

# SPECIFICATION

## UNIMAX

### 2AUOUC6 Antenna

#### Product approval sheet

Customer	Rhino Mobility LLC	Band	LTE Band 2/4/5/7/12/13/14/17/18/19/25/26/ 29/30/41/66/71 WCDMA B2/4/5 GSM 850/1900
FCC ID	2AUOUC6	Colour	Black

Customer check:

Reach requirement of customer: OK    NG

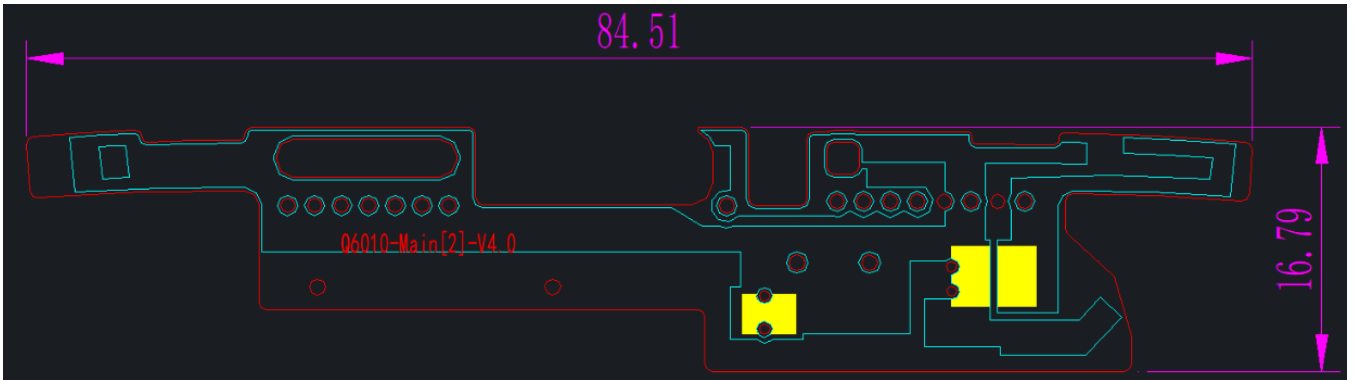
Contents

<b>1 General description .....</b>	<b>3</b>
1.1 Antenna appearing diagram.....	3
1.2 Matching circuits .....	4
1.3 Antenna PORT .....	7
1.4 Antenna location.....	7
<b>2 Electrical performance .....</b>	<b>8</b>
2.1 VSWR.....	8
2.2 Efficiency &Gain .....	13
2.3 3D Patternt .....	32

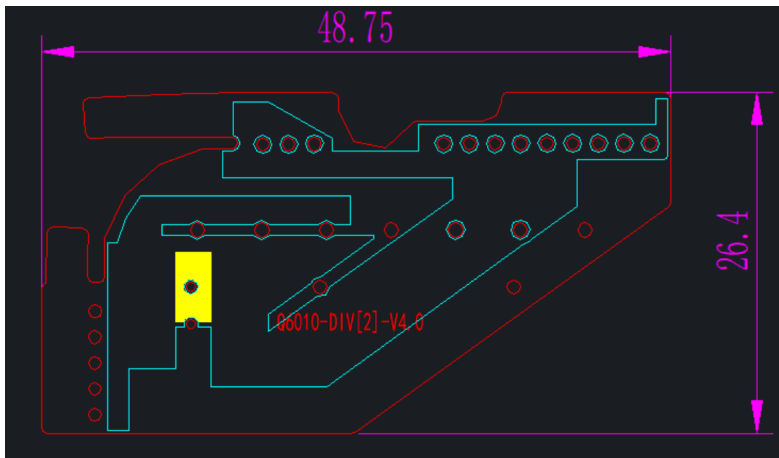
# 1 General description

## 1.1 Antenna appearing diagram

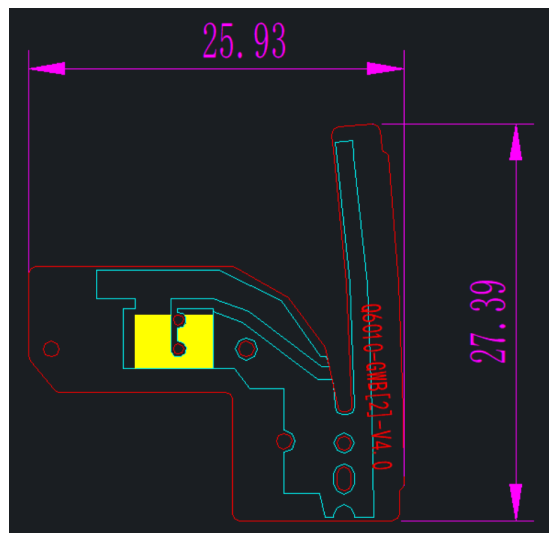
ANT0



ANT1



GWB

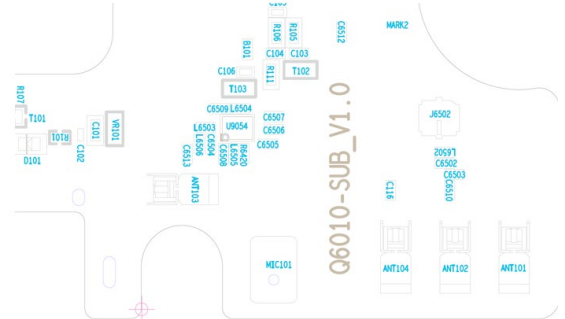


## 1.2 Antenna Matching circuits

### ANT0

**The main antenna switch configuration:**  
 RF1: GSM850/900+W5/8+LTE B5/18/19/20/26+All 2/3/4G medium and high frequency bands  
 RF2: LTE B13/B14  
 RF3: LTE B12/17/28/29  
 RF4: LTE B71

