Radio settings

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The "Radio settings" section allows to configure radio parameters to establish wireless connection.

Radio settings are divided into the following categories:

- Radio frontend
- Air frame
- Automatic modulation and transmit power control
- Frequency channel grids

Radio frontend

Parameter	Description
Unit role	One units must be set to Master and the other one to Slave.
Dynamic frequency selection	Following modes are possible to operation: • **Frequency selection off** - the center frequency must be selected manually. • **Mandatory DFS and radar detction** - the least noisy frequency will be selected in accordance with the set frequency grid. The device will block the frequency in case it detects a radar. • **Instant DFS** - the least noisy frequency will be selected in accordance with the set frequency grid. The device will change frequency in case the strong interference appears. • **Instant DFS and radar detction** - the least noisy frequency will be selected in accordance with the set frequency grid. The device will change frequency in case the strong interference appears and block the frequency in case it detects a radar. **NOTE** The radar detection mode is only available with "ETSI" regulatory domain. Instant DFS and radar detection are only available for the Quanta 5 family devices. For detailed description of the listed modes proceed to the Instant DFS article.
Regulatory domain	Regulatory domain automatically limits the wireless device operation which is may be needed to meet the local law requirements. Each regulatory domain may limits the following parameters: • Range of available center frequencies • Requirement of use LBT (Listen Before Talk) technique. • Maximum EIRP (Equivalent Isotropically Radiated Power) value. • Requirement of use radar detection technique.
Fixed center frequency	Available only on the Slave unit. • Enabled - center frequency must be set manually on wich the Slave unit will operate. • Disabled - center frequenct will be selected automatically based on frequency channel grids.

Downlink /Uplink center frequencies	Allows to manually set the center frequency. The Quanta 5 family devices allow independent frequencies configuration for uplink and downlink streams. When same frequencies are used on both streams, transmission will be carried out in time division duplex (TDD) mode, when different frequencies are assigned for uplink and downlink traffic, the transmission mode will change to hybrid frequency division duplex (H-FDD). The uplink frequency can be configured only on the master. **NOTE** Downlink - the direction from Master to Slave, Uplink - the direction from Slave to Master. These directions are correct for the whole link and do not depend on the roles of the devices.
Power limit	This parameter limits the transmitter power, there are two modes: • Transmitter output power - limits the power of transmitter to the set value. • EIRP - limits the total system power calculated as: Tx Power + Antenna gain + Cable loss (an antenna gain and cable losses should be specified in the fields below).

