COMPAL O-RU User Guide

COMPAL Outdoor O-RU – Cypress

Version：0.1

Update date：September 28, 2023

Notice

The document is subject to update from time to time owing to the product version upgrade or other reasons. Unless otherwise specified, the document only serves as the user guide. All the statements, information and suggestions contained in the document do not constitute any explicit or implicit guarantee.

Version Record

Version	Update date	Remark
V0.1	September 28, 2023	Draft version

Contents

1. Installation Connection

1.1. RF Cable

Connect the RU's 4 RF ports to the band matched antenna through 4 of accessory RF cables。Make sure all RF cable N-Type connectors are tightened well before you power on RU。

1.2. SPF+ & LAN & AC Power Port

1. SFP+ Port : This port is used for fronthaul C/U/S/M-Plane. Plug in the accessory optical fiber to RU's SPF+ port，and connect the optical fiber's another side to the SFP+ 1310nm single mode transceiver of DU(C1) or PTP FH switch(C2/C3)。
2. LAN Port : This port is used for accessing RU's Web GUI and SSH，this LAN port default IP address is 192.168.100.10 without VLAN。
3. AC Power : RU supports AC 100~240V 50/60Hz。Plug in the accessory AC cord to the properly AC socket。

1.3. Warning Statements

The device complies with Part 15 of the FCC Rules。Operation is subject to the following two conditions :

1) This device may not cause harmful interference，and

2) This device must accept any interference received；includes interference that may cause undesired operation。

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment。

This equipment has been tested and found to comply with the limits for a Class A digital device，pursuant to part 15 of the FCC Rules。These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment。This equipment generates，uses，and can radiate radio frequency energy and，if not installed and used in accordance with the instruction manual，may cuase harmful interference to radio communications。Operation of this equipment in a residential area is likely to cause harmful interference in which cause the user will be required to correct the interference at his own expense。

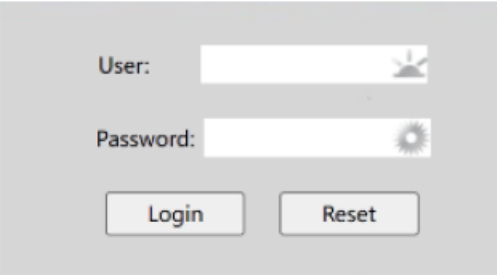
This device has been tested and meets applicable limits for Radio Frequency (RF) exposure。

This equipment should be installed and operated with minimum distance 80cm between the radior & your body。

2. Login RU

2.1. Login RU Web GUI

1. In a PC that is connected with RU LAN port，Open a web browser and visit RU Web GUI。
http://192.168.100.10



2. Login by User : **admin** & password : **adMin123456**

3. Set Parameters in RU

3.1. Overview of RU parameters

The following RU parameter might need to be set in the first time to connect with DU。

ID	Item Name	Description	Must
S-01	1588 Protocol Switch	Set RU as PTP client or master，and preferred profile	M
S-02	1588 Parameters Setting	Advance PTP parameters	O
CU-01	Peer MAC	Set DU's MAC address	M
CU-02	C/U-Plane VLAN	Set VLAN ID for C/U-Plane	M
CU-03	U-Plane Compress Mode	Set compress mode for U-Plane	M
CU-04	PRACH Compress Mode	Set compress mode for PRACH	M
CU-05	MIMO	Set 4x4 or 2x2 (Default : 4x4)	M
CU-06	Center Fequency (Hz)	Manual set RU center Frequency if M-Plane is not avilable	M
CU-07	Antenna Gain	Set the antenna gain	M
CU-08	Bandwidth	Manual set RU bandwidth if M-Plane is not available (Default : 100MHz)	M
M-01	RU IP Address for M-Plane	Set RU IP address as DHCP IP add	M
M-02	M-Plane VLAN	Set VLAN ID for M-Plane	M
M-03	NMS IP Address	Manual set NMS IP address if DHCP server with option43 is not available	M

