LITEON®

FlexFi All-in-one Small Cell

Indoor FR1 n77 n78 n79

User Guide

V1.2

Revision History

Revision	Date	Change Log
V1.0	2024/1/22	First Release
V1.1	2024/3/8	Modify specification information
V1.2	2024/3/22	Active users increased from 32 to 64

Contents

1. FlexFi FR1 All-in-one Small Cell Product Overview

LITEON FlexFi All-in-one small cell is a great-value radio access point with SUG-6GHz radio frequency. It can be deployed indoors with a small footprint and range which is easy to install and a high-performing solution for network densification. Most importantly, the products are 100% in-house developed and produced in Taiwan including the software and hardware.

Full Sub-6GHz Spectrum

LITEON's FlexFi indoor product portfolio covers Sub-6G bands with n77, n78 and n79 spectrum to provide diverse options to broaden operators' networks as well as to enrich system integrators' solutions for private 5G local networks.

A Solution to Fit Any Situation

The main purpose of FlexFi product series is to accelerate the development and deployment of open, disaggregated, and standards-based RAN solutions that deliver the high-quality connectivity that the new era needs for now and in the decades to come.

[Overview]

LITEON FlexFi All-in-one small cell is an indoor 3GPP compliant; provides 5G Sub-6 radio signal transmitting, receiving, and processing functions; supporting n78 and n79 band 5G NR Sub-6 indoor radio coverage. The unit provides 4T4R and 1W power. The radio is encased in an IP30 rated indoor enclosure with 4 x SMA-type antenna ports, 1 x 10Gbps Ethernet port and 1 x 10Gbps SFP+ ports powered by 54V DC power supply. IP30 protection for indoor deployment. Additionally, the base station supports advanced timing synchronization via GPS, IEEE-1588v2 (PTP) and SyncE sources and is designed to operate over a temperature range of -5°C to +45°C.

[HIGHLIGHTS]

- 3GPP Release 15 compliant for private and public applications.

- Supports Max. 100 MHz bandwidth.

- Support cross-country private network spectrum with n77, n78 and n79.

- Excellent Non-Line-of-Sight (NLOS) coverage.

- Supports external 4-port antenna for MIMO.

- Max. output power 1W totally.

- Support both 10Gbps RJ45 and 10Gbps SFP+ for backhaul interface.

- Integrated small cell form factor for quick and easy installation.

- Plug-and-play with Self-Organizing Network (SON) capabilities.

- Supports PDU session setting.

- Supports cell setting.

- Supports Standalone (SA) mode.

- Supports NG setting.

- Supports F1 interface setting.

- Supports CPE attachment.

NOTE: Features may vary by model or by region.

2. Product Specification

LITEON FlexFi carrier-grade All-in-one small cell powers this standalone, fully integrated, low-cost 5G Enterprise Small Cell, which operates in the widely usedn77, n78 and n79 frequency band.

Specification

Product Serial	FF-GDI077E4
	FF-GDI078E4
	FF-GDI079E4
Product Type	5G NR : FR1 Sub-6
Band	n77: 3.7 ~ 3.95GHz
	n78: 3.3 ~ 3.8GHz
	n79: 4.4 ~ 5.0GHz
Duplex Mode	TDD
Bandwidth	Up to 100MHz
Antenna Type	External
RF Tx Power	24dBm per chain
Tx/Rx Path	4x4
MIMO Order	DL: 2 Layers, UL: 4 Layers (4T2R)
Modulation	DL: 256 QAM / UL: 64 QAM
Synchronization	GNSS, IEEE 1588v2, Sync-E
Fronthaul Connectivity	10Gbps SFP+, 10Gbps RJ45
Ingress Protection	IP30

Operation Temperature	-5℃ ~ 45℃
Storage Temperature	-30℃ ~ 70℃
Humidity	5% ~ 95%
Power Supply	54 Vdc
Power Consumption	68W (30% load)
	74W (50% load)
	MAX 90W (100% load)
Mounting	Wall, Ceiling mount
Dimensions	303 x 239 x 83 mm
Memory	Main Memory 16 GB
	eMMC Flash 32 GB
	NOR Flash 64 MB
Weight without accessories	4.3 kg
MTBF	26280 hrs (3yrs)
EMC	Class B
IPv4	Supported
IPv6	Not supported
Active Users	64

2.1. I/O Ports

- 10Gbps RJ45
- 10Gbps SFP+
- GPS
- LED
- Console
- Power Jack
- Reset Button

2.2. Power Supply

The FlexFi Indoor Small Cell shall be powered by
- External power supply: DC 54V

2.3. RF and Antenna

The FlexFi Indoor Small Cell shall deliver 4x4 MIMO on sub-6G bands.
- Frequency: n77: 3.7 ~ 3.95, n78: 3.3 ~ 3.8GHz, n79 : 4.4 ~ 5.0 GHz
- Peak Tx Gain: 5 dbi
- Max rated Tx Power output: 24dbm per chain
- Tx Power output setting range: 0 ~ 24 dBm
- Receiving sensitivity range: -60dBm ~ -90 dBm @ Maximum Rx gain setting
- Receiving Noise Figure: 5dB
- V.S.E.R: <=2
- Polarization: Vertical
- Efficiency: 60%
- Antenna Quantities: 5 (GPS*1；RF*4)
- GPS antenna supporting passive* and active both two types. The bias voltage for GPS active antenna is 2.7V~5.5V, max <6V.

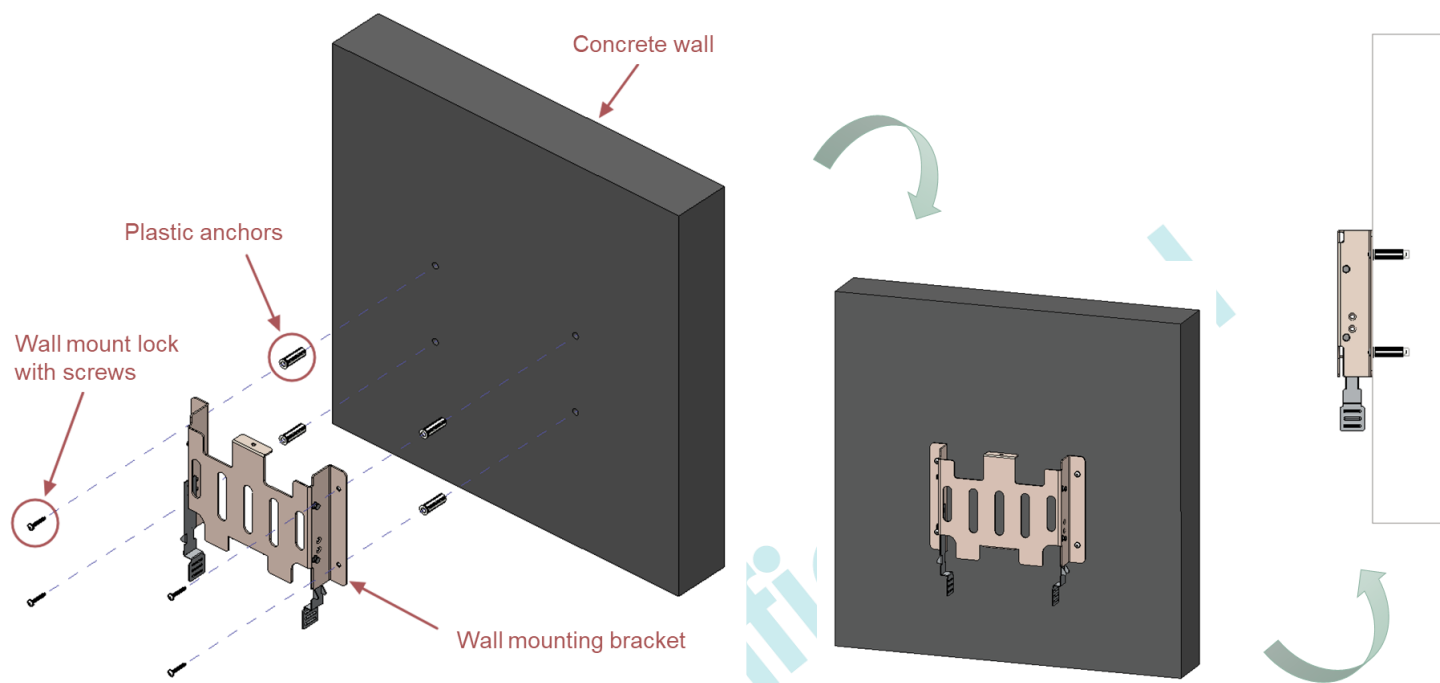 *An additional DC block will be required for passive antenna to function.

