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Ericsson Internal		Method of Procedure	1 (10)
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MOP for Huawei MW_LOF Alarm Troubleshooting

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A. Introduction

This document outlines the step-by-step process involved in MOP for MW_LOF Alarm Troubleshooting.

B. PRECHECK

- *Need to check the node reachability status of the node on which the alarm is observed and opposite end.*
 - *Check the current alarms at both the ends for any hardware related alarms such as HARD_BAD, HARD_ERR, BD_STATUS, BD_OFFLINE, WRG_BD_TYPE etc. If the alarm exists then need to arrange field support with spare hardware such as IF board, ODU, IF cable and tested login accessories.*
 - *If both the nodes are reachable then need to proceed to the next step else need to arrange field support with spare hardware such as IF board, ODU, IF cable and tested login accessories.*
- ❖ *Please note that the method of procedure is prepared as the current scenario, available devices, and deployed software version. So, activity steps and impact can vary depending upon the scenario.*

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Current Alarms before activity

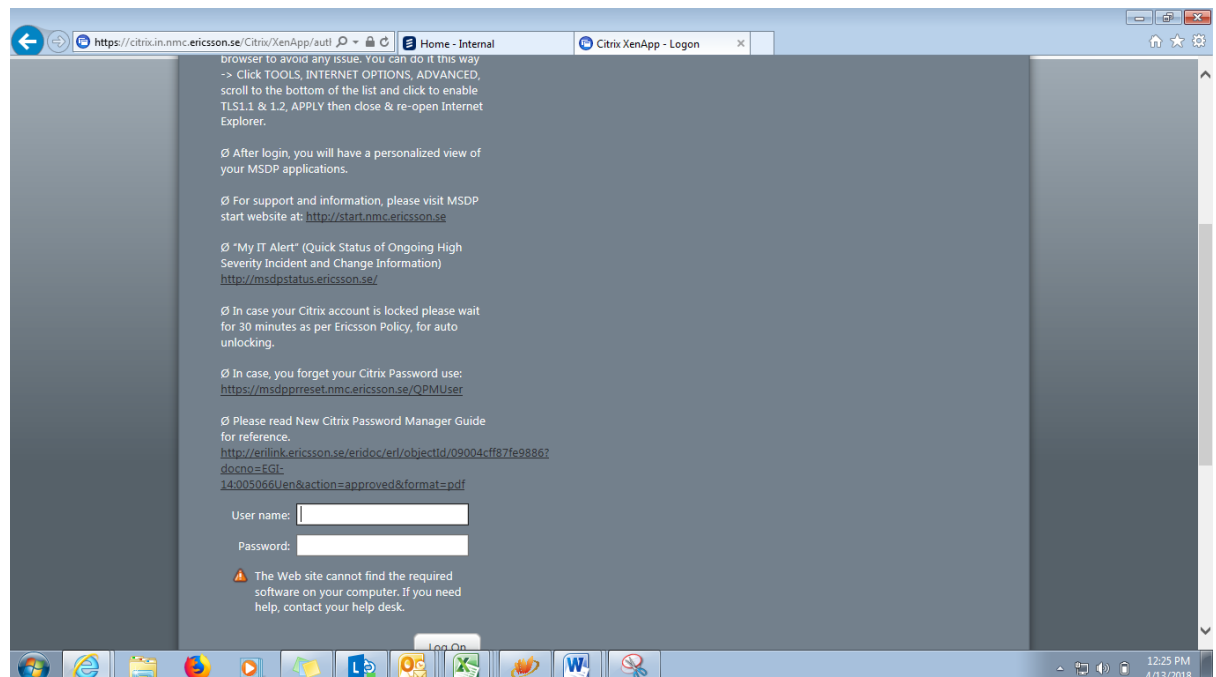
Severity	NE Type	Name	Trail Name	Alarm Source	Location Information	First Occurred (ST)	Last Occurred (ST)
