Intercell Dual-Carrier TDD Enterprise Small Cell

Configuration Guide

Platform FSM

directory

1		Th	e ini	tial configuration	3
	1.	.1	Cor	nfiguration overview	3
		1.1	.1	The configuration process	3
		1.1	.2	Network port connection instructions	3
		1.1	.3	Data preparation	3
	1.	.2	Log	; in to the Web client	4
		1.2	.1	Web client environment requirements	4
		1.2	.2	Set the client computer	4
		1.2	.3	Log into the Web maintenance page	5
	1.	.3	Qui	ick initial configuration	5
2		Tra	insp	ort network configuration	10
	2.	.1	Cor	nfigure the network interface	.10
		2.1	.1	Configure WAN interface	.10
		2.1	.2	Configure LAN interface	.11
		2.1	.3	Configure IPv4 routing	.12
		2.1	.4	Configure multiple vlans	.14
	2.	.2	Cor	nfigure the NTP service	.18
	2.	.3	Cor	nfigure base station X2 function	.19
	2.	.4	Cor	nfigure network management connection	.20
3	•	Co	nfig	ure base station parameters	21
	3.	.1	Set	up encryption and integrity protection algorithms	.21
	3.	.2	Cor	nfigure base station mobility parameters	.21
		3.2	.1	Neighbor cell is found by air port listening mode	.21
		3.2	.2	Manually configure adjacent cells	.29
		3.2	.3	Mobility parameters configuration	.33
	3.	.3	Cor	nfigure base station synchronization parameters	.43

	3.3.	1	Overview	43
	3.3.	2	GPS synchronization	45
	3.3.	3	IEEE1588v2 synchronization	46
	3.3.	4	Sniffer synchronization	48
	3.3.	5	The free mode	50
4.	Con	nfigu	ure system parameters	.50
4.1.1		1	Software version upgrade	50
4.1.2			System file backup	52
	4.1.3		Restart the base station	53
5.	Con	nmc	on debugging function	.54
5	.1	The	e Trace log function	54
	5.1.1 tool		Capture base station logs using a dedicated logviewer 54	
	5.1.	2	Upload the logviewer log automatically	54
5	.2	Oth	ner Trace logs are automatically uploaded	56
5	.3	тср	Pump function	56
5	.4	ТΒ	Dump function	58
5	.5	Teli	net function	59

1. The initial configuration

1.1 Configuration overview

1.1.1 The configuration process

After the base station is powered on, data configuration is required for the base station so as to access the user and provide the user with voice and data services. The configuration process of the base station is shown in figure 11. Figure 11. Configuration process-



Figure 11. Configuration process-

1.1.2 Network port connection instructions

Base station Ethernet interface includes LAN interface and WAN interface.

- LAN port is usually connected with local area network, which is used for the user to log into the base station in the local network and directly configure or maintain the base station.
- WAN port is usually used for data transmission between base station and operator's core network.

1.1.3 Data preparation

Before the configuration of the base station, data planning is required. Configuration data includes local parameters and docking parameters, which shall be determined after consensus with the customer according to the actual deployment situation, including transmission network address, wireless parameters, software version, etc.

If you need to configure the cell quickly, please refer to "1.3 quick configuration".

1.2 Log in to the Web client

1.2.1 Web client environment requirements

The client computer requirements are shown in table 11. Table 11 client environment requirements-1 Table 11 client environment requirements-1

project	requirements
The CPU	Intel Core above 2GHz
memory	More than 2 g RAM
The hard disk	Not less than 100 MB of available space
The operating	 Microsoft: Windows XP, Windows Vista, or Windows7
system	Mac: MacOS x 10.5 or above
Display resolution	Above 1024*768 pixels
The browser	Chrome 6 or later

1.2.2 Set the client computer

Before logging into the Web client, firstly set the IP address of the client computer and ensure that the client computer is connected to the base station. Take Windows 7 as an example.

- 1. Click start > control panel, and in the pop-up window click network and Internet.
- 2. Click view network status and tasks, and in the window that pops up, click local connections.
- 3. In the pop-up local connection status dialog box, click properties to pop up local connection properties.
- 4. Select Internet protocol version (TCP/IPV4), click properties, and the pop-up window looks like figure 12.Figure 12 sets the client IP address-1

for the appropriate IP settings.	d to ask your network administrator
Obtain an IP address automa	tically
• Use the following IP address:	
IP address:	192 . 168 . 200 . 101
Subnet mask:	255.255.255.0
Default gateway:	
Obtain DNS server address a	utomatically
• Use the following DNS server	addresses:
Preferred DNS server:	
Preferred DNS server: Alternate DNS server:	• • •

Figure 12 sets the client IP address-1

- 5. Select the IP address below.
- 6. Enter the IP address, subnet mask, and default gateway, and click ok.
 - IP address: 192.168.200. XXX: (the recommended value of XXX is 100~199)

Note: since the IP address of the base station LAN port has been preset as "192.168.200.200", other addresses need to be used.

- Subnet mask: 255.255.255.0
- Default gateway: not required
- 7. Perform ping 192.168.200.200 in the command line window to check whether the network is connected between the client computer and the device.

1.2.3 Log into the Web maintenance page

1. Enter https://192.168.200.200 in the browser address bar and click "sing in" to open the Web client login page, as shown in figure 14.Figure 14 login base station Web page-

User name: admin

Password: Pico @ 2018

192.168.200.200 is the initial IP address of the LAN interface.

Sign in https://192.	168.200.200	
Username		
Password		
	Sign in Cancel	

Figure 14 login base station Web page-

1.3 Quick initial configuration

Rapid configuration is to configure the cell parameters of the base station, including the working mode of the base station, cell identification, working frequency band, frequency point, etc., which needs to be set according to network planning data.

1. Select "management-> Cell" in the navigation bar to set basic parameters of the base station, as shown in figure 15 16 17.

rormation								
anagement		_				-		
Cell	AdminState:	🗹 Er	nable		EnbType:	MACRO EI	NB 💽 HOME ENB	
Debug	Duplex Mode:	O FD	DD 🖲 TDD		TAC:	10		
Factory	SecGWServer:			S1Re	etryMaxNum:	10		
HeMS			co. 101. 101		C1Ch-h-m	<u> </u>		
Network	SISIGLINKServer:	192.10	68.101.121		SIStatus:	Success		
Performance	AssocStatus:	Active)					
Security								
Synchronization	PLMNID		Cell1	C	Cell2			
Upgrade								
ccess Control								
ata Model	CellIder	ntity:	257			OpState:	true	
	UeNun	nber:	0		Vol	teUeNumber:	0	
	CandidateARFCN	NList:	42590		Cano	didatePCIList:	0503	
	EARFCNDLIN	nUse:	42590		EAR	FCNULInUse:	42590	
	FreqBandIndic	ator:	42		Phy	yCellIDInUse:	297	
	DL Bandw	vidth:	100		U	IL Bandwidth:	100	
	ReferenceSignalPc	ower:	-10			PAGain:	0	
	SubFrameAssignn	ment:	2		SpecialSubfr	amePatterns:	7	
	AntennaPortsCo	ount:	0 1 🖲 2 🔵 4		RxAntenr	aPortsCount:	0 1 🖲 2 🔵 4	

FIG. 15 quick setting of base station basic parameters-cell1

			an comgaration					
Management Cell	AdminState:	🗹 Ei	nable	EnbType:	O MACRO E	NB 💿 HOME ENB		
Debug	Duplex Mode:	O FC	DD 🖲 TDD	TAC:	10			
Factory				C1 Data MaxAluma	10			
HeMS	Secoviserver:			SIRetrymaxinum:	10			
Network	S1SigLinkServer:	192.1	68.101.121	S1Status:	Success			
Performance	AssocStatus:	Active	9					
Security					_			
Synchronization	PLMNID		Cell1	Cell2	1			
Upgrade								
ccess Control								
Data Model	CellIde	ntity:	258		OpState:	true		
	UeNumber:		0	Vo	Ital IaNumbari	0		
					neoenumber:			
	CandidateARFC	NList:	42788	Can	didatePCIList:	0503		
	CandidateARFCI EARFCNDLI	NList: nUse:	42788 42788	Car	didatePCIList:	0503 42788		
	CandidateARFCI EARFCNDLIn FreqBandIndid	NList: nUse: cator:	42788 42788 42	Car EAI	didatePCIList: RFCNULInUse: yCellIDInUse:	0503 42788 16		
	CandidateARFCI EARFCNDLIn FreqBandIndic	NList: nUse: cator: vidth:	42788 42788 42 100	Car EAI	didatePCIList: RFCNULINUse: yCellIDINUse: JL Bandwidth:	0503 42788 16 100		
	CandidateARFCI EARFCNDLIn FreqBandIndic DL Bandv ReferenceSignalPo	NList: nUse: cator: vidth: ower:	42788 42788 42 100 -10	Car EAI	didatePCIList: RFCNULInUse: yCellIDInUse: JL Bandwidth: PAGain:	0503 42788 16 100 0		
	CandidateARFCI EARFCNDLI FreqBandIndic DL Bandy ReferenceSignalPe SubFrameAssignr	NList: nUse: cator: vidth: ower: ment:	42788 42788 42 100 -10 2	Car Car EAI Pl U	didatePCIList: RFCNULInUse: yCellIDInUse: JL Bandwidth: PAGain: ramePatterns:	0503 42788 16 100 0 7		

FIG. 16 quick setting of base station basic parameters-cell2

Information	Management	Cell Configuration		
Management				
Cell	AdminState:	Enable	EnbType:	MACRO ENB HOME ENB
Debug	Duplex Mode:	🔵 FDD 💿 TDD	TAC:	10
Factory	CosCIM/Com/org		C1 Data Maudu anu	10
HeMS	SecGwServer:		SIRetrymaxinum:	10
Network	S1SigLinkServer:	192.168.101.121	S1Status:	Success
Performance	AssocStatus: A	Active		
Security				
Synchronization	PLMNID	Cell1	Cell2	
Upgrade				
Access Control				
Data Model	Primary PLMNID No): 1		
		Enable		
	PLMNID	46000		
		Enable		
	PLMNID2	2:		
		Enable		
	PLMNID	3:		
		Enable		
	PLMNID	+:		
		Enable		
	PLMNIDS			
		Enable		
	FEMINIDO			
	Submit			

FIG. 17 quick setting of base station basic parameters-PLMN

The basic parameters are described in table 12. Table 12 quick setting parameter description-2

Table 12	quick	setting	parameter	descri	ption-2

The parameter	instructions
name	
AdminState	 Cell state control switch.(check enable when all basic parameters are configured) Check Enable: protocol stack to set up cell, base station RF work; Uncheck Enable: protocol stack delete cell, base station RF shutdown;
EnbType	ENB type, MARCO and HOME
Duplex Mode	Duplex mode, default is TDD
TAC	Set the tracking area code where the base station is located to define the sending range of paging messages.TAC is Assigned by the operator. Value range: 0~65535
PLMN ID	PLMN ID of cell ownership
S1SigLinkServer	The IP address of MME. It should be consistent with the IP address of MME on the core network side. • Support to configure up to 32 MME addresses;

The parameter	instructions
name	A Multiple MAAE addresses are consisted by English as more
Collidortitu	 Multiple MME addresses are separated by English commas
Cendentity	 When the eNB type is MARCO, it is the same as the eNB ID (20bits); When the eNB type is HOME, it is the value of eNB ID moved 8bits to the left and Cell ID and operation, that is, eNB ID*256+Cell ID (28bits);
OpState	 Cell working status. When the cell is successfully established and the RF works, the state is "true"; The Opstate is False when Adminstate is not enabled or the cell is not successfully established.
CandidateARFC	Absolute frequency point list.(multiple frequency points are
NList	 separated by English commas) If only one frequency point is configured, the base station use this frequency point to establish the cell; If multiple frequency points are configured, the base station selects frequency points according to SON's self-configuration function and establishes the cell.
CandidatePCIList	 PCI list.(multiple PCI is separated by English commas) If only one PCI is configured, the base station will use this PCI to establish cell. If multiple PCI is configured, the base station selects PCI according to SON's PCI self-configuration function and establishes the cell
EARFCNDLInUs	The actual uplink and downlink absolute frequency points used
e/ EARFCNULInUs	by the base station
e	
FreqBandIndicat or	The frequency band in which the base station operates
PhyCellIDInuse	The PCI that Base station actually uses
DL Bandwidth / UL Bandwidth	 The number of PRBS of the bandwidth (the uplink and downlink bandwidth should be the same) The 5MHz bandwidth is 25 The 10MHz bandwidth is 50 The 15MHz bandwidth is 75 The 20MHz bandwidth is 100
ReferenceSignal	Reference signal power.(maximum value is -10)
Power	 For a single rf port, the actual output power is ReferenceSignalPower+31 with dBm unit, such as -10+31=21dBm
PAGain	PA gain value, the integrated base station is set to "0"
AntennaPortsCo unt	Number of base station antennas, usually configured as "2" (MIMO)
RxAntennaPorts	The number of antennas a base station USES for receiving,
Count	usually configured as "2" (MIMO)
SubFrameAssign	SubFrame configuration, refer to 3GPP TS36.211.
ment	Support configuration: 1/2/3/4/5/6
SpecialSubframe Patterns	Special Subframe configuration, refer to 3GPP TS36.211 Support configuration: 1/2/3/4/5/6/7/8/9

2. After setting basic base station parameters in table 1-2, click "Submit" to Submit.

Note: some parameter changes (such as bandwidth, etc.) will cause the base station to restart, just wait for the restart to complete.

