MOP for Ceragon Radio Excessive BER Alarm Fault management

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A. Introduction

This document outlines the step-by-step process involved in Ceragon Radio Excessive BER Alarm Fault management.

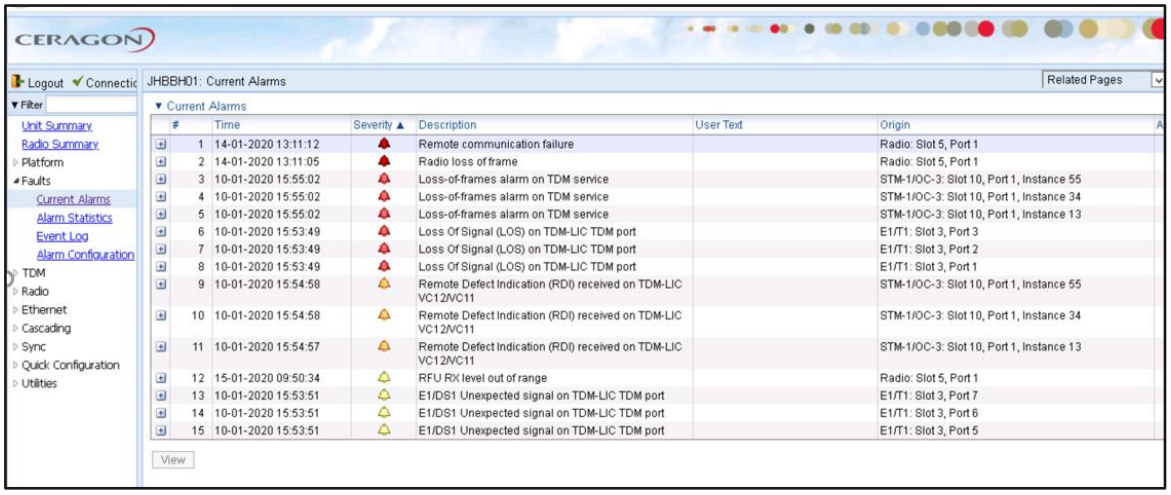
B. PRE-CHECK

- *If both the nodes are reachable then need to proceed to the next step else need to arrange filed support with spare hardware such as RMC card, ODU, IF cable and tested login accessories.*
- *PCM path or end to end media path along with V-LAN & port details should be available.*
- *Keep configured Radio parameters like- Link frequency, TX power, MRMC snapshot backup before performing any activity.*

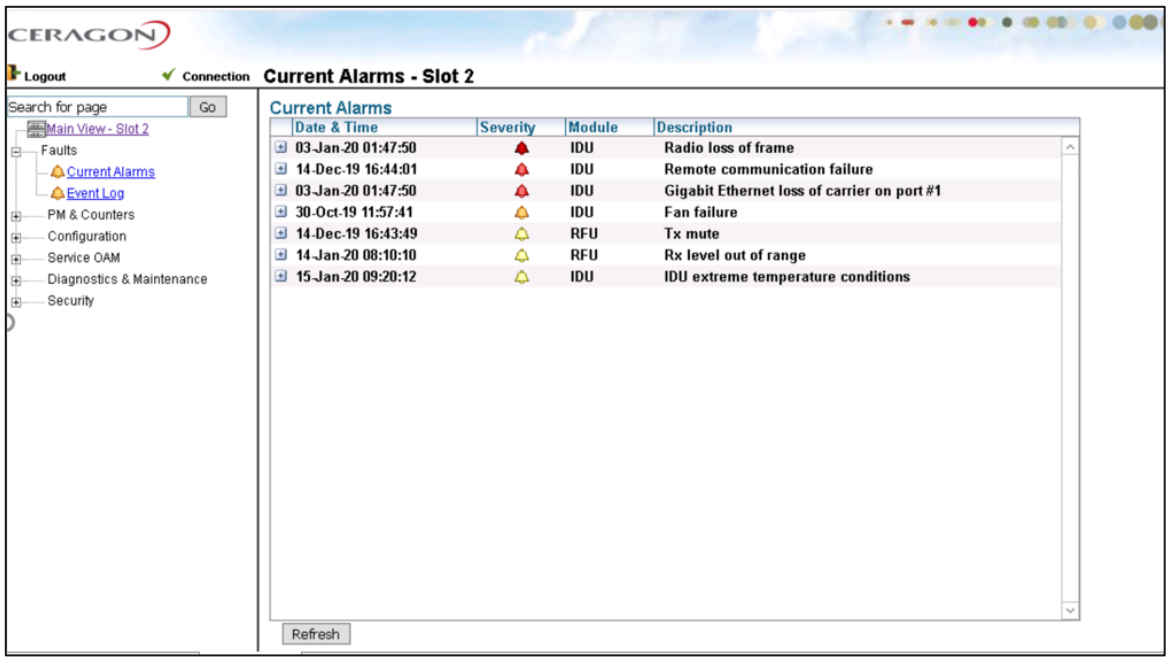
❖ *Please note that the method of procedure is prepared as the current scenario, available devices, and deployed software version. So activity steps and impact can vary depending upon the scenario.*

