

Prepared (also subject responsible if other) Harish Kumar		No.		
Approved	Checked	Date 25-01-2020	Rev Ver1.0	Reference

## MOP of VSWR Alarm for Nokia Site

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## Activity Description

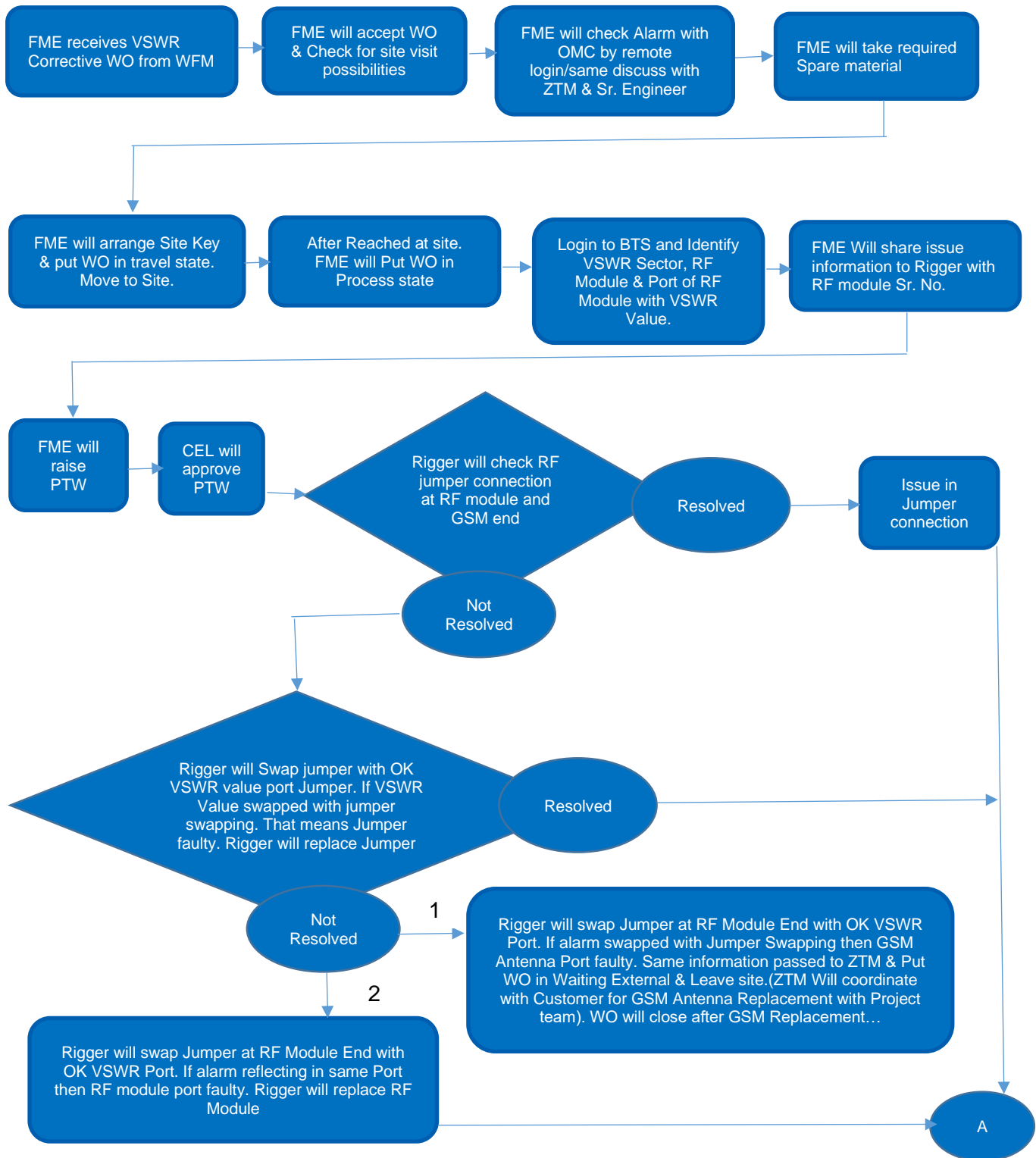
This activity is for E2E troubleshooting and alarm clearance of VSWR of the antenna feeder abnormal.

