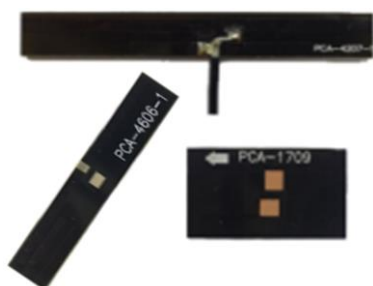


BTPA Series



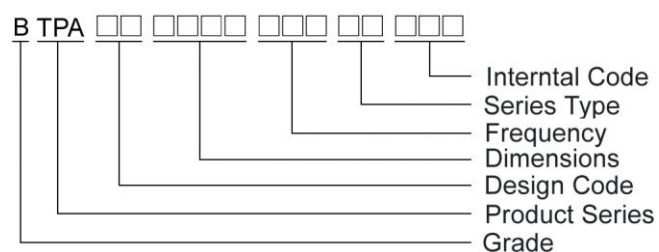
Features

- Small size low-profile, low cost and lightweight type
- Wide bandwidth and Omni-directional
- Supported with Dip-type, SMD, and Co-axial cable connecting
- Customized

Applications

- Bluetooth, Wireless Router, Set Top Box and Home digital
- ISM band, Lora, Sigfox, LTE, NB-IOT, GPS, WiFi and Car use.

Product Identification



Shapes and Dimensions

FIG 1

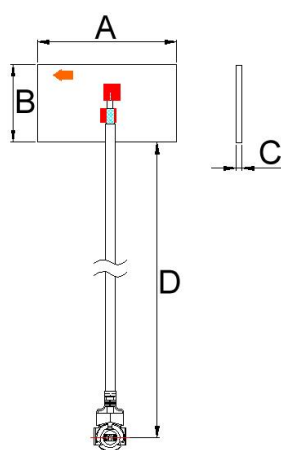


FIG 2

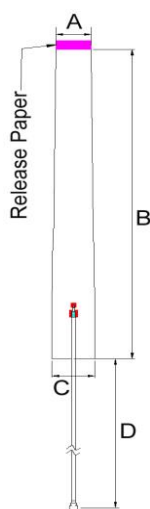
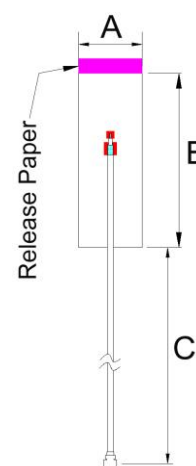


FIG 3



Dimensions in mm

TYPE	FIG	A	B	C	D
BTPA0017095G0C1B19	1	17.5	9.8	0.8	110±5
BTPA0010136G0C1A01	2	10.6	130	13	100±5
BTPA0012353G8C1A01	3	12.5	35	100±5	-
BTPA0012353G9C1A01	3	12.5	35	100±5	-

Shapes and Dimensions

FIG 4

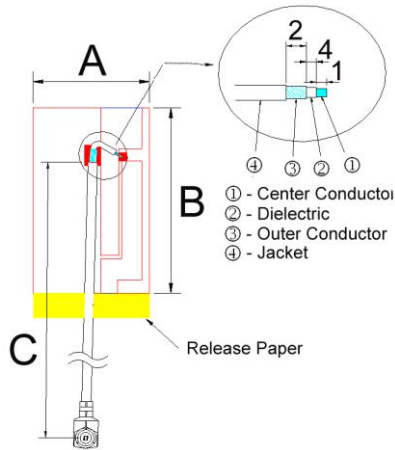


FIG 5

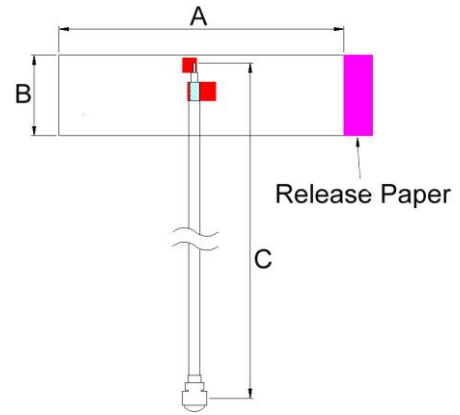


FIG 6

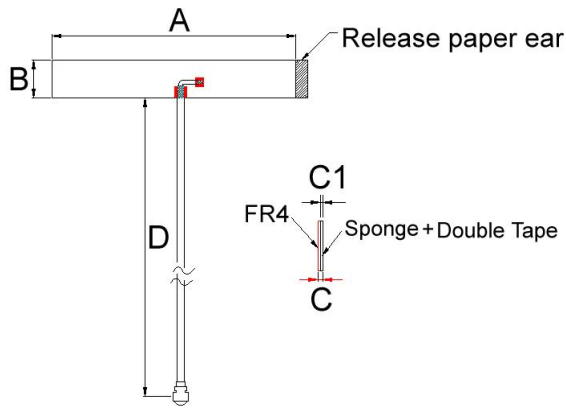
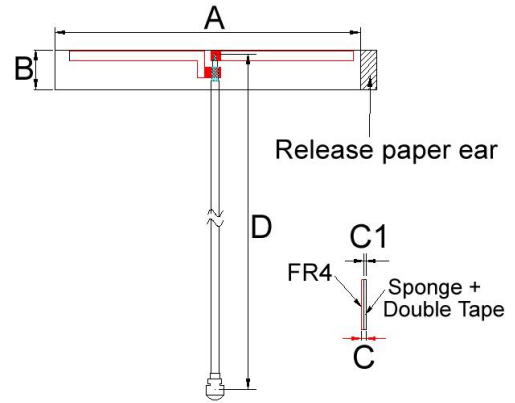


FIG 7



Dimensions in mm

TYPE	FIG	A	B	C	D
BTPA00221425GC1A09	4	14.3	22.7	143±3	-
BTPA0030082G4C1A04	5	30	8.5	220±2	-
BTPA00420725GC1A04	6	42	6.5	1.8±0.5	1.0±0.3
BTPA0046062G4C1B03	7	46.5	6	2.1±0.5	1.3±0.3

PCB Antenna BTPA Series

Electrical Characteristics

Part Number	Frequency Range (GHz)	Impedance (Ω)	Return Loss dB(Max)	VSWR (Max)	Radiation	Peak Gain (dB)	Polarization	Admitted Power (W)
BTPA0017095G0C1B19	5.15~5.85	50	-10	-	Omni-directional	2.67	Linear Vertical	1
BTPA0010136G0C1A01	0.617~0.96	50	-	4	Omni-directional	0.59	Linear Vertical	1
	1.71~2.17					3.74		
	2.3~2.7					3.51		
	3.3~3.8					3.7		
	4.4~5					4		
	5.15~5.85	4.87						
BTPA0012353G8C1A01	3.3~3.8	50	-10	-	Omni-directional	2.69	Linear Vertical	1
BTPA0012353G9C1A01	3.3~3.9	50	-7	-	Omni-directional	4.89	Linear Vertical	1
BTPA00221425GC1A09	2.4	50	-10	2	Omni-directional	2.78	Linear Vertical	1
	5					2.53		
BTPA0030082G4C1A04	2.4~2.5	50	-10	-	Omni-directional	3.37	Linear Vertical	1
BTPA00420725GC1A04	2.4	50	-10	-	Omni-directional	2.82	Linear Vertical	1
	5					3.12		
BTPA0046062G4C1B03	2.4~2.5	50	-10	2	Omni-directional	3	Linear Vertical	1
BTPA0052116G0C1A01	2.4~2.5	50	-10		Omni-directional	5.65	Linear Vertical	1
	5.15~5.85					5.94		
	5.925~6.325					6.42		
	6.35~6.75					6.87		
	6.775~7.125	5.42						

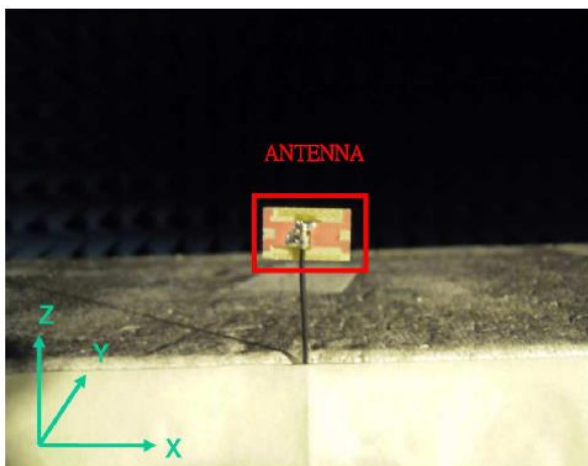
Physical Properties

Part Number	Antenna Material(Body)	Cable	Color	Connector	Double Tape	Sponge
BTPA0017095G0C1B19	FR4 Black paint OSP board	RF-113	Black	IPEX Compatible	-	-
BTPA0010136G0C1A01	FR4 Black paint OSP board	RF-113	Black	IPEX Compatible	3M 9448	-
BTPA0012353G8C1A01	FR4 Black paint OSP board	RF-113	Black	IPEX Compatible	3M 9448	-
BTPA0012353G9C1A01	FR4 Black paint OSP board	RF-113	Black	IPEX Compatible	3M 9448	-
BTPA00221425GC1A09	FR4 Black paint sneeze	RF-113	Gray	IPEX	G9000	-
BTPA0030082G4C1A04	FR4 Black paint OSP board	RF-113	Gray	IPEX Compatible	G9000	-
BTPA00420725GC1A04	FR4 Black paint OSP board	RF-113	Black	IPEX Compatible	3M 9448	EVA
BTPA0046062G4C1B03	FR4 Black paint sneeze	RF-113	Gray	IPEX	3M 9448	EVA
BTPA0052116G0C1A01	FR4 Black paint OSP board	RF-113	Black	IPEX Compatible	3M 9448	-

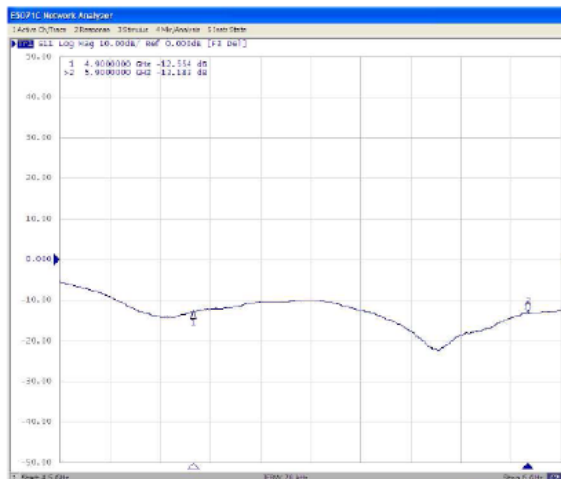
- Operating temperature range - 20°C ~ +65°C
- Storage temperature range - 30°C ~ +75°C

BTPA0017095G0C1B19

Experimental Setup

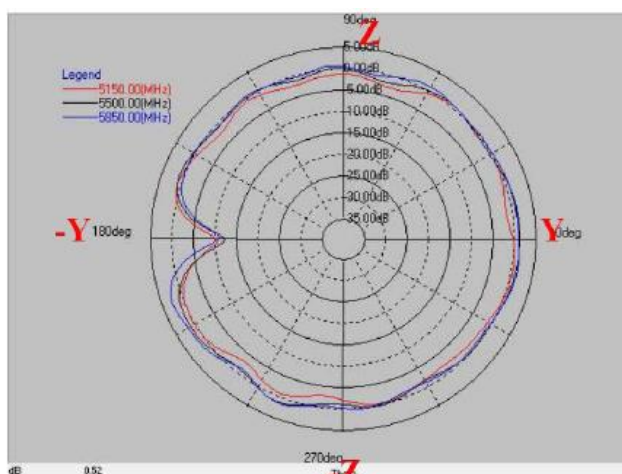
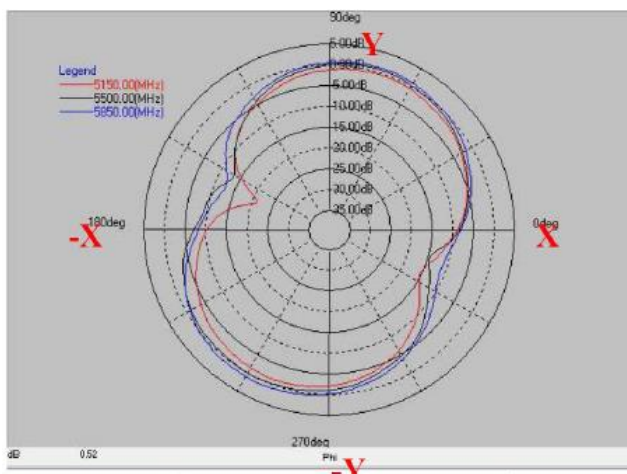