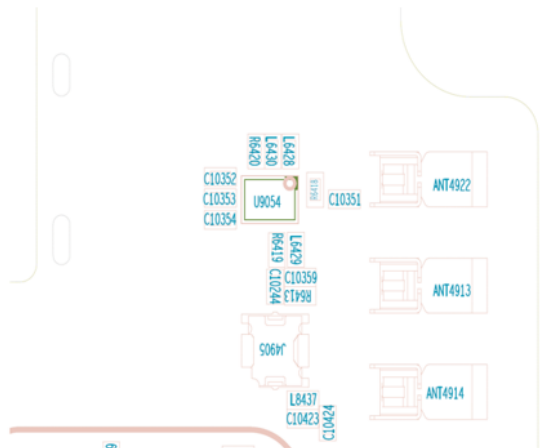
Main antenna matches the main route		Main antenna switch matches	
BIT	VALUE	C6513	0Ω
C6510	0Ω	L6506	NC
C6503	12nH	C6504	0Ω
C6502	4.7pF	L6503	NC
L6502	NC	L6505	0Ω
		L6504	2.7nH
		C6509	4.7nH
		C6508	6.8nH



### ANT1

**The diversity antenna switch configuration:**  
 RF1: GSM850/900+W5/8+LTE B5/18/19/20/26+All 2/3/4G medium and high frequency bands  
 RF2: LTE B13/B14  
 RF3: LTE B12/17/28/29  
 RF4: LTE B71

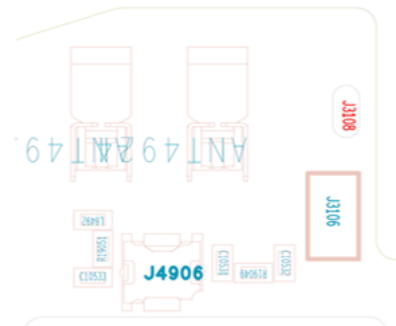
Diversity antenna matches the main route		Diversity antenna switch matches	
BIT	VALUE	C6513	0Ω
C6510	0Ω	L6506	NC
C6503	12nH	C6504	0Ω
C6502	4.7pF	L6503	NC
L6502	NC	L6505	0Ω
		L6504	2.7nH
		C6509	4.7nH
		C6508	6.8nH



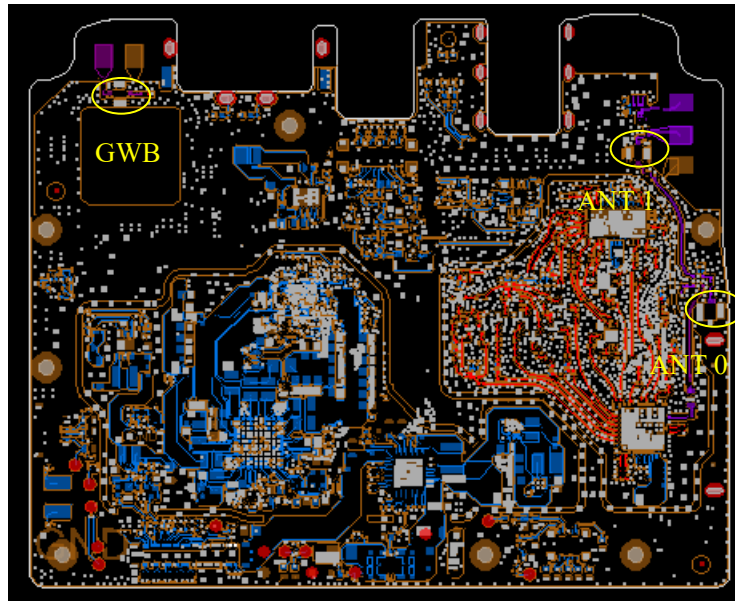
### GWB

Three-in-one antenna matching

Three-in-one antenna matching	
BIT	VALUE
L8492	NC
R19051	1.5nH
C10533	NC

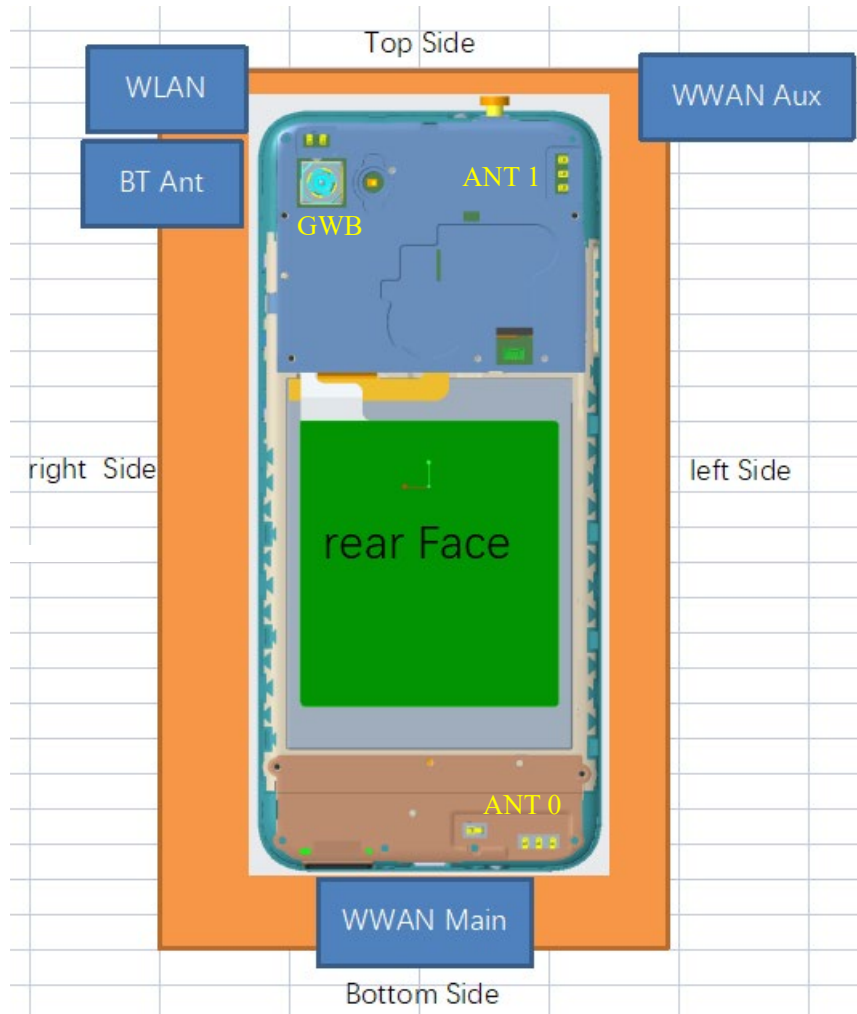


### 1.3 Antenna PORT



	LTE	WCDMA	GSM	GPS	WiFi	BT
ANT 0	Band 1/2/3/4/5/7/12/13/14/17/ 18/19/20/25/26/29/30/41/ 66/71 TRX	Band 1/2/4/5	GSM 850/900/ 1800/ 1900			
ANT 1	Band 1/2/3/4/5/7/12/13/14/17/ 18/19/20/25/26/29/30/41/ 66/71 DRX					
GWB				L1	2.4G WiFi 5G WiFi	BT

