User Manual

IM2U-N10-091921-NF-01

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

Manual Version 1.0

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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.

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.



Figure 1 Radiant System Application

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.

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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

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>
 <u>Traditional remote units do not have an antenna, so an external feeder cable is required to connect with the servicing antenna</u>. 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

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the antenna interface. This allows the maximum available RF power for any application.

• <u>PIM-Free, VSWR free Installation</u>

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.

2.3 Product Outline Drawing



Figure 3 IM2U Outline

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Figure 4 NEU Outline



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



Figure 7 IM2U Front Panel



Figure 8 IM2U Rear Panel for SISO

	dentifier	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
	MOD	Modem running indicator, Blinking, Control unit communicates normally;
Front		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
Deen	FUSE	Fuse Port, Normally, the fuse model is 5x20, 250VAC3A
Rear	GND	Grounding connector.
Pallel	MODEM	Modem antenna port.
	Op1~ op4	This port is the fiber connector port for SISO (FC/APC type optical

Table 1 IM2U Interface Description

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	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
Front		red when got alarms.
Papel	RUN	Monitor boarding running indicator, normally, keep blinking; off, Device does
Fallel		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	

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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)

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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.



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Figure 13 Internal layout 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

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2.5.2 NEU Layout



Figure 14 Internal layout for NEU

	Table 5	Modules for I	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



Figure 65 Internal layout 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

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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.

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

3.2.2 Installation

3.2.2.1 Installation of IM2U and NEU

IM2U AND NEU are 19"3U in size. It shall be generally installed in the 19-inch communication rack, 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~+40°C and relative humidity ≤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

3.2.2.2 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.

3.2.2.3 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

3.2.2.4 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 Commissioning

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





4.1 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.

4.1.1 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 F	lepeater 🔻	
Communication mode *	▼ Test	
Protocol Type *	•	
Slave Config		
Same	Caral	

Figure 34 Creating New Device Page

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

Create New Device
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
Local Port :11000 Timeout :30
Local Port :11000 Timeout :30 Protocol Type * CMCC3GRAP -
Local Port :11000 Timeout :30 Protocol Type * CMCC3GRAP Slave Config
Local Port :11000 Timeout :30 Protocol Type * CMCC3GRAP Slave Config
Local Port :11000 Timeout :30 Protocol Type * CMCC3GRAP Slave Config
Local Port :11000 Timeout :30 Protocol Type * CMCC3GRAP Slave Config Save Cancel

Figure 35 Configure Parameter

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.

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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.
	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.

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🚱 Slave Properties 🛛 🔀		
Slave Properties		
	Device No.	
	0	
	Sub No.	
	00	
	>>>	
	Level 3	
	0 🔻	
	Save	
	Gunul	
	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.

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🧭 Slave Properties	×
Slave Properties	
Slave Properties Slave Properties OO [Device No.: 0] O1 [Device No.: 0] O2 [Device No.: 0] O3 [Device No.: 0] O4 [Device No.: 0]	Device No. O Sub No. OO C Level 3 O V
	Save Cancel
	.4

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

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Slave Properties	×
Slave Properties	
🗊 OO [Device No.: 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.

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🜮 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.

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Set	Create New Device	X
le	Repeater Properties	,
	Device No. *	1
	Sub No. *	00 -
	Site Name	Factory test
	Phone Number	000000000
	Device Factory	China
	Otto La callan	China
Informatio	Device is not reachable	e, please check IP address or network!
Informatio	n Device is not reachable	e, please check IP address or network! 确定
Informatio	Device is not reachable	e, please check IP address or network! 确定

Figure 40 Testing Configuration for A New Device

----End

4.2 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.

