

# The wireless link cannot be established



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## Checking the radio settings

### Pre-configuration in the lab

Before installing the devices on site, we recommend to configure the basic parameters in the lab and to make sure that the link is establishing.



#### NOTE

During the configuration of the devices in a lab, take into account the following requirements:

- Make sure that the devices are not directed at each other in order to prevent the damage of the radio modules. It is recommended to place the devices at a distance from each other, with the antennas directed to the floor.
- The minimum transmit output power must be set on the devices.
- In case of using two devices with "E" index, it is recommended to connect them directly using RF cables and RF attenuators with an attenuation of at least 40 dB for each polarization (the installation\deinstallation of the RF attenuators and of the RF cables should only be performed when the devices are switched off).
- The failure or damage of the device's radio module in case of disregarding these requirements is not covered by warranty.

## Checking the radio parameters

If the wireless link is not establishing in lab conditions, make sure that the radio parameters are set to the values determined during the planning stage. The correct configuration of the device can be obtained using the Configuration Generator tool found on the [IW Academy](#) website. To establish a wireless link, one device must be configured as Master, the second (or all subscribers of the base station in the point-to-multipoint topology) as Slave. The following parameters must be identical on both devices:

- Channel Width.
- Frequency ("auto" settings are possible).
- Network SID.
- Security Key.

### Web interface

To check the wireless link parameters go to the "Basic settings" - Link settings" section. Make sure that the "Enable Link" checkbox is on.

General Settings

Enable Link: ☒

Type: Master

Mode: Fixed

R5000 Compatibility mode: Off

Max Links:

Use AUX-ODU-SYNC: ☐ Sync Hold Time: 0

Frame Size (ms): 5 Auto: ☒ Turbo: ☒

DL/UL ratio (%): Max Range (Km): 70

STA RSSI (dBm): -40

Tx Power (dBm): 12 Auto: ☒ - 0 +

Node Name: E5-BSE

Scrambling: ☐

Trap gateway: ☐

Switch Border: ☐

Network Entry SNR (dB): High 4 Low 0

Network Entry EVM (-dB): High 8 Low 0

RX Attenuation (dB):

Multicast Mode: Unicast 3

Authentication Mode: public

ODR: Disabled

OTA: Passive

Log Level: normal

Fixed Cost:

Extra Cost:

Join Cost:

MINT Failover: ☐ MAC:

Add Profile

Current Settings

Channel Width (MHz): 80

Frequency (MHz): 6020

Tx Bitrate (Kbps): Max Auto: ☒ - 0 +

Channel Type: Dual

Network SID: 10101010

Node ID: 37425

Security Key: 456123

Figure - Checking radio parameters in the web interface

### Command line interface

Use the "config show" command to check the configuration via the CLI.

```

#Radio module parameters
rf rf6.0 grid 20 4900-6040/20
rf rf6.0 grid 40 4900-6040/40
rf rf6.0 grid 80 5920-6040/20
rf rf6.0 band 80
rf rf6.0 mimo burst
rf rf6.0 freq 6020 bitr 780000 sid 10101010
rf rf6.0 txpwr 12 pwrctl

#MINT configuration
mint rf6.0 -name "BSE"
mint rf6.0 -nodeid 37426
mint rf6.0 -type master
mint rf6.0 -mode fixed
mint rf6.0 -autobitrate
mint rf6.0 -hiamp 4 -loamp 0
mint rf6.0 -log
mint rf6.0 -roaming leader
mint rf6.0 -authmode public
mint rf6.0 -airupdate passive
mint rf6.0 -rcmdserver enabled
mint rf6.0 start

mint rf6.0 tdma mode=Master win=5 dist=70 dlp=0
mint rf6.0 tdma rssi=-40 turbo awc
mint rf6.0 tdma start

mint prf0 -name "BSE"
mint prf0 -nodeid 37426
mint prf0 -type master
mint prf0 -mode fixed
mint prf0 -nolog
mint prf0 -authmode public
mint prf0 -airupdate disable
mint prf0 -rcmdserver enabled
mint prf0 start

#MAC Switch config

```

System Info  
System Config  
System Log  
License Info  
Reset All Counters  
Routing Table  
Switch Statistics  
IGMP Statistics  
Interface Table  
Radio Statistics  
Link Status  
Radio Scanner  
Traffic Monitor

Command:

Execute Clear All Fields

Figure - Checking radio parameters via the CLI

## Checking the status of the radio interface

Make sure that the radio interfaces of both devices are in the "Up" state.