Current Alarms before activity

IP20:-



IP10:-

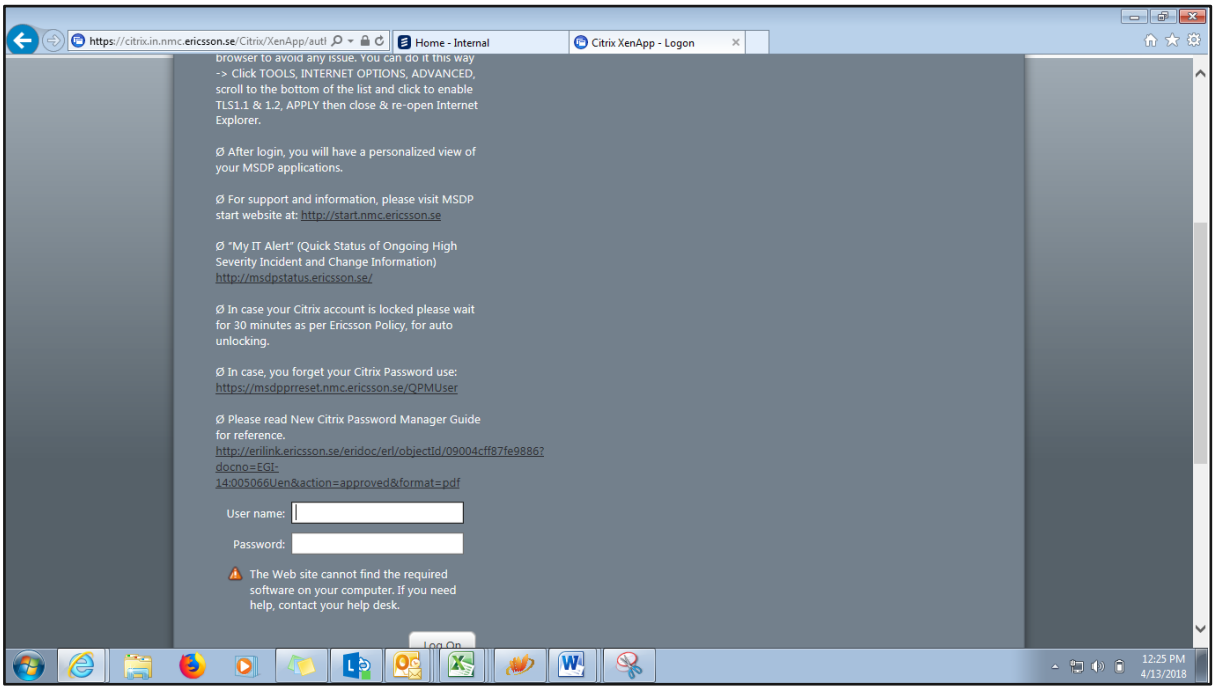


C. Procedure:

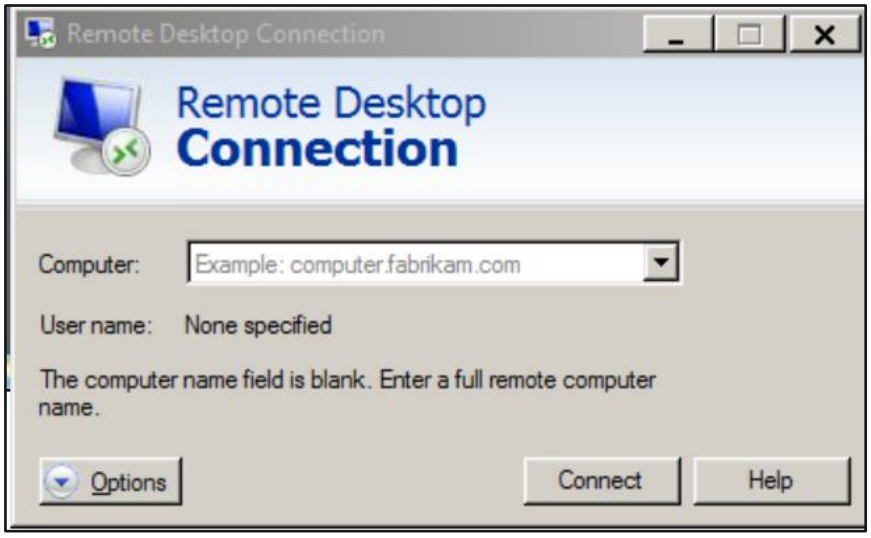
STEPS FOR Ceragon Radio loss of frame alarm clearence

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

2. Provide CITRIX username and password.

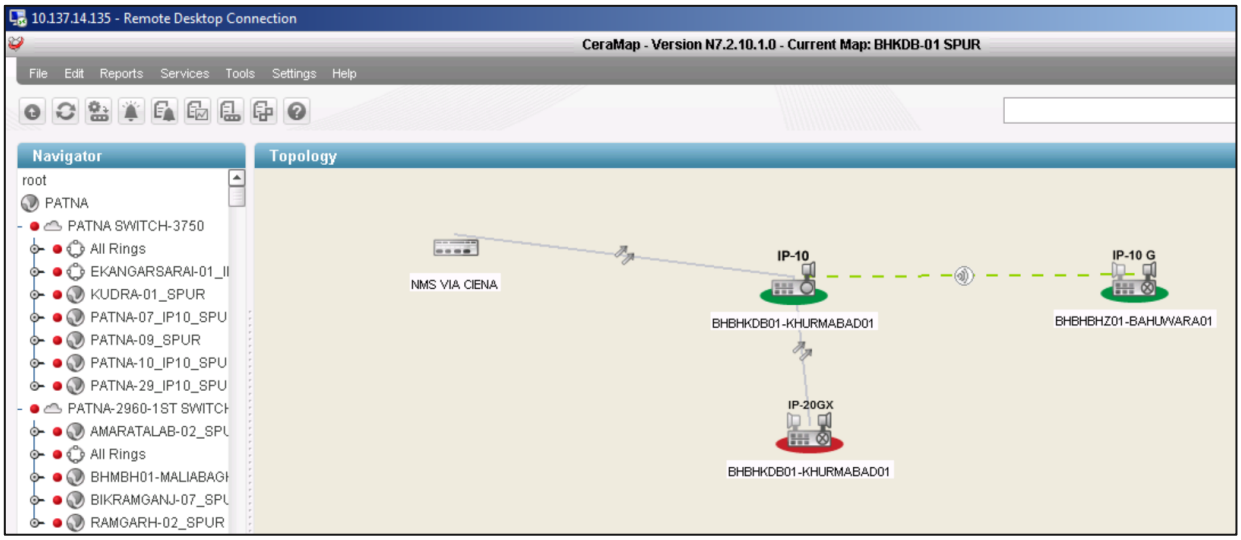


3. Clink on Main > Xenapp6.5 > **Bharti Noida >Bharti INNO Remote Desktop Client.**



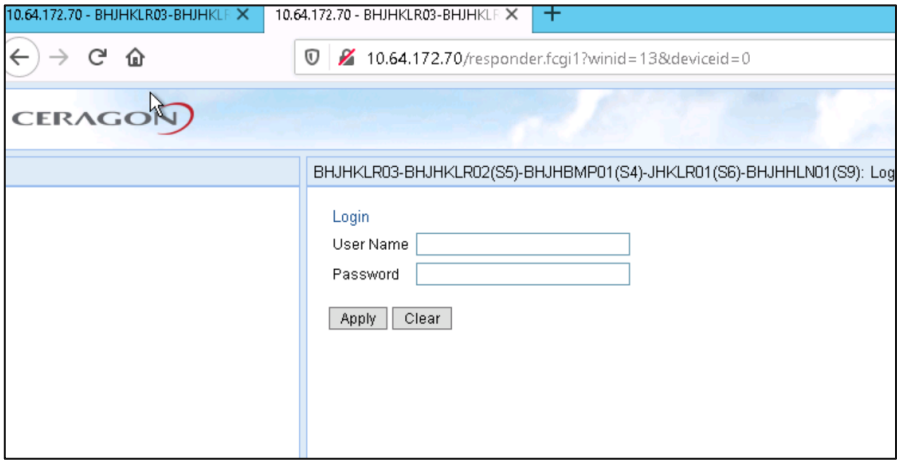
4. Now login the RDP with RDP IP & credentials.

5. Launch the Cera map & login with credentials.



6. Search the required Node ID in Cera Map & open the node by clicking on Open Node GUI.

7. Login Ceragon IP20 NODE locally via web browser through IP.
8. Provide IDU username and password.



Principle:

The Radio Excessive BER alarm indicates MW Link is down.

Traffic Impact:

When the Radio Excessive BER alarm occurs, the services that travel along the faulty BOARD are interrupted.

Possible Causes:

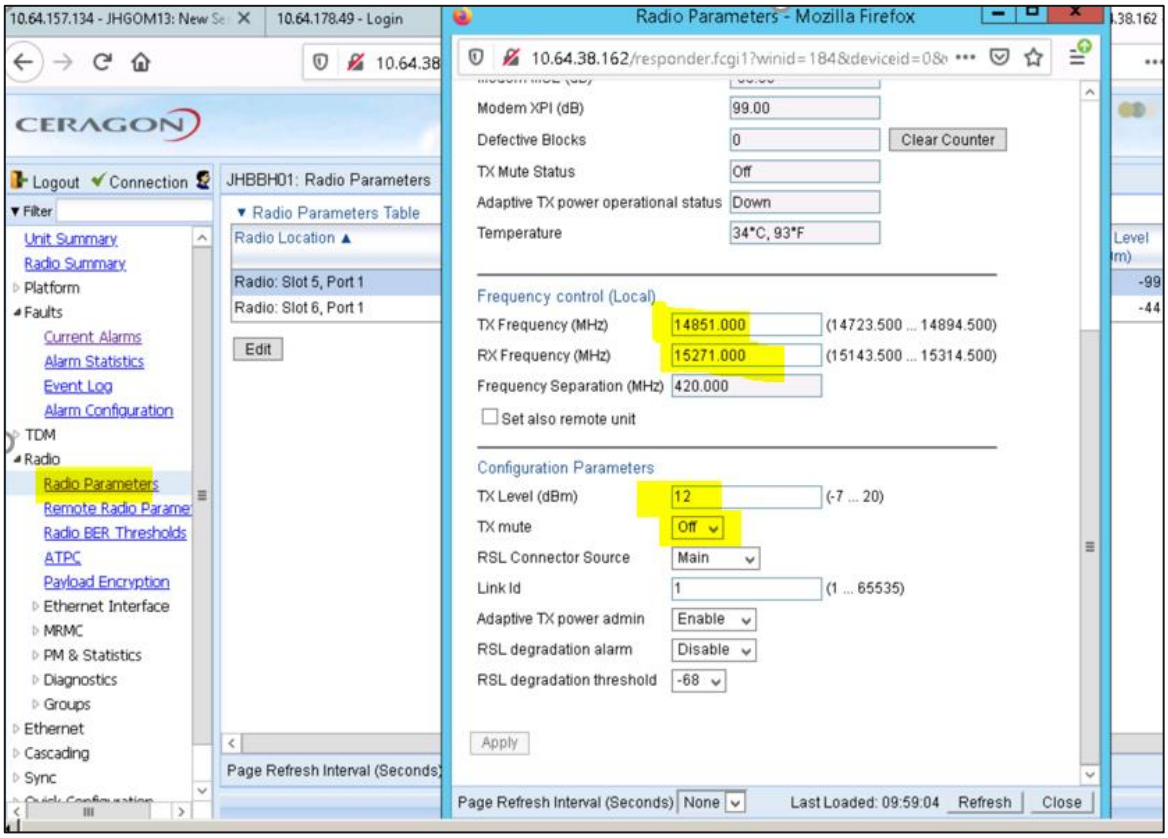
1. Fade in the link.
2. Defective IF cable.
3. Fault in RFU.
4. Fault in RMC (Radio Modem Card).

Steps for IP20:-

1. **Match all the radio parameters at both end.**

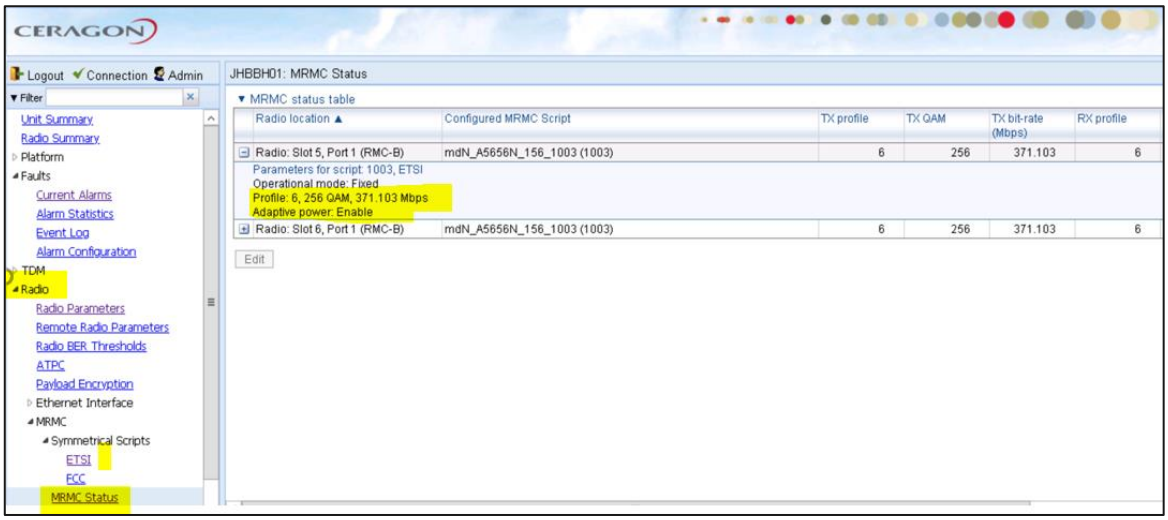
Check Frequency, TX power, Mute TX must be off.

Go to Radio>Radio parameters



Check Modulation script, same script must be running on both ends

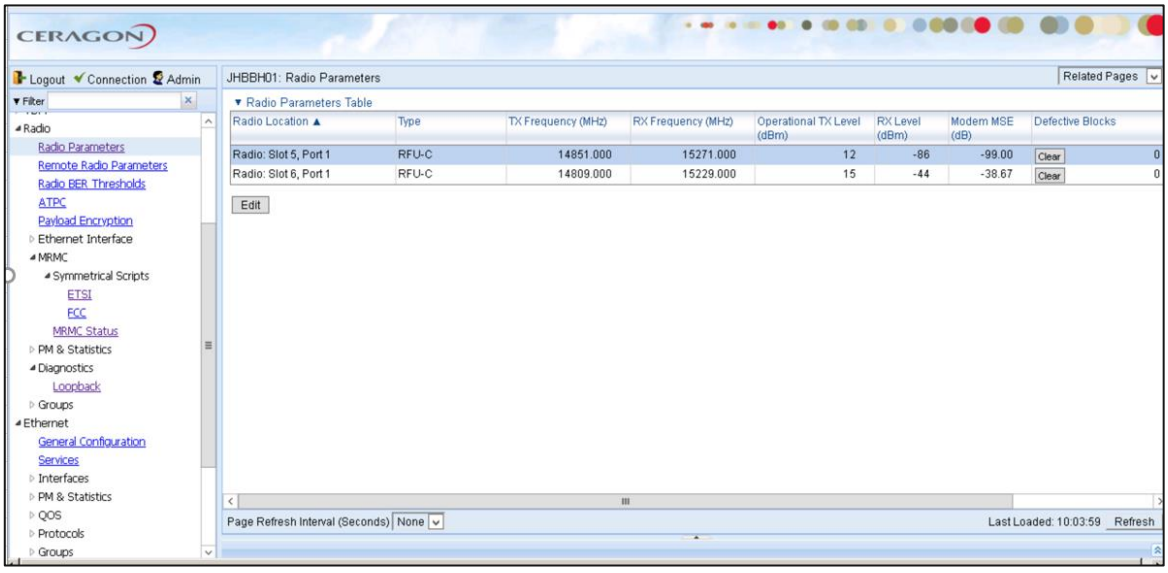
Go to Radio>MRMC>MRMC status



2. Interference to be checked.

A :- In case of link down and no interference RSL should be -99 on both ends. If not, then take snapshot and inform to circle team to consult with planning team. if required, change the link frequency/modulation after discussion with circle team shared by planning team. Interference should be checked on one end at a time after muting tx on another end. if far-end is not visible, FE required at site to perform the same.

