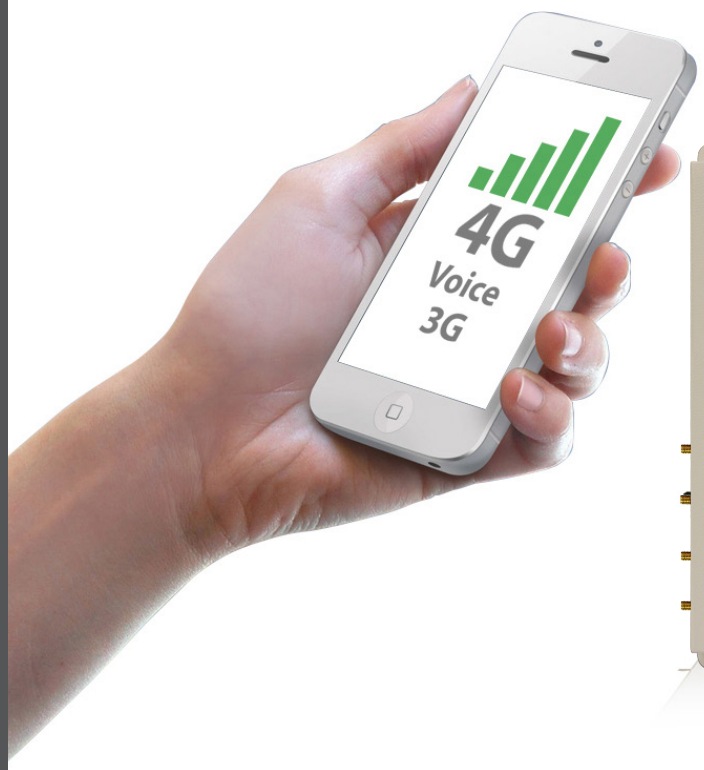
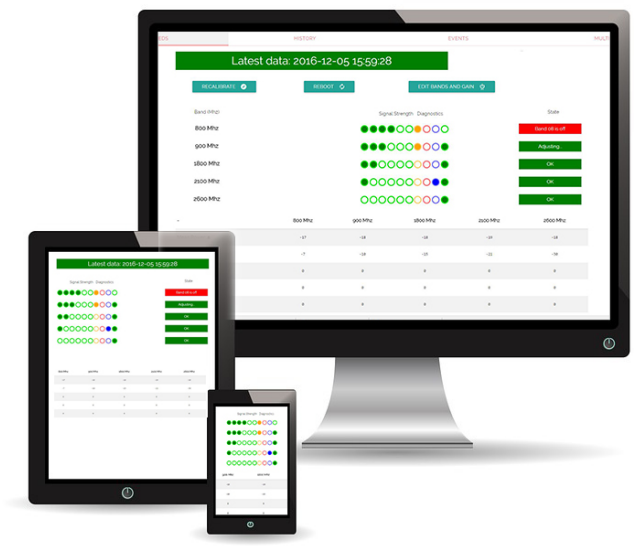
i-Repeater

Control and monitor all your repeaters through the cloud



Wallmount

Rackmount



Cloud control and monitoring
Touch screen interface
Alarms
Statisics

Model number: i4-LGDWH

Stelladoradus

Details

*Device = any repeater or line-amp

Connection to the internet.
Each device MUST have a CAT5 ethernet cable connected to it for monitoring.

Option #1: These Cat5 cables are installed back to a comon 3G/4G router with a SIM card.
This solution means you are independent of the buildings WIFI/Internet.

Option #2: Plug each device directly into the building network. No Setup (port forwarding) required. This way is easier but you are dependent on the building network.

What monitoring offers you
Registered users (You, Stelladordus, your client (Hotel)) can monitor and control devices in the building.

Alerts:
You can enable 2 primary email alerts:

Alert 1: If devices are plugged out by accident by building staff (or power cut). (You can see the exact device that is plugged out, and its location in the building). All devices have internal battery that keeps internet connection live for
several hours.

2: If devices are strongly attenuating RF due to local RF noise or disturbance, system will alert you. Example: big microwave ovens in a buildings have been known on rare cases to cause RF issues in local vicinity.

Remote Control from any computer/ phone:
-Switch Off/ On/ or Attenuate, individual bands of any device.
-Switch off Power to one or all devices in a building. The devices RF chain is switched off but it is still connected to the internet.
-Reboot devices.

