User Manual

IRU-O-15-091921-QF-01

(Rosenberger Active Das With Intelligent Antenna system-Radiant System)

Manual Version 1.0

No part of this documentation may be excerpted, reproduced, translated, annotated or duplicated. In any form or by any means without the prior written permission of Rosenberger Technologies Co., Ltd

 $Copyright @ 2009 \ Rosenberger \ Technology \ Co., \ Ltd. \ All \ rights \ reserved.$

Contents

1	Safety instructions	5
2	Product Overview	6
2.1	General Information	6
2.2	Main Features	8
2.3	Product Outline Drawing	9
2.4	Product Interface	2
2.4.	.1 IM2U Interface	2
2.4.	2 NEU Interface	3
2.4.	.3 IRU-O Interface	4
2.5	Equipment Layout10	6
2.5.	.1 IM2U Layout	6
2.5.	.2 NEU Layout	8
2.5.	.3 IRU-O Layout	8
3	Installation19	9
3.1	Engineering Installations	9
3.2	Before Installation2	3
3.2.	.1 Choosing a site location	3
3.2.	2 Installation tools2	3
3.3	Installation2	3
3.3.	.1 Installation of IM2U and NEU	3
3.3.	2 Installing onto the ceiling(quad-band)	5
3.3.	.3 Installing onto the ceiling (Hexa-band)	6
3.3.	4 Installing onto the wall (Hexa-band)28	8
4	Connection	3
4.1	IM2U/NEU/IRU-O Connection	3
4.2	Antenna Connection	3
5	Commissioning	4
5.1	Adding Device	6
5.1.	.1 Adding Device Manually	6
5.2	Device Management	4
5.2.	.1 Device info	5
5.2.	1.1 IM2U parameters	5
5.2.	1.2 NEU parameters	6
5.2.	1.3 IRU-O parameters	6
5.2.	.2 Monitoring Para	7

Rosenberger

Rosenberger Active Das With Intelligent Antenna system

5.2.2.1 IM2U monitoring parameters	47
5.2.2.2 NEU monitoring parameters	48
5.2.2.3 IRU-O monitoring parameters	48
5.2.3 Alarm Status	49
5.2.3.1 IM2U Alarm Status	50
5.2.3.2 NEU Alarm Status	50
5.2.3.3 IRU-O Alarm Status	51
5.2.4 RF Setting Parameters	53
5.2.4.1 NEU RF Setting Parameters	53
5.2.4.2 IRU-O RF Setting Parameters	54
5.2.5 RF Status	55
5.2.5.1 IM2U RF Status	55
5.2.5.2 NEU RF Status	56
5.2.5.3 IRU-O RF Status	56
6 System Monitor Introduce	58

Revision Record

Title	Rosenberger Active Das With Intelligent MIMO Antenna system			
Document NO.				
Revision	Description	Date	Writer	Approved by
V1.0	Initial version	2016-4-8	Gary	Tracy
V2.0	Update new IRU	2018-4-8	Gary	Vincent
V3.0	Update FCC required content in			

1 Safety instructions

It is important to read safety instructions before installing the equipment. These instructions are supplementary to any local safety regulations in place. In case of any conflict, local safety regulations shall prevail.

Installation personnel should be qualified support personnel about safety operations and must have received training on Rosenberger equipment installation, maintenance and operations.

Some important safety instructions are discussed in the chapter. Rosenberger shall not bear any liabilities incurred by violation of universal safety operation requirements, or violation of safety standards for designing, manufacturing and equipment usage.



1. The equipment must follow system requirements with proper grounding & thunder-proof facilities.



2. Power supply voltage must satisfy safety requirements. Anybody who operates equipment must cut off power supply first. Only certified maintenance staff can operate with power-on.



3. The equipment radiates electromagnetic wave, which will cause damage to human body. People other than maintenance staff please keep away.

4. Do not expose yourself long time to the RADIANT system in working condition because the electromagnetic field emitted by equipment may do harm to your health.



5. If installed at height (onto the pole), the equipment shall be securely fixed to prevent body injuries from dropping parts.



6. The equipment must be away from fire, as electronic components may explode upon fire.



7. Static electricity produced by human body can damage sensitive components on the circuit board, such as large integrated circuits (ICs). The equipment must be away from fire, as electronic components may explode upon fire.

8. Assume no responsibility for use of unauthorized antennas, cables, and/or coupling devices not conforming with ERP/EIRP and/or indoor-only restrictions.

9. The device doesn't support home/personal use, only the people who has the certification can operation the device.

10. The warning label message shown as below.

WARNING. This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.

11. The device doesn't contain any licensee contact information.

2 Product Overview

2.1 General Information

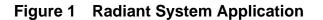
<u>R</u>osenberger <u>A</u>ctive <u>D</u>AS with <u>I</u>ntegrated <u>Ant</u>enna system (**RADIANT** abbreviation below) consists of Intelligent multi-sector unit (**IM2U** abbreviation below) and remote unit with optical input (**IRU-O** abbreviation below) and network extender unit(NEU). The number of **IRU-O** depends on the hardware and software configuration. One **IM2U** is capable of supporting up to 4 NEUs, and NEU is capable of supporting up to 16 **IRU-O**s.

Rosenberger RADIANT system is combined with base stations, used for amplifying GSM, DCS, WCDMA and LTE signals. It effectively enhances the shadow signals in urban areas like hotel, office buildings, shopping centers, Stadium as well as basements.

Refer to the application diagram in figure 1; **IM2U** captures the signals from donor BTS and converts the RF signal to optical signal and transmit to NEU via optical cable, and NEUs get the optical signals, split to each **IRU-O** through the hybrid cable, **IRU-O** reconverts the optical signal to RF signal and amplifies it, in the case extends signal coverage.

Active SISO DAS Ľ Multi-operator, Multi-Band Base Station Banks iRU BTS Band Switching Matrix residential area BTS Band 1 RU Active MIMO DAS School 2 iRU 16 NEU Hybrid DC Fibe BTS Band (up to 300m) RU RU 8 8 iM2U BTS BTS Band AC 16 Smart POI or NEU **Passive POI** <mark>۲</mark> ک • Intelligent Multi-Sec Master Unit (iM2U) AC iRU Network Extension Unit (NEU) 16 NEU Stadium Integrated Remote Unit (IRU-O) NEU

Rosenberger



Rosenberger RADIANT has remote control and monitoring function, and it can be self-diagnosis. In case of an external power off, RADIANT can keep sending alarm message to network management center for four hours, facilitating monitoring, configuring and maintenance.

Rosenberger RADIANT is modular design, users can deploy diversified RF output rate and power supply options for various projects. That provides a low-cost and highly-capable solution of mobile communication network optimization. RADIANT is a new platform of BTS coverage extension system to improve the signal in large building.

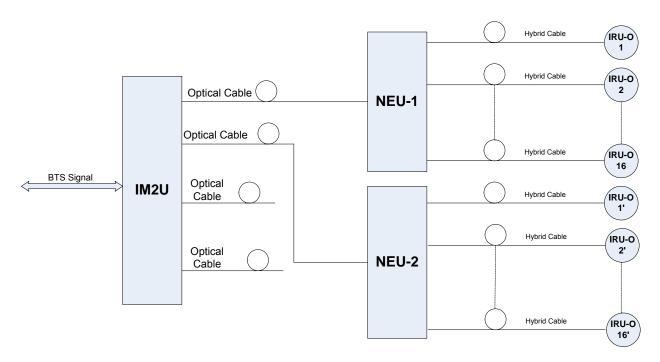


Figure 2 RADIANT System Diagram

- 7 -

2.2 Main Features

<u>Complete Frequency Range</u>

Rosenberger RADIANT system can cover full band GSM&DCS&WCDAM<E frequency band.

• Sleek, Efficient, Compact Design

The IRU-O provides an innovative design to integrate both a low power remote unit and antenna into a single package. The IRU-O can provide up to 28.5dBm EIRP for omni applications and up to 31dBm for panel applications to ensure coverage and maximum throughput for multiple LTE and WCDMA carriers. The unit weighs less than 3kg and consumes less than 20W DC power, suitable for hybrid DC/fiber applications

• Precise RF tuning and coverage

Due to the inherent distributed design, each IRU-O can be individually fine-tuned for gain adjustment in each zone to provide precise coverage. The gain adjustment can be fine tuned to a resolution within 0.25dB within each band. Traditional high power remote units with passive distribution are unable to achieve this level of precision and control per antenna as any change in gain in the remote unit affects an entire group of antennas

<u>No additional feeder losses</u>
 Traditional remote units do not have an antenna, so an external feeder cable is required to connect with the servicing antenna. This results in less RF power due to the inherent loss of the feeder cable. The IRU-O antenna mates directly with the active portion and guarantees full RF power at the antenna interface. This allows the maximum available RF power for any application.

• PIM-Free, VSWR free Installation

The IRU-O assembly is factory tested for PIM and VSWR. This eliminates the possibility of facing PIM or Return Loss issues related to mismatched components and poor installation practices. This significantly improves installation and commissioning time.

Low Noise Figure and Low System Noise Rise The IRU-O features a lower noise figure than traditional remote units, that combined with the distributed active architecture provides a significant improvement in DAS noise rise and SNR compared with high power traditional solutions with passive distribution. The combination of which can improve KPI's and throughput.

• Fault Tolerance

The active distribution architecture of RADiAnt provides fault tolerance. In the event that one remote unit fails, only a single antenna/coverage area is affected. In a traditional solution with high power DAS and passive distribution, if the remote unit fails, an entire group of antennas is down affecting the service in a much larger area.

Easy Installation and Low Project Cost

Radiant is much more than replacing coax with fiber, the core network (IM2U and NEU) will only deal with the signal processing and covert RF signals to fiber signals and transmit over fiber with very small loss and no increased noises, and the network extender unit (NEU) only use hybrid cable (integrated cable with power and fiber) to connect IRU-O, each NEU can connect 16 pieces IRU-O, it means that save project time and cost.

