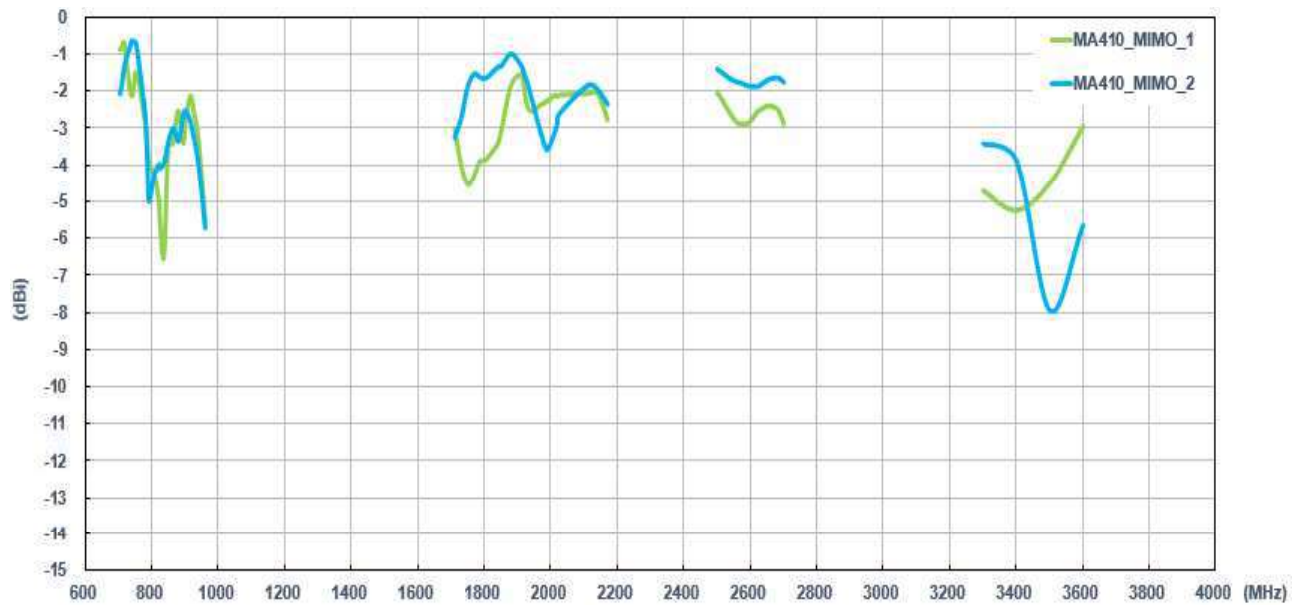
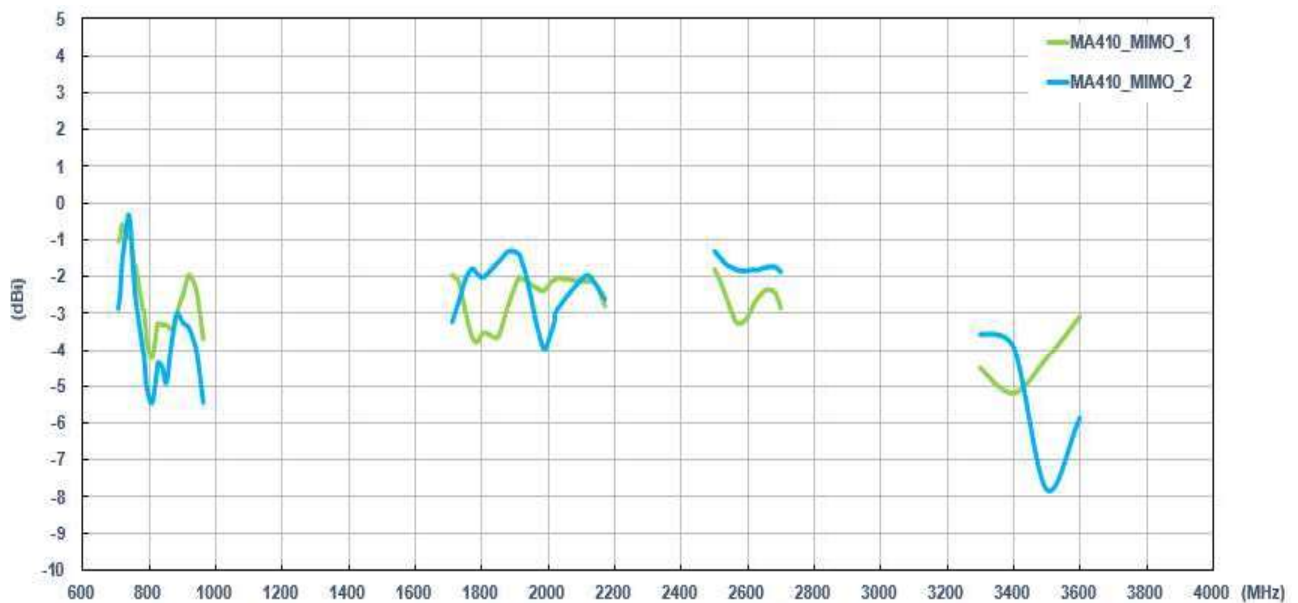


