





# 617-5000 MHZ HDP 5G/LTE CELLULAR, NB-IOT, CAT-M WIDEBAND FPC ANTENNAS

## FEATURES & BENEFITS

- North America Cellular world band coverage 617-5000 MHz for 5G, LTE, NB-IoT and Cat-M
- Dimensions: 90mm x 20mm
- Adhesive backing on the FPC simplifies mounting within the device
- Different cable length and connector options available
- RoHS 2.0 Compliant, REACH Compliant

## MATING COMPONENTS TO PART NUMBERS AND DIMENSIONS

PART NUMBER	CABLE LENGTH		CABLE O.D, MM	CONNECTOR TYPE (ON CABLE)	MATING COMPONENTS	
	MM	INCH			PART NUMBER	IMAGE
L000848-01	50	1.968	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000848-02	100.0	3.937	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000848-03	150.0	5.905	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000848-04	200.0	7.874	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000848-05	250.0	9.842	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000848-06	300.0	11.811	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000848-07	50.0	1.968	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000848-08	100.0	3.937	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000848-09	150.0	5.905	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000848-10	200.0	7.874	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000848-11	250.0	9.842	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000848-12	300.0	11.811	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	

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## SPECIFICATIONS

<b>Power Handling</b>	10 Watt cw
<b>Feed Point Impedance</b>	50 ohms
<b>Polarization</b>	Linear
<b>Size</b>	90.0 mm x 20.0 mm x 0.15 mm (FPCB + adhesive)
<b>Weight</b>	< 2.0 g
<b>Mounting</b>	Adhesive Tape
<b>Mating Connectors</b>	MHF and MHF4L type, Refer to page 11
<b>Cable</b>	1.13mm Dia., Refer to page 11
<b>Operating Temperature</b>	-40 to +85°C
<b>Storage Temperature</b>	-40 to +85°C
<b>Hazardous Materials</b>	A certificate of conformance is available from the product page on TE website

## ANTENNA RF SPECIFICATIONS WITH DIFFERENT CABLE ASSEMBLIES

P/N	Cable Length	Connector	Cable OD	RF DATA	Frequency Range (MHz)						
					617-894	1710-2200	2305-2360	2496-2690	3300-3800	3800-4200	4400-5000
L000848-01	50 mm	MHF	1.13 mm	VSWR	< 2.5:1	< 2.2:1	< 1.8:1	< 2.2:1	< 2.2:1	< 1.8:1	< 2.7:1
				Avg. Efficiency	45 %	56 %	52 %	58 %	68 %	78 %	65 %
				Peak Gain (Max)	0.2 dBi	2.5 dBi	2.0 dBi	2.4 dBi	4.4 dBi	5.8 dBi	4.3 dBi
				Average Gain	-3.5 dB	-2.5 dBi	-2.8 dB	-2.3 dB	-1.7 dB	-1.0 dB	-1.9 dB
L000848-02	100 mm	MHF	1.13 mm	VSWR	< 3.2 :1	< 3.2 :1	<1.8 :1	< 2.0 :1	< 2.0 :1	<1.7 :1	<2.9 :1
				Avg. Efficiency	42.3 %	53.3 %	56.2 %	62.3 %	69.2 %	80.7%	58.5%
				Peak Gain (Max)	-0.24dBi	2.23 dBi	2.82 dBi	3.2 dBi	4.2 dBi	4.83 dBi	3.7 dBi
				Average Gain	-3.8 dB	-2.8 dB	-2.5 dB	-2.1 dB	-1.6 dB	-1.0 dB	-2.4 dB
L000848-03	150 mm	MHF	1.13 mm	VSWR	<2.9 :1	< 2.8 :1	< 2.8 :1	< 1.9 :1	< 1.9 :1	<2.3 :1	<2.0 :1
				Avg. Efficiency	50.0 %	51.5 %	49.0 %	58.5 %	63.6 %	74.1 %	59.3 %
				Peak Gain (Max)	1.28 dBi	2.70 dBi	3.06 dBi	2.96 dBi	3.58 dBi	4.86 dBi	4.16 dBi
				Average Gain	-3.0 dB	-2.92 dB	-3.1 dB	-2.33 dB	-2.0 dB	-1.31 dB	-2.31 dB
L000848-04	200 mm	MHF	1.13 mm	VSWR	< 2.7 :1	< 2.3 :1	< 1.9 :1	< 1.8 :1	< 2.1 :1	<1.9 :1	<2.2 :1
				Avg. Efficiency	53.7 %	53.8 %	46.2 %	58.2 %	58.7 %	52.7 %	54.2 %
				Peak Gain (Max)	2.0 dBi	2.47 dBi	2.12 dBi	2.71 dBi	3.54 dBi	2.91 dBi	4.93 dBi
				Average Gain	-2.72 dB	-2.7 dB	-3.36 dB	-2.53 dB	-2.3 dB	-2.79 dB	-2.67 dB

## CABLE LOSS

OD 1.37mm (P/N: 2-2108921)

Freq. Range (MHz)	617-960	1427-1517	1690-2400	2496-2690	3300-3800	3800-4200	4400-5000
Cable attenuation (dB/m)	< 1.9	<2.25	< 2.75	< 3.0	<3.5	< 3.8	< 4.0