3. After basic parameter configuration is submitted, check "Enable" of "AdminState"

2. Transport network configuration

2.1 Configure the network interface

2.1.1 Configure WAN interface

WAN interface is the external communication interface of base station, which is mainly used to connect base station with external devices, such as OMC, MME, gateway and other devices. It supports the configuration of multiple vlans to dock with different devices.

Select "management-> Network"->IP in the navigation bar and WAN interface configuration is shown in figure 21Figure 21 configuring the WAN interface address-

Information	Mai	nagement	IP									
Management	This	rhanges the IP in	torfaco's IP addros	s MAC address	or MTU							
Cell	NOTE: The network configuration changes will only take effect after a system reboot.											
Debug												
Factory												
HeMS												
Network		IP	Route	e	DNS	AC	L					
Performance	-											
Security	TP Tr	iterface:										
Synchronization												
Upgrade			IPv4		IP	v 6		Other				
Access Control		Address Type	IPv4 address	Mask	Address Type	IPv6 address	VLAN id	Ethernet	Mac address	мти		
Data Model	0	DHCP	192.168.101.118	255.255.254.0	Disabled	4001::118/64		eth0	00:17:10:00:00:00	1500		
		Edit	Add	Delete								

Figure 21 configuring the WAN interface address-

The parameter	instructions
name	
The Address	The mode for WAN interface to obtain IPv4 address.Support:
Туре	 DHCP: dynamically obtaining IP address, no other
	parameters need to be configured;
	 Static: IP address and mask need to be configured;
	 Disabled: closes the function of WAN port IPv4 protocol. It
	is not recommended to select.
IPv4 address	The IPv4 address of the WAN interface.
	 In DHCP mode, it is allocated by DHCP server.
	 Static mode requires manual configuration;
Mask	IPv4 subnet mask for the WAN interface.
	 In DHCP mode, it is allocated by DHCP server.
	 Static mode requires manual configuration;

Table 21 parameters description of WAN interface IPv4-

The parameter name	instructions
Origin	 WAN interface to get IPv6 address.Support: DHCPv6: dynamically obtain IP address, no need to configure other parameters; Static mode: IPv6 address and mask need to be configured; Disabled: turns off IPv6 protocol function of WAN port (turns off IPv6 protocol by default);
IPv6 address	 IPv6 address and mask of WAN interface. In DHCPv6 mode, it is assigned by DHCPv6 server. Static mode requires manual configuration;

Table 22. Specification of IPv6 parameters of WAN interface-

Table 23 description of other common parameters of WAN interface-

The parameter	instructions
name	
The Mac address	MAC address of WAN interface
MTU	MTU size of WAN interface

2.1.2 Configure LAN interface

LAN interface is the local maintenance interface of the base station, which is mainly used for the local maintenance and configuration of the base station.

The default IP address for the LAN interface is 192.168.200.200, which is usually left as the default configuration.

2.1.3 Configure IPv4 routing

Select "management-> Network->Route" in the navigation bar .The Route configuration page, as shown in figure 22Figure 21 configuring the WAN interface address-

Information	Ма	nagemo	ent R	oute									
Management													
Cell	This All th	manually a network	adds, delet configure	tes or edits is will be ef	the route.	pootina.							
Debug													
Factory													
HeMS													
Network		IP			Route	DNS		ACL					
Performance													
Security	Pour	tor Infor	nation										
Synchronization	KUU		nation.										
Upgrade					IPv4F	orwarding				IF	v6Forwardi	ng	
Access Control				Route	Dest IP	Dest Subnet	Gateway IP				Dest IPv6	Next	
Data Model		Enable	Status	Туре	Address	Mask	Address	Ethernet	Enable	Status	Prefix	Нор	Ethernet
	0	Enabled	Enabled	Default	0.0.0.0	0.0.0.0	192.168.100.1	eth0	Disabled	Disabled			
		Edit		Add	Delete	•							



1. In the newly added routing instance, add an IPv4 forwarding instance, as shown in figure 23.

Information	ма	nageme	ent R	oute									
Management													
Cell	This All th	manually a ne network	adds, dele configure	tes or edits is will be ef	the route. fective after rel	pooting.							
Debug			-			-							
Factory													
HeMS													
Network		IP			Route	DNS		ACL					
Performance													
Security	Rou	ter Infor	nation.										
Synchronization	100		inderorin.										
Upgrade					IPv4F	orwarding				IF	v6Forwardii	ıg	
Access Control Data Model		Enable	Status	Route Type	Dest IP Address	Dest Subnet Mask	Gateway IP Address	Ethernet	Enable	Status	Dest IPv6 Prefix	Next Hop	Etherne
	0	Enabled	Enabled	Default	0.0.0.0	0.0.0.0	192.168.100.1	eth0	Disabled	Disabled			

Figure 23. Add an IPv4 forwarding instance-

2.

Configure route itemsAdd the default route, as shown in the figure.

Information	Management	Network		
Management Cell Debug	You can add/delete/ All the network confi	change the dns manu igures will be effective	illy. e after rebooting	
Factory HeMS	Router informatio	n:		
Network	Router ID:		NEW	
Performance Security Synchronization Upgrade Access Control Data Model	IPv4Forwarding	Enable: StaticRoute: DestIPAddress: GatewayIPAddress: Ethernet: Origin:	Enable Enable O.0.0.0 O.0.0.0 I92.168.3.1 eth0 Static	
	IPv6Forwarding Submit	Enable: DestIPPrefix: NextHop: Ethernet: Origin: Back	Enable 4001::118 4001::118 none Static	64

Figure 24. Add a default route-

2) Add segment routing, as shown in the figure.

Information	Management	Network							
Management Cell Debug	You can add/delete	e/change the dns manu	ılly. e after rebooting.						
Factory HeMS	Router informati	on:							
Network	Router ID:	Router ID: NEW							
Performance		Enable:	Enable						
Synchronization		StaticRoute:	Enable						
Upgrade		DestIPAddress:	10.11.12.2						
Access Control	IPv4Forwarding	DestSubnetMask:	255.255.2						
Data Model		GatewayIPAddress:	10.11.12.1						
		Ethernet:	eth0 v						
		Origin:	Static						
		Enable:	Enable						
		DestIPPrefix:	4001::118 64						
	IPv6Forwarding	NextHop:	4001::118						
		Ethernet:	none v						
		Origin:	Static						
	Submit	Back							

Figure 25 add segment routing-

Table 25 main	route configuration	parameters-3
Tuble 25 mun	route configuration	purumeters s

The parameter name	instructions
The Enable	Route item switches.Check to enable, check to not enable.
The StaticRoute	Check this if the configured route is network segment route; If the configured route is the default route, this item is not checked;
DestIPAddress	Destination IP address.
DestSubnetMask	The subnet mask for the destination IP address.
GatewayIPAddress	Gateway IP address to destination IP address.
Ethernet	Select "eth0"

2.2 Configure the NTP service

Select "management-> Synchronization" in the navigation bar and enter the NTP/Time Settings page, as shown in the figure below.

if using NTP to set system if you set the system time Timezone follows IEEE 10 The offset in Timezone is	n time, please enter at leas e manually but NTP is enal 003.1 (POSIX). It should bu s positive if the local time z	st one NTP server address. bled,The system time will b e like "CST-8" for China Tir	e recovered to NTP time v	vhen NTP sync successful.
		one is west of the Prime M	ne. Ieridian and negative if it is	east.
Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
NTP Setting:				N
NtpStatus S NtpServer1	Synchronized 202.112.29.82			42
NtpServer2	202.118.1.81			
NtpServer3	ntp2.aliyun.com			
NtpServer4	ntp3.aliyun.com			
NtpServer5	cn.ntp.org.cn			
SecGWAddr				
	Synchronization NTP Setting: NtpStatus NtpServer1 NtpServer2 NtpServer3 NtpServer3 NtpServer4 SecGWAddr	Synchronization GPS NTP Setting: Synchronized NtpStatus Synchronized NtpServer1 202.112.29.82 NtpServer2 202.118.1.81 NtpServer3 ntp2.allyun.com NtpServer4 ntp3.allyun.com NtpServer5 crntp.org.cn SecGWAddr Submit	Synchronization GPS PTP/ACR NtpStatus Synchronized NtpServer1 202.112.29.82 NtpServer2 202.118.1.81 NtpServer3 ntp2.aliyun.com NtpServer5 cn.ntp.org.cn SecGWAddr	Synchronization GPS PTP/ACR Sniffer NTP Setting: NtpStatus Synchronized NtpServer1 202.112.29.82 NtpServer2 202.118.1.81 NtpServer3 ntp2.aliyun.com NtpServer5 cn.ntp.org.cn SecGWAddr

Figure 26 NTP configuration-

Configure the NTP server parameters as shown in the following table. Table 39 NTP server parameters-

Table 39 NTP server parameters-							
iple							
iple							

2.3 Configure base station X2 function

Data model path: Device. Services. FAPService. 1. X_OUI_X2.

Information	DataModel Device				
Management					
Access Control	Root Path: Device.	search	clear		
Data Model					
DB export	DB tree	Device.Services.FAPServi	ce.1.X_D83	7BE_X2.	
DB import					
Device	Device Services				
Internal	 FAPService 	X2Enable	🗷 Enable	boolean	
	 FAPService.1 	X2EnbIdListPresent	Enable	boolean	
	Capabilities FAPControl	X2EnbIdList	0	unsignedInt(32[0:1048575])	
	AccessMgmt CellConfig	X2SigLinkPort	36422	unsignedInt([:65535])	
	► REM	X2SigLocalPort	41427	unsignedInt([:65535])	
	 Transport X_D837BE_L2Para 	EnbConfigTransTimert ength	0	unsignedInt([0:3600])	
	X_D837BE_X2		Ľ	anaigheath([onooco])	
	X_D837BE_HEX0	X2SetupRetryCount	3	unsignedInt([0:255])	
	X_D837BE_RF	NoX2SetupMsgFlag	Enable	boolean	
	X_D837BE_TFCS	ResourceStatusCmd	NULL V	string	
	X_D837BE_Serial				
	X D837BE SON				
	X_D837BE_ENBMeas	submit dr	ор		
	X_D837BE_UE				
	X_D837BE_Status				
	X_D837BE_Private				
	 FAPService.2 	•			
	4	F 4			

Figure 27 configures the X2 functionality-

Table 311 X2 functional parameters-

The parameter name	instructions	
X2Enable	X2 function switch, on by default.	
X2SigLinkPort	X2 connection port, default 36422.	

2.4 Configure network management connection

Select "management-> HeMS" in the navigation bar, as shown in the figure.

Information	Management HeMS Configuration
Management Cell Debug	Configure HeMS Connection Select TLS version and certificates for HeMS Connection
Factory HeMS	HeMS Connection:
Network Performance	HeMS Address:
Security	Username:
Synchronization	Password:
Upgrade Access Control	SecGWServer:
Data Model	Periodic Inform: Enable
	Periodic Inform Interval: 1800
	Device Connection:
	Connection Request URL: http://10.98.100.37:30005/
	Connection Request username:
	Connection Request password:
	Connection Request Authentication: Enable
	TLS Version:
	TLSVersion : None •



Table 312 network management parameters-

The parameter name	instructions
The HeMS address	Network address
The HeMS username	Network administrator user name
The HeMS password	Administrator password

3. Configure base station parameters

3.1 Set encryption and integrity protection algorithms

Set the data encryption and integrity protection algorithm of PDCP sub-layer.