3.3.5. LTE Antenna Average gain

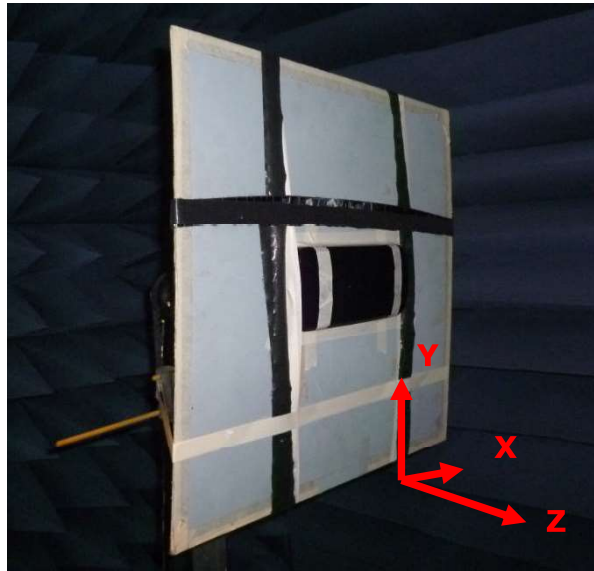
Setup on the 50*50cm ground plane with 1 meter cable length



Setup in free space with 1 meter cable length



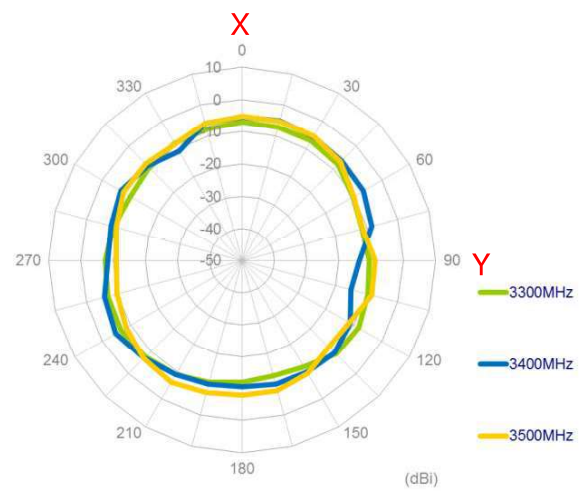
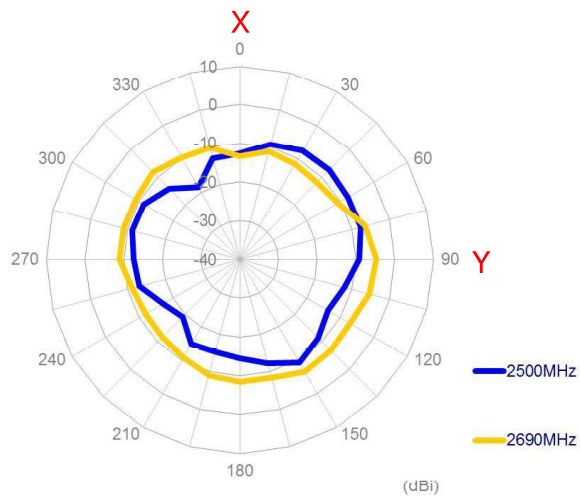
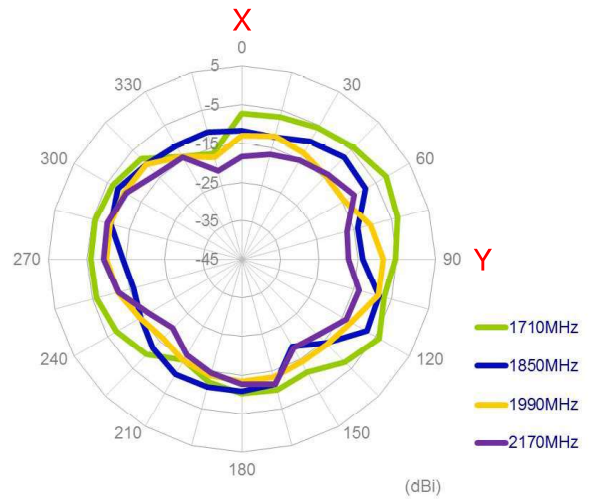
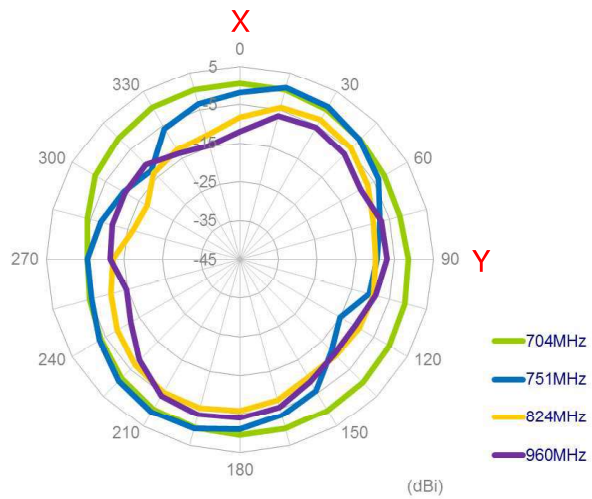
3.3.6. Test Setup for Antenna Radiation Pattern (ETS Anechoic chamber)



