

**M450F M440F M430F MIMO Low-Profile Series Mobility M2M IoT Antenna Specifications (FAKRA)**
*Multi-Carrier Multi MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS / Multi MIMO Multi Band WiFi 6 (2.4GHz ~6GHz) / Bluetooth (2.4GHz)*

4G LTE CBRS 5G NR Frequency Range Bluetooth (2.4GHz) WiFi 6 Frequency Range	617-960MHz / 1710-6000MHz 2.4-2.5GHz / 4.9-6GHz (Concurrent)
4G CBRS 5G NR Avg. Peak Gain: <i>Isotropic</i> WiFi 6 / Bluetooth Avg. Peak Gain: <i>Isotropic</i>	(2dBi) 617-960MHz / (3dBi) 1710-3800MHz / (5.5dBi) 4900-6000MHz / (3dBi) CBRS 3.5GHz (9dBi) 2.4-2.5GHz / (9dBi) 4.9-6GHz
Typical Efficiency 4G 5G Elements	617-960MHz >65% 1710-3800MHz >65% 4900-6000MHz >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) Bolt Mount: Housing Height: 50mm (2.0") / Base Length: 56mm (2.2") / Base Width: 56mm (2.2") Magnetic Mount: Housing Height: 60mm (2.36") / Base Length: 56mm (2.2") / Base Width: 56mm (2.2")
Connector Types	FAKRA Connector Ends
15ft Coax Cables (All Cables Full Length)	Cellular 4G 5G AGA200 Coax / Multi Band WiFi Bluetooth AGA200 Coax / GPS GNSS AGA100 Coax * Custom cable lengths & connector end options are available
Bolt Mount Magnetic Mount / Adhesive Mount	Stainless Steel Mounting Bolt: Length 20mm (0.80") / Diameter 22mm (0.90") 3 x Commercial Grade Rare Earth Magnets w/Baseplate Pad (Includes 3M Adhesive Mount Pad)
Operating Temp	-40° / +80°C (-40° / +176°F)
Ingress Protection	IP69K



M400F MIMO Low-Profile Series Bolt Mount Antenna Configuration Options (FAKRA)

<p>M450F 5-Element Bolt Mount Configurations</p>	<p>M450F-BB-2CG2W: MIMO 2 x Cellular 3G 4G 5G / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (Black)  M450F-BW-2CG2W: MIMO 2 x Cellular 3G 4G 5G / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (White)  M450F-BB-4CG: Multi-MIMO 4 x Cellular 3G 4G 5G / GPS GNSS – (Black)  M450F-BW-4CG: Multi-MIMO 4 x Cellular 3G 4G 5G / GPS GNSS – (White)  M450F-BB-4WG: Multi-MIMO 4 x Multi-Band WiFi 6 / GPS GNSS – (Black)  M450F-BW-4WG: Multi-MIMO 4 x Multi-Band WiFi 6 / GPS GNSS – (White)</p>	
<p>M440F 4-Element Bolt Mount Configurations</p>	<p>M440F-BB-2CGW: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS / Multi-Band WiFi 6 – (Black)  M440F-BW-2CGW: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS / Multi-Band WiFi 6 – (White)  M440F-BB-2C2W: MIMO x 2 Cellular 3G 4G 5G / MIMO 2 x Multi-Band WiFi 6 – (Black)  M440F-BW-2C2W: MIMO x 2 Cellular 3G 4G 5G / MIMO 2 x Multi-Band WiFi 6 – (White)  M440F-BB-4C: Multi-MIMO 4 x Cellular 3G 4G 5G – (Black)  M440F-BW-4C: Multi-MIMO 4 x Cellular 3G 4G 5G – (White)  M440F-BB-4W: Multi MIMO 4 x Multi-Band WiFi 6 – (Black)  M440F-BW-4W: Multi MIMO 4 x Multi-Band WiFi 6 – (White)</p>	
<p>M430F 3-Element Bolt Mount Configurations</p>	<p>M430F-BB-2CG: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS – (Black)  M430F-BW-2CG: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS – (White)  M430F-BB-2CW: MIMO x 2 Cellular 3G 4G 5G / Multi-Band WiFi 6 – (Black)  M430F-BW-2CW: MIMO x 2 Cellular 3G 4G 5G / Multi-Band WiFi 6 – (White)  M430F-BB-2WG: MIMO x 2 Multi-Band WiFi 6 / GPS GNSS – (Black)  M430F-BW-2WG: MIMO x 2 Multi-Band WiFi 6 / GPS GNSS – (White)  M430F-BB-3W: MIMO 3 x Multi-Band WiFi 6 – (Black)  M430F-BW-3W: MIMO 3 x Multi-Band WiFi 6 – (White)</p>	

M400F MIMO Low-Profile Series Magnetic / Adhesive Mount Antenna Configuration Options (FAKRA)

<p>M450F 5-Element Magnetic / Adhesive Mount Configurations</p>	<p>M450F-MB-2CG2W: MIMO 2 x Cellular 3G 4G 5G / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (Black)  M450F-MW-2CG2W: MIMO 2 x Cellular 3G 4G 5G / GPS GNSS / MIMO 2 x Multi-Band WiFi 6 – (White)  M450F-MB-4CG: Multi-MIMO 4 x Cellular 3G 4G 5G / GPS GNSS – (Black)  M450F-MW-4CG: Multi-MIMO 4 x Cellular 3G 4G 5G / GPS GNSS – (White)  M450F-MB-4WG: Multi-MIMO 4 x Multi-Band WiFi 6 / GPS GNSS – (Black)  M450F-MW-4WG: Multi-MIMO 4 x Multi-Band WiFi 6 / GPS GNSS – (White)</p>	
<p>M440F 4-Element Magnetic / Adhesive Mount Configurations</p>	<p>M440F-MB-2CGW: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS / Multi-Band WiFi 6 – (Black)  M440F-MW-2CGW: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS / Multi-Band WiFi 6 – (White)  M440F-MB-2C2W: MIMO x 2 Cellular 3G 4G 5G / MIMO 2 x Multi-Band WiFi 6 – (Black)  M440F-MW-2C2W: MIMO x 2 Cellular 3G 4G 5G / MIMO 2 x Multi-Band WiFi 6 – (White)  M440F-MB-4C: Multi-MIMO 4 x Cellular 3G 4G 5G – (Black)  M440F-MW-4C: Multi-MIMO 4 x Cellular 3G 4G 5G – (White)  M440F-MB-4W: Multi MIMO 4 x Multi-Band WiFi 6 – (Black)  M440F-MW-4W: Multi MIMO 4 x Multi-Band WiFi 6 – (White)</p>	
<p>M4530F 3-Element Magnetic / Adhesive Mount Configurations</p>	<p>M430F-MB-2CG: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS – (Black)  M430F-MW-2CG: MIMO x 2 Cellular 3G 4G 5G / GPS GNSS – (White)  M430F-MB-2CW: MIMO x 2 Cellular 3G 4G 5G / Multi-Band WiFi 6 – (Black)  M430F-MW-2CW: MIMO x 2 Cellular 3G 4G 5G / Multi-Band WiFi 6 – (White)  M430F-MB-2WG: MIMO x 2 Multi-Band WiFi 6 / GPS GNSS – (Black)  M430F-MW-2WG: MIMO x 2 Multi-Band WiFi 6 / GPS GNSS – (White)  M430F-MB-3W: MIMO 3 x Multi-Band WiFi 6 – (Black)  M430F-MW-3W: MIMO 3 x Multi-Band WiFi 6 – (White)</p>	



M450F M440F M430F Low-Profile Series Mobility M2M IoT Antennas  
 MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS  
 MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth  
 Built-In Ground Plane / Bolt Mount / Mag Mount / Adhesive Mount  
 FAKRA Connector Ends

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&amp;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&amp;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 1-6	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 M450 Series HaLow WiFi Configuration Options

M450F M440F M430F MIMO Low-Profile Series Antenna Housing Color Options  
 Black / White



Bolt Mount



Magnetic / Adhesive Mount



M450F M440F M430F MIMO Low-Profile Series Antenna Coax Cable Labels (FAKRA)  
 CELL / WIFI / GPS / Bluetooth



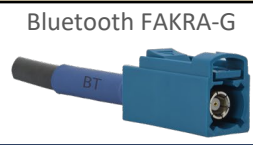
Cell FAKRA-D



WiFi FAKRA-I

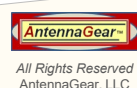


GPS FAKRA-C



Bluetooth FAKRA-G

M450F M440F M430F Low-Profile Series Antennas Include Built in Ground Plane / Full Length 15ft Coax Cables (FAKRA)  
 "Built To Spec" Custom Cable Options are Available. Contact us for details.





M450F M440F M430F Low-Profile Series Mobility M2M IoT Antennas  
 MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS  
 MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth  
 Built-In Ground Plane / Bolt Mount / Mag Mount / Adhesive Mount  
 FAKRA Connector Ends

M450F M440F M430F MIMO Low-Profile Series Antenna – Bolt Mount  
 Dimensions

Height: 56mm (2.2")  
 Base: 56mm (2.2") x 56mm (2.2")



Mounting Bolt  
 20mm (0.80") Length  
 22mm (0.90") Diameter



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

Anti-Rotation Perma-Seal  
 Baseplate Pad





M450F M440F M430F Low-Profile Series Mobility M2M IoT Antennas  
 MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS  
 MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth  
 Built-In Ground Plane / Bolt Mount / Mag Mount / Adhesive Mount  
 FAKRA Connector Ends

M450F M440F M430F MIMO Low-Profile Series Antenna – *Magnetic / Adhesive Mount*  
 Dimensions

Height: 60mm (2.36")  
 Base: 56mm (2.2") x 56mm (2.2")



*Magnetic / Adhesive Mount*



M450F M440F M430F Low-Profile Series Antennas Include Built in Ground Plane / Full Length 15ft Coax Cables (FAKRA)  
 "Built To Spec" Custom Cable Options are Available. Contact us for details.





M450F M440F M430F Low-Profile Series Mobility M2M IoT Antennas  
 MIMO Cellular 4G LTE CBRS 5G NR / GPS GNSS  
 MIMO Multi-Band WiFi 6 / WiFi HaLow / Bluetooth  
 Built-In Ground Plane / Bolt Mount / Mag Mount / Adhesive Mount  
 FAKRA Connector Ends

M450F M440F M430F MIMO Low-Profile Series Antenna – Bolt Mount (FAKRA)  
 Optional L-Bracket Mount (Sold Separately)



M450F MIMO Low-Profile Series Bolt Mount Antenna  
 w/ Optional L-Bracket Mount  
 Sold Separately



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

