

## VQJ69595B

### “Trigger” 4-Port Under-Dash Antenna Cellular/Wi-Fi/GNSS

The innovative *Trigger* family of multiport/multiband antennas provide an excellent solution for transportation, aftermarket fleet, public safety and IoT applications. The incorporation of both vertically and horizontally polarized cellular radiating elements has shown to provide improved signal received power and signal received quality. These parameters are critical for high density urban environments as well as long distance remote rural conditions. This translates to more consistent connectivity and data throughput for your mobile data applications.

The VQJ series Trigger antenna is configured for two-port operation over the 3G/4G/5G/ISM/CBRS bands and one-port operation over the low//high frequency Wi-Fi bands. An additional fourth port provides an active antenna for enabling GNSS global navigation services.

### FEATURES AND BENEFITS

- Unique V-Pol / H-Pol cellular elements ensure highest signal retention and data throughput
- Ideal for vehicle under-dash locations mounted to ventilation ducting
- Dual axis bonding via VHB tape provides a rugged mount to jarring vehicle movements

### APPLICATIONS

- Trucking
- FirstNet/Public safety
- Transportation/transit
- Aftermarket fleet
- Rugged LTE gateways

### ELECTRICAL SPECIFICATIONS

|                              |                                   |           |           |           |
|------------------------------|-----------------------------------|-----------|-----------|-----------|
| Antenna Model                | VQJ69595B-92VC1 / VQJ69595B-92FAK |           |           |           |
| Number of Ports              | 4                                 |           |           |           |
| Port Configuration           | LTE (Cell) 2x                     |           | Wi-Fi 1x  |           |
| Operating Frequency (MHz)    | 698-960/1710-2620                 | 2620-2700 | 2400-2500 | 4900-5900 |
| Peak Gain - (dBi)            | 5.0                               |           | 5.0       |           |
| Efficiency - Typical (%)     | 50                                |           | 40        |           |
| VSWR - Max                   | <3.1:1                            |           | <3.1:1    |           |
| Nominal Impedance (Ohms)     | 50                                |           |           |           |
| Max Power - Ambient 25°C (W) | 5                                 |           |           |           |

## MECHANICAL SPECIFICATIONS

|                                      |                                                                    |
|--------------------------------------|--------------------------------------------------------------------|
| Dimensions - L x W x H - mm (inches) | 132.3 x 59.3 x 14.6 (5.21 x 2.33 x 0.57)                           |
| Weight -g (lbs.)                     | 206 (0.45)                                                         |
| Cable Type                           | LMR100 (or equivalent) - Wi-Fi and LTE; RG174 - GNSS               |
| Mounting Tape (separate pack)        | Mounting tape - 2x double-sided foam tape (75 x 40 x 1.6 mm thick) |
| 3M VHB 5962P or equivalent           | PC, UL94 - V0 Rating, UV Stable                                    |
| Radome Material                      | PC                                                                 |
| Radome Color                         | Black                                                              |
| Radome Texture                       | MT11010                                                            |

## ENVIRONMENTAL SPECIFICATIONS

|                                 |                                     |
|---------------------------------|-------------------------------------|
| Operating Environment           | Vehicular under dash; outdoor rated |
| Operating Temperature - °C (°F) | -40 to +85°C (-40 to +185°F)        |
| Storage Temperature - °C (°F)   | -40 to +85°C (-40 to +185°F)        |
| Ingress Protection Rating       | IP67                                |
| Material Substance Compliance   | RoHS                                |

## GNSS ANTENNA SPECIFICATIONS

|                                         |                   |                    |                    |                    |
|-----------------------------------------|-------------------|--------------------|--------------------|--------------------|
| Frequency of Operation (MHz, reference) | 1559 - 1606       |                    |                    |                    |
| Band                                    | BEIDOU            | GPS                | GLONASS            |                    |
| Frequency Band (MHz)                    | 1561.098 ±2.046   | 1575.42 ±1.023     | 1602 ±5            |                    |
| GNSS Passive Gain (dBic)                | 5                 |                    |                    |                    |
| GNSS Active Gain (dBic)                 | 32                |                    |                    |                    |
| LNA Gain, Typ. (dB)                     | 28 ±3             |                    |                    |                    |
| DC Voltage, (V)                         | 2.5 - 7           |                    |                    |                    |
| Noise Figure; Max (dB)                  | ≤ 2.5             |                    |                    |                    |
| Polarization                            | RHCP              |                    |                    |                    |
| Nominal Impedance (Ohms)                | 50                |                    |                    |                    |
| Current Consumption, Max @ room temp mA | 8.5 ±3 (at 3.0 V) |                    |                    |                    |
| Out-of-band Signal Rejection Min (dB)   | 698-960 MHz > 80  | 1428-1511 MHz > 80 | 1710-2700 MHz > 80 | 4900-5800 MHz > 70 |
| Input Max Power (dBm)                   | -10               |                    |                    |                    |

## CONFIGURATION

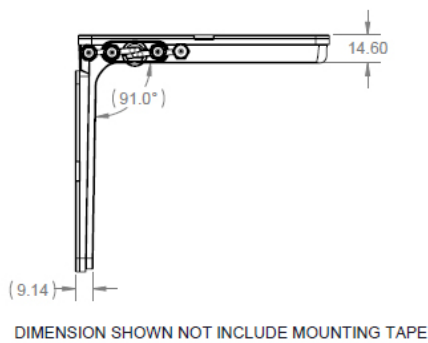
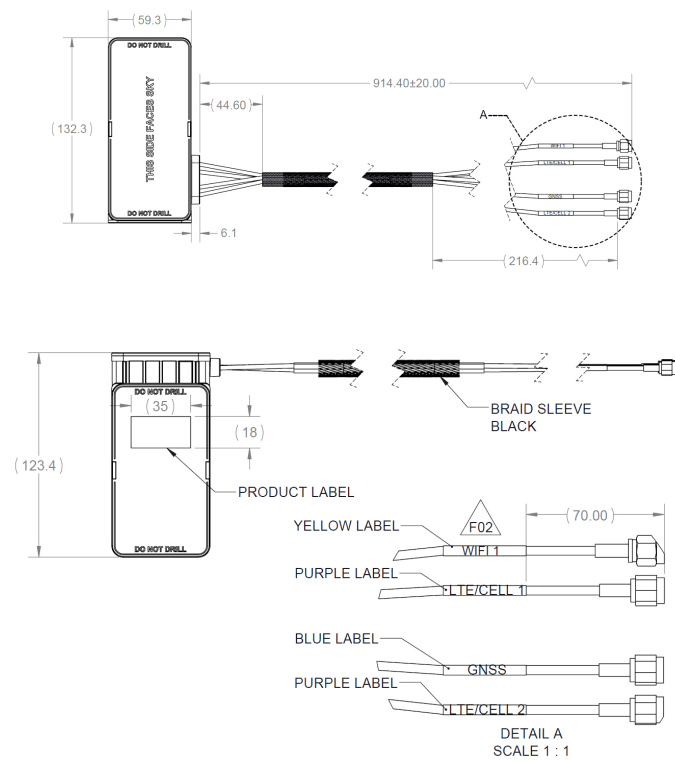
| PART NUMBER     | CABLE LENGTH   | CONNECTORS                      |                           |                          | COLOR |
|-----------------|----------------|---------------------------------|---------------------------|--------------------------|-------|
|                 | PIGTAIL        | LTE/CELL                        | WI-FI                     | GNSS                     |       |
| VQJ69595B-92VC1 | 914 mm (3 ft.) | SMA-male (2x)                   | RP SMA-male               | SMA-male                 | Black |
| VQJ69595B-92FAK | 914 mm (3 ft.) | Fakra Type D Jack (Purple) (2x) | Fakra Type I Jack (Beige) | Fakra Type C Jack (Blue) | Black |

