5G TCU cellular/Wi-Fi/BT antenna spec

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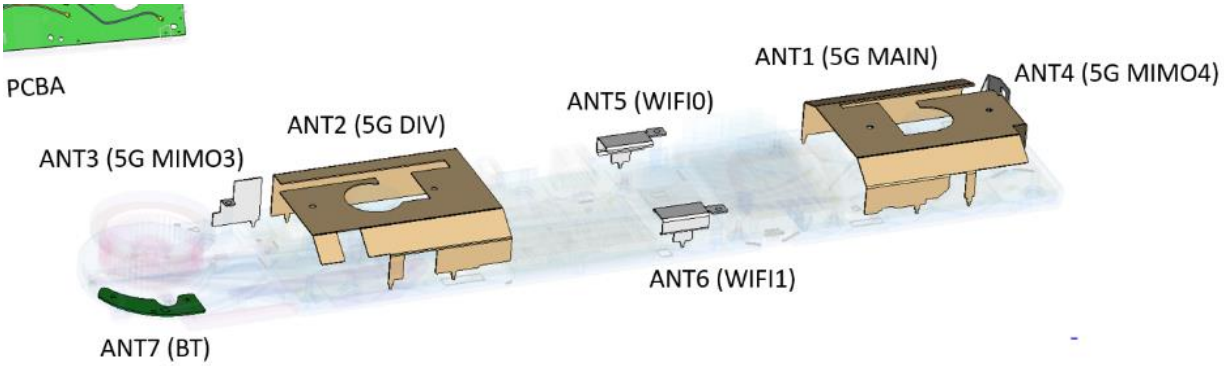
1 Electrical Specification

Frequency Range	600 ~ 5000 MHz (for cellular) 2400 ~ 2500 MHz & 5000 ~ 7000 MHz (for WIFI)
Antenna Model	5G TCU Cellular Antenna; 5G TCU WIFI/BT Antenna
Manufacturer	TESLA INC
Test Facility	TESLA Antenna OTA Chamber
Address:	1501 Page Mill Rd, Palo Alto, CA 94304 USA
Peak Gain (dBi)	-
Average Gain (dBi)	-
Polarization mode	Linear
Connector type	U.FL (compatible MHF1)
Antenna Type	Omni-directional IFA and Monopole Antenna
VSWR	-
Return Loss	~-6
Efficiency	-
Platform pattern	Omni-directional
Output impedance (Ω)	50
Max. Input Power (W)	4 w

2 Mechanical and Environmental Specification

Mounting Type	Solder
Connector Type	UFL
Antenna Size	3 x 2.5 inch (Ant 1 and 2); 1 x 0.75 inch (Ant 3 and 3); 1 x 0.5 inch(WIFI); 1 x 1.5 inch (BT)
Material	Metal
Operating Temperature (°C)	-40 ~ 85C
Storage Temperature (°C)	-45 ~ 105c



3 Antenna Parameters

3.1 ANT Peak Gain

	ANT1	ANT2	ANT3
frequency (MHz)	Peak Gain (dBi)	Peak Gain (dBi)	Peak Gain (dBi)
617	-4.7	1.4	
620	-4.8	1.5	
630	-3.2	1.8	
640	-0.6	1.8	
650	0.0	2.7	
660	0.0	2.6	
670	0.2	2.3	
680	0.1	2.1	
690	1.3	2.5	
700	2.1	2.7	
710	1.7	2.5	
720	1.0	2.0	
730	0.9	1.4	
740	1.4	0.6	
750	0.3	1.3	
760	-1.7	0.7	
770	-3.1	0.8	
780	-2.6	1.0	
790	-1.1	1.6	
800	0.2	1.1	
810	0.6	0.0	
820	0.8	1.0	
830	0.5	1.4	
840	0.5	1.4	
850	1.0	1.5	
860	1.2	1.9	
870	0.9	2.0	
880	0.8	1.6	
890	1.4	1.0	
900	1.9	0.8	
910	2.1	1.3	
920	2.2	1.7	
930	2.1	1.6	
940	1.8	1.1	
950	1.4	0.6	
960	1.1	0.2	
970	0.7	-0.1	

980	0.8	0.4	
990	0.8	0.0	
1000	0.2	-0.5	
1300	-1.2	-0.7	-2.5
1310	-0.8	-0.6	-2.2
1320	-0.1	-0.2	-1.9
1330	0.3	-0.2	-1.9
1340	0.4	-0.3	-1.6
1350	0.3	-0.4	-1.5
1360	0.2	-0.4	-1.3
1370	-0.2	-0.5	-0.8
1380	0.3	-0.2	-0.7
1390	0.6	0.0	-0.5
1400	0.6	0.1	-0.3
1410	0.8	0.7	-0.4
1420	0.7	1.2	-0.4
1430	0.3	1.5	-0.2
1440	0.1	1.9	-0.4
1450	-0.2	1.7	-0.7
1460	0.3	1.5	-0.7
1470	1.0	1.9	-0.7
1480	1.4	2.3	-0.4
1490	1.5	2.5	0.2
1500	2.1	3.0	0.8
1510	2.8	3.5	1.5
1520	3.0	3.5	2.0
1530	3.2	3.6	2.1
1540	3.3	3.6	1.9
1550	3.4	3.4	1.6
1560	3.8	3.7	1.5
1570	4.3	4.0	1.7
1580	4.5	4.0	1.9
1590	4.7	3.9	2.0
1600	4.9	3.9	2.0
1610	5.1	3.9	1.8
1620	5.3	3.8	1.3
1630	5.6	3.8	1.1
1640	5.7	3.7	1.2
1650	5.6	3.4	1.0
1660	5.6	3.3	0.7
1670	5.6	3.3	0.7
1680	5.3	3.3	0.6
1690	5.0	3.4	0.5

1700	4.7	3.6	0.7
1710	4.0	3.8	0.9
1720	3.3	3.9	0.7
1730	3.3	4.1	0.6
1740	3.7	4.7	0.9
1750	3.8	5.1	1.1
1760	3.6	4.9	1.3
1770	3.5	4.8	1.5
1780	3.5	4.5	1.2
1790	3.4	4.2	1.0
1800	3.6	4.6	1.2
1810	3.4	4.7	0.7
1820	3.1	4.6	0.0
1830	3.2	4.9	-0.2
1840	3.5	5.4	-0.1
1850	3.4	5.7	-0.2
1860	3.3	5.6	-0.2
1870	3.3	5.6	-0.2
1880	3.2	5.3	0.0
1890	3.5	5.2	0.3
1900	3.8	5.2	0.4
1910	3.8	4.7	0.6
1920	3.8	4.2	0.6
1930	3.9	3.9	0.8
1940	4.0	3.7	1.0
1950	4.0	3.7	1.1
1960	3.8	3.7	0.9
1970	3.7	3.8	0.9
1980	3.8	4.0	0.9
1990	3.9	4.2	0.9
2000	3.9	4.4	0.7
2010	3.5	4.0	0.3
2020	3.5	4.0	0.5
2030	3.6	4.0	0.7
2040	3.6	4.0	0.7
2050	3.6	3.9	0.7
2060	3.4	3.7	0.3
2070	3.2	3.3	0.3
2080	3.3	3.1	0.4
2090	3.4	3.0	0.3
2100	3.5	3.1	0.2
2110	3.9	3.3	0.3
2120	4.0	3.5	0.3

2130	3.9	3.4	0.1
2140	3.8	3.3	0.2
2150	3.7	3.2	0.3
2160	3.5	2.8	0.2
2170	3.6	2.9	0.6
2180	3.6	2.8	0.8
2190	3.4	2.4	0.5
2200	3.6	2.5	0.7
2210	3.8	2.8	0.8
2220	3.7	2.8	0.7
2230	3.7	3.1	0.8
2240	3.6	3.3	0.8
2250	3.3	3.1	0.4
2260	3.3	3.1	0.3
2270	3.5	3.3	0.5
2280	3.6	3.2	0.4
2290	3.7	3.4	0.6
2300	3.9	3.5	0.6
2310	3.8	3.5	0.3
2320	3.7	3.4	0.1
2330	3.7	3.6	0.0
2340	3.6	3.7	-0.1
2350	3.4	3.6	-0.1
2360	3.6	3.8	0.4
2370	3.5	3.7	0.5
2380	3.3	3.4	0.7
2390	3.0	3.1	0.8
2400	3.0	3.0	1.0
2410	2.8	3.0	1.2
2420	2.6	2.8	1.1
2430	2.5	2.5	1.1
2440	2.7	2.4	1.1
2450	2.8	2.2	0.8
2460	2.9	1.9	0.8
2470	3.1	1.9	0.8
2480	3.1	1.7	0.8
2490	2.9	1.2	0.7
2500	2.4	0.7	0.3
2510	2.1	0.2	0.1
2520	1.7	-0.1	0.1
2530	1.6	-0.2	0.2
2540	1.4	-0.4	0.0
2550	1.1	-0.4	0.0

2560	0.8	-0.1	-0.1
2570	0.3	-0.1	-0.3
2580	0.0	0.0	-0.4
2590	-0.1	0.2	-0.3
2600	-0.5	0.3	-0.4
2610	-0.4	0.3	-0.4
2620	-0.1	0.7	-0.3
2630	0.2	0.9	-0.3
2640	0.7	1.3	-0.3
2650	1.2	1.7	-0.8
2660	1.8	2.0	-1.0
2670	2.3	2.5	-0.6
2680	2.8	2.8	-0.5
2690	3.0	2.9	-0.5
2700	3.3	3.2	-0.4
2710	3.5	3.4	-0.5
2720	3.5	3.6	-0.4
2730	3.5	3.7	-0.5
2740	3.4	3.7	-0.6
2750	3.3	3.7	-0.5
2760	3.3	3.7	-0.4
2770	3.3	3.6	-0.3
2780	3.1	3.6	-0.3
2790	2.9	3.6	-0.2
2800	2.6	3.5	-0.2
3000	2.7	3.8	2.3
3050	2.7	4.4	2.9
3100	1.8	4.2	2.6
3150	1.6	4.4	2.2
3200	1.1	3.5	1.6
3250	1.0	4.0	0.5
3300	0.9	3.3	-0.6
3350	0.4	1.7	-0.5
3400	0.5	0.8	-0.1
3450	0.7	0.4	0.6
3500	1.3	0.1	1.2
3550	2.1	0.7	1.4
3600	3.2	1.3	1.3
3650	3.4	2.0	1.0
3700	3.3	2.5	1.3
3750	3.3	2.8	1.3
3800	3.7	2.9	1.5
3850	2.6	1.8	1.2

3900	3.0	1.1	1.2
3950	3.0	1.4	1.0
4000	2.8	2.2	1.5
4050	2.7	2.2	2.3
4100	2.2	2.7	2.9
4150	2.3	3.1	2.7
4200	2.1	3.7	2.5
4250	2.0	3.3	2.4
4300	1.6	3.1	2.1
4350	1.6	2.5	1.7
4400	1.1	1.8	1.8
4450	1.0	2.0	1.2
4500	1.1	2.6	0.5
4550	0.9	2.1	0.6
4600	1.1	2.4	0.6
4650	1.1	3.2	1.5
4700	1.1	3.2	1.5
4750	1.0	3.3	1.6
4800	1.8	4.2	1.4
4850	2.5	3.9	1.3
4900	2.5	4.2	1.0
4950	2.7	3.8	0.6
5000	2.4	4.2	0.9

	ANT5 (WIFI0)	ANT6 (WIFI1)	ANT7 (BT)
frequency (MHz)	Peak Gain (dBi)	Peak Gain (dBi)	Peak Gain (dBi)
2300	2.5	2.5	
2310	2.5	2.4	
2320	2.4	2.4	
2330	2.4	2.5	
2340	2.4	2.5	
2350	2.7	2.6	
2360	3.1	2.8	
2370	3.1	2.9	
2380	3.2	3.0	
2390	3.1	3.0	
2412	3.0	2.9	1.2
2417	2.9	2.8	1.2
2422	2.8	2.7	1.1
2427	2.8	2.5	1.1
2432	2.7	2.6	1.2
2437	2.6	2.6	1.2
2442	2.6	2.4	1.3
2447	2.6	2.3	1.3
2452	2.6	2.3	1.3
2457	2.7	2.2	1.3
2462	2.8	2.1	1.4
2467	3.0	2.3	1.5
2472	3.1	2.7	1.6
2484	3.1	2.8	1.8
2500	2.9	3.1	2.0
2510	2.7	3.1	2.0
2520	2.4	2.9	
2530	2.4	2.8	
2540	2.5	2.9	
2550	2.1	2.7	
2560	2.4	2.4	
2570	2.8	2.8	
2580	2.9	3.2	
2590	3.2	3.4	
2600	3.6	3.8	
4500	3.3	2.8	
4550	3.0	2.0	
4600	3.4	2.9	
4650	4.0	2.7	

