

RN System(Multiband) Antenna Test Report

For Tarana Part Number: 31-0235-301

**Kaishuo
Wang**

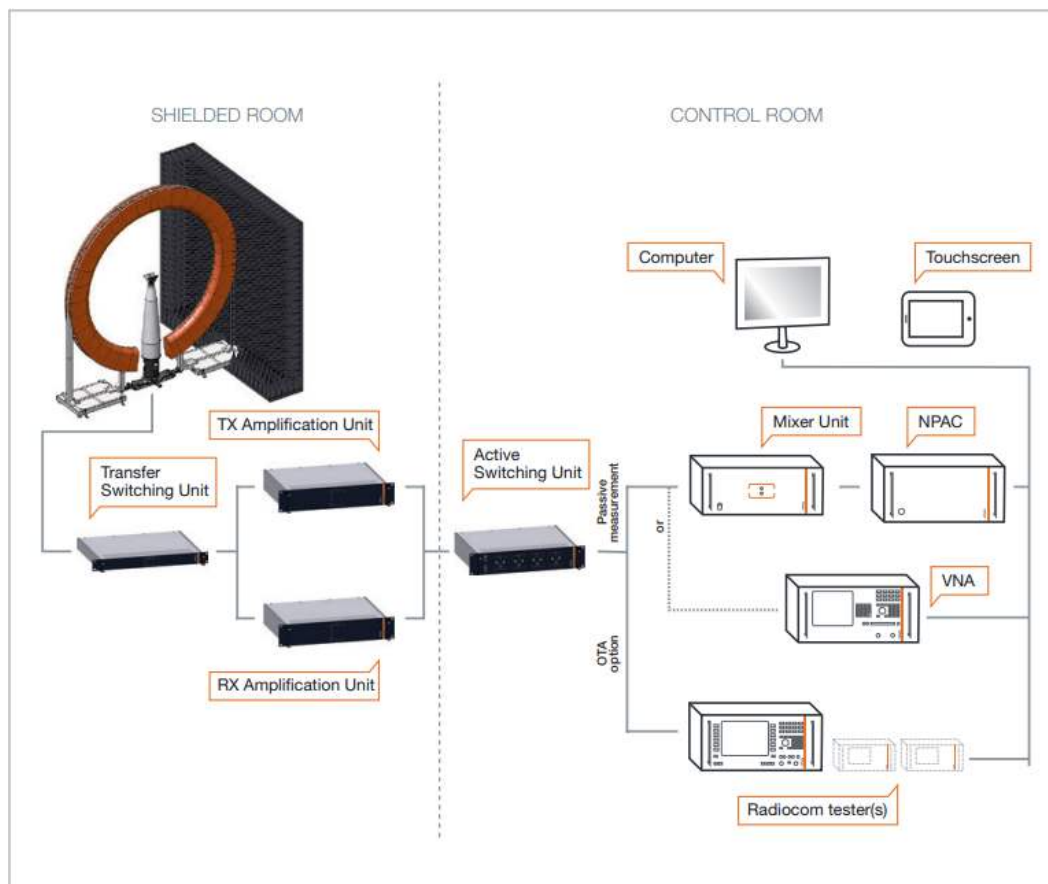
Digitally signed by Kaishuo Wang
DN: cn=Kaishuo Wang, gn=Kaishuo
Wang, c=US, United States, l=US
United States, o=Tarana Wireless
Inc., e=kwang@taranawireless.com
Reason: I am the author of this
document
Location:
Date: 2025-06-09 15:00:07:00

Prepared by: Kaishuo Wang

Report Date: 2025-06-09

1. Antenna Test Lab Information

- Lab Name: MVG, Inc.
- Address: 450 Franklin Gateway, Suite 100, Marietta, GA, 30067.
- [Certification](#): MVG is ISO 9001 and 17025 certified, and A2LA accredited, and offers NIST traceable antenna measurements. MVG is also a CTIA Authorized Test Laboratory (CATL) for Over the Air (OTA) active measurements.
- Test system: SG 64-S spherical near-field measurement system
- Frequency measurement range: SG64 frequency range of operation is from 400MHz to 6.0 GHz. The frequency range from 6.0 to 18.0 GHz is covered via an indoor far-field chamber.
- EUT measurement method: Gain-transfer or Substitution Method.
- For more detailed information about the test system, please refer to this [link](#).
- Equipment List / System Overview:





2. Equipment/System Calibration and Test Information

Equipment Name	Model	Manufacturer	Calibration Date	Calibration Due Date
SG-64 Measurement System	Spherical Near Field Measurement	MVG, Inc	February 2025	February 2026
Vector Network Analyzer	Keysight P5008A SN: WO-00835984	Keysight	11 July 2024	11 July 2026

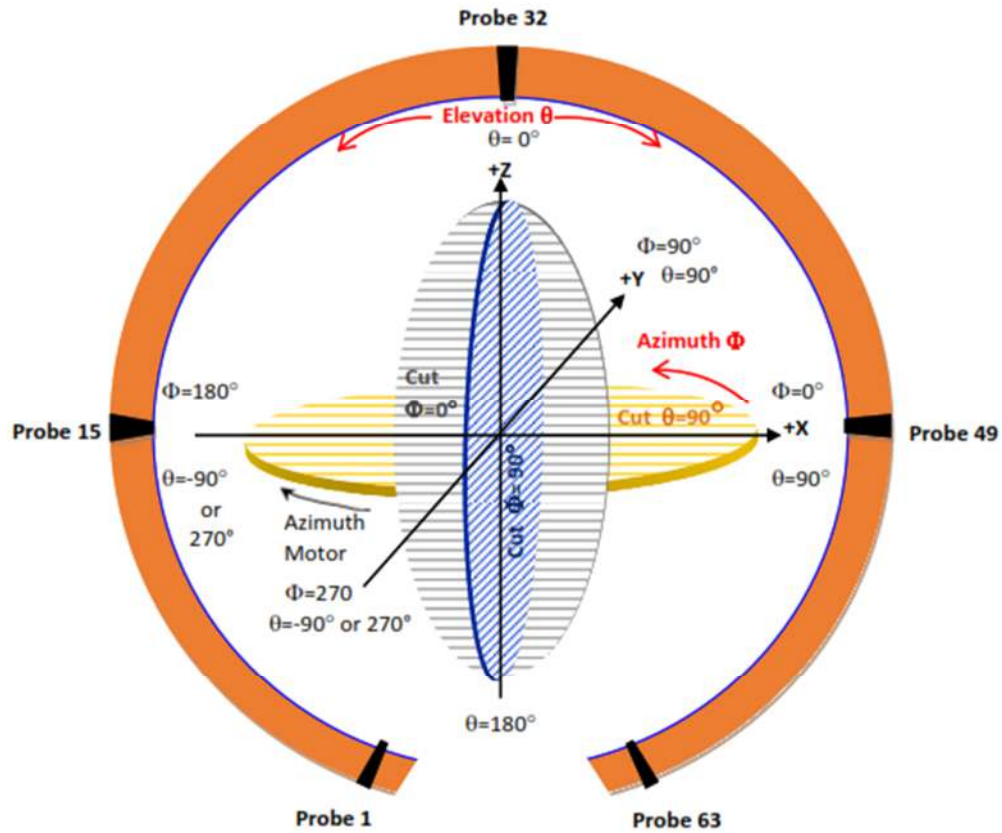
Test Personnel	Kyle Davis
Test Date	October 9, 2024

3. EUT(Antenna) Information

Name	Model Number	Antenna Type
RN System(Multiband) Antenna, CBRS and 6GHz	31-0235-301	Array Antenna