1. "Choose" Database "in the navigation bar, input Device. Services. FAPService. 1. CellConfig. LTE. EPC." enter the configuration page, as shown.Error: Reference source not found

Note: the following security parameters do not normally need to be modified, leaving the default values!

Information Management	Root Path: Device.	search	ear	
Access Control	DB tree	Davies Comises FADComise 1 CollC		
Data Model	DB tree	Device.services.rApservice.1.cenc	onig.LTE.EPC.	
DB export	4 Device			
DB import	Services FAPService	AllowedCipheringAlgorithmList	128-EEA1,128-EEA2,128-EEA3,EEA0	string(256)
Device Internal	FAPService.1 Canabilities	AllowedIntegrityProtectionAlgorithmList	128-EIA1,128-EIA2,128-EIA3,EIA0	string(256)
	FAPControl	TAC	10	unsignedInt([0:65535])
	AccessMgmt CellConfig	EAID	0	unsignedInt([0:16777216])
	≤ysinroctriParam	MaxPLMNListEntries	16	unsignedInt
	Tunnel EPC	MaxQoSEntries	256	unsignedInt
	 PLMNList PLMNList.1 	Device.Services.FAPService.1.CellConfig	g.LTE.EPC.PLMNList.{i}.	
	► QoS	Device.Services.FAPService.1.CellConfig	J.LTE.EPC.QoS.{i}.	
	s1U s1U			
	RAN Volte	submit reset		

Figure 31 sets up encryption and integrity protection algorithms-

2. The security parameters are described, as shown in table 31.Table 31 safety parameters description-

Table 31 safety parameters description-

······································	
The parameter name	instructions
AllowedCipheringAlgorithmList	Encryption algorithms.
	Value range:
	• 128-eea1, 128-eea2, 128-eea3, EEA0
	The default value is: 128-eea1
AllowedIntegrityProtectionAlgorithmList	Integrity protection algorithm.
	Value range:
	• 128-EIA1, 128-EIA2, 128-EIA3, EIA0
	The default value is: 128-eia1

3.2 **Configure base station mobility parameters**

3.2.1 Neighbor cell is found by air port listening mode

The base station has the self-discovery and self-configuration function of the intra frequency adjacent

cell, inter frequency adjacent cell and inter system adjacent cell based on air port interception. It needs to be used in combination with 3.2.1.1 or 3.2.1.2. Everytime when the base station reboot it will exeute the interception process to add neighbor cells.

1. Enable neighborhood self-discovery and frequency point self-measurement functions based on air port interception, as shown in figure 32.Error: Reference source not found

Data model path:

Device. Services. FAPService. 1. FAPControl. LTE. SelfConfig. SONConfigParam. SnifferForANREnable

Device. Services. FAPService. 1. FAPControl. LTE. SelfConfig. SONConfigParam. SnifferForMeasurementEn able

Device. Services. FAPService. 1. FAPControl. LTE. SelfConfig. SONConfigParam. GERANSnifferEnable

	▲ Device	LTESnifferChannelList		string(64[0:65535])
Information	 Services FAPService 	GERANSnifferEnable	Enable	boolean
Management	 FAPService.1 	GERANSnifferChannelList		string(256[0:65535])
Access Control	Capabilities FAPControl	UTRANSnifferEnable	Enable	boolean
Data Model DB export	 LTE SelfConfig 	UTRANSnifferChannelList		string(256[0:65535])
DB import	SONConfigParam	MROEnable	🗹 Enable	boolean
Device	X2IpAddrMapInfo	SHEnable	Enable	boolean
Internal	 AccessMgmt CellConfig 	SyncMode	Freedom •	string
	 REM UMTS 	PeriodicSnifferInterval	0	unsignedInt
	WCDMA	SnifferForANREnable	🗹 Enable	boolean
	► GSM	SnifferForMeasurementEnable	Enable	boolean
	 LTE Transport 	LTESnifferRSRPThresholdForANR	-95	int([-140:-44])
	X_001D80_L2Para X_001D80_X2	LTESnifferRSRPThresholdForMeasurement	-95	int([-140:-44])
	X_001D80_HEX0	UTRANSnifferRSCPThresholdForANR	-95	int([-120:-25])

FIG. 33 enables neighborhood self-discovery and frequency point self-measurement function switch based on air port interception-

The parameter name	instructions
SnifferForANREnable	Neighborhood self-discovery function switch based on air port interception. (default enable)
SnifferForMeasurementEnable	Frequency point self-measurement function switch based on air port interception. (default enable)
GERANSnifferEnable	GSM neighborhood self - discovery function switch based on air - port interception. • Default is off

Table 32 parameter description-

3.2.1.1 Air- port interception for LTE adjacent cell

1. Set the LTE band or frequency point to listen for.

Data model path:

Device. Services. FAPService. 1. REM. LTE. REMPLMNList

Device. Services. FAPService. 1. REM. LTE. EUTRACarrierARFCNDLList

Device. Services. FAPService. 1. REM. LTE. ScanOnBoot (note that if you want to scan frequency points or PLMN this switch to turn on)

Information	DataModel I	Device				
Management						
Access Control	Root Path: Device		search	clear		
Data Model						
DB export	DB tree		Device.Services.FAPServ	ice.1.REM.LTE.		
DB import	4 Deview					A
Device Internal	Device Services EAPSonvice	- I	InServiceHandling	Immediate 🔻	string	
	 FAPService Canabil 	ie.1	ScanOnBoot		boolean	
	 FAPCor 	ntrol	ScanPeriodically	Enable	boolean	
	 Accessit CellCon 	Mgmt fig	PeriodicInterval	0	unsignedInt	
	 REM UMTS 	5	PeriodicTime	0001-01-01T00:00:00;	dateTime	
	▶ WC ▶ X_I	DMA D837BE_TDSCDMA	REMPLMNList		string(32)	
	> GS	м	REMBandList		string(32)	
	Cel	ll rrierMeas	EUTRACarrierARFCNDLList	42590,427	string(64[0:262143])	
	Transport	ort	ScanTimeout	0	unsignedInt	
	X_D837 X_D837	7BE_L2Para 7BE_X2	ScanStatus	Success v	string	
	 X_D837 X_D837 	7BE_HEX0 7BE_PTP	ErrorDetails	NULL	string	
	 X_D837 X_D837 	7BE_RF 7BE_TFCS	LastScanTime	2020-03-12T12:31:17.	dateTime	
	► X_D837	7BE_NISync	MaxCellEntries		unsignedInt(32)	•

Figure 33 sets the listening LTE frequency point-

Root Path: Device.	search	clear		
DB tree	Device.Services.FAPServ	ice.1.REM.LTE.		
A FAPControl	InServiceHandling	Immediate 🔻	string	
SelfConfig SONConfig	ScanOnBoot	✓ Enable	boolean	
Gateway	ScanPeriodically	Enable	boolean	
X2IpAddrMapInfo AccessMgmt	PeriodicInterval	0	unsignedInt	
 CellConfig REM 	PeriodicTime	0001-01-01T00:00:002	dateTime	
✓ UMTS > WCDMA	REMPLMNList	46011	string(32)	
X_D837BE_TDSCDMA GSM	REMBandList		string(32)	
✓ LTE	EUTRACarrierARFCNDLList		string(64[0:262143])	
Cell CarrierMeas	ScanTimeout	0	unsignedInt	
 Transport X_D837BE_L2Para 	ScanStatus	Indeterminate •	string	
X_D837BE_X2 > X_D837BE_HEX0	ErrorDetails	NULL	string	
► X_D837BE_PTP	LastScanTime	0001-01-01T00:00:002	dateTime	

Figure 34 sets up listening for PLMN-

Table 34 configuration description of LTE neighborhood scan parameters-

The parameter name	instructions
EUTRACarrierARFCNDLList	Scanning frequency points, commonly used frequency points include: 100,1825
REMPLMNList	Add the PLMN ID of the scan

2. Listen for scan results, as shown in the figure below.

Data model path: Device. Services. FAPService. 1. REM. LTE. The Cell

Information	DataModel Device		
Management			
Access Control	Root Path: Device.	search clear	
Data Model			
DB export	DB tree	Device.Services.EAPService.1.REM.LTE.Cell.(1).	
DB import			
Device	Device Services		*
Internal	 FAPService 	O Device.Services.FAPService.1.REM.LTE.Cell.1.	
	 FAPService.1 Capabilities 		
	► FAPControl	add delete drop	
	AccessMgmt		
	CellConfig		
	A REM		
	A UMIS		
	X D837BE TDSCDMA		
	▶ GSM		
	▲ LTE		
	< Cel		
	Cell.1		
	RF		
	CarrierMean		
	> Transport		
	X_D837BE_L2Para		
	X_D837BE_X2		
	X_D837BE_HEX0		
	X_D837BE_PTP		*
	V DR37RE DE	4	

Figure 35 shows the results of the air port listening scan-

3. The adjacent cell added by an air port listener is shown in the figure.

Adjacent cell discovered by air port listening method are added to the relational table of the base station.

Data model path: Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse.

Note: Some scanned LTE cells are not added to the neighbor relationship table of the base station, which is because the RSRP of the scanned LTE cells is too weak. You can add these cells to the neighbor relationship table by properly adjusting the threshold value (LTESnifferRSRPThresholdForANR), see table 3.5...Table 35 whether the LTE adjacent area listened to is used as the judgment statement of base station adjacent area-

Data model path:

Device. Services. FAPS ervice. 1. FAPC on trol. LTE. Self Config. SONC on figParam. LTES niffer RSRPT hreshold For rANR

Table 35 whether the LTE adjacent area listened to is used as the judgment statement of base station adjacent area-

The parameter name	Value range	instructions
		This is the RSRP threshold that LTE adjacent cell
		scanned can be used as a relation. The default value
		is -95, which can be adjusted according to the actual
LTESnifferRSRPThresholdForANR	44] [- 140: -	situation

3.2.1.2 Air port interception for WCDMA adjacent cell (limited qualcomm

platform products)

1. Enable WCDMA air port listening function

Data model path:

Device. Services. FAPService. 1. REM. UMTS. WCDMA. ScanOnBoot

2. Set the WCDMA parameters to listen for

Data model path:

Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMPLMNList

Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMBandList

Device. Services. FAPService. 1. REM. UMTS. WCDMA. UARFCNDLList



Table 36 WCDMA neighborhood scanning parameter configuration-

The parameter name	instructions
Device. Services. FAPService. 1. REM. UMTS. WCDMA. ScanOnBoot	WCDMA air port listening switch.Zero: disable;1: enabled
Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMPLMNList	Input the operator's PLMN, the base station will screen the adjacent areas scanned, and only retain the adjacent areas in the REMPLMNList.
Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMBandList	Scan the WCDMA frequency band, generally do not need to scan the frequency band, put this empty.
Device. Services. FAPService. 1. REM. UMTS. WCDMA. UARFCNDLList	Scan the WCDMA frequency point.

3. Listen for scan results, as shown in the figure below.

Data model path: Device. Services. FAPService. 1. REM. UMTS. WCDMA. Cell



4. WCDMA adjacent region added by air port listening mode is shown in the figure.

Adjacent areas discovered by air port listening method are added to the adjacent area relational table of the base station.

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse. InterRATCell. UMTS. {I}.

Note: Some scanned 3G cells are not added to the neighbor relationship table of the base station, which is because the RSCP of the scanned 3G cells is too weak. You can add these cells to the neighbor relationship table by properly adjusting the threshold value.

(LTESnifferRSRPThresholdForANR) see table 35. Table 35 whether the LTE adjacent area listened to is used as the judgment statement of base station adjacent area-

Data model path:

Device. Services. FAPS ervice. 1. FAPC on trol. LTE. Self Config. SONC on figParam. UTRANS niffer RSCPT hreshold For ANR.