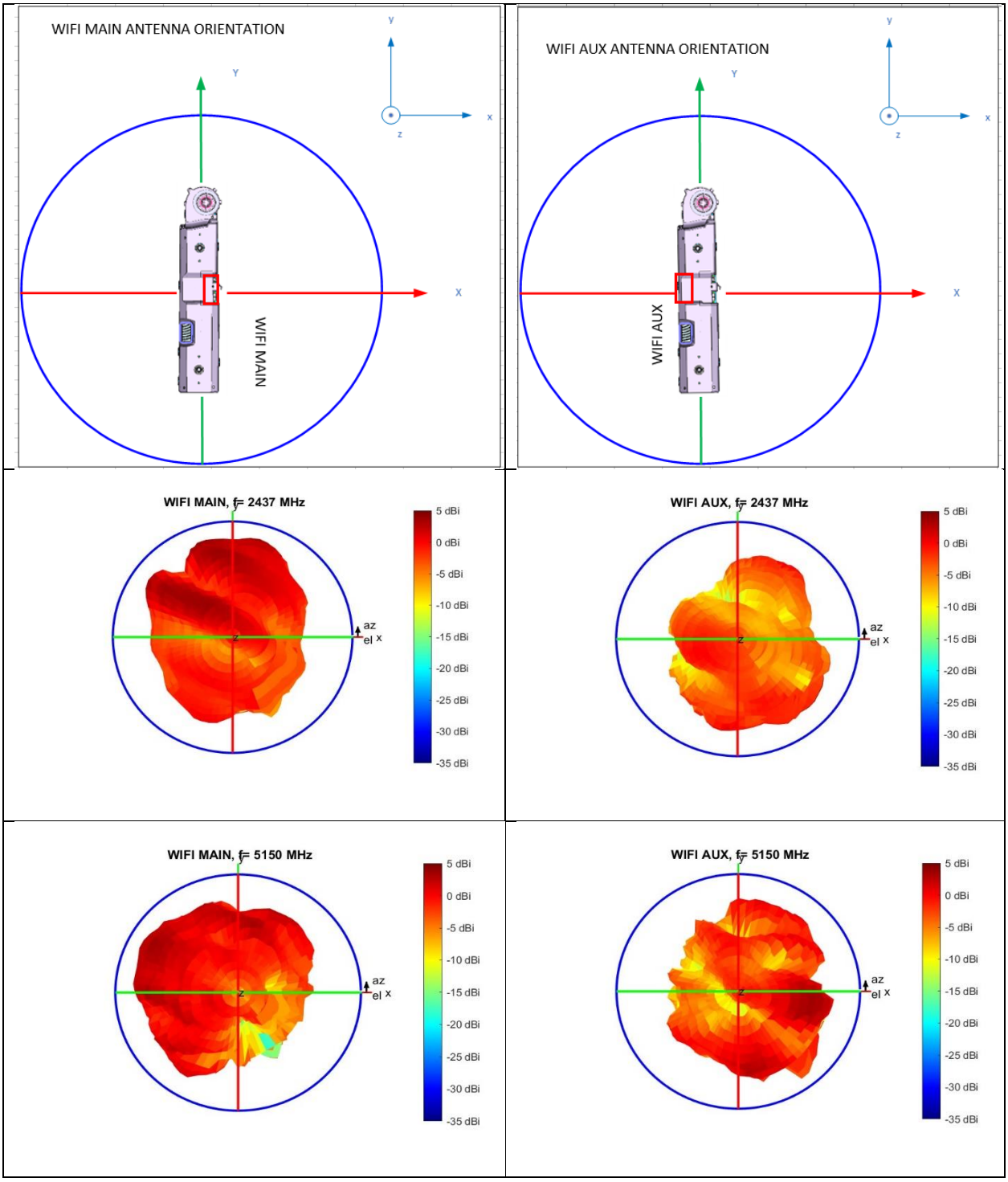
4700	3.9	3.8
4750	3.5	2.7
4800	4.0	3.7
4850	3.7	4.1
4900	3.3	3.7
4950	3.5	3.9
5000	3.6	4.6
5150	4.2	2.5
5160	4.1	2.5
5180	4.2	2.7
5200	4.2	3.0
5220	4.1	3.0
5240	4.4	3.2
5260	4.4	3.2
5280	4.4	3.4
5300	4.3	3.2
5320	4.4	3.3
5340	4.4	3.5
5360	4.3	3.5
5380	5.0	3.9
5400	4.8	3.9
5420	5.0	4.1
5440	5.2	4.2
5460	5.0	4.4
5480	5.0	4.5
5500	4.9	4.3
5520	5.0	4.5
5540	5.3	4.5
5560	5.1	4.4
5580	4.9	4.0
5600	4.6	4.1
5620	4.7	3.9
5640	4.6	4.0
5660	4.5	3.8
5680	4.7	3.6
5700	4.4	3.6
5720	4.5	3.4
5745	4.7	3.5
5765	4.6	3.5
5785	4.2	3.5
5805	4.2	3.3
5825	3.8	2.8
5845	3.7	3.2

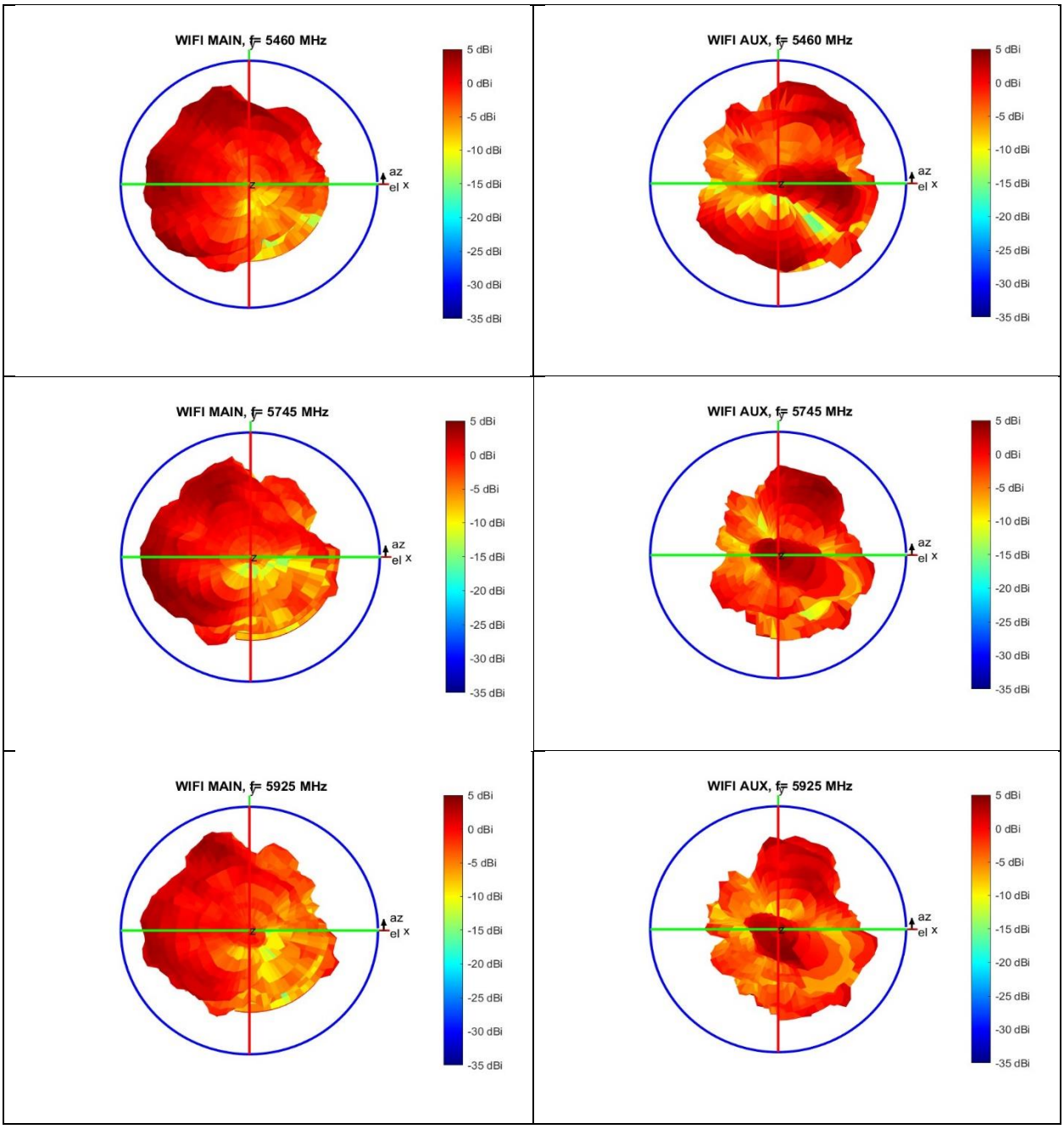
5865	3.5	2.9
5885	3.4	3.3
5895	3.3	3.2
5925	2.6	2.8
5935	3.0	2.6
5955	2.9	2.5
5975	3.0	2.8
5995	2.9	2.9
6015	3.0	2.9
6035	3.0	2.4
6055	3.1	1.7
6075	3.4	1.6
6095	3.7	1.9
6115	3.7	1.5
6135	3.5	1.3
6155	3.3	1.5
6175	3.2	1.3
6195	3.4	1.1
6215	3.0	1.5
6235	2.9	1.3
6255	2.8	1.4
6275	2.8	1.2
6295	2.4	1.1
6315	2.2	1.1
6335	2.4	1.3
6355	2.3	1.5
6375	2.1	1.7
6395	2.1	2.0
6415	2.2	2.1
6435	2.2	2.1
6455	2.1	2.1
6475	1.9	2.2
6495	1.7	1.9
6515	1.7	1.8
6535	1.7	1.7
6555	1.9	1.8
6575	1.7	1.6
6595	1.5	1.6
6615	1.8	1.4
6635	1.7	1.2
6655	1.7	1.2
6675	2.1	1.2
6695	2.0	1.4

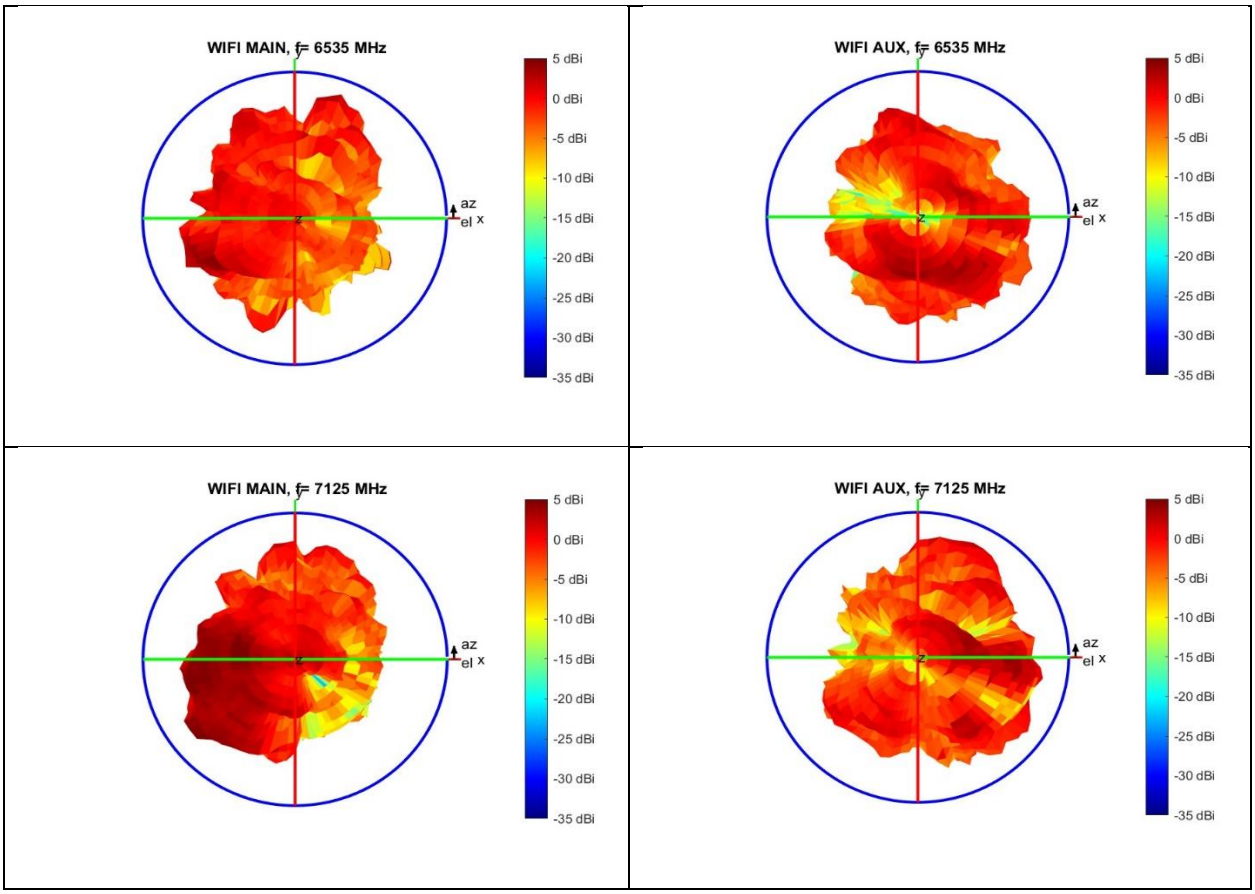
6715	2.0	1.5
6735	2.4	1.7
6755	2.5	2.2
6775	2.7	2.1
6795	2.8	2.3
6815	2.8	2.5
6835	2.7	2.5
6855	2.5	2.5
6875	2.6	2.8
6895	2.7	2.9
6915	3.2	2.9
6935	3.0	3.2
6955	3.0	2.7
6975	2.5	2.3
6995	2.3	2.4
7015	2.6	2.6
7035	2.5	2.5
7055	2.7	2.6
7075	2.6	2.4
7095	2.4	2.4
7115	2.3	2.4
7125	2.3	2.3

3.2 ANT Radiated Pattern

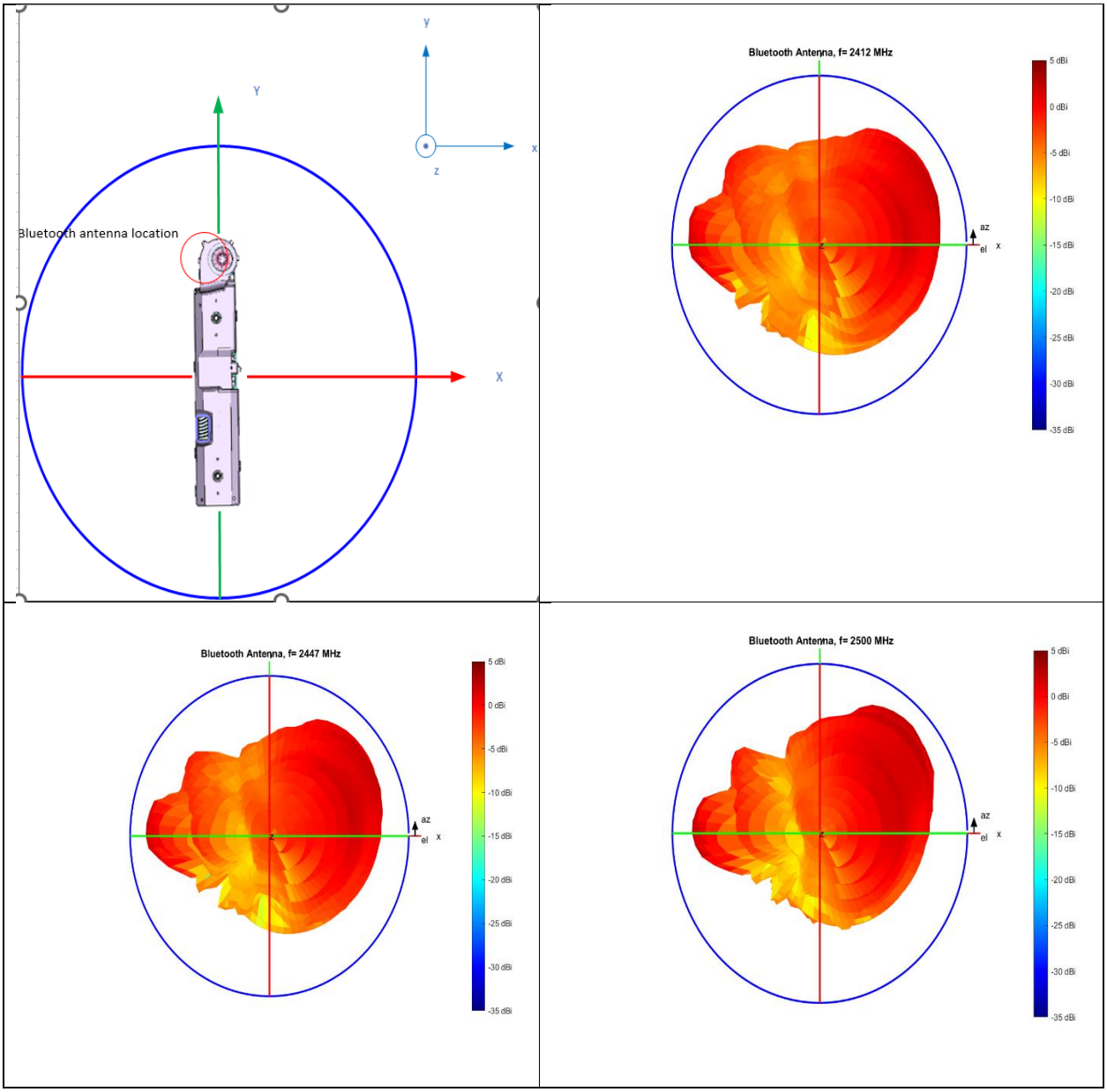
WIFI Antena Radiated Pattern:




WIFI MAIN, f= 5460 MHz
WIFI AUX, f= 5460 MHz
WIFI MAIN, f= 5745 MHz
WIFI AUX, f= 5745 MHz
WIFI MAIN, f= 5925 MHz
WIFI AUX, f= 5925 MHz
5 dBi
0 dBi
-5 dBi
-10 dBi
-15 dBi
-20 dBi
-25 dBi
-30 dBi
-35 dBi
az
el x
y
z

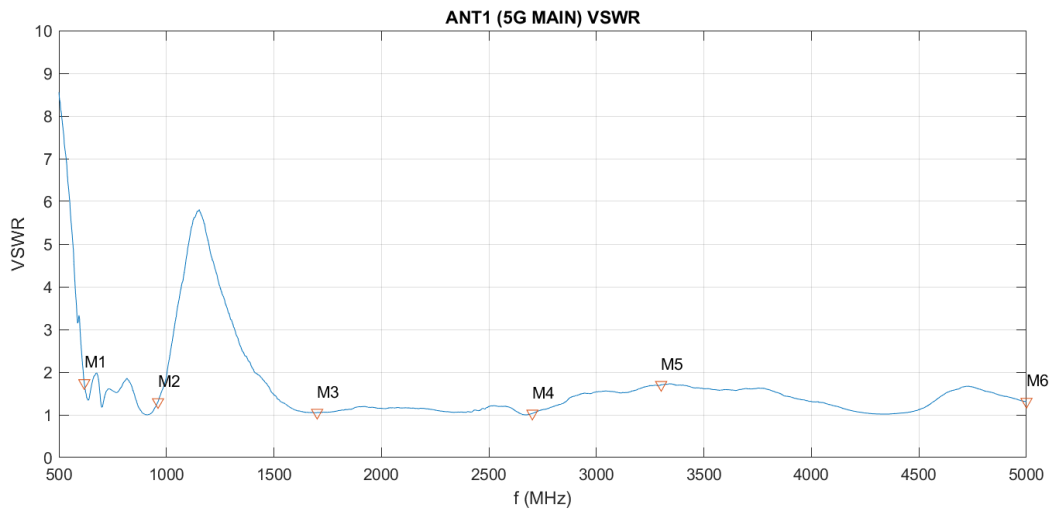

WIFI MAIN, f= 6535 MHz
WIFI AUX, f= 6535 MHz
WIFI MAIN, f= 7125 MHz
WIFI AUX, f= 7125 MHz
y
z
az
el x
5 dBi
0 dBi
-5 dBi
-10 dBi
-15 dBi
-20 dBi
-25 dBi
-30 dBi
-35 dBi

BT Antenna Radiated Pattern

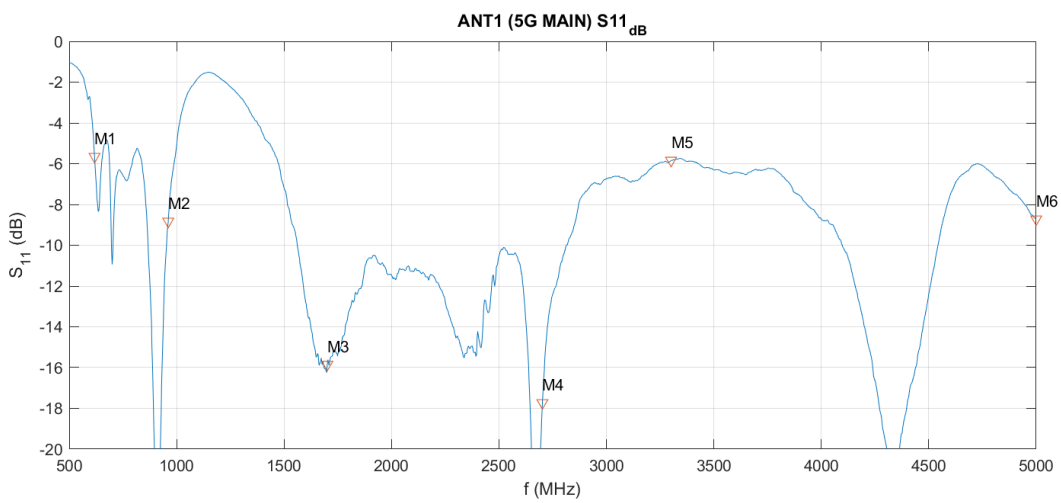


3.3 ANT1 (5G MAIN ANTENNA)

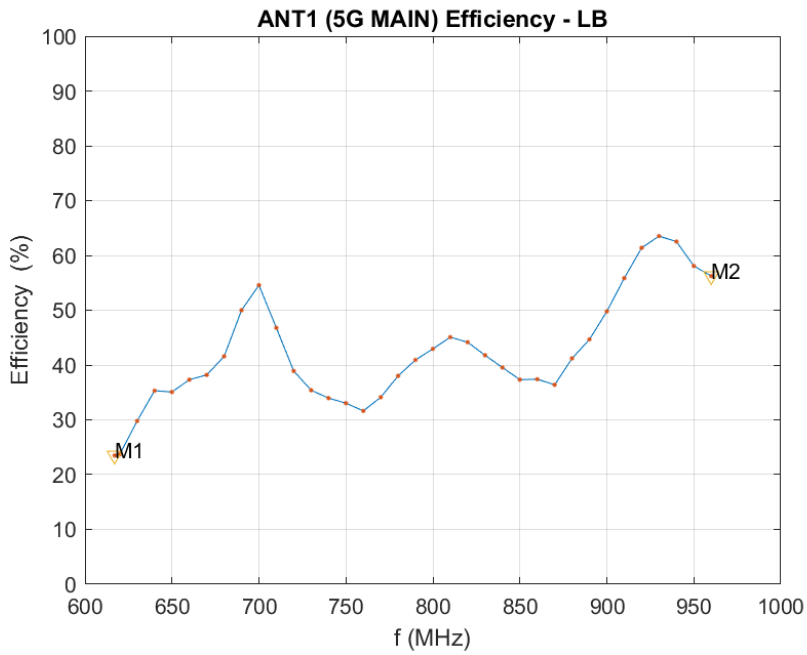
FRE (MHz)	617	960	1700	2690	3300	5000
VSWR	1.75	1.30	1.05	1.03	1.70	1.31
Return Loss (dB)	-5.65	-8.83	-15.85	-17.73	-5.84	-8.72
Efficiency (%)	23.5	56.2	68.7	83.6	57.3	77.4



