

PSA

PASSIVE SYSTEM ALLIANCE
WALSIN TECHNOLOGY CORPORATION

贝尔_WiFi Beacon 6

Presented by

Ken

Walsin Technology Corporation

2022/09/14

Version	Date	Description	Author
V01	2020/05/08	New Release	Sam
V02	2022/09/13	Update report	Ken
V03	2022/09/14	Correct the number of antennas for FCC and add a table of summary	Ken

OUTLINE

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1.1 Experimental Setup

1.2 Antenna Solution Detail

2. Antenna Characteristics

2.1 VSWR and Isolation

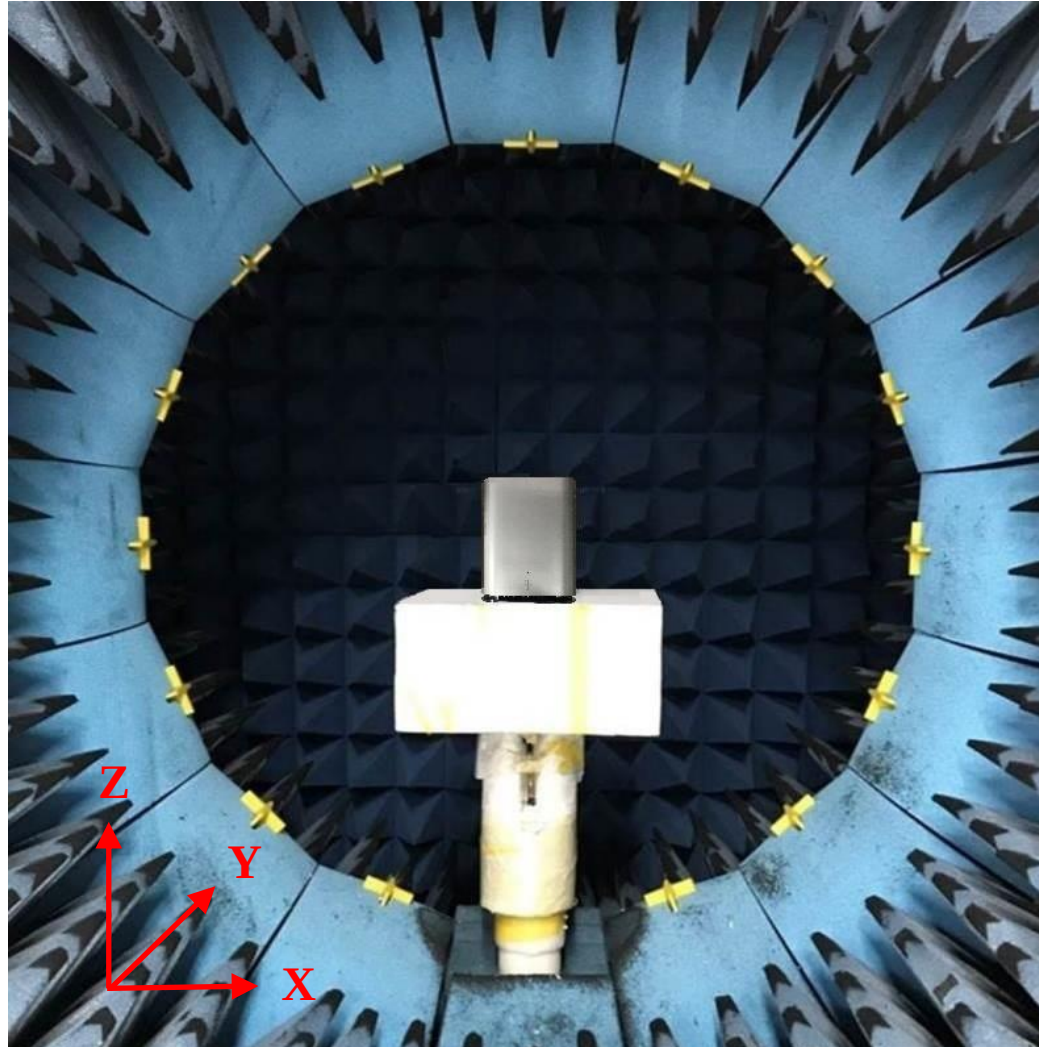
2.2 Antenna Efficiency and Peak Gain

2.3 3D Pattern & 2D Radiation Patterns

2.4 Summary

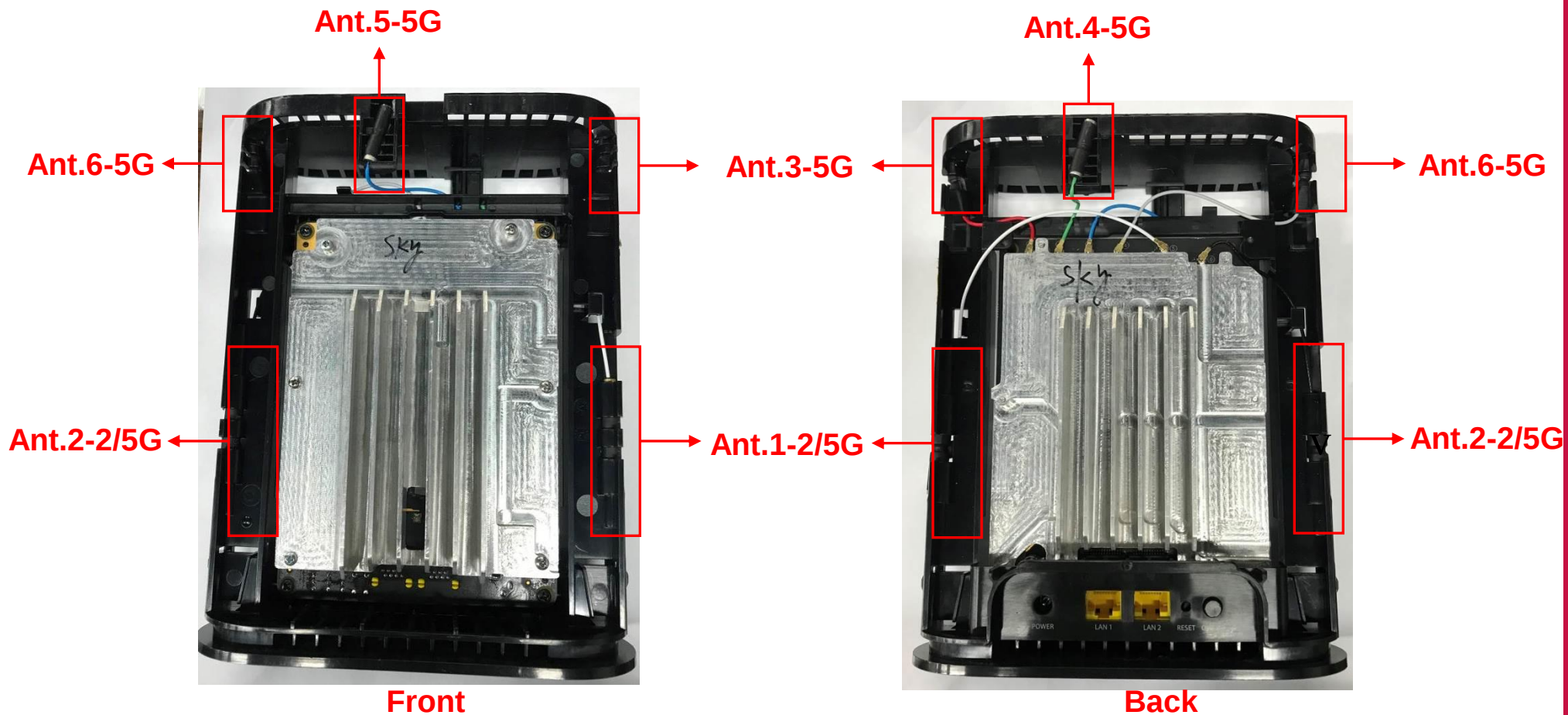
1. Measurement Information

1.1 Experimental Setup



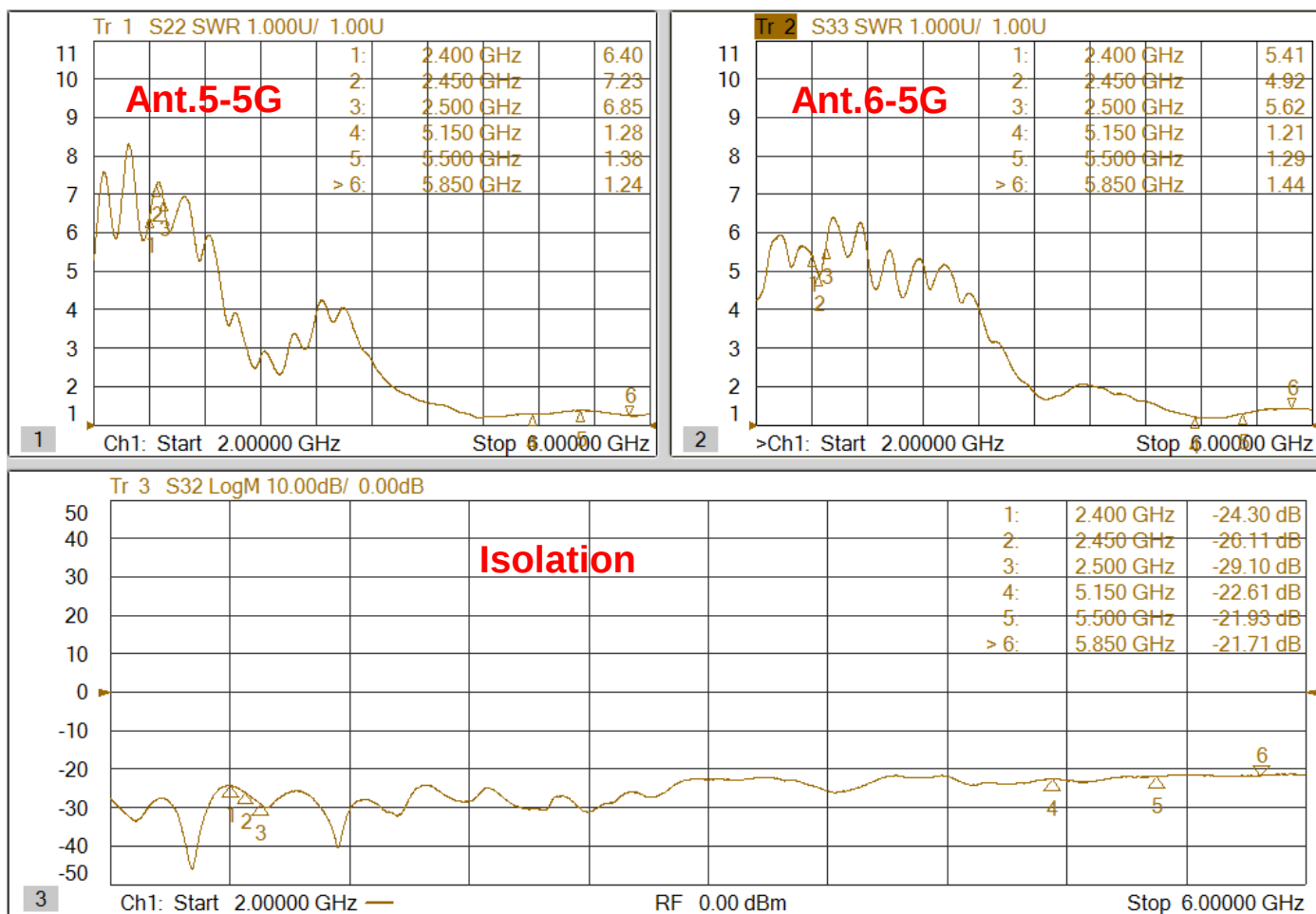
1. Measurement Information

1.2 Antenna Solution Detail



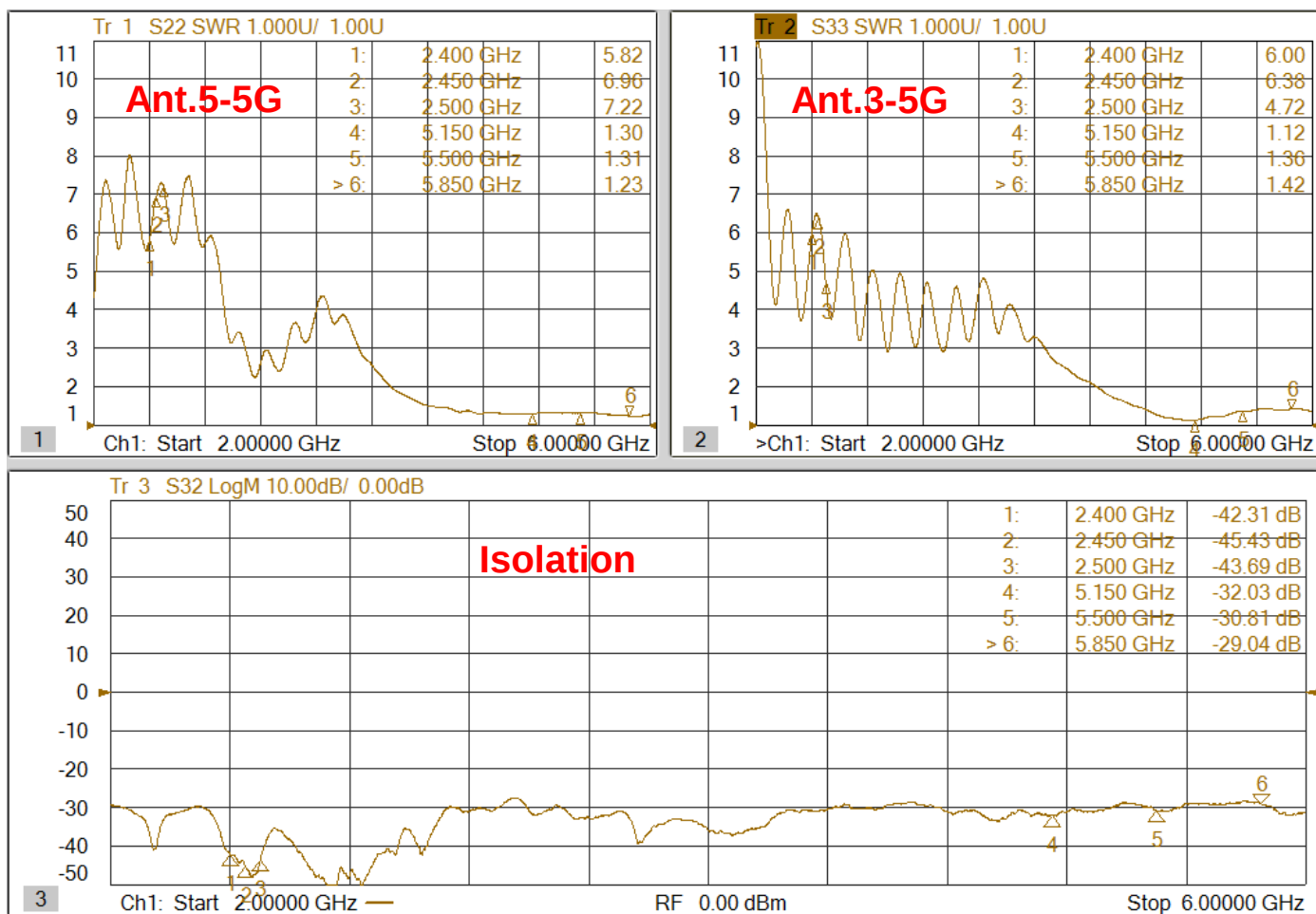
2. Antenna Characteristics

2.1 VSWR and Isolation



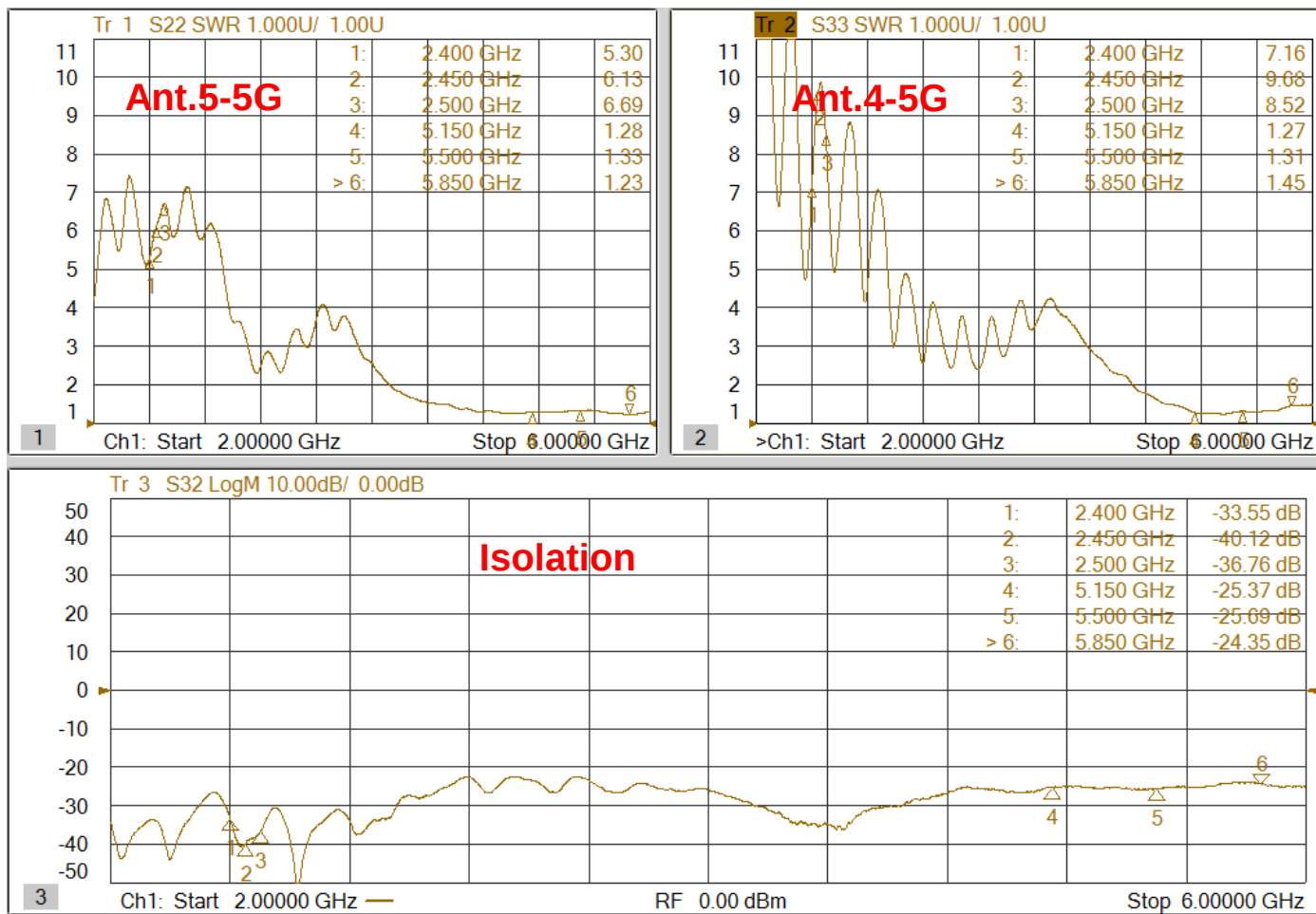
2. Antenna Characteristics

2.1 VSWR and Isolation



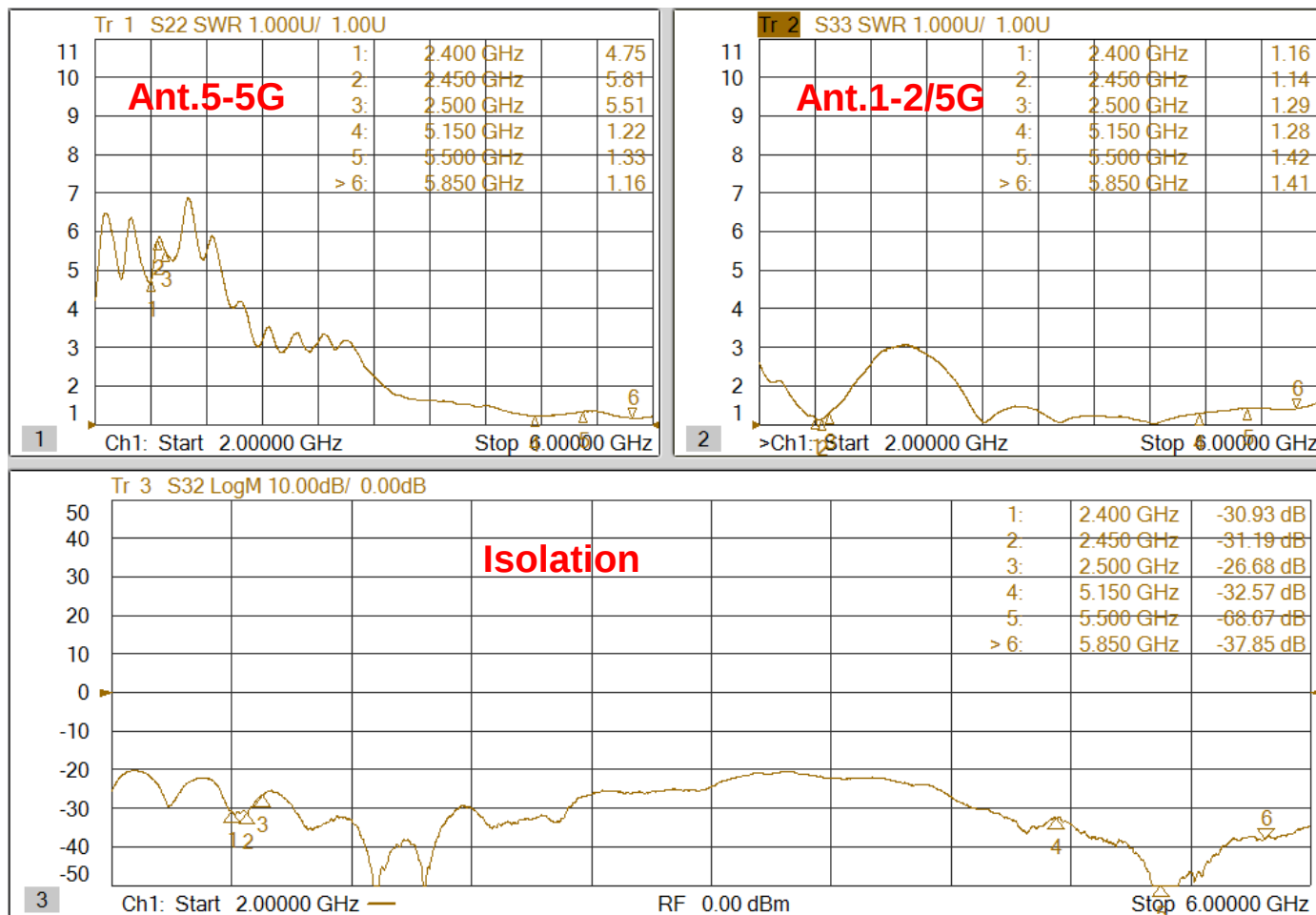
2. Antenna Characteristics

2.1 VSWR and Isolation



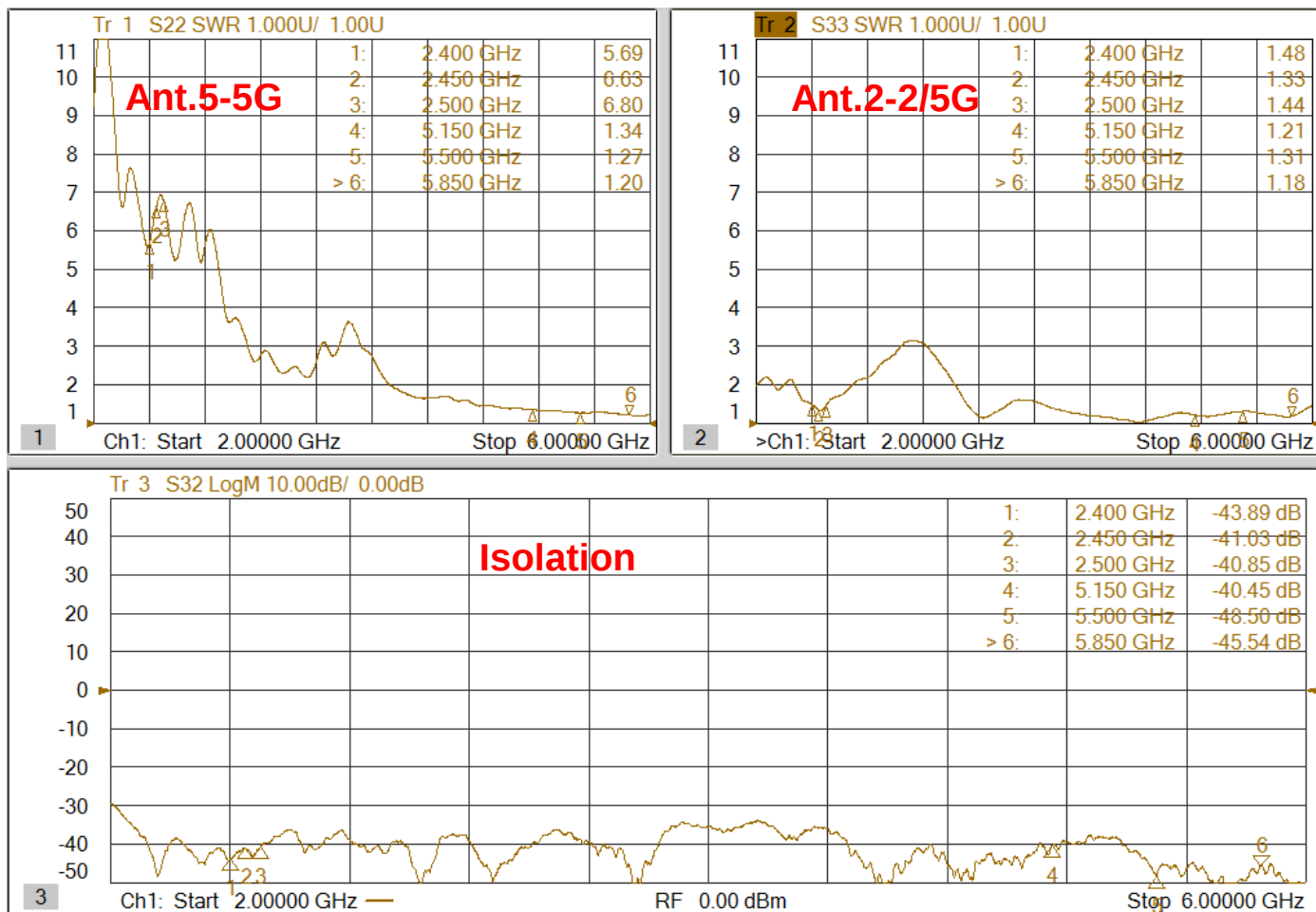
2. Antenna Characteristics