4.2.1 Device info.

4.2.1.1 IM2U parameters

Operation Maintenance Terminal-RP	T V 4.2.0	.37							-	- 0 -×	
Monitor Configuration Tools Upgrad	e Langi	uage Trigger Other	r Help								
] Q 🕨 🔘 🛯 🔒	<u> </u>	🔪 🧟 🗶									
⊡ 🚰 Site List	Search Set I Select All Multi Select Invert Select I Clear All										
i- X] 10	Check	Name	SetValue	G	etValue	Unit	Status	Query time			
⊕~∕] 2[]		Vendor ID		0			Success	2016-04-14 15:28:44			
Ē-¥ 🗍 30		Type ID		Fib	er Optic Repeater - Mast	er Unit	Success	2016-04-14 15:28:44			
		Device Type ID		IM2	2U-N10-09182121-2R16F	-02	Success	2016-04-14 15:28:44			
		Serial ID		RA	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		IM2	2U-N10-2R16F-02_CFG_	V1.0	Success	2016-04-14 15:28:44			
	Device I	Info. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Fopology Map				
Davias No - 111	Device	No. Sub No.	Realtime	Alarm Name	Alarm Time		Telephone Number	Site Name	Address		
Uevice No.: 111 Sub No.: NEU(00)IRU-O(00) Telephone: Communitcate Mode: UDP UDP: 192.168.1.100 : 4066											
GPK5: LOCAI: [U] Protocol: CMCC3GPAP	•				m					۴	
FIDEDEDI. CIVICO3GRAF	Desitime	Alarm Gors Connect S	Status Serial Messar	ie i							
	Realine.	Carini Copro connect e	oonan mooday								
Set or query repeater parameters succ	essFully!!										

Figure 42 IM2U Device parameters

4.2.1.2 NEU parameters

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4.2.1.3 IRU-O parameters

Figure 44 IRU-O Device Parameters

I able o	Description of the Device	mormation
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

4.2.2 Monitoring Para.

4.2.2.1 IM2U monitoring parameters

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 		Query Tel.2					Success	2016	-04-15 11:08:56			
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Protocol: CMCC3GRAP	Protocol: CMCC3GRAP											
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Figure 45 IM2U monitoring parameters

4.2.2.2 NEU monitoring parameters

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Sub No : NEL(02)-JRU-O(00) Device No.	Sub No. Realtime	Alarm Name	Alarm Time	Telephone Number	Site Name	Address	*
Telephone:	NEU(0)IRU-O(0) MIMO PD8	Alarm	2016-04-15 11:09:27(Search)			H
Communitcate Mode: UDP	NEU(0)IRU-O(0) MIMO PD7	Alarm	2016-04-15 11:09:27(Search)			
UDP: 192.168.1.100 : 4066	NEU(0)-IRU-O(0) MIMO PDE	Alarm	2016-04-15 11:09:27(Search)			
GPRS: Local: [0]	NEU(U)-IRU-U(U) MIMO PDS	Allerer	2010-04-15 11:09:27(Search				*
Protocol: CMCC3GRAP			m				•
Realtime Alarm	Gprs Connect Status Serial Messag	je					

