



# MEA-5in1-SM

5G NR MIMO, 2.4/5.0/6.0 GHz ISM MIMO and GNSS Screw Mount

Part #: 100-00327-01

## Description

The MEA-5in1-SM is a MIMO technology solution by Maxtena that combines a 5G antenna, and ISM with GNSS. Our 4 in 1 solution is ideal for high data throughput and streaming, video, industrial and IOT applications. It offers allow profile design with easy mounting and integrated SMA connectors. The antenna is designed with rugged PC+ABS black plastic housing and is ideal for the most demanding environmental challenges. This screw mount antenna is easy to install with maximum durability. The MEA-5in1-SM has five cables with a SMA-Male standard connector, 2m standard cable length and is fully customizable by offering additional connector types, cable lengths and cable types.



## Electrical Specifications

| Parameter         | Specifications                                                                                                            |                                                                                                                                                               |                              |                      |
|-------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------|
| Technologies      | 5G, 4G, 3G and 2G                                                                                                         |                                                                                                                                                               |                              |                      |
| Standards         | 5G NR, FirstNet, CBRS, 4GLTE, CAT-X, CAT-MX, CAT-NB-X, 3G, 2G, Cellular, HSPA+, UMTS, WCDMA, CDMA, GSM, GPRS, EDGE, EV-DO |                                                                                                                                                               |                              |                      |
| Frequency Range   | 617-960MHz                                                                                                                | 1427-2690MHz                                                                                                                                                  | 3300-5000MHz                 | 5150-5925MHz         |
| Band (MHz)        | 600,700,850,900                                                                                                           | 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600                                                                                                    | 3300, 3500, 3600, 3700, 4500 | 5200, 5500, 5800     |
| 5G NR Bands       | n5, n8, 12, n20, n28, n71, n81, n82, n83                                                                                  | n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n51, n66, n70, n74, n75, n76, n80, n84, n86                                                                | n77, n78, n79                |                      |
| 4GLTE Bands       | B5, B6, B8, B12, B13, B14, B17, B18, B19, B20, B26, B27, B28, B29, B44, B67, B68, B71, B85                                | B1, B2, B3, B4, B7, B9, B10, B11, B21, B23, B24, B25, B30, B32, B33, B34, B35, B36, B37, B38, B39, B40, B41, B45, B50, B51, B65, B66, B69, B70, B74, B75, B76 | B22, B42, B43, B48, B49, B52 | B46, B47, B252, B255 |
| 3GCELL Bands      | B5, B6, B8, B12, B13, B14, B19, B20, B26                                                                                  | B1, B2, B3, B4, B7, B9, B10, B11, B21, B25, B32, B33, B34, B35, B36, B37, B38, B39, B40                                                                       | B22                          |                      |
| 2GCELL Bands      | 710, 750, 810T, 850, 900R, 900E, 900R                                                                                     | 1800DCS, 1900PCS                                                                                                                                              |                              |                      |
| CDMACELL Bands    | BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19                                                                           | BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21                                                                                                        |                              |                      |
| Return Loss       | ~6.9                                                                                                                      | ~15.9                                                                                                                                                         | ~15.0                        | ~6.7                 |
| VSWR              | ~2.7:1                                                                                                                    | ~1.5:1                                                                                                                                                        | ~1.6:1                       | ~2.8:1               |
| Efficiency (%)    | ~40.2                                                                                                                     | ~47.3                                                                                                                                                         | ~35.3                        | ~22.1                |
| Peak Gain (dBi)   | ~2.5                                                                                                                      | ~5.0                                                                                                                                                          | ~4.8                         | ~3.3                 |
| Average Gain (dB) | ~4.0                                                                                                                      | ~3.3                                                                                                                                                          | ~4.8                         | ~6.7                 |
| Impedance (Ohm)   | 50                                                                                                                        |                                                                                                                                                               |                              |                      |
| Polarization      | Linear                                                                                                                    |                                                                                                                                                               |                              |                      |
| Radiation Pattern | Omni-Directional                                                                                                          |                                                                                                                                                               |                              |                      |
| Max Input Power   | 25                                                                                                                        |                                                                                                                                                               |                              |                      |
| Connector Type    | SMA Male (Other Connectors Available)                                                                                     |                                                                                                                                                               |                              |                      |
| Cable Length      | 300 cm Standard (Any Cable Length Available)                                                                              |                                                                                                                                                               |                              |                      |
| Cable Type        | D302 (Other Cables Available)                                                                                             |                                                                                                                                                               |                              |                      |

## Features

- Cable 1-2: 5G NR (617-960, 1427-2690, 3300-5000 and 5150-5925 MHz)
- Cable 3-4: 2.4/5.0/6.0 GHz ISM (2410-2490 and 4920-7125 MHz)
- Cable 5: GPS/GLONASS/BeiDou/Galileo/QZSS (1561-1606 MHz)
- High Performance
- Easy mounting: Screw Mount
- Ground Plane Independent
- 193 x 76.3 x 52.4 mm
- Customized Cable and Connector

## Applications

- Fleet management
- Commercial transport
- HD video monitoring
- Buses, train & commercial applications
- Smart cities



Maxtena Inc.  
20310 Seneca Meadows Pkwy Suite A  
Germantown, MD 20876  
1-877-629-8362  
info@maxtena.com

www.maxtena.com

| Parameter         | Specifications                                                                                                             |                                                                                                                                                               |                              |                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------|
| Technologies      | 5G, 4G, 3G and 2G                                                                                                          |                                                                                                                                                               |                              |                      |
| Standards         | 5G NR, FirstNet, CBRS, 4G LTE, CAT-X, CAT-MX, CAT-NB-X, 3G, 2G, Cellular, HSPA+, UMTS, WCDMA, CDMA, GSM, GPRS, EDGE, EV-DO |                                                                                                                                                               |                              |                      |
| Frequency Range   | 617-960MHz                                                                                                                 | 1427-2690MHz                                                                                                                                                  | 3300-5000MHz                 | 5150-5925MHz         |
| Band (MHz)        | 600,700,850,900                                                                                                            | 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600                                                                                                    | 3300, 3500, 3600, 3700, 4500 | 5200, 5500, 5800     |
| 5G NR Bands       | n5, n8, 12, n20, n28, n71, n81, n82, n83                                                                                   | n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n51, n66, n70, n74, n75, n76, n80, n84, n86                                                                | n77, n78, n79                |                      |
| 4G LTE Bands      | B5, B6, B8, B12, B13, B14, B17, B18, B19, B20, B26, B27, B28, B29, B44, B67, B68, B71, B85                                 | B1, B2, B3, B4, B7, B9, B10, B11, B21, B23, B24, B25, B30, B32, B33, B34, B35, B36, B37, B38, B39, B40, B41, B45, B50, B51, B65, B66, B69, B70, B74, B75, B76 | B22, B42, B43, B48, B49, B52 | B46, B47, B252, B255 |
| 3G CELL Bands     | B5, B6, B8, B12, B13, B14, B19, B20, B26                                                                                   | B1, B2, B3, B4, B7, B9, B10, B11, B21, B25, B32, B33, B34, B35, B36, B37, B38, B39, B40                                                                       | B22                          |                      |
| 2G CELL Bands     | 710, 750, 810T, 850, 900P, 900E, 900R                                                                                      | 1800DCS, 1900PGS                                                                                                                                              |                              |                      |
| CDMA CELL Bands   | BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19                                                                            | BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21                                                                                                        |                              |                      |
| Return Loss       | ~-7.1                                                                                                                      | ~-15.4                                                                                                                                                        | ~-18.1                       | ~-9.2                |
| VSWR              | ~2.7:1                                                                                                                     | ~1.5:1                                                                                                                                                        | ~1.4:1                       | ~2.1:1               |
| Efficiency (%)    | ~-39.7                                                                                                                     | ~-46.9                                                                                                                                                        | ~-39.8                       | ~-33.8               |
| Peak Gain (dBi)   | ~-2.5                                                                                                                      | ~-5.0                                                                                                                                                         | ~-5.4                        | ~-4.4                |
| Average Gain (dB) | ~-4.0                                                                                                                      | ~-3.3                                                                                                                                                         | ~-4.1                        | ~-4.8                |
| Impedance (Ohm)   | 50                                                                                                                         |                                                                                                                                                               |                              |                      |
| Polarization      | Linear                                                                                                                     |                                                                                                                                                               |                              |                      |
| Radiation Pattern | Omni-Directional                                                                                                           |                                                                                                                                                               |                              |                      |
| Max Input Power   | 25                                                                                                                         |                                                                                                                                                               |                              |                      |
| Connector Type    | SMA-Male (Other Connectors Available)                                                                                      |                                                                                                                                                               |                              |                      |
| Cable Length      | 300 cm Standard (Any Cable Length Available)                                                                               |                                                                                                                                                               |                              |                      |
| Cable Type        | D302 (Other Cables Available)                                                                                              |                                                                                                                                                               |                              |                      |