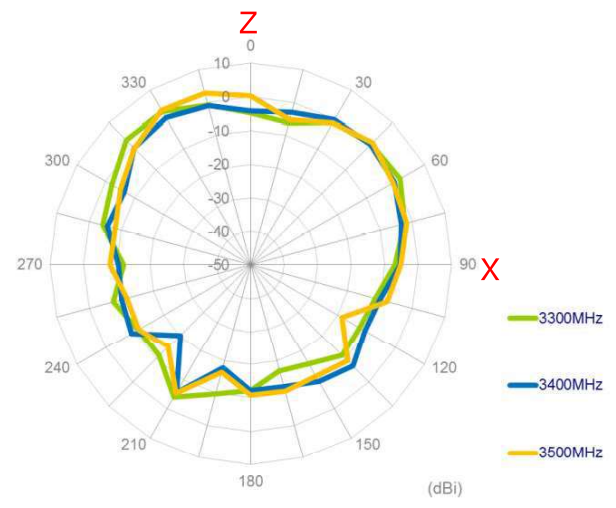
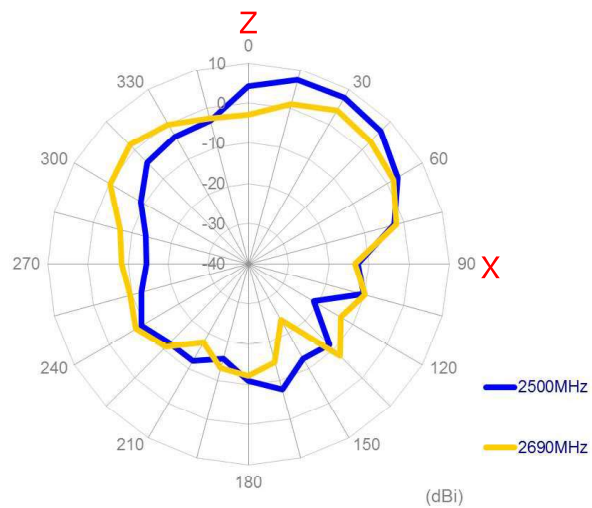
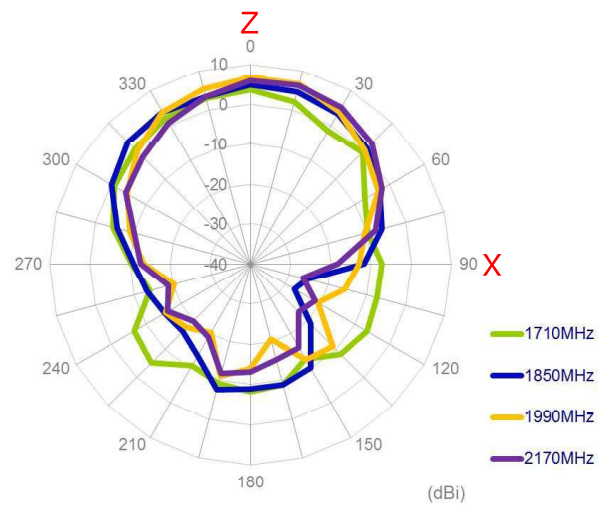
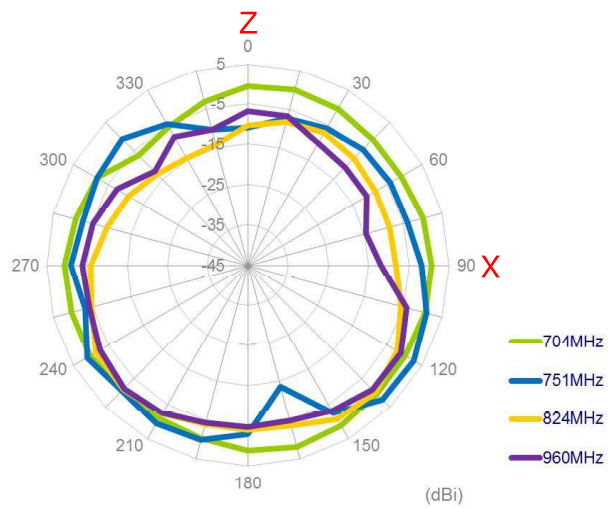
On the 50*50cm ground plane

3.3.7. 2D Radiation pattern (MIMO1 with 1M cable length on the 50*50 ground plane)