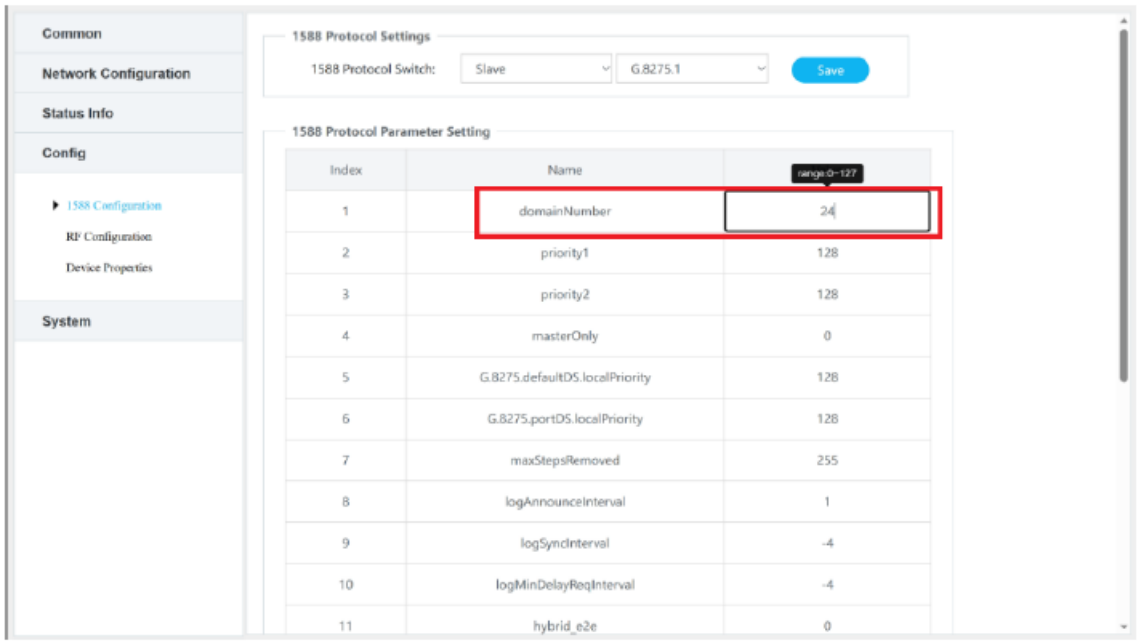
3.2. S-01 1588 Protocol Switch

1. Go to Config > 1588 Configuration page，you can set RU as PTP client or master，and its preferred profile in 1588 Protocol Switch。

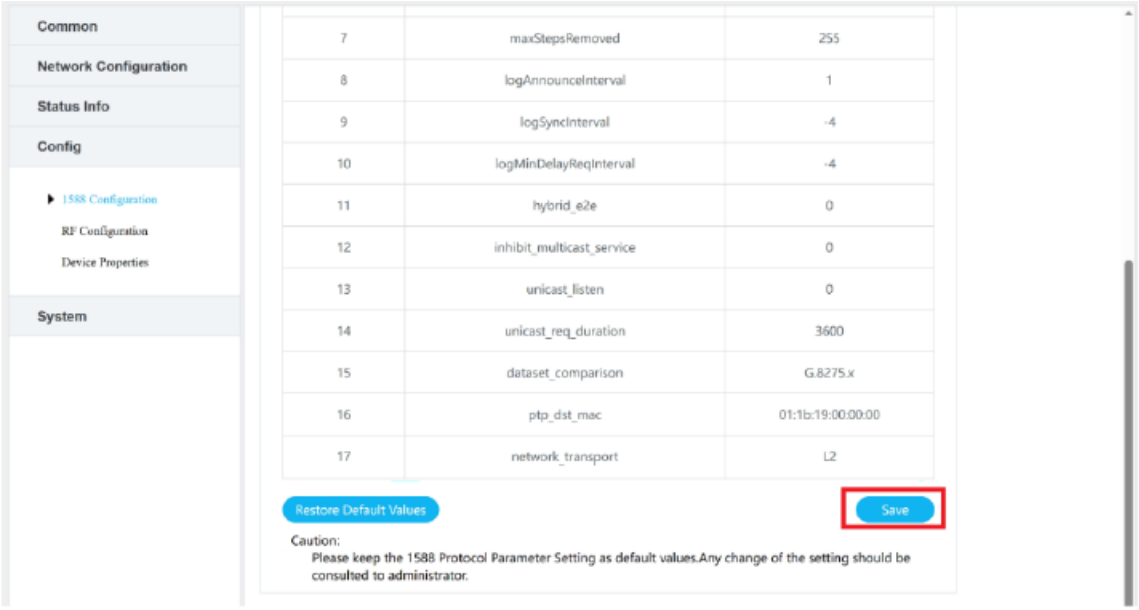
2. After changing setting，click “Save” button for taking effect。

3.3. S-02 1588 Parameter Setting

1. Go to Config > 1588 Configuration page，you can set the advance PTP parameters in this area。For example，if you have to change domain，click domainNumber value and key in new one you want。

