

Preliminary product Information: Rev 1C, Issue Jan 2014, Revised Feb 2015

Band selective adjustable RF repeater GR2600MIMO is an indoor bi-directional amplifier that can increase a signal strength in medium-sized rooms. GR2600MIMO speeds up link connectivity thanks to support of MIMO technology.

KEY FEATURES

- MIMO support on LTE2600
- Band selective operation
- Adjustable bandwidth and gain
- Compact design for easy installation
- Uplink & Downlink gain is separately adjustable
- Automatic gain control
- USB connectivity
- User friendly GUI
- Low power consumption
- Status indicating LEDs



Figure 1: Repeater GR2600MIMO front view

APPLICATION AREAS

- Shopping centers
- Hotels, offices
- Factories
- Underground parking lots

PRODUCT DESCRIPTION

Generally repeaters are used in mobile communication systems to provide signal coverage for an area with poor or no signal (e.g. blind spot). Rantelon Ltd came across the insufficient coverage within buildings such as offices, parking lots, apartment buildings, shopping malls, subways and tunnels. RF repeater GR2600MIMO series can solve these problems by amplifying the available signal from an outdoor antenna into weak coverage area via built-in antenna or indoor delivery network with multiple antennas.

One adjustable band-segment provides for possibility to improve signals on any frequency within LTE2600 frequency range. Repeater GR2600MIMO supports MIMO technology. Thanks to this option achievable data speed can be significantly increased. GR2600MIMO is equipped with two external switching power modules +5V/2.4A. Built-in LEDs indicate proper power supply, activity of automatic gain control circuits and activity of different internal nodes. For details about all options please see also figure 2: block diagram of GR2600MIMO.

TECHNICAL SPECIFICATIONS (see also figure 2: block diagram)

Parameter	Specification
Frequency range*	UL: 2500-2570MHz & DL: 2620-2690MHz
Type	Selective, MIMO (two parallel repeaters in one box)
Number of independent band-segments	Uplink: 1 / Downlink: 1
Band-segment properties	Center frequency can be adjusted via GUI (as future option); Gain can be adjusted via GUI
Band-segment bandwidth*	20MHz by default , 15MHz, 10MHz, 5MHz (defined by replaceable board, what can be installed directly at site)
Max. gain	68dB \pm 2dB (input LNA is switched on)
Manual gain adjust range	10dB with step 1dB, for lower gain input LNA can be by-passed, in case switched off LNA , maximum repeater gain is 55dB, use the GUI to change gain settings (see page 3 and 4)
Automatic gain control range	20dB
Downlink output power*	+15dBm @ one LTE carrier
Uplink output power*	+15dBm @ one LTE carrier
Noise figure	5.7dB (input LNA is switched on)
Return loss	10dB
Spurious emission	According to ETSI standards: < -36dBm up to 1GHz; < -30dBm above 1GHz
EVM	According to ETSI standards: <8%
Delay	4.0 μ s
Supply voltage	DC: +5V NB! Use standard power supplies from original package only
Current consumption	3A (both MIMO channels are switched on)
RF connector	N-Female (SMA optionally)
Operating temperature range	0 ... +40 °C
Pure dimensions	190 x 120 x 52mm

* Ask Rantelon for other parameters. See www.rantelon.com for more information.

Rantelon reserves the right to change the specification without notice.