### 1.4 Antenna location



Antenna Location	Support Function	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
WWAN Main Antenna	TX/RX	147.3	1.1	1.1	1.1
WWAN Aux Antenna	DRX	1.1	141.2	1.1	38.3
WLAN Main Antenna	TX/RX	1.1	140.7	47.6	1.1
BT Antenna	follow WLAN Main ANT				

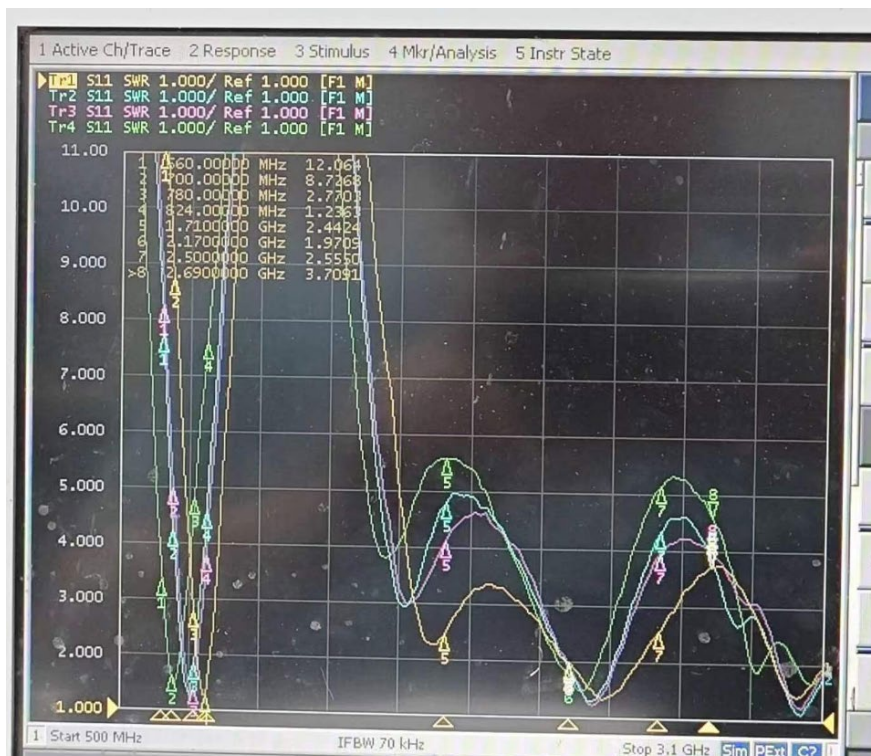
## 2 Electrical performance

### 2.1 VSWR

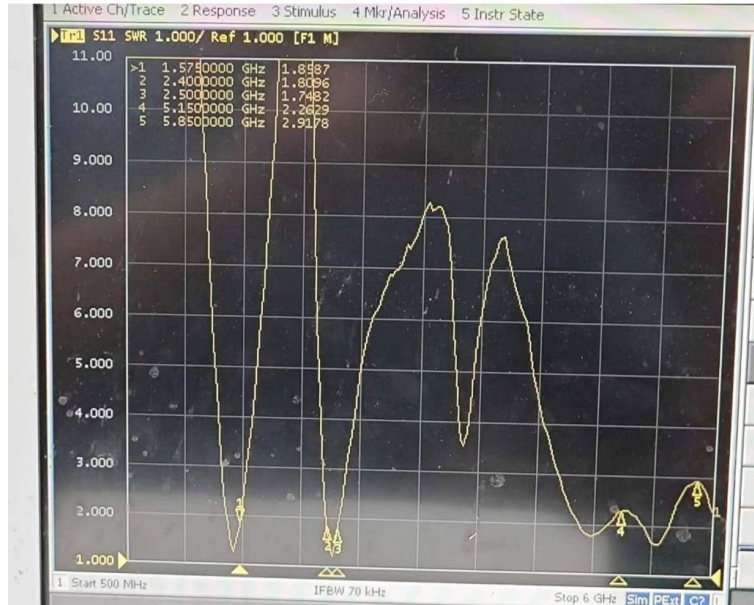
#### ANT0



#### ANT1



GWB





## 2.2 Efficiency & Gain

### ANTO

#### B5

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
780	22.63	-6.45	-3.66
790	27.27	-5.64	-3
800	36.65	-4.36	-1.8
810	35.34	-4.52	-2.02
820	34.66	-4.6	-2.09
830	32.01	-4.95	-2.2
840	30.23	-5.2	-2.2
850	28.19	-5.5	-2.23
860	27.48	-5.61	-2.45
870	25.92	-5.86	-2.61
880	25.65	-5.91	-2.59
890	24.2	-6.16	-2.61
900	23.78	-6.24	-2.58

#### B12

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
700	17.02	-7.69	-4.14
710	22.54	-6.47	-2.55
720	24.83	-6.05	-2.08
730	27.1	-5.67	-1.71
740	29.63	-5.28	-1.42
750	32.89	-4.83	-1
760	34.42	-4.63	-1.01
770	27.55	-5.6	-2.08
780	24.93	-6.03	-2.78
790	26.72	-5.73	-2.64
800	31.6	-5	-2.12
810	28.99	-5.38	-2.66
820	26.14	-5.83	-3.22

#### B13

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
720	21.17	-6.74	-2.93
730	23.11	-6.36	-2.49
740	26.43	-5.78	-2.01
750	29.48	-5.3	-1.59
760	32.99	-4.82	-1.33
770	28.49	-5.45	-2.08
780	28	-5.53	-2.42
790	30.68	-5.13	-2.17
800	37.4	-4.27	-1.6
810	34.78	-4.59	-2
820	31.84	-4.97	-2.37
830	27.01	-5.68	-2.79
840	24.45	-6.12	-2.93
850	21.88	-6.6	-3.07