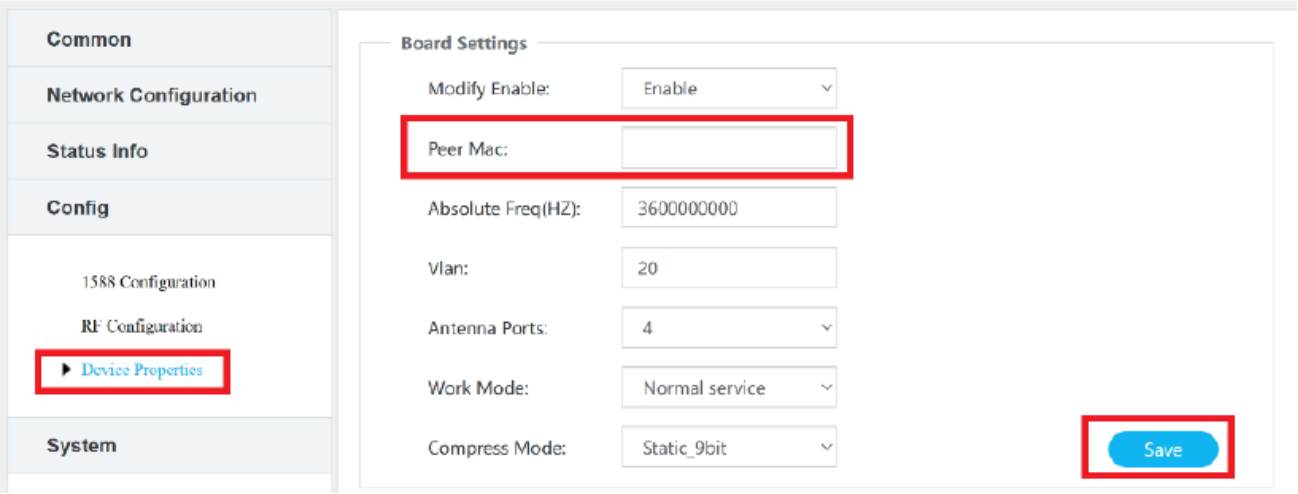


2. Press “Save” button for taking effect。



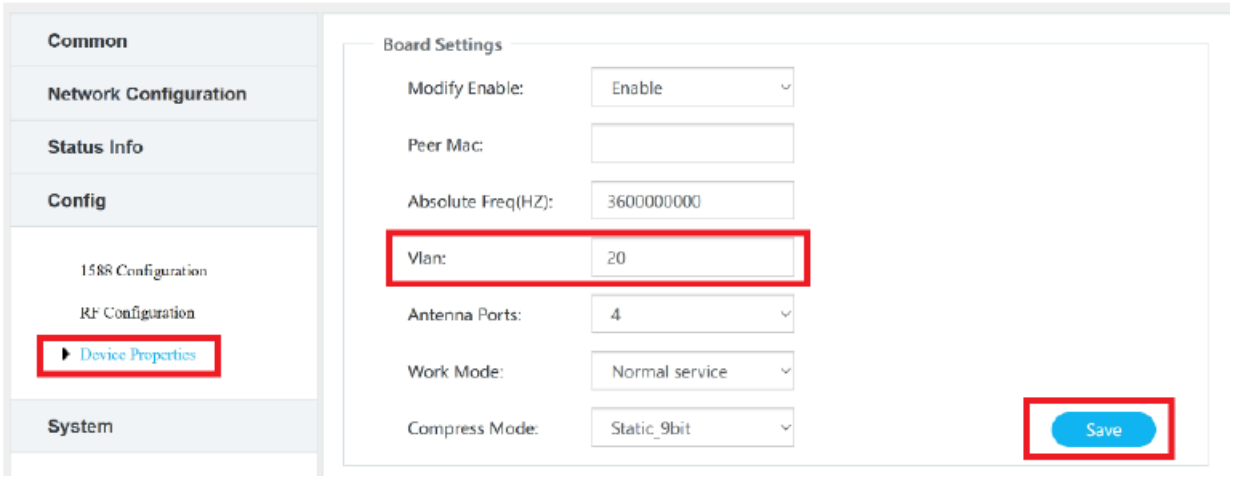
3.4. CU-01 Peer MAC

1. Go to Config > Device Properties page，key in the DU MAC address to Peer Mac column。
2. Click “Save” button for taking effect。