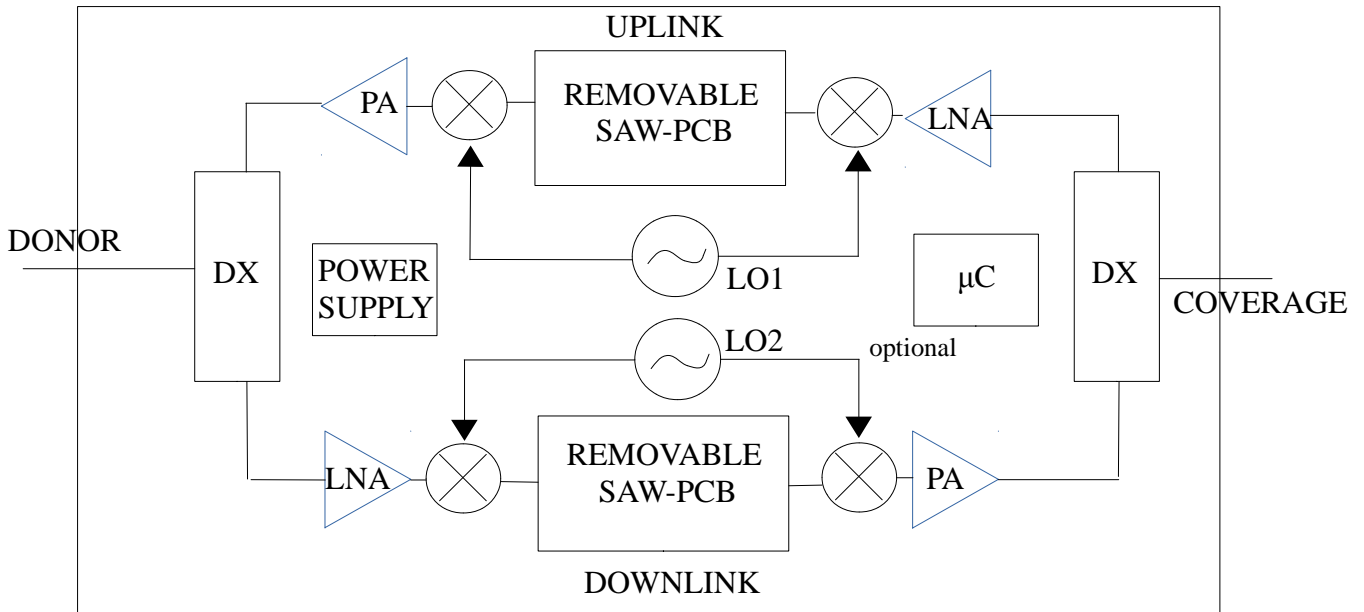


Figure 2: Repeater GR2600MIMO - block diagram of one MIMO channel.

Available options (see figure 2):

- USB connectivity;
- Graphical User Interface (GUI) working via USB; GUI is available on CD included in original package; use GUI to change gain and LNA settings, see also installation instructions on page 4;
- Replaceable IF board automatic detection;
- By-pass switch on input LNA;
- Digital attenuators for gain control.

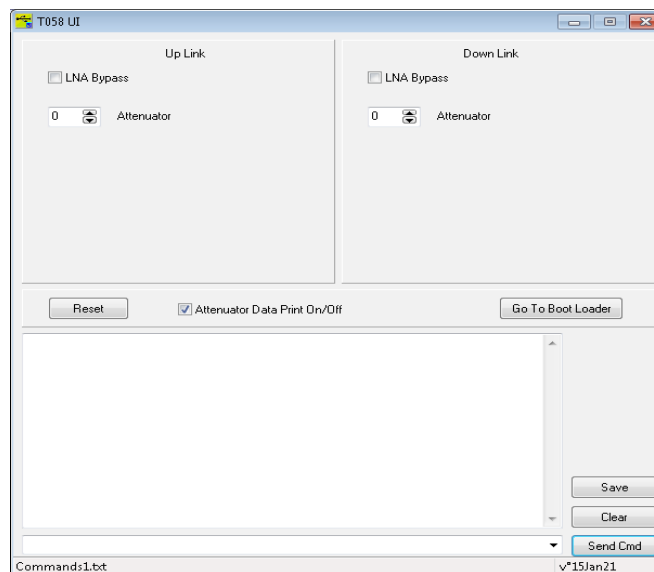


Figure 3: GR2600MIMO graphical user interface to change gain settings.

