

Bluetooth/WiFi Module Antenna Specification and Description

Bluetooth specification

Version:	ver.5.0 (non HS)
Frequency Ranges:	2402-2480 MHz
Output power:	10 mW (Power Class 1)
	+5.0dBm (Min. -1dBm, Max. +6.0dBm)
Current consumption:	100 mA max
Channel:	Basic Rate (BR): 79 ch hopping, 1MHz spacing Low Energy (LE): 40 ch no hopping, 2MHz spacing
Modulation method:	BR: FHSS (GFSK, $\pi/4$ dPSK, 8DPSK) LE: FHSS (GFSK)
Data Rate:	BR: EDR PHY (8DPSK): 3Mb/s, EDR PHY ($\pi/4$ DQPSK): 2Mb/s, BR PHY (GFSK): 1Mb/s LE: LE 1M PHY: 1 Mb/s
Antenna:	External (different from original)

WiFi specification

Version:	WiFi 5
Band:	2.4 and 5 GHz (802.11a/b/g/n/ac)
FCC Frequency Ranges:	2412-2462 MHz 5180-5240 MHz 5260-5320 MHz 5500-5720 MHz (with TDWR) 5745-5825 MHz
ISED Frequency Ranges:	2412-2462 MHz 5180-5240 MHz (Indoor use only in Canada) 5260-5320 MHz 5500-5580 MHz 5660-5720 MHz 5745-5825 MHz
Output power:	Output power at Antenna port 802.11b: +11.5dBm (min +9.0dBm, max +14.5dBm)

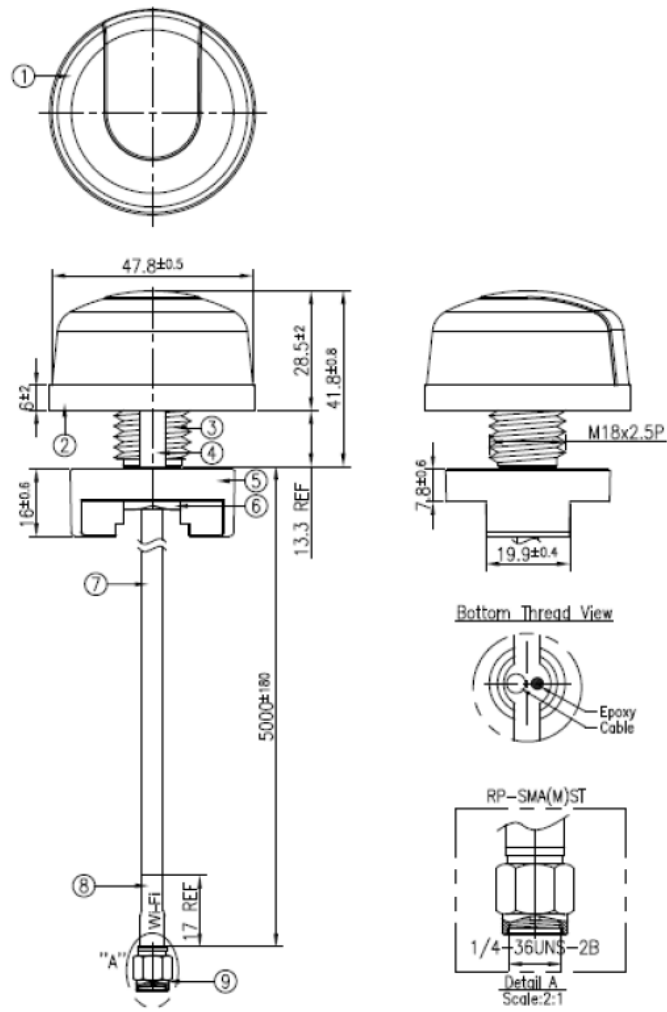
	802.11g: +9.0dBm (min +5.0dBm, max +14.0dBm)
	802.11n: +8.0dBm (min +4.5dBm, max +12.0dBm)
	802.11a: +7.5dBm (min +4.0dBm, max +12.0dBm)
	802.11n-HT40: +6.0dBm (min +1.5dBm, max +11.5dBm)
	802.11ac-VHT80: +4.5dBm (min +1.5dBm, max +7.5dBm)
Bandwidth:	20MHz(2.4GHz) 20MHz/40MHz/80MHz(W52/W53/W56/W58).
Current consumption:	430 mA max
Moduration rate:	802.11b: 1/2/5.5/11Mbps 802.11a/g: 6/9/12/18/24/36/48/54Mbps 802.11n-HT20/11n-HT40: MCS0-7 802.11ac-VHT20: MCS0-8 802.11ac-VHT40/VHT80: MCS0-9
Modulation method:	802.11b: DSSS 802.11g/n: OFDM 802.11a/n/ac: OFDM
Antenna:	External (different from original)