2.4. LED Indicator

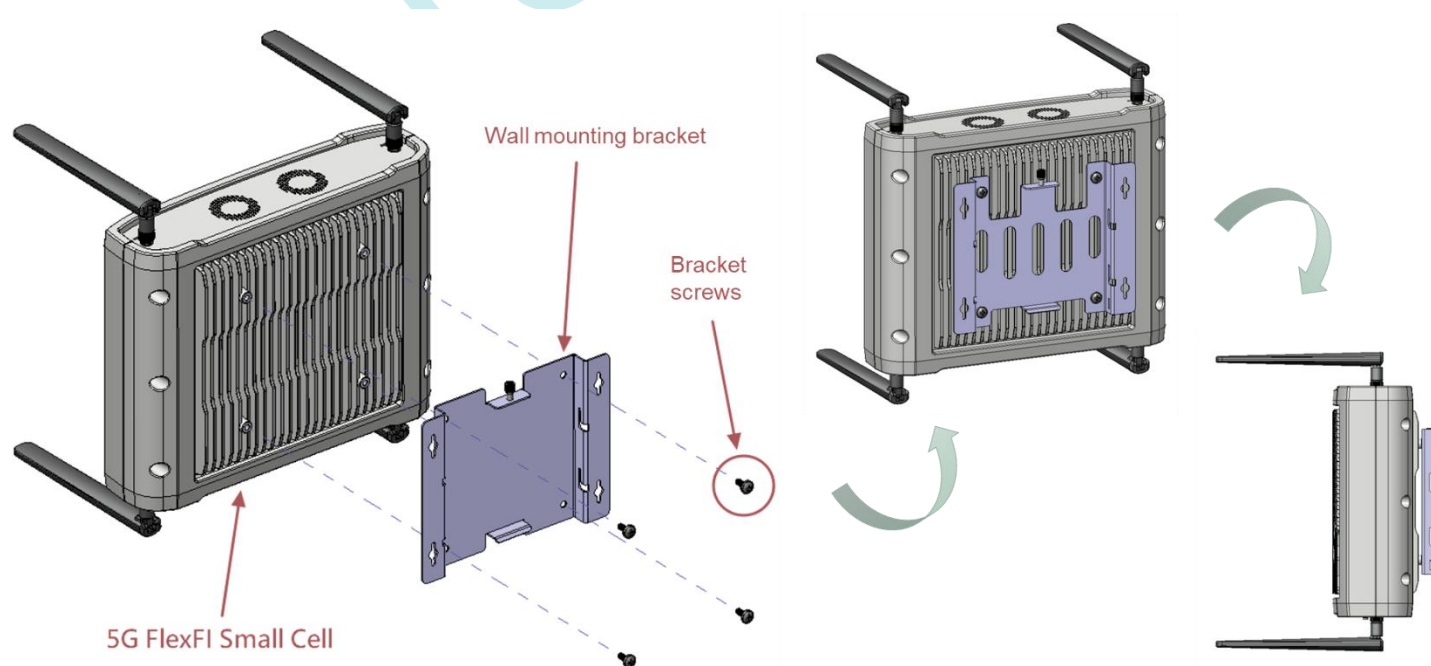The LED shall be enabled and disabled by power and software.

No	LED	Source Color	Status	Description
1	SYS	RED/YELLOW/ GREEN/BLUE	OFF	The device is power off.
			RED	The device is power on and initializing
			YELLOW	Operation system is ready and waiting for user login
			BLUE	GNB NGAP setup successfully to 5GC
			GREEN	UE network attached successfully
2	LAN (10G)	Bi-Color (Green, Amber)	Solid Green	Ethernet connected, good link at 1Gbps/10Gbps
			Flashing Green	Receiving/transmitting data at 1Gbps/10Gbps
			Solid Amber	Ethernet connected, good link at 100 Mbps
			Flashing Amber	Receiving/transmitting data at 100 Mbps
			OFF	Ethernet is disconnected or down.