Table 35 whether WCDMA adjacent region listened to is used as base station adjacent region judgment statement-

The parameter name	Value range	instructions
		This is the RSCP threshold that 3G adjacent cell
Device. Services. FAPService. 1. FAPControl.		scanned can be used as a relation. The default value
LTE. SelfConfig. SONConfigParam.		is -95, which can be adjusted according to the actual
UTRANSnifferRSCPThresholdForANR.	44] [- 140: -	situation

3.2.1.3 Air port interception for GSM adjacent cell

4. Enable GSM air port listening function

Data model path: Device. Services. FAPService. 1. REM. UMTS. GSM. ScanOnBoot

5. Set the listening GSM parameter

Data model path:

Device. Services. FAPService. 1. REM. UMTS. GSM. REMPLMNList Device. Services. FAPService. 1. REM. UMTS. GSM. REMBandList Device. Services. FAPService. 1. REM. UMTS. GSM. ARFCNList



Figure 37 sets the listening GSM band or frequency point-

The parameter name	instructions
Device. Services. FAPService. 1. REM. UMTS. GSM. ScanOnBoot	GSM air port listening switch.Zero: disable;1: enabled
Device. Services. FAPService. 1. REM. UMTS. GSM. REMPLMNList	Input the operator's PLMN, the base station will screen the adjacent areas scanned, and only retain the adjacent areas in the REMPLMNList.
Device. Services. FAPService. 1. REM. UMTS. GSM. REMBandList	The GSM band is scanned. In general, there is no need to scan the band.
Device. Services. FAPService. 1. REM. UMTS. GSM. ARFCNList	Scan the GSM frequency point.

Table 36 GSM neighboring area scanning parameter configuration instructions-

 GSM cell scan results, as shown in the figure.Error: Reference source not found Data model path: Device. Services. FAPService. 1. REM. UMTS. GSM. The Cell.

DB tree Device.Services.FAPService.1.REM.UMTS.GSM.Cell.{i}. Information SONConfigParam Gateway No instance is added yet. Management X2IpAddrMapInfo No instance is added yet. Access Control AccessMgmt add Data Model CellConfig add DB export LTE add DB import REM UMTS Device WCDMA X.001D80_TDSCDMA Internal CSM CSM			
Information SONConfigParam Management Gateway X2IpAddrMapInfo Access Control AccessMgmt Data Model CellConfig Data Model Geleten DB export LTE DB import REM UMTS WCDMA WCDMA X_001D80_TDSCDMA 4 GSM		DB tree	$Device. Services. FAPS ervice. 1. REM. UMTS. GSM. Cell. \{i\}.$
	Information Management Access Control Data Model DB export DB import • Device Internal	SONConfigParam Gateway X2IpAddrMapInfo AccessMgmt CellConfig SysInfoCtrlParam LTE REM UMTS WCDMA X_001D80_TDSCDMA GSM	No instance is added yet.

FIG. 39 GSM cell scan results-

7. Add GSM neighbors by using an empty port listener, as shown in the figure.

Adjacent areas discovered by air listening are added to the list of adjacent areas of the base station.

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse. InterRATCell. GSM.

Note: Some scanned 2G cells are not added to the neighbor relationship table of the base station, which is because the RSSI of the scanned 2G cells is too weak. You can add these cells to the neighbor relationship table by properly adjusting the threshold value

(GERANSnifferRSSIThresholdForANR), as shown in table 37. Table 37 whether the GSM adjacent region listened to is the judgment statement of base station adjacent region-

Data model path:

Device. Services. FAPService. 1. FAPControl. LTE. SelfConfig. SONConfigParam. GERANSnifferRSSIThresholdForANR

Table 37 whether the GSM adjacent region listened to is the judgment statement of base station adjacent region-

The parameter name	Value range	instructions
		This is the RSSI threshold that 2G adjacent cell
		scanned can be used as a relation. The default value
		is -95, which can be adjusted according to the actual
GERANSnifferRSSIThresholdForANR	[48] - 110:	situation

3.2.2 Manually configure adjacent cells

When manually configuring adjacent cell, the adjacent cell list of base station shall be configured firstly. After enabling the adjacent cell, it will be added to the adjacent cell relation table of the base station as the effective adjacent area.

1. Manually configure the neighborhood by setting up the neighborhood list.

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborList.

2. Enabled neighbors in the neighborhood list are added to the base station's neighborhood table. Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse.

3.2.2.1 Manually configure LTE neighbors

1. Manually configure the neighborhood list

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborList.

Management	
Access Control Root Path: Device. search clear	
Data Model	
DB export DB tree Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborList.LTECell.1.	
DB import Siht1	*
Device Sh12 Internal Sh13	
RRCTImers Alias cpe-LTECell1 string(64)	
×_D8378E_BarringForMOSignalling Mustinclude ⊮ Enable boolean	
X_D8378E_BarringForM0Data X_D8378E_BarringForMMTELVoice PLMNID 00110 string(6)	
X_D8378E_BarringForMMTELVideo X_D8378E_BarringForCSFB CID 513 unsignedInt[[1:260	1435455])
X_D8378E_Congestion Mobility EUTRACarrierARFCN 1900 unsignedInt([0:653	35])
IdleMode ConnMode Ony OptimizedInt([0:50:	0)
X_D8378E_SPID QOffset 0 Int	
X_D8378E_PLMNList2 RSTxPower 0 int([-60:50])	
InterRATCell AleghborListInUse Blacklisted Enable boolean	
LTECell TAC 10 unsignedInt([0:655	35])
VoLTE	-

Figure 310 manually add LTE adjacent area-

- 2. After setting LTE neighborhood information, select "submit" to submit;
- 3. Main parameters are described in the following table.

Table 38 specification of LTE neighborhood parameter configuration-

The parameter name	instructions
	Adjacent enable switch
The Enable	0: invalid neighborhood;1: effective neighborhood
Alias	Keep the default
	Whether to include the neighbor table switch
	0: not added to neighborhood relational table;1: is added to
MustInclude	the neighborhood relationship table
PLMNID	Adjacent regions PLMN ID
	Neighborhood community ID,
	• When the neighborhood type is Home, the length is 28 bits
CID	 When the neighborhood type is Marco, the length is 20 bits (that is, eNodeB ID)
EUTRACarrierARFCN	Neighborhood absolute frequency
PhyCellID	Adjacent regions PCI
	Neighborhood migration, Idle mode cell re - selection,
QOffset	the larger the easier to re - selection to this cell
	Neighborhood offset, connection mode cell switching,
The CIO	the larger the easier to switch to this cell
RSTxPower	Reference signal power of adjacent region
	Turns off by default. If enabled, this neighborhood will
Blacklisted	not be a switching target for UE
TAC	Adjacent regions TAC

EnbType	0: hong station, 1: small station
	Disabled by default. If enabled, this neighborhood will
X_18396E_NoRemove	not be automatically removed from the InUse list
	Default off.
	• If enabled, the base station will not establish an X2
X_18396E_NoX2	connection with this neighborhood
	Default off.
	If enabled, the base station will not be switched with the
X_18396E_NoX2HO	adjacent area via the X2 interface
V 1020CE AssessMade	Naishbachaad Assocs made, default is Onen Assocs
X_18396E_ACCESSIVIODE	Neighborhood Access mode, default is Open Access
	CSG ID of adjacent area, default does not need to be
X_18396E_CSGID	filled in
	This is turned off by default, corresponding to
X_18396E_BlacklistedSIB	BlackCellList in SIB4 or 5
X_18396E_AntennaPortsCount	Number of adjacent antenna ports
X_18396E_DLBandwidth	Adjacent downlink bandwidth
X_18396E_SubFrameAssignment	Neighborhood sub-frame ratio
X_18396E_SpecialSubframePatterns	Neighborhood special subframe mode

3.2.2.2 Manually configure 3G neighbors

1. Manually configure the 3G neighborhood list

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborList. InterRATCell. UMTS.

	Root Path:	Device.	search	clear				
Information								
Management	DB tree		Device.Services.FAP	Service.1.CellConfig.	LTE.RAN.NeighborList.InterRA	(Cell.UMTS.1.		
Access Control		X_001EA8_BarringForMOData						
Data Model		X_001EA8_BarringForMMTELVoice X_001EA8_BarringForMMTELVideo	Enable	✓ Enable	boolean			
DB export		X_001EA8_BarringForCSFB	Alias	cpe-UMTS1	string(64)			
DB import		Mobility	MustInclude	✓ Enable	boolean			
Internal		 IdleMode ConnMode 	PLMNID	00110	string(6)			
	 X_001E A Neighbort 	X_001EA8_SPID	RNCID	0	unsignedInt([0:65535])			
		LTECell InterRATCell	CID	1	unsignedInt([0:65535])			
	4 UMTS UMTS.1 GSM CDMA2000 ∡ NeighborListInUse	UMTS	LAC	0	unsignedInt([0:65535])			
		GSM	RAC	0	unsignedInt([0:255])			
		CDMA2000 NeighborListInUse	URA	0	unsignedInt([0:65535])			
	LTECell InterRATCell VoLTE VoLTEParam CAParam ACCParam		UARFCNUL	9763	unsignedInt([0:16383])			
			UARFCNDL	10713	unsignedInt([0:16383])			
			PCPICHScramblingCoo	le O	unsignedInt([0:511])			

Figure 311 manually add 3G neighborhood-

2. After setting 3G neighborhood information, select "submit" to submit;

3. Main parameters are described in the following table.

The parameter name	instructions	
The Enable	Entry enable switch, need enable	
Alias	Keep the default	
MustInclude	Mandatory include switch, need enable	
PLMNID	Adjacent regions PLMN ID	
RNCID	Adjacent regions RNC ID	
CID	Adjacent regions C - ID	
LAC	Adjacent regions LAC	
The RAC	Adjacent regions RAC	
URA	Adjacent regions URA	
UARFCNUL	Line frequency points on	
UARFCNDL	The line frequency point	
PCPICHScramblingCode	scrambler	
	PCPICH transmitting power, multiplied by 0.1 is the	
PCPICHTxPower	actual value, in dBm	

Table 39 LIMTS neighborhood parameter configuration description

Configure GSM neighborhood 3.2.2.3

Manually configure the GSM neighborhood list 1.

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborList. InterRATCell. GSM.

	DB tree		Device.Servic	es.FAPService.1.Cel	IConfig.LTE.RAN.Neighb	orList.InterRATCell.GSM.1
Information	X_001D80_BarringForMMTELVideo	•				
Management	X_001D80_Congestion		Enable	Enable	boolean	
Access Control	Mobility		Alias	cpe-GSM1	string(64)	
Data Model	 IdleMode ConnMode 		MustInclude	Enable	boolean	
DB export	X_001D80_SPID					
DB import	 NeighborList 		PLMNID	20620	string(6)	
Device	InterRATCell	ł.	LAC	0	unsignedInt([0:65535])	
Internal	UMTS UMTS.1	L	BSIC	0	unsignedInt([0:255])	
	∡ GSM GSM.1	d.	CI	0	unsignedInt([0:65535])	
	CDMA2000 NeighborListInUse		BandIndicator	GSM850 •	string	
	VoLTE VoLTEParam		BCCHARFCN	0	unsignedInt([0:1023])	
	CAParam		RAC	0	unsignedInt([0:255])	

Figure 312 add GSM neighborhood manually-

- 2. After setting the GSM neighborhood information, select "submit" to submit;
- Main parameters are described in table 310. Table 310 GSM neighborhood parameter configuration 3. instructions-4

Table 310 GSM neighborhood parameter configuration instructions-4			
The parameter name	instructions		
The Enable	Entry enable switch, need enable		
Alias			
MustInclude	Mandatory include switch, need enable		
PLMNID	Adjacent regions PLMN ID		
LAC	Adjacent regions LAC		

	Bit 7:6 - not used ("00") Bit 5:2 psc (PLMN Color Codo)
BSIC	Bit 2:0-bcc (BS color code)
BSIC	
CI	Adjacent regions Cell ID
BandIndicator	Adjacent band indication
BCCHARFCN	Adjacent regions frequency points
The RAC	Adjacent regions RAC

3.2.3 Mobility parameters configuration

1. The base station handover decision mainly uses the following events:

A1 event: indicates that the signal quality of the service community is higher than a certain threshold. When UE reports this event, the base station stops the measurement of different frequency/different system;

A2 event: indicates that the signal quality of the service community is below a certain threshold. When UE reports this event, the base station starts the measurement of different frequency/different system.

A3 event: indicates that the quality of the same frequency/different frequency neighborhood is higher than that of the service community. When UE reports this event, the base station initiates the same frequency/different frequency switching request.