### Interface Statistics

Interface	MAC Address	Status	Mode
eth0	000435052612	Up	1000 Mbps Full Duplex
eth1	000435152612	Up	1000 Mbps Full Duplex
rf6.0	000435252612	Up	780 Mbps / 6020 MHz / 80 MHz / 12 dBm / DFSONLY
prf0	000435052612	Up	eth0 / Channel: 0 / hwmtu: 1514
svi1	L2 Management Interface 020435052612	Up	Switch Group #1

Figure - Checking the interface status

If the status of the interface is "Down", enable the radio interface in the "Network settings" section by clicking the checkbox.

▼ Network Settings

eth0	10.10.20.13	Up: <input checked="" type="checkbox"/>	Description: <input type="text"/>	DHCP: <input type="checkbox"/>	Mode: auto
eth1		Up: <input checked="" type="checkbox"/>	Description: <input type="text"/>	DHCP: <input type="checkbox"/>	Mode: auto
rf6.0		Up: <input type="checkbox"/>	Description: <input type="text"/>	DHCP: <input type="checkbox"/>	
prf0		Up: <input checked="" type="checkbox"/>	Description: <input type="text"/>	DHCP: <input type="checkbox"/>	Parent: eth0 Channel: 0
svi1	192.168.98.13	Up: <input checked="" type="checkbox"/>	Description: L2 Management Interface	DHCP: <input type="checkbox"/>	Switch group: 1

[Create PRF](#)
[Create VLAN](#)
[Create LAG](#)
[Create SVI](#)
[Create Tunnel](#)
[Create Tap](#)

Figure - Changing the interface status

If the device does not have a radio interface, the reason for such behavior can be the recovery mode present during the reset of the device using the [ERConsole](#). Complete the recovery process by returning the device to the factory settings from the Maintenance section.

Pay attention to the red values of the parameters in the interface statistics "Mode" column:

- Operating frequency - red value of this parameter indicates an absence of data transmission due to the spectrum scanning by the DFS tool;
- TX Power - red value for this parameter may indicate a problem with the transceiver's hardware.

## Checking the firmware version

### Web interface

In the "Maintenance" section, make sure that the same software version is installed on both device. We recommend to update the devices to the latest beta software version.

**Firmware**

Firmware Version:	E5000 H16S22-TDMAv0.3.0-89
Build Date:	Jan 14 2021 17:10:47
Serial Number:	337426
Part Number:	E5-BSE/05700
Platform:	Processor: Marvell Armada 38x 88F6820 (Rev.10). 1600 MHz
Uptime:	03:56:01
Last Reboot Reason:	manual delayed restart

[Check Latest Release](#)
[Check Latest Beta](#)

Figure - Checking the firmware version

The latest software versions can be downloaded from the official Infinet [FTP server](#).

### Command line interface

To upload the software via the command line, use the "*flashnet*" command described in the "[General Purpose Command Set](#)" article.

## Checking the installation requirements

### Checking the network infrastructure

If the link is not established after the installation on site, make sure that the devices were not damaged during shipping, check the integrity of the network infrastructure, the cables and the power supplies.

Checking the installation requirements

Check if the suspension height, azimuth and elevation of the antenna match with the values obtained from [InfiPLANNER](#). Make sure that the obstacles on the path profile are not higher than those specified during the planning phase.