## PACKAGING INFORMATION

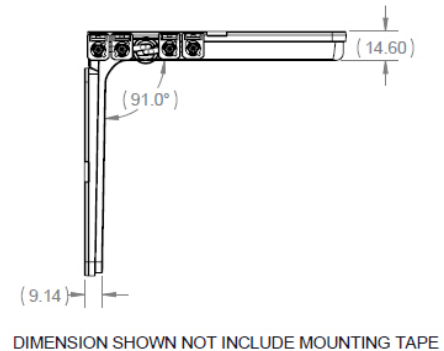
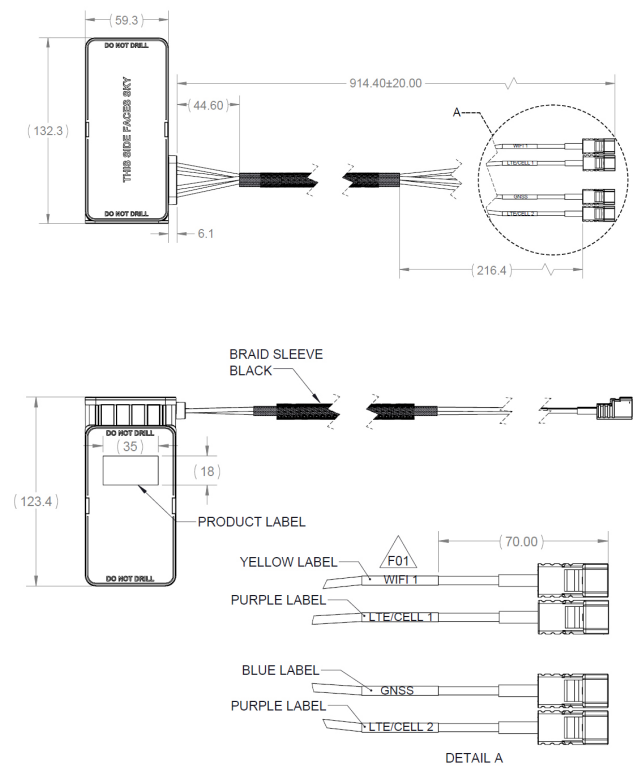
| PACKAGE DIMENSIONS         | MASTER CARTON | AIR PALLET   | OCEAN PALLET |
|----------------------------|---------------|--------------|--------------|
| Number of Antennas         | 40            | 720          | 880          |
| Height - cm (in.)          | 15.6 (6.1)    | 154.8 (60.9) | 186.0 (73.2) |
| Length - cm (in.)          | 80 (31.5)     | 120 (47.2)   | 120 (47.2)   |
| Width - cm (in.)           | 60 (23.6)     | 80 (31.5)    | 80 (31.5)    |
| Shipping Weight - kg (lb.) | 12.5 (27.6)   | 245 (540.1)  | 295 (650.4)  |

## MECHANICAL DRAWING

### VQJ69595B-92VC1

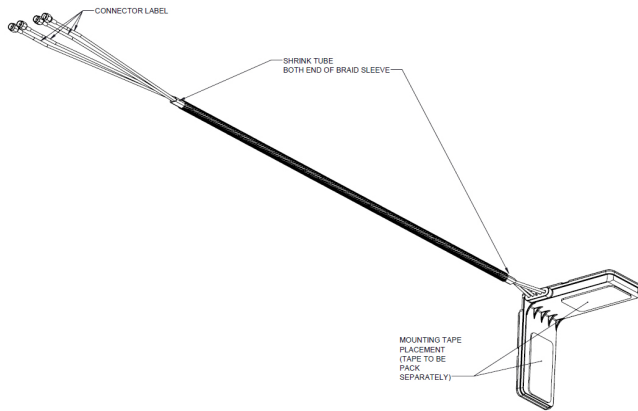


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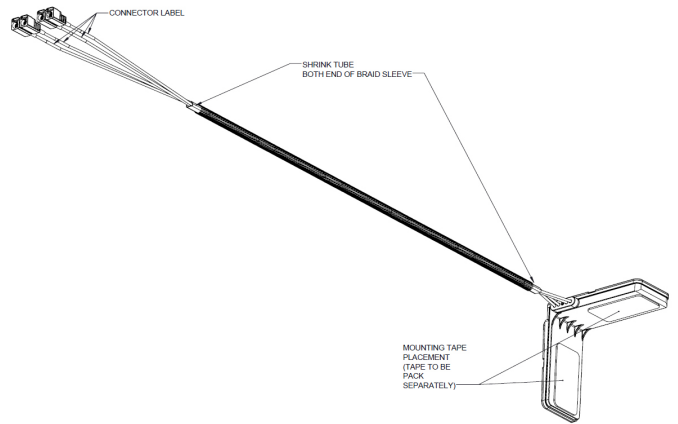