Cable 2

| Parameter         | Specifications                               |           |           |
|-------------------|----------------------------------------------|-----------|-----------|
| Standards         | WiFi, BT, ZigBee, ISM, SigFox, LoRa          |           |           |
| Band              | 2.4 GHz                                      | 5.0 GHz   | 6.0 GHz   |
| Efficiency (%)    | ~-49.2                                       | ~-48.2    | ~-32.1    |
| Frequency(MHz)    | 2410-2490                                    | 4920-5925 | 5925-7125 |
| Return Loss       | ~-16.7                                       | ~-18.6    | ~-12.3    |
| VSWR              | ~1.5:1                                       | ~1.3:1    | ~1.8:1    |
| Peak Gain (dBi)   | ~-4.2                                        | ~-6.4     | ~-5.3     |
| Average Gain (dB) | ~-3.1                                        | ~-3.2     | ~-3.8     |
| Impedance (Ohm)   | 50                                           |           |           |
| Polarization      | Linear                                       |           |           |
| Radiation Pattern | Omni-Directional                             |           |           |
| Max Input Power   | 25                                           |           |           |
| Connector Type    | SMA-Male-RP (Other Connectors Available)     |           |           |
| Cable Length      | 300 cm Standard (Any Cable Length Available) |           |           |
| Cable Type        | D302 (Other Cables Available)                |           |           |

Cable 3 (WiFi6E-1) 2.4/5.0/6.0 GHz ISM Antenna



| Cable 4 (WiFi6E-2) 2.4/5.0/6.0 GHz ISM Antenna | Parameter                                    | Specifications                      |           |           |
|------------------------------------------------|----------------------------------------------|-------------------------------------|-----------|-----------|
|                                                | Standards                                    | WiFi, BT, ZigBee, ISM, SigFox, LoRa |           |           |
|                                                | Band                                         | 2.4 GHz                             | 5.0 GHz   | 6.0 GHz   |
|                                                | Efficiency (%)                               | ~46.3                               | ~43.2     | ~27.6     |
|                                                | Frequency(MHz)                               | 2410-2490                           | 4920-5925 | 5925-7125 |
|                                                | Return Loss                                  | ~-12.0                              | ~-15.3    | ~-11.8    |
|                                                | VSWR                                         | ~1.7:1                              | ~1.6:1    | ~1.8:1    |
|                                                | Peak Gain (dBi)                              | ~-3.1                               | ~-6.5     | ~-4.7     |
|                                                | Average Gain (dB)                            | ~-3.4                               | ~-3.7     | ~-4.4     |
|                                                | Impedance (Ohm)                              | 50                                  |           |           |
|                                                | Polarization                                 | Linear                              |           |           |
|                                                | Radiation Pattern                            | Omni-Directional                    |           |           |
|                                                | Max Input Power                              | 25                                  |           |           |
| Connector Type                                 | SMA-Male-RP (Other Connectors Available)     |                                     |           |           |
| Cable Length                                   | 300 cm Standard (Any Cable Length Available) |                                     |           |           |
| Cable Type                                     | D302 (Other Cables Available)                |                                     |           |           |

### Antenna Measurement Conditions

Mounted on Metal Plate of 30 x 30 cm

100 cm of Cable D302

Measured in Certified CTIA 3D Anechoic Chamber

| Cable 5 (GNSS) GNSS Active Antenna | Parameter                                      | Specifications   |               |
|------------------------------------|------------------------------------------------|------------------|---------------|
|                                    | Standards                                      | GPS/QZSS/Galileo | GLONASS       |
|                                    | Band                                           | 1575 MHz         | 1602 MHz      |
|                                    | Frequency Range                                | 1575.42 MHz      | 1598-1606 MHz |
|                                    | Patch Size                                     | 25 x 25 x 4      |               |
|                                    | Return Loss (dB)                               | <=-15.0 dB       |               |
|                                    | VSWR                                           | <=1.4:1 dB       |               |
|                                    | Impedance (Ohm)                                | 50               |               |
|                                    | Radiation Pattern                              | Hemispherical    |               |
|                                    | Polarization                                   | RHCP             |               |
|                                    | Saw Filter                                     | Pre-filter       |               |
|                                    | Active Gain (dB)                               | 28 @ 2.7 V       |               |
|                                    | Noise Figure (dB)                              | 1.5 Typ          |               |
|                                    | Voltage (V)                                    | 1.5 - 3.6        |               |
|                                    | Current (mA)                                   | 9 Typ            |               |
|                                    | Power Consumption (mW)                         | 24.3 Typ         |               |
|                                    | ESD Protection                                 | 2kV              |               |
| Connector Type                     | SMA-Male Standard (Other Connectors Available) |                  |               |
| Cable Length                       | 300 cm Standard (Any Cable Length Available)   |                  |               |
| Cable Type                         | LMR100 Standard (Other Cables Available)       |                  |               |

### Mechanical Specifications

| Parameter                 | Specifications            |
|---------------------------|---------------------------|
| Antenna Dimensions (mm)   | 193 x 76.3 x 52.4 mm      |
| Operating Temperature (C) | -40 to +85                |
| Storage Temperature (C)   | -40 to +85                |
| Mounting Type             | Screw Mount               |
| Radome/Color              | ASA UV Stable/Black/White |
| Substance Compliance      | RoHS                      |
| Certificates              | IP67, IP69                |
| Antenna Base              | ABS                       |

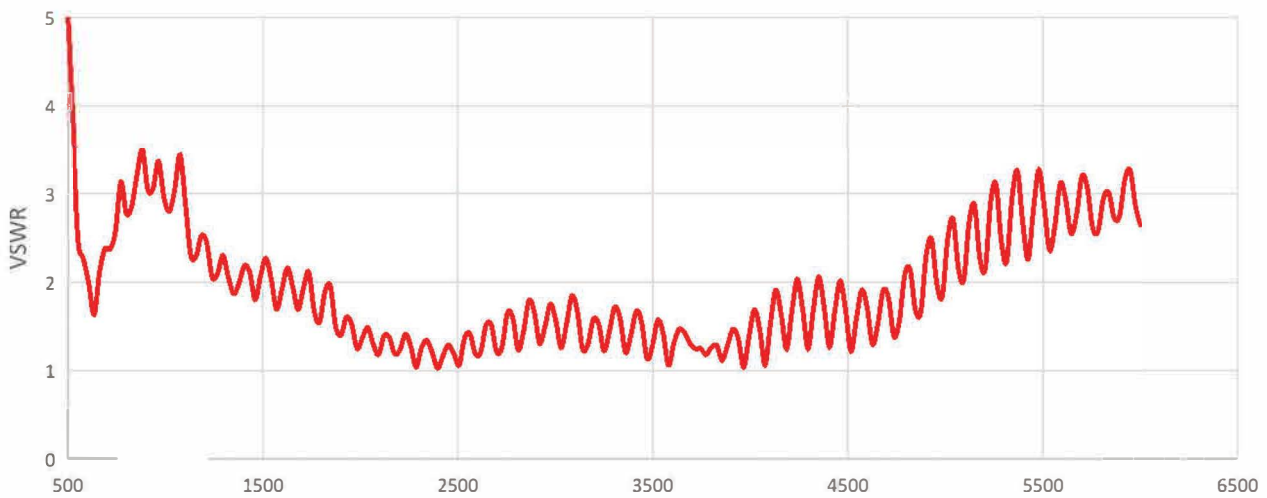
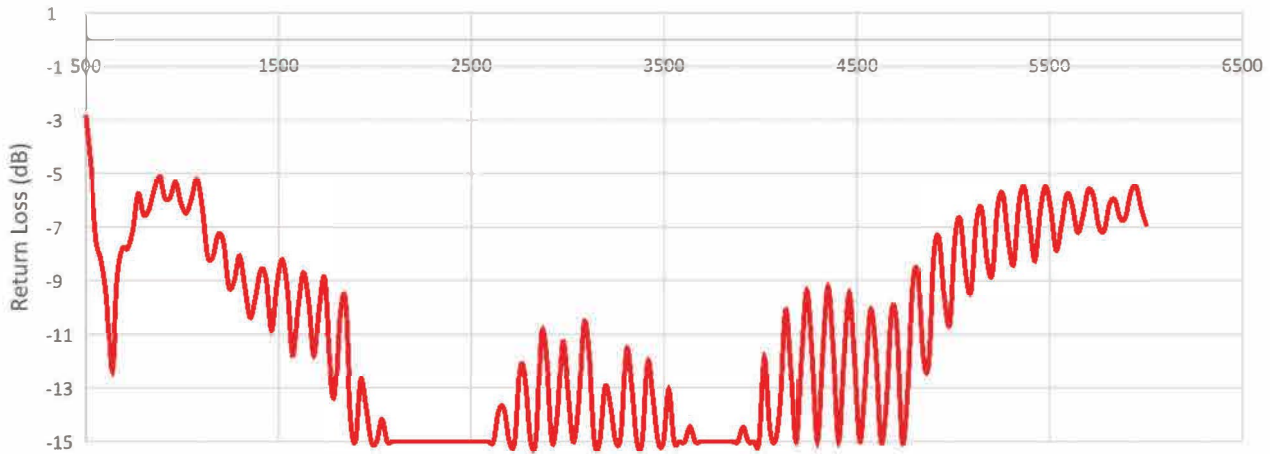