Rosenberger

2.3 Product Outline Drawing



Figure 3 IM2U Outline



Figure 4 NEU Outline

User Manual

Rosenberger Active Das With Intelligent Antenna system



Rosenberger

2*QM Connector



2*NF Connector

Figure 5 IRU-O Outline(Quad-band Cabinet)



Figure 6 IRU-O Outline(Hexa-band Cabinet)

2.4 Product Interface

2.4.1 IM2U Interface

Rosenberger BRU-MATER UNT		
MODELA-SIM USB-H USB-D R.145	O O O O MOD ALM RUN PWM	

Figure 7 IM2U Front Panel

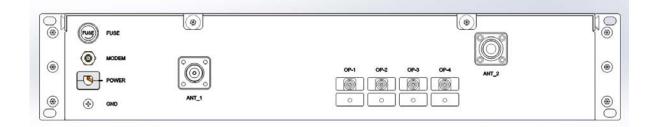


Figure 8 IM2U Rear Panel for SISO

		-
Identifier		Functional Description
	MODEM_SIM	SIM card port
	USB_H	USB port
	USB_D	USB port
	RJ45	LAN port, local monitor port, or network monitor port
Front	MOD	Modem running indicator, Blinking, Control unit communicates normally; OFF, Control unit cannot communicate
Panel	ALM	Peripheral alarm indicator, normally ,the indicator is green; the indicator is red when got alarms.
	RUN	Monitor boarding running indicator, normally, keep blinking; off, Device does not work
	PWR	IM2U power supply indicator, normally, the LED is green, no power, off.
	POWER	Power Switch
	POWER	DC -48V input terminal
Rear	FUSE	Fuse Port, Normally, the fuse model is 5x20, 250VAC3A
Panel	GND	Grounding connector.
railei	MODEM	Modem antenna port.
	Op1~ op4	This port is the fiber connector port for SISO (FC/APC type optical
		10

Table 1 IM2U Interface Description

User Manual

Rosenberger

Rosenberger Active Das With Intelligent Antenna system

		connectors).
	TX/RX	This port is service antenna port. For simplex repeater, this port is DL
		(downlink) input port of SISO.

2.4.2 NEU Interface

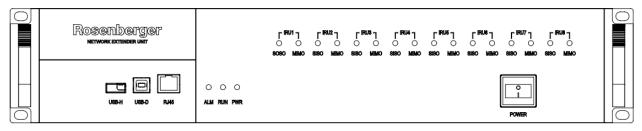


Figure 9 NEU Front Panel

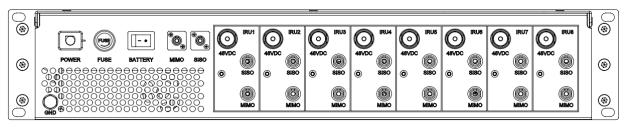


Figure 10 NEU Rear Panel for MIMO

Table	2	NEU Interface Description
-------	---	----------------------------------

Identifier		Functional Description
	USB_H	USB port
	USB_D	USB port
	RJ45	LAN port, local monitor port, or network monitor port
	ALM	Peripheral alarm indicator, normally, the indicator is green; the indicator is red when got alarms.
Front Panel	RUN	Monitor boarding running indicator, normally, keep blinking; off, Device does not work
	PWR	IM2U power supply indicator, normally, the LED is green, no power, off.
	POWER	Power Switch
	IRU1-IRU8	IRU-O connection indicator for SISO/MIMO, the indicator will on when the
	SISO/MIMO	corresponding to IRU-O is connected.
	GND	Grounding connector.
	POWER	AC220V input terminal
	FUSE	Fuse Port, Normally, the fuse model is 5x20, 250VAC10A
	BATTERY	Battery Switch
Rear	OP MIMO	Optical port of MIMO (FC/APC type)
Panel	OP SISO	Optical port of SISO (FC/APC type)
	IRU1~IRU8	IRU-O connectors (DC port)
	48VDC	
	IRU1~IRU8	SISO/MIMO IRU-O connectors (FC/APC type)
	SISO/MIMO	



2.4.3 IRU-O Interface





Figure 11 IRU-O Panel(Quad-band Cabinet)



Figure 12 IRU-O Panel (Hexa-band Cabinet)

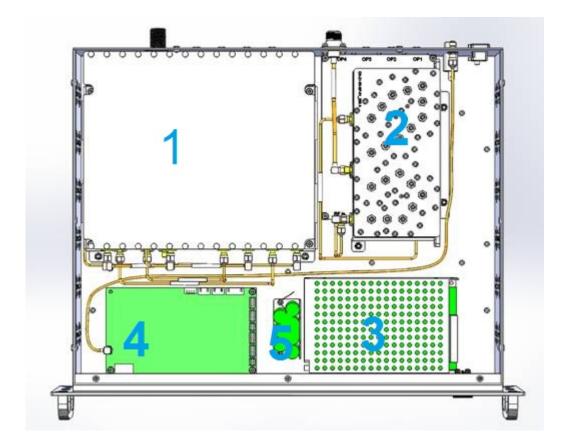
Table 3 IM2U Interface

Identifier	Functional Description
POWER	DC-48V input port
OP SISO	SISO Optical Port (FC/APC type)
OP MIMO	MIMO Optical Port (FC/APC type)

2.5 Equipment Layout

2.5.1 IM2U Layout

The MU is constructed into a 19" shelf and 3U, it is connected via the connector located on the front and rear panel, the RF connector is N female type, and the optic connector is FC/APC type. **IM2U** is composed of optic module of **IM2U**, duplexer, control unit (contain modem), RF control unit and a WDM. Please see the following figure.



User Manual

Rosenberger

Rosenberger Active Das With Intelligent Antenna system

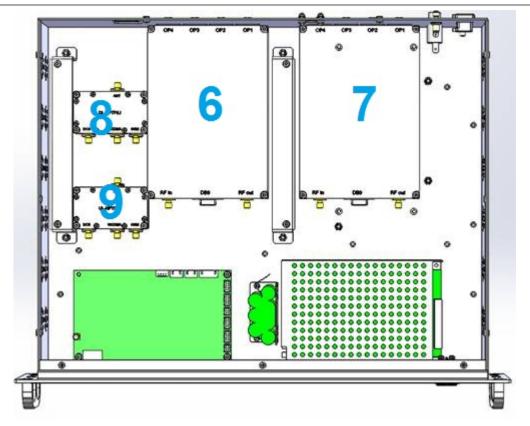


Figure 13 Internal layout for IM2U

Table 4 Modules for	IM2U
----------------------------	------

Identifier	Function Description		
1	900MHz,1800MHz,2100MHz Tri-band Diplexer, filter 900MHz,1800MHz,2100MHz		
	signals		
	Or 700MHz, 850MHz, 1900MHz Tri-band Diplexer, filter 700MHz, 850MHz, 1900MHz		
	signals.		
2	2100 Duplexer		
	Or 700MHz Duplexer		
3	70W Power module, DC-48V input, DC12V output		
4	Main Monitor Board, control the whole operation and provides the various functions such		
	as the alarm detection, local control, remote control etc. This module contains Modem.		
	Wireless Modem.		
5	Battery module		
6,7	2pcs optical module 1x4, convert RF signal to optical signal for downlink, and reconvert		
	optical signal to RF signal for uplink.		
8	900MHz,1800MHz,2100MHz uplink splitter		
	Or 700MHz,850MHz,1900MHz uplink splitter		
9	900MHz,1800MHz,2100MHz downlink combiner		
	Or 700MHz,850MHz,1900MHz downlink combiner		

2.5.2 NEU Layout

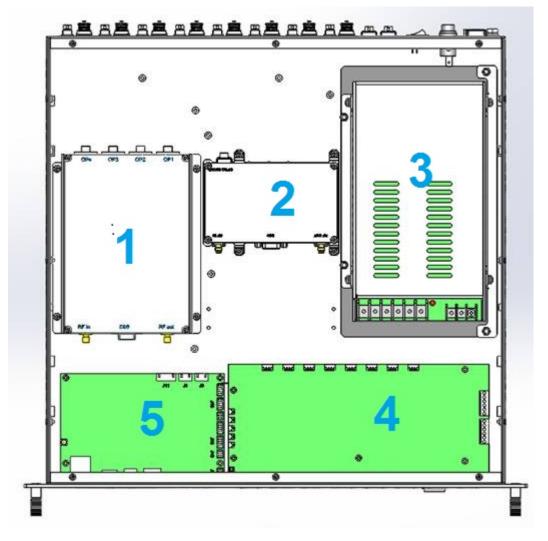


Figure 14 Internal layout for NEU

Identifier	Function Description
1	2pcs optical module 1x8
2	2pcs optical module 1x1
3	Power supply, DC 90V~250V, output DC48V
4	Power Management Module, one input port, 16 output ports
5	Main Monitor Board (no wireless modem)

2.5.3 IRU-O Layout

Rosenberger

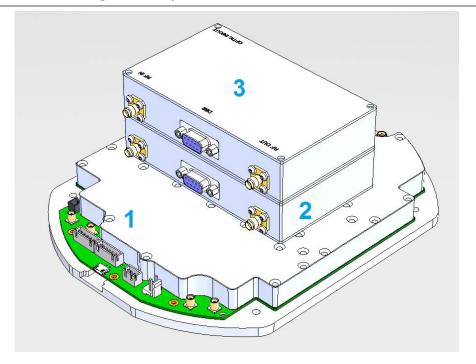


Figure 65 Internal layout for IRU-O

Table 6 Modules for IRU-O

Identifier	Function Description
1	RF modules, RF signal amplify and control, has ALC, AGC function.
2	Optical module 1x1 for SISO
3	Optical module 1x1 for MIMO

3 Installation

3.1 Engineering Installations

Overview

This chapter introduces installation and commissioning flow of equipment to help installation personnel understand the entire process. Brief introduction to some physical parameters of Radiant system, such as size, weight, humidity and temperature is also included in this chapter.

Equipment Installation and Commissioning Flow

Normal and reliable operation of Radiant system is based on the quality of installation project. It is important to establish a set of systematic and standardized installation and commissioning procedures.

Workflow for installation, debugging, acceptance and handing over of the equipment is shown above Figures.

The installation and commissioning workflow is as follows:

1. Engineering survey

Inspect the suggested site environment to provide related data for design and engineering.

2. Engineering design

Planning department shall design according to the engineering inspection results and make out relevant design comments and drawings.

3. packing acceptance

After equipment delivery at the site, construction team is responsible to specify the unpacking time according to engineering preparations. The construction team, the operator, the engineering team and Rosenberger shall all be present at the time of unpacking inspection. If any damage to equipment or shortage in shipment is found during unpacking by a single party, only the unpacking party shall bear all the liability.

4. Hardware installation

Qualified engineering personnel shall supervise the whole installation process, including positioning, base installation, BSC rack installation, BSC board installation, DC power installation, and connection of internal and external cables.

5. System and power-on check

Conduct necessary check and power-on the equipment after installation.

6. Parameters settings

Set related parameters after installation.

7. System test

Test the system to check if the system operates normally. If it fails the test, adjust the system to meet the requirements.

8. Trial run

In the first few months after equipment commissioning, the equipment remains in trial run stage. Rosenberger is responsible for offering full technical support to the user.

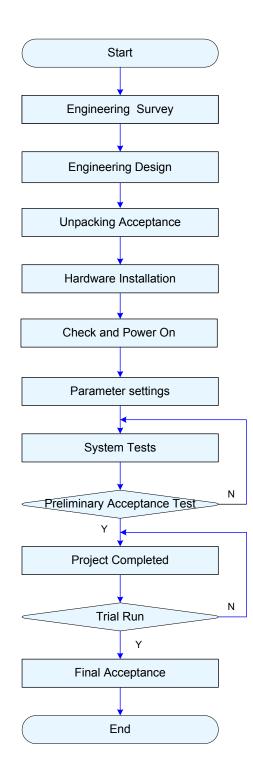
9. Final acceptance

Rosenberger

It means that operation of the equipment is stable and meets all requirements. The user and Rosenberger agree upon this and sign the final acceptance certificate.