B1 event: indicates that the quality of the neighboring area of the different system is higher than a certain threshold. When UE reports this event, the base station starts the eSRVCC switching request based on the uplinking service quality.

B2 event: it means that the quality of the service community is below a certain threshold and the quality of the neighboring area of the different system is above a certain threshold. When UE reports this event, the base station initiates the overcover-based eSRVCC switching request.

2. The data model configuration item corresponding to the above events is:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. EUTRA. A1MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. EUTRA. A2MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. EUTRA. A3MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. IRAT. B1MeasureCtrl Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. IRAT. B2MeasureCtrl

3.2.3.1 Start different frequency/system measurement

1. The base station starts the different frequency/different system measurement triggered by A2 events. As shown in the figure, there are 11 groups of configurations of A2 events, and the ones to be concerned are 1 to 7, which are respectively used in different scenarios: Error: Reference source not found

A2MeasureCtrl.1: measurement of different frequencies A2MeasureCtrl.2: 3G measurement (with LTE data service) A2MeasureCtrl 3: 2G measurement (with LTE data service) Blind A2MeasureCtrl. 4:3 g Blind A2MeasureCtrl. 5:2 g

A2MeasureCtrl 6: 3G measurement (with LTE voice service)

A2MeasureCtrl 7: 2G measurement (with LTE voice service)

	DB tree	Device. Services. FAPS ervice. 1. Cell Config. LTE. RAN. Mobility. Conn Mode. EUTRA. A 2 Measure Ctrl.
Information Management Access Control Data Model DB export DB import	DB tree MeasureCtrl A1MeasureCtrl A2MeasureCtrl A2MeasureCtrl.1 A2MeasureCtrl.2 A2MeasureCtrl.3 A2MeasureCtrl.4	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl. ()). Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.1. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.2. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.3. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.3. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.3.
De import Device Internal	AzhreasureCtrl.5 A2MeasureCtrl.6 A2MeasureCtrl.6 A2MeasureCtrl.8 A2MeasureCtrl.9 A2MeasureCtrl.10 A2MeasureCtrl.11 A4MeasureCtrl A4MeasureCtrl PeriodMeasCtrl IRAT	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.4. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.5. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.6. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.8. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.8. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.8. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.9. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.10. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl.11.

Figure 313 A2 event-

2. Regarding the parameter configuration of A2 event, take the common different frequency measurement scenario as an example.

A2 event will be triggered when UE's measurement results of primary plot are less than a2thresholdrsrp-hysteresis (both are actual converted values, as shown in figure 314, 45-140-2*0.5=-96 dBm) and are maintained longer than TimeToTrigger, and report continuously with ReportInterval.Error: Reference source not foundSee table 311 for parameter description.Table 311 A2 event configuration instructions-5

DB tree	Device.Services.F	APService.1.CellConfig.LTE.RA	N.Mobility.ConnMode	e.EUTRA.A2MeasureCtrl.1.
MeasureCtrl		-		
 A2MeasureCtrl 	Enable	Enable	boolean	
A2MeasureCtrl.1	A2ThresholdRSRP	45	unsignedInt([0:97])	
A2MeasureCtrl.2 A2MeasureCtrl.3 A2MeasureCtrl.4	A2ThresholdRSRQ	10	unsignedInt([0:34])	
A2MeasureCtrl.5	Hysteresis	2	unsignedInt([0:30])	
A2MeasureCtrl.7	MaxReportCells	4	unsignedInt([1:8])	
A2MeasureCtrl.8 A2MeasureCtrl.9	MeasurePurpose	1	unsignedInt([1:100])	
A2MeasureCtrl.10 A2MeasureCtrl.11	ReportAmount	0 •	unsignedInt	
 A3MeasureCtrl A4MeasureCtrl 	ReportInterval	10240 •	unsignedInt	
 A5MeasureCtrl PeriodMeasCtrl 	ReportQuantity	both	string	
 IRAT B1MeacureCtrl 	TimeToTrigger	40 •	unsignedInt	
B2MeasureCtrl	TriggerQuantity	RSRP •	string	
P GERAN				

Figure 314 A2 event parameters-

Table 311 A2 event configuration instructions-5

onngulation matuctions-o	
The parameter name	instructions

The Enable	
	A2 RSRP trigger threshold, after subtracting
A2ThresholdRSRP	140, is the actual value (in dBm)
A2ThresholdRSRQ	
	Trigger hysteresis, multiplied by 0.5, is the
Hysteresis	actual value (in unit dB)
MaxReportCells	
MeasurePurpose	
ReportAmount	Number of reports, 0 is infinite
ReportInterval	Report interval, in ms
ReportQuantity	Report the amount
TimeToTrigger	Trigger time in ms
TriggerQuantity	Trigger, default to RSRP

3.2.3.2 Stop different frequency/system measurement

1. The measurement of base station stopping different frequency/different system is triggered by A1 events, as shown in figure 248. A1 events have a total of 11 configurations, and the ones to be concerned are 1 to 5, which are respectively used in different scenarios: Figure 248 A1 event -2

A1MeasureCtrl.1: measurement of different frequencies

A1MeasureCtrl.2: 3G measurement (with LTE data service)

A1MeasureCtrl.3: 2G measurement (with LTE data service)

A1MeasureCtrl.4: 3G measurement (with LTE voice service)

A1MeasureCtrl.5: 2G measurement (LTE voice service exists)

Figure 248 A1 event-2

DB tree		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtr	
MeasureCtrl	•	0.	
 A1MeasureCtrl 			
A1MeasureCtrl.1		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.1.	
A1MeasureCtrl.2		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.2.	
A1MeasureCtrl.3			
A1MeasureCtrl.4		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.3.	
A1MeasureCtrl.5		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.4.	
A1MeasureCtrl.6			
A1MeasureCtrl.7		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.5.	
A1MeasureCtrl.8		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.6.	
A1MeasureCtrl.9			
AIMeasureCtrl.10		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.7.	
► A2MeasureCtrl		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.8.	
> A3MeasureCtrl		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.9.	
A4MeasureCtrl			
A5MeasureCtrl		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.10.	
 PeriodMeasCtrl IRAT 		$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	

Figure 315 A1 event-

2. The parameter configuration of A1 event is taken as an example.

A1 event will be triggered when UE measurement results of primary plot are larger than A1ThresholdRSRP+ Hysteresis (both are actual values after conversion, as shown in FIG. 249, 55-140+2*0.5=-84 dBm) and maintain time greater than TimeToTrigger, and report continuously with

ReportInterval.Error: Reference source not foundSee table 318 for parameter description.Table 312 A1 event configuration notes-6

3 tree		Device.Services.F	APService.1.CellConfig.LTE.R	AN.Mobility.ConnMode.EUTI
MeasureCtrl A1MeasureCtrl	-	Enable	Z Enable	boolean
A1MeasureCtrl.1		LINDAG	- Endore	DOORCHT
A1MeasureCtrl.2		A1ThresholdRSRP	55	unsignedInt([0:97])
A1MeasureCtrl.4		A1ThresholdRSRQ	20	unsignedInt([0:34])
A1MeasureCtrl.5 A1MeasureCtrl.6		Hysteresis	2	unsignedInt([0:30])
A1MeasureCtrl.7	١.	MaxReportCells	4	unsignedInt([1:8])
A1MeasureCtrl.9		MeasurePurpose	1	unsignedInt([1:100])
A1MeasureCtrl.10 A1MeasureCtrl.11		ReportAmount	0 -	unsignedInt
 A2MeasureCtrl A3MeasureCtrl 		ReportInterval	10240 *	unsignedInt
A4MeasureCtrl		PoportQuantity	beth	rtring
 PeriodMeasCtrl 		ReportQuantity	both	sumg
 IRAT B1MeasureCtrl 		TimeToTrigger	40 •	unsignedInt
B2MeasureCtrl		TriggerQuantity	RSRP •	string
 GERAN X_001D80_SPID 				
NeiahborList	*	submit	reset	

Figure 316 A1 event parameters-

Table 312 A1 event configuration notes-6

The parameter name	instructions	
The Enable		
	A1 RSRP trigger threshold, which is the actual	
A1ThresholdRSRP	value (in dBm) after subtraction of 140	
A1ThresholdRSRQ		
	Trigger hysteresis, multiplied by 0.5, is the	
Hysteresis	actual value (in unit dB)	
MaxReportCells		
MeasurePurpose		
ReportAmount	Number of reports, 0 is infinite	
ReportInterval	Report interval, in ms	
ReportQuantity	Report the amount	
TimeToTrigger	Trigger time in ms	
TriggerQuantity	Trigger, default to RSRP	

Note: a2thresholdrsrp-hysteresis should be lower than a1thresholdrsrp-hysteresis, otherwise UE will repeatedly report A1, A2 events.

3.2.3.3 LTE same/different frequency handover

1. LTE same-frequency/different-frequency switching is triggered by A3 events. As shown in figure 317, there are two groups of configurations of A3 events, which are used in different scenarios:Error: Reference source not found

A3MeasureCtrl.1: measurement of same frequency

A3MeasureCtrl.2: measurement of different frequencies

DB tree		Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A3MeasureCtr {1}.	rl.
MeasureCtrl A1MeasureCtrl A2MeasureCtrl A3MeasureCtrl	•	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A3MeasureCtrl.1. Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A3MeasureCtrl.2.	
A3MeasureC A3MeasureC A4MeasureCtrl A5MeasureCtrl PeriodMeasCtrl	rl.1 rl.2	add delete reset	

Figure 317 A3 events-

2. The trigger condition of A3 is: where Mn and Mp are the measurement results of UE on adjacent area and main area respectively, Ofn and Ofp are frequency offset of adjacent area and main area respectively (default is 0), Ocn and Ocp are offset of adjacent area and main area respectively (default is 0), Off is A3Offset, Hys is Hysteresis. Mn+Ofn+Ocn-Hys>Mp+Ofp+Ocp+Off Therefore, when the measurement results of UE on the adjacent area are larger than A3Offset + Hysteresis when compared with the main plot (both are actual values after conversion, as shown in FIG. 251, 4*0.5+2*0.5=3dB) and the maintenance time is longer than TimeToTrigger, A3 events will be triggered and report continuously with ReportInterval as interval.Error: Reference source not foundSee table 313 for parameter description.Table 313 A3 event configuration notes-7

DB tree	Device.Service	s.FAPService.1.CellConfig.LTE.F	AN.Mobility.ConnMo
MeasureCtrl	•		
AlMeasureCtrl	Enable	✓ Enable	boolean
A3MeasureCtrl	A3Offset	0	int([-30:30])
A3MeasureCtrl.1	Hystoresis	2	unsignedInt([0:30])
A3Measurectri.2	Trysteresis	2	unsigneum([0.50])
 A4MeasureCtrl A5MeasureCtrl 	MaxReportCells	4	unsignedInt([1:8])
 PeriodMeasCtrl IRAT 	MeasurePurpos	2 1	unsignedInt([1:100])
B1MeasureCtrl B2MeasureCtrl	ReportAmount	0 •	unsignedInt
GERAN	ReportOnLeave	Enable	boolean
X_001D80_SPIDNeighborList	ReportInterval	10240 •	unsignedInt
NeighborListInUseVoLTE	ReportQuantity	both	string
VoLTEParam CAParam	TimeToTrigger	40 •	unsignedInt
ACCParam	TriggerQuantity	RSRP V	string
LBParam			
REM			
UMTS	_ submit	reset	
WCDMA	• Submit		

Figure 318 A3 event parameters-

The parameter name	instructions
The Enable	
	A3 offset, multiplied by 0.5, is the actual
A3Offset	value (in dB).
	Trigger hysteresis, multiplied by 0.5, is the
Hysteresis	actual value (in unit dB)
MaxReportCells	
MeasurePurpose	
ReportAmount	Number of reports, 0 is infinite
ReportOnLeave	
ReportInterval	Report interval, in ms
ReportQuantity	Report the amount

Table 313 A3 event configuration notes-7

TimeToTrigger	Trigger time in ms
TriggerQuantity	Trigger, default to RSRP

3.2.3.4 Overlay based eSRVCC

 Overlay based eSRVCC switch is triggered by event B2, as shown in figure 252. There are 4 sets of configurations of B2 event for different purposes. The overlay based eSRVCC switch is triggered by B2MeasureCtrl.Error: Reference source not found