#### B71

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
600	5.07	-12.95	-11.45
610	6.26	-12.04	-10.28
620	8.57	-10.67	-8.49
630	12.1	-9.17	-6.6
640	15.09	-8.21	-5.35
650	16.98	-7.7	-4.68
660	19.53	-7.09	-4.03
670	20.68	-6.84	-3.76
680	19.49	-7.1	-4.49
690	18.93	-7.23	-4.21
700	18.96	-7.22	-3.65
710	24.75	-6.06	-2.3
720	24.84	-6.05	-2.38
730	25.7	-5.9	-2.19
740	26.85	-5.71	-2.11
750	28.8	-5.41	-1.79
760	29.03	-5.37	-1.93
770	22.42	-6.49	-3.13
780	19.79	-7.04	-3.86
790	21.1	-6.76	-3.69
800	24.64	-6.08	-3.13
810	21.99	-6.58	-3.67

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ANT0 1710~2690MHz

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1690	27.42	-5.62	-1.89	2210	26.51	-5.77	0.21
1700	27.17	-5.66	-1.64	2220	25.42	-5.95	0.08
1710	26.72	-5.73	-1.57	2230	23.57	-6.28	-0.31
1720	26.36	-5.79	-1.4	2240	22.25	-6.53	-0.53
1730	25.74	-5.89	-1.41	2250	21.39	-6.7	-0.74
1740	24.48	-6.11	-1.51	2260	19.89	-7.01	-1.11
1750	24.19	-6.16	-1.46	2270	19.58	-7.08	-1.25
1760	24.39	-6.13	-1.33	2280	18.52	-7.32	-1.66
1770	23.1	-6.36	-1.49	2290	17.22	-7.64	-2.11
1780	23.49	-6.29	-1.37	2300	16.93	-7.71	-2.33
1790	23.03	-6.38	-1.49	2310	16.56	-7.81	-2.59
1800	22.45	-6.49	-1.34	2320	17.17	-7.65	-2.53
1810	22.39	-6.5	-1.04	2330	18.88	-7.24	-2.33
1820	22.33	-6.51	-0.79	2340	20.45	-6.89	-2.19
1830	22.19	-6.54	-0.51	2350	21.07	-6.76	-2.07
1840	24.1	-6.18	-0.15	2360	22.83	-6.41	-1.86
1850	26.58	-5.75	0.33	2370	23.42	-6.3	-1.71
1860	27.84	-5.55	0.47	2380	25.83	-5.88	-1.35
1870	28.35	-5.47	0.62	2390	27.95	-5.54	-0.96
1880	29.23	-5.34	0.88	2400	30.01	-5.23	-0.71
1890	30.78	-5.12	1.18	2410	31.09	-5.07	-0.54
1900	32.65	-4.86	1.49	2420	33.37	-4.77	-0.37
1910	32.79	-4.84	1.59	2430	34.93	-4.57	-0.23
1920	32.62	-4.86	1.62	2440	38.32	-4.17	0.03
1930	33.52	-4.75	1.62	2450	40.94	-3.88	0.29
1940	33.2	-4.79	1.5	2460	40.39	-3.94	0.26
1950	34.81	-4.58	1.68	2470	40.25	-3.95	0.27
1960	35.23	-4.53	1.62	2480	40.85	-3.89	0.4
1970	35.81	-4.46	1.55	2490	42.18	-3.75	0.53
1980	37.57	-4.25	1.4	2500	42.99	-3.67	0.85
1990	39	-4.09	1.27	2510	43.04	-3.66	0.83
2000	40.72	-3.9	1.1	2520	43.49	-3.62	1.06
2010	41.31	-3.84	0.91	2530	44.64	-3.5	1.08
2020	40.67	-3.91	0.76	2540	44.14	-3.55	1
2030	41.68	-3.8	1.03	2550	45.3	-3.44	0.99
2040	42.69	-3.7	1.26	2560	46.32	-3.34	1.02
2050	43.64	-3.6	1.49	2570	47.72	-3.21	1.14
2060	44.11	-3.55	1.64	2580	46.17	-3.36	0.98
2070	43.45	-3.62	1.63	2590	46.19	-3.35	1.07
2080	43.17	-3.65	1.63	2600	48.01	-3.19	1.33
2090	42.57	-3.71	1.67	2610	48.04	-3.18	1.45
2100	41.76	-3.79	1.64	2620	45.57	-3.41	1.31
2110	34.8	-4.58	0.95	2630	45.02	-3.47	1.34
2120	32.85	-4.84	0.77	2640	46.43	-3.33	1.61
2130	33.2	-4.79	0.94	2650	46.6	-3.32	1.67
2140	33.16	-4.79	0.99	2660	47.29	-3.25	1.82
2150	31.09	-5.07	0.76	2670	47.63	-3.22	1.72
2160	29.65	-5.28	0.57	2680	47.75	-3.21	1.75
2170	28.43	-5.46	0.4	2690	45.26	-3.44	1.5
2180	27.49	-5.61	0.31				
2190	28.43	-5.46	0.45				
2200	27.64	-5.58	0.42				

**ANT1**

**B5**

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
780	10.52	-9.78	-7.44	-9.59
790	13.97	-8.55	-6.65	-8.8
800	20.12	-6.96	-5.37	-7.52
810	19.79	-7.04	-5.49	-7.64
820	19.71	-7.05	-5.05	-7.2
830	18.2	-7.4	-5.27	-7.42
840	16.78	-7.75	-5.06	-7.21
850	15.09	-8.21	-5.21	-7.36
860	13.41	-8.72	-5.67	-7.82
870	11.63	-9.34	-6.45	-8.6
880	9.77	-10.1	-7.35	-9.5
890	8.34	-10.79	-8.14	-10.29
900	6.91	-11.61	-8.86	-11.01

**B12**

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
700	11.69	-9.32	-5.79
710	16.74	-7.76	-4.11
720	18.13	-7.41	-4.05
730	18.83	-7.25	-4.03
740	19.63	-7.07	-3.94
750	21.67	-6.64	-3.76
760	22.03	-6.57	-3.89
770	16.54	-7.81	-5.03
780	13.55	-8.68	-6.11
790	12.97	-8.87	-6.38
800	13.45	-8.71	-6.34