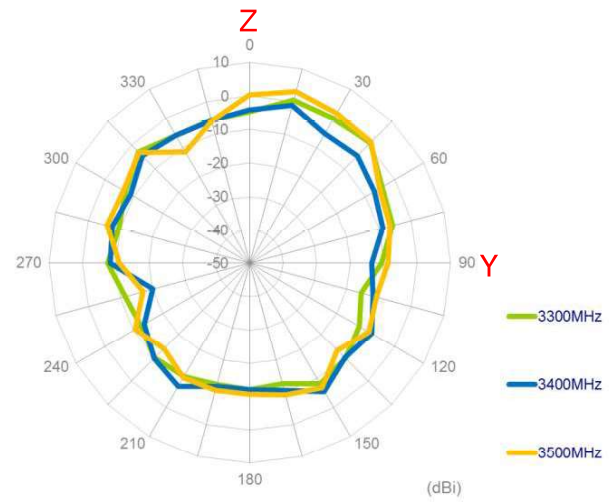
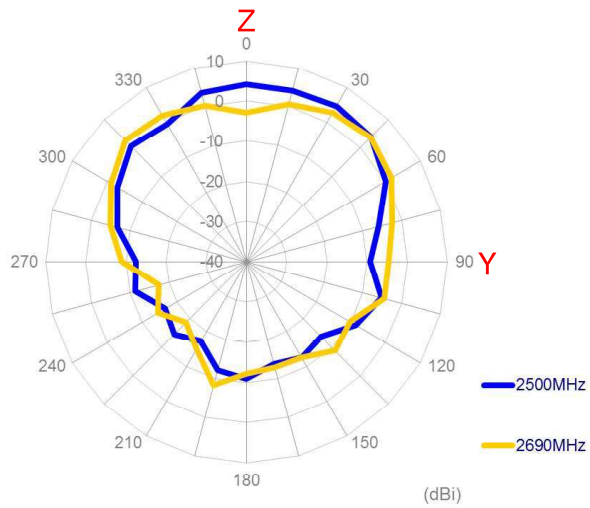
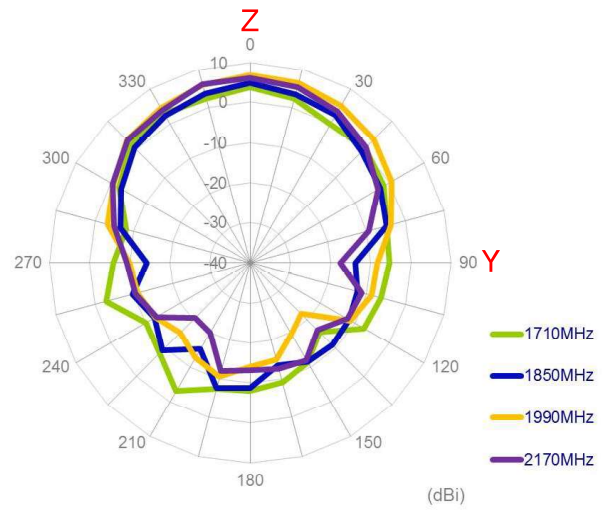
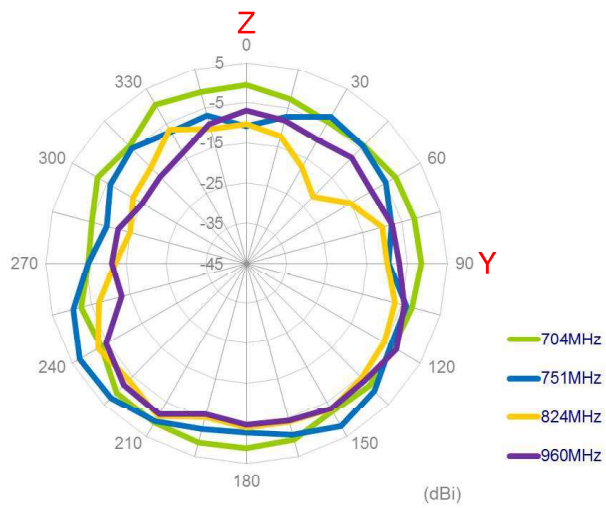
XY Plane