## MECHANICAL DRAWING

### VQJ69595B-92VC1

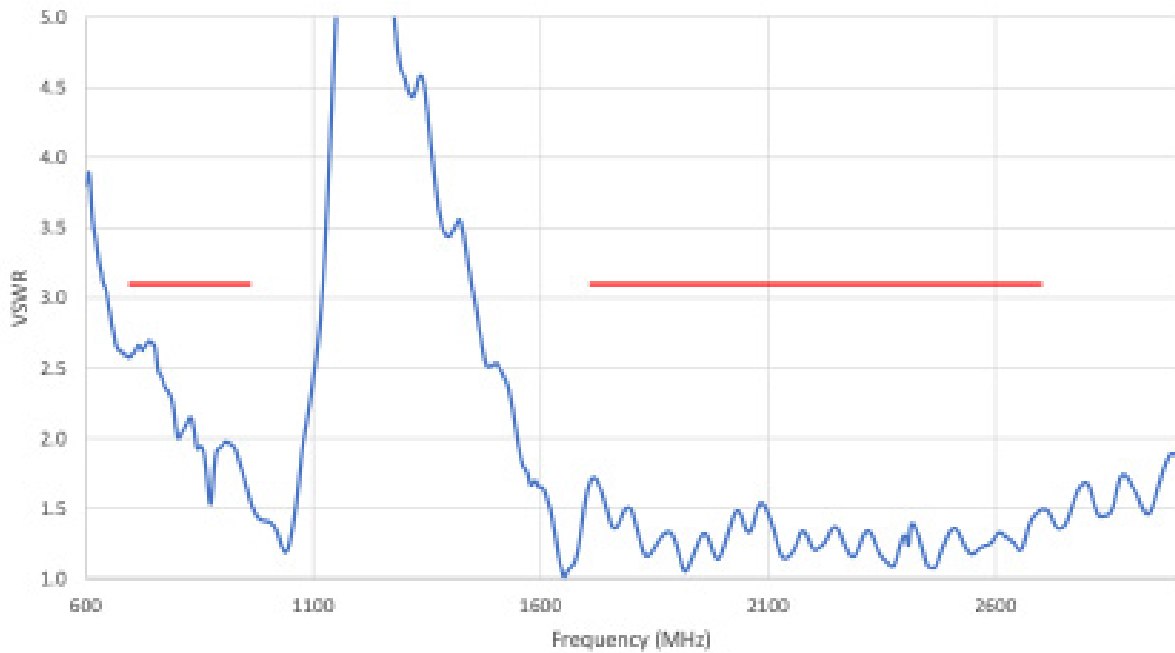


### VQJ69595B-92FAK



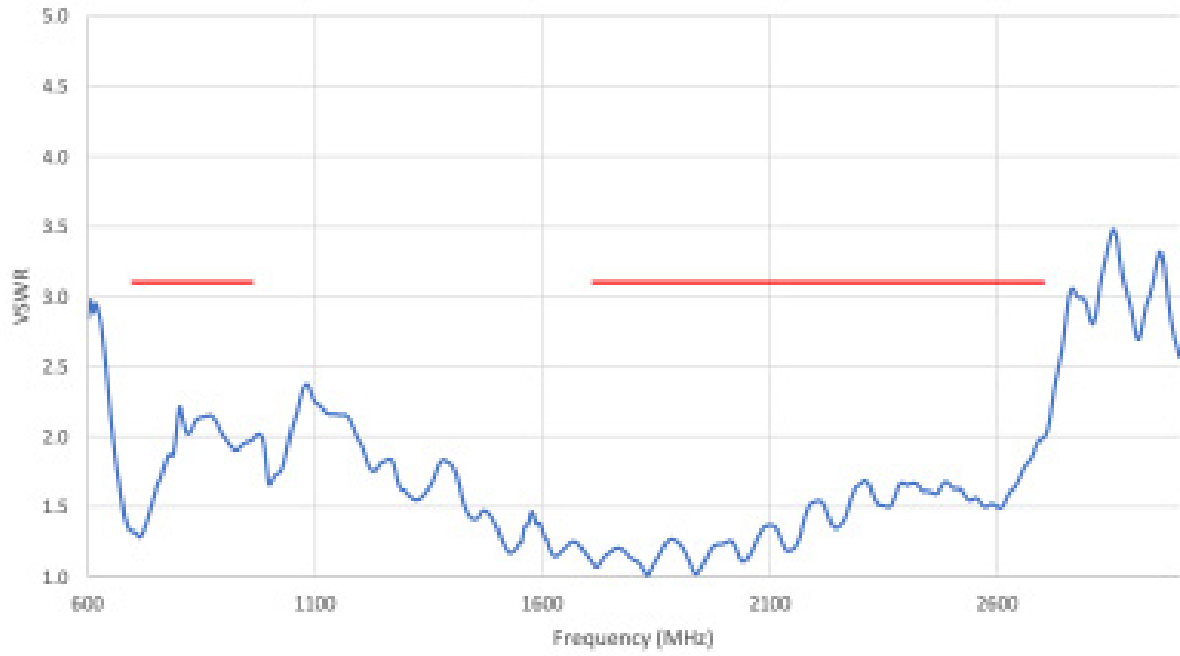
## VSWR

### LTE 2 (Horizontal)

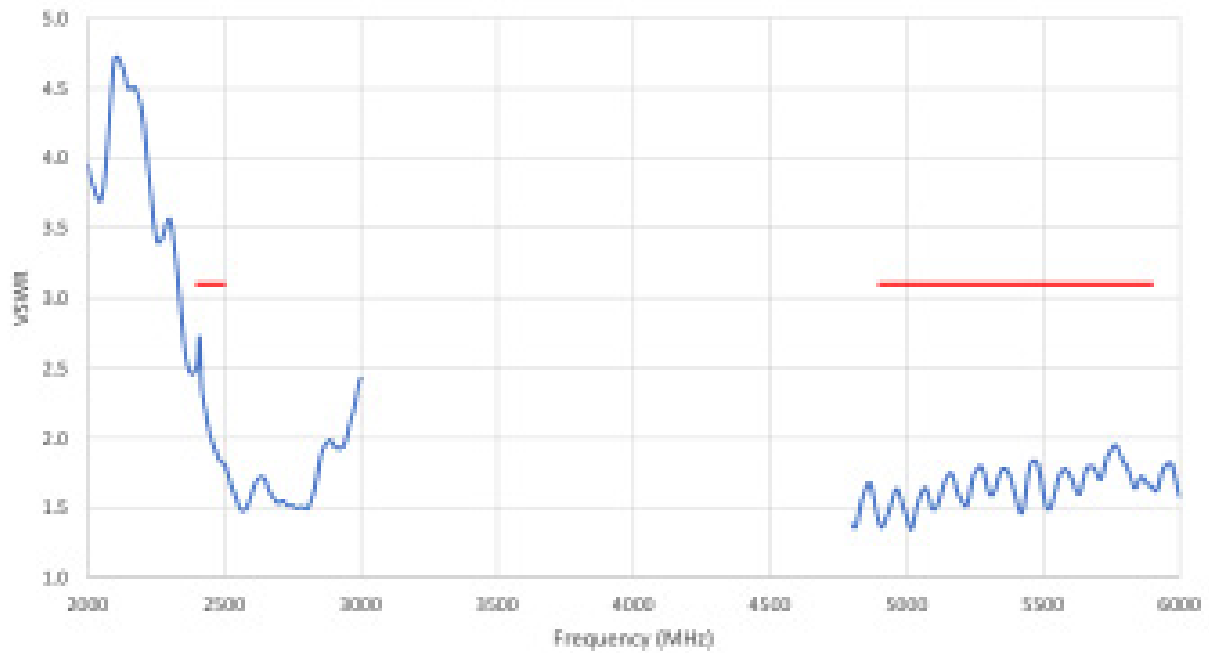


## VSWR

### LTE 1 (Vertical)

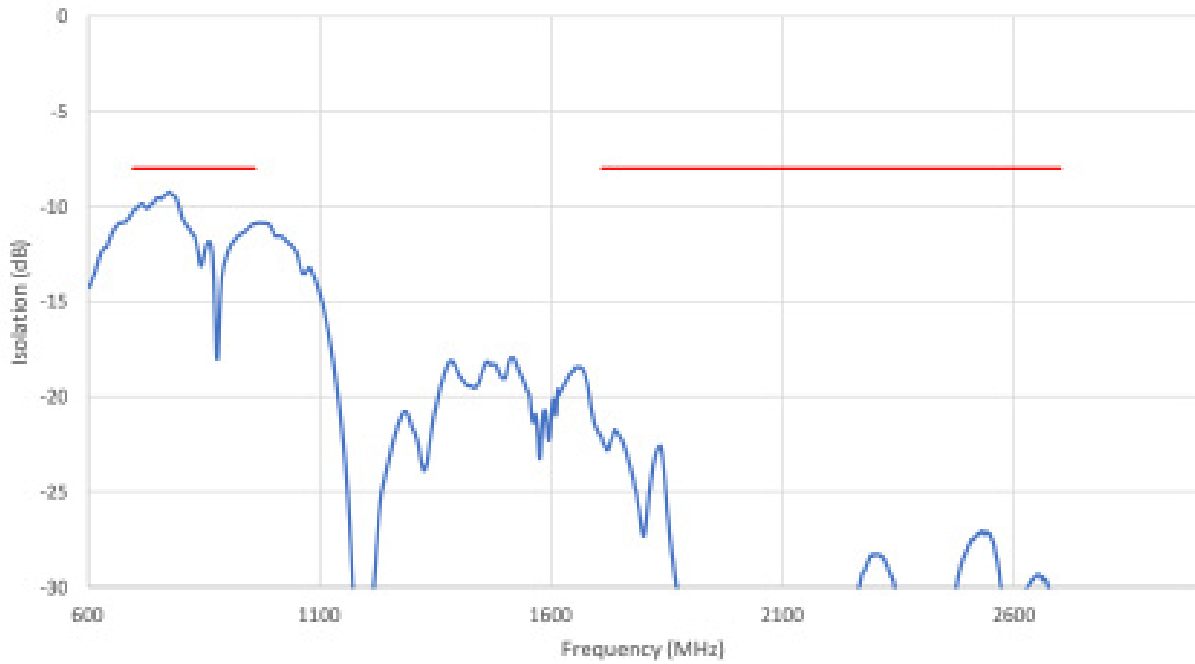


### Wi-Fi

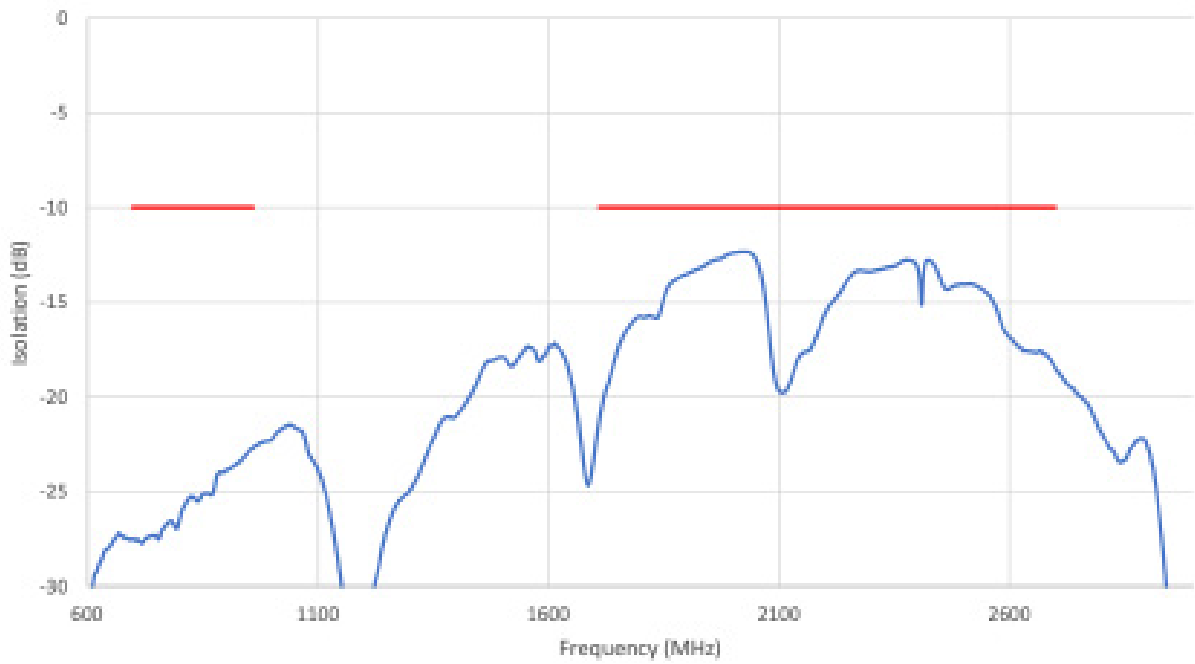