External BT/WiFi Antenna

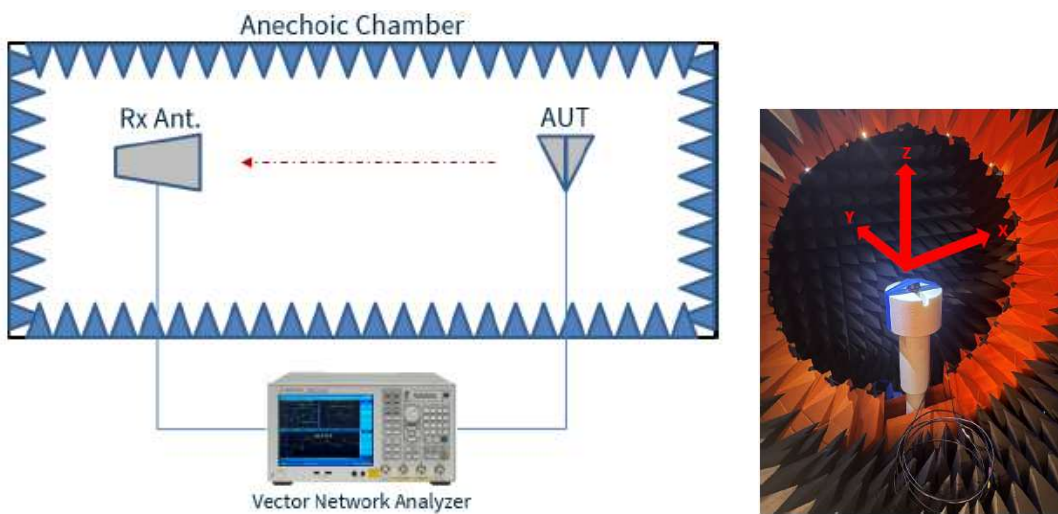
1-1 Antenna information:	Manufacturer: TAOGLAS Model: WS.03.B.305151 Type: Dipole Connector: RP-SMA Gain: 2.4GHz: 3.40 dBi (max) Gain: 5GHz: 2.62 dBi (max)
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1-2 Antenna photo and drawings