Go to Radio>Radio parameters

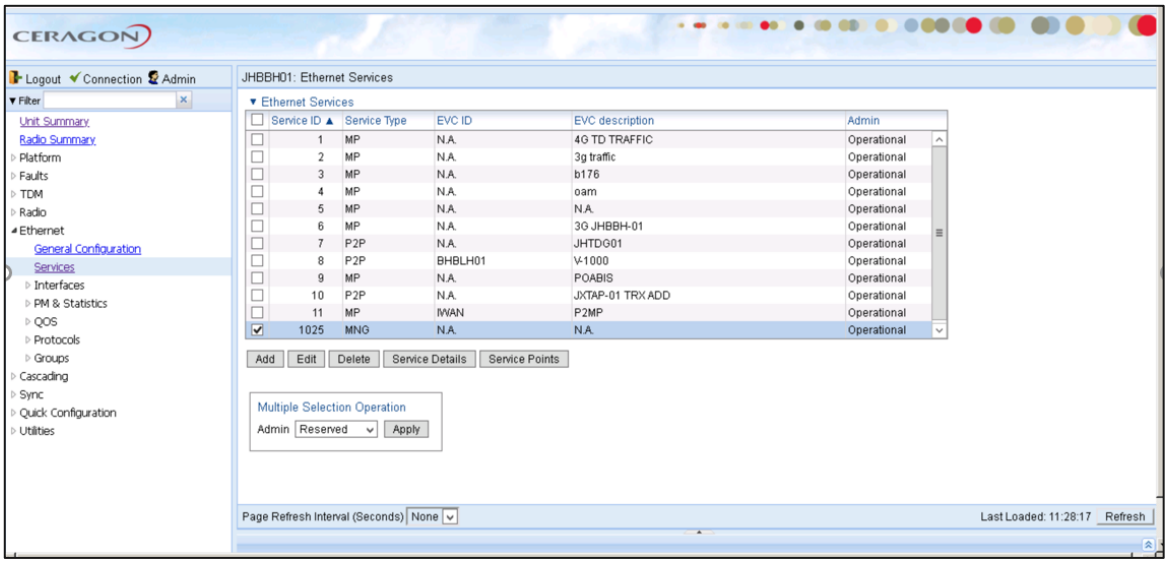


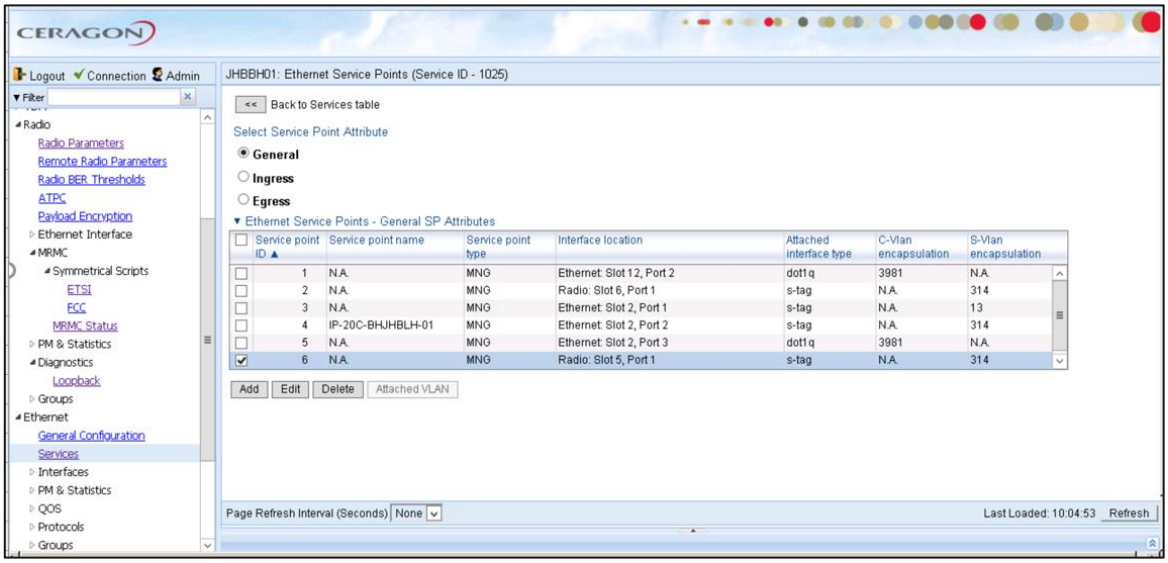
B:- go to next step if interference not observed.

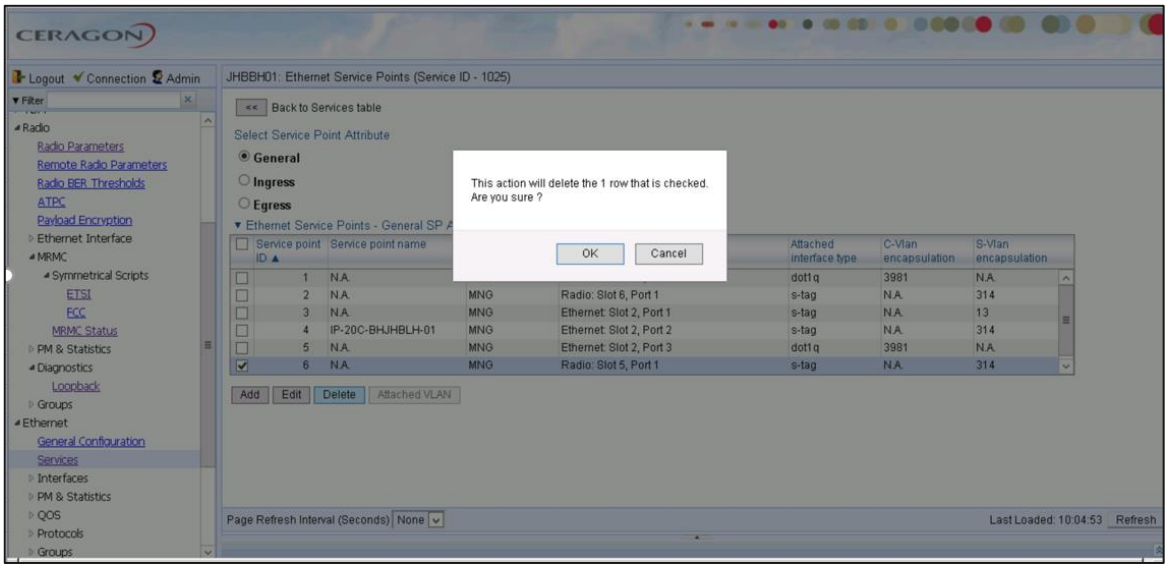
3. Perform RF/IF Loopback to check HW and connectivity between IDU to ODU.

Before performing IF/RF loopback, impacted radio S-TAG service point should be removed from MNG service.so that MNG VLAN will not get loop and node visibility will not hamper.

Go to Ethernet>Services


CERAGON
Logout
Connection
Admin
Filter
Unit Summary
Radio Summary
Platform
Faults
TDM
Radio
Ethernet
General Configuration
Services
Interfaces
PM & Statistics
QOS
Protocols
Groups
Cascading
Sync
Quick Configuration
Utilities
JHBBH01: Ethernet Services
Ethernet Services
Service ID
Service Type
EVC ID
EVC description
Admin
1 MP N.A. 4G TD TRAFFIC Operational
2 MP N.A. 3g traffic Operational
3 MP N.A. b176 Operational
4 MP N.A. oam Operational
5 MP N.A. N.A. Operational
6 MP N.A. 3G JHBBH-01 Operational
7 P2P N.A. JHTDG01 Operational
8 P2P BHBLH01 V-1000 Operational
9 MP N.A. POABIS Operational
10 P2P N.A. JXTAP-01 TRX ADD Operational
11 MP IWAN P2MP Operational
1025 MNG N.A. N.A. Operational
Add
Edit
Delete
Service Details
Service Points
Multiple Selection Operation
Admin
Reserved
Apply
Page Refresh Interval (Seconds)
None
Last Loaded: 11:28:17
Refresh