Radio frontend settings description

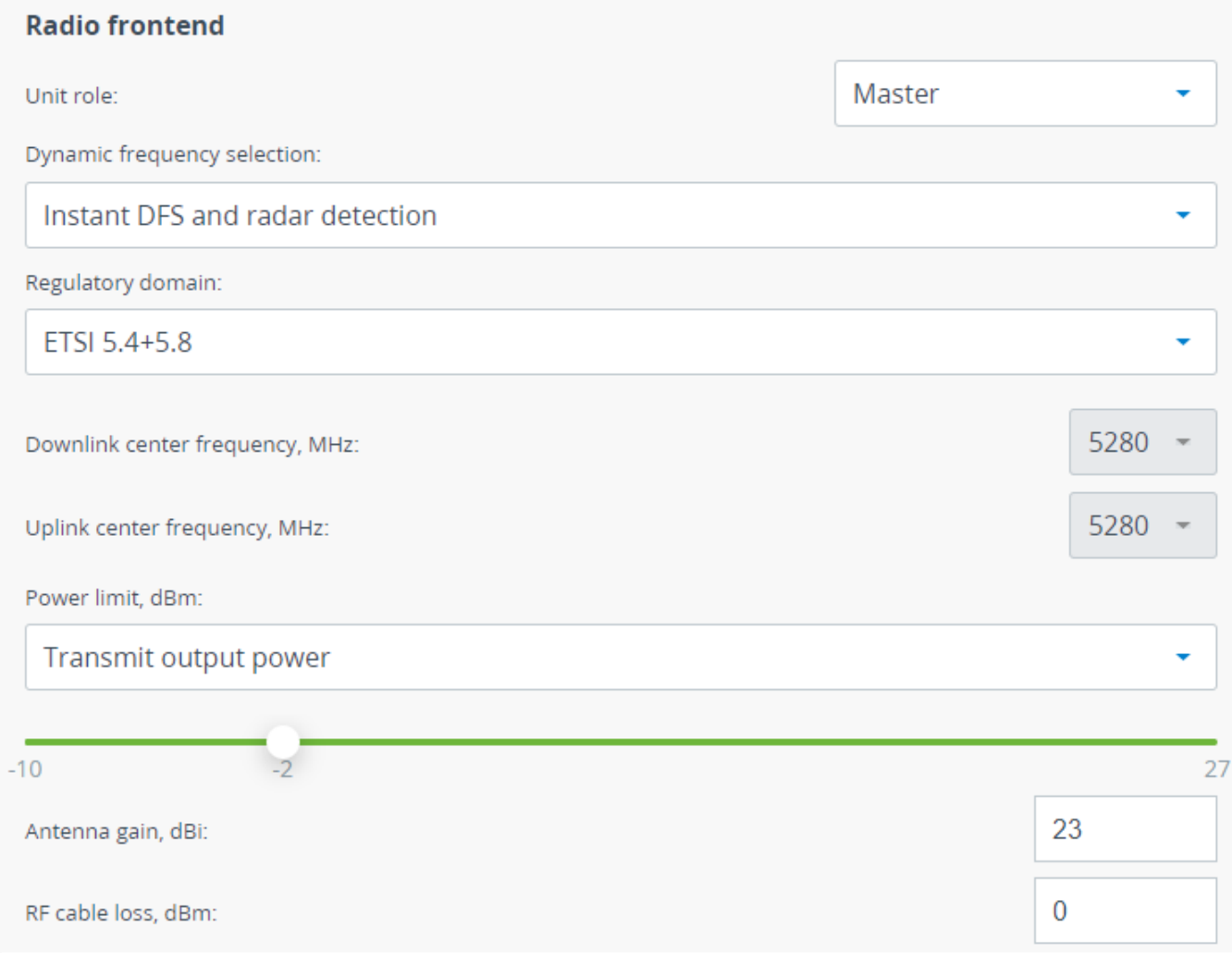

Figure - Radio frontend settings

Air frame

Parameter	Description
Channel width	Channel width, shoud be the same on both Master and Slave units. Available values: 3.5, 5, 7, 10, 14, 15, 20, 28, 30, 40, 50, 56 MHz.

Frame length	Frame period affects the following wireless link metrics: • The greater frame period the more payload will be transmitted in one frame. Greater values increase latency. • The lower frame period the less payload will be transmitted in one frame. Lower values decrease latency. Please note that frame period value is strongly depends on interference conditions. If larger frames will be dropped the larger payload is lost and system performance is decreased significantly. If smaller frames will be dropped the smaller payload is lost. Available values: 1, 2, 5, 10 ms.
Downlink /Uplink ratio	In automatic mode, the ratio changes dynamically in accordance with the transmitted traffic. Manual mode allows to set a fixed value. Available values depend from: • Channel width. • Frame length.

