



Amphenol

APPROVAL SHEET

WIFI Antenna

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Project: Z16	Author: Alex Lu	File Name: XY7697-12-000-R
Date: 2016-08-25		
Revision: B		
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Date:	Revision:	Updates and changes:	Issued by:
2015-12-15	A	Original release of the approval sheet	Shijie Lin
2016-08-25	B	Add 3D radiation pattern	Alex Lu

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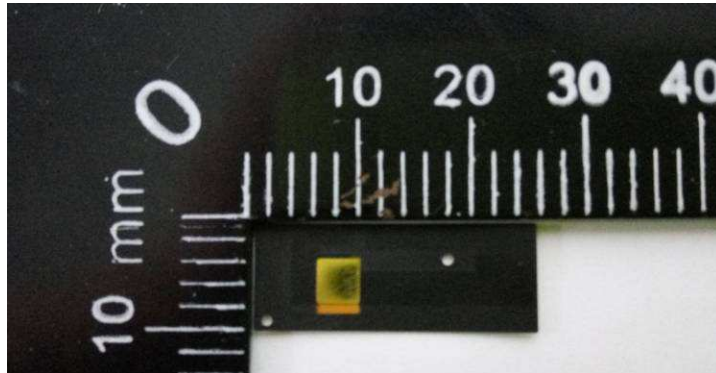
1 Antenna description

This antenna is WIFI internal antenna. The structure of the antenna is FPC.

1.1 Part number

SAA: XY7697-12-000-R

1.2 Antenna pictures



Picture1. Antenna picture

1.3 Device pictures



Picture2. Device picture

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2 Electrical Performance

2.1 Proposal specification for mass production

Return loss

Frequency(MHz)	2400-2500	5150-5850
Return loss(dB)	≤ -6	≤ -5

2.2 Measurement Set-up

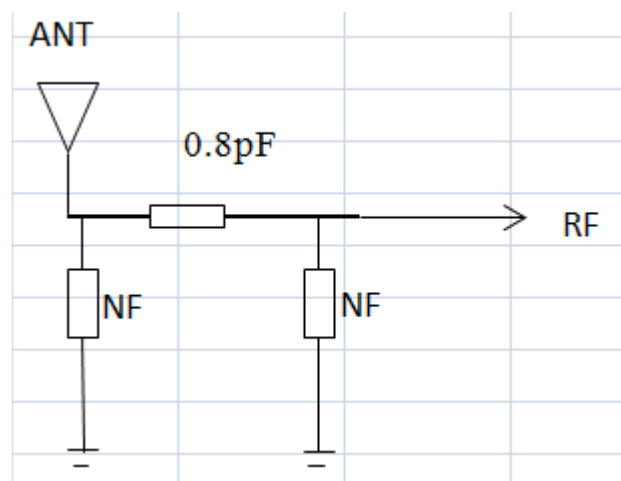
2.2.1 Return loss and VSWR

Return loss measurements (S_{11}) were performed using an Agilent ENA series Network Analyzer and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

2.2.2 Efficiency

The efficiency of the antenna was measured in Amphenol's 3D anechoic chamber in Shanghai, China. The chamber is a Satimo system capable of doing tests from 380MHz to 6GHz. Coaxial chokes on the feed cable were used to mitigate surface currents during passive tests. The measurement results are calibrated using dipole standards.