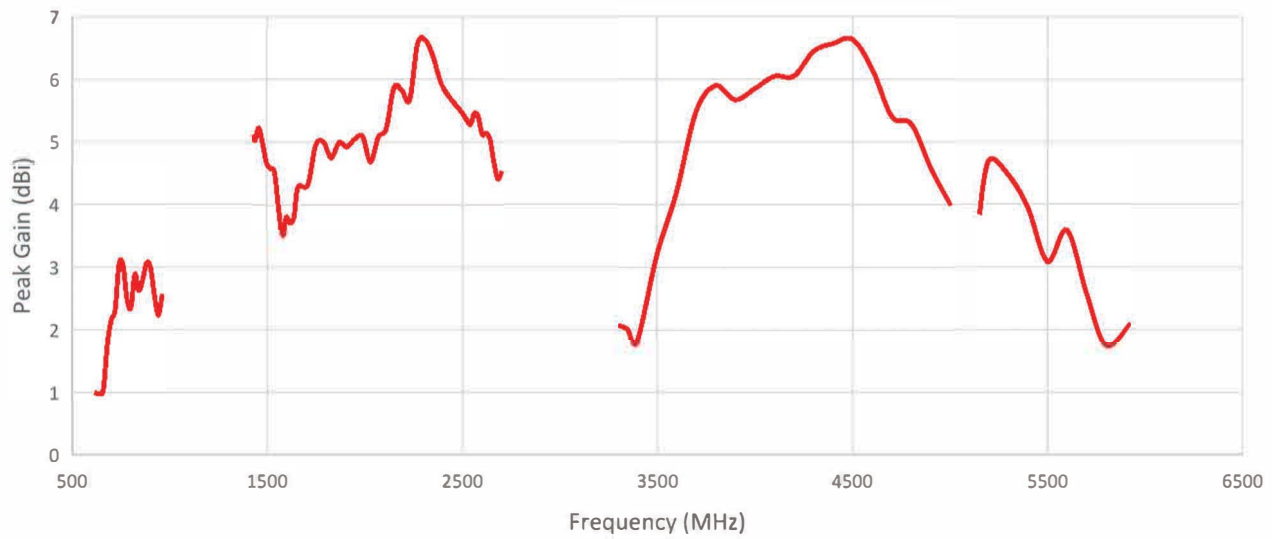
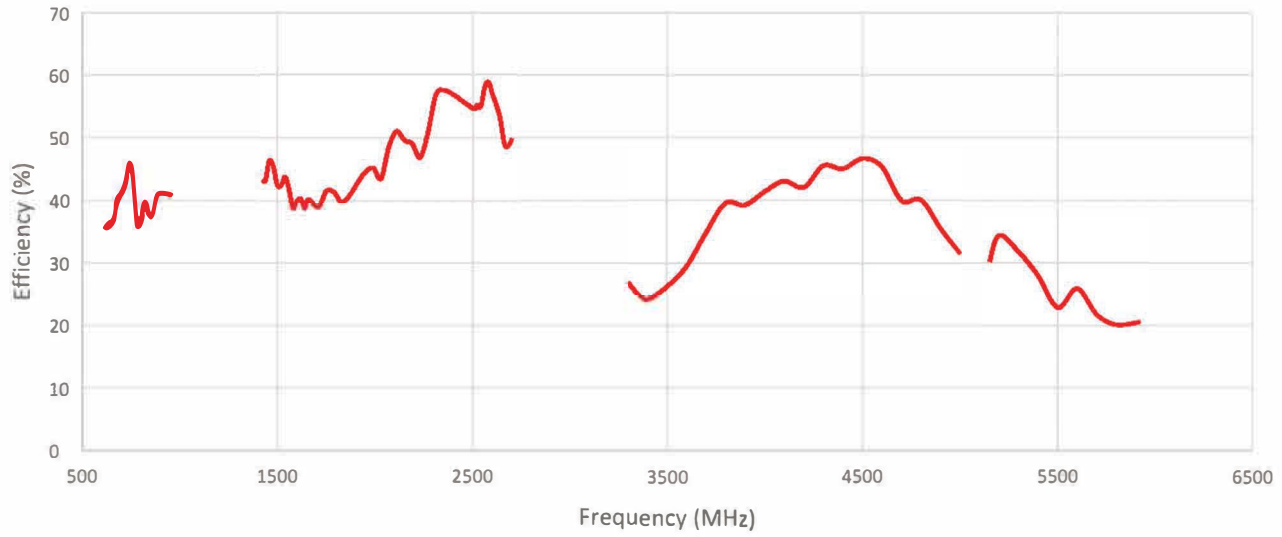
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20310 Seneca Meadows Pkwy Suite A  
Germantown, MD 20876  
1-877-629-8362  
info@maxtena.com

[www.maxtena.com](http://www.maxtena.com)