3.5. CU-02 C/U-Plane VLAN

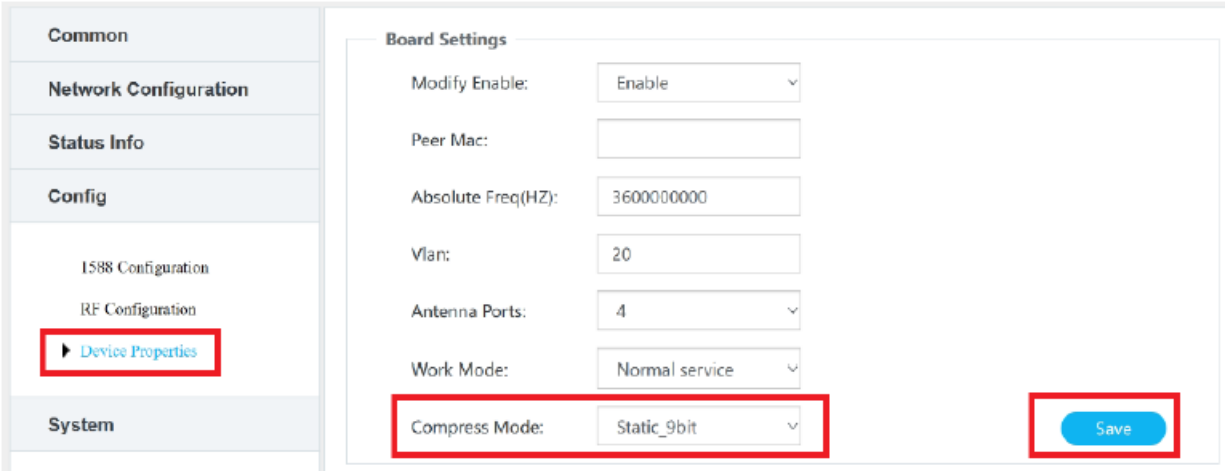
1. Go to Config > Device Properties page，key in C/U-Plane’s VLAN ID to Peer Mac column。If there is no VLAN for C/U-Plane，key in 0。
2. Click “Save” button for taking effect。



3.6. CU-03 U-Plane Compress Mode

COMPAL RU supports BFP(Block Floating Point) compress static 9 bit or dynamic 9bit for U-Plane so far。

1. Go to Config > Device Properties page，select Static_9bit or Dynamic in Compress Mode。
2. Click “Save” button for taking effect。



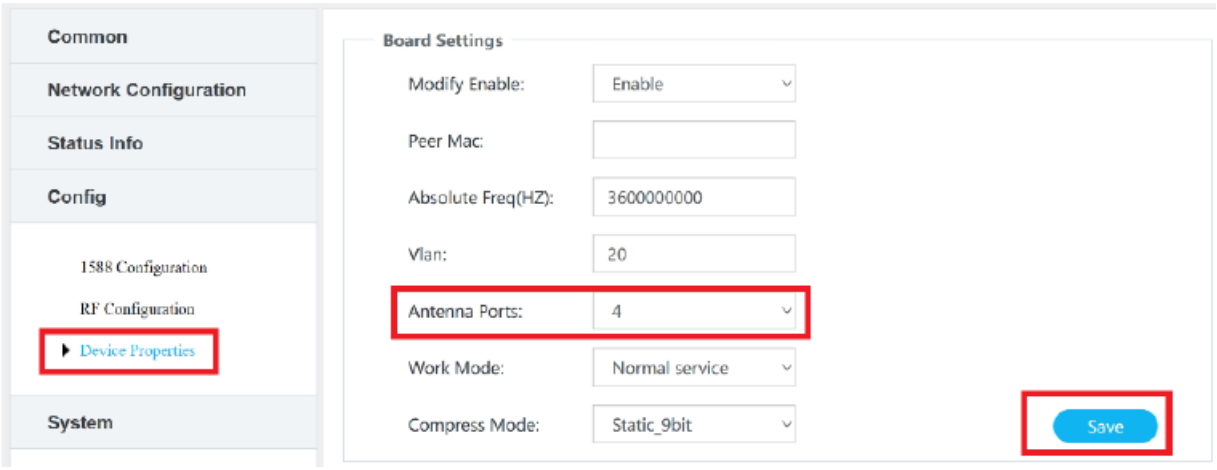
3.7. CU-04 PRACH Compress Mode

By default，COMPAL RU uses non-compress 16bit for PRACH。COMPAL RU can support static comress 9bit for PRACH as well，ask COMPAL engineer help if you need this configuration。