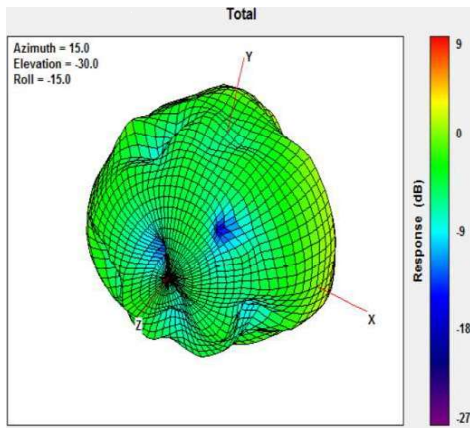
XZ Plane



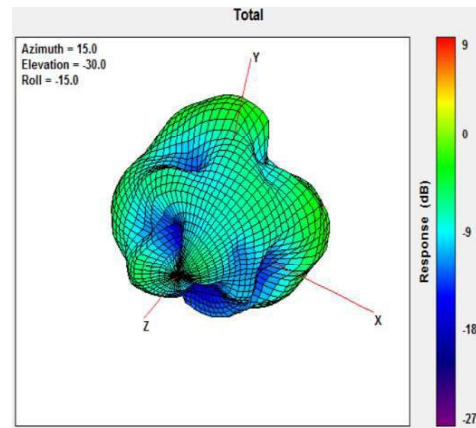
YZ Plane



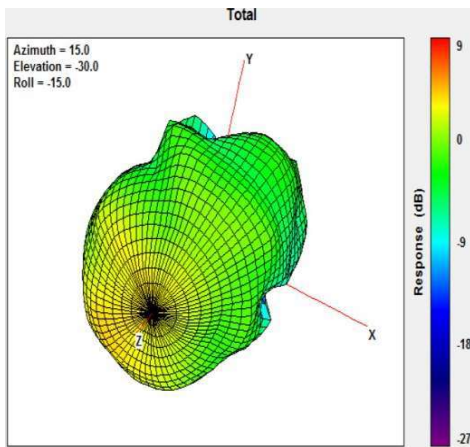
3.3.8. 3D Radiation pattern (MIMO1 with 1M cable length on the 50*50 ground plane)



