Regulatory WLAN Antenna Information

Platform information					
Brand	**ODM**	**RMN**	**Intel platform** (ex: Yes, No or NA)	**Platform type** (ex: regular NB, convertible PC, AIO…etc)	***SAR minimum separation (mm)**
HP Inc.	Quanta	TPN-Q296	Yes	convertible PC	8.1

Antenna information			
Vendor	**Type**	**Antenna Part number** (Ant 1/Tx1)	**Antenna Part number** (Ant 2/Tx2)
WNC	PIFA	DQ6615G0400 (81EAB615.G04)	DQ6615G0400 (81EAB615.G04)

Peak gain w/ cable loss (dBi)*										
	2.4GHz 2400-2483.5 MHz	**5.2GHz** 5150-5250MHz	**5.3GHz** 5250-5350MHz	**5.6GHz** 5470-5725MHz	**5.8GHz** 5725-5850MHz	**5.9GHz** 5850-5895MHz	**6.2GHz** 5925-6425MHz	**6.5GHz** 6425-6525MHz	**6.7GHz** 6525-6875MHz	**7.0 GHz** 6875-7125MHz
Ant 1	0.21	1.70	1.70	2.07	0.98	0.98	0.67	-0.01	-0.25	-0.12
Ant 2	0.32	2.61	2.61	2.41	2.41	1.52	1.54	-0.02	0.70	1.29

Module Information	
Model	**Form factor and suffixes**
AX211NGW	Intel Garfield Peak 2 AX211 Wi-Fi 6e +Bluetooth 5.2 M.2 2230 160MHz CNVi WW WLAN

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1. **Applicable test methods**

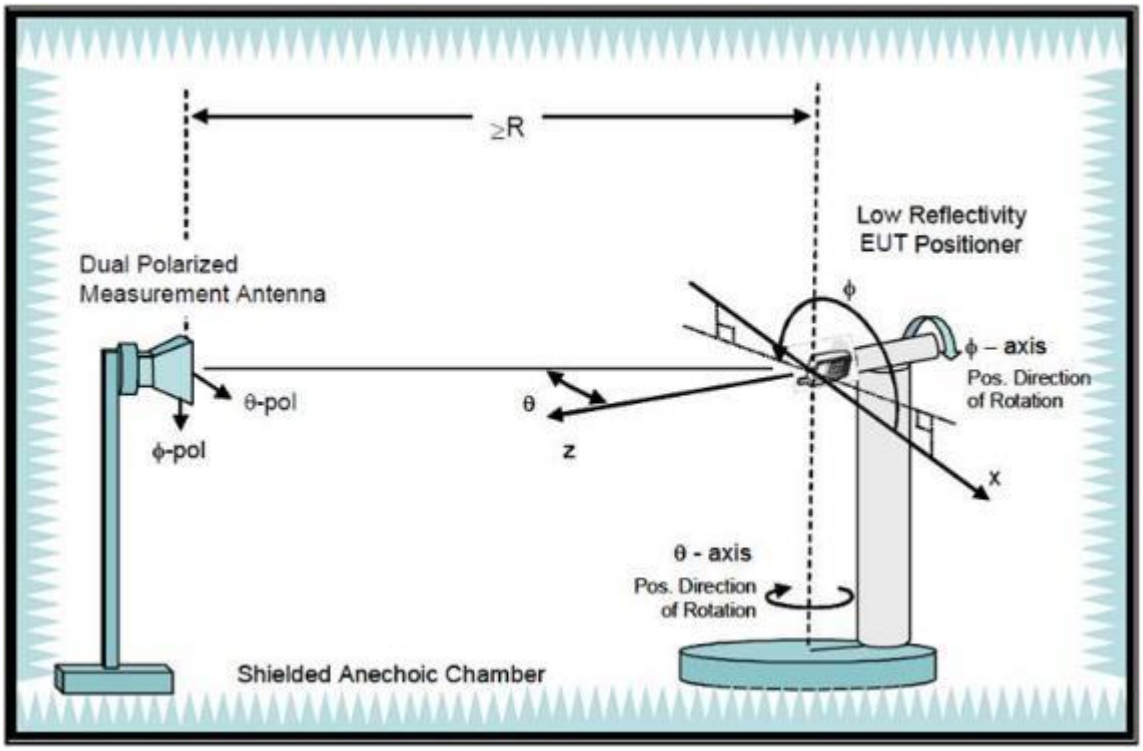
ETS-Lindgren AMS-8500 system is 3D fully anechoic chamber, it is applied to the "Conical Cut test method", the detail description is described as below.

The Conical Cut method requires the ability of the Measurement Antenna to be physically rotated in the theta plane (overhead) of the EUT for implementations using a single Measurement Antenna, Eleven conical cuts are required to capture data at every 15 degrees from the EUT, with the top (0 degrees) and bottom (180 degrees) cuts not being measured. Typically, the EUT will remain affixed to a turntable during the entire measurement process. The Measurement Antenna will be positioned at a starting theta angle. The EUT will then be rotated around the full 360 degrees of phi rotation. The Measurement Antenna will then be positioned at the next theta angle, and the process repeated.

		θ -Axis	Φ-Axis
Passive	Step size	15º~165º step: 15º	0º~345º step: 15º
	N / M (Points)	12	24

2. **Test & System Description**
   a. Test setup

Typical Setup for ETS-Lindgren AMS-8500:



b. Equipment list

Equipment Description	Manufacturer	Identification no.	Current calibration date	Next calibration date
Network analyzer	Agilent	E5071C	2022/01/7	2024/01/6
Measurement software	ETS-Lindgren	EMQuest	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2115	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2110	N/A	N/A
MAPSTM controller	ETS-Lindgren	EMCO 2090	N/A	N/A
ETS OTA Chamber	ETS-Lindgren	AMS8500	2022/03/03	2024/03/02
Horn antenna	ETS-Lindgren	3164-10	2022/03/03	2024/03/02
ETS OTA CHAMBER	ETS-Lindgren	AMS8500	2022/03/03	2024/03/02
Test Cable	ETS-Lindgren	RFC-SMR-100-SMS-350 IN	N/A	N/A

Note: Chamber calibration included full set of implement

Antenna Information

Section 1. Antenna Assembly Specifications

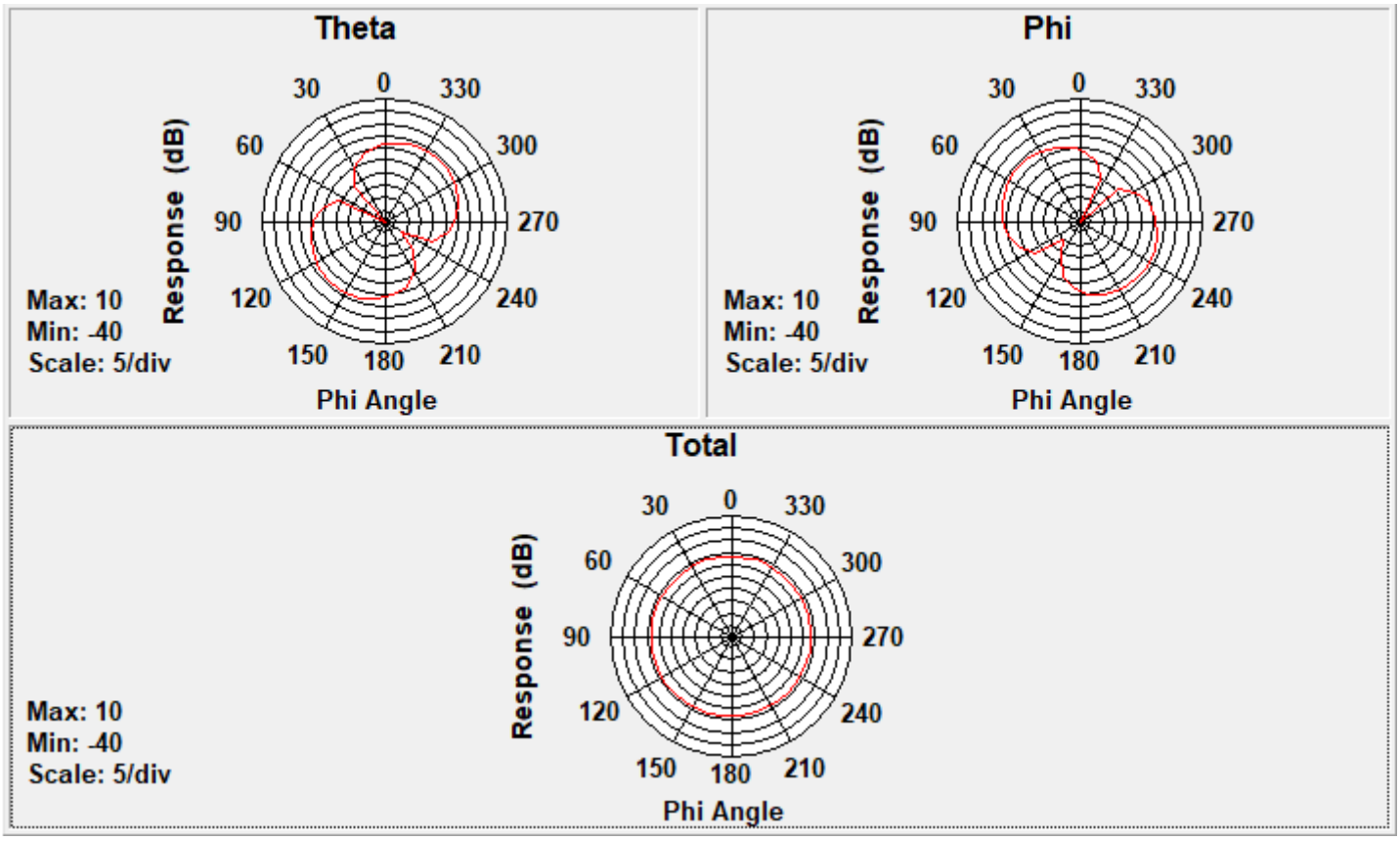
1A Antenna Part Number	1B Manufacturer	1C Antenna Type	1D Cable Assembly Part Number and Information	Freq Range MHz	1E * Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G Max VSWR	1H Cable Loss (dB)
P/N: DQ6615G0400 (81EAB615.G04) Ant1 Tx1 Antenna	WNC	PIFA	Connector: IPEX (P/N: 20632-001R-37) 50 ohm Coaxial length: 299mm diameter: 1.13mm	2400-2495	0.21	1.11	3.0	0.90
				5150-5250	1.70	3.03	3.0	1.33
				5250-5350	1.70	3.04	3.0	1.34
				5470-5725	2.07	3.45	3.0	1.38
				5725-5850	0.98	2.38	3.0	1.40
				5850-5895	0.98	2.39	3.0	1.41
				5925-6425	0.67	2.12	3.0	1.45
				6425-6525	-0.01	1.48	3.0	1.49
				6525-6875	-0.25	1.28	3.0	1.53
				6875-7125	-0.12	1.45	3.0	1.57
P/N: DQ6615G0400 (81EAB615.G04) Ant 2 Tx2 Antenna	WNC	PIFA	Connector: IPEX (P/N: 20632-001R-37) 50 ohm Coaxial length: 323mm diameter: 1.13mm	2400-2495	0.32	1.15	3.0	0.83
				5150-5250	2.61	3.84	3.0	1.23
				5250-5350	2.61	3.85	3.0	1.24
				5470-5725	2.41	3.68	3.0	1.27
				5725-5850	2.41	3.70	3.0	1.29
				5850-5895	1.52	2.82	3.0	1.30
				5925-6425	1.54	2.88	3.0	1.34
				6425-6525	-0.02	1.36	3.0	1.38
				6525-6875	0.70	2.12	3.0	1.42
				6875-7125	1.29	2.75	3.0	1.46

