

# LTE-Turbo BS Configuration Guide for BS6430E

Document Version: 01

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#### About This Document

This document describes the configuration of the LteTurbo BaseStation for software version BaiAP\_LT\_1.2.x. It is a guide that how to configure the device after its installation completes.

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#### **Revision Record**

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## **1. Configuration Overview**

The Baicells LteTurbo BS is loaded with its own GUI for configuring its operating parameters. You can log in to the GUI either locally through the Local Maintenance Terminal (LMT), which is an Ethernet port, or remotely via IP address. You can also use the Baicells Operations Management Console (OMC) to configure the eNB; this document, however, focuses only on using the eNB GUI.

After the LteTurbo base station is powered on, it is necessary to configure the base station to access the user and provide data service.

**NOTE**: Before configuring the BS's data, data planning needs to be done first. The data to configure includes local parameters and connecting parameters. These parameters are either provided by the user or determined after negotiation with the customers. The data to prepare include IP address, wifi parameters, ngmwan parameters, software version, and so on.

The LteTurbo base station needs to configure at least the wifi name, password, and working frequency.

## 2. Installation

#### 2.1 Part & Materials

Item	Qty	Picture
Nova430T unit	1	Cels
		<b>B</b>

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You will need standard tools, Ethernet cable, ground wire, and RJ-45 connectors for installing and connecting the outdoor unit.

The Port with lable "WAN" is the PoE port,Picture as follows:



#### 2.2 **Led**

The LED lamp indicated the current base station status with 4 lights: PWR, RUN, ACT, BHL (see figure below)



•	PWR	
	Green light on	Power Supply is normal
	Green light off	Power Supply is wrong
•	RUN	
	Red light flashes,Green lig	ht off Upgrading…
	Red light on, Green light of	f wifi not work
	Red light off, Green light of	n wifi work,no station connected
	Red light off,Green light fla	ashes wifi work, some stations connected
•	ACT	
	Green light off enod	eb is abnormal
	Green light flashes enod	eb is normal
•	BHL	
	Green light off WAN port(	Fiber or Copper) has no IP

Green light on WAN port (Fiber or Copper) has IP and Communication is good.

Note: The status of the lamp is meaningless during the start-on process, and wait for the start-on (5 minutes) before checking the LED status.

## **3.Login Web Client**

#### 3.1 Web Client Environmental Requirements

Table 3-1 describes the requirements on computer of the client.

Item	Description	
CPU	Above Intel Core 1GHz	
Memory	Above 2G RAM	
Hard disk	No less than 100 MB space available	
Operating system	Microsoft: Windows XP, Windows Vista or Windows7	
	Mac: MacOSX10.5 or above	
Screen resolution	Above 1024 x 768	
Browser	Chrome 6 or higher	

 Table 3-1 Environmental Requirements of the Client

#### 3.2 Connect Web Client to Base Station

Connect the Ethernet interface of the computer to the LAN interface of the base station through the Ethernet cable.

#### 3.3 Set Up Client Computer

Before logging into the Web client, the client computer's IP address needs to be set up first so that the connection between the client and the server is possible. Take Windows 7 as an example:

- 1. Click "Start>Control Panel" and later "Network and Internet" in the window that pops up.
- 2. Click "View network status and tasks" and later "Local Connectivity" in the window that pops up.
- 3. In "Status of Local Connectivity", click "Properties" to see the "Properties of Local Connectivity" pop-up window.
- 4. Select "Internet Protocol Version (TCP/IPV4)" and click "Properties" to see the pop-up window as Figure 3-.

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Figure 3-1 Internet Protocol Version (TCP/IPV4)

Internet Protocol Version 4 (TCP/IPv4)	) Properties
General	
You can get IP settings assigned autor this capability. Otherwise, you need to for the appropriate IP settings.	matically if your network supports o ask your network administrator
Obtain an IP address automatical	ally
Use the following IP address:	
IP address:	
Subnet mask:	
Default gateway:	
Obtain DNS server address auton	matically
• Use the following DNS server add	dresses:
Preferred DNS server:	
Alternate DNS server:	· · ·
Validate settings upon exit	Ad <u>v</u> anced
	OK Cancel

Select either "Obtain an IP address automatically" or "Use the following IP address":

- If "Obtain an IP address automatically" selected, go directly to step 7
- If "Use the following IP address" selected, follow step 5 ~ step 7

NOTE: In general, if the auto obtaining fails, one needs to set up the IP address manually.