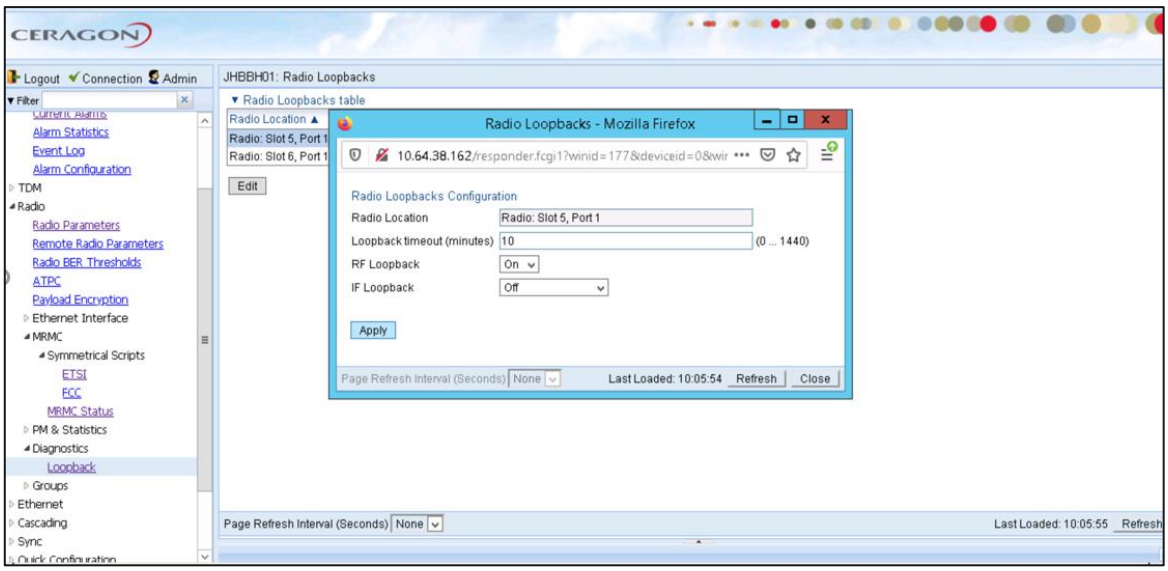

CERAGON
Logout
Connection
Admin
Filter
Radio
Radio Parameters
Remote Radio Parameters
Radio BER Thresholds
ATPC
Payload Encryption
Ethernet Interface
MRMC
Symmetrical Scripts
ETSI
FCC
MRMC Status
PM & Statistics
Diagnostics
Loopback
Groups
Ethernet
General Configuration
Services
Interfaces
PM & Statistics
QOS
Protocols
Groups
JHBBH01: Ethernet Service Points (Service ID - 1025)
<<
Back to Services table
Select Service Point Attribute
General
Ingress
Egress
Ethernet Service Points - General SP Attributes
Service point ID
Service point name
Service point type
Interface location
Attached interface type
C-Vlan encapsulation
S-Vlan encapsulation
1 N.A. MNG Ethernet: Slot 12, Port 2 dot1q 3981 N.A.
2 N.A. MNG Radio: Slot 6, Port 1 s-tag N.A. 314
3 N.A. MNG Ethernet: Slot 2, Port 1 s-tag N.A. 13
4 IP-20C-BHJHBLH-01 MNG Ethernet: Slot 2, Port 2 s-tag N.A. 314
5 N.A. MNG Ethernet: Slot 2, Port 3 dot1q 3981 N.A.
6 N.A. MNG Radio: Slot 5, Port 1 s-tag N.A. 314
Add
Edit
Delete
Attached VLAN
Page Refresh Interval (Seconds)
None
Last Loaded: 10:04:53
Refresh



After deleting radio port from Eth services.

Go to Radio>Diagnostic>Loopback

Set Loopback timeout and enable RF loop back and click on Apply. Far-end Radio TX should be mute before performing loopback.

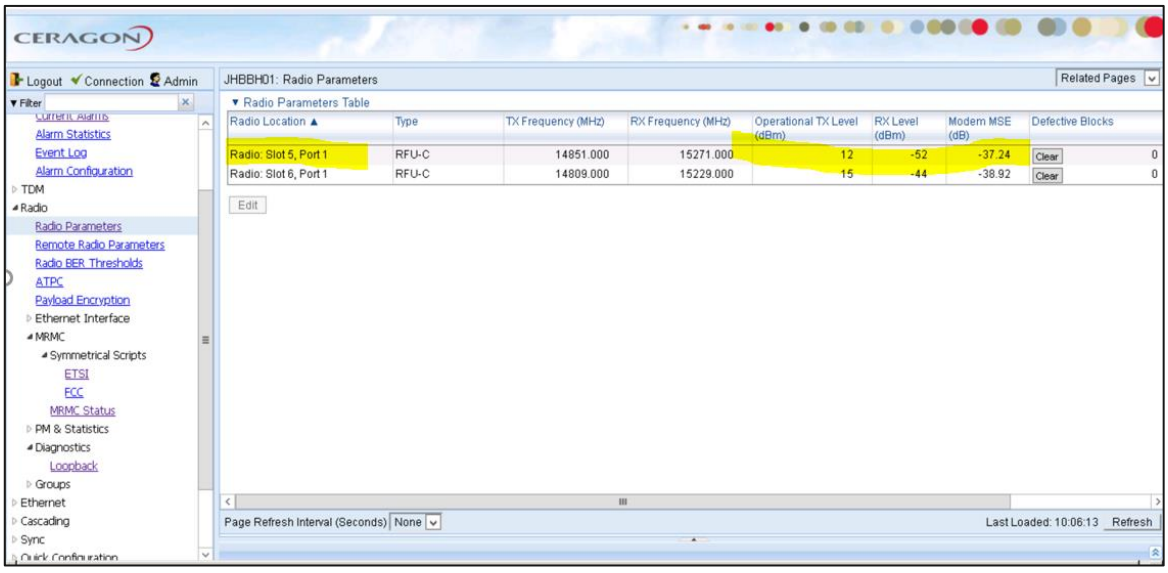


After enabling RF loopback, RSL as per configured modulation. (recommended MSE value table according to modulation attached). and defective blocks should not increase. if not then replace ODU or check IF connectivity.

Recommended MSE value as per Configured Modulation script.

Profile	Mod	MSE Down-Threshold	MSE Up-Threshold
0	QPSK		-18
1	8PSK	-16	-19
2	16QAM	-17	-23
3	32QAM	-21	-26
4	64QAM	-24	-29
5	128QAM	-27	-32
6	256QAM	-30	-34
7	512QAM	-32	-37
8	1024 QAM SFEC	-35	-38
9	1024 QAM WFEC	-36	-41
10	2048QAM	-39	

