



900 MHz Antenna report

29 May-2019

Revision History

Revision	Date	Description of changes
A	29 May-2019	Verify antenna efficiency.

1.0		Test fixture
2.0		Matching Network Circuitry
3.0		Test setup (Network Analyzer)
	3.1	Laboratory Equipment
	3.2	ETS Chamber - AMS-8500
4.0		S11/VSWR
	4.1	Efficiency
5.0		2D Radiation Pattern
	5.1	3D Radiation Pattern

1.0 Test fixtures pictures



Part No.: QX-008-387

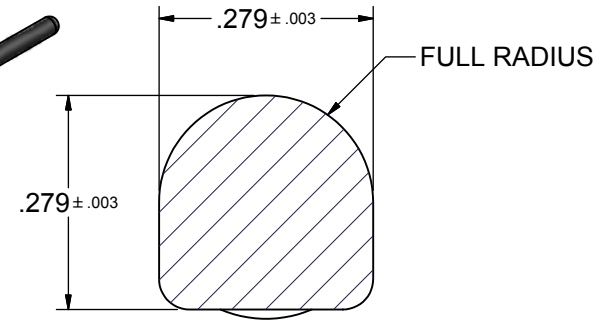
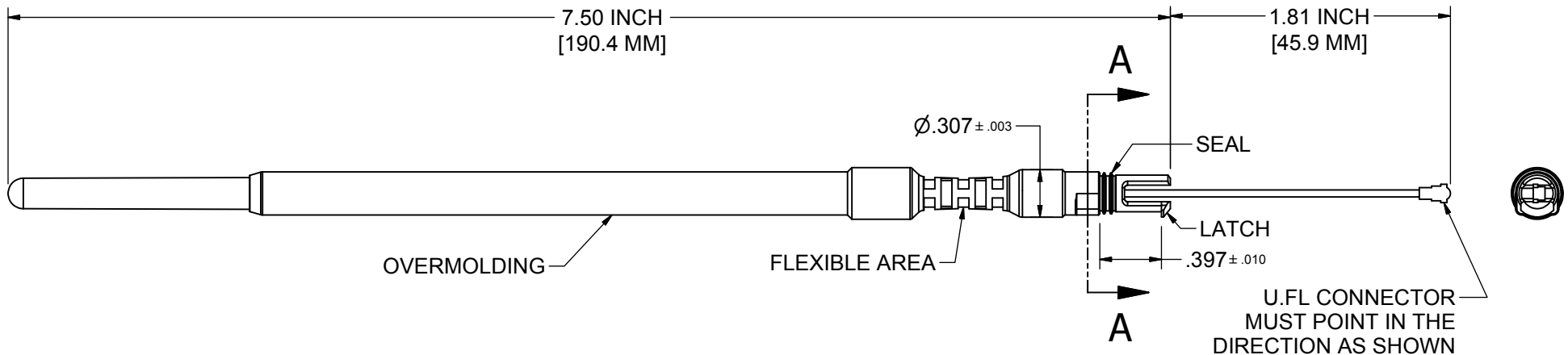
Title: ANTENNA (900MHZ)

Rev No.

B

NOTES:

1. FLEXIBLE AREA MUST BEND FROM 0° TO 90° 100 TIMES MINIMUM WITHOUT FRACTURE.
2. CENTER FREQUENCY (MHz): 915
3. GAIN (dBi): 0±1.5
4. IMPEDANCE - NOMINAL (OHMS): 50
5. VSWR: 2.0 MAX.
6. POLARIZATION: VERTICAL
7. ELECTRICAL LENGTH: 1/4 DIPOLE
8. RADIATION: OMNI
9. EFFICIENCY: 50% MINIMUM, 70%+ DESIRED.
10. MATERIAL:
 - LATCH: PC, SHORE D 118, UL94V-0, BLACK
 - SEAL: RED SILICONE
 - OVERMOLDING: BLACK TPE COMPOUND, UV & CHEMICAL RESISTANT, SHORE A 76, UL94V-HB
11. ANTENNA MUST BE ROHS COMPLIANT PER THE LATEST ROHS DIRECTIVE.
12. ANTENNA MUST MEET WATER INGRESS REQUIREMENTS OF IEC 60529 IP67.