#### 5. Select "Use the following IP address".

- 6. Input IP address, subnet mask, and default gateway, and then click "OK".
  - IP address: 192.168.150. XXX: (recommended XXX: 100~254)

Because the LAN interface of the base station uses the IP address of 192.168.150.1, others should avoid using this address.

- Subnet mask: 255.255.255.0
- Default gateway: 192.168.150.1
- 7. In the command window, execute ping 192.168.150.1 and check whether the connection between the client computer and the server works or not.

### 3.4 Log In

1. Open a web browser, and enter <u>http://192.168.150.1</u>, as shown in Figure 3-1.

Figure 3-1 GUI Login

User Login		
Username		
Enter Username		
Password		
Enter Password		
	Login	

2. Input user name, password, and click "Login". The homepage is given in Figure 3-2.

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#### Figure 3-2 GUI Homepage

		Basic Info	Device Status		Device Health
Wizard		Product Name LteTurbo BS Model No AIO Emmunara Balab IT 128 board		LTE Turbo UE online.0	Unhandled Alarms Run Time 18:27 NTP Time 2022-05-26 03:53:08
Turbo Setting	~	Lite Firmware BalBS_QRTB_2 10.0 SN 120300010320B6B0005	POE++ 🟠	LTE UE online:0	Frequency         3625,0Mhz/3644.8Mhz           PCI         430/431           CPU Load         14%
BTS Setting	~	LTE PRB Usage UL PRB DL PRB		Virtual Networks	TX POWER 24dBm Access Failure Rate
LTE Setting	×.5	80%	Bracella	onine o	Network Health
System	~	40% 20%	سيس	Public Services online:1 SSID Romaing	UEs Connection Q UE Offlines
		LTE Turbo Offloading	7.7.7.7		Services Health
		175.8 Kb	Video CDN 192.168.1.108 192.168.150.12	81 82	Services Statistics
		146.5 KD 117.2 Kb	in in in	5 G	Interference Diagnosis
		58.5 Kb			L'E intérietété L
		29.3 Kb 0 b		3 3	Time -
		(2mm window, 3s interval)		_	

NOTE: The information may vary by product type or software version.

The front page shows the information as the basic information and status information of the LteTurbo base station. The status information is dynamically refreshed, refreshed every 3 seconds.

On the left side of the home page is the navigation pane, showing the information as Status-> Overview.On the top of home page, showing the Basic information of the base station, such as device model, hardware version, software version, SN model.

The status information area displays the WLAN connection status, rate statistics, LAN port connection status, and a list of connection devices.

## 4. Wizard

The first login will automatically pop up the wizard page, and you can also manually click the "Basic Settings" -> "Wizard" menu to pop up the wizard page.The wizard contains two parts:

#### 4.1 First Page

In this page, you can set the network management address and other information, and then you can choose the auto or manual button, as shown in the figure below:

Wizard		×
Management Se	rver	
* Nick Name	TurboBS	
* Cloud Key	20220309	
* Acs Server	http://192.168.150.12:8080/openacs/acs	



#### 4.2 Second Page

Auto setting is not supported by current version.

Manual setting page is show as follows:

# **Bricells**

izard			
uick Setting			
Base Setting			
* SSID	* Password	* Channel	
LWA-6G-04	12345678	auto ~	
Duplex Mode	Carrier Mode	Quick Interface Binding	
TDDMode	Carrier Aggregation	✓ WAN ✓	
HaloB	* TAC	S1 Connection Mode	
ON	~ 1	All	
	Range: 0-65535		
S1 Link Port	CBRS Country Code		
36412	Other	~	
Range: 0-65535			
PLMN			
	<b>e</b>		
	<b>—</b>		
		Back Submit	Cane