Minor	OptRX RTN 950A	LP_RDI		SLP002	4-ISU2-1(DNWA01)-VC4:1-1	30/08/2019 01:42:40	30/08/2019 01:42:40
Minor	OptRX RTN 950A	RADIO_FADING_MARGIN_IN...		SLP002	21-ODU-1(RTNRF-1)-RTNRF:1	30/08/2019 07:33:25	30/08/2019 07:33:25
Critical	OptRX RTN 950A	RADIO_RSL_LOW		SLP002	21-ODU-1(RTNRF-1)-RTNRF:1	02/11/2019 19:05:21	02/11/2019 19:05:21
Minor	OptRX RTN 950A	LP_RDI		SLP002	19-SP3S-5(SDH_TU-5)-PPI:1	31/10/2019 15:08:22	31/10/2019 15:08:22
Major	OptRX RTN 950A	T_ALOS		SLP002	19-SP3S-5(SDH_TU-5)-PPI:1	31/10/2019 15:08:47	31/10/2019 15:08:47
Minor	OptRX RTN 950A	LP_RDI		SLP002	19-SP3S-3(SDH_TU-3)-PPI:1	27/06/2019 02:03:30	27/06/2019 02:03:30
Minor	OptRX RTN 950A	LP_RDI		SLP002	19-SP3S-2(SDH_TU-2)-PPI:1	27/06/2019 02:03:30	27/06/2019 02:03:30
Minor	OptRX RTN 950A	HP_RDI		SLP002	18-SL1D-1(SDH-1)-VC4:1	27/06/2019 02:03:30	27/06/2019 02:03:30
Minor	OptRX RTN 950A	LP_RDI	SLP002-NOTH...	SLP002	1-ISM6-2(SDH-2)-VC4:1-VC12:2[1-1]	30/08/2019 01:32:52	30/08/2019 01:32:52
Minor	OptRX RTN 950A	LP_RDI	NOTH02-SLP0...	SLP002	1-ISM6-2(SDH-2)-VC4:1-VC12:2[1-1]	30/08/2019 01:32:52	30/08/2019 01:32:52
Minor	OptRX RTN 950A	LP_RDI		SLP002	1-ISM6-1(SDH-1)-VC4:1-VC12:2[1-1]	30/08/2019 01:32:52	30/08/2019 01:32:52
Minor	OptRX RTN 950A	LP_RDI		SLP002	1-ISM6-1(SDH-1)-VC4:1-VC12:2[1-1]	30/08/2019 01:32:52	30/08/2019 01:32:52
Critical	OptRX RTN 950A	MW_LOF	E-LAN	SLP002	1-ISM6-1(KTUS01)-RTNIF:1	30/08/2019 01:32:52	30/08/2019 01:32:52