# ISOLATION

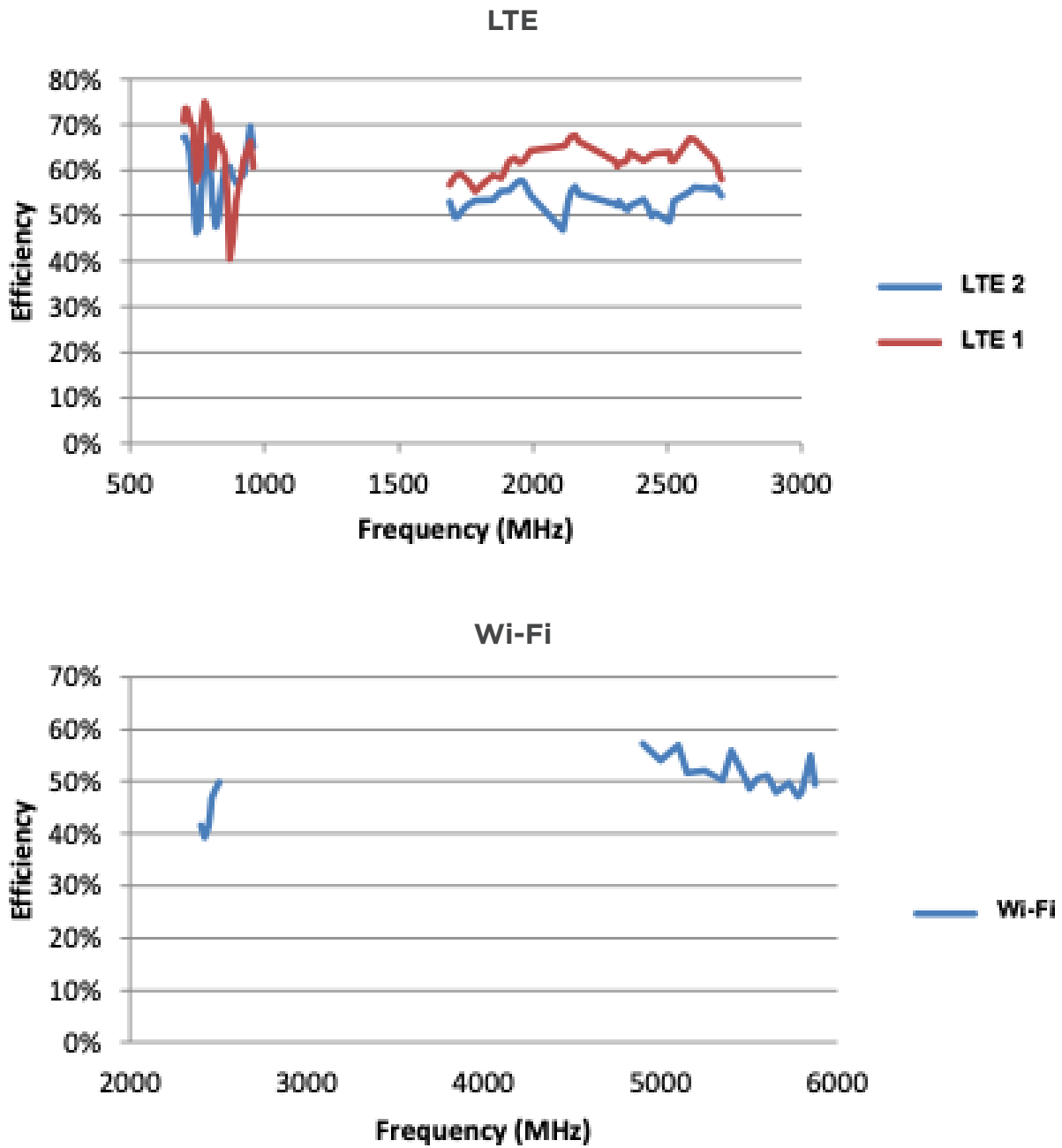
## LTE 2 - LTE 1



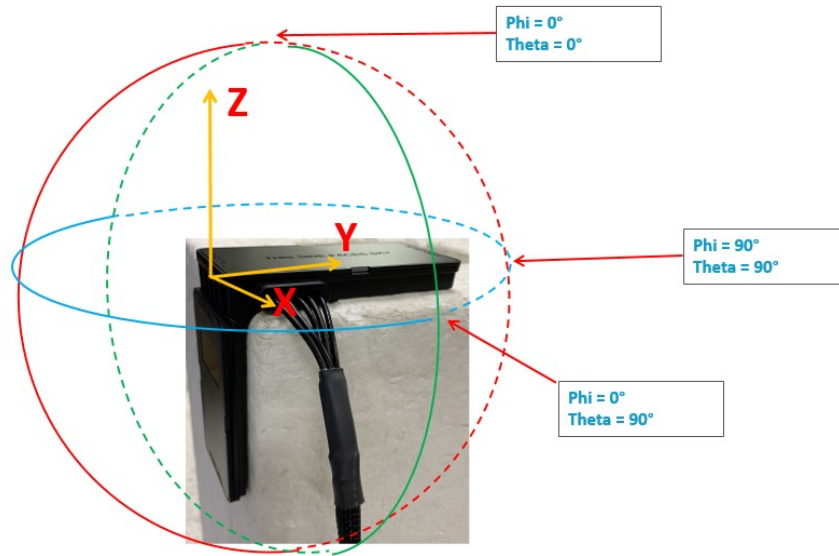
## LTE 2 - Wi-Fi



## EFFICIENCY

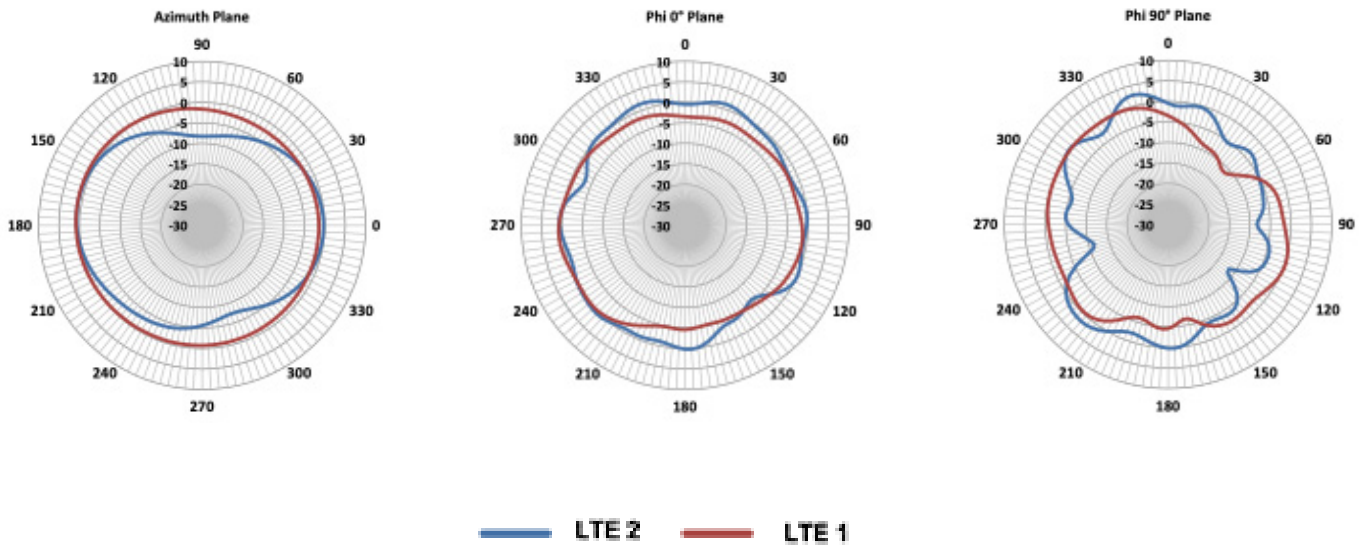


## MEASUREMENT COORDINATION SYSTEM (GAIN PLOT ORIENTATION)

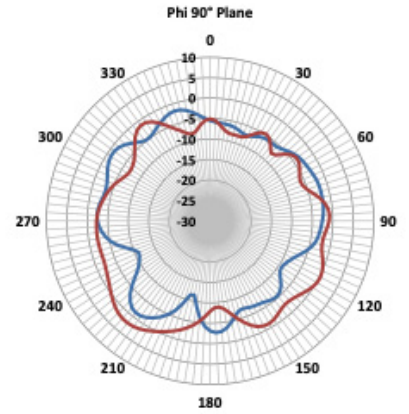
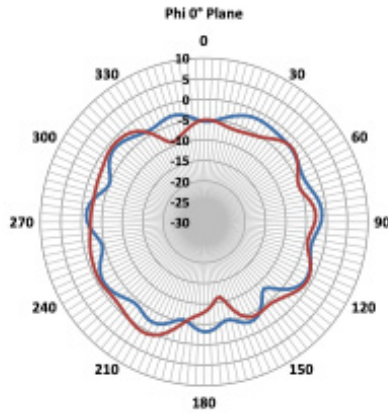