Figure 46 NEU monitoring parameters

4.2.2.3 IRU-O monitoring parameters

Monter Gonfguration Tools Upgende Language Triggen Date Image: State List Image: St
Image: Strep List Image: Strep List Image: Strep List Search Image: Strep List Image: Strep List Image: Strep List Image: Strep List <
Ste List Int Int Search Set Int Success 2016-04-15 11:18:44 Int Int Int Int Int
Check Mare SetValue GetValue Unit Status Query time 21 Device NO. 1 111 Success 2016-04-15 11:18:44 21 Device NO. 1 111 Success 2016-04-15 11:18:44 21 Success 2016-04-15 11:18:44 2016-04-15 11:18:44 21 Success 10 21 Success
20 0 0 1 111 Success 2016-04-15 11:18.44 20 3 30 30 2016-04-15 11:18.44 30 3 30 30 2016-04-15 11:18.44 30 50 3 30 2016-04-15 11:18.44 30 50 3 30 30 2016-04-15 11:18.44 30 50 3 30 30 2016-04-15 11:18.44 40 50 30 3 30 30 30 50 5
Image: Sub NO. 3 Success 2016-04-15 11:18:44 Image: Sub NO. 3 Success 3 Image: Sub NO. 3 Sub NO. Image:
→ ↓ 50 → ↓ 50 → ↓ 50 → ↓ 50 → ↓ 50 → ↓ 50 ↔ ↓ 50 <t< td=""></t<>
Image: Control of the state of the sta
G ¥ 3 G ¥ 4 G
□ ★ ∰ 40 □ ★ ∰ 50 □ ★ ∰ 60 □ ★ ∰ 60 □ ★ ∰ 80
⊕ ★ ∰ 60 ⊕ ★ ∰ 60 ⊕ ★ ∰ 60 ⊕ ★ ∰ 60
B → J 70 H → ★ J 80
Device Info. Monitoring Para. Alarm En/Disable Alarm Status RF Settings Para. RF Status Para. Topology Map
Device No. 111 Device No. Sub No. Reatime Alarm Time Telephone Number Site Name Address
Sub No.: NEU(02)-IRU-O(03) Site 111 NEU(2)-IRU-O(0) Position Changed Alarm 2016-04-15 11:17:09(Search)
Lelephone: Use 111 NEU(0)RU-D(0) MMO P08 Alarm 2016-04-15 11:09:27(Search)
Communicate Mode: UDF
UDP: 122.100.1.100.4000 Ste111 NEU(0)-RU-0(0) MIMO P06 Alarm 2016-04-15 11:09:27(Search)
UPTRO LOCAL [U]
Protecti Circocolori Prestime Alarm Gors Connect Status Serial Nessage





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

4.2.3 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.

4.2.3.1 IM2U Alarm Status

Operation Maintenance Terminal-RP	PT V 4.2.0.37		and the second second	successive statement of the local division in which the local division is not the local division of the local division is not the local division of the lo		and the second secon				
Monitor <u>Configuration</u> Tools Upgrade	e Language <u>T</u> rigger <u>O</u> ther <u>H</u> elp									
] Q > 0 2]	🛆 🔍 🙊 🗶 👘									
Site List	Search Set Select All Multi Select Clear All									
	Check Name	GetValue	Status	Query time				*		
1 20	Power Fail Alarm	Normal	Success	2016-04-15 11:09:27						
🕸 📈 🔰 30	Power Fault Alarm	Normal	Success	2016-04-15 11:09:27						
i <u>n</u> - ×] 40	Monitor Module Battery Fault Alarm	Normal	Success	2016-04-15 11:09:27						
	Master Slave Module Comm. Failur	e Normal	Success	2016-04-15 11:09:27						
	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				E		
	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 PD5 Alarm	Alarm	Success	2016-04-15 11:09:27						
	MIMO PD6 Alarm	Alarm	Success	2016-04-15 11:09:27				*		
Device No.: 111	Device Info. Monitoring Para. Alarr	n En/Disable	Alarm Status	RF Settings Para. RF Status Para	. Topology Map					
Telephone:	Device No. Sub No.	Realtime A	larm Name	Alarm Time	Telephone Number	Site Name	Address	*		
Communitcate Mode: UDP	Site 111 NEU(0)IRU-O(0)	MIMO PD8	Alarm	2016-04-15 11:09:27(Searc	:h)					
UDP: 192.168.1.100 : 4066	Site 111 NEU(0)IRU-O(0)	MIMO PD7	Alarm	2016-04-15 11:09:27(Searc	ch)					
GPRS: Local: [0]	USite 111 NEU(0)IRU-O(0)	MIMO PD6	Alarm	2016-04-15 11:09:27(Searc	ch)		-			
Protocol: CMCC3GRAP			-					,		
	Realtime Alarm Gprs Connect Status	Serial Message	2							
Set or query repeater parameters succe	essFully!!!									