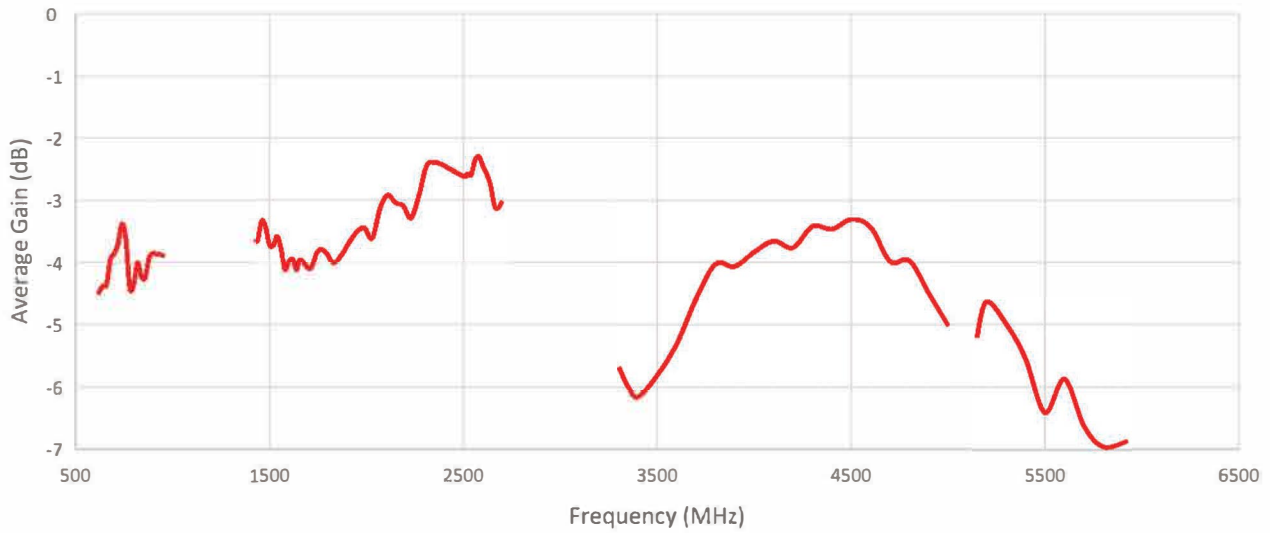
## ANTENNA PARAMETERS

CABLE 1: 5GNR-1

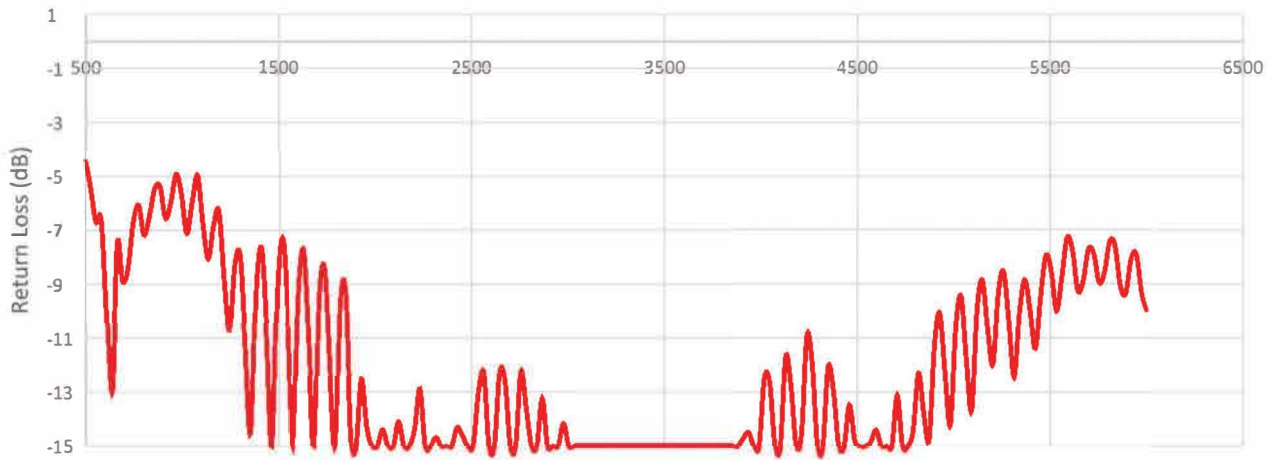


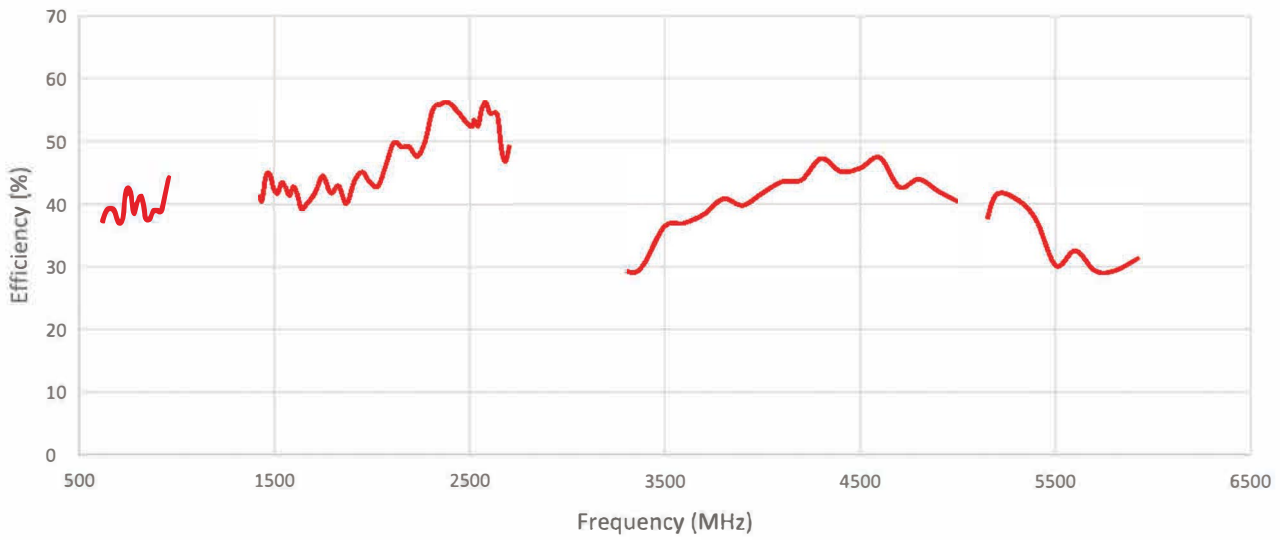
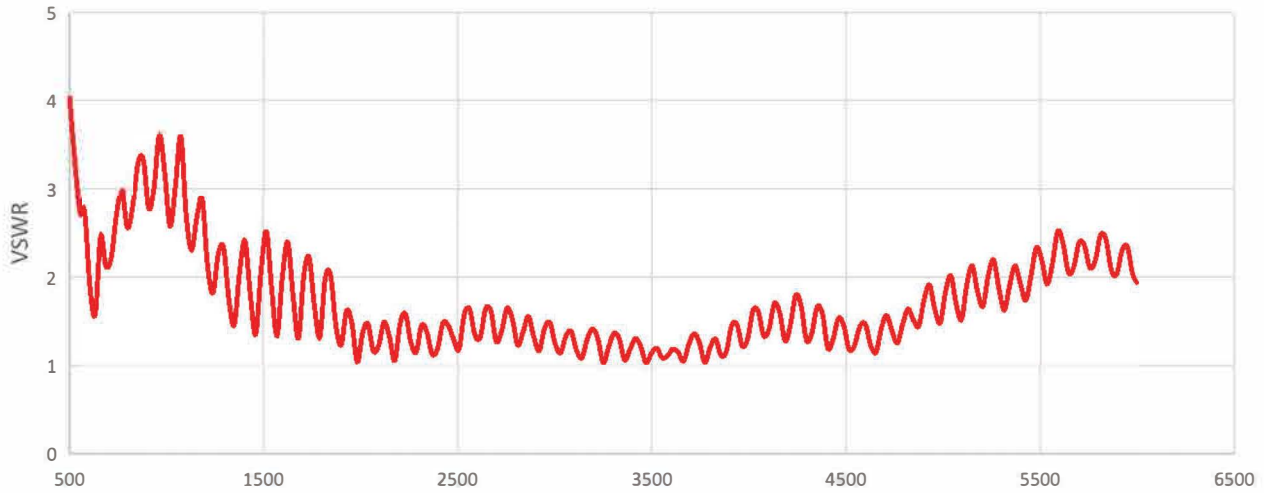


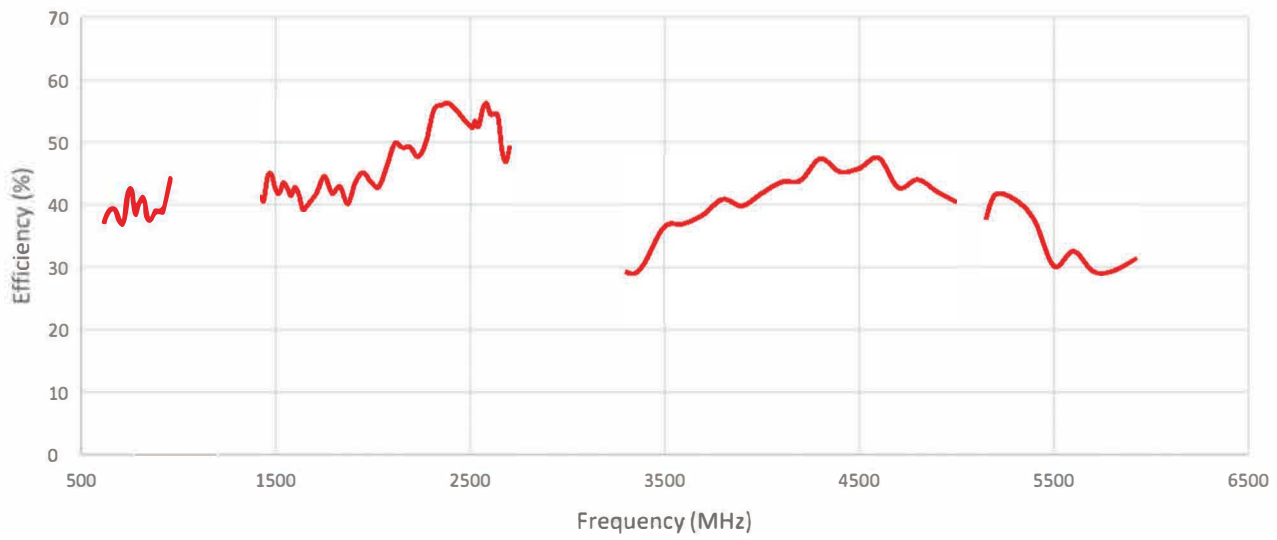
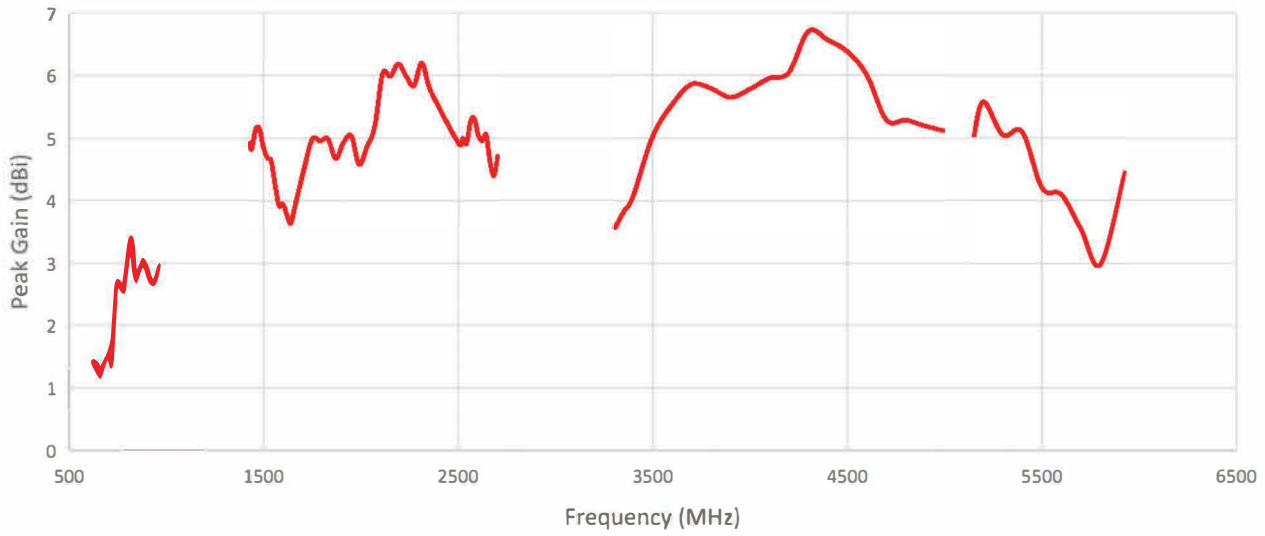
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 20310 Seneca Meadows Pkwy Suite A  
 Germantown, MD 20876  
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 info@maxtena.com  
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**CABLE 2: 5GNR-2**