**ANTENNA RF SPECIFICATIONS WITH DIFFERENT CABLE ASSEMBLIES**

P/N	RF DATA	Frequency Range (MHz)						
		617-894	1710-2200	2305-2360	2496-2690	3300-3800	3800-4200	4400-5000
<b>L000836-05</b>	VSWR	< 2.5:1	< 2.2:1	< 1.8:1	< 2.2:1	< 2.1 :1	< 1.8:1	< 2.7:1
<b>50 mm</b>	Avg. Efficiency	45 %	56 %	52 %	58 %	68 %	78%	65%
<b>MHF</b>	Peak Gain (Max)	0.2 dBi	2.5 dBi	2.0 dBi	2.4 dBi	4.4 dBi	5.8 dBi	4.3 dBi
<b>1.13 mm</b>	Average Gain	-3.5 dB	-2.5 dB	-2.8 dB	-2.3 dB	-1.7 dB	-1.0 dB	-1.9 dB
<b>L000836-06</b>	VSWR	< 3.2 :1	< 3.2 :1	<1.8 :1	< 2.0 :1	< 2.0 :1	<1.7 :1	<2.9 :1
<b>100 mm</b>	Avg. Efficiency	42.3 %	53.3 %	56.2 %	62.3 %	69.2 %	80.7%	58.5%
<b>MHF</b>	Peak Gain (Max)	-0.24dBi	2.23 dBi	2.82 dBi	3.2 dBi	4.2 dBi	4.83 dBi	3.7 dBi
<b>1.13 mm</b>	Average Gain	-3.8 dB	-2.8 dB	-2.5 dB	-2.1 dB	-1.6 dB	-1.0 dB	-2.4 dB
<b>L000836-07</b>	VSWR	<2.9 :1	< 2.8 :1	<2.8 :1	< 1.9 :1	< 1.9 :1	<2.3 :1	<2.0 :1
<b>150 mm</b>	Avg. Efficiency	50.0%	51.5 %	49.0 %	58.5 %	63.6 %	74.1 %	59.3 %
<b>MHF</b>	Peak Gain (Max)	1.28 dBi	2.70 dBi	3.06 dBi	2.96 dBi	3.58 dBi	4.86 dBi	4.16 dBi
<b>1.13 mm</b>	Average Gain	-3.0 dB	-2.92 dB	-3.1 dB	-2.33 dB	-2.0 dB	-1.31 dB	-2.31 dB
<b>L000836-08</b>	VSWR	< 2.7 :1	< 2.3 :1	< 1.9 :1	< 1.8 :1	< 2.1 :1	<1.9 :1	< 2.2 :1
<b>200 mm</b>	Avg. Efficiency	53.7 %	53.8 %	46.2 %	58.2 %	58.7 %	52.7 %	54.2 %
<b>MHF</b>	Peak Gain (Max)	2.0 dBi	2.47 dBi	2.12 dBi	2.71 dBi	3.54 dBi	2.91 dBi	4.93 dBi
<b>1.13 mm</b>	Average Gain	-2.72 dB	-2.7 dB	-3.36 dB	-2.53 dB	-2.3 dB	-2.79 dB	-2.67 dB

**CABLE LOSS**

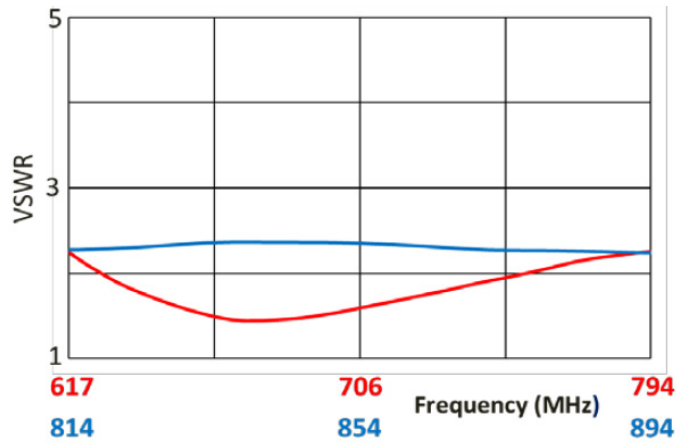
OD 1.13mm (P/N: 3-2108921)

Freq. Range (MHz)	617-960	1427-1517	1690-2400	2496-2690	3300-3800	3800-4200	4400-5000
Cable attenuation (dB/m)	< 2.2	<2.9	< 3.69	< 4.0	<4.5	< 4.7	< 5.0

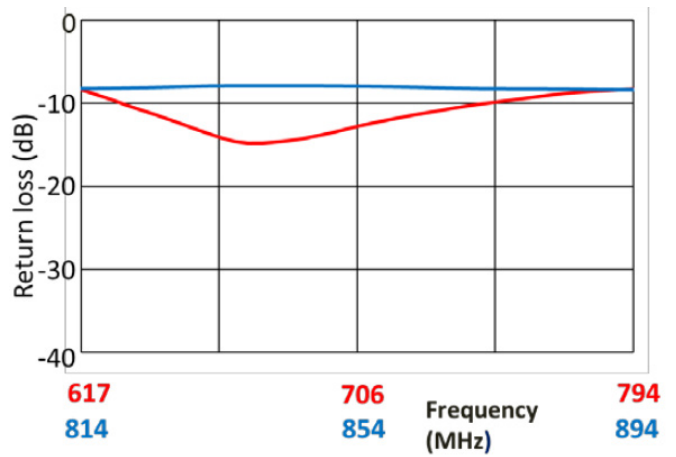
**RF DATA**

(Shown as L000848-02 : Others can vary with different cable lengths.)