Note: Refer to the related contract terms for details about project survey, engineering design, trial run and final acceptance





3.2 Before Installation

3.2.1 Choosing a site location

Make sure access is restricted to qualified personnel

Install the product where power supply and feeder cable are accessible.

Site location should be far away from heat source and damp environment.

IRU-O should be put in a well-ventilated work area. It should be hung on the wall or ceiling to ensure being ventilated. If the IRU-O is mounted on the ceiling, there should be care the ceiling capability of the weight, should be greater than 3kg.

3.2.2 Installation tools

No.	parts	Model	Quantity	Comments
1	Таре		1	To measure the installation holes
2	Monkey Wrench		1	To tighten or loose hex bolts
3	Electric drill		1	Drill holes on the wall

3.3 Installation

3.3.1 Installation of IM2U and NEU

Rosenberger

as show on the following figure 9. Use four expansion bolts (M6*12) to fix the panel of the master unit.

IM2U AND NEU dimensions are 440x360x132 mm and 15 kg in weight.

Make sure access is restricted to qualified personnel

Install the product where power supply and feeder cable are accessible.

Site location should be far away from heat source and damp environment. Repeater should be put in a well-ventilated area with indoor temperature range at $0 \sim +40^{\circ}$ C and relative humidity $\leq 85\%$. Please avoid direct sunlight.

If the repeater is mounted on the wall, there should be at least 80cm ~100cm away from the wall or other equipment.

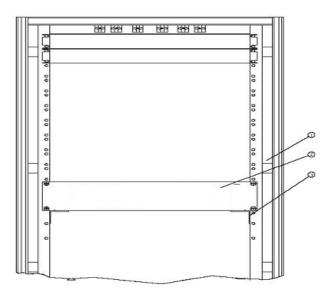




Figure 17 Installation of IM2U and NEU

3.3.2 Installing onto the ceiling(quad-band)

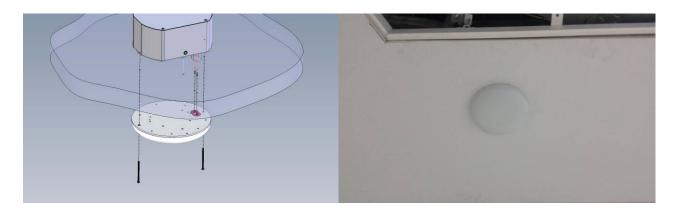


Figure 18 Installing onto the ceiling and video

- 1. Using paper template to position mounting and cable passage holes, drill four 4.4mm diameter holes and cut one 23mm diameter by 37mm long oblong opening in the opening in ceiling.
- 2. Position IRU-O above ceiling as shown and fasten to ceiling by passing two M4X55mm flathead screws up through ceiling and threading into bosses on IRU- case.
- 3. View of IRU-O installed above ceiling.
- 4. Position antenna below ceiling as shown and connect two mcx cables from IRU-O. Position antenna against ceiling by carefully forming excess cable into oblong opening in ceiling,fasten to ceiling by passing two M4X60MM pan head screws up through antenna and ceiling and threading into bosses on IRU-O case.
- 5. Position antenna below ceiling as shown and connect two mcx cables from IRU-O. Position antenna against ceiling by carefully forming excess cable into oblong opening in ceiling, fasten to ceiling by passing two M4X60MM pan head screws up through antenna and ceiling and threading into bosses on IRU-O case.

3.3.3 Installing onto the ceiling (Hexa-band)

Step 1 Use the tools to drill the square holes one the ceiling, as shown in figure 19,

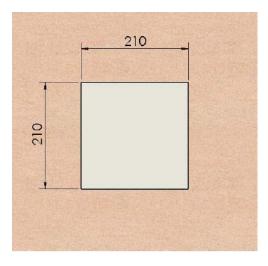


Figure 19

Step 2 Use M4 screw fit bracket A, bracket B and Bracket C together. As Shown in figure 20.

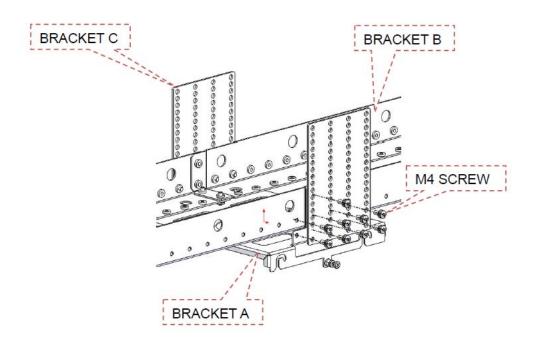
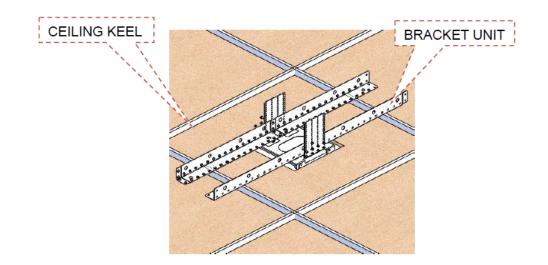


Figure 20

Step 3 Use metal wire mount the bracket unit onto the ceiling keel, as shown in figure 21.







Step 4 Joint the connector with system, as shown in figure 22.

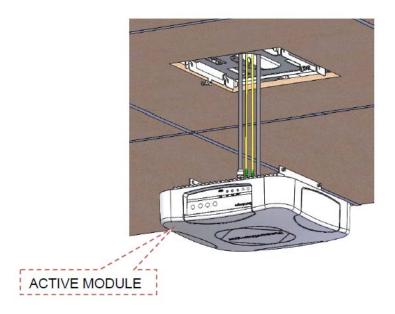
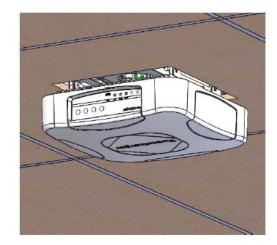


Figure 22

Step 5 The active module clamp on the bracket, as shown in figure 23.







Step 6 Use Phillips screw driver to tighten the captive screw, as shown in figure 24

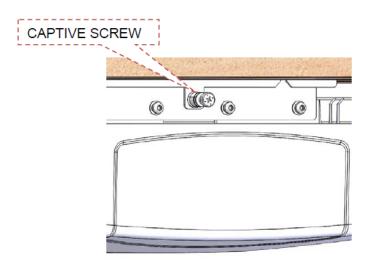


Figure 24

3.3.4 Installing onto the wall (Hexa-band)

Step 1 Use the tools to drill the holes on the wall, as shown in figure 25.



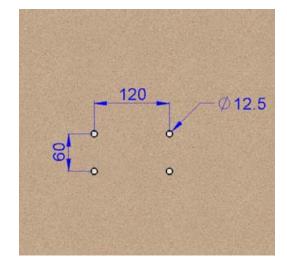


Figure 25

Step 2 The M8 expansion blot put into the hole, as shown in figure 26.

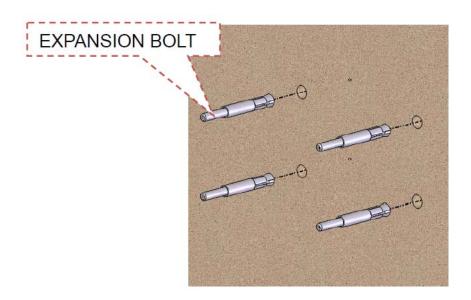
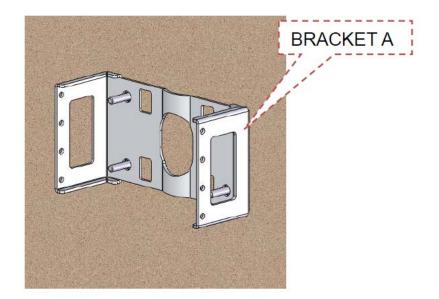


Figure 26

Step 3 Align the holes on the bracket A with the expansion blot, as shown in Figure 27







Step 4 Use M8 washer, M8 spring washer and M8 nut to bracket A onto the wall, as shown in figure 28

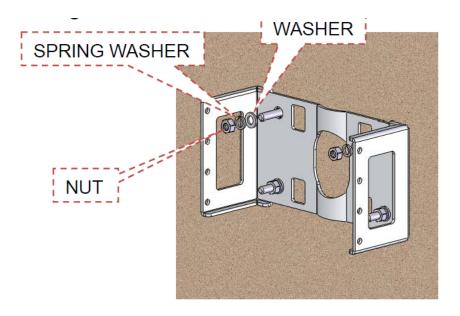


Figure 28

Step 5. Use M4 screw fit bracket A and bracket B together, as shown in Figure 29



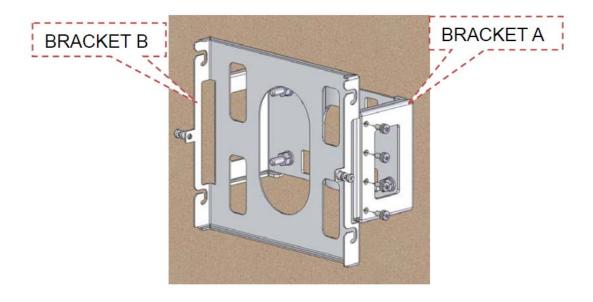


Figure 29

Step 6. Joint the connector with system, as shown in Figure 30.

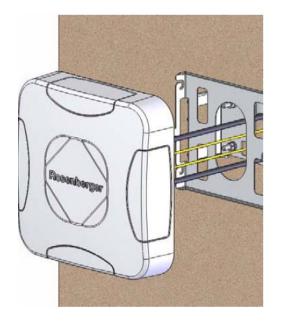
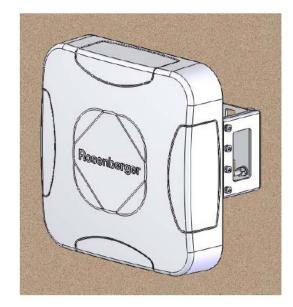


Figure 30

Step 7. The active module clamp on the bracket, as shown in Figure 31.







Step 8, Use the Phillips screw driver to tighten the captive screw, as shown in figure 32

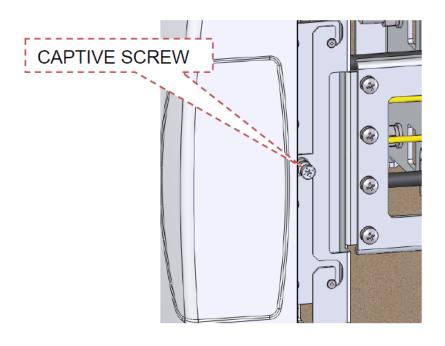


Figure 32

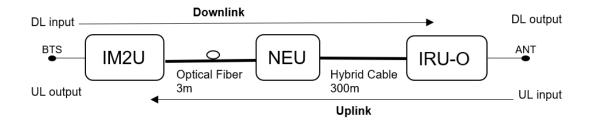
4 Connection

This chapter introduces devices connection and antenna connection.