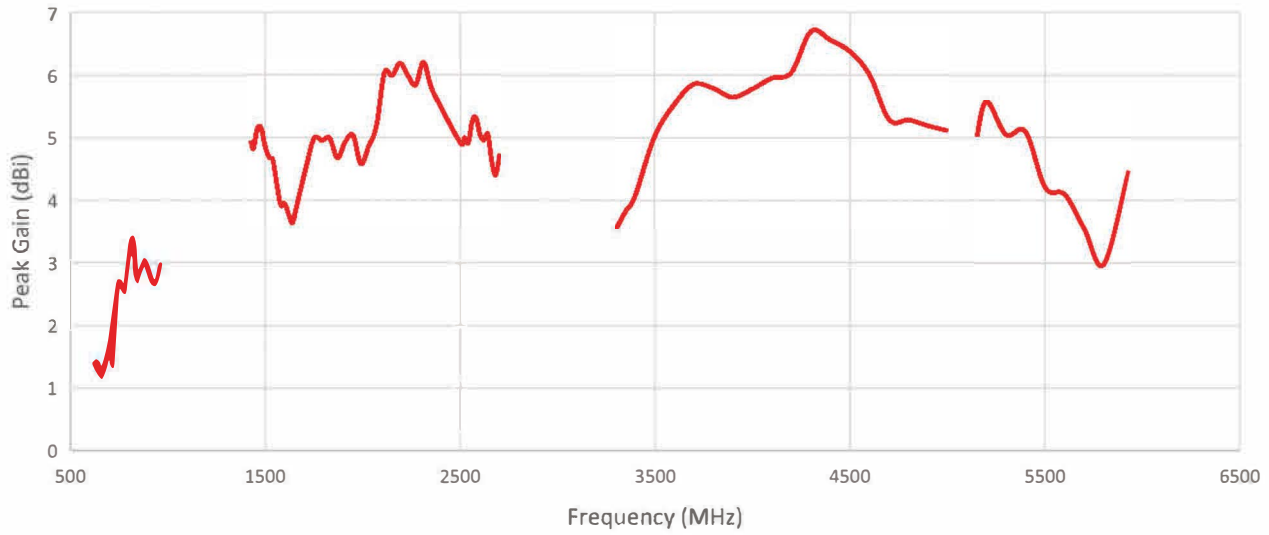




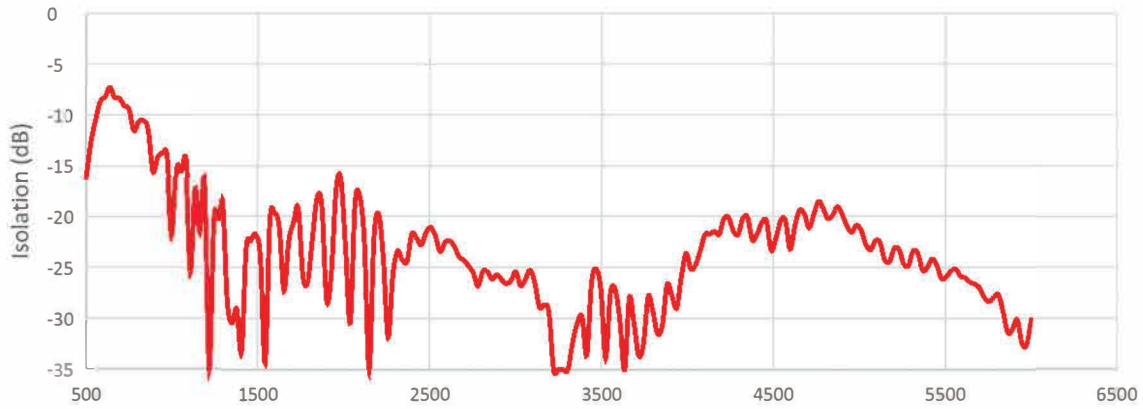


Maxtena Inc.  
 20310 Seneca Meadows Pkwy Suite A  
 Germantown, MD 20876  
 1-877-629-8362  
 info@maxtena.com  
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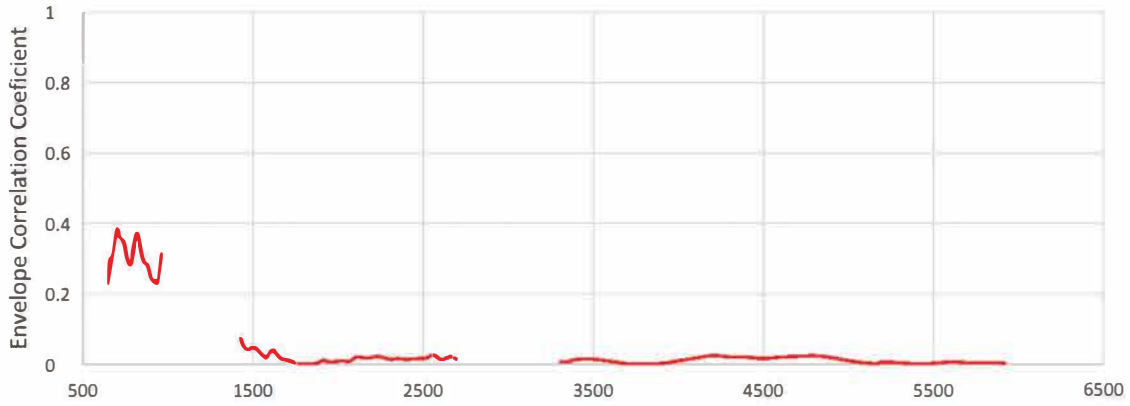




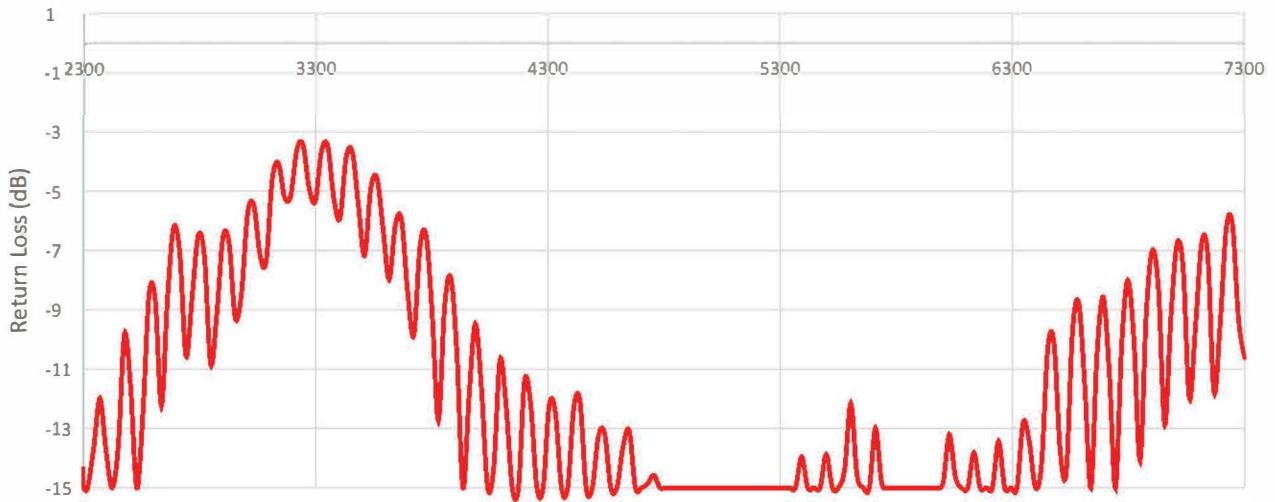
**Isolation for Cable-1 and Cable-2: (5GNR)**

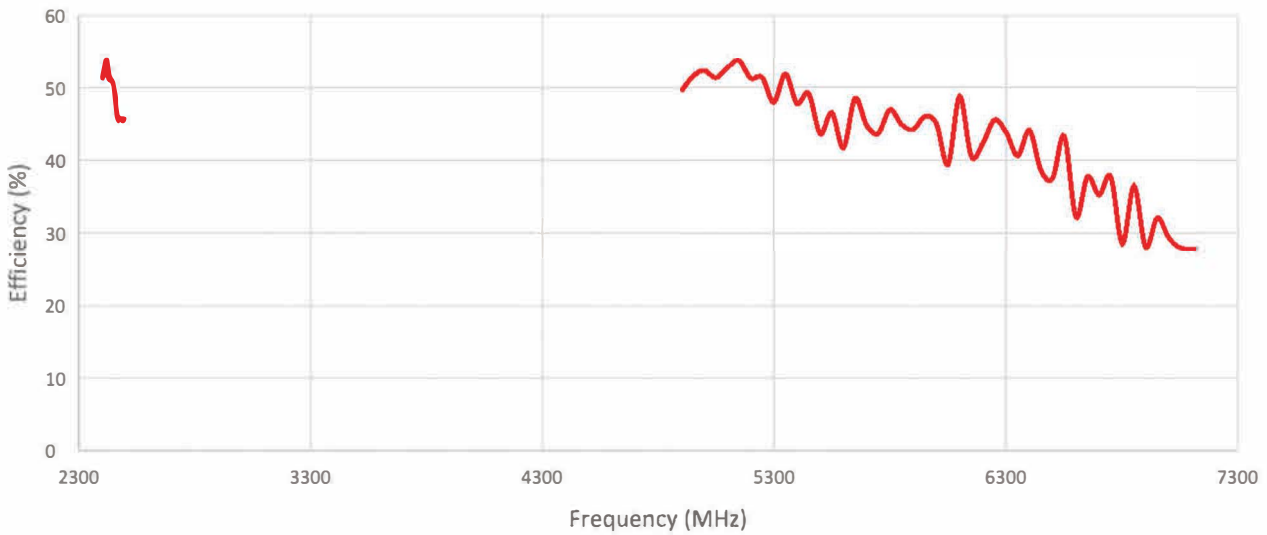
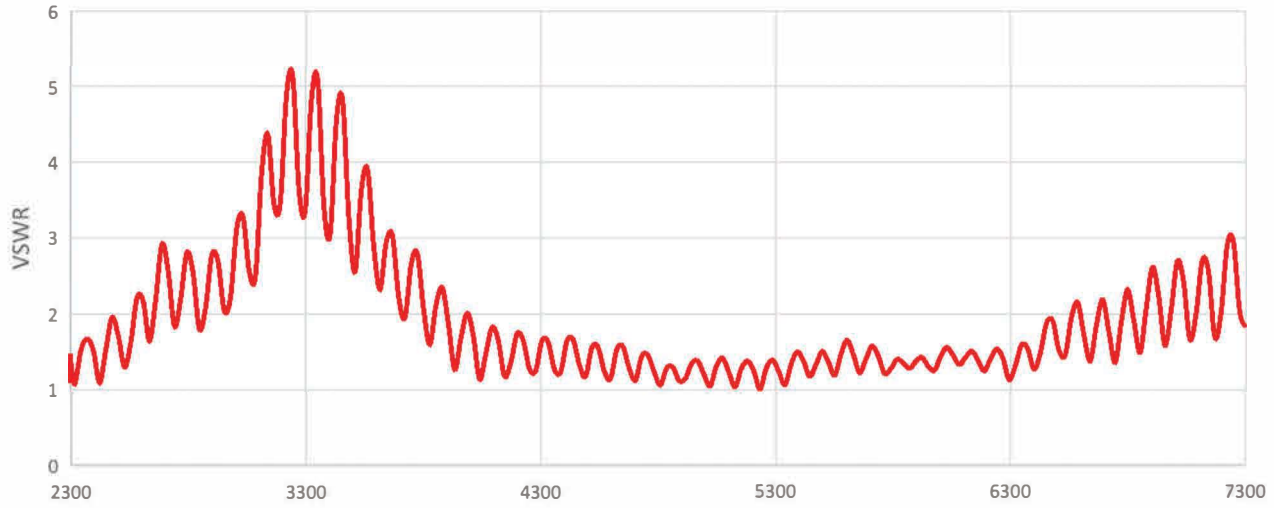