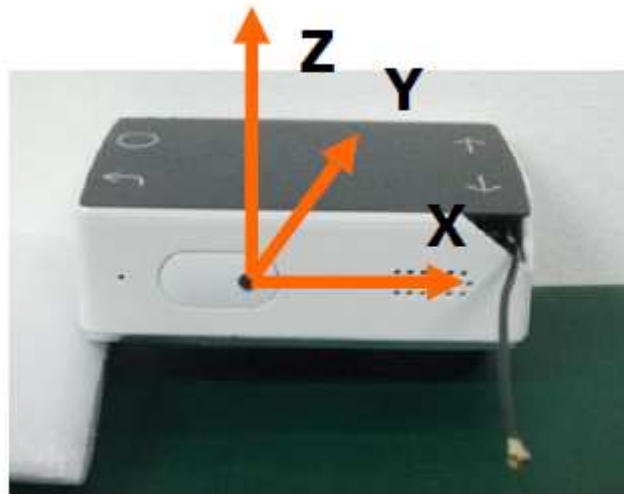
2.2.3 Matching Circuit Description



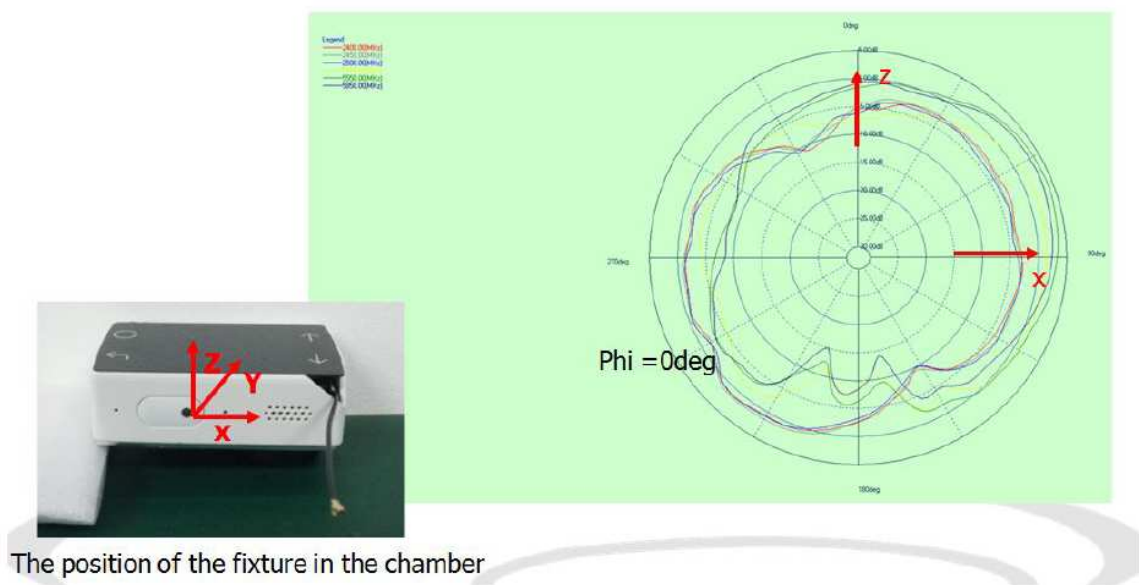
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3 Reference measurement data

3.1 Pictures of the test fixture



3.2 2D radiation pattern of antenna

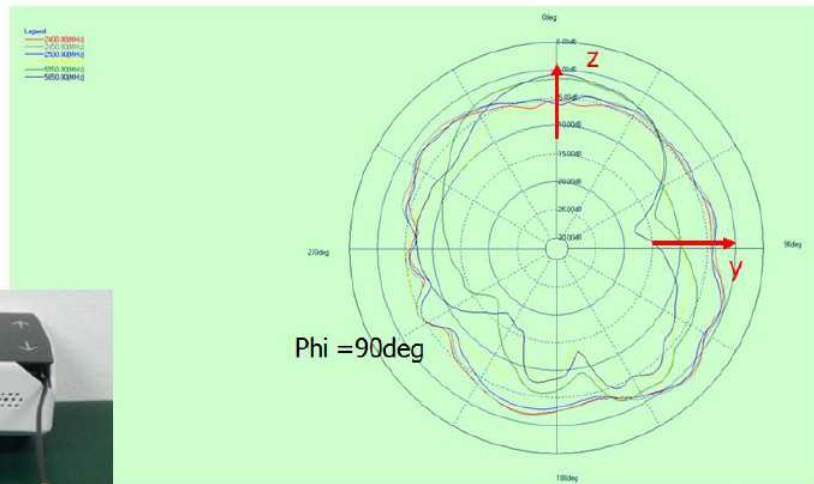


$\Phi = 0^\circ$ (XOZ plane)

