





# 617-5000 MHZ VDP 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: 110mm x 15.5mm
- 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
L000941-01	50	1.968	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000941-02	100.0	3.937	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000941-03	150.0	5.905	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000941-04	200.0	7.874	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000941-05	250.0	9.842	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000941-06	300.0	11.811	1.13	MHF-TYPE PLUG	RECEPTACLE (TE PN: 2337019-1)	
L000941-07	50.0	1.968	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000941-08	100.0	3.937	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000941-09	150.0	5.905	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000941-10	200.0	7.874	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000941-11	250.0	9.842	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	
L000941-12	300.0	11.811	1.13	MHF4L-TYPE PLUG	RECEPTACLE (TE PN: 2334884-1)	

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

Standard Antenna Solutions

## SPECIFICATIONS

<b>Power Handling</b>	10 Watt cw
<b>Feed Point Impedance</b>	50 ohms
<b>Polarization</b>	Linear
<b>Size</b>	110.0 mm x 15.5 mm x 0.15 mm (FPCB + adhesive) (with cable solder)
<b>Weight</b>	< 2.0 g
<b>Mounting</b>	Adhesive Tape
<b>Mating Connectors</b>	MHF and MHF4L type, Refer to page 12
<b>Cable</b>	1.13mm Dia., Refer to page 12
<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
L000941-01	50 mm	MHF	1.13 mm	VSWR	< 2.3:1	< 2.6:1	< 1.8:1	< 2.6:1	< 2.3:1	< 2.1:1	< 2.2:1
				Avg. Efficiency	50 %	61 %	63 %	60 %	61 %	67%	54%
				Peak Gain (Max)	1.3 dBi	3.0 dBi	2.46dBi	2.93dBi	3.65dBi	3.95dBi	3.04dBi
				Average Gain	-2.9dB	-2.2 dB	-2.0 dB	-2.2 dB	-2.2 dB	-1.8 dB	-2.7 dB
L000941-02	100 mm	MHF	1.13 mm	VSWR	< 2.7:1	< 2.1:1	< 1.3:1	< 2.6:1	< 2.5:1	< 2.0:1	< 2.4:1
				Avg. Efficiency	43 %	58 %	65 %	57 %	59 %	62 %	50 %
				Peak Gain (Max)	0.3 dBi	3.0 dBi	3.5 dBi	1.6 dBi	3.3 dBi	2.7 dBi	1.5 dBi
				Average Gain	-3.7 dB	-2.4 dB	-1.9 dB	-2.5 dB	-2.3 dB	-2.1 dB	-3.1 dB
L000941-03	150 mm	MHF	1.13 mm	VSWR	<2.5 :1	< 2.1 :1	<1.6 :1	< 2.3 :1	< 2.1 :1	<2.0 :1	<2.5 :1
				Avg. Efficiency	56 %	56 %	64 %	55 %	58 %	60 %	47 %
				Peak Gain (Max)	1.29 dBi	2.8 dBi	4.33 dBi	1.56 dBi	3.76 dBi	3.72 dBi	2.45 dBi
				Average Gain	-2.56 dB	-2.49 dB	-1.9 dB	-2.6 dB	-2.37 dB	-2.22 dB	-3.32 dB
L000941-04	200 mm	MHF	1.13 mm	VSWR	< 1.8 :1	< 2.1 :1	< 2.2 :1	< 2.0 :1	< 2.6 :1	<2.4 :1	<2.2 :1
				Avg. Efficiency	54 %	59 %	56 %	58 %	53 %	57 %	46 %
				Peak Gain (Max)	1.15 dBi	3.32 dBi	2.87 dBi	2.5 dBi	2.88 dBi	4.1 dBi	2.24 dBi
				Average Gain	-2.64 dB	-2.27 dB	-2.46 dB	-2.37 dB	-2.74 dB	-2.44 dB	-3.4 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
<b>Cable attenuation (dB/m)</b>	< 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>L000941-05</b>	VSWR	<2.4 :1	< 1.9 :1	<1.9 :1	< 2.2 :1	< 2.1 :1	<2.0 :1	<2.1 :1
<b>250 mm</b>	Avg. Efficiency	46.4%	57.1 %	55 %	54.7 %	50.5 %	54.8 %	42 %
<b>MHF</b>	Peak Gain (Max)	1.47 dBi	3.85 dBi	3.24 dBi	3.2 dBi	3.48 dBi	5.04 dBi	2.78 dBi
<b>1.13 mm</b>	Average Gain	-3.3dB	-2.4dB	-2.6dB	-2.6dB	-2.9dB	-2.6dB	-3.8dB
<b>L000941-06</b>	VSWR	< 2.6 :1	< 2.0 :1	< 1.7 :1	< 2.2 :1	< 2.0 :1	<1.8 :1	<2.1 :1
<b>300 mm</b>	Avg. Efficiency	45.8%	52.9 %	57.7 %	51.4 %	48.6 %	53.4 %	40.4 %
<b>MHF</b>	Peak Gain (Max)	0.95 dBi	3.83 dBi	4.39 dBi	3.68 dBi	3.25 dBi	3.63 dBi	1.72 dBi
<b>1.13 mm</b>	Average Gain	-3.4dB	-2.7dB	-2.3dB	-2.9dB	-3.1dB	-2.7dB	-3.9dB
<b>L000941-07</b>	VSWR	< 2.3:1	< 2.6 :1	< 1.8:1	< 2.6:1	< 2.3:1	< 2.1:1	< 2.1:1
<b>50 mm</b>	Avg. Efficiency	50 %	61 %	63 %	60 %	61 %	67%	54%
<b>MHF4L</b>	Peak Gain (Max)	1.3 dBi	3.0 dBi	2.46dBi	2.93dBi	3.65dBi	3.95dBi	3.04dBi
<b>1.13 mm</b>	Average Gain	-2.9dB	-2.2 dB	-2.0 dB	-2.2 dB	-2.2 dB	-1.8 dB	-2.7 dB
<b>L000941-08</b>	VSWR	< 2.7 :1	< 2.1:1	< 1.3:1	< 2.6:1	< 2.5:1	< 2.0:1	< 2.4:1
<b>100 mm</b>	Avg. Efficiency	43 %	58 %	65 %	57 %	59 %	62 %	50 %
<b>MHF4L</b>	Peak Gain (Max)	0.3 dBi	3.0 dBi	3.5 dBi	1.6 dBi	3.3 dBi	2.7 dBi	1.5 dBi
<b>1.13 mm</b>	Average Gain	-3.7 dB	-2.4 dB	-1.9 dB	-2.5 dB	-2.3 dB	-2.1 dB	-3.1 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>L000941-09</b>	VSWR	<2.5 :1	< 2.1 :1	<1.6 :1	< 2.3 :1	< 2.1 :1	<2.0 :1	<2.5 :1
<b>150 mm</b>	Avg. Efficiency	56 %	56 %	64 %	55 %	58 %	60 %	47 %
<b>MHF4L</b>	Peak Gain (Max)	1.29 dBi	2.8 dBi	4.33 dBi	1.56 dBi	3.76 dBi	3.72 dBi	2.45 dBi
<b>1.13 mm</b>	Average Gain	-2.56 dB	-2.49 dB	-1.9 dB	-2.6 dB	-2.37 dB	-2.22 dB	-3.32 dB
<b>L000941-10</b>	VSWR	< 1.8 :1	< 2.1 :1	< 2.2 :1	< 2.0 :1	< 2.6 :1	<2.4 :1	<2.2 :1
<b>200 mm</b>	Avg. Efficiency	54 %	59 %	56 %	58 %	53 %	57 %	46 %
<b>MHF4L</b>	Peak Gain (Max)	1.15 dBi	3.32 dBi	2.87 dBi	2.5 dBi	2.88 dBi	4.1 dBi	2.24 dBi
<b>1.13 mm</b>	Average Gain	-2.64 dB	-2.27 dB	-2.46 dB	-2.37 dB	-2.74 dB	-2.44 dB	-3.4 dB
<b>L000941-11</b>	VSWR	<2.4 :1	< 1.9 :1	<1.9 :1	< 2.2 :1	< 2.1 :1	<2.0 :1	<2.1 :1
<b>150 mm</b>	Avg. Efficiency	46.4%	57.1 %	55 %	54.7 %	50.5 %	54.8 %	42 %
<b>MHF4L</b>	Peak Gain (Max)	1.47 dBi	3.85 dBi	3.24 dBi	3.2 dBi	3.48 dBi	5.04 dBi	2.78 dBi
<b>1.13 mm</b>	Average Gain	-3.3dB	-2.4dB	-2.6dB	-2.6 dB	-2.9dB	-2.6dB	-3.8dB
<b>L000941-12</b>	VSWR	< 2.6 :1	< 2.0 :1	< 1.7 :1	< 2.2 :1	< 2.0 :1	<1.8 :1	<2.1 :1
<b>200 mm</b>	Avg. Efficiency	45.8%	52.9 %	57.7 %	51.4 %	48.6 %	53.4 %	40.4 %
<b>MHF4L</b>	Peak Gain (Max)	0.95 dBi	3.83 dBi	4.39 dBi	3.68 dBi	3.25 dBi	3.63 dBi	1.72 dBi
<b>1.13 mm</b>	Average Gain	-3.4dB	-2.7dB	-2.3dB	-2.9dB	-3.1dB	-2.7dB	-3.9dB