Air frame settings description

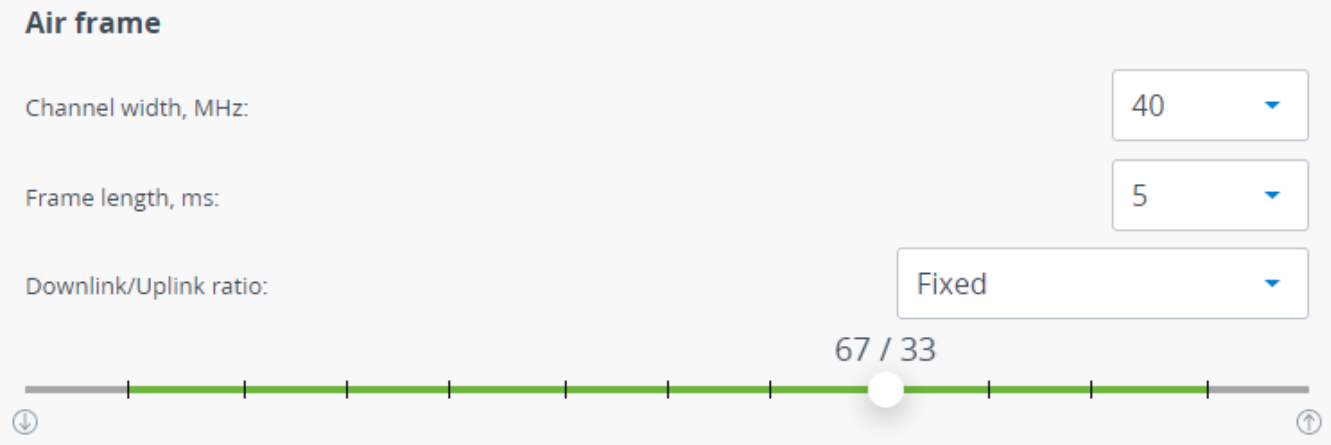

Figure - Air frame settings

Automatic modulation and transmit power control

Parameter	Description
AMC strategy	There are following AMC strategies available: • Normal - represents a balance between the error rate and throughput values. • Conservative - assumes using higher CINR thresholds in order to minimize the error rate. • Agressive - lowers the thresholds in order to use higher modulation levels and thus increase the throughput but also increase the error rate. • Extreme - lowers the CINR threshold below the Aggressive strategy values in order to maximize selected modulation and throughput.
Automatic transmit power control	ATPC allows to control transmitter output power automatically based on target RSSI value. If actual RSSI level is lower then unit increases transmitter output power of the remote unit and vice versa. ATPC could not set value that may exceed the "Power limit" value. • The Master unit manages the transmit power of Slave unit. • The Slave unit manages the transmit power of Master unit.
Target RSSI	RSSI value which will be used by ATPC as target.

AMC and ATPC settings description

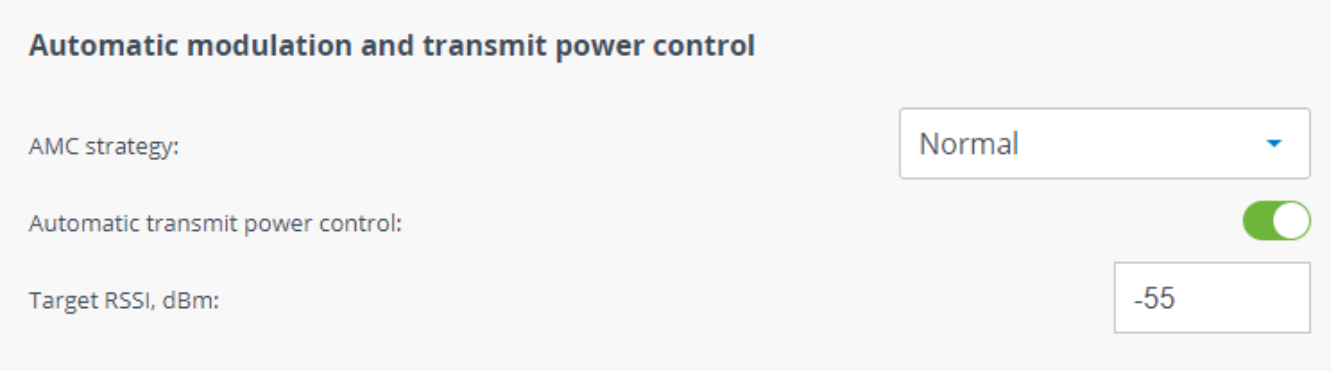

Figure - AMC and ATPC settings

Frequency channel grids

The frequency grid allows to limit the scan range in case the center frequency is automatically selected. Also Instant DFS will use these restrictions when monitoring the noise situation. Narrow grid of available frequencies speeds up scanning and link establishing process. Manual center frequency selection will also be limited to the values indicated in the grid.