Figure 48 IM2U Alarm Status

Operation Maintenance Terminal-RE	PT V 4.2.0.37		Statements Statements	State of the local division of the local div				
Monitor <u>C</u> onfiguration <u>T</u> ools Upgrad	de Language <u>T</u> rigger <u>O</u> ther <u>H</u> elp							
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🖃 🚰 Site List	Search Set	SelectAll	lulti Select Invert Select	Clear All				
ė- 🗍 1110					,			
	Check Name	GetValue Status	Query time					^
ē~••• 🕽 📶	Power Fail Alarm	Normal Success	2016-04-15 11:17:09					
10	Power Fault Alarm	Normal Success	2016-04-15 11:17:09					
	Monitor Module Battery Fault Alarm	Normal Success	2016-04-15 11:17:09					
	Master Slave Module Comm. Failure	Normal Success	2016-04-15 11:17:09					-
50	Position Changed Alarm	Alarm Success	2016-04-15 11:17:09					-
60	Device Temperature Alarm	Normal Success	2016-04-15 11:17:09					
70	PD Alarm	Normal Success	2016-04-15 11:17:09					
80	LD Alarm	Normal Success	2016-04-15 11:17:09					
···× 📲 30	PD1 Alarm	Normal Success	2016-04-15 11:17:09					-
⊕- × 🗍 40	PD2 Alarm	Normal Success	2016-04-15 11:17:09					
👜 💥 🗍 50	PD3 Alarm	Normal Success	2016-04-15 11:17:09					
🕮- 💥 🗊 60	PD4 Alarm	Normal Success	2016-04-15 11:17:09					
🕂 🖌 🔰 70	PD5 Alarm	Normal Success	2016-04-15 11:17:09					
🕮 🗶 🗊 80	PD6 Alarm	Normal Success	2016-04-15 11:17:09					
	PD7 Alarm	Normal Success	2016-04-15 11:17:09					
	PD8 Alarm	Normal Success	2016-04-15 11:17:09					
	LD1 Alarm	Normal Success	2016-04-15 11:17:09					
	MIMO PD Alarm	Normal Success	2016-04-15 11:17:09					-
	Device Info. Monitoring Para. Alarm	En/Disable Alarm Sta	atus RF Settings Para. RF	Status Para. Topolog	ду Мар			
Device No.: 111	Device No. Sub No.	Realtime Alarm Name	Alarm Time	Te	elephone Number	Site Name	Address	
Sub No.: NEU(02)IRU-O(00)	Site 111 NEU(2)IRU-O(0)	Position Changed Alar	rm 2016-04-15 11	:17:09(Search)				E
Lelephone:	Site 111 NEU(0)IRU-O(0)	MIMO PD8 Alarm	2016-04-15 11	:09:27(Search)				
LIDP: 192 168 1 100 - 4066	Site 111 NEU(0)IRU-O(0)	MIMO PD7 Alarm	2016-04-15 11	:09:27(Search)				
GPRS: Local: [0]	USite 111 NEU(0)IRU-O(0)	MIMO PD6 Alarm	2016-04-15 11	:09:27(Search)				
Protocol: CMCC3GRAP	<							•
	Realtime Alarm Gprs Connect Status S	erial Message						
								_

