

M690F M680F M670F M660F M650F M640F M630F Enterprise Series Mobility M2M IoT Antenna Specifications

Multi-Carrier Multi MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi MIMO Multi-Band WiFi 7 / WiFi HaLow / Bluetooth (2.4GHz)

4G LTE CBRS 5G NR Frequency Range Bluetooth (2.4GHz) WiFi 7 Frequency Range	617-960MHz / 1710-7000MHz 2.4-2.5GHz / 4.9-7GHz (Concurrent)
4G CBRS 5G NR Avg. Peak Gain: <i>Isotropic</i> WiFi 7 / Bluetooth Avg. Peak Gain: <i>Isotropic</i>	(5dBi) 617-960MHz / (8dBi) 1710-3800MHz / (9dBi) 4900-7000MHz / (6.5dBi) CBRS LTE 3.5GHz (9dBi) 2.4GHz / (9dBi) 5GHz~7GHz
Typical Efficiency 4G 5G Elements	617-960MHz >65% 1710-3800MHz >75% 4900-7000MHz >85%
Typical Efficiency WiFi / Bluetooth Elements	>70%
Isolation 4G 5G Elements Isolation WiFi / Bluetooth Elements	>10dB >12dB
Correlation Co-efficient 4G 5G Elements Correlation Co-efficient WiFi / BT Elements	<0.2 <0.1
Nominal Impedance	50Ω
GPS GNSS Specifications	GPS Glonass Galileo QZSS BeiDou Compass <i>In-Band Frequency Interference Filter for LTE B13 B14</i>
Frequency Range	1562-1612MHz
LNA Gain	29dB ± 2dB
VSWR	<2.0:1
Out of Band Rejection	>45dB (@ > +/- 100MHz f)
Typical Noise Figure	<-2dB
Notch Filter Rejection @787MHz	24dB
Operating Voltage	3-5V DC
Typical Current	15mA
Mechanical / Environmental Specifications	
Antenna Housing	High Impact UV Stable ABS Polymer (Black or White) Housing Height: 114mm (4.5") / Base Diameter: 140mm (5.5")
Connector Types	FAKRA Connector Ends
15ft Coax Cables (All Cables Full Length)	Cellular 4G 5G AGA200 Coax / Multi Band WiFi AGA200 Coax / GPS GNSS AGA100 Coax (Custom cable length options are available)
Mounting Bolt	Stainless Steel Mounting Bolt: <i>Length 19mm (0.75") / Diameter 25mm (0.98")</i> Stainless Steel Mounting Bolt: <i>Length 19mm (0.75") / Diameter 22mm (0.87")</i> w/Anti Rotation Perma Seal Baseplate Pad
Operating Temp	-40° / +80°C (-40° / +176°F)
Ingress Protection	IP69K

M690F M680F M670F M660F Enterprise Series Antenna Configuration Options (FAKRA)