B2MeasureCtrl.1 :3G measurement (LTE data service exists)

B2MeasureCtrl.2 :2G measurement (LTE data service exists)

B2MeasureCtrl 3 :3G measurement (LTE voice service exists)

B2MeasureCtrl.4 :2G measurement (LTE voice service exists)



Figure 319 B2 event-

- 2. B2 indicates that the quality of service community is below a certain threshold and the quality of neighboring areas of different systems is above a certain threshold. When UE reports B2MeasureCtrl.4 event, the base station initiates the overlay based eSRVCC switching request.
- 3. After receiving the measurement report of A2MeasureCtrl 7, the base station starts the measurement corresponding to B2MeasureCtrl 4.
- 4. When the measurement result of UE on the main plot was less than b2threshold1eutrarsrphysteresis (both were actual values after conversion, as shown below, 42-140-2*0.5=-99 dBm), and the measurement result of UE on the GSM neighborhood was larger than B2Threshold2GERAN+ hysteresis-ofn (both were actual values after conversion, Ofn default was 0, as shown in figure 253, 20-110+2*0.5= -89dbm).Error: Reference source not foundAnd if it stays longer than TimeToTrigger, B2 events will be triggered and reported continuously at ReportInterval.Error: Reference source not found

DB tree		Device.Services.FAPSer	vice.1.CellCon	fig.LTE.RAN.Mobility
 X_001D80_Congestion Mobility 	•			
▶ IdleMode		Enable	Enable	boolean
ConnModeEUTRA		B2Threshold1EutraRSRP	10	unsignedInt([0:97])
 IRAT B1MeasureCtrl 		B2Threshold1EutraRSRQ	10	unsignedInt([0:34])
B2MeasureCtrl	- 1	B2Threshold2UTRARSCP	25	int([-5:91])
B2MeasureCtrl.1 B2MeasureCtrl.3 B2MeasureCtrl.3 B2MeasureCtrl.4 SERAN X_001D80_SPID NeighborList NeighborList Vol.TE Vol.TE Vol.TE	ъ.	B2Threshold2UTRAEcN0	13	unsignedInt([0:49])
		B2Threshold2GERAN	20	unsignedInt([0:63])
		B2Threshold2CDMA2000	0	unsignedInt([0:63])
		Hysteresis	2	unsignedInt([0:30])
		MaxReportCells	4	unsignedInt([1:8])
CAParam ACCParam		MeasurePurpose	1	unsignedInt([1:100])
LBParam REM UMTS		ReportAmount	0 •	unsignedInt
		ReportInterval	10240 •	unsignedInt
WCDMA	-			

Figure 320 B2 event parameter configuration-

The parameter name	instructions
The Enable	Enable switch, on by default
	B2 EUTRA RSRP trigger threshold, after subtraction of
B2Threshold1EutraRSRP	140, is the actual value (in dBm)
B2Threshold1EutraRSRQ	
B2Threshold2UTRARSCP	
B2Threshold2UTRAEcN0	
	B2 GERAN triggers the threshold. After subtracted by
B2Threshold2GERAN	110, it is the actual value (in dBm).
B2Threshold2CDMA2000	
	Trigger hysteresis, multiplied by 0.5, is the actual value
Hysteresis	(in unit dB)
MaxReportCells	
MeasurePurpose	
ReportAmount	Number of reports, 0 is infinite
ReportInterval	Report interval, in ms
TimeToTrigger	Trigger time in ms

Table 314 B2 event configuration instructions-

3.2.3.5 ESRVCC based on uplink service quality

1. The eSRVCC switch based on upline service quality is triggered by event B1, as shown in figure 321. There are 4 sets of B1 configurations for different purposes. The eSRVCC switch based on upline service quality is triggered by B1MeasureCtrl.Error: Reference source not found

B1MeasureCtrl.1 :3G measurement (with LTE data service)

B1MeasureCtrl.2 :2G measurement (with LTE data service)

B1MeasureCtrl.3 :3G measurement (with LTE voice service)

B1MeasureCtrl.4 :2G measurement (LTE voice service exists)



Figure 321 B1 event-

2. When the service quality of VoLTE falls below the threshold, the base station issues measurement and control based on B1MeasureCtrl 4 event to GSM adjacent area. This function is turned off by default and needs to be enabled by SrvccUIQosEnable, as shown in figure 322. Error: Reference source not foundSee table 221 for parameter descriptions.Table 315 VoLTE service quality control configuration instructions-

DB tree	Device. Services. FAPS ervice. 1. Cell Config. LTE. Vol TEP aram.			
DB tree Device Services FAPService FAPService.1 Capabilities FAPControl AccessMgmt CellConfig SysInfoCtrlParam LTE Tunnel EPC	Device.Services.FAPService.1.Ce SPSSwitchQCI1UI SPSSwitchQCI1DI SrvccUlQosEnable SrvccSINRThreshold	OFF OFF Enable	 string string boolean int([-64:63]) 	
	SrvccSINRNumThreshold SrvccPdcpPacketLossThreshold	5	unsignedInt int([0:10000])	
MmePoolConfigParam S1U RAN VoLTE VoLTE	SrvccPdcpPacketLossNumThreshold submit reset	5	unsignedInt	
CAParam				

Figure 322 VoLTE business quality monitoring configuration-

Table 315 VoLTE service quality control configuration instructions-			
The parameter name	instructions		
	VoLTE service quality eSRVCC monitoring switch, off by		
SrvccUlQosEnable	default		
SrvccSINRThreshold	SINR monitoring threshold		
	The number of times below the SINR monitoring		
SrvccSINRNumThreshold	threshold, after which eSRVCC is triggered		
SrvccPdcpPacketLossThreshold	PDCP packet loss threshold		
	The number of times below the PDCP packet loss		
SrvccPdcpPacketLossNumThreshold	threshold, after which eSRVCC is triggered		

3. After receiving the B1MeasureCtrl.4 measurement report, the base station triggers eSRVCC based on uplink service quality.B1 is the trigger formula, where Mn is the measurement result of GSM neighborhood, Ofn is the frequency deviation of GSM (default: 0), Thresh is B1ThresholdGERAN, Hys is Hysteresis, so when UE's measurement result of GSM neighborhood is larger than B1ThresholdGERAN+ Hysteresis (both are actual values after conversion, as shown in figure 256,

20-110+2*0.5= -89dbm), and the retention time is greater than TimeToTrigger. Mn+Ofn-Hys>Thresh Error: Reference source not foundThe B1 event will be triggered and will be reported continuously at ReportInterval.Table 316 B1 event configuration instructions-

DB tree	Device.Services.FAPS	ervice.1.CellCo	nfig.LTE.RAN.Mobility	y.ConnMode.IRAT.B1MeasureCtrl.1
X_001D80_BarringForMMTELVideo	•			
X_001D80_BarringForCSFB	Enable	🗷 Enable	boolean	
 X_001D80_Congestion Mobility 	B1ThresholdCDMA2000	0	int([-5:91])	
IdleModeConnMode	B1ThresholdGERAN	20	unsignedInt([0:63])	
EUTRAIRAT	B1ThresholdUTRAEcN0	13	unsignedInt([0:49])	
B1MeasureCtrl B1MeasureCtrl 1	B1ThresholdUTRARSCP	25	int([-5:91])	
B1MeasureCtrl.2 B1MeasureCtrl.3	Hysteresis	2	unsignedInt([0:30])	
B1MeasureCtrl.4 B2MeasureCtrl	MaxReportCells	4	unsignedInt([1:8])	
▶ GERAN	MeasurePurpose	1	unsignedInt([1:100])	
X_001D80_SPIDNeighborList	ReportAmount	0 •	unsignedInt	
NeighborListInUseVoLTE	ReportInterval	10240 •	unsignedInt	
VoLTEParam CAParam	TimeToTrigger	40 •	unsignedInt	
ACCParam				

Figure 323 B1 event parameters-

Table 316 B1	avent	configuration	instructions.
	eveni	connyuration	mstructions-

The parameter name	Value range	instructions
The Enable		
B1ThresholdCDMA200		
0	[- 1] goes	
		B1 GERAN trigger threshold, after subtracted
B1ThresholdGERAN	[3] 0-6	by 110, is the actual value (in dBm)
B1ThresholdUTRAEcN0	[0:49]	
B1ThresholdUTRARSCP	[- 1] goes	
		Trigger hysteresis, multiplied by 0.5, is the
Hysteresis	[0:30]	actual value (in unit dB)
MaxReportCells	[8]	
MeasurePurpose	[1:100]	
ReportAmount		Number of reports, 0 is infinite
ReportInterval		Report interval, in ms
TimeToTrigger		Trigger time in ms

Note: eNB shall correctly configure the measurement of A2 with different systems for UE (when the RSRP of the terminal downlink is at a good level, the reporting of A2 with different systems will not be triggered, but at this time, the service quality of VoLTE is below the threshold, and the measurement and control of B1 events will be triggered).

3.2.3.6 CSFB configuration

If UE does not support VoLTE, or USIM does not turn on VoLTE function, or LTE cell signal is very poor, then it will fall back to 2G when receiving calls. In this case, the base station releases the phone and carries redirectedCarrierInfo on the RRCConnectionRelease to indicate UE back down to 2G. There are two sources of GSM frequency points configured when falling back:

1. Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. IRAT. GERAN. GERANFreqGroup., as shown in figure 324.Error: Reference source not foundPlease refer to the following table for parameter description.

3 tree	Device.Services.FAPServic	e.1.CellConfig.LTE.R/	AN.Mobility.ConnMod
X_001D80_BarringForMMTELVideo			
X_001D80_BarringForCSFB	Enable	Enable	boolean
Mobility	Alias	cpe-GERANFreq	string(64)
 IdleMode ConnMode 	Туре	BOTH •	string
 EUTRA IRAT 	BandIndicator	GSM900 •	string
B1MeasureCtrl B2MeasureCtrl	BCCHARFCN		unsignedInt([0:1023])
GERAN	SpecifiedReportConfigEnable	Enable	boolean
GERANFreqGroup.1	B1ThresholdGERAN	20	unsignedInt([0:63])
X_001D80_SPIDNeighborList	B2Threshold2GERAN	20	unsignedInt([0:63])
 NeighborListInUse VoLTE 	Hysteresis	2	unsignedInt([0:30])
VoLTEParam CAParam	TimeToTrigger	40 •	unsignedInt
ACCParam			
LBParam	submit	at	
REM			

FIG. 324 CSFB frequency points-

			-			
Tahle 3	17 G	FRANFred	Groun	configuratio	n instri	intions_
Tuble 0	17 0	LIVINIUCY	Oroup	configuratio	in moure	

The parameter name	instructions
The Enable	Can make the switch
Alias	
The Type	Default to BOTH, CSFB and SRVCC
BandIndicator	Band indicates
BCCHARFCN	Frequency point
	Special configuration enables each frequency point to
	configure different B1 and B2 event threshold, and this
SpecifiedReportConfigEnable	function is turned off by default
	B1 GERAN trigger threshold, after subtracted by 110, is the
B1ThresholdGERAN	actual value (in dBm)
	B2 GERAN triggers the threshold. After subtracted by 110, it is
B2Threshold2GERAN	the actual value (in dBm).
	Trigger hysteresis, multiplied by 0.5, is the actual value (in unit
Hysteresis	dB)
TimeToTrigger	Trigger time in ms

2. Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse. InterRATCell. GSM.

e	Device.Services.FAPS	Service.1.CellConfi	g.LTE.RAN.NeighborListInUse
X_001D80_BarringForMMTELVideo			
X_001D80_BarringForCSFB	PLMNID		string(6)
Mobility	LAC	0	unsignedInt([0:65535])
 IdleMode ConnMode 	BSIC	0	unsignedInt([0:255])
X_001D80_SPIDNeighborList	CI	0	unsignedInt([0:65535])
 NeighborListInUse LTECell 	BandIndicator	GSM850 •	string
 InterRATCell UMTS 	BCCHARFCN	0	unsignedInt([0:1023])
▲ GSM	X_001D80_RAC	0	unsignedInt([:255])
CDMA2000	X_001D80_RSSI	0	unsignedInt([0:63])
VoLTEParam	X_001D80_Timestamp	0	unsignedInt
CAParam ACCParam			
LBParam	submit	reset	
INTE			



The parameter name	instructions
PLMNID	Adjacent regions PLMN ID
LAC	Adjacent regions LAC
	Bit 7:6 - not used ("00")
	Bit 5:3-ncc (PLMN Color Code)
BSIC	Bit 2:0-bcc (BS color code)
CI	Adjacent regions Cell ID
	Adjacent band indication
	GSM850
	GSM900
	DCS1800
BandIndicator	PCS1900
BCCHARFCN	Adjacent regions frequency points
The RAC	Adjacent regions RAC
RSSI	RSSI GERAN carrier
Timestamp	Last measured timestamp

Table 318 GSM neighborhood frequency point configuration-

3.3 **Configure base station synchronization parameters**

Clock synchronization refers to the strict and specific relationship between signals in terms of frequency or time. In digital communication networks

The purpose of synchronization is to keep the difference in clock frequency or time between communication devices throughout the network within a reasonable error range

To avoid the deterioration of transmission performance caused by the inaccurate timing of receiving/sending signals in the transmission system.