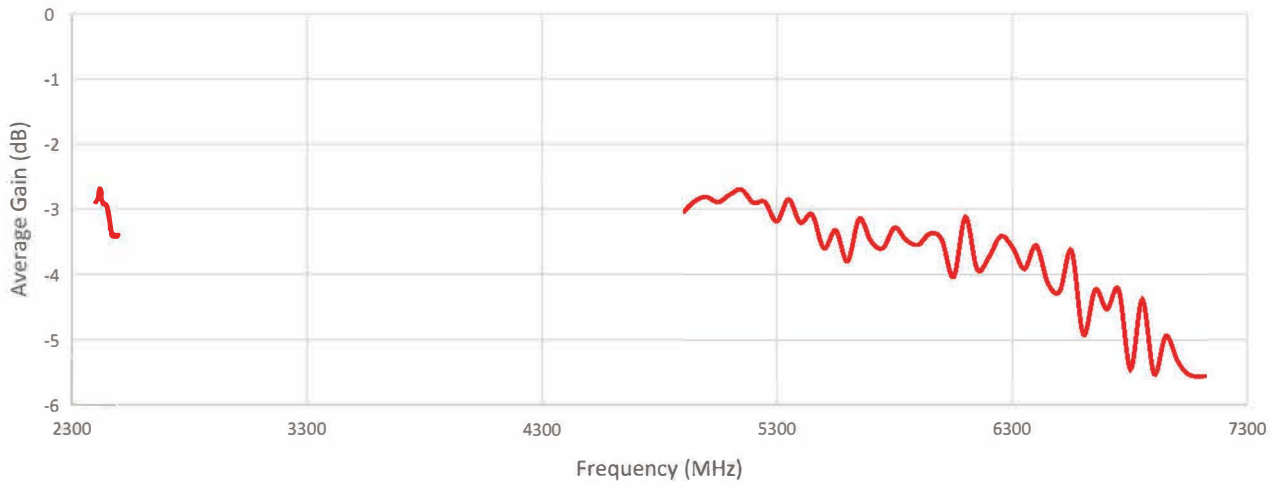
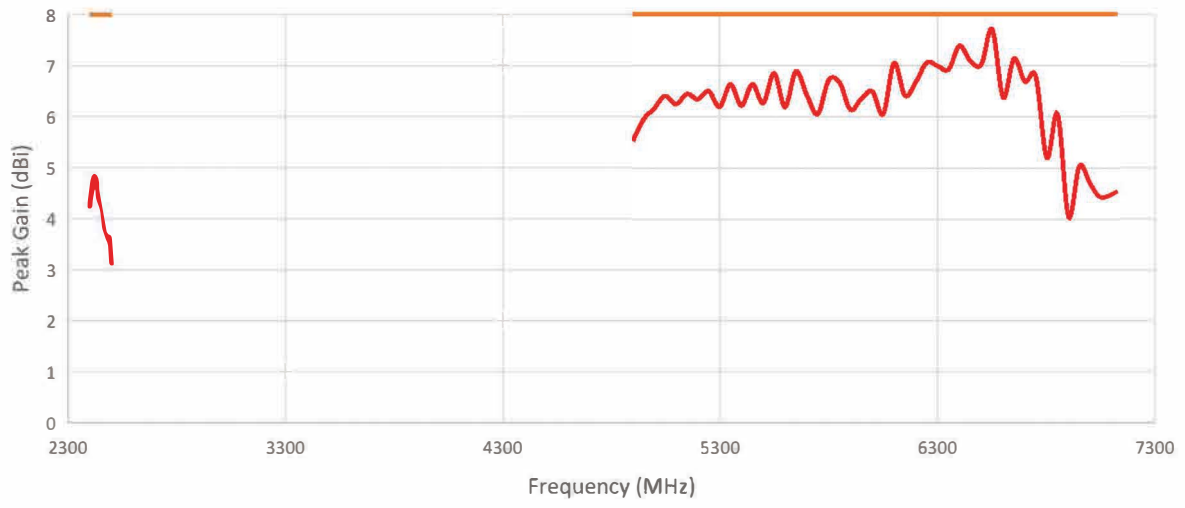
**Envelope Correlation Coefficient for Cable-1 and Cable-2: (5GNR)**



**CABLE 3: 2.4/5.0/6.0-1**

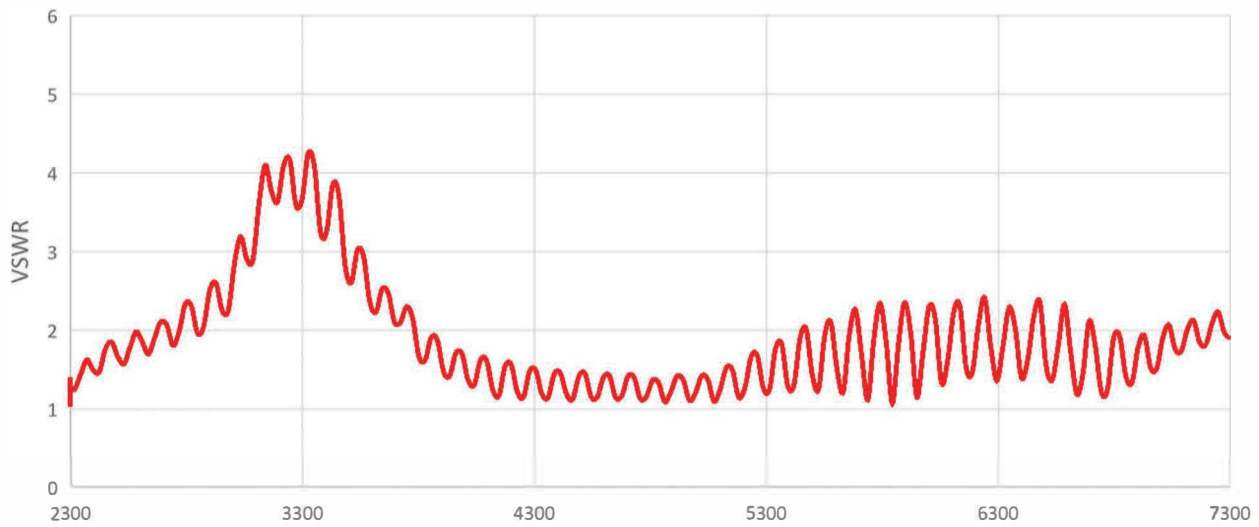
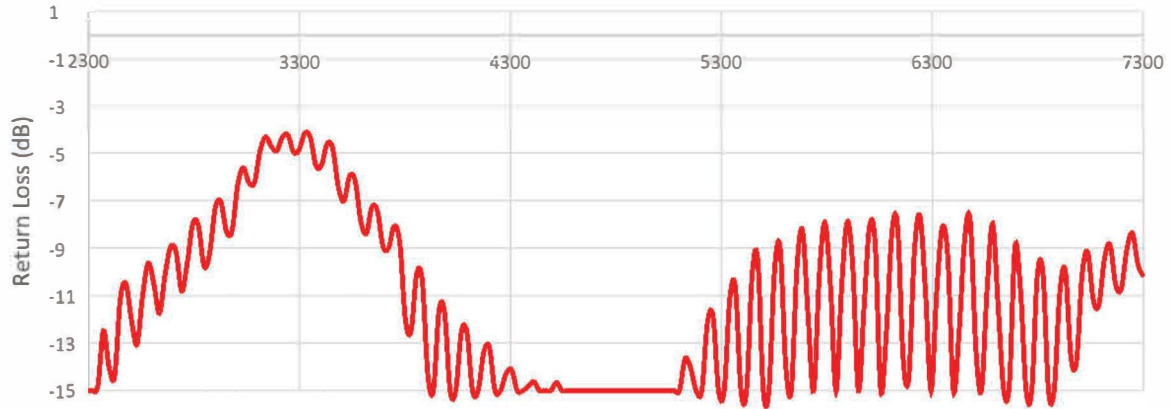