**B13**

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
740	13.33	-8.75	-5.29
750	16.44	-7.84	-4.69
760	20.94	-6.79	-3.81
770	19.69	-7.06	-4.34
780	20.49	-6.88	-4.38
790	21.79	-6.62	-4.09
800	25.24	-5.98	-3.77
810	22.07	-6.56	-3.9
820	18.02	-7.44	-4.4

**B71**

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
620	2.02	-16.95	-14.28
630	3.31	-14.8	-11.74
640	4.7	-13.28	-9.94
650	5.97	-12.24	-8.82
660	7.78	-11.09	-7.83
670	8.63	-10.64	-7.69
680	9.18	-10.37	-7.96
690	9.95	-10.02	-6.86
700	11.54	-9.38	-5.8
710	16.46	-7.84	-4.18
720	17.75	-7.51	-4.19
730	18.37	-7.36	-4.2
740	18.98	-7.22	-4.01
750	20.91	-6.8	-3.82
760	21.26	-6.72	-3.91
770	16.08	-7.94	-5.19
780	13.27	-8.77	-6.23
790	12.81	-8.92	-6.53
800	13.4	-8.73	-6.28
810	11.1	-9.55	-6.63

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ANT 1 1710~2690MHz

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	24.99	-6.02	-2.16	2210	38.4	-4.16	-0.07
1720	25.34	-5.96	-2.07	2220	39.05	-4.08	0.14
1730	24.89	-6.04	-2.06	2230	40.07	-3.97	0.27
1740	24.25	-6.15	-2.09	2240	40.07	-3.97	0.3
1750	24.5	-6.11	-1.97	2250	40.28	-3.95	0.32
1760	25.3	-5.97	-1.69	2260	40.46	-3.93	0.4
1770	24.5	-6.11	-1.66	2270	41.54	-3.82	0.48
1780	25.45	-5.94	-1.37	2280	39.98	-3.98	0.27
1790	26	-5.85	-1.18	2290	40.51	-3.92	0.22
1800	26.11	-5.83	-1.12	2300	41.55	-3.81	0.31
1810	27.26	-5.64	-0.9	2310	42.45	-3.72	0.51
1820	27.02	-5.68	-0.98	2320	44.38	-3.53	0.81
1830	26.74	-5.73	-1.06	2330	46.29	-3.34	1.03
1840	27.93	-5.54	-1.07	2340	46.35	-3.34	1.22
1850	30.26	-5.19	-0.85	2350	47.73	-3.21	1.32
1860	31.05	-5.08	-0.84	2360	45.84	-3.39	1.31
1870	30.78	-5.12	-0.96	2370	45.17	-3.45	1.21
1880	29.87	-5.25	-1.13	2380	45.5	-3.42	1.39
1890	31.16	-5.06	-1.08	2390	46.25	-3.35	1.49
1900	32.92	-4.83	-0.95	2400	45.3	-3.44	1.46
1910	32.34	-4.9	-1.14	2410	44.89	-3.48	1.47
1920	31.69	-4.99	-1.38	2420	42.56	-3.71	1.29
1930	30.95	-5.09	-1.65	2430	41.33	-3.84	1.13
1940	28.53	-5.45	-2.19	2440	40.68	-3.91	1.07
1950	30.26	-5.19	-1.98	2450	40.35	-3.94	1.05
1960	29.52	-5.3	-2.04	2460	40.49	-3.93	1.16
1970	29.1	-5.36	-2.05	2470	37.42	-4.27	0.83
1980	30.57	-5.15	-1.79	2480	37.06	-4.31	0.87
1990	31.69	-4.99	-1.61	2490	38.19	-4.18	1
2000	32.94	-4.82	-1.51	2500	37.96	-4.21	1.11
2010	33.49	-4.75	-1.43	2510	35.96	-4.44	0.89
2020	30.72	-5.13	-1.85	2520	36.42	-4.39	1.08
2030	30.79	-5.12	-1.92	2530	33.89	-4.7	0.73
2040	31.25	-5.05	-2.07	2540	33.04	-4.81	0.64
2050	32.52	-4.88	-1.97	2550	31.62	-5	0.35
2060	36.01	-4.44	-1.45	2560	30.35	-5.18	0.1
2070	37.76	-4.23	-1.09	2570	28.42	-5.46	-0.31
2080	36.79	-4.34	-1	2580	26.28	-5.8	-0.61
2090	37.84	-4.22	-0.74	2590	23.4	-6.31	-1.03
2100	38.67	-4.13	-0.53	2600	23.86	-6.22	-0.94
2110	34.57	-4.61	-1.05	2610	21.89	-6.6	-1.39
2120	33.99	-4.69	-1.11	2620	19.74	-7.05	-1.91
2130	33.75	-4.72	-1.12	2630	18.95	-7.22	-2.36
2140	34.13	-4.67	-1	2640	19.12	-7.18	-2.46
2150	33.93	-4.69	-0.93	2650	18.27	-7.38	-2.8
2160	33.84	-4.71	-0.89	2660	18.93	-7.23	-2.95
2170	34.47	-4.63	-0.87	2670	18.02	-7.44	-3.19
2180	35.18	-4.54	-0.85	2680	17.07	-7.68	-3.47
2190	36.35	-4.39	-0.57	2690	15.92	-7.98	-3.84
2200	37.8	-4.22	-0.21				