2.1 VSWR and Isolation



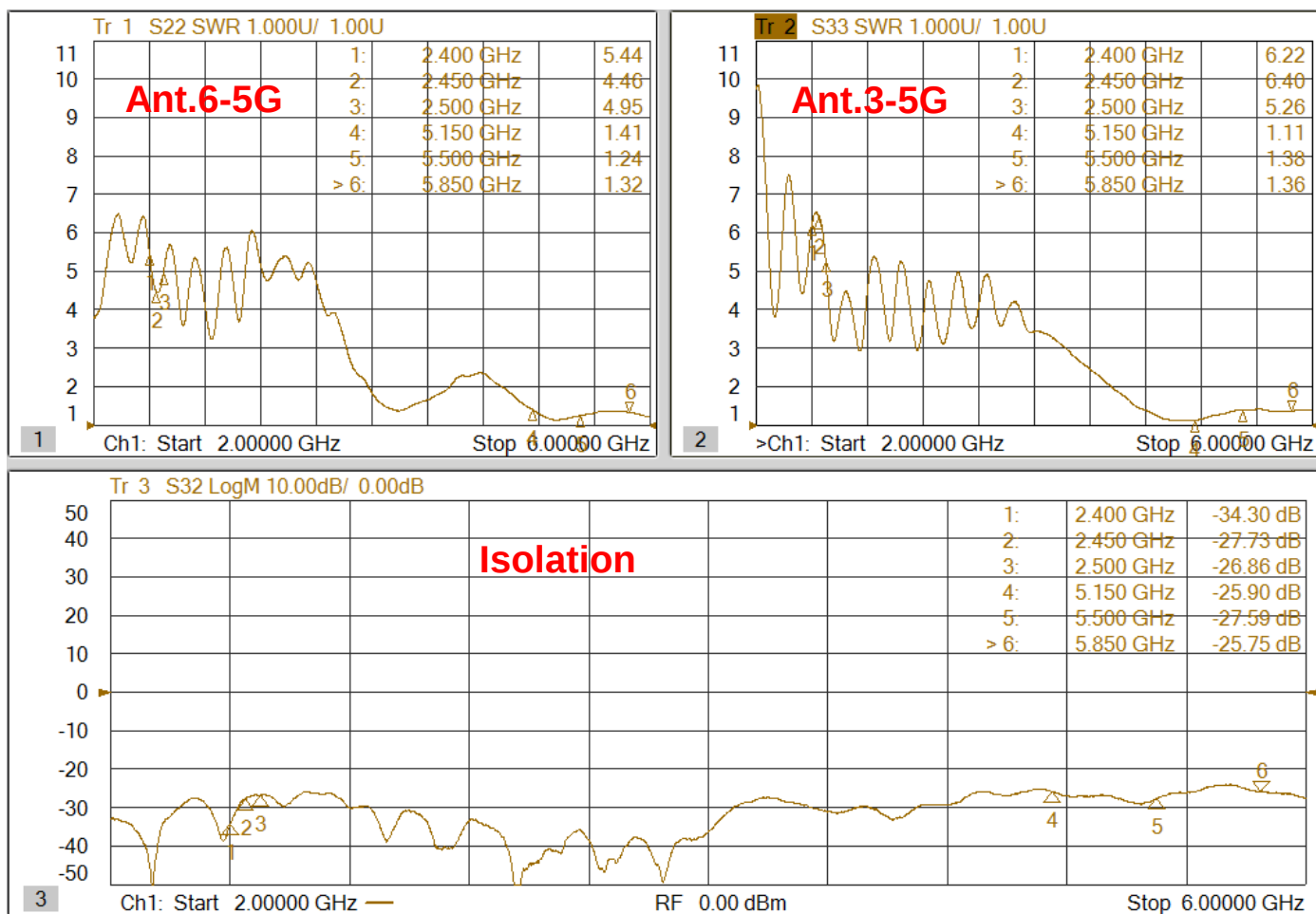
2. Antenna Characteristics

2.1 VSWR and Isolation



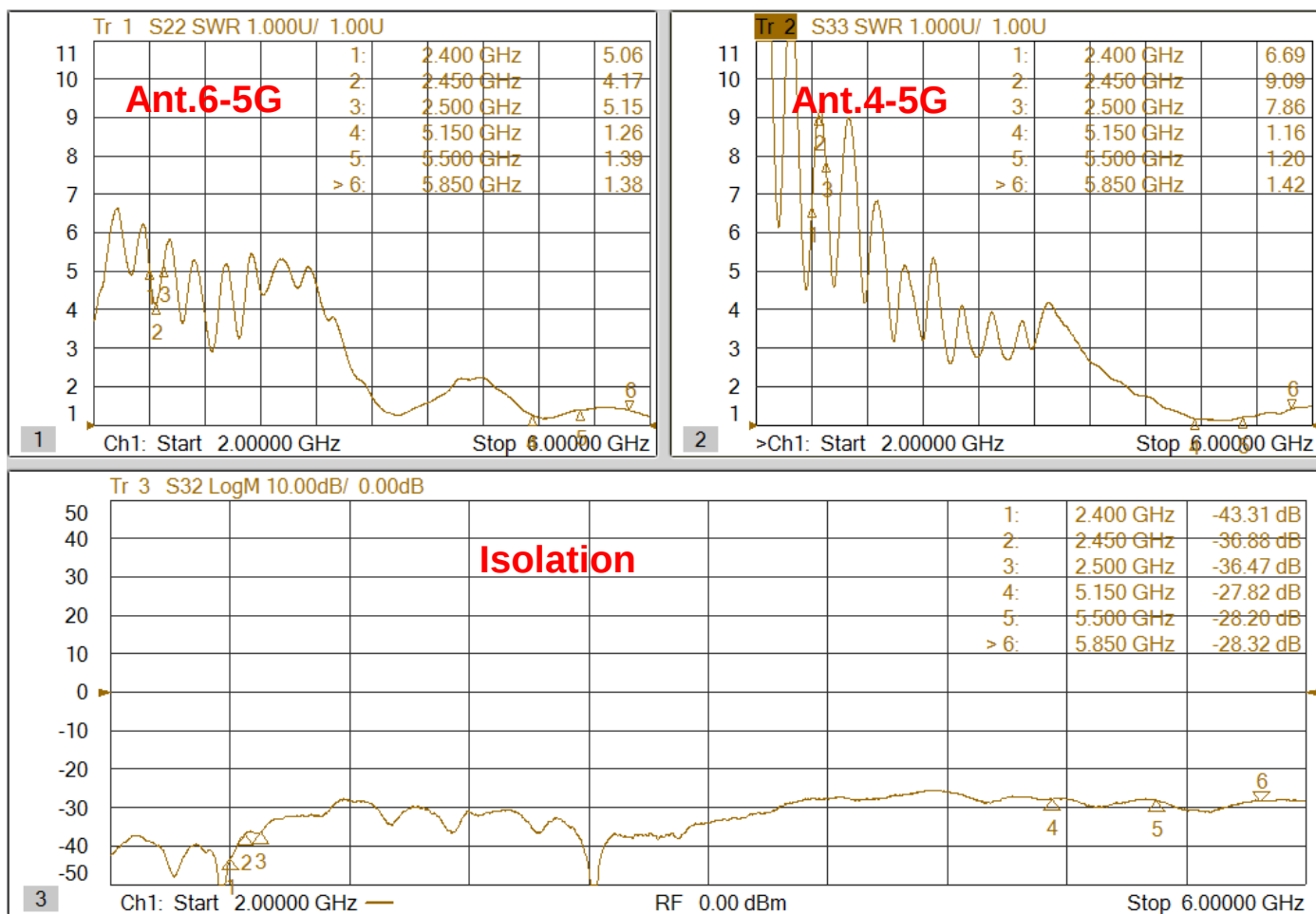
2. Antenna Characteristics

2.1 VSWR and Isolation



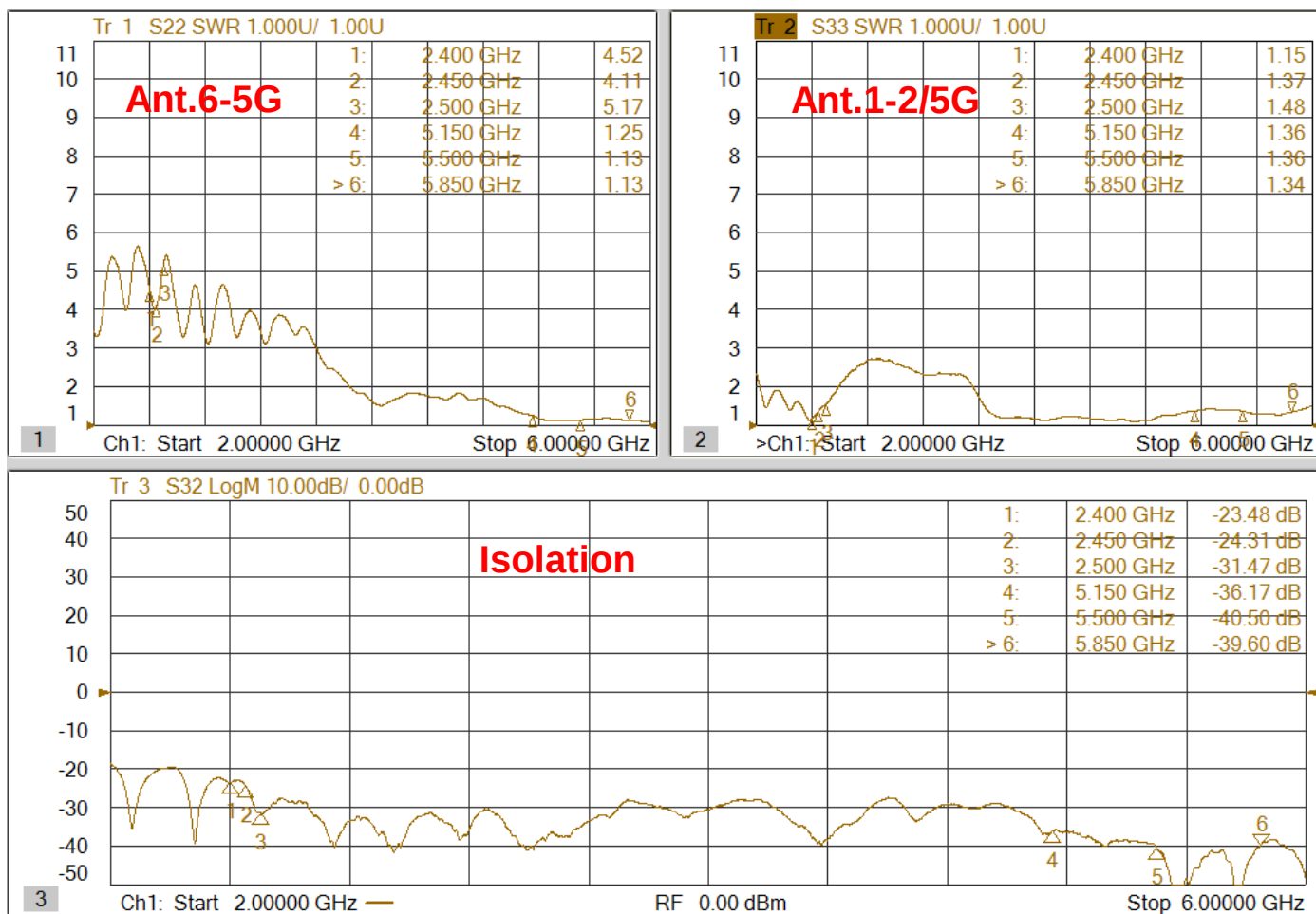
2. Antenna Characteristics

2.1 VSWR and Isolation



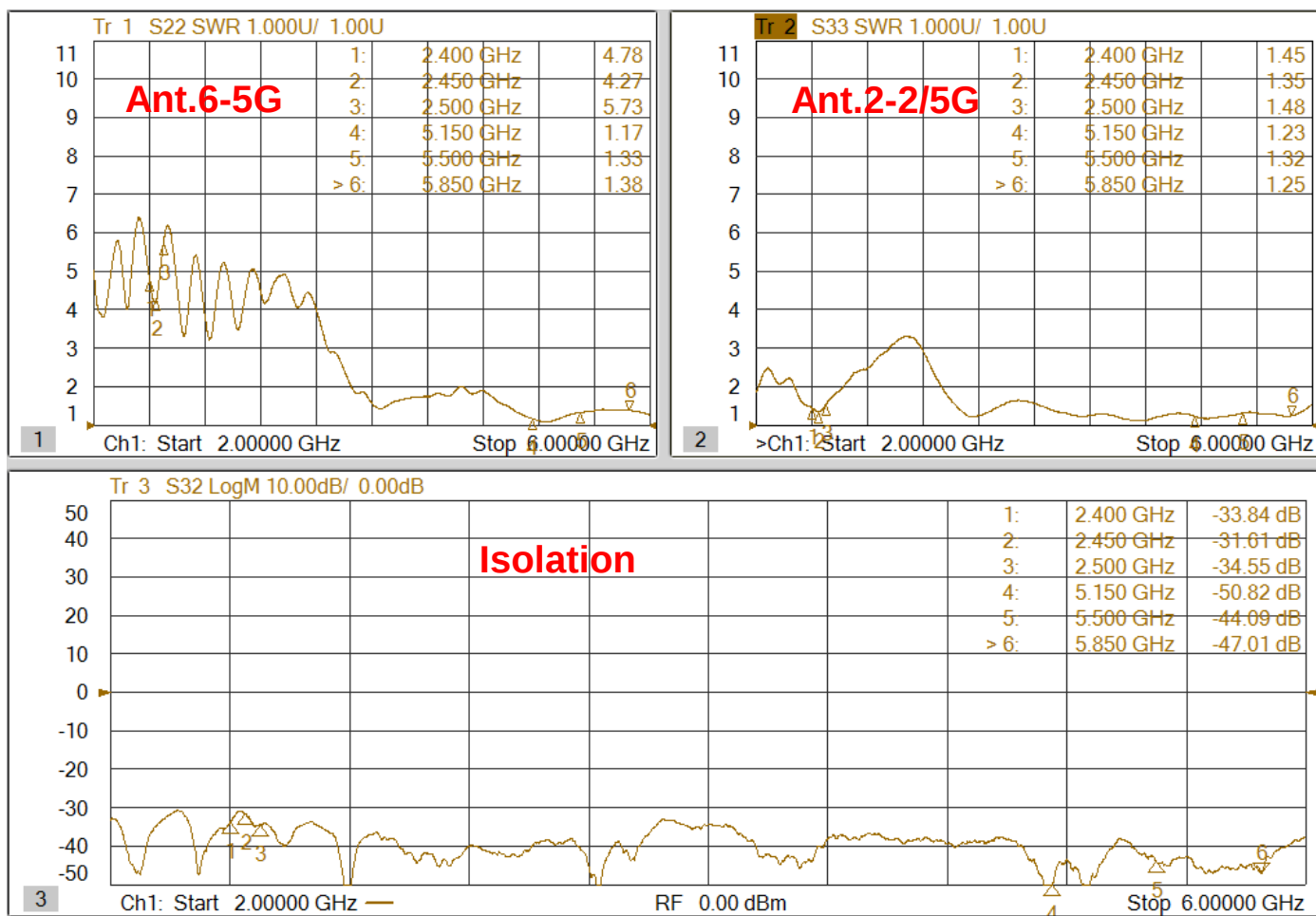
2. Antenna Characteristics

2.1 VSWR and Isolation



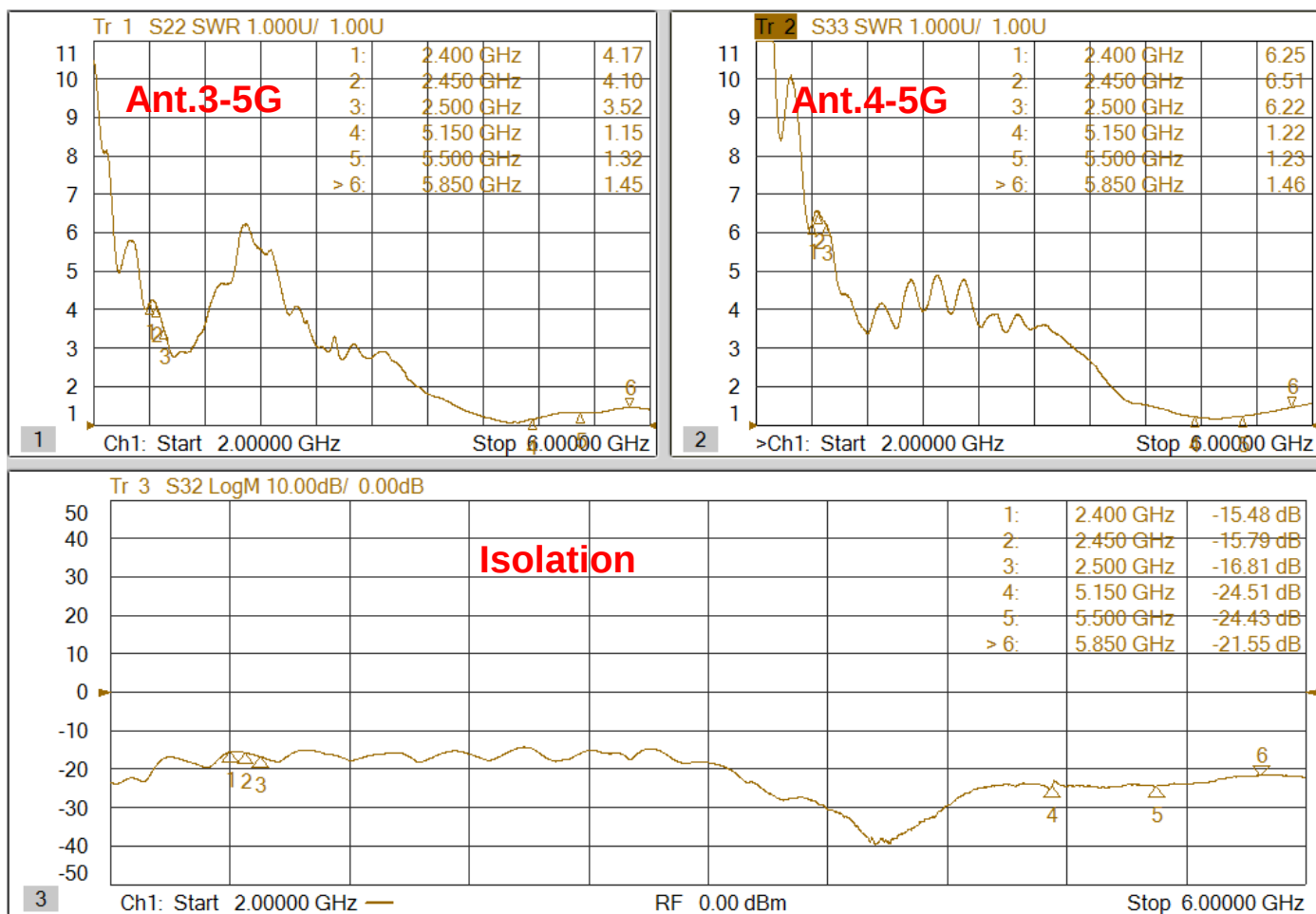
2. Antenna Characteristics

2.1 VSWR and Isolation



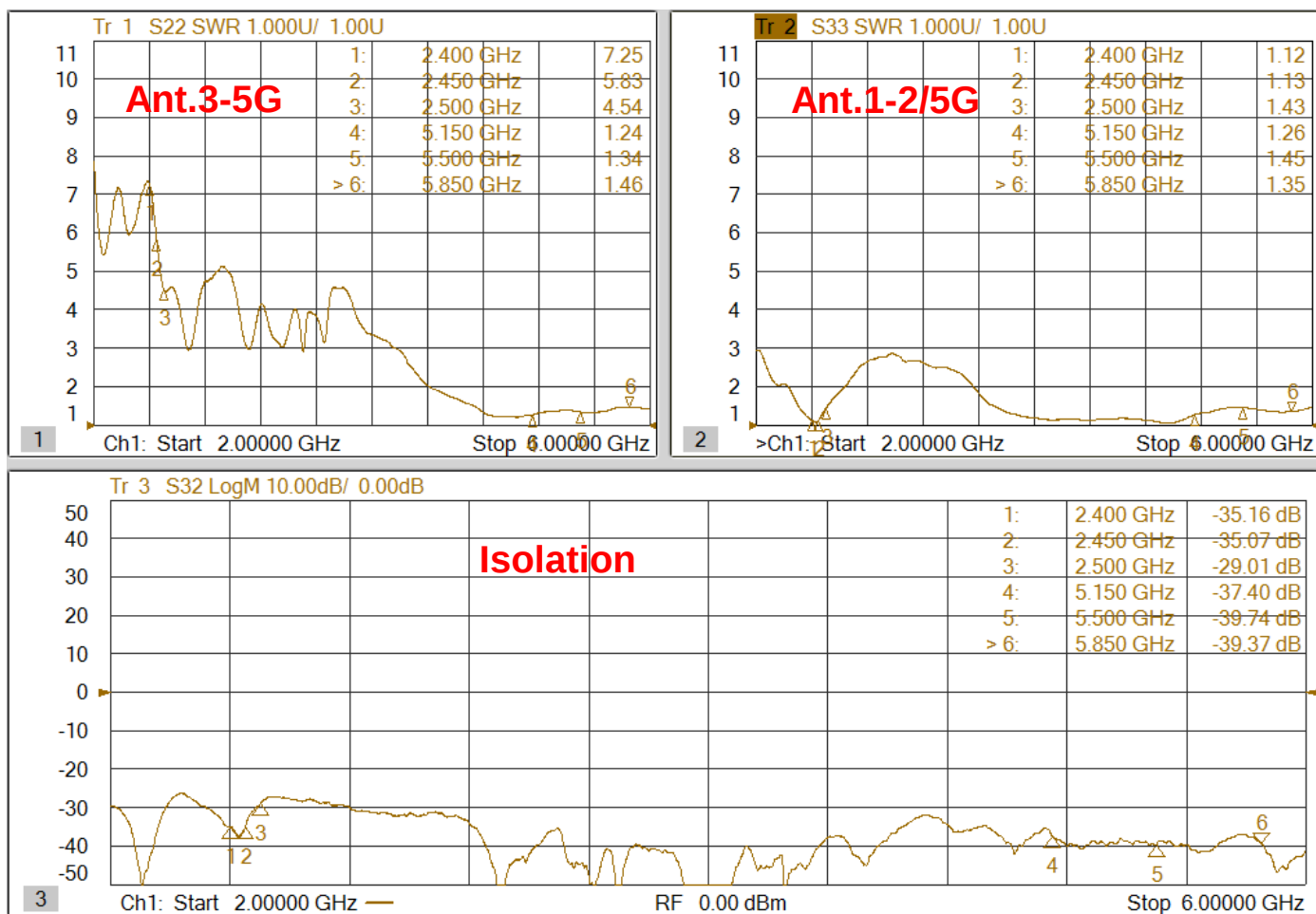
2. Antenna Characteristics

2.1 VSWR and Isolation



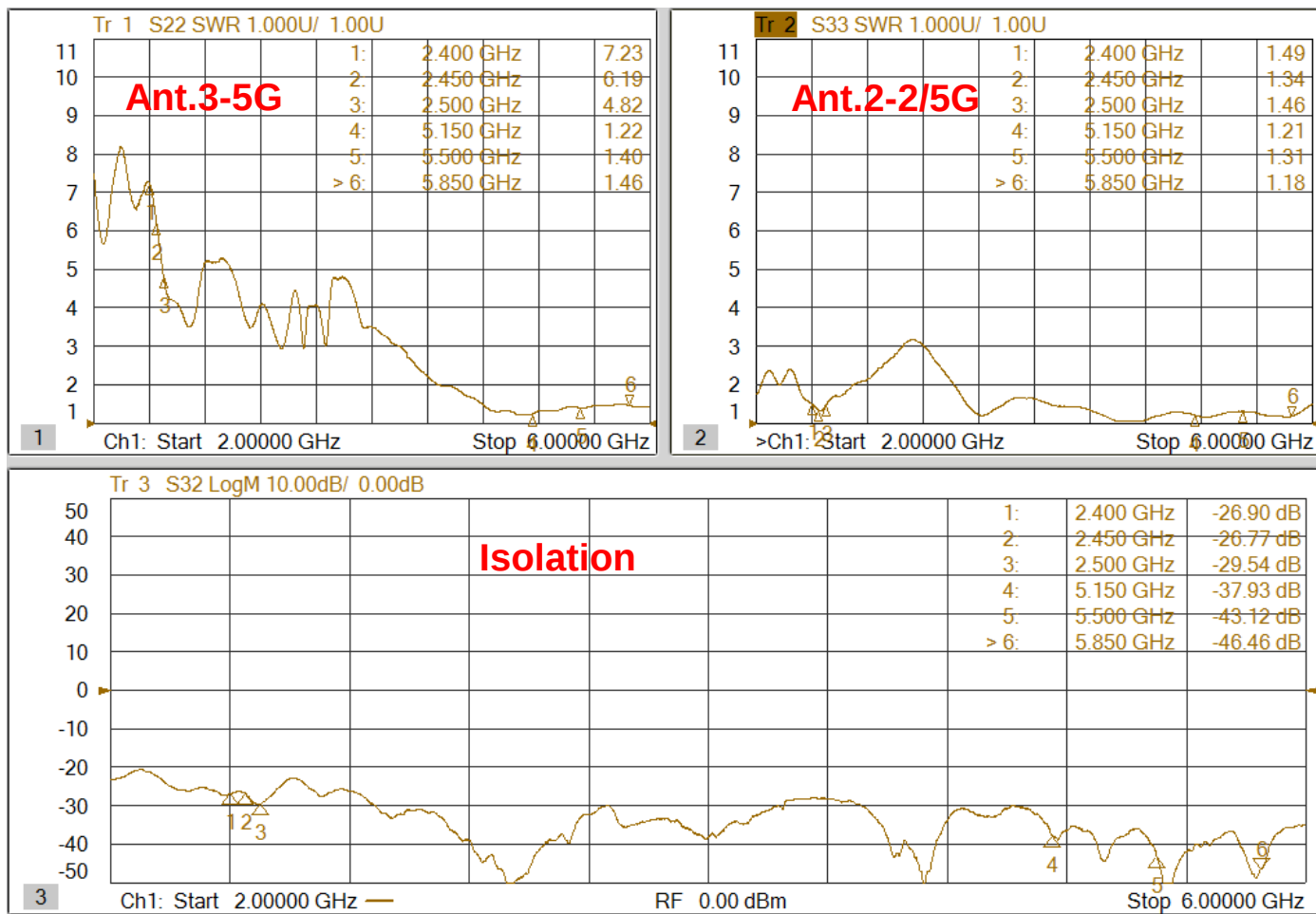
2. Antenna Characteristics

2.1 VSWR and Isolation



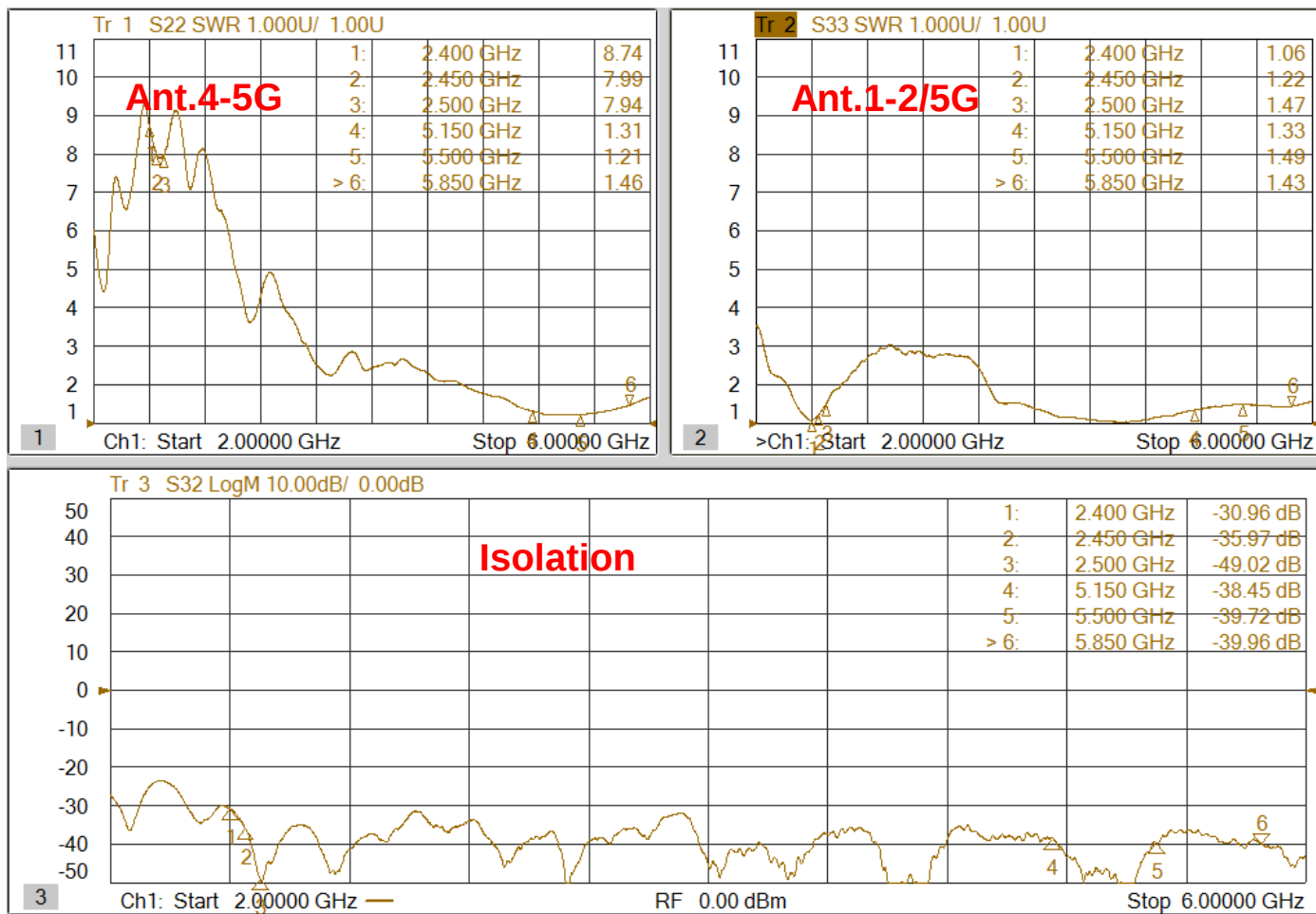
2. Antenna Characteristics

2.1 VSWR and Isolation



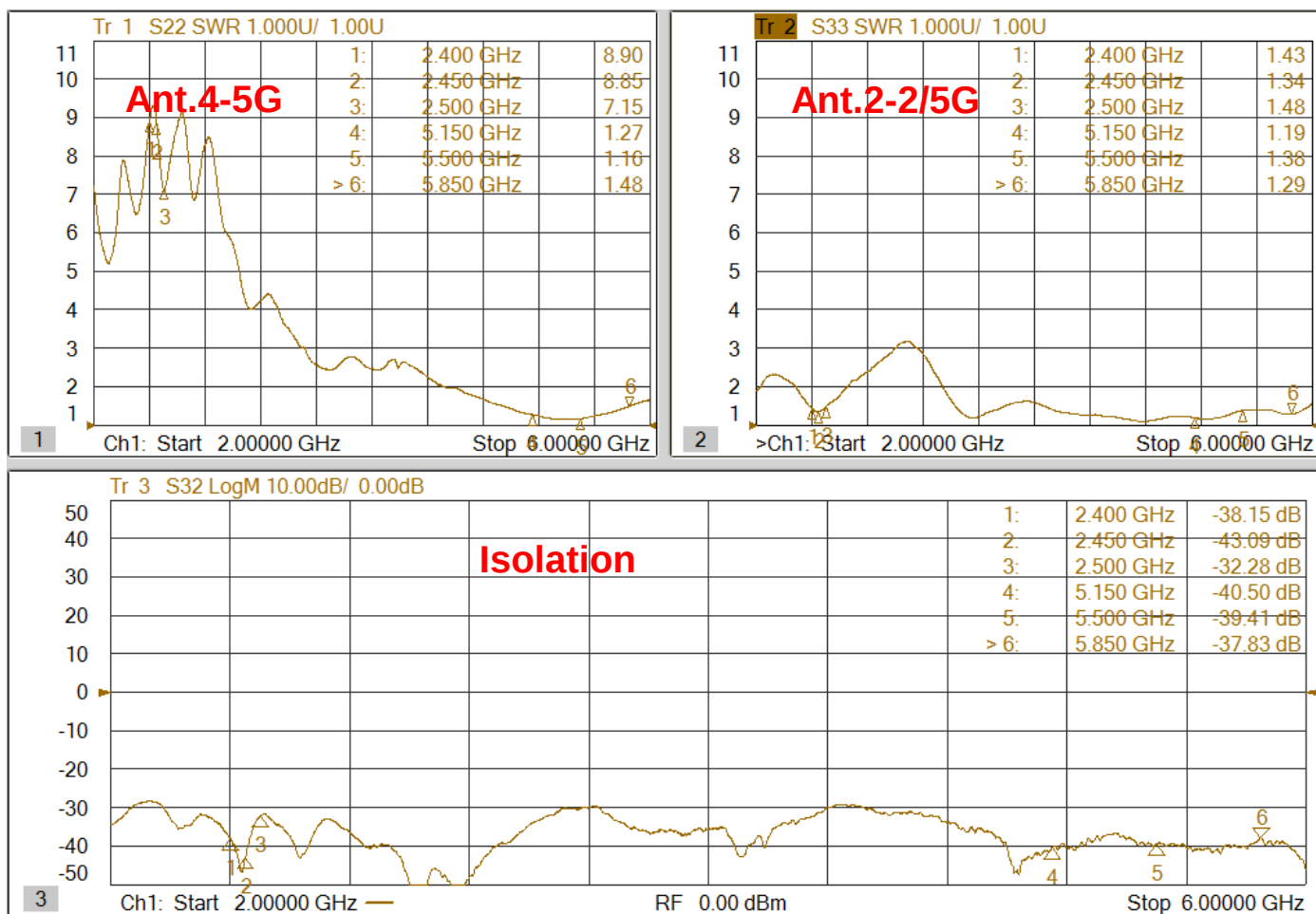
2. Antenna Characteristics

2.1 VSWR and Isolation



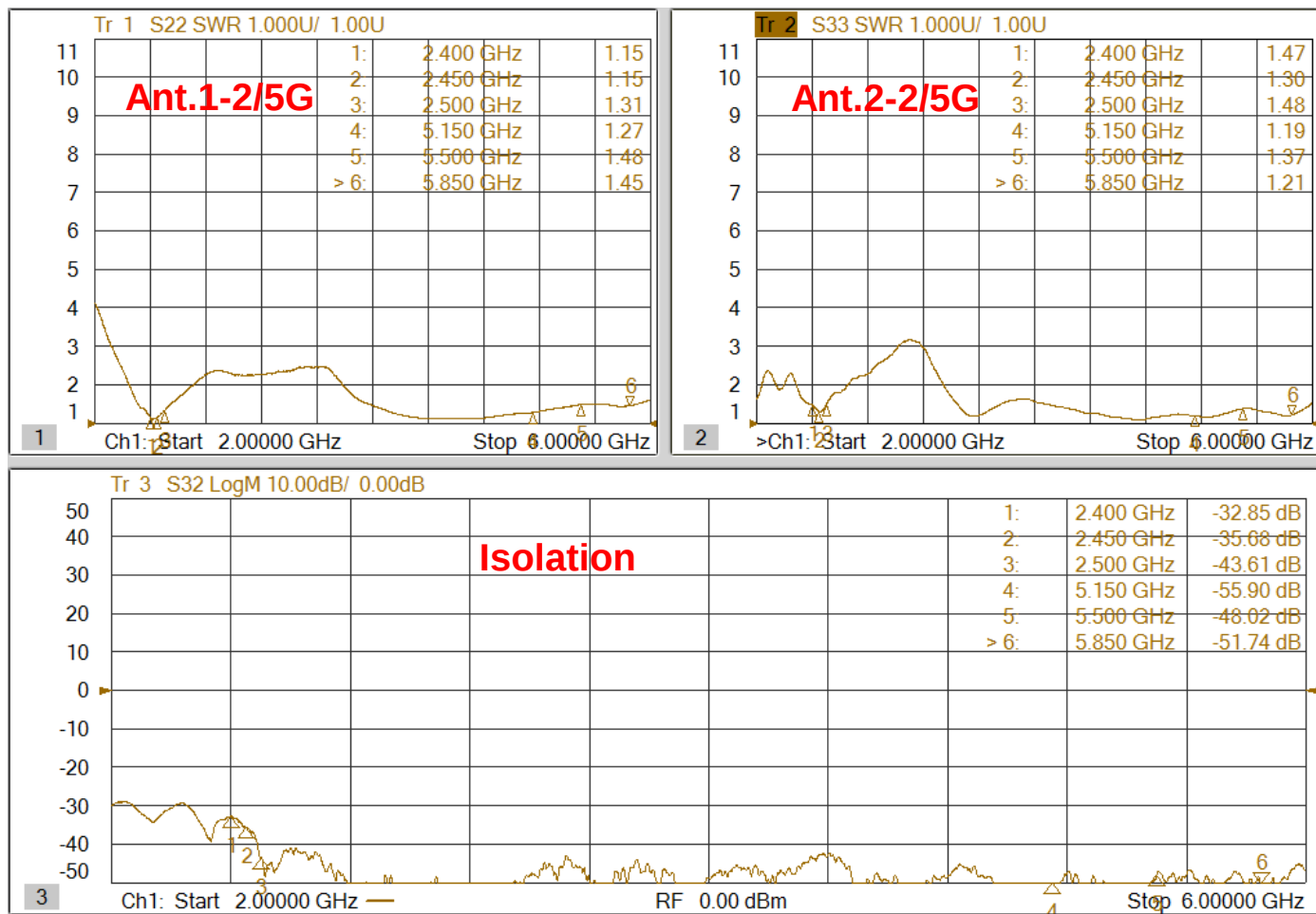
2. Antenna Characteristics

2.1 VSWR and Isolation



2. Antenna Characteristics

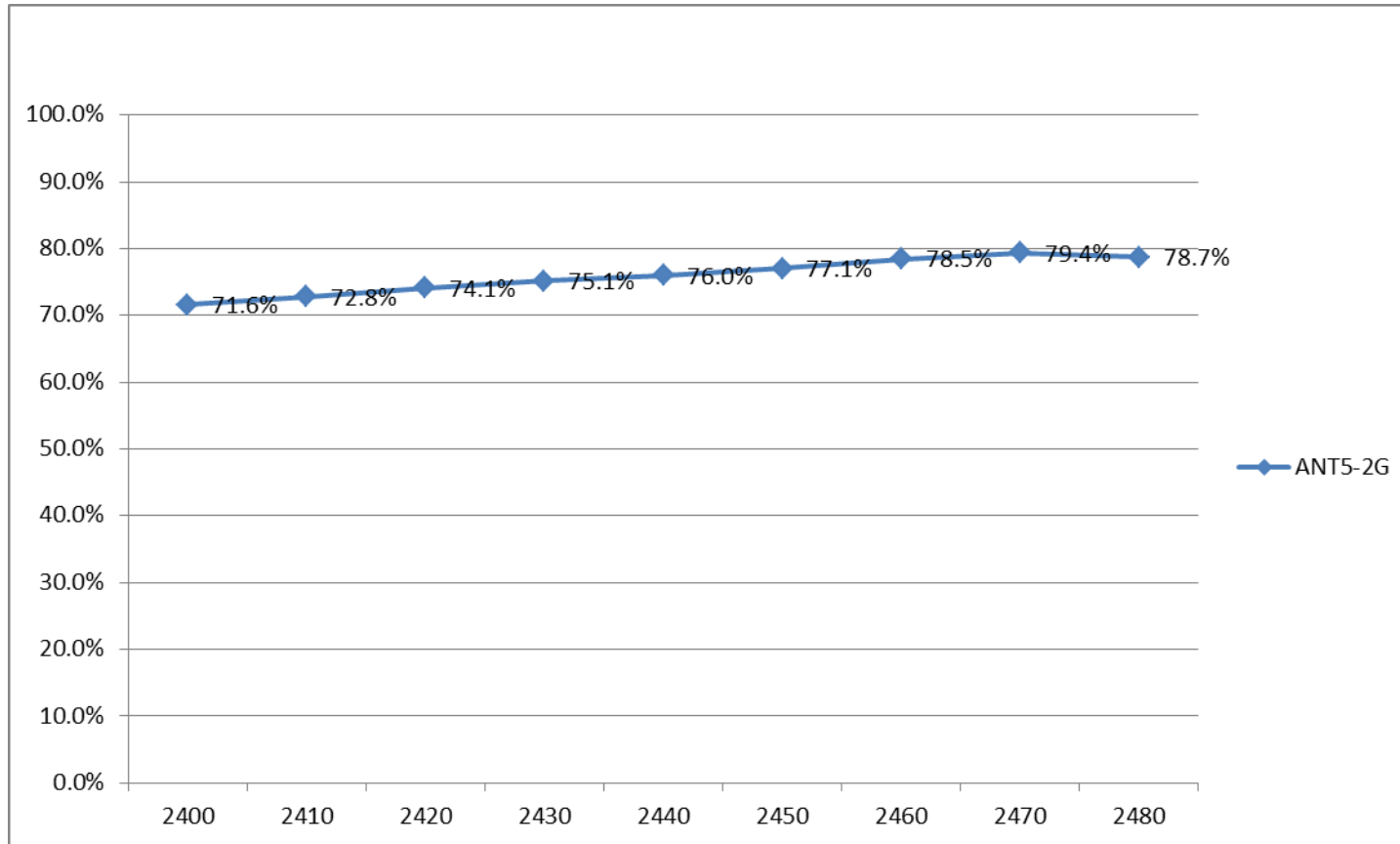
2.1 VSWR and Isolation



2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.1-2G

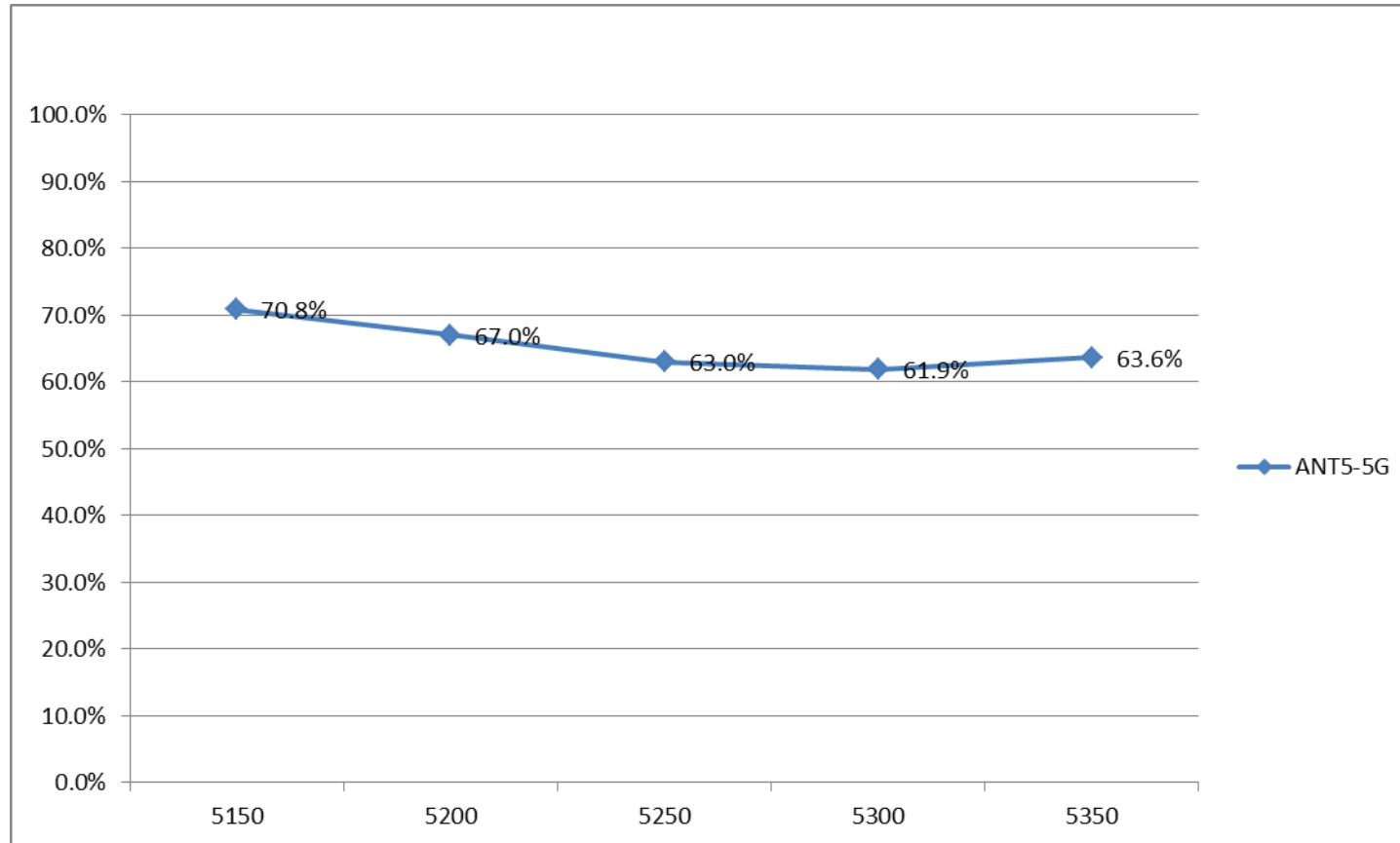