4.2.3.2 NEU Alarm Status

Figure 49 NEU Alarm Status

4.2.3.3 IRU-O Alarm Status

Operation Maintenance Terminal-RP	T V 4.2.0.3	37		States of the	Statements of the local division in which the local division in the local division in the local division in the				and the second secon		
Monitor <u>Configuration</u> Tools Upgrade	ie Langua	age <u>T</u> rigger <u>O</u> ther	Help								
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🖃 🚰 Site List	Sea	arch Set	Select A	II) Multi S	elect Invert S	elect I Cle	arAll				
<u>⊜</u> -] 1110											
	Check I	Name	GetValue	Status	Query time						Â
		laster Slave Module Comm.	Failure Normal	Success	2016-04-1	11:19:35					
	님	PD Alarm	Normal	Success	2016-04-1	11:19:35					
		LD Alarm	Normal	Success	2016-04-1	11:19:35					
40		MIMO PD Alarm	Normal	Success	2016-04-1	11:19:35					
50		MIMO LD Alarm	Normal	Success	2016-04-1	11:19:35					
		PA Temp. Alarm	Normal	Success	2016-04-1	11:19:35					
70			GSM/EGSM								E
80		DownLink Low Output Al	arm Normal	Success	2016-04-1	11:19:35					
⊕ X] J 30		DownLink Over Output Al	larm Normal	Success	2016-04-1	11:19:35					
🕀 💥 🗊 40		DownLink PA Fault Alar	m Normal	Success	2016-04-1	11:19:35					
🕀 🗶 📕 50			DCS								
· · · · · · · · · · · · · · · · · · ·		DownLink Low Output Al	arm Alarm	Success	2016-04-1	11:19:35					
		DownLink Over Output Al	larm Normal	Success	2016-04-1	11:19:35					
		DownLink PA Fault Alar	m Normal	Success	2016-04-1	11:19:35					
			WCDHA								
		DownLink Low Output Al	larm Alarm	Success	2016-04-1	11:19:35					
		DownLink Over Output Al	larm Normal	Success	2016-04-1	11:19:35					
		DownLink PA Fault Alar	m Normal	Normal Success 2		11:19:35					-
	Device In	fo. Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topology Map				
Device No.: 111	Device N	lo. Sub No.	Realtime A	Alarm Name	Alarm T	ime	Telephone N	lumber	Site Name	Address	
Sub No.: NEU(02)IRU-O(03)	Site 1	11 NEU(2)IRU-O(3)	DownLink	Low Output Alarr	m(MIMO) 2016-04	-15 11:19:35(Search	1)				
Communitante Made: LIDB	Site 1	11 NEU(2)IRU-O(3)	DownLink	Low Output Alarr	m(WCDMA) 2016-04	-15 11:19:35(Search	1)				
LIDP: 192 168 1 100 : 4066	Site 1	11 NEU(2)IRU-O(3)	DownLink	Low Output Alarr	m(DCS) 2016-04	-15 11:19:35(Search	1)				
GPRS: Local: [0]	Site 1	11 NEU(2)IRU-O(0)	Position Cl	hanged Alarm	2016-04	-15 11:17:09(Search	1)				
Protocol: CMCC3GRAP	4										•
	Realtime A	darm Gprs Connect Stat	us Serial Message								
Set or query repeater parameters succe	essFully!!!										

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: 1. 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: 1. 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:

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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:
		 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

4.2.4 RF Setting Parameters

4.2.4.1 NEU RF Setting Parameters

peration Maintenance Terminal-F	RPT V 4.2.0.37			and the second second						and the second		- 0
r <u>C</u> onfiguration <u>T</u> ools Upgra	ade Language	<u>T</u> rigger <u>O</u> ther	<u>H</u> elp									
9 > 0 2 5	1 🛆 🔍	93 🗶										
Site List	Search	Set Set	I SelectA	II Multi S	elect I	nvert Se	lect I Cle	ar All				
	Check Name	1	SetValue		GetValue	Unit	Statu	s	Query time			
e	Device	e Temperature Thresh	old 0		65	°C	Succe	:55	2016-04-15 11:17:28			
	IRU 1	Current Max	0		800	mA	Succe	88	2016-04-15 11:17:28			
	IRU 2	Current Max	0		800	mA	Succe	ss	2016-04-15 11:17:28			
	IRU 3	Current Max	0		800	mA	Succe	ISS	2016-04-15 11:17:28			
	IRU 4	Current Max	0		800	mA	Succe	155	2016-04-15 11:17:28			
	IRU 5	Current Max	0		800	mA	Succe	188	2016-04-15 11:17:28			
70	IRU 6	Current Max	0		800	mA	Succe	185	2016-04-15 11:17:28			
80	IRU 7	Current Max	0		800	mA	Succe	ss	2016-04-15 11:17:28			
	IRU 8	Current Max	0		800	mA	Succe	55	2016-04-15 11:17:28			
,×, 1, 80												
	Device Info.	Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings	s Para.	RF Status Para.	Topology Ma	ip			
No.: 111	Device No.	Sub No.	Realtime	Alarm Name	A	Jarm Tim	,	Teleph	one Number	Site Name	Address	
p.: NEU(02)IRU-O(00)	() Site 111	NEU(2)IRU-O(0) Position C	hanged Alarm	21	016-04-1	5 11:17:09(Search)					
one: uniteste Mede: LIDP	Site 111	NEU(0)IRU-O(0) MIMO PD8	Alarm	21	016-04-1	5 11:09:27(Search)					
192 168 1 100 - 4066	Site 111	NEU(0)IRU-O(0) MIMO PD7	Alarm	21	016-04-1	5 11:09:27(Search)					
Local: [0]	Site 111	NEU(0)IRU-O(0) MIMO PD6	Alarm	21	016-04-1	5 11:09:27(Search)					
OF UNULAURAP												
	Realtime Alarm	Gprs Connect Stat	tus Serial Messag	e								