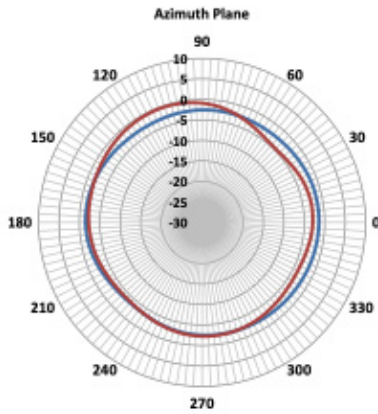


## RADIATION PATTERNS - LTE ANTENNAS

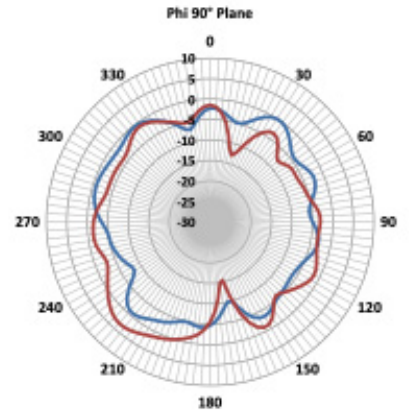
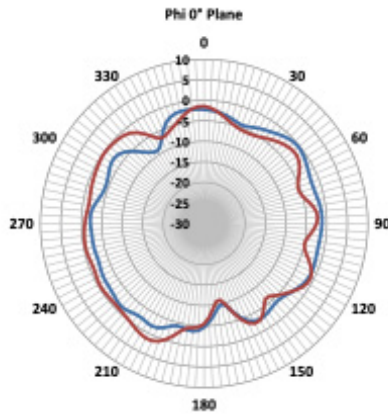
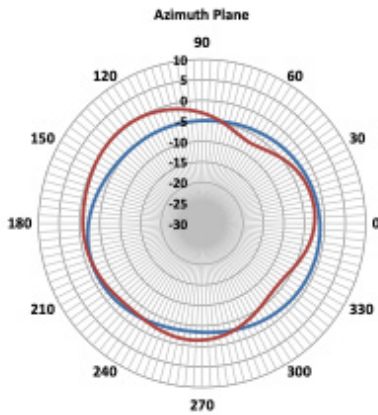
698 MHz



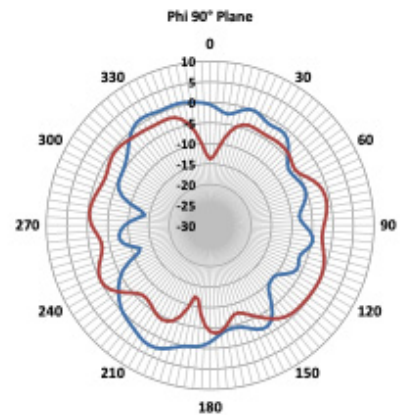
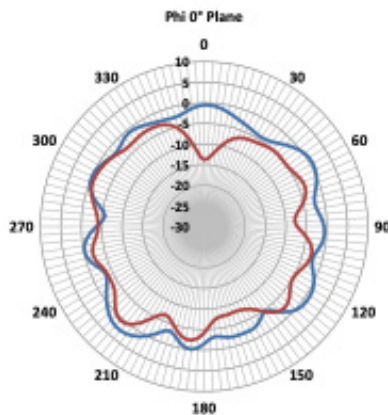
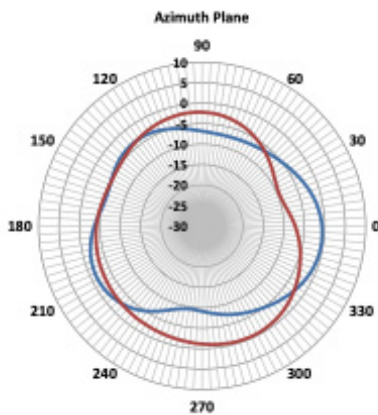
## 746 MHz