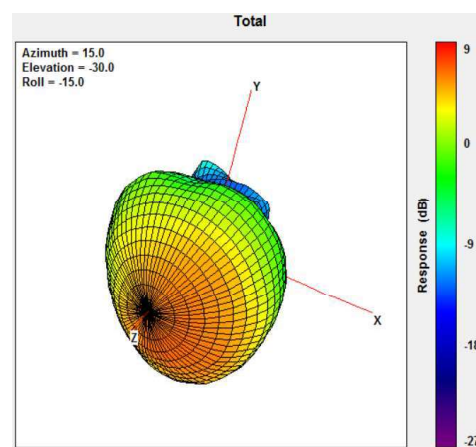
704MHz



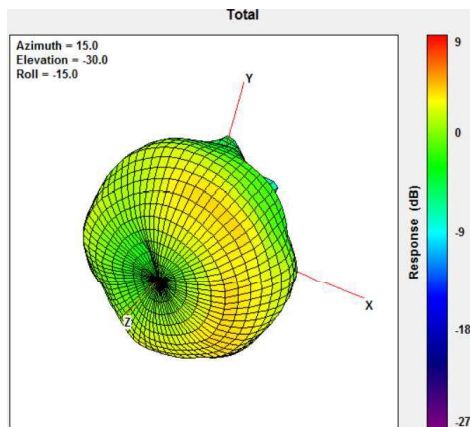
960MHz



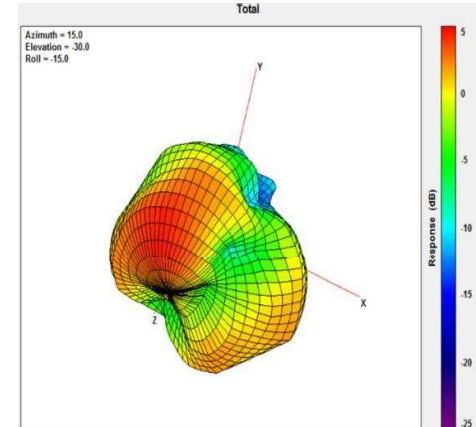
1710MHz



2170MHz