Section 3. Radiation characteristics of antenna loaded in Host Platform

Tx1 Antenna

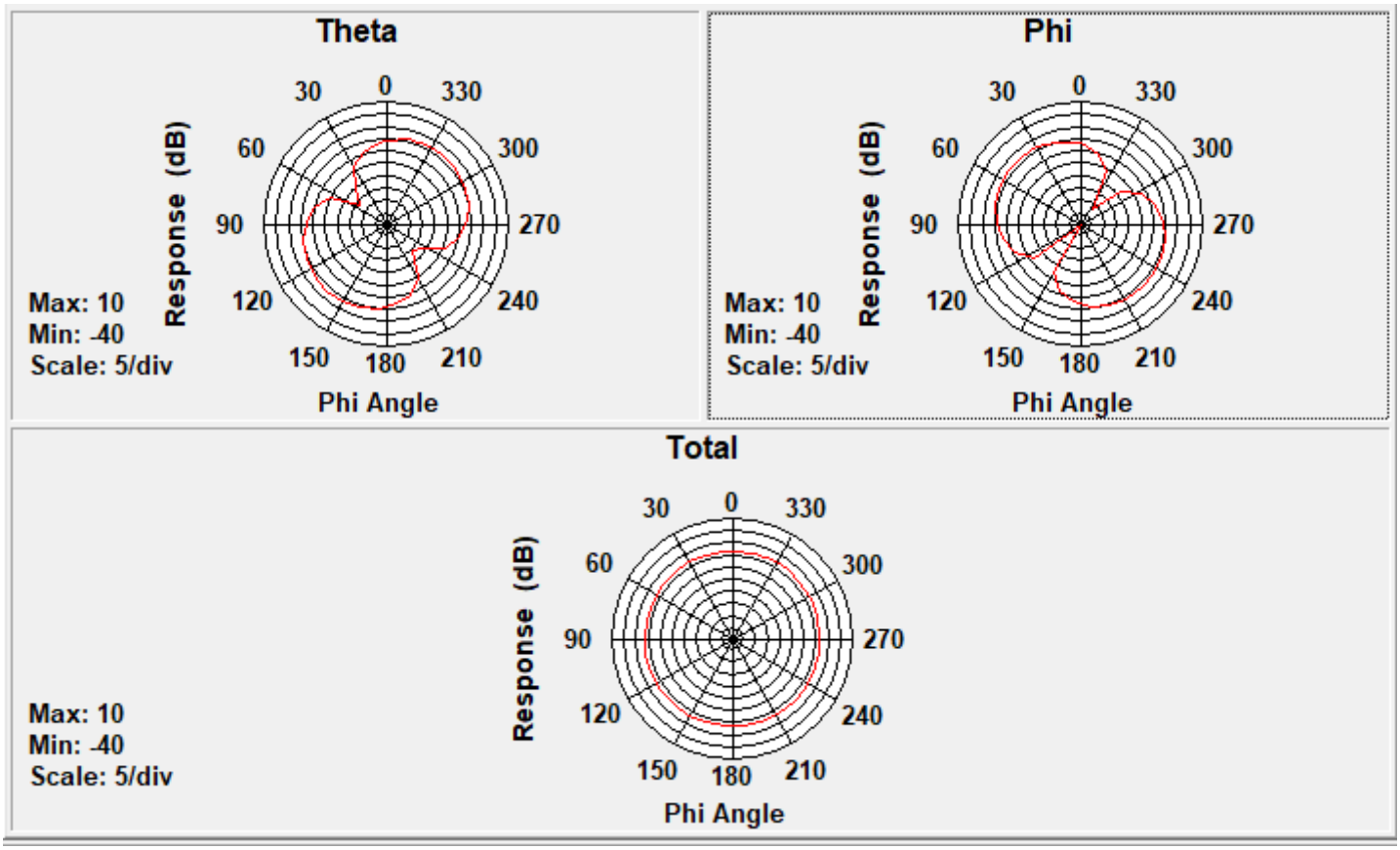
Max Antenna 2D Radiation Pattern 2400 – 2495 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
2400-2495	0.21



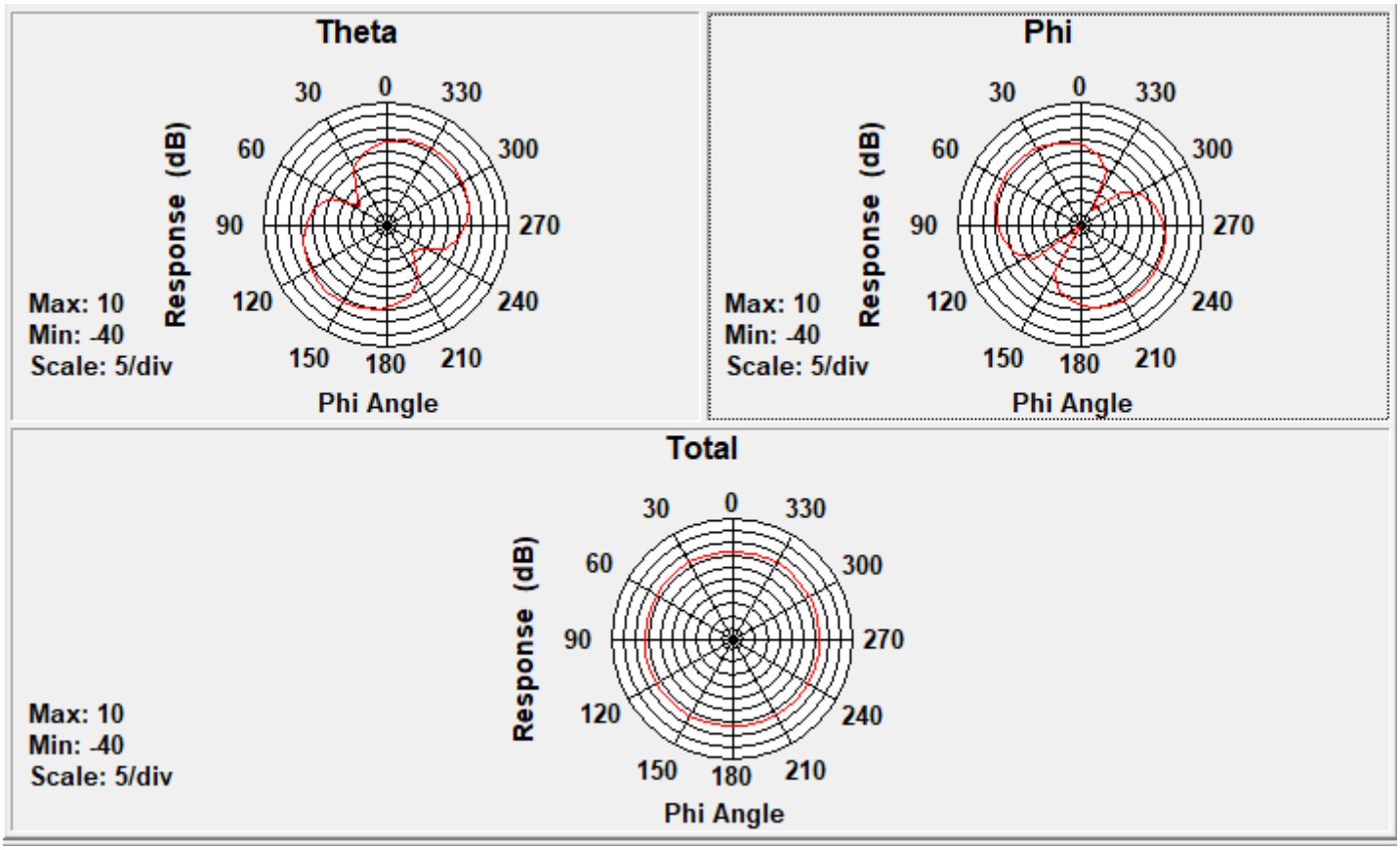
Max Antenna 2D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5150-5250	1.70