4.1 IM2U/NEU/IRU-O Connection

Optical fiver can be used to connect IM2U with NEU. The optical connector is FC/APC. IRU-O is power supplied by NEU remotely. Hybrid cable can be used to connect NEU and IRU-O. The hybrid cable requires users to order separately.

The RF input ports of IM2U is N-Female, RF cable is required to connect IM2U with BTS. The length depends on the distance between IM2U and BTS.

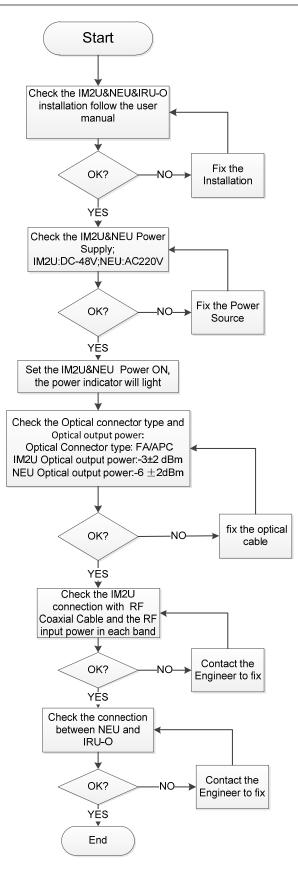


4.2 Antenna Connection

The IRU-O output ports are QMA. It requires to use the RF cable to connect to antenna system. The antenna selection depends on user solution. Users can use high gain omni-antenna or high gain directional antenna. The gain suggested no more than 8dBi.

5 Commissioning

Before commissioning, the engineer should be checking IM2U&NEU&IRU-O according to the following chart, you can be commissioning when finish checking:





5.1 Adding Device

For a **Radiant** site, it contains IM2U, NEU and IRU-O. NEU is the sub device under IM2U, and IRU-O is the sub device under NEU.

5.1.1 Adding Device Manually

Through this function, you can add a main device and its sub devices manually.

Procedure

• Adding Device through Short-cut Button

Create New Device	×	
Repeater Properties		
Device No. *		
Sub No. *	•	
Site Name		
Phone Number		
Device Factory		
Site Location		
Device Type * 1. Broadband R	lepeater 🔻	
Communication mode *	▼ Test	
Protocol Type *	•	
Slave Config		
Save	Cancel	

Figure 34 Creating New Device Page

2. Configure parameters for the adding device, as shown in Figure 19.

For the description of	device, see Table.
------------------------	--------------------

Create New Device X
Repeater Properties
Device No. * 1
Sub No. * 00 -
Site Name
Phone Number
Device Factory
Site Location
Device Type * 1. Broadband Repeater 👻
Communication mode * UDP 🗸 Test
Device IP 192 . 168 . 2 . 105 Port 4066
Local Port :11000
Timeout :30
Protocol Type * CMCC3GRAP -
Protocol Type * CMCC3GRAP - Slave Config
Slave Config

Figure 35 Configure Parameter

Table7 Parameter Description of Creating New Device

Parameter	Description	Input Method
Device No.	Indicates the unique code for each repeater.	Enter a unique number in the text box.
Sub No.	It is the equipment type.	• When the adding device is a single device, select FF from the drop down list box.
		• When the adding device has sub device, select 00 .
Site Name	It is recommended a name associated with the installation site. It is also used for identifying the location of the repeater and displayed on the device list.	Enter a site name in the text box.

Rosenberger Active Das With Intelligent Antenna system

Parameter	Description	Input Method
Phone Number	Configure the phone number which is used to connect the device in remote mode.	Enter the phone number in the text box.
	The phone number must match with the SIM install on the device.	
Device Factory	Indicates the manufacturer of the device.	Enter the manufacturer in the text box.
Site Location	Indicates the detailed installation address of the adding device.	Enter the address in the text box.
Device Type	Indicates the type of the device.	Select the repeater type from drop down list box.
Communication Mode	Indicates the communication mode of the device.	Select the communication mode from the dropdown list box.
	The communication mode must be the same as that set on the adding device.	For the configuration of the popup page.
	After selected a mode, click Test to check whether the communication is normal.	
Protocol Type	Indicates the supported protocol.	Select the protocol from drop down list box.

3. Click **I** to enter the **Slave Properties** page, as shown in Figure 20.

Rosenberger Active Das With Intelligent Antenna system

Slave Properties	X
Slave Properties	
	Device No.
	0
	Sub No.
	00
	\sim
	Level 3
	0 -
	Save
	Cancel

Figure 367 Slave Properties Page

- 4. Adding slave device.
 - When the adding site is a repeater site, it contains two-level • device, and you can add four RUs as slave device for it.

Click

to add RUs, as shown in Figure 21.

Rosenberger Active Das With Intelligent Antenna system

🚯 Slave Properties	×
Slave Properties	
Slave Properties 00 [Device No.: 0] 01 [Device No.: 0] 02 [Device No.: 0] 03 [Device No.: 0] 04 [Device No.: 0]	Device No. 0 Sub No. 00 (

Figure 37 Adding NEUs

• When the site is a Radiant site, it contains three-level device, and you can add NEU and IRU-O as slave device for it.

The maximum of NEU or IRU-O can be set according to the actual situation. The setting in the following steps is a default value.

1. Select **16** from **Level 3** drop down list box, as shown in Figure 22

Rosenberger Active Das With Intelligent Antenna system

Slave Properties		×
Slave Properties		
	.: 0]	Device No.
		0
		Sub No.
		00
		~
		>>>
		Level 3
		16 🗸
		Save
		Cancel

Figure 38 Set IRU-O Number

5. Click **Save** and return to the **Create New Device** page, as shown in Figure 23.

Rosenberger Active Das With Intelligent Antenna system

🐠 Create New Device	×
Repeater Properties	
Device No. *	1
Sub No. *	00 🗸
Site Name	Factory test
Phone Number	0000000000
Device Factory	China
Site Location	China
Device Type *	3. Fiber Optic Repeater - Master 🔻
Communication mode	* UDP 🔻 Test
Device IP 192 .	168 . 1 . 100 Port 4066
Local Port : 11000	
Timeout :30	
Protocol Type *	CMCC3GRAP -
Slave Config	[FF][01][02][03][04][00][00][0
	Save Cancel

Figure 39 Adding NEU

6. Click **Test button** to check settings whether there are ok, if not available , you may get a pop-up information as show in Figure 24.

Rosenberger

Set	Create New Device	X
Je	Repeater Properties	,
	Device No. *	1
	Sub No. *	00 -
	Site Name	Factory test
	Phone Number	000000000
	Device Factory	China
	Site Location	Ohina
Informatio	n	e, please check IP address or network!
Informatio	n	
Informatio	n	e, please check IP address or network!

Figure 40 Testing Configuration for A New Device

----End

5.2 Device Management

After successfully adding device, you can start to get and set the device parameters.

Procedure:

1. Right-click a newly added device and then select **Get MOID From Device** from the short-cut menu, as shown in Figure 25.



Figure 41 Get MOID from Device Menu

After getting parameter successfully, a pop-up information box is displayed, click **OK** and the parameter of the device is displayed, as shown in following figures and descriptions.

5.2.1 Device info.

5.2.1.1 IM2U parameters

Operation Maintenance Terminal-RP	T V 4.2.0	0.37						-		- 0 ×
Monitor Configuration Tools Upgrade	e Lang	guage Trigger Other	Help							
] Q > 0 2 🔓		💫 🕄 🗶								
□- 🚰 Site List	s	earch Set	I Select/	All Multi S	elect Invert Select		ar All			
÷-×] 10	Check	Name	SetValue	G	etValue	Unit	Status	Query time	li .	
⊕∕]] 20		Vendor ID		0			Success	2016-04-14 15:28:44		
🗄 – 🗶 🗍 30		Type ID		Fib	er Optic Repeater - Master U	Jnit	Success	2016-04-14 15:28:44		
⊕-×] 40		Device Type ID		IMC	2U-N10-09182121-2R16F-02		Success	2016-04-14 15:28:44		
⊕- ×] 50 ⊕- ×] 60		Serial ID		R4	PC271		Success	2016-04-14 15:28:44		
		Longitude	E1	E1			Success	2016-04-14 15:28:44		
		Latitude	N1	N1		•	Success	2016-04-14 15:28:44		
		Firmware Curr Soft Ver.		DC	:M-MB-016 V2.2		Success	2016-04-14 15:28:44		
		Firmware Release Date		20	16-04-09		Success	2016-04-14 15:28:44		
		Firmware Config File		IMC	2U-N10-2R16F-02_CFG_V1.0	0	Success	2016-04-14 15:28:44		
	Device	Info. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para. RF S	Status Para.	Topology Map			
Device No.: 111	Device	e No. Sub No.	Realtime	Alarm Name	Alarm Time		Telephone Nu	nber Site Name	Address	
Sub No.: NEU(00)IRU-O(00) Telephone: Communicate Mode: UDP UDP: 192.168.1.100 : 4066										
GPRS: Local: [0]	•									,
Protocol: CMCC3GRAP										
	Realtime	Alarm Gprs Connect S	Status Serial Messag	ge						
Set or query repeater parameters succe	essFully!	11								

Figure 42 IM2U Device parameters

5.2.1.2 NEU parameters

Monitor Configuration Tools Upgrade La	nguage Trigger Other	r Help					
] Q > 0 2 🔒 🛆	🔍 🚇 🗶						
Site List	Search Set	Select All	Multi Select Invert Select	Clear All			
□	ck Name	SetValue	GetValue	Unit	Status	Query time	
		Servalue	O	onik	Success	2016-04-14 15:30:14	
10			Fiber Optic Repeater - Remote Unit		Success	2016-04-14 15:30:14	
20						2016-04-14 15:30:14	
30			NEU-2F16F-02		Success		
			RAPC342161300010		Success	2016-04-14 15:30:14	
50		E1	E1		Success	2016-04-14 15:30:14	
		N1	N1	•	Success	2016-04-14 15:30:14	
			DCM-MB-016 V2.2		Success	2016-04-14 15:30:14	
	Firmware Release Date		2016-04-13		Success	2016-04-14 15:30:14	
	Firmware Config File		NEU-2F16F-02_CFG_V1.0		Success	2016-04-14 15:30:14	
e→ ¥ 3 50 e→ ¥ 3 60 e→ 4 70							
⊕ ×] 60 ⊕ •] 70 ⊕ • ×] 80	e Info. Monitoring Para.	Alarm En/Disable Alar	ırm Status RF Settings Para. RF Statu	us Para. Topology	Мар		
	e Info. Monitoring Para. ce No. Sub No.	Alarm En/Disable Alar Reatime Alarm			r Map ephone Number	Site Name	Address
	ce No. Sub No.		Name Alarm Time			Site Name	Address
	ce No. Sub No.					Site Name	Address