Go to Radio>Radio parameters



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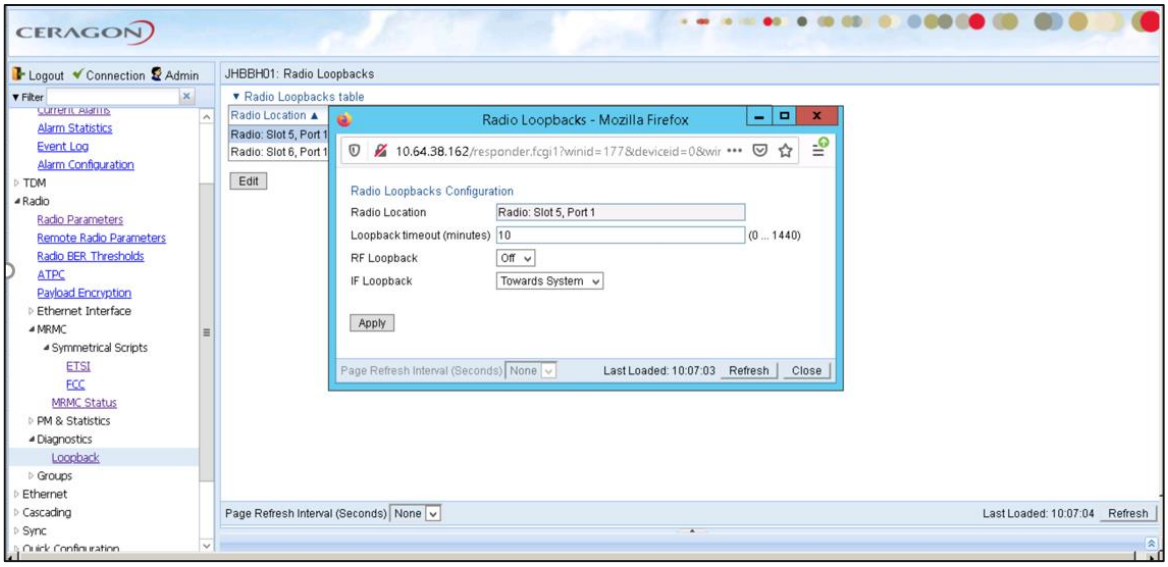
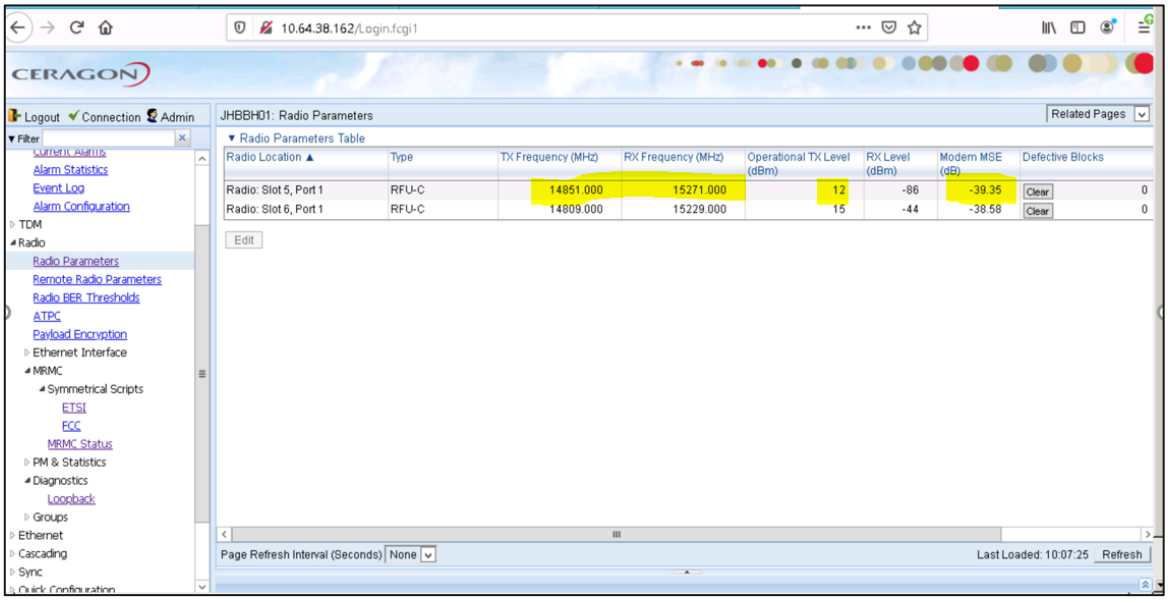


After enabling IF loopback, MSE should be OK, as per configured modulation. (recommended MSE value table according to modulation attached). and defective blocks should not increase if not then replace RMC.

Go to Radio>Radio parameters



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 connector also should be checked from Field end.

Microwave Feedhorn also need to be checked by FE physically, no any damage or water seepage inside Feedhorn should be there.

If the node is not managed, then need to perform the above-mentioned steps locally through web login or provide remote desktop to BO-TXN Engg.

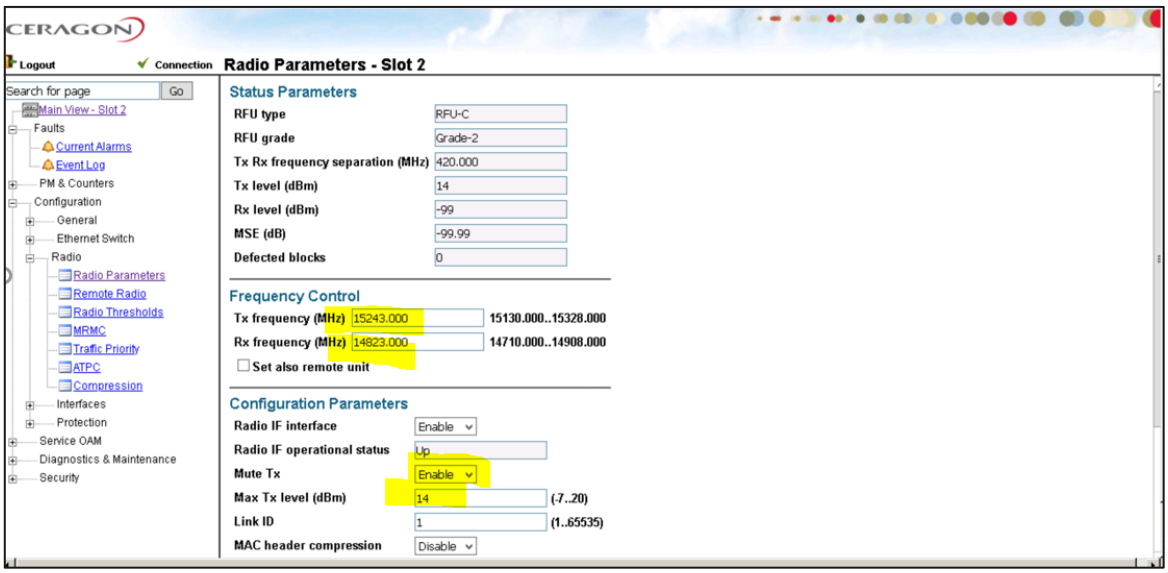
If link is still down after following all the steps mentioned above, check infra related points- power supply, Equipment earthing, site grounding etc.

Steps for IP10:-

1. Match all the radio parameters at both ends.

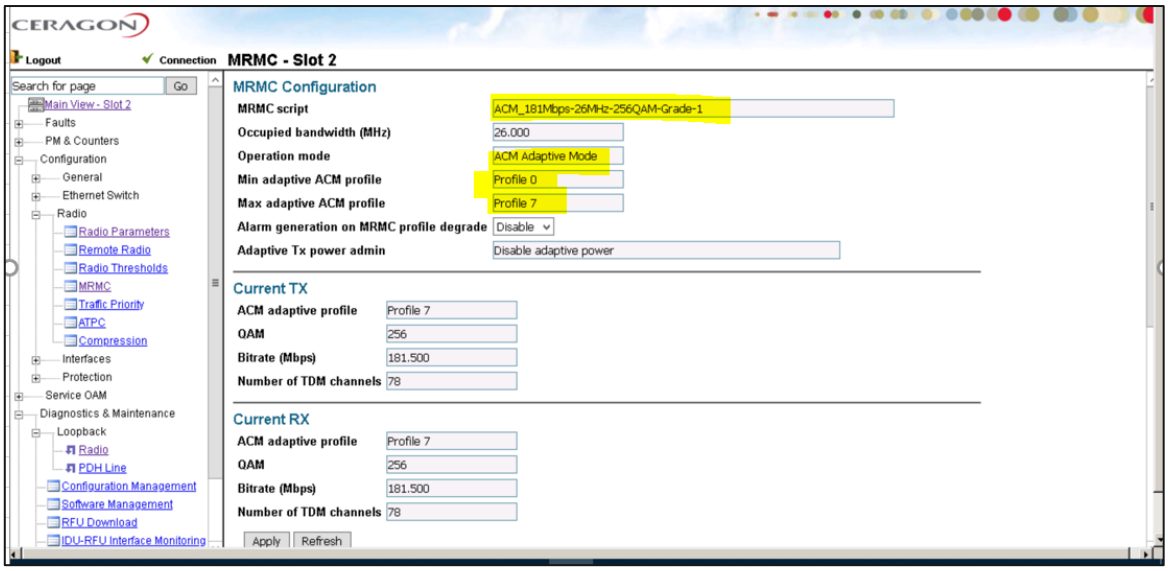
Check Frequency, TX power, Mute TX must be disable.