**CABLE LOSS**

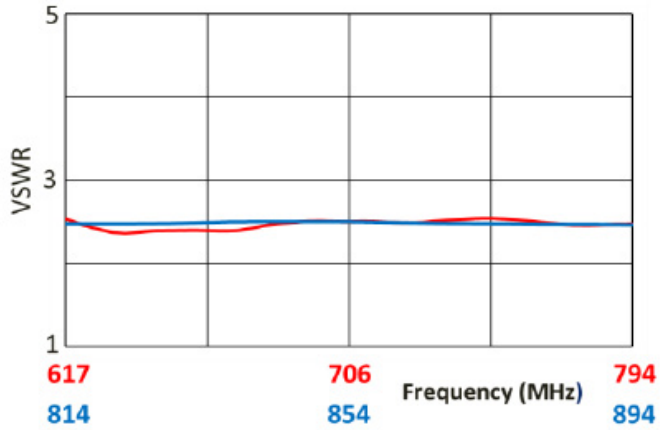
OD 1.13mm (P/N: 3-2108921)

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

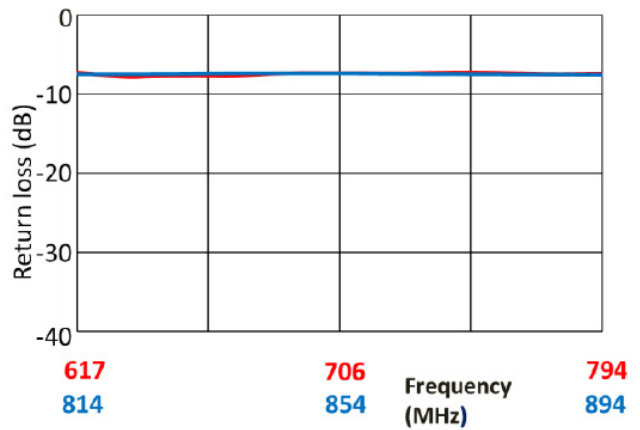
**RF DATA**

(Shown as L000941-02 : Others can vary with different cable lengths.)

