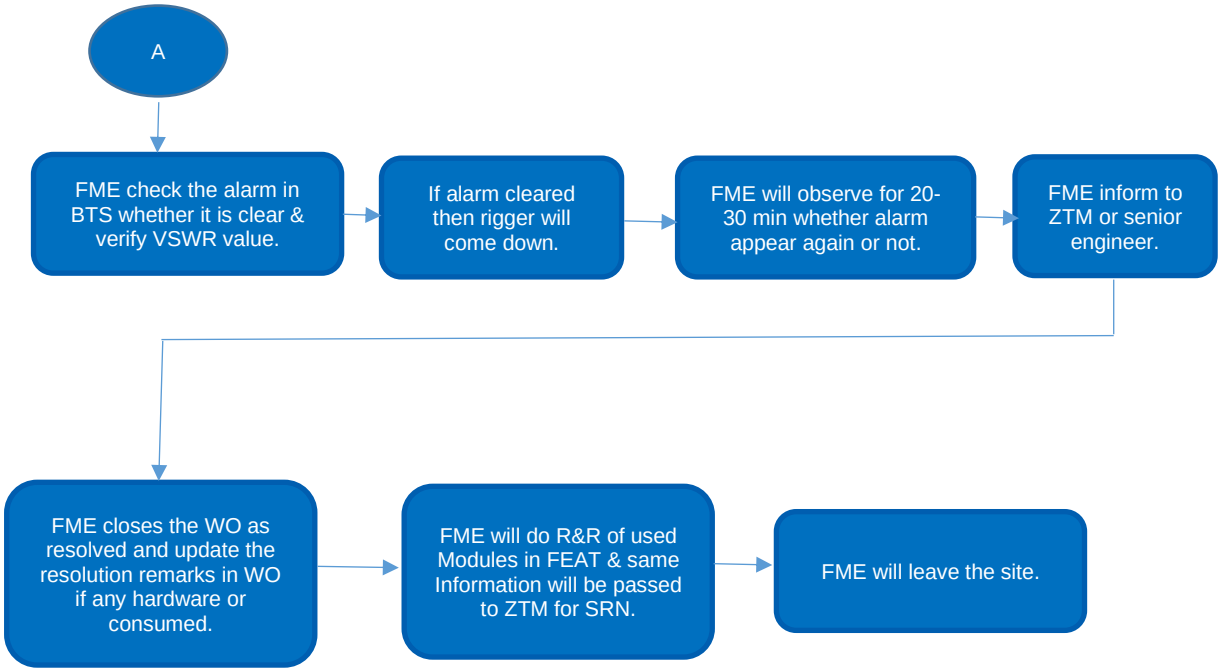

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Activity Details

VSWR Alarm Information & Checking for corrective action

1. FME receive work order in WFM of VSWR alarm as a corrective work order
2. FME accept WO as received/WO acceptance time should be below then 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 to take required Spare Material…

Site Movement & Spare Arrangement

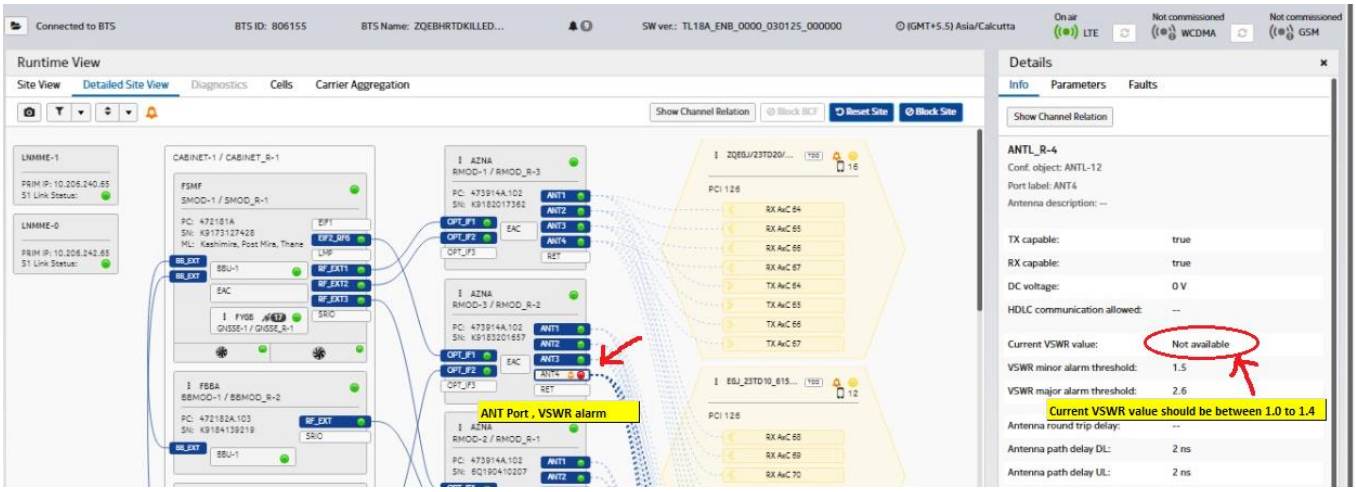
1. FME arrange key of site from respective Infra partner.
2. FME take required materials to resolve the alarm (As per Remote Login Observation & ZTM suggestion)…
3. Now FME move to site and put WO in Travel state