5.2.1.3 IRU-O parameters

	rade Language Trigger Othe	ir Help					
IQ 🕨 🔘 🖳 🛛	i 🛆 🔍 强 🗶 .						
Site List	Search Se	t I Select All	Multi Select Invert Select	ClearAll	-		
id- J 1110 id- X I 10	Check Name	SetValue	GetValue	Unit	Status	Query time	
□-√] 2[]	Vendor ID		0		Success	2016-04-14 15:33:49	
	Type ID		Fiber Optic Repeater - Remote Unit		Success	2016-04-14 15:33:49	
	Device Type ID		IRU-0-23-09182121-QM-02		Success	2016-04-14 15:33:49	
30	Serial ID		RAPC345161200005		Success	2016-04-14 15:33:49	
40 50	Longitude	E1	E1		Success	2016-04-14 15:33:49	
	Latitude	N1	N1	•	Success	2016-04-14 15:33:49	
	Firmware Curr Soft Ve	r.	LPA-23-001 V0.7		Success	2016-04-14 15:33:49	
	Firmware Release Date	3	2016-04-09		Success	2016-04-14 15:33:49	
	Firmware Config File		IRU-0-23-QM-02_CFG_V2.0		Success	2016-04-14 15:33:49	
₩- ₩ 1 80							
				1	Мар		
	Device Info. Monitoring Para	a. Alarm En/Disable Alarm	n Status RF Settings Para. RF Statu	us Para. Topology	N. COL		
evice No : 111	Device Info. Monitoring Para	a. Alarm En/Disable Alarm Realtime Alarm Na	-		ephone Number	Site Name	Address
			-			Site Name	Address
ib No.: NEU(02)IRU-O(01)			-			Site Name	Address
ib No.: NEU(02)IRU-O(01) lephone: mmunitcate Mode: UDP			-			Site Name	Address
ib No.: NEU(02)IRU-O(01) lephone: ommunitcate Mode: UDP DP: 192.168.1.100 : 4066			-			Site Name	Address
evice No.: 111 ib No.: NEU(02)–IRU-O(01) lephone: ommunitcate Mode: UDP DP: 192.168.1.100 : 4066 PRS: Local: [0] otocol: CMCC3GRAP			-			Site Name	Address

Figure 44 IRU-O Device Parameters

l able 8	Description of the Device	Information
Parameter items	Description	Note
Vender ID	Supplier ID	Reference
Type ID	Product Description	Reference
Device Type ID	Product Number	Reference
Serial ID	Product serial number	Reference
Longitude	Product installation location	Option item: enter the Longitude
Latitude	Product installation location	Option item: enter the Latitude
Firmware Curr Soft Version	Product firmware current version	Reference
Firmware Release Date	Product firmware release Date	Reference
Firmware Config File	Product Firmware config file version	Reference

Table 8 Description of the Device information

5.2.2 Monitoring Para.

5.2.2.1 IM2U monitoring parameters

Operation Maintenance Terminal Monitor <u>C</u> onfiguration <u>T</u> ools Upg	117 THE CONC. 1001	r Help						(0 2
		i <u>H</u> eib	_					_	
] 4 > 0 2 1	📊 丛 🔨 🧏 🗶 .								
Site List	Search Se	I Select All	Multi Select	Invert Select	I Clear All				
∲-×] 10	Check Name	SetValue	GetValue	Unit	Status	Query time			
···· 🖉 📕 20	Device NO.	1	111		Success	2016-04-15 11:08:56			
···× 🗍 30	Sub NO.		0		Success	2016-04-15 11:08:56			
æ- ≭ ∭ 40	Smsc Tel.	0			Success	2016-04-15 11:08:56			
i × j 50	Receive Port		4066		Success	2016-04-15 11:08:56			
⊞ × ∥ 60 ⊛ × ∥ 70	Device IP		192.168.1.100		Success	2016-04-15 11:08:56			
	Device Netmask		255.255.255.0		Success	2016-04-15 11:08:56			
	Slave Equipment Count		2		Success	2016-04-15 11:08:56			
	Query Tel.1				Success	2016-04-15 11:08:56			
	Query Tel.2				Success	2016-04-15 11:08:56			
	Query Tel.3				Success	2016-04-15 11:08:56			
	Query Tel.4				Success	2016-04-15 11:08:56			
	Query Tel.5				Success	2016-04-15 11:08:56			
	Communication Mode	Short Message	UDP		Success	2016-04-15 11:08:56			
	Notify Tel.				Success	2016-04-15 11:08:56			
	Ems IP		192.168.1.111		Success	2016-04-15 11:08:56			
	Ems Port	0	11000		Success	2016-04-15 11:08:56			
	Access Point Name				Success	2016-04-15 11:08:56			
	Device left	Alarm En/Disable	Alarm Status RF Sett	ngs Para. RF Sta	tus Para. Top	alaasi Maa			
vice No.: 111	Device Info. Monitoring Para	Alarm Envolsable	Harm Status RF Sett	ngs Para. RF Sia	itus Para. Top	ology Map			
o No.: NEU(00)IRU-O(00) ephone:	Device No. Sub No.	Realtime Ala	rm Name	Alarm Time		Telephone Number	Site Name	Address	
mmunitcate Mode: UDP									
P: 192.168.1.100 : 4066									
RS: Local: [0]				III					
otocol: CMCC3GRAP	•	- I							
	Realtime Alarm Gprs Connect	Status Serial Message							

Figure 45 IM2U monitoring parameters

5.2.2.2 NEU monitoring parameters

	igrade Language	Trigger Other	Help						
] Q > 🔘 🔽 🛽	<u>a 🛆 </u>	92 🗶							
🚰 Site List 🖮 📕 1110	Search	Set	I Select All	Multi Select	Invert Select	Clear All			
iii- ×∥ 10	Check Name		SetValue	GetValue	Unit Statu	s Query tim	e		
e 🗸 🗊 📶	Devic	e NO. 1		111	Succe	ss 2016-04-1	5 11:16:23		
	Sub N	10.		2	Succe	ss 2016-04-1	5 11:16:23		
	Recei	ve Port		4066	Succe	ss 2016-04-1	5 11:16:23		
	Devic	e IP		192.168.1.100	Succe	ss 2016-04-1	5 11:16:23		
		e Netmask		255.255.255.0	Succe	ss 2016-04-1	5 11:16:23		
	Slave	Equipment Count		8	Succe	ss 2016-04-1	5 11:16:23		
70									
■ ×) 50 ● ×) 60	Device bits		Alore E-Tricoble	Alore Status DE Sati	ne Dana DE Status Dana	Trackey Men			
	Device Info.	Monitoring Para.	Alarm En/Disable	Alarm Status RF Settin	igs Para. RF Status Para	Topology Map			
e ★ 1 50 e ★ 1	Device Info.	Monitoring Para.	Alarm En/Disable Reatime A		igs Para. RF Status Para Alarm Time	Topology Map	nber Site Name	Address	
wice No.: 111 b No.: NEU(02)→RU-O(00)	Device No.		Realtime A	Jarm Name		Telephone Nur	nber Site Name	Address	
wice No.: 111 b ∩.: NEU(02)-IRU-O(00) ephone:	Device No.	Sub No. NEU(0)IRU-O(1 NEU(0)IRU-O(1	Realtime A 0) MIMO PD8 / 0) MIMO PD7 /	Jarm Name Alarm Alarm	Alarm Time 2016-04-15 11:09:27(Seard 2016-04-15 11:09:27(Seard	Telephone Nur h)	nber Site Name	Address	
	Device No.	Sub No. NEU(0)IRU-O(1 NEU(0)IRU-O(1 NEU(0)IRU-O(1	Realtime A 0) MIMO PD8 J 0) MIMO PD7 J 0) MIMO PD6 J 0) MIMO PD6 J	Jarm Name Alarm Alarm Alarm	Alarm Time 2016-04-15 11:09:27(Sear 2016-04-15 11:09:27(Sear 2016-04-15 11:09:27(Sear	Telephone Nun h) h)	nber Site Name	Address	
	Device No.	Sub No. NEU(0)IRU-O(1 NEU(0)IRU-O(1	Realtime A 0) MIMO PD8 J 0) MIMO PD7 J 0) MIMO PD6 J 0) MIMO PD6 J 0) MIMO PD6 J	Jarm Name Alarm Alarm Alarm Alarm	Alarm Time 2016-04-15 11:09:27(Seard 2016-04-15 11:09:27(Seard	Telephone Nun (h) (h) (h) (h)	nber Site Name	Address	

Figure 46 NEU monitoring parameters

5.2.2.3 IRU-O monitoring parameters

lonitor <u>C</u> onfiguration <u>T</u> ools Up	-RPT V 4.2.0.37	ger Other He	elo								
		X		_			_	_			_
] ▷ ◎ ፻ ፲	1 📥 🔨 😼	~									
骗 Site List	Search	Set	Select Al	II Multi S	Select Invert S	elect Cle	arAll				
ė- 🕽 1110											
⊕-× 🗊 10	Check Name	SetValue		GetValue Un	iit Sta	us Qu	ery time				
□ /] 2]	Device NO.	1		111	Suc	cess 201	5-04-15 11:18:44				
10	Sub NO.			3	Suc	cess 201	3-04-15 11:18:44				
20											
40											
50											
60											
70											
1 80											
i 🗶 📕 30											
🖲 🗶 📕 40											
i 🗶 📕 50											
🖮 💥 📕 6[]											
🗈 🖌 📕 70											
ė- 🗶 🗊 80											
	Davies Info		Inem En /Discobile	Alarm Status	DE Sattingo Dara	DE Stotus Dara	Tapalan: Haa				
	Device Info. Moni	itoring Para. A	larm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topology Map				
				Alarm Status	RF Settings Para.			lumber	Site Name	Address	
b No.: NEU(02)IRU-O(03)	Device No. Si	ub No.	Realtime A	Alarm Name	Alarm Tir	ne	Topology Map Telephone I		Site Name	Address	
vice No.: 111 b No.: NEU(02)-IRU-O(03) ephone:	Device No. Si	ub No. EU(2)IRU-O(0)	Realtime A Position Ch	Alarm Name nanged Alarm	Alarm Tir 2016-04-	ne 15 11:17:09(Search)		Number	Site Name	Address	
b No.: NEU(02)IRU-O(03) ephone: mmunitcate Mode: UDP	Device No. Si Site 111 NE Site 111 NE	ub No.	Realtime A	Alarm Name nanged Alarm Alarm	Alarm Tir 2016-04- 2016-04-	ne		lumber	Site Name	Address	
b No.: NEU(02)–IRU-O(03) ephone: mmunitcate Mode: UDP IP: 192.168.1.100 : 4066	Device No. Si Site 111 NE Site 111 NE Site 111 NE	ub No. EU(2)IRU-O(0) EU(0)IRU-O(0)	Realtime A Position Ch MIMO PD8	Alarm Name hanged Alarm Alarm Alarm	Alarm Tir 2016-04- 2016-04- 2016-04-	ne 15 11:17:09(Search) 15 11:09:27(Search)		lumber	Site Name	Address	
o No.: NEU(02)–IRU-O(03) aphone: mmunitcate Mode: UDP P: 192.168.1.100 : 4066 RS: Local: [0]	Device No. Si Site 111 NE Site 111 NE	ub No. EU(2)IRU-O(0) EU(0)IRU-O(0) EU(0)IRU-O(0)	Realtime A Position Ch MIMO PD8 MIMO PD7	Alarm Name nanged Alarm Alarm Alarm Alarm	Alarm Tir 2016-04- 2016-04- 2016-04- 2016-04- 2016-04-	ne 15 11:17:09(Search) 15 11:09:27(Search) 15 11:09:27(Search)		lumber -	Site Name	Address	
b No.: NEU(02)IRU-O(03) ephone:	Device No. SM Site 111 NE Site 111 NE Site 111 NE Site 111 NE Site 111 NE	EU(2)IRU-O(0) EU(0)IRU-O(0) EU(0)IRU-O(0) EU(0)IRU-O(0) EU(0)IRU-O(0)	Realtime A Position Ch MIMO PD8 MIMO PD7 MIMO PD6	Alarm Name nanged Alarm Alarm Alarm Alarm	Alarm Tir 2016-04- 2016-04- 2016-04- 2016-04- 2016-04-	ne 15 11:17:09(Search) 15 11:09:27(Search) 15 11:09:27(Search) 15 11:09:27(Search)		lumber	Site Name	Address	