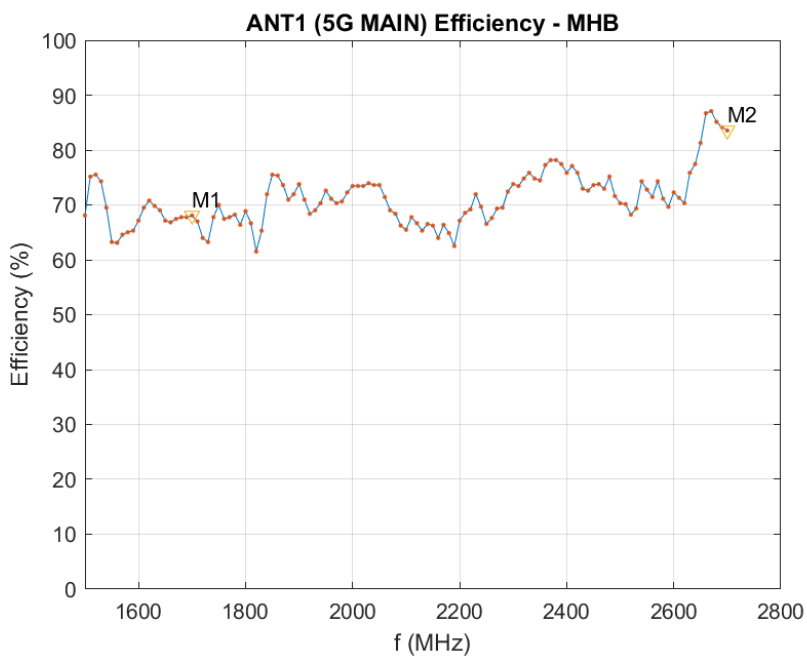
VSWR



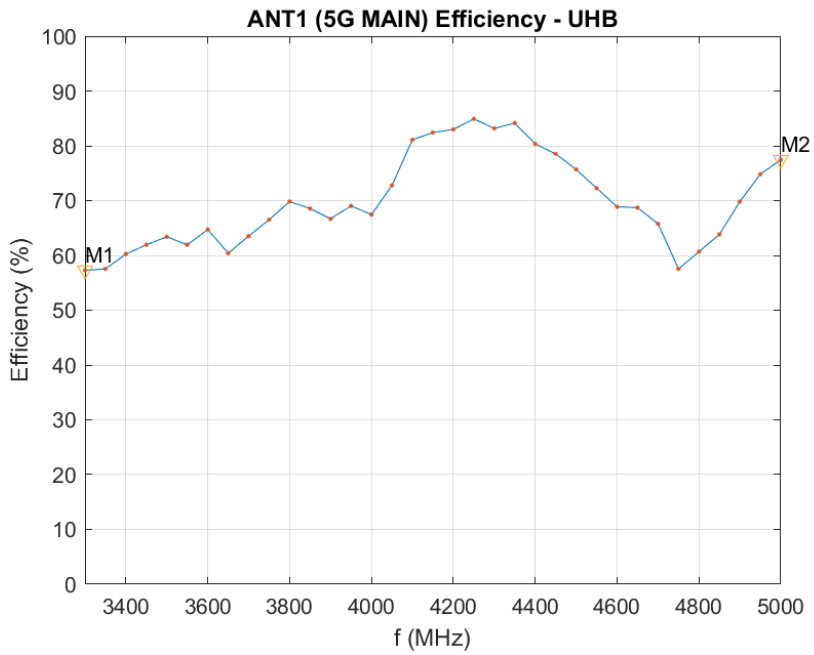
Return Loss



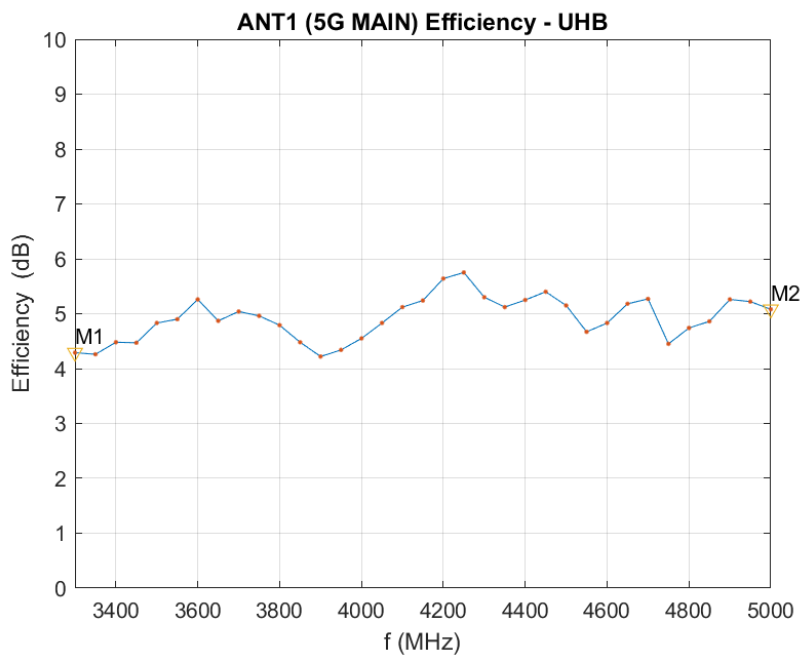
617 ~ 960 MHz efficiency



1500 ~ 2700 MHz Efficiency



3300 ~ 5000 MHz Efficiency



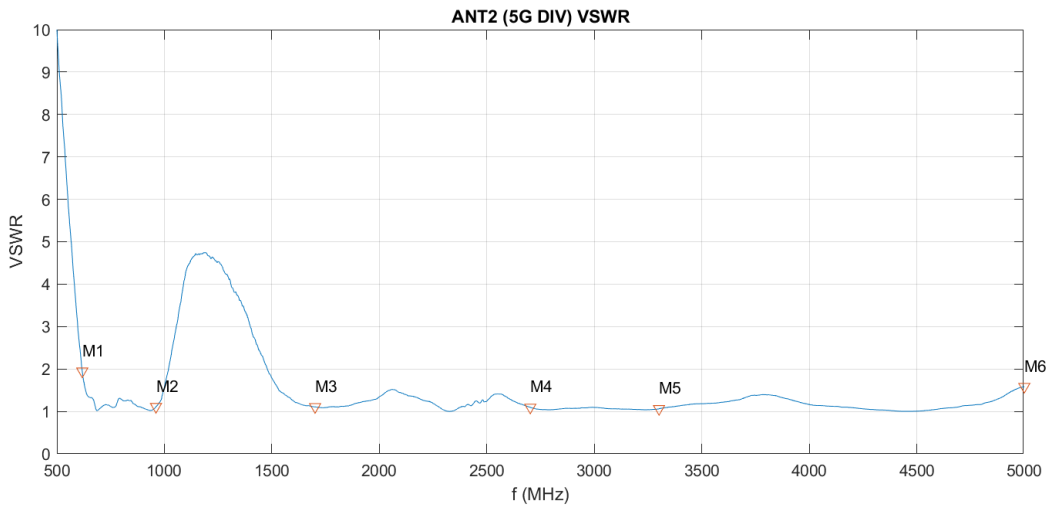
3300 ~ 5000 MHz ANT1 Peak Gain

Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)
617	23.5	-6.29	1670	67.4	-1.71	2440	72.7	-1.39
620	23.7	-6.25	1680	67.8	-1.69	2450	73.6	-1.33
630	29.8	-5.26	1690	67.8	-1.69	2460	73.7	-1.32
640	35.3	-4.52	1700	68.1	-1.67	2470	72.9	-1.37
650	35.1	-4.55	1710	67.0	-1.74	2480	75.2	-1.24
660	37.3	-4.28	1720	64.0	-1.94	2490	71.5	-1.45
670	38.2	-4.18	1730	63.2	-1.99	2500	70.3	-1.53
680	41.6	-3.81	1740	67.8	-1.69	2510	70.2	-1.54
690	50.0	-3.01	1750	70.0	-1.55	2520	68.2	-1.66
700	54.6	-2.63	1760	67.4	-1.71	2530	69.4	-1.59
710	46.8	-3.30	1770	67.7	-1.69	2540	74.3	-1.29
720	38.9	-4.10	1780	68.3	-1.66	2550	72.8	-1.38
730	35.4	-4.51	1790	66.4	-1.78	2560	71.5	-1.46
740	33.9	-4.69	1800	68.9	-1.62	2570	74.3	-1.29
750	33.0	-4.81	1810	66.6	-1.76	2580	71.1	-1.48
760	31.6	-5.00	1820	61.5	-2.11	2590	69.7	-1.57
770	34.1	-4.67	1830	65.4	-1.85	2600	72.3	-1.41
780	38.0	-4.20	1840	72.0	-1.43	2610	71.3	-1.47
790	40.9	-3.88	1850	75.5	-1.22	2620	70.4	-1.53
800	43.0	-3.67	1860	75.4	-1.23	2630	75.9	-1.20
810	45.1	-3.46	1870	73.7	-1.33	2640	77.5	-1.11
820	44.1	-3.55	1880	70.9	-1.49	2650	81.2	-0.90
830	41.8	-3.79	1890	71.9	-1.43	2660	86.7	-0.62
840	39.5	-4.03	1900	73.7	-1.32	2670	87.0	-0.60
850	37.3	-4.28	1910	70.9	-1.49	2680	85.2	-0.70
860	37.5	-4.27	1920	68.4	-1.65	2690	84.0	-0.75
870	36.4	-4.39	1930	69.0	-1.61	2700	83.5	-0.78
880	41.2	-3.85	1940	70.3	-1.53	2710	81.6	-0.88
890	44.7	-3.50	1950	72.7	-1.39	2720	80.2	-0.96
900	49.8	-3.03	1960	71.1	-1.48	2730	79.7	-0.98
910	55.9	-2.53	1970	70.4	-1.53	2740	76.7	-1.15
920	61.4	-2.12	1980	70.7	-1.51	2750	77.2	-1.12
930	63.6	-1.97	1990	72.3	-1.41	2760	77.1	-1.13
940	62.5	-2.04	2000	73.5	-1.34	2770	76.7	-1.15
950	58.1	-2.36	2010	73.4	-1.34	2780	75.6	-1.21
960	56.2	-2.50	2020	73.4	-1.34	2790	72.3	-1.41
970	57.1	-2.43	2030	74.0	-1.31	2800	71.1	-1.48
980	54.9	-2.60	2040	73.6	-1.33	3000	68.4	-1.65
990	50.5	-2.97	2050	73.6	-1.33	3050	68.2	-1.66
1000	46.5	-3.33	2060	71.4	-1.46	3100	65.7	-1.83
1300	23.6	-6.27	2070	69.0	-1.61	3150	66.6	-1.76
1310	26.0	-5.86	2080	68.4	-1.65	3200	64.9	-1.88
1320	27.7	-5.57	2090	66.2	-1.79	3250	59.6	-2.25
1330	30.1	-5.21	2100	65.5	-1.84	3300	57.3	-2.42

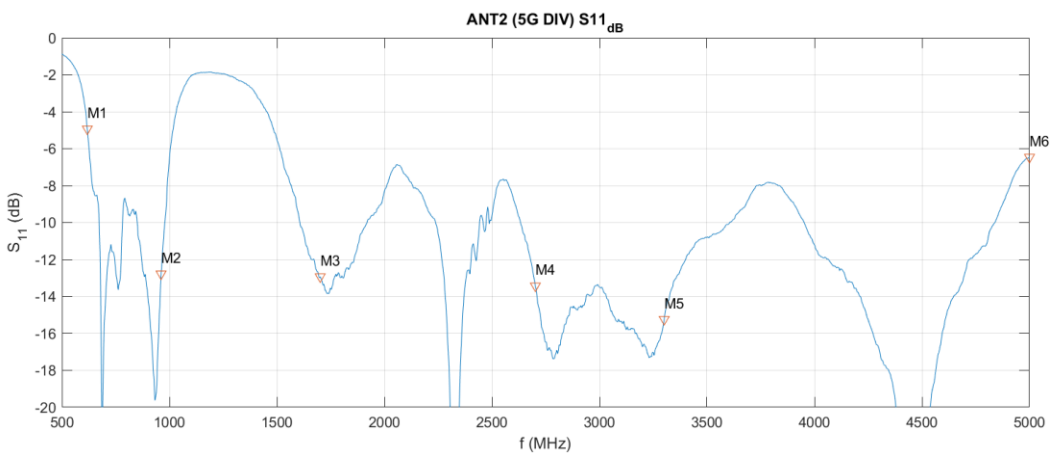
1340	32.3	-4.91	2110	67.8	-1.69	3350	57.5	-2.40
1350	34.0	-4.69	2120	66.7	-1.76	3400	60.2	-2.20
1360	37.5	-4.26	2130	65.4	-1.85	3450	61.9	-2.08
1370	38.9	-4.10	2140	66.5	-1.77	3500	63.3	-1.98
1380	41.3	-3.85	2150	66.2	-1.79	3550	62.0	-2.08
1390	45.2	-3.44	2160	63.9	-1.94	3600	64.8	-1.89
1400	48.1	-3.18	2170	66.4	-1.78	3650	60.4	-2.19
1410	52.7	-2.78	2180	64.8	-1.88	3700	63.6	-1.97
1420	57.5	-2.40	2190	62.5	-2.04	3750	66.5	-1.77
1430	56.6	-2.47	2200	67.1	-1.73	3800	69.8	-1.56
1440	56.1	-2.51	2210	68.5	-1.64	3850	68.5	-1.64
1450	56.9	-2.45	2220	69.2	-1.60	3900	66.7	-1.76
1460	57.7	-2.39	2230	71.9	-1.43	3950	69.1	-1.61
1470	59.5	-2.26	2240	69.6	-1.57	4000	67.5	-1.71
1480	62.4	-2.05	2250	66.6	-1.77	4050	72.8	-1.38
1490	63.0	-2.01	2260	67.7	-1.70	4100	81.1	-0.91
1500	68.1	-1.67	2270	69.4	-1.59	4150	82.4	-0.84
1510	75.2	-1.24	2280	69.5	-1.58	4200	82.9	-0.81
1520	75.6	-1.22	2290	72.5	-1.40	4250	84.9	-0.71
1530	74.4	-1.29	2300	73.9	-1.32	4300	83.2	-0.80
1540	69.6	-1.58	2310	73.4	-1.34	4350	84.1	-0.75
1550	63.3	-1.99	2320	74.9	-1.26	4400	80.3	-0.95
1560	63.1	-2.00	2330	75.9	-1.20	4450	78.5	-1.05
1570	64.5	-1.90	2340	74.8	-1.26	4500	75.6	-1.21
1580	65.0	-1.87	2350	74.5	-1.28	4550	72.3	-1.41
1590	65.3	-1.85	2360	77.3	-1.12	4600	68.9	-1.62
1600	67.1	-1.73	2370	78.2	-1.07	4650	68.7	-1.63
1610	69.5	-1.58	2380	78.1	-1.07	4700	65.8	-1.82
1620	70.8	-1.50	2390	77.4	-1.11	4750	57.5	-2.40
1630	69.8	-1.56	2400	75.9	-1.20	4800	60.6	-2.17
1640	69.0	-1.61	2410	77.1	-1.13	4850	63.8	-1.95
1650	67.1	-1.73	2420	75.8	-1.20	4900	69.9	-1.56
1660	66.9	-1.75	2430	73.0	-1.37	4950	74.9	-1.26
						5000	77.5	-1.11

3.4 ANT2 (5G DIV ANTENNA)

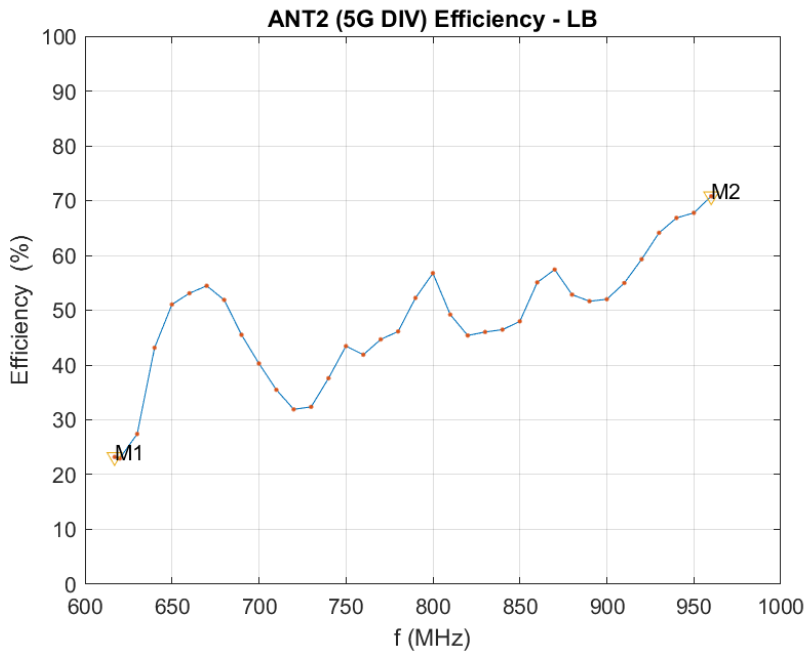
FRE (MHz)	617	960	1700	2690	3300	5000
VSWR	1.95	1.11	1.11	1.09	1.06	1.58
Return Loss (dB)	-4.93	-12.78	-12.93	-13.43	-15.24	-6.46
Efficiency (%)	23.23	70.79	64.27	77.09	86.10	66.22