Alarm issue Identification & Rectification

1. When FME reached at site, he put WO in progress state.
2. FME will login to the BTS & check VSWR alarm issue sector /RF Module port & verify VSWR Value

Add snaps of port to connect on equipment/laptop…command..etc

	2020-01-25 12:27:18	7654	CELL OPERATION DEGRADED	1957	Antenna line switched off due to high VSWR	ZQEBHRTDKILLEDARINDIMRLTE/EQM_R-2/APEQM_R-1/RMOD_R-2/ANTL_R-4
	2020-01-25 12:27:18	7654	CELL OPERATION DEGRADED	1957	Antenna line switched off due to high VSWR	ZQEBHRTDKILLEDARINDIMRLTE/EQM_R-2/APEQM_R-1/RMOD_R-2/ANTL_R-4
	2020-01-25 12:27:28	7655	CELL NOTIFICATION	4003	Transmission path failure	ZQEBHRTDKILLEDARINDIMRLTE/LNBTS-806155/ZQEGJ/23TD20/6155/C
	2020-01-25 12:27:28	7655	CELL NOTIFICATION	4003	Transmission path failure	ZQEBHRTDKILLEDARINDIMRLTE/LNBTS-806155/EGJ_23TD10_6155_U



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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. & High VSWR Port detail)
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.

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A. RF Jumper connection at RF Module & GSM End. If issue found in jumper tightening, then close issue & take VSWR Value Feedback from FME. If not resolved, then will follow below step

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B. Rigger will Swap jumper with OK VSWR value port Jumper. If VSWR Value swapped with jumper swapping. That means Jumper faulty. Rigger will replace Jumper. If alarm not swapped. Then will follow below step

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C. Rigger will swap Jumper at RF Module End with OK VSWR Port. If alarm reflecting in same Port then RF module port faulty & If alarm swapped with Jumper Swapping then 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.

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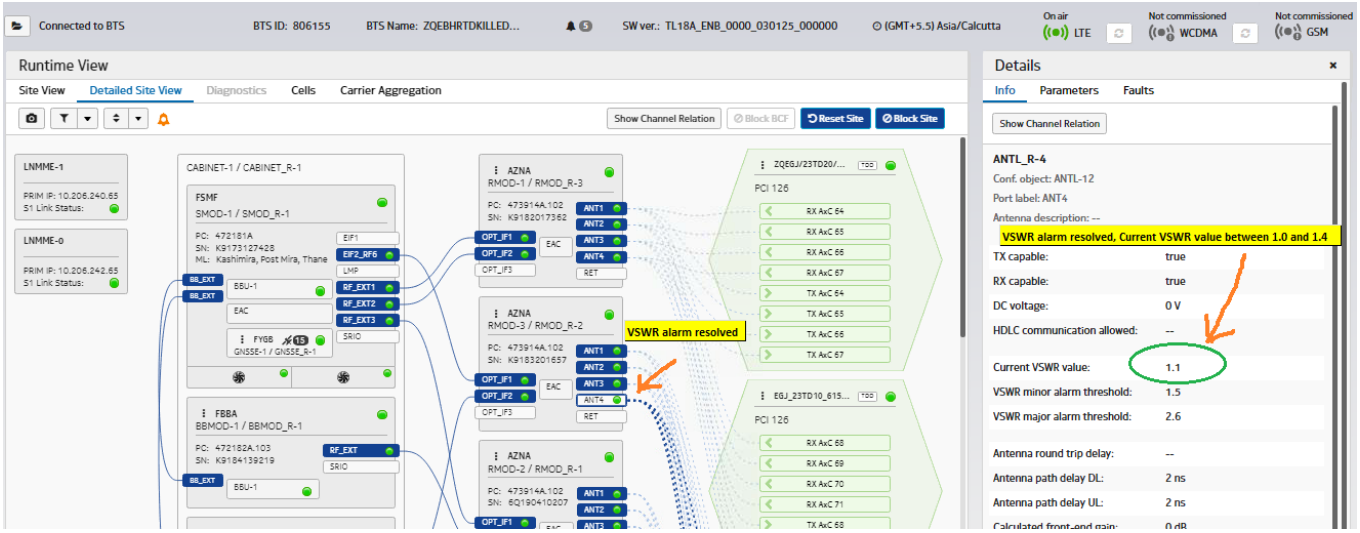
9. FME check the alarm in BTS whether it is clear & verify VSWR value. (VSWR Value should below then 1.3)



10. If alarm is cleared, then rigger will come down
11. FME will observe for 20-30 min whether alarm appear 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.