Go to Configuration>Radio>Radio parameters



Check Modulation script, same script must be running on both ends

Go to Configuration>Radio>MRMC



2. Interference to be checked.

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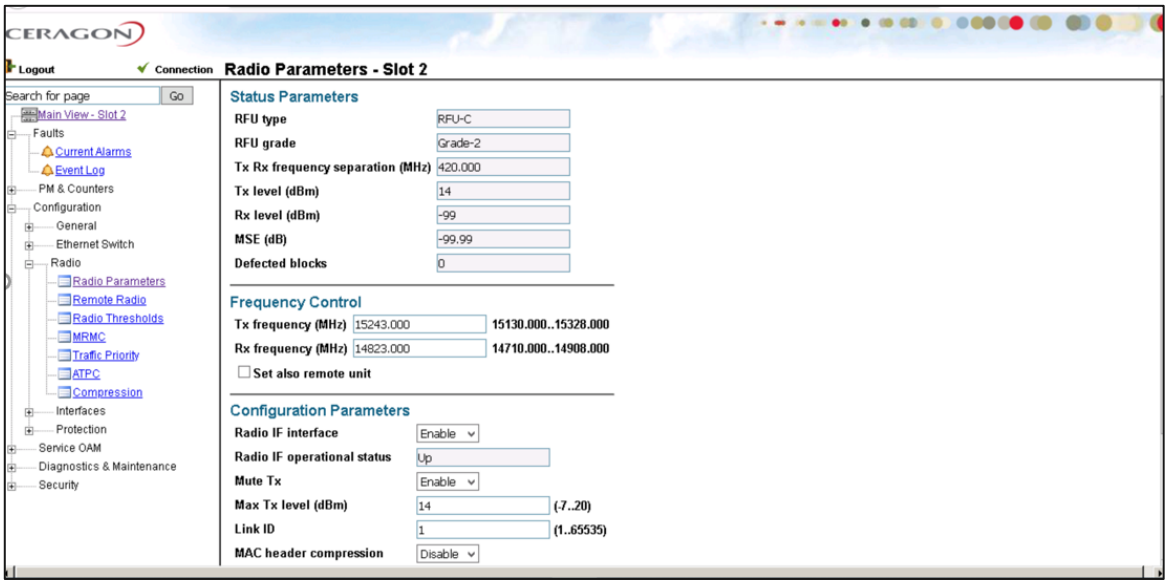
Go to Configuration>Radio>Radio parameters

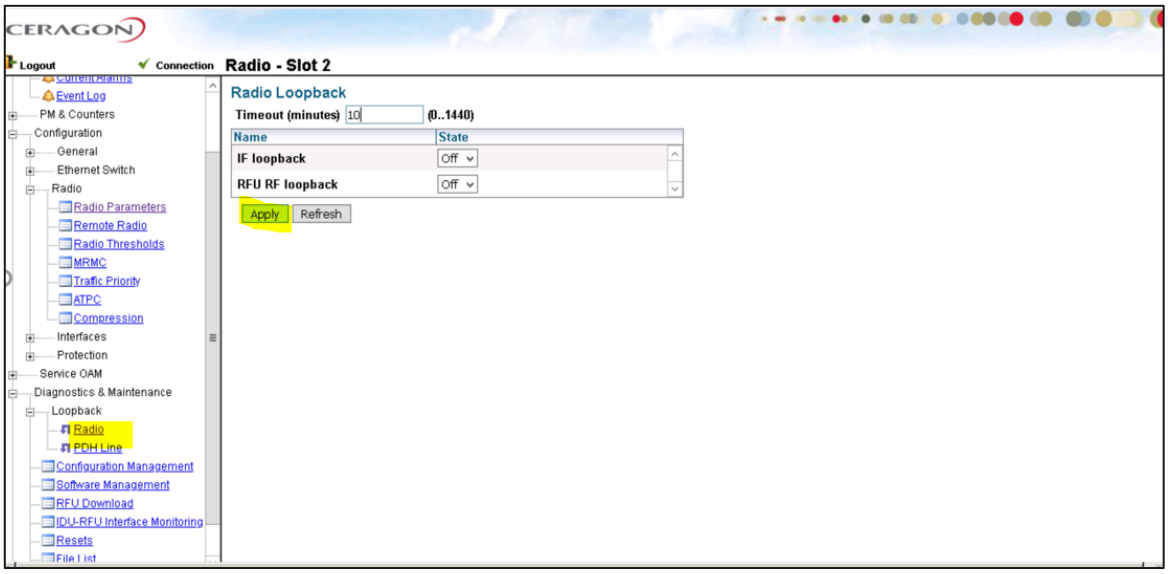


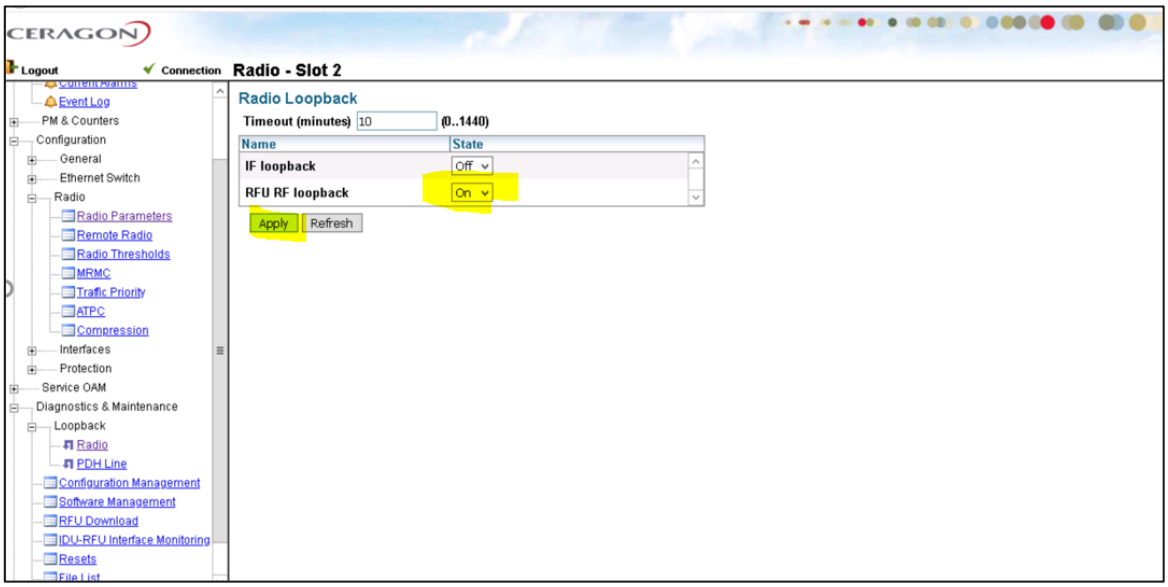
B:- go to next step if interference not observed.