**SECTION A-A**

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Modeled: S.ELLIS

Drawn: S.ELLIS

Checked: R.BRIESE

SHALL CONFORM TO ES1020

Date: 6/27/2014

Approved: S.ELLIS

Quick Coupling
Division

Material: SEE NOTES

BASIC TOLERANCES

Wt:0.0057 kg

Grade: N/A

2-Place .XX±.01

SQUARENESS
(MAX IN/IN)

.005

Part No.: QX-008-387

Heat Treat: N/A

3-Place .XXX±.005

RUNOUT
(MAX F.I.M.)

.005

Title: ANTENNA (900MHZ)

Finish: N/A

4-Place .XXXX±.0005

MAX AA MACHINED
SURFACE ROUGHNESS

125

Reference:

Angular X.X±0.5°

CORNER BREAK
AND FILLETS

.001/.015

Scale: 1:1

ECN

Rev

Revised by

Revision

Date

Sheet 1 Of 1

Rev./Ver.

0079931

B

S.ELLIS

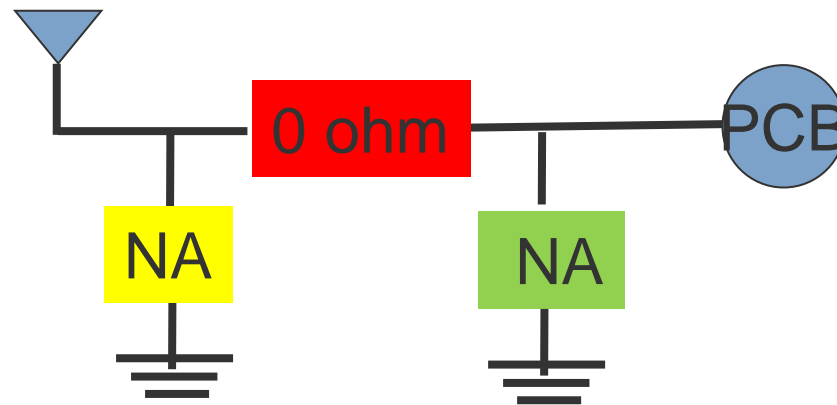
UPDATED ANTENNA

9/29/2014

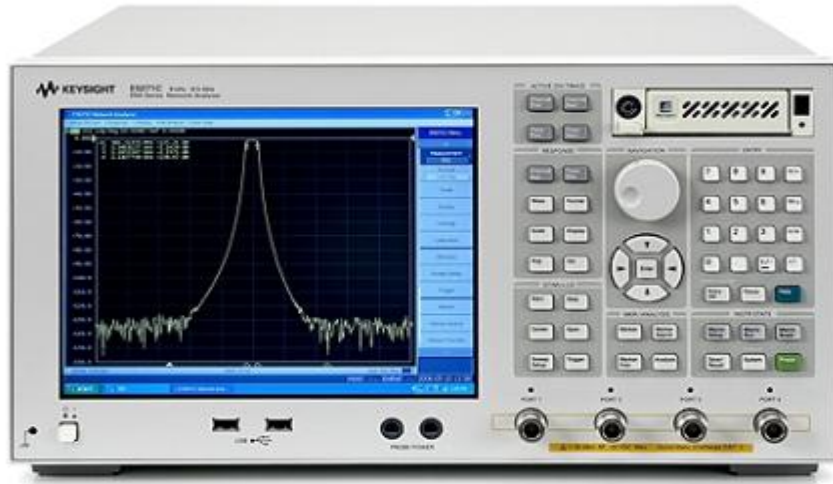
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2.0 Matching Network Circuitry