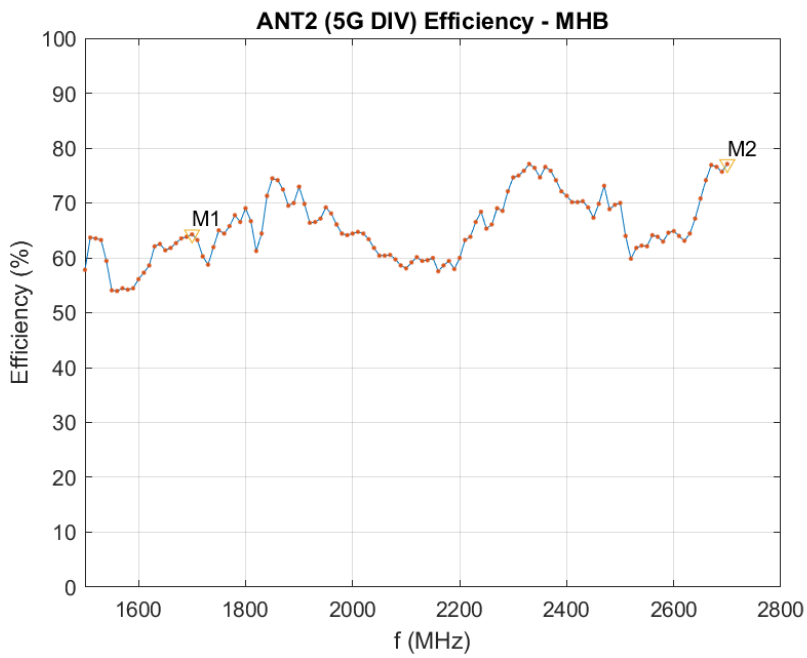
VSWR



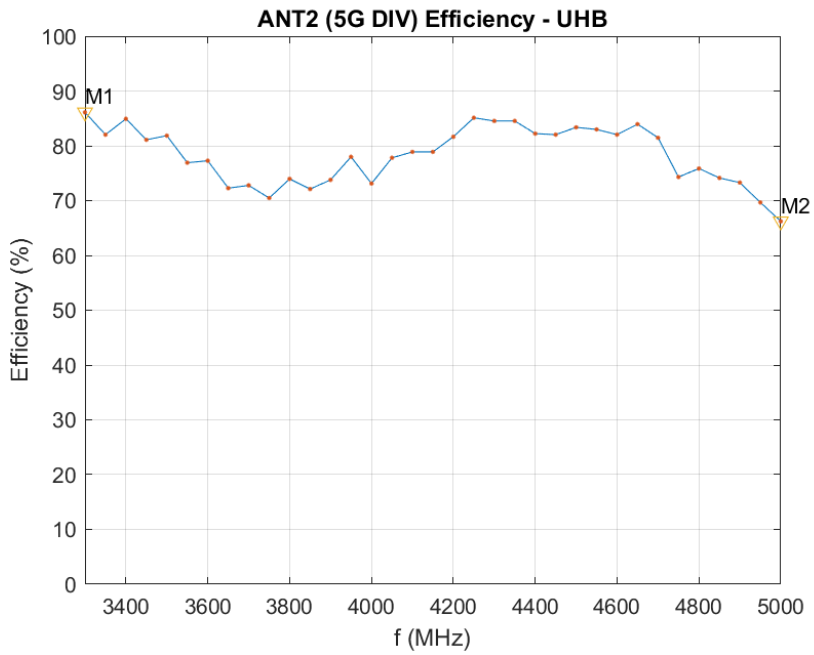
Return Loss



617 ~ 960 MHz ANT2 Efficiency



1500 ~ 2700 MHz ANT2 Efficiency



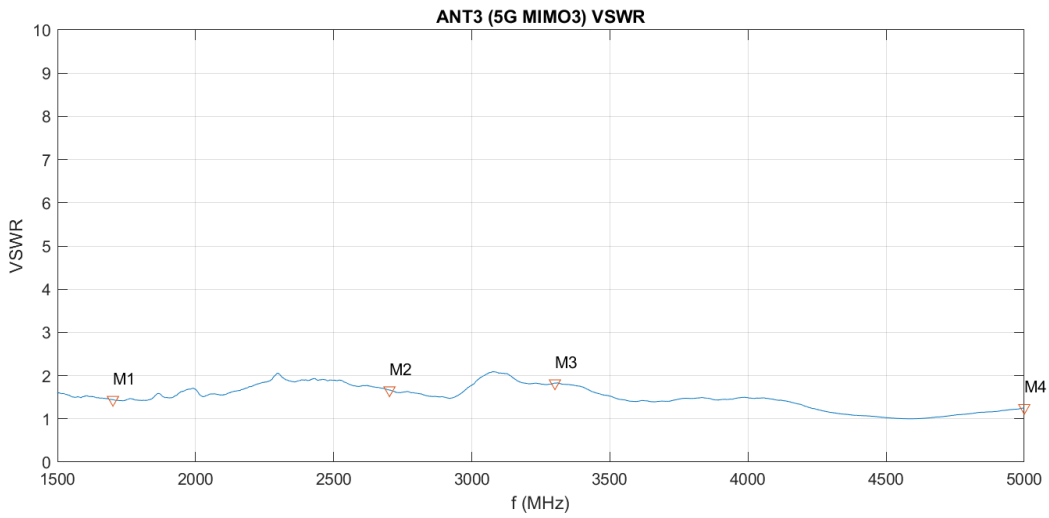
3300 ~ 5000 MHz ANT2 Efficiency

Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)
617	23.20	-6.34	1670	62.64	-2.03	2440	69.12	-1.60
620	22.97	-6.39	1680	63.51	-1.97	2450	67.33	-1.72
630	27.41	-5.62	1690	63.87	-1.95	2460	69.84	-1.56
640	43.12	-3.65	1700	64.21	-1.92	2470	73.09	-1.36
650	51.03	-2.92	1710	63.22	-1.99	2480	68.92	-1.62
660	53.10	-2.75	1720	60.23	-2.20	2490	69.71	-1.57
670	54.43	-2.64	1730	58.73	-2.31	2500	69.91	-1.55
680	51.90	-2.85	1740	61.97	-2.08	2510	63.99	-1.94
690	45.53	-3.42	1750	64.98	-1.87	2520	59.86	-2.23
700	40.26	-3.95	1760	64.35	-1.91	2530	61.80	-2.09
710	35.51	-4.50	1770	65.83	-1.82	2540	62.29	-2.06
720	31.94	-4.96	1780	67.74	-1.69	2550	62.11	-2.07
730	32.35	-4.90	1790	66.52	-1.77	2560	64.15	-1.93
740	37.59	-4.25	1800	69.01	-1.61	2570	63.83	-1.95
750	43.43	-3.62	1810	66.73	-1.76	2580	62.94	-2.01
760	41.88	-3.78	1820	61.17	-2.13	2590	64.56	-1.90
770	44.62	-3.50	1830	64.41	-1.91	2600	64.88	-1.88
780	46.14	-3.36	1840	71.23	-1.47	2610	64.04	-1.94
790	52.20	-2.82	1850	74.50	-1.28	2620	63.13	-2.00
800	56.72	-2.46	1860	74.06	-1.30	2630	64.48	-1.91
810	49.19	-3.08	1870	72.43	-1.40	2640	67.17	-1.73
820	45.39	-3.43	1880	69.48	-1.58	2650	70.88	-1.50
830	46.02	-3.37	1890	70.04	-1.55	2660	74.11	-1.30
840	46.44	-3.33	1900	73.00	-1.37	2670	76.94	-1.14
850	47.96	-3.19	1910	69.75	-1.56	2680	76.49	-1.16
860	55.14	-2.59	1920	66.37	-1.78	2690	75.71	-1.21
870	57.38	-2.41	1930	66.57	-1.77	2700	77.16	-1.13
880	52.85	-2.77	1940	67.10	-1.73	2710	78.10	-1.07
890	51.64	-2.87	1950	69.24	-1.60	2720	79.04	-1.02
900	51.96	-2.84	1960	68.10	-1.67	2730	80.11	-0.96
910	54.94	-2.60	1970	66.02	-1.80	2740	79.55	-0.99
920	59.32	-2.27	1980	64.35	-1.91	2750	80.63	-0.94
930	64.10	-1.93	1990	64.16	-1.93	2760	81.94	-0.86
940	66.81	-1.75	2000	64.43	-1.91	2770	83.24	-0.80
950	67.73	-1.69	2010	64.72	-1.89	2780	83.79	-0.77
960	70.84	-1.50	2020	64.45	-1.91	2790	82.57	-0.83
970	71.98	-1.43	2030	63.34	-1.98	2800	81.36	-0.90
980	71.55	-1.45	2040	61.76	-2.09	3000	94.83	-0.23
990	66.20	-1.79	2050	60.43	-2.19	3050	93.71	-0.28
1000	60.90	-2.15	2060	60.44	-2.19	3100	88.96	-0.51
1300	22.04	-6.57	2070	60.56	-2.18	3150	91.05	-0.41
1310	22.82	-6.42	2080	59.64	-2.24	3200	91.06	-0.41
1320	25.36	-5.96	2090	58.56	-2.32	3250	88.14	-0.55
1330	26.65	-5.74	2100	58.07	-2.36	3300	86.15	-0.65

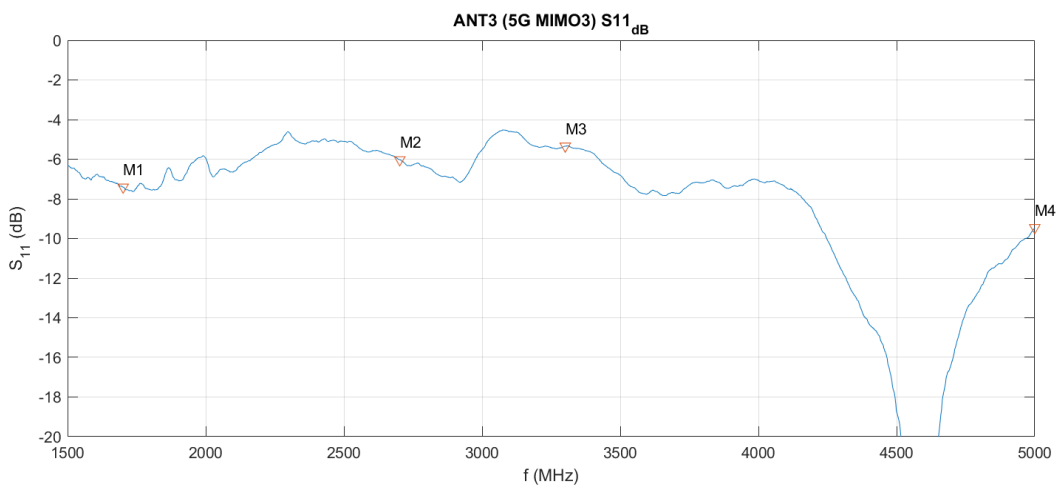
1340	27.98	-5.53	2110	59.19	-2.28	3350	82.02	-0.86
1350	29.57	-5.29	2120	60.10	-2.21	3400	84.90	-0.71
1360	30.83	-5.11	2130	59.45	-2.26	3450	81.17	-0.91
1370	31.05	-5.08	2140	59.54	-2.25	3500	81.81	-0.87
1380	35.01	-4.56	2150	60.01	-2.22	3550	76.89	-1.14
1390	39.37	-4.05	2160	57.55	-2.40	3600	77.18	-1.12
1400	40.86	-3.89	2170	58.63	-2.32	3650	72.23	-1.41
1410	44.92	-3.48	2180	59.37	-2.26	3700	72.73	-1.38
1420	47.16	-3.26	2190	57.89	-2.37	3750	70.47	-1.52
1430	46.12	-3.36	2200	60.05	-2.22	3800	73.90	-1.31
1440	47.78	-3.21	2210	63.26	-1.99	3850	72.19	-1.42
1450	47.44	-3.24	2220	63.80	-1.95	3900	73.74	-1.32
1460	47.37	-3.25	2230	66.46	-1.77	3950	77.92	-1.08
1470	48.97	-3.10	2240	68.35	-1.65	4000	73.16	-1.36
1480	50.68	-2.95	2250	65.33	-1.85	4050	77.79	-1.09
1490	52.42	-2.81	2260	66.11	-1.80	4100	78.82	-1.03
1500	57.81	-2.38	2270	68.99	-1.61	4150	78.84	-1.03
1510	63.64	-1.96	2280	68.62	-1.64	4200	81.69	-0.88
1520	63.60	-1.97	2290	72.11	-1.42	4250	85.18	-0.70
1530	63.23	-1.99	2300	74.72	-1.27	4300	84.49	-0.73
1540	59.38	-2.26	2310	74.98	-1.25	4350	84.61	-0.73
1550	54.13	-2.67	2320	75.82	-1.20	4400	82.23	-0.85
1560	53.92	-2.68	2330	77.12	-1.13	4450	82.11	-0.86
1570	54.40	-2.64	2340	76.36	-1.17	4500	83.41	-0.79
1580	54.24	-2.66	2350	74.67	-1.27	4550	82.96	-0.81
1590	54.49	-2.64	2360	76.65	-1.16	4600	82.13	-0.86
1600	56.09	-2.51	2370	75.81	-1.20	4650	83.94	-0.76
1610	57.27	-2.42	2380	74.10	-1.30	4700	81.43	-0.89
1620	58.61	-2.32	2390	72.13	-1.42	4750	74.23	-1.29
1630	62.10	-2.07	2400	71.23	-1.47	4800	75.94	-1.20
1640	62.46	-2.04	2410	70.18	-1.54	4850	74.17	-1.30
1650	61.36	-2.12	2420	70.20	-1.54	4900	73.21	-1.35
1660	61.84	-2.09	2430	70.28	-1.53	4950	69.71	-1.57
						5000	66.16	-1.79

3.5 ANT3 (5G MIMO3 ANTENNA)

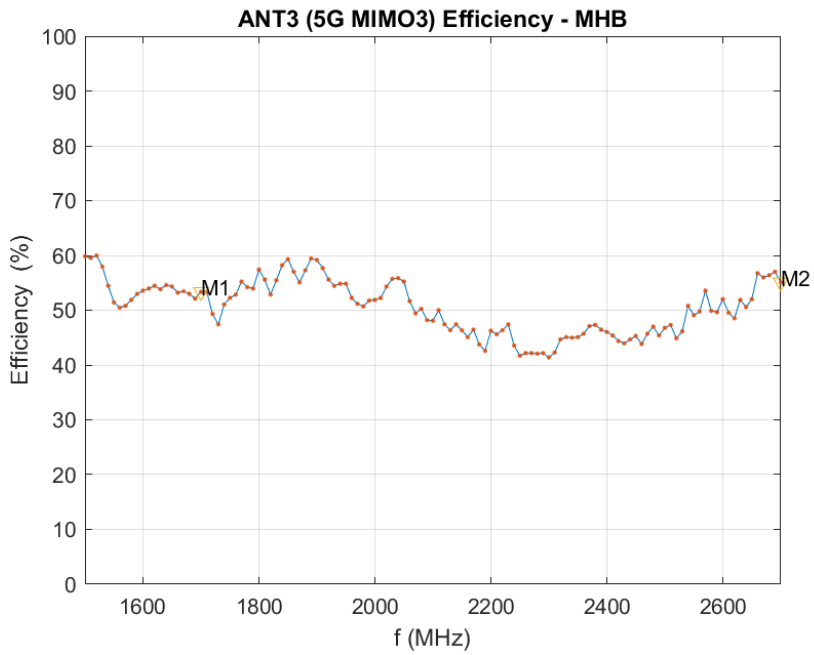
FRE (MHz)	1700	2690	3300	5000
VSWR	1.44	1.66	1.83	1.26
Return Loss (dB)	-7.41	-6.03	-5.34	-9.45
Efficiency (%)	53.33	55.08	46.67	69.82