## **5. Overview Info**

Basic Into	Basic Info	Device Status	Device Health
Wizard Net Mode Turbo Setting ~ ETS Setting ~ LTE Setting ~ System ~	Product Name         LteTurbo BS           Model No         AUO           Firmware         Bak/B, UT, 12.8-board           Lte Primmare         Bak/B, QATB, 2-10.0           SN         1020300103206680005           LTE PRB Usage         UL PRB           000         80%           000         90%	POE+ C Locots Vial Attors Vial Attors Vi	Unhandled Alarms            Run Time         18:27           RVTP Time         2022-05-26:0.53:0.6           Frequency         3620.0Mtr/3544.8Mmz           POI         4.30:425           CPU Load         14%           TX POVVER         240m           Access Failure Tate            Uts Connection Q.             UE SCIMENT
	Peal         Scall           LTE Turbo Officialing	VINH CON 112 1151 1166 112 116 112 116 112 114	Services Health Services Statistics - Interference Diagnosis LTE Interference

The overview page include such information:

- 1. Basic Information -- Include SW/HW Version, SN
- 2. Lte PRB Usage
- 3. Turbo Rate Curve
- 4. Device Status:



Turbo switch,OMC Status,Cell Status,CA Status,Halob Status,Turbo Connection,Turbo Setting

## **Bricells**

	LTE Turbo UE online:0
0	LTE UE online:0
	Virtual Networks online:0
ത്രി	Pubilc Services online:0 SSID Romaing

Numbers of online devices of various types

LTE Turbo UE: support Turbo and LTE

LTE UE: only support LTE

Virtual Networks: virtual devices, not support now

Public Services: only support WiFi



Status of services

Gray line: not open

Blue tape fork: opened but not connected

Blue line: opened and connected

5. Device Health

Contains four parts: equipment health, network health, business health, interference detection

Device health includes running time, CPU load and other information is not supported

## 6.WAN/VLAN Setting

Bucolle										Welcome admin 🖂	Fnalish ~
Basic Setting	~	Œ	Turbo Setting / WAN/	VLAN							
😔 Turbo Setting	~		WAN/VLAN Conf	"g							
WAN/VLAN			- Connect Type	•							
Management Server			Copper								
Wireless											
Ngmwan			- WAN Config								
Flow Control			Index	WAN Name	IP Access Mode	IP Address	Netmask/Prefix	Gateway	VLAN ID	0	perate
w bis setting	Č		1	wanConfig1	DHCP	192.168.1.106	255.255.255.0	192.168.1.1	0		2
ulo LTE Setting	Ň										
System	ř		DNS Config The	DNS Address						0	Inerate
			1	8.8.8.8							<u>~</u>
			2	114.114.114.114							Ζ.,
			+ MTU Config								
			Save	Cancel							

Support for dynamic / static IP configuration, VLAN configuration, dns configuration, mtu configuration

### 7. Network Management Setting

Bricells			Welcome,admin 🖂	English 👻
Basic Setting	~	E Turbo Setting / Management Server		
S Turbo Setting	^	Management Server Config		
WAN/VLAN		SSL Management Server		
Management Serve		UPP V Intp// 112.100.120.12.000/dpenics/acb		
Wireless				
Flow Control				
00 BTS Setting	~			
$\overset{\circ}{_{\rm the}}$ LTE Setting	~			
System	~			
		Save		

Support Config Network Management URL

# 8. Turbo Wireless Setting

Bricells		Welcome,admin ~	English ~
🕑 Basic Setting 🗸 🗸	Turbo Setting / Wireless		
S Turbo Setting ^	Management Server Config		
WAN/VLAN	SSL Management Server		
Management Server	0FF v http:// 192.168.150.12.8080/openacs/acs		
Wireless			
Ngmwan			
Flow Control			
$^{00}$ BTS Setting $$			
$_{\rm the}^{\circ}$ LTE Setting $~\sim$			
⊚ System ~			
	Save Cancel		

# 9. Ngmwan Setting

Bricells					Welcome,admin ~	English 👻
🖱 Basic Setting 🗸 🗸	Turbs	Setting / Ngmwan				
S Turbo Setting ^	Swi	tch 💽				
WAN/VLAN						
Management Server		<ul> <li>Ngmwan Settings</li> </ul>				
		Select Nw Ifnames	* Ip Addr	* Net Mask		
Wireless	_	nw1 ~	10.10.10.1	255.255.255.0		
Ngmwan						
		* Bind Port	Interval time	RTO Factor		
Flow Control		10008	10	10		
$_{\rm 00}$ BTS Setting $\sim$		DHCP	* DHCP Startip	* DHCP Endlp		
J ITE Satting		Enable ~	10.10.10.2	10.10.10.254		
Es the second						
System ~		DHCP Mask	Auto Peer			
		255.255.255.0	Enable			
		Save Cancel				

ngmwan	setting	items:
--------	---------	--------

select nw ifnames	select ngmwan interface
ip addr	config server ip
net mask	subnet mask
mode	server
one client	only support one client
bind port	bind port
log	enable/disable log