Return Loss S11



Frequency(MHz) : 5150~5850. Pattern Field : X-Y plane

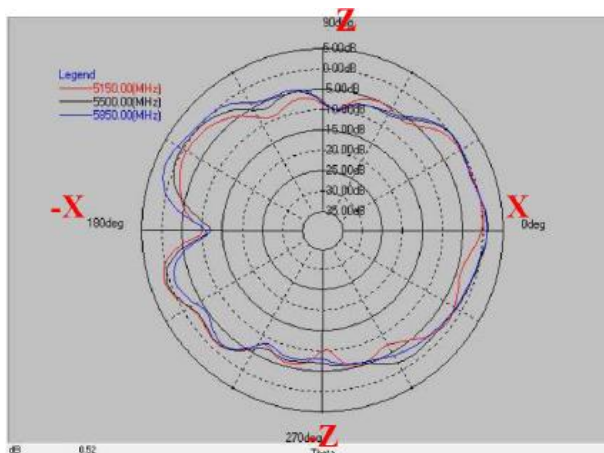
Frequency(MHz) : 5150~5850. Pattern Field : Y-Z plane



Layer	Max value	Min value	Average
5150(MHz)	-0.57 dB	-21.11 dB	-4.18 dB
5500(MHz)	0.57 Db	-14.73 dB	-2.89 dB
5850(MHz)	1.05 dB	-12.68 dB	-2.18 dB

Layer	Max value	Min value	Average
5150(MHz)	0.87 dB	-10.45 dB	-1.27 dB
5500(MHz)	1.33 dB	-12.56 dB	-0.30 dB
5850(MHz)	2.67 dB	-11.11 dB	0.01 dB

Frequency(MHz) : 5150~5850. Pattern Field : X-Z plane

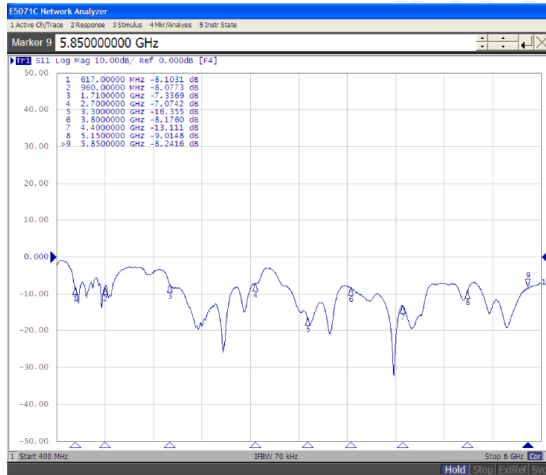


Layer	Max value	Min value	Average
5150(MHz)	1.30 dB	-10.45 dB	-3.31 dB
5500(MHz)	1.25 dB	-12.56 dB	-2.53 dB
5850(MHz)	2.25 dB	-11.19 dB	-2.43 dB

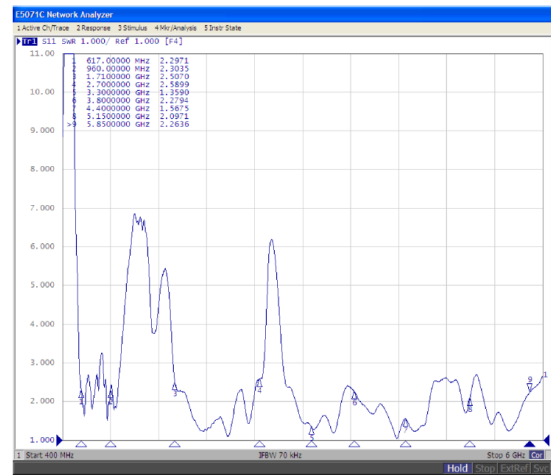
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BTPA0010136G0C1A1

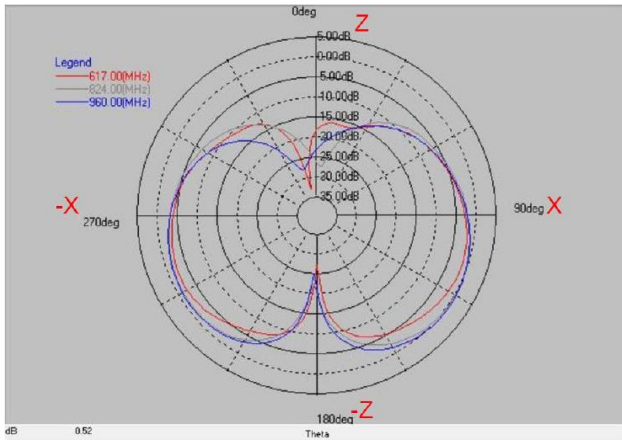
Return Loss



VSWR

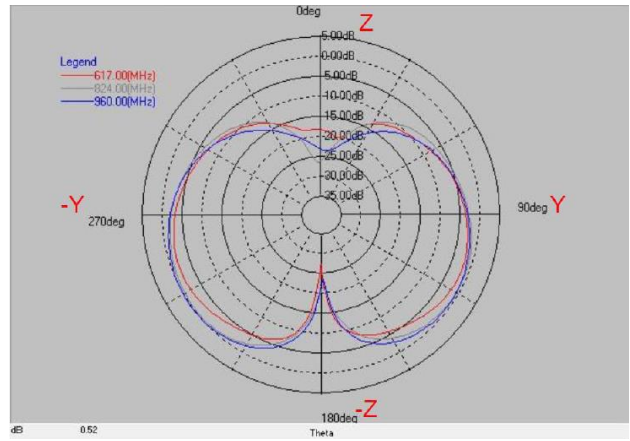


Frequency(MHz) : 617~960. Pattern Field : Z-X plane



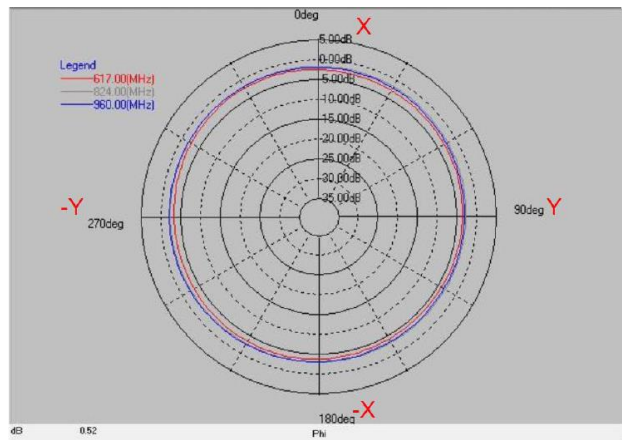
Layer	Max value	Min value	Average
617(MHz)	-1.39 dB	-33.33 dB	-5.85 dB
824(MHz)	0.22 dB	-27.68 dB	-4.37 dB
960(MHz)	0.42 dB	-28.14 dB	-4.28 dB

Frequency(MHz) : 617~960. Pattern Field : Z-Y plane



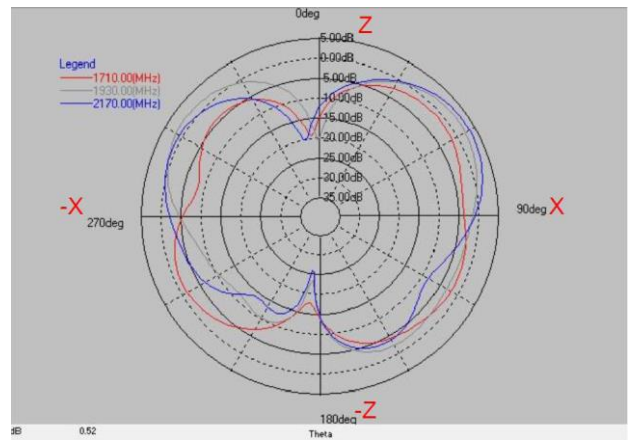
Layer	Max value	Min value	Average
617(MHz)	-1.80 dB	-27.56 dB	-5.79 dB
824(MHz)	-0.32 dB	-27.04 dB	-4.34 dB
960(MHz)	0.09 dB	-23.93 dB	-4.21 dB

Frequency(MHz) : 617~960. Pattern Field : X-Y plane



Layer	Max value	Min value	Average
617(MHz)	-2.37 dB	-4.29 dB	-3.32 dB
824(MHz)	-1.85 dB	-3.26 dB	-2.46 dB
960(MHz)	-1.93 dB	-3.48 dB	-2.58 dB

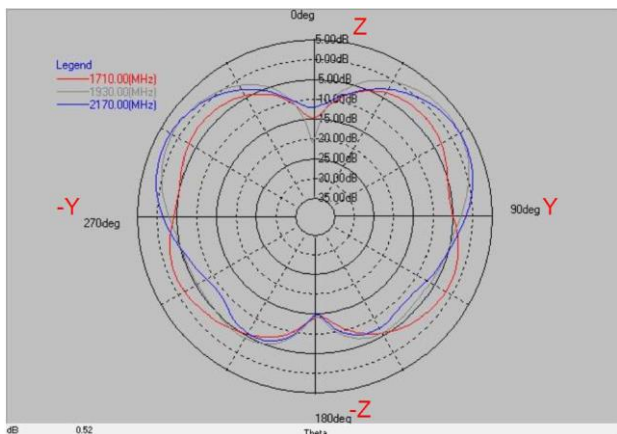
Frequency(MHz) : 1710~2170. Pattern Field : Z-X plane



Layer	Max value	Min value	Average
1710(MHz)	-1.27 dB	-19.63 dB	-4.33 dB
1930(MHz)	2.35 dB	-23.75 dB	-2.26 dB
2170(MHz)	3.54 dB	-26.16 dB	-2.41 dB

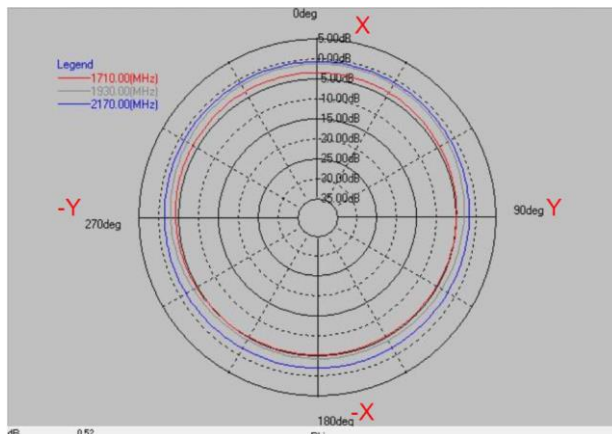
PCB Antenna BTPA Series

Frequency(MHz) : 1710~2170. Pattern Field : Z-Y plane



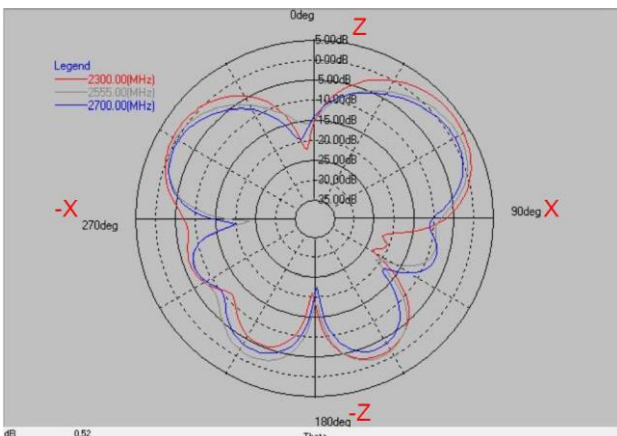
Layer	Max value	Min value	Average
1710(MHz)	-1.65 dB	-15.05 dB	-4.37 dB
1930(MHz)	2.59 dB	-21.40 dB	-2.33 dB
2170(MHz)	3.43 dB	-15.04 dB	-2.50 dB

Frequency(MHz) : 1710~2170. Pattern Field : X-Y plane



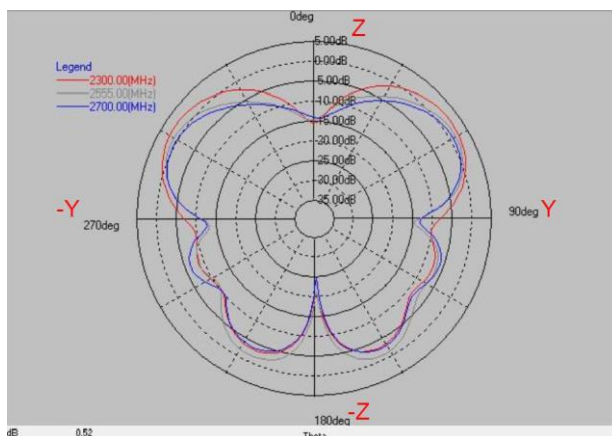
Layer	Max value	Min value	Average
1710(MHz)	-3.57 dB	-5.49 dB	-4.49 dB
1930(MHz)	-1.45 dB	-4.54 dB	-2.85 dB
2170(MHz)	-0.91 dB	-2.21 dB	-1.53 dB

Frequency(MHz) : 2300~2700. Pattern Field : Z-X plane



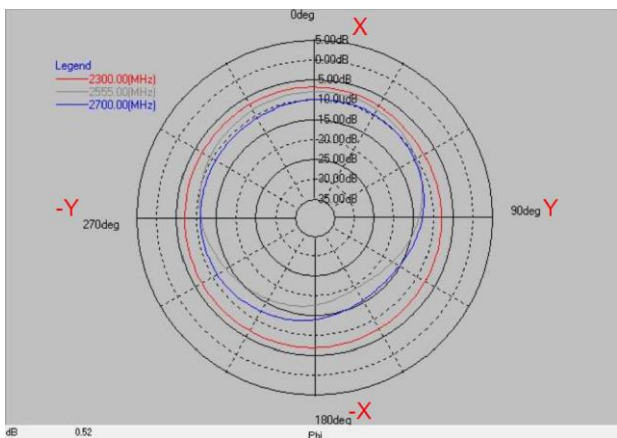
Layer	Max value	Min value	Average
2300(MHz)	3.48 dB	-23.31 dB	-2.83 dB
2555(MHz)	2.02 dB	-23.64 dB	-3.80 dB
2700(MHz)	0.79 dB	-22.71 dB	-4.96 dB