C. Procedure:

Steps for MW LOF Alarm Clearance: -

1. Login MSDP through below mentioned link.
<https://citrix.in.nmc.ericsson.se/>

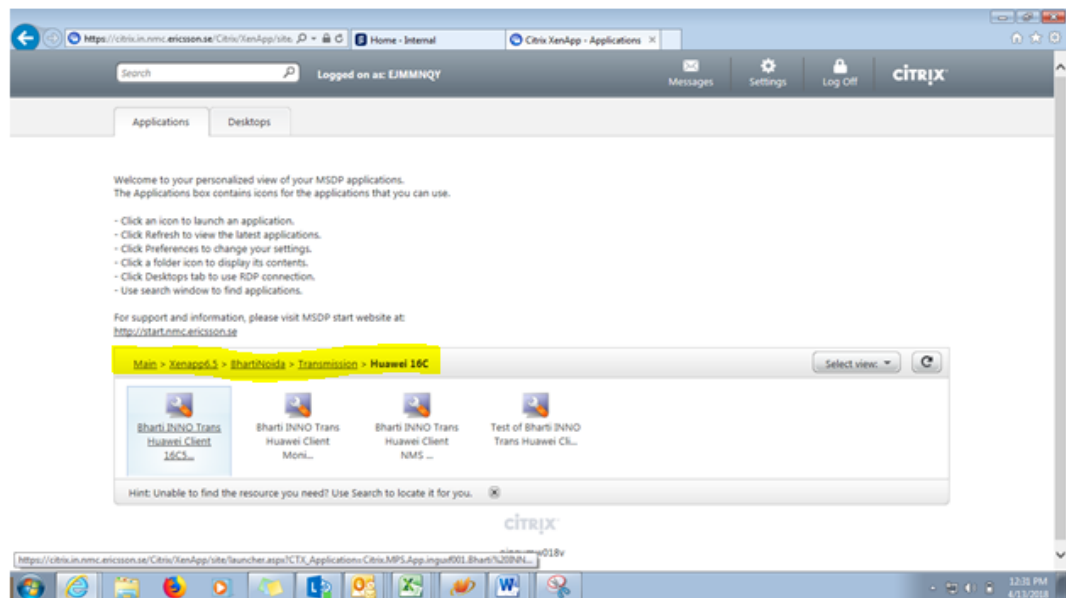
2. Provide CITRIX username and password.



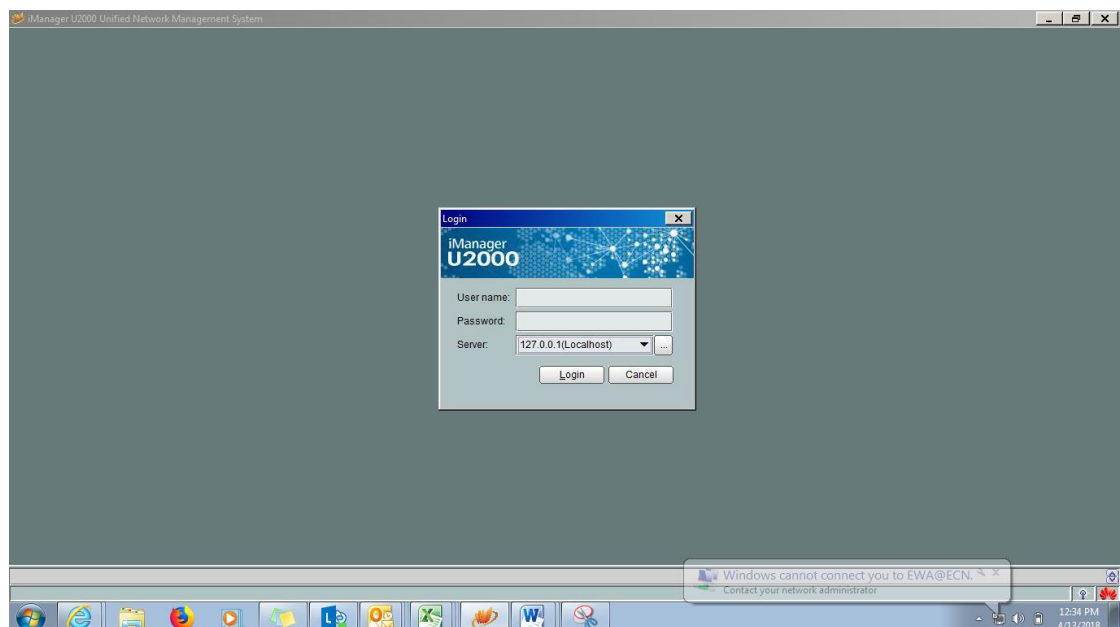
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3. Click on "Xenapp6.5 >> BhartiNoida >> Transmission >> Huawei 16C/17C/18C >> Bharti INNO Trans Huawei client.