## 806 MHz



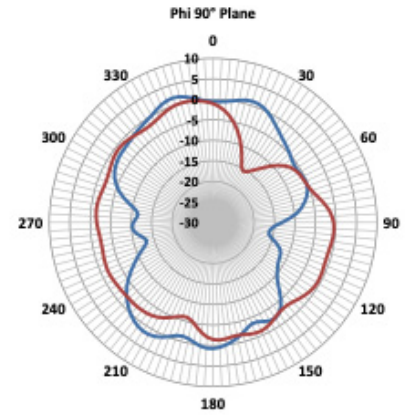
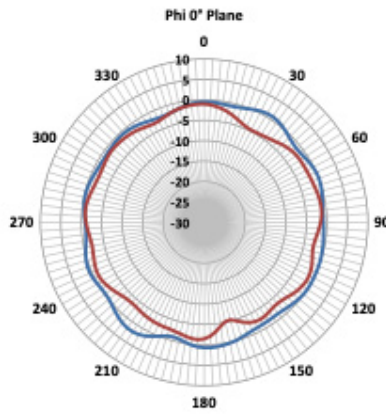
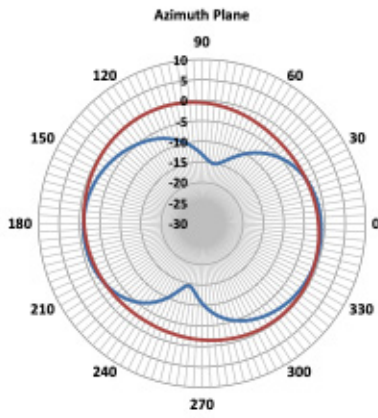
## 860 MHz



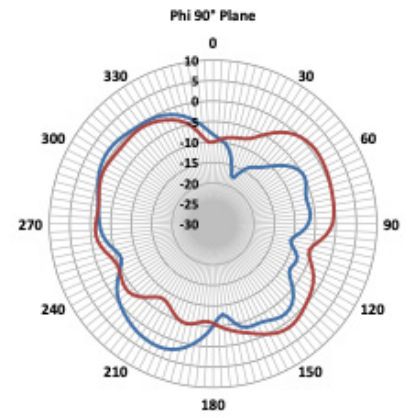
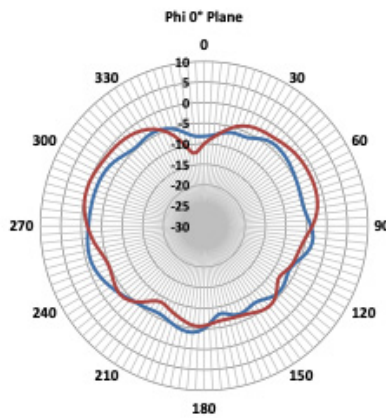
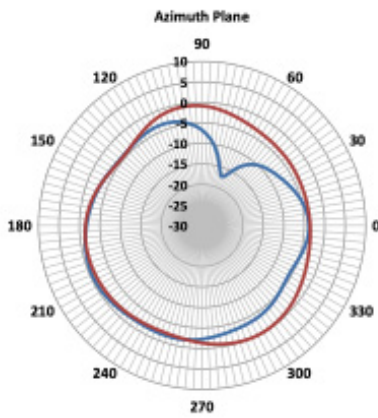
— LTE 2 — LTE 1

# RADIATION PATTERNS - LTE ANTENNAS

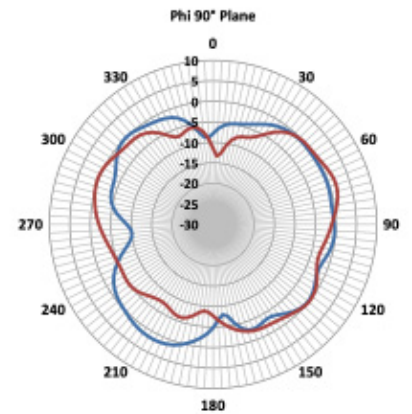
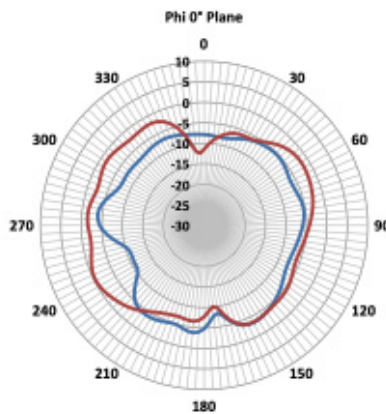
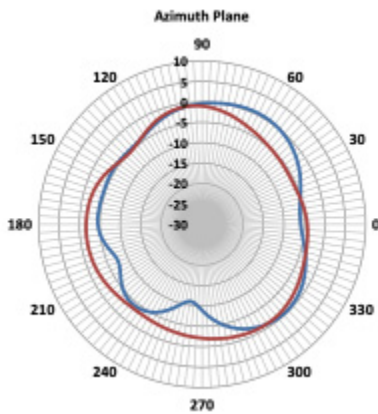
## 960 MHz



## 1710 MHz



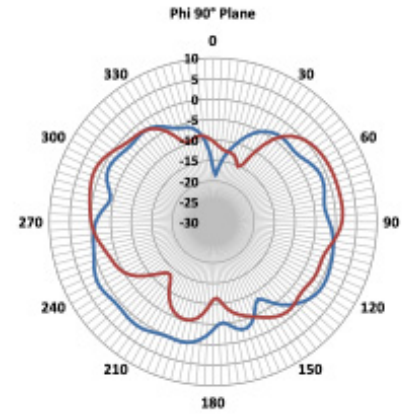
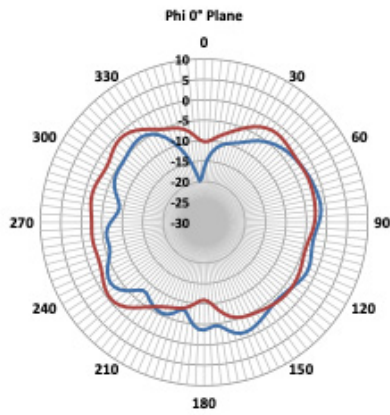
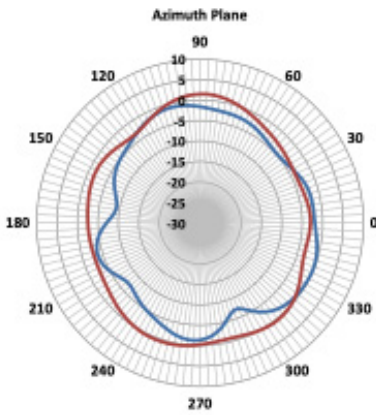
## 1880 MHz