Figure 51 NEU RF Setting Parameters

4.2.4.2 IRU-O RF Setting Parameters

Operation Maintenance Terminal-RF	PT V 4.2.0.3	37		and the second second	-		-			and the second		
Monitor <u>C</u> onfiguration <u>T</u> ools Upgrad	ie Langua	age <u>T</u> rigger <u>O</u> ther	Help									
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E Site List	Sea	arch Set	I Select A	All Multi S	Select	Invert Se	elect I CI	ear All				
⊡-X 1	Check I	Name	SetValue		GetValue	Uni	S	tatus	Query time			
20		PA Temp. Threshold	85	7	75	°C	S	iccess	2016-04-15 11:19:59			
				GSM/	EGSM							
		PA1 Switch	On	c	Dn		S	iccess	2016-04-15 11:19:59			
		UpLink Att.	0	c)	dB	SI	Iccess	2016-04-15 11:19:59			
		DownLink Att.	0	C)	dB	SI	Iccess	2016-04-15 11:19:59			
60		DownLink Output Min	0	5	5	dBm	SI	iccess	2016-04-15 11:19:59			=
70		DownLink Output Max	0	2	25	dBm	Si	iccess	2016-04-15 11:19:59			
1 80				D	cs							
🖶 🗶 🗊 30		PA1 Switch	On 0		Dn		Si	iccess	2016-04-15 11:19:59 2016-04-15 11:19:59			
⊕ × J 40		UpLink Att.			0	dB	Si	Success				
B X J 50		DownLink Att.	0	C	0 0		SI	Iccess	2016-04-15 11:19:59			
		DownLink Output Min	0	5		ة dBm		iccess	2016-04-15 11:19:59			
⊕ ¥ ∎ 8⊓		DownLink Output Max	0	2	25	dBm		Iccess	2016-04-15 11:19:59			
	_			WC)	WCDMA							
		PA1 Switch	On		Dn		Si	ICCESS	2016-04-15 11:19:59			
	님	UpLink Att.	0	C)	dB	Si	ICCESS	2016-04-15 11:19:59			
	님	DownLink Att.	0	C)	dB	SI	ICCESS	2016-04-15 11:19:59			-
	Device In:	fo Monitoring Para	Alarm En/Disable	Alarm Status	DE Satting	dBm ne Para	RF Status Para	Topology Mar	2016-04-15 11:19:59			1.53
Device No : 111						ja ruiu.						
Sub No : NEU(02)IRU-O(03)	Device N	lo. Sub No.	Realtime	Alarm Name		Alarm T	me	Telepi	ione Number	Site Name	Address	^
Telephone:	Site 1	11 NEU(2)IRU-O(3) DownLink	Low Output Alar	m(MIMO)	2016-04	-15 11:19:35(Sear	ch)				
Communitcate Mode: UDP	Ste 111 NEU(2)IRU-O(3) DownLink Low Outp				m(WCDMA)	2016-04	-15 11:19:35(Sear)	sh)				
UDP: 192.168.1.100 : 4066	Site 1	11 NEU(2)IRU-O(0) Position C	hanged Alarm		2016-04	-15 11:17:09(Sear	sh)				
GPRS: Local: [0]	1		A) 1/8/0 DDC) A la			45 44.00.07/0					
Protocol: CMCC3GRAP	Dealtime 6	Gore Connect St	atus Serial Messag	10								
<u>.</u>	Reartime A	Gpra comfect St	Senar messag		_			_		_		_
Sub No.: NEU(02)-IRU-O(03) Telephone: Communicate Mode: UDP UDP: 192.168.1.100 : 4066 GPRS: Local: [0] Protocol: CMCC3GRAP Set or query repeater parameters succ	Site 1' Site 1' Site 1' Site 1' Site 1' Site 1' Realtime A	11 NEU(2)IRU-O(12 NEU(2)IRU-O(13 NEU(2)IRU-O(14 NEU(2)IRU-O(Jarm Gprs Connect SI	3) DownLink 3) DownLink 3) DownLink 0) Postion C 0) Hato Post	k Low Output Alar k Low Output Alar k Low Output Alar thanged Alarm	m(MMO) m(WCDMA) m(DCS)	2016-04 2016-04 2016-04 2016-04	-15 11:19:35(Sear -15 11:19:35(Sear -15 11:19:35(Sear -15 11:19:35(Sear -15 11:17:09(Sear -15 11:17:09(Sear	ch) ch) ch) ch)]		,