3. Wall Mounting Guide

3.1. Fix bracket to the wall

Concrete wall

Plastic anchors

Wall mount lock with screws

Wall mounting bracket

3.2. Fix bracket to the device

Wall mounting bracket

Bracket screws

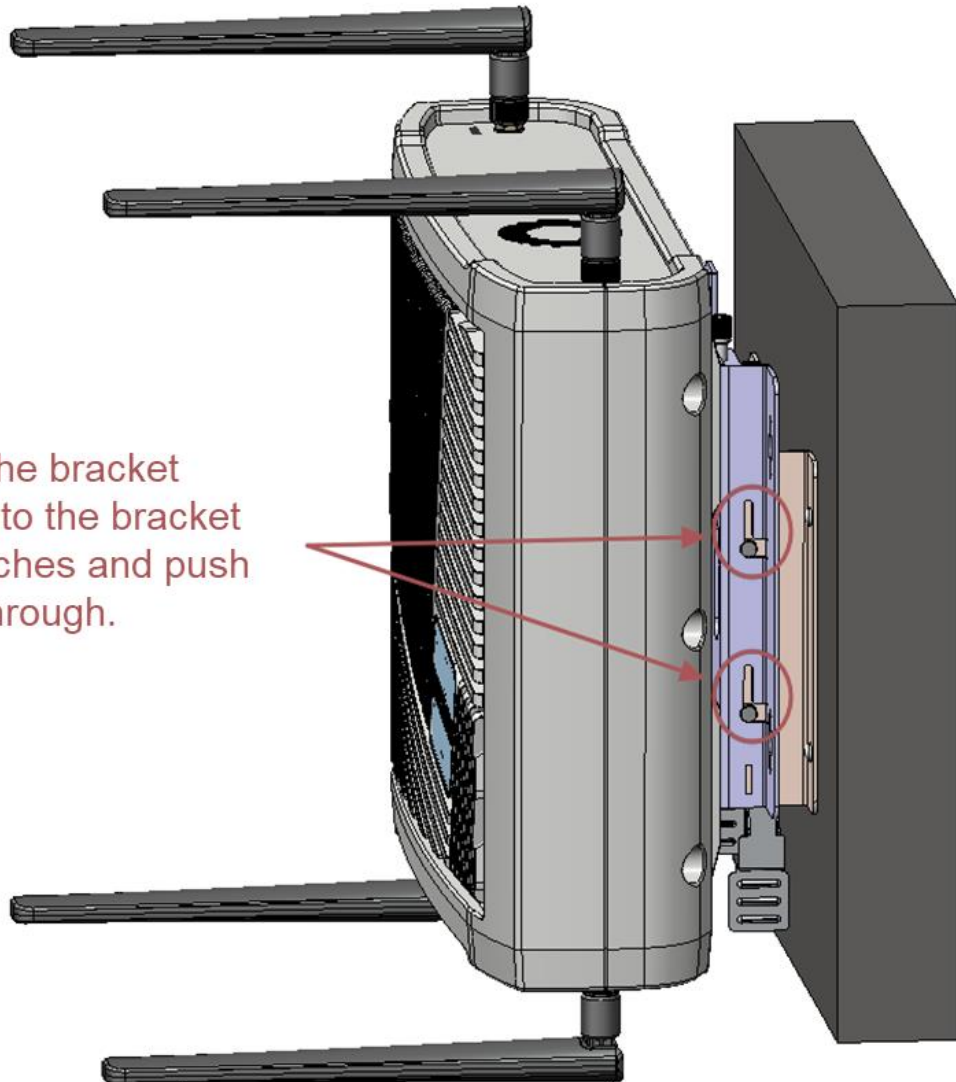5G FlexFI Small Cell

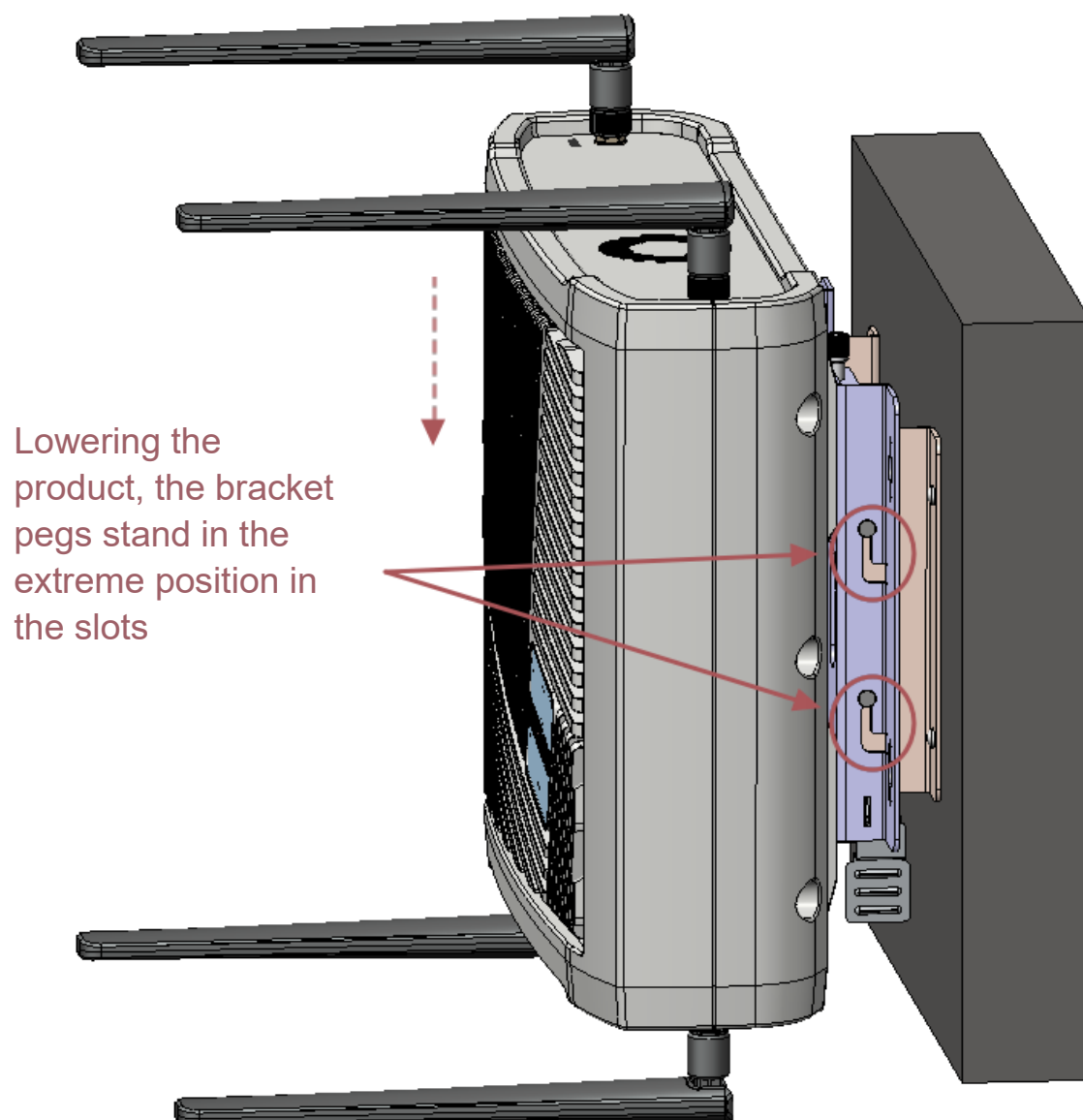## 3.3. Fix both brackets

Bracket anchors

Bracket peg
rail notch
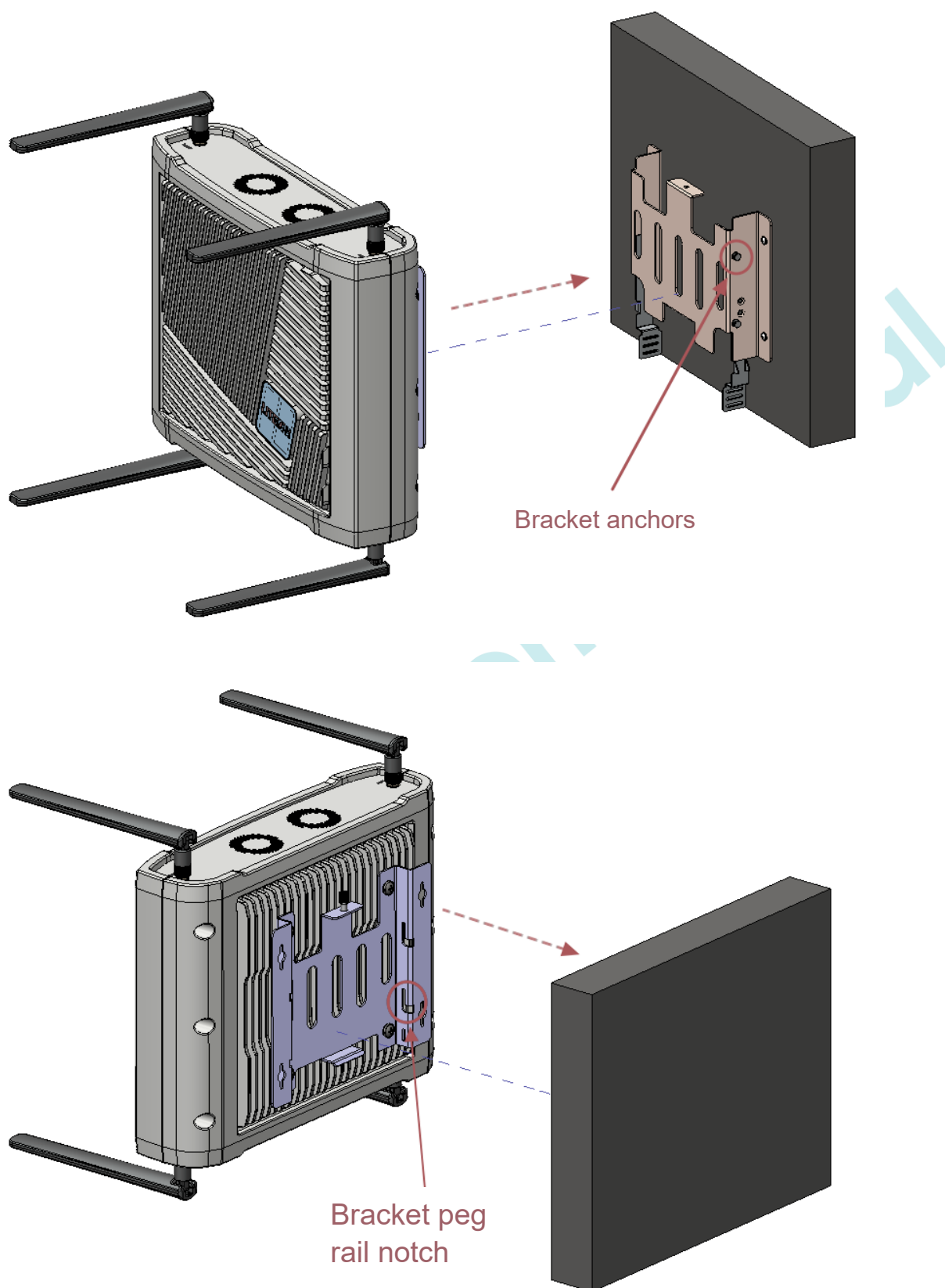
3.4. Put device from the bottom

1.

Place the bracket pegs into the bracket rail notches and push them through.

2.