Frequency(MHz) : 2300~2700. Pattern Field : Z-Y plane



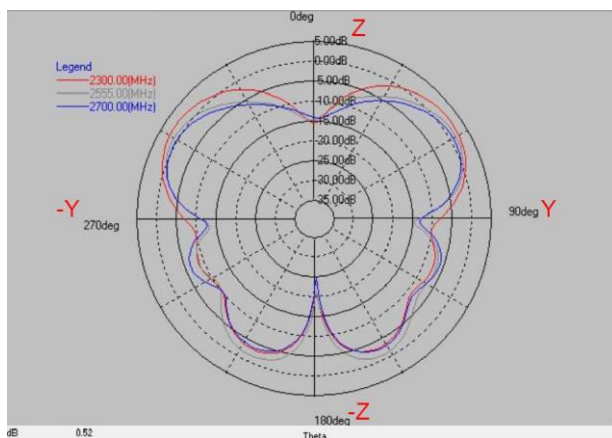
Layer	Max value	Min value	Average
2300(MHz)	2.66 dB	-20.71 dB	-2.81 dB
2555(MHz)	1.64 dB	-21.35 dB	-3.69 dB
2700(MHz)	0.80 dB	-25.15 dB	-4.63 dB

Frequency(MHz) : 2300~2700. Pattern Field : X-Y plane



Layer	Max value	Min value	Average
2300(MHz)	-6.96 dB	-8.08 dB	-7.33 dB
2555(MHz)	-8.25 dB	-19.35 dB	-11.43 dB
2700(MHz)	-10.03 dB	-16.08 dB	-11.84 dB

Frequency(MHz) : 3300~3800. Pattern Field : Z-X plane

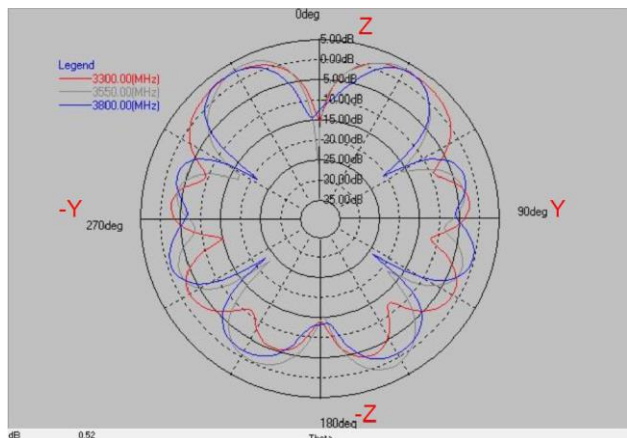


Layer	Max value	Min value	Average
3300(MHz)	3.07 dB	-20.14 dB	-2.57 dB
3550(MHz)	3.26 dB	-24.17 dB	-2.51 dB
3800(MHz)	3.43 dB	-22.01 dB	-2.77 dB

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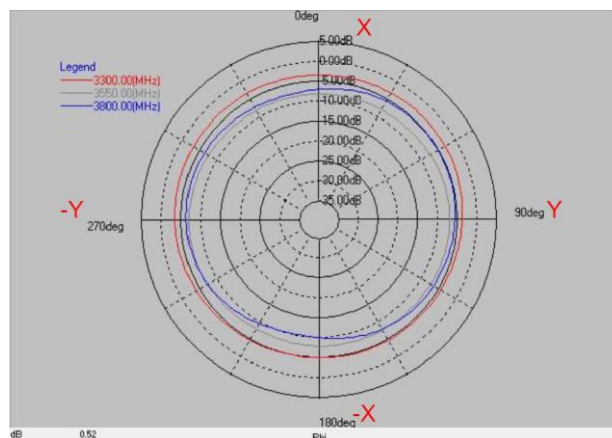
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Frequency(MHz) : 3300~3800. Pattern Field : Z-Y plane



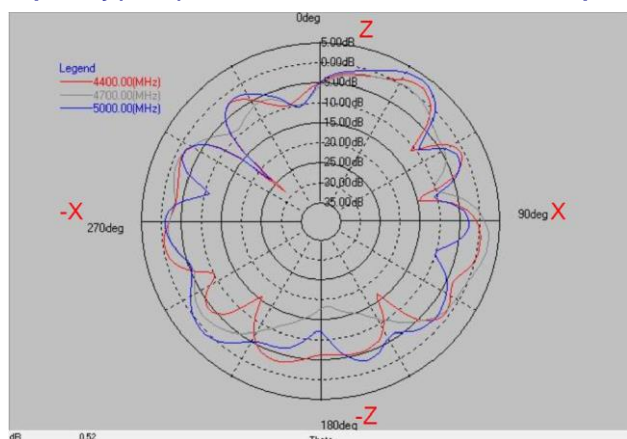
Layer	Max value	Min value	Average
3300(MHz)	2.85 dB	-15.41 dB	-2.31 dB
3550(MHz)	3.17 dB	-26.31 dB	-2.40 dB
3800(MHz)	3.01 dB	-24.18 dB	-2.64 dB

Frequency(MHz) : 3300~3800. Pattern Field : X-Y plane



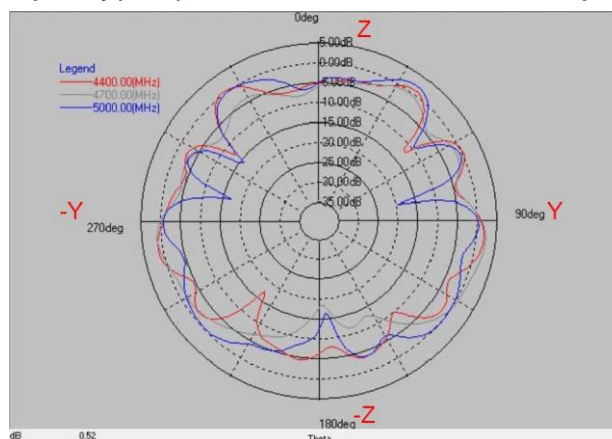
Layer	Max value	Min value	Average
3300(MHz)	-3.08 dB	-5.14 dB	-3.90 dB
3550(MHz)	-6.85 dB	-8.46 dB	-7.70 dB
3800(MHz)	-5.16 dB	-10.45 dB	-6.92 dB

Frequency(MHz) : 4400~5000. Pattern Field : Z-X plane



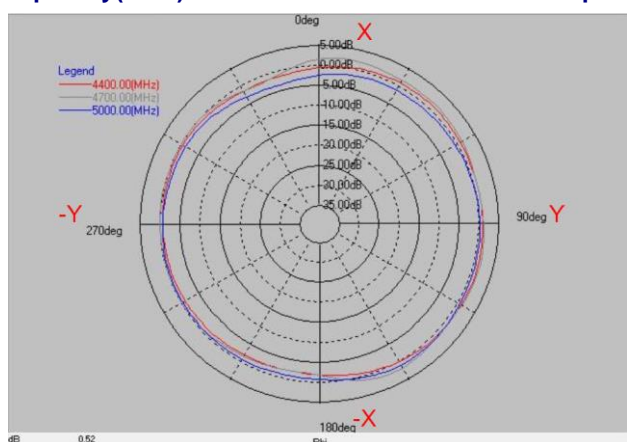
Layer	Max value	Min value	Average
4400(MHz)	2.11 dB	-28.32 dB	-3.84 dB
4700(MHz)	2.51 dB	-18.54 dB	-3.40 dB
5000(MHz)	3.59 dB	-23.84 dB	-3.01 dB

Frequency(MHz) : 4400~5000. Pattern Field : Z-Y plane



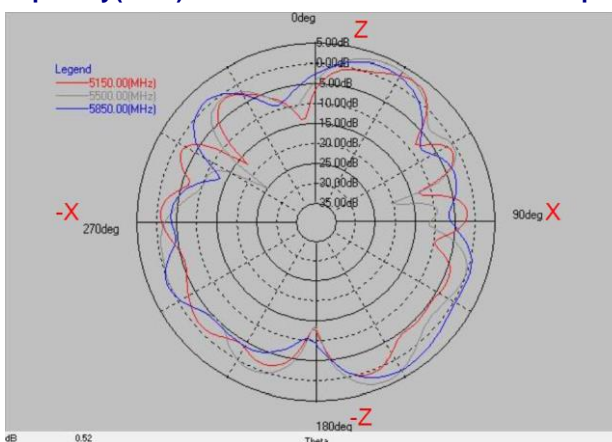
Layer	Max value	Min value	Average
4400(MHz)	1.97 dB	-17.60 dB	-2.70 dB
4700(MHz)	2.50 dB	-18.71 dB	-2.84 dB
5000(MHz)	2.13 dB	-19.53 dB	-2.61 dB

Frequency(MHz) : 4400~5000. Pattern Field : X-Y plane



Layer	Max value	Min value	Average
4400(MHz)	1.22 dB	-2.37 dB	-0.27 dB
4700(MHz)	1.93 dB	-2.41 dB	0.43 dB
5000(MHz)	1.00 dB	-3.76 dB	-0.68 dB

Frequency(MHz) : 5150~5850. Pattern Field : Z-X plane

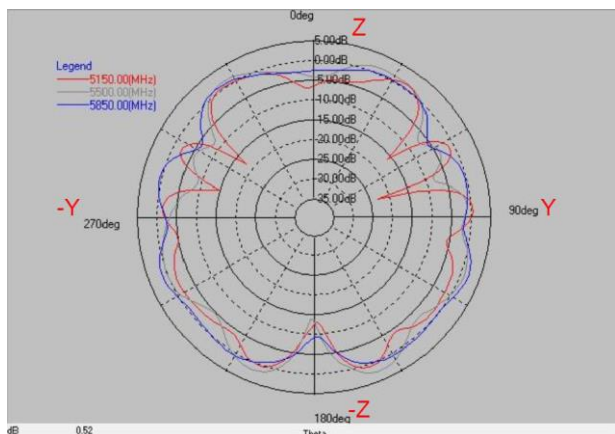


Layer	Max value	Min value	Average
5150(MHz)	3.06 dB	-17.47 dB	-2.82 dB
5500(MHz)	3.71 dB	-25.19 dB	-1.36 dB
5850(MHz)	2.94 dB	-13.40 dB	-1.46 dB

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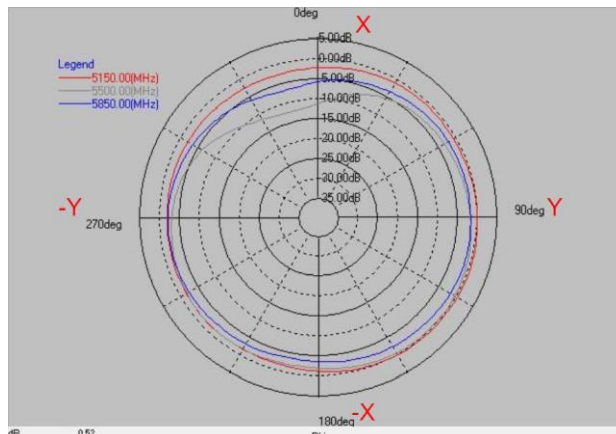
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Frequency(MHz) : 5150~5850. Pattern Field : Z-Y plane



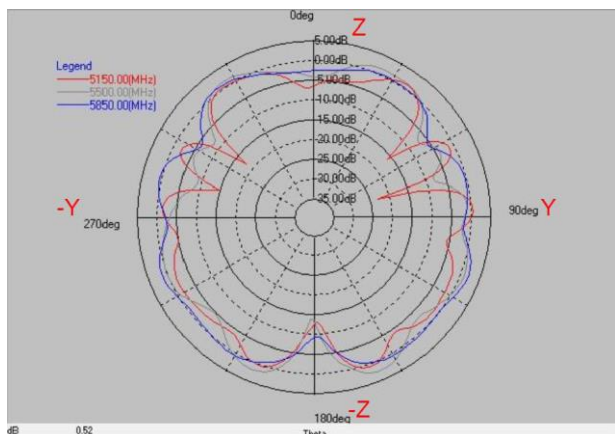
Layer	Max value	Min value	Average
5150(MHz)	1.20 dB	-23.10 dB	-2.62 dB
5500(MHz)	2.46 dB	-13.93 dB	-1.33 dB
5850MHz)	2.03 dB	-9.55 dB	-0.79 dB

Frequency(MHz) : 5150~5850. Pattern Field : X-Y plane



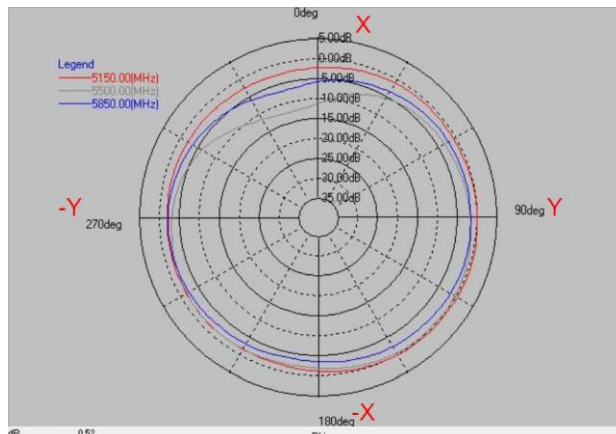
Layer	Max value	Min value	Average
5150(MHz)	0.43 dB	-2.78 dB	-1.15 dB
5500(MHz)	-0.23 dB	-12.82 dB	-3.00 dB
5850MHz)	-1.38 dB	-7.14 dB	-2.99 dB