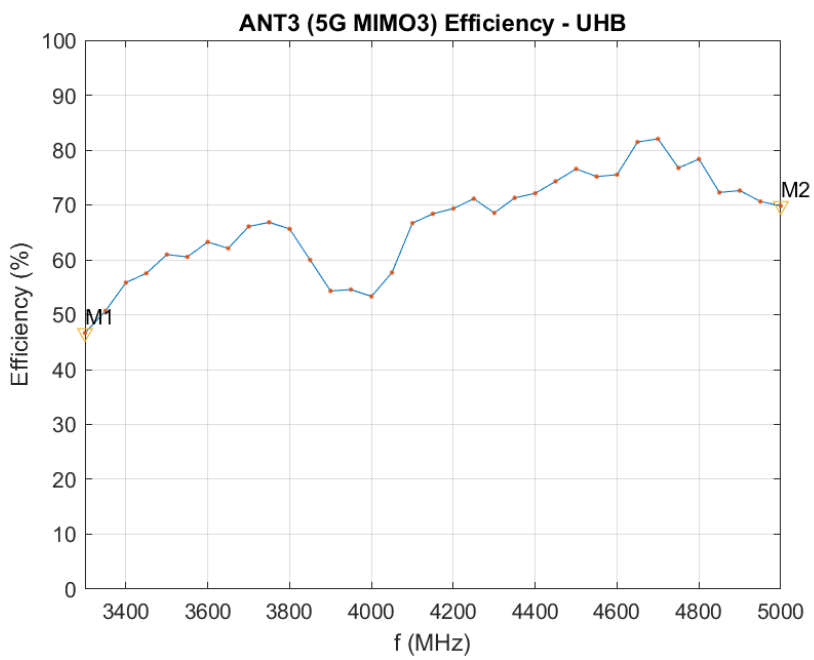
VSWR



Return Loss



1500 ~ 2700 MHz ANT3 efficiency



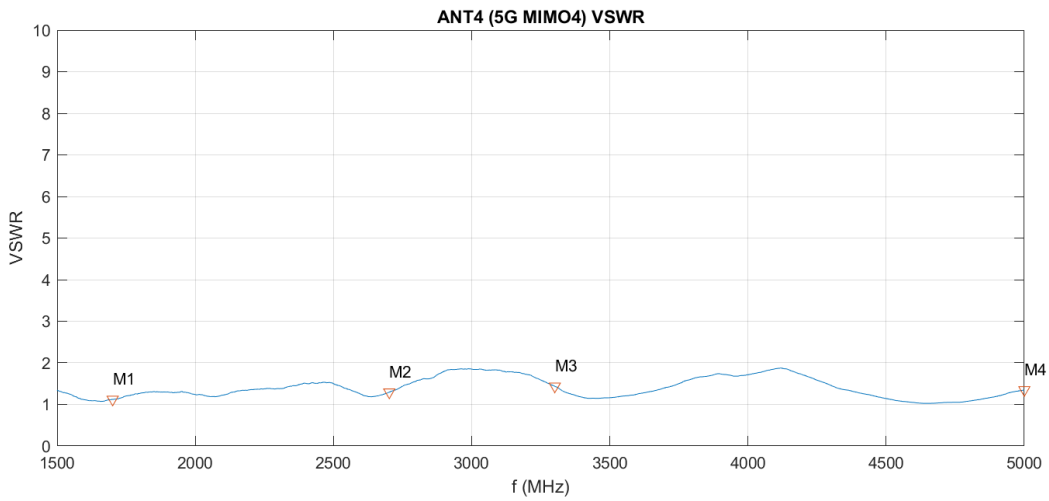
3300 ~ 5000 MHz ANT3 efficiency

Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)
1450	59.07	-2.29	2050	55.15	-2.58	2650	52.04	-2.84
1460	57.81	-2.38	2060	51.66	-2.87	2660	56.73	-2.46
1470	57.48	-2.40	2070	49.40	-3.06	2670	56.01	-2.52
1480	57.00	-2.44	2080	50.18	-2.99	2680	56.33	-2.49
1490	59.56	-2.25	2090	48.19	-3.17	2690	57.07	-2.44
1500	59.79	-2.23	2100	48.12	-3.18	2700	55.14	-2.59
1510	59.61	-2.25	2110	50.05	-3.01	2710	55.71	-2.54
1520	60.01	-2.22	2120	47.41	-3.24	2720	56.70	-2.46
1530	57.94	-2.37	2130	46.31	-3.34	2730	57.49	-2.40
1540	54.46	-2.64	2140	47.40	-3.24	2740	57.16	-2.43
1550	51.39	-2.89	2150	46.37	-3.34	2750	57.50	-2.40
1560	50.41	-2.97	2160	45.03	-3.46	2760	58.36	-2.34
1570	50.80	-2.94	2170	46.41	-3.33	2770	58.56	-2.32
1580	51.94	-2.85	2180	43.76	-3.59	2780	59.14	-2.28
1590	52.92	-2.76	2190	42.51	-3.71	2790	58.39	-2.34
1600	53.63	-2.71	2200	46.26	-3.35	2800	58.00	-2.37
1610	53.98	-2.68	2210	45.62	-3.41	3000	56.63	-2.47
1620	54.50	-2.64	2220	46.37	-3.34	3050	48.69	-3.13
1630	53.81	-2.69	2230	47.46	-3.24	3100	43.79	-3.59
1640	54.61	-2.63	2240	43.53	-3.61	3150	45.76	-3.40
1650	54.29	-2.65	2250	41.71	-3.80	3200	48.69	-3.13
1660	53.21	-2.74	2260	42.19	-3.75	3250	47.46	-3.24
1670	53.46	-2.72	2270	42.18	-3.75	3300	46.69	-3.31
1680	53.00	-2.76	2280	42.09	-3.76	3350	50.69	-2.95
1690	52.15	-2.83	2290	42.19	-3.75	3400	55.88	-2.53
1700	53.31	-2.73	2300	41.45	-3.83	3450	57.57	-2.40
1710	53.29	-2.73	2310	42.25	-3.74	3500	60.91	-2.15
1720	49.27	-3.07	2320	44.68	-3.50	3550	60.58	-2.18
1730	47.40	-3.24	2330	45.05	-3.46	3600	63.21	-1.99
1740	51.02	-2.92	2340	44.94	-3.47	3650	62.12	-2.07
1750	52.22	-2.82	2350	45.08	-3.46	3700	66.00	-1.80
1760	52.81	-2.77	2360	45.69	-3.40	3750	66.85	-1.75
1770	55.18	-2.58	2370	47.13	-3.27	3800	65.58	-1.83
1780	54.14	-2.66	2380	47.30	-3.25	3850	59.96	-2.22
1790	53.97	-2.68	2390	46.44	-3.33	3900	54.33	-2.65
1800	57.41	-2.41	2400	46.01	-3.37	3950	54.60	-2.63
1810	55.60	-2.55	2410	45.38	-3.43	4000	53.32	-2.73
1820	52.90	-2.77	2420	44.35	-3.53	4050	57.64	-2.39
1830	55.45	-2.56	2430	43.91	-3.57	4100	66.67	-1.76
1840	58.19	-2.35	2440	44.66	-3.50	4150	68.35	-1.65
1850	59.32	-2.27	2450	45.33	-3.44	4200	69.33	-1.59
1860	56.97	-2.44	2460	43.89	-3.58	4250	71.10	-1.48
1870	55.07	-2.59	2470	45.70	-3.40	4300	68.50	-1.64
1880	57.29	-2.42	2480	46.94	-3.28	4350	71.31	-1.47

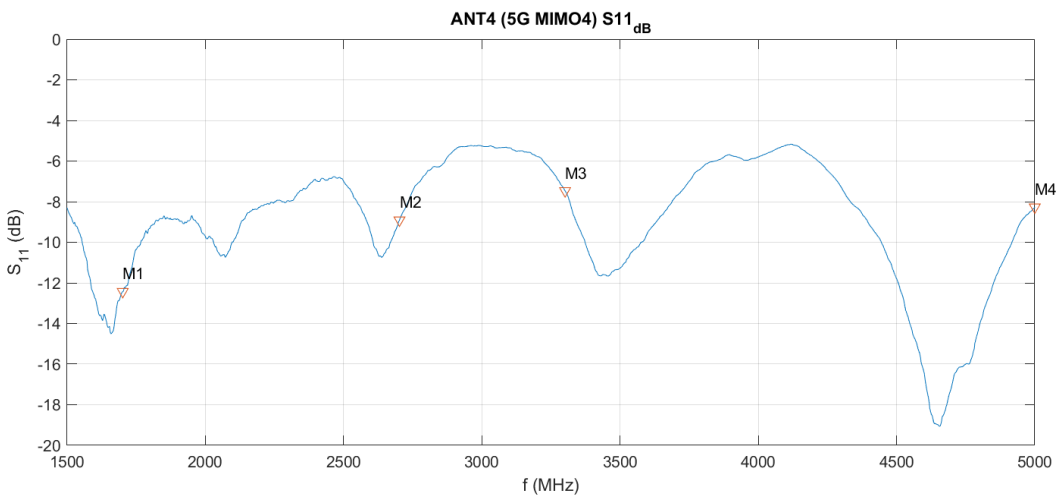
1890	59.45	-2.26	2490	45.39	-3.43	4400	72.13	-1.42
1900	59.20	-2.28	2500	46.79	-3.30	4450	74.30	-1.29
1910	57.65	-2.39	2510	47.36	-3.25	4500	76.53	-1.16
1920	55.58	-2.55	2520	44.88	-3.48	4550	75.12	-1.24
1930	54.43	-2.64	2530	46.18	-3.36	4600	75.51	-1.22
1940	54.85	-2.61	2540	50.76	-2.94	4650	81.47	-0.89
1950	54.88	-2.61	2550	49.07	-3.09	4700	81.97	-0.86
1960	52.26	-2.82	2560	49.78	-3.03	4750	76.80	-1.15
1970	51.20	-2.91	2570	53.56	-2.71	4800	78.37	-1.06
1980	50.75	-2.95	2580	49.89	-3.02	4850	72.32	-1.41
1990	51.73	-2.86	2590	49.71	-3.04	4900	72.54	-1.39
2000	51.85	-2.85	2600	51.95	-2.84	4950	70.57	-1.51
2010	52.30	-2.82	2610	49.55	-3.05	5000	69.76	-1.56
2020	54.34	-2.65	2620	48.50	-3.14			
2030	55.66	-2.54	2630	51.88	-2.85			
2040	55.84	-2.53	2640	50.57	-2.96			

3.6 ANT4 (5G MIMO4 ANTENNA)

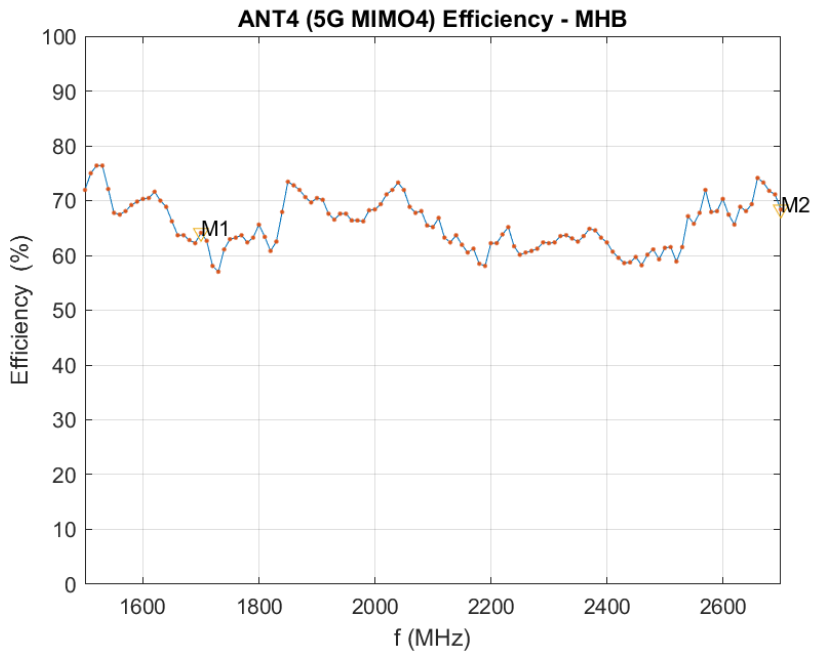
FRE (MHz)	1700	2690	3300	5000
VSWR	1.12	1.29	1.44	1.35
Return Loss (dB)	-12.43	-8.91	-7.47	-8.27
Efficiency (%)	64.12	68.39	63.09	50.58



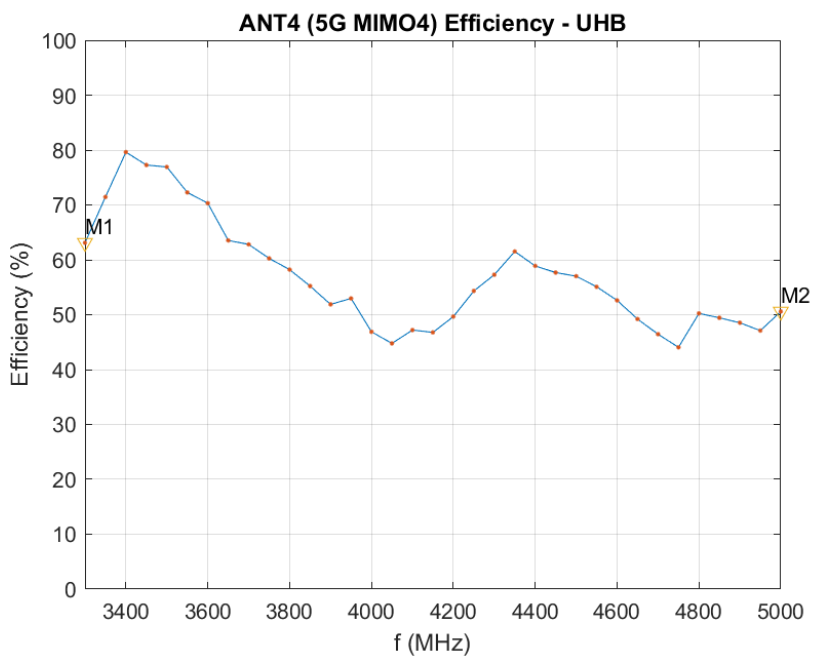
VSWR



Return Loss



1500 ~ 2700 MHz ANT4 Efficiency - MHB



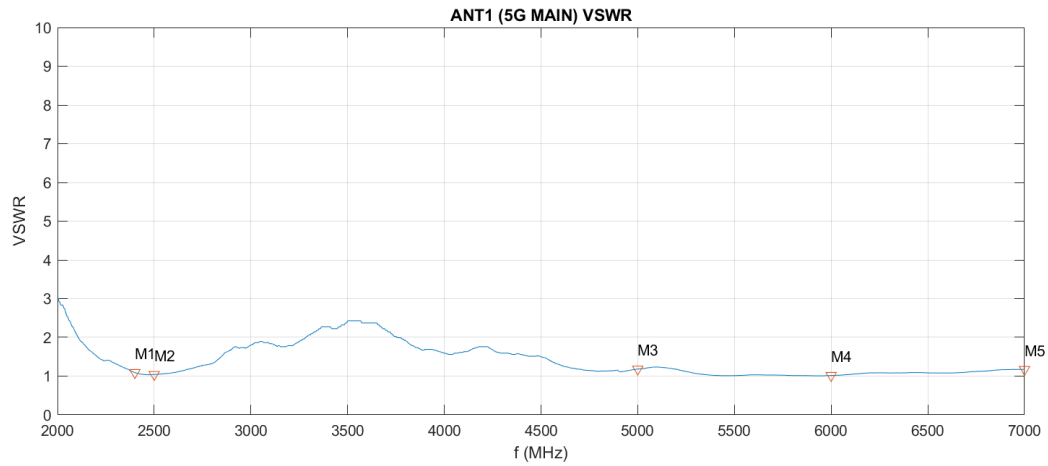
3300 ~ 5000 MHz ANT4 efficiency - UHB

Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)
1450	58.35	-2.34	2050	71.93	-1.43	2650	69.39	-1.59
1460	58.54	-2.33	2060	68.90	-1.62	2660	74.12	-1.30
1470	61.12	-2.14	2070	67.79	-1.69	2670	73.36	-1.35
1480	62.20	-2.06	2080	68.15	-1.67	2680	71.79	-1.44
1490	66.73	-1.76	2090	65.44	-1.84	2690	71.05	-1.48
1500	71.91	-1.43	2100	65.18	-1.86	2700	68.34	-1.65
1510	74.94	-1.25	2110	66.85	-1.75	2710	66.97	-1.74
1520	76.36	-1.17	2120	63.25	-1.99	2720	65.93	-1.81
1530	76.32	-1.17	2130	62.44	-2.05	2730	64.98	-1.87
1540	72.10	-1.42	2140	63.71	-1.96	2740	62.81	-2.02
1550	67.79	-1.69	2150	62.01	-2.08	2750	61.89	-2.08
1560	67.51	-1.71	2160	60.52	-2.18	2760	60.95	-2.15
1570	68.15	-1.67	2170	61.31	-2.13	2770	59.87	-2.23
1580	69.20	-1.60	2180	58.49	-2.33	2780	59.57	-2.25
1590	69.83	-1.56	2190	58.04	-2.36	2790	57.72	-2.39
1600	70.37	-1.53	2200	62.21	-2.06	2800	56.80	-2.46
1610	70.49	-1.52	2210	62.23	-2.06	3000	57.87	-2.38
1620	71.55	-1.45	2220	63.85	-1.95	3050	58.86	-2.30
1630	69.99	-1.55	2230	65.22	-1.86	3100	57.75	-2.38
1640	68.94	-1.62	2240	61.67	-2.10	3150	57.78	-2.38
1650	66.26	-1.79	2250	60.08	-2.21	3200	58.40	-2.34
1660	63.73	-1.96	2260	60.54	-2.18	3250	59.04	-2.29
1670	63.63	-1.96	2270	60.81	-2.16	3300	63.12	-2.00
1680	62.76	-2.02	2280	61.20	-2.13	3350	71.38	-1.46
1690	62.30	-2.06	2290	62.33	-2.05	3400	79.70	-0.99
1700	64.12	-1.93	2300	62.29	-2.06	3450	77.29	-1.12
1710	62.65	-2.03	2310	62.34	-2.05	3500	76.98	-1.14
1720	58.09	-2.36	2320	63.54	-1.97	3550	72.29	-1.41
1730	57.08	-2.44	2330	63.69	-1.96	3600	70.30	-1.53
1740	61.04	-2.14	2340	63.07	-2.00	3650	63.52	-1.97
1750	63.02	-2.01	2350	62.51	-2.04	3700	62.76	-2.02
1760	63.29	-1.99	2360	63.49	-1.97	3750	60.20	-2.20
1770	63.74	-1.96	2370	64.81	-1.88	3800	58.19	-2.35
1780	62.41	-2.05	2380	64.55	-1.90	3850	55.24	-2.58
1790	63.25	-1.99	2390	63.28	-1.99	3900	51.90	-2.85
1800	65.64	-1.83	2400	62.36	-2.05	3950	52.98	-2.76
1810	63.34	-1.98	2410	60.63	-2.17	4000	46.85	-3.29
1820	60.79	-2.16	2420	59.59	-2.25	4050	44.73	-3.49
1830	62.45	-2.04	2430	58.58	-2.32	4100	47.16	-3.26
1840	67.92	-1.68	2440	58.71	-2.31	4150	46.76	-3.30
1850	73.48	-1.34	2450	59.65	-2.24	4200	49.62	-3.04
1860	72.76	-1.38	2460	58.16	-2.35	4250	54.38	-2.65
1870	71.91	-1.43	2470	60.08	-2.21	4300	57.29	-2.42
1880	70.71	-1.51	2480	61.10	-2.14	4350	61.47	-2.11