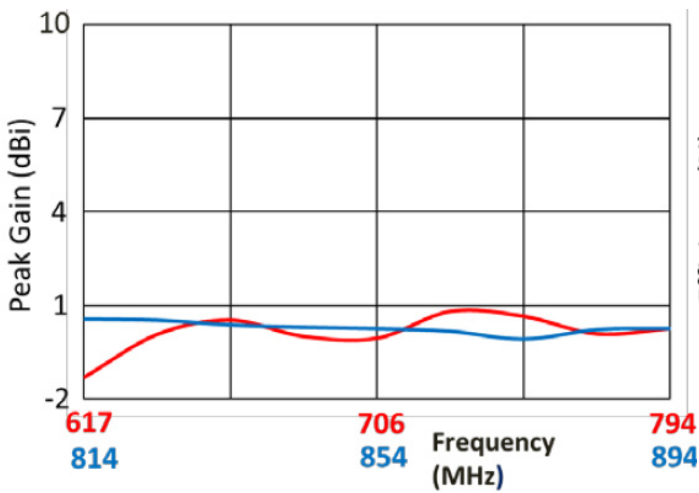
**VSWR**



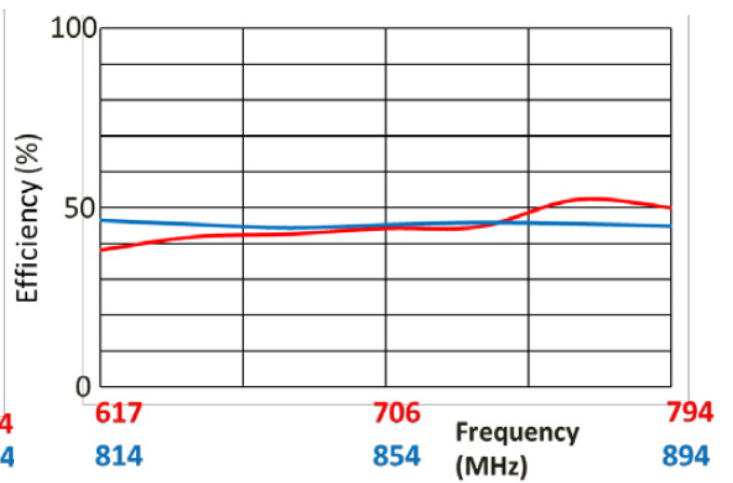
**Return Loss**



**Peak Gain**



**Efficiency**

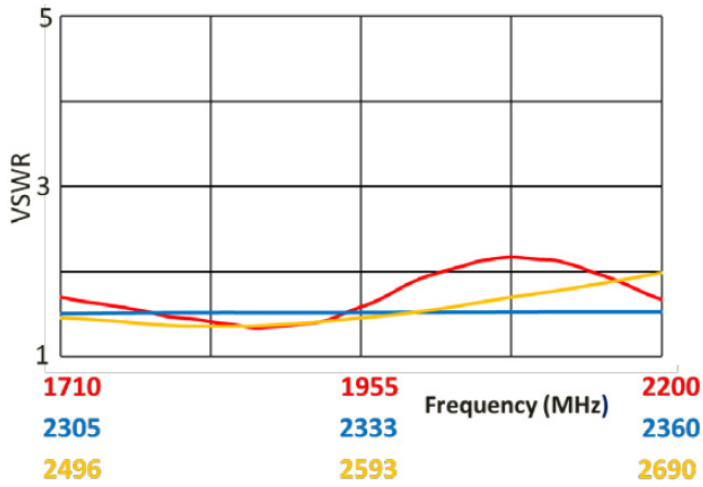


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

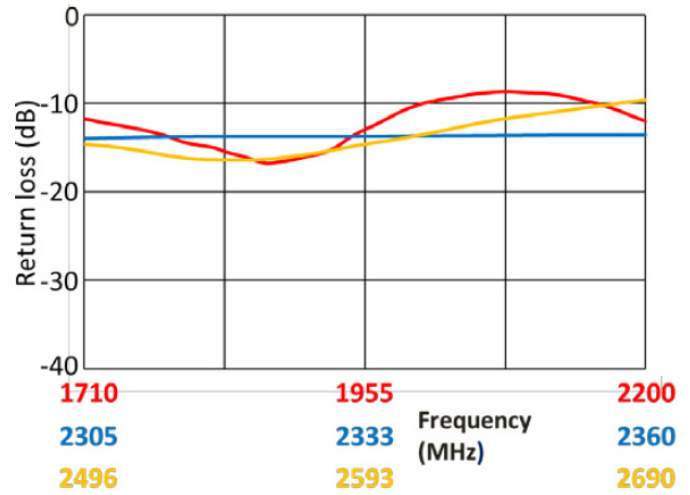
**RF DATA**

(Shown as L000848-02 : Others can vary with different cable lengths.)