Frequency(MHz) : 5150~5850. Pattern Field : Z-Y plane



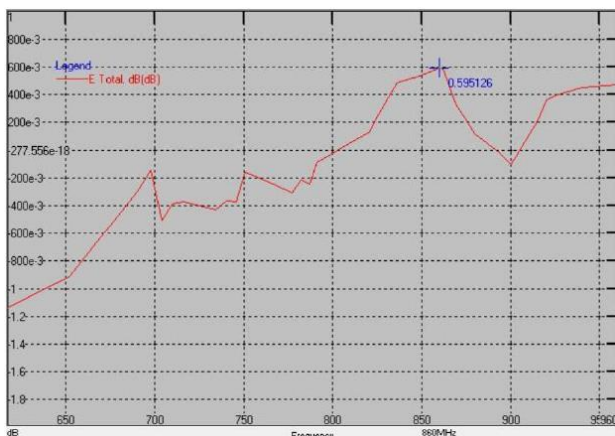
Layer	Max value	Min value	Average
5150(MHz)	1.20 dB	-23.10 dB	-2.62 dB
5500(MHz)	2.46 dB	-13.93 dB	-1.33 dB
5850MHz)	2.03 dB	-9.55 dB	-0.79 dB

Frequency(MHz) : 5150~5850. Pattern Field : X-Y plane

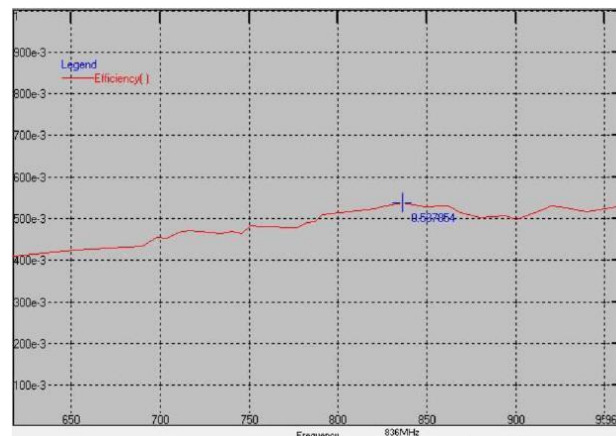


Layer	Max value	Min value	Average
5150(MHz)	0.43 dB	-2.78 dB	-1.15 dB
5500(MHz)	-0.23 dB	-12.82 dB	-3.00 dB
5850MHz)	-1.38 dB	-7.14 dB	-2.99 dB

3D Peak Gain



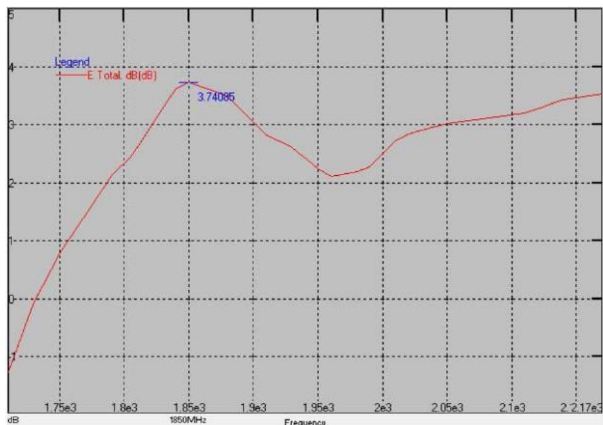
3D Efficiency



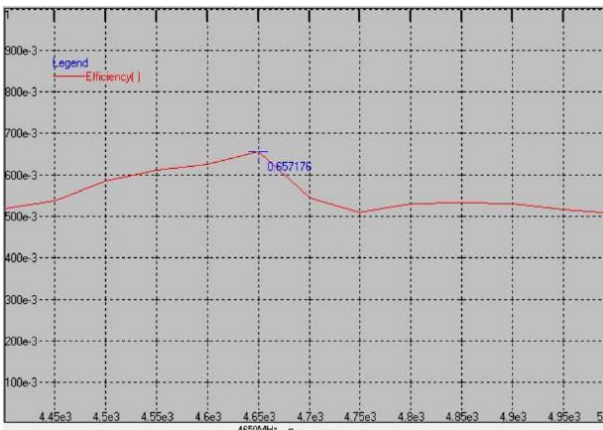
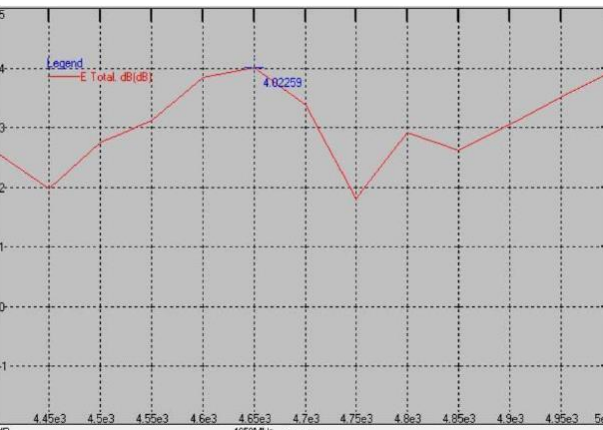
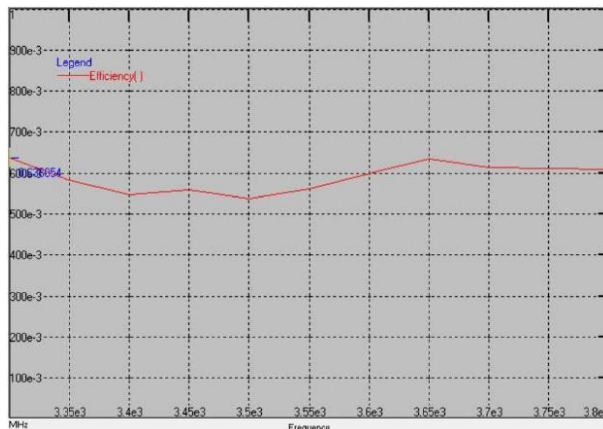
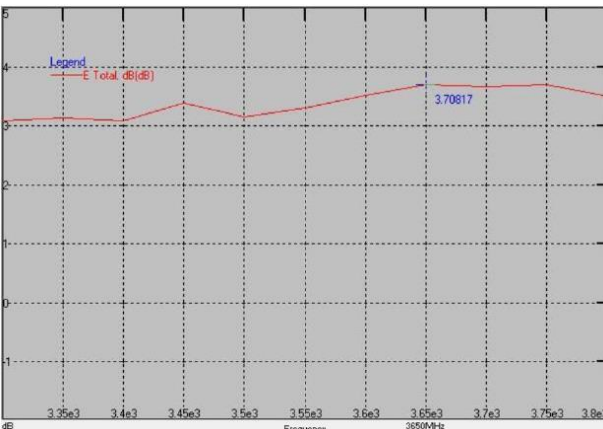
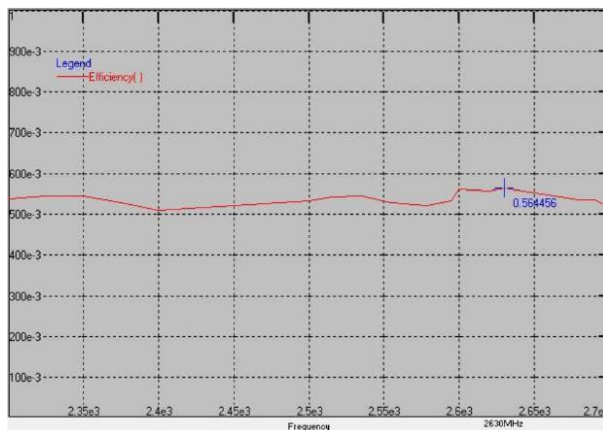
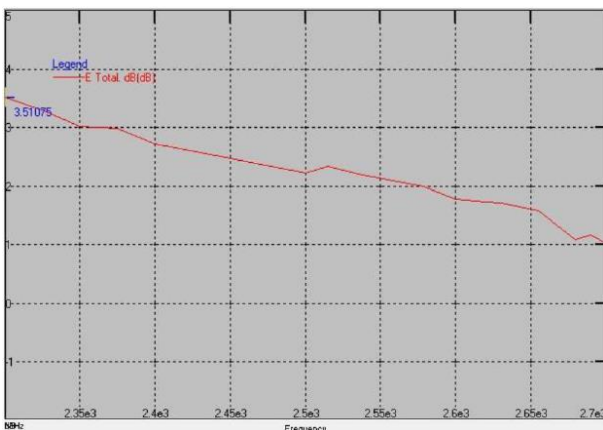
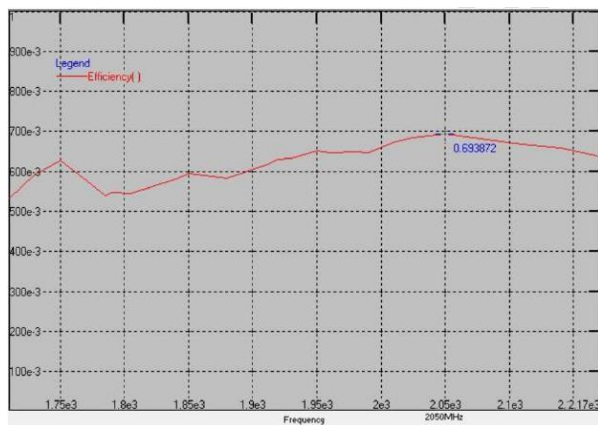
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3D Peak Gain



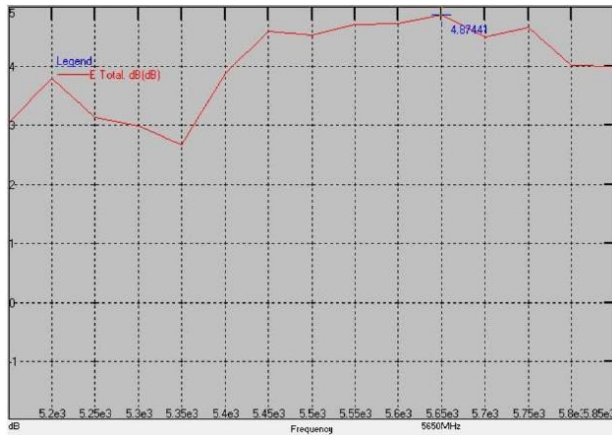
3D Efficiency



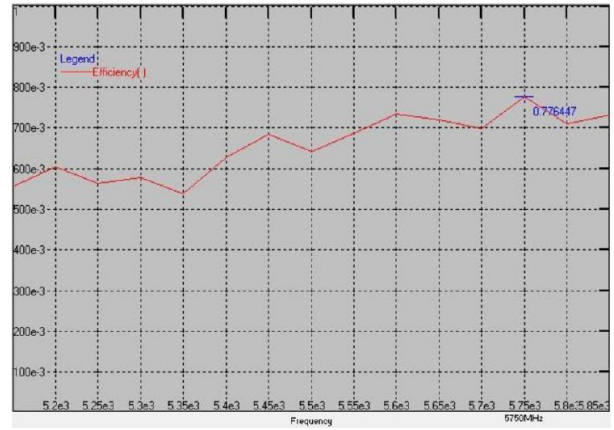
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PCB Antenna BTPA Series

3D Peak Gain



3D Efficiency

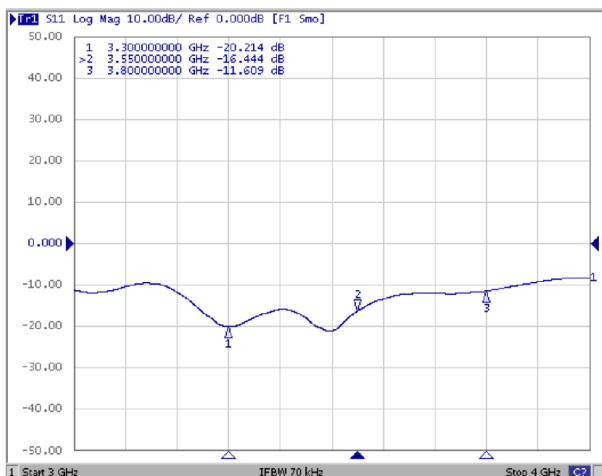


Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)	Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
617	-1.14	41	2620	1.73	56
690	-0.30	43	2630	1.71	56
710	-0.39	45	2655	1.59	55
716	-0.38	47	2680	1.08	54
740	-0.36	47	2690	1.17	53
756	-0.19	47	2700	1.03	52
791	-0.09	48	3300	3.09	64
824	0.22	51	3350	3.14	58
836	0.48	53	3400	3.09	55
869	0.34	54	3450	3.39	56
880	0.12	51	3500	3.15	54
894	-0.02	50	3550	3.30	56
915	0.21	51	3600	3.52	60
920	0.36	50	3650	3.71	63
925	0.40	52	3700	3.67	61
940	0.45	53	3750	3.70	61
960	0.47	53	3800	3.50	61
1710	-1.27	53	4400	2.56	52
1750	0.79	63	4450	1.99	54
1785	1.95	54	4500	2.75	59
1805	2.44	55	4550	3.12	61
1840	3.62	58	4600	3.86	63
1880	3.50	58	4650	4.02	66
1910	2.82	62	4700	3.39	54
1930	2.60	63	4750	1.81	51
1950	2.25	65	4800	2.92	53
1980	2.20	65	4850	2.62	53
1990	2.28	65	4900	3.06	53
2010	2.73	67	4950	3.51	52
2025	2.87	69	5000	3.96	51
2050	3.03	69	5150	3.06	56
2110	3.21	67	5200	3.81	60
2140	3.43	66	5250	3.14	56
2170	3.54	64	5300	3.00	58
2300	3.51	54	5350	2.67	54
2325	3.30	55	5400	3.88	63
2350	3.03	54	5450	4.60	69
2375	2.99	53	5500	4.52	64
2400	2.72	51	5550	4.71	69
2500	2.23	53	5600	4.73	73
2515	2.34	54	5650	4.87	72
2535	2.21	54	5700	4.49	70
2555	2.12	53	5750	4.66	78
2579	1.99	52	5800	4.01	71
2595	1.83	53	5850	3.99	73