3.8. CU-05 MIMO

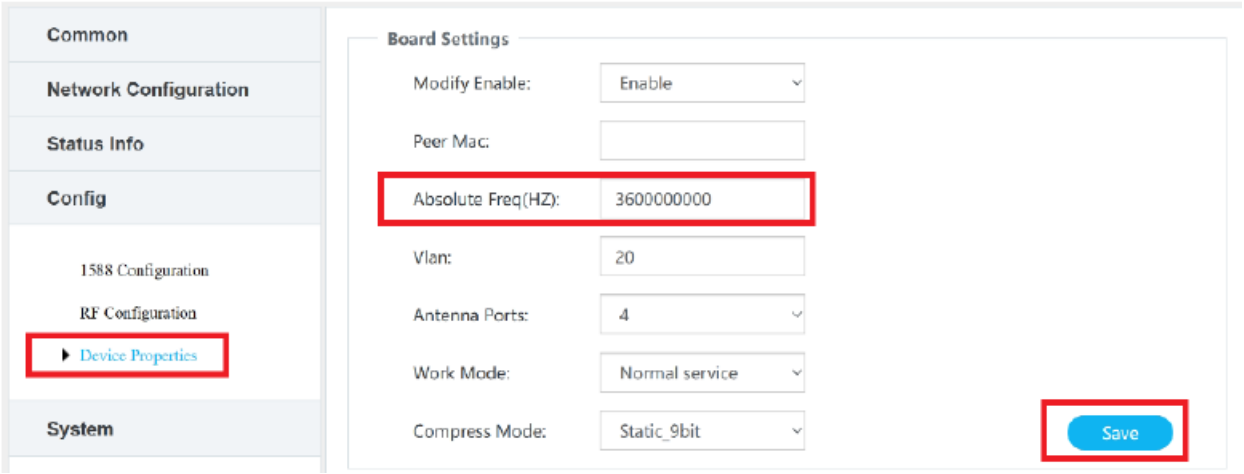
COMPAL RU supports 4x4 or 2x2 MIMO so far。

1. Go to Config > Device Properties page，select 4 for 4x4 MIMO or 2 for 2x2 MIMO。
2. Click “Save” button for taking effect。



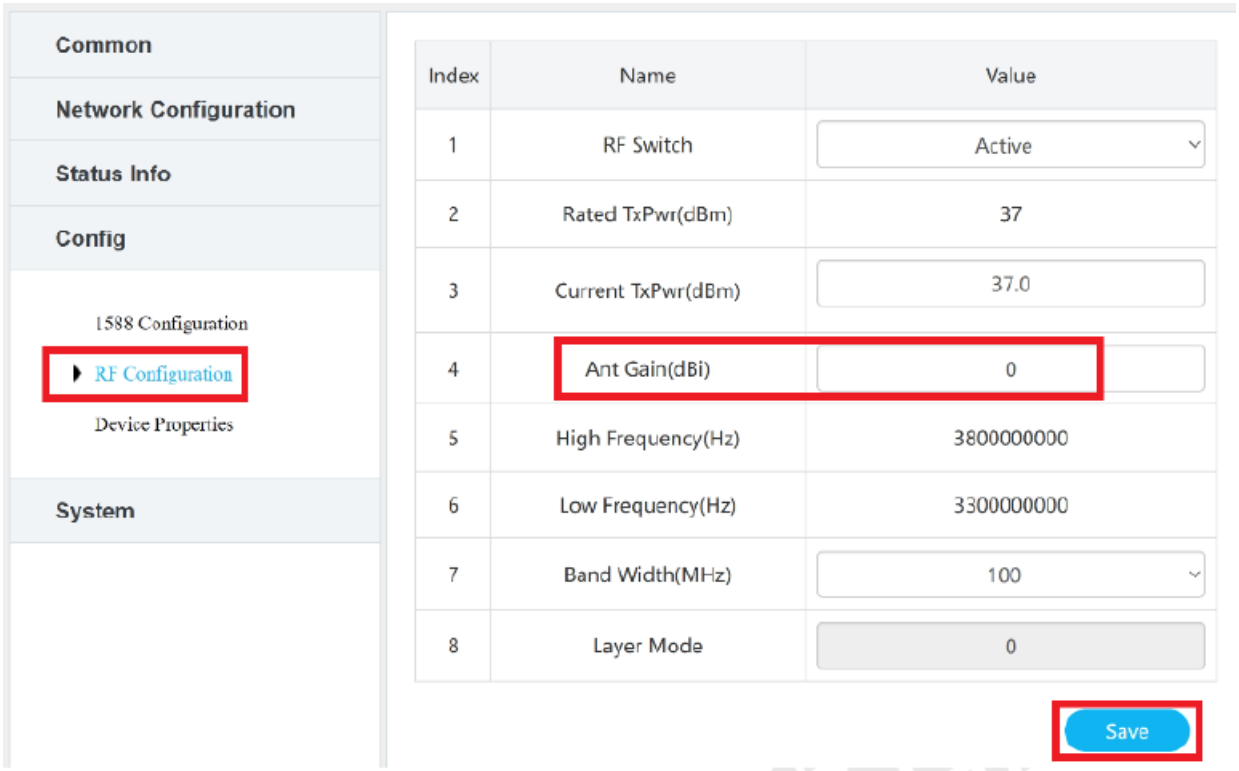
3.9. CU-06 Center Frequency (Hz)