Table 9		
Parameter items	Description	Note
Device NO.	It is a site ID	Enter a unique number for each site, different site need different number.
		IM2U: can be set the number from 1 to 254
		NEU: same as the IM2U
		IRU: will be auto set by NEU
Sub NO.	Device ID	Every equipment needs an ID for identifying code.
		IM2U: Default:0, cannot be set.
		NEU: can be set the number from 1 to 254
		IRU: will be auto set by NEU
Smsc Tel	SMSC is short for Short message server Center	enter the operator 's SMSC number or NA
Receive Port	Device receive port	Default :4066
Device IP	Device IP	Default:192.168.1.100
Device network mask	Device network mask	Default: 255.255.255.0
Salve equipment count	Indicates that master unit can connect how many pieces slave equipment.	IM2U: normally, one IM2U can connect 4 pieces NEU.
		NEU: normally,
Start sub NO.	Sub equipment start number	Enter a number from 1-256
Query Tel.1~5	Modem Sim Card number	Enter the Modem Sim Card number
Communication Mode	Remote Communication mode	Select one mode for remote control
Notify Tel.	Sim Card Number	If want to monitor alarm all the time, please enter a Sim Card number, the cellphone can receive every piece alarm and notice
Ems IP	The public network IP address	Enter a IP address if want to use the GPRS mode or TCP mode
Ems port	the device communication port number	Enter a port number if want to use the GPRS ,TCP or UDP mode
Access Point Name	The access point name of the mobile network operator.	Enter a APN if want to use GPRS ,TCP or UDP mode

Table 9Description of the monitoring information

5.2.3 Alarm Status

Device alarm status column corresponds to the Device alarm En/Disable column, if don't want to get an alarm, you can set the item is disable.

5.2.3.1 IM2U Alarm Status

Operation Maintenance Terminal-							
Ionitor <u>C</u> onfiguration <u>T</u> ools Upgr							
] Q > 🔕 🖳 🔤	i 🛆 🔍 🖽 🗶 👘						
🚰 Site List	Search Set 1	Select All Mu	Iti Select Invert Select I Cle	ar All			
6- 1 111	Jean Jean Jean Jean Jean Jean Jean Jean						
	Check Name	GetValue Status	Query time				
i 🛷 🗍 20	Power Fail Alarm	Normal Success	2016-04-15 11:09:27				
🖮 🔀 🔰 30	Power Fault Alarm	Normal Success	2016-04-15 11:09:27				
😐 💥 🔰 40	Monitor Module Battery Fault Alarm	Normal Success	2016-04-15 11:09:27				
🖻 💥 🔰 50	Master Slave Module Comm. Failure	Normal Success	2016-04-15 11:09:27				
⊕¥ 📕 6[] ⊕∕ 📲 7[]	PD1 Alarm	Alarm Success	2016-04-15 11:09:27				
······································	PD2 Alarm	Normal Success	2016-04-15 11:09:27				
	PD3 Alarm	Alarm Success	2016-04-15 11:09:27				
	PD4 Alarm	Alarm Success	2016-04-15 11:09:27				
	PD5 Alarm	Alarm Success	2016-04-15 11:09:27				
	PD6 Alarm	Alarm Success	2016-04-15 11:09:27				
	PD7 Alarm	Normal Success	2016-04-15 11:09:27				
	PD8 Alarm	Alarm Success	2016-04-15 11:09:27				
	LD1 Alarm	Normal Success	2016-04-15 11:09:27				
	MIMO PD1 Alarm	Alarm Success	2016-04-15 11:09:27				
	MIMO PD2 Alarm	Alarm Success	2016-04-15 11:09:27				
	MIMO PD3 Alarm	Alarm Success	2016-04-15 11:09:27				
	MIMO PD4 Alarm	Normal Success	2016-04-15 11:09:27				
	MIMO PDS Alarm	Alarm Success	2016-04-15 11:09:27				
	MIMO PD6 Alarm	Alarm Success	2016-04-15 11:09:27				
vice No.: 111	Device Info. Monitoring Para. Alarn	En/Disable Alarm State	RF Settings Para. RF Status Para.	Topology Map			-
b No.: NEU(00)IRU-O(00)							
ephone:	Device No. Sub No.	Realtime Alarm Name	Alarm Time	Telephone Number	Site Name	Address	
mmunitcate Mode: UDP	Site 111 NEU(0)IRU-O(0)	MIMO PD8 Alarm	2016-04-15 11:09:27(Search)				
P: 192.168.1.100 : 4066	Site 111 NEU(0)IRU-O(0) Site 111 NEU(0)IRU-O(0)	MIMO PD7 Alarm MIMO PD6 Alarm	2016-04-15 11:09:27(Search) 2016-04-15 11:09:27(Search)				
RS: Local: [0]	Site 111 NEO(0)R0-O(0)	millo Puo Aldrin	2016-04-15 11:09.27(Search)				1
tocol: CMCC3GRAP	Realtime Alarm Gprs Connect Status	Serial Message					

Figure 48 IM2U Alarm Status

Monitor <u>Configuration</u> Tools Up	grade Language	Trigger Other H	lelp								
] Q > 0 2 1	1 🛆 🔍	92 🗶									
🗉 🚰 Site List	Search	Set	Select/	All Multi S	Select Invert Se	elect I Cle	ar All				
ia∰ 1110 ia	Check Name	,	GetValue	Status	Query time	_					
		r Fail Alarm	Normal	Success	2016-04-15 11:17:	19					
10		r Fault Alarm	Normal	Success	2016-04-15 11:17:						
		or Module Battery Fault A		Success	2016-04-15 11:17:						
/]] 3[]		r Slave Module Comm. F		Success	2016-04-15 11:17:						
		on Changed Alarm	Alarm	Success	2016-04-15 11:17:						
		e Temperature Alarm	Normal	Success	2016-04-15 11:17:	9					
	PD Ale	irm	Normal	Success	2016-04-15 11:17:	19					
80		arm	Normal	Success	2016-04-15 11:17:	19					
	PD1 A	larm	Normal	Success	2016-04-15 11:17:	9					
🕀 🔀 🗍 40	D PD2 A	larm	Normal	Success	2016-04-15 11:17:	9					
🖶 🔀 🗊 50	PD3 A	larm	Normal	Success	2016-04-15 11:17:	9					
🕀 🗶 🗍 60	PD4 A	larm	Normal	Success	2016-04-15 11:17:	9					
🖻 🖌 🗍 70	D PD5 A	larm	Normal	Success	2016-04-15 11:17:	9					
ii - 🔀 🗊 80	PD6 A	larm	Normal	Success	2016-04-15 11:17:	9					
	PD7 A	larm	Normal	Success	2016-04-15 11:17:	19					
	PD8 A	larm	Normal	Success	2016-04-15 11:17:	9					
	LD1 A	larm	Normal	Success	2016-04-15 11:17:	9					
	МІМО	PD Alarm	Normal	Success	2016-04-15 11:17:	9	10				
	Device Info.	Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topology Map				
Device No.: 111	Device No.	Sub No.	Realtime	Alarm Name	Alarm Tin	e	Telephone N	lumber	Site Name	Address	
Sub No.: NEU(02)IRU-O(00) Felephone:	() Site 111	NEU(2)IRU-O(0)	Position 0	Changed Alarm	2016-04-1	5 11:17:09(Search)					
Communitcate Mode: UDP	O Site 111	NEU(0)IRU-O(0)	MIMO PDI			5 11:09:27(Search)					
JDP: 192.168.1.100 : 4066	Site 111	NEU(0)IRU-O(0) NEU(0)IRU-O(0)	MIMO PD			5 11:09:27(Search) 5 11:09:27(Search)					
GPRS: Local: [0]	A	NEU(0)R0-0(0)	MINO PD		2010 04	5 11.09.27(Search)				-	
Protocol: CMCC3GRAP	•										+

5.2.3.2 NEU Alarm Status

Figure 49 NEU Alarm Status

5.2.3.3 IRU-O Alarm Status

Operation Maintenance Terminal-	RPT V 4.2.0	1.37									
lonitor <u>C</u> onfiguration <u>T</u> ools Upgr	ade Lang	uage <u>T</u> rigger <u>O</u> ther	<u>H</u> elp								
] Q 🕨 🔕 🖳 🔓		🔪 🙉 🗶 👘									
Site List	S	earch Set	Select A	di Multi S	elect Invert S	elect I CI	ear All				
id⊷] 1110 id• X] 10	Check	Name	GetValue	Status	Query tim						
20		Master Slave Module Comm	Eailure Normal	Success	2016-04-1						
10		PD Alarm	Normal	Success	2016-04-1						
		LD Alarm	Normal	Success	2016-04-1						
/]] 3[]		MIMO PD Alarm	Normal	Success	2016-04-1						
		MIMO LD Alarm	Normal	Success	2016-04-1						
		PA Temp, Alarm	Normal	Success	2016-04-1						
		PA relip. Alarin	GSN/EGSN	Success	2010-04-1	5 11:18:55					
		DownLink Low Output A		Success	2016-04-1	11-10-26					
80		DownLink Over Output		Success	2016-04-1						
⊕×30 ⊕×30		DownLink Over Output									
		DOWNLINK PA Fault Ale		Success	2016-04-1	5 11:19:35					
		-	DCS								
		DownLink Low Output A		Success	2016-04-1						
d 👷 🗐 80		DownLink Over Output		Success	2016-04-1						
		DownLink PA Fault Ala	the second	Success	2016-04-1	5 11:19:35					
			WCDHA								
		DownLink Low Output A		Success	2016-04-1						
		DownLink Over Output	Alarm Normal	Success	2016-04-1						
	П	DownLink PA Fault Ala	I	Success	2016-04-1		1				
	Device	Info. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topology Map				
vice No.: 111 o No.: NEU(02)IRU-O(03)	Device	No. Sub No.	Realtime.	Alarm Name	Alarm T	ime	Telephon	e Number	Site Name	Address	
phone:	🚺 Site	111 NEU(2)IRU-O(3	3) DownLink	Low Output Alar	m(MIMO) 2016-04	-15 11:19:35(Searc	ch)				
munitcate Mode: UDP	Site			Low Output Alarr		-15 11:19:35(Searc					
P: 192.168.1.100 : 4066	Site			Low Output Alar		-15 11:19:35(Searc					
RS: Local: [0]	Site			hanged Alarm	2010 0	L-15 11:17:09(Searc					
tocol: CMCC3GRAP	4						-				