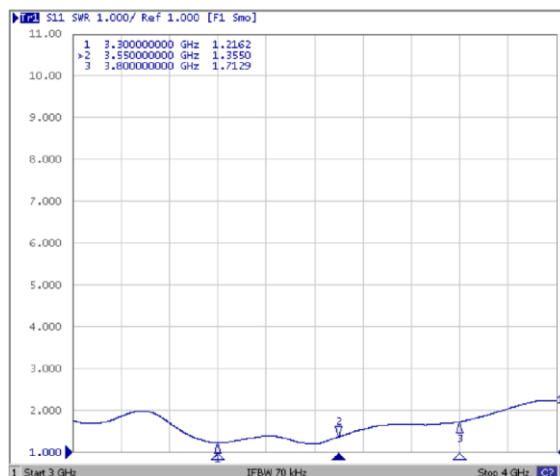
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BTPA0012353G8C1A01

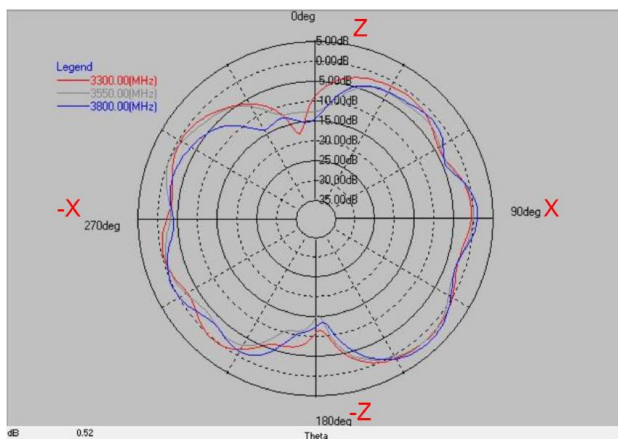
Return Loss S11



VSWR

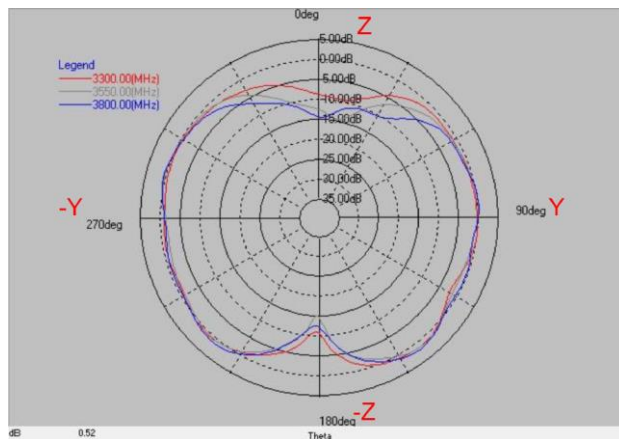


Frequency(MHz) : 3300~3800. Pattern Field : Z-X plane



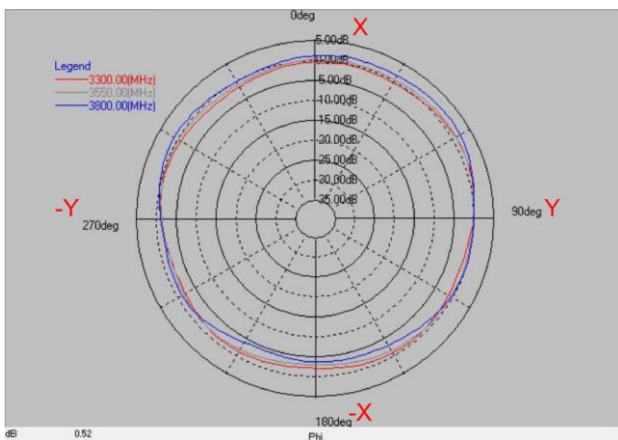
Layer	Max value	Min value	Average
3300(MHz)	1.64 dB	-18.30 dB	-2.05 dB
3550(MHz)	1.57 dB	-15.56 dB	-2.64 dB
3800(MHz)	2.53 dB	-15.60 dB	-2.45 dB

Frequency(MHz) : 3300~3800. Pattern Field : Z-Y plane



Layer	Max value	Min value	Average
3300(MHz)	1.20 dB	-11.32 dB	-1.61 dB
3550(MHz)	1.32 dB	-15.16 dB	-1.97 dB
3800(MHz)	1.77 dB	-14.75 dB	-1.85 dB

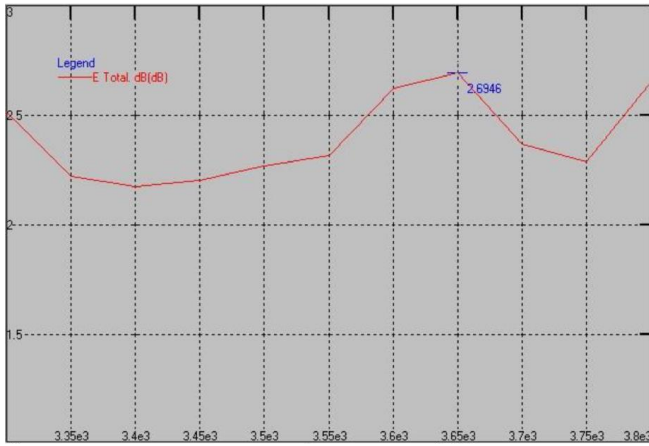
Frequency(MHz) : 3300~3800. Pattern Field : X-Y plane



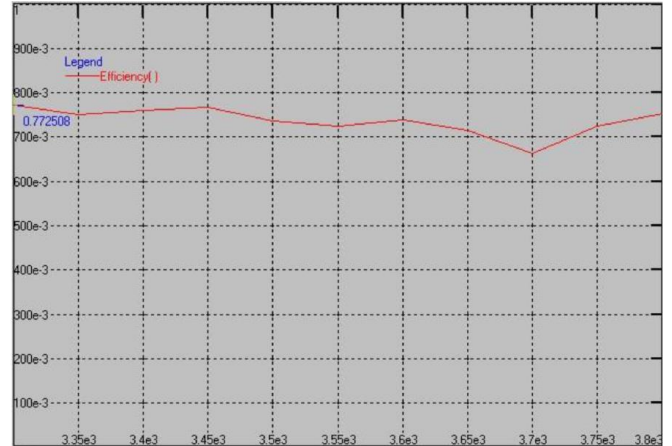
Layer	Max value	Min value	Average
3300(MHz)	1.04 dB	-2.36 dB	-0.90 dB
3550(MHz)	1.14 dB	-3.17 dB	-0.72 dB
3800(MHz)	2.33 dB	-4.43 dB	-0.27 dB

PCB Antenna BTPA Series

3D Peak Gain



3D Efficiency

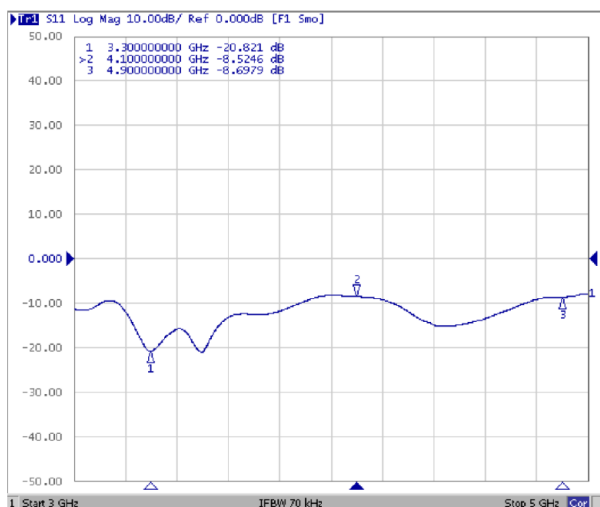


Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)	Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
3300	2.51	77	3600	2.62	74
3350	2.22	75	3650	2.69	71
3400	2.17	76	3700	2.37	66
3450	2.20	77	3750	2.29	72
3500	2.27	74	3800	2.66	75
3550	2.31	72			

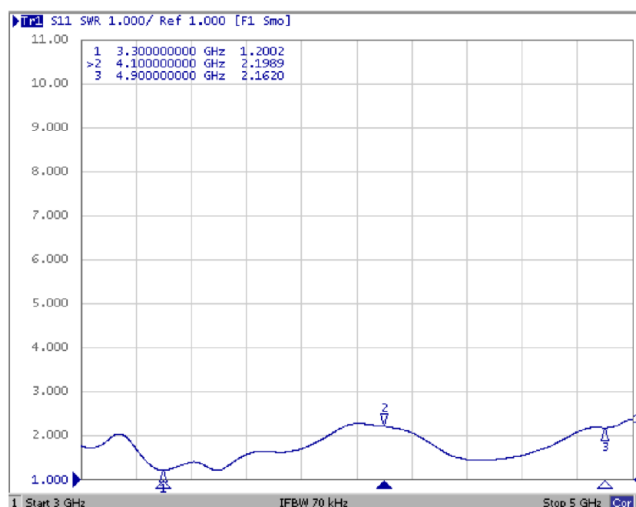
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BTPA0012353G9C1A01

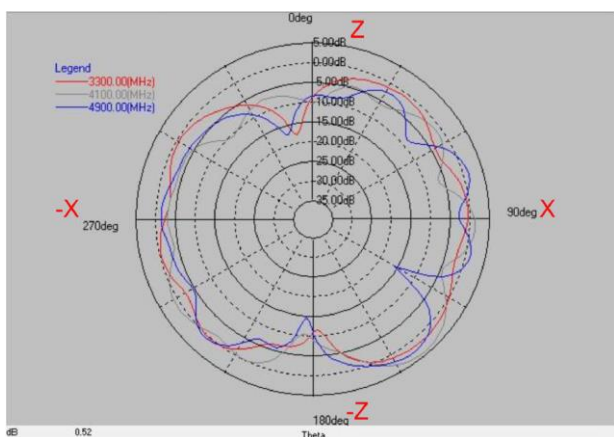
Return Loss S11



VSWR

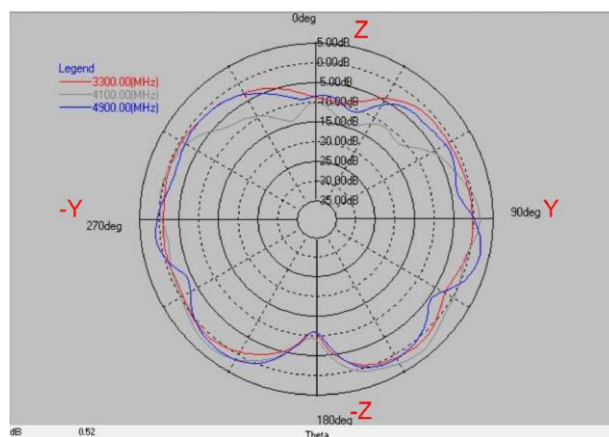


Frequency(MHz) : 3300~4900. Pattern Field : Z-X plane



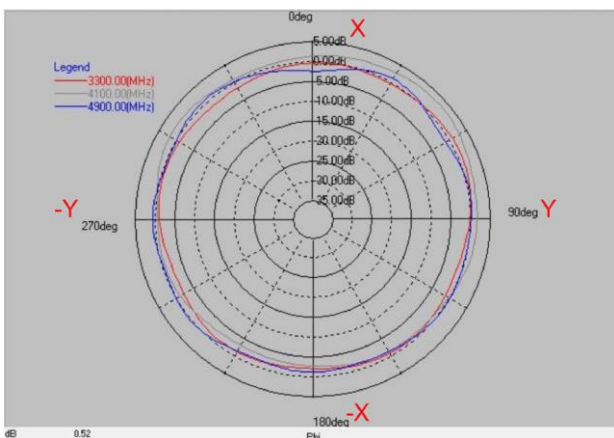
Layer	Max value	Min value	Average
3300(MHz)	1.64 dB	-18.30 dB	-2.05 dB
4100(MHz)	4.25 dB	-10.87 dB	-1.96 dB
4900(MHz)	2.55 dB	-17.75 dB	-2.61 dB