900 MHz antenna



3.0 Test setup (Network Analyzer)

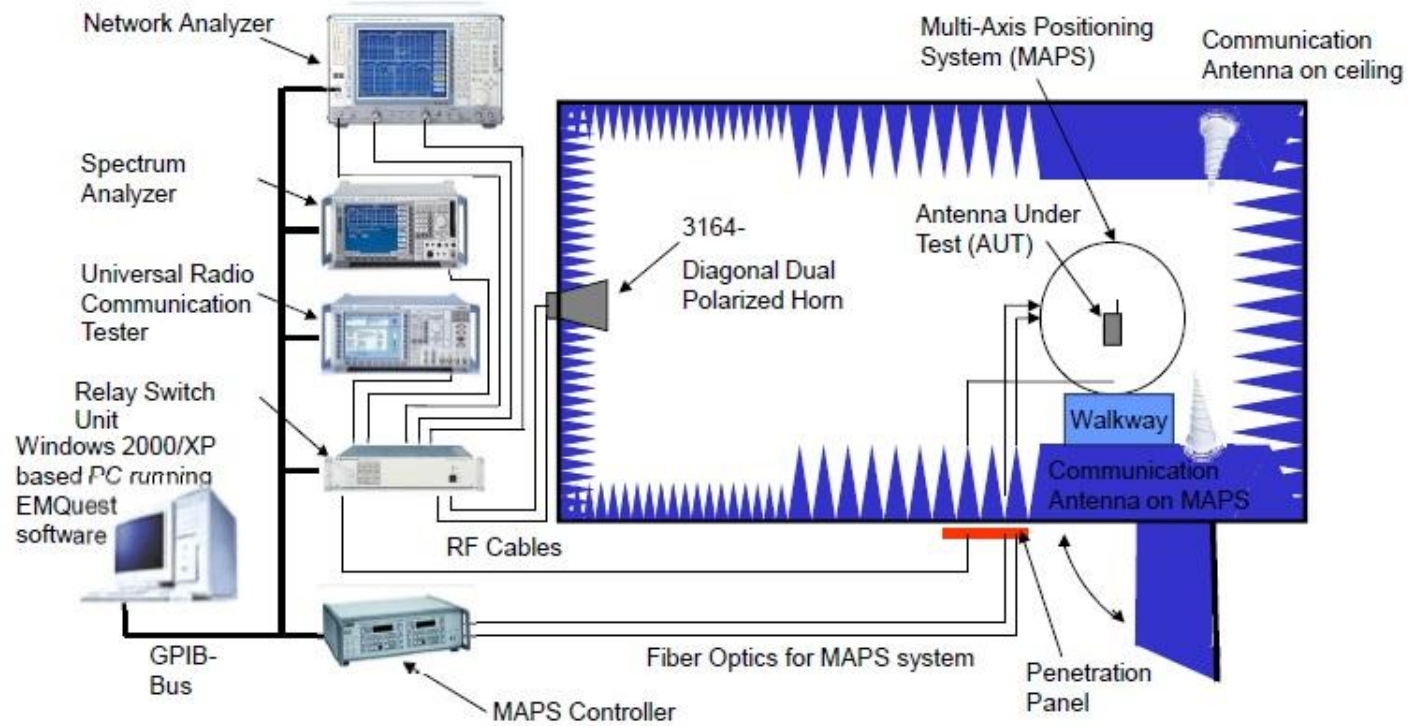


VSWR / S11 measurements were performed using an Agilent E5071C Network Analyzer and the test fixture shown in section 2. The testing was performed in free space. The complete VSWR and isolation plots are provided in section 5.0.

