

DS2278A/CR2278A

Bluetooth2.4GHz

Zebra

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Prepared By:

Checked By:

Date of Report:

Antenna Revision:

Report Revision:

Gary Lee

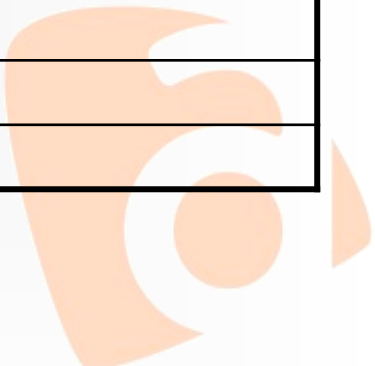
2016/11/15

X01

Rev 06

Report History

Date	Rev.	Description
2016-05-13	00	First environmental assessment and design antennas.
2016-05-17	01	Modify Antenna area.
2016-06-01	02	Assessment and design antenna with cradle.
2016-06-28	03	Experiment with PCB effect on solder mask
2016-09-21	04	Verify PCB Sample from Zebra.
2016-09-29	05	Fine tune Scanner Antenna.
2016-11-15	06	Add antenna peak gain data.



- This report presents the testing environment, and the relevant results for the antenna design.
- The relevant antenna locations are indicated in the images provided within the report.
- The VSWR plots are provided in **Appendix A**.



Description of Antenna Test Environment

The antenna measurements were taken in the A-Plus system anechoic chamber. The chamber size is 7m x 4m x 4m and supports test frequencies from 650MHz to 10GHz.

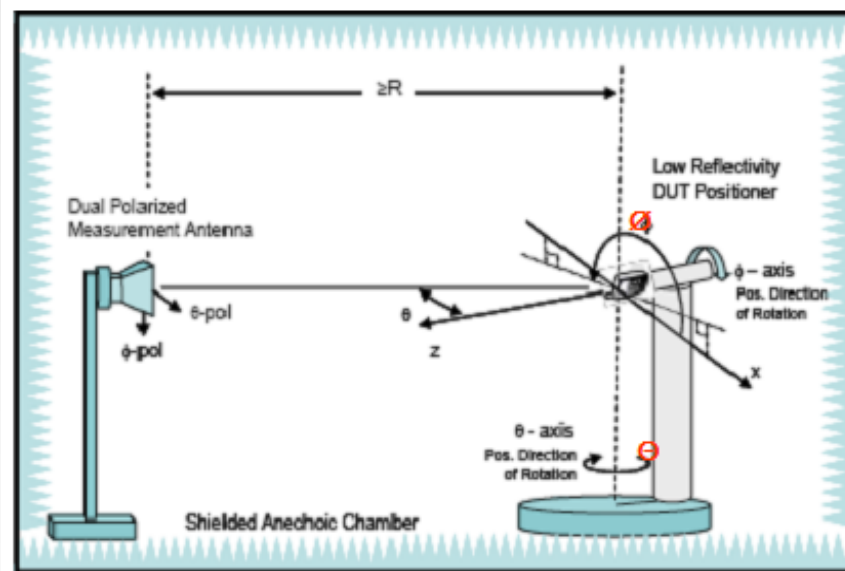


Figure 1a: Great Circle cut system following CTIA

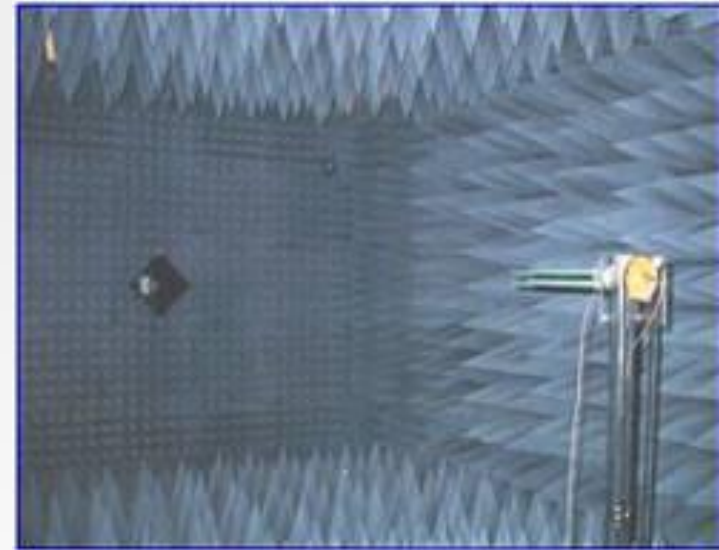


Figure 1b: A-Plus chamber setup

S_{11} measurements were taken with using the Agilent E5071C Network Analyzer (**Figure 2**). The testing was performed in free space.