Maximum Efficiency at 2470 MHz : 79.40 %

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.1-5G-L



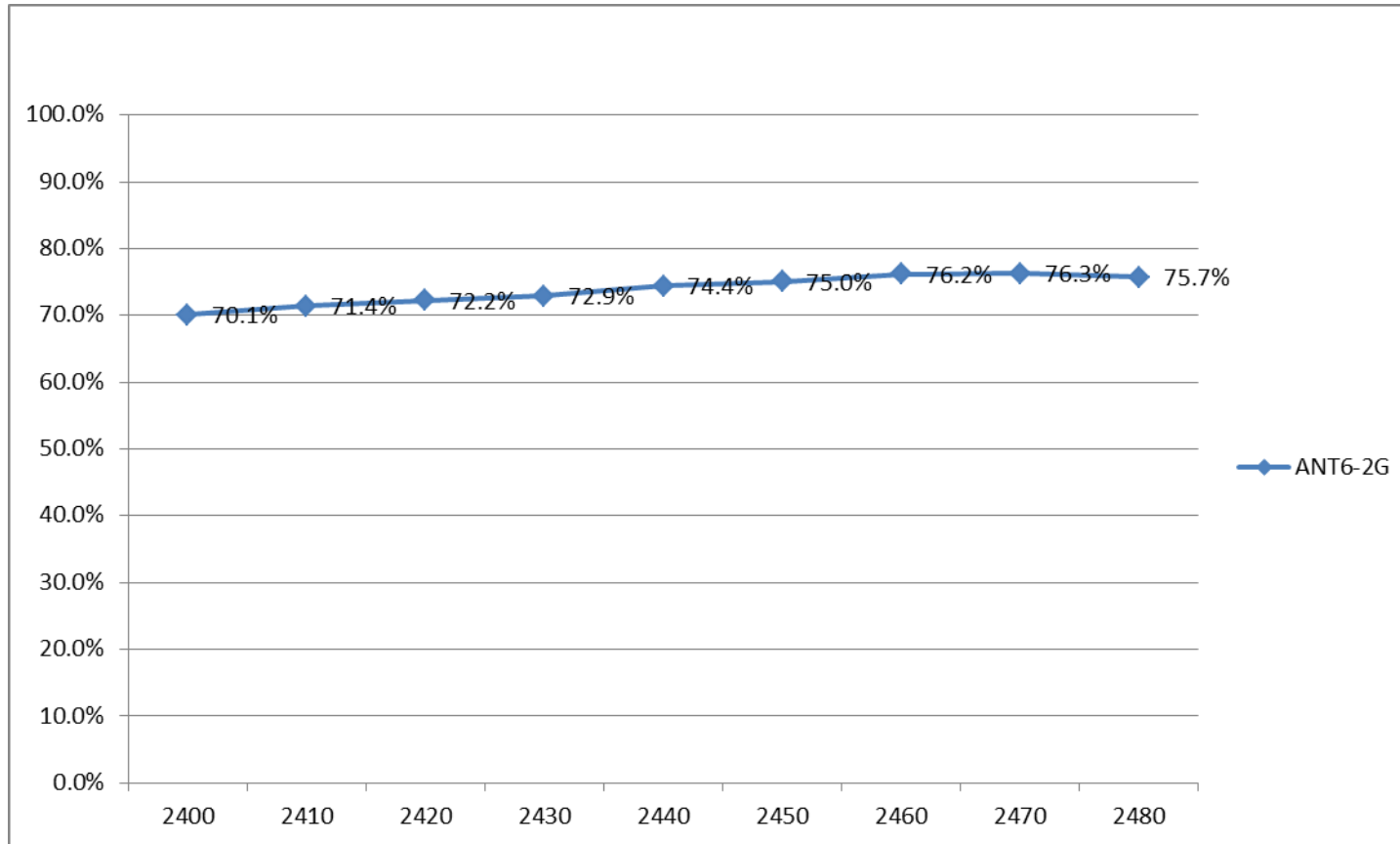
Maximum Efficiency at 5150 MHz : 70.80 % (5G Band 1)

Maximum Efficiency at 5350 MHz : 63.60 % (5G Band 2)

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.2-2G

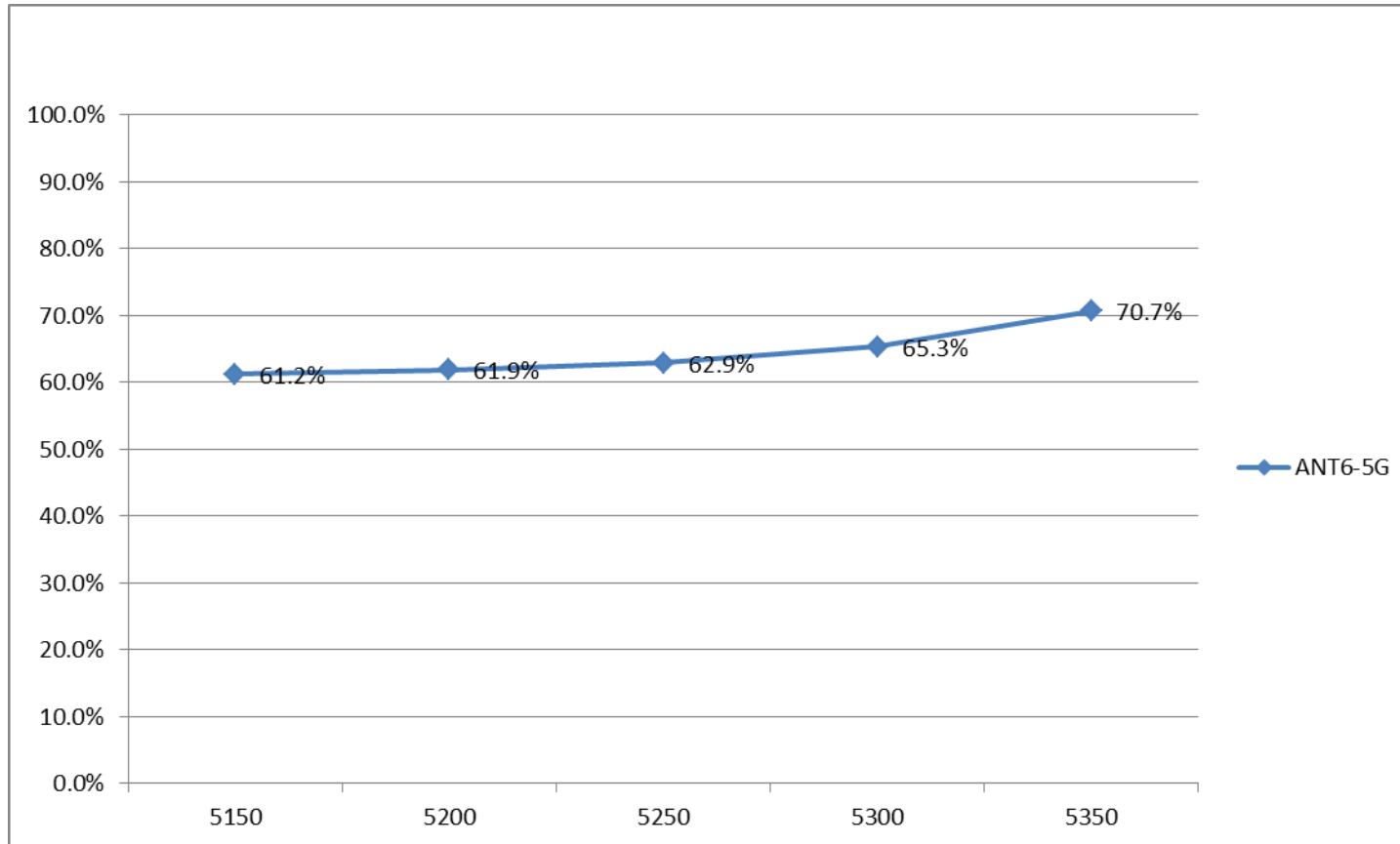


Maximum Efficiency at 2470 MHz : 76.30 %

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.2-5G-L



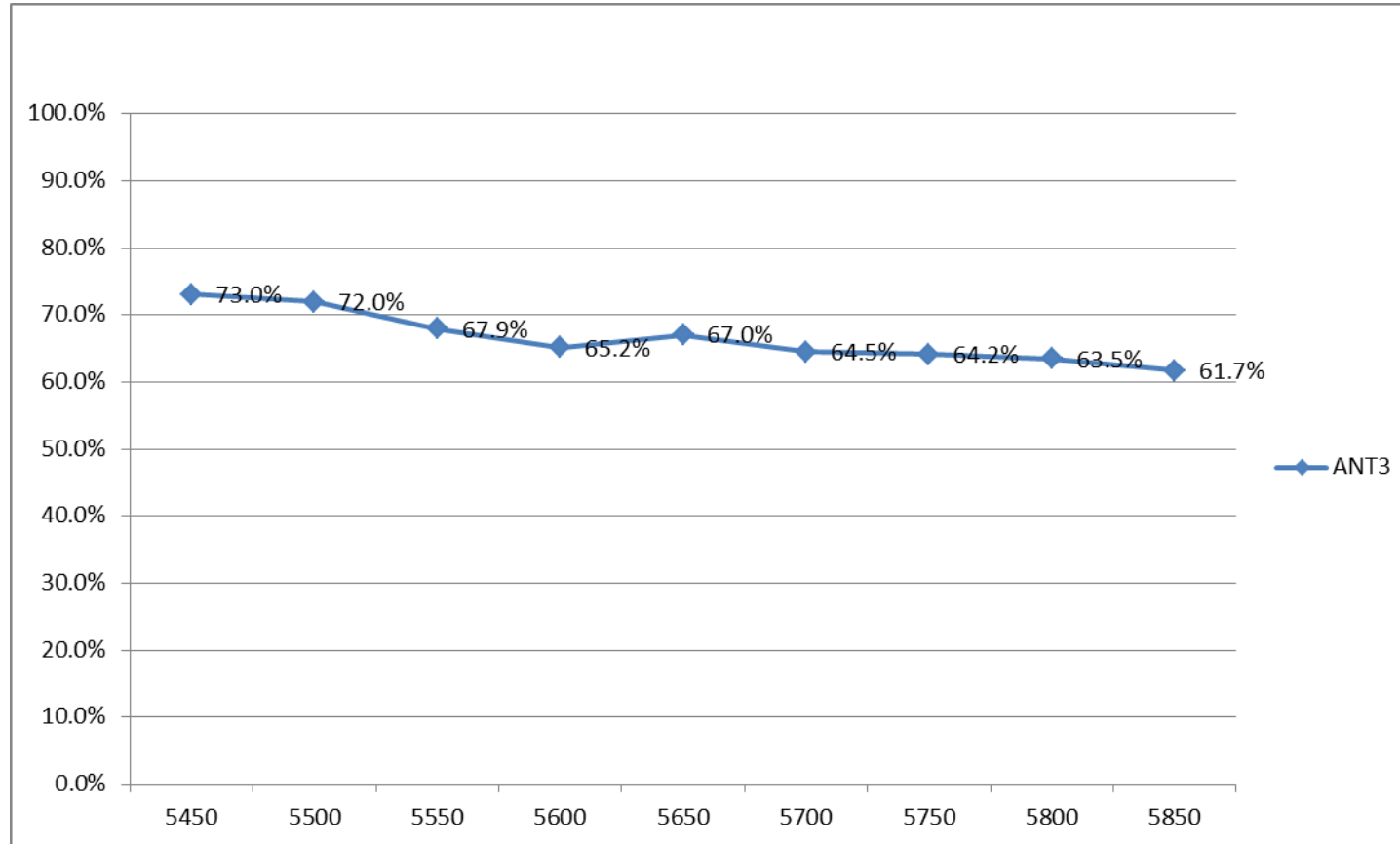
Maximum Efficiency at 5200 MHz : 61.90 % (5G Band 1)

Maximum Efficiency at 5350 MHz : 70.70 % (5G Band 2)

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.3-5G-H



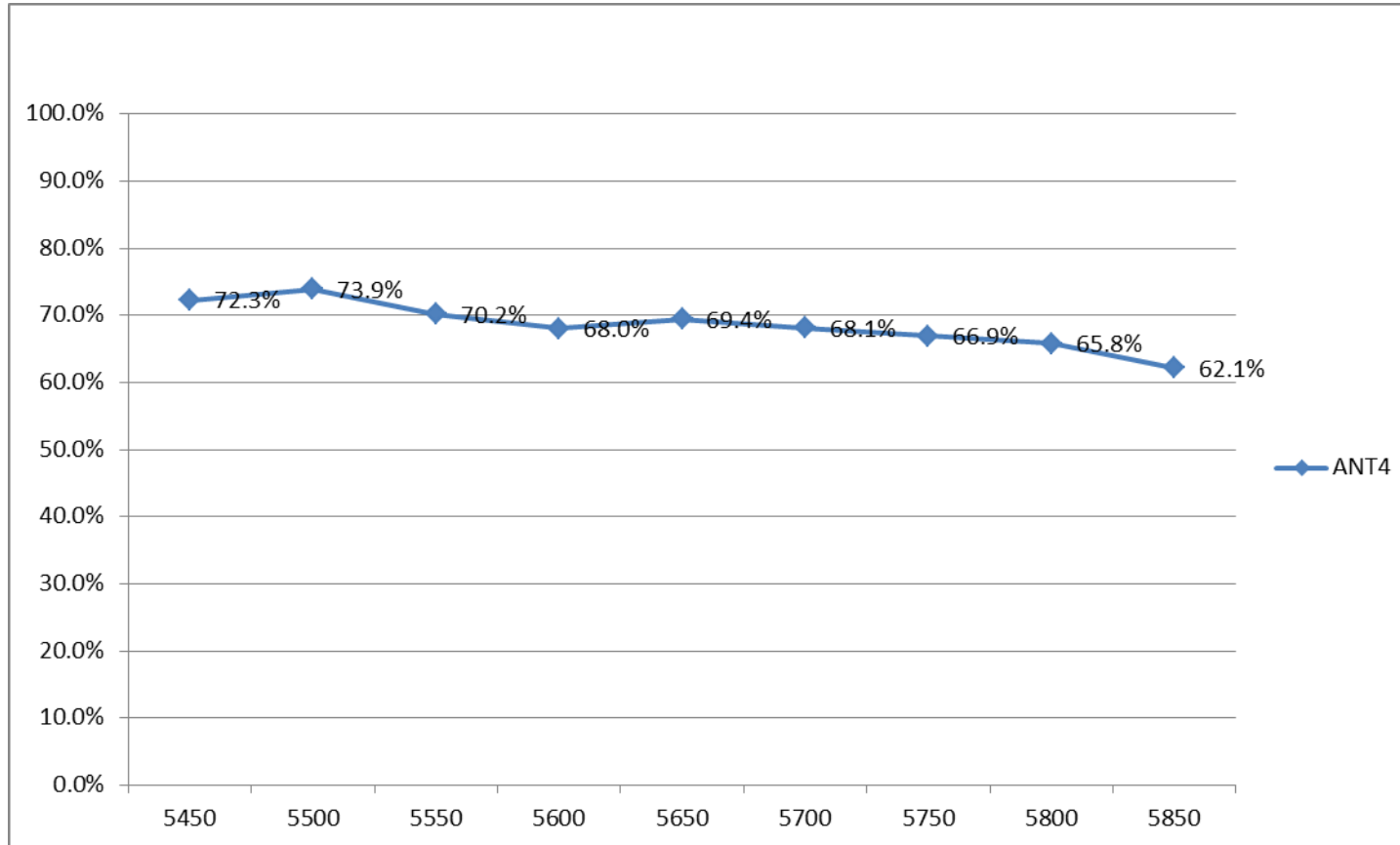
Maximum Efficiency at 5450 MHz : 73.00 % (5G Band 3)

Maximum Efficiency at 5750 MHz : 64.20 % (5G Band 4)

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.4-5G-H



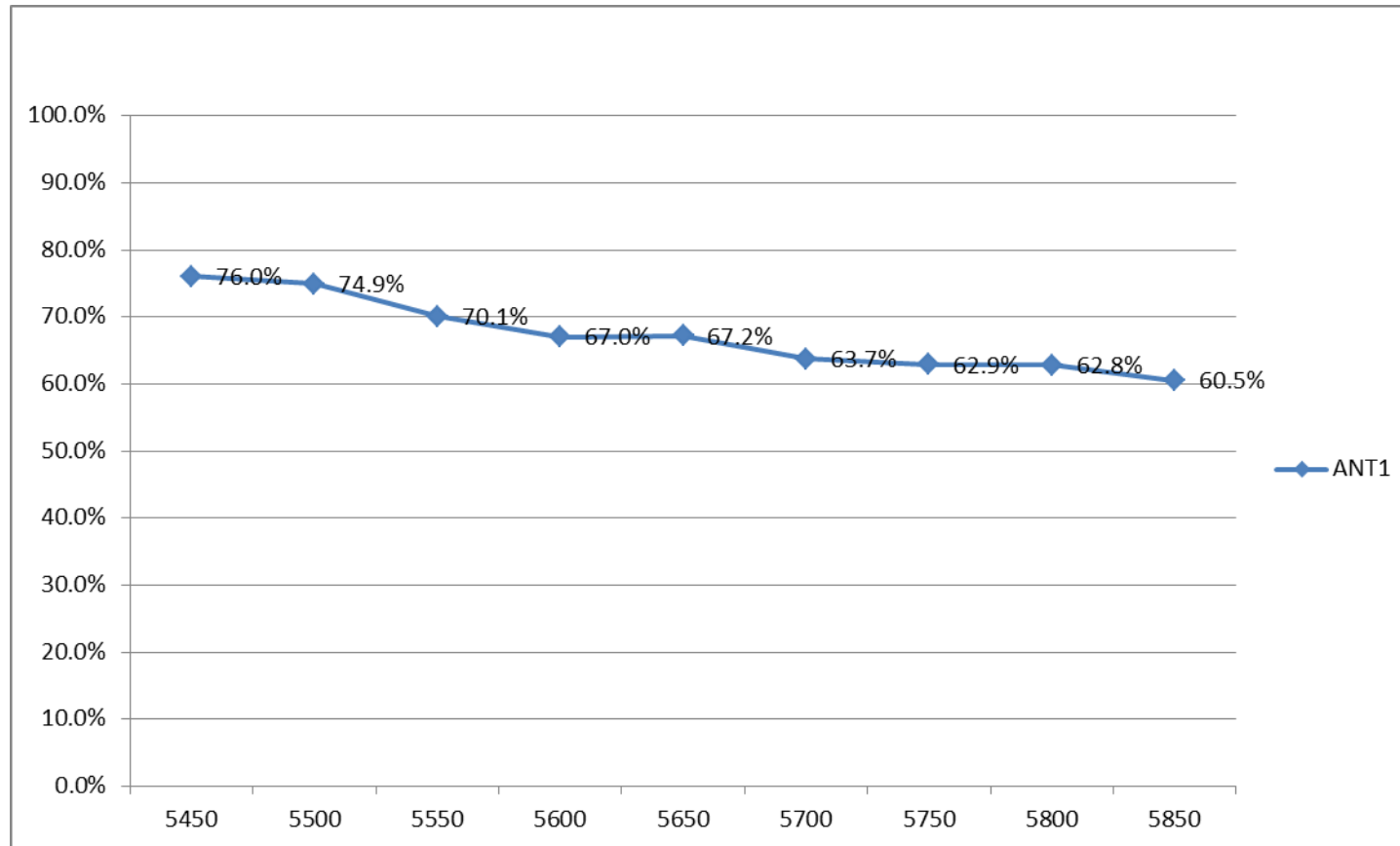
Maximum Efficiency at 5500 MHz : 73.90 % (5G Band 3)

Maximum Efficiency at 5750 MHz : 66.90 % (5G Band 4)

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.5-5G-H



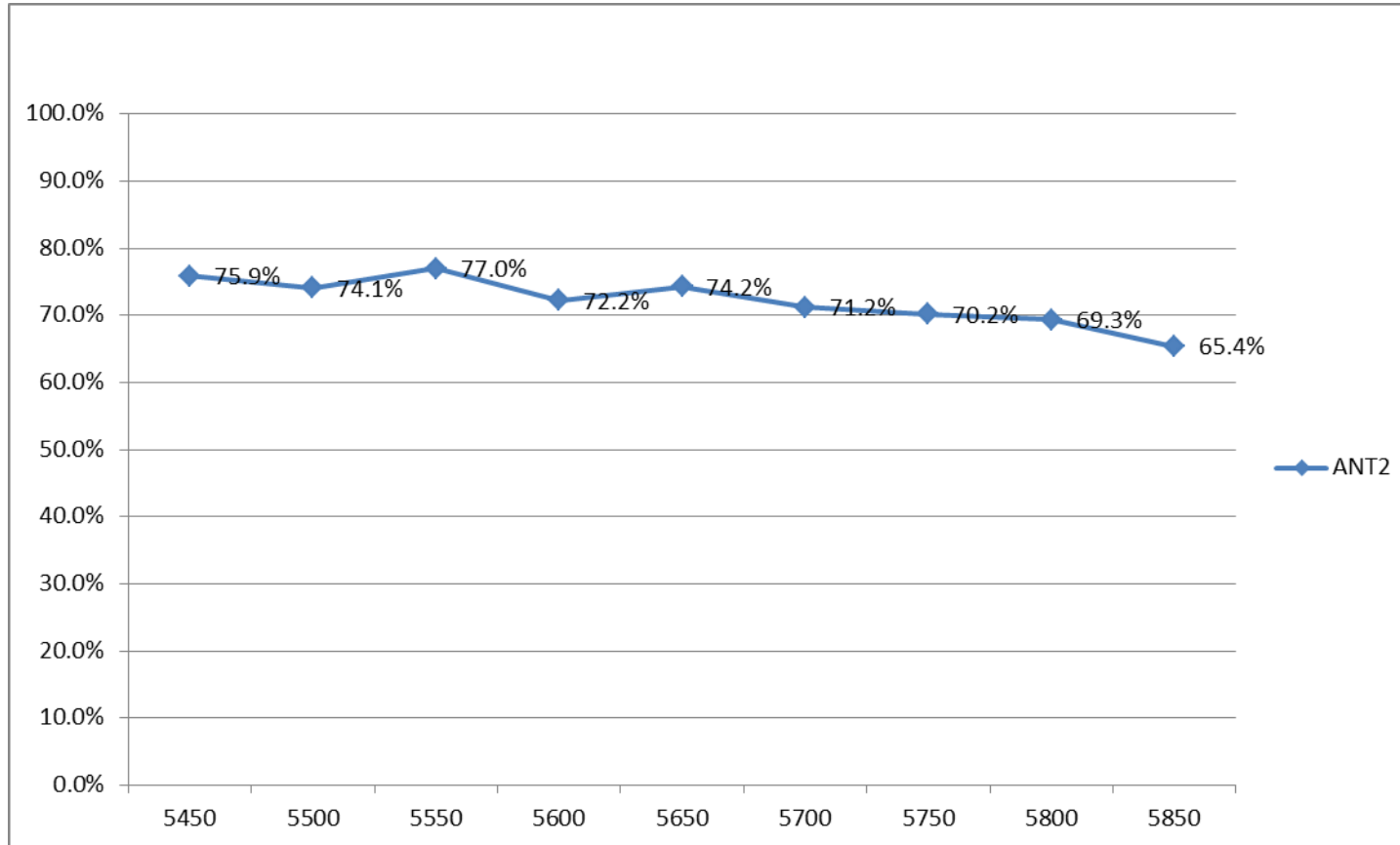
Maximum Efficiency at 5450 MHz : 76.00 % (5G Band 3)