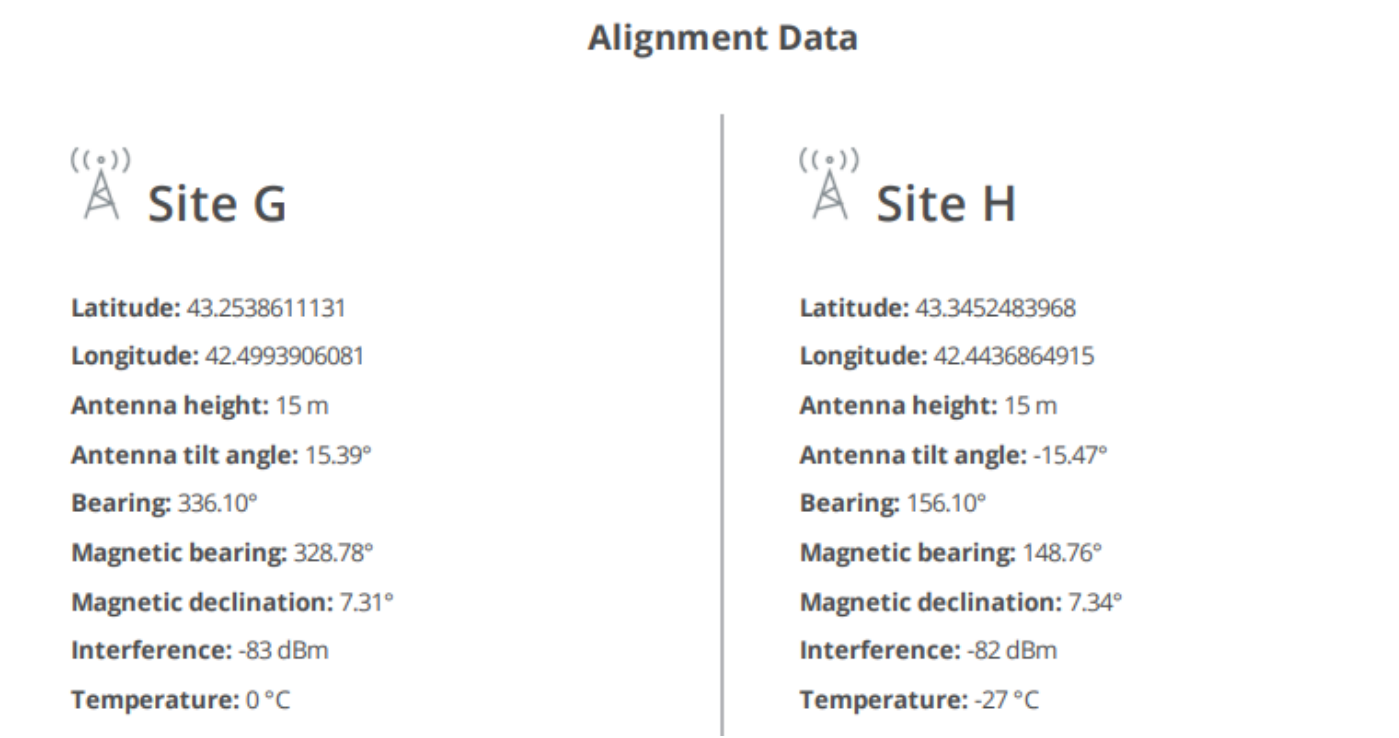



Figure - InfiPLANNER report with installation data

Interference detection

Web interface

Using the built-in Spectrum Analyzer tool, scan the air on both sides of the link to make sure there is no interference that could corrupt the signal on the device's operating frequency and on the adjacent frequencies. The current modulation (bit rate) will be selected by the device depending on the carrier to interference and noise ratio (CINR). To operate at higher modulations, the CINR parameter must be greater or equal to 28 dB. To get accurate information about the frequency, hover the mouse cursor over it. The pop-up window below provides information about frequency, noise level (in dBm), maximum signal level (Max RSSI), average signal level (Average RSSI). The "High RSSI" indicator allows to estimate the number of signal sources. If the value differs significantly from the average RSSI, then there are several interference sources. The indicators show the signal level in dB, while the signal in dBm is indicated in parentheses.

**NOTE**

It is recommended to run the spectrum scanning simultaneously on both devices to avoid a misrepresentation due to the signal received from the remote device.