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 $\sim$ 

auto peer	auto setting peer
dhcp	enable dhcp server
dhcp startip	dhcp start ip
dhcp endip	dhcp end ip
dhcp mask	dhcp mask

## **10. Lte Basic Setting**

BAICells							Welcome,admin 🗸	English ~
Basic Setting	×	E BTS Setting / Quick Setting						
Turbo Setting	~	Quick Setting						ĵ.
40 BTS Setting	^	Duplex Mode		Carrier Mode	Quick Interface Bir	nding		- 1
Quick Setting		HaloB		TAC	S1 Connection Mo	de		- 1
Core Network		ON V		1 Range: 0-65535	All			- 1
Sync Setting		S1 Link Port		CBRS Country Code				- 1
LGW		36412 Range: 0-65535		Other 0				- 1
$\stackrel{\circ}{_{\rm Ho}}$ LTE Setting	ř	PLMN	0					
System	ř	PLMN ID	Operate					
		314030						
		Pcell Quick Setting Band		Bandwidth	* EARFCN			
		48 ~		20 ~	56400			•
		Save Cancel						

#### 10.1 SAS Setting

CBRS Country Code

USA-FCC(CBRS)

Select "USA-FCC(CBRS)" in box SAS Setting will be shown below.



Bricells					
Basic Setting	~	E BTS Setting / Quick Setting			
Turbo Setting	×	SAS Registration Type	Legacy Mode	Frequency Selection Logic	
4 BTS Setting	^	Single-step $\vee$	Disable	Power,Bandwidth,Frequency	
Quick Setting Core Network		Preferred Bandwidth 20MHz V	Preferred Power       2     X     24dBm	Order of importance when selecting trequency	
eNodeB Setting					
Sync Setting		Preferred Frequency Pcell 3560  Scell 3560	× 6		
LGW					
the LTE Setting	~				
		<ul> <li>Install Param Config</li> </ul>			
System	~	CBSD Category	User ID	FCC ID	
		в			
			-/?^_{  > string	reange: 0-19 Dign A-2 a-2 0-9 1 # 16 & 11 + + + - / ? ^ _ [] - string	
		Latitude auto	Longitude auto	* Height auto	
		0	0	0 Meters~	
		Range: -90.000.000-90.000.000	Range: -180. 000 000-180. 000 000	Range: 0-300	
		HeightType	Deployment	* Antenna Gain	
		AGL	Outdoor V	0	
				Range: -5-30 Unit: dB	

### **11. Lte Core Network Setting**

Bricells								
Basic Setting	~	E BTS Set	ting / Core Netwo	k				
S Turbo Setting	~	O Hal	oB Mode					
的 BTS Setting	^	Ha	IoB Mode	. v				
Quick Setting			and another mod			•		
Core Network		AP	PN NAME	APN Type	VLAN ID	Operate		
eNodeB Setting		A	PNNAME1	L3		∠ ⊚		
Sync Setting								
LGW		• Imp	ort SIM Inform	ation				
the LTE Setting	~		Select Card File	cay Tuna Ella	A Colori			
System	~		Picase Sereta	Law Type The	E Select	-110		
		. 8.04	Import Card F	Template t	ownload			
			action bate					
			IMSI	UE	L AMBR(Mbps)	UE DL AMBR(Mbps)	APN NAME	Operate
			46068	0000710003 500.	10	1000.00	APNNAME1	4
			41056	0003401025 50.0		100.00	APNNAME1	-
			Rayo	0				

## 12. Lte Sync Setting



# 13. Log Setting

Bricells		w	elcome,admin 🖂	English 👻
Basic Setting	~	E System/Log		
🕲 Turbo Setting	~			
00 BTS Setting	~	et futto Log Files		
🝰 LTE Setting	~			
System	~	- Get LTE Log Files		
Log		Get LTE Log Files		
Upgrade		Ger LTE Crash Loos		
Backup		Get LTE Crash Logs		
NTP				
Diagnostics		Get LTE Core Files		
License		Get LTE Core Files		
Reboot				