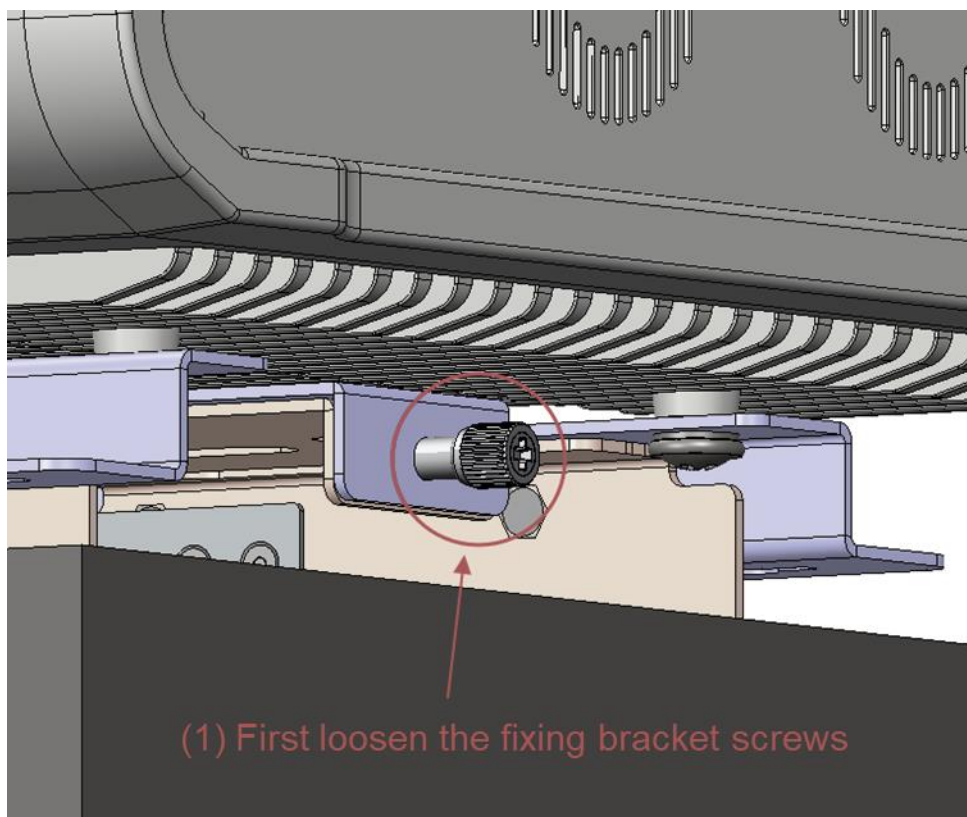Lowering the product, the bracket pegs stand in the extreme position in the slots

3.5. Fix screws

Bracket screws

LITEON®

3.6. Release the device

(1) First loosen the fixing bracket screws
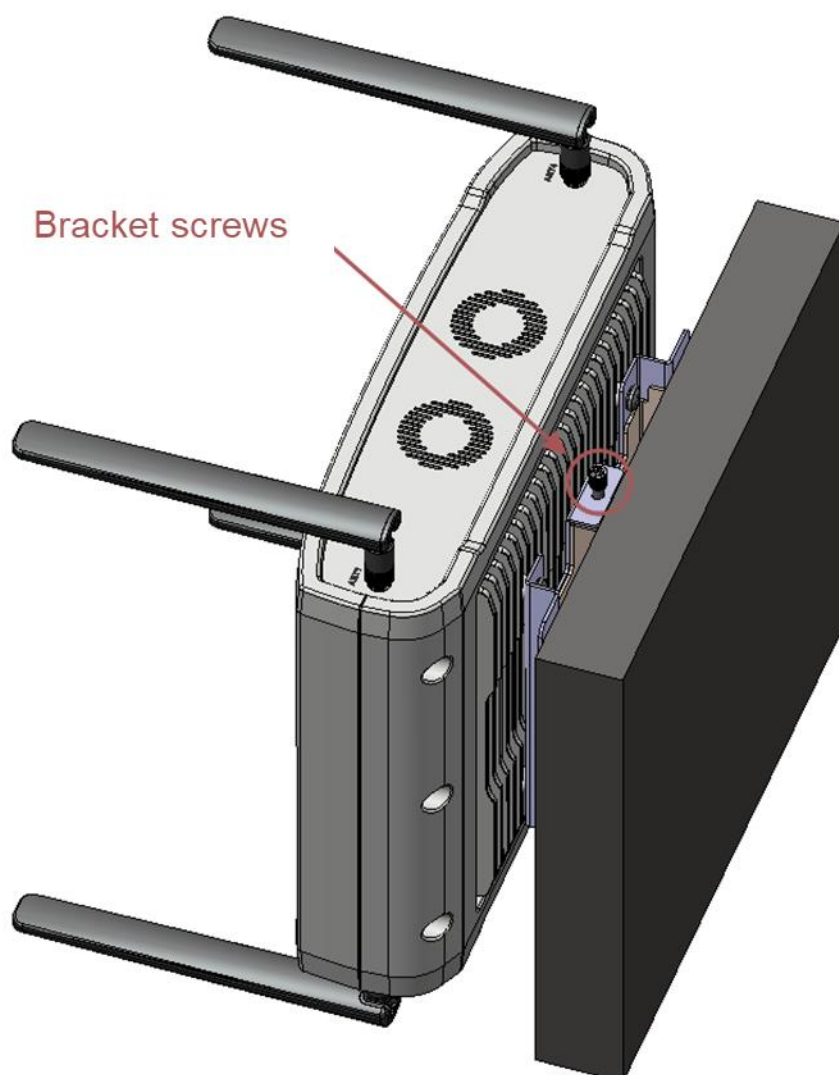
(3) Push the product upward and move the peg downward

(2) Push the unlocking handle inward with one hand, and make sure to release the snap fastener.
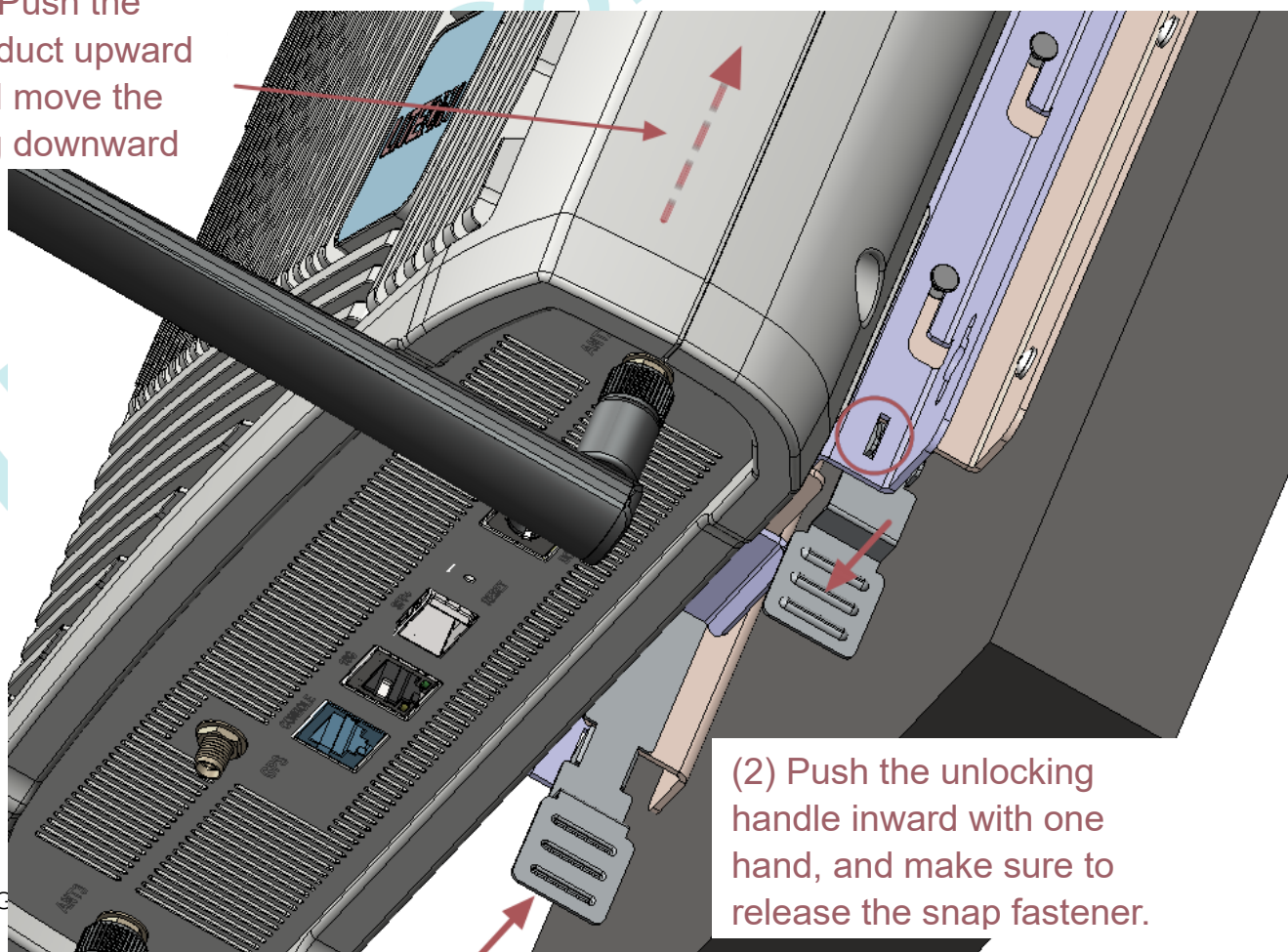
4. Quick Setup

4.1. Check List

FlexFi All-in-one small cells can be configured via KLISH. This chapter will make it clear what hardware or software items are required for you to be ready to get into KLISH process.