Figure 2: Agilent E5071C Network Analyzer



WLAN Antenna Passive Data

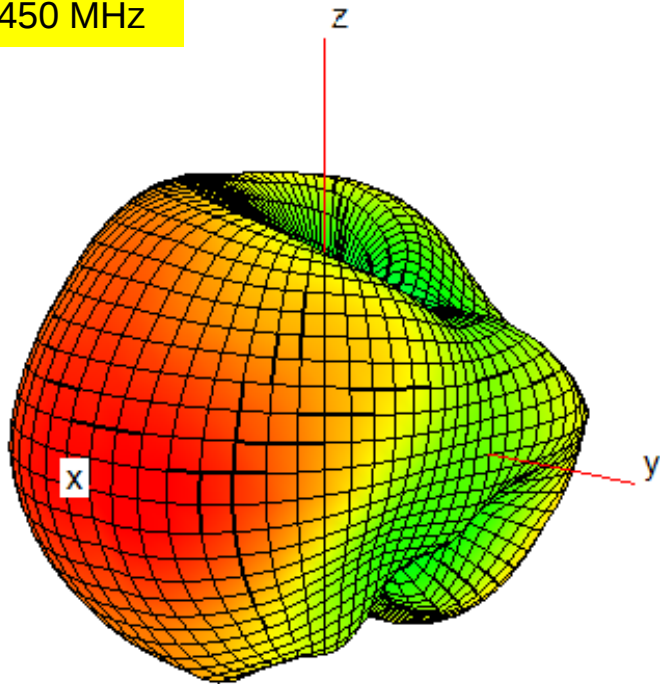
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Passive Measurement		2016-09-29 Modified Antenna		
	Frequency	dB	Efficiency (%)	Peak Gain
WLAN	2400	-2.32	58.6	1.88
	2410	-2.50	56.2	2.09
	2420	-2.65	54.3	2.35
	2430	-2.44	57.0	2.58
	2440	-2.46	56.7	2.71
	2450	-2.49	56.4	2.80
	2460	-2.45	56.8	2.80
	2470	-2.18	60.6	2.94
	2480	-2.06	62.2	2.96
	2490	-2.19	60.4	2.71
	2500	-2.41	57.5	2.75

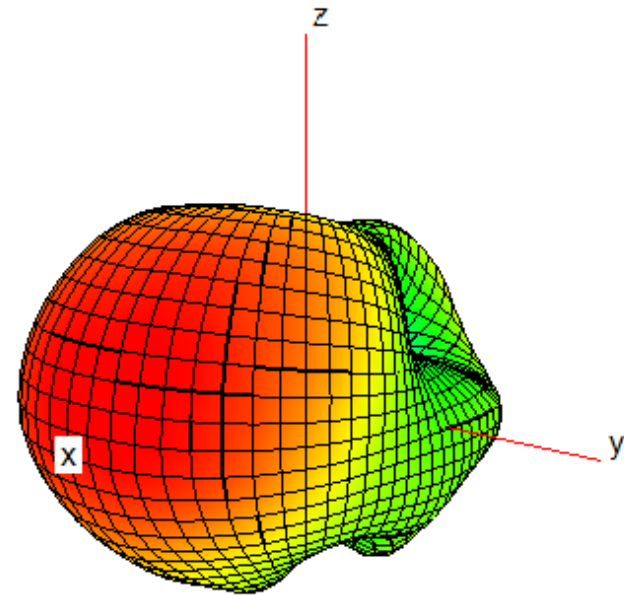


3D Radiation Pattern

2450 MHz



Original Antenna



Modified Antenna

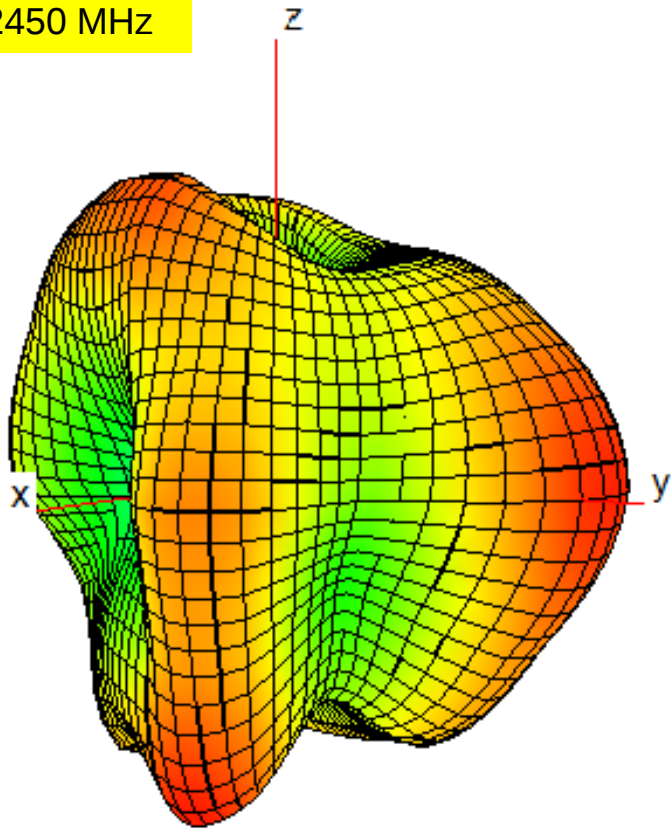
WLAN Antenna Passive Data (Cradle)