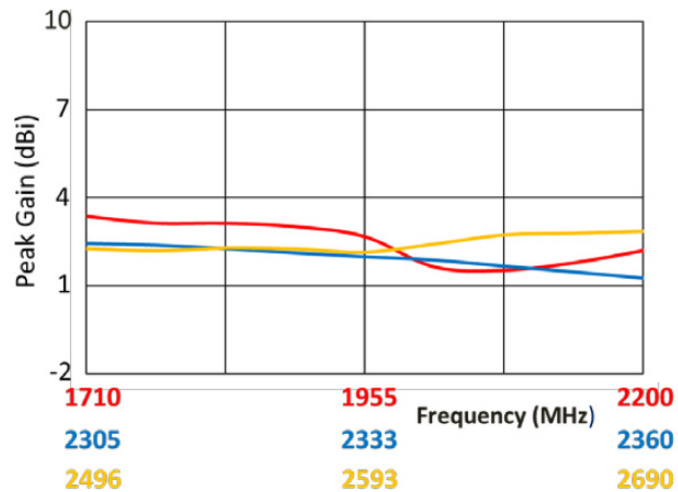
**VSWR**



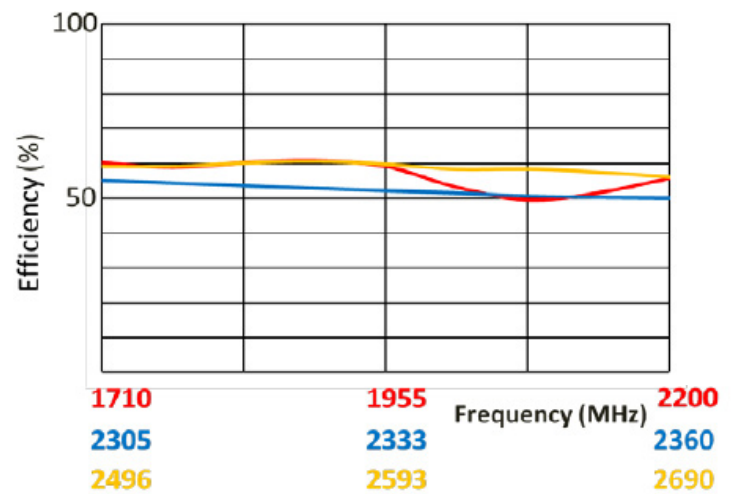
**Return Loss**



**Peak Gain**



**Efficiency**

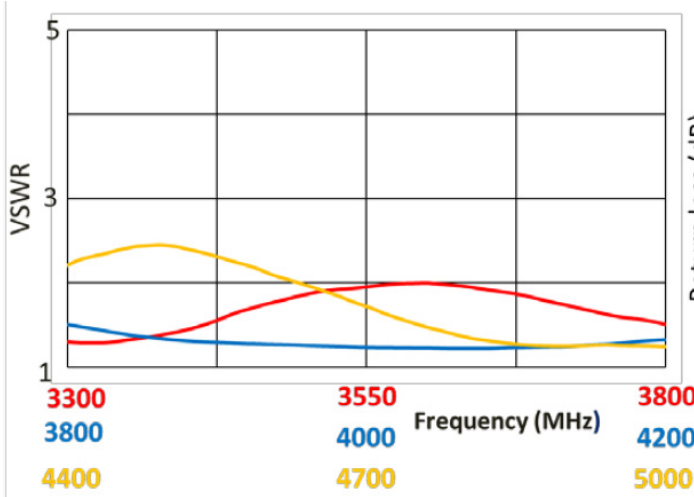


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

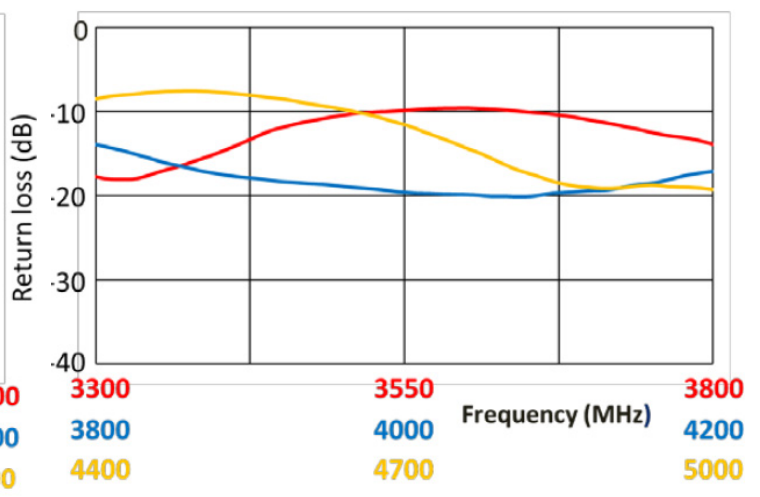
**RF DATA**

(Shown as L000848-02 : Others can vary with different cable lengths.)