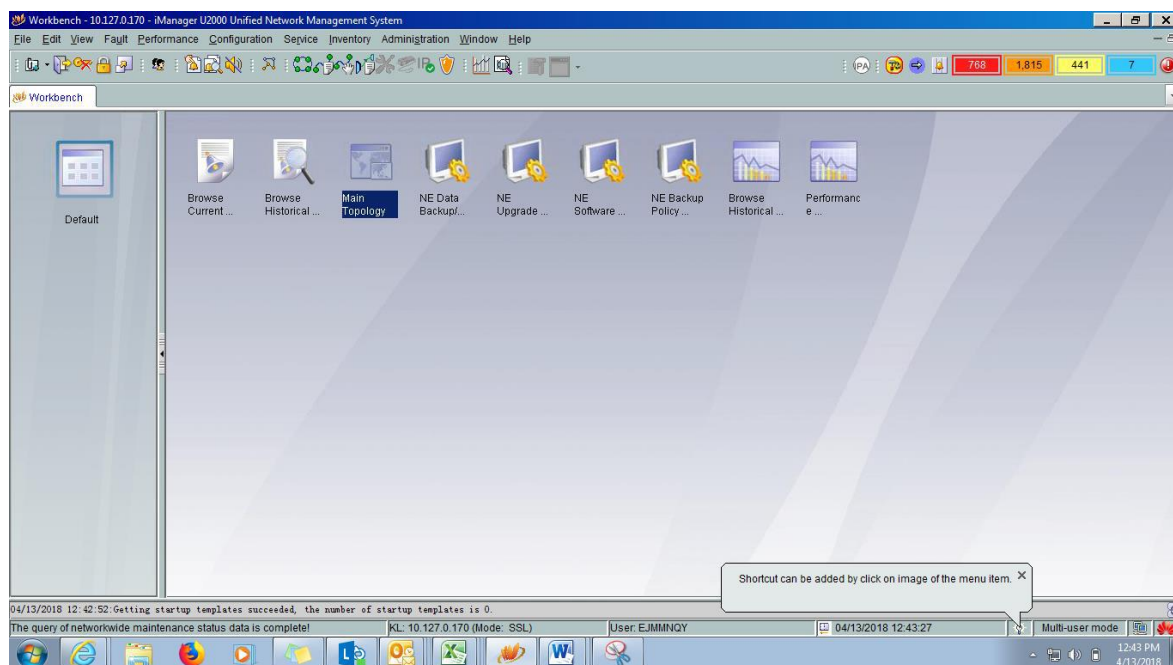


4. Now Huawei is launched enter the credentials and server IP of the circle must log in.



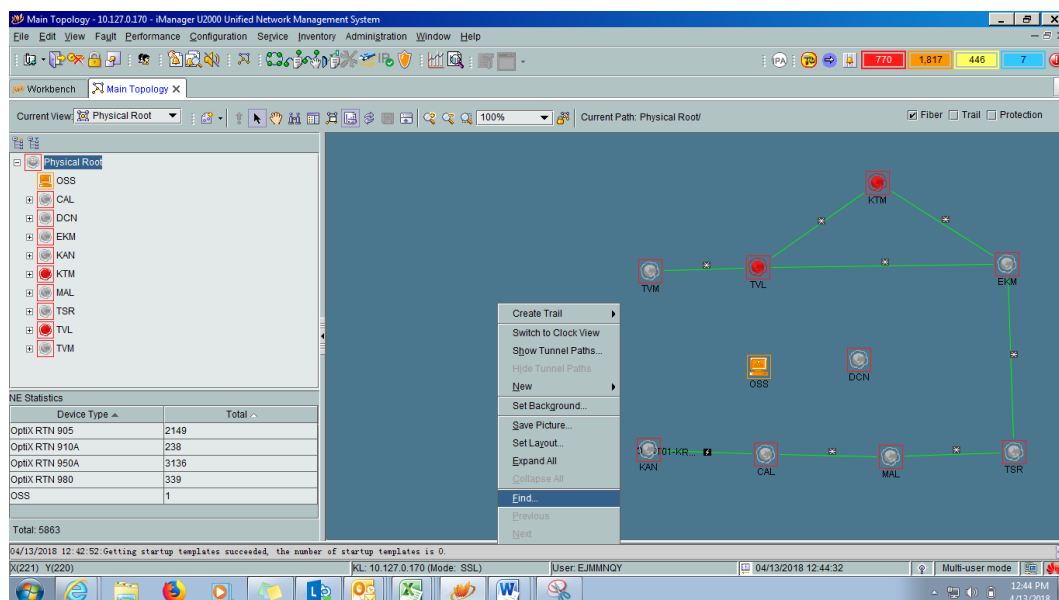
5. Click on "Main Topology" to open the Topology.