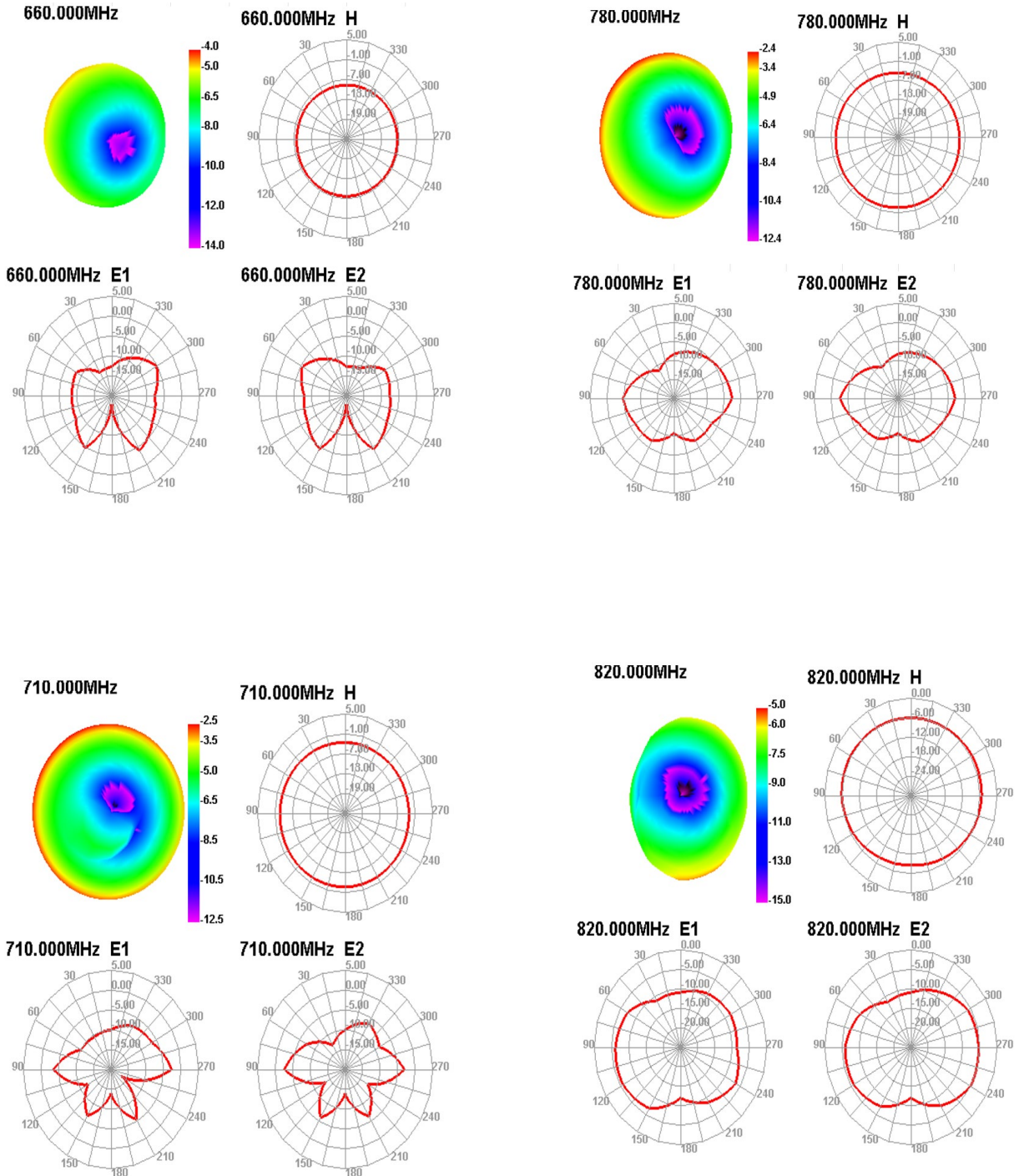
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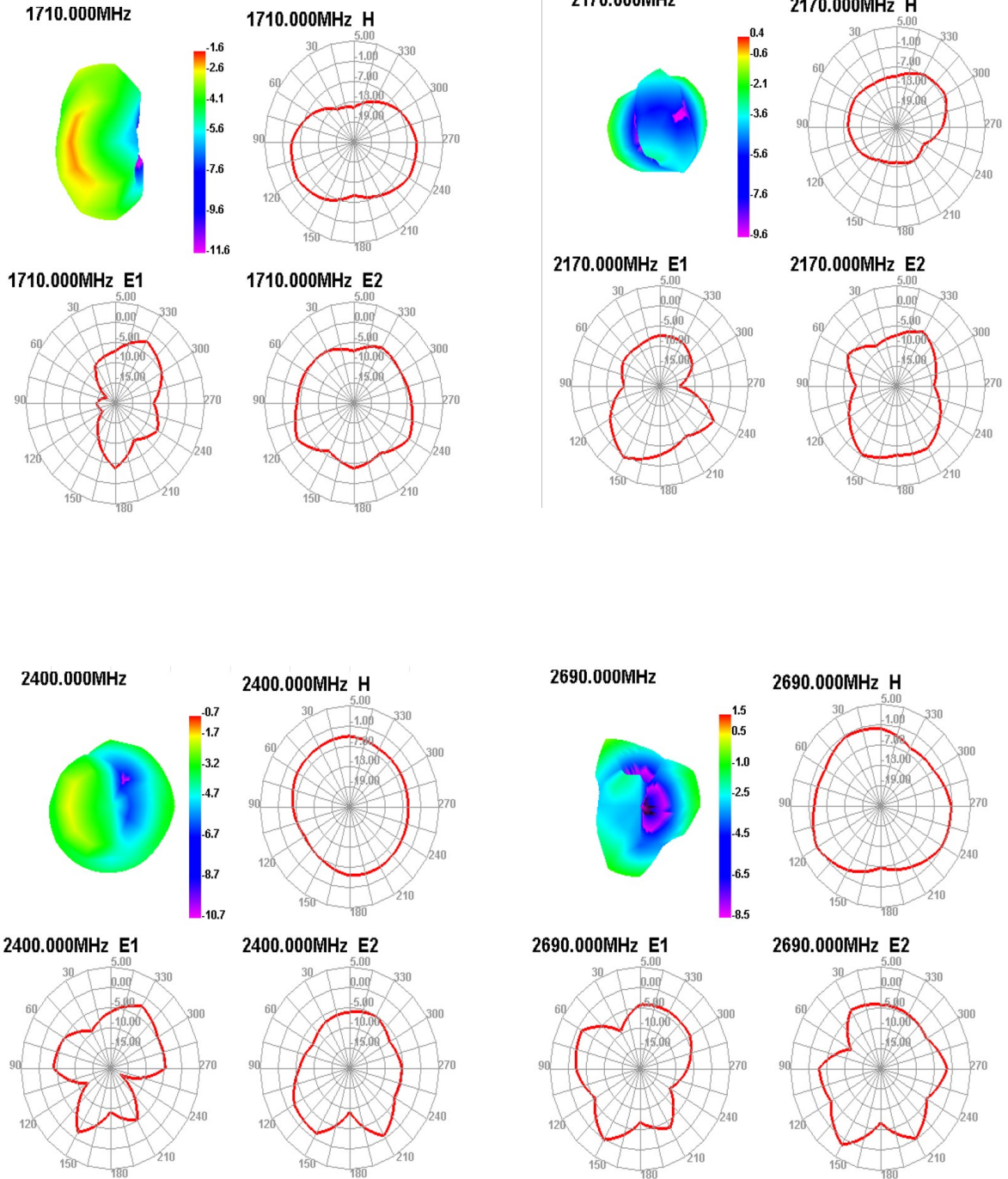
**GWB**