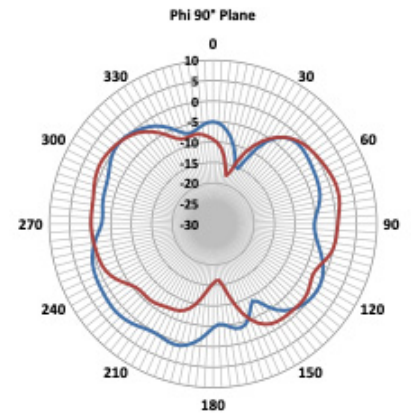
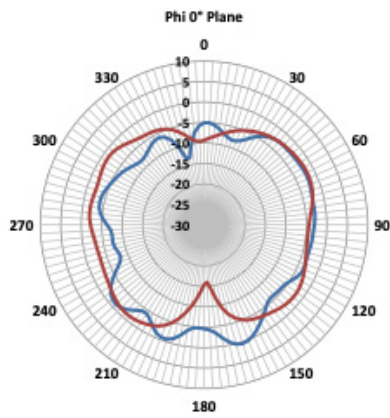
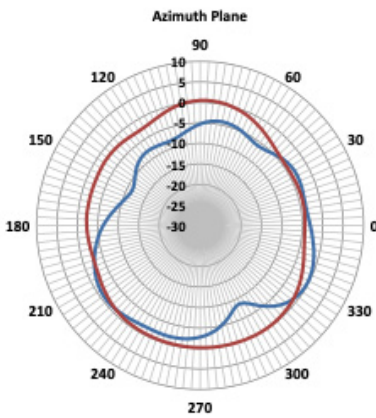
— LTE 2 — LTE 1

# RADIATION PATTERNS - LTE ANTENNAS

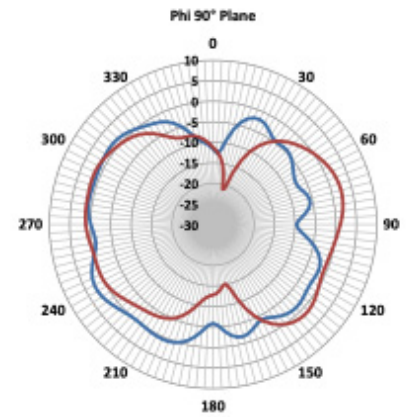
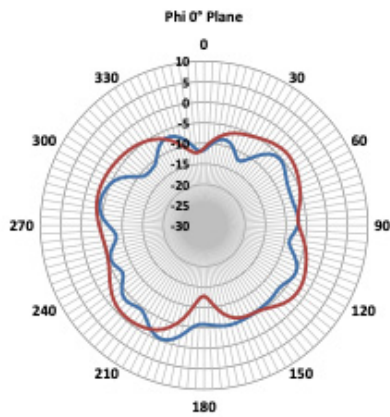
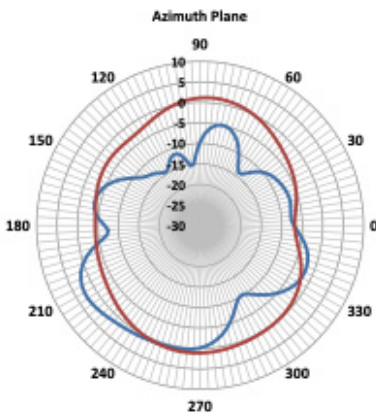
## 2305 MHz



## 2412 MHz



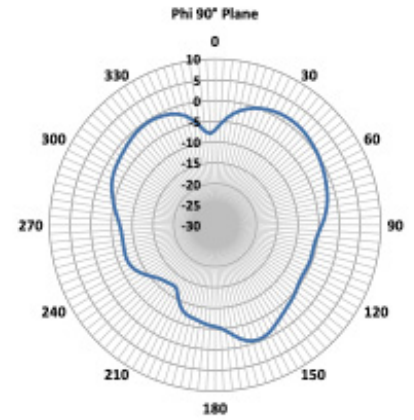
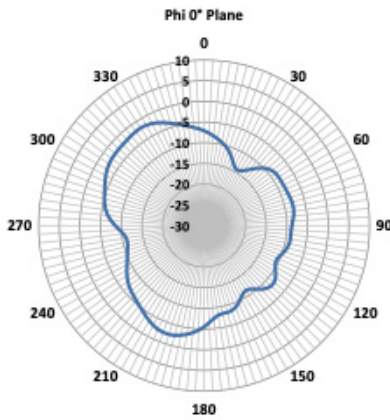
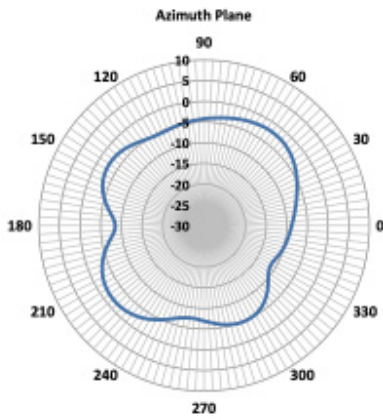
## 2600 MHz



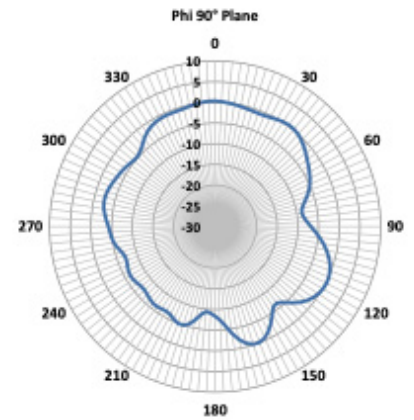
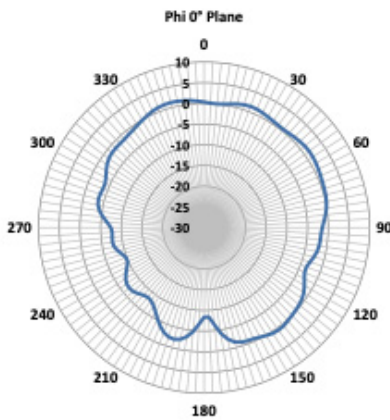
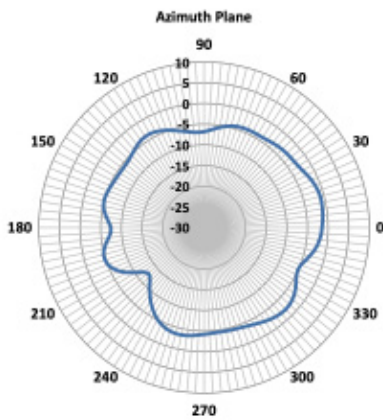
— LTE 2 — LTE 1

# RADIATION PATTERNS - WI-FI ANTENNAS

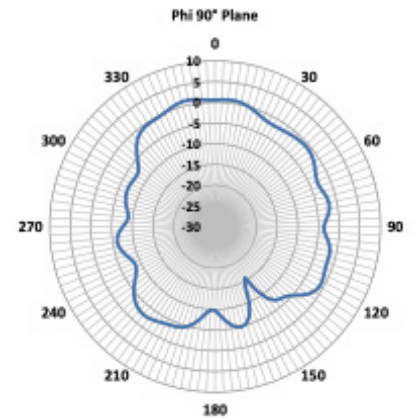
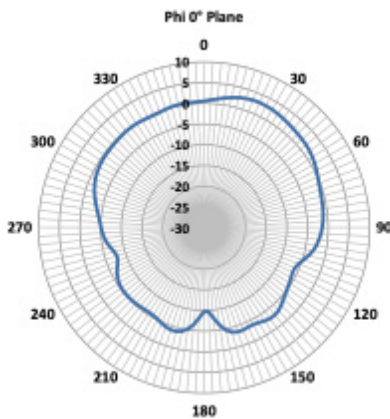
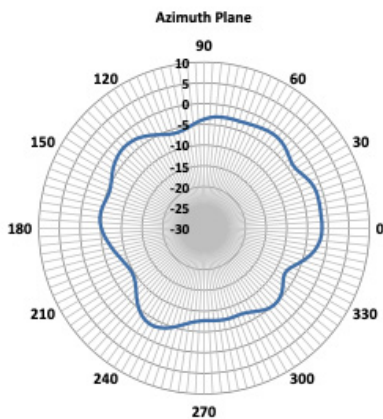
## 2450 MHz