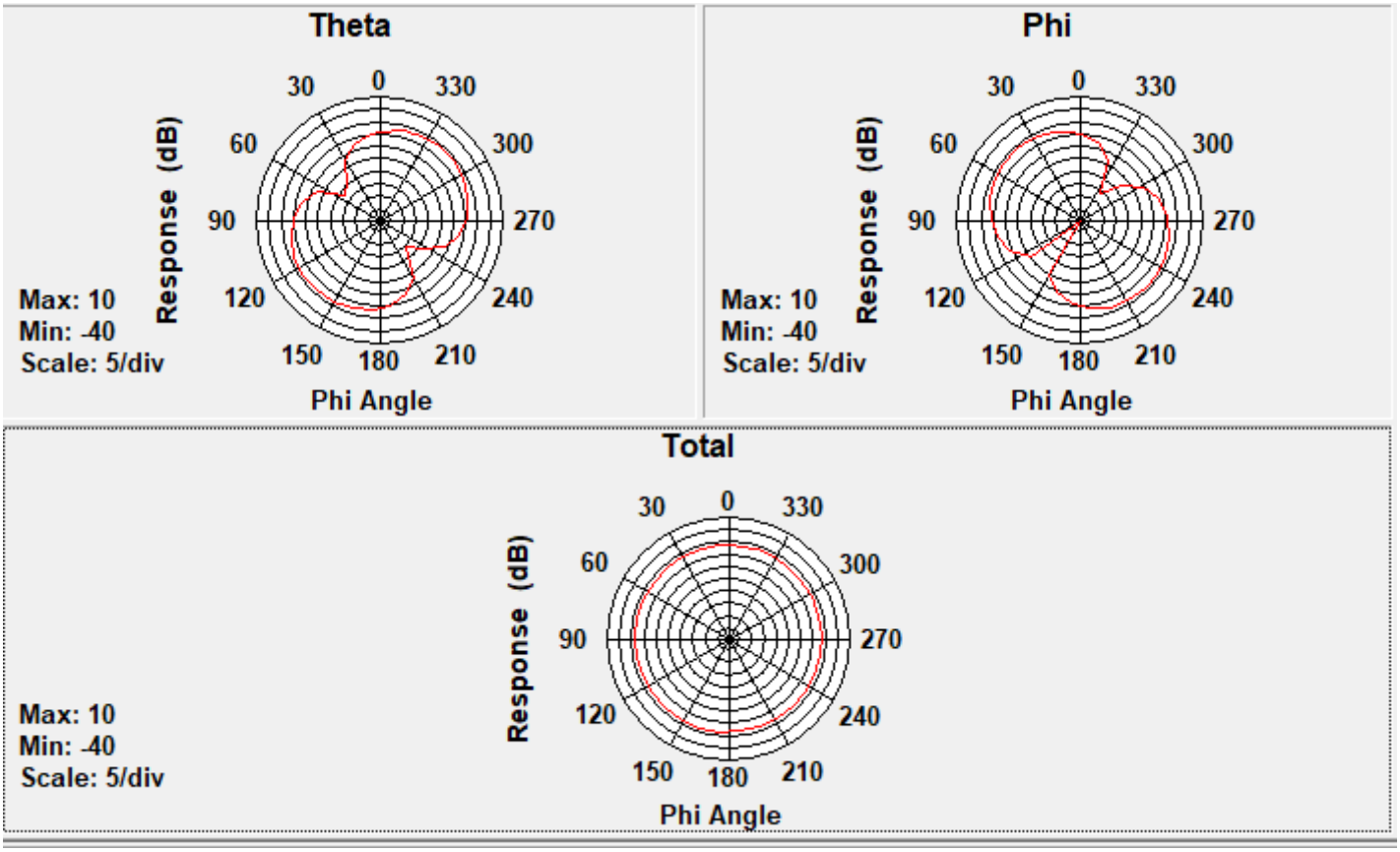
Max Antenna 2D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5250-5350	1.70



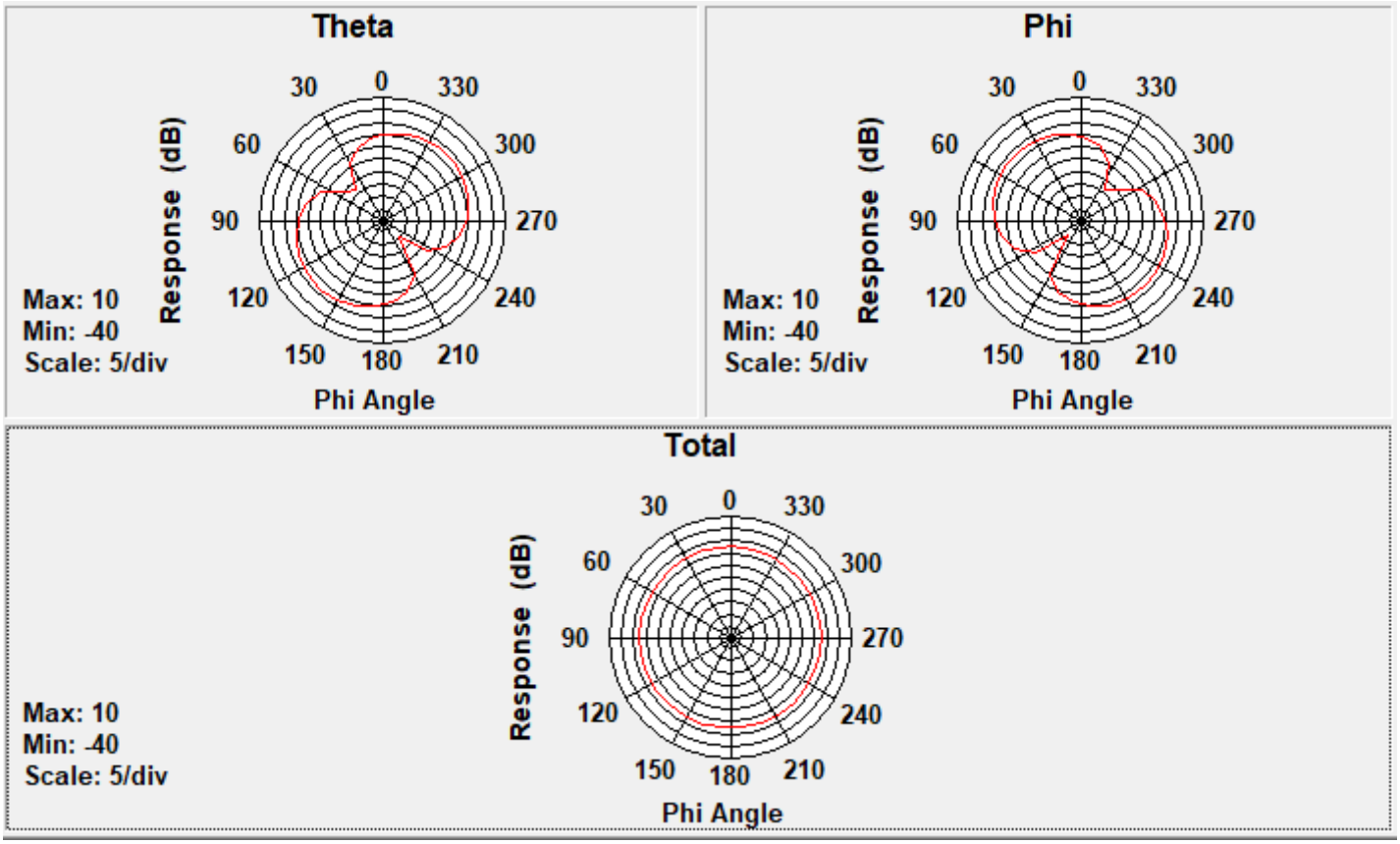
Max Antenna 2D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5470-5725	2.07



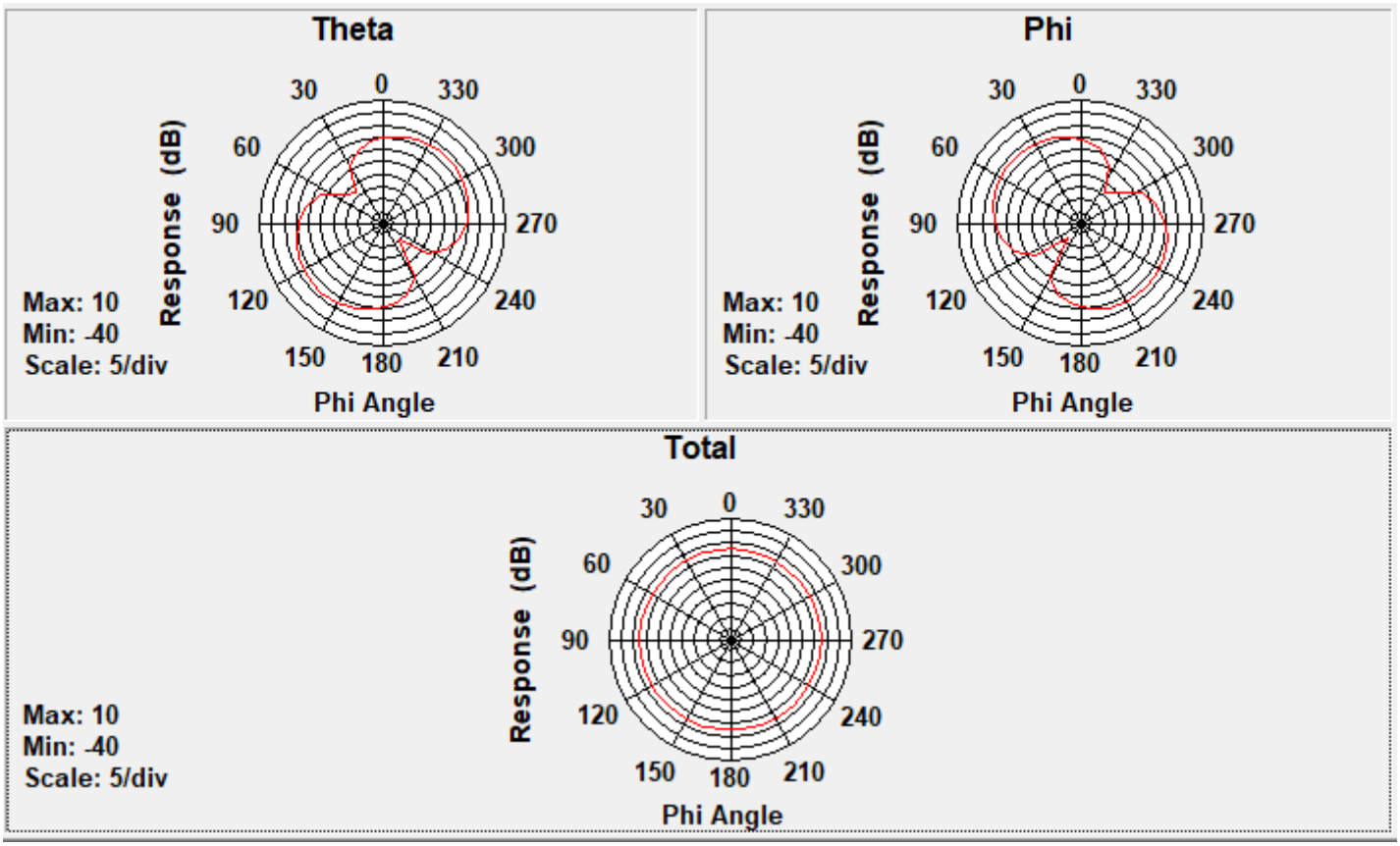
Max Antenna 2D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5725-5850	0.98