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6. Right Click on the server and click on “FIND” to find the node.

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Principle:

The MW_LOF alarm indicates MW Link is down

Traffic Impact:

When the MW_LOF alarm occurs, the services that travel along the faulty BOARD are interrupted

Possible Causes:

1. Certain other alarms occur, such as VOLT_LOS and IF_CABLE_OPEN.
2. Check the IF parameters (such as IF working mode, channel bandwidth, and modulation scheme) specified for the local station do not match the IF parameters specified for the opposite station.
3. The radio frequency of the local station does not match the radio frequency of the opposite station.
4. The transmit unit of the opposite station is faulty.

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5. The receive unit of the local station is faulty.

6. The receive power of the RF unit at the local station is abnormal.

7. Interference signals exist on the link.

Detailed Steps:

Cause 1: Match all MW parameters at both the ends.

Cause 2- If there is BER_SD alarm check for the interference

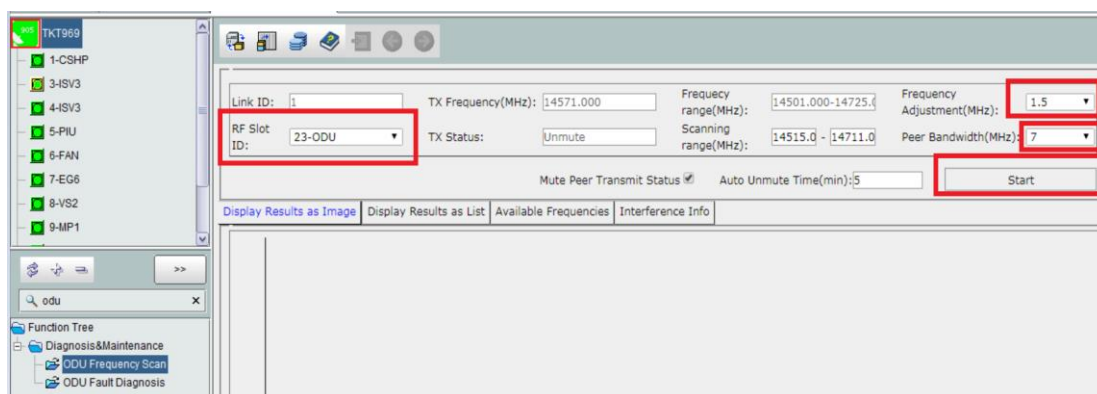
A-perform ODU scan, if interference, discuss with Circle Team.

B-if no interference, Proceed for next step.

Steps for performing the Interference and ODU frequency scan are described below:

Note: Interference will interrupt service

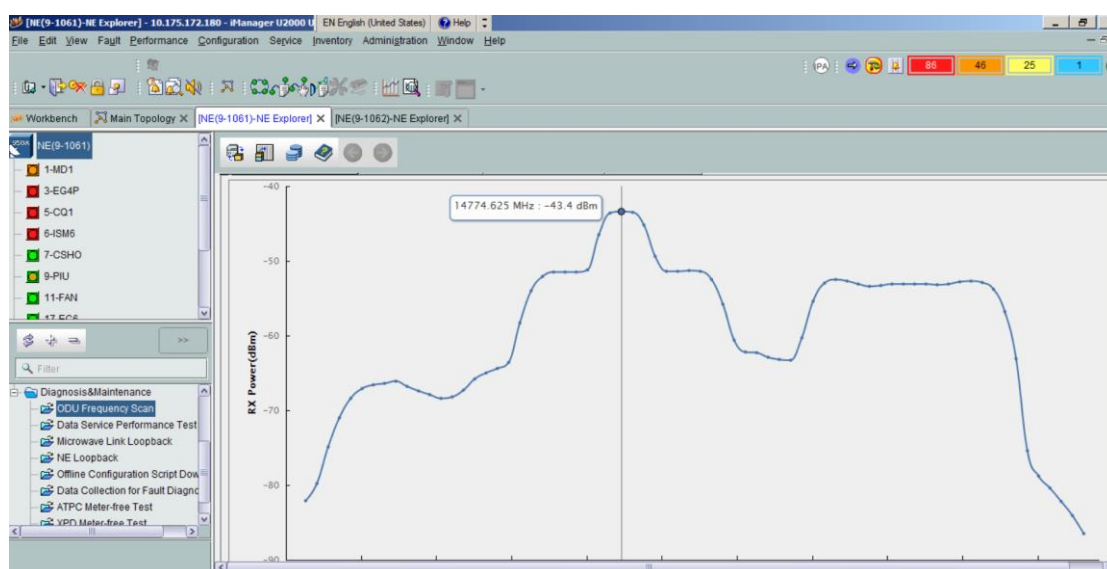
1. Open the NE explorer>> Diagnosis&Maintenance>> ODU Frequency Scan
2. Select the ODU for which the scan needs to be performed, then select the Frequency adjustment scheme from Frequency adjustment TAB and then select the Bandwidth from bandwidth TAB on which the link is configured.
3. After selecting the above parameters click "START" tab and wait till the scan is completed and click query



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4. Interference check: After the result is displayed on performing the steps stated above need to firstly check the if MW link have interference, if have, try to change the frequency to avoid the interference after discussion with circle team; if does not have, please go to the next step



Perform RF/IF loopback to verify same. If the alarm clears after applying loop, then need to carry out the same activity at connecting end.

Steps for performing the IF and RF loopback are described below:

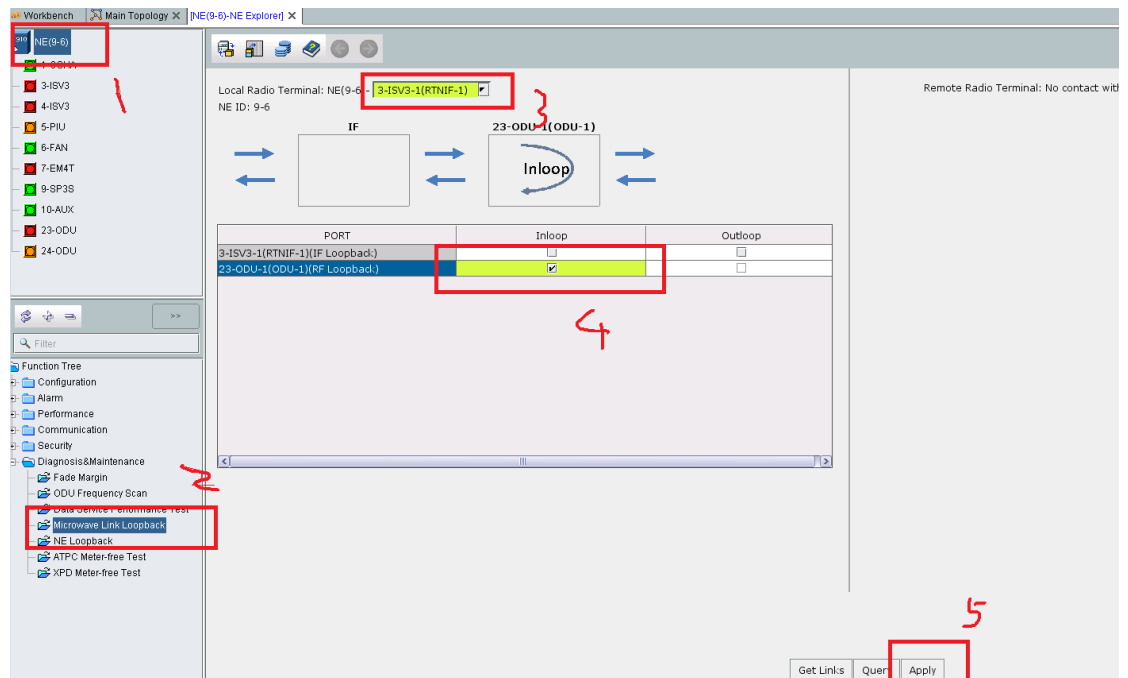
Note: loopback will interrupt service

Before inloop, should mute all other ODUs in same link, except the one will inloop

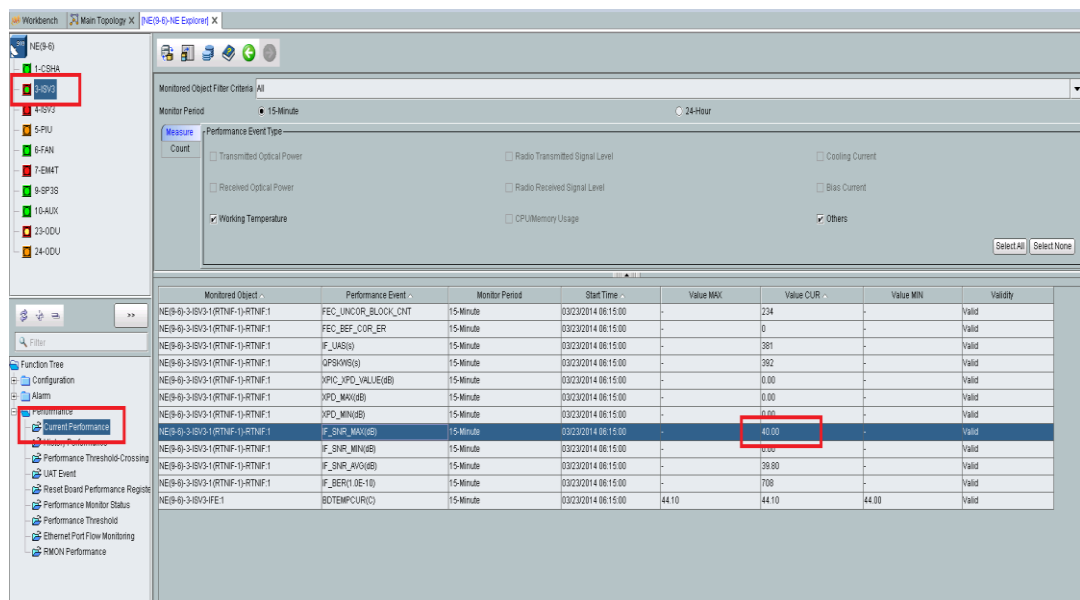
Select the NE, do inloop as described in below picture;



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Then check the MSE(Or SNR) current; if the MSE is lower than 32dB (if your U2000 shows MSE, the value should be negative), go to the step 3; if the MSE is bigger than 32dB, means these side does not have problem, need check the other side;



Then do the IF board port inloop, if the MSE is big than 37dB (if your U2000 shows MSE, the value should be negative), means the ODU has problem, need replace the ODU; if the MSE is less than 37dB, means the IF board has problem, need replace the IF board

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Workbench Main Topology X Running Status [NE(150-176)] X [NE(150-176)-NE Explorer] X