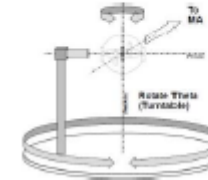
3.1 Laboratory Equipment



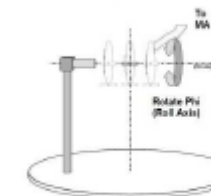
3.2 ETS Chamber - AMS-8500



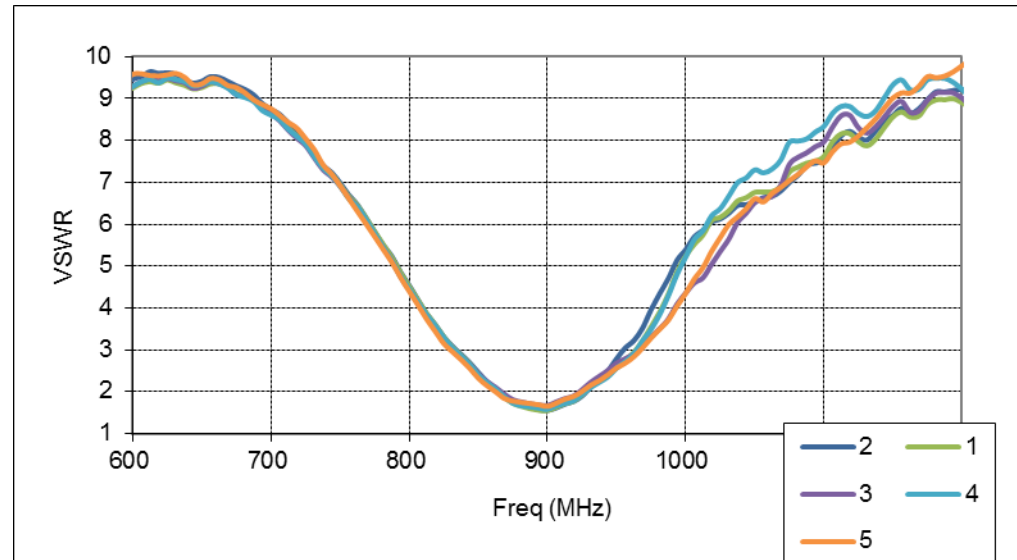
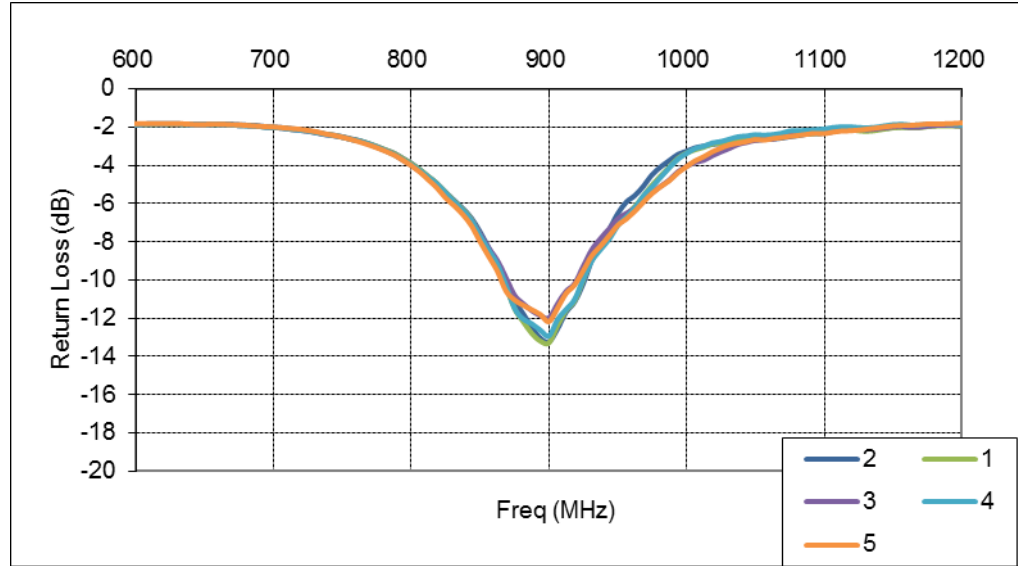
Theta - Axis



