

# MGTTron Command Description

## Client Commands

These commands are all the operator should need to control the frequency, power and bandwidth. For the WiFi jamming application bandwidth should usually be set to 0 (CW). The user may increase the bandwidth of the channels if they wish.

### **Frequency Setting:**

Command Structure: f "Channel#" "Frequency in MHz"

Example: f 3 2437.52

This command takes a channel number (1 - 8) and sets the desired frequency (50 – 6400 MHz). The MGTTron has precision down to 2 decimal places (10kHz). If numbers outside the operating ranges are passed, it will give the subsequent errors.

ERROR: Channel out of range.  
Valid Range: 1 – 8

or ERROR: Frequency out of range.  
Valid Range: 50 - 6400 MHz

### **Power Setting:**

Command Structure: p "Channel#" "0-63"

Example: p 7 12

This command takes a channel number (1 - 8) and sets the desired power (0 - 63). The power setting is not related to any real-world power. The chip simply has 64 discrete steps of power output. The actual output power will vary with frequency and may vary from channel to channel due to differences in trace lengths. Power has been measured around 8-9dBm at low frequencies and around 6dBm at high frequencies. If numbers outside the operating ranges are passed, it will give the subsequent errors.

ERROR: Channel out of range.  
Valid Range: 1 – 8

or ERROR: Power setting out of range.  
Valid Range: 0 - 63

### **Bandwidth Setting:**

Command Structure: b "Channel#" "Bandwidth in %"

Example: b 4 52

This command takes a channel number (1 - 8) and sets the desired bandwidth percentage (0 – 100). The reason why it is given as a percent instead of a defined value is because of the way the frequency synthesizer chip sets its frequency. When setting frequency, you must give the chip a number between 3200 – 6400, then tell it to divide that number down if it below this range. So, if you want 2400, you tell it 4800 divided by 2. This is all done in the code, so the user does not have to worry about this, but this consequence of frequency setting means that the bandwidth of a signal will be divided along with its frequency. So, 100% bandwidth at 6300MHz will be different than 100% bandwidth at 200MHz. In practice, the injected noise will result in a bandwidth equal to about 1% of the center frequency of the signal. 100% bandwidth at 350MHz will be about 3.5 MHz, and 100% bandwidth at 5000MHz will be about 50MHz. If numbers outside the operating ranges are passed, it will give the subsequent errors.

ERROR: Channel out of range.

Valid Range: 1 – 8

or

ERROR: Bandwidth setting out of range.

Valid Range: 0 - 100 %

### **Save State:**

Command Structure: x "0/1"

This command allows the user to turn ON (1) or OFF (0) the save-state feature of the MGTron. When this feature is turned on, it will save each setting made by the user into memory. Then, when the device is power cycled it will automatically configure all settings to their last known state on start up. If numbers outside the operating ranges are passed, it will give the subsequent error.

ERROR: Save-State setting out of range.

Valid Range: 0 (for OFF) 1 (for ON)

### **Amplifier Enabling:**

Command Structure: a "Amplifier#" "0/1"

This command will let you output a HIGH or LOW logic level out of a connector on the back of the MGTron which is meant for the enabling and disabling of one of 8 external power amplifiers. Typically, most amps will have a disabling feature that requires a logic HIGH to activate. This means that a user input of "1" (ON) will result in an output of logic LOW, and a

user input of "0" (OFF) will result in an output of logic HIGH. If numbers outside the operating ranges are passed, it will give the subsequent errors.

ERROR: Channel out of range.

or

ERROR: Amp State setting out of range.

Valid Range: 1 – 8

Valid Range: 0 (for OFF) 1 (for ON)

#### **Status:**

Command Structure: s

This command will display the frequency, bandwidth, and power state of all channels.

#### **Version:**

Command Structure: v

This command will display the current firmware version installed.

#### **Help:**

Command Structure: h

This command will display all other available commands and how to format them.

#### **Radio ID:**

Command Structure: i

This command will display which radio is connected to the COM port selected 1-8. Please refer to the max power settings below in order to understand how to program each radio.