Clock synchronization includes frequency synchronization and time synchronization. TDD systems are time division multiplexing and must use time Synchronization, so as to avoid interference between base stations and UEs.

3.3.1 Overview

1. The base station supports three synchronization modes. When the synchronization mode switching function is turned on, the base station can switch among the three synchronization modes.

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Security	Sync Settina:				
ACS	-,				
Cell	CurrentSyncMode	Freedom			
Performance	SyncStatus	Undefined			
Synchronization	SuccessTime	0001-01-01T00:00:00Z			
Fault	SyncSwitchEnable	Enable			
Debug	SyncMode1	Freedom •			
Upgrade	SyncMode2	Freedom 🔻			
Factory Access Control	SyncMode3	Freedom •			
Data Model	SyncFailureHandling	Ignored •			
	TimingCorrectionOffset	0			
	Submit				

Figure 326 synchronization mode-

Synchronous F technology s	Frequency synchronization	Time synchronization	advantages	disadvantages
GPS/RGPS	\checkmark	\checkmark	Each small base station is equipped with GPS/RGPS independently, without network support.	Need to increase GPS/RGPS hardware, as well as installation and maintenance costs, high cost.
The IEEE 1588 v2			 If frequency synchronization is only implemented, it can support transmission across data network and has low requirements for intermediate equipment. Can realize frequency synchronization and time synchronization, and can support the clock requirements of LTE TDD. 	 If time synchronization is to be achieved, all intermediate network equipment shall be upgraded to support IEEE1588 protocol. Clock recovery quality is susceptible to data network delay, jitter and packet loss.

			protocol, which can support interconnection between manufacturers through different profiles.	
Lip sync	\checkmark	Х	No additional hardware, no network support	Only synchronizing frequency

Note:

- SyncMode1, SyncMode2 and SyncMode3 are not used at present.
- Air port synchronization can only synchronize the frequency, generally need to cooperate with the NTP function.
- 2. The synchronization mode corresponds to parameters, as shown in the table. Table 319 synchronization mode-

synchronously	instructions
Freedom	Free mode, which means no synchronization
IEEE1588V2	1588 clock synchronization, need to configure frame offset
Sniffer	Sniffer synchronization, which synchronizes directly with macro stations, does not require configuration of frame offsets
GPS	GPS synchronization, need to configure frame offset

Table 319 synchronization mode-

3. Synchronize configuration parameters, as shown in the table.

Table 320 synchronization mode parameters-

parameter	instructions				
SyncSwitchEnable	Sync source toggle.Default off.				
	How the base station handles synchronization failures				
	 Default: Ignore: Ignore synchronization failure; 				
	 Restart: failure of synchronization will delete cell retry; 				
SyncFailureHandling	 Reboot: failure of synchronization will restart the base station to retry; 				

3.3.2 GPS synchronization

- 1. The base station needs external GPS antenna.
- 2. Set the synchronization mode to "GPS";
- 3. Configure frame migration according the operter plan, as shown in figure 327, and the calculation method of frame migration is shown in table 321.Error: Reference source not foundTable 321 frame migration parameter description-

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Management Security ACS	Sync Setting:				
Cell	CurrentSyncMode	Freedom			
Performance	SyncStatus	Undefined			
Synchronization	SuccessTime	0001-01-01T00:00:00Z			
Network Fault	SyncSwitchEnable	Enable			
Debug	SyncMode1	GPS 🔻			
Upgrade	SyncMode2	Freedom 🔹			
Factory	Constitution	Evendence a			
Access Control	SyncMode3	Freedom *			
Data Model	SyncFailureHandling	Ignored •			
	TimingCorrectionOffset	0			
	Submit				



Table 321 frame migration parameter description-

The parameter name	instructions
TimingCorrectionOffset	Time synchronization frame offset, Chip(1/30.72us), valid for GNSS and IEEE1588V2.If the macro station is 700us ahead of the GPS frame header, then the frame offset should be 700*30.72=21504. (the macro station here is of the same frequency band)

- 4. After parameter configuration is completed, click "Submit";
- 5. Restart base station and perform GPS synchronization.
- 6. After the base station restarts, query the GPS synchronization status, as shown in the figure below.

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Management Security	GPS Setting:				
ACS	GPSEquipped	1			
Cell	GPSReceiverOnMainChip	0			
Synchronization	ScanStatus	Indeterminate			
Network	ErrorDetails				
Fault	LastScanTime	0001-01-01T00:00:00Z			
Debug	LastSuccessfulScanTime	0001-01-01T00:00:00Z			
Upgrade	CurrentFix	0			
Factory	Latitude	0			
Access Control	Longitude	0			
Data Model	Elevation	0			
	SatellitesTracked	0			
	Stability	0			
	PositionUncertainty	0			



3.3.3 IEEE1588v2 synchronization

- 1. There are 1588 clock synchronization signals in the network environment of the base station.
- 2. 1588 PTPv2 is divided into two modes: multicast and unicast. The configuration of multicast mode is shown in figure 3-30.
 - Select "Ethernet" for Transport;
 - Role select "Slave";

Information	Management P	TP1588v2/ACR			
Management	if using DTD1599v2/1599	ACP to do currebronizatio	n plance fill the DTD informs	ation	
Security	if using multicast PTP158	8v2, leave MasterAddr ar	nd SecGWServer empty.		
ACS					
Cell					
Performance					
Synchronization	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Network					
Fault	PTP/ACR Setting:				
Debug					
Upgrade	Transport	UDPv4 •			
Factory	Role	Slave 🔻			
Access Control	MasterAddr				
Data Model					
	SecGWServer				
	Cubmit				
	Submit				

FIG. 329 1588 PTPv2 multicast mode-

3. The 1588 PTPv2 unicast mode configuration is shown in figure 3-31.

- Select "Ethernet" for Transport;
- Role select "Slave";
- MasterAddr fill in the IP address of the master clock;
- In the PTP over IPsec scenario, you need to specify the security gateway address.SecGWServer fill in the security gateway IP address.

Information	Management	PTP1588v2/ACR			
Management	if using DTD1E00v2/1E0	PACD to do amehropization	plance fill the DTD inform	ation	
Security	ir using PTP1388/2/1388ACR to do synchronization, please ini die PTPTinformation. if using multicast PTP1588v2, leave MasterAddr and SecGWServer empty.				
ACS					
Cell					
Performance					
Synchronization	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Network					
Fault	PTP/ACR Setting:				
Debug	_				
Upgrade	Transport	Ethernet 🔹			
Factory	Role	Slave 🔻			
Access Control	MasterAddr	192,168,100,40			
Data Model					
	SecGWServer	10.98.100.40			
	Submit				

Figure 330 1588 PTPv2 unicast mode-

- 4. For configuring frame offset, see the frame offset configuration instructions in table 3-21
- 5. After setting the above synchronization parameters, set the synchronization mode to "PTP1588";

Note: after modifying the synchronization mode, the base station takes effect by restarting and performs the synchronization.

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Management					
Security	Sync Settina:				
ACS					
Cell	CurrentSyncMode	Freedom			
Performance	SyncStatus	Undefined			
Synchronization	SuccessTime	0001-01-01T00:00:00Z			
Network	SyncSwitchEnable	Enable			
Fault Debug	SyncMode1	PTP1588 •			
Upgrade	SyncMode2	Freedom •			
Factory	SyncMode3	Freedom •			
Access Control					
Data Model	SyncFailureHandling	Ignored 🔻			
	TimingCorrectionOffset	0			
	Submit				

Figure 331 1588 PTPv2 synchronization configuration-

- 6. Restart the base station and perform 1588PTP synchronization;
- 7. After the base station restarts, check the synchronization status, as shown in the figure below.

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Security	Sync Setting:				
Cell Performance	CurrentSyncMode	PTP1588			
Synchronization	SuccessTime	2019-01-15T10:13:43.72	3Z		
Fault	SyncSwitchEnable SyncMode1	Enable			
Upgrade Eastern	SyncMode2	Freedom 🔹			
Access Control	SyncMode3	Freedom •			
Data Model	SyncFailureHandling TimingCorrectionOffset	Ignored •			
	Submit				

Figure 332 1588 PTPv2 synchronization status-

3.3.4 Sniffer synchronization

1. Configure the frequency points for Sniffer, as shown in the figure.

Information	Management Sniffer							
Management								
Cell	If using Sniffer for synchronization, fill in the Sniffer settings. Sniffer adjusts only the frequency, so one NTP server must be added to scychronize system time.							
Debug								
Factory								
HeMS								
Network	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time			
Performance								
Security	Sniffer Setting:							
Synchronization	Sinner Setting.							
Upgrade	CheckRSPEnable	Enable						
Access Control	CheckBWEnable	Enable						
Data Model	Data Model EARFCNDLList 42590,42788							
	DonorBWThreshold	50 🔻						
	DonorRSPThreshold)						
	SuccessRatType N	Null						
	SuccessArfon 0 SuccessPci 0							
Submit								

Figure 333 setting of the same step frequency of Sniffer-

2. Set the synchronization mode to "Sniffer";

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Management					
Security					
ACS	Sync Setting:				
Cell	CurrentSyncMode	Freedom			
Performance	SyncStatus	Undefined			
Synchronization	SuccessTime	0001-01-01T00:00:007			
Network					
Fault	SyncSwitchEnable				
Debug	SyncMode1	Sniffer 🔻			
Upgrade	SyncMode2	Freedom 🔻			
Factory	CumoModo2	Ereedens x			
Access Control	Synchodes	Freedom +			
Data Model	SyncFailureHandling	Ignored •			
	TimingCorrectionOffset	0			
	Submit				

Figure 334. Sniffer synchronization configuration-

- 3. After the configuration of synchronization parameters is completed, restart the base station and perform synchronization;
- 4. After the base station restarts, check the air port synchronization status, as shown in the figure below.

	if you choose ptp1588 or	gps, then ntp disabled.			
Information					
Management					
Security	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
ACS					
Cell	Sync Setting:				
Performance	,				
Synchronization	CurrentSyncMode	Sniffer			
Network	SyncStatus	Success			
Fault	SuccessTime	2019-01-15T11:31:32.79	7Z		
Debug	SyncSwitchEnable	Enable			
Upgrade	SyncMode1	Sniffer 🔹			
Factory					
Access Control	SyncMode2	Freedom 🔻			
Data Model	SyncMode3	Freedom 🔻			
	SyncFailureHandling	Ignored •			
	TimingCorrectionOffset	0			
	Submit				

3.3.5 The free mode

- 1. Set synchronization mode to "Freedom";
- 2. In free mode, the base station will not synchronize with any synchronous source, relying only on

its own crystal oscillator to ensure frequency deviation.