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

4.2.5 RF Status

4.2.5.1 IM2U RF Status

eration Maintenance Terminal-RP	T V 4.2.0.37					STREET, STREET			and the second		
or <u>C</u> onfiguration <u>T</u> ools Upgrad	e Language	Trigger Other	<u>H</u> elp								
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Site List	Search	Set	Select A	JI Multi S	elect Invert	Select I Cl	ear All				
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	Mobi	le Network Code	Servalue		Servalue 0		latus	2016 04 15 11:15:4	0		
		ation Area Code			5080	0	100088	2016 04 15 11:15:4	10		
· × 1 40		BTS ID		-	4	4	1000000	2016 04 15 11:15:4	10		
		DECNUCHING			•	0	locess	2010-04-15 11:15.4			
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· → / J 70	H	CallD		-	0753		iccess	2016 04 15 11:15:4	19		
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		ical Rx 7 Power			.2 00	om o	Iccess	2010-04-15 11:15:4	19		
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	Device Info.	Monitoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topolog	у Мар			
ce No.: 111	Device No.	Sub No.	Realtime	Alarm Name	Alarm T	ime	Te	elephone Number	Site Name	Address	
hone:	🚺 Site 111	NEU(0)IRU-O(D) MIMO PD8	MIMO PD8 Alarm 2016-04-15 11:09:27(Search))				
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192.168.1.100 : 4066	Site 111	NEU(0)IRU-O(NEU(0)RU-O(0) MIMO PD6 Alarm 2016-04-15 11:09:27 (Search)								
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col: CMCC3GRAP	•										