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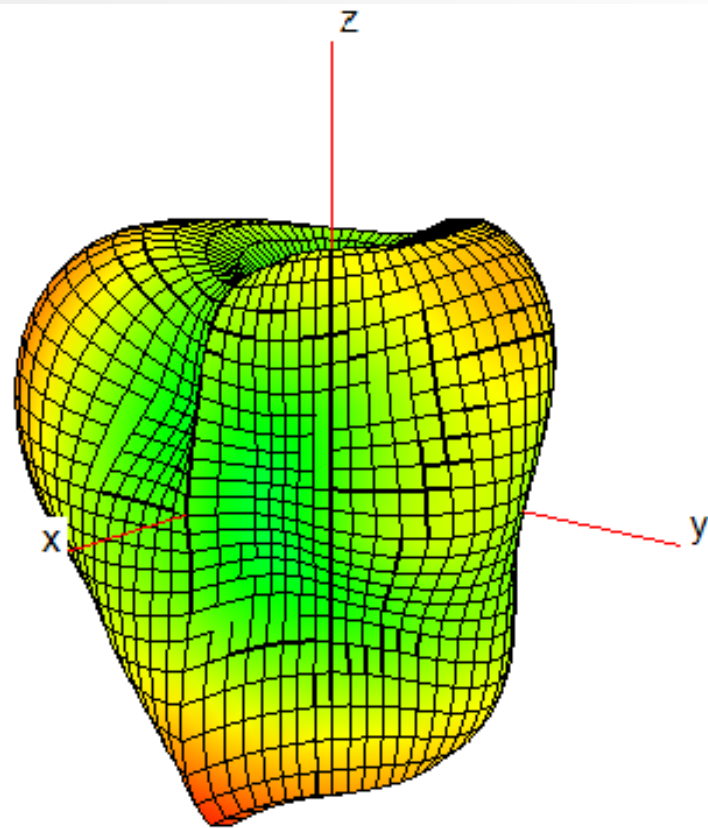
Passive Measurement		2016-09-21 Zebra Sample		
	Frequency	dB	Efficiency (%)	Peak Gain
WLAN	2400	-2.92	51.1	0.94
	2410	-2.77	53.9	1.21
	2420	-2.47	57.6	1.54
	2430	-2.25	60.6	2.16
	2440	-2.30	59.8	2.17
	2450	-2.29	60.1	2.32
	2460	-2.16	61.8	2.49
	2470	-1.85	66.3	2.63
	2480	-1.77	67.5	2.73
	2490	-2.19	61.3	2.24
	2500	-2.23	60.8	2.22