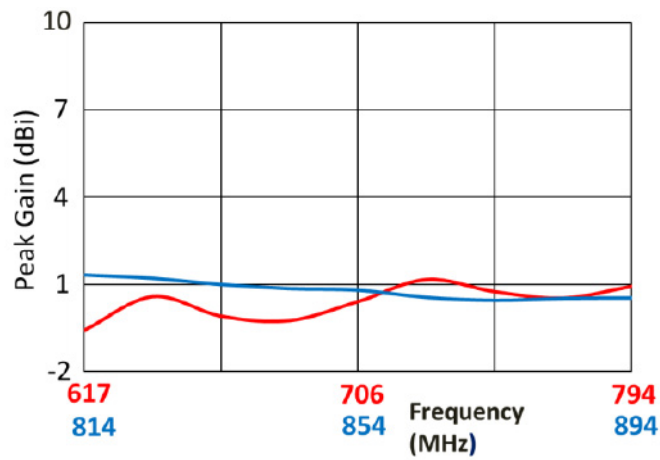
**VSWR**



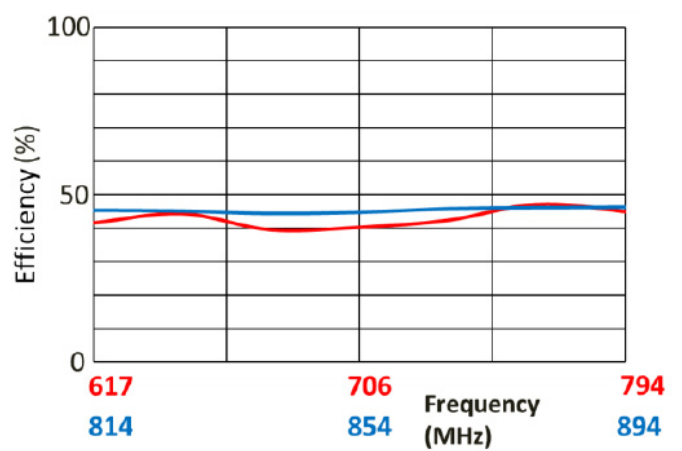
**Return Loss**



**Peak Gain**



**Efficiency**

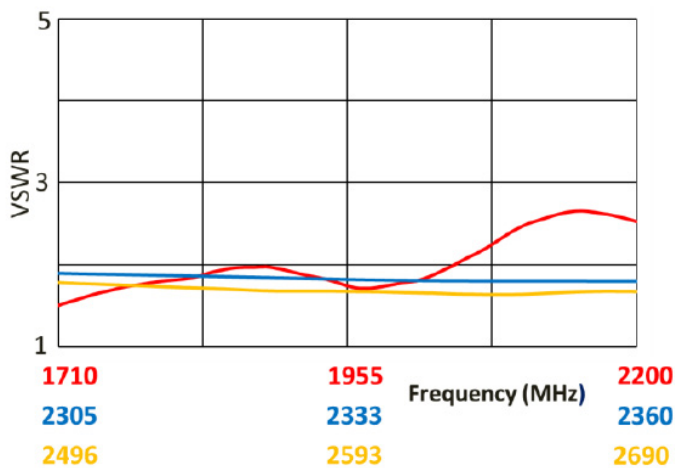


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

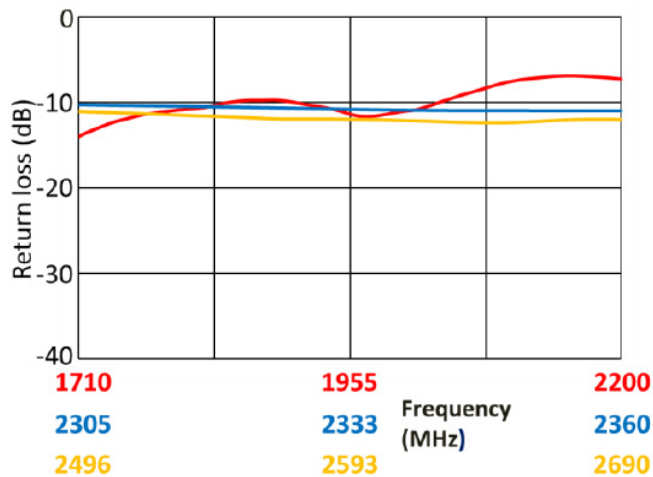
**RF DATA**

(Shown as L000941-02 : Others can vary with different cable lengths.)