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	30.65	-5.14	-0.28	5500	28.79	-5.41	-1.26
5160	31.02	-5.08	-0.43	5510	28.66	-5.43	-1.22
5170	30.38	-5.17	-0.27	5520	29.55	-5.29	-1.17
5180	29.41	-5.32	-0.41	5530	29.26	-5.34	-1.47
5190	28.49	-5.45	-0.51	5540	29.25	-5.34	-1.39
5200	27.83	-5.56	-0.27	5550	28.23	-5.49	-1.59
5210	29.01	-5.37	-0.31	5560	28.1	-5.51	-1.54
5220	29.59	-5.29	-0.29	5570	28.69	-5.42	-0.8
5230	30.78	-5.12	-0.34	5580	28.55	-5.44	-1.26
5240	29.77	-5.26	-0.36	5590	28.16	-5.5	-1.21
5250	27.93	-5.54	-0.41	5600	28.57	-5.44	-1.01
5260	28.5	-5.45	-0.54	5610	28.69	-5.42	-1.04
5270	28.77	-5.41	-0.45	5620	28.63	-5.43	-1.02
5280	28.62	-5.43	-0.71	5630	29	-5.38	-1.06
5290	29.92	-5.24	-0.51	5640	28.76	-5.41	-1.07
5300	27.77	-5.56	-0.38	5650	29.93	-5.24	-1.1
5310	27.74	-5.57	-0.35	5660	30.61	-5.14	-0.95
5320	29.53	-5.3	-0.61	5670	31.18	-5.06	-0.99
5330	29.68	-5.28	-0.67	5680	31.41	-5.03	-0.83
5340	31.66	-5	-0.53	5690	32.42	-4.89	-0.88
5350	32.76	-4.85	-0.47	5700	32.32	-4.91	-0.94
5360	30.68	-5.13	0.1	5710	31.69	-4.99	-0.97
5370	30.18	-5.2	0.01	5720	32.4	-4.89	-1.17
5380	31.12	-5.07	0.08	5730	33.91	-4.7	-0.95
5390	29.31	-5.33	-0.11	5740	34.2	-4.66	-0.54
5400	34.69	-4.6	0.26	5750	35.55	-4.49	-0.36
5410	33.52	-4.75	0.13	5760	33.14	-4.8	0.2
5420	32.63	-4.86	0.21	5770	33.74	-4.72	-0.03
5430	32.58	-4.87	0.14	5780	33.44	-4.76	-0.08
5440	32	-4.95	0.28	5790	33.85	-4.7	-0.01
5450	31.22	-5.06	0.22	5800	32.97	-4.82	-0.14
5460	31.21	-5.06	0.37	5810	33.4	-4.76	0.18
5470	29.59	-5.29	-0.92	5820	33.73	-4.72	-0.21
5480	29.05	-5.37	-0.91	5830	33.64	-4.73	-0.19
5490	28.88	-5.39	-0.85	5840	34.33	-4.64	-0.13
				5850	35.86	-4.45	-0.09
2400	41.63	-3.81	2.95				
2410	40.97	-3.87	2.94				
2420	39.68	-4.01	2.96				
2430	39.02	-4.09	2.96				
2440	38.87	-4.1	3.03				
2450	38.72	-4.12	3.03				
2460	37.98	-4.2	2.93				
2470	35.77	-4.46	2.61				
2480	35.33	-4.52	2.48				
2490	36.77	-4.34	2.47				
2500	35.91	-4.45	2.33				
1550	32.77	-4.84	1.81				
1555	33.47	-4.75	1.99				
1560	32.9	-4.83	2.02				
1565	32.42	-4.89	2.02				
1570	33.69	-4.73	2.21				
1575	33.49	-4.75	2.25				
1580	34.38	-4.64	2.38				
1585	34.94	-4.57	2.43				
1590	36.06	-4.43	2.46				