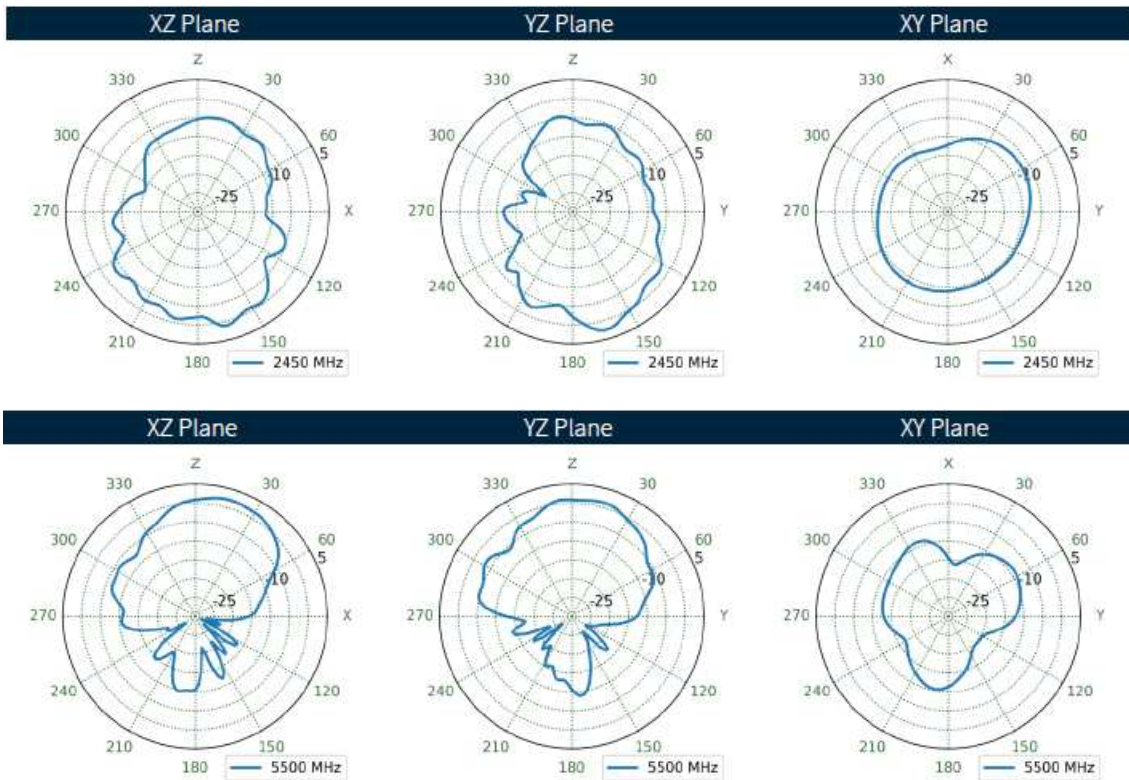




1-3 Antenna Test Equipment and Photo



1-4 Polar Plot

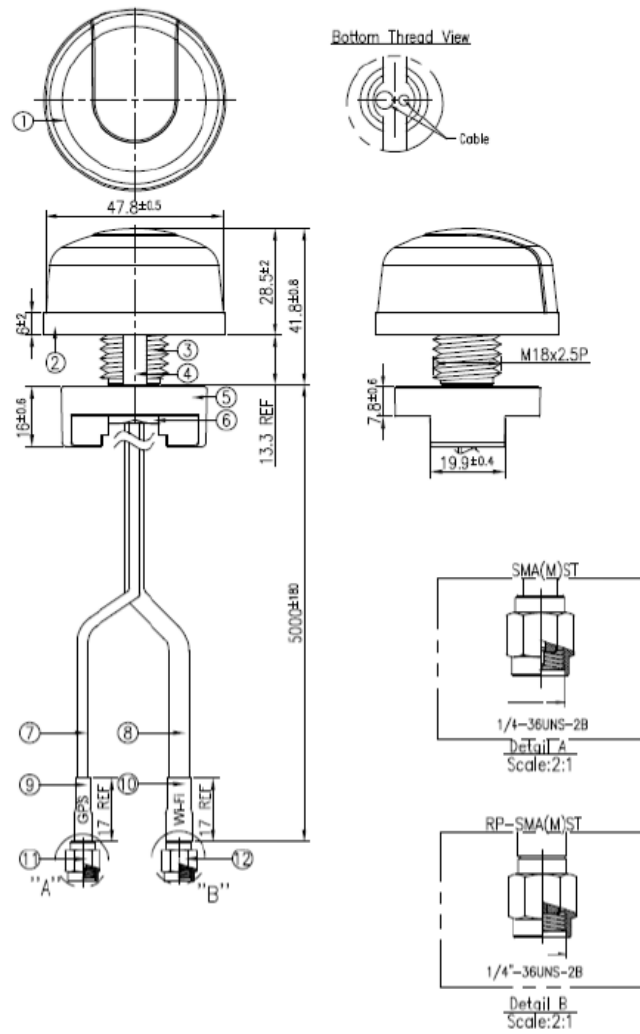


2-1 Antenna information:

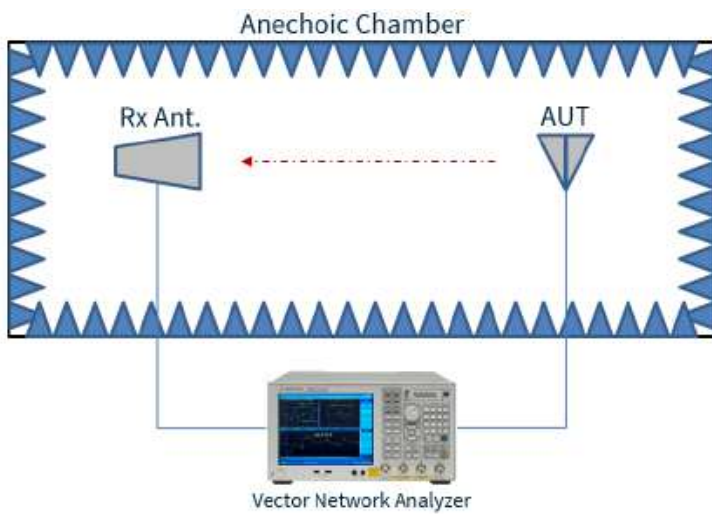
Manufacturer: TAOGLAS
Model: MA501.C.AC.042
Type: Dipole
Connector: RP-SMA
Gain: 2.4GHz: 4.45 dBi (max)
Gain: 5GHz: 2.74 dBi (max)