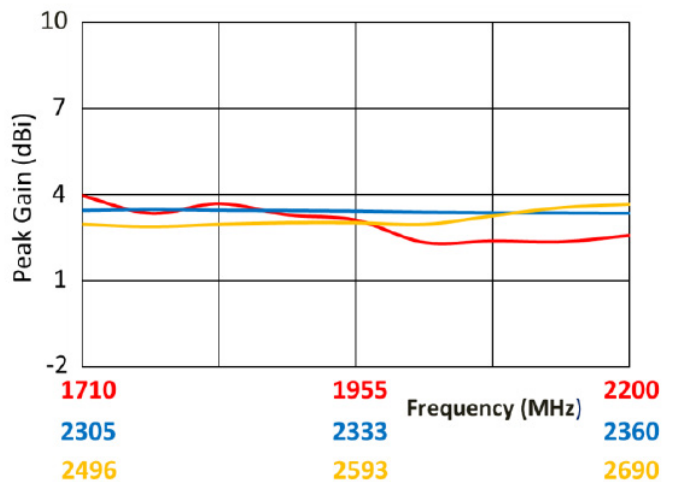
**VSWR**



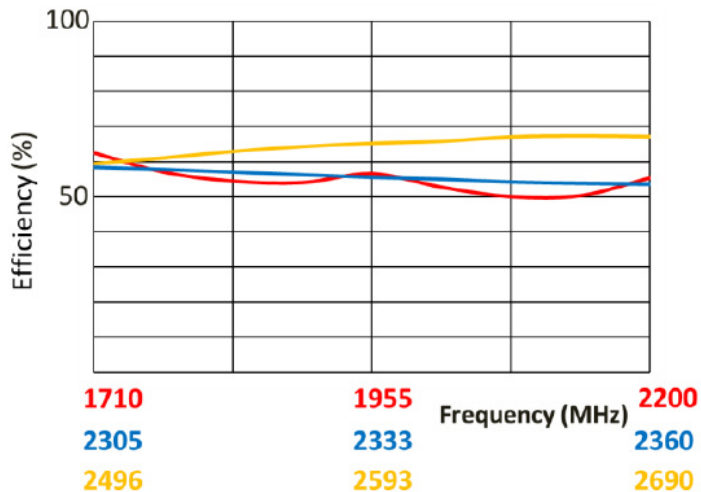
**Return Loss**



**Peak Gain**



**Efficiency**

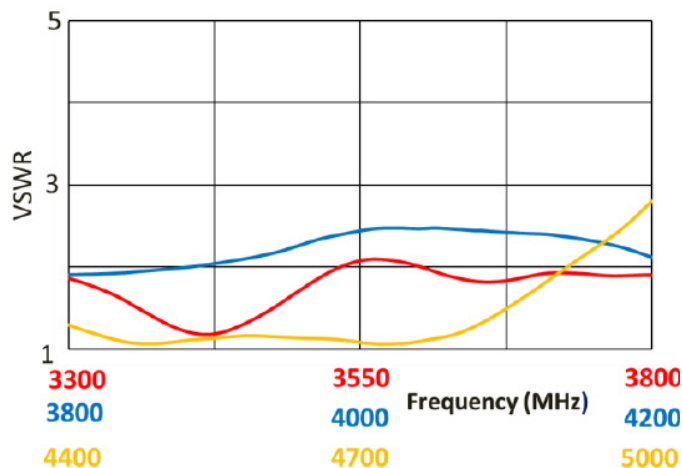


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

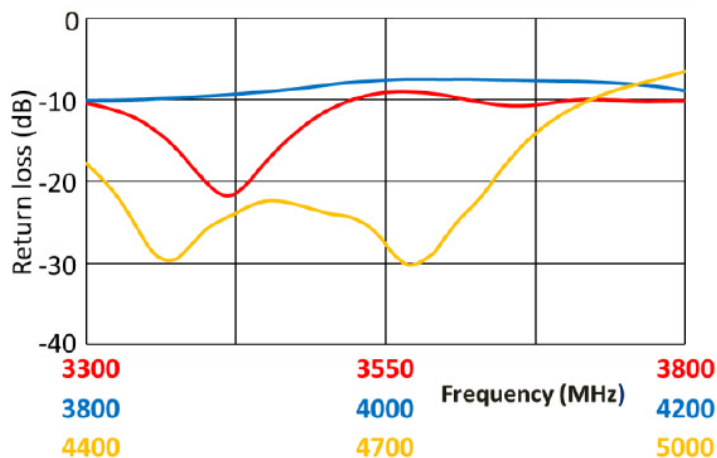
**RF DATA**

(Shown as L000941-02 : Others can vary with different cable lengths.)