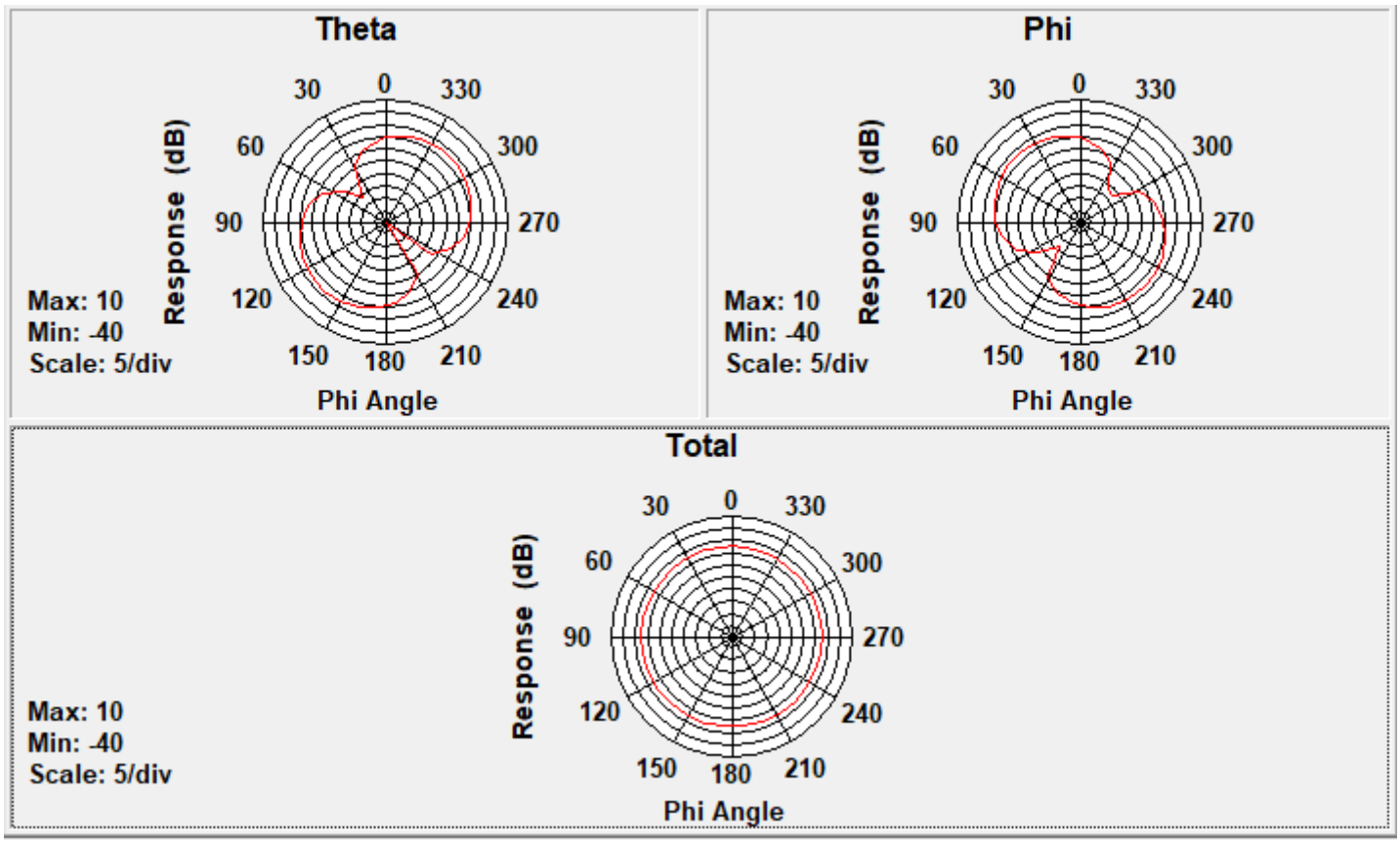
Max Antenna 2D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5850-5895	0.98



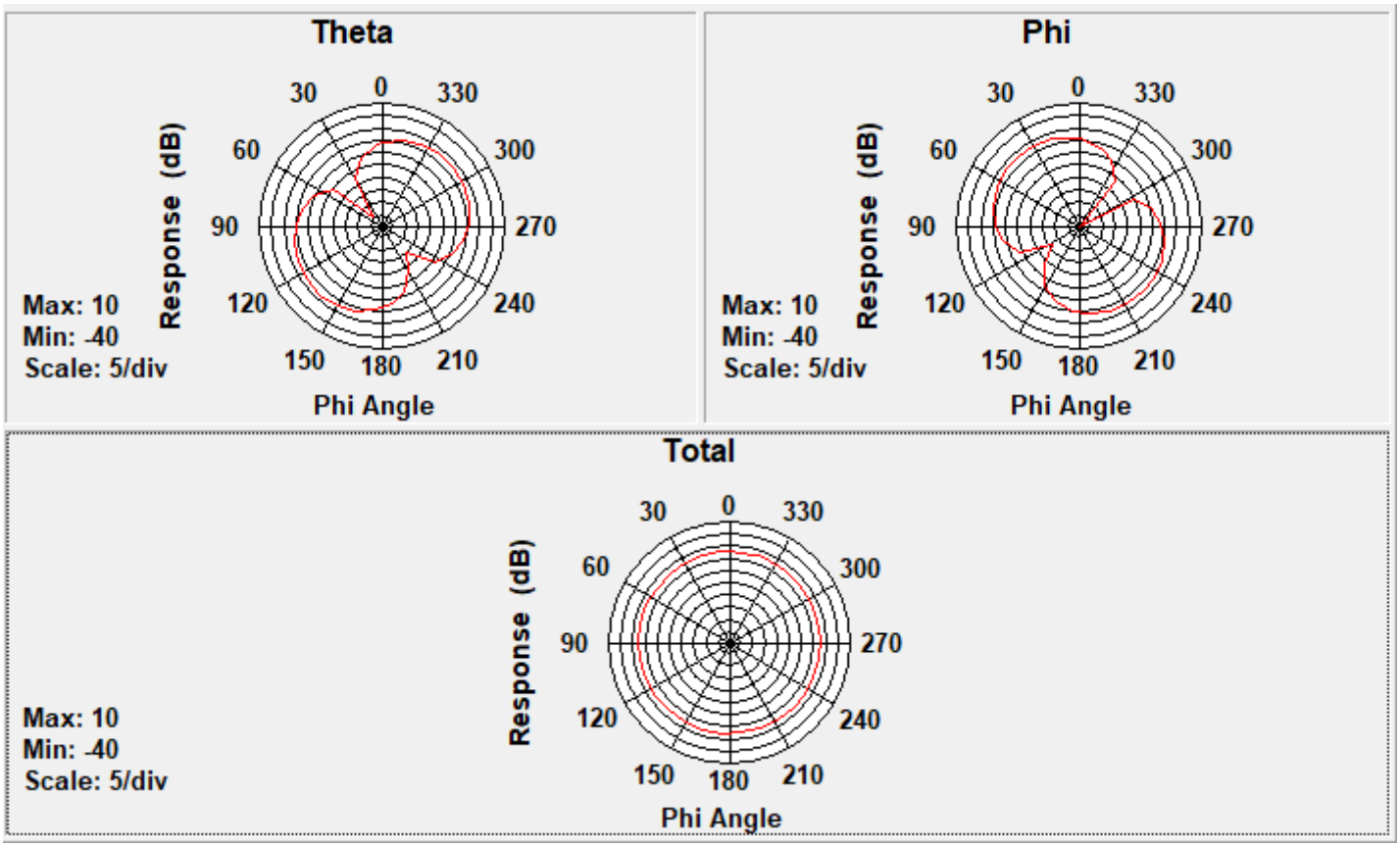
Max Antenna 2D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5925-6425	0.67