Maximum Efficiency at 5750 MHz : 62.90 % (5G Band 4)

2. Antenna Characteristics

2.2 Antenna Efficiency

Ant.6-5G-H



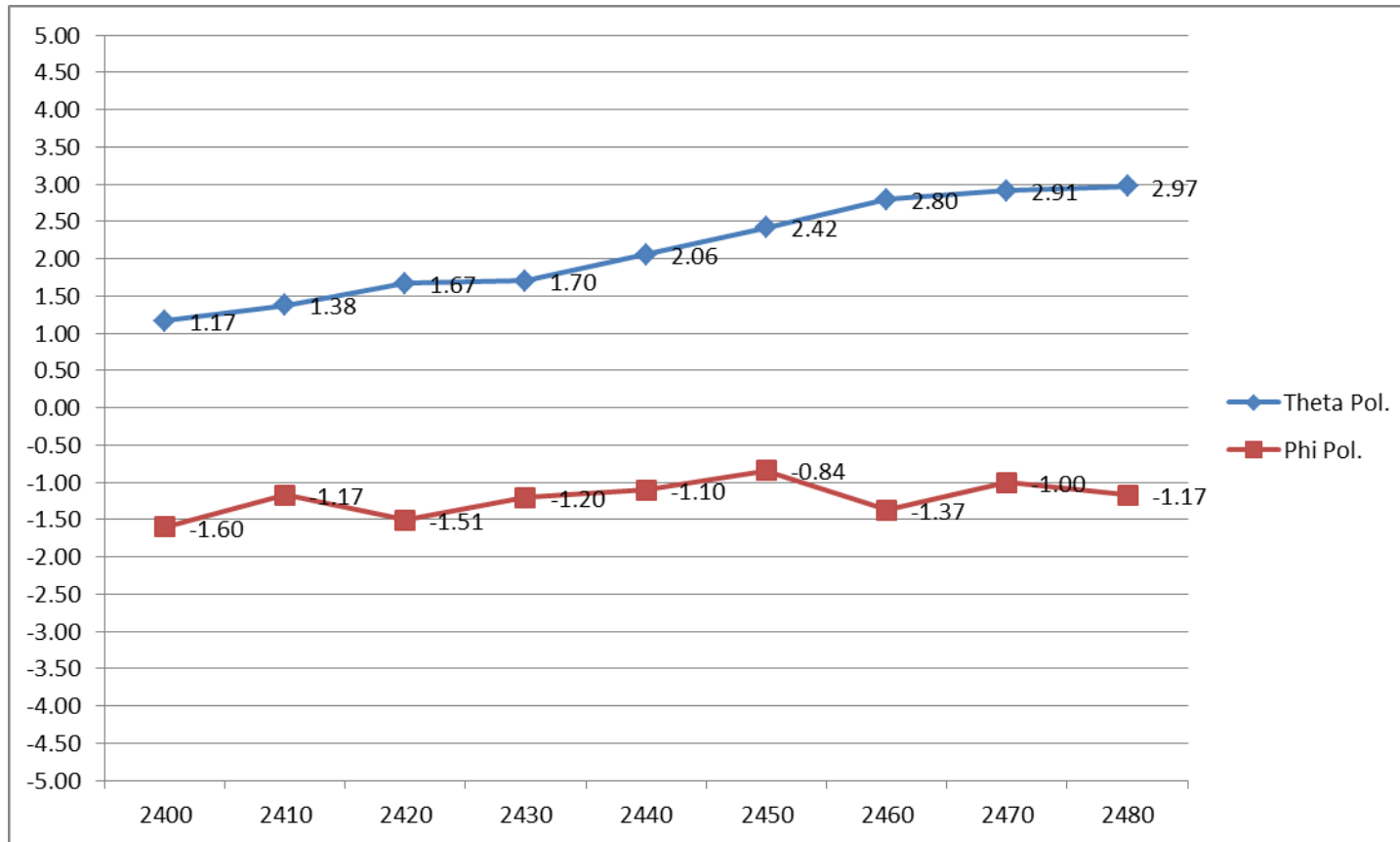
Maximum Efficiency at 5550 MHz : 77.00 % (5G Band 3)

Maximum Efficiency at 5750 MHz : 70.20 % (5G Band 4)

2. Antenna Characteristics

2.2 Peak Gain

Ant.1-2G

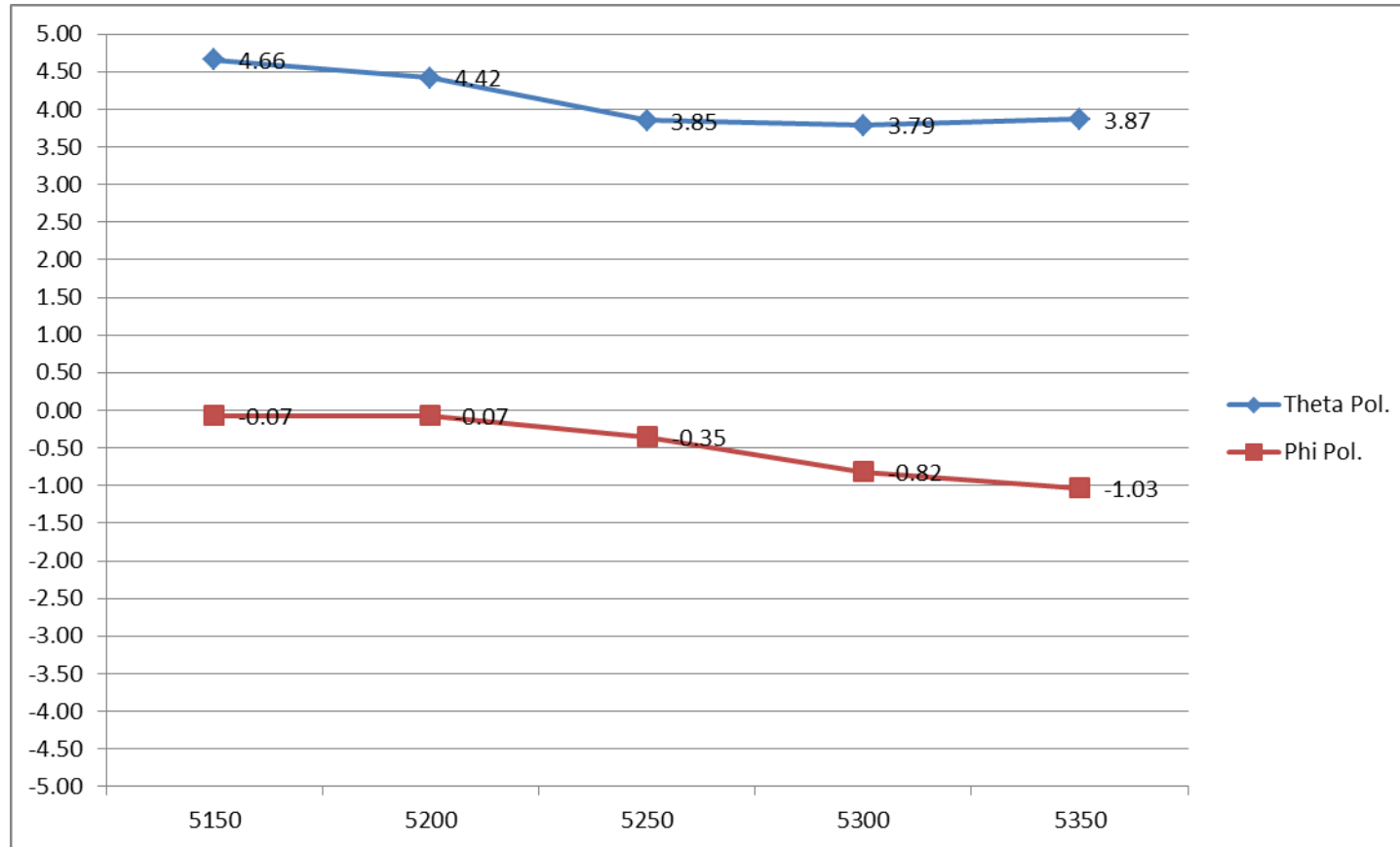


Maximum Peak Gain at 2480 MHz : 2.97 dBi

2. Antenna Characteristics

2.2 Peak Gain

Ant.1-5G-L



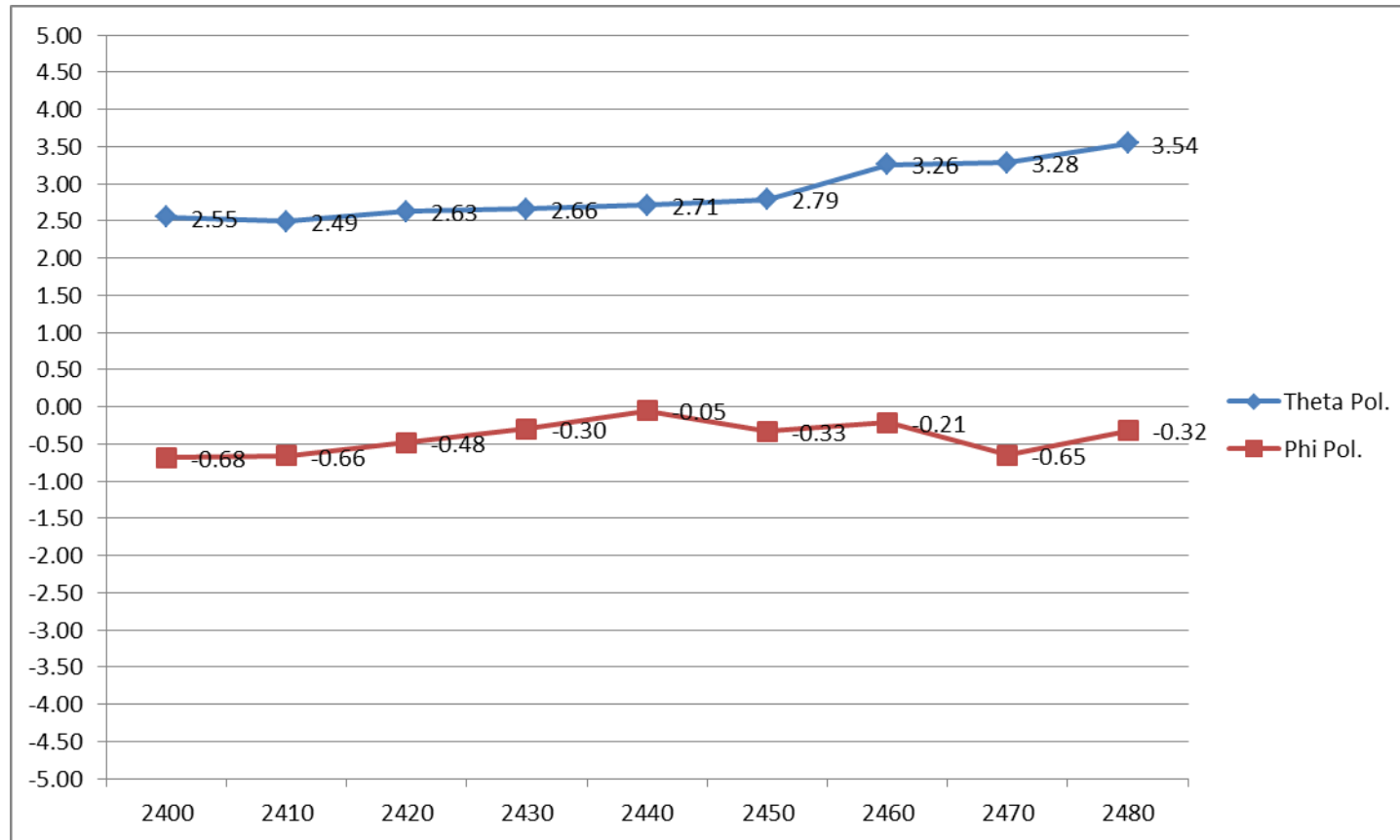
Maximum Peak Gain at 5150 MHz : 4.66 dBi (5G Band 1)

Maximum Peak Gain at 5350 MHz : 3.87 dBi (5G Band 2)

2. Antenna Characteristics

2.2 Peak Gain

Ant.2-2G

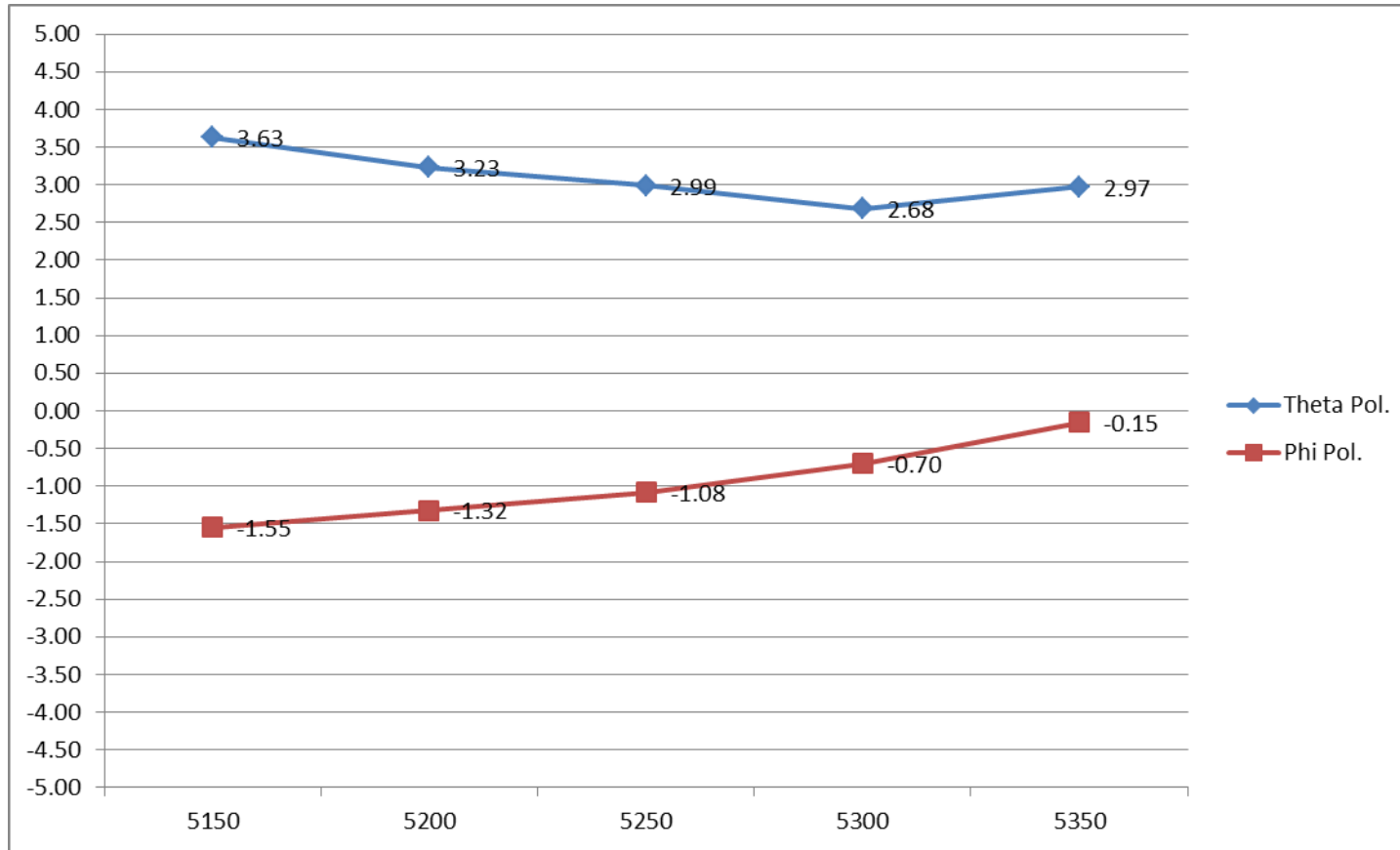


Maximum Peak Gain at 2480 MHz : 3.54 dBi

2. Antenna Characteristics

2.2 Peak Gain

Ant.2-5G-L



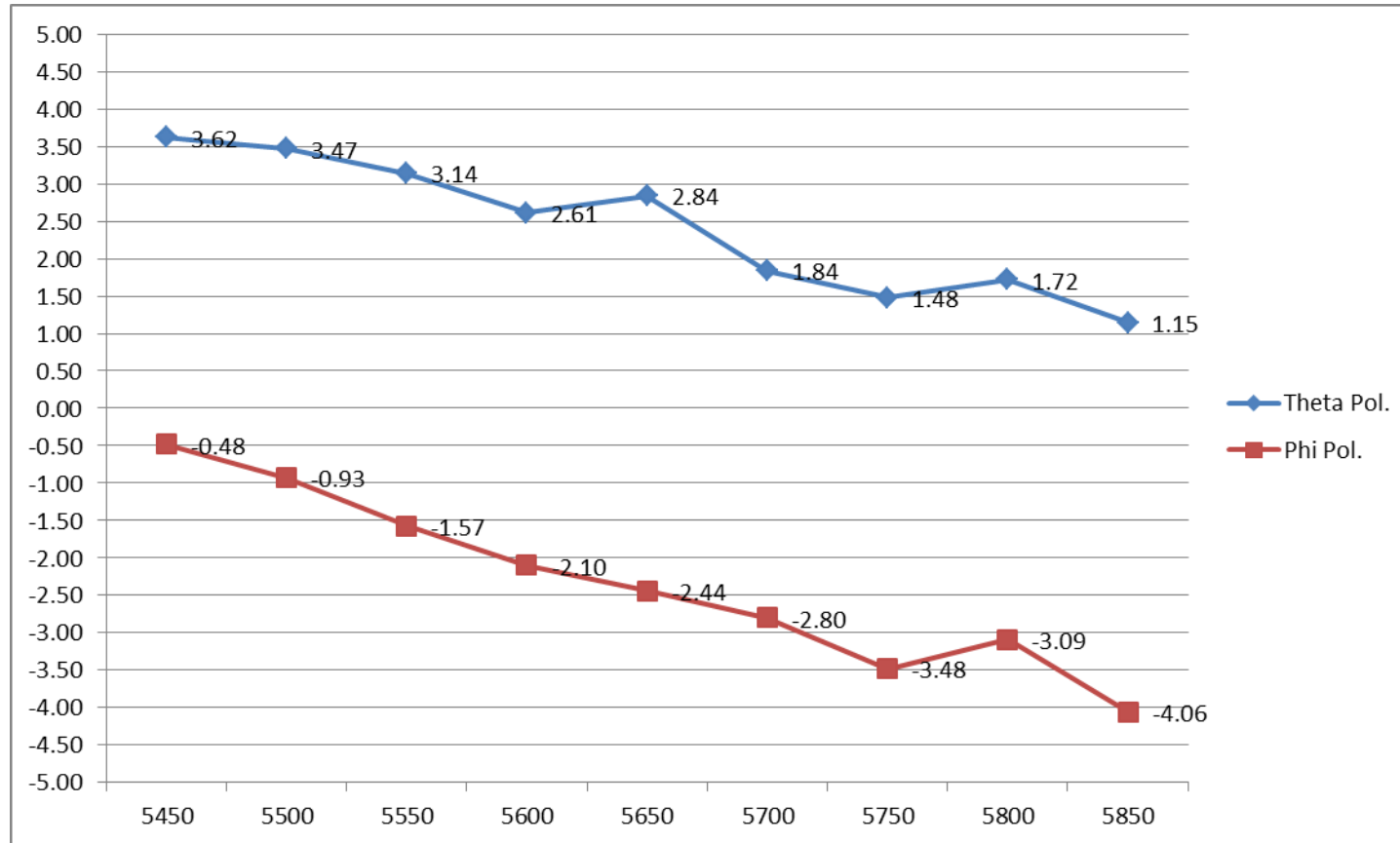
Maximum Peak Gain at 5150 MHz : 3.63 dBi (5G Band 1)

Maximum Peak Gain at 5250 MHz : 2.99 dBi (5G Band 2)

2. Antenna Characteristics

2.2 Peak Gain

Ant.3-5G-H



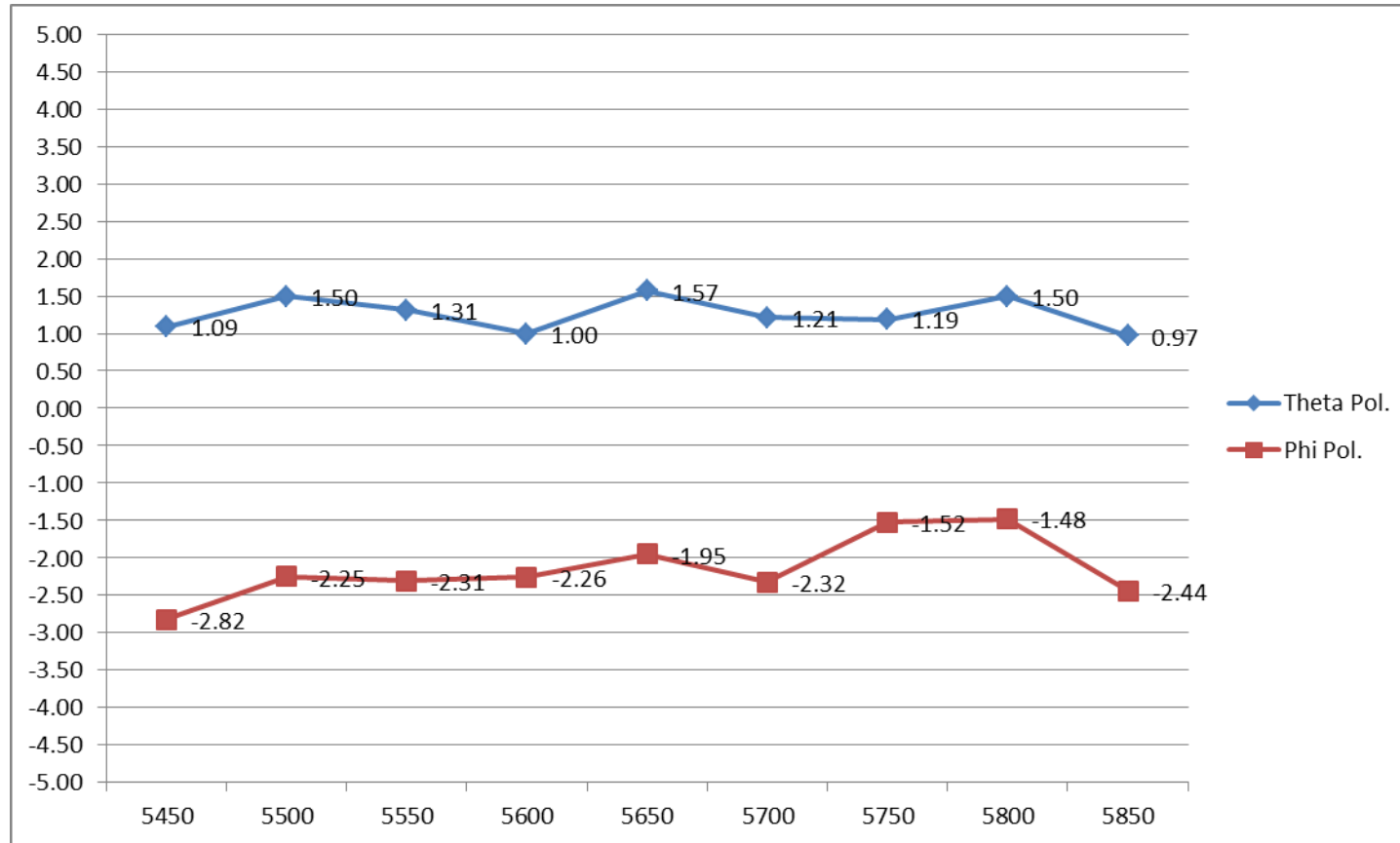
Maximum Peak Gain at 5450 MHz : 3.62 dBi (5G Band 3)

Maximum Peak Gain at 5800 MHz : 1.72 dBi (5G Band 4)

2. Antenna Characteristics

2.2 Peak Gain

Ant.4-5G-H



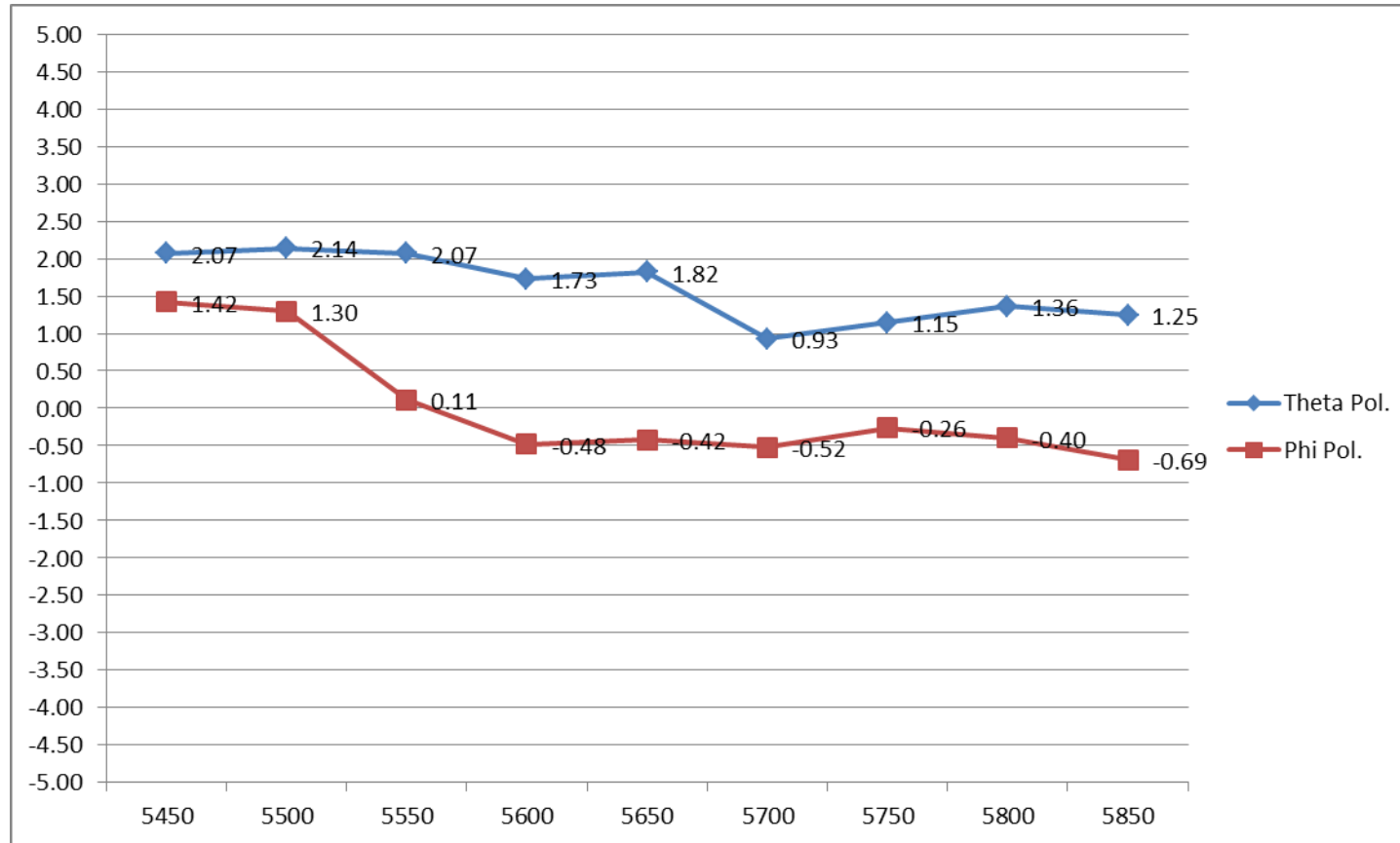
Maximum Peak Gain at 5650 MHz : 1.57 dBi (5G Band 3)

Maximum Peak Gain at 5800 MHz : 1.50 dBi (5G Band 4)

2. Antenna Characteristics

2.2 Peak Gain

Ant.5-5G-H



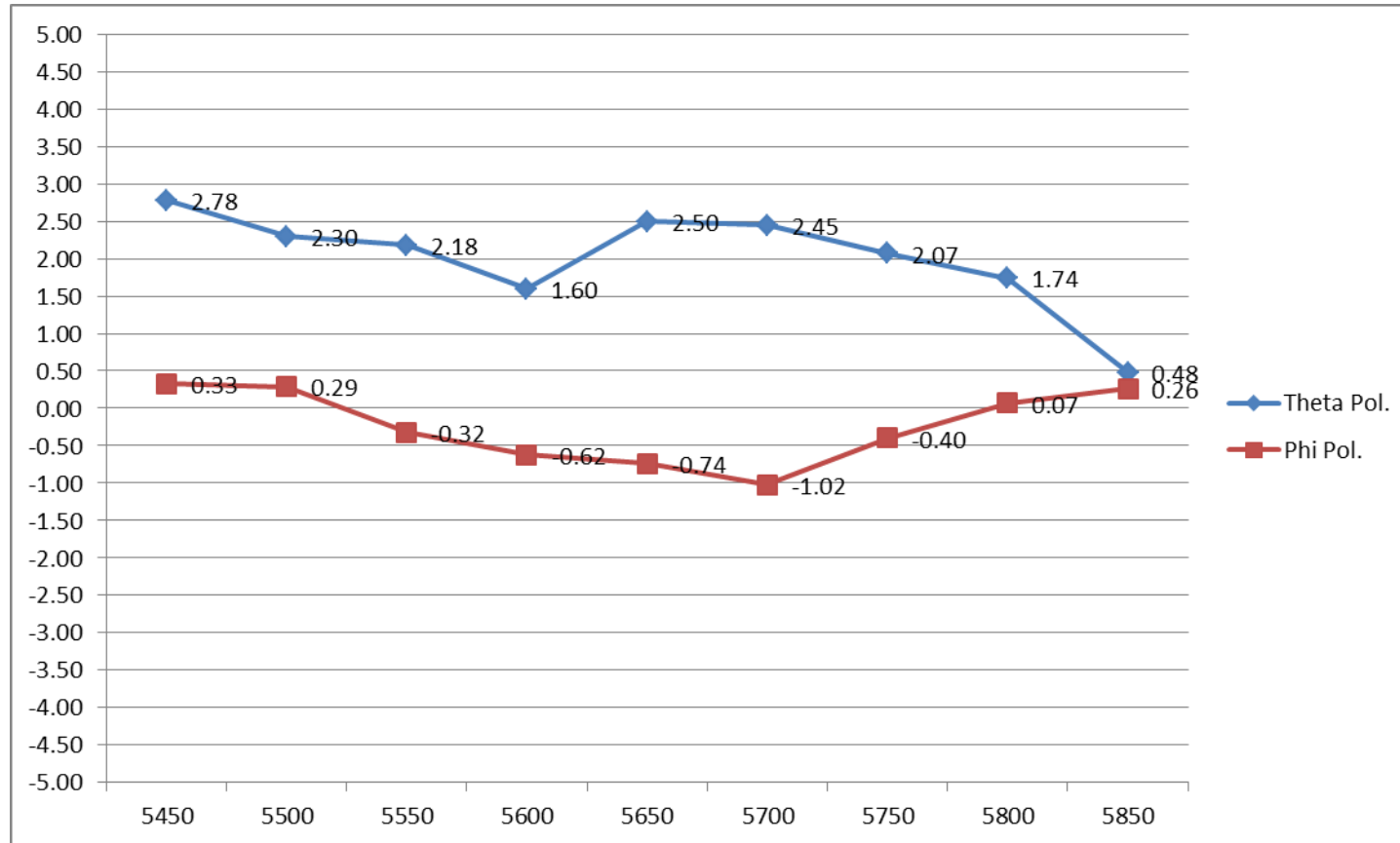
Maximum Peak Gain at 5500 MHz : 2.14 dBi (5G Band 3)

Maximum Peak Gain at 5800 MHz : 1.36 dBi (5G Band 4)