Hardware
- One laptop
- One FlexFi All-in-one Small Cell device
- One RJ45 cable or console cable

Software

- Software installation terminal program (for example: mobaxterm) ready in laptop
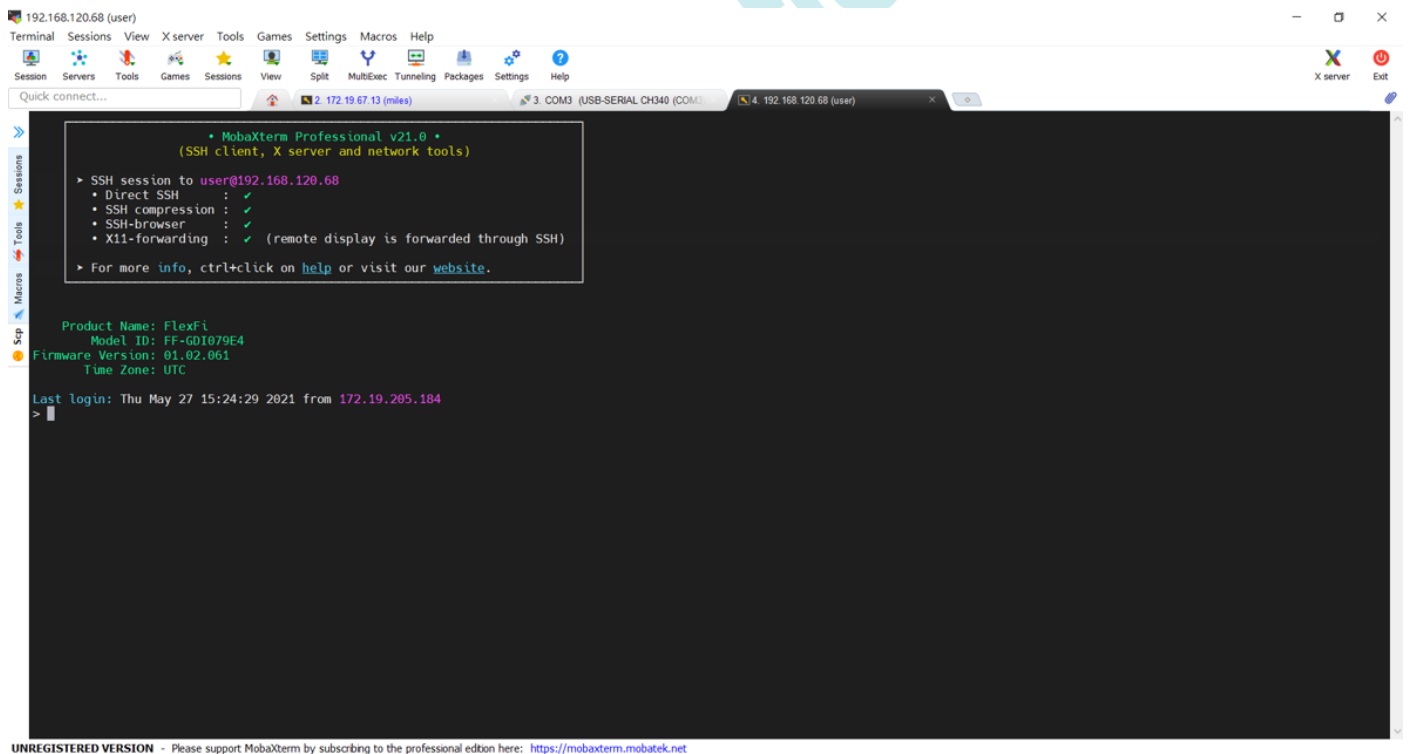
4.2. Setup Steps

There are two ways to connect to FlexFi all-in-one small cell to conduct KLISH configuration. You can do it via ethernet, or via console, as elaborated below respectively.

Ethernet
    i.   Plug one end of the RJ45 cable into the laptop's Ethernet port, the other end into the 10Gbps port of the FlexFi small cell
    ii.   Set laptop network interface as: 192.168.120.10/24
    iii.   Get in mobaxterm, use ssh session to connect to 192.168.120.68

Console
    i.   Get the console cable from FlexFi small cell package
    ii.   Connect one end of the console cable to the USB port of the laptop and the other end to the console port on the FlexFi small cell
    iii.   Get in mobaxterm, use console session to connect to 192.168.120.68
    iv.

5. KLISH Guide

- Liteon FlexFi AIO configuration applies via KLISH CLI interface.
- The KLISH is a CLI interface which is implemented like a CISCO-like CLI on UNIX systems, and It manipulates XML files on lower layer.
- Three modes are provided: User mode, Enable mode, and Config mode.

5.1. How to login KLISH

- Step 1: Turn on FlexFi AIO/RDU
- Step 2: Prepare a PC and install a terminal tool
- Step 3: Connected to FlexFi AIO

SSH	
Serial Console	

User: user
Password: Usr5566#

For **SSH** method to login, it's necessary to config both RAN and PC with the same segment.
We suggest to set **IP of PC to 4.4.105.8**, **remote host to 4.4.105.3** if no IP address of RAN is known on your side.

5.2. User Mode

Press ? to show all commands after login

```
localhost login: user
Password:
Last login: Fri Oct 27 09:56:49 UTC 2023 on ttyAMA0

    Product Name: FlexFi
        Model ID: FF-GDI079E4
Firmware Version: 01.02.05e
       Time Zone: UTC

>                                          Press ? to show all commands after login.
    enable      Turn on privileged commands
    exit        Exit from the CLI
    ping        Send ICMP ECHO_REQUEST packets to network hosts.
    traceroute  Print the route packets trace to network host

>
```
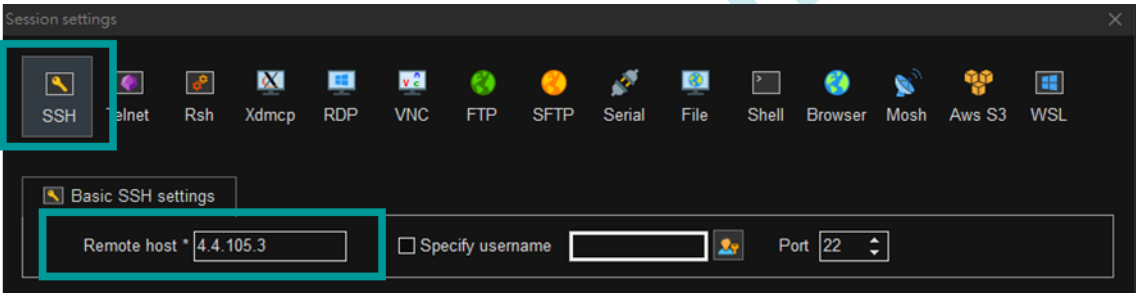
Command	Description	Value Definition
enable	Turn on privileged command.	Default privileged password is **Liteon168&&**!
traceroute	Print the route packets trace to network host.	Example: 192.168.82.82
ping	Send ICMP ECHO REQUEST packets to network host.	Example: 192.168.81.81
exit	Exit from the CLI.	

5.3. Enable Mode

Password: **Liteon168&&****!

```
>
>
> enable
Enter Password: Password is Liteon168&&**!
#
  arp              Display the kernel's IPv4 network neighbour cache.
  configure        Enter configuration mode.
  exit             Turn off privileged commands.
  gnb              gNB operation
  ping             Send ICMP ECHO_REQUEST packets to network hosts.
  reboot           Halt and perform a cold restart.
  route            Display the kernel's routing tables.
  show             Show running system information.
  software_upgrade Upgrade AIO software, ex: software_upgrade [ftp_server_username] [ftp_server_password] [ftp_server_ip] [aio_upgrade_filename]
  system_time      Set/Show system time
  traceroute       Print the route packets trace to network host.

#
```

Note: Password was changed from "liteon168" to "Liteon168&&**!" for 1.2.5f(11/23/2023) and newer versions, such as 1.2.5g, 1.2.6 and so on.