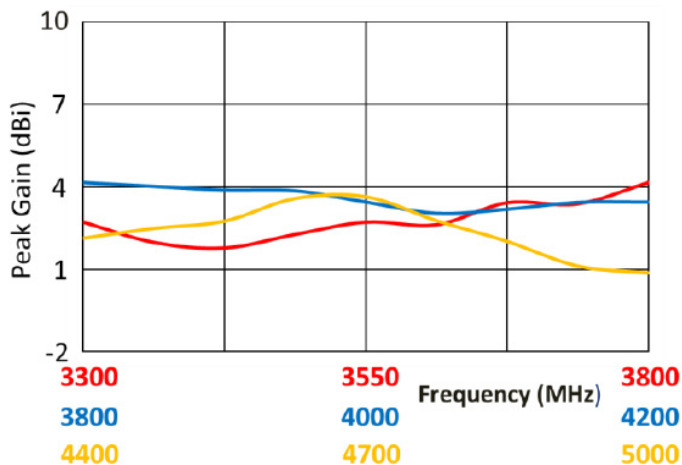
**VSWR**



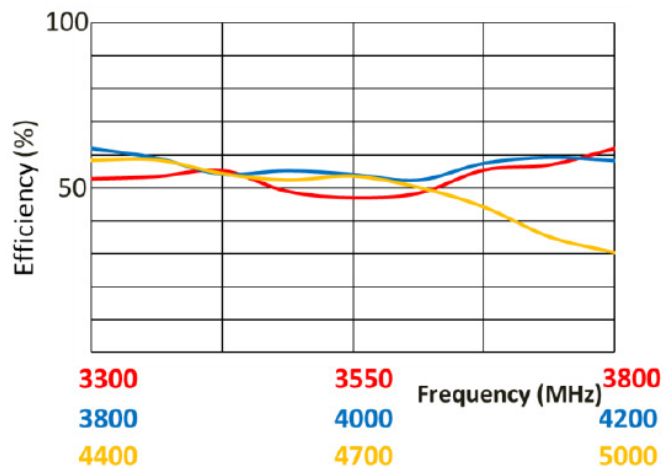
**Return Loss**



**Peak Gain**



**Efficiency**

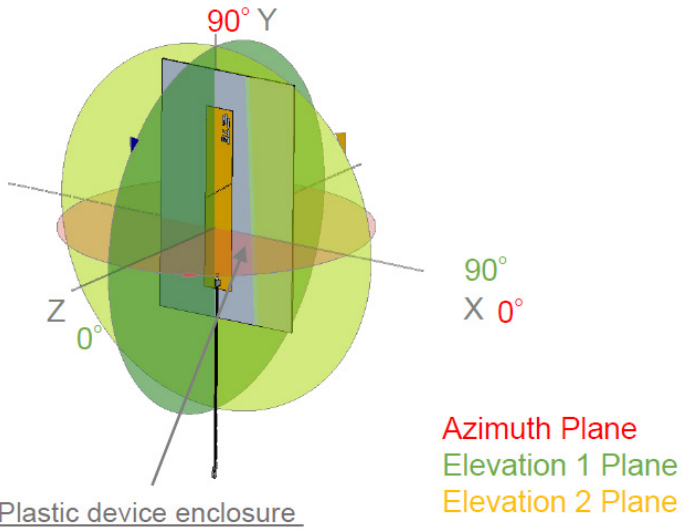


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

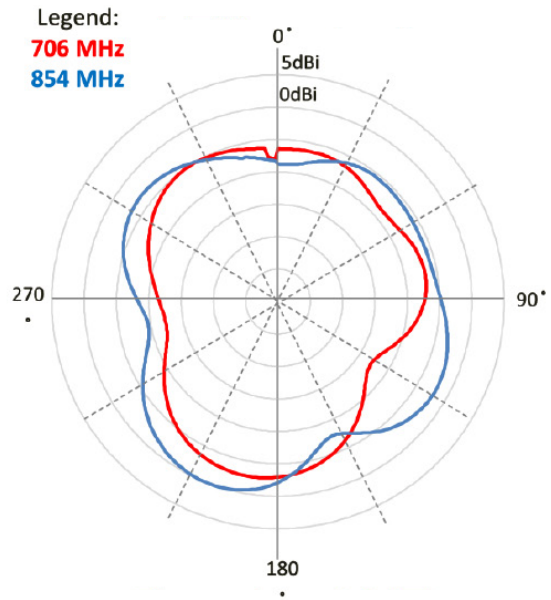
**RADIATION PATTERN**

(Shown as L000941-02 : Others can vary with different cable lengths.)