4. Configure system parameters

4.1.1 Software version upgrade

Select "management-> Upgrade" in the navigation bar to enter the version Upgrade page, as shown in the figure.Figure 41 version upgrade-

Information	Management Firmware Upgrade						
Management							
Cell	This page lets you update the eNB's firmware.During the firmware upgrade, the eNB will be rebooted. Force upgrade option lets the eNB force to update partition even though the image not changed.						
Debug	NOTE: It can take few minutes for a reboot to take place.						
Factory							
HeMS							
Network	Firmware Upgrade						
Performance							
Security	Software version:						
Synchronization							
• Upgrade	Firmware V1.0.0						
Access Control	Platform FSM9955.PP.3.0.8(r8.5.0.6@194145.3.223293.2),FSM9955.DV.3.0.8(r8.5.0.6)						
Data Model							
	Firmware upgrade:						
	Force upgrade						
	选择文件 未选择任何文件						
	Submit						

Figure 41 version upgrade-

4.1.1.1 Software upgrade

- 1. Click "Browser file", select the upgrade file and upload it to the base station.
- 2. Click Submit to upgrade.
- 3. The base station restarts and performs the audit, waiting for approximately 3-5min.After successful upgrade, the page will be prompted accordingly.
- 4. The updated version can be confirmed through the "Information" page of the base station.

mation	Device Information
ement	Hardware configuration
ontrol	naruware comguration.
del	Model Name: PICO Cell
	Manufactur en de la constance d o.,
	ManufacturerOUI
	ExtensionIdentifier: 0000000000
	SerialNumber: 78160400B
	HNBIDRealm:
	ProductClass:
	Hardware Version: A01
	Software Version:
	Firmware VD01R001
	Diatform home to home 2 26 (1 1 21 2)

Figure 42 confirms the updated version-

4.1.1.2 Version back

- 1. In the event that the base station firmware upgrade fails, the base station will automatically revert back to the available version prior to the upgrade.
- 2. It is also possible to upgrade back to the previous version through the normal version upgrade operation.

4.1.2 System file backup

4.1.2.1 Import/export configuration files

1. Select "Data Model" in the navigation bar and enter the DB import/export page, as shown in the figure.Error: Reference source not found

Information	DataModel Export DB Files				
Management					
Access Control	Current DB Files				
Data Model					
DB export	Device.xml	Export			
DB import	SON DM.xml	Export			
Device					
Internal	Internal.xml	Export			
Device Internal	SON_DM.xml Internal.xml	Export			

Figure 43 DB export import-

2. Export/Import to Export and Import data files.

4.1.2.2 Export log file

1. Select "management-> Debug" in the navigation bar to enter the log operation interface, as shown in the figure.

	If you want to get runnir	ig details of Femto cell, just	click 'export' button to get Devic	celog files.
Information	Log server	Upload & dump	Export Debuglog	
Management	-			
Security	_			
ACS	Export			
Cell	Devicelog az	export		
Performance	Deriteriogigz			
Synchronization	Varlog.tgz	export		
Network	dmesg.log	export		
Fault	ps.log	export		
• Debug				
Upgrade	netstat.log	export		
Factory	tmpfiles.log	export		
Access Control	othtool log	ovport		
Data Model	entoonlog	export		
	temp_a.txt	export		
	last_varlog.tgz	export		
	softwareVersion	export		

Figure 44 exports the log file-

- 2. Select the log you want to Export, and click "Export".
- **3**. Save the log file locally by selecting the save path in the download dialog box that pops up.

4.1.3 Restart the base station

- 1. Select "management-> Factory" in the navigation bar.
- 2. Click "Reboot" to restart the base station.
- 3. Base station restarts usually take 3 to 5 minutes.

Information	Management Reboot
Management	
Security	Reboot device
ACS	
Cell	Watchdog Reboot Calibration Vendor Logo
Performance	
Synchronization	Reboot:
Network	
Fault	Reboot
Debug	
Upgrade	
Factory	
Access Control	
Data Model	

FIG. 45 restart base station-

5. Common debugging function

5.1 The Trace log function

5.1.1 Capture base station logs using a dedicated logviewer tool

The configuration is shown in the figure.

- 1. Enter the IP address of the crawl log PC.
- 2. Click Submit to Submit.

Information	Management Lo	og server	
Management			
Security			
ACS	Log server	Lipload & dump	Export Debuglog
Cell	LUg Server	opidad & dump	Export Debugiog
Performance			
Time	Log Server		
Network	Connecting Policy:	Always ConfigCh	anged
Fault	connecting roney.		anged
Debug	IP Address:	192.168.101.34	
Upgrade	CpuhPort:	1111	
Factory	CpulPort:	7777	
Access Control	CouldDoctDoth		
Data Model	CpunDestPath:		
	CpulDestPath:		
	CpuhFileSize:	1	
	CpulFileSize:	10	
	Submit		

Figure 51 sets the logviewer address-

Table 51 parameter description-				
The parameter name	instructions			
The IP Address	Run the PC IP address of logviewer			

5.1.2 Upload the logviewer log automatically

Sometimes the logviewer tool is not easy to install, consider having the base station upload the logviewer source file directly to the specified server

Then use the logviewer tool to view it

1. Turn on automatic upload

Device. X_D837BE_DebugMgmt. Upload. Enable = 1

2. Set the automatic upload cycle

Device. X_D837BE_DebugMgmt. Upload. PeriodicTraceUploadInterval

Choose "VendorTraces" for cyclical upload strategy
 Device. X_D837BE_DebugMgmt. Upload. PeriodicUploadPolicy = VendorTraces

	DB tree	Device.X_D837BE_DebugMgm	nt.Upload.		
	 QueuedEvent 	•			
Information	LogMgmt	Enable	Enable	boolean	
Management	 X_D837BE_DebugMgmt 				
Access Control	ChUnBoard	PeriodicTraceUploadInterval	60	unsignedInt([1:])	
Data Model	> Iptables			bitmap	
Data Houer	PACalibration	PeriodicUploadPolicy	Vendor I races 🤤	ctrl+click: deselect	
DB export	TraceFilter	Concellation of	News	-	
DB import	Upload	Forceopioad	None *	sung	
Device	Tcpdump		DeviceLog	bitman	
Internal	TBDump	UploadPolicyWhenForcedUpload	CoreDumps	ctrl+click: deselect	
	Asn1MemoCheck		Varlog	carrener, deserver	
	FtpUpgrade			bitmap	
	MulticastUpgrade	UploadPolicyWhenMaxExceeded	Dovicel og 🕴	ctrl+click: deselect	
	CAServer			bitman	
	 Security 	UploadPolicyWhenAlarmRaised	DeviceLog	ctrl+click: deselect	
	Certificate		STELLER TRA	currence, deselect	
	X_D637BE_PSK X_D837BE_eSIM				
	► X_D837BE_CMPv2	UploadPolicyWhenPowerOn	CoreDumps	bitmap	
	X_D837BE_FileTransmission		Tcpdump	ctrl+click: deselect	
	▲ FAP		CpulKernelLog -		
	▶ GPS	•	Budaalaa		

Figure 52 turn on the automatic upload log function-

4. Set upload server address and authentication information.

	Buturiouci Berice			
information Management	Root Path: Device.	searc	h	
Access Control	DB tree	Device.LogMgmt.		
Data Model	 X_D837BE_InternalSupportedAlarm SupportedAlarm 			A
DB export DB import	CurrentAlarm	URL	ftp://10.98.100.25/log/	string(256)
Device	ExpeditedEvent	Username	admin	string(256)
Internal	QueuedEvent LogMgmt	Password	admin	string(256)
	 X_D837BE_DebugMgmt CnOnBoard 	PeriodicUploadEnable		boolean
	SelfDiscovery Intables	PeriodicUploadInterval	3600	unsignedInt([1:])
	PACalibration			
	Upload	submit	drop	
	Tcpdump			

Figure 53 sets upload server parameters-

The parameter name	instructions
	Log automatic upload path.
	Such as: ftp://10.98.100.80/log/
The URL	
The Username	Server username
The Password	Server password
PeriodicUploadEnable	Cycle automatically upload enable switch

Table 53 parameter description-

5.2 Other Trace logs are automatically uploaded

Base station supports the function of automatic log uploading, which can upload log files to FTP server.As shown in the figure.

	Manageme	nt Upload & D	ebug dump	
Information				
Management				
Security	Log serve	er Upload 8	t dump Export Debuglog	
ACS				
Cell	Unload :			
Performance	opioud i			
Time		Enable/Disable:	Enable	
Network		Upload URL:	ftp://192.168.0.100/ftp/	
Fault	Linkad Username:		admin	
Debug		opidad osername.	aumin	
Upgrade		Upload Password:	admin	
Factory		When Max Exceeded:	DeviceLog	
kccess Control Data Model	Upload Policy:	When Alarm Raised:	DeviceLog VendorTraces CoreDumps Tcpdump CpulKernelLog	
		When Power On:	DeviceLog VendorTraces CoreDumps Tcpdump CpulKernelLog	
	Submit			

Figure 54 automatically uploads Trace log Settings-

	+ parameter description-
The parameter name	instructions
The Enable	Can make the switch
The Upload URL	FTP server address
Upload the Username	FTP server user name
Upload the Password	FTP server password

Log upload policy, by default

Table 54 parameter description

5.3 **TCP Dump function**

Base station supports opening TCP Dump function to grab base station network interface messages. This is shown below.

- 1. Choose Interface;
- 2. Select the corresponding protocol in Filter Type. If other types of packets (such as icmp) are to be captured, select OTHERS and Expression to fill in icmp.
- 3. Check the Enable;
- 4. After configuration, click Submit, as shown in figure 6-3.
- 5. Export the tcpdump file through the Web interface, as shown in figure 6-4;
- 6. Wireshark looks at tcpdump, as shown in figure 6-5.

Upload the Policy

• Open tcpdump.rar. Open the tcpdump.log file with wireshark.

Information Management		When Power On:	 DeviceLog VendorTraces CoreDumps Tcpdump CpulKernelLog 	
Security ACS Cell	Submit			
Performance Synchronization	Debug Dump:	:		
Network		Enable:	✓ Enable	
Fault		Interface:	eth0 •	
Debug Upgrade	Tcpdump:	Filter Type:	✓ SCTP ✓ ISAKMP OTHERS	
Access Control		Filter Expression:		
Data Model	TBDump:	Enable:	Enable	
		HostIPAddress:		
	Submit Figure 5	4 TCP Dump Set	tings-	
Information	Export			
Management	Devicelog.gz	export		
ACS	Varlog.tgz	export		
Cell	dmesg.log	export		
Time	ps.log	export		
Network	netstat.log	export		
Debug	tmpfiles.log	export		
Upgrade	tcpdump.tar	export		
Access Control	fsm.log	export		
Data Model	provisioning.xm	nl export		
	last_fsm.log.gz	export		
	softwareVersion	n export		

Figure 56 exports the tcpdump file-

Export tcpdump.log file to desktop and open with Wireshark.

Figure 55 shows the tcpdump file-

The parameter name	instructions
The Enable	Can make the switch
	Base station network interface, through the
Interface	drop-down selection
The Filter Type	Common catch types

Table 55 parameter description-

	Check "OTHERS" when filtering other types of messages
A Filter Expression	When fetching messages other than the usual type fill in such as icmn
A filler Expression	usual type, min, such as lemp.

5.4 **Telnet function**

For security reasons, the Telnet function of the base station is turned off by default. The Telnet function of the power base station can be configured by modifying the data model configuration, as shown in figure 5-8.

- 1. Check the "TelnetEnable" Enable identification;
- 2. Click submit for the configuration to take effect.
- 3. After the configuration is committed, the Telnet function is enabled. The base station can be accessed by Telnet.

User name: root

Password: Pico@2018

Note: the Telnet function fails after the base station is restarted and needs to be reenabled.

Device.	search	clear	
DB tree	Device.X_001D80_DebugMgr	nt.	
- Faultrigmt			
X_001D80_InternalSupportedAlarm			
SupportedAlarm	CalibrationEnable	Enable	boolean
CurrentAlarm	TelnetdEnable	Enable	boolean
HistoryEvent			
ExpeditedEvent	DropbearEnable	Enable	boolean
QueuedEvent	LoginDisable	Enable	boolean
LogMgmt	Loginolouole		boolean
CnOnBoard	BootDelay	1	unsignedInt
SelfDiscovery			
Intables	EnableMailboxWakeupCheck	Enable	boolean
PACalibration	MailboxWakeupCheckTimeLen	100	unsignedInt([0:500])
TraceFilter			
Upload	EnableUeLinkAdaptMeas	Enable	boolean
Tcpdump			
TBDump	UeLinkAdaptMeasInterval	10	int([1:10])
Traces	EnableUeInfoLog	✓ Enable	boolean
Asn1MemoCheck			
FtpUpgrade	UeInfoLogInterval	1	int([1:])
MulticastUpgrade			
CAServer	TtiWatchDogTimeout	150	int([100:500])
Security	EnableCherDoburg	Eashla	booloop
Certificate	EnableShimbebug	- chable	Doolean

Figure 56enable base station Telnet function-