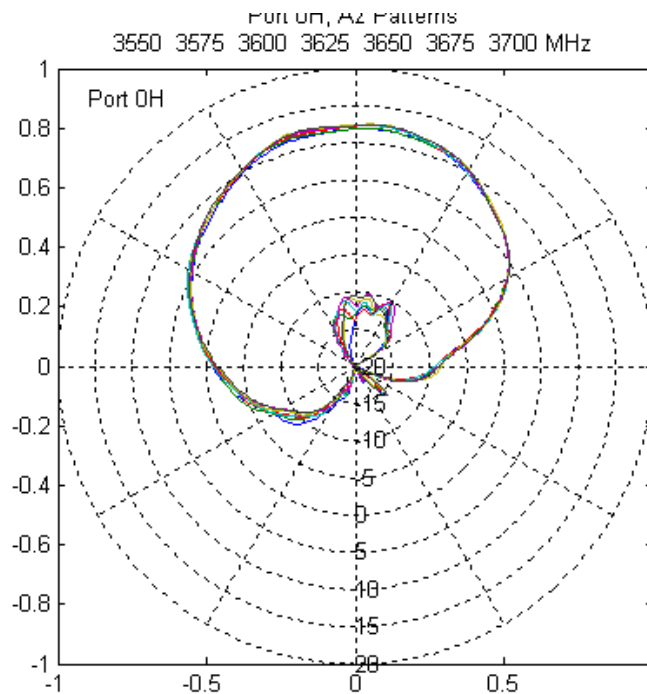
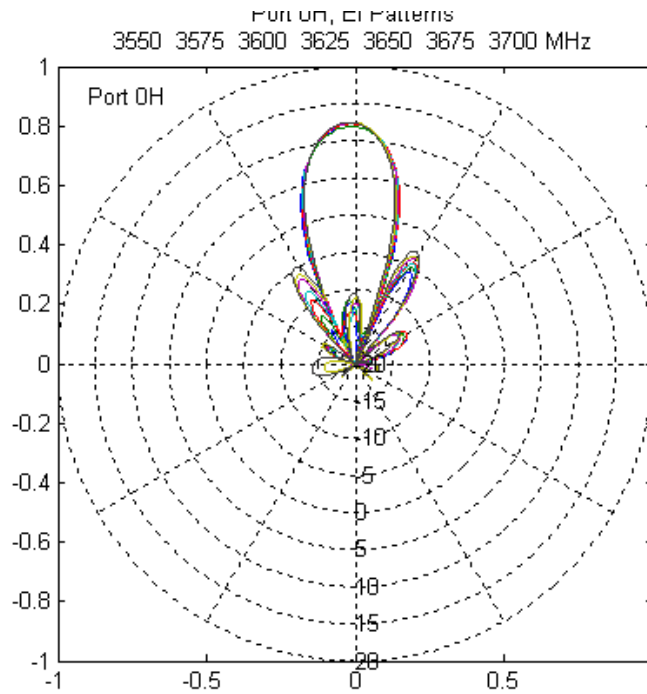
5. Measurement setting – MVG SG64 Coordinate System

MVG SG64 Coordinate System

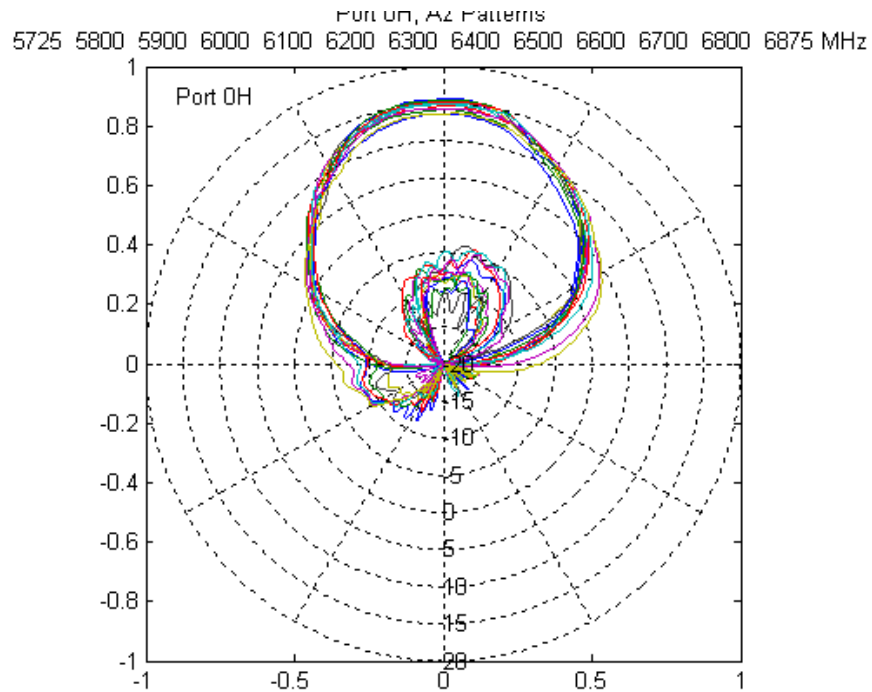
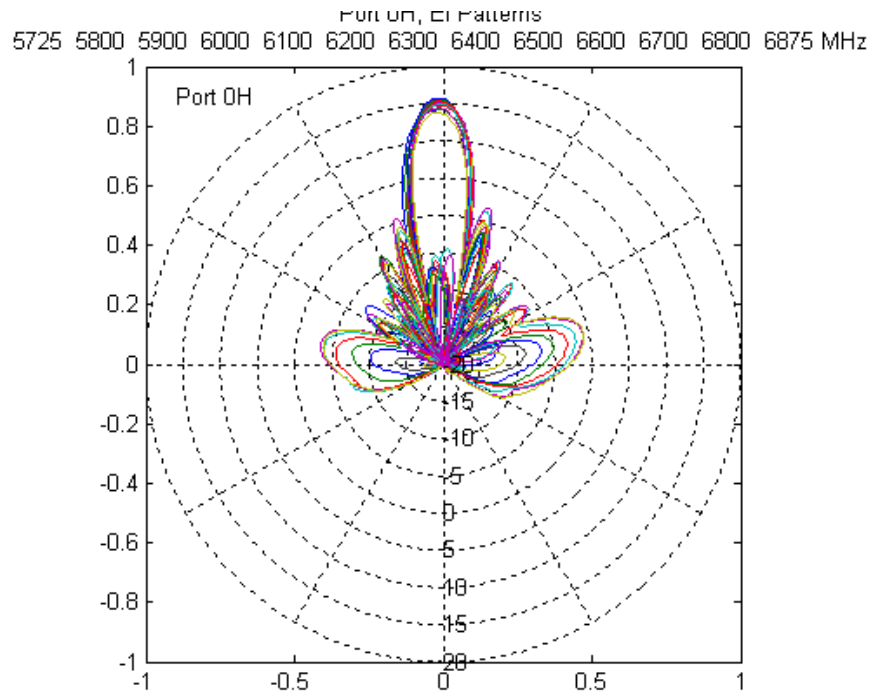