1. Go to Config > RF Configuration page，key in the radio center frequency (Hz) in Center Frequency column。
2. Click “Save” button for taking effect。



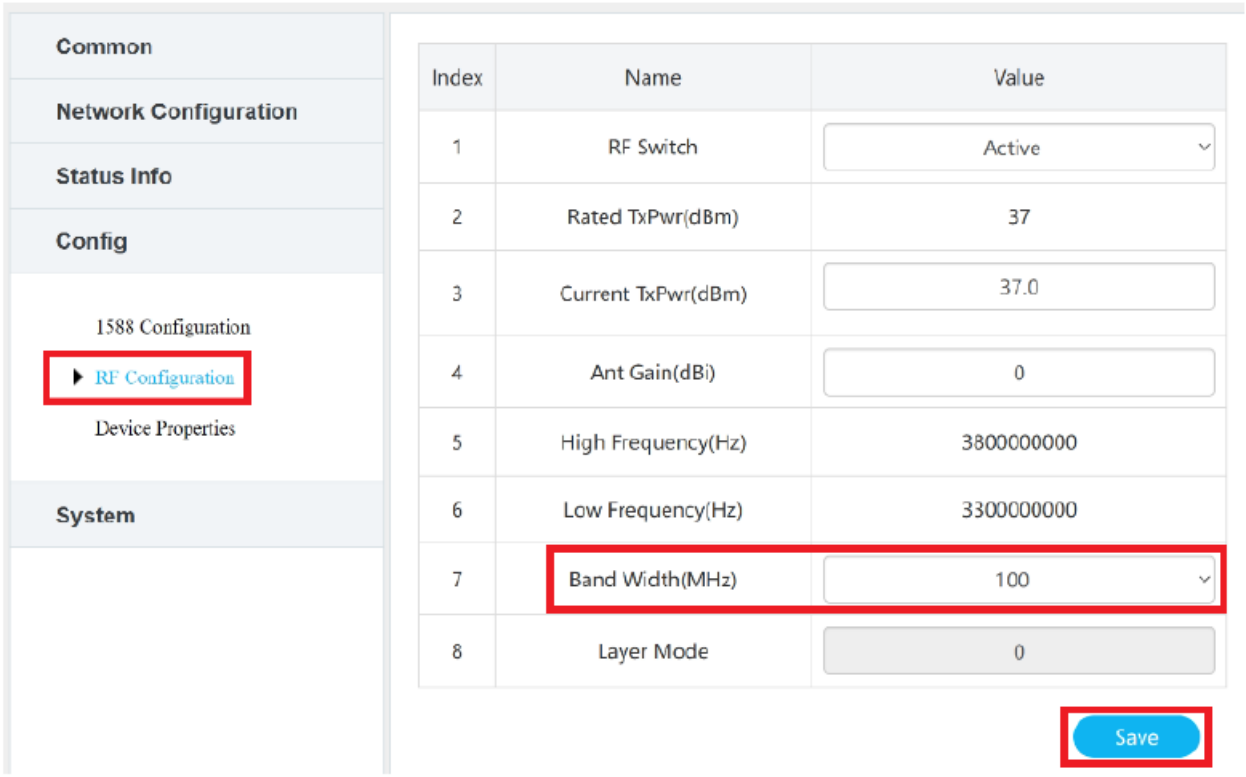
3.10. CU-07 Antenna Gain

1. Go to Config > RF Configuration page，key in the connected antenna gain (dBi) in Ant Gain column。If connect UE by conductive，key in 0。
2. Click “Save” button for taking effect。