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

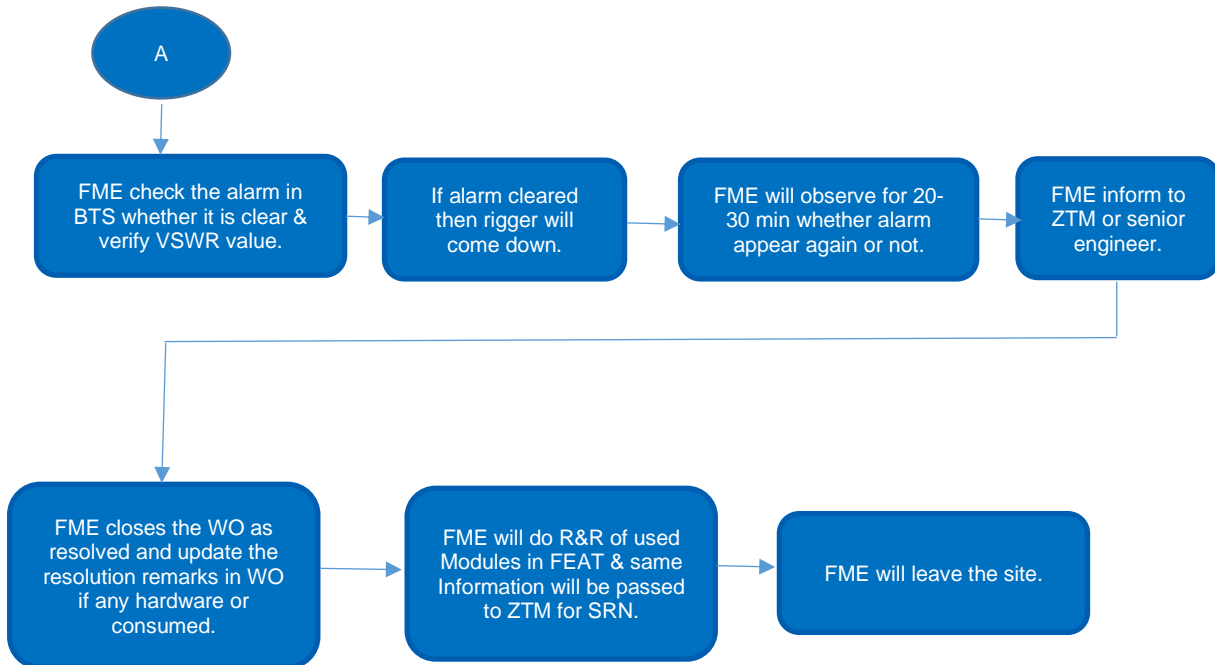
Alarm Name	1. VSWR major alarm 2. VSWR minor alarm 3. Antenna line switched off due to high VSWR 4. Transmission path failure.
Alarm Description	1. CELL OPERATION DEGRADED 2. BASE STATION ANTENNA LINE PROBLEM
Possible Causes	1. The connectors of the antenna and feeder cables are substandard, are not 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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## 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

Runtime View

Site View Detailed Site View Diagnostics Cells Carrier Aggregation

Connected to BTS BTS ID: 806155 BTS Name: ZQEBHRTDKILLED... SW ver: TL18A\_ENB\_0000\_030125\_000000 © (GMT+5.5) Asia/Calcutta

On air (LTE) Not commissioned WCDMA Not commissioned GSM

ANTL\_R-4

Conf. object: ANTL-12

Port label: ANTL4

Antenna description: ---

TX capable: true

RX capable: true

DC voltage: 0 V

HDLC communication allowed: ---

Current VSWR value: Not available

VSWR minor alarm threshold: 1.5

VSWR major alarm threshold: 2.6

Antenna round trip delay: ---

Antenna path delay DL: 2 ns

Antenna path delay UL: 2 ns

Current VSWR value should be between 1.0 to 1.4

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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)

Runtime View

Site View Detailed Site View Diagnostics Cells Carrier Aggregation

Show Channel Relation Block BCF Reset Site Block Site

LNMM-1  
PRIM IP: 10.206.240.65  
S1 Link Status: ●

LNMM-0  
PRIM IP: 10.206.242.65  
S1 Link Status: ●

CABINET-1 / CABINET\_R-1

FSIMF  
SMOD-1 / SMOD\_R-1  
PC: 472181A  
SN: K9172127423  
ML: Kashimira, Post Mira, Thane  
LMP  
EF1  
EF2\_RF6  
BBU-1  
EF\_EXT1  
EF\_EXT2  
EF\_EXT3  
SRIO  
FYBR 13  
GHSSE-1 / GHSSE\_R-1

BBMOD-1 / BBMOD\_R-1  
PC: 472182A.103  
SN: K9184139219  
BBU-1  
EF\_EXT  
SRIO

AZNA  
RMOD-1 / RMOD\_R-3  
PC: 473914A.102  
SN: K9182017362  
ANT1  
ANT2  
ANT3  
ANT4  
OPT\_IF1  
OPT\_IF2  
OPT\_IF3  
RET

AZNA  
RMOD-2 / RMOD\_R-2  
PC: 473914A.102  
SN: K9183201657  
ANT1  
ANT2  
ANT3  
ANT4  
OPT\_IF1  
OPT\_IF2  
OPT\_IF3  
RET

AZNA  
RMOD-2 / RMOD\_R-1  
PC: 473914A.102  
SN: 6Q190410207  
ANT1  
ANT2  
ANT3  
ANT4  
OPT\_IF1  
OPT\_IF2  
OPT\_IF3  
RET

QZ65/J23T020/... (125)  
PCI 125  
RX AcC 64  
RX AcC 65  
RX AcC 66  
RX AcC 67  
TX AcC 64  
TX AcC 65  
TX AcC 66  
TX AcC 67

QZ6J\_23TD10\_615... (100)  
PCI 125  
RX AcC 68  
RX AcC 69  
RX AcC 70  
RX AcC 71  
TX AcC 68

VSWR alarm resolved

Details

Info Parameters Faults

Show Channel Relation

ANTL\_R-4  
Conf. object: ANTL-12  
Port label: ANT4  
Antenna description: --  
VSWR alarm resolved, Current VSWR value between 1.0 and 1.4

TX capable:	true
RX capable:	true
DC voltage:	0 V
HDLC communication allowed:	--
Current VSWR value:	1.1
VSWR minor alarm threshold:	1.5
VSWR major alarm threshold:	2.6
Antenna round trip delay:	--
Antenna path delay DL:	2 ns
Antenna path delay UL:	2 ns
Calculated front-end gain:	0 dBR

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.