Phi - Axis



4.0 S11/VSWR



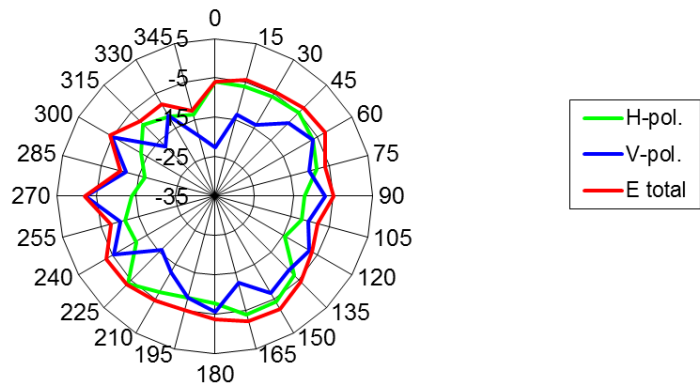
4.1 900 MHz Antenna Efficiency

Frequency Band		Sample 1			Sample 2			Sample 3		
		Free Space								
	MHz	Efficiency (%)	3D Gain (dB)	Peak (dBi)	Efficiency (%)	3D Gain (dB)	Peak (dBi)	Efficiency (%)	3D Gain (dB)	Peak (dBi)
900 MHz	880	45	-3.5	0.4	48	-3.2	0.2	43	-3.6	0.0
	894	48	-3.2	0.8	47	-3.3	0.7	44	-3.6	0.3
	900	48	-3.2	1.0	48	-3.2	0.9	44	-3.5	0.5

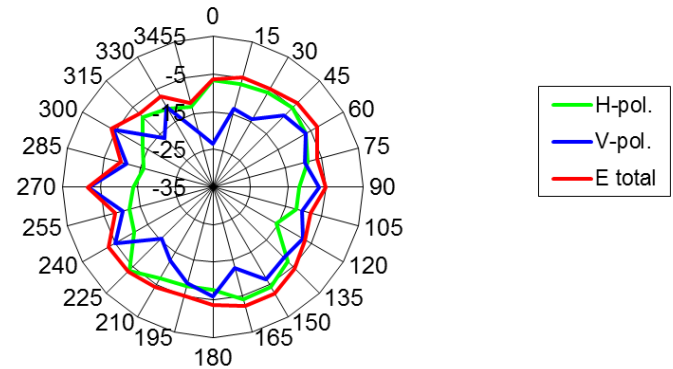
Frequency Band	Sample 4			Sample 5		
	Free Space					
	Efficiency (%)	3D Gain (dB)	Peak (dBi)	Efficiency (%)	3D Gain (dB)	Peak (dBi)
900 MHz	45	-3.5	0.2	46	-3.4	1.3
	46	-3.4	0.6	48	-3.2	1.0
	46	-3.4	0.7	48	-3.2	0.8