Local Radio Terminal: NE(150-176)-1-ISV3-1(RTNIF-1)
NE ID: 150-176

1-ISV3-1(RTNIF-1) RF

Inloop

PORT	Inloop	Outloop
1-ISV3-1(RTNIF-1)(IF Loopback)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21-ODU-1(ODU-1)(RF Loopback)	<input type="checkbox"/>	<input type="checkbox"/>

Function Tree

- Configuration
- Alarm
- Performance
- Communication
- Security
- Diagnosis&Maintenance
 - Fade Margin
 - ODU Frequency Scan
 - Data Service Performance Test
 - Microwave Link Loopback
 - NE Loopback
 - Offline Configuration Script Download
 - Data Collection for Fault Diagnosis
 - ATPC Meter-free Test
 - XPD Meter-free Test
 - E-LAN LD Test Management
 - ARP Anti-spoofing

Get Links Query Apply

Workbench Main Topology X [NE(9-6)-NE Explorer] X

NE(9-6)

1-ISHA

3-SP3

1-SP1

5-PIU

6-FAN

7-EMT

9-SP3

10-AUX

23-ODU

24-ODU

Function Tree

- Configuration
- Alarm
- Performance
 - Current Performance
 - History Performance
- Performance Threshold-Crossing
- UAT Event
- Reset Board Performance Register
- Performance Monitor Status
- Performance Threshold
- Ethernet Port Flow Monitoring
- PMON Performance

Monitored Object Filter Criteria All

Monitor Period 15 Minute 24 Hour

Measure Count

Performance Event Type

Transmitted Optical Power Radio Transmitted Signal Level Cooling Current

Received Optical Power Radio Received Signal Level Bias Current

Working Temperature CPU/Memory Usage Others

Select All Select None

Monitored Object	Performance Event	Monitor Period	Start Time	Value MAX	Value CUR	Value MIN	Validity
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	FEC_UNCOR_BLOCK_CNT	15 Minute	03/23/2014 06:15:00	-	234	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	FEC_BEF_COR_ER	15 Minute	03/23/2014 06:15:00	-	0	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	IF_UAS(s)	15 Minute	03/23/2014 06:15:00	-	381	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	QPSK(S)	15 Minute	03/23/2014 06:15:00	-	392	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	XPIC_XPD_VALUE(dB)	15 Minute	03/23/2014 06:15:00	-	0.00	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	XPD_MAX(dB)	15 Minute	03/23/2014 06:15:00	-	0.00	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	XPD_MIN(dB)	15 Minute	03/23/2014 06:15:00	-	0.00	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	F_SHR_MAX(dB)	15 Minute	03/23/2014 06:15:00	-	40.00	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	F_SHR_MIN(dB)	15 Minute	03/23/2014 06:15:00	-	40.00	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	F_SHR_AVS(dB)	15 Minute	03/23/2014 06:15:00	-	39.80	-	Valid
NE(9-6)-3-SP3-1(RTNIF-1)-RTNIF-1	IF_BER(10E-10)	15 Minute	03/23/2014 06:15:00	-	708	-	Valid
NE(9-6)-3-SP3-1FE1	BDTEMP(C)	15 Minute	03/23/2014 06:15:00	44.10	44.10	44.00	Valid

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Cause 3: A certain board is faulty.

Then Perform a cold reset on the alarmed board. Then, check whether the alarm is cleared.

<i>If...</i>	<i>Then...</i>
<i>The alarm is cleared</i>	<i>The fault is rectified. End the alarm handling.</i>
<i>The alarm persists</i>	<i>Replace the board if RF /IF loopback fails</i>

Cause 4: Link is misaligned

If the IF and RF loopback is OK, need to check the RSL level at both the ends.

If the RSL is degraded, then need to align the field support for link alignment and adjustment.

If the node is not managed then need to perform the above mentioned steps locally through LCT.

D. Post Activity Health Check:

Please check alarm will be clear and services also restored after confirmation from all stakeholders.

E. Fallback Procedure:

Need to shift the board to another free slot and configure the services manually.