# 14. Upgrade

Bricells		Wekome,adr	in ~ Englis	ah is
Basic Setting	~	E System / Upgrade		
🛇 Turbo Setting	×	Upgrade Firmware		
00 BTS Setting	ř	Select Firmware File Piese Select IMG/Img Type File Select File Pieserve Settings		
$\overset{\circ}{the}$ LTE Setting	~	lingrade		
System	^			
Log		LTE Upgrade Firmware		
Upgrade		Select LTE Filmware File  Plans Select ING Type File  Preserve Settings		
Backup				
NTP		upgrave		
Diagnostics				
Certificate				
License				
Reboot				

# **15. Restore Factory Setting**

Bricells			~
Basic Setting	~	E System (Backup	
S Turbo Setting	×	Restore Default Configuration	
00 BTS Setting	~	Nentore Default Configuration	
$_{t\bar{t}\bar{n}}^{\alpha}$ LTE Setting	~		
System	^		
Log			
Upgrade			
Backup			
NTP			
Diagnostics			
Certificate			
License			
Reboot			

# 16. NTP Config

Bricells					Welcome,admin v English
Basic Setting	~	E System / NTP			
S Turbo Setting	×	- NTP			
60 BTS Setting	~	- Current Date & Time			
$t_{\rm th}^{\rm B}$ LTE Setting	×	- Time Zone			
System	^	Time Zone			
Log		UTC ~			
Upgrade		- NTP Servers			
Backup		Server 1	Server 2	Server 3	
NTP		0.openwrt.pool.ntp.org	1.openwrt.pool.ntp.org	2.openwrt.pool.ntp.org	
Diagnostics		Server 4 3.openwrt.pool.ntp.org			
Certificate					
License					
Reboot					
		Save			

# **17. Diagnostics**

Bricells			Welcome,admin ~	English 🗸
Basic Setting	~	E System / Diagnostics		
Turbo Setting	v	Diagnostics		
00 BTS Setting	~	Method of Diagnostics		
🖞 LTE Setting	~	Pring ~		
System	^	* Target IP/Domain * Packet Size * Timeout 56 10		
Log		Range: 56-9000 Unit: byte Range: 1-10 Unit: Seconds		
Upgrade		* Packet Num		
Backup		4 Range: 1-10		
NTP				
Diagnostics		Implement Cancel		
Certificate				
License		Result		
Reboot				

# 18. Certificate

Bricells				Welcome,admin ~ English
Basic Setting	~	😇 System / Certificate		
🛞 Turbo Setting	×	Certificate		
00 BTS Setting	~	Type		
ing LTE Setting	~	SAS CPI Certs	ртд гие	
System	~	Certificate List		E Select File
Log		index Type	Certificate Name	Operate
Upgrade			No Data Available	
Backup				
NTP				
Diagnostics				
Certificate				
License				
Reboot				

## 19. License

. 5	System / License			
	License			
	License List			E Select File
	ID	Description	Capacity	Remain Time(Unit: Day)
	FAP001	HaloB with centralized mode	0	16
•	FAP002	HaloB with standalone mode	0	16
	FAP009	Carrier Aggregation Function	0	16
	FAP010	Dual Carrier Function	0	16
	~	C E Bysten/License		

## 20. Reboot

Bricells		Wetcome.admin 🗸 Englis
Basic Setting	~	E System/Rebost
S Turbo Setting	~	E Reboot
00 BTS Setting	~	Reboot
the LTE Setting	~	
System	^	
Log		
Upgrade		
Backup		
NTP		
Diagnostics		
Certificate		
License		
Reboot		

### 21. Regulatory Compliance

#### 21.1 FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for

compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### Warning:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 70cm between the radiator & your body.

#### 21.2 ISEDC Compliance

This device complies with Innovation, Science, and Economic Development Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause u ndesired operation of the device.

Le présent appareil est conforme aux CNR d' Innovation, Science et Développement

économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est



susceptible d'en compromettre le fonctionnement.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 80cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter, End-Users must be provided with transmitter operation conditions for satisfying RF exposure compliance.

Les antennes utilisées pour cet émetteur doivent être installées de façon à offrir une distance de séparation d'au moins 80cm entre toutes les personnes et ne doivent pas être colocalisées ou fonctionner conjointement avec d'autres antennes ou transmetteurs. pour satisfaire la conformité à l'exposition RF.