2-2 Antenna photo and drawings

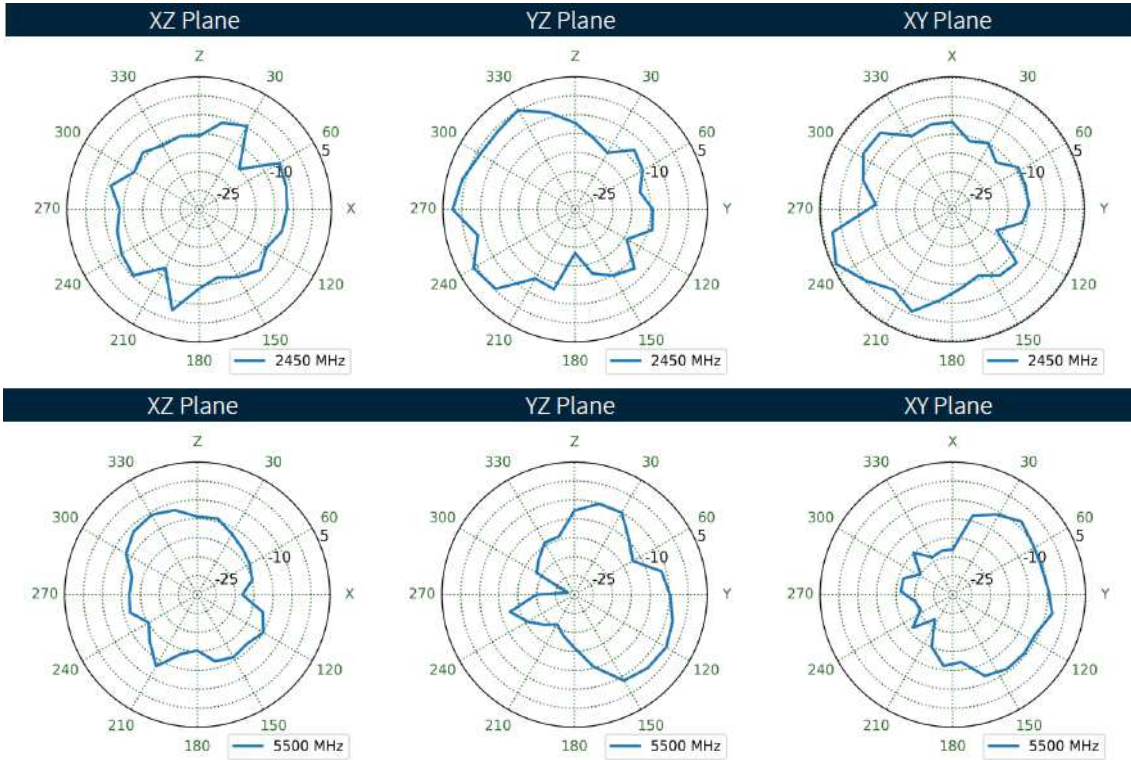




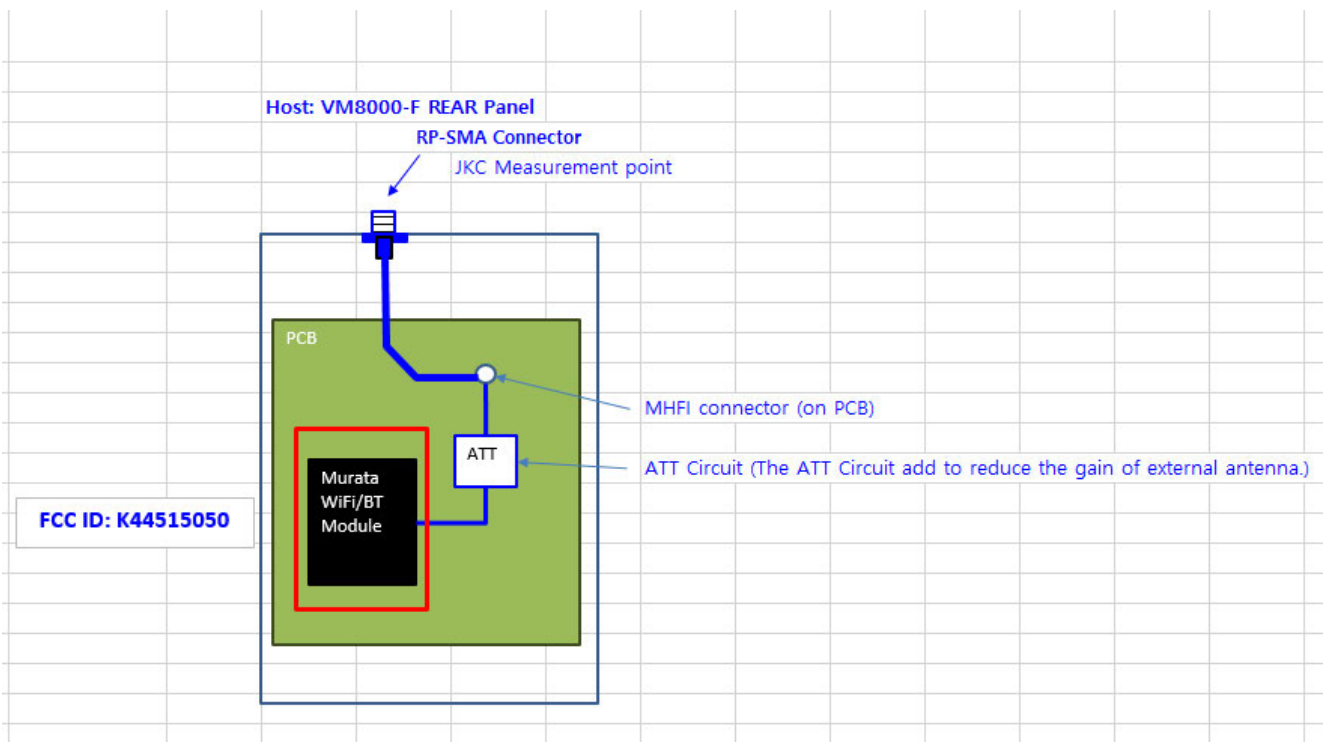
2-3 Antenna Test Equipment and Photo



2-4 Polar Plot



Trace antenna Design



FCC ID: K44515050

IC: 282F-515050

Host Model: VM8000-F



MULTIBAND DIGITAL TRANSCEIVER (MOBILE RADIO)