Monitor:
-Up/Downlink Power
-Up/Downlink Gains
-Up/Downlink AGC
-Up/Downlink Oscillations/feedback
-Temperature on PCB board

History:
-All events are logged from initial installation date for each device.
-A long term history graph for Power levels per band. This will allow you to see the effects of atmospheric conditions,or other conditions on the overall system over 1 year.(in development)
-Percentage usage of each band. Example:
800Mhz :60%, 900Mhz :20%, 1800Mhz :5%, 2100Mhz:15% ,2600Mhz :0%

Security and cloud:
The application infrastructure is physically located in AWS (Amazon Web Services) data-center in Europe (Ireland). AWS allows us to benefit from the most stringent security standards AWS holds for their infrastructure and allows one to satisfy many compliance re-quirements. More information on compliance with standards can be found in the AWS Security Whitetepaper at https://aws.amazon.com/whitepapers/.

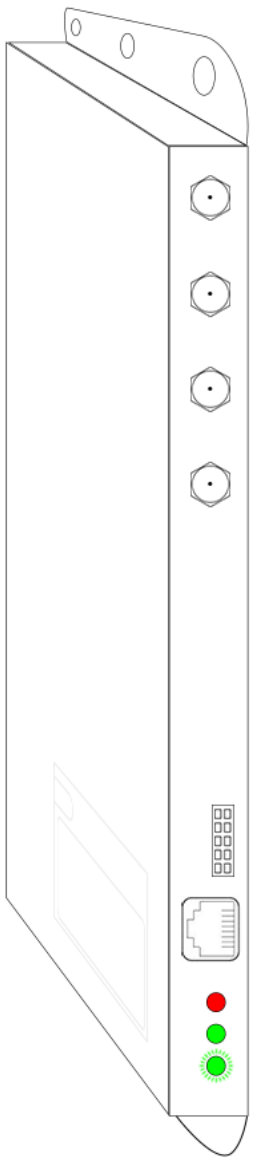
Updates:
Server software is tested and updated from time to time. This is only feasible when all services reside under the one server.

Basic kit includes:
1 i-Repeater_LGDWH,
4 internal antennas, 1 external Yagi antenna
4 lengths of SD240 cable (15m)
1 length of SD400 external cable
1 12v, 5A power supply (surge protected and tested)

The system can be extended using more repeaters and line amps to ensure converage in even the largest of multi-storey buildings.

Logo:
Display your company logo to the LCD screen. This will be shown on the standby screen until a user touches the screen.