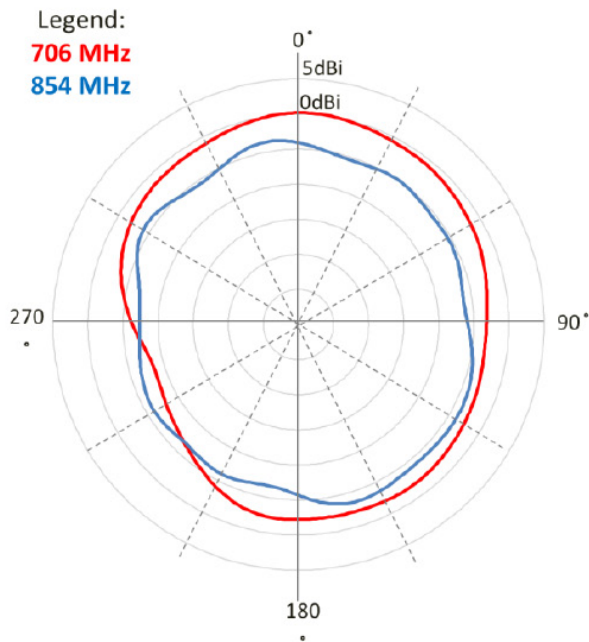
**Test setup**



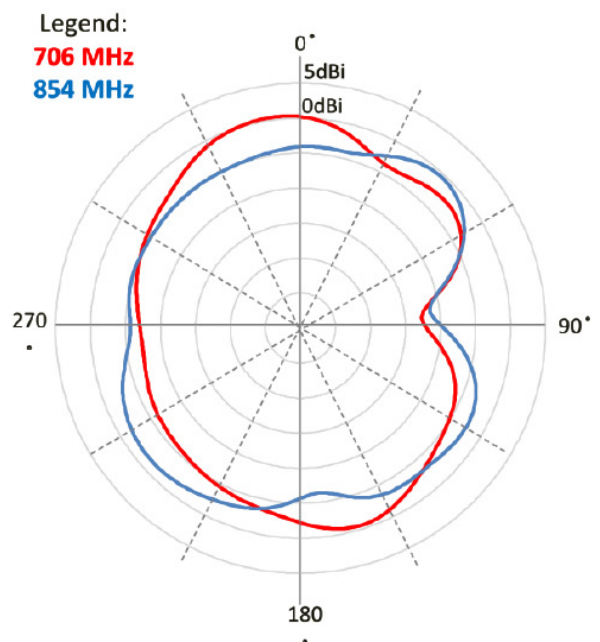
**Azimuth(XY)**



**Elevation 1(XZ)**



**Elevation 2(YZ)**

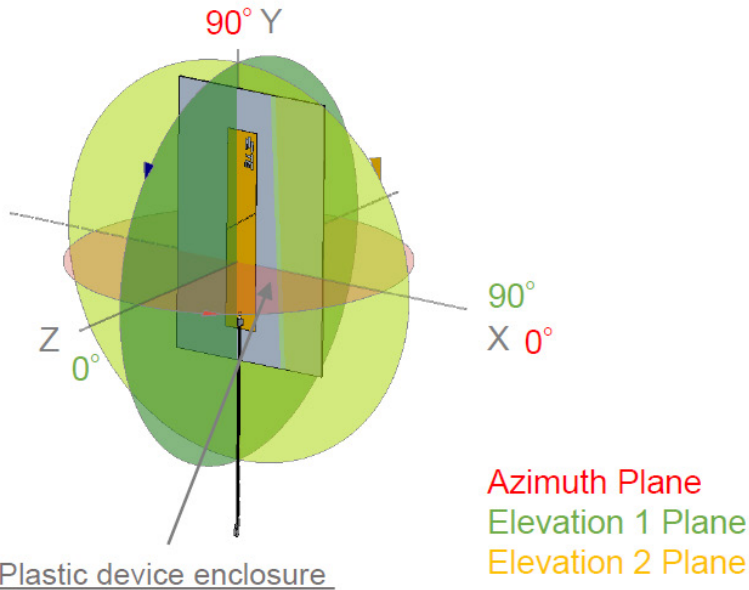


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

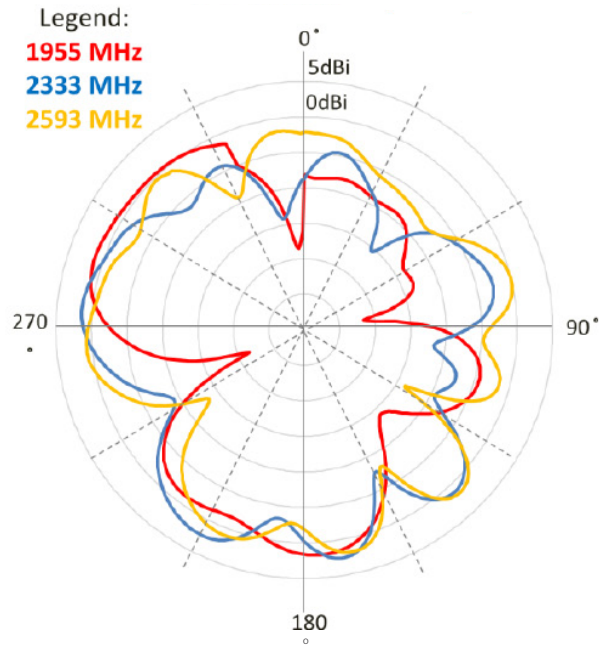
**RADIATION PATTERN**

(Shown as L000941-02 : Others can vary with different cable lengths.)