5.0 2D Radiation Pattern

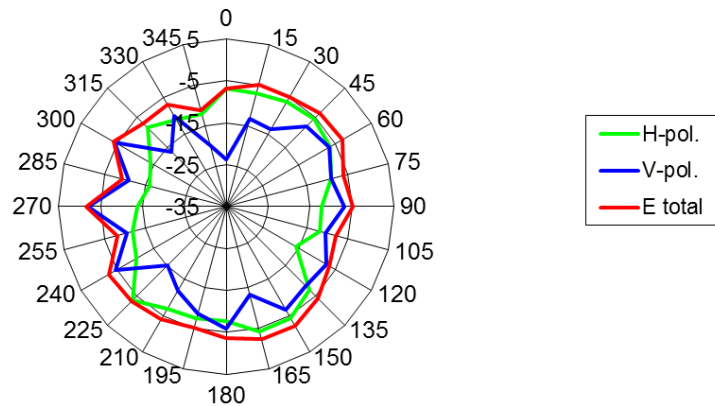
Antenna @ 880 MHz



Antenna @ 894MHz

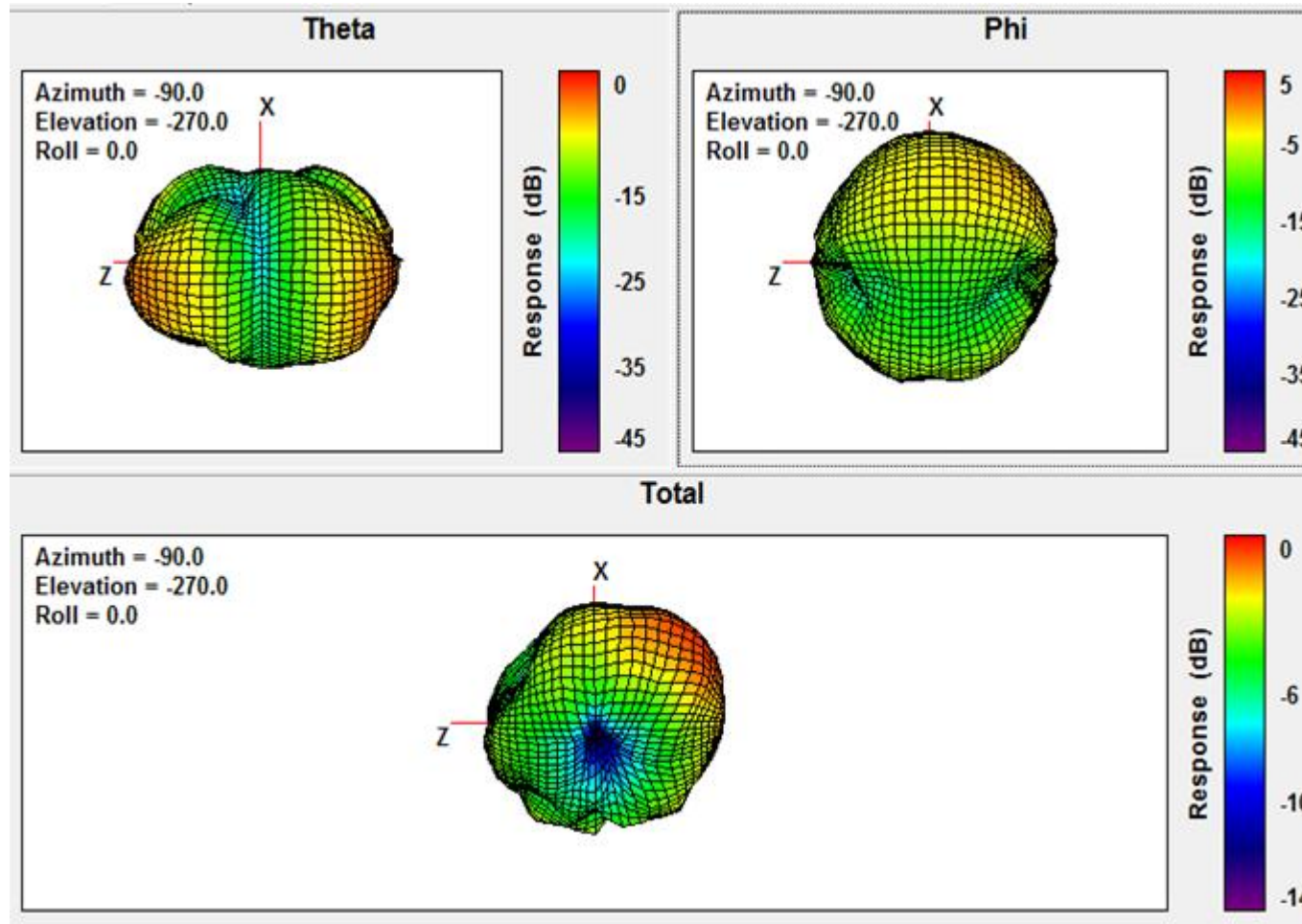