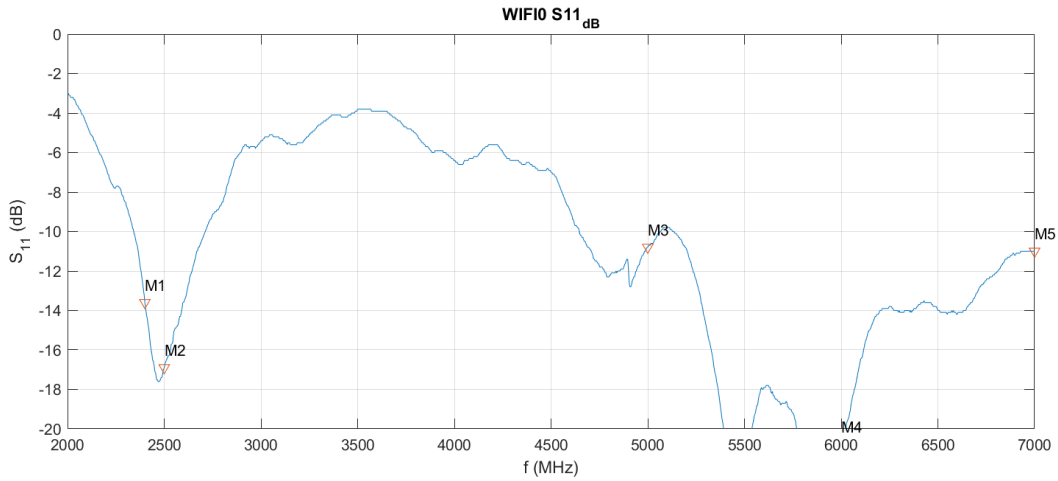
1890	69.66	-1.57	2490	59.30	-2.27	4400	58.85	-2.30
1900	70.41	-1.52	2500	61.37	-2.12	4450	57.66	-2.39
1910	70.19	-1.54	2510	61.56	-2.11	4500	57.04	-2.44
1920	67.54	-1.70	2520	58.87	-2.30	4550	55.05	-2.59
1930	66.51	-1.77	2530	61.49	-2.11	4600	52.54	-2.79
1940	67.68	-1.70	2540	67.11	-1.73	4650	49.23	-3.08
1950	67.63	-1.70	2550	65.81	-1.82	4700	46.45	-3.33
1960	66.34	-1.78	2560	67.76	-1.69	4750	44.03	-3.56
1970	66.42	-1.78	2570	71.97	-1.43	4800	50.23	-2.99
1980	66.24	-1.79	2580	67.88	-1.68	4850	49.48	-3.06
1990	68.27	-1.66	2590	68.06	-1.67	4900	48.50	-3.14
2000	68.34	-1.65	2600	70.25	-1.53	4950	47.10	-3.27
2010	69.38	-1.59	2610	67.45	-1.71	5000	50.56	-2.96
2020	71.04	-1.48	2620	65.56	-1.83			
2030	71.91	-1.43	2630	68.92	-1.62			
2040	73.32	-1.35	2640	68.13	-1.67			

3.7 ANT5 (WIFI0 ANTENNA)

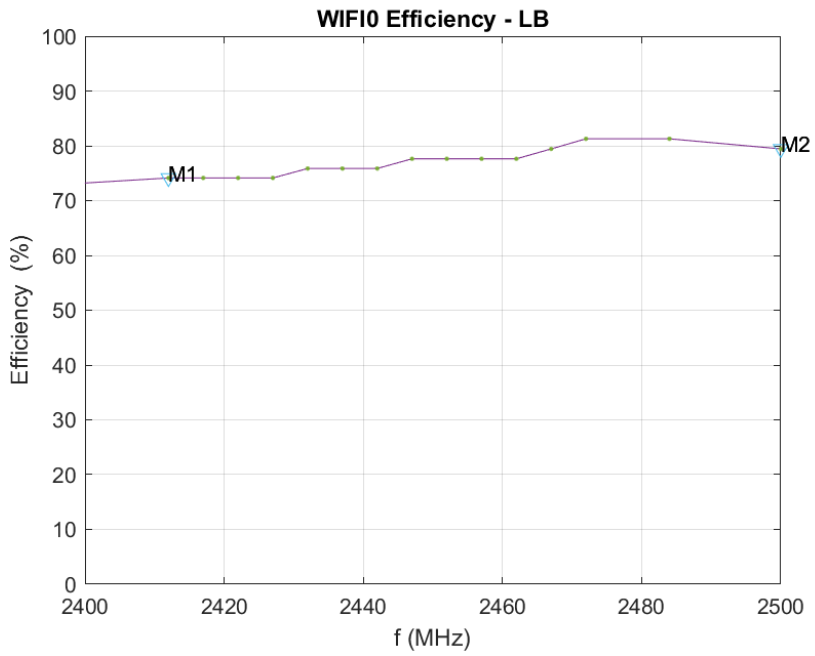
FRE (MHz)	2400	2500	5000	6000	7000
VSWR	1.09	1.04	1.18	1.01	1.17
Return Loss (dB)	-13.60	-16.90	-10.80	-20.80	-11.00
Efficiency (%)	74.13	79.43	63.09	81.23	67.61



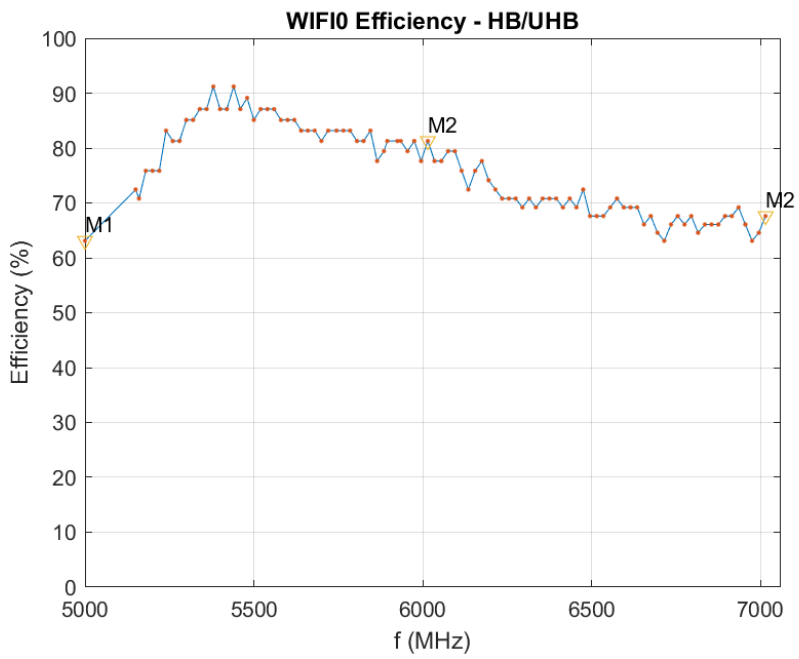
VSWR



Return Loss



2400 – 2500 MHz WIFI0 Efficiency



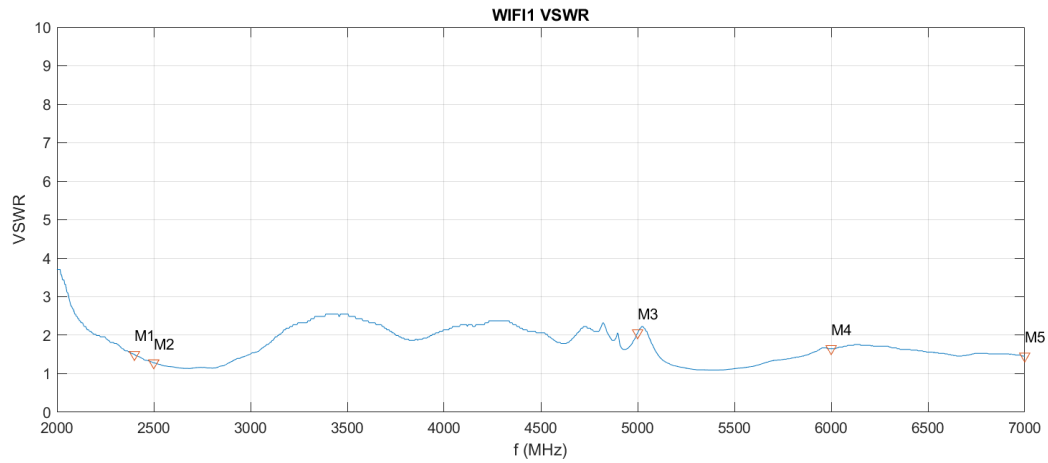
5000 – 7000 MHz WIFI0 Efficiency

Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)	Freq (MHz)	Eff (%)	Eff (dB)
2300	61.66	-2.1	4500	45.71	-3.4	5975	81.28	-0.9
2310	63.10	-2.0	4550	50.12	-3.0	5995	77.62	-1.1
2320	64.57	-1.9	4600	54.95	-2.6	6015	81.28	-0.9
2330	66.07	-1.8	4650	60.26	-2.2	6035	77.62	-1.1
2340	66.07	-1.8	4700	61.66	-2.1	6055	77.62	-1.1
2350	67.61	-1.7	4750	61.66	-2.1	6075	79.43	-1.0
2360	69.18	-1.6	4800	64.57	-1.9	6095	79.43	-1.0
2370	72.44	-1.4	4850	63.10	-2.0	6115	75.86	-1.2
2380	72.44	-1.4	4900	58.88	-2.3	6135	72.44	-1.4
2390	72.44	-1.4	4950	58.88	-2.3	6155	75.86	-1.2
2412	74.13	-1.3	5000	63.10	-2.0	6175	77.62	-1.1
2417	74.13	-1.3	5150	72.44	-1.4	6195	74.13	-1.3
2422	74.13	-1.3	5160	70.79	-1.5	6215	72.44	-1.4
2427	74.13	-1.3	5180	75.86	-1.2	6235	70.79	-1.5
2432	75.86	-1.2	5200	75.86	-1.2	6255	70.79	-1.5
2437	75.86	-1.2	5220	75.86	-1.2	6275	70.79	-1.5
2442	75.86	-1.2	5240	83.18	-0.8	6295	69.18	-1.6
2447	77.62	-1.1	5260	81.28	-0.9	6315	70.79	-1.5
2452	77.62	-1.1	5280	81.28	-0.9	6335	69.18	-1.6
2457	77.62	-1.1	5300	85.11	-0.7	6355	70.79	-1.5
2462	77.62	-1.1	5320	85.11	-0.7	6375	70.79	-1.5
2467	79.43	-1.0	5340	87.10	-0.6	6395	70.79	-1.5
2472	81.28	-0.9	5360	87.10	-0.6	6415	69.18	-1.6
2484	81.28	-0.9	5380	91.20	-0.4	6435	70.79	-1.5
2500	79.43	-1.0	5400	87.10	-0.6	6455	69.18	-1.6
2510	79.43	-1.0	5420	87.10	-0.6	6475	72.44	-1.4
2520	75.86	-1.2	5440	91.20	-0.4	6495	67.61	-1.7
2530	75.86	-1.2	5460	87.10	-0.6	6515	67.61	-1.7
2540	81.28	-0.9	5480	89.13	-0.5	6535	67.61	-1.7
2550	79.43	-1.0	5500	85.11	-0.7	6555	69.18	-1.6
2560	79.43	-1.0	5520	87.10	-0.6	6575	70.79	-1.5
2570	81.28	-0.9	5540	87.10	-0.6	6595	69.18	-1.6
2580	77.62	-1.1	5560	87.10	-0.6	6615	69.18	-1.6
2590	75.86	-1.2	5580	85.11	-0.7	6635	69.18	-1.6
2600	77.62	-1.1	5600	85.11	-0.7	6655	66.07	-1.8
			5620	85.11	-0.7	6675	67.61	-1.7
			5640	83.18	-0.8	6695	64.57	-1.9
			5660	83.18	-0.8	6715	63.10	-2.0
			5680	83.18	-0.8	6735	66.07	-1.8
			5700	81.28	-0.9	6755	67.61	-1.7
			5720	83.18	-0.8	6775	66.07	-1.8
			5745	83.18	-0.8	6795	67.61	-1.7
			5765	83.18	-0.8	6815	64.57	-1.9
			5785	83.18	-0.8	6835	66.07	-1.8

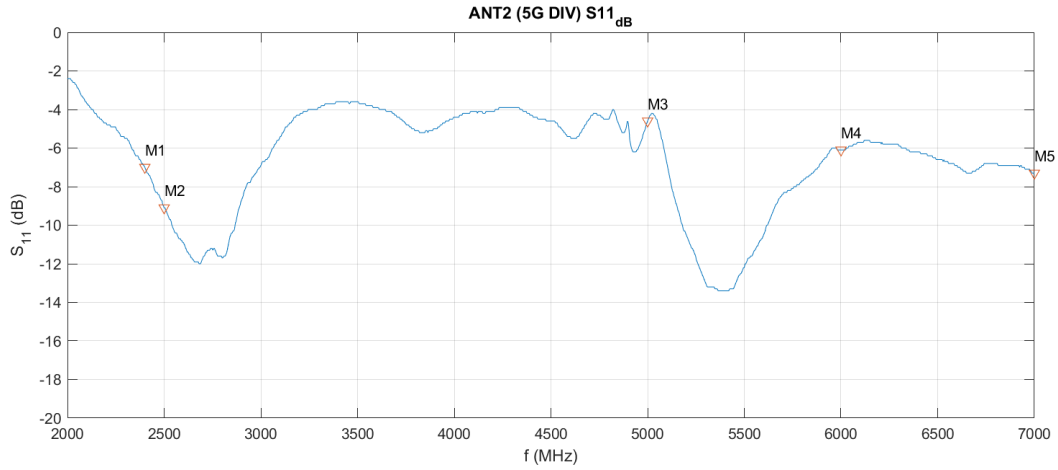
5805	81.28	-0.9	6855	66.07	-1.8
5825	81.28	-0.9	6875	66.07	-1.8
5845	83.18	-0.8	6895	67.61	-1.7
5865	77.62	-1.1	6915	67.61	-1.7
5885	79.43	-1.0	6935	69.18	-1.6
5895	81.28	-0.9	6955	66.07	-1.8
5925	81.28	-0.9	6975	63.10	-2.0
5935	81.28	-0.9	6995	64.57	-1.9
5955	79.43	-1.0	7015	67.61	-1.7
			7035	66.07	-1.8
			7055	66.07	-1.8
			7075	66.07	-1.8
			7095	66.07	-1.8
			7115	64.57	-1.9
			7125	66.07	-1.8