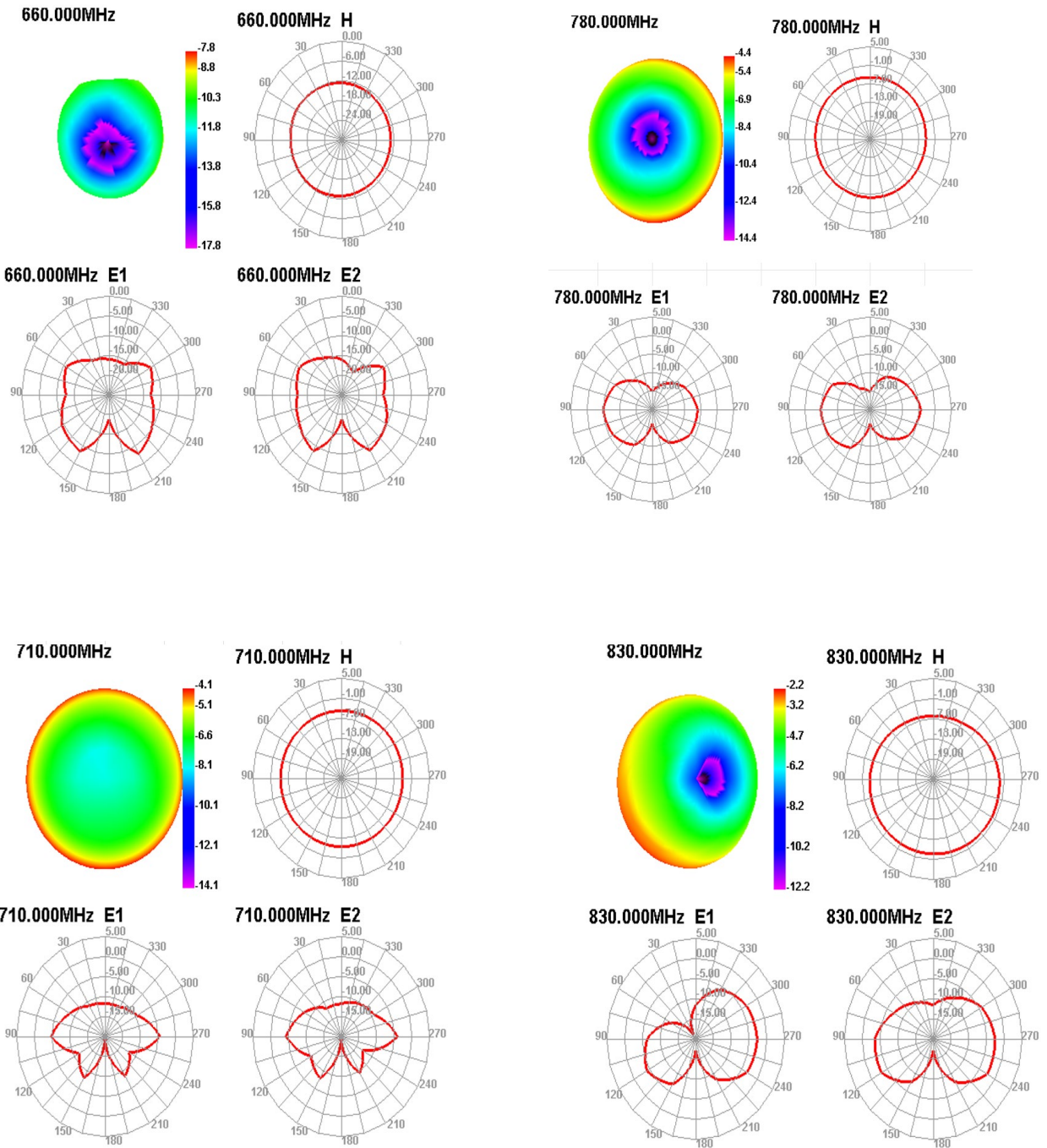
## 2.3 3D Pattern

### ANTO

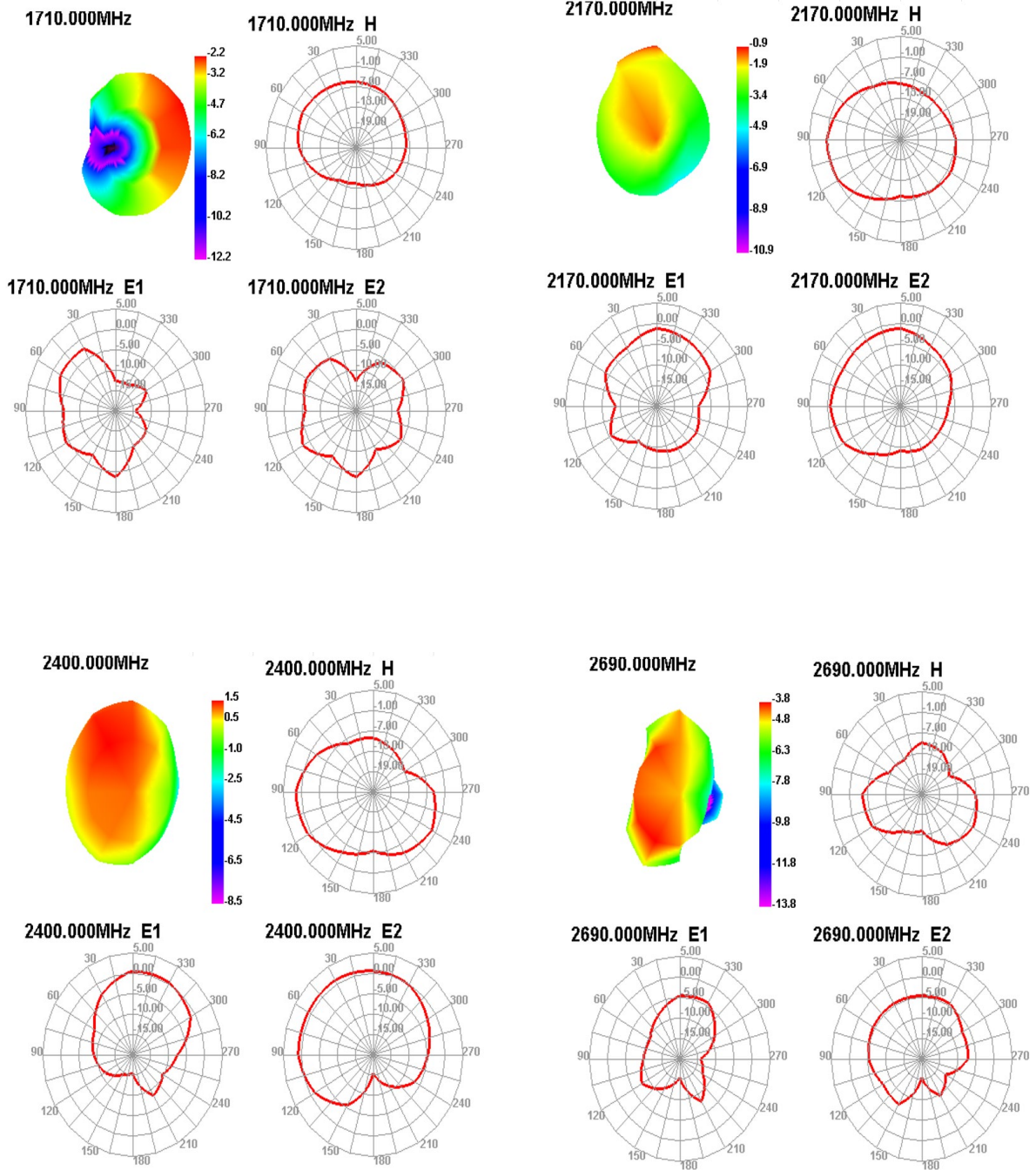




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