2. Antenna Characteristics

2.2 Peak Gain

Ant.6-5G-H



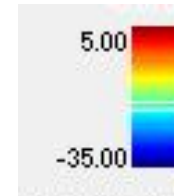
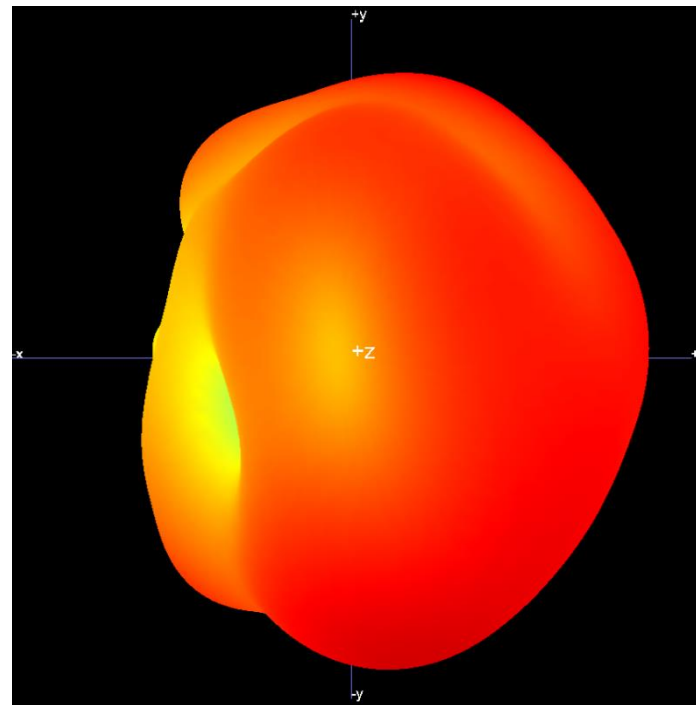
Maximum Peak Gain at 5450 MHz : 2.78 dBi (5G Band 3)

Maximum Peak Gain at 5750 MHz : 2.07 dBi (5G Band 4)

2. Antenna Characteristics

2.3 3D Pattern

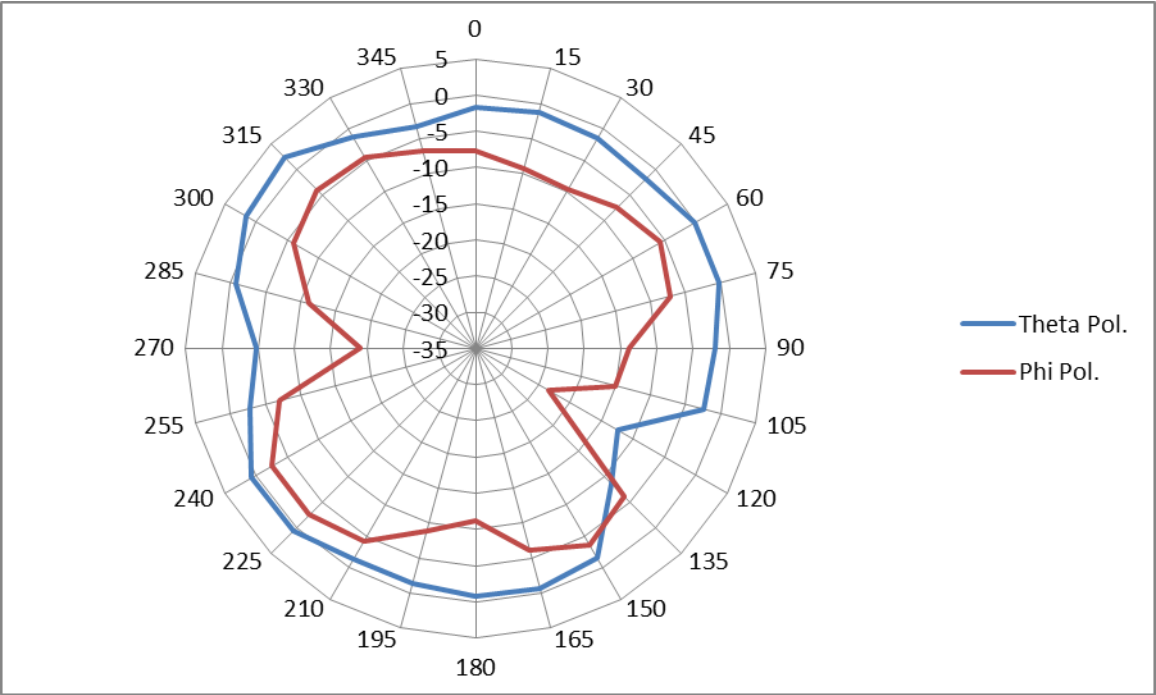
Ant.1-2G
2480 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-2G

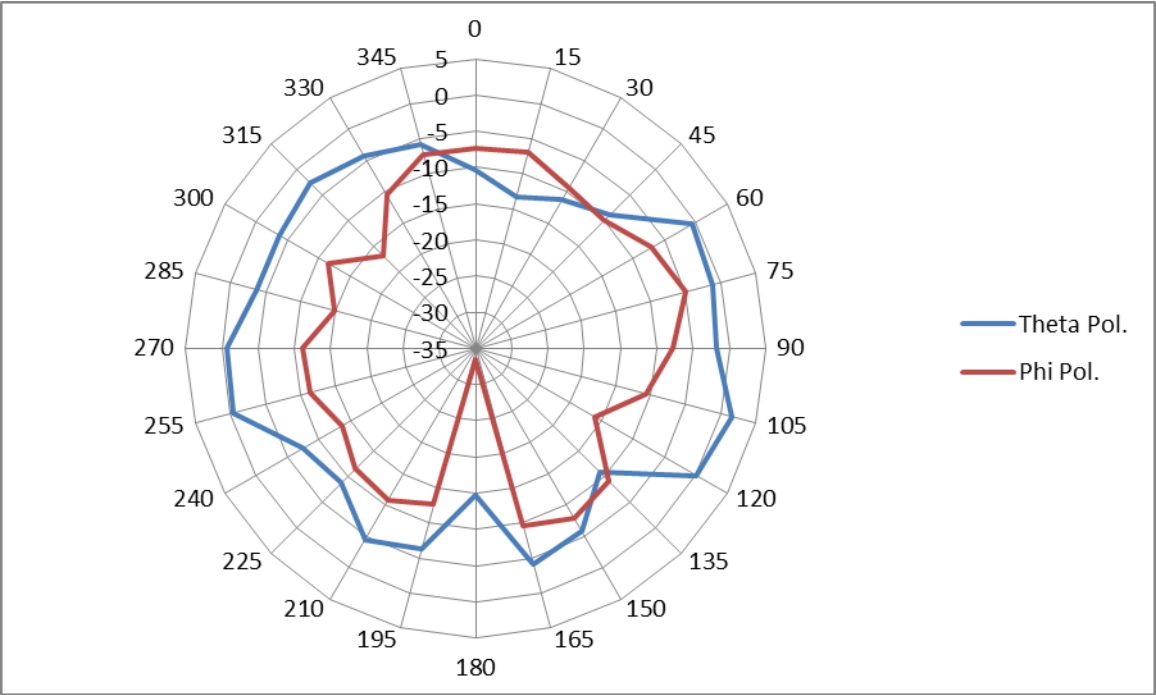


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
2480	2.36	-2.52

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-2G

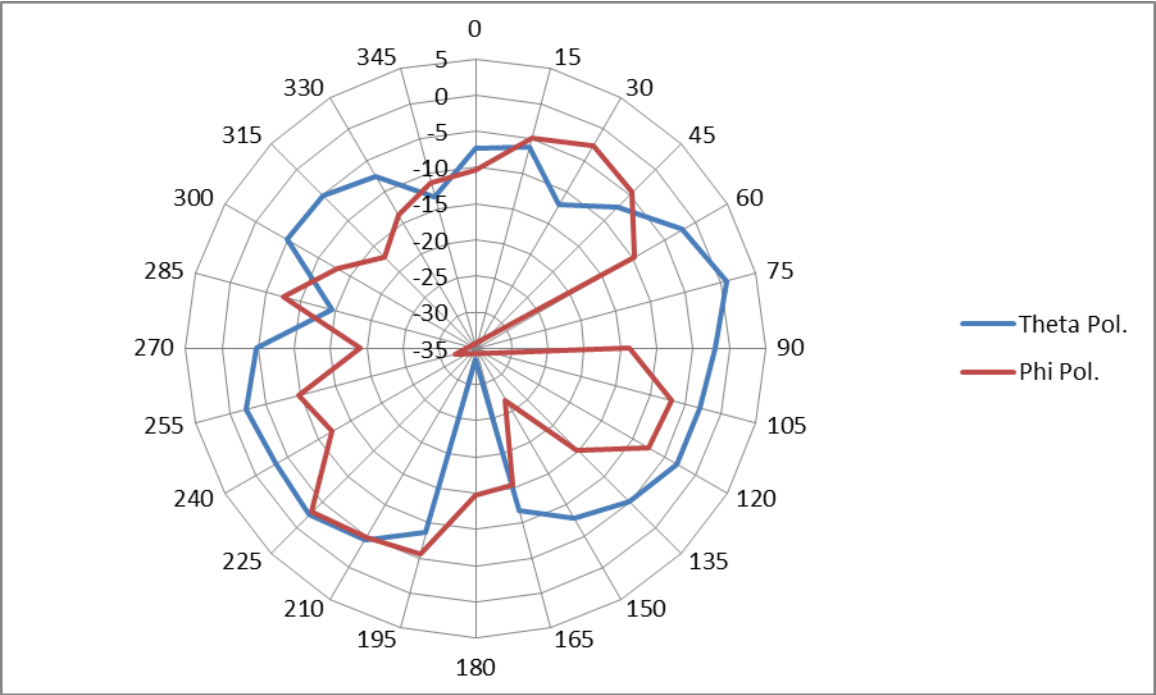


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
2480	1.51	-5.06

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-2G

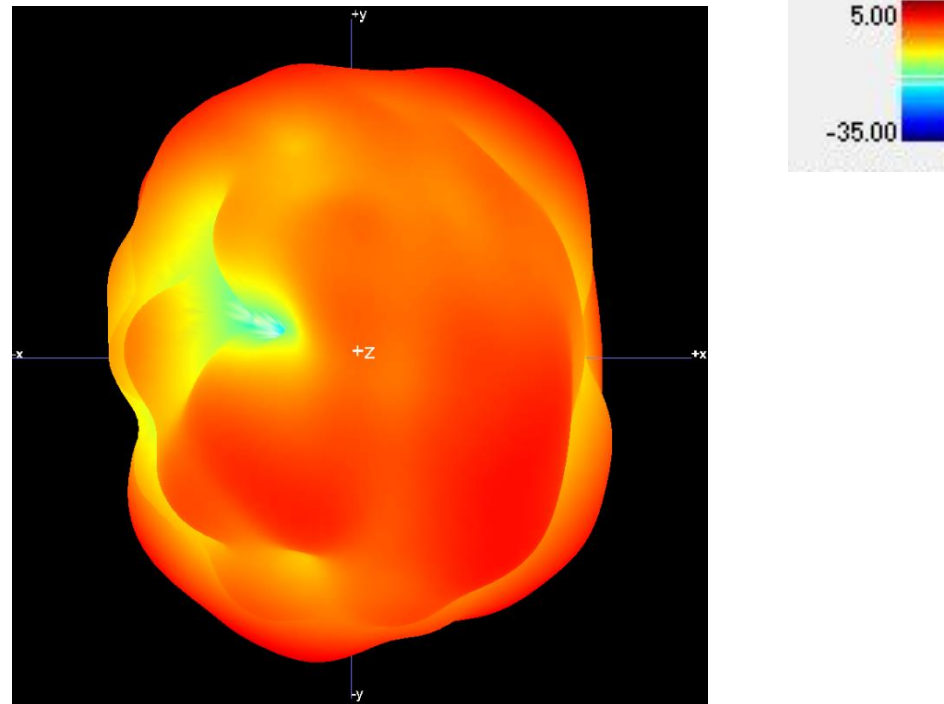


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
2480	0.79	-2.64

2. Antenna Characteristics

2.3 3D Pattern

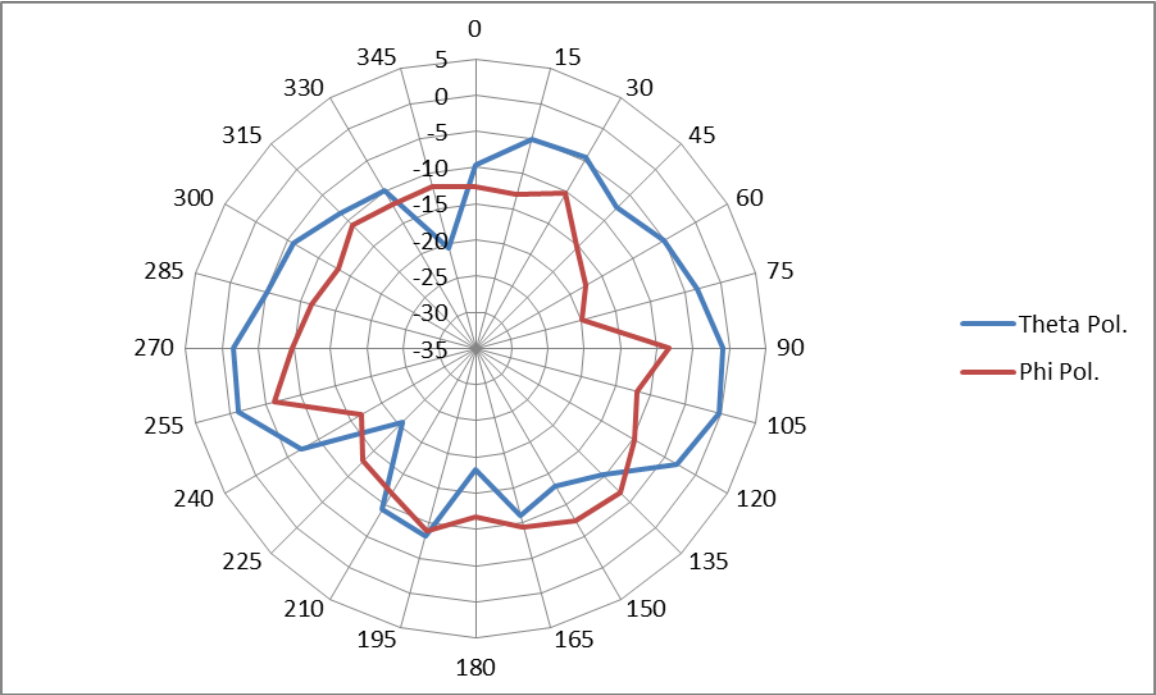
Ant.1-5G-L
5150 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-5G-L
5G Band 1

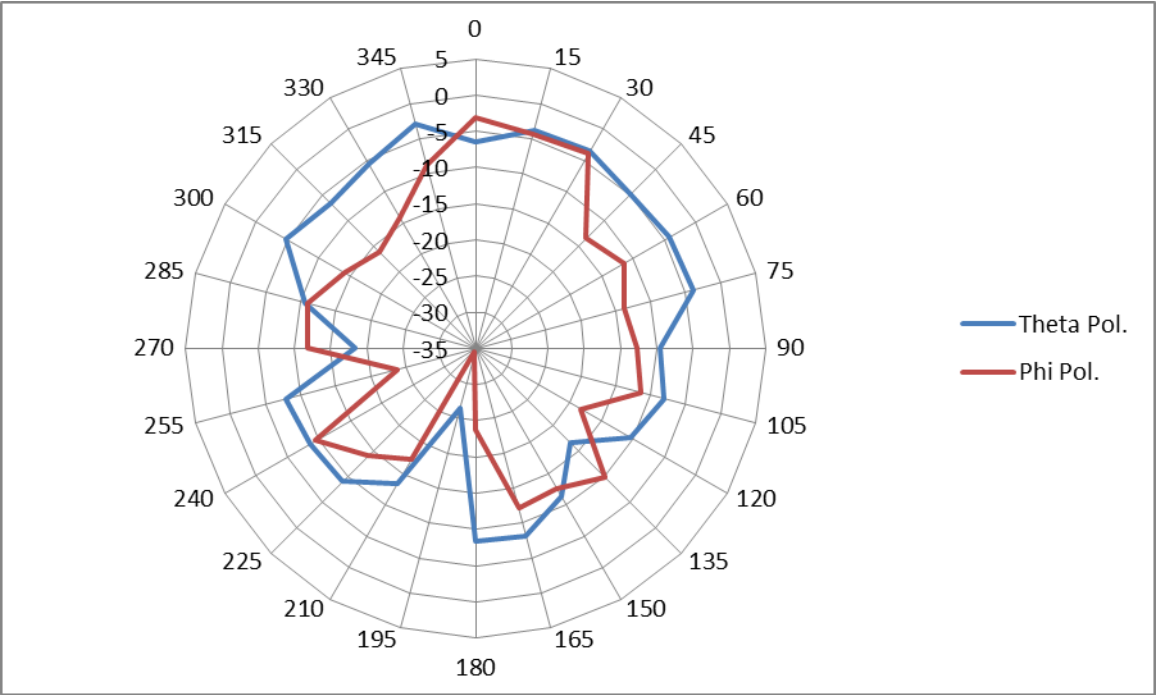


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5150	-0.27	-6.27

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-5G-L
5G Band 1

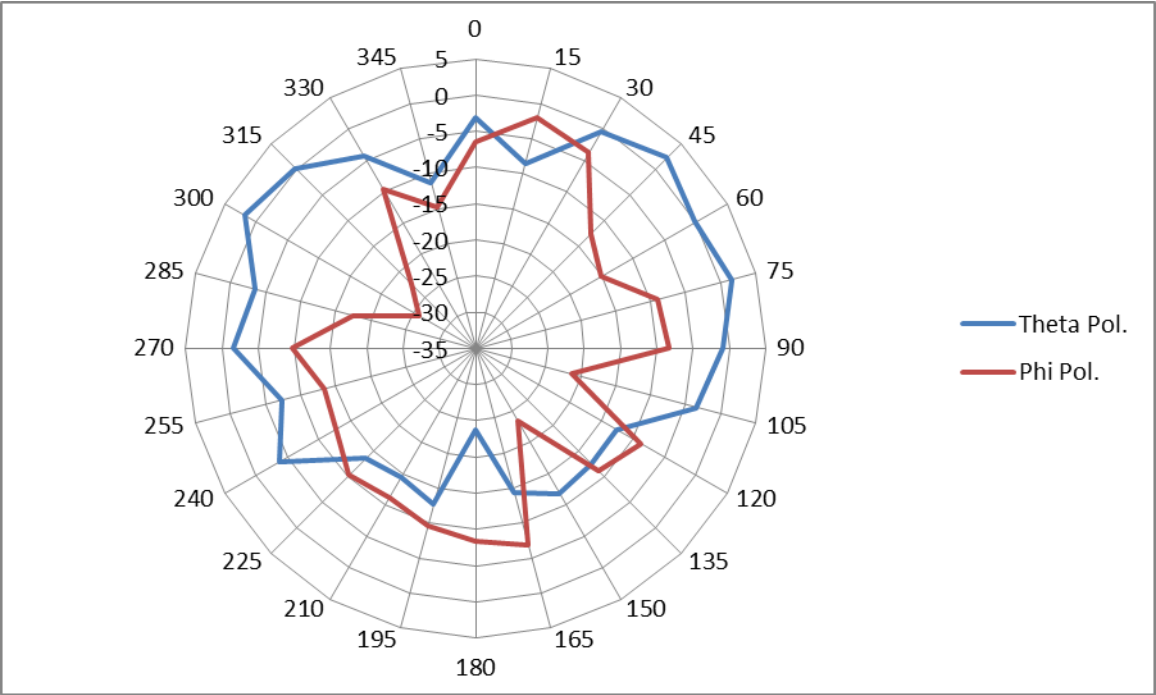


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5150	-2.99	-3.18

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-5G-L
5G Band 1

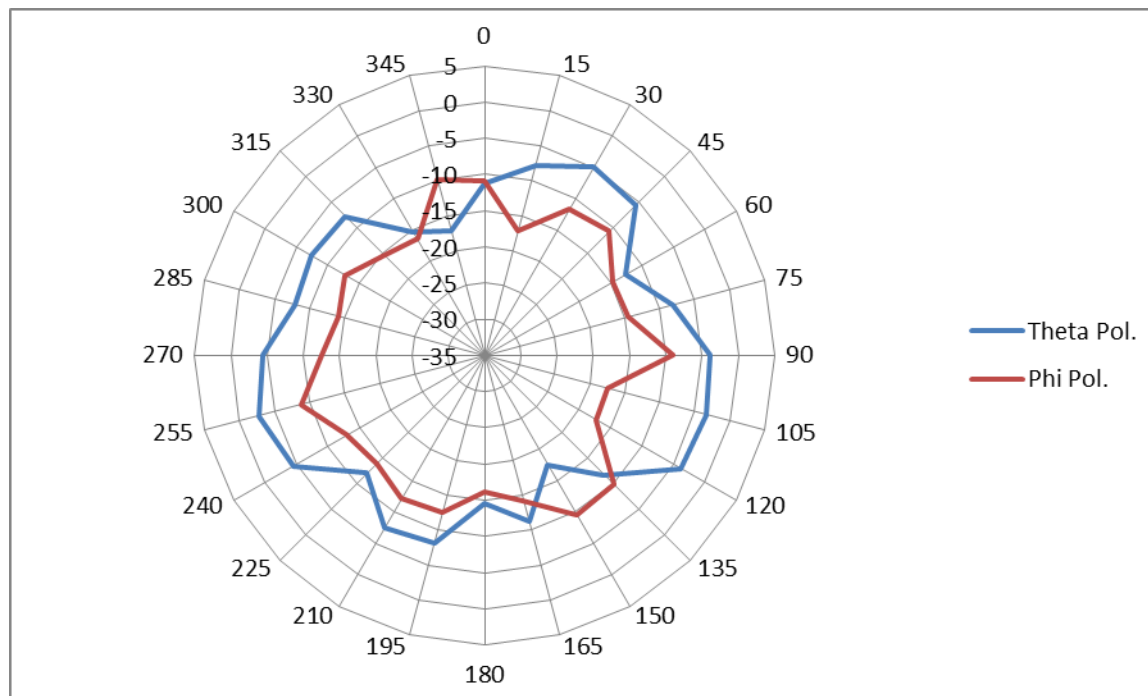


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5150	2.33	-2.09

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-5G-L 5G Band 2

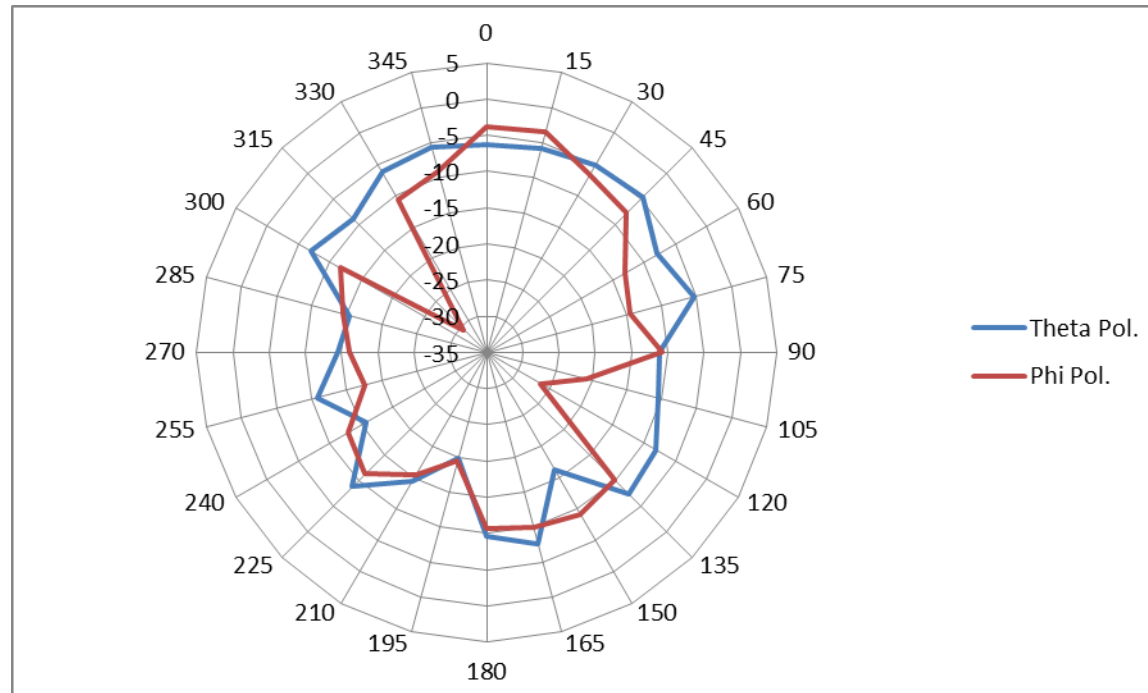


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5350	-2.76	-8.91

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-5G-L 5G Band 2

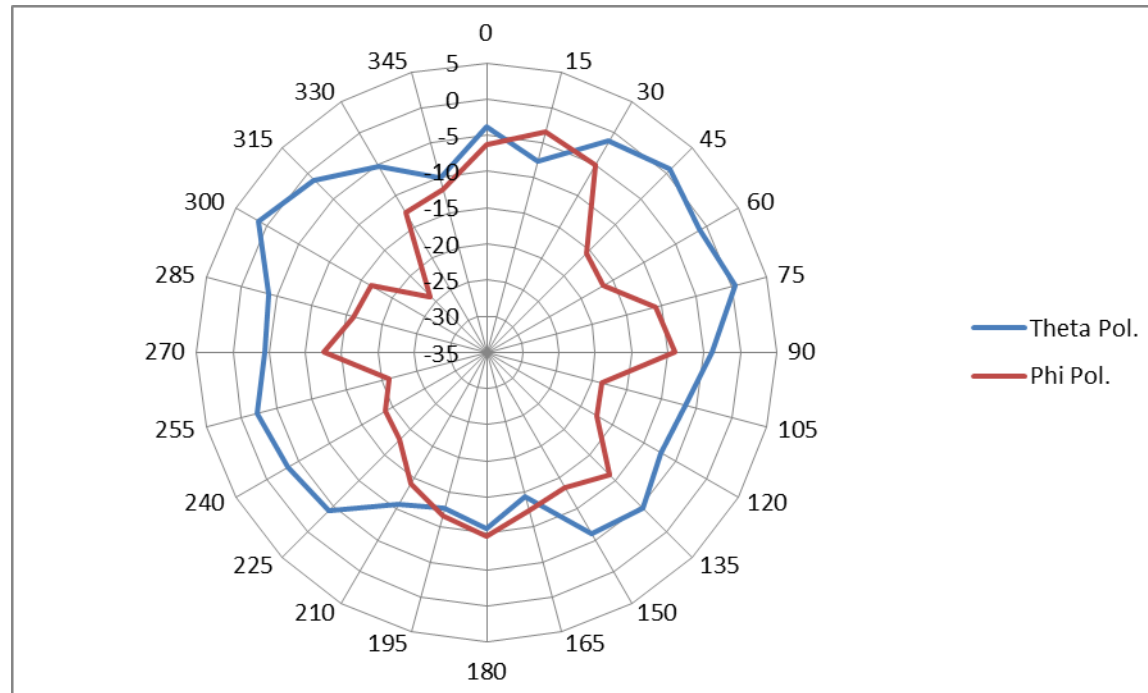


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5350	-4.55	-3.49

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.1-5G-L 5G Band 2

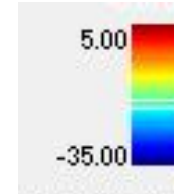
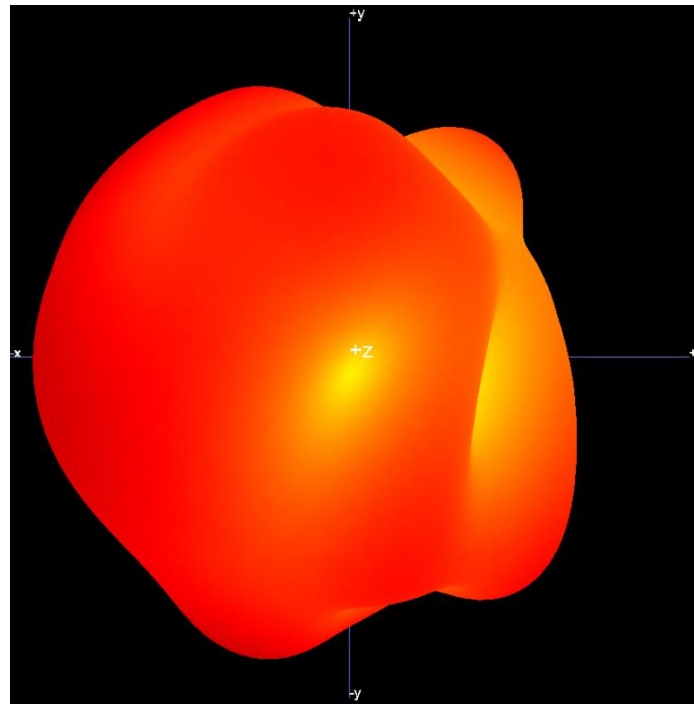


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5350	1.25	-3.39

2. Antenna Characteristics

2.3 3D Pattern

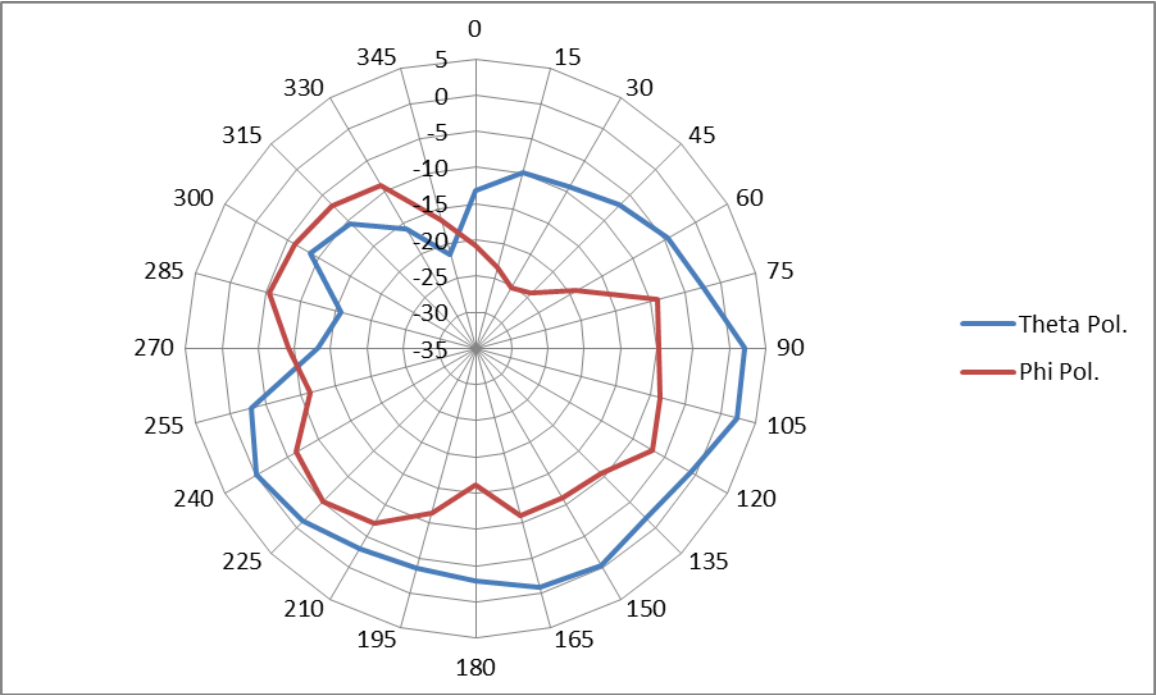
Ant.2-2G
2480 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-2G