6. 2D Patterns

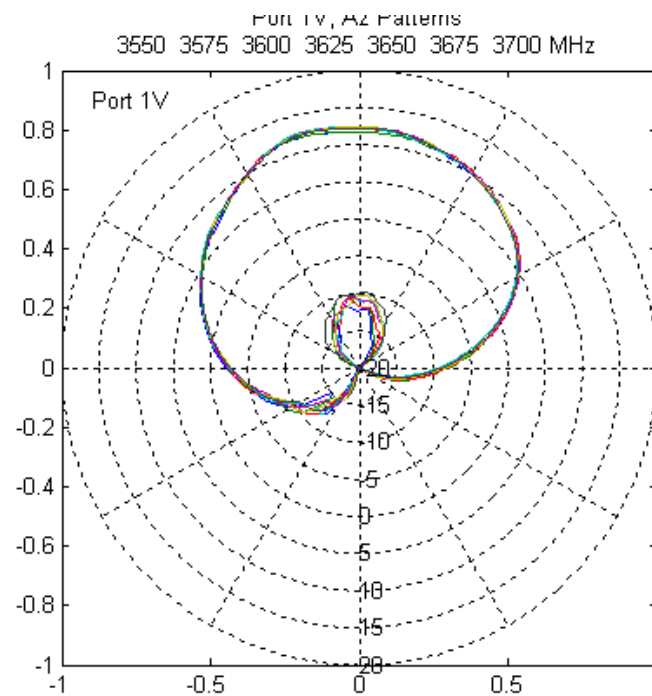
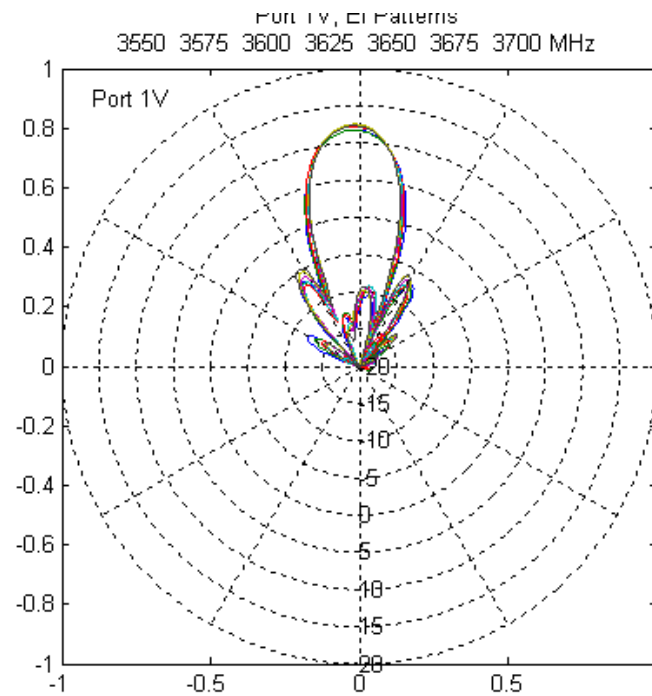
6.1. Antenna 0H Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz



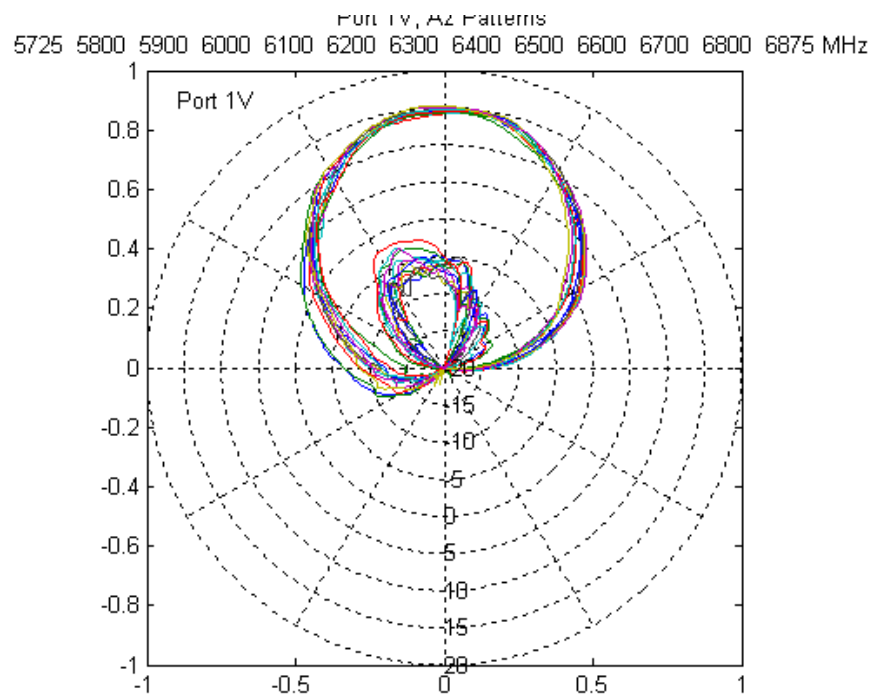
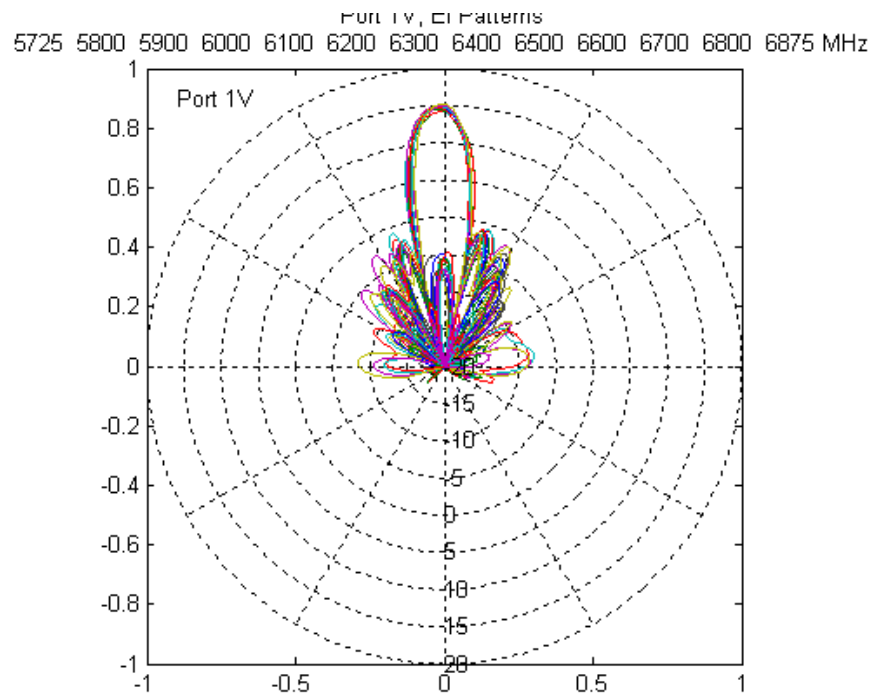
6.2. Antenna 0H Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz



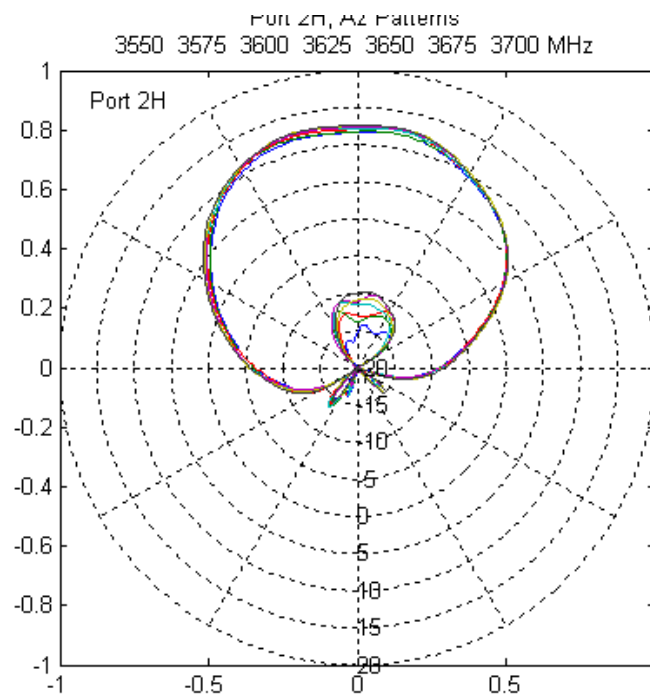
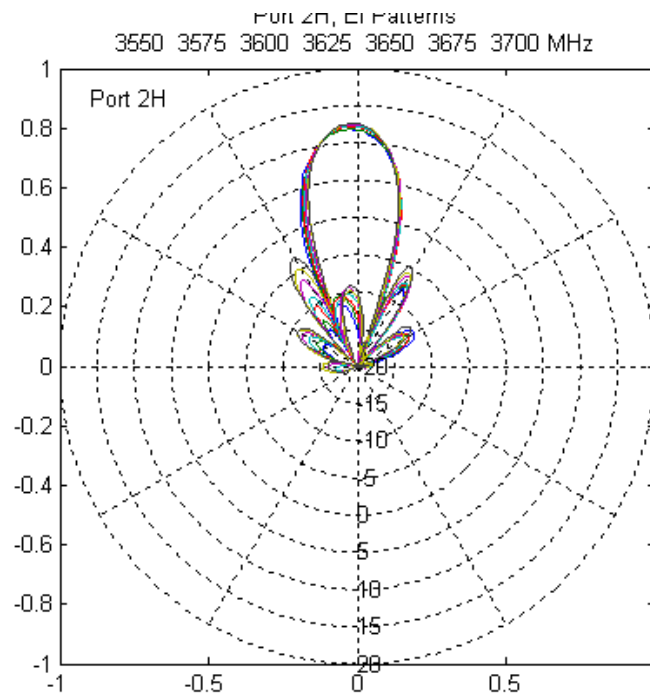
6.3. Antenna 1V Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz



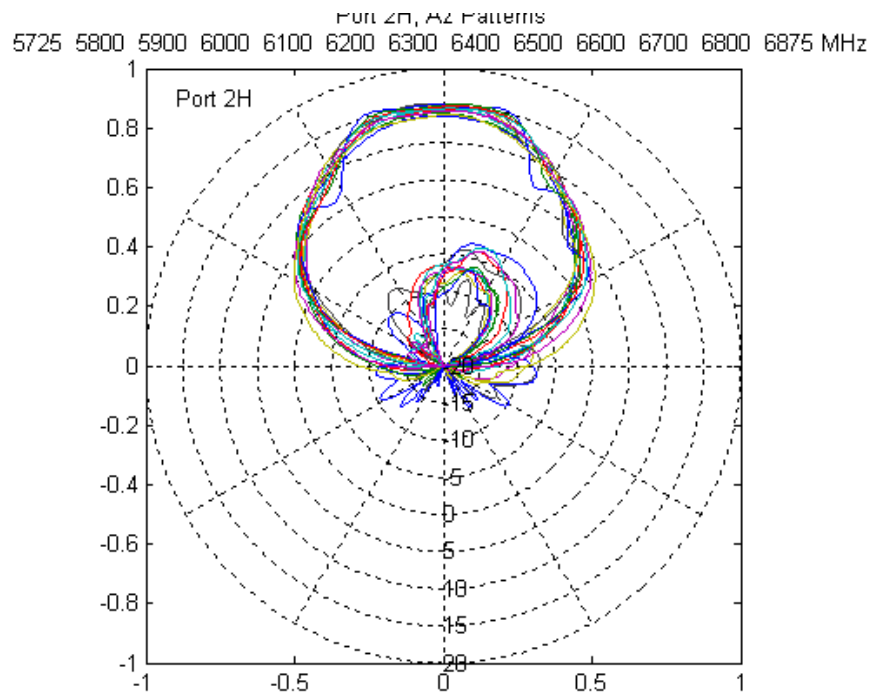
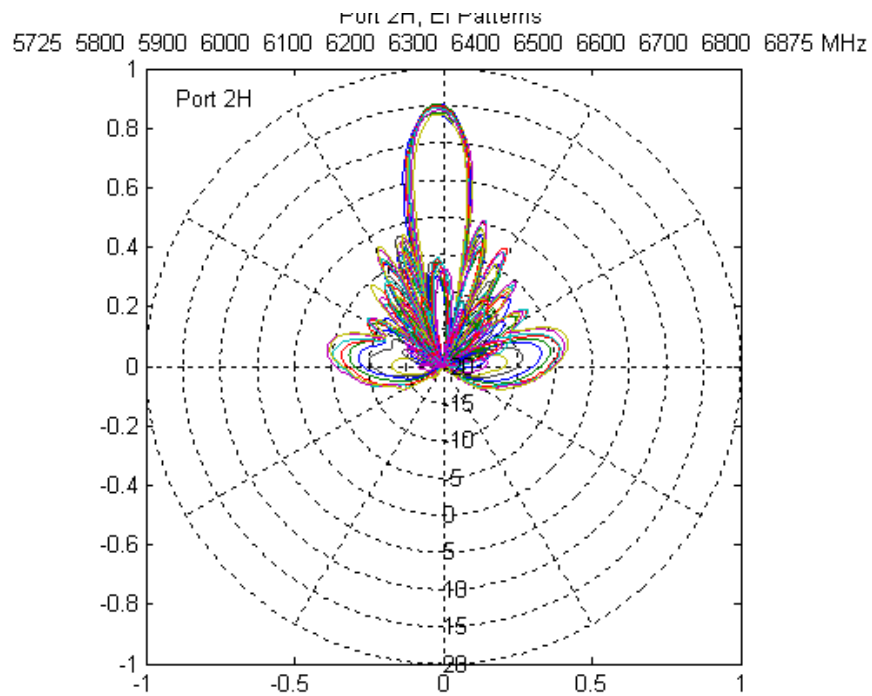
6.4. Antenna 1V Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz



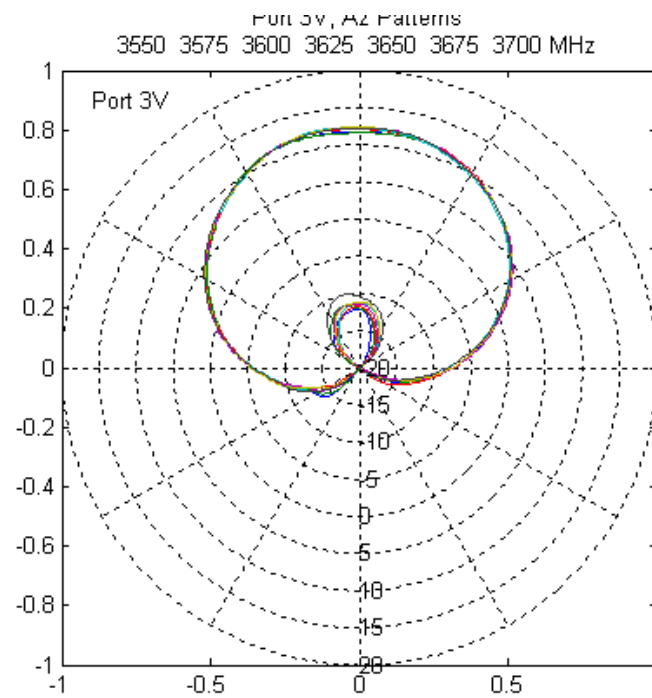
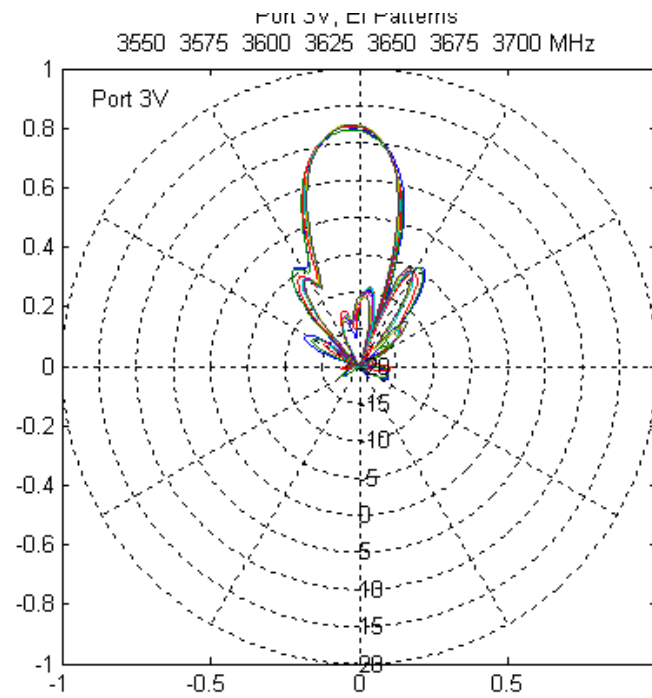
6.5. Antenna 2H Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz



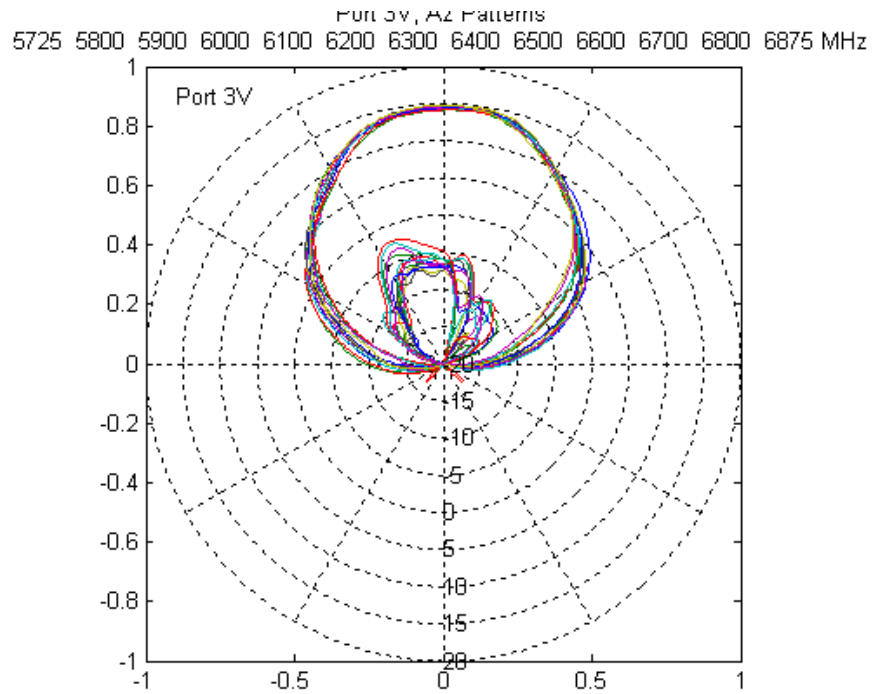
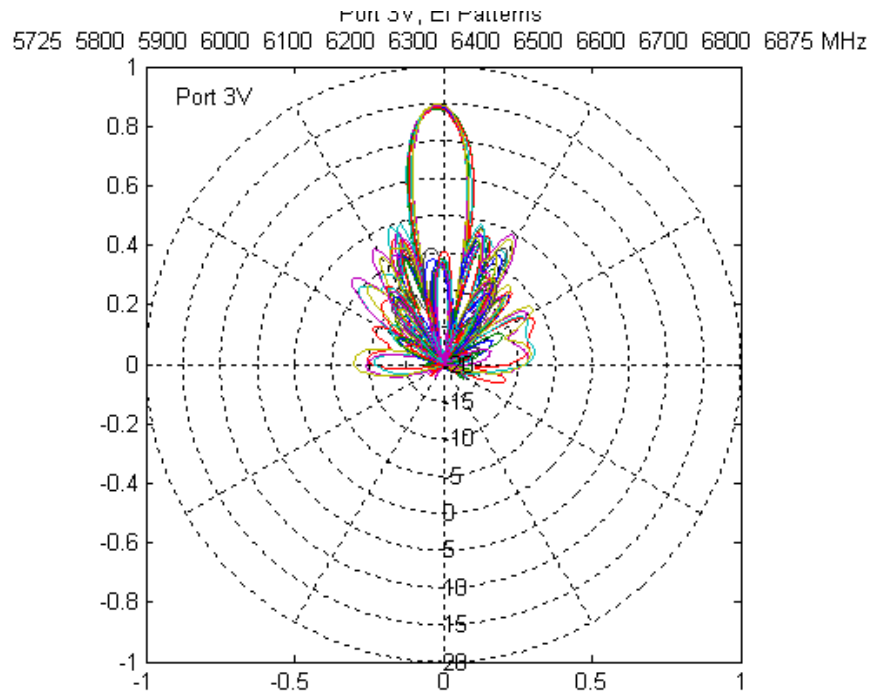
6.6. Antenna 2H Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz



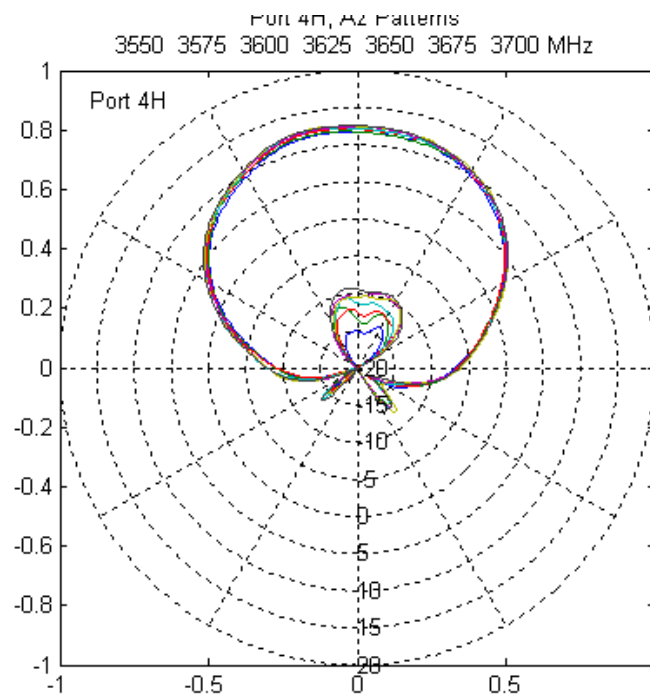
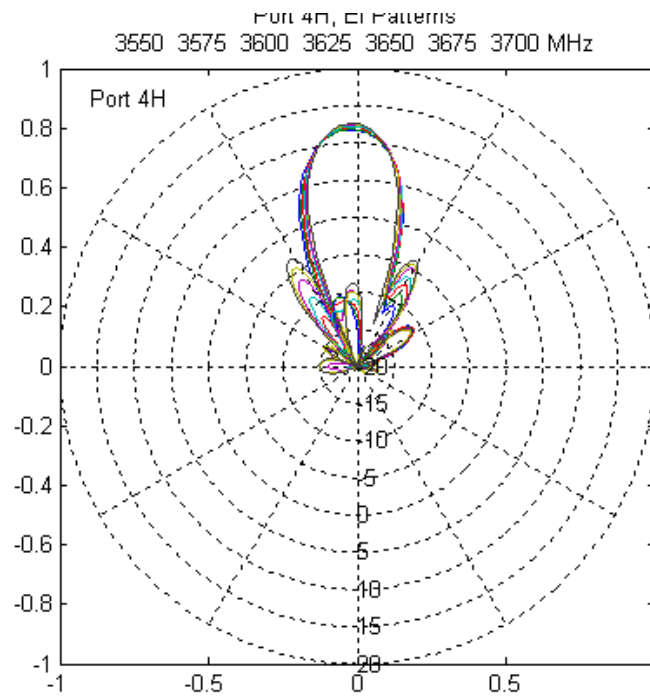
6.7. Antenna 3V Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz



6.8. Antenna 3V Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz

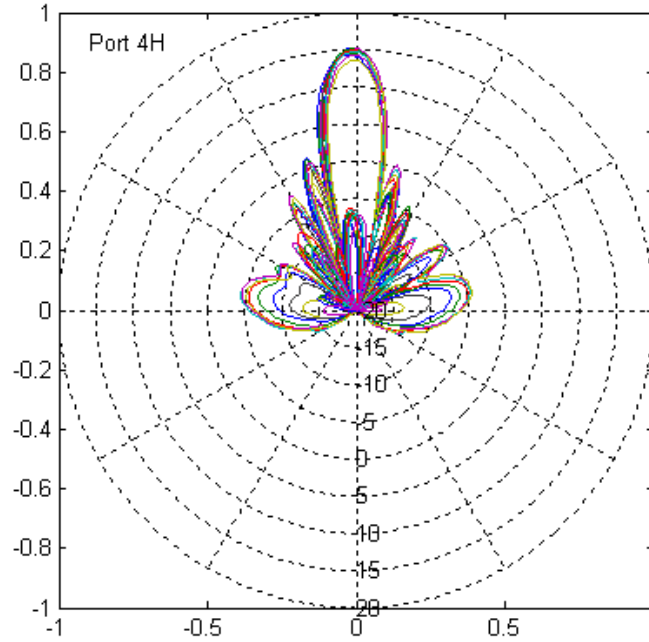


6.9. Antenna 4H Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz

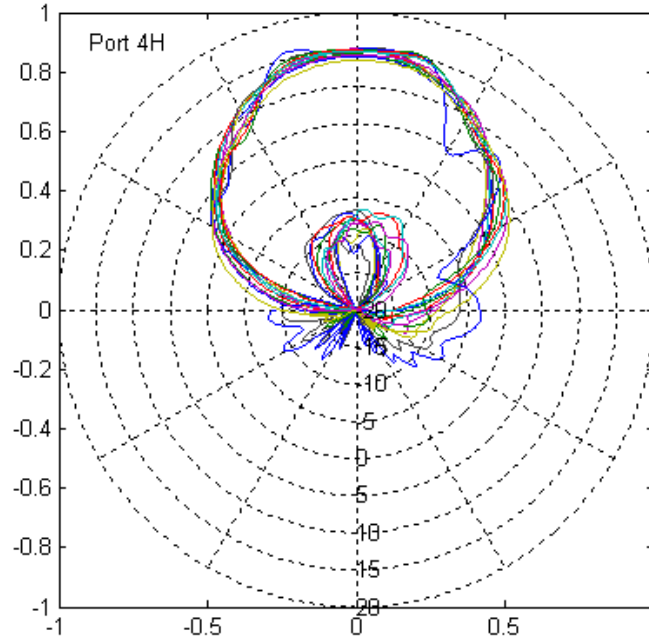


6.10. Antenna 4H Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz

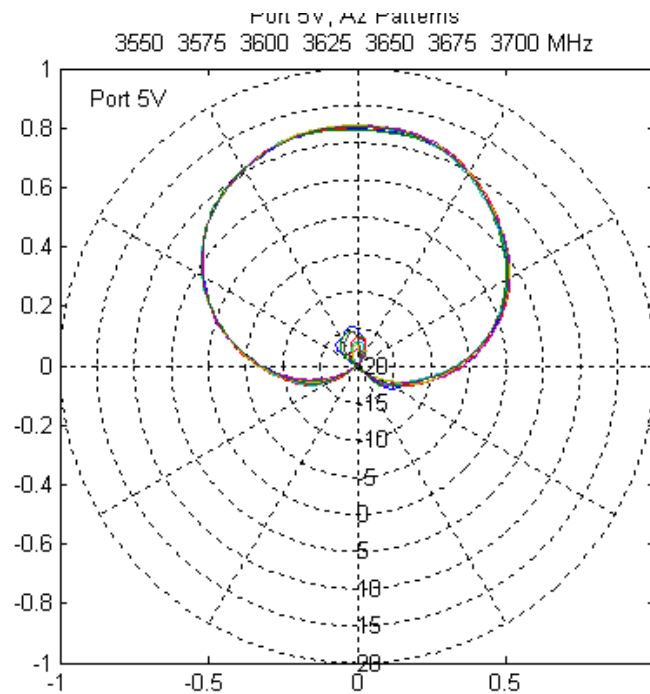
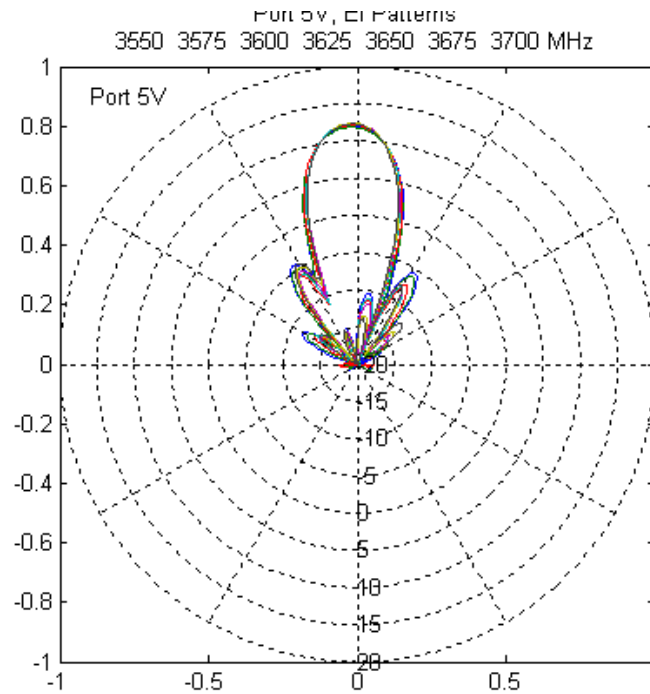
Port 4H, E1 Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz



Port 4H, A2 Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz

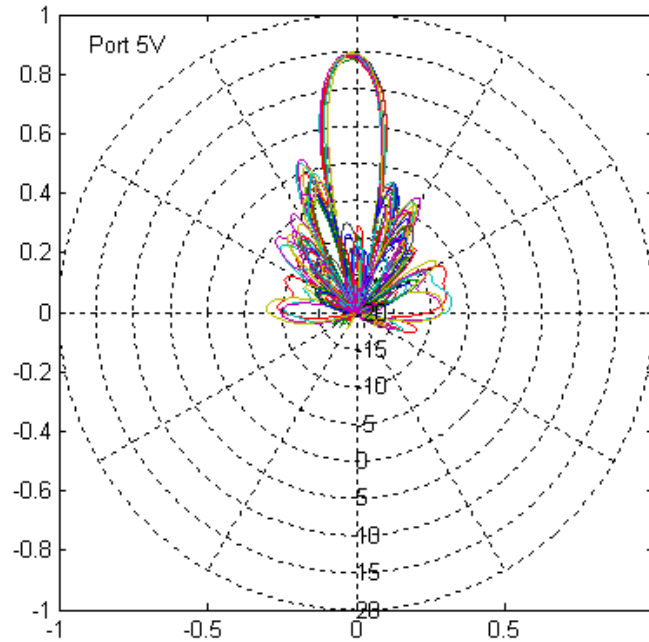


6.11. Antenna 5V Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz

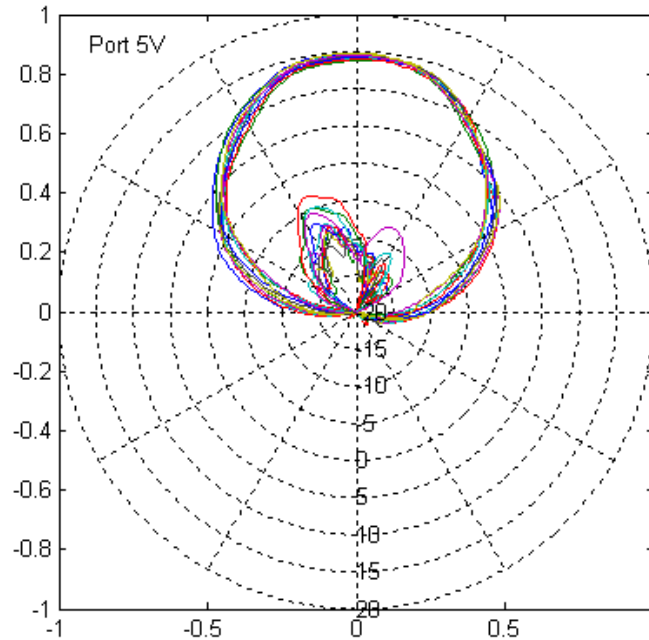


6.12. Antenna 5V Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz

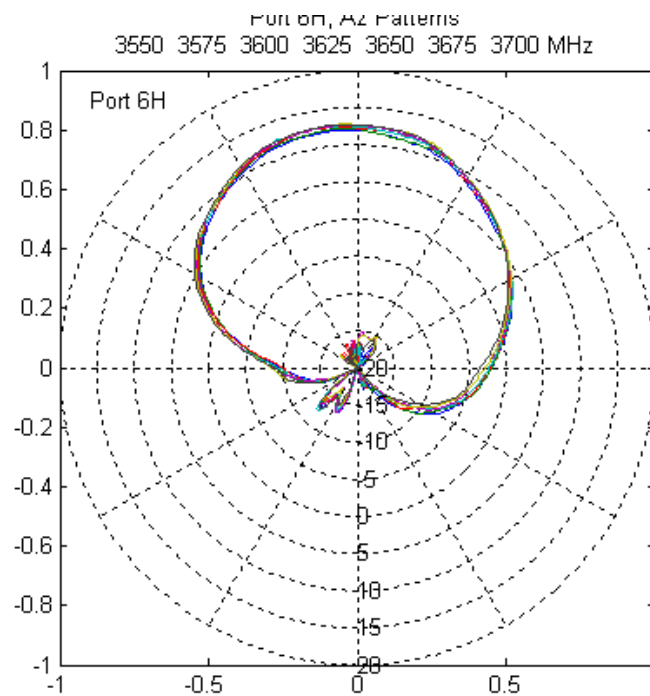
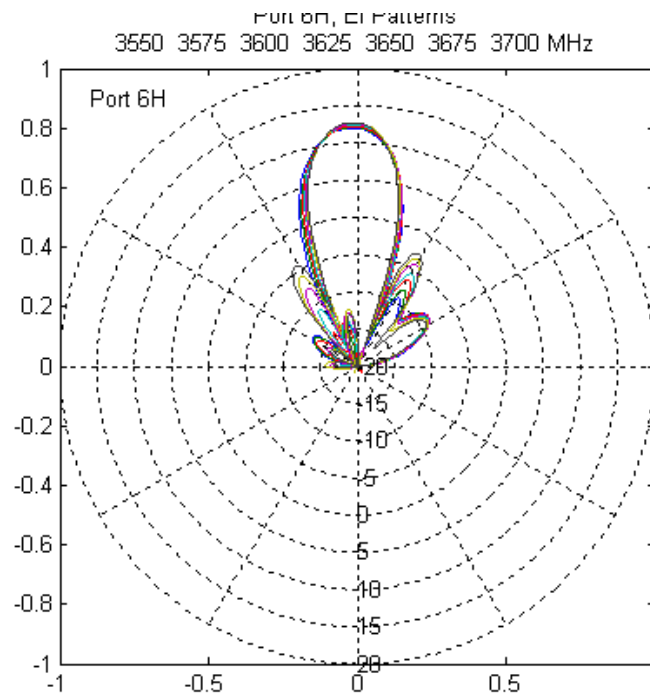
Port 5V, El Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz



Port 5V, Az Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz

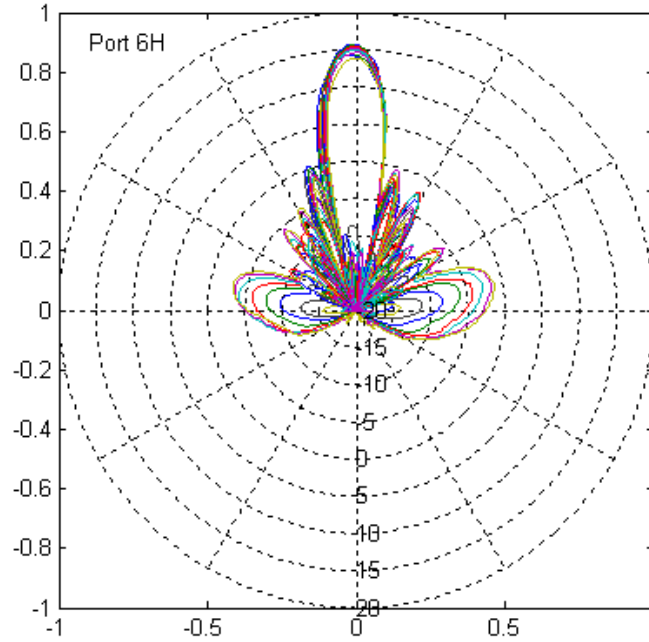


6.13. Antenna 6H Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz

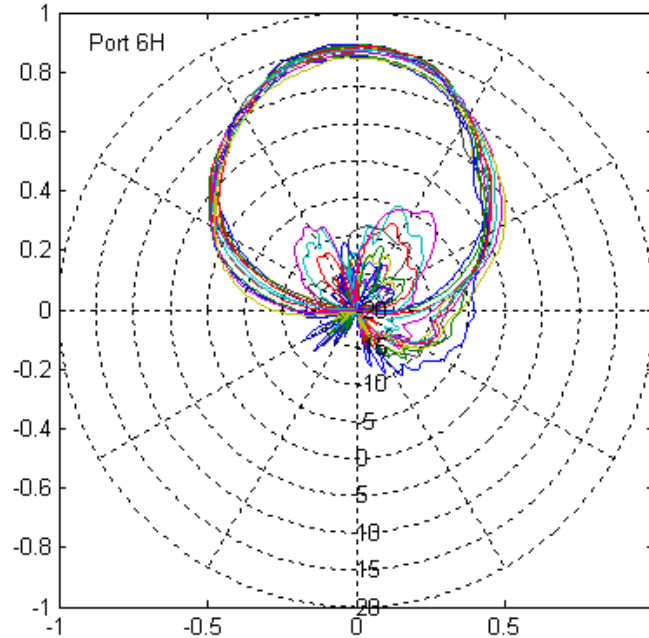


6.14. Antenna 6H Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz

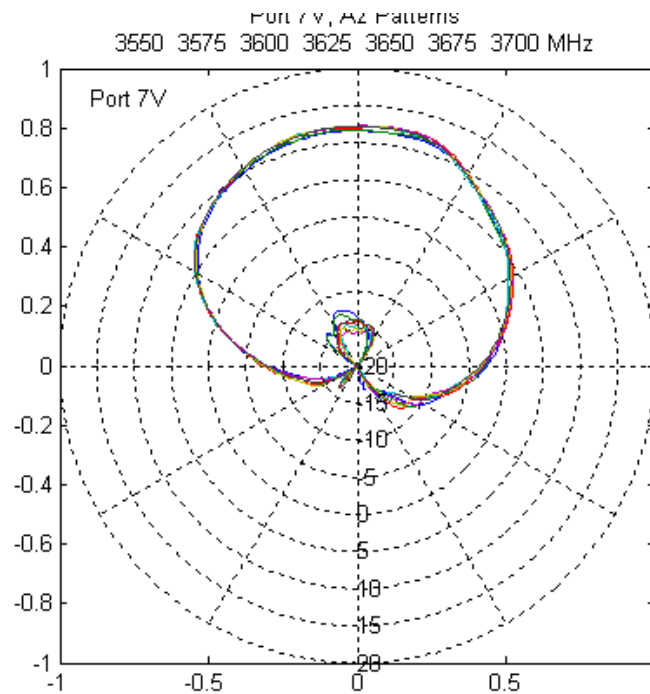
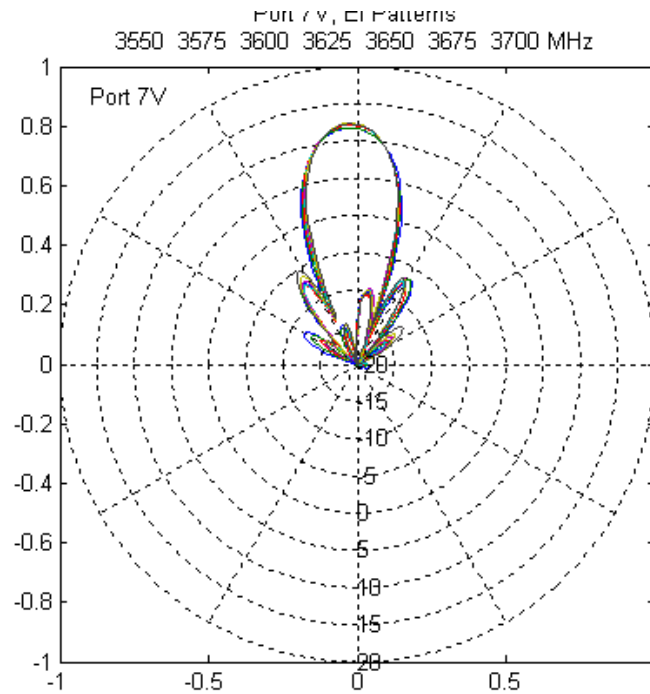
Port 6H, El Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz



Port 6H, Az Patterns
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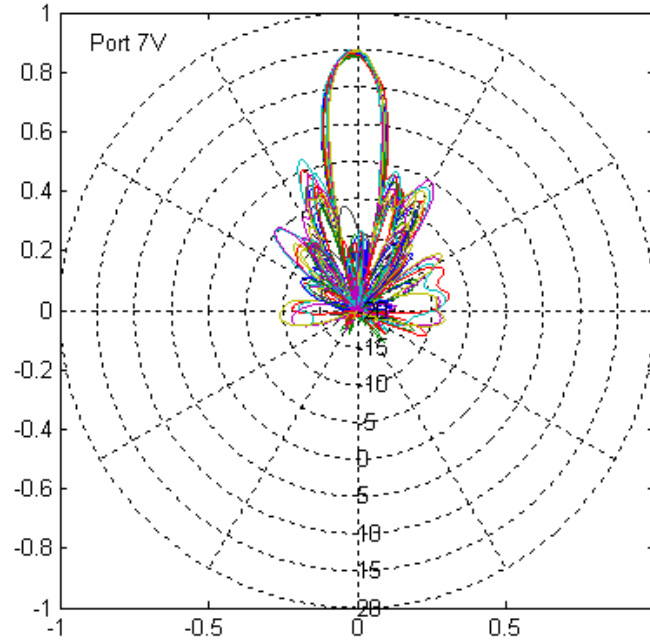


6.15. Antenna 7V Elevation and Azimuth Patterns, 3550 MHz to 3700 MHz

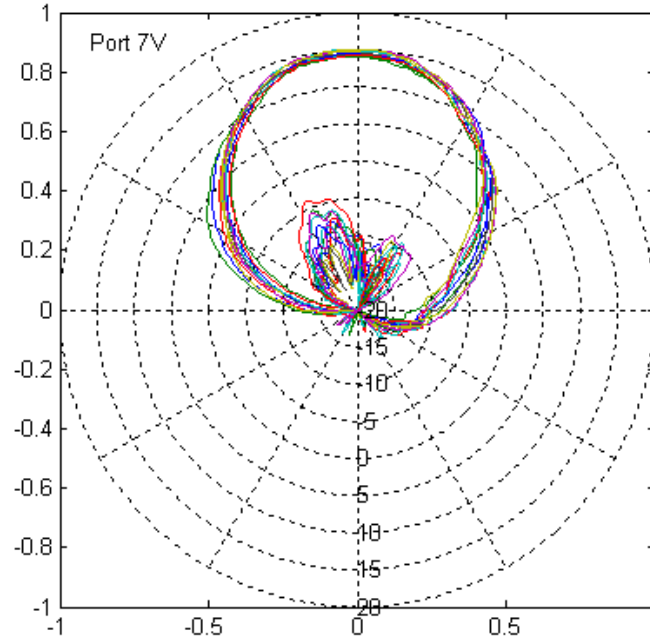


6.16. Antenna 7V Elevation and Azimuth Patterns, 5725 MHz to 6875 MHz

Port 7V, El Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz



Port 7V, Az Patterns
5725 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6875 MHz

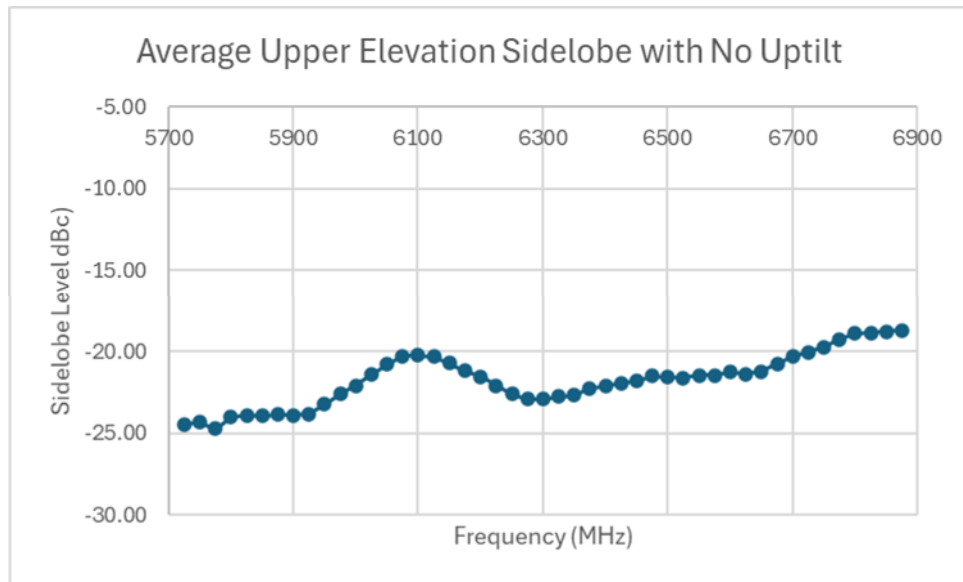


7. Summary

7.1. Antenna Max Gain Summary

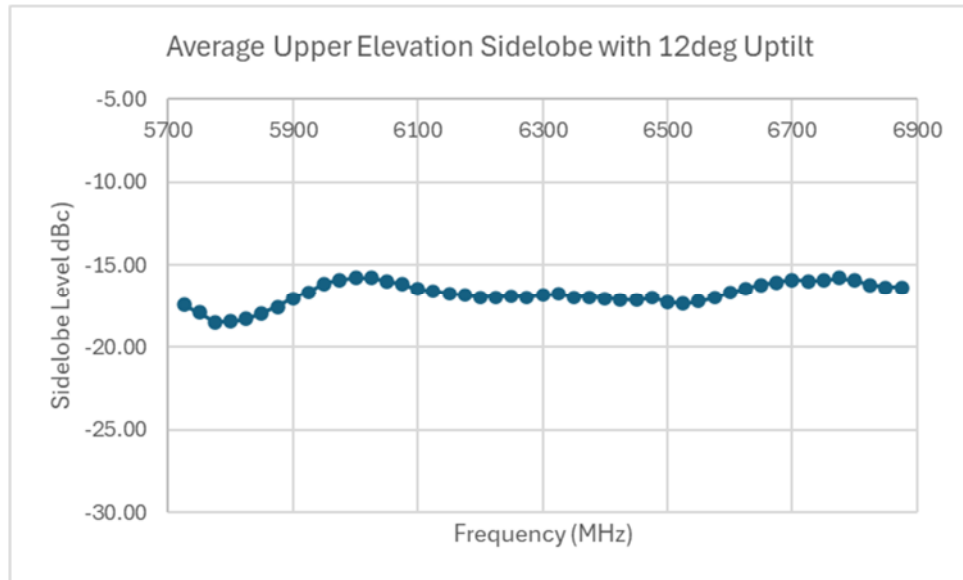
Frequency Range (MHz)	Max Antenna Gain (dBi)							
	0H	1V	2H	3V	4H	5V	6H	7V
3550-3700	12.63	12.64	12.72	12.38	12.69	12.36	12.86	12.40
5725-5850	14.48	14.46	14.28	14.57	14.61	14.64	14.58	14.50
5850-5895	14.78	14.54	14.55	14.45	14.84	14.48	14.84	14.34
5925-6425	15.72	14.84	15.60	14.81	15.90	14.65	15.85	14.92
6425-6525	15.71	14.70	15.60	14.53	15.73	14.26	15.85	14.65
6525-6875	15.48	15.34	15.31	14.83	15.44	14.84	15.71	15.27

7.2. Average Upper Elevation Sidelobes (dBc) with No uptilt vs Frequency



Note: The data of upper elevation sidelobes are the peak max antenna gains for upper elevation angle $>30^\circ$. The average elevation sidelobe gains are more than 15dB less.

7.3. Average Upper Elevation Sidelobes (dBc) with 12° uptilt vs Frequency



Note: The data of upper elevation sidelobes are the peak max antenna gains for upper elevation angle $>30^\circ$. The average elevation sidelobe gains are more than 15dB less.