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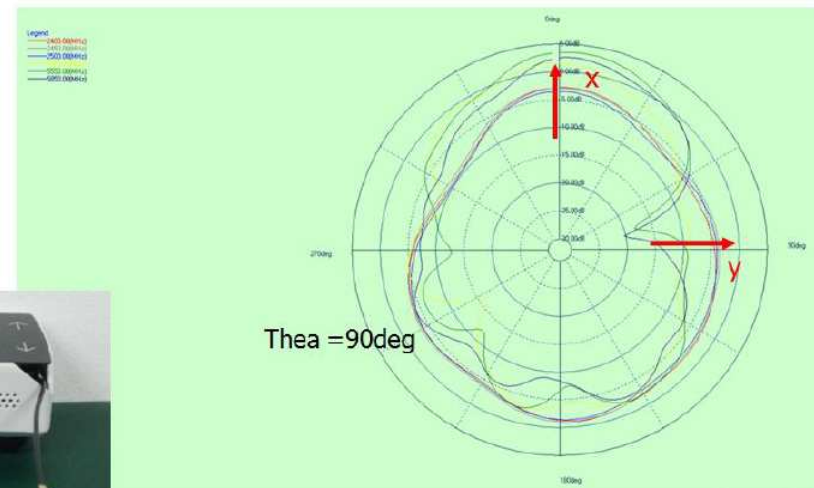
The position of the fixture in the chamber



Phi = 90° (YOZ plane)



The position of the fixture in the chamber

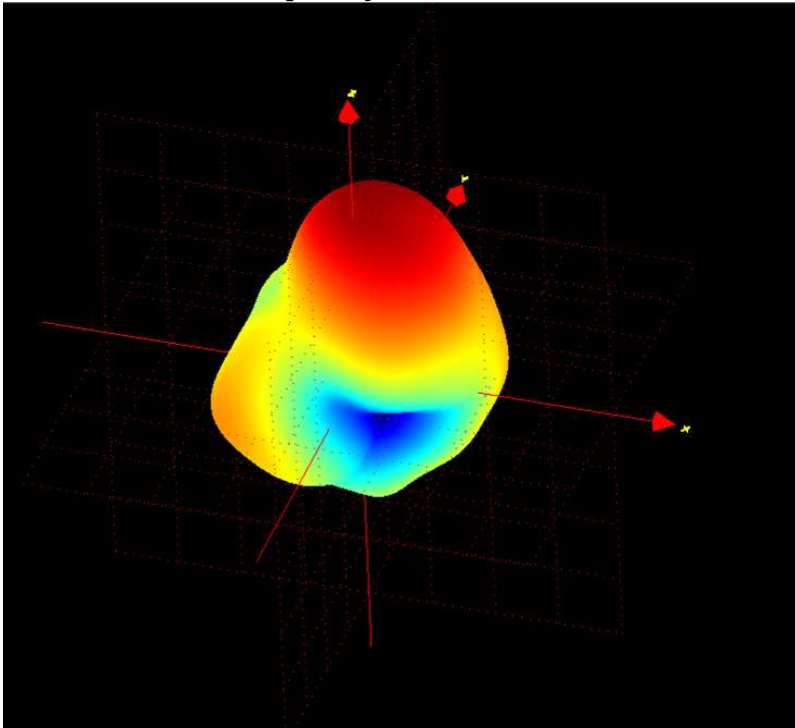


Theta = 90° (XOY plane)

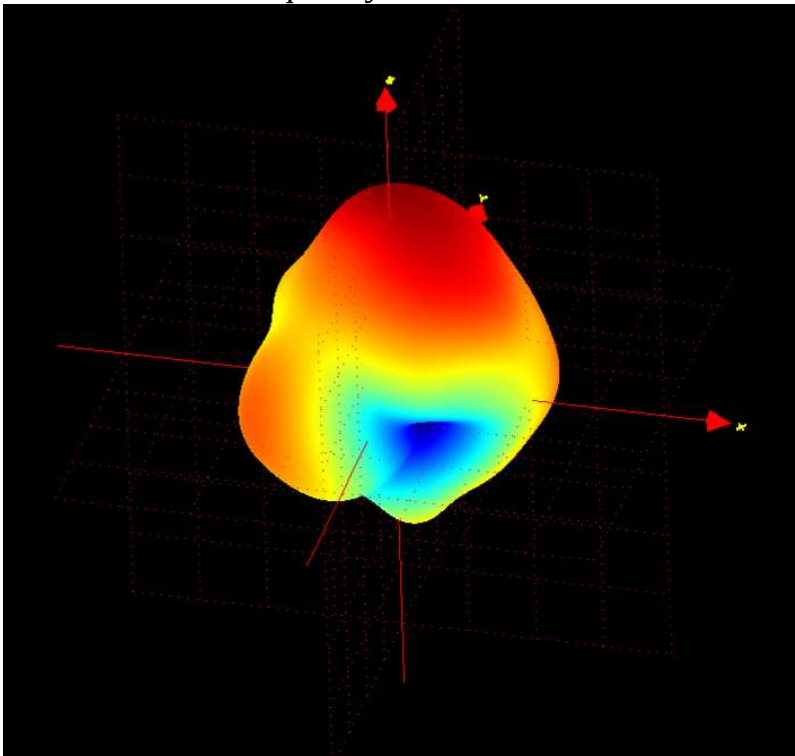
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3.3 3D radiation pattern