Frequency(MHz) : 3300~4900. Pattern Field : Z-Y plane



Layer	Max value	Min value	Average
3300(MHz)	1.20 dB	-11.32 dB	-1.61 dB
4100(MHz)	3.09 dB	-14.42 dB	-1.47 dB
4900(MHz)	2.63 dB	-11.22 dB	-1.61 dB

Frequency(MHz) : 3300~4900. Pattern Field : X-Y plane

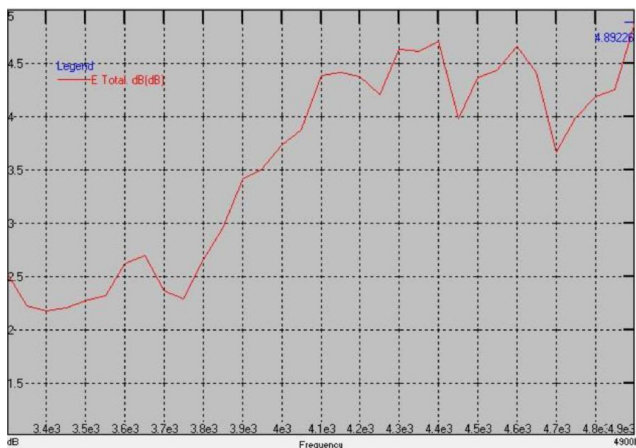


Layer	Max value	Min value	Average
3300(MHz)	1.04 dB	-2.36 dB	-0.90 dB
4100(MHz)	3.30 dB	-3.22 dB	0.54 dB
4900(MHz)	0.90 dB	-2.60 dB	-0.39 dB

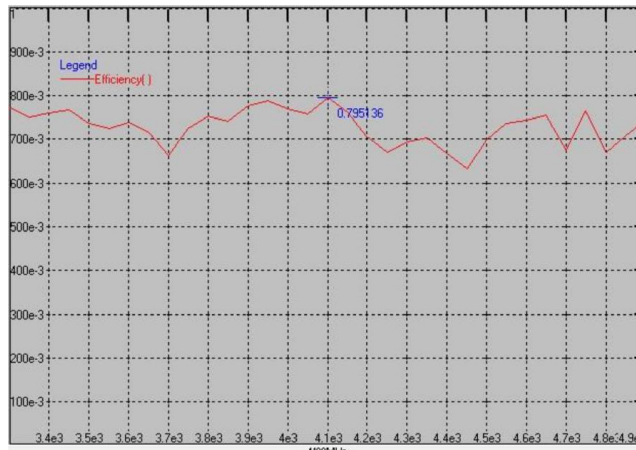
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PCB Antenna BTPA Series

3D Peak Gain



3D Efficiency

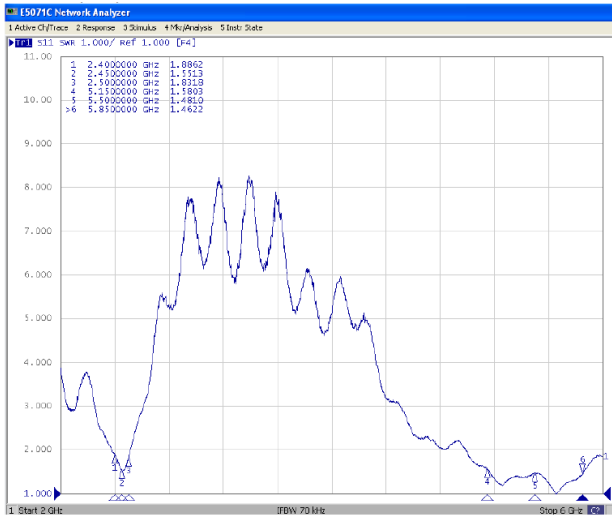


Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)	Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
3300	2.51	77	4200	4.38	70
3400	2.17	76	4300	4.63	69
3500	2.27	74	4400	4.71	67
3600	2.62	74	4500	4.37	70
3700	2.37	66	4600	4.66	74
3800	2.66	75	4700	3.67	68
3900	3.42	78	4800	4.19	67
4000	3.74	77	4900	4.89	74
4100	4.39	80			

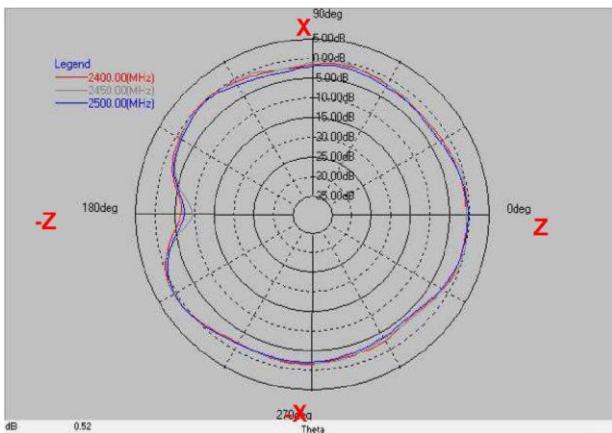
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BTPA00221425GC1A09

VSWR S11

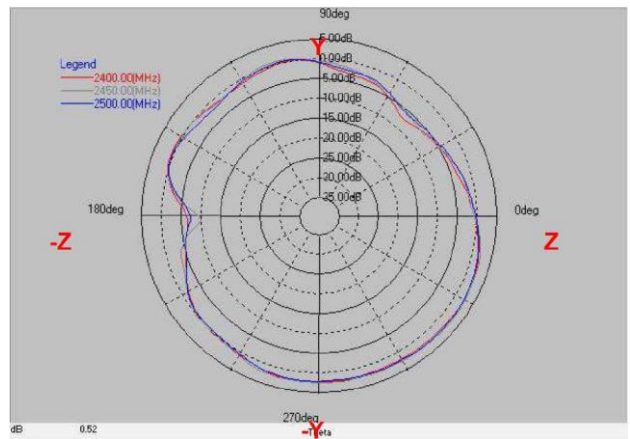


Frequency(MHz) : 2400~2500. Pattern Field : Z-X plane



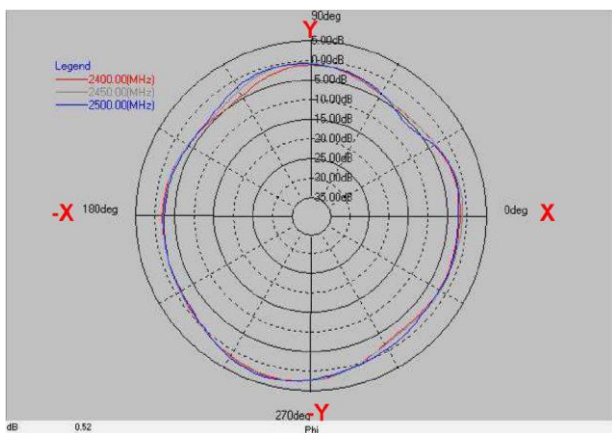
Layer	Max value	Min value	Average
2400(MHz)	0.74 dB	-6.70 dB	-1.60 dB
2450(MHz)	0.87 dB	-9.48 dB	-1.56 dB
2500(MHz)	0.53 dB	-7.47 dB	-1.94 dB

Frequency(MHz) : 2400~2500. Pattern Field : Z-Y plane



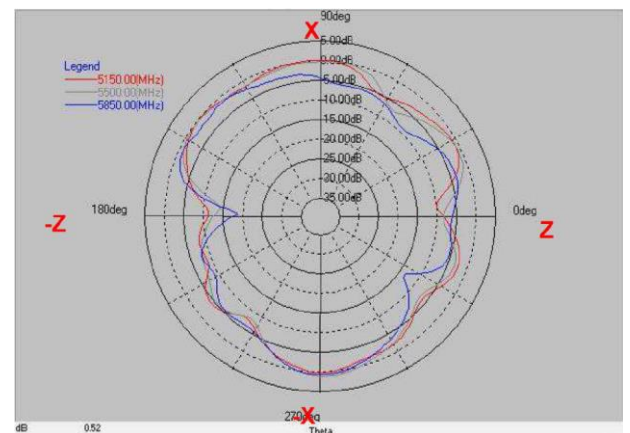
Layer	Max value	Min value	Average
2400(MHz)	2.49 dB	-7.36 dB	-0.29 dB
2450(MHz)	2.78 dB	-9.89 dB	0.00 dB
2500(MHz)	2.58 dB	-7.45 dB	-0.27 dB

Frequency(MHz) : 2400~2500. Pattern Field : X-Y plane



Layer	Max value	Min value	Average
2400(MHz)	2.59 dB	-5.00 dB	-1.36 dB
2450(MHz)	2.75 dB	-4.41 dB	-1.11 dB
2500(MHz)	2.86 dB	-6.11 dB	-1.14 dB

Frequency(MHz) : 5150~5850. Pattern Field : Z-X plane

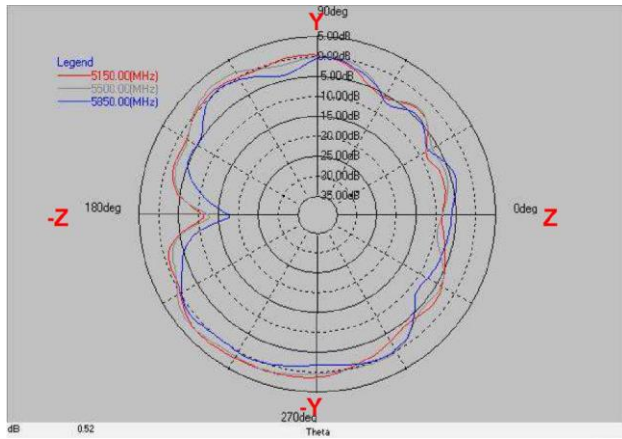


Layer	Max value	Min value	Average
5150(MHz)	0.07 dB	-11.31 dB	-2.91 dB
5500(MHz)	1.03 dB	-14.22 dB	-2.85 dB
5850(MHz)	0.55 dB	-18.79 dB	-4.20 dB

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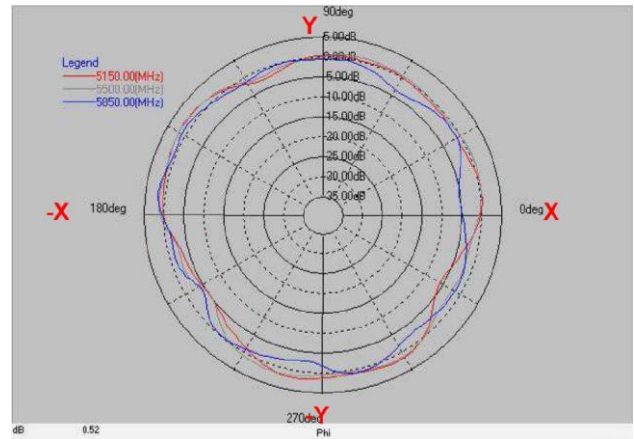
PCB Antenna BTPA Series

Frequency(MHz) : 5150~5850. Pattern Field : Z-Y plane



Layer	Max value	Min value	Average
5150(MHz)	2.40 dB	-11.30 dB	-1.43 dB
5500(MHz)	2.53 dB	-12.84 dB	-1.28 dB
5850(MHz)	0.87 dB	-17.84 dB	-2.76 dB

Frequency(MHz) : 5150~5850. Pattern Field : X-Y plane

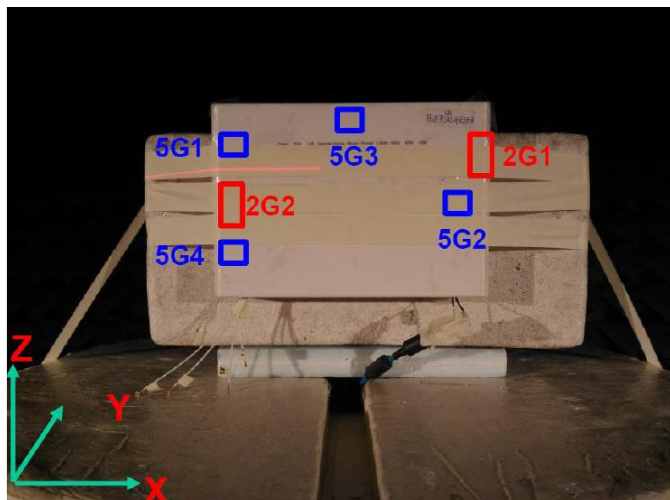


Layer	Max value	Min value	Average
5150(MHz)	1.84 dB	-5.87 dB	-0.47 dB
5500(MHz)	1.80 dB	-5.26 dB	-0.09 dB
5850(MHz)	1.86 dB	-5.27 dB	-1.23 dB

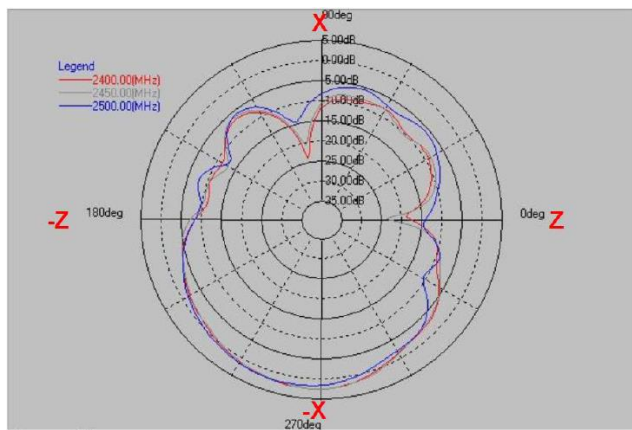
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BTPA0030082G4C1A04