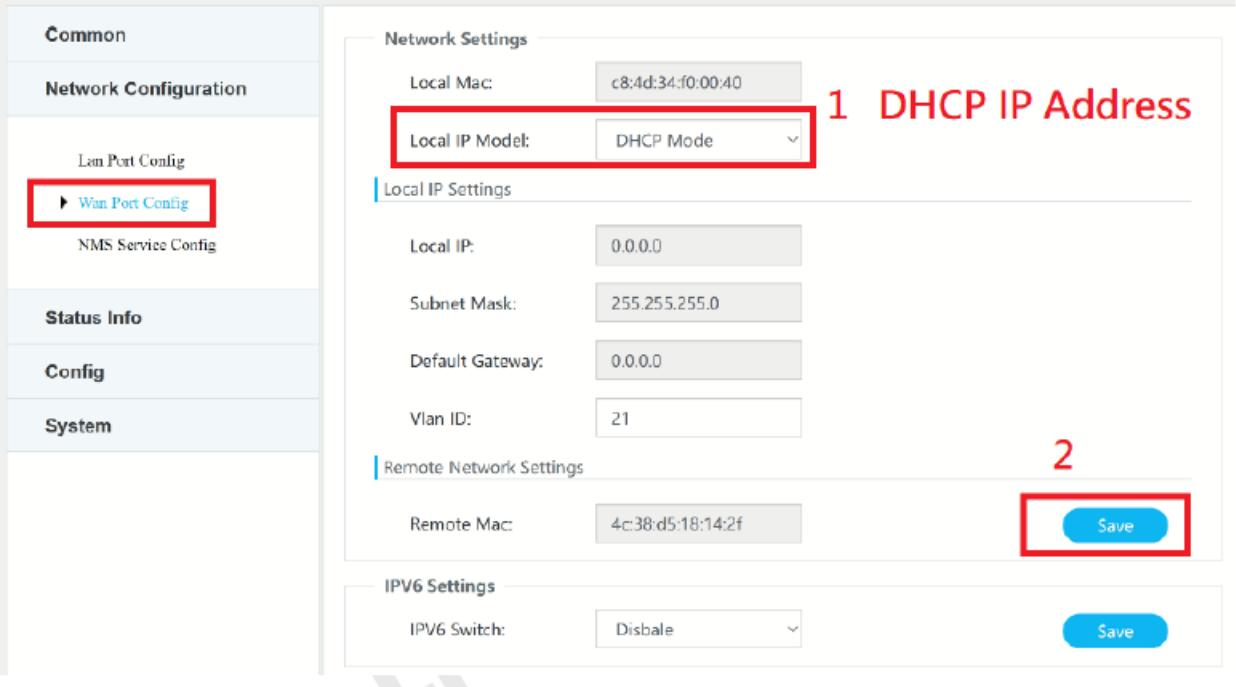
3.11. CU-08 Bandwidth

1. Go to Config > RF Configuration page，select a working bandwidth in Band Width (MHz) column。
2. Click “Save” button for taking effect。