Frequency = 2400MHz

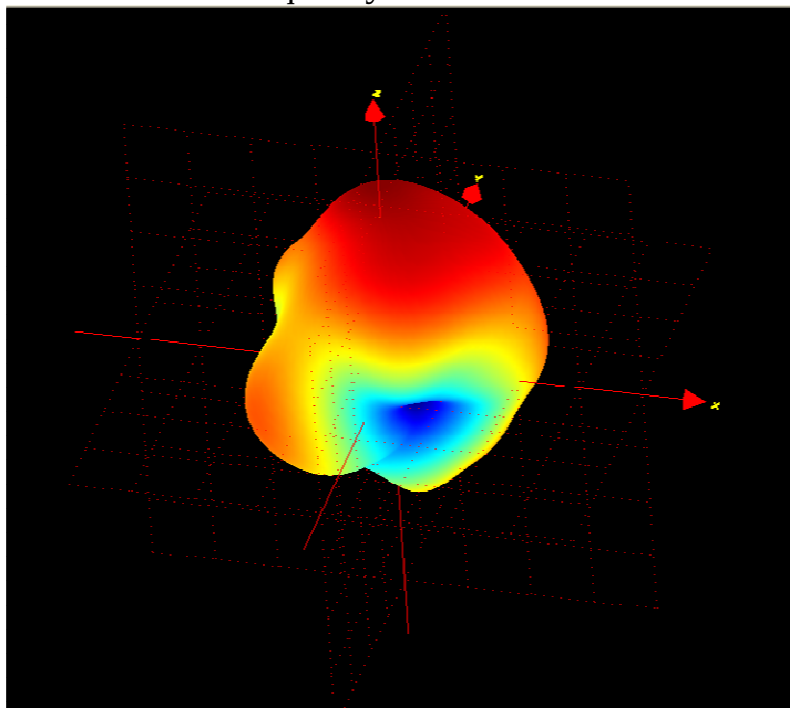


Frequency = 2450MHz

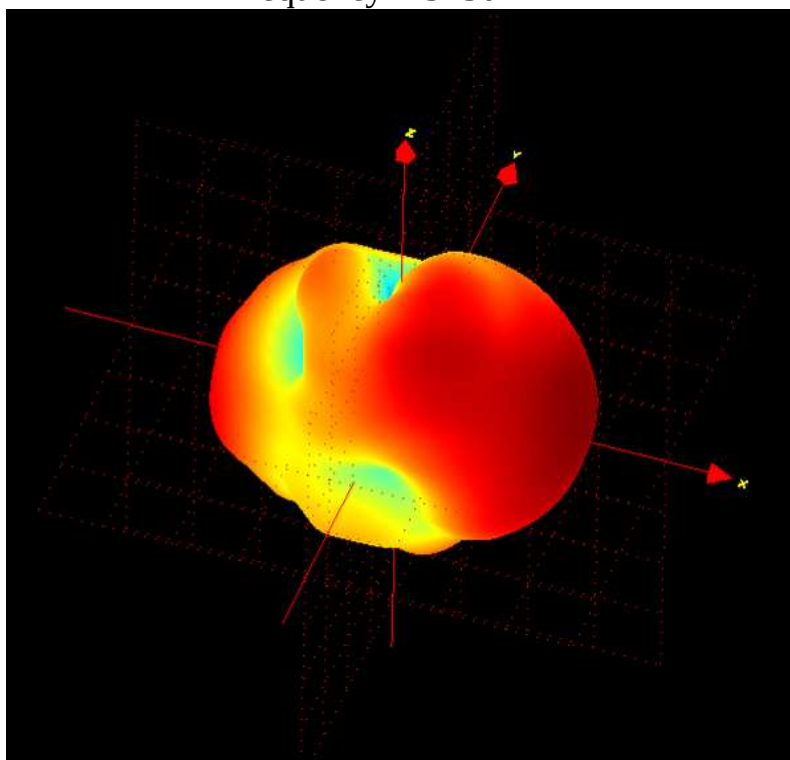


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Frequency = 2500MHz

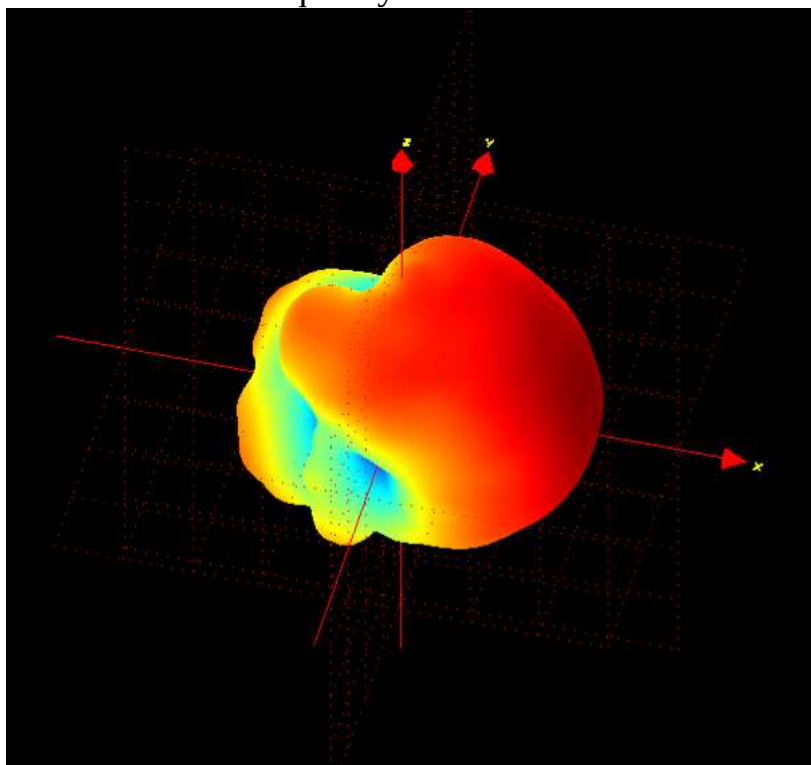


Frequency = 5150MHz

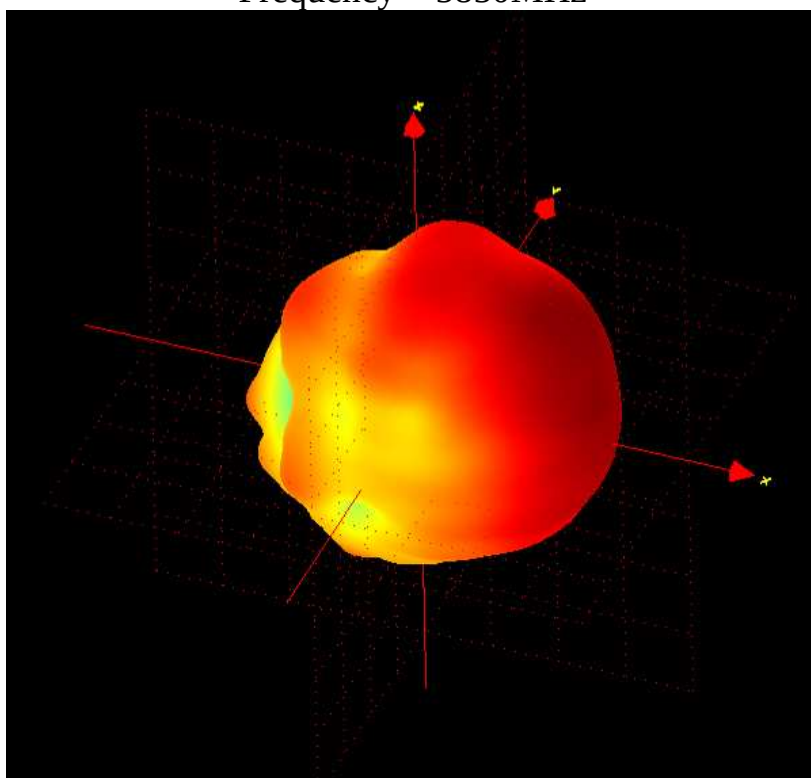


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Frequency = 5470MHz