Diagrams

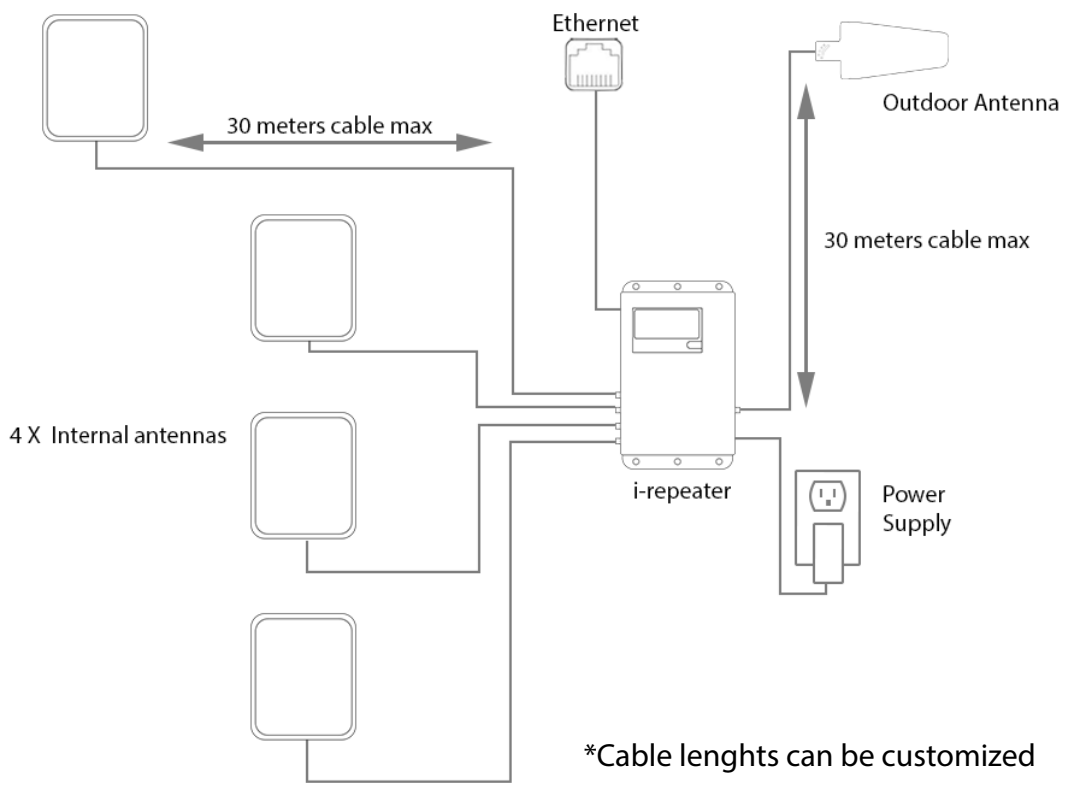


SMA ports for internal antennas

Debugging port

Connect ethernet cable here

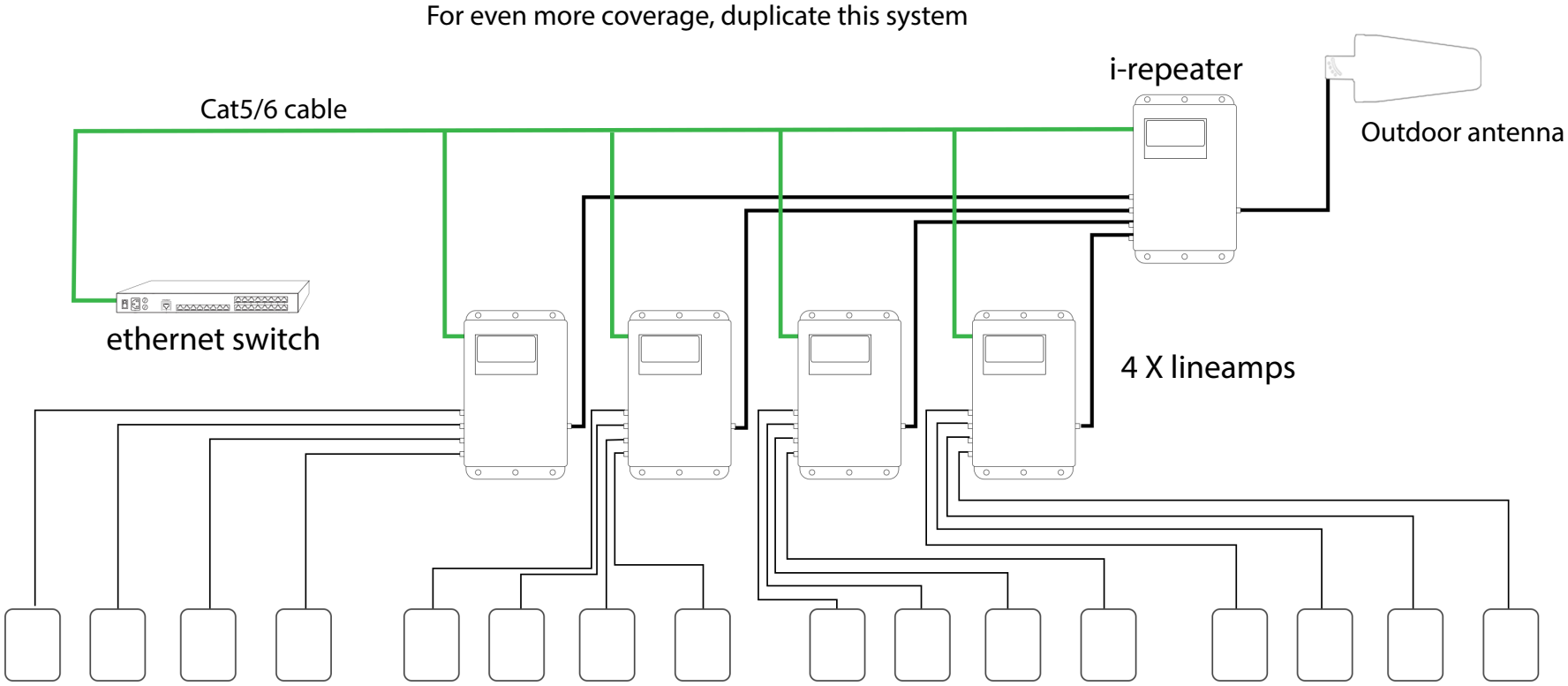
LED3: When this LED turns on red = System error.
LED2: When this LED turn on = Connected to internet server.
LED1: When this LED pulses on and off = System running OK