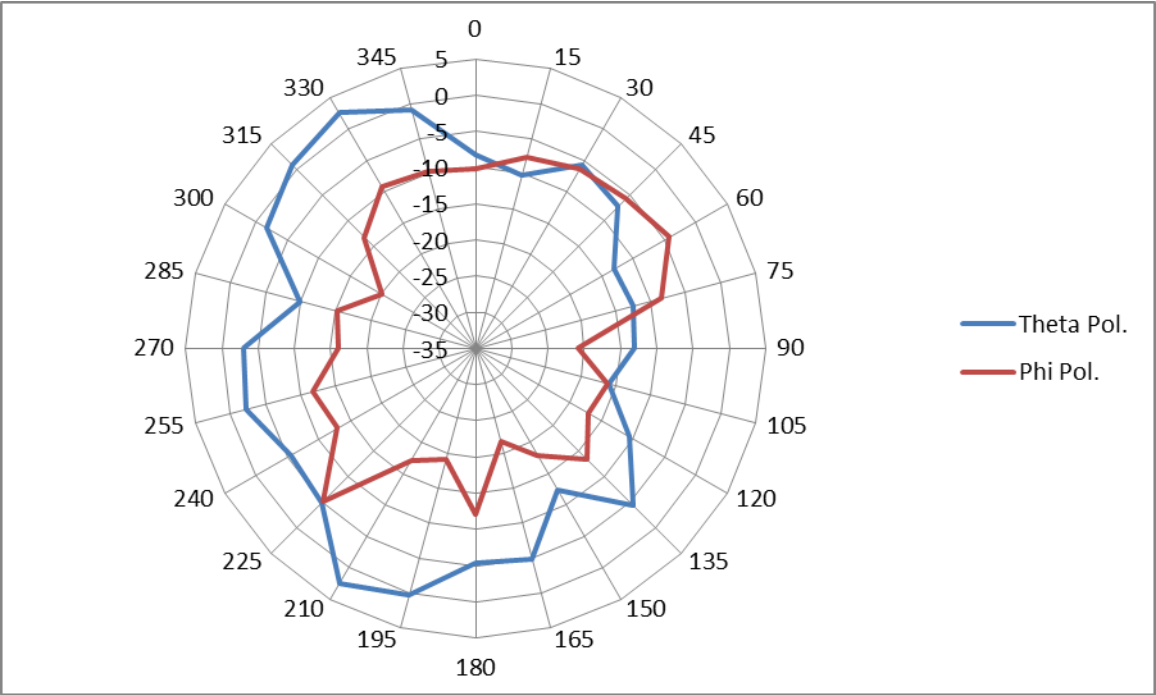


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
2480	2.24	-5.13

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-2G

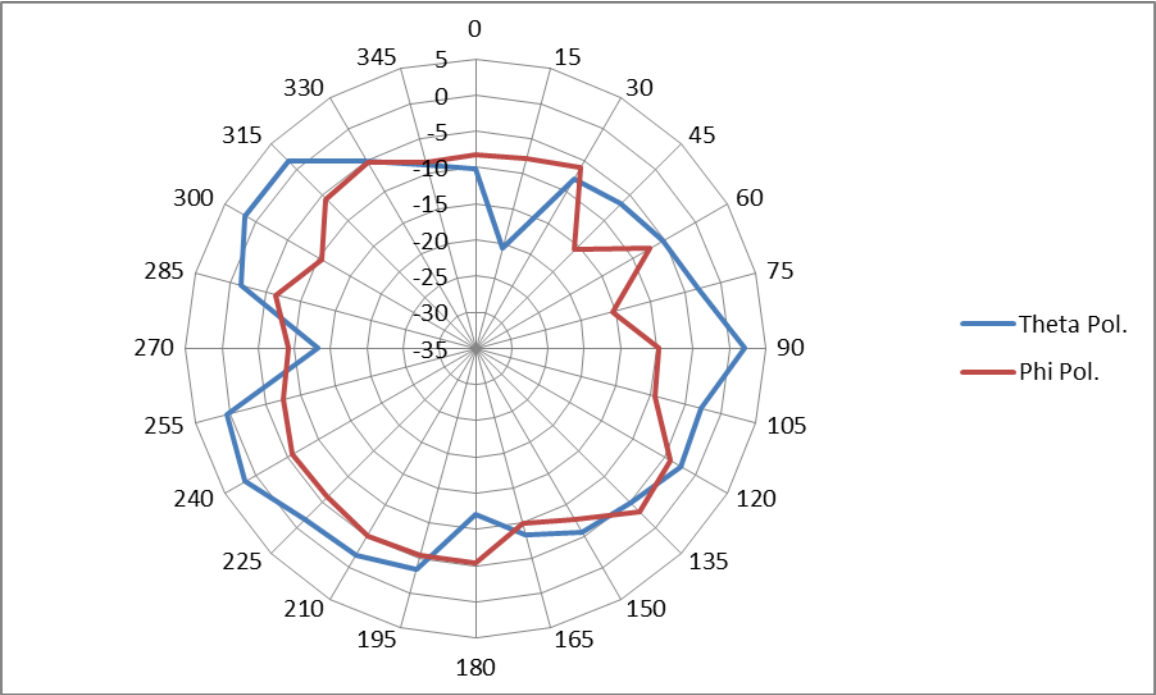


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
2480	2.56	-4.24

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-2G

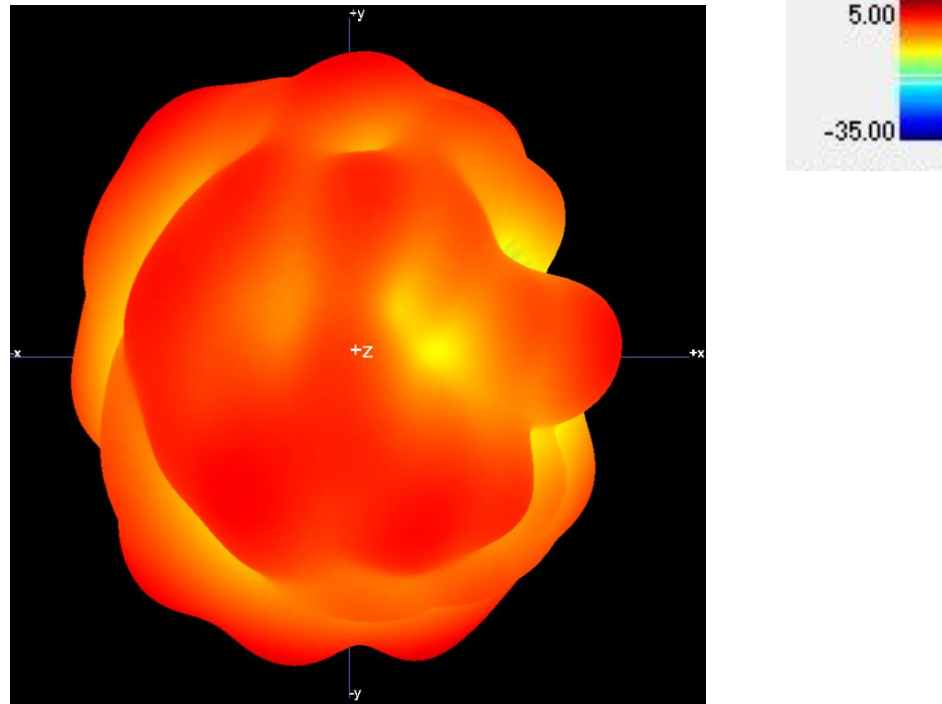


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
2480	2.15	-3.02

2. Antenna Characteristics

2.3 3D Pattern

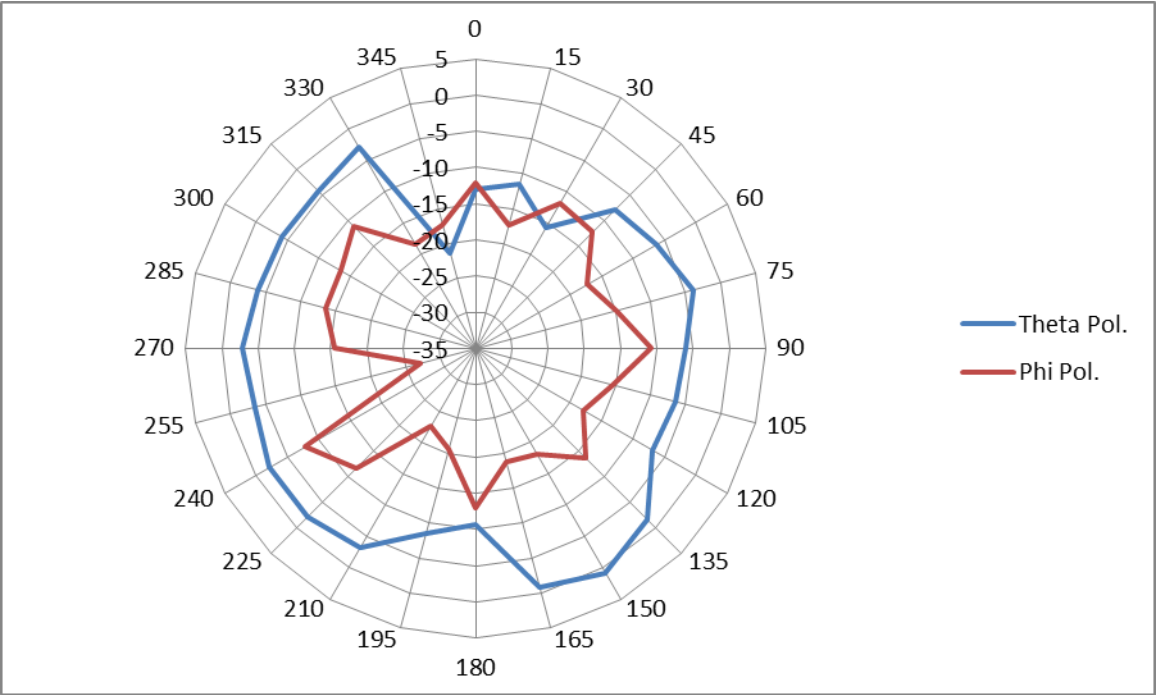
Ant.2-5G-L
5150 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-5G-L
5G Band 1

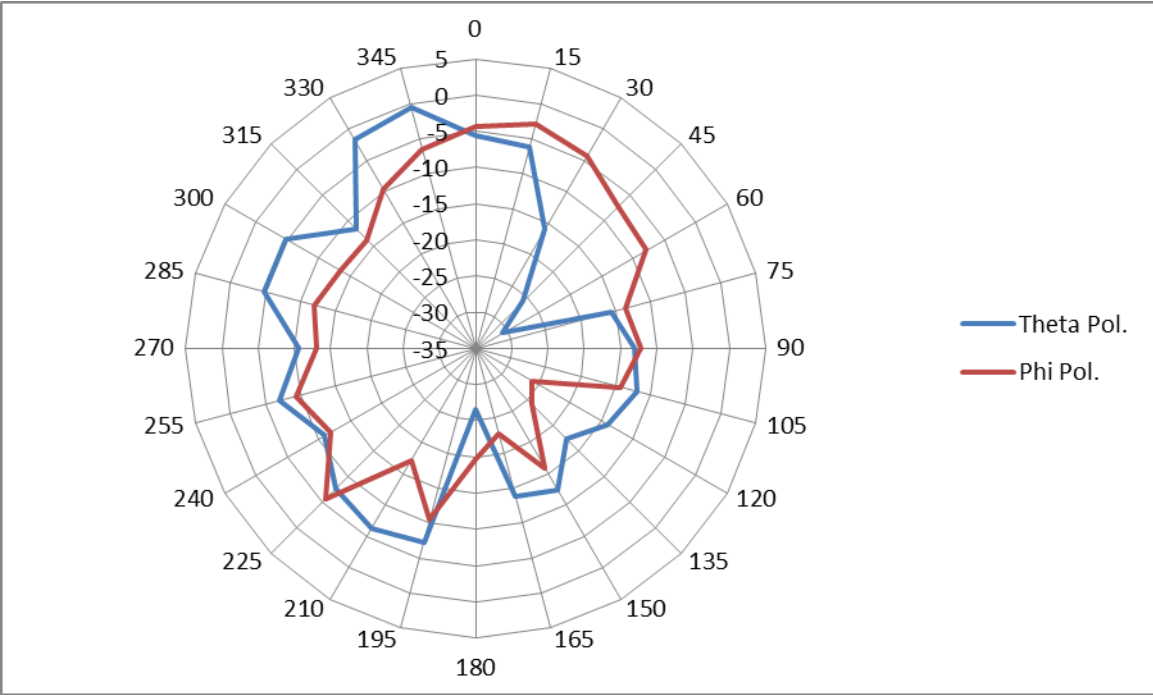


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5150	0.85	-7.87

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-5G-L
5G Band 1

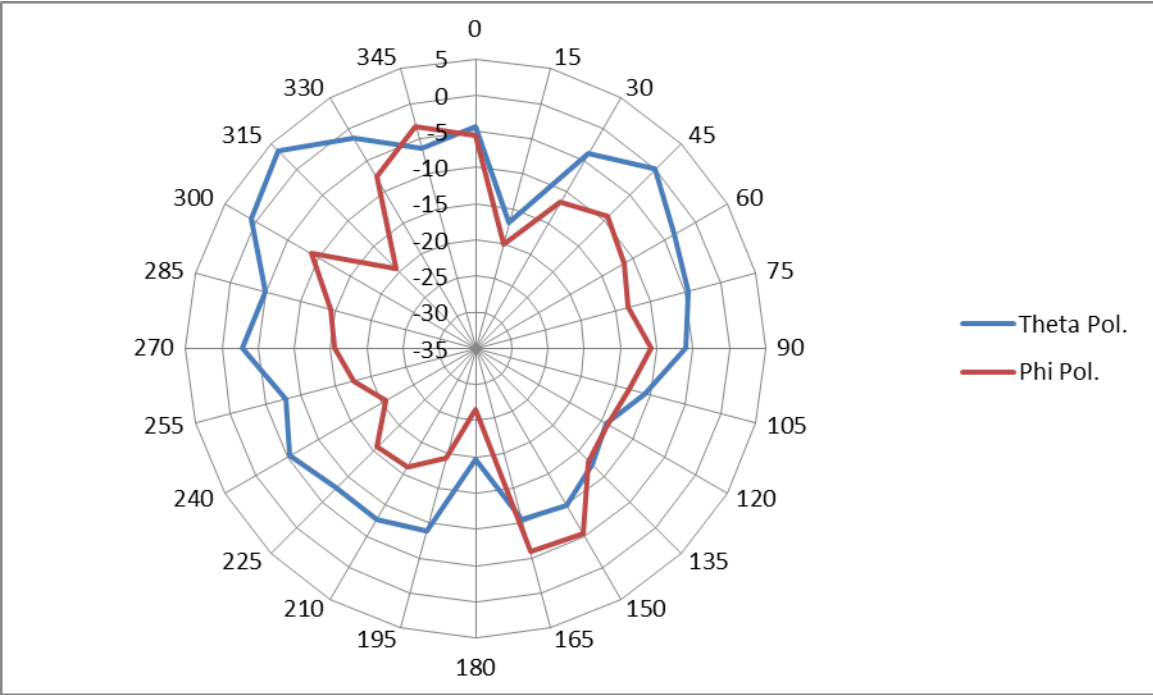


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5150	-0.55	-3.00

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-5G-L
5G Band 1

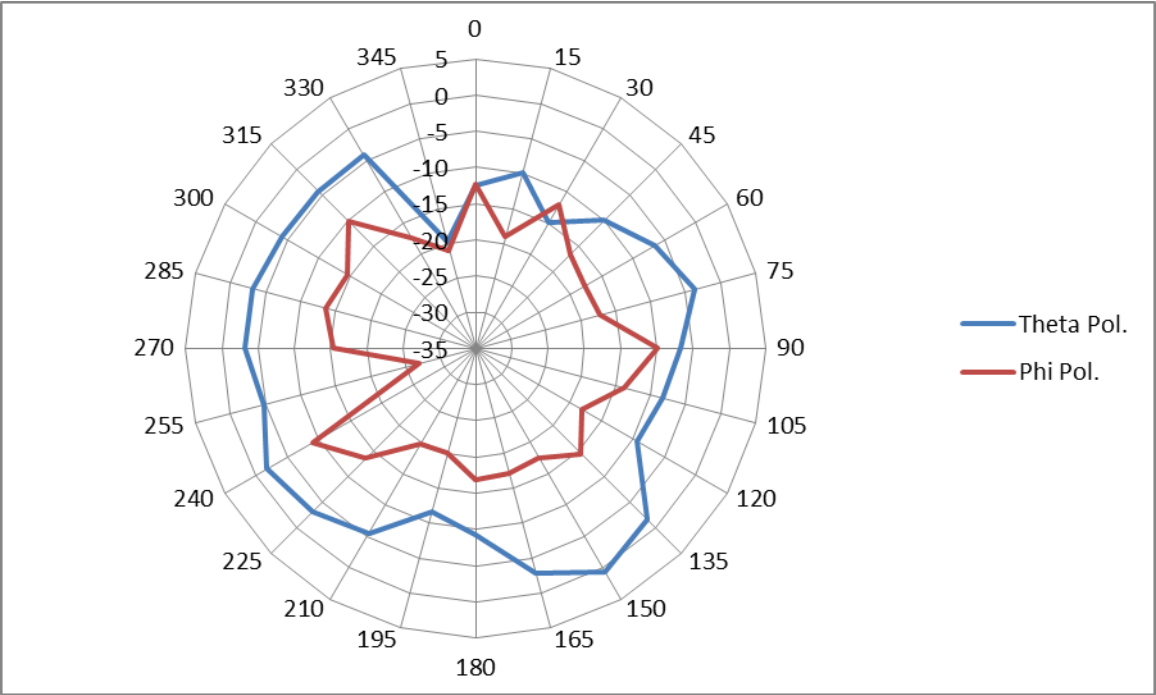


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5150	3.63	-3.21

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-5G-L
5G Band 2

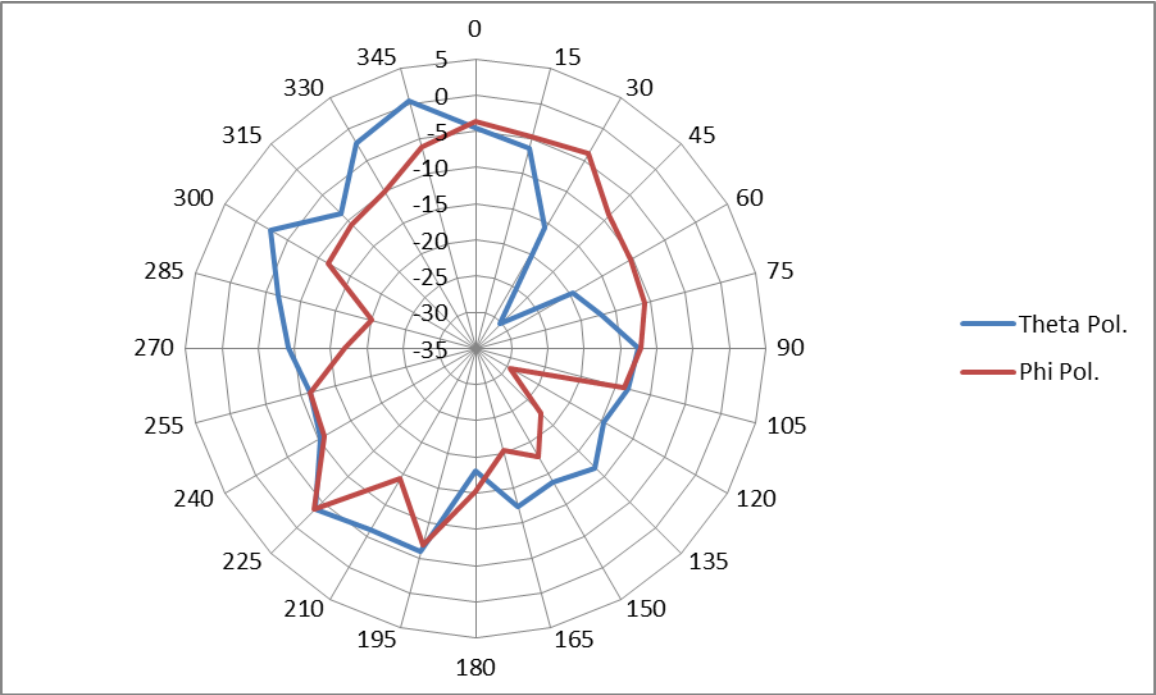


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5250	0.64	-8.97

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-5G-L
5G Band 2

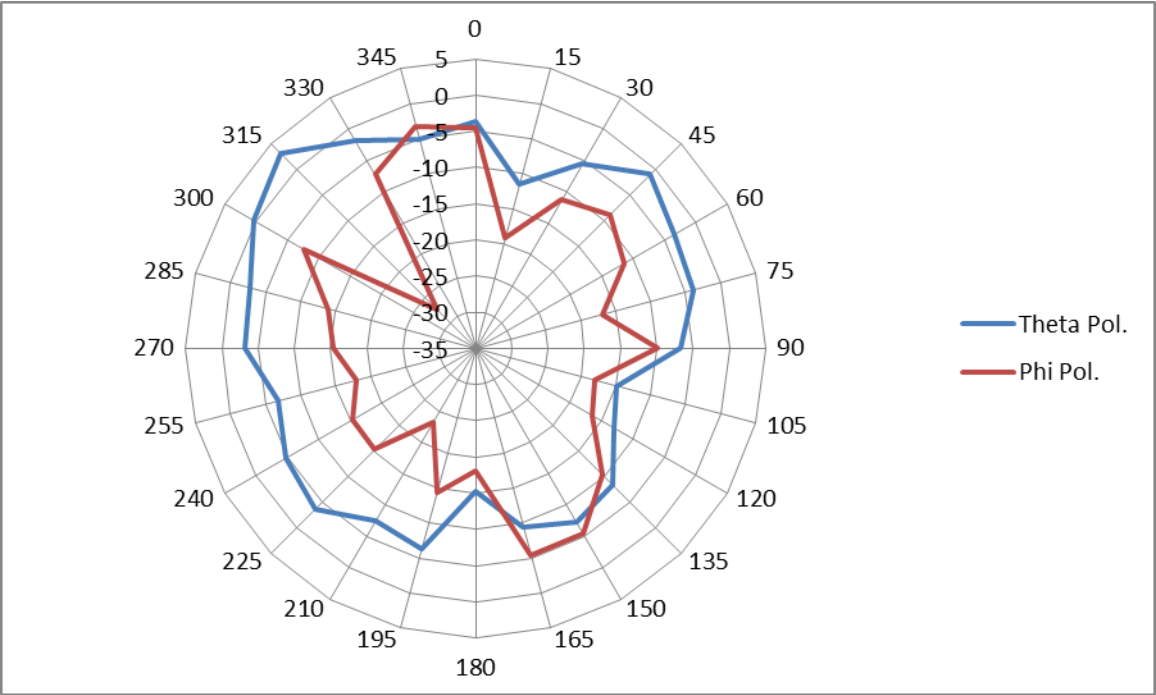


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5250	0.30	-3.58

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.2-5G-L
5G Band 2

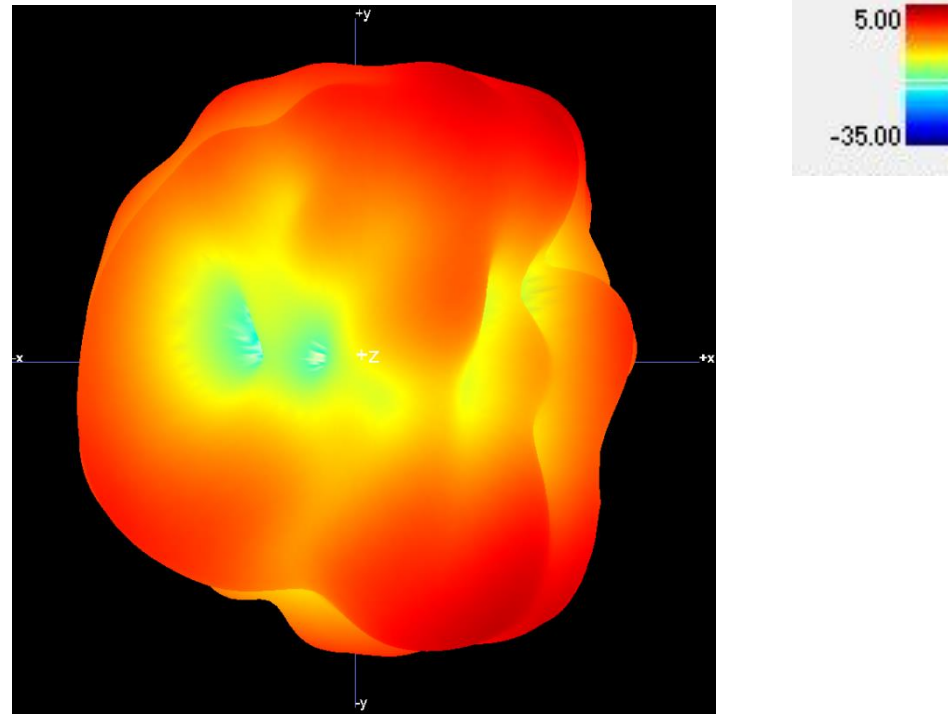


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5250	2.99	-3.2

2. Antenna Characteristics

2.3 3D Pattern

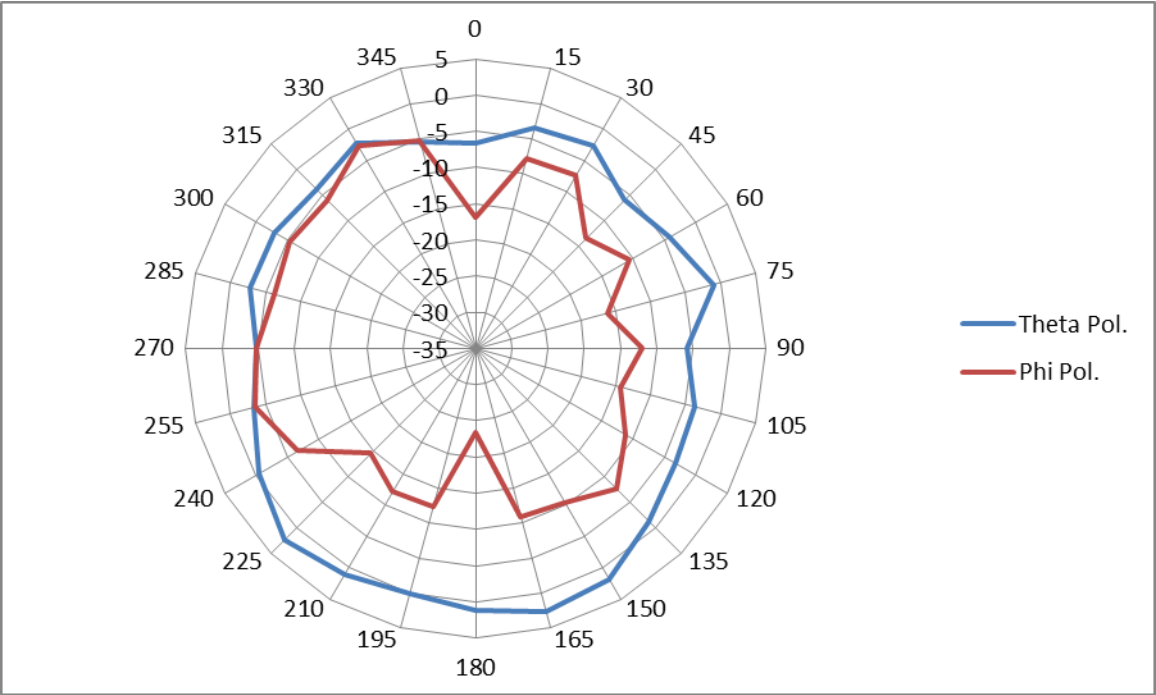
Ant.3-5G-H
5450 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.3-5G-H
5G Band 3