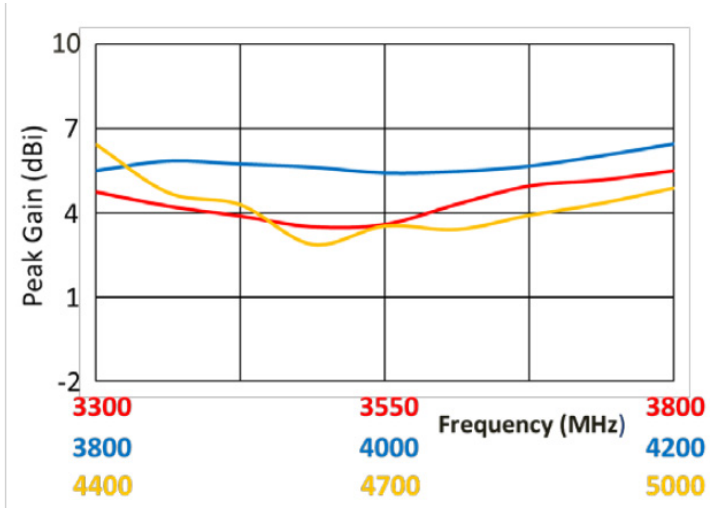
**VSWR**



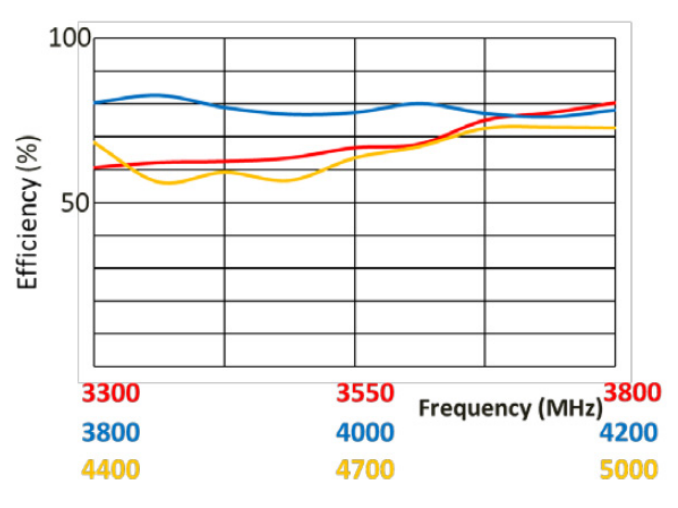
**Return Loss**



**Peak Gain**



**Efficiency**

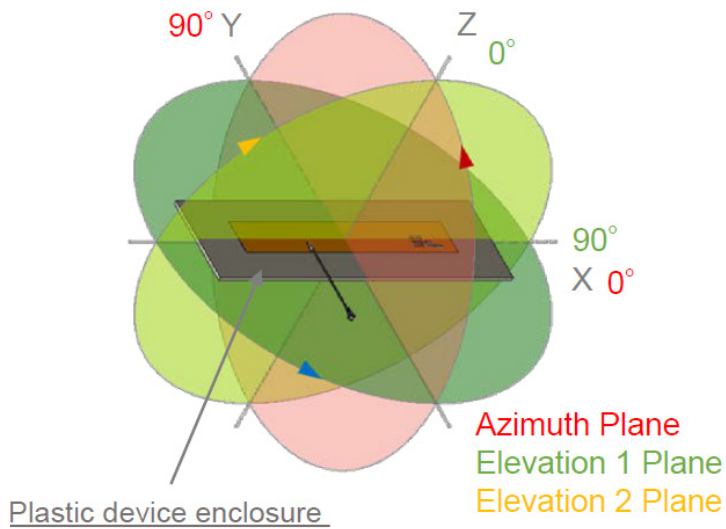


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

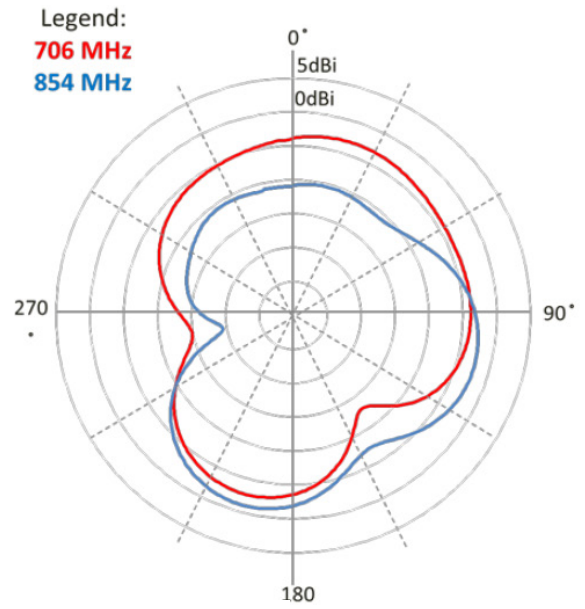
### RADIATION PATTERN

(Shown as L000848-02 : Others can vary with different cable lengths.)

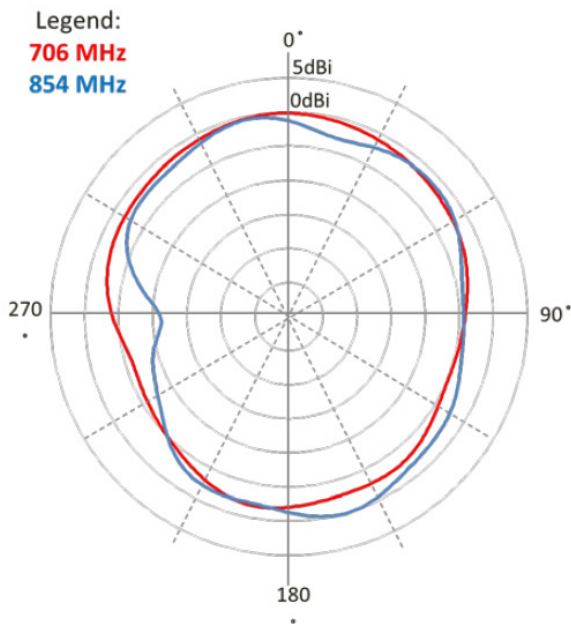
#### Test setup



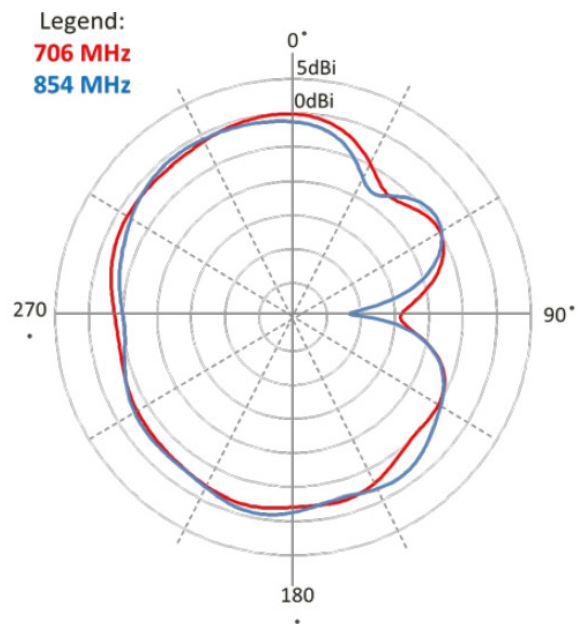
#### Azimuth(XY)