*Cable lenghts can be customized

Example system for larger building

i-repeater and 4 X lineamps all internet controlled
For even more coverage, duplicate this system

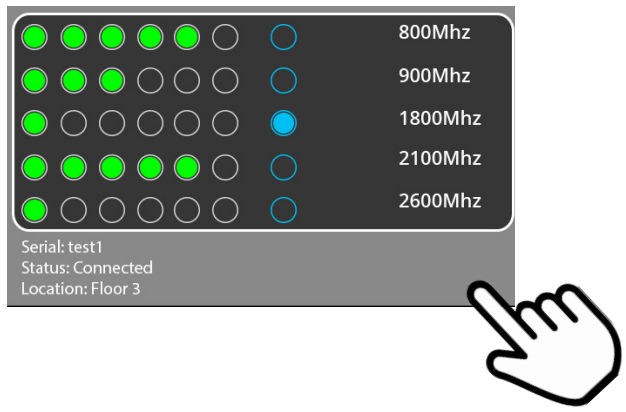


16 internal antennas - Coverage 1000m2 X 16

TouchScreen Panel

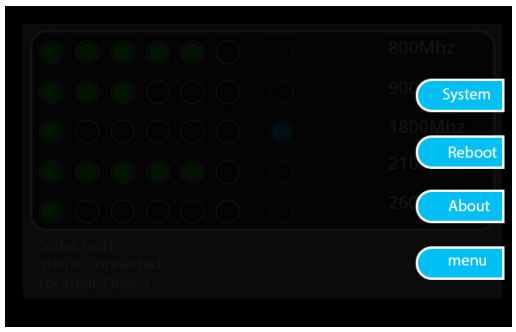
When you turn on the repeater, you will see the main screen.
The green signal LEDs signify the downlink signal strength for each band.
6 green LEDS = max power.

If a blue LED lights up, that means that band is currently active. (Band 1800Mhz is currently active in the image)
If there are no blue LEDs on , this means the repeater is in standby mode. (no uplink power)



Click the menu button

System - access to system settings
Reboot - reboot repeater
About - Serial, model, counters, time.

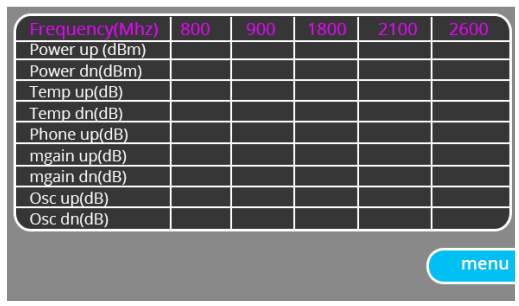


System Password: 1321

Power levels - View Power, AGC, Oscialltion
Factory reset - Clear counters, location memory
Manual input - Control gains (MGC)
Enter location (internal location of device in building)

Power levels screen:

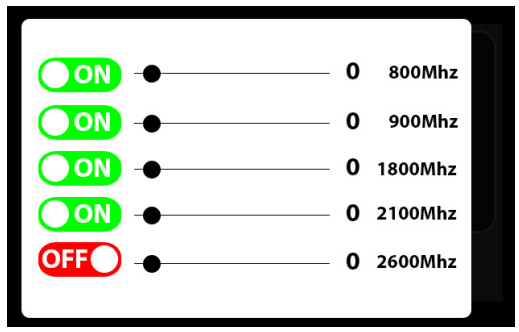
-Power Levels dBm
-AGC (Automatic gain control) (temp and phone)
-MGC (Manual gain control) User controlled
-Osc (Feedback/ oscillation)



Manual Switch On/Off/attenuation screen:

Manually edit the Bands (use only when not connected to internet)
(You can only edit the bands when you are NOT connected to the internet-Plug out cat5 cable)

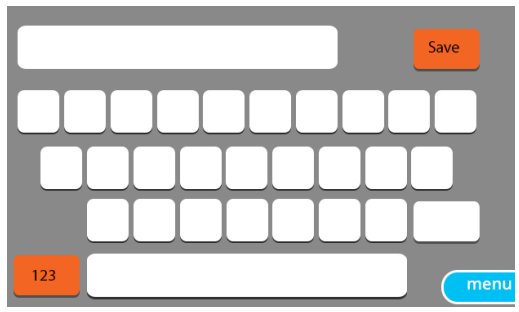
Touch switches to turn bands on or off.
Touch the attenuator slider to add attenuation to any band.
When repeater is connected to the internet, the cloud server will override your settings.