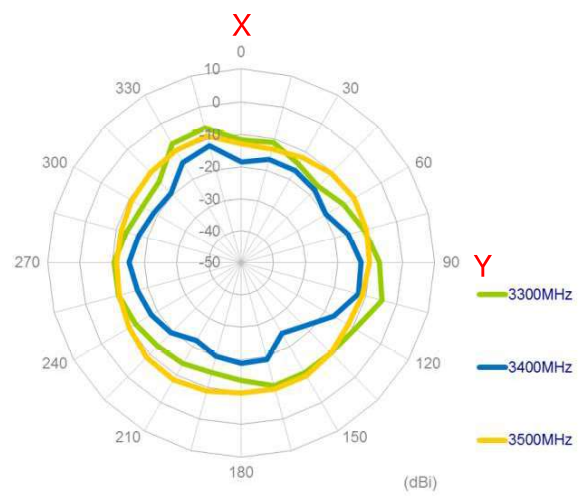
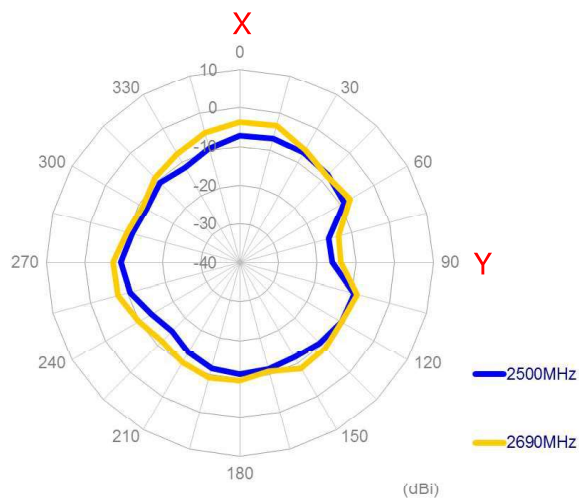
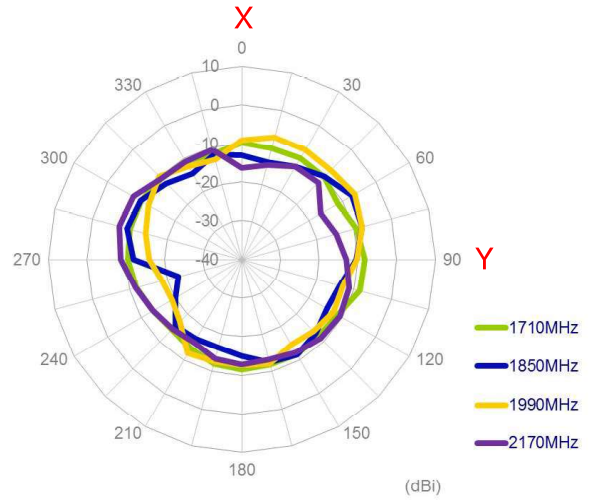
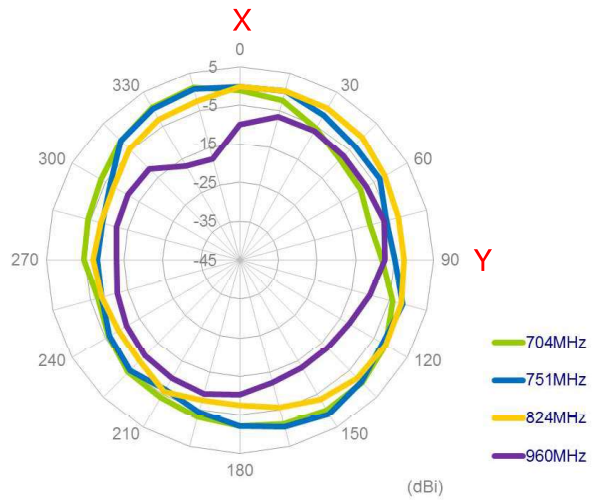
2690MHz