#### Elevation 1(XZ)



#### Elevation 2(YZ)

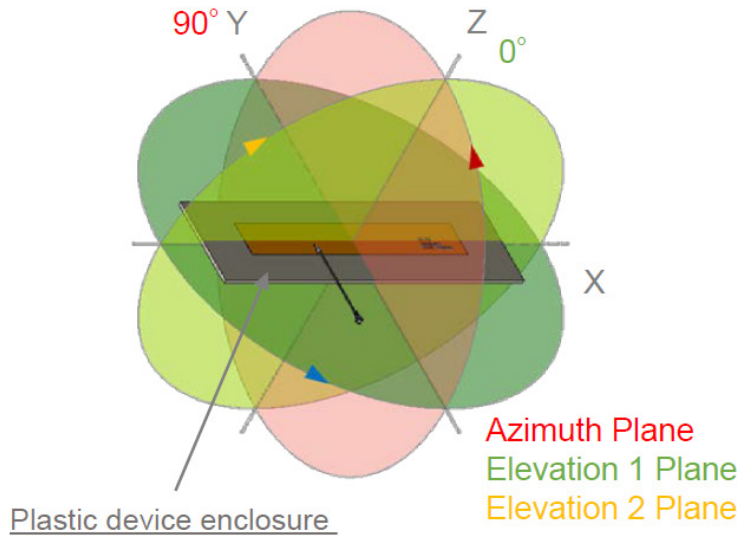


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

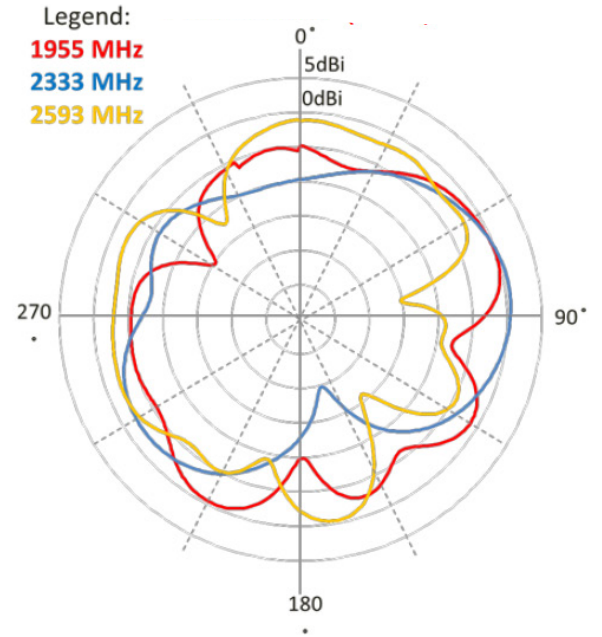
**RADIATION PATTERN**

(Shown as L000848-02 : Others can vary with different cable lengths.)