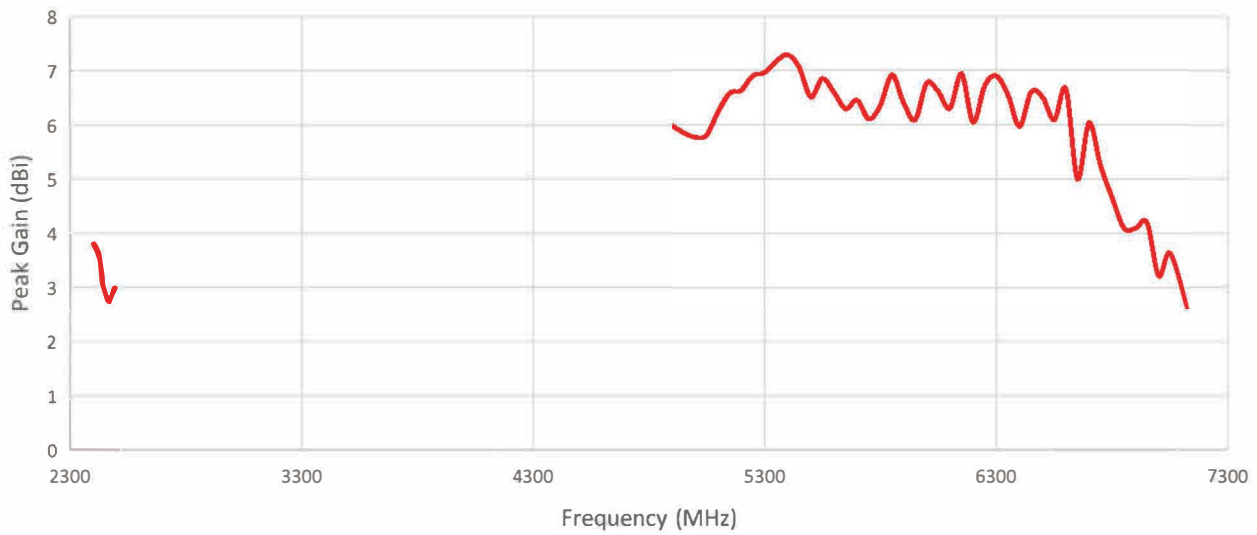
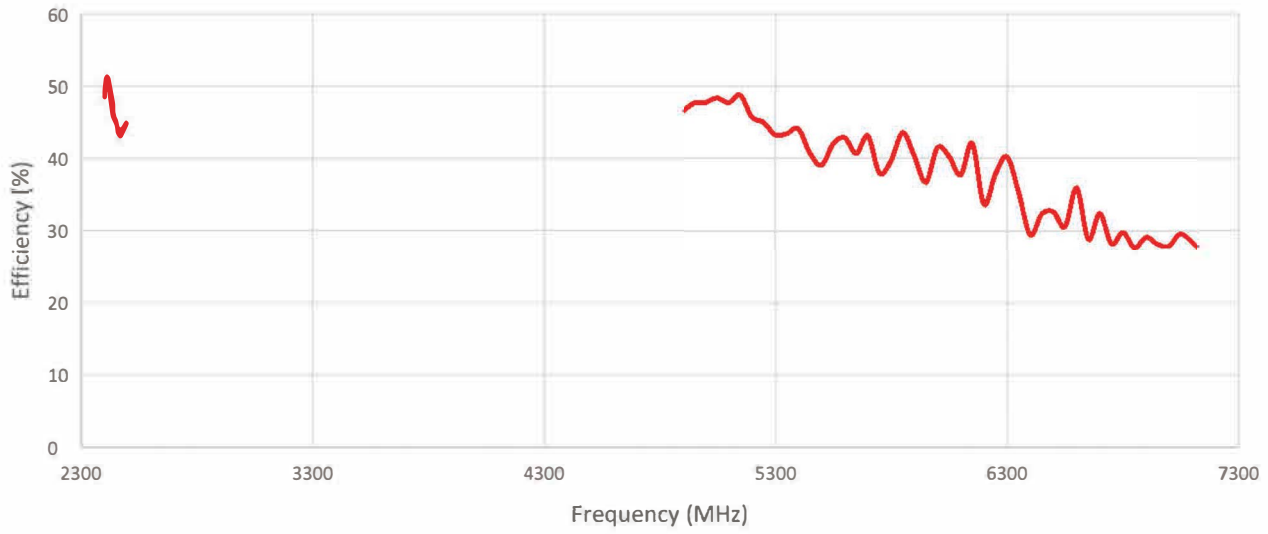




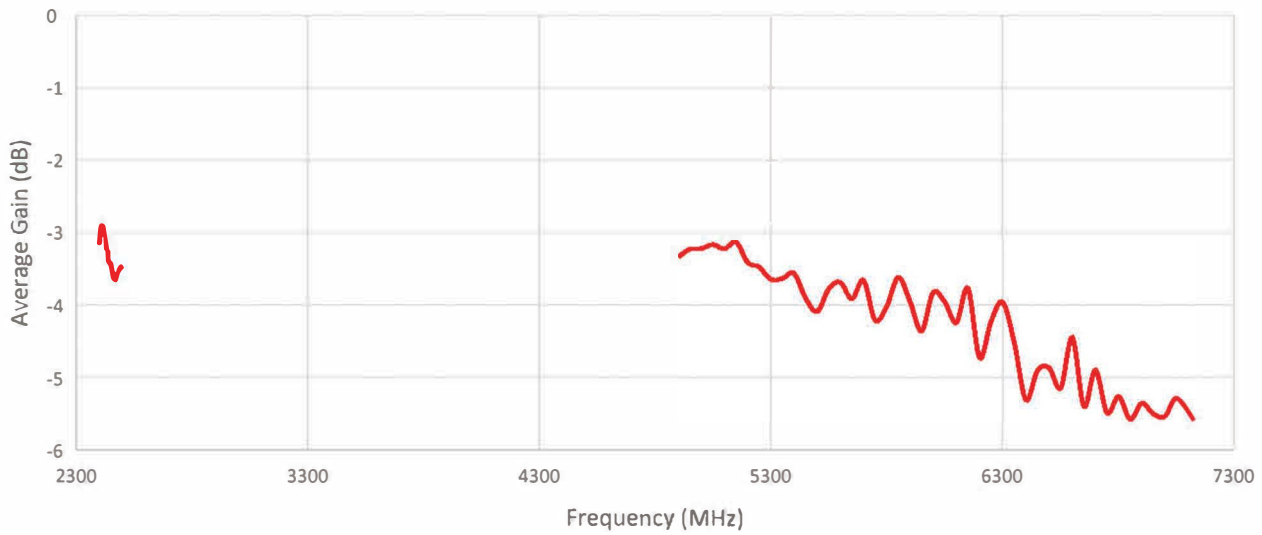
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 20310 Seneca Meadows Pkwy Suite A  
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**CABLE 4: 2.4/5.0/6.0-2**