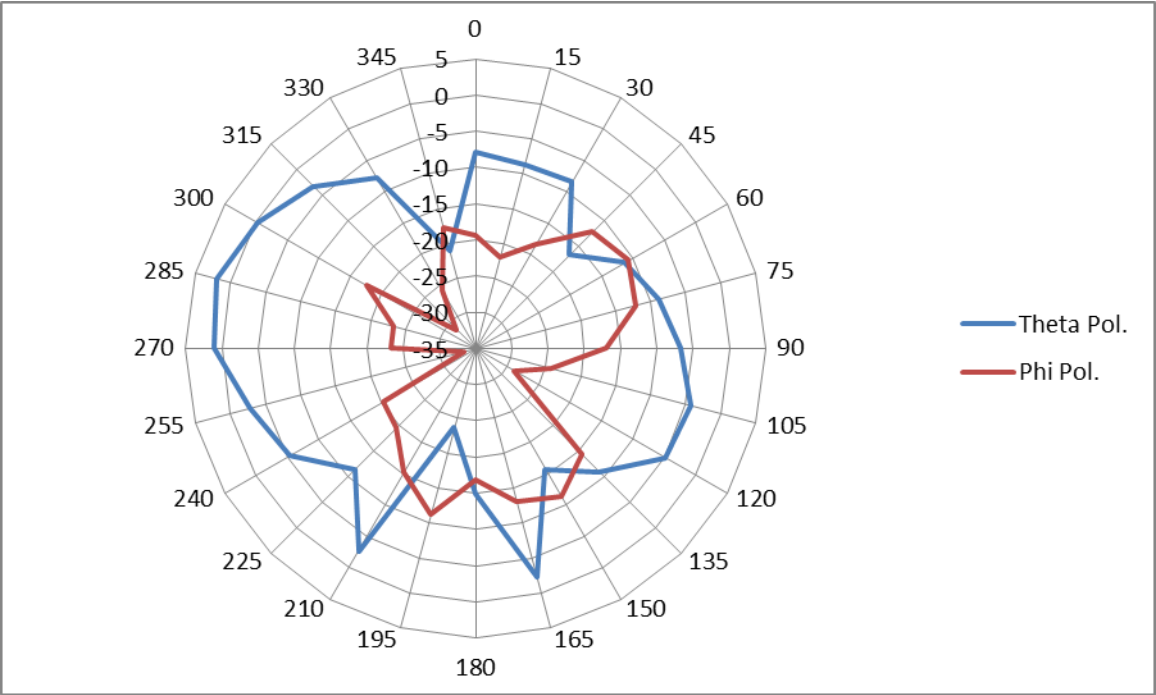


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5450	2.66	-2.71

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.3-5G-H
5G Band 3

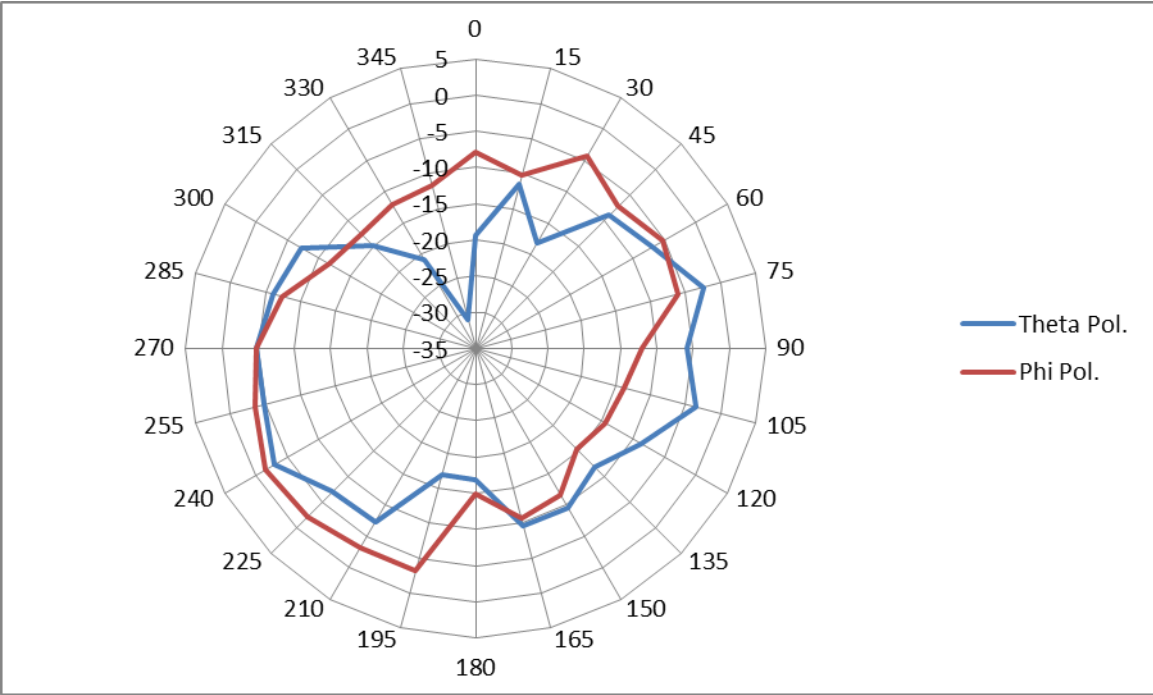


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5450	2.05	-10.63

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.3-5G-H
5G Band 3

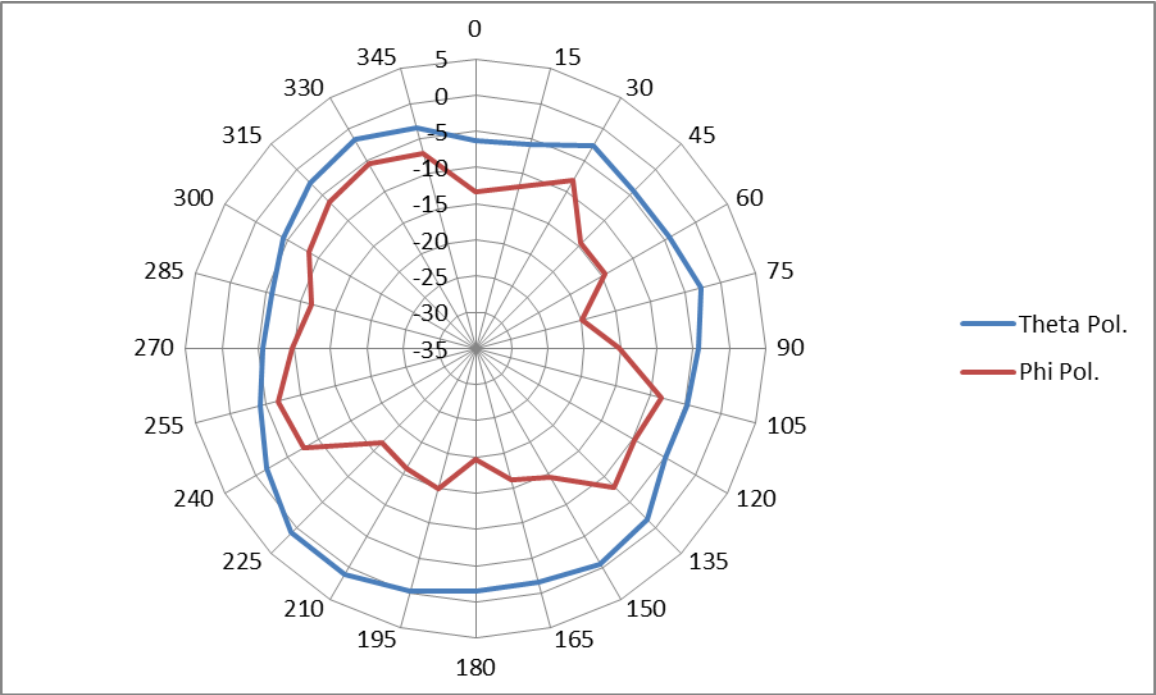


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5450	-2.42	-1.48

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.3-5G-H
5G Band 4

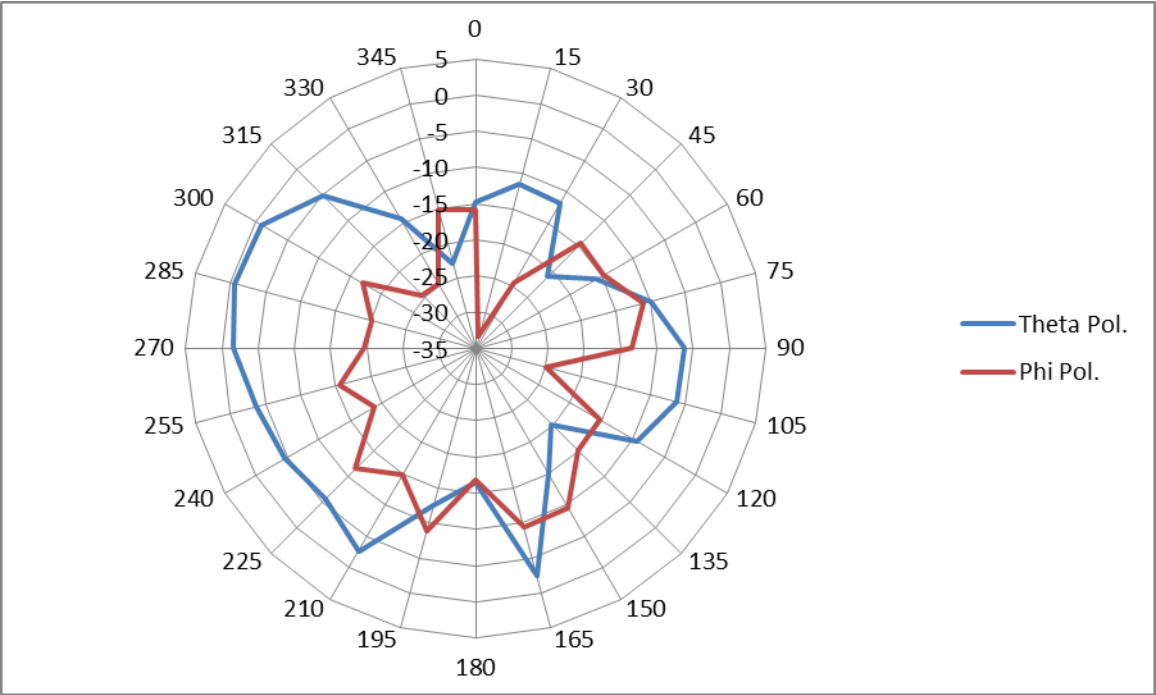


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	1.11	-5.51

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.3-5G-H
5G Band 4

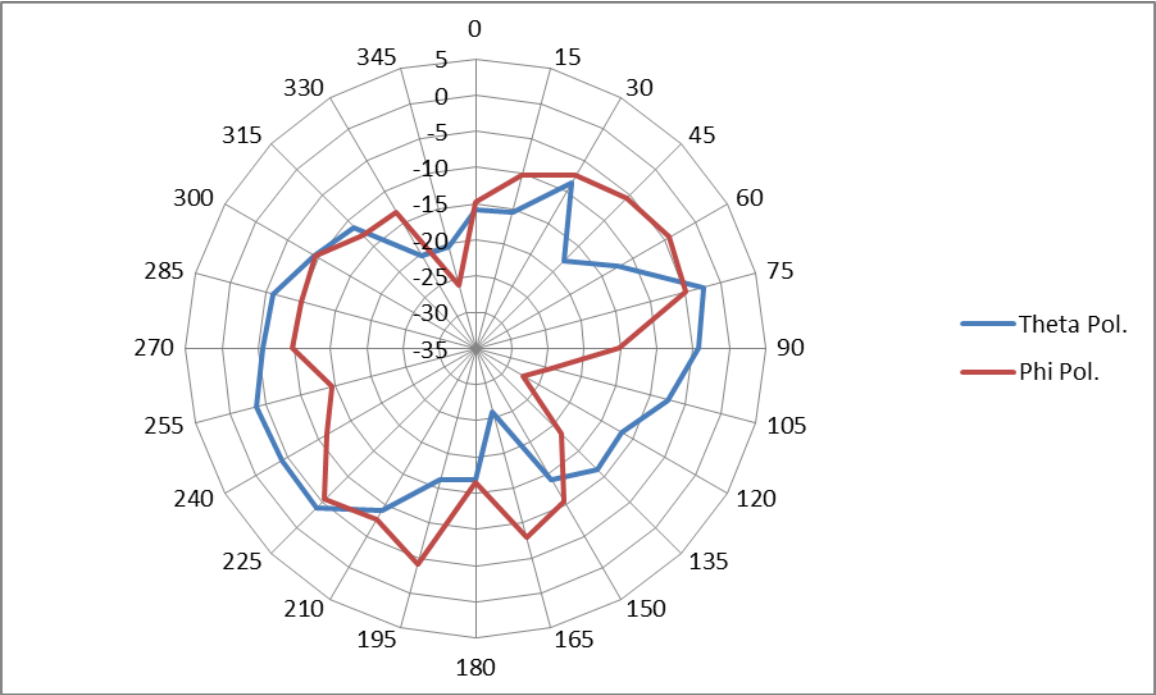


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	-0.67	-8.95

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.3-5G-H
5G Band 4

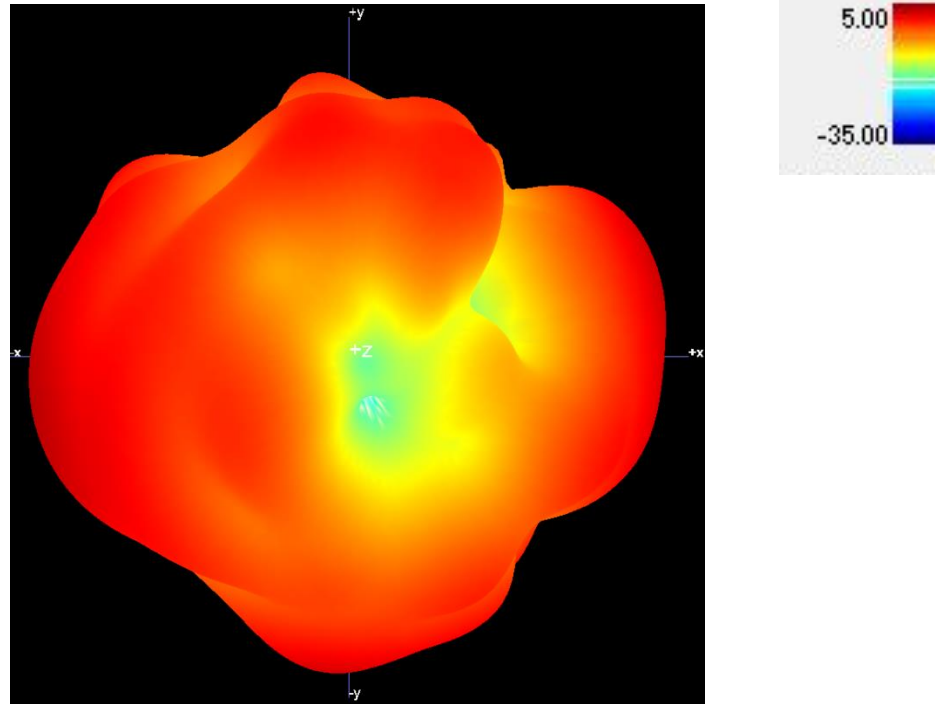


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	-2.48	-4.15

2. Antenna Characteristics

2.3 3D Pattern

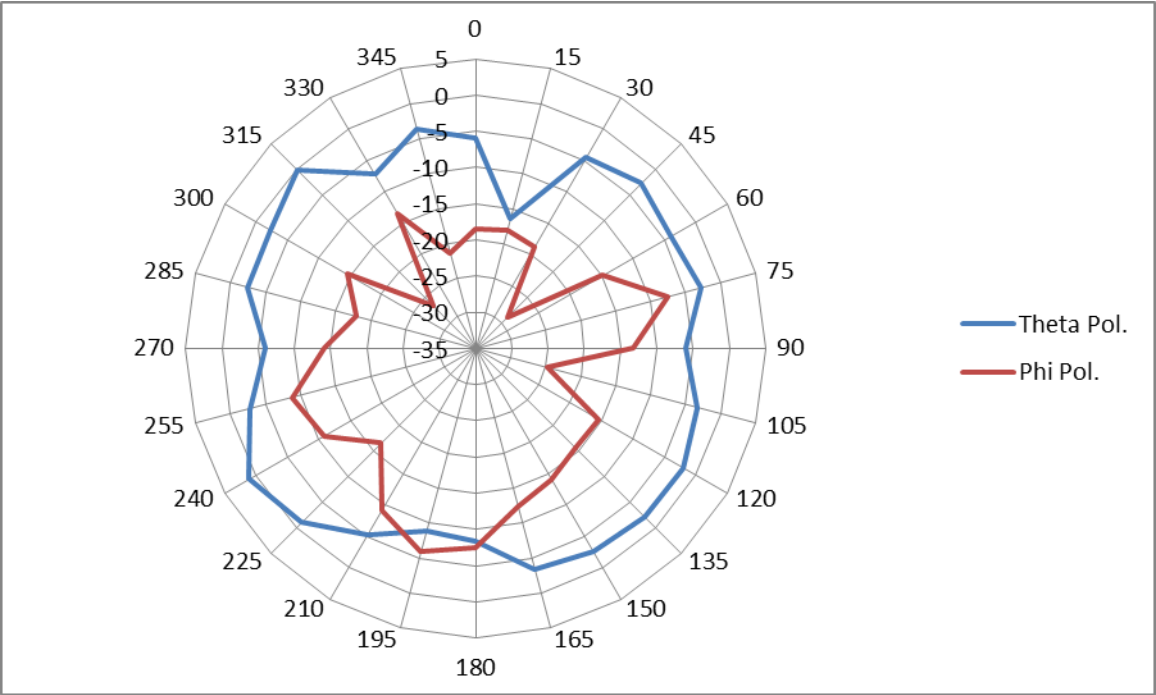
Ant.4-5G-H
5650 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.4-5G-H
5G Band 3

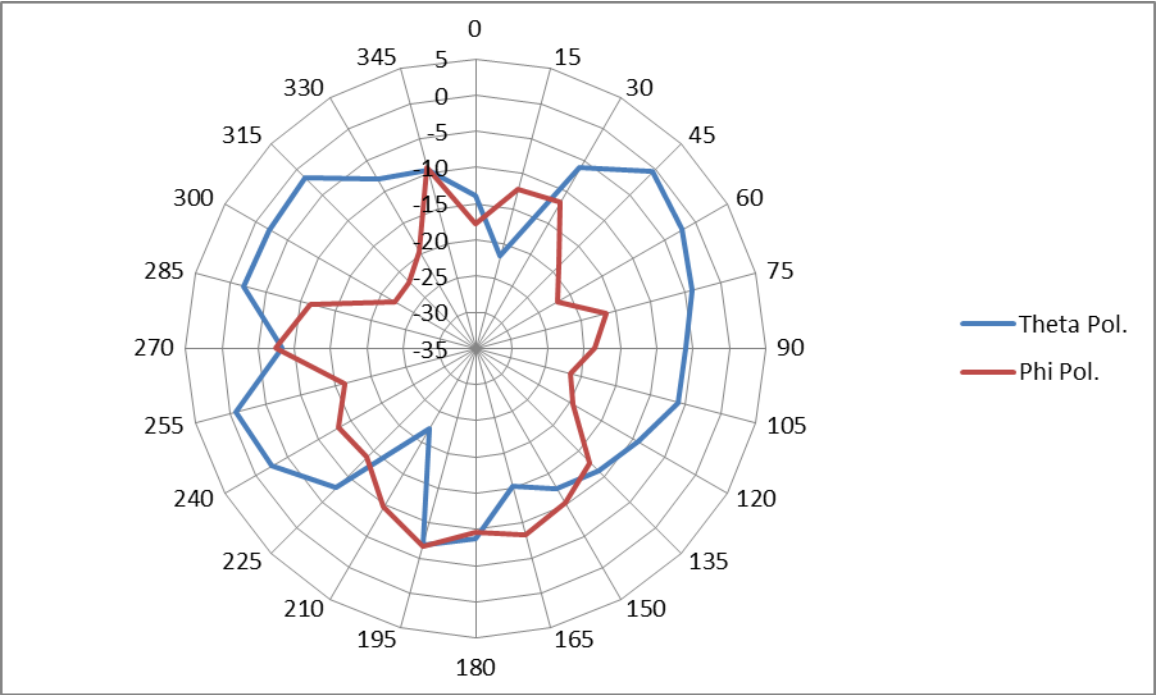


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5650	1.08	-5.91

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.4-5G-H
5G Band 3

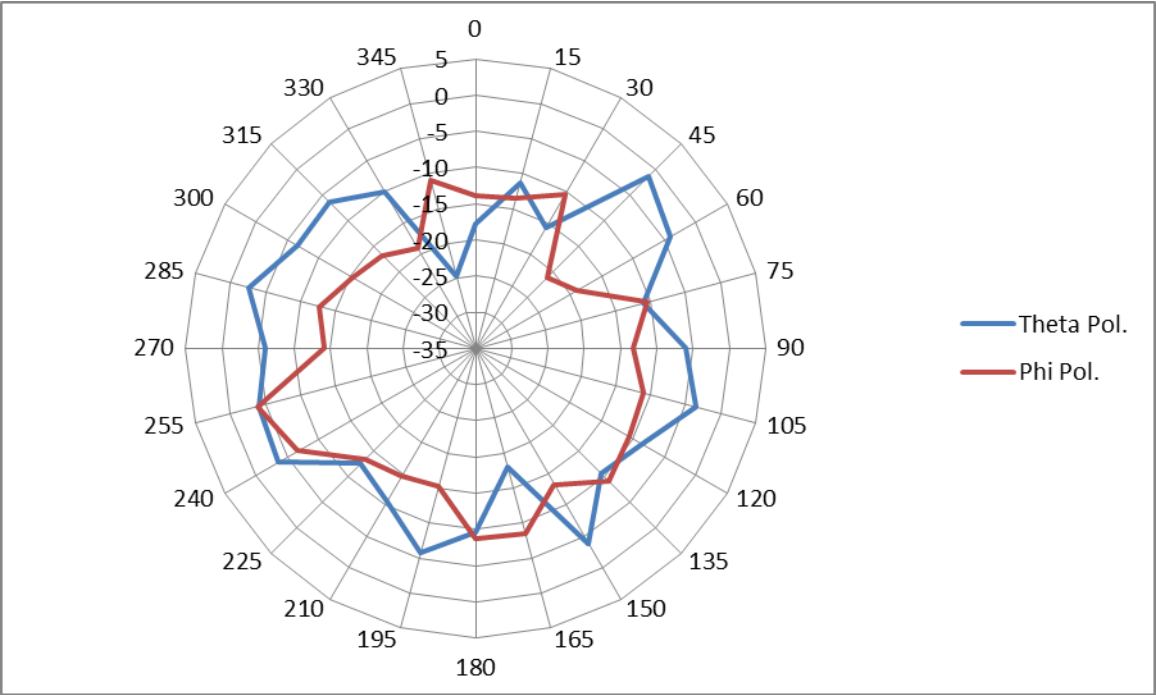


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5650	-0.53	-6.66

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.4-5G-H
5G Band 3

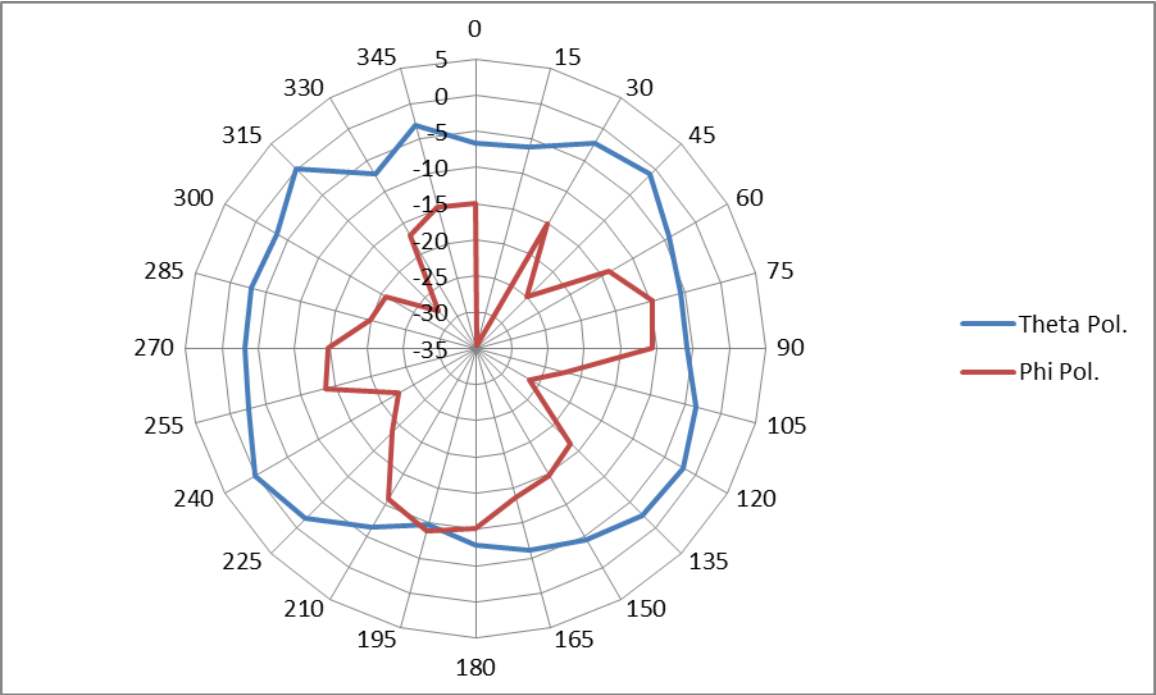


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5650	-1.38	-3.88

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.4-5G-H
5G Band 4

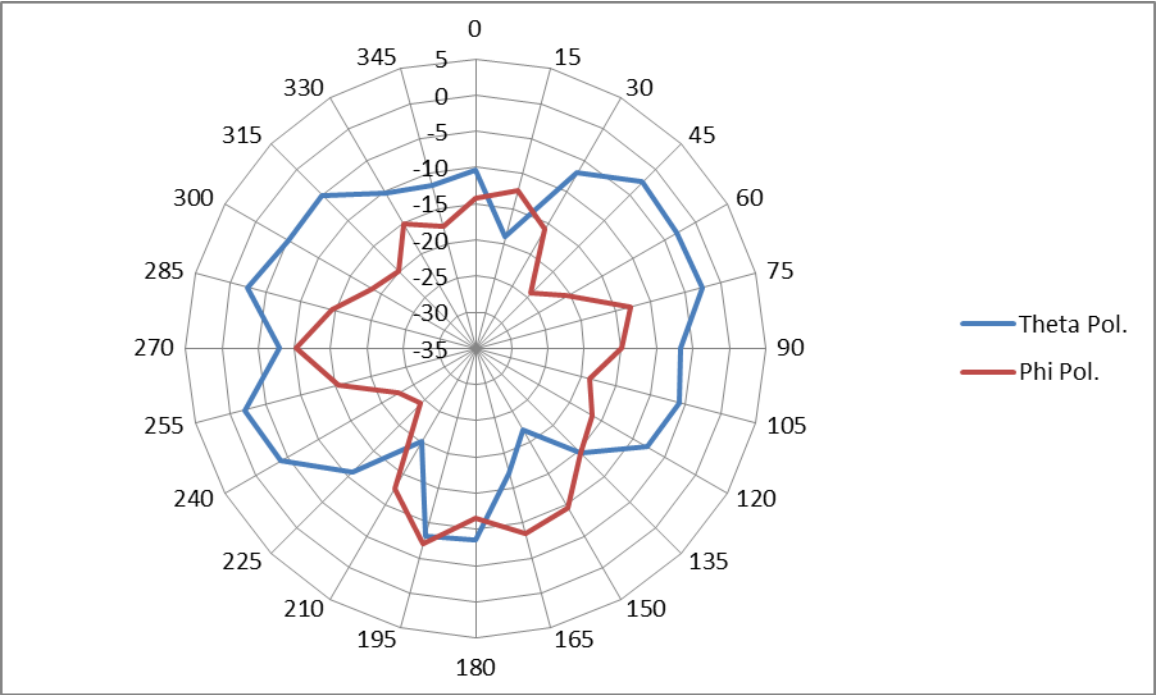


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	0.17	-8.98

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.4-5G-H
5G Band 4

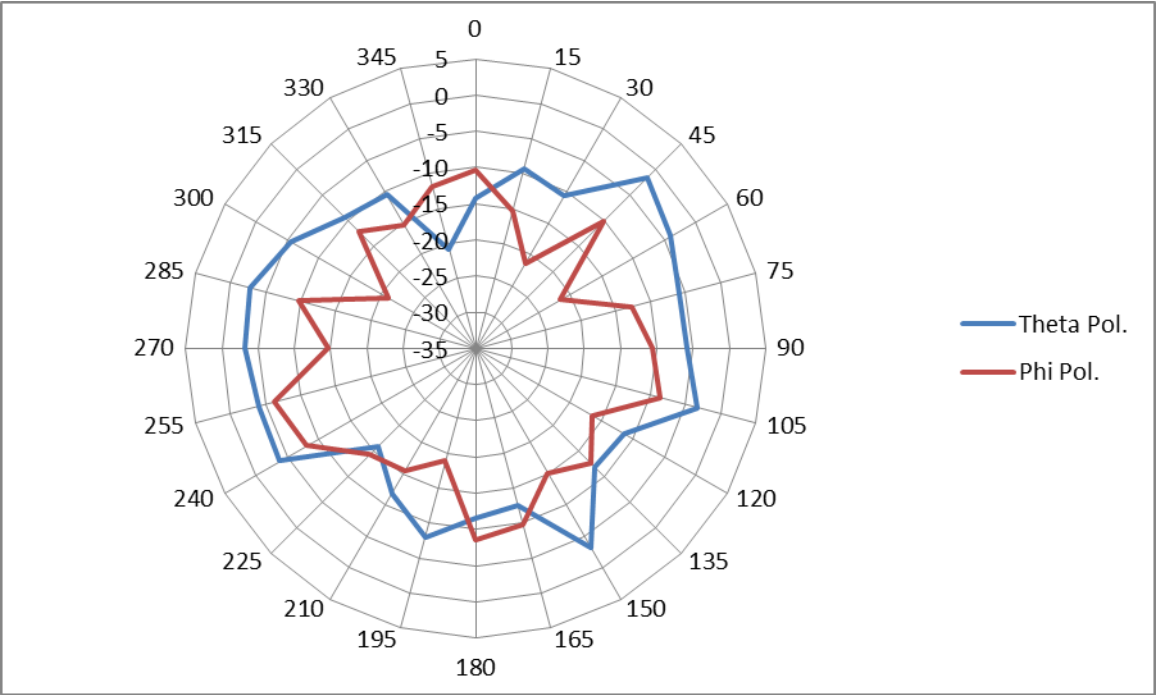


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	-2.01	-7.03

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.4-5G-H
5G Band 4

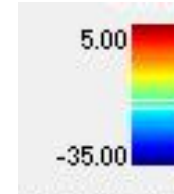
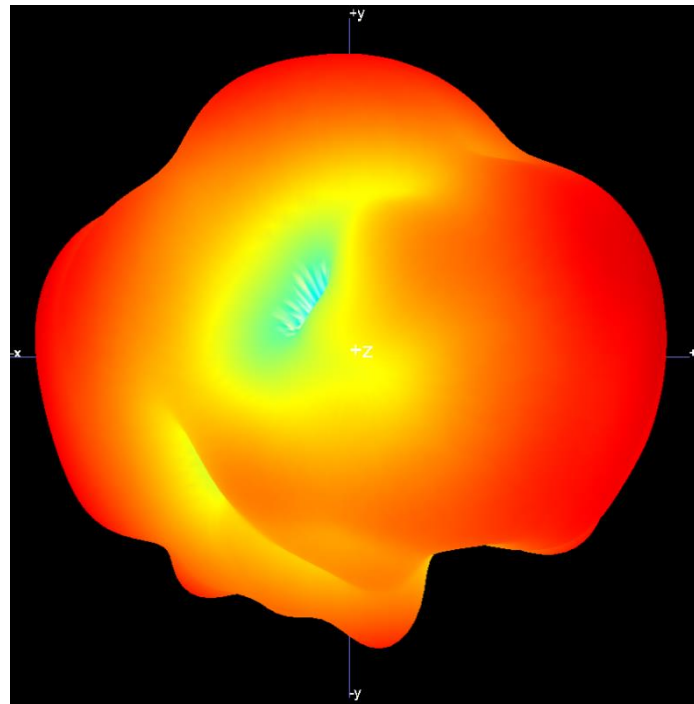


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	-1.63	-6.25

2. Antenna Characteristics

2.3 3D Pattern

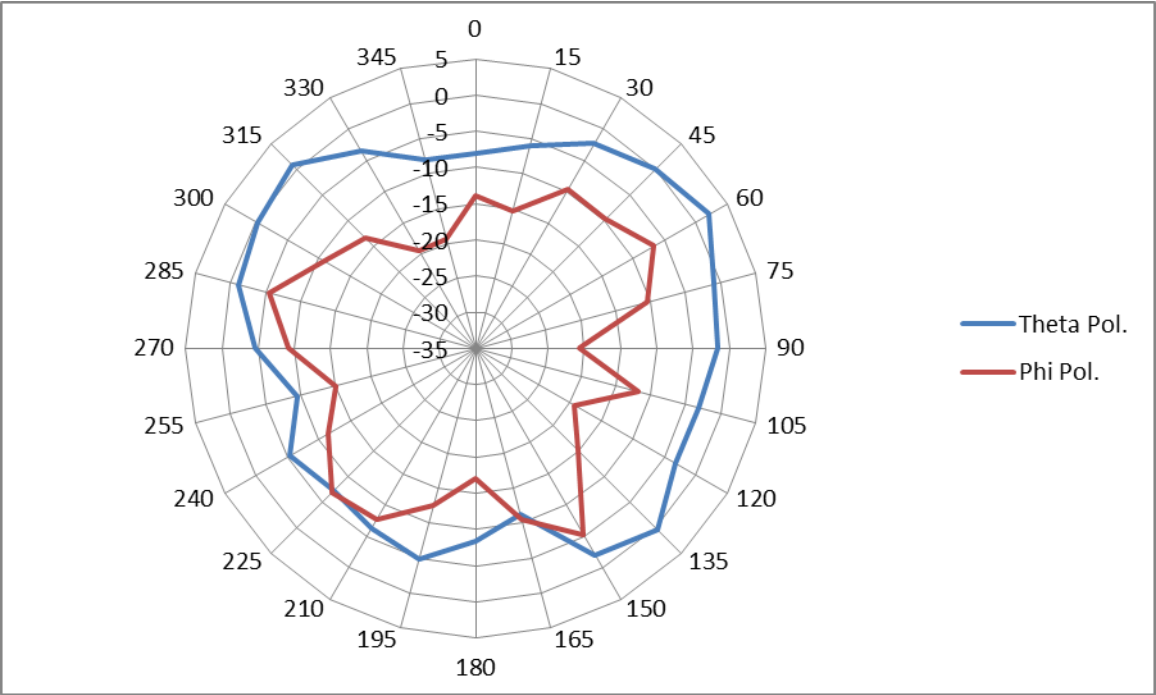
Ant.5-5G-H
5500 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.5-5G-H
5G Band 3