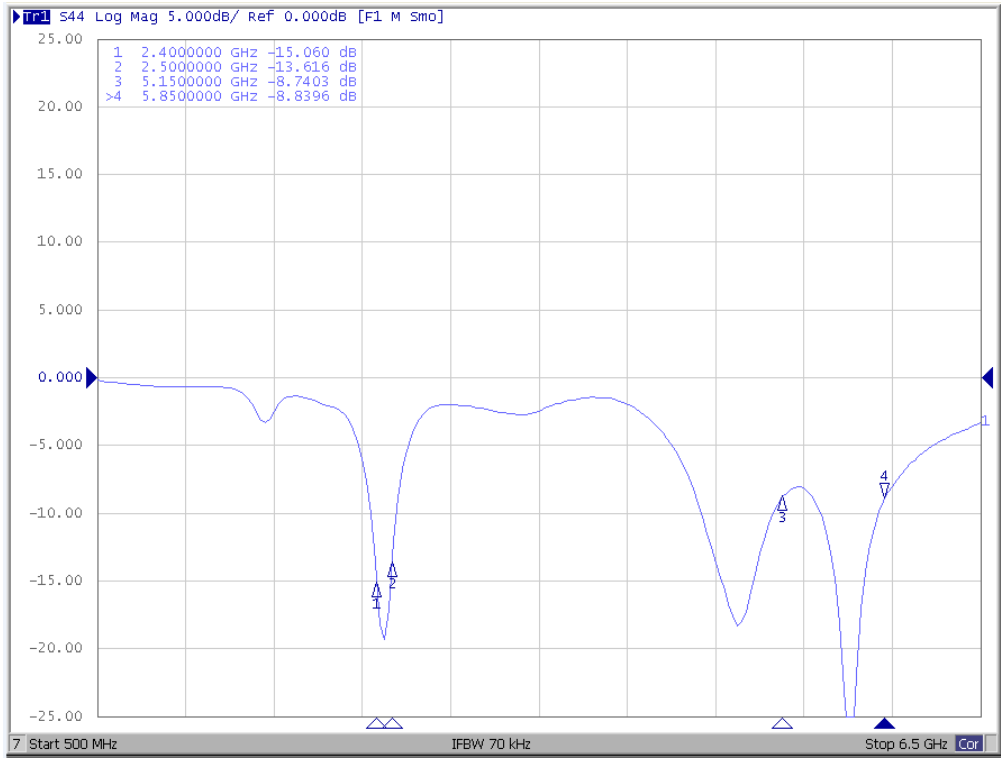


Frequency = 5850MHz



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3.4 Return loss



Picture3. WLAN main VSWR

3.5 Efficiency and peak gain

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Frequency(MHz)	Efficiency (%)	Efficiency(dB)	Peak Gain(dB)
2400	44%	-3.54	1.21
2420	45%	-3.44	1.33
2440	46%	-3.35	1.57
2450	48%	-3.22	1.62
2460	47%	-3.26	1.52
2480	46%	-3.42	1.54
2500	43%	-3.66	1.26
Average	46%	-3.41	1.44
5150	40%	-4.03	1.73
5200	41%	-3.88	2.09
5250	43%	-3.66	2.53
5300	44%	-3.55	2.87
5350	48%	-3.23	3.34
5400	50%	-3.01	3.60
5450	53%	-2.77	3.91
5500	55%	-2.58	4.05
5550	56%	-2.54	4.08
5600	56%	-2.48	4.18
5650	56%	-2.50	4.10
5700	54%	-2.64	3.95
5750	52%	-2.88	3.81
5800	48%	-3.22	3.48
5850	45%	-3.44	3.30
Average	49%	-3.09	3.40