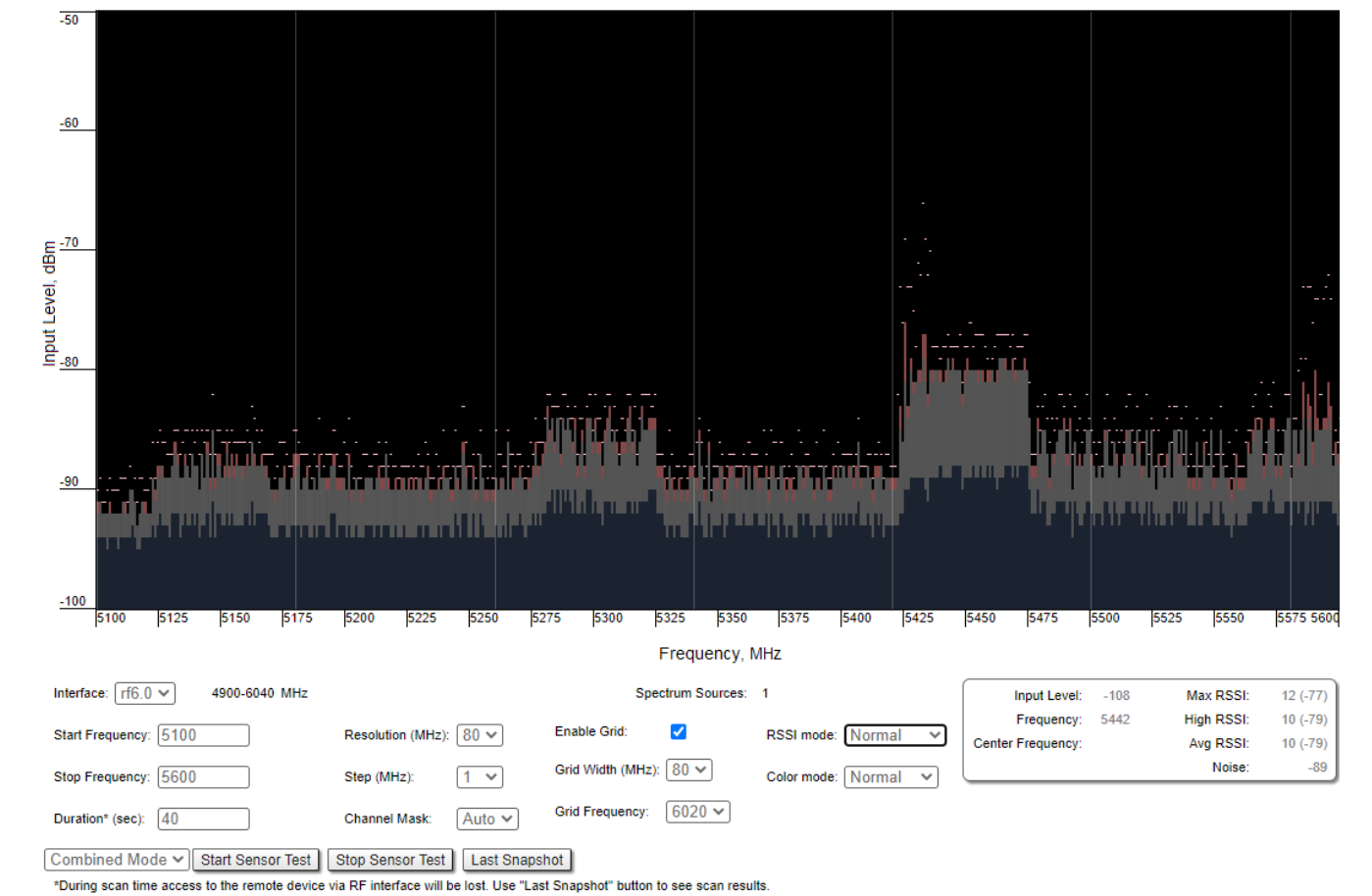


Figure - Spectrum analyzer

Command line interface

The radio environment analysis is also available via the command line using the "*muffer sensor*" command.