NOTE

Please note grids shoud be the same on both Master and Slave units.

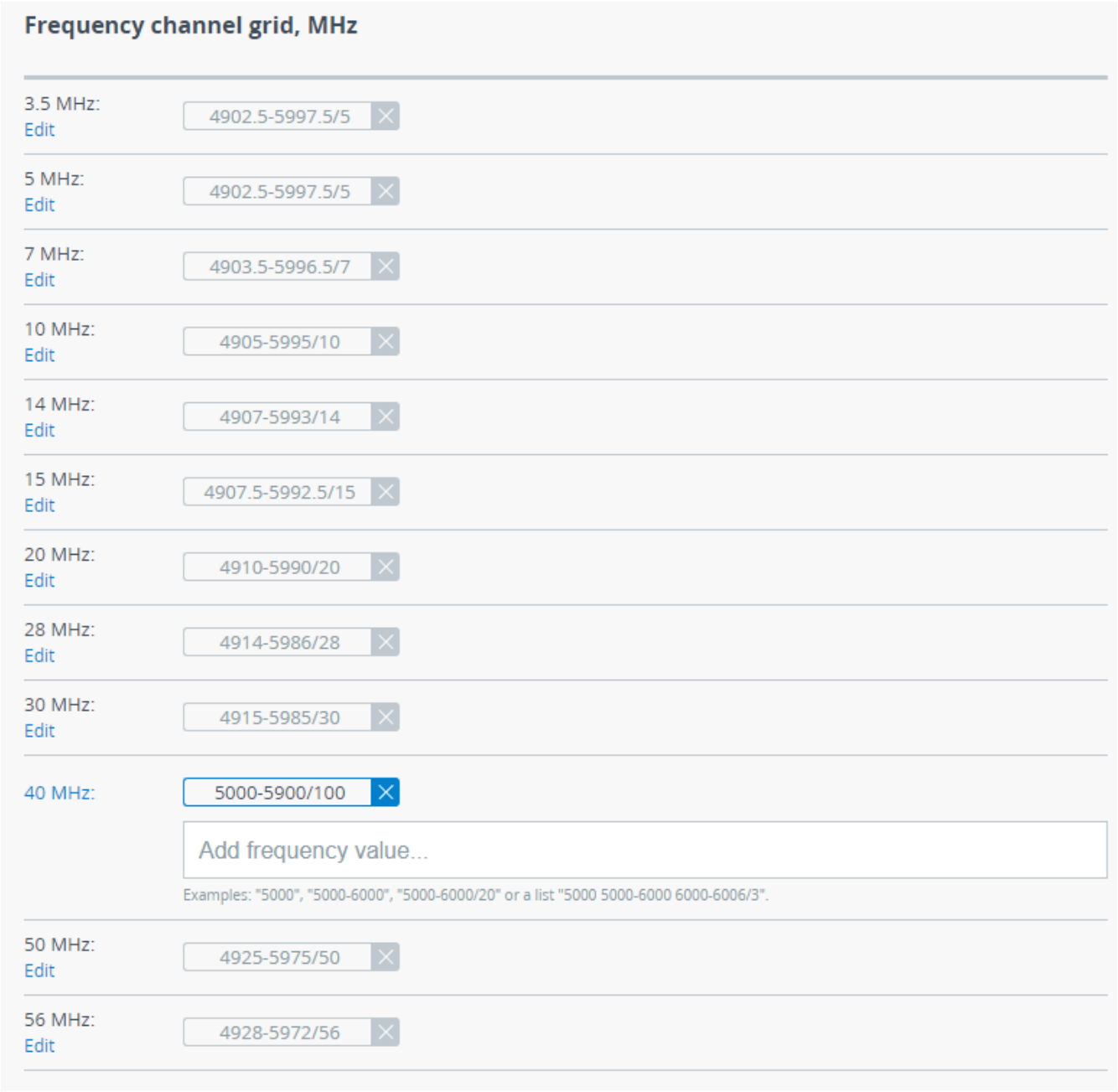

Figure - Frequency channel grids