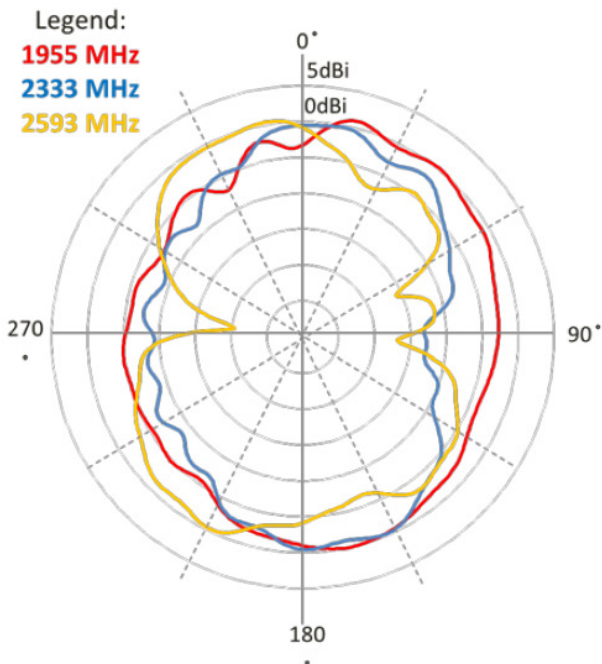
**Test setup**



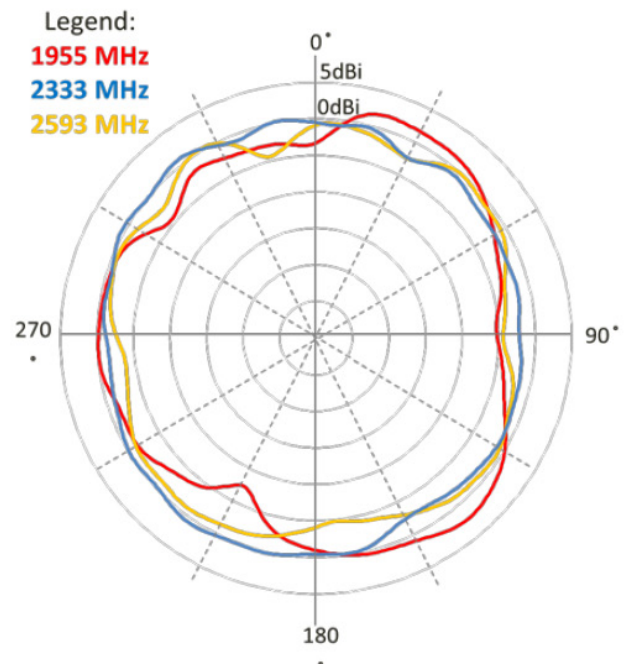
**Azimuth(XY)**



**Elevation 1(XZ)**



**Elevation 2(YZ)**

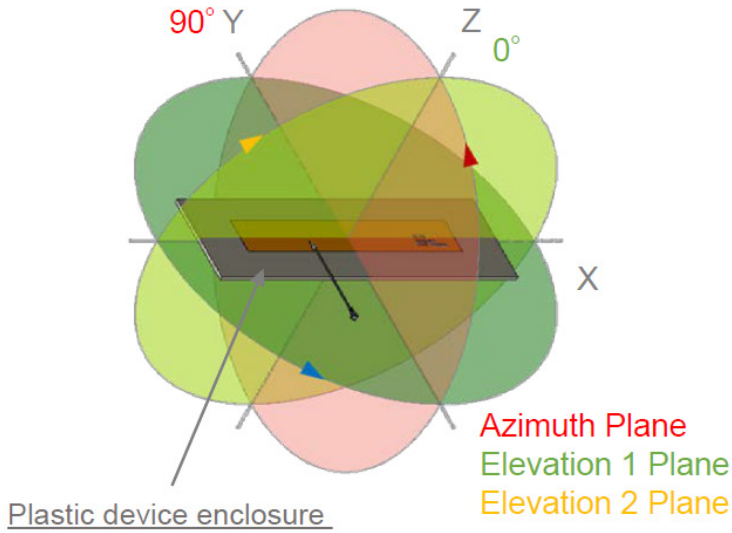


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

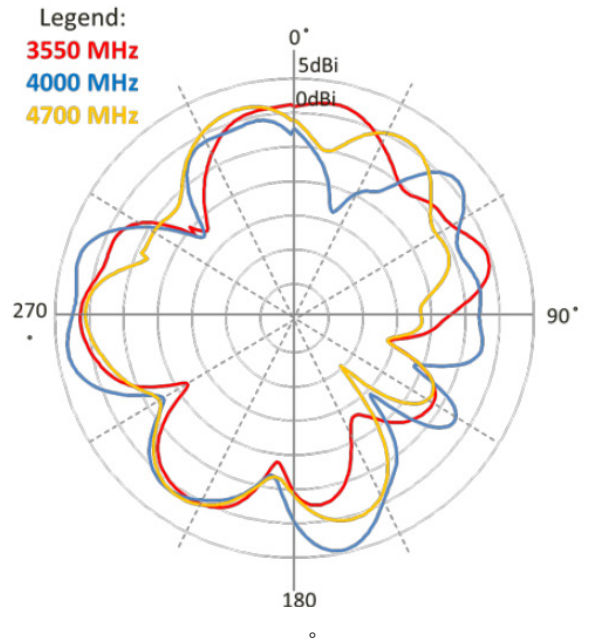
**RADIATION PATTERN**

(Shown as L000848-02 : Others can vary with different cable lengths.)