* Contact Us For MM600F HaLow WiFi Configuration Options

<p>M690F 9-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 25mm</p>	<p>M690F-BB-4CG4W: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 7 – (Black)</p> <p>M690F-BW-4CG4W: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 7 – (White)</p> <p>M690F-BB-6CG2W: Multi-MIMO x 6 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 7 – (Black)</p> <p>M690F-BW-6CG2W: Multi-MIMO x 6 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 7 – (White)</p> <p>M690F-BB-6C3W: Multi-MIMO x 6 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 7 – (Black)</p> <p>M690F-BW-6C3W: Multi-MIMO x 6 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 7 – (White)</p> <p>M690F-BB-4C5W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 5 x Multi-Band WiFi 7 – (Black)</p> <p>M690F-BW-4C5W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 5 x Multi-Band WiFi 7 – (White)</p> <p>M690F-BB-2CG6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 6 x Multi-Band WiFi 7 – (Black)</p> <p>M690F-BW-2CG6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 6 x Multi-Band WiFi 7 – (White)</p> <p>M690F-BB-8CG: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black)</p> <p>M690F-BW-8CG: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M690F-BB-9C: Multi-MIMO 9 x Cellular 4G LTE CBRS 5G NR – (Black)</p> <p>M690F-BW-9C: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR – (White)</p> <p>M690F-BB-8WG: Multi-MIMO 8 x Multi-Band WiFi 7 / GPS GNSS – (Black)</p> <p>M690F-BW-8WG: Multi-MIMO 8 x Multi-Band WiFi 7 / GPS GNSS – (White)</p> <p>M690F-BB-9W: Multi-MIMO 9 x Multi-Band WiFi 7 – (Black)</p> <p>M690F-BW-9W: Multi-MIMO 9 x Multi-Band WiFi 7 – (White)</p>
<p>M680F 8-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 25mm</p>	<p>M680F-BB-4CG3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 7 – (Black)</p> <p>M680F-BW-4CG3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 7 – (White)</p> <p>M680F-BB-4C4W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / Multi MIMO 4 x Multi-Band WiFi 7 – (Black)</p> <p>M680F-BW-4C4W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / Multi MIMO 4 x Multi-Band WiFi 7 – (White)</p> <p>M680F-BB-2C6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi MIMO 6 x Multi-Band WiFi 7 – (Black)</p> <p>M680F-BW-2C6W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi MIMO 6 x Multi-Band WiFi 7 – (White)</p> <p>M680F-BB-6C2W: Multi MIMO x 6 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 7 – (Black)</p> <p>M680F-BW-6C2W: Multi MIMO x 6 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 7 – (White)</p> <p>M680F-BB-8C: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR – (Black)</p> <p>M680F-BW-8C: Multi-MIMO 8 x Cellular 4G LTE CBRS 5G NR – (White)</p> <p>M680F-BB-8W: Multi MIMO 8 x Multi-Band WiFi 7 – (Black)</p> <p>M680F-BW-8W: Multi MIMO 8 x Multi-Band WiFi 7 – (White)</p>
<p>M670F 7-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 22mm</p> <p>Diameter 25mm</p>	<p>M670F-BB-4CG2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 7 – (Black)</p> <p>M670F-BW-4CG2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 7 – (White)</p> <p>M670F-BB-2CG4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 7 – (Black)</p> <p>M670F-BW-2CG4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-MIMO 4 x Multi-Band WiFi 7 – (White)</p> <p>M670F-BB-4C3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 7 – (Black)</p> <p>M670F-BW-4C3W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 7 – (White)</p> <p>M670F-BB-6CG: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black)</p> <p>M670F-BW-6CG: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M670F-BB-6WG: Multi-MIMO 6 x Multi-Band WiFi 7 / GPS GNSS – (Black)</p> <p>M670F-BW-6WG: Multi-MIMO 6 x Multi-Band WiFi 7 / GPS GNSS – (White)</p>
<p>M660F 6-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 22mm</p> <p>Diameter 25mm</p>	<p>M660F-BB-2CG3W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 7 – (Black)</p> <p>M660F-BW-2CG3W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 3 x Multi-Band WiFi 7 – (White)</p> <p>M660F-BB-2C4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-MIMO 4 x Multi-Band WiFi 7 – (Black)</p> <p>M660F-BW-2C4W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-MIMO 4 x Multi-Band WiFi 7 – (White)</p> <p>M660F-BB-4C2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 7 – (Black)</p> <p>M660F-BW-4C2W: Multi-MIMO x 4 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 7 – (White)</p> <p>M660F-BB-6C: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR – (Black)</p> <p>M660F-BW-6C: Multi-MIMO 6 x Cellular 4G LTE CBRS 5G NR – (White)</p> <p>M660F-BB-5WG: Multi-MIMO 5 x Multi-Band WiFi 7 / GPS GNSS – (Black)</p> <p>M660F-BW-5WG: Multi-MIMO 5 x Multi-Band WiFi 7 / GPS GNSS – (White)</p> <p>M660F-BB-6W: Multi-MIMO 6 x Multi-Band WiFi 7 – (Black)</p> <p>M660F-BW-6W: Multi-MIMO 6 x Multi-Band WiFi 7 – (White)</p>

M650F M640F M630F Enterprise Series Antenna Configuration Options (FAKRA)

* Contact Us For MM600F HaLow WiFi Configuration Options

<p>M650F 5-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 22mm</p>	<p>M650F-BB-2CG2W: MIMO 2 x Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 7 – (Black)</p> <p>M650F-BW-2CG2W: MIMO 2 x Cellular 4G LTE CBRS 5G NR / GPS GNSS / MIMO 2 x Multi-Band WiFi 7 – (White)</p> <p>M650F-BB-2C3W: MIMO 2 x Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 7 – (Black)</p> <p>M650F-BW-2C3W: MIMO 2 x Cellular 4G LTE CBRS 5G NR / MIMO 3 x Multi-Band WiFi 7 – (White)</p> <p>M650F-BB-4CG: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black)</p> <p>M650F-BW-4CG: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M650F-BB-4WG: Multi-MIMO 4 x Multi-Band WiFi 7 / GPS GNSS – (Black)</p> <p>M650F-BW-4WG: Multi-MIMO 4 x Multi-Band WiFi 7 / GPS GNSS – (White)</p> <p>M650F-BB-5W: Multi-MIMO 5 x Multi-Band WiFi 7 – (Black)</p> <p>M650F-BW-5W: Multi-MIMO 5 x Multi-Band WiFi 7 – (White)</p>
<p>M640F 4-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 22mm</p>	<p>M640F-BB-2CGW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-Band WiFi 7 – (Black)</p> <p>M640F-BW-2CGW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi-Band WiFi 7 – (White)</p> <p>M640F-BB-2C2W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 7 – (Black)</p> <p>M640F-BW-2C2W: MIMO x 2 Cellular 4G LTE CBRS 5G NR / MIMO 2 x Multi-Band WiFi 7 – (White)</p> <p>M640F-BB-4C: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR – (Black)</p> <p>M640F-BW-4C: Multi-MIMO 4 x Cellular 4G LTE CBRS 5G NR – (White)</p> <p>M640F-BB-4W: Multi MIMO 4 x Multi-Band WiFi 7 – (Black)</p> <p>M640F-BW-4W: Multi MIMO 4 x Multi-Band WiFi 7 – (White)</p>
<p>M630F 3-Element Configurations</p> <p>Bolt Mount</p> <p>Diameter 22mm</p>	<p>M630F-BB-2CG: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS – (Black)</p> <p>M630F-BW-2CG: MIMO x 2 Cellular 4G LTE CBRS 5G NR / GPS GNSS – (White)</p> <p>M630F-BB-2CW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-Band WiFi 7 – (Black)</p> <p>M630F-BW-2CW: MIMO x 2 Cellular 4G LTE CBRS 5G NR / Multi-Band WiFi 7 – (White)</p> <p>M630F-BB-2WG: MIMO x 2 Multi-Band WiFi 7 / GPS GNSS – (Black)</p> <p>M630F-BW-2WG: MIMO x 2 Multi-Band WiFi 7 / GPS GNSS – (White)</p> <p>M630F-BB-3W: MIMO 3 x Multi-Band WiFi 7 – (Black)</p> <p>M630F-BW-3W: MIMO 3 x Multi-Band WiFi 7 – (White)</p>