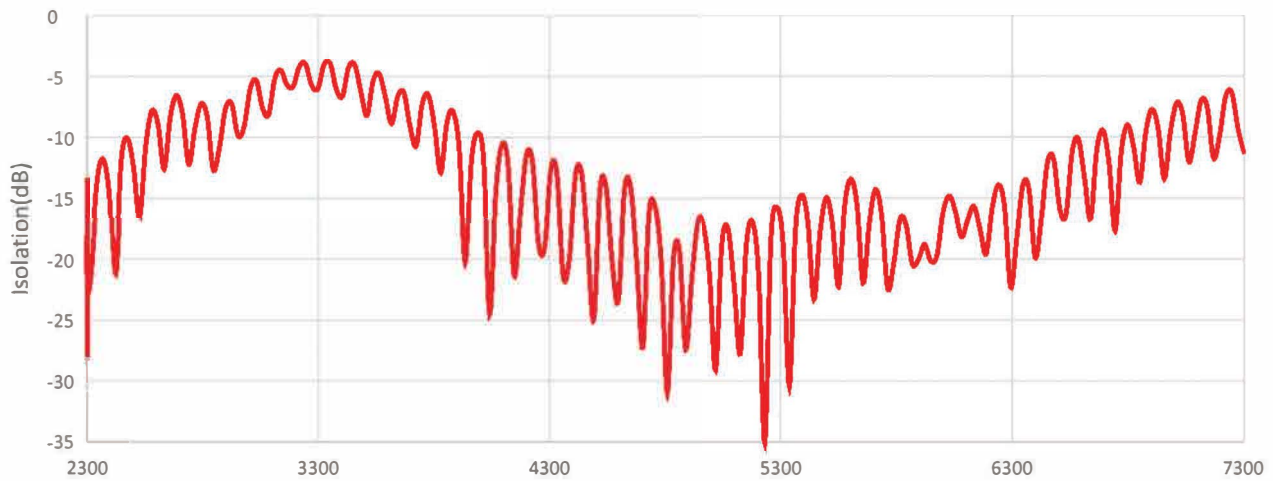




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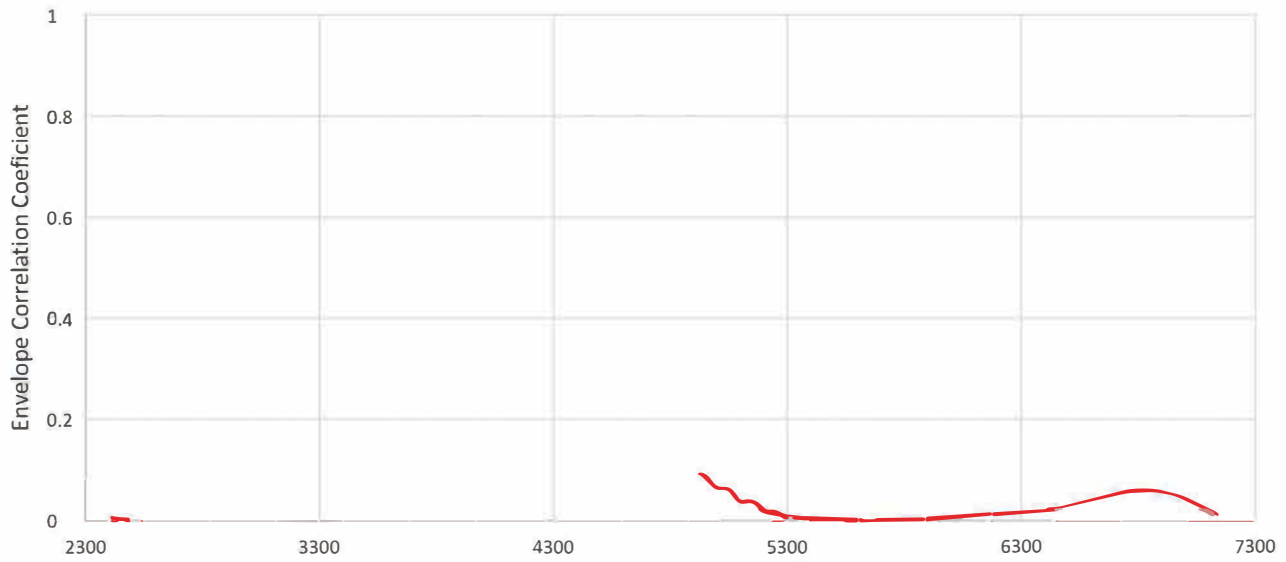


**Isolation for Cable 3 and Cable 4: (2.4/5.0/6.0 GHz ISM)**



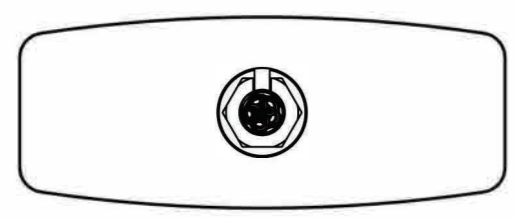
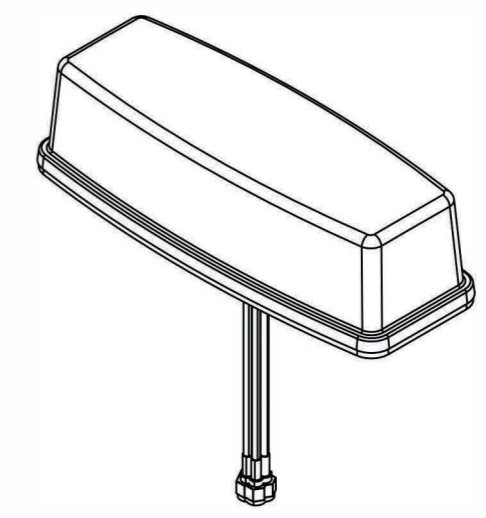
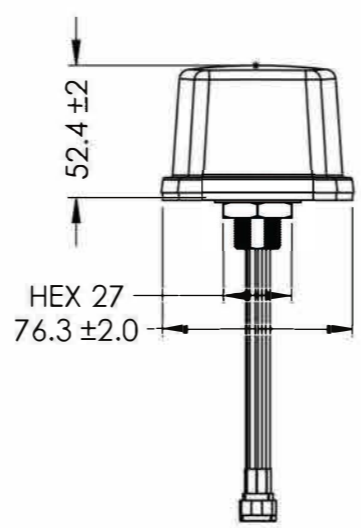
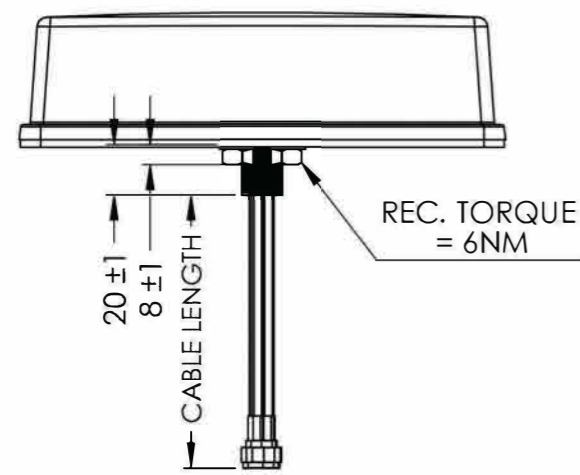
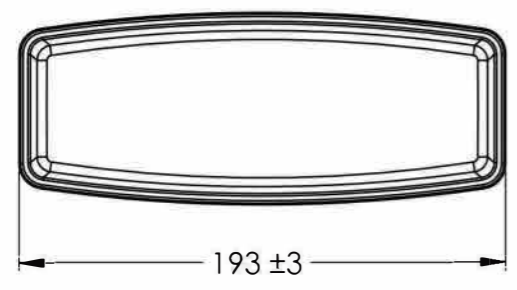
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 Germantown, MD 20876  
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**Envelope Correlation Coefficient for Cable 3 and Cable 4: (2.4/5.0/6.0 GHz ISM)**



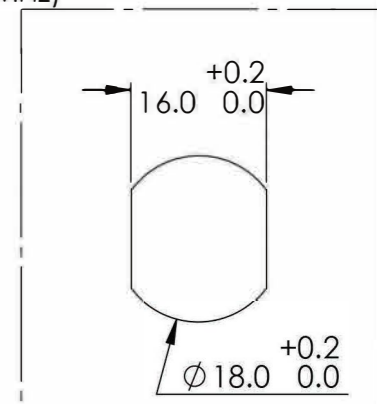


| DRAWING REVISION HISTORY |                 |            |    |
|--------------------------|-----------------|------------|----|
| REV                      | DESCRIPTION     | DATE       | BY |
| A                        | INITIAL RELEASE | 2023-11-23 | MP |



NOTES:

- FREQUENCY:
  - CABLE 1-2: 5GNR (617-960, 1427-2690, 3300-5000 AND 5150-5925 MHz)
  - CABLE 3-4: 2.4/5.0/6.0 GHz ISM (2410-2490 AND 4920-7125 MHz)
  - CABLE 5: GPS/GLONASS/BeiDou/Galileo/QZSS (1561-1606 MHz)
- CUSTOMIZABLE CABLE AND CONNECTOR OPTIONS
- MOUNTING TYPE: SCREW MOUNT
- MAX. MOUNTING THICKNESS: 12 MM
- DIMENSIONS ARE AFTER MOUNTING
- MATERIALS:
  - RADOME: ASA UV STABLE
  - ANTENNA BASE: ABS
  - RADOME COLOR: BLACK OR WHITE
- OPERATING TEMPERATURE: -40°C ~ +85°C
- STORAGE TEMPERATURE: -40°C ~ +85°C
- CERTIFICATIONS: IP67, IP69



MOUNTING HOLE

| ITEM 100-00327-01 REVISION HISTORY |                 |            |    |
|------------------------------------|-----------------|------------|----|
| REV                                | DESCRIPTION     | DATE       | BY |
| A                                  | INITIAL RELEASE | 2023-11-23 | MP |

| 100-00327-01 CONFIGURATION TABLE |                                                          |              |                                     |              |
|----------------------------------|----------------------------------------------------------|--------------|-------------------------------------|--------------|
| DASH NO                          | CABLE TYPE                                               | CABLE LENGTH | CONNECTOR TYPE                      | RADOME COLOR |
| -01                              | CABLE 1-2 : D302<br>CABLE 3-4 : D302<br>CABLE 5 : LMR100 | 300CM        | SMA MALE<br>SMA MALE-RP<br>SMA MALE | BLACK        |

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN MM  
TOLERANCES:  
FRACTIONAL ±  
ANGULAR: MACH ± .5° BEND ±  
ONE PLACE DECIMAL ± 1.0  
TWO PLACE DECIMAL ± .50

INTERPRET GEOMETRIC TOLERANCING PER:

THIRD ANGLE PROJECTION  
DO NOT SCALE DRAWING

|           | NAME | DATE       |
|-----------|------|------------|
| DRAWN     | MP   | 2023-11-23 |
| CHECKED   | BO   | 2023-11-27 |
| ENG APPR. | AV   | 2023-11-27 |
| MFG APPR. |      |            |
| Q.A.      |      |            |

CAD MAINTAINED.  
CHANGES SHALL BE  
INCORPORATED BY  
THE DESIGN ACTIVITY.

MAXTENA, INC

TITLE: 100-00327-01  
MEA-5 IN 1-SM

|      |              |     |
|------|--------------|-----|
| SIZE | DWG. NO.     | REV |
| B    | 117-00755-01 | A   |

CAGE CODE: 5KQH7      SCALE: NONE      SHEET 1 OF 1