Figure 50 IRU-O Alarm Status

Table 10 Description of the monitoring information

Parameter items	Description	Note
Power Fail alarm	If the main power supply down, will alarm.	If got the alarm, it means that it has no main power supply.
Power Fault alarm	If the internal power supply voltage is not stable, and the voltage ripple is greater than 10%, will alarm.	If got the alarm, it means that the power supply voltage is not stable, should check the voltage by multimeter.
Monitor module battery fault alarm	If the battery voltage is lower than 8.5V,will alarm	If got the alarm, it means that the battery is not good, should replace a new one.
Master slave link alarm	If the master unit cannot detect the remote unit, will alarm.	If got the alarm, maybe the extender unit or remote unit failed.
Master slave module comm. Failure	If the monitor board cannot detect the module, will alarm.	If got the alarm, maybe have following several status:
		 There is something wrong about the data cable between the monitor board and modules.
		2. The modules failed.
PD1~PD16 alarm	If the master unit cannot receive the optical signal, will alarm.	If got the alarm, maybe have following several status:
		 There is something wrong about the fiber optical cable among the Master unit, extender unit and remote unit.
		2. The remote unit failed.
LD, LD1,LD2 alarm	If the master unit cannot send the optical signal, will alarm.	If got the alarm, it means the master unit or extender unit failed.
Position changed alarm	Position alarm, if the Device had been moved, will alarm.	If got the alarm ,maybe have following several status:
		1. Forgot to connect the position

Rosenberger Active Das With Intelligent Antenna system

Rosenberger

Parameter items	Description	Note
		cable to Ground.
		2. The Device had been moved by somebody.
Device temperature alarm	If the equipment temperature is higher than setting temperature, will alarm	If got the alarm ,maybe have following several status:
		 Unsuitable temperature value has be set .normally: 55℃
		2. The Device is too hot, and the fan failed if have
		 The Device's program has something wrong.
IRU 1 ~ IRU 16 over current alarm	If the IRU's current is higher than 500mA, will alarm.	If got the alarm, it means the remote unit has something wrong.
Downlink PA Fault alarm	It indicates the PA maybe fail.	If got the alarm, it means the downlink PA has something wrong.
PA temperature alarm	It will alarm if the PA temperature is higher than setting value.	If got the alarm ,maybe have following several status:
		1. Unsuitable temperature value has be set .normally: 55℃
		2. The Device is too hot, and the fan failed if have
		 The PA's program has something wrong.
Downlink low output alarm	It indicates the down link output power is lower than the setting value,	If got alarm, the Remote unit maybe have following several status:
		1. check Downlink output min.value whether it is appropriate,
		2. check downlink attenuation setting ,maybe set too more
		3. PA failed.
		 Reference IM2U or NEU, check the input power, maybe the input power is too low.
Downlink over output alarm	It indicates the downlink output power is higher than the setting value.	If got alarm , the Remote unit maybe have following several status
		 need to check the setting value , the setting value should not be greater than the rated out power plus 2
		2. If the PA runs well, maybe the PA's program has something wrong.
		3. PA failed

5.2.4 RF Setting Parameters

5.2.4.1 NEU RF Setting Parameters

		Help		_				
]] 🔍 🕨 🔘 😢 [🔓 🛆 🔍 🧏 🗶 👘							
📲 Site List	Search Set	I Select All Mul	ti Select] Inve	ert Select	ar All			
in ∰ 1110 in ★ ∰ 10	Check Name	SetValue	GetValue L	Jnit Statu	s Query time	1		
e	Device Temperature Thres	nold 0	65 °C	Succi	2016-04-15 11:17:28	1		
	IRU 1 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
	IRU 2 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
	IRU 3 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
	IRU 4 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
	IRU 5 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
70	IRU 6 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
80	IRU 7 Current Max	0	800 m	A Succe	ss 2016-04-15 11:17:28			
	IRU 8 Current Max	0	800 m	A Succe	2016-04-15 11:17:28			
⊕ × 3 50 ⊕ × 3 60 ⊕ √ 3 70								
⊕-×) 50 ⊕-×) 60 ⊕- ×] 70	Device Info. Monitoring Para	Alarm En/Disable Alarm Statu	s RF Settings Pe	ira, RF Status Para.	Topology Map			
⊕ ★ 〕 50 ⊕ ★ 〕 50 ⊕ ₩ 〕 71 ⊕ ★ 〕 80	Device Info. Monitoring Para.	Alarm En/Disable Alarm Statu Reatime Alarm Name	in ootnigere	ira. RF Status Para.		Site Name	Address	
		Realtime Alarm Name	Alar		Topology Map Telephone Number	Sile Name	Address	
e	Device No. Sub No.	Realtime Alarm Name Position Changed Alarm	Alar 2016	m Time		Sile Name	Address	
evice No.: 111 be No.: NEU(02)−IRU-O(00) stephone: ommunitcate Mode: UDP	Device No. Sub No. Site 111 NEU(2)IRU-O(Site 111 NEU(0)IRU-O(Site 111 NEU(0)IRU-O(Site 111 NEU(0)IRU-O(Realtime Alarm Name Position Changed Alarm MMO PD8 Alarm MMO PD7 Alarm	Alar 2016 2016 2016	m Time -04-15 11:17:09(Search) -04-15 11:09:27(Search) -04-15 11:09:27(Search)		Site Name	Address	
e	Device No. Sub No. Site 111 NEU(2)RU-O(0 Site 111 NEU(0)RU-O(0	Reattime Alarm Name Position Changed Alarm MMO PD8 Alarm MMO PD7 Alarm MMO PD7 Alarm MMO PD6 Alarm	Alar 2016 2016 2016 2016	m Time -04-15 11:17:09(Search) -04-15 11:09:27(Search)		Site Name	Address	

Figure 51 NEU RF Setting Parameters

5.2.4.2 IRU-O RF Setting Parameters

Operation Maintenance Terminal- Ionitor <u>C</u> onfiguration <u>T</u> ools Upg		1000	Help									· Π - λ
Site List	S	earch Set	Select /	All Multi S	elect	Invert Sele	ect I CI	ear All				
id- 111 0 id- X 1 10	Check	Name	SetValue		GetValue	Unit	s	itatus	Query time			
20		PA Temp. Threshold	85	7	5	°C	Su	JCCess	2016-04-15 11:19:59			
				GSM/	EGSM				- Benarisses and the press of the press of the			
		PA1 Switch	On	c	n		Si	uccess	2016-04-15 11:19:59			
		UpLink Att.	0	0		dB	SI	uccess	2016-04-15 11:19:59			
		DownLink Att.	0	0		dB	St	uccess	2016-04-15 11:19:59			
		DownLink Output Min	0	5		dBm	Si	uccess	2016-04-15 11:19:59			
		DownLink Output Max	0	2	5	dBm	Su	uccess	2016-04-15 11:19:59			
80				DC	s							
🕀 💥 🗍 30		PA1 Switch	On	c	In		St	uccess	2016-04-15 11:19:59			
🕀 💥 🗊 40		UpLink Att.	0	0		dB	St	uccess	2016-04-15 11:19:59			
🕀 🔀 🗊 50		DownLink Att.	0	0		dB	Su	lccess	2016-04-15 11:19:59			
🕮 💥 📕 6[]		DownLink Output Min	0	5		dBm	SI	lccess	2016-04-15 11:19:59			
⊕∕ ∄ 70		DownLink Output Max	0	2	5	dBm	Si	uccess	2016-04-15 11:19:59			
il- 🔀 🗊 80				WC1	MA							
		PA1 Switch	On	c	n		Si	uccess	2016-04-15 11:19:59			
		UpLink Att.	0	0		dB	Si	uccess	2016-04-15 11:19:59			
		DownLink Att.	0	0		dB	SI	uccess	2016-04-15 11:19:59			
		DownLink Output Min	0	5	1	dBm	Si	uccess	2016-04-15 11:19:59			
	Device	nfo. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Setting	s Para.	RF Status Para.	Topology Map				
ice No.: 111	Device	No. Sub No.	Realtime	Alarm Name		Alarm Tim		Telepl	none Number	Site Name	Address	
No.: NEU(02)IRU-O(03) phone:	Site	111 NEU(2)IRU-O(3) DownLini	k Low Output Alan	m(MIMO)	2016-04-1	5 11:19:35(Searc	ch)				
nmunitcate Mode: UDP	Site			k Low Output Alan			5 11:19:35(Searc					
P: 192.168.1.100 : 4066	Site			k Low Output Alan	m(DCS)		5 11:19:35(Searc					
RS: Local: [0]	(nu-											
tocol: CMCC3GRAP	•									2		
	Realtime	Alarm Gprs Connect St	atus Serial Messag	ge								

Figure 52 IRU-O RF Setting Parameters

Table 11 Description of the monitoring information

Parameter items	Description	Note
Device Temperature threshold	NEU's temperature setting	Normally, set the number is 55
RF Module switch	IRU's RF module switch	Normally ON
PA Temp. Threshold	IRU's Temperature setting	Normally, set the number is 55
Uplink Att	IRU's uplink attenuation setting	According to the actual situation
Downlink Att	IRU's downlink attenuation setting	According to the actual situation
Downlink Output min	IRU's Downlink Output minimum alarm threshold value	default
Downlink output max	IRU's Downlink Output maximum alarm threshold value	default