Antenna @ 900MHz



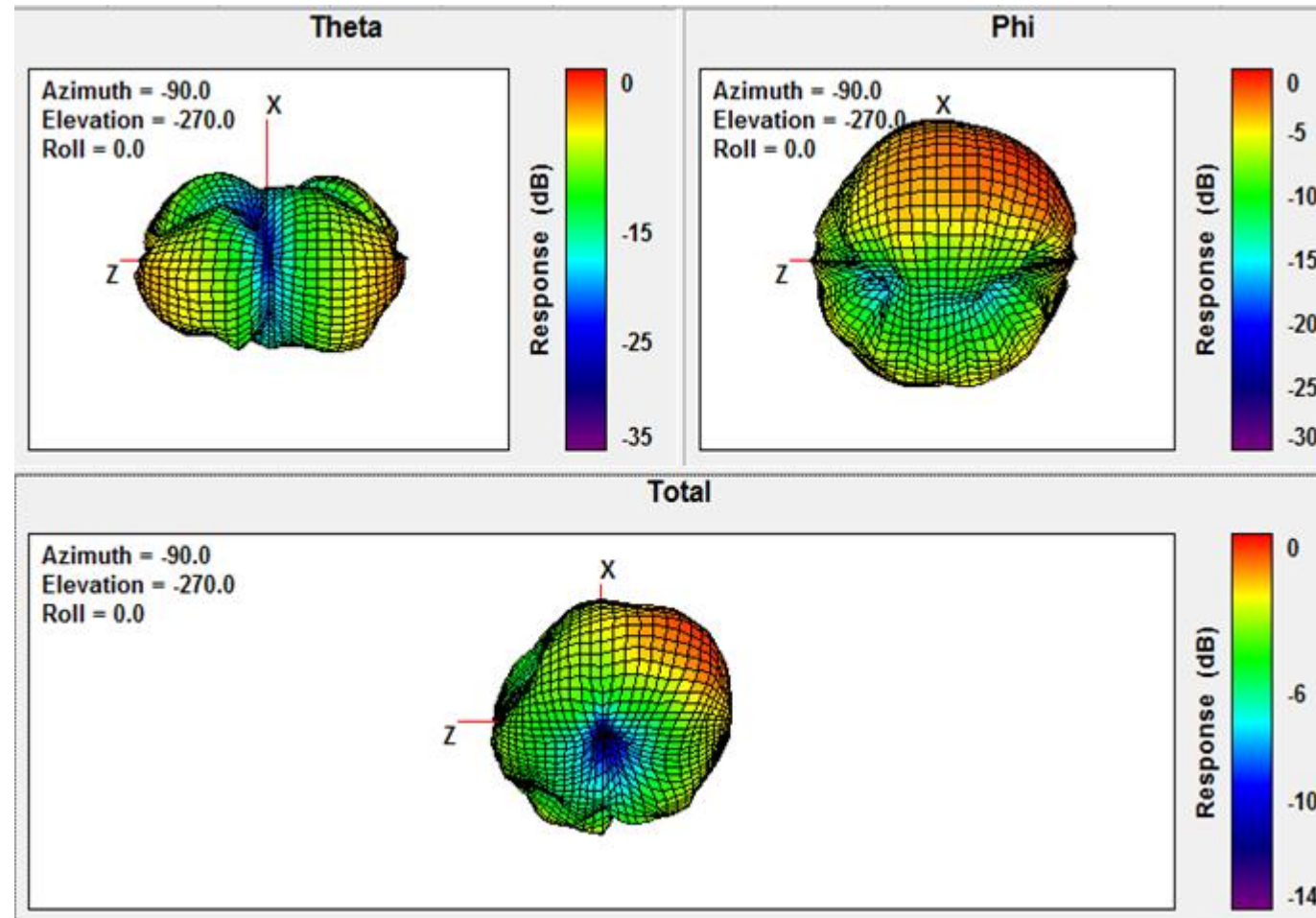
5.1 3D Radiation Pattern

880 MHz



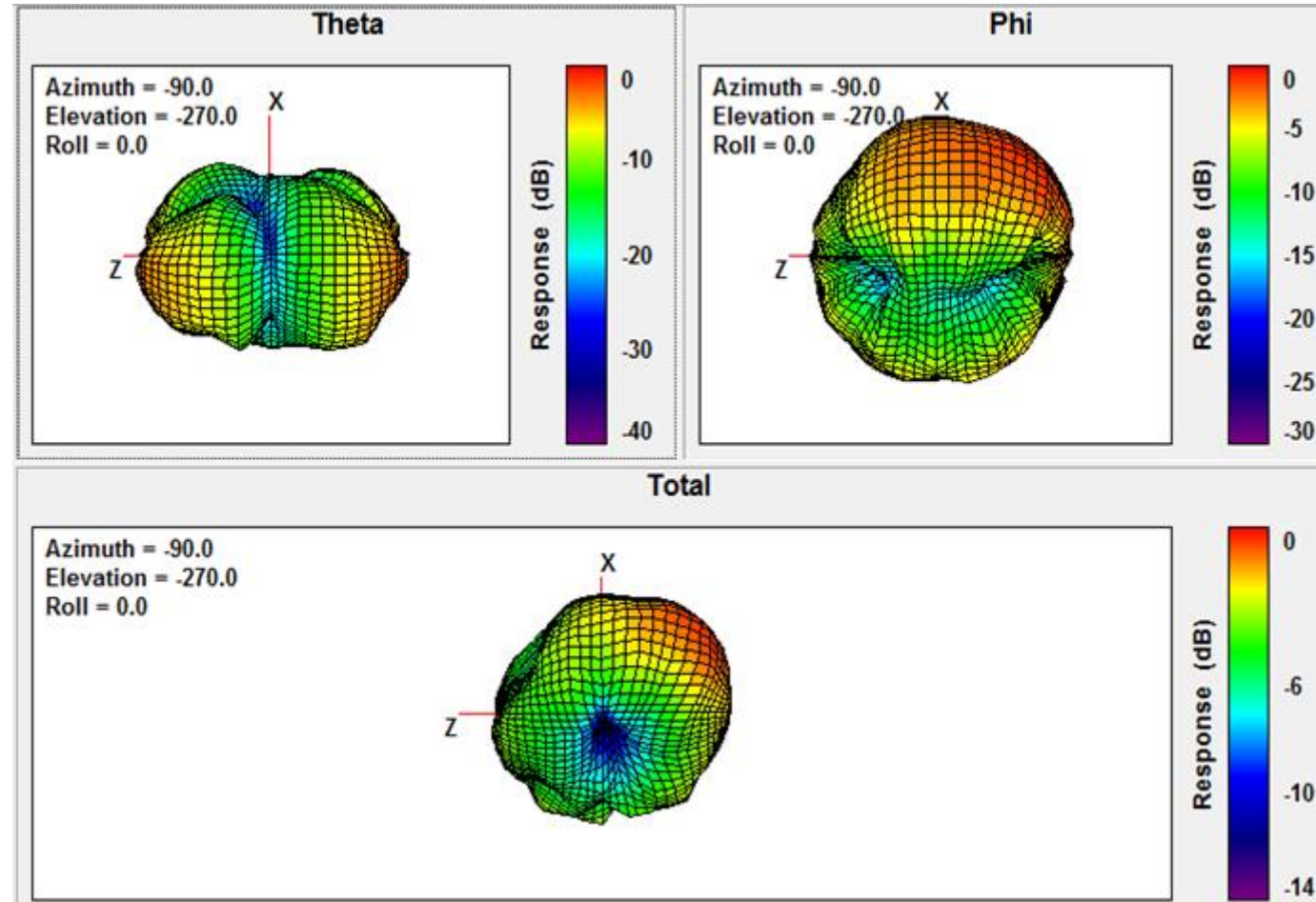
5.1 3D Radiation Pattern

894 MHz



5.1 3D Radiation Pattern

900 MHz





thank you

*danke děkuji ありがとう merci gracias
grazie kiitos הודות köszöni tak tack*