M600F Enterprise Series Antenna Housing Color Options

Black / White



M600F Enterprise Series Antenna Coax Cable Labels (FAKRA Connector Ends)

CELL / WIFI / GPS / Bluetooth

Cell FAKRA-D



WiFi FAKRA-I



GPS FAKRA-C



Bluetooth FAKRA-G



Supported Cellular Service Provider Networks

Verizon	<p>Verizon 4G LTE 5G NR Bands 4G LTE: B2 B4 B5 B13 B46 B48 B66 (CBRS B48) 5G NR: N2 N5 N66 N77</p> <p>Carriers (MVNOs) using Verizon Network: <i>Reach Mobile, Red Pocket Mobile, Spectrum Mobile, Ting Total, Tracfone, Twigby, US Mobile, Visible, Xfinity Mobile</i></p>
T-Mobile	<p>Mobile 4G LTE 5G NR Bands 4G LTE: B2 B4 B5 B12 B25 B26 B41 B48 B66 B71 (CBRS B48) 5G NR: N25 N41 N66 N71</p> <p>Carriers (MVNOs) using T-Mobile Network <i>Mint Mobile, TextNow, Lyca Mobile, Metro, Red Pocket Mobile Republic Wireless, Simple Mobile, Ting, Tracfone, US Mobile</i></p>
AT&T	<p>AT&T 4G LTE 5G NR Bands 4G LTE: B2 B4 B5 B12 B14 B17 B29 B30 B48 B66 (CBRS B48) GSM: 1900MHz 5G NR: N2 N5 N66 N77</p> <p>Carriers (MVNOs) using AT&T Network <i>Cricket Wireless, Net 10 Wireless, Red Pocket Mobile, Straight Talk</i></p>

Supported Cellular Bands

5G NR Bands	n1 n2 n3 n5 n7 n8 n12 n13 n14 n18 n20 n25 n26 n28 n29 n30 n38 n40 n41 n48-CBRS n66 n71 n75 n76 n77 n78 n79 C-band
4G LTE Bands	B1 B2 B3 B4 B5 B7 B8 B12 B13 B14-FirstNet B17 B18 B19 B20 B25 B26 B28 B29 B30 B32 B38 B39 B40 B41 B42 B43 B46-LAA B48-CBRS B66 B71
3G Bands	B1 B2 B3 B4 B5 B6 B8 B9 B19

Supported WiFi IEEE Standards

WiFi 1-7	WiFi 1 Wif 2 (802.11ba) WiFi 3 (802.11g) WiFi 4 (802.11n) WiFi 5 (802.11ac) WiiiFi 6 6E (802.11ax) WiFi 7 (802.11be)
* WiFi HaLow	WiFi HaLow (802.11ah) * Contact Us For M600F HaLow WiFi Configuration Options



M600F Enterprise Series Antenna
Dimensions

Height: 114mm (4.5") / Base Diameter 140mm (5.5")

114mm / 4.5"



140mm / 5.5"

Stainless Steel Mounting Bolt
Length 19mm (0.75")
Diameter 22mm (0.87")
Diameter 25mm (0.98")



Stainless Steel Mounting Bolt
Length 19mm (0.75")
Diameter 22mm (0.87")
Diameter 25mm (0.98")

Anti-Rotation Perma-Seal
Adhesive Baseplate Pad

M690F M680F M670F M660F M650F M640F M630F Enterprise Series Antennas
Optional: *M-Lander Magnetic Mount / L-Bracket Mount*
(Sold Separately)

M600F Enterprise Series Antenna
w/ Optional M-Lander Mag Mount
M-Lander Sold Separately



Optional: Rugged Adjustable
M-Lander Magnetic Mount
Sold Separately

M600F Enterprise Series Antenna
w/ Optional L-Bracket Mount
L-Bracket Sold Separately



Optional: L-Bracket Mount
w/U-Bolt Set
Sold Separately