Experimental Setup



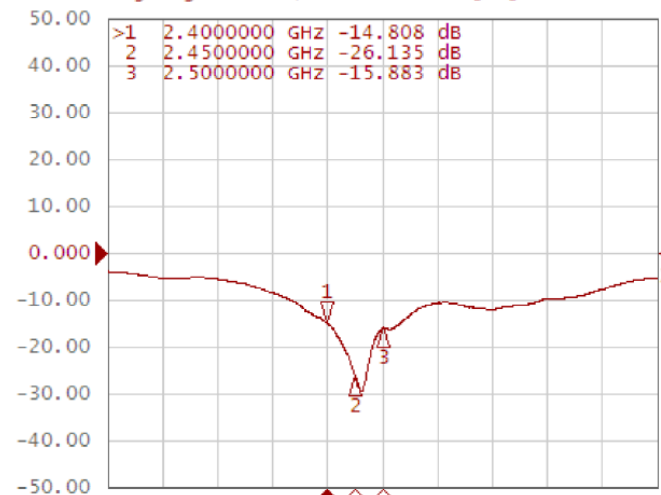
Frequency(MHz) : 2400~2500. Pattern Field : Z-X plane



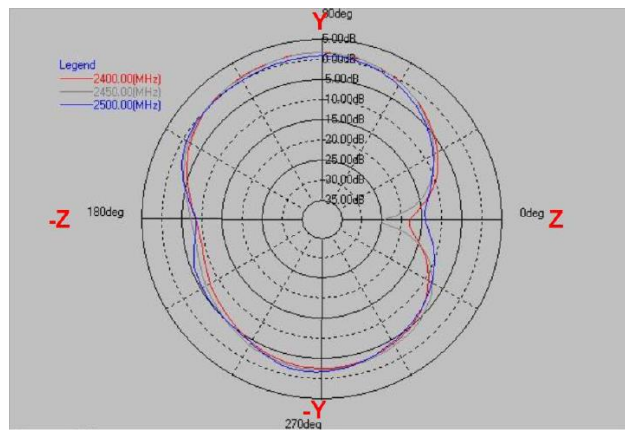
Layer	Max value	Min value	Average
2400(MHz)	2.37 dB	-24.24 dB	-3.61 dB
2450(MHz)	2.34 dB	-23.93 dB	-3.60 dB
2500(MHz)	1.81 dB	-14.70 dB	-3.64 dB

VSWR S22

Tr2 S22 Log Mag 10.00dB/ Ref 0.000dB [F4]

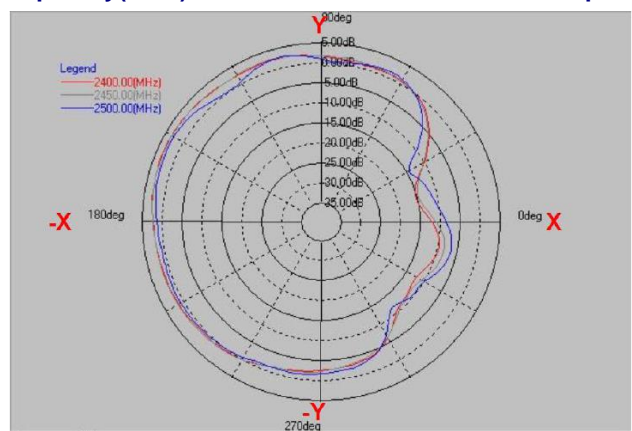


Frequency(MHz) : 2400~2500. Pattern Field : Z-Y plane



Layer	Max value	Min value	Average
2400(MHz)	1.51 dB	-18.08 dB	-3.04 dB
2450(MHz)	1.53 dB	-25.15 dB	-2.83 dB
2500(MHz)	0.69 dB	-14.21 dB	-3.16 dB

Frequency(MHz) : 2400~2500. Pattern Field : X-Y plane

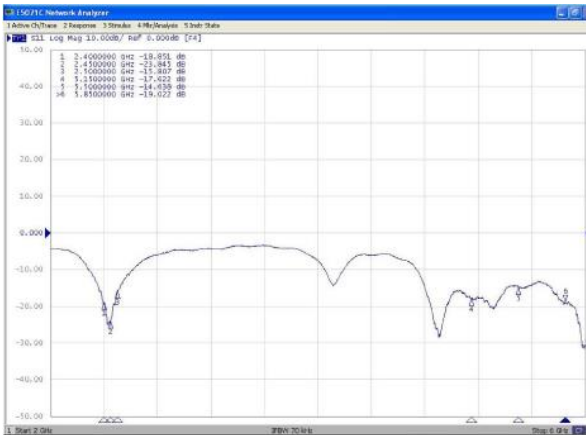


Layer	Max value	Min value	Average
2400(MHz)	3.37 dB	-15.39 dB	-0.20 dB
2450(MHz)	3.25 dB	-14.73 dB	-0.14 dB
2500(MHz)	2.75 dB	-14.49 dB	-0.72 dB

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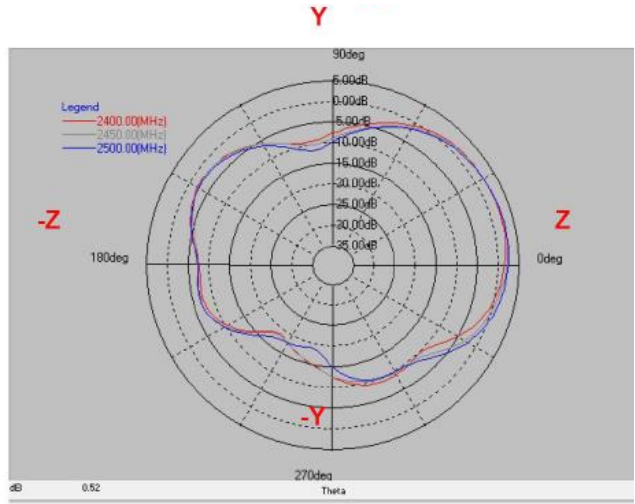
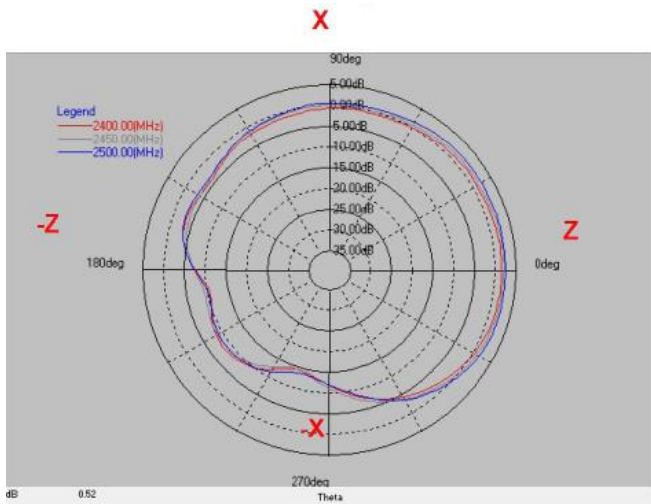
BTPA00420725GC1A04

Return Loss



Frequency(MHz): 2400~2500. Pattern Field: Z-X plane

Frequency(MHz): 2400~2500. Pattern Field: Z-Y plane

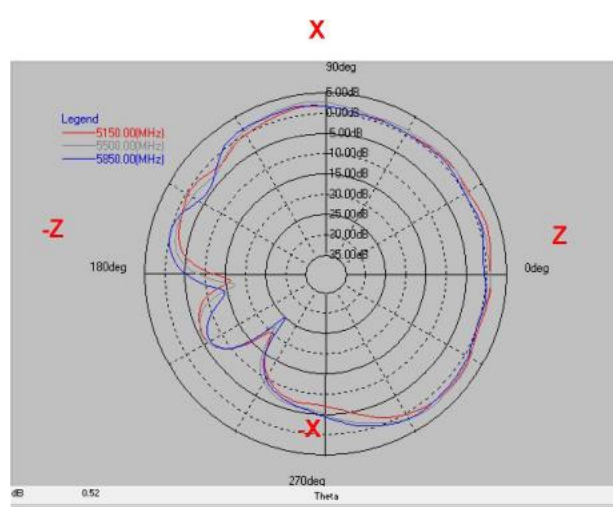
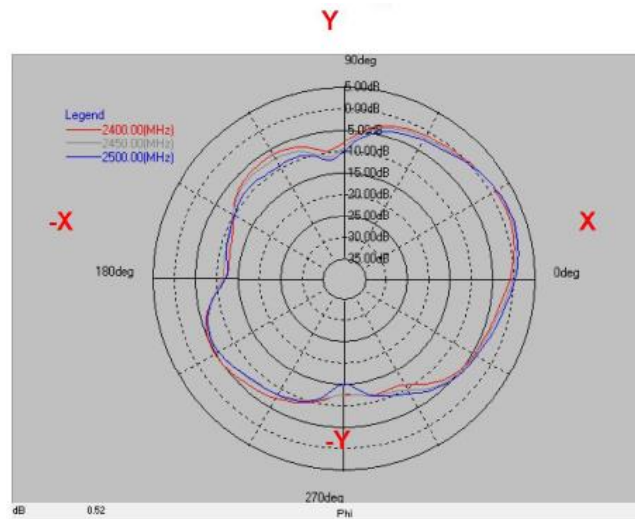


Layer	Max value	Min value	Average
2400(MHz)	1.66 dB	-14.74 dB	-2.07 dB
2450(MHz)	2.26 dB	-14.76 dB	-1.53 dB
2500(MHz)	2.58 dB	-14.02 dB	-1.02 dB

Layer	Max value	Min value	Average
2400(MHz)	2.42 dB	-18.93 dB	-3.22 dB
2450(MHz)	2.73 dB	-18.60 dB	-3.11 dB
2500(MHz)	2.82 dB	-19.18 dB	-3.03 dB

Frequency(MHz): 2400~2500. Pattern Field: X-Y plane

Frequency(MHz): 5150~5850. Pattern Field: Z-X plane



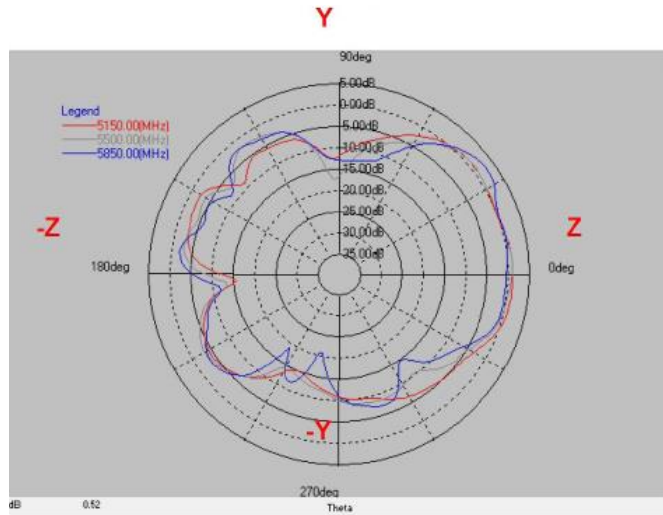
Layer	Max value	Min value	Average
2400(MHz)	1.64 dB	-12.87 dB	-4.24 dB
2450(MHz)	2.07 dB	-21.91 dB	-4.24 dB
2500(MHz)	2.28 dB	-15.30 dB	-4.22 dB

Layer	Max value	Min value	Average
5150(MHz)	1.95 dB	-19.79 dB	-0.87 dB
5500(MHz)	2.82 dB	-22.02 dB	-0.54 dB
5850(MHz)	1.93 dB	-25.20 dB	-0.86 dB

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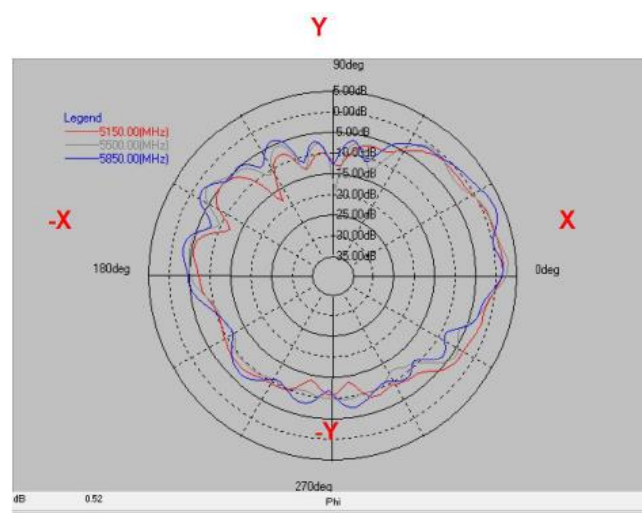
PCB Antenna BTPA Series

Frequency(MHz): 5150~5850. Pattern Field: Z-Y plane



Layer	Max value	Min value	Average
5150(MHz)	1.17 dB	-15.67 dB	-3.69 dB
5500(MHz)	1.07 dB	-17.54 dB	-3.84 dB
5850(MHz)	2.86 dB	-21.22 dB	-3.87 dB