For RDU release, 1.3.3 and newer versions apply this new password.

Command	Description
arp	Display the kernel's IPv4 network neighbor cache.
configure	Enter configuration mode.
exit	Turn off privileged commands.
gnb	gNB operation
ping	Send ICMP ECHO_REQUEST packets to network hosts.
reboot	Halt and perform a cold restart.
route	Display the kernel's routing tables.
show	Show running system information.
Software_upgrade	Upgrade AIO software
System_time	Set/Show system time
traceroute	Print the route packets trace to network host.
country	Show country.
dl-ul-layer	Show DL/UL layer.
eth-info	Show all ethernet interface information.
fw-info	Show the firmware information of gNB.
system	Show system information.
running-config	Show the current running configuration on the gNB.
date	Show current time.
update	Show how long the system has been running.
ps	Report a snapshot of the current processes.
history	Show history.

sync-status	Show sync status.
gnb-status	Show gNB status.
ue-status	Show UE status

5.4. Config Mode

Press ? to show all commands after login.


```
# configure terminal

Entering configuration mode...
(config)#
  autologout          Without any user activity for the specified timeout the Klish can autologout (close current input stream and exit).
  commit              Commit config and restart gnb core.
  default-gateway     Set/Show default gateway.
  drx                 Set/Show DRX status.
  exit                Go back to main menu.
  fan                 Set/Show fan speed configuration.
  frequency           Set/Show frequency band configuration.
  gnbid               Set/Show gNB ID. It identifies a gNB within a PLMN.
  IPsec               Set/Show IPsec configuration.
  mcc-mnc             Set MCC/MNC.
  mcs                 Set/Show DL/UL MCS.
  mgmt-interface      Set/Show management interface.
  mgmt-interface-ip   Set/Show management interface IP address configuration.
  nci                 Set/Show NCI(NR Cell Identity).
  neighbor            add/del neighbor cell.
  ngc-interface       Set/Show ngc interface.
  ngc-ip              Set/Show NG-C IP address.
  ngc-remote          Set/Show NG-C remote address.
  ngu-interface       Set/Show ngu interface.
  ngu-ip              Set/Show NG-U IP address.
  ngu-remote          Set/Show NG-U remote address.
  password            Set password of Klish access permission.
  pci                 Set/Show PCI. This holds the Physical Cell Identity (PCI) of the NR cell.
  reset-to-default    Reset config to default.
  running-config      Save/Load running config.
  sd                  Set/Show SD. Indicates the Slice Differentiator in hexadecimal.
  security            Set/Show NR Encryption Algorithm/Integrity Algorithm.
  slot-pattern        Set/Show TDD Slot Pattern.
  snssai              Set/Show sNSSAI. It represents the list of S-NSSAI the managed object is supporting in hexadecimal format.
  splane-interface    Set/Show splane interface.
  sst                 Set/Show SST. Indicates the Slice/Service Type in hexadecimal.
  sync-source         Set/Show sync source. This parameter indicates synchronization source.
  tac                 Set/Show TAC. Indicates the Tracking Area Code.
  tx-power            Set/Show TX power.
  ue-inactivity-timer Set/Show UE inactivity timer.
```

Command	Description	Value Definition
autologout	Without any user inactivity for the specified timeout the KLISH can auto logout.	4 options, - min10 - min30 - hr1 - show
default-gateway	Set/Show default gateway.	2 options, - add - delete Example: - default-gateway add 192.168.200.20 - default-gateway delete
frequency	Set/Show frequency band configuration.	
gnbid	Set/Show gNB ID. It identifies a gNB within a PLMN.	Example: gnbid 33
mcc-mnc	Set/Show MCC/MNC.	Example: mcc-mnc set 002 02
mgmt-interface	Set/Show management interface.	2 options, - eth0 - eth1
mgmt-interface-ip	Set/Show management interface IP address configuration.	2 options, - DHCP - STATIC Example: - mgmt-interface-ip DHCP - mgmt-interface-ip STATIC 11.22.33.44/16
ngc-interface	Set/Show NG-C interface.	2 options, - eth0 - eth1
ngu-interface	Set/Show NG-U interface.	
ngc-ip	Set/Show NG-C IP address.	Example: ngc-ip 11.22.33.44/24
ngc-remote	Set/Show NG-C remote address.	Example: ngc-remote 55.66.77.88
splane-interface	Set/Show S-Plane interface.	2 options, - eth0 - eth1

Command	Description	Value Definition
sync-source	Set/Show sync source. This parameter indicates synchronization source.	3 options, - GNSS - PTP - INTER_CLOCK
slot-pattern	Set/Show TDD Slot Pattern.	6 TDD Slot pattern options, - 7D1S2U - 3D1S2U4D - 3D1S2U1D1S2U - 3D1S1U2D1S2U … 4 Special slot symbol options: - 12D2G - 8G6U Example: slot-pattern set 7D1S2U 8G6U
ngu-ip	Set/Show NG-U IP address and mask.	Example: ngu-ip 11.22.33.44/16
ngu-remote	Set/Show NG-U remote address and mask.	Example: ngu-remote 55.66.77.88
gnbid	Set/Show gNB ID.	Example: gnbid 10
nci	Set/Show NCI. Indicates the NR Cell Identity.	Example: nci 8
pci	Set/Show PCI. Indicates the Physical Cell Identity of the NR cell.	The value definition: 0 - 1007 Example: pci 88
sst	Set/Show SST. Indicates the Slice/Service Type in hexadecimal.	Example: sst 1
sd	Set/Show SD. Indicates the Slice Differentiator in hexadecimal.	Example: sd 010203
snssai	Set/Show sNSSAI. It represents the list of S-NSSAI the managed object is supporting in hexadecimal.	**NO NEED to config it, just config SST and SD.**
ue-inactivity-timer	Set/Show UE inactivity timer.	65 options, Example: ue-Inactivity-timer s10

Command	Description	Value Definition
running-config	Save/Load running config.	5 options, - save - load - delete - show - list
tx-power	Set/Show TX power.	The value definition: 0 - 24 (dBm) Example: tx-power 7
mcs	Set/Show DL/UL Modulation and MCS.	2 DL/UL Modulation options, - 256 QAM - 64 QAM The DL/UL MCS value definition: 0 - 31 Example: mcs set MCS_TBL_256QAM MCS_TBL_64QAM 20 24
password	Set password of KLISH access permission.	Example: a. password (enter) b. Enter Password: xxxxxx (enter) c. Are you sure to change the password ? [y/n]:
reset-to-default	Reset config to default.	
commit	Commit config and restart gnb core.	Need to wait for 1-2 mins. Then system will take effect, or you can reboot the system after configuration is completed, you don't need commit

- Press ? Or tab anywhere, you can see detailed arguments, or complete commands for example:


```
(config)# frequency    Press ? to show all arguments
set-frequency-n79-4.6g-100MHz    set frequency n79 4.6GHz (BW:100MHz) Center:4650.000 MHz, SSB:4620.000 MHz
set-frequency-n79-4.7g-100MHz    set frequency n79 4.7GHz (BW:100MHz) Center:4749.990 MHz, SSB:4712.160 MHz
set-frequency-n79-4.8g-100MHz_1  set frequency n79 4.8GHz (BW:100MHz) Center:4849.980 MHz, SSB:4850.400 MHz
set-frequency-n79-4.8g-100MHz_2  set frequency n79 4.8GHz (BW:100MHz) Center:4849.860 MHz, SSB:4804.320 MHz
set-frequency-n79-4.8g-100MHz_3  set frequency n79 4.8GHz (BW:100MHz) Center:4849.980 MHz, SSB:4827.360 MHz
set-frequency-n79-4.9g-100MHz    set frequency n79 4.9GHz (BW:100MHz) Center:4918.980 MHz, SSB:4873.440 MHz
<cr>
```