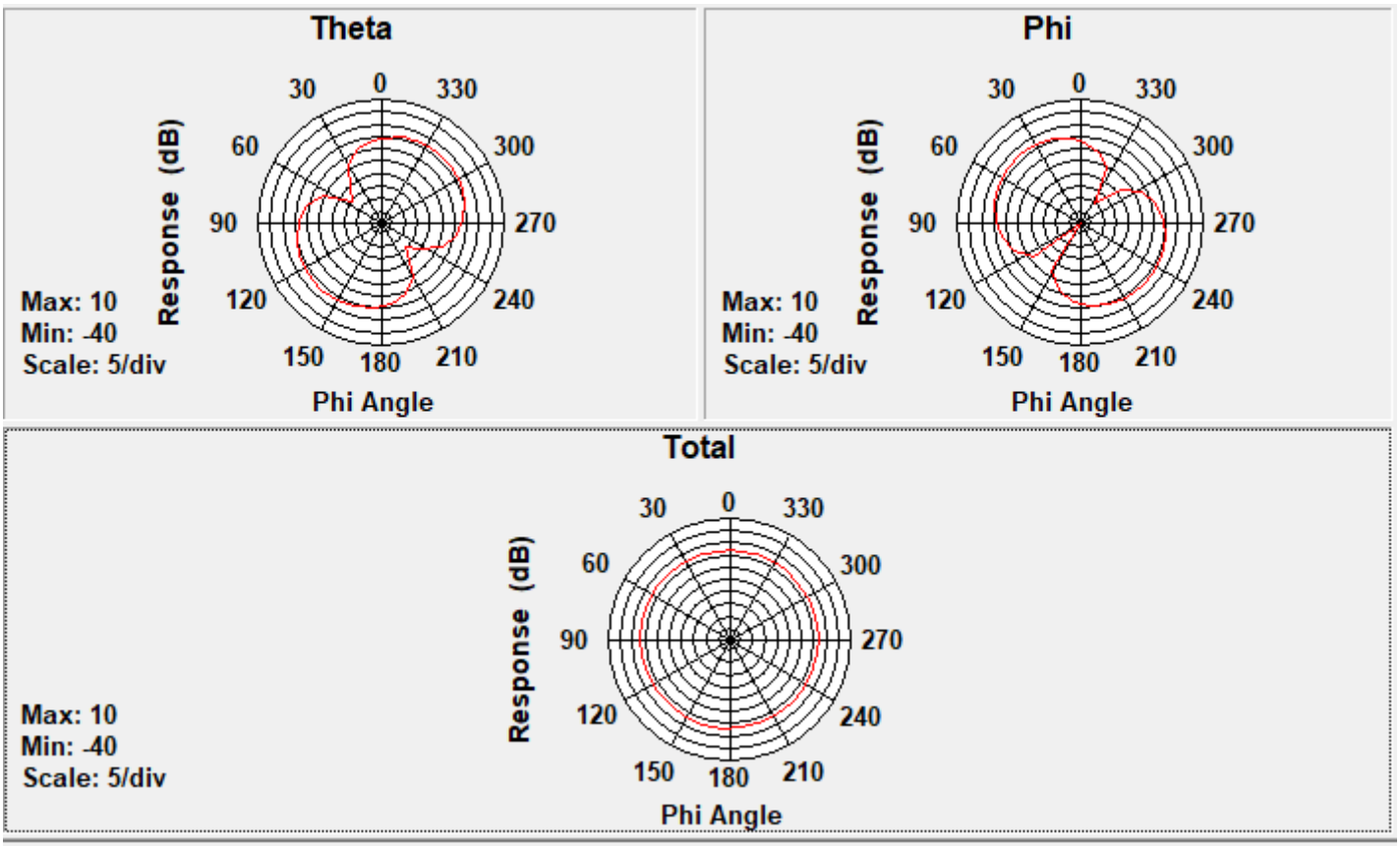
Max Antenna 2D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
6425-6525	-0.01



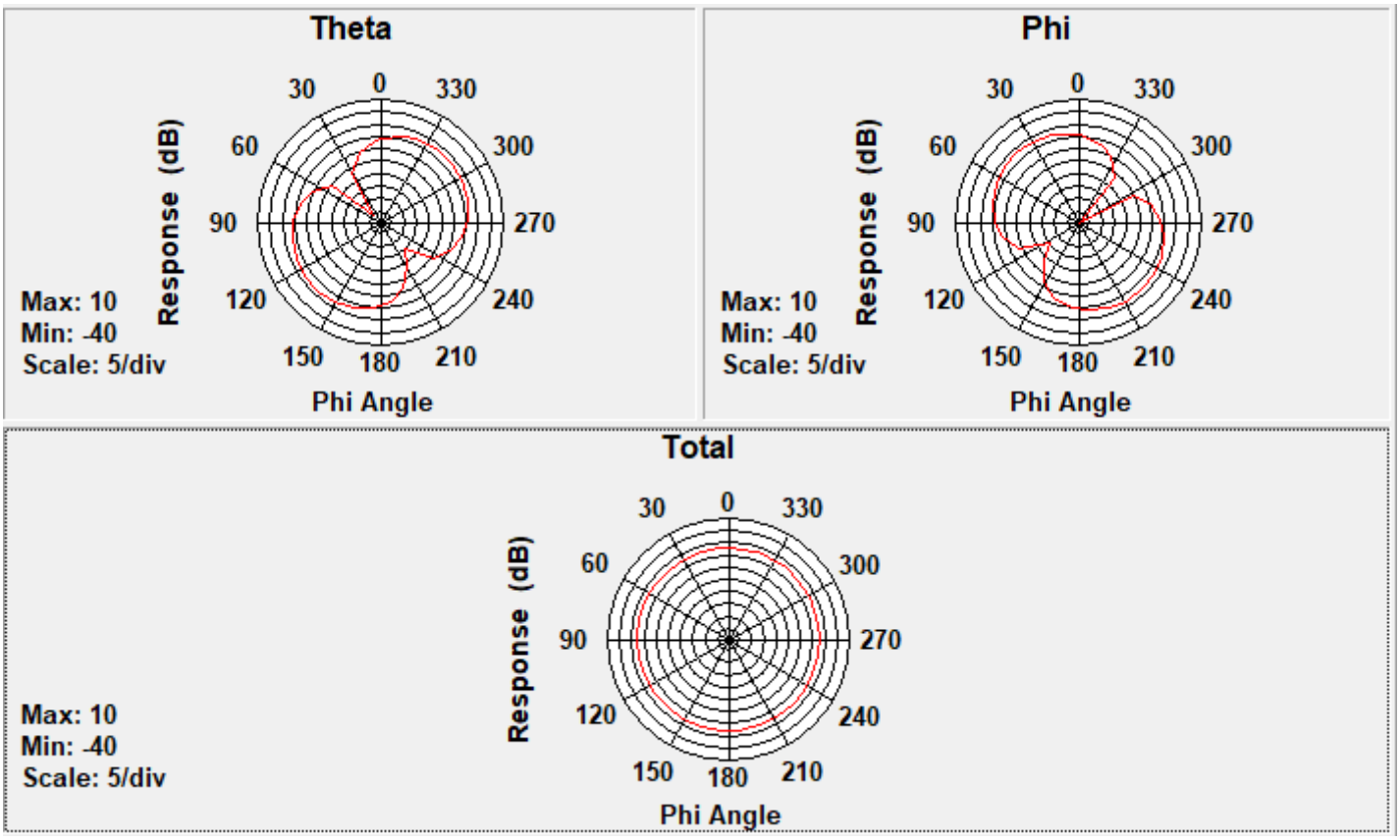
Max Antenna 2D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
6525-6875	-0.25



Max Antenna 2D Radiation Pattern 6875-7125 MHz

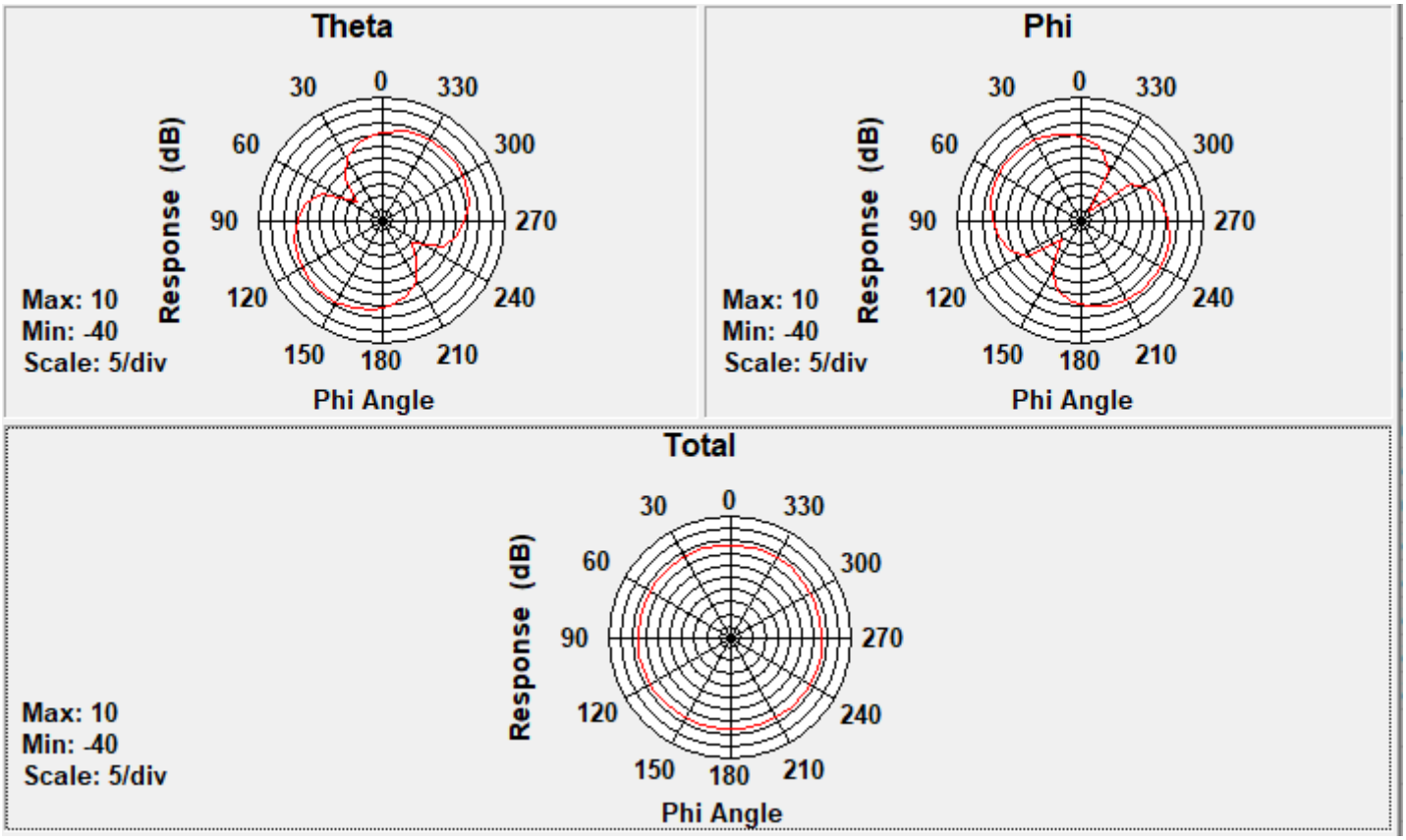
Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
6875-7125	-0.12