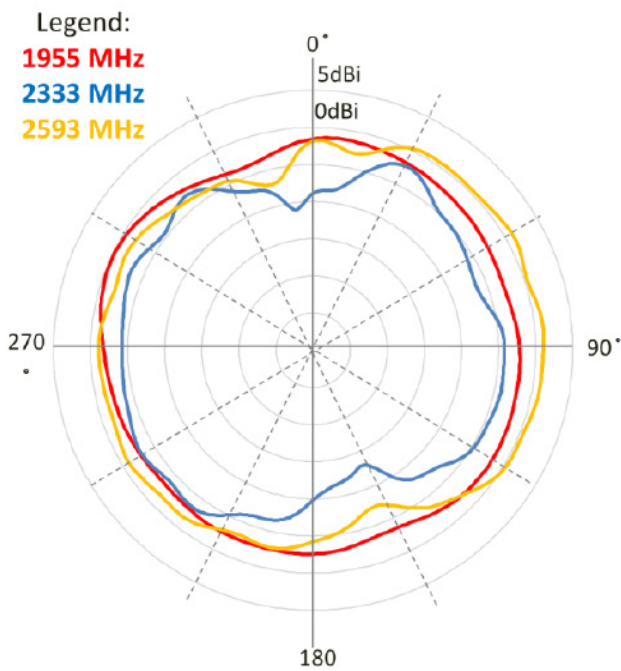
**Test setup**



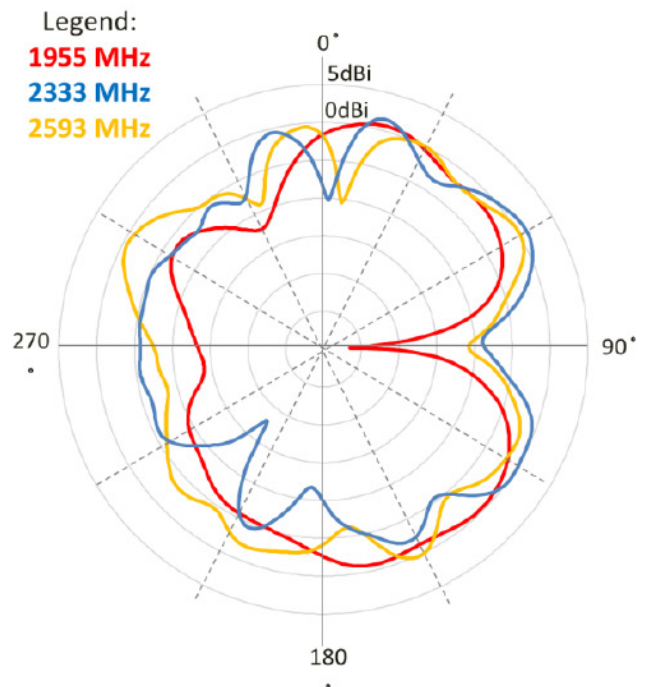
**Azimuth(XY)**



**Elevation 1(XZ)**



**Elevation 2(YZ)**

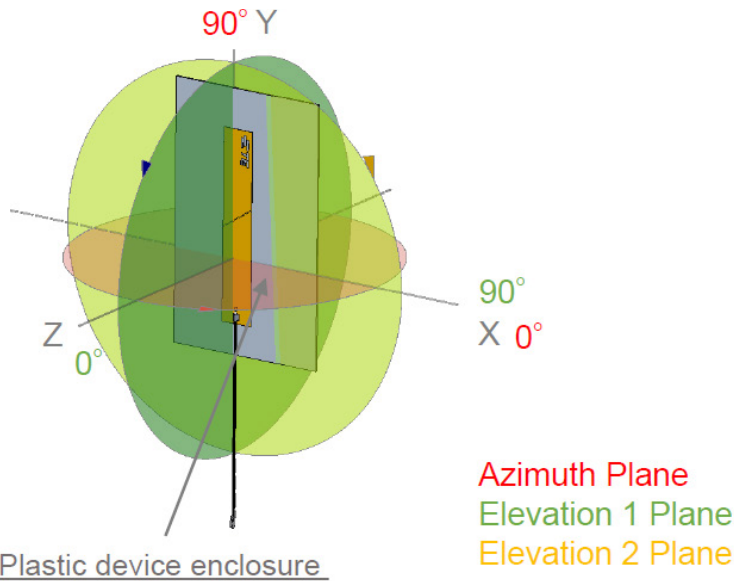


Data measured in free space and on 150 x 150 x 2.0 mm PC plastic

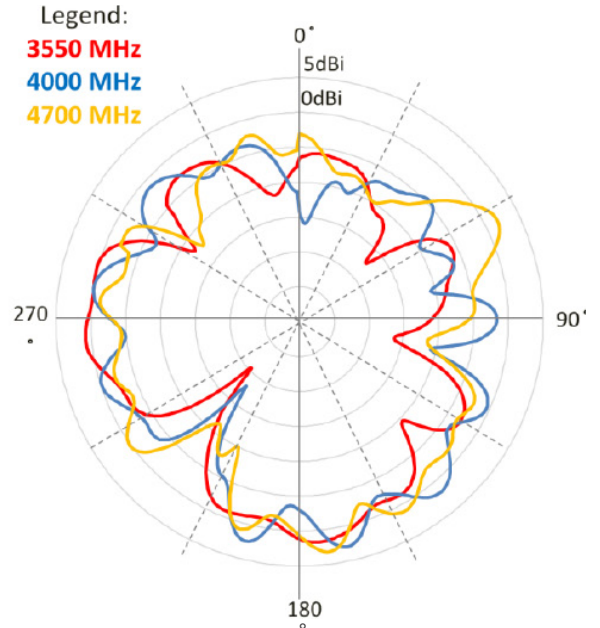
## RADIATION PATTERN

(Shown as L000941-02 : Others can vary with different cable lengths.)

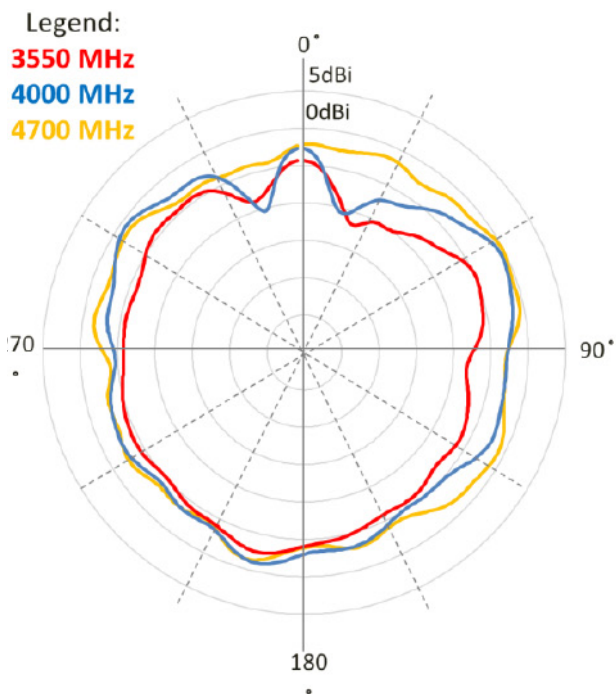
### Test setup



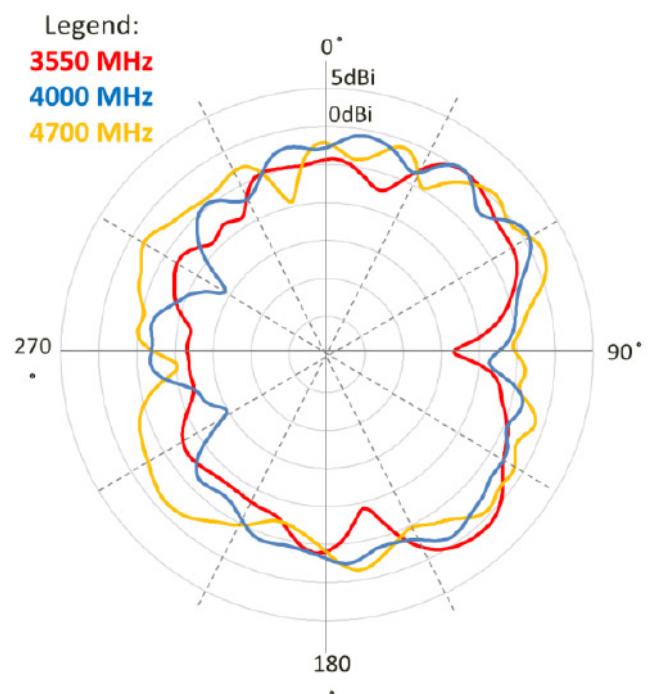
### Azimuth(XY)



