

Document Type	Material Specification	Confidentiality Level	Internal Disclosure
Specification for TMS30 Dual-band PCB Antenna			

REVISION AND UPDATES

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Chapter 1 Antenna description

1.1 Antenna description

Antenna name: TMS30 PCB Dual-band Antenna

Model number: 050-003705-02 (PCB number)

1.2 Antenna picture



Figure 1 Antenna picture

Chapter 2 Antenna specification

2.1 Antenna specifications

Frequency (MHz)	407-439
Bandwidth(MHz)	32
VSWR	≤ 1.8
Return loss (dB)	≤ -11
Efficiency(%)	≥ 2
Peak gain (dBi)	≤ -5.5
Impedance (Ω)	50
Polarization	Linear

Frequency (MHz)	608-630
Bandwidth(MHz)	22
VSWR	≤ 2.8
Return loss (dB)	≤ -6.5
Efficiency(%)	≥ 9
Peak gain (dBi)	≤ -4.07
Impedance (Ω)	50
Polarization	Linear

Table 1 Specifications

2.2 Antenna Circuit Parameter Test

2.2.1 Return loss:

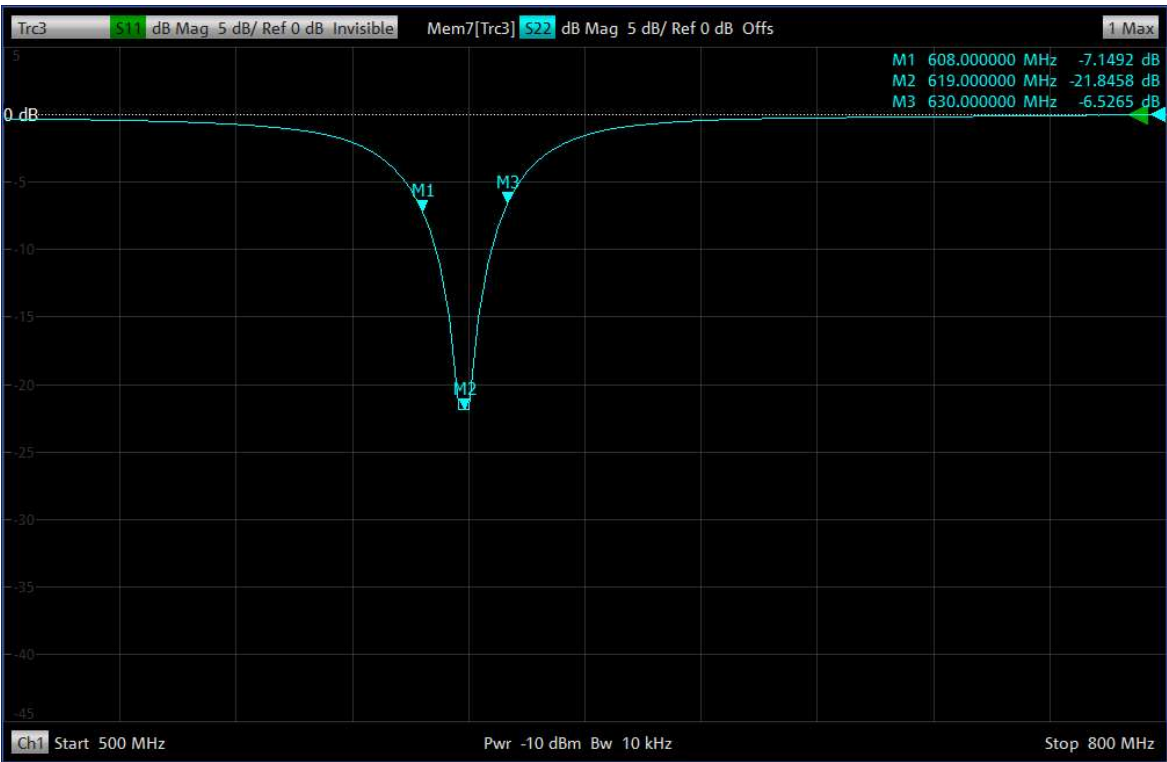
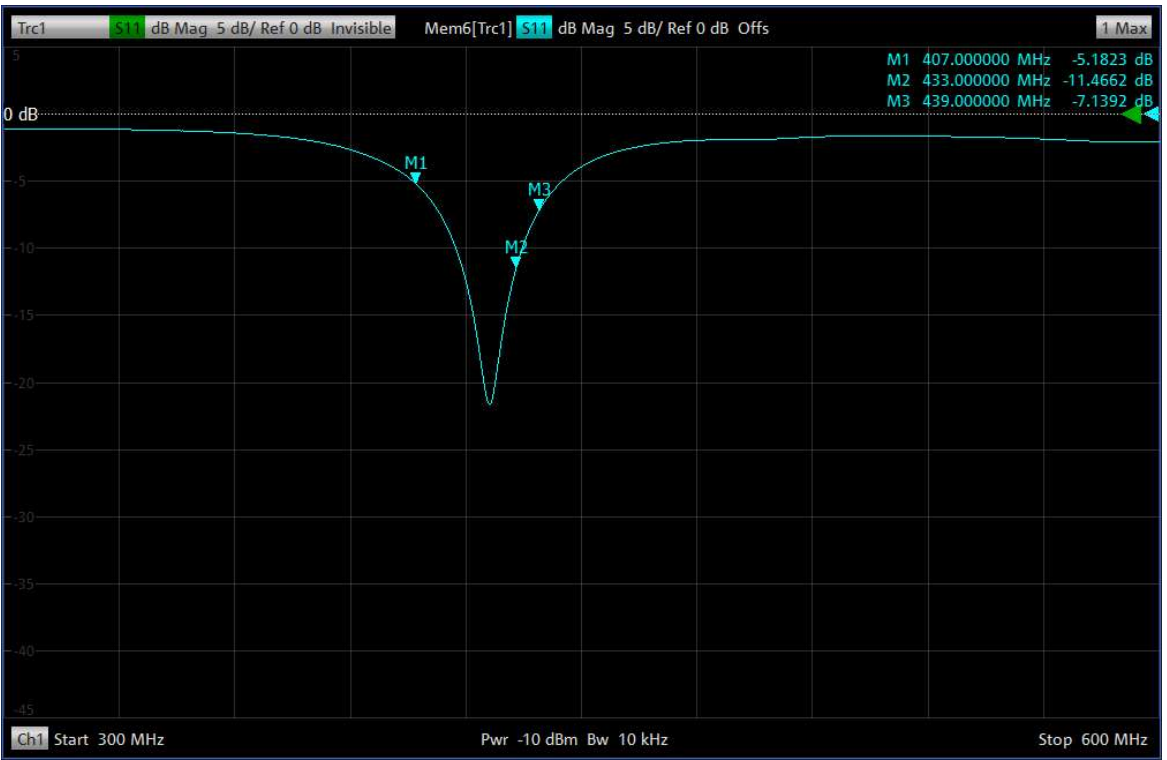