Tx2 Antenna

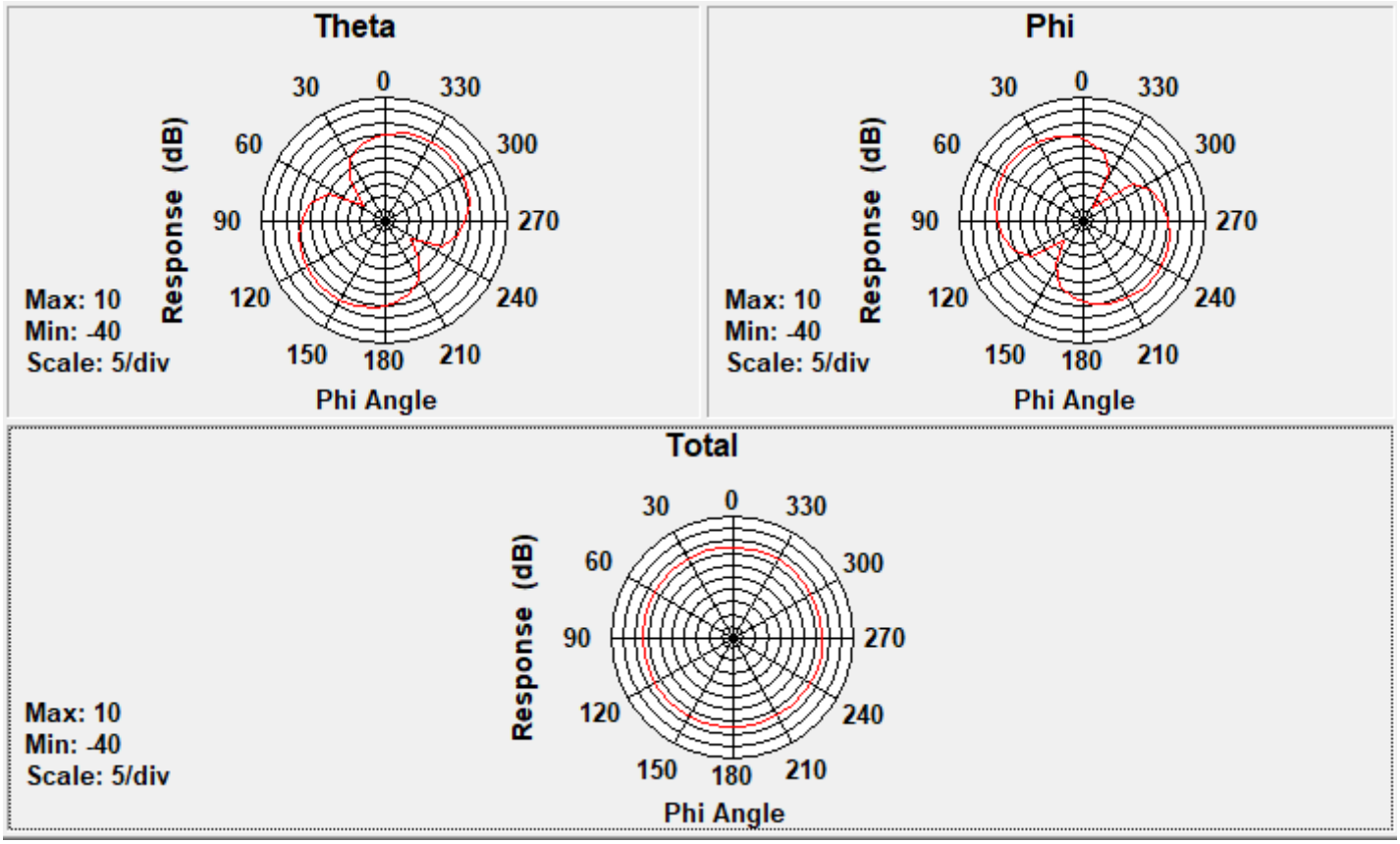
Max Antenna 2D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
2400-2483.5	0.32



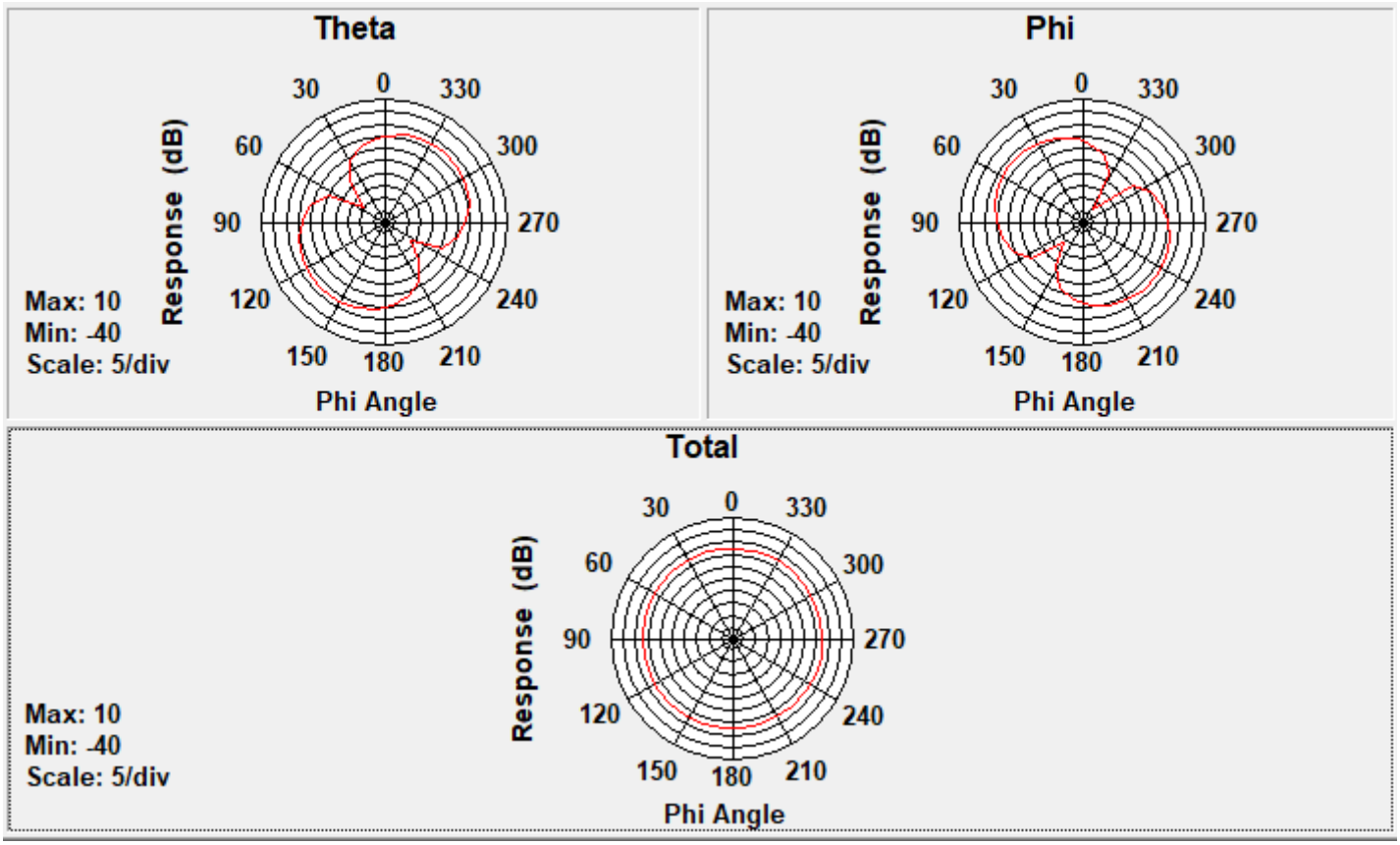
Max Antenna 2D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5150-5250	2.61



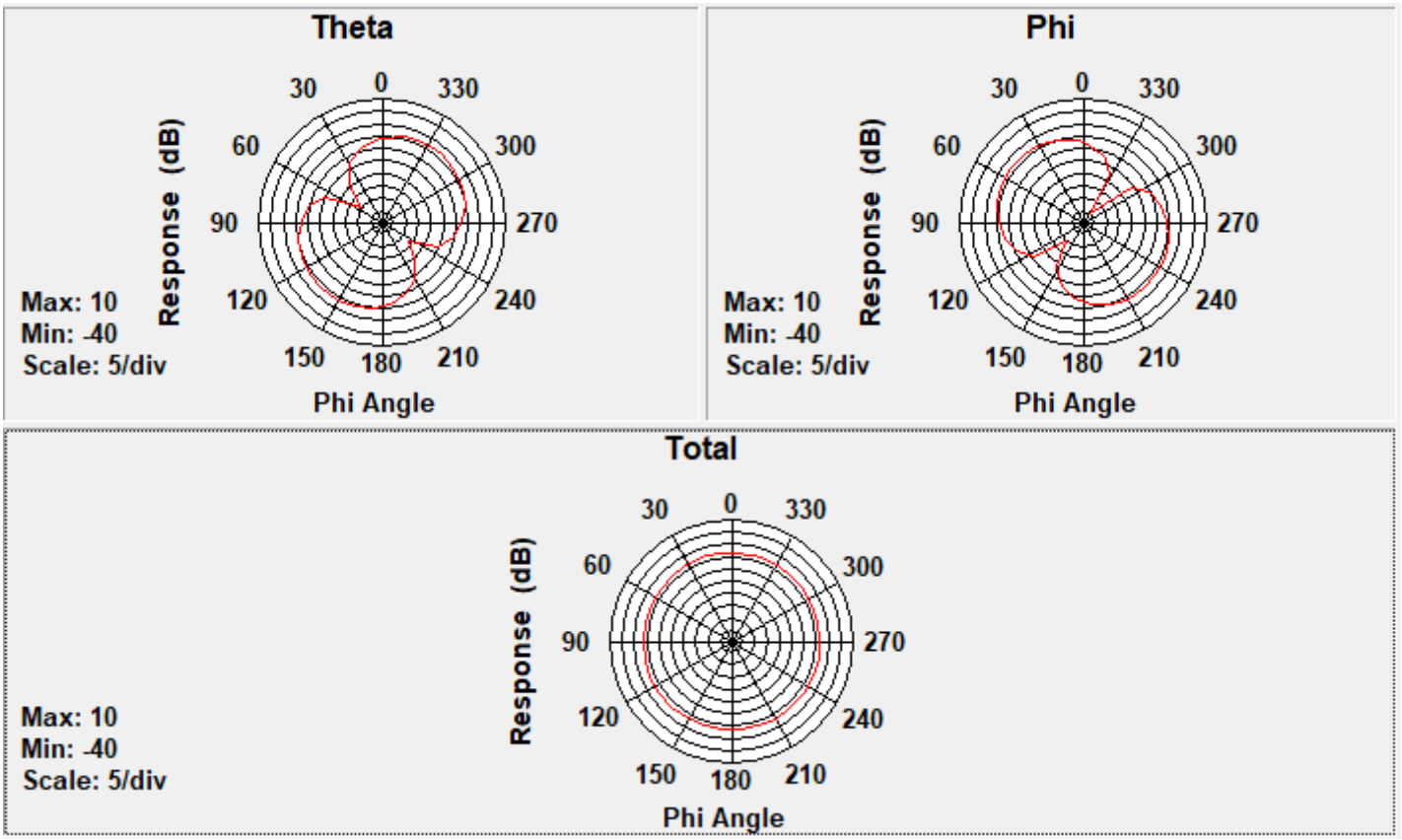
Max Antenna 2D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5250-5350	2.61