### Elevation 1(XZ)

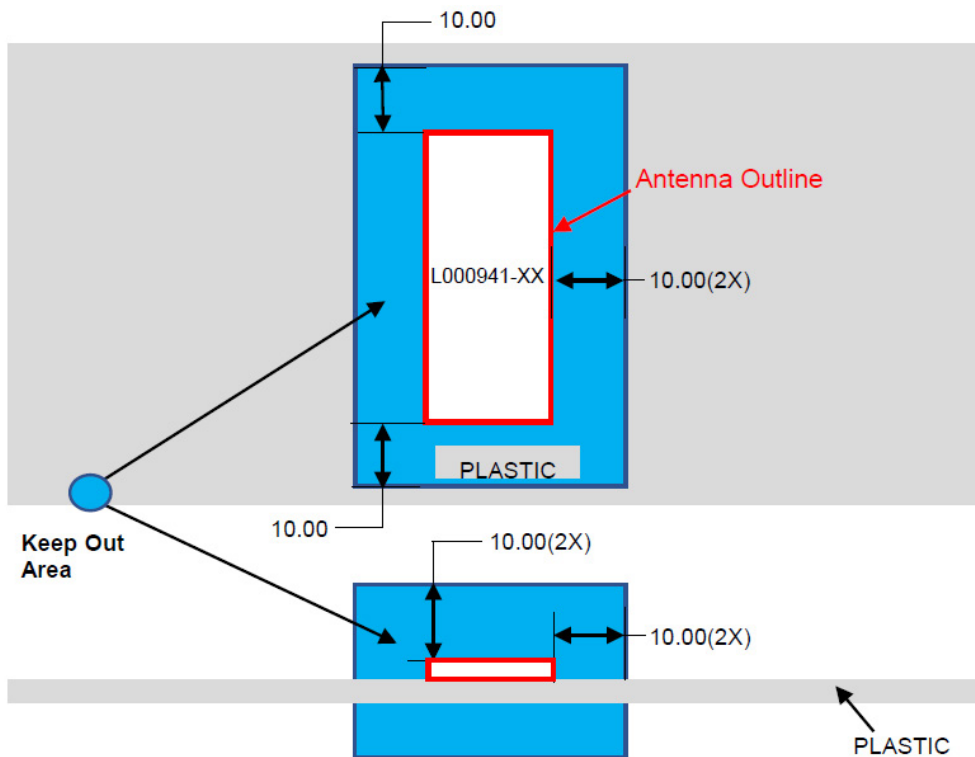


### Elevation 2(YZ)



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

**KEEP OUT AREA**



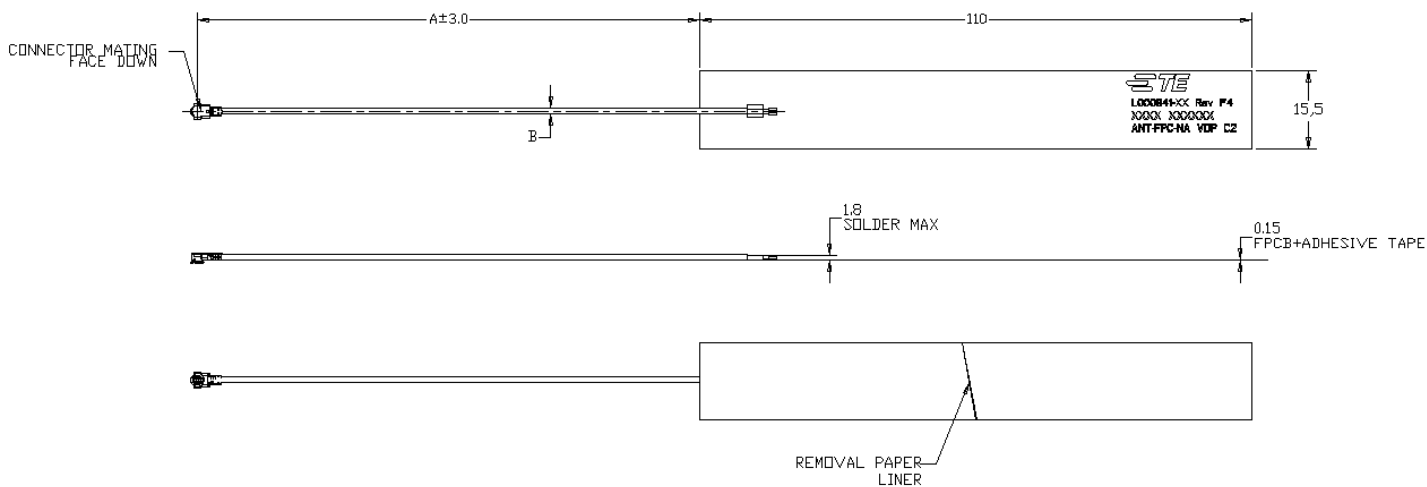
**NOTES**

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 Page 12 for dimensions A and B)

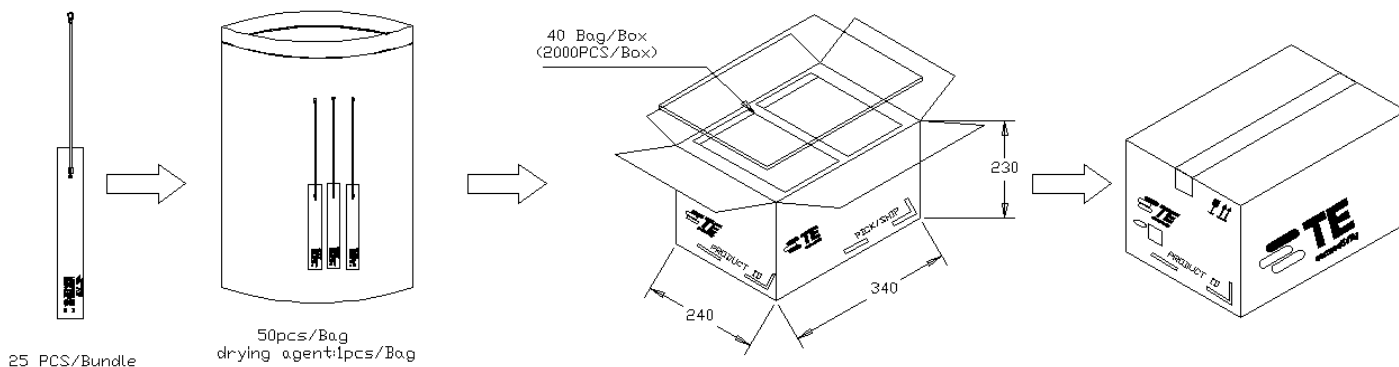


Dimension: mm  
Diagram is not to scale

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Standard Antenna Solutions

## PACKAGING



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China: +86 (0) 400-820-6015

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02-25