Location:

Enter the location of the repeater. This is important for when you monitor all your repeaters on the website dashboard at a later stage.

Example: Floor 3, Section A, Meeting room

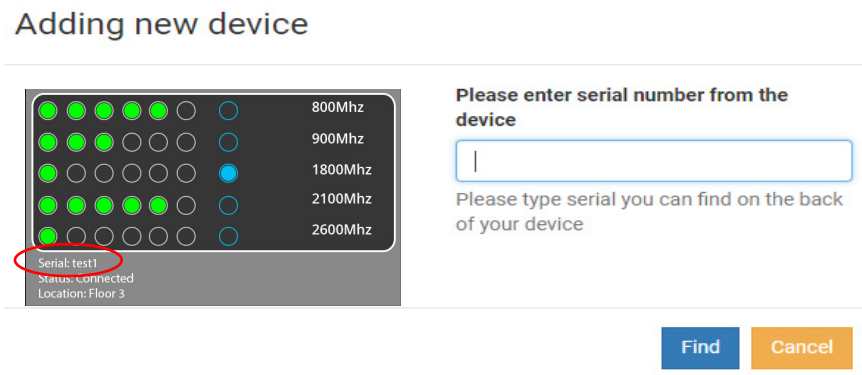


Cloud Dashboard

Login to your dashboard: www.stellacontrol.com
Enter your username and password.

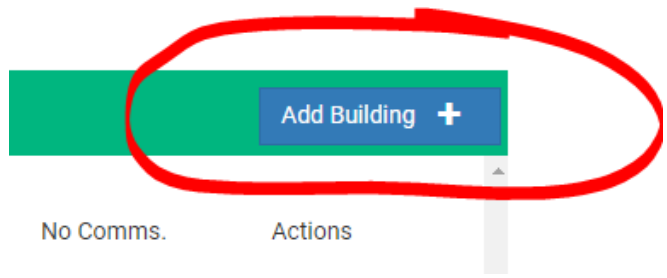
Step 1: Register your new i-repeater

Click Stock devices.
Click Add device
Enter the serial number of your repeater and click Find.
Click Add Device



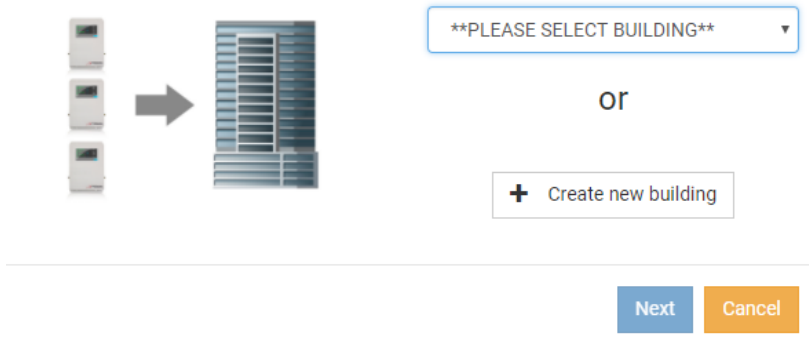
Step 2: Create a new building.

Click Buildings
Click Add building
Enter the data for your new building. Click Save.