- Press ? to show all arguments:

```
(config)# slot-pattern set    Press ? to show all arguments
   7D1S2U          set TDD Slot Pattern 7D1S2U
   3D1S2U4D        set TDD Slot Pattern 3D1S2U4D
   3D1S2U1D1S2U    set TDD Slot Pattern 3D1S2U1D1S2U
   3D1S1U2D1S2U    set TDD Slot Pattern 3D1S1U2D1S2U
   3D1S1U          set TDD Slot Pattern 3D1S1U
   1D1S2U          set TDD Slot Pattern 1D1S2U

(config)# slot-pattern set    Press tab  to show all arguments
7D1S2U         3D1S2U4D      3D1S2U1D1S2U 3D1S1U2D1S2U 3D1S1U        1D1S2U
(config)# slot-pattern set █
```

5.5. Software Upgrade

Enable Mode Layer:

- **Step 1:** Turn on FlexFi AIO
- **Step 2:** Prepare a PC, install 3CDaemon FTP tool
- **Step 3**: Setup FTP server, including the password and user directory

set the password

set the path

enable
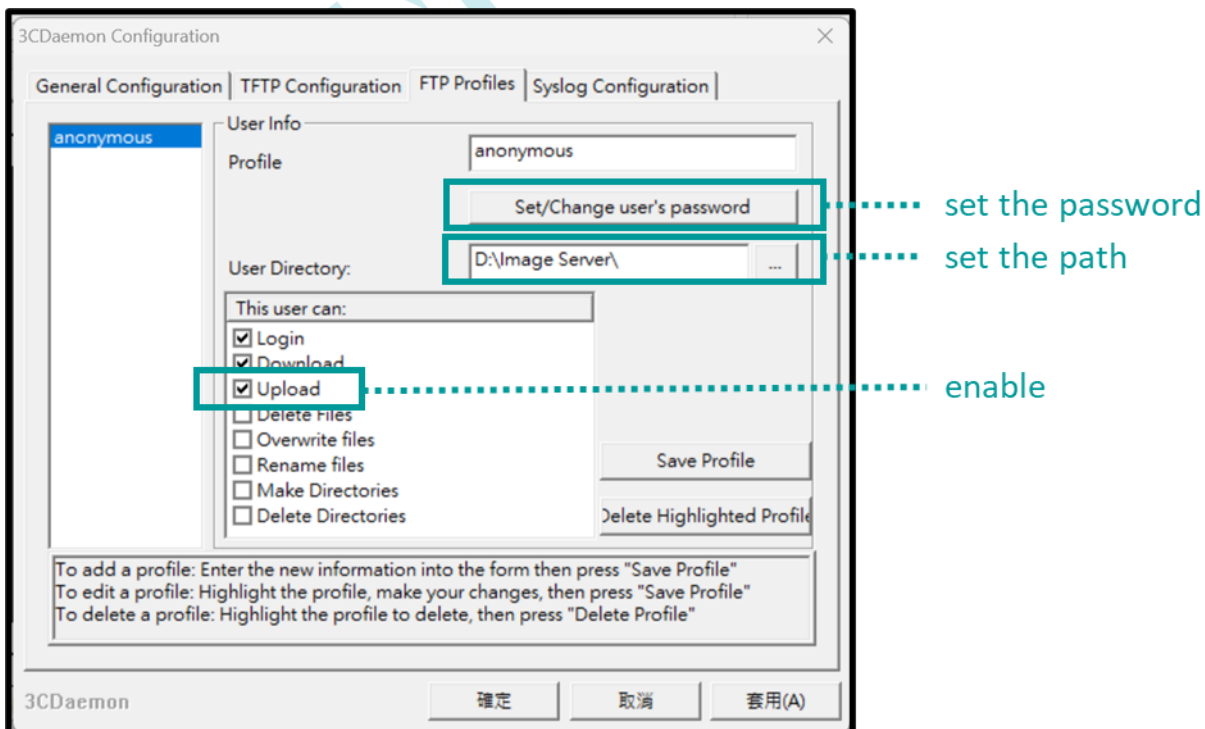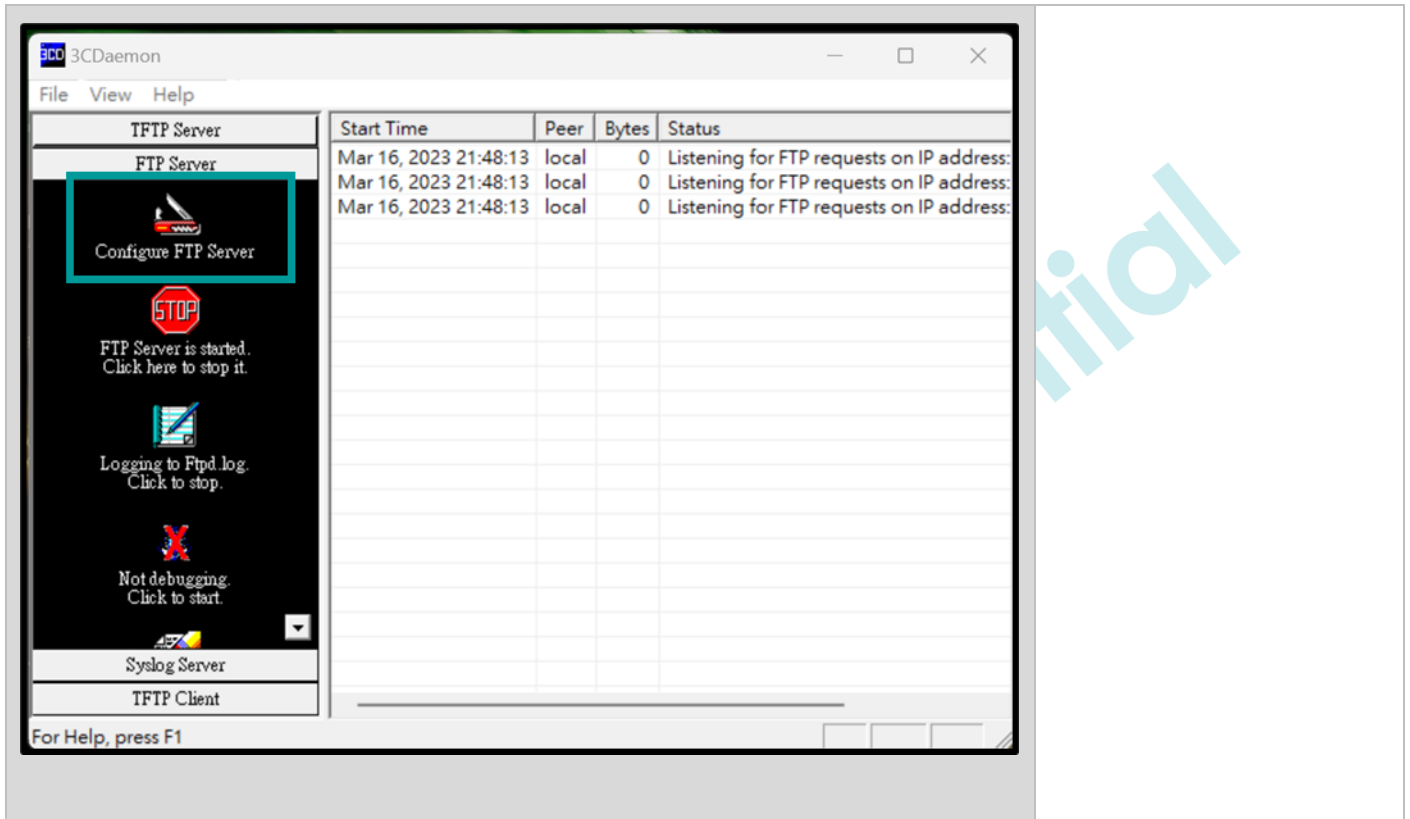
- **Step 4:** Download the new image file and then put it in the FTP folder
- **Step 5:** Connect FelxFi AIO and PC via ethernet cable, then config them with the same segment
  (if you don't know any IP address of RAN, suggest to set IP address of PC to 4.4.105.8 at the first time)
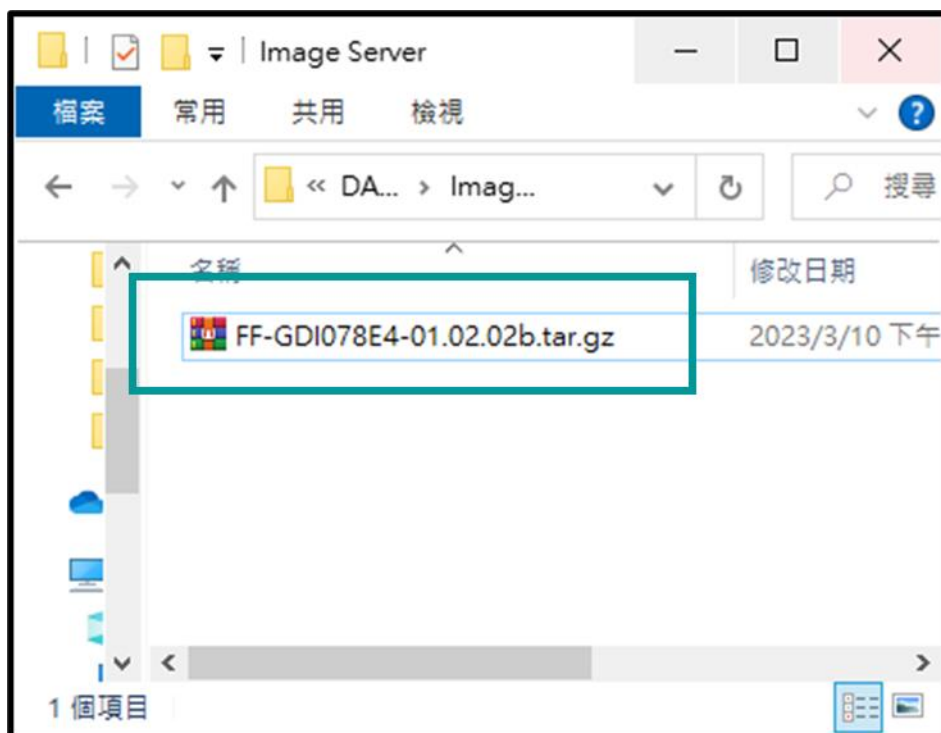
- **Step 6:** Copy image file from FTP sever to RAN and then untar it