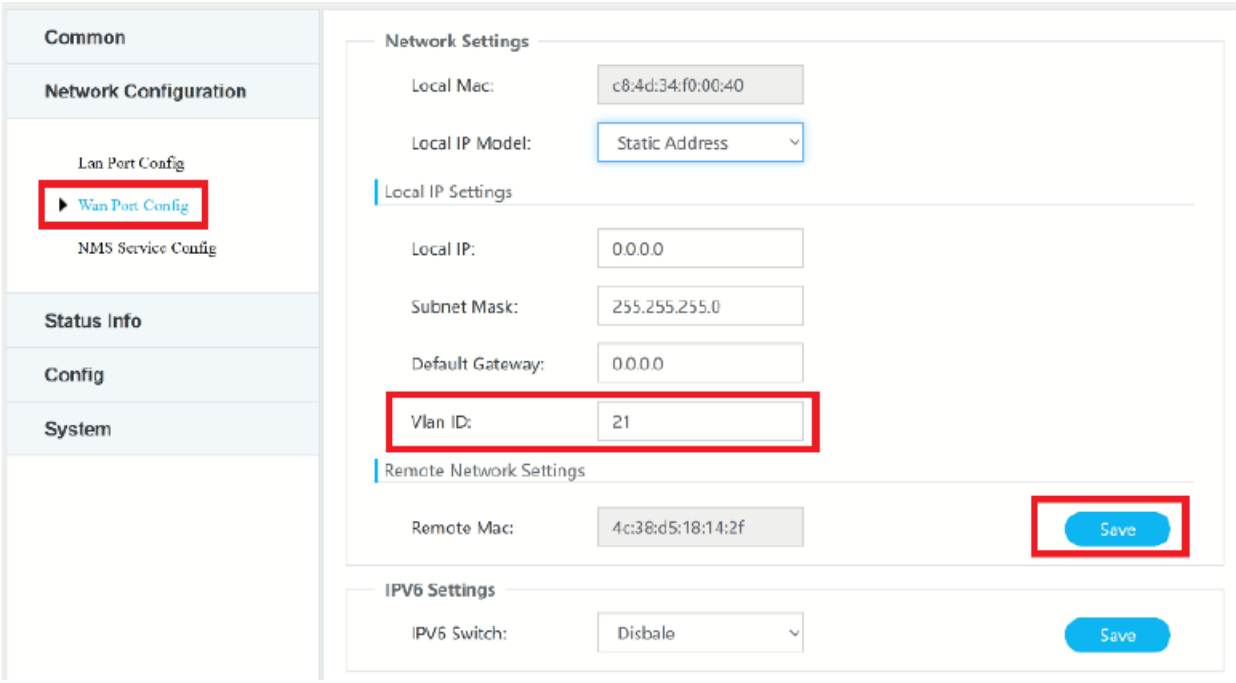
3.12. M-01 RU IP Address for M-Plane

1. Go to Network Configuration > Wan Port Config page and in Local IP Model column，select DHCP Mode or Static Address。If select Static Address，key in Local IP，Subnet Mask，and Default Gateway manually。
2. Click “Save” button for taking effect。



3.13. M-02 M-Plane VLAN

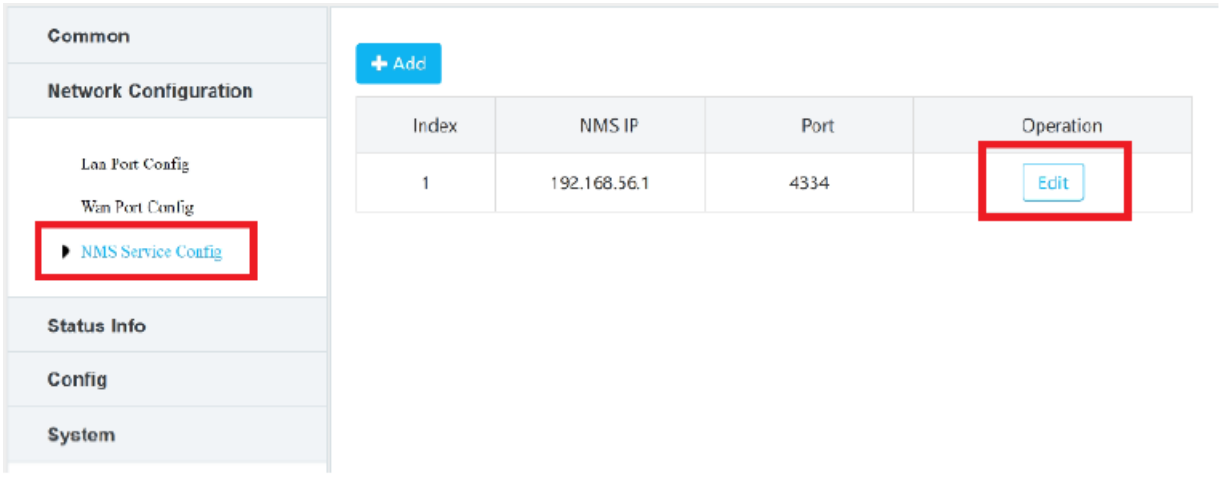
1. Go to Network Configuration > Wan Port Config page and in VLAN ID column，key in VLAN ID for M-Plane。If there is no VLAN for M-Plane，key in 1 here。
2. Click “Save” button for taking effect。



3.14. M-03 NMS IP Address

If DHCP server with option43 is not available，you have to set NMS IP address manually。

1. Go to Network Configuration > NMS Service Config，click Edit button。
2. key in NMS IP and port，then save it。



4. Troubleshooting Guide

4.1. Check RU PTP Locked Status

1. Log in RU Web UI。
2. Go to Status Info > Wan Port，check the 1588 status。
   If RU works as PTP Slave，the following includes status detail :

Port Status	GREEN	RU has received PTP packets
	RED	RU has not yet received any PTP packets
1588 Status	GREEN	RU is PTP locked
	RED	RU is PTP unlocked

Both status should be GREEN