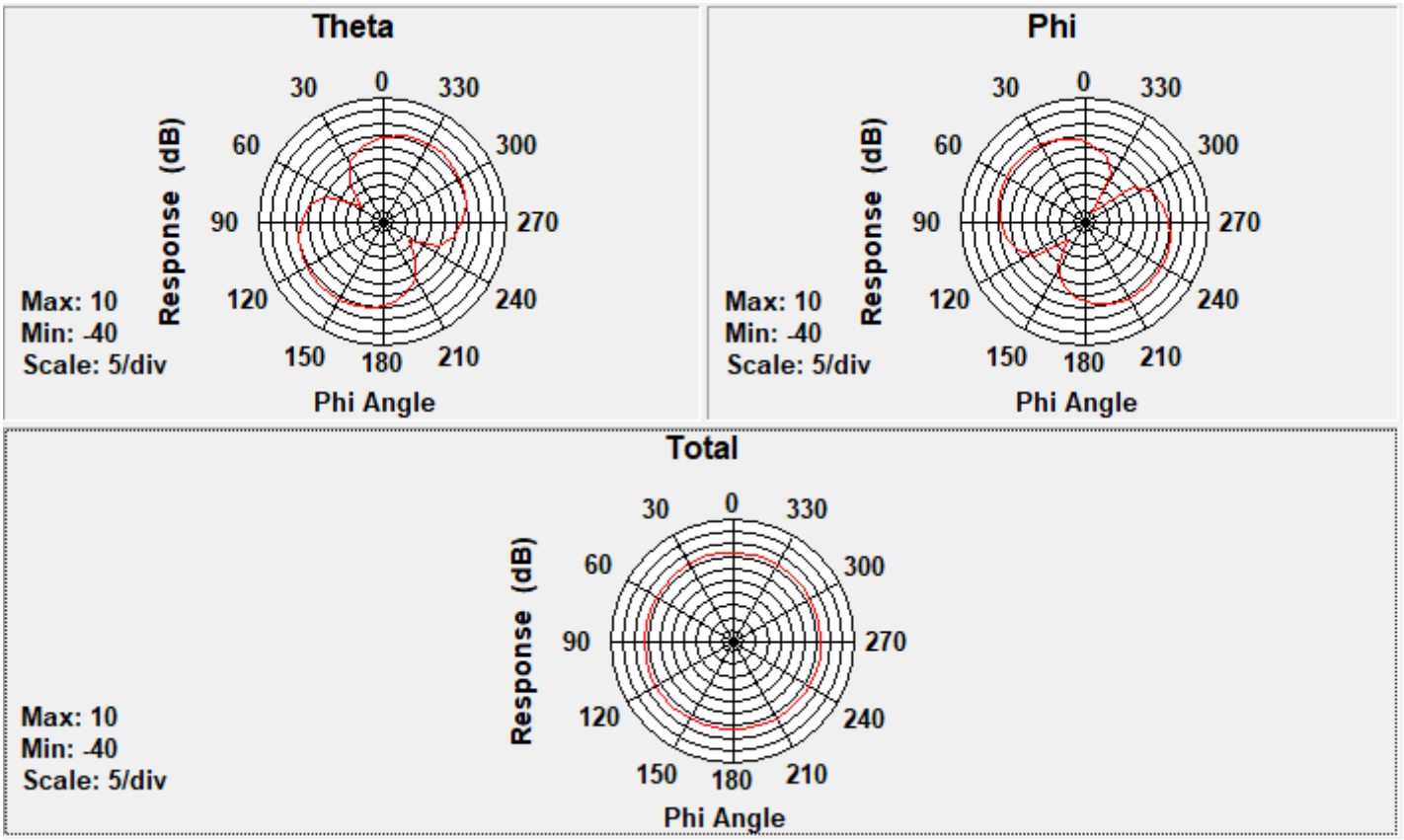
Max Antenna 2D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5470-5725	2.41



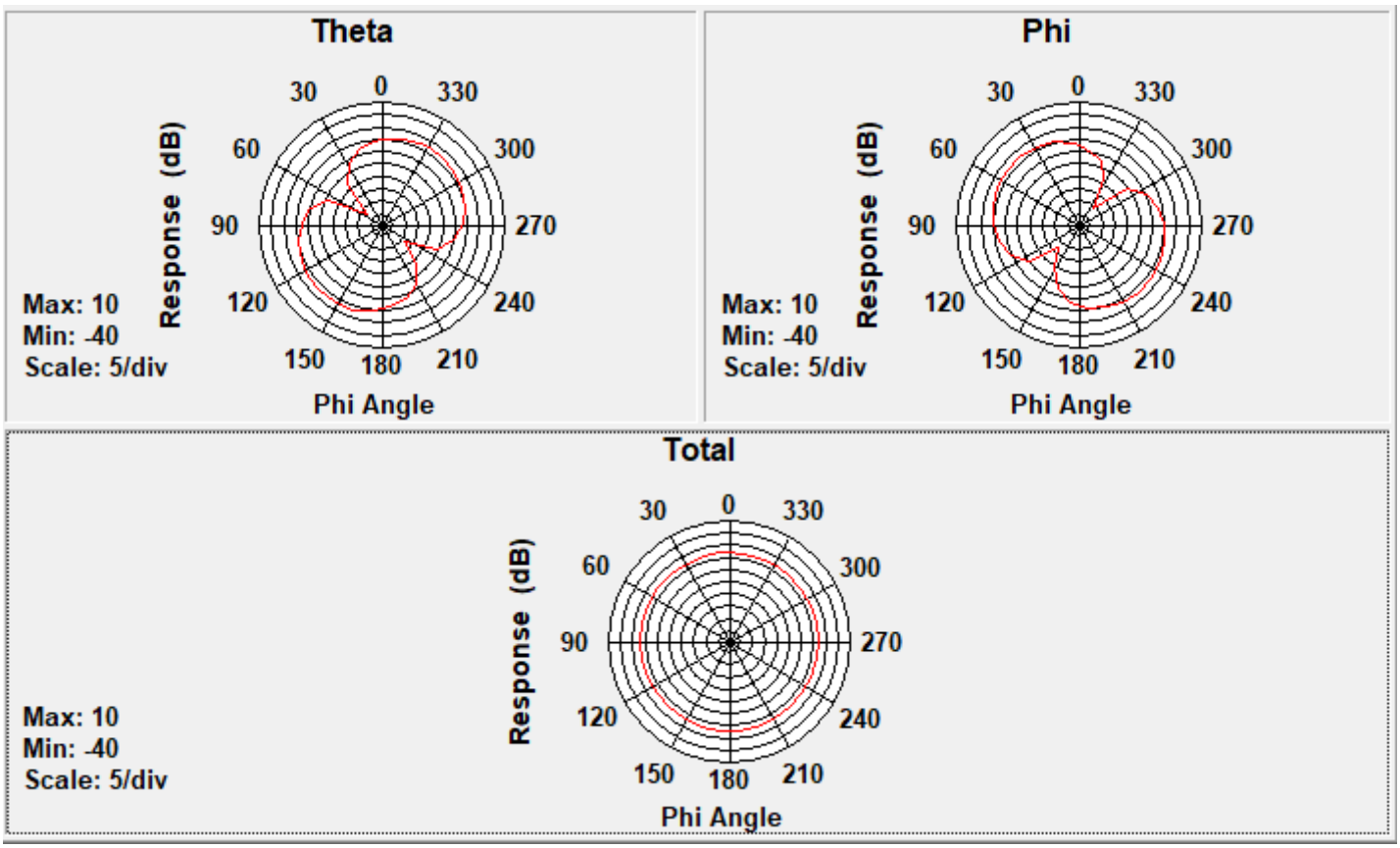
Max Antenna 2D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5725-5850	2.41