3.8 ANT6 (WIFI1 ANTENNA)

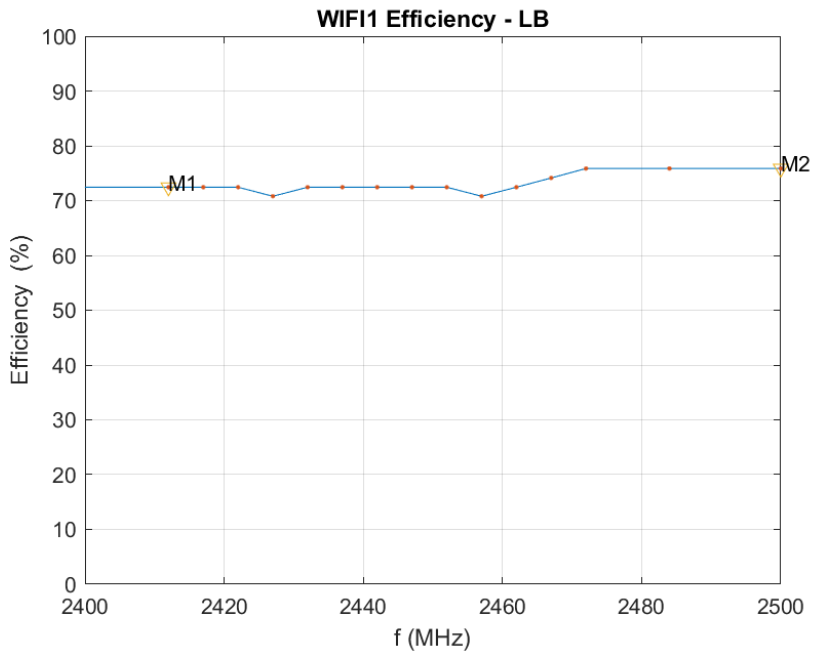
FRE (MHz)	2400	2500	5000	6000	7000
VSWR	1.49	1.28	2.06	1.65	1.46
Return Loss (dB)	-7.00	-9.10	-4.60	-6.10	-7.30
Efficiency (%)	72.44	75.86	67.61	77.62	77.62



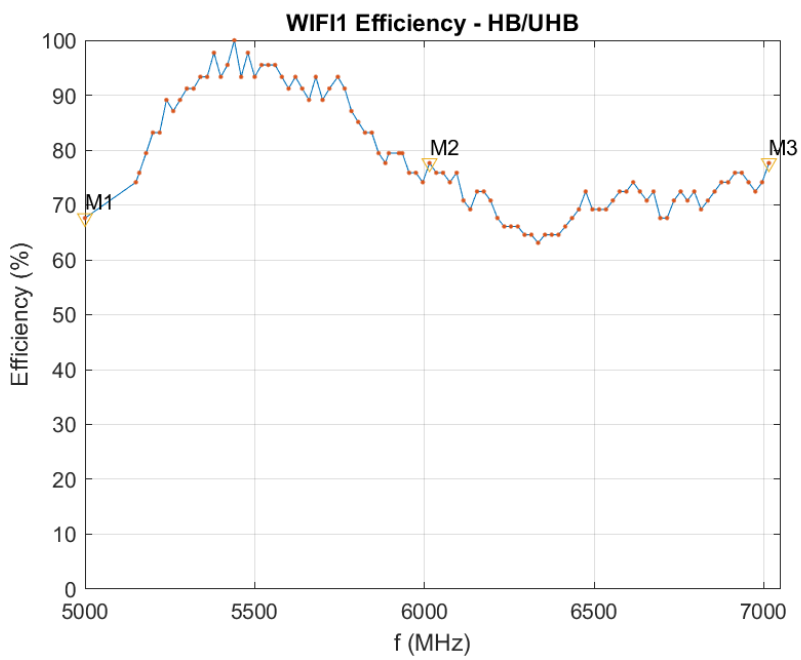
VSWR



Return Loss



2500 – 2600 WIFI1 Efficiency LB



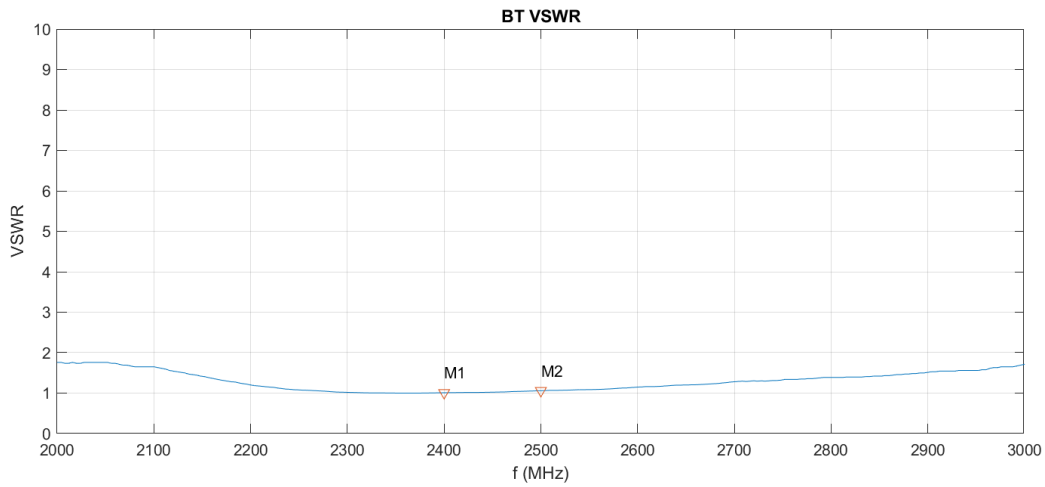
5000 – 7000 MHz WIFI1 Efficiency – HB/UHB

freq (MHz)	Eff (%)	Eff (dB)	freq (MHz)	Eff (%)	Eff (dB)	freq (MHz)	Eff (%)	Eff (dB)
2300	67.61	-1.7	4500	47.86	-3.2	5975	75.86	-1.2
2310	69.18	-1.6	4550	56.23	-2.5	5995	74.13	-1.3
2320	69.18	-1.6	4600	50.12	-3.0	6015	77.62	-1.1
2330	70.79	-1.5	4650	60.26	-2.2	6035	75.86	-1.2
2340	70.79	-1.5	4700	63.10	-2.0	6055	75.86	-1.2
2350	69.18	-1.6	4750	64.57	-1.9	6075	74.13	-1.3
2360	72.44	-1.4	4800	52.48	-2.8	6095	75.86	-1.2
2370	74.13	-1.3	4850	69.18	-1.6	6115	70.79	-1.5
2380	74.13	-1.3	4900	61.66	-2.1	6135	69.18	-1.6
2390	72.44	-1.4	4950	74.13	-1.3	6155	72.44	-1.4
2412	72.44	-1.4	5000	67.61	-1.7	6175	72.44	-1.4
2417	72.44	-1.4	5150	74.13	-1.3	6195	70.79	-1.5
2422	72.44	-1.4	5160	75.86	-1.2	6215	67.61	-1.7
2427	70.79	-1.5	5180	79.43	-1.0	6235	66.07	-1.8
2432	72.44	-1.4	5200	83.18	-0.8	6255	66.07	-1.8
2437	72.44	-1.4	5220	83.18	-0.8	6275	66.07	-1.8
2442	72.44	-1.4	5240	89.13	-0.5	6295	64.57	-1.9
2447	72.44	-1.4	5260	87.10	-0.6	6315	64.57	-1.9
2452	72.44	-1.4	5280	89.13	-0.5	6335	63.10	-2.0
2457	70.79	-1.5	5300	91.20	-0.4	6355	64.57	-1.9
2462	72.44	-1.4	5320	91.20	-0.4	6375	64.57	-1.9
2467	74.13	-1.3	5340	93.33	-0.3	6395	64.57	-1.9
2472	75.86	-1.2	5360	93.33	-0.3	6415	66.07	-1.8
2484	75.86	-1.2	5380	97.72	-0.1	6435	67.61	-1.7
2500	75.86	-1.2	5400	93.33	-0.3	6455	69.18	-1.6
2510	72.44	-1.4	5420	95.50	-0.2	6475	72.44	-1.4
2520	69.18	-1.6	5440	100.00	0.0	6495	69.18	-1.6
2530	70.79	-1.5	5460	93.33	-0.3	6515	69.18	-1.6
2540	74.13	-1.3	5480	97.72	-0.1	6535	69.18	-1.6
2550	72.44	-1.4	5500	93.33	-0.3	6555	70.79	-1.5
2560	72.44	-1.4	5520	95.50	-0.2	6575	72.44	-1.4
2570	75.86	-1.2	5540	95.50	-0.2	6595	72.44	-1.4
2580	70.79	-1.5	5560	95.50	-0.2	6615	74.13	-1.3
2590	70.79	-1.5	5580	93.33	-0.3	6635	72.44	-1.4
2600	70.79	-1.5	5600	91.20	-0.4	6655	70.79	-1.5
			5620	93.33	-0.3	6675	72.44	-1.4
			5640	91.20	-0.4	6695	67.61	-1.7
			5660	89.13	-0.5	6715	67.61	-1.7
			5680	93.33	-0.3	6735	70.79	-1.5
			5700	89.13	-0.5	6755	72.44	-1.4
			5720	91.20	-0.4	6775	70.79	-1.5
			5745	93.33	-0.3	6795	72.44	-1.4
			5765	91.20	-0.4	6815	69.18	-1.6
			5785	87.10	-0.6	6835	70.79	-1.5

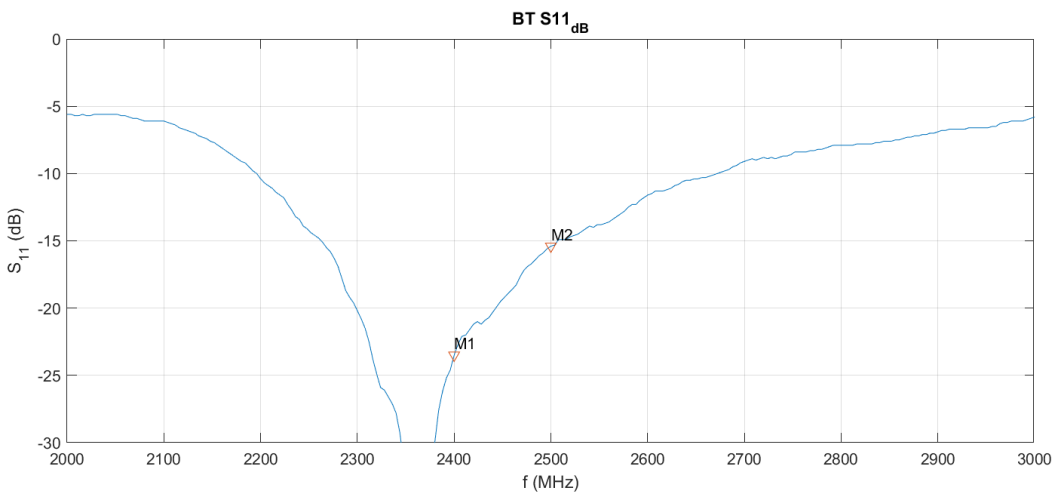
5805	85.11	-0.7	6855	72.44	-1.4
5825	83.18	-0.8	6875	74.13	-1.3
5845	83.18	-0.8	6895	74.13	-1.3
5865	79.43	-1.0	6915	75.86	-1.2
5885	77.62	-1.1	6935	75.86	-1.2
5895	79.43	-1.0	6955	74.13	-1.3
5925	79.43	-1.0	6975	72.44	-1.4
5935	79.43	-1.0	6995	74.13	-1.3
5955	75.86	-1.2	7015	77.62	-1.1
			7035	75.86	-1.2
			7055	75.86	-1.2
			7075	75.86	-1.2
			7095	75.86	-1.2
			7115	75.86	-1.2
			7125	77.62	-1.1

3.9 ANT7 (BT ANTENNA)

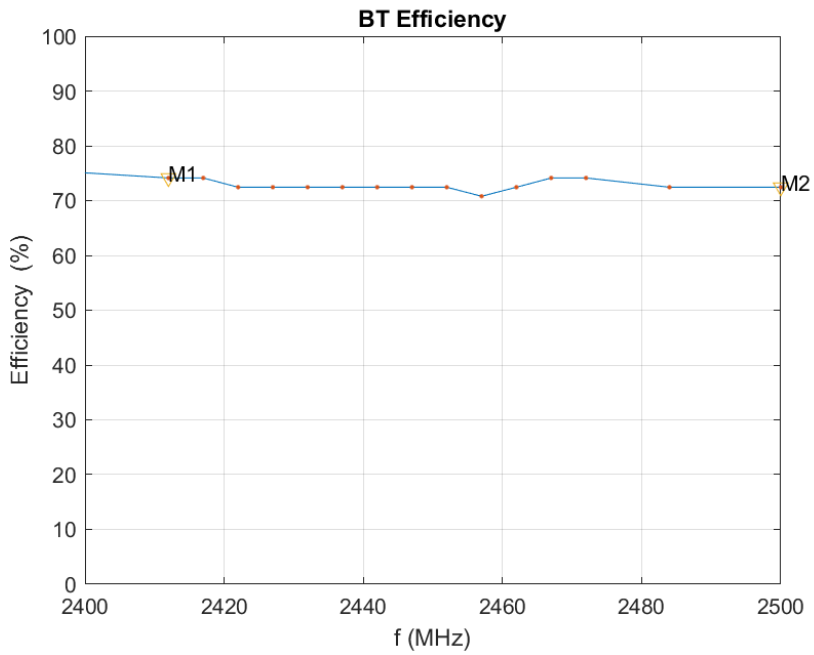
FRE (MHz)	2400	2500
VSWR	1.01	1.05
Return Loss (dB)	-23.50	-15.40
Efficiency (%)	75	72



VSWR



Return Loss



2400 – 2500 MHz, BT antenna – efficiency

freq (MHz)	Eff (%)	Eff (dB)
2300	71.85	-1.4
2310	71.05	-1.5
2320	71.26	-1.5
2330	73.32	-1.3
2340	73.43	-1.3
2350	73.37	-1.3
2360	76.61	-1.2
2370	76.58	-1.2
2380	76.16	-1.2
2390	75.59	-1.2
2412	74.94	-1.3
2417	73.50	-1.3
2422	72.44	-1.4
2427	72.14	-1.4
2432	72.31	-1.4
2437	72.09	-1.4
2442	72.80	-1.4
2447	72.15	-1.4
2452	71.68	-1.4
2457	71.59	-1.5

2462	72.72	-1.4
2467	73.84	-1.3
2472	74.72	-1.3
2484	72.99	-1.4
2500	72.92	-1.4
2510	71.10	-1.5
2520	69.82	-1.6
2530	71.28	-1.5
2540	72.94	-1.4
2550	73.43	-1.3
2560	73.70	-1.3
2570	73.52	-1.3
2580	71.75	-1.4
2590	69.21	-1.6
2600	67.18	-1.7