3. Perform RF/IF Loopback to check HW and connectivity between IDU/ODU.

Go to Diagnostic and maintenance>Loopback>Radio

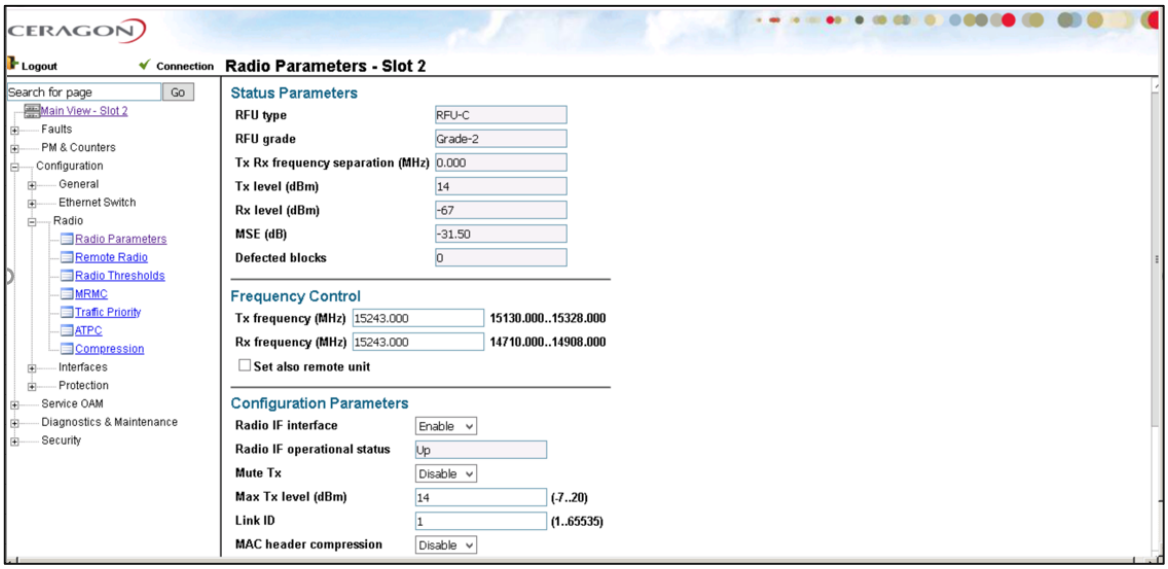
Set Loopback timeout and enable RF loop back and click on Apply. Far-end Radio TX should be mute before performing loopback.





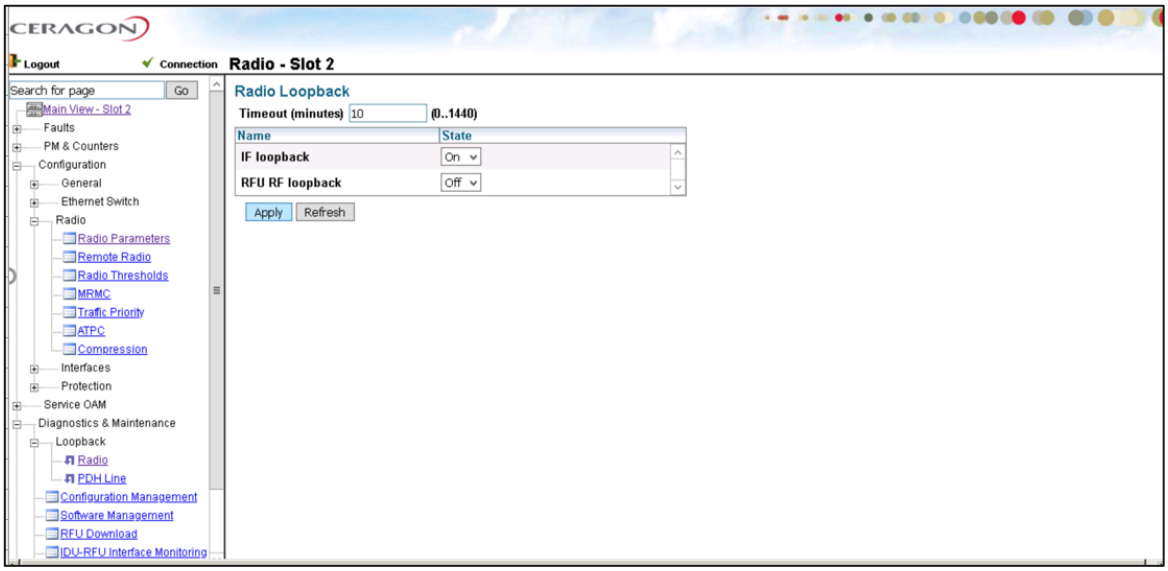
After enabling RF loopback, RSL and MSE should be OK, as per configured modulation. (recommended MSE value table according to modulation attached). and defective blocks should not increase. if not then replace ODU or check IF connectivity.

Go to Configuration>Radio>Radio parameters



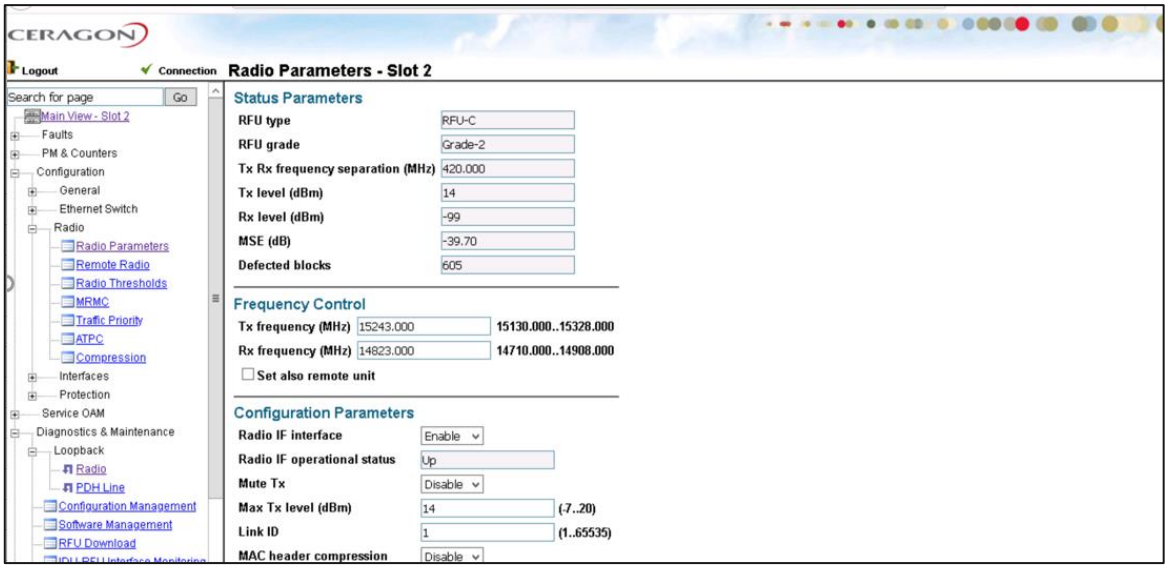
Go to Diagnostic and maintenance>Loopback>Radio

Set Loopback timeout and enable IF loop back and click on Apply. Far-end Radio TX should be mute before performing loopback.



After enabling IF loopback, MSE should be OK, as per configured modulation. (recommended MSE value table according to modulation attached). and defective blocks should not increase. if not then replace IP10 IDU.

Go to Configuration>Radio>Radio parameters



4. Link is misaligned

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

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Microwave Feedhorn also need to be checked by FE physically, no any damage or water seepage inside Feedhorn should be there.

If the node is not managed, then need to perform the above-mentioned steps locally through web login or provide remote desktop to BO-TXN Engg.

If link is still down after following all the steps mentioned above, check infra related points- power supply, Equipment earthing, site grounding etc.

D. Post Activity Health Check:

Need to Check alarm will be clear and services also restored after confirmation from all stakeholders. If alarm not cleared and link is still down after following all procedure, raise care case to OEM Ceragon.

E. Fall Back Procedure: -

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