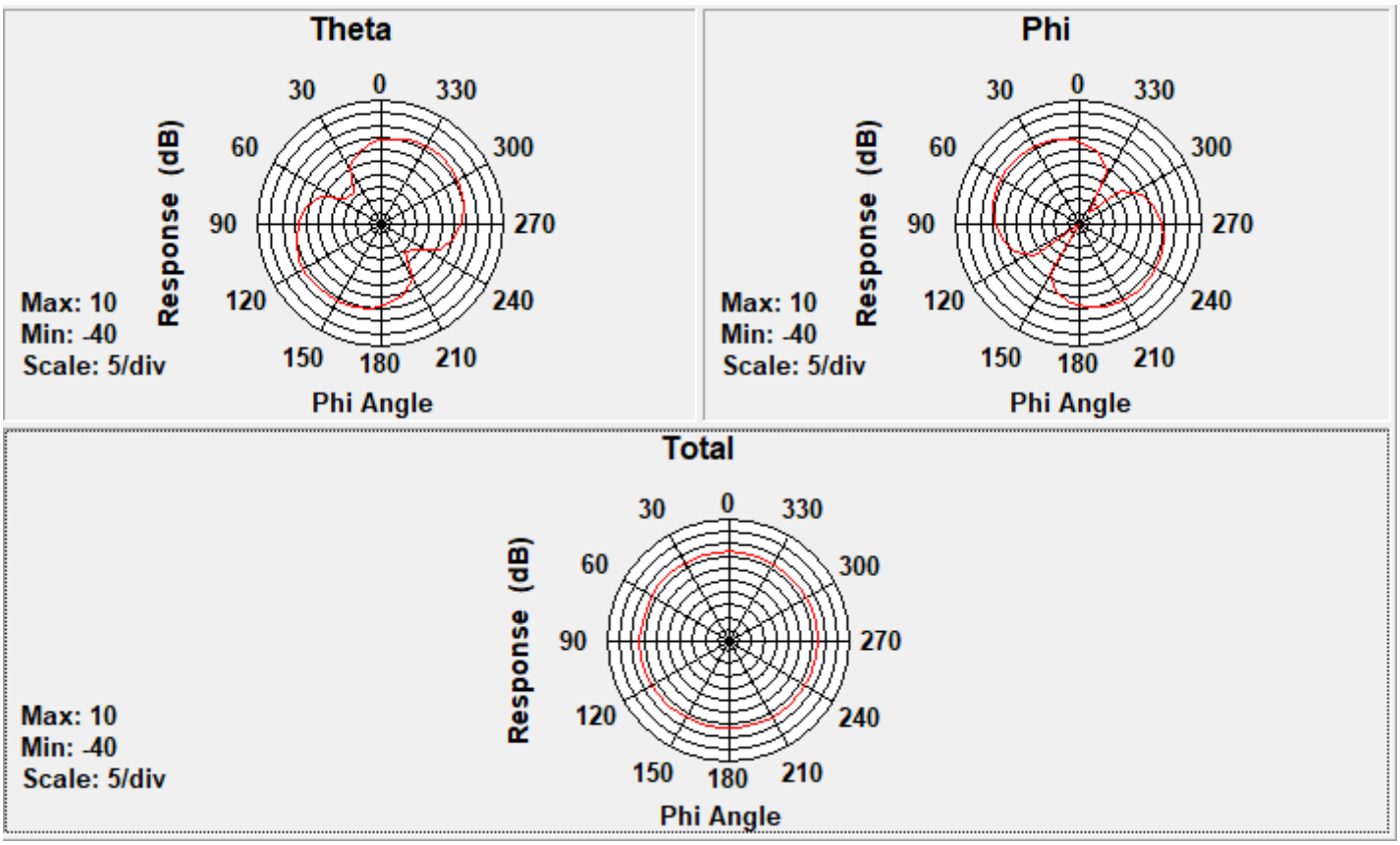
Max Antenna 2D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5850-5895	1.52



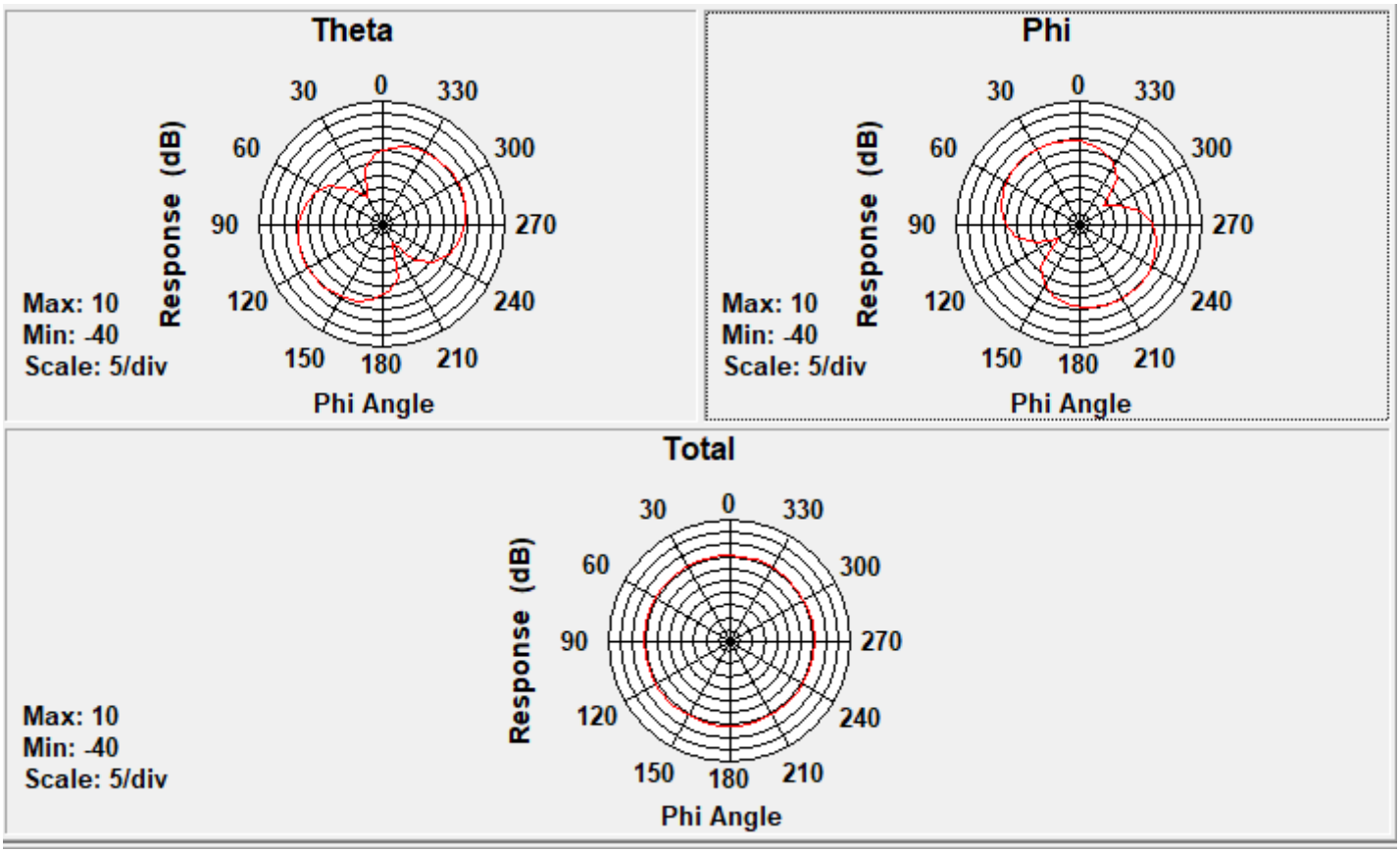
Max Antenna 2D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
5925-6425	1.54



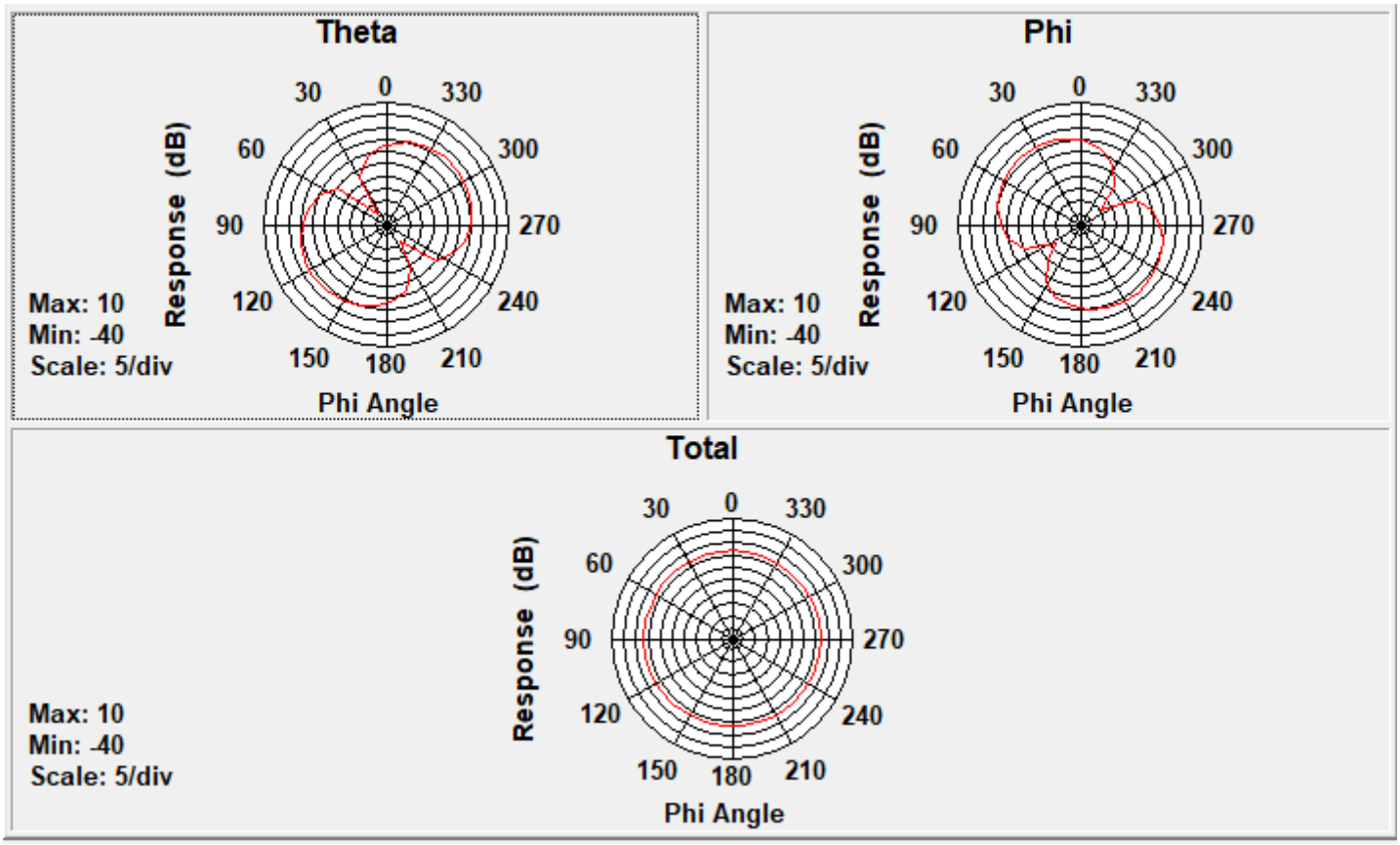
Max Antenna 2D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
6425-6525	-0.02



Max Antenna 2D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
6525-6875	0.70



Max Antenna 2D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Horizontal+ Vertical (dBi) peak (dBi)
6875-7125	1.29