Figure 53 IM2U RF Status

4.2.5.2 NEU RF Status

Operation Maintenance Terminal-R	PT V 4.2.0.37			States of	-	and the owner of the			the second second second		
Monitor <u>C</u> onfiguration <u>T</u> ools Upgra	ide Language <u>T</u> rigg	ger <u>O</u> ther	Help								
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i⊡] 111]											
· ×] 10	Check Name		SetValue	G	etValue Unit	Status	Query tin	10			<u>^</u>
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10	Optical Rx Po	wer		-6.	8 dBm	Success	2016-04-1	5 11:17:41			
20	Optical Tx Po	wer		4	dBm	Success	2016-04-1	5 11:17:41			
а 10 10	Optical Rx 1 I	Power		2.4	dBm	Success	2016-04-1	5 11:17:41			
50	Optical Rx 2 I	Power		3	dBm	Success	2016-04-1	5 11:17:41			E
60	Optical Rx 3 i	Power		2.5	dBm	Success	2016-04-1	5 11:17:41			
70	Optical Rx 4 i	Power		3.9	dBm	Success	2016-04-1	5 11:17:41			
80	Optical Rx 5 I	Power		1.6	dBm	Success	2016-04-1	5 11:17:41			
⊕-× 3 0	Optical Rx 6 I	Power		3.9	dBm	Success	2016-04-1	5 11:17:41			
🕮 💥 🗍 40	Optical Rx 7 I	Power		4.6	dBm	Success	2016-04-1	5 11:17:41			
🎰 🔀 🗊 50	Optical Rx 8 I	Power		1.9	dBm	Success	2016-04-1	5 11:17:41			
🖶 💥 🗊 60	Optical Tx 1 F	Power		4	dBm	Success	2016-04-1	5 11:17:41			
🕮 🛷 🗍 70	MIMO Optical	Rx Power		-6.	9 dBm	Success	2016-04-1	5 11:17:41			
⊞ × 🗊 80	MIMO Optical	Tx Power		4	dBm	Success	2016-04-1	5 11:17:41			
	MIMO Optical	Rx1 Power		3.2	dBm	Success	2016-04-1	5 11:17:41			
	MIMO Optical	Rx2 Power		2.1	dBm	Success	2016-04-1	5 11:17:41			
	MIMO Optical	Rx3 Power		2.8	dBm	Success	2016-04-1	5 11:17:41			
	MIMO Optical	Rx4 Power		1.3	dBm	Success	2016-04-1	5 11:17:41			-
	Device Info. Mon	itoring Para.	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topology Map				
Device No.: 111	Device No. S	ub No.	Realtime	Alarm Name	Alarm Ti	ne	Telephone	Number	Site Name	Address	
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Figure 54 NEU RF Status

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		Optical Rx Power		-	6.4 dB	n <mark>Su</mark>	iccess	2016-04-15 11:20:12			
2		MIMO Optical Tx Power		4	dB	n Su	iccess	2016-04-15 11:20:12			
		MIMO Optical Rx Power		2	6.7 dB	n Su	iccess	2016-04-15 11:20:12			
		PA Temp.		4	9 °C	Su	iccess	2016-04-15 11:20:12			
				GSM/	EGSM						
70		UpLink Rated Gain		3	0 dB	Su	iccess	2016-04-15 11:20:12			
81		DownLink Actual Gain		3	dB	Su	iccess	2016-04-15 11:20:12			
⊕ × 3 0		DownLink Rated Output	t	2	3 dB	n Su	iccess	2016-04-15 11:20:12			
i → 💥 🗍 40		DownLink Output		2	2 dB	m Su	ICCESS	2016-04-15 11:20:12			
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1 70		DownLink Actual Gain		3	dB	Su	iccess	2016-04-15 11:20:12			
⊞ X]] 8[]		DownLink Rated Outpu	t	2	3 dB	n Su	iccess	2016-04-15 11:20:12			
		DownLink Output		L	.ow dB	n Su	iccess	2016-04-15 11:20:12			
				WC	DMA						
		UpLink Rated Gain		3	dB	Su	ICCESS	2016-04-15 11:20:12			
		DownLink Actual Gain		3	0 dB	Su	iccess	2016-04-15 11:20:12			
	Device	Info. Monitoring Para	Alarm En/Disable	Alarm Status	RF Settings Para.	RF Status Para.	Topology Map				
e No : 111						1					
No NEU(02)IRU-O(03)	Device	e No. Sub No.	Realtime	Alarm Name	Alarm	Time	Telepi	ione Number	Site Name	Address	
hone:	Site	111 NEU(2)IRU-	D(3) DownLin	k Low Output Alar	m(MIMO) 2016-0	4-15 11:19:35(Searc	:h)				
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192.168.1.100 : 4066	Site	111 NEU(2)IRU-	NEU(2)→RU-D(3) DownLink Low Output Alarm(DCS) 2016-04-15 11:19:35(Search) NEU(2)→RU-D(0) Position Changed Alarm 2016-04-15 11:17:09(Search)								
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col: CMCC3GRAP	Lanna								4		

4.2.5.3 IRU-O RF Status

Figure 55 IRU-O RF Status

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

Table 12 Description of the monitoring information

5 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:





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 30cm between the radiator& your body.