Frequency(MHz): 5150~5850. Pattern Field: X-Y plane

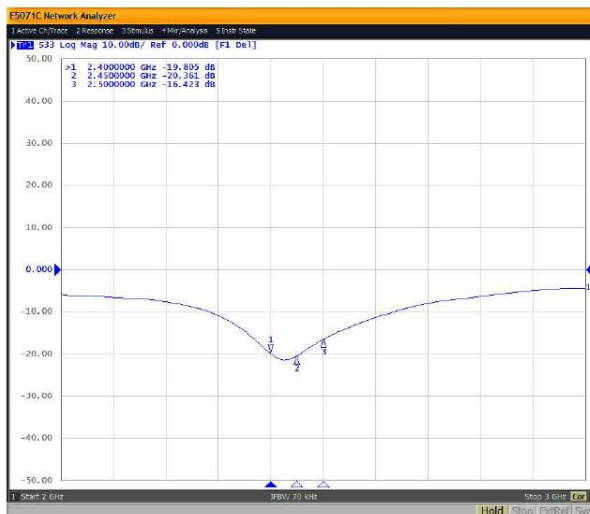


Layer	Max value	Min value	Average
5150(MHz)	1.84 dB	-18.20 dB	-4.72 dB
5500(MHz)	3.11 dB	-19.19 dB	-4.54 dB
5850(MHz)	3.12 dB	-13.07 dB	-3.99 dB

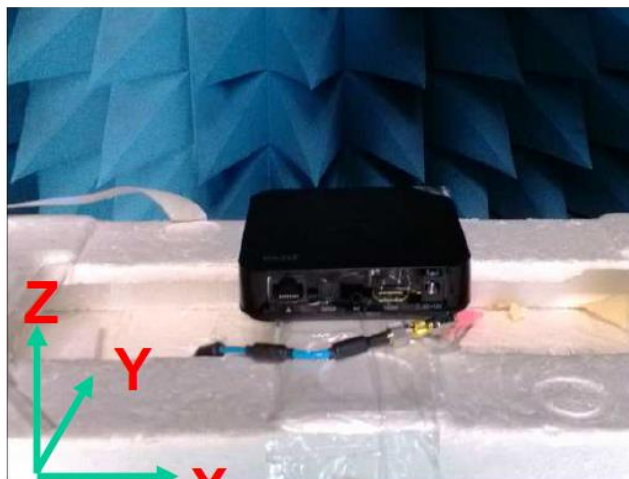
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BTPA0046062G4C1B03

Return Loss

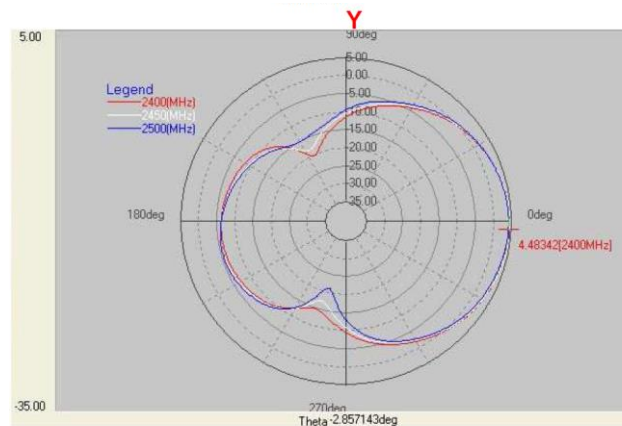
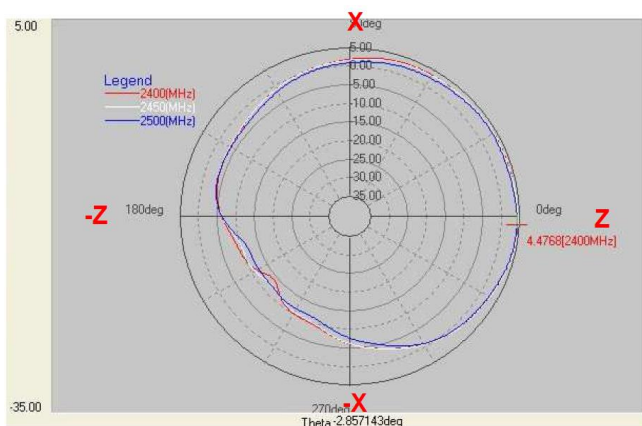


Experimental Setup



Frequency(MHz): 2400~2500. Pattern Field: X-Z plane

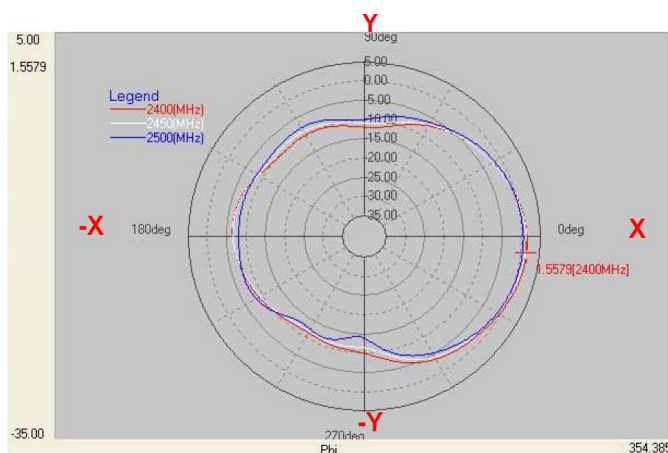
Frequency(MHz): 2400~2500. Pattern Field: Y-Z plane



Layer	Max value	Average
2400(MHz)	4.48 dB	0.47 dB
2450(MHz)	4.61 dB	0.47 dB
2500(MHz)	4.35 dB	0.03 dB

Layer	Max value	Average
2400(MHz)	4.48 dB	-1.74 dB
2450(MHz)	4.58 dB	-1.71 dB
2500(MHz)	4.28 dB	-1.89 dB

Frequency(MHz): 2400~2500. Pattern Field: X-Y plane

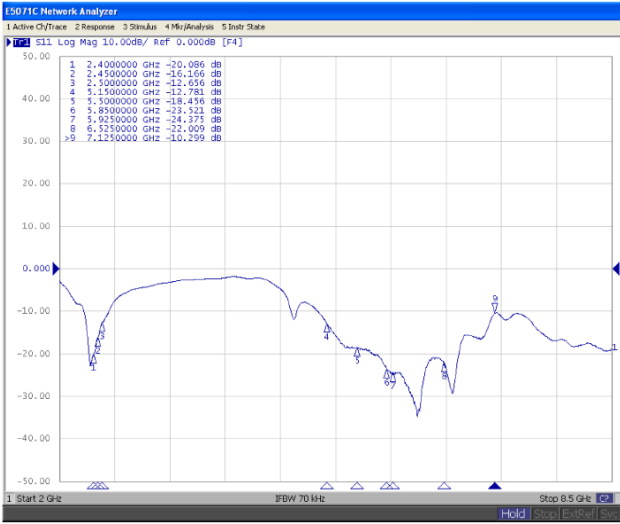


Layer	Max value	Average
2400(MHz)	1.56 dB	-4.52 dB
2450(MHz)	1.33 dB	-4.76 dB
2500(MHz)	0.58 dB	-4.93 dB

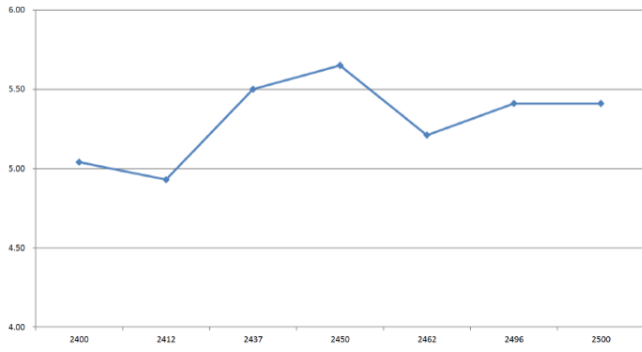
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BTPA0052116G0C1A01

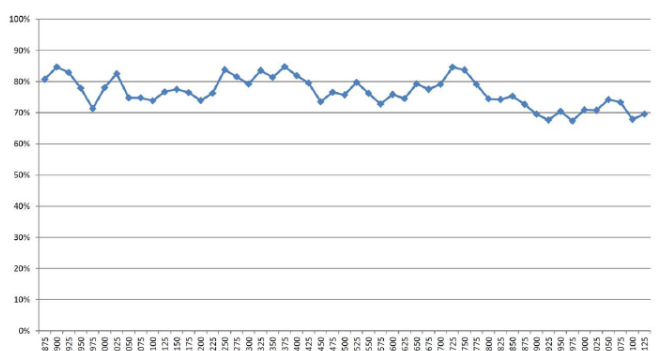
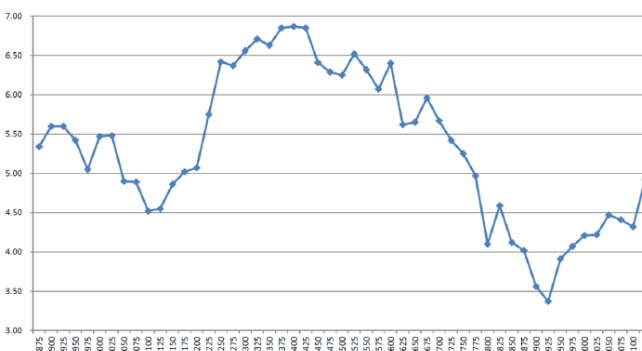
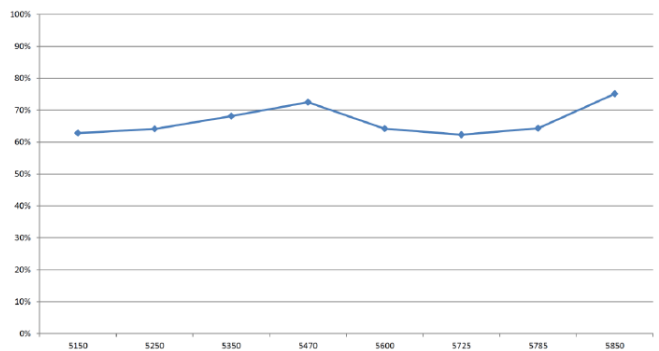
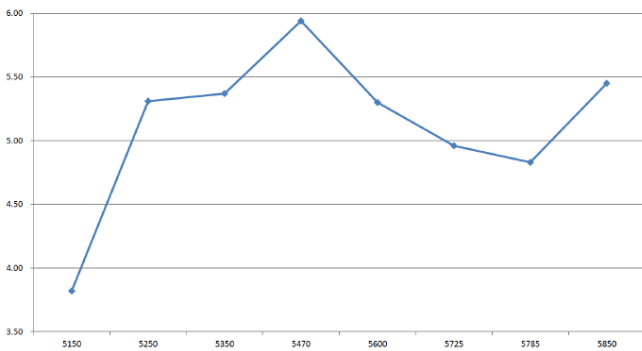
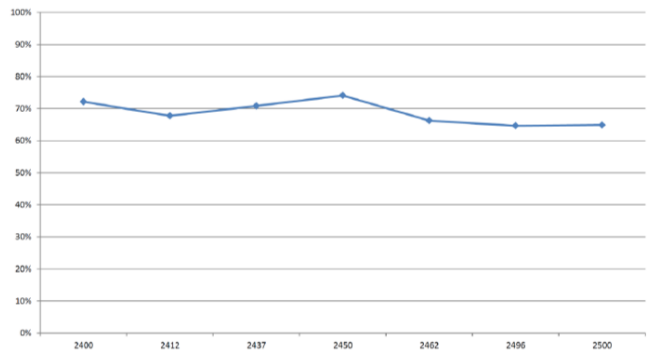
Return Loss



3D Peak Gain



3D Efficiency



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PCB Antenna BTPA Series

Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)	Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	5.04	72	6325	6.71	84
2412	4.93	68	6350	6.63	81
2437	5.50	71	6375	6.85	85
2450	5.65	74	6400	6.87	82
2462	5.21	66	6425	6.85	80
2496	5.41	65	6450	6.41	74
2500	5.41	65	6475	6.29	77
5150	3.82	63	6500	6.25	76
5250	5.31	64	6525	6.52	80
5350	5.37	68	6550	6.32	76
5470	5.94	73	6575	6.07	73
5600	5.30	64	6600	6.40	76
5725	4.96	62	6625	5.62	75
5785	4.83	64	6650	5.65	79
5850	5.45	75	6675	5.96	78
5875	5.34	81	6700	5.67	79
5900	5.60	85	6725	5.42	85
5925	5.60	83	6750	5.25	84
5950	5.42	78	6775	4.97	79
5975	5.05	71	6800	4.10	74
6000	5.47	78	6825	4.59	74
6025	5.48	83	6850	4.12	75
6050	4.90	75	6875	4.02	73
6075	4.89	75	6900	3.56	70
6100	4.52	74	6925	3.37	68
6125	4.55	77	6950	3.91	70
6150	4.86	78	6975	4.07	67
6175	5.02	76	7000	4.21	71
6200	5.07	74	7025	4.22	71
6225	5.75	76	7050	4.47	74
6250	6.42	84	7075	4.41	73
6275	6.37	82	7100	4.32	68
6300	6.56	79	7125	4.92	70

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