3D Radiation Pattern

2450 MHz



Auden Sample

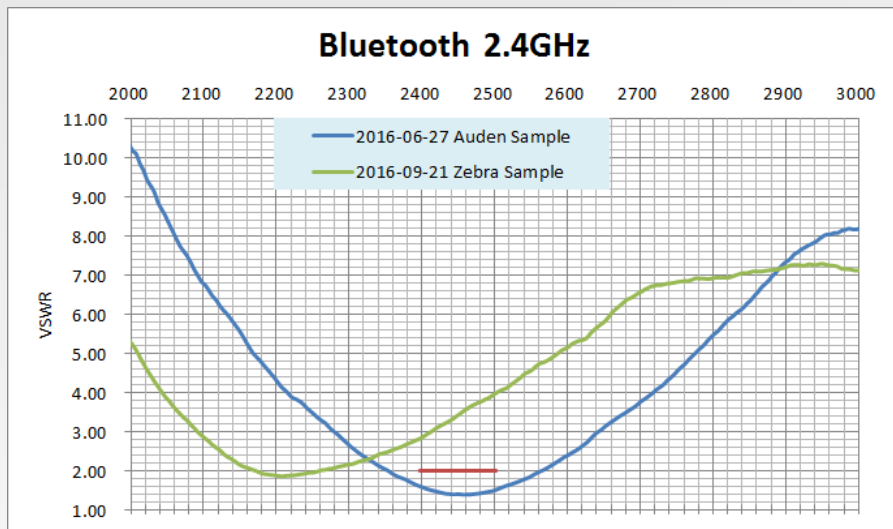


Zebra Sample

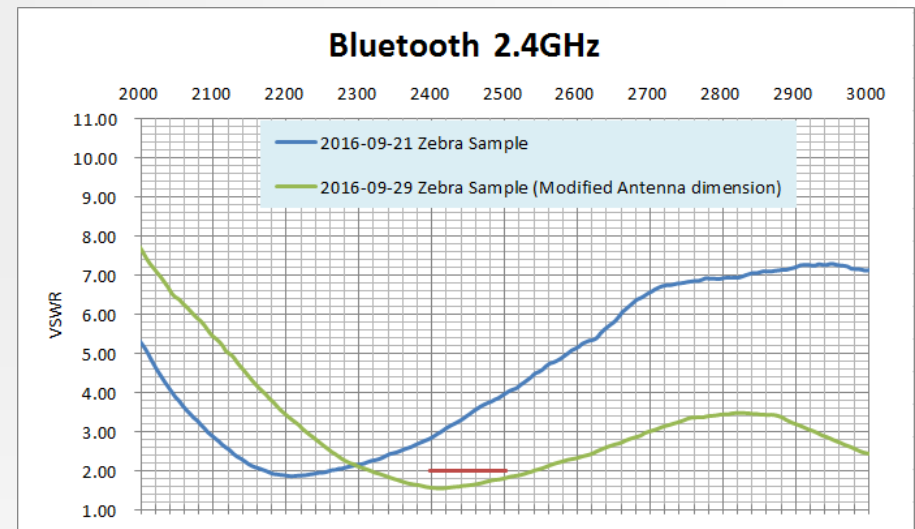
Appendix A

VSWR

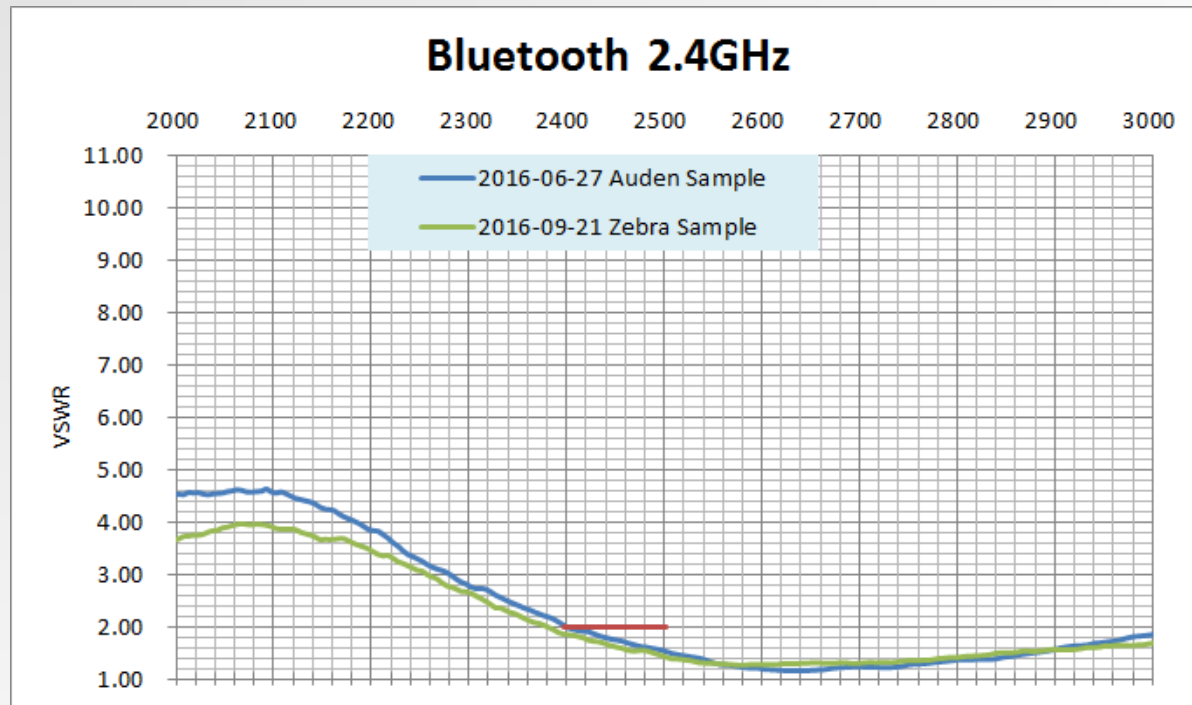




Scanner



Scanner



Cradle



Test environment



Keysight EC5071C



Aplus Mini OTA Chamber

Calibration date:

Last calibration date: 2016/02/01

next calibration date: 2017/02/02

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