  Command: software_upgrade <u>username</u> <u>password</u> <u>IP_address</u> <u>image_file_name</u>

```
# software upgrade ftpserver 123456 4.4.105.8 FF-GDI078E4-01.02.02b
--2021-05-27 23:34:25--  ftp://ftpserver:*password*@4.4.105.8/FF-GDI078E4-01.02.02b.tar.gz
           => 'FF-GDI078E4-01.02.02b.tar.gz'
Connecting to 4.4.105.8:21... connected.
Logging in as ftpserver ... Logged in!
==> SYST ... done.    ==> PWD ... done.
==> TYPE I ... done.  ==> CWD not needed.
==> SIZE FF-GDI078E4-01.02.02b.tar.gz ... 1743797571
==> PASV ... done.    ==> RETR FF-GDI078E4-01.02.02b.tar.gz ... done.
Length: 1743797571 (1.6G) (unauthoritative)

FF-GDI078E4-01.02.0 100%[===================>]   1.62G  7.62MB/s    in 3m 40s

2021-05-27 23:38:05 (7.54 MB/s) - 'FF-GDI078E4-01.02.02b.tar.gz' saved [1743797571]

Untar image file...
tar: images/bootpartition_LS_arm64_lts_4.19.tgz: time stamp 2023-03-10 16:16:24 is 56306295.9760005
44 s in the future
tar: images/rootfs_lsdk2004_ubuntu_main_arm64.tgz: time stamp 2023-03-10 16:16:25 is 56306270.7024176
04 s in the future
tar: images/firmware_la1224rdb_revc_uboot_emmcboot.img: time stamp 2023-03-10 16:16:24 is 56306269.05
1096667 s in the future
tar: images: time stamp 2023-03-10 16:16:24 is 56306269.050967347 s in the future
tar: info.md5: time stamp 2023-03-10 16:16:28 is 56306273.050844187 s in the future
tar: scripts: time stamp 2023-03-10 16:16:25 is 56306267.748635591 s in the future
tar: update.cud: time stamp 2023-03-10 16:16:28 is 56306267.287002714 s in the future
tar: model.id: time stamp 2023-03-10 16:16:31 is 56306270.286861114 s in the future
```

Please input firmware name WITHOUT ".tar.gz"

DO NOT turn off the device during software upgrade !!!

- **Step 7:** Start to upgrade image


```
Upgrade image file...
[sudo] password for user:
pwd=/home/user, Image=/home/user/images
devpart_boot 2 devpart_root 4
auto update u-boot & part (1,3)
boot2= 1 , boot= 2 , backup= 3 ,sys=4
Cleaning the existing data in /dev/mmcblk1p1
Installing /home/user/images/bootpartition_LS_arm64_lts_4.19.tgz to /dev/mmcblk1p1, waiting ...
Install /home/user/images/bootpartition_LS_arm64_lts_4.19.tgz in /dev/mmcblk1p1      [Done]

NOTICE: Appears /mnt/mmcblk1p3 contains the existing data
Cleaning data in /mnt/mmcblk1p3
Installing /home/user/images/rootfs_lsdk2004_ubuntu_main_arm64.tgz to /dev/mmcblk1p3, waiting ...
Install /home/user/images/rootfs_lsdk2004_ubuntu_main_arm64.tgz in /dev/mmcblk1p3      [Done]
Backup config from /usr/local/BackupCfgData to /mnt/mmcblk1p3/usr/local/OrgImgCfgData of the new image.
uci: Entry not found
copy 3 items to installed partition
setting PARTUUID for boot partition ..
Installation completed successfully
auto update u-boot & part (1,3) success, then setup uboot emv
Wait 5 seconds for reboot...
>> Stop all vranstack process...
umount: /mnt: target is busy.
>> Stop yami...
Remove kernel module...
[  OK  ] Stopped target Ho          Stopping Session 6 of user user.
[  OK  ] Stopped target Timers.
[  OK  ] Stopped Ubuntu Advantage update messaging.
```

- **Step 8:** Image is upgraded successfully.

```
2. COM9 (USB Serial Port (COM9))    ×    +

[  OK  ] Started Serial Getty on ttyAMA0.
         Starting Set console scheme...
[  OK  ] Started Set console scheme.
[  OK  ] Started Authorization Manager.
[  OK  ] Started LSB: Load kernel image with kexec.
         Starting Time & Date Service...
[  OK  ] Created slice system-getty.slice.
[  OK  ] Started Getty on tty1.
[  OK  ] Reached target Login Prompts.
[  OK  ] Started Time & Date Service.
[  OK  ] Created slice User Slice of root.
[  OK  ] Started Session c1 of user root.
         Starting User Manager for UID 0...
[  OK  ] Started User Manager for UID 0.
[  OK  ] Started Disk Manager.
         Stopping User Manager for UID 0...
[  OK  ] Stopped User Manager for UID 0.
[  OK  ] Removed slice User Slice of root.
[  OK  ] Started Dispatcher daemon for systemd-networkd.
[  OK  ] Reached target Multi-User System.

LL       IIIII TTTTTTT EEEEEEE  00000  NN    NN      FFFFFFF lll              FFFFFFF iii
LL        III    TTT   EE       00   00 NNN   NN      FF      lll    eee  xx  xx FF
LL        III    TTT   EEEEE    00   00 NN N  NN      FFFF    lll ee   e     xx    FFFF    iii
LL        III    TTT   EE       00   00 NN  NNN       FF      lll eeeee      xx    FF      iii
LLLLLLL  IIIII   TTT   EEEEEEE  00000  NN    NN       FF      lll  eeeee xx  xx FF      iii

flexfin78 login: █
```

6. Industry Compliance

LITEON 5G indoor small cell software follows the 3GPP standards-based and O-RAN alliance architecture and interfaces, to support interoperability with other vendors.

Spec. No.	Description
O-RAN.WG1.O-RAN-Architecture-Description.v03.00	
O-RAN.WG1.O1-Interface.0-v04.00	
O-RAN.WG3.E2AP-v02.00	
TS 38.321	5G; NR; Medium Access Control (MAC)
TS 38.322	5G; NR; Radio Link Control (RLC)
TS 38.401	5G; NG-RAN; Architecture Description
TS 38.413	5G; NG RAN; NG Application Protocol (NGAP)
TS 38.423	5G; NG RAN; Xn Application Protocol (XnAP)
TS 38.473	5G; NG RAN; F1 Application Protocol (F1AP)
TS 38.474	5G; NG RAN; F1 Data Transport