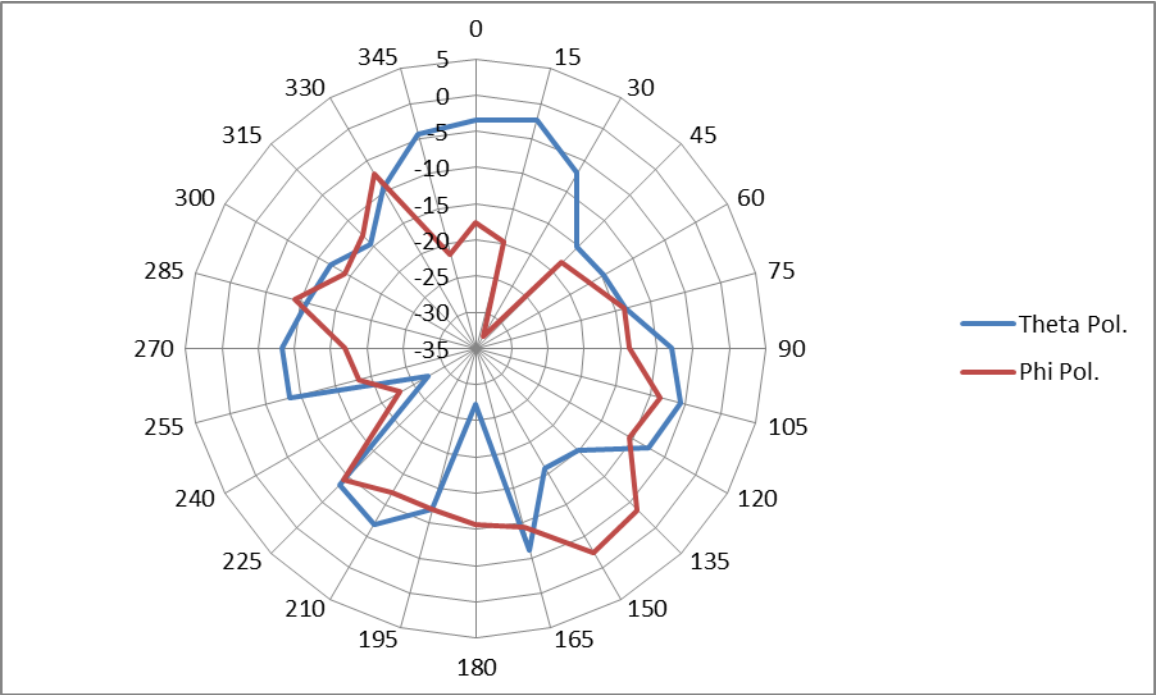


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5550	2.14	-5.17

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.5-5G-H
5G Band 3

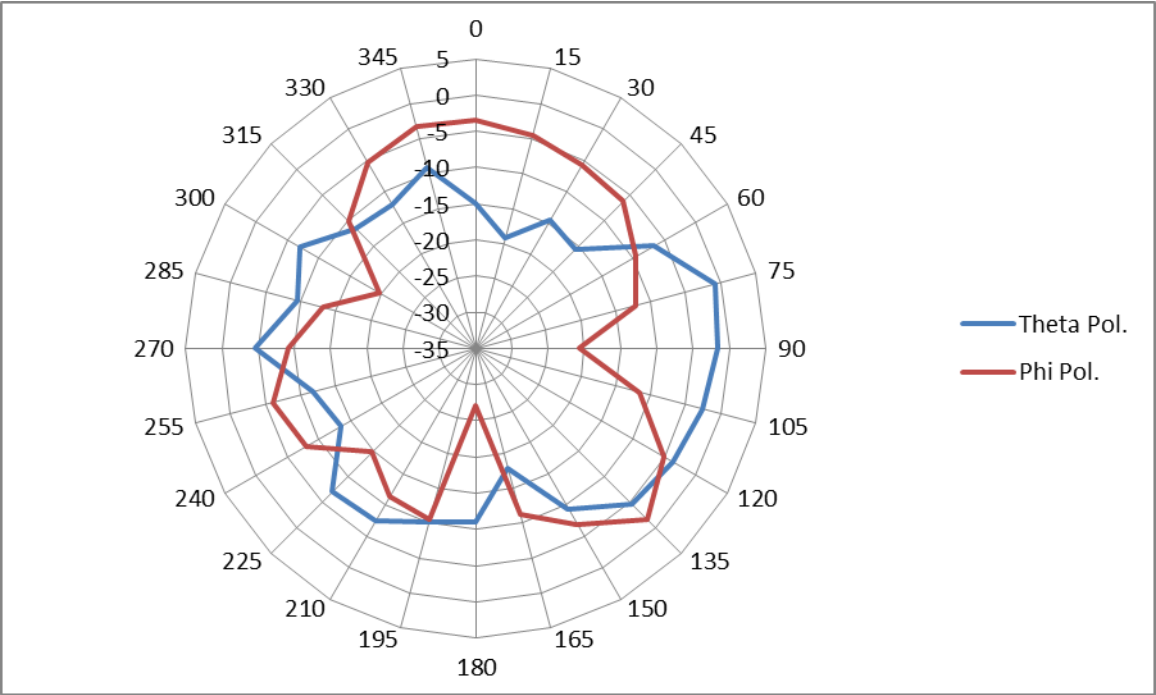


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5550	-2.38	-2.40

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.5-5G-H
5G Band 3

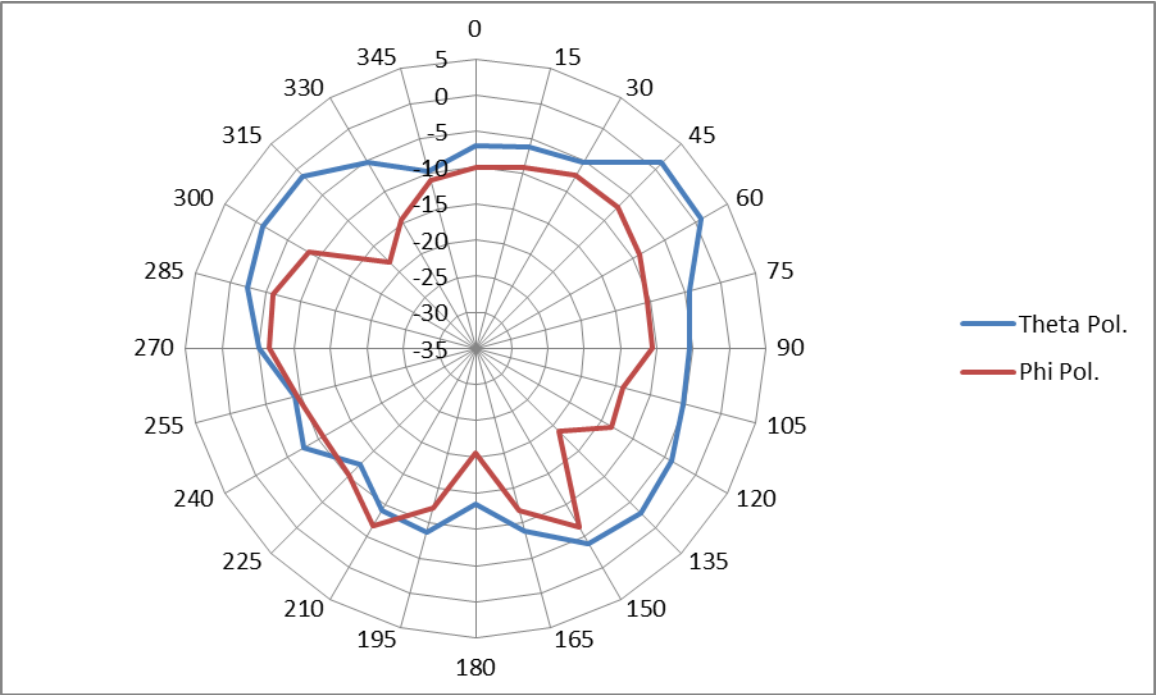


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5550	-0.74	-1.60

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.5-5G-H
5G Band 4

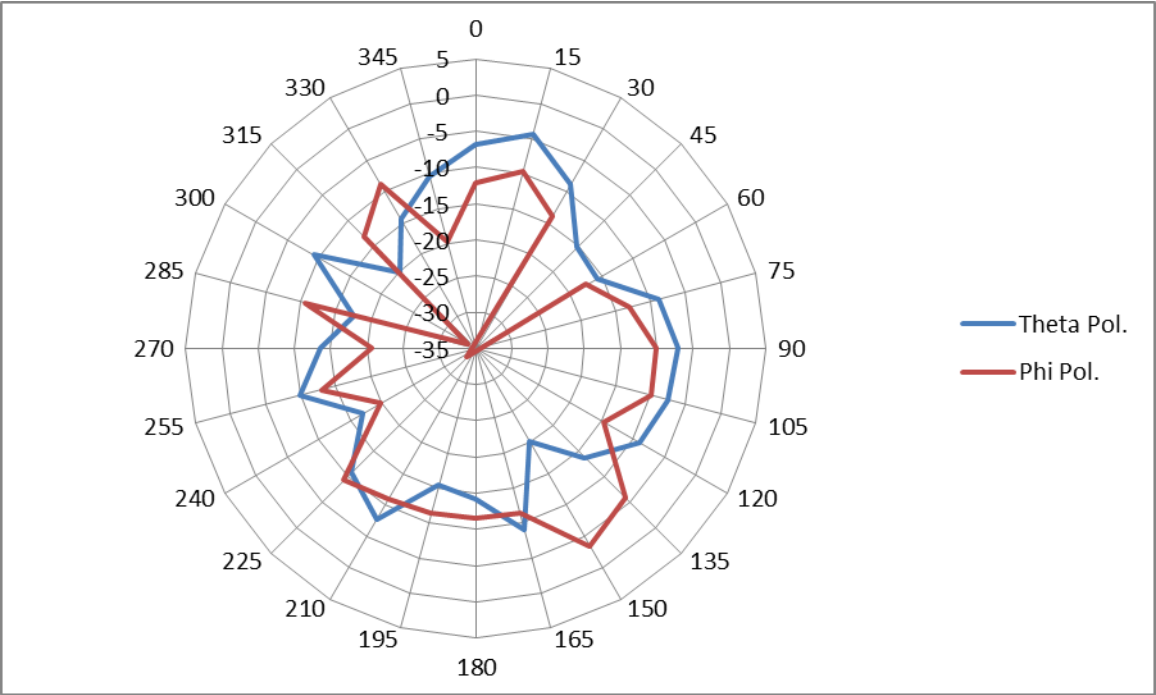


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	1.36	-6.06

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.5-5G-H
5G Band 4

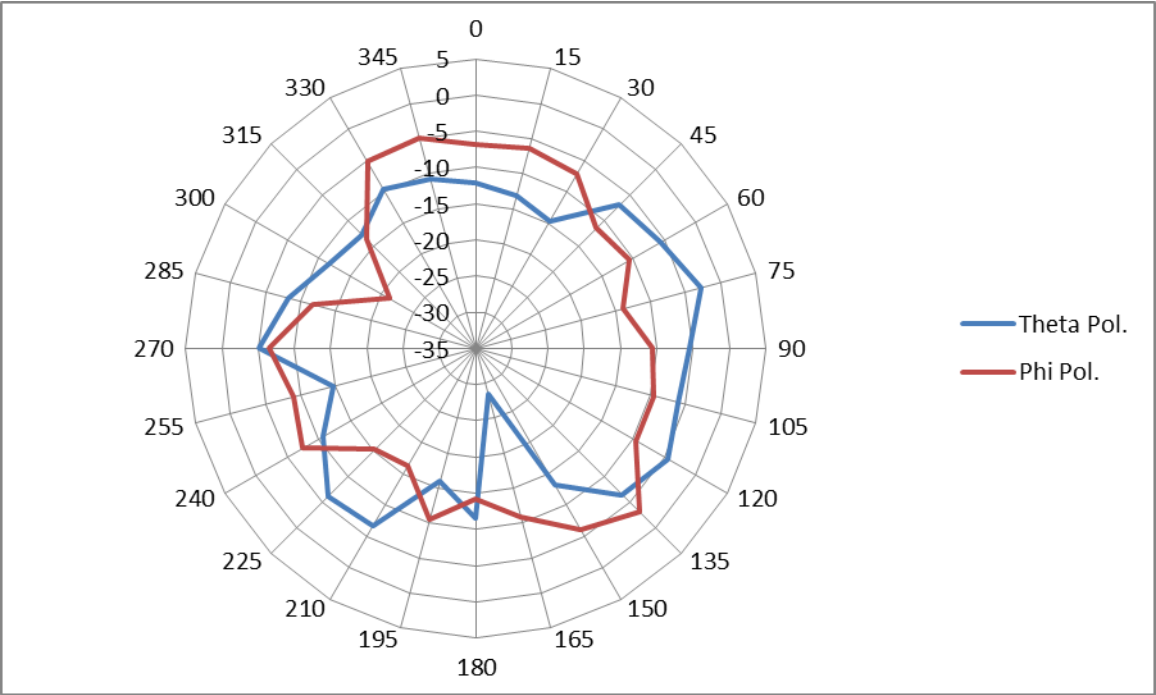


	E1 plane	
	Theta Pol.[dBi]	Phi Pol.[dBi]
Frequency[MHz]		
5800	-4.40	-3.48

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.5-5G-H
5G Band 4

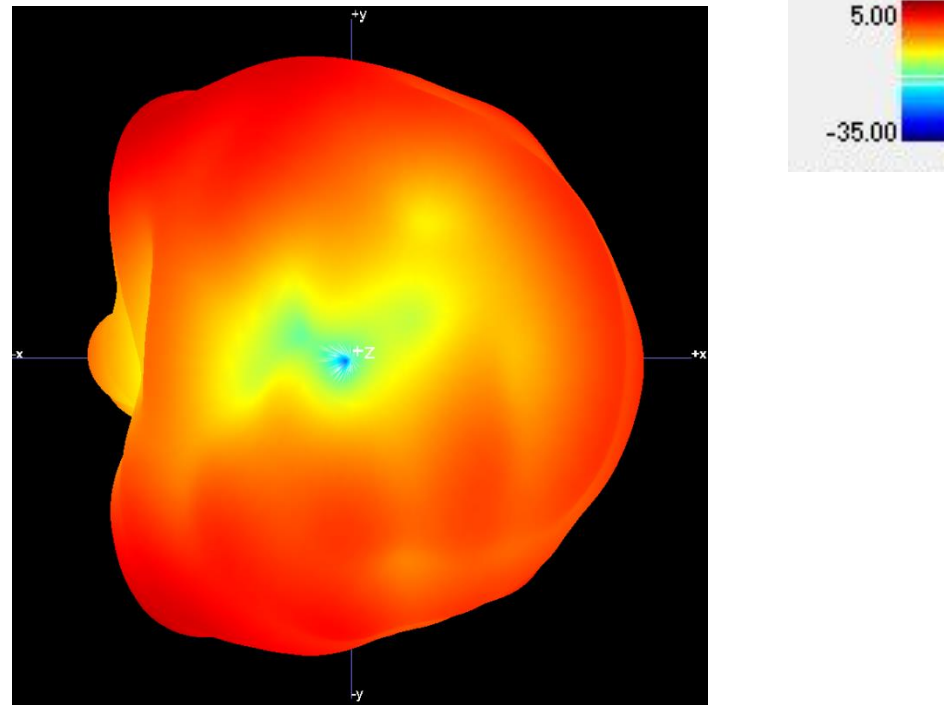


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5800	-2.72	-3.12

2. Antenna Characteristics

2.3 3D Pattern

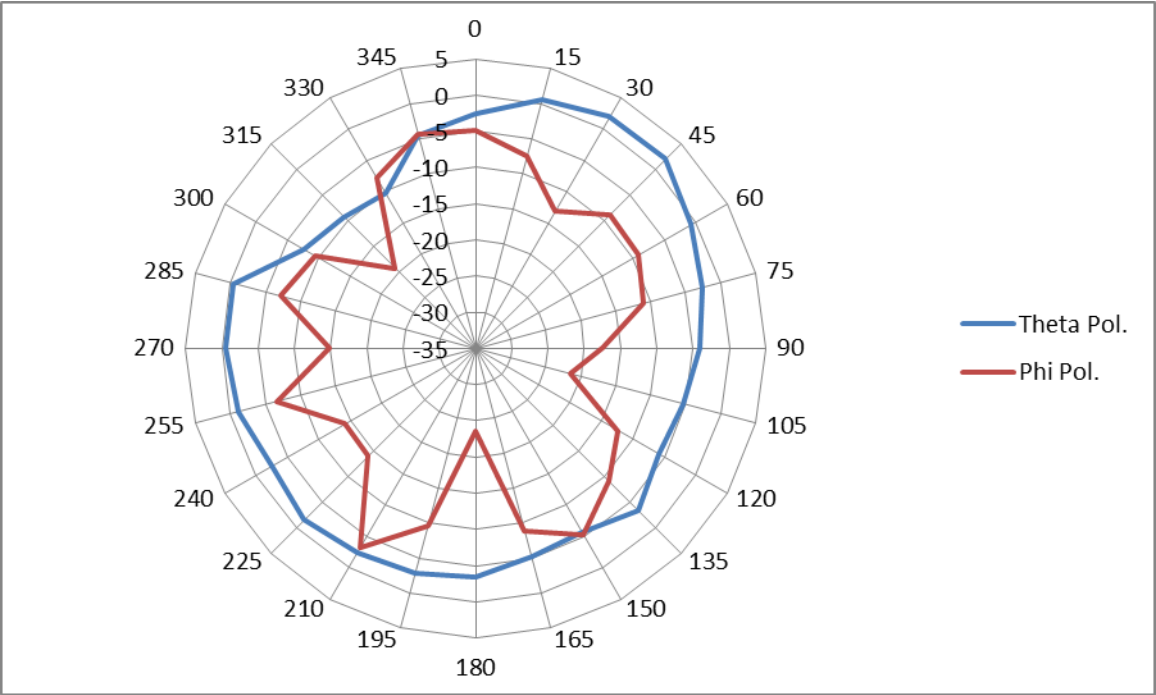
Ant.6-5G-H
5450 MHz



2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.6-5G-H
5G Band 3

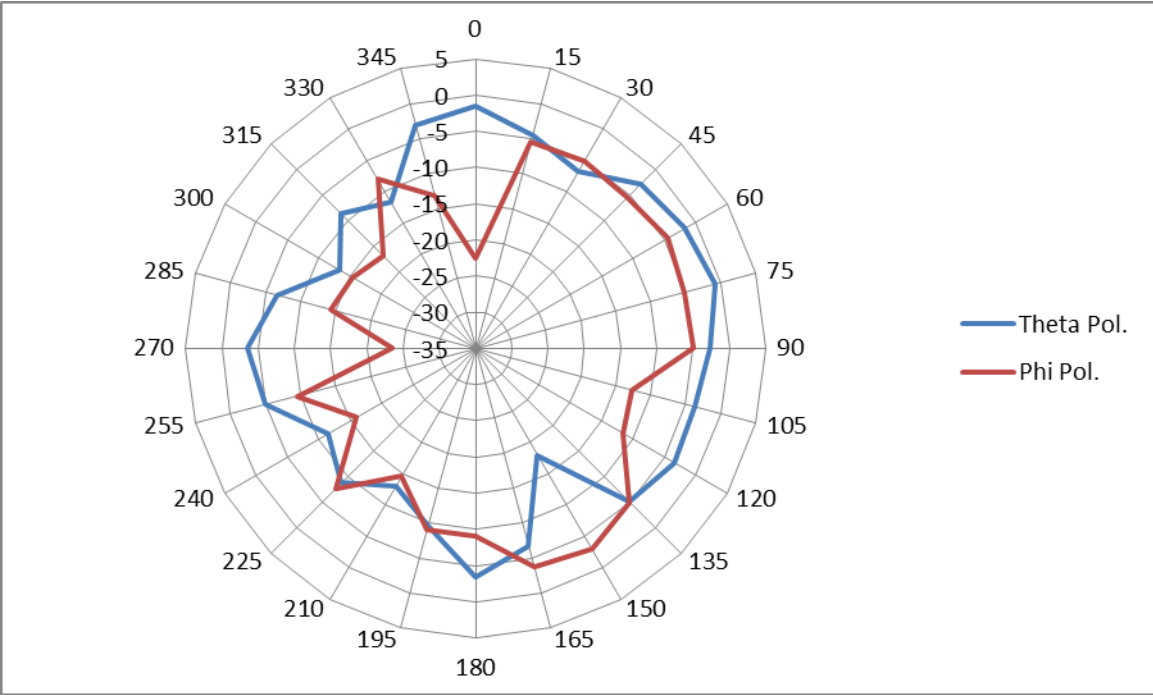


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5450	1.95	-3.17

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.6-5G-H
5G Band 3

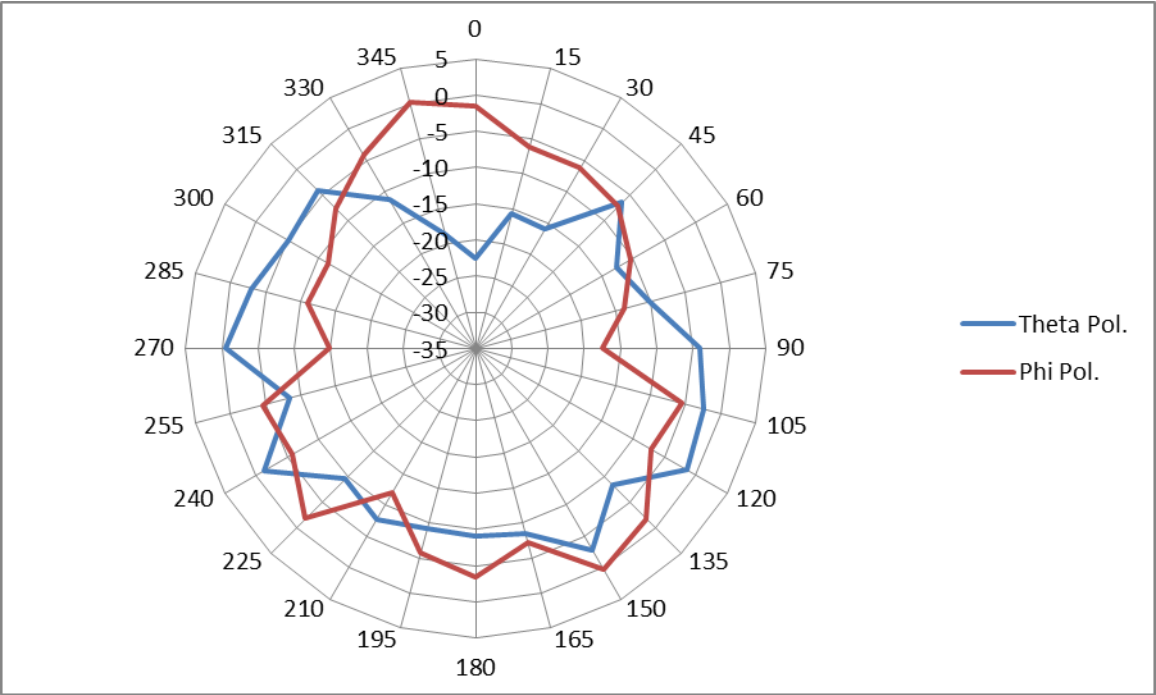


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5450	-0.70	-2.97

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.6-5G-H
5G Band 3

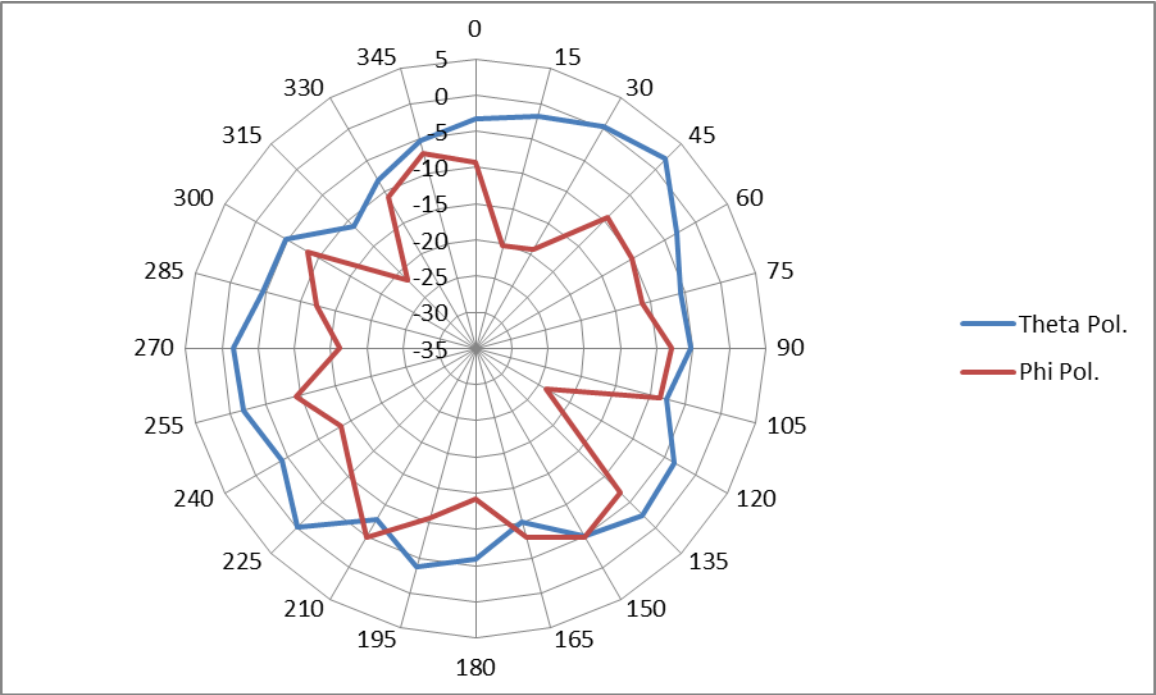


	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5450	-0.56	0.33

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.6-5G-H
5G Band 4

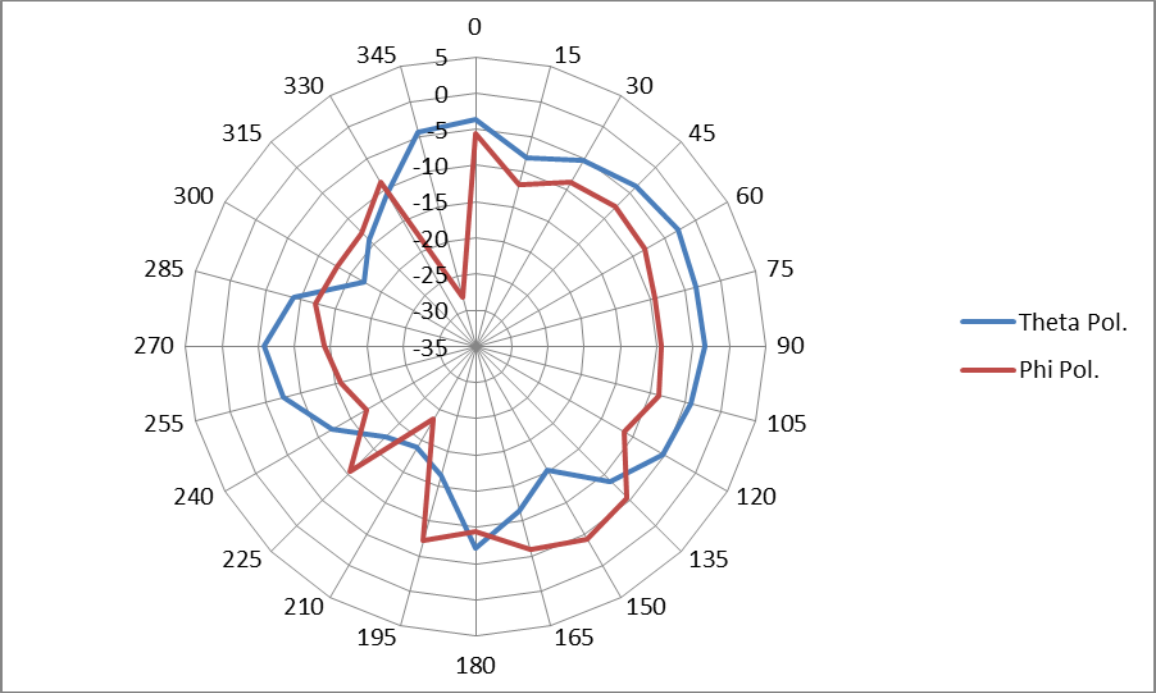


	H plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5750	2.07	-4.85

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.6-5G-H
5G Band 4

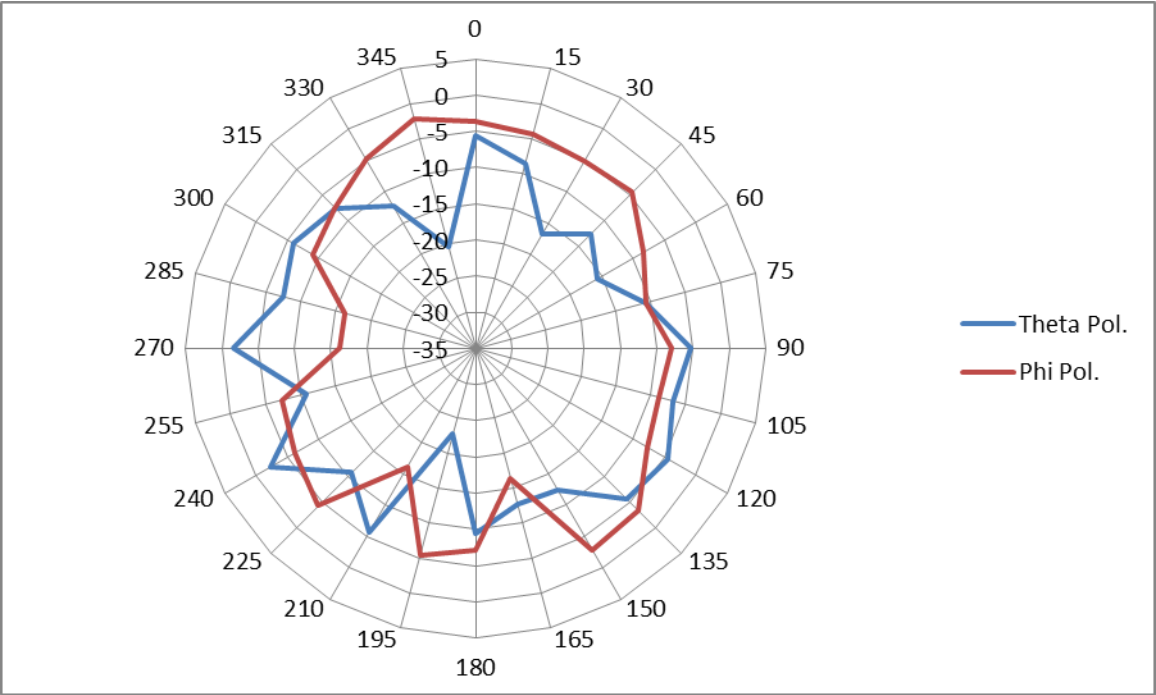


	E1 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5750	-2.77	-4.22

2. Antenna Characteristics

2.3 2D Radiation Patterns

Ant.6-5G-H
5G Band 4



	E2 plane	
Frequency[MHz]	Theta Pol.[dBi]	Phi Pol.[dBi]
5750	-1.54	-2.23

2. Antenna Characteristics

2.4 Summary

Freq. (MHz)	ANT 1	ANT 2
	Gain (dBi)	Gain (dBi)
2400	1.17	2.55
2410	1.38	2.49
2420	1.67	2.63
2430	1.70	2.66
2440	2.06	2.71
2450	2.42	2.79
2460	2.80	3.26
2470	2.91	3.28
2480	2.97	3.54
AVG	2.12	2.88

Freq. (MHz)	ANT 1	ANT 2
	Gain (dBi)	Gain (dBi)
5150	4.66	3.63
5200	4.42	3.23
5250	3.85	2.99
5300	3.79	2.68
5350	3.87	2.97
AVG	4.12	3.10

Freq. (MHz)	ANT3	ANT4	ANT 5	ANT 6
	Gain (dBi)	Gain (dBi)	Gain (dBi)	Gain (dBi)
5450	3.62	1.09	2.07	2.78
5500	3.47	1.50	2.14	2.30
5550	3.14	1.31	2.07	2.18
5600	2.61	1.00	1.73	1.60
5650	2.84	1.57	1.82	2.50
5700	1.84	1.21	0.93	2.45
5750	1.48	1.19	1.15	2.07
5800	1.72	1.50	1.36	1.74
5850	1.15	0.97	1.25	0.48
AVG	2.43	1.26	1.61	2.01

Thank you

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