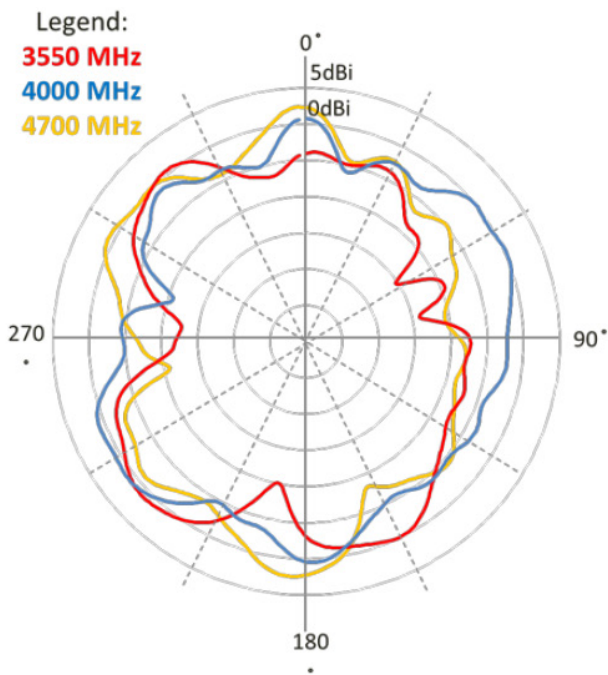
**Test setup**



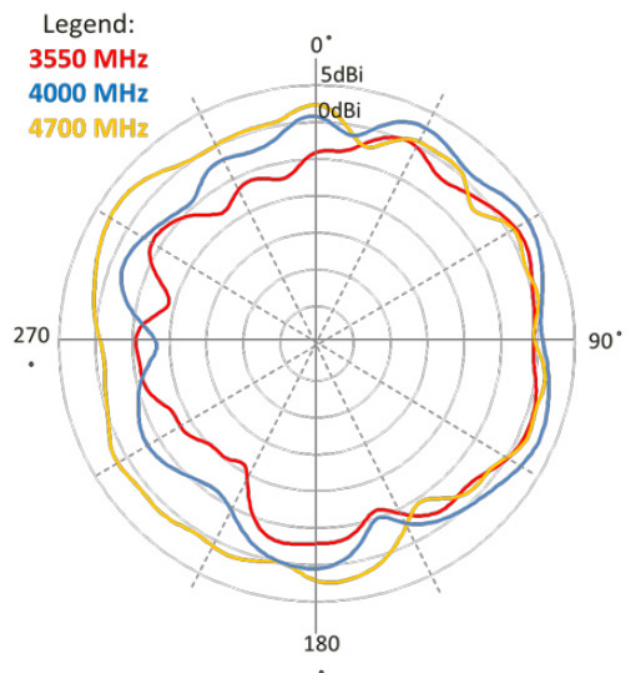
**Azimuth(XY)**



**Elevation 1(XZ)**

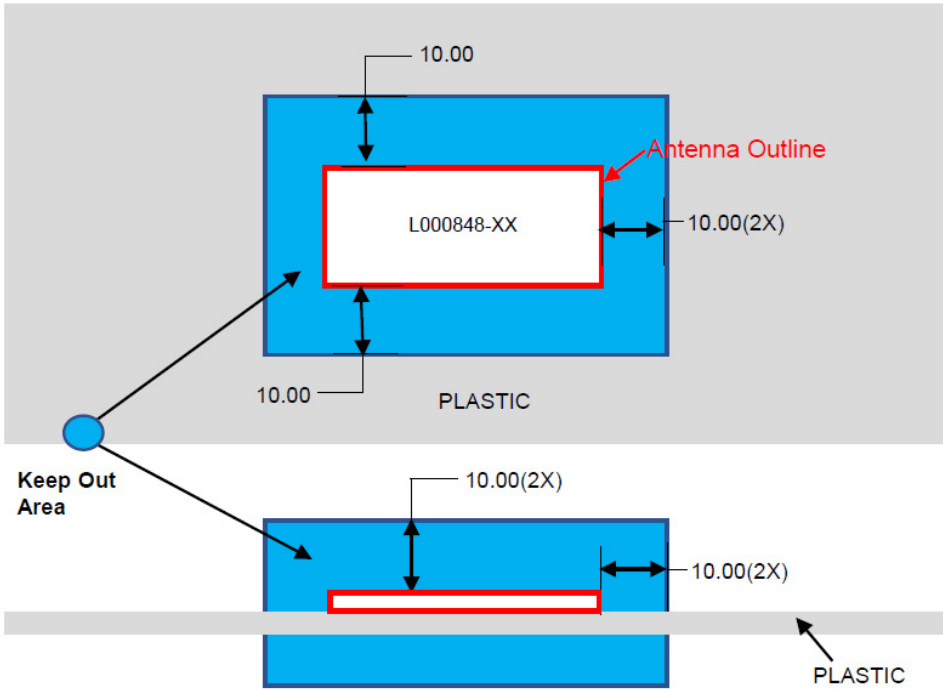


**Elevation 2(YZ)**



Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

**KEEP OUT AREA**



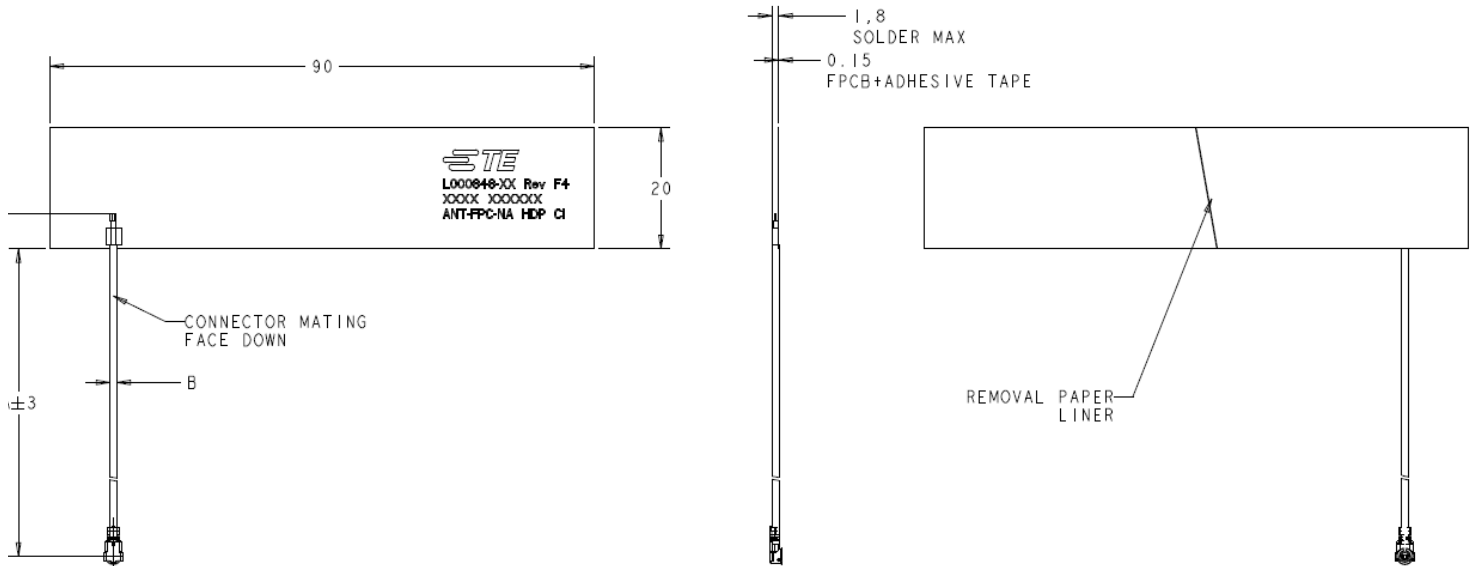
**NOTES**

1. Antenna designed to be mounted on plastic cover.
2. Area in blue indicates Keep Out Area.
3. Contact TE if keep out zone cannot be guaranteed.

Dimension: mm  
Diagram is not to scale

**DIMENSIONS**

(Refer to Page11 for dimension "A" )

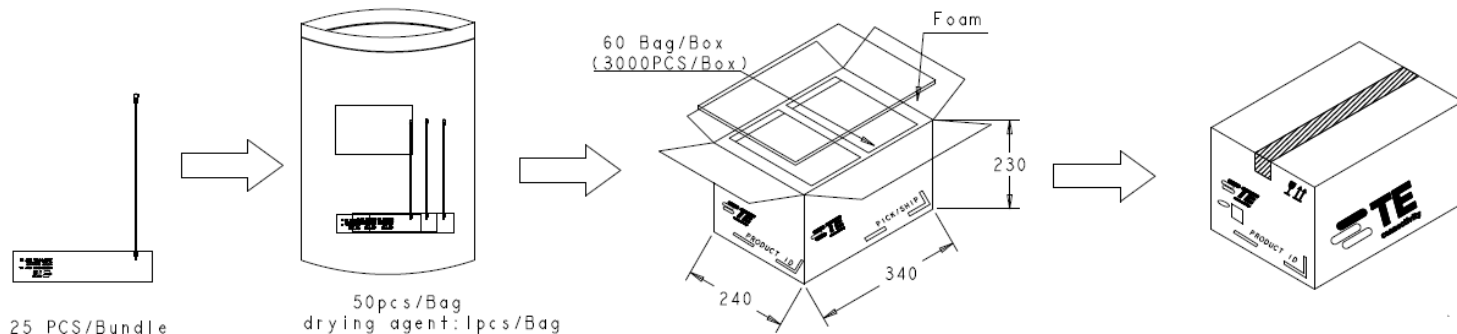


Dimension: mm  
Diagram is not to scale

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