Figure 1 Return loss

2.2.2 VSWR:



Figure 2 VSWR

2.2.3 Smith Chart:

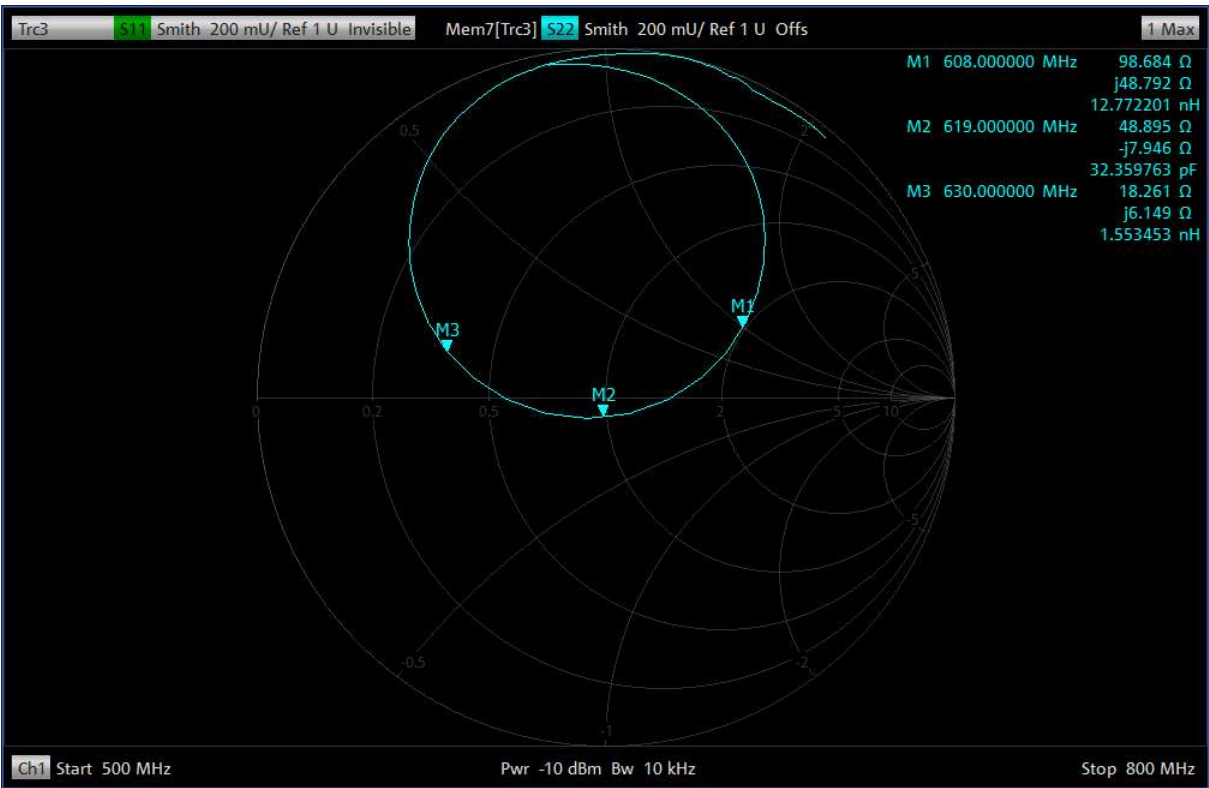
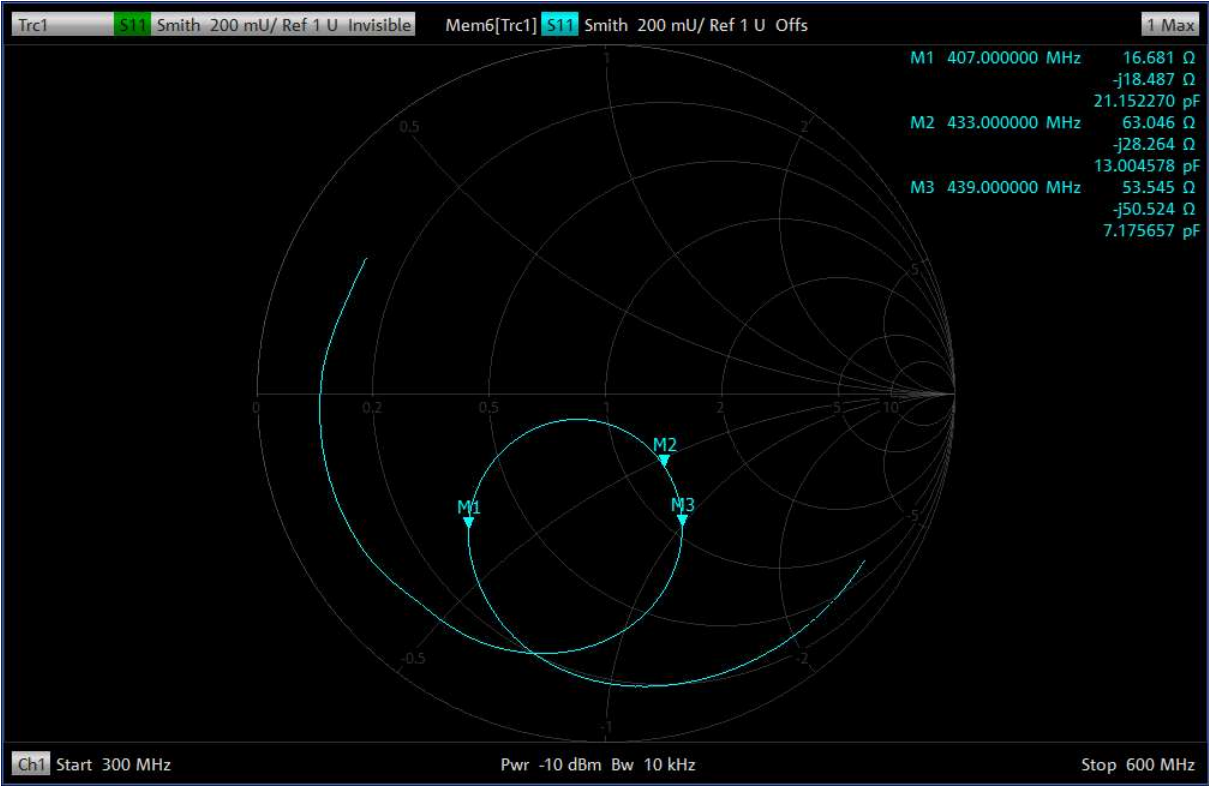


Figure 3 Smith Chart

2.3 Radiation pattern

2.3.1 Test Pictures

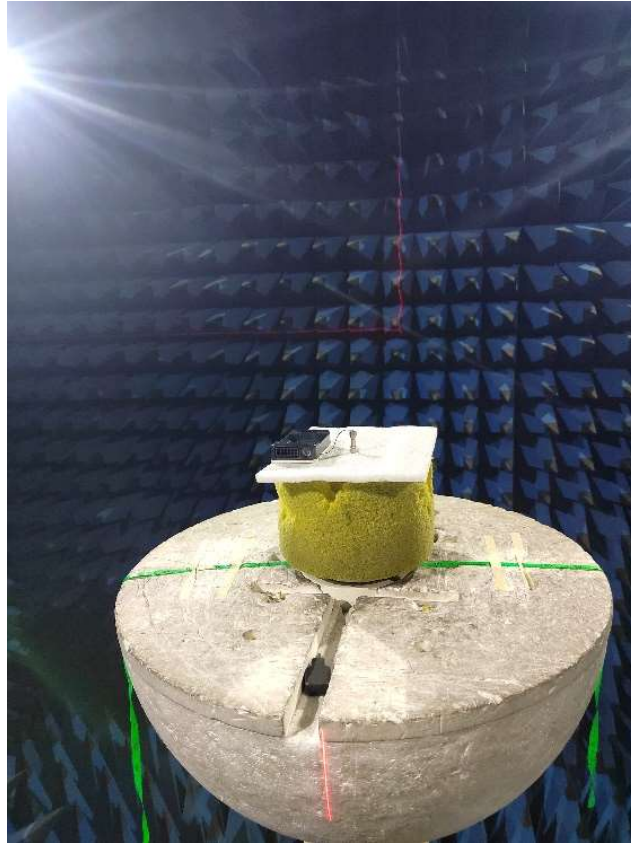


Figure 5 Antenna Device in chamber

2.3.2 3D Radiation pattern

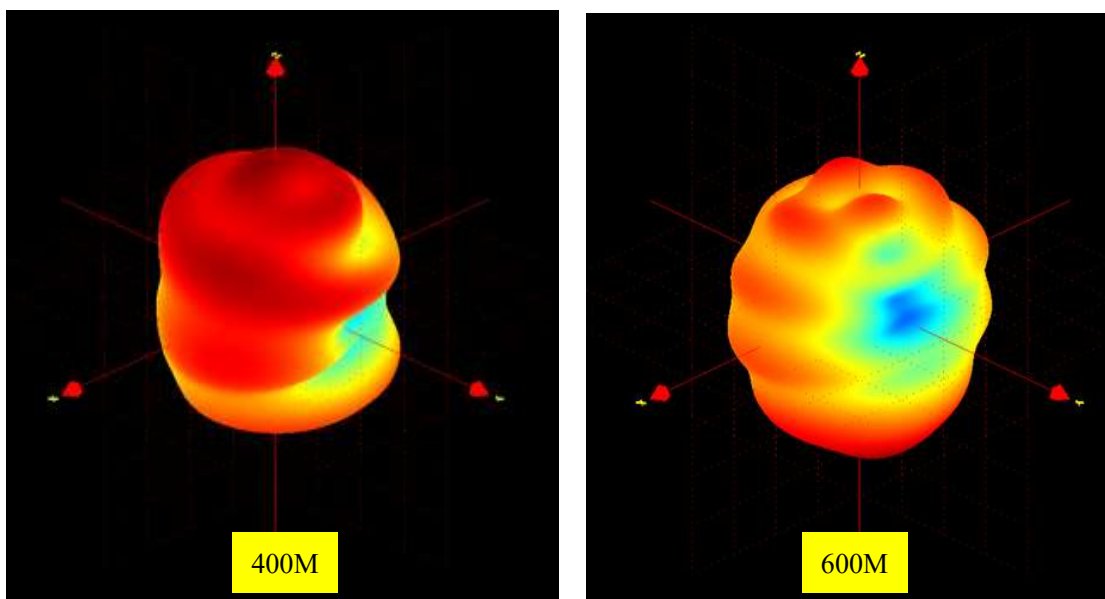


Figure 6 3D radiation pattern

2.3.3 2D Radiation pattern

Theta=90°, 2D radiation pattern:

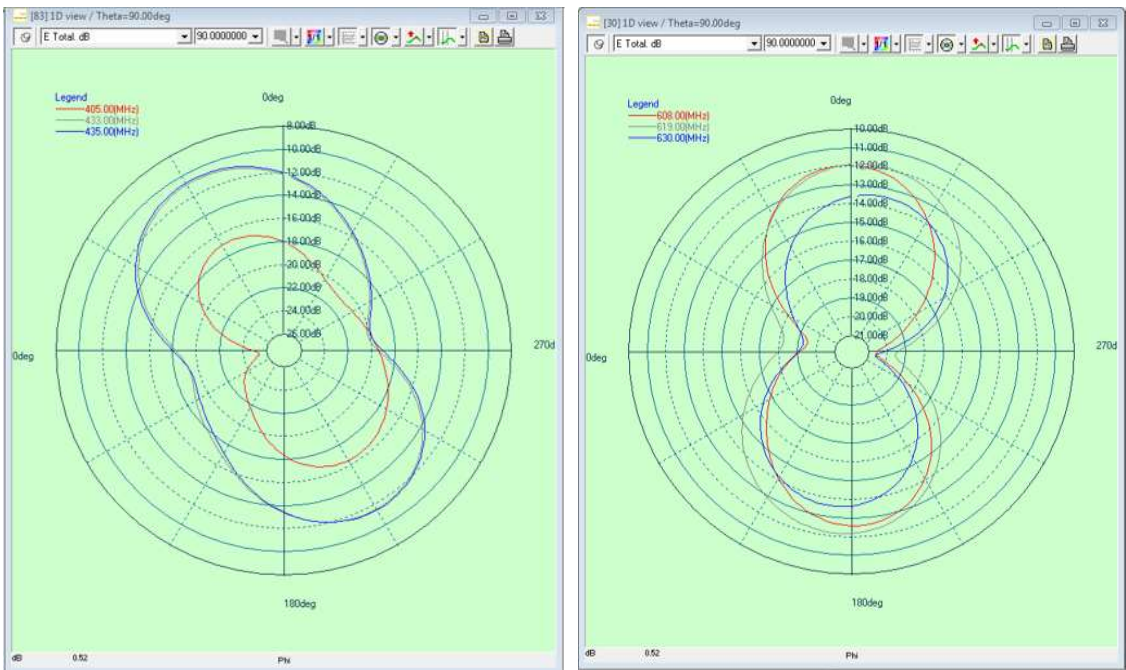


Figure 7 Theta=90°, 400M、600M 2D radiation pattern

Phi=90°, 2D radiation pattern:

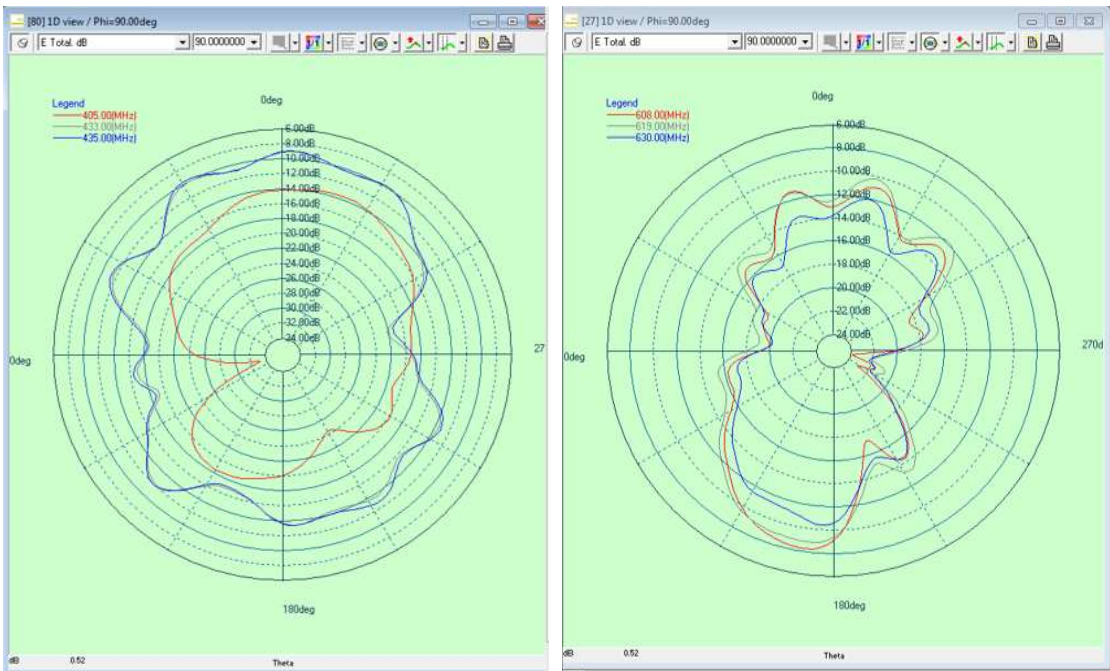


Figure 8 Phi=90°, 400M、600M 2D radiation pattern

Phi=0°, 2D radiation pattern:

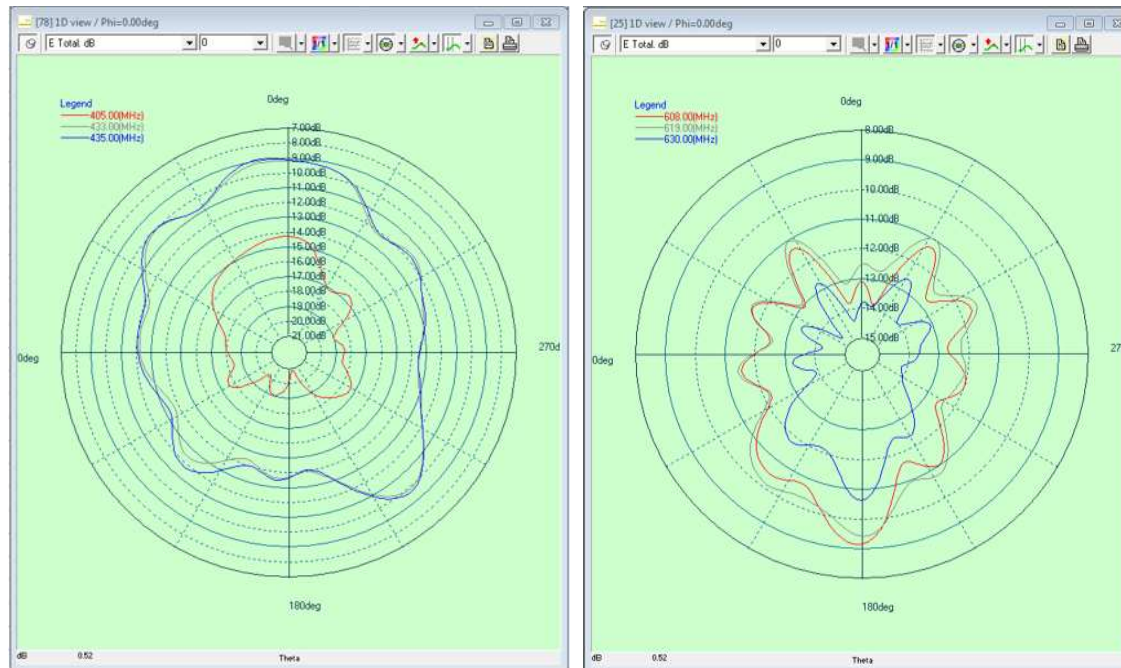


Figure 9 Phi=0°, 400M、600M 2D radiation pattern

2.4 Efficiency and Gain test data

Frequency (MHz)	Efficiency (%)	Efficiency (dB)	Gain(dBi)
407	1.95%	-17.10	-10.57
409	2.11%	-16.75	-10.27
411	2.27%	-16.43	-10.04
413	2.42%	-16.16	-9.87
415	2.56%	-15.92	-9.73
417	2.53%	-15.98	-9.99
419	2.78%	-15.56	-9.51
421	3.08%	-15.12	-9.02
423	3.40%	-14.68	-8.56
425	3.75%	-14.26	-8.12
427	4.11%	-13.86	-7.71
429	4.49%	-13.48	-7.31
431	4.89%	-13.11	-6.93
433	5.31%	-12.75	-6.56
435	5.76%	-12.40	-6.18
437	6.24%	-12.05	-5.83
439	6.72%	-11.72	-5.50

Frequency (MHz)	Efficiency (%)	Efficiency (dB)	Gain(dBi)
608	12%	-9.25	-4.43
610	13%	-8.90	-4.14
612	13%	-8.82	-4.07
614	13%	-8.87	-4.12
616	13%	-8.90	-4.17
618	13%	-8.92	-4.15
620	13%	-9.02	-4.20
622	12%	-9.24	-4.39
624	11%	-9.54	-4.68
626	10%	-9.88	-4.91
628	10%	-10.19	-5.41
630	9%	-10.44	-5.58

Table 2 Efficiency and Gain test data

Chapter 3 Drawings

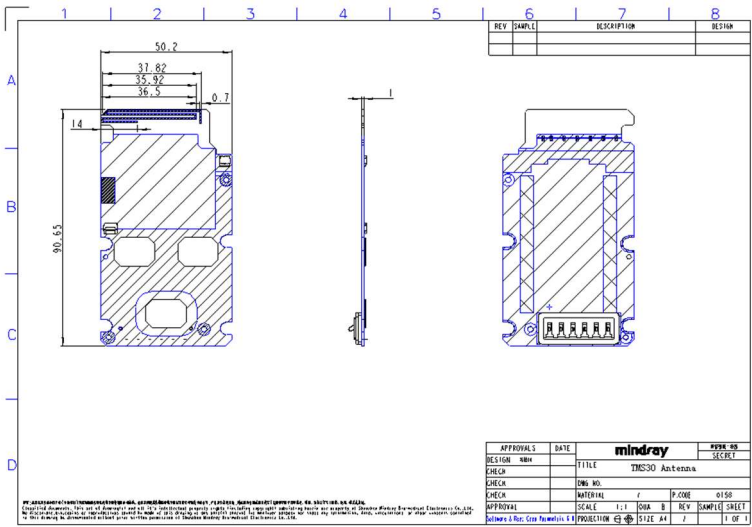


Figure 10 structure drawing