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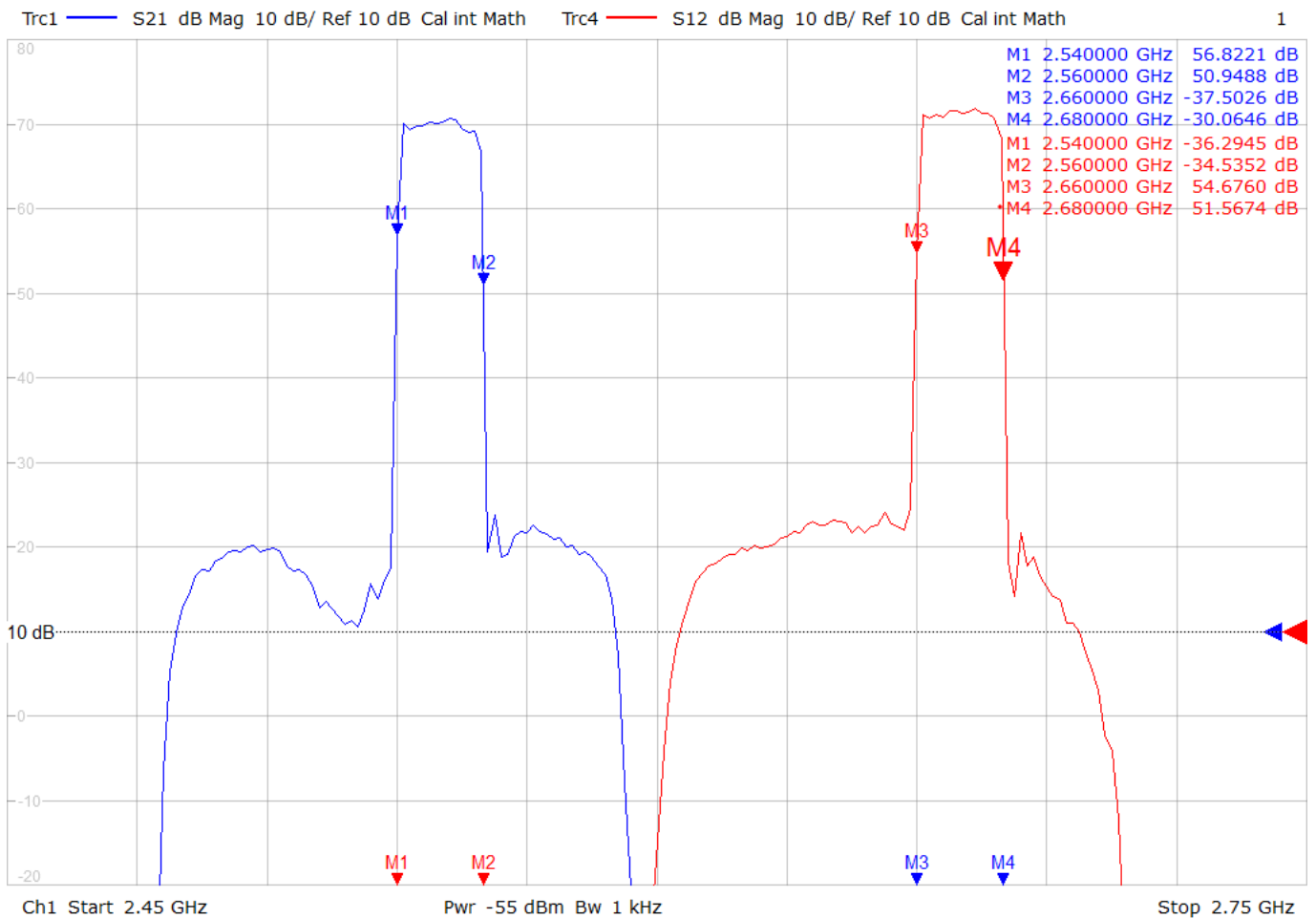


Figure 4: GR2600MIMO uplink and downlink transfer functions for one MIMO channel.

Installation instructions:

- GR2600MIMO is equipped with standard Rantelon wall mountings.
- Each MIMO channel of GR2600MIMO is equipped with three indication LEDs:
 - 1) repeater activity (green), 2) UL AGC regulation level (yellow), 3) DL AGC regulation level (yellow).
- If AGC level is reached corresponding yellow LED will be active. Please try to choose repeater gain sufficiently low; for right operation yellow AGC LEDs would be not active.
- To set right repeater gain use the GUI provided on CD included into product package. To use GUI:
 - 1) power on the repeater, 2) connect USB cable to first MIMO channel block, 3) run GUI (T058 UI), 4) set attenuation and LNA settings, 5) close GUI, 6) disconnect USB cable, 7) connect USB cable to second MIMO channel block, 8) run GUI, 9) set attenuation and LNA settings, 10) close GUI, 11) disconnect USB cable.
- Check box "Attenuator data print" allows to see (in real time) content of internal digital attenuators.
- If repeater is normal operation state green LED must be active.
- Corresponding in- and outdoor antennas must be connected to corresponding RF ports of repeater.
- Isolation between indoor and outdoor antennas must be sufficiently high to prevent undesired repeater oscillations. To use maximum repeater gain indoor/outdoor isolation degree must be at least 80dB.
- Use power +5V supplies given on original repeater package only.