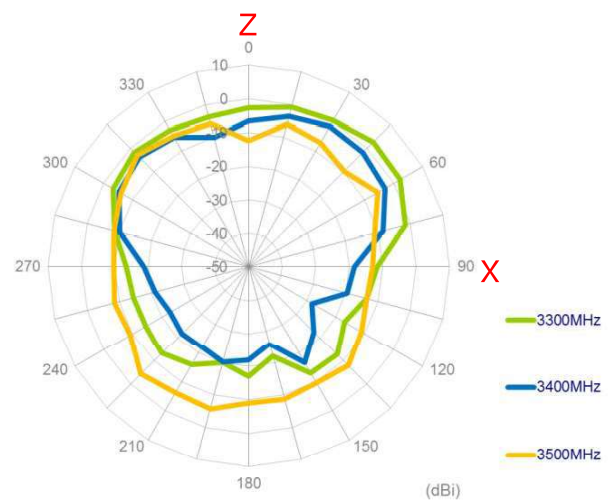
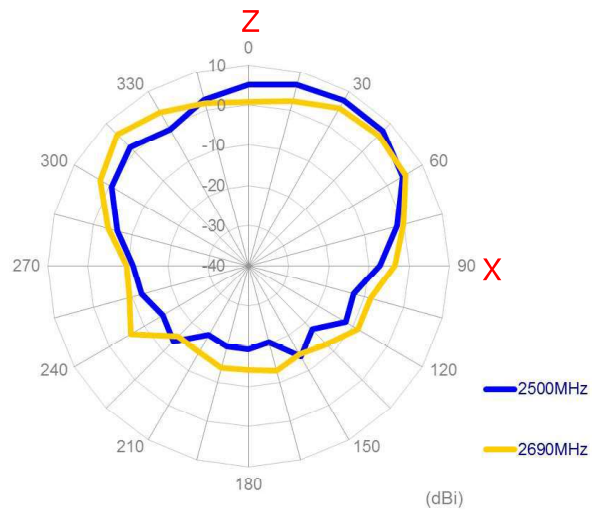
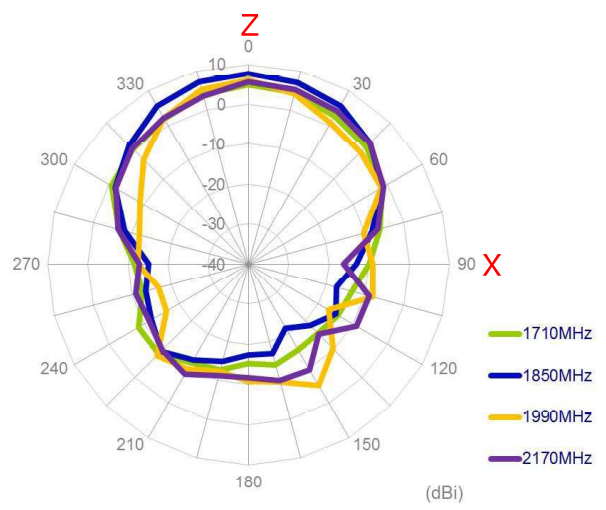
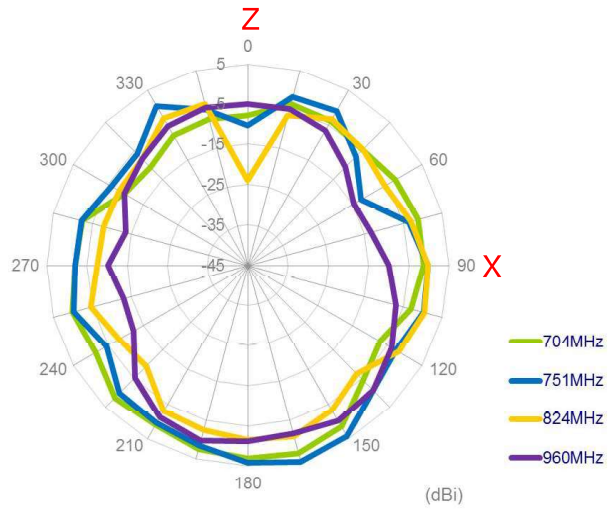
3500MHz

3.3.9. 2D Radiation pattern (MIMO2 with 1M cable length on the 50*50 ground plane)

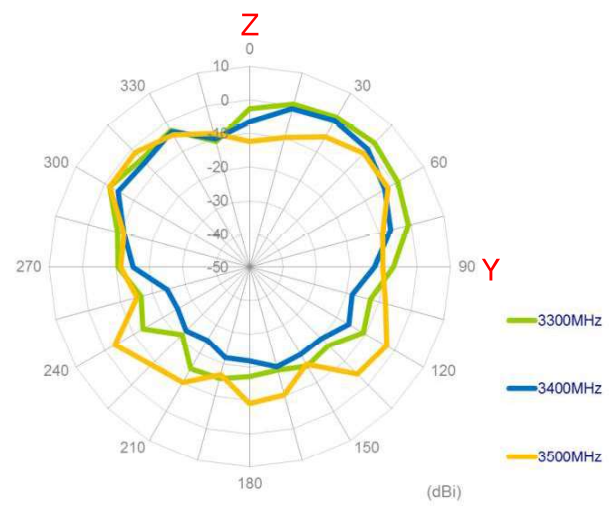