5.2.5 RF Status

5.2.5.1 IM2U RF Status

Monitor Configuration Tools Upg	rade Langu	age <u>T</u> rigger <u>O</u> ther	Help									
] 이 ▷ ③ 킨 [i 🛆 🍳	🔍 🥵 🗶 🔰										
📲 Site List	Sea	arch Set	I SelectA	al Multi s	Select Inve	rt Select]	Clear	ALL				
ė- 🗍 111										_		
🕂 🗶 📜 10	Check I		SetValue			Unit	Statu	2	Query time			
🖻 🖌 📕 20		Mobile Network Code		C)		Succe	55	2016-04-15 11:15:4	9		
i 🗶 📕 30		Location Area Code		2	25089		Succe	\$\$	2016-04-15 11:15:4	9		
ii → 🗶 🗍 40		BTS ID		6	54		Succe	ss	2016-04-15 11:15:4	9		
⊕ × 🗊 50 ⊕ × 🗊 60		ARFCN/ CH No.		4	19		Succe	SS	2016-04-15 11:15:4	9		
		RSSI			66	dBm	Succe	SS	2016-04-15 11:15:4	9		
		Cell ID		5	50753		Succe	55	2016-04-15 11:15:4	9		
		Optical Tx 1 Power		4		dBm	Succe	55	2016-04-15 11:15:4	9		
		Optical Rx 1 Power		-	24	dBm	Succe	SS	2016-04-15 11:15:4	9		
		Optical Rx 2 Power		2	2.9	dBm	Succe	SS	2016-04-15 11:15:4	9		
		Optical Rx 3 Power			24	dBm	Succe	55	2016-04-15 11:15:4	9		
		Optical Rx 4 Power			24	dBm	Succe	ss	2016-04-15 11:15:4	9		
		Optical Rx 5 Power			24	dBm	Succe	SS	2016-04-15 11:15:4	9		
		Optical Rx 6 Power			24	dBm	Succe	55	2016-04-15 11:15:4	9		
		Optical Rx 7 Power				dBm	Succe		2016-04-15 11:15:4			
		Optical Rx 8 Power				dBm	Succe		2016-04-15 11:15:4			
		MIMO Optical Tx1 Power				dBm	Succe		2016-04-15 11:15:4			
		IMO Optical Rx1 Power				dBm	Succe		2016-04-15 11:15:4			
						dBm	10000000000		2016-04-15 11:15:4			
	Device In	fo. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Par		Succe	ss Topology Map		а		
	Device in	ino monitoring Para.	Aldrin Enroladoic	Autoratus	In Sealings Fai	u. RF Status F	ara.	opology map				
evice No.: 111 ub No.: NEU(00)IRU-O(00)	Device N	lo. Sub No.	Realtime.	Alarm Name	Alarm	Time		Telepho	ne Number	Site Name	Address	
elephone:	Site 1) MIMO PD8	Alarm	2016-	04-15 11:09:27(S	earch)					
ommunitcate Mode: UDP	Site 1					04-15 11:09:27(S						
DP: 192.168.1.100 : 4066	Site 1					04-15 11:09:27(S						
PRS: Local: [0]	Site 1			016-04-15 11:09:27(Search)								
rotocol: CMCC3GRAP	<											
OLOCOL. ONICOSORAP	Realtime A	Jarm Gprs Connect Sta	tus Serial Messag									

Figure 53 IM2U RF Status

5.2.5.2 NEU RF Status

Operation Maintenance Terminal-										
Ionitor <u>C</u> onfiguration <u>T</u> ools Upgr	rade Lang	puage <u>T</u> rigger <u>O</u> ther	r <u>H</u> elp							_
] 4 🕨 🔘 🖌 🛯		🍾 😎 🗙 -								
🚰 Site List	S	earch Set	Select	All) (Multi Se	lect Invert S	elect	All			
	Check	Nama	SetValue	Ga	tValue Unit	Status	Query time			
		Device Temperature		34	°C	Success	2016-04-15 11:17:41			
		Optical Rx Power		-6.8		Success	2016-04-15 11:17:41			
		Optical Tx Power		4	dBm	Success	2016-04-15 11:17:41			
		Optical Rx 1 Power		2.4	dBm	Success	2016-04-15 11:17:41			
/ 🗍 40		Optical Rx 2 Power		3	dBm	Success	2016-04-15 11:17:41			
50		Optical Rx 3 Power		2.5	dBm	Success	2016-04-15 11:17:41			
		Optical Rx 4 Power		3.9	dBm	Success	2016-04-15 11:17:41			
80		Optical Rx 5 Power		1.6	dBm	Success	2016-04-15 11:17:41			
⊕-× 3 30		Optical Rx 6 Power		3.9	dBm	Success	2016-04-15 11:17:41			
⊕- × ∎ 40		Optical Rx 7 Power		4.6	dBm	Success	2016-04-15 11:17:41			
🕀 🔀 🗍 50		Optical Rx 8 Power		1.9	dBm	Success	2016-04-15 11:17:41			
🖶 💥 🗊 6[]		Optical Tx 1 Power		4	dBm	Success	2016-04-15 11:17:41			
🕮 🖌 🗍 70		MIMO Optical Rx Power		-6.9	dBm	Success	2016-04-15 11:17:41			
🖮 💥 🗊 80		MIMO Optical Tx Power		4	dBm	Success	2016-04-15 11:17:41			
		MIMO Optical Rx1 Power		3.2	dBm	Success	2016-04-15 11:17:41			
		MIMO Optical Rx2 Power		2.1	dBm	Success	2016-04-15 11:17:41			
		MIMO Optical Rx3 Power		2.8	dBm	Success	2016-04-15 11:17:41			
		MIMO Optical Rx4 Power		1.3	dBm	Success	2016-04-15 11:17:41			
	Device	Info. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para. 1	opology Map			
evice No.: 111	Device	No. Sub No.	Dastina	Alarm Name	Alarm Tin		Telephone Number	Site Name	Address	
ub No.: NEU(02)IRU-O(00)	Site			Changed Alarm		5 11:17:09(Search)	receptione Number	Sile Manie	Address	
lephone:	Site					5 11:09:27(Search)				
ommunitcate Mode: UDP	Site					5 11:09:27(Search)				
DP: 192.168.1.100 : 4066	🚺 Site					5 11:09:27(Search)				
PRS: Local: [0]	1 1	444 100000 000 0	100 00	P. A.I		F 44.00.07/011115				
otocol: CMCC3GRAP	Realtime	Alarm Gprs Connect S	Status Serial Messad							

Figure 54 NEU RF Status

onitor <u>C</u> onfiguration <u>T</u> ools Upg	rade Lang	guage <u>T</u> rigger <u>O</u> ther	<u>H</u> elp			-		-				
🗾 🛰 📂 🧶 🕍 📙					alant) (In		011					
i 1110		earch Set	I Select			vert Select	Clea					
⊕- × ∎ 10		Name	SetValue		GetValue	Unit	Sta		Query time			
2		Optical Tx Power		1	.9	dBm	Suc		2016-04-15 11:20:12			
		Optical Rx Power			6.4	dBm	Suc		2016-04-15 11:20:12			
		MIMO Optical Tx Power		4		dBm	Suc		2016-04-15 11:20:12			
		MIMO Optical Rx Power			6.7	dBm	Suc	cess	2016-04-15 11:20:12			
		PA Temp.		4	9	°C	Suc	cess	2016-04-15 11:20:12			
				GSM/	EGSM							
		UpLink Rated Gain		3	0	dB	Suc	cess	2016-04-15 11:20:12			
		DownLink Actual Gain		53	0	dB	Suc	cess	2016-04-15 11:20:12			
🕀 💥 🗊 30		DownLink Rated Output		2	3	dBm	Suc	cess	2016-04-15 11:20:12			
😐 💥 🗊 40		DownLink Output		2	2	dBm	Suc	cess	2016-04-15 11:20:12			
🐵 💥 🗊 50				D	s							
🖶 🗶 🗍 6[]		UpLink Rated Gain		3	0	dB	Suc	cess	2016-04-15 11:20:12			
🖻 🖌 📕 70		DownLink Actual Gain		3	0	dB	Suc	cess	2016-04-15 11:20:12			
ia- X ∄ 80		DownLink Rated Output		2	3	dBm	Suc	cess	2016-04-15 11:20:12			
		DownLink Output		L	.ow	dBm	Suc	cess	2016-04-15 11:20:12			
				WCI	DMA							
		UpLink Rated Gain		3	0	dB	Suc	cess	2016-04-15 11:20:12			
		DownLink Actual Gain		3	0	dB	Suc	cess	2016-04-15 11:20:12			
	Device	Info. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings P	ara. RF Stat	us Para.	Topology Map				
vice No.: 111	Device	e No. Sub No.	Realtime	Alarm Name	A	larm Time		Teleph	one Number	Site Name	Address	
ib No.: NEU(02)IRU-O(03)	Site	111 NEU(2)IRU-O	(3) DownLin	k Low Output Alar	m(MIMO) 20	016-04-15 11:19	35(Search))				
lephone: ommunitcate Mode: UDP	0 Site		(3) DownLin	k Low Output Alar	m(WCDMA) 20	016-04-15 11:19	35(Search))				
DP: 192.168.1.100 : 4066	Site			k Low Output Alar		016-04-15 11:19						
PRS: Local: [0]	Site			Changed Alarm		016-04-15 11:17						
otocol: CMCC3GRAP	٠											

5.2.5.3 IRU-O RF Status

Figure 55 IRU-O RF Status

Table 12 Description of the monitoring information
--

Parameter items	Description	Note
Mobile Network Code	Master unit Modem parameters, only read	Reference
Location Area Code	Master unit Modem parameters, only read	Reference
BTS ID	Master unit Modem parameters, only read	Reference
RFCN/CH NO.	Master unit Modem parameters, only read	Reference
RSSI	Master unit Modem parameters, only read	Reference
CELL ID	Master unit Modem parameters, only read	Reference
Optical TX Power	Device optical output power	Real time data
Optical Rx Power	Device optical receiving power	Real time data
PA Temp.	IRU's PA temperature	Real time data
Uplink Rated Gain	Device uplink rated gain	reference
Downlink Actual Gain	Device downlink actual Gain	Real time data
Downlink Rated Output	Device downlink actual Gain	reference
Downlink output	Device downlink RF output power	Real time data
Downlink input	Device downlink RF input power	Real time data

6 System Monitor Introduce

Operation & maintenance terminal (OMT) interact with the Radiant to set and lookup its status and RF parameters. It can display alarms real-time. OMT can set local connection, SMS connection with the device for operation and maintenance at any time, or at any location.

OMT and FOR connection topology showed as Figure 39:

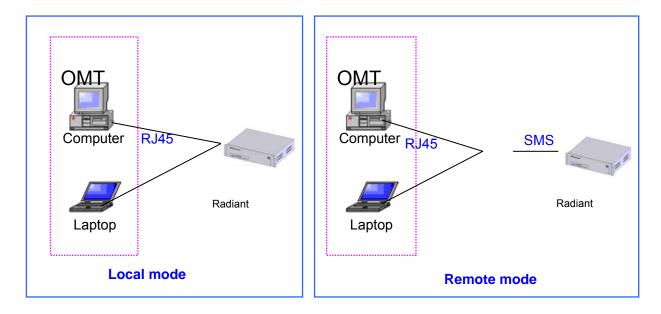


Figure 56 OMT Connection mode

Please refer to

Operation/Maintenance Terminal OMT Software User Manual

FCC Statement:

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

This 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, including interference that may cause undesired operation.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.