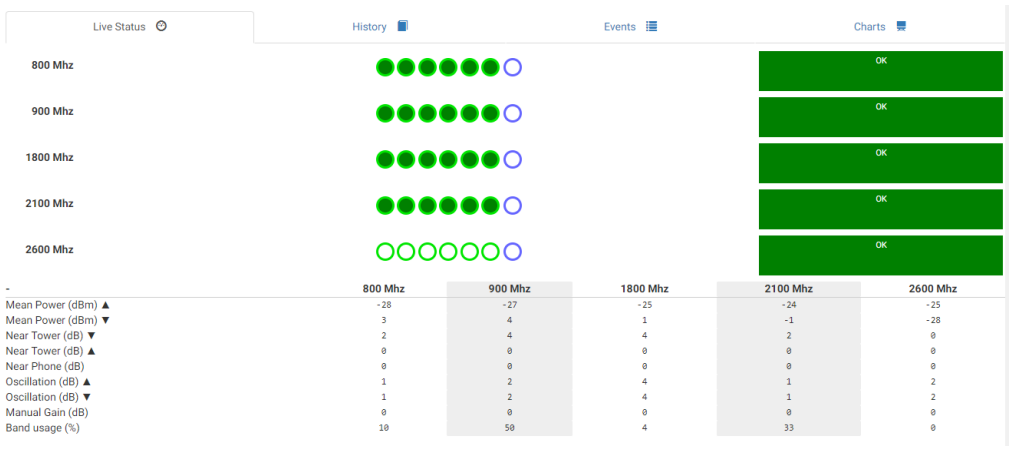
Step 3: Add your device to your building.

Click Stock devices.
Click the Link button next to your new device.
Using the drop down menu, select your building.
Click Confirm and Link.



Thats it!

You can now monitor and control your device over the dashboard.
The Live Status tab shows you exactly what the repeater sees.
You can switch off the bands, add attenuation, monitor if any repeaters have lost power, plus more..



-	800 Mhz	900 Mhz	1800 Mhz	2100 Mhz	2600 Mhz
Mean Power (dBm) ▲	-28	-27	-25	-24	-25
Mean Power (dBm) ▼	3	4	1	-1	-28
Near Tower (dB) ▼	2	4	4	2	0
Near Tower (dB) ▲	0	0	0	0	0
Near Phone (dB)	0	0	0	0	0
Oscillation (dB) ▲	1	2	4	1	2
Oscillation (dB) ▼	1	2	4	1	2
Manual Gain (dB)	0	0	0	0	0
Band usage (%)	10	50	4	33	0

Specification

Model number:	i4-LGDWH
Frequency:	800/900/1800/2100/2600
Remote monitoring:	Yes

Frequency Specifications:

Frequency bands(Mhz):	(791-862) + (880-960) + (1710-1880) + (1.92-2.17) + (2500-2690)
Coverage:	(1000m^2 per antenna X 4) = ~15 rooms
Number of People:	Unlimited
Gain:	Uplink Gp > 50dB Downlink Gp> 60dB
Pass band ripple:	< 4dB
I/O impedance:	50 ohm/SMA female connector
Max uplink/downlink signal strength:	19dBm / 10dBm
Ambient Temperature:	-30°C to +70°C
Power supply input:	110 - 240V AC
Power supply output:	12v DC
Oscillation Control	Automatic
Level Control:	Automatic*
Uplink Switch Off	Yes**
AGC Range	30db
Surge protection	SMA connectors DC grounded, 12V DC port MOV protected

Antenna Specifications:	Indoor antenna	Outdoor antenna
Nominal Gain	6.4dBi / 9.4dBi	10dBi
3dB beam Pattern	60° x 60°	60° x 50°
Bandwidth	790-960MHz + 1710-2700MHz	790-960MHz + 1710-2700MHz
VSWR	<1.4	<1.5
Front to Back Ratio	> 20dB	> 20dB
Polarization	Vertical	Vertical
Power Rating	50W	50W
Impedance	50-OHM	50-OHM
Termination	SMA male	N-Female
Cross Pol. Discrimination	-20dB	-20dB
Dimensions	210 x 180 x 43mm	442 x 205 x 62mm
Weight	0.68kg	1.2kg
Wind velocity	126km/hr	140km/hr
Working temperature	-40°C to +65°C	-40°C to +65°C

Power Supply Specification:

AC	100-240V	50-60Hz
DC input	12V	3.6A
Typical power usage		33W

Mechanical Specification:

Length	35cm
Width	30cm
Depth	4.4cm
Weight	2kg
Mounting	6 x 5mm holes for mounting

* Automatically adjusts during installation. Thereafter, automatically adjusts for seasonal variation in pathloss between basestation and outdoor antenna.

** The up-link amplifiers switch off when the repeater is not in use. This reduces the uplink noise to almost zero. When the repeater is in use (eg. phone call being made), the up-link amplifier switches on for the duration of the call and a blue LED switches on indicating this is the case.

Note: Specifications subject to change without notice.