## 4900 MHz

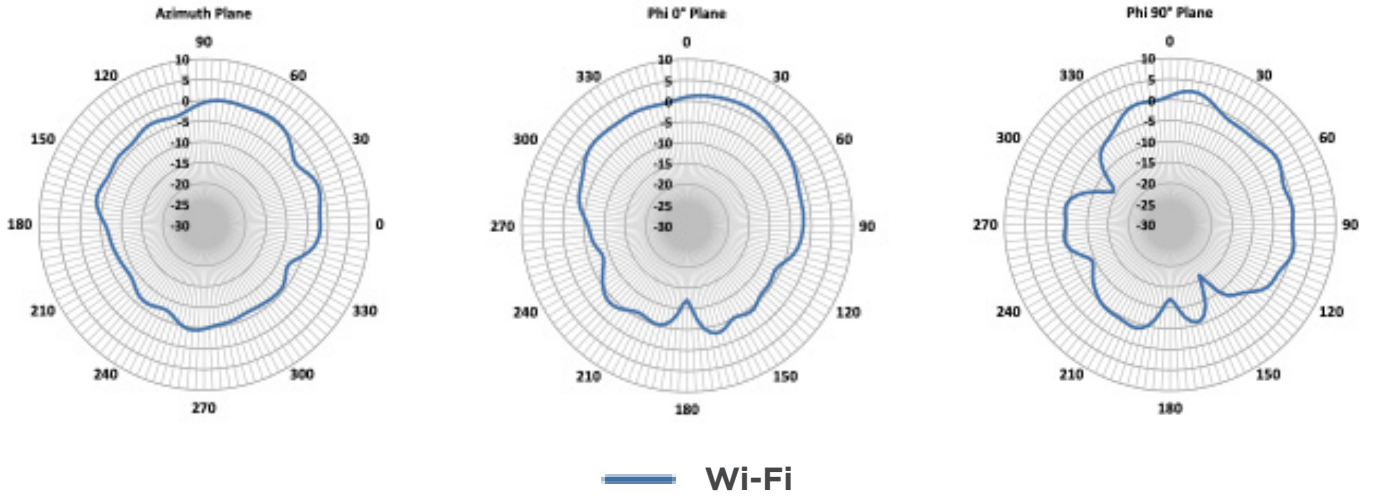


## 5550 MHz



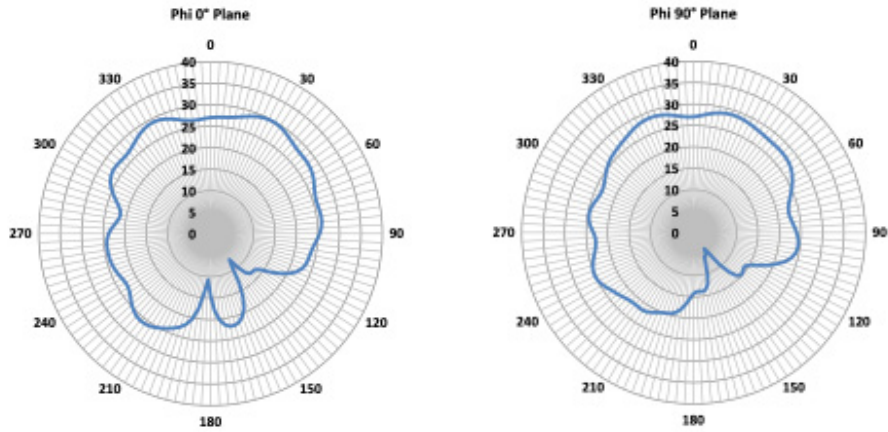
— Wi-Fi

## 5875 MHz

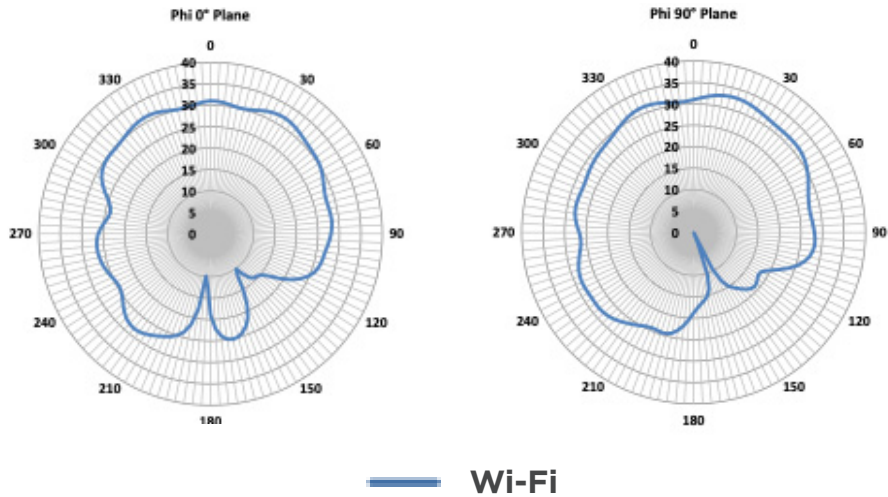


## RADIATION PATTERNS - GNSS ANTENNAS

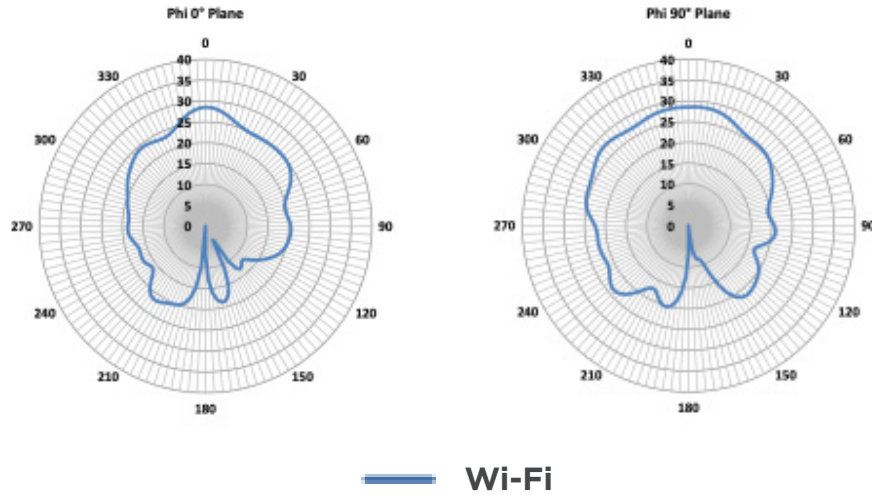
### 1561.098 MHz



### 1575.42 MHz



## 1602 MHz



### TE TECHNICAL SUPPORT CENTER

|                   |                       |
|-------------------|-----------------------|
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| Latin/S. America: | +54 (0) 11-4733-2200  |
| Germany:          | +49 (0) 6251-133-1999 |
| UK:               | +44 (0) 800-267666    |
| France:           | +33 (0) 1-3420-8686   |
| Netherlands:      | +31 (0) 73-6246-999   |
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