Table1 WLAN main Efficiency and peak gain

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Amphenol		Shanghai Amphenol Airwave Communication Electronics Co., Ltd										SAA	
CPK Data Sheet													
Part Name: Z16 FPC		Part No.: XY7697-12-000-R		Mold No.:		N/A		Material Type:		N/A		Rev No.: FA	
☐ Customer		☒ Supplier SAA		Project Name:		Z16		Color:		N/A		Sub. No. 1 of 1	
Dim. No.	1	2	3	4	5	6							
Nominal Dim.	9.70	25.30	3.80	5.80	2.50	4.00							
Tol. Max. (+)	0.15	0.15	0.30	0.30	0.30	0.30							
Tol. Min. (-)	0.15	0.15	0.30	0.30	0.30	0.30							
USL	9.85	25.45	4.10	6.10	2.80	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LSL	9.55	25.15	3.50	5.50	2.20	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sampl. 1	9.62	25.26	4.05	5.66	2.45	4.05							
Sampl. 2	9.64	25.23	3.95	5.65	2.42	4.02							
Sampl. 3	9.65	25.25	3.92	5.72	2.45	4.06							
Sampl. 4	9.63	25.27	3.96	5.65	2.46	4.11							
Sampl. 5	9.66	25.26	3.98	5.56	2.41	4.05							
Sampl. 6	9.65	25.32	3.92	5.68	2.45	4.11							
Sampl. 7	9.68	25.31	3.85	5.75	2.46	4.05							
Sampl. 8	9.64	25.26	3.88	5.72	2.42	4.12							
Sampl. 9	9.65	25.25	3.90	5.75	2.43	4.06							
Sampl. 10	9.62	25.26	3.92	5.68	2.45	4.08							
Sampl. 11	9.65	25.24	3.91	5.66	2.46	4.09							
Sampl. 12	9.72	25.28	3.86	5.75	2.48	4.12							
Sampl. 13	9.68	25.25	3.88	5.72	2.51	4.11							
Sampl. 14	9.68	25.30	3.91	5.71	2.48	4.08							
Sampl. 15	9.66	25.31	3.86	5.73	2.42	4.06							
Sampl. 16	9.67	25.32	3.92	5.69	2.46	4.05							
Sampl. 17	9.65	25.28	3.86	5.68	2.49	4.08							
Sampl. 18	9.66	25.29	3.85	5.72	2.45	4.06							
Sampl. 19	9.70	25.25	3.92	5.75	2.42	4.07							
Sampl. 20	9.72	25.27	3.85	5.73	2.43	4.08							
Sampl. 21	9.68	25.26	3.86	5.68	2.46	4.05							
Sampl. 22	9.65	25.31	3.95	5.71	2.46	4.10							
Sampl. 23	9.63	25.28	3.92	5.73	2.48	4.03							
Sampl. 24	9.65	25.32	3.85	5.68	2.51	4.06							
Sampl. 25	9.64	25.28	3.88	5.72	2.45	4.05							
Sampl. 26	9.65	25.26	3.86	5.75	2.46	4.10							
Sampl. 27	9.67	25.25	3.92	5.71	2.48	4.06							
Sampl. 28	9.68	25.26	3.87	5.68	2.49	4.08							
Sampl. 29	9.65	25.31	3.92	5.69	2.51	4.03							
Sampl. 30	9.66	25.32	3.85	5.75	2.45	4.04							
Sampl. 31	9.64	25.29	3.88	5.72	2.47	4.09							
Sampl. 32	9.63	25.28	3.86	5.69	2.46	4.05							
Sampl. 33	9.68	25.26	3.85	5.68	2.48	4.06							
Sampl. 34	9.65	25.28	3.89	5.67	2.45	4.05							
Sampl. 35	9.70	25.29	3.91	5.71	2.46	4.07							
Maximum	9.720	25.320	4.050	5.750	2.510	4.120	0.000	0.000	0.000	0.000	0.00	0.00	0.00
Minimum	9.620	25.230	3.850	5.560	2.410	4.020	0.000	0.000	0.000	0.000	0.00	0.00	0.00
Std Dev	0.025	0.026	0.045	0.039	0.026	0.026	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mean	9.660	25.277	3.898	5.701	2.459	4.069	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cp	1.988	1.945	2.236	2.550	3.855	3.806	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CpkI	1.454	1.652	2.964	1.708	3.330	4.687	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cpku	2.523	2.238	1.508	3.393	4.380	2.925	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cpk	1.454	1.652	1.508	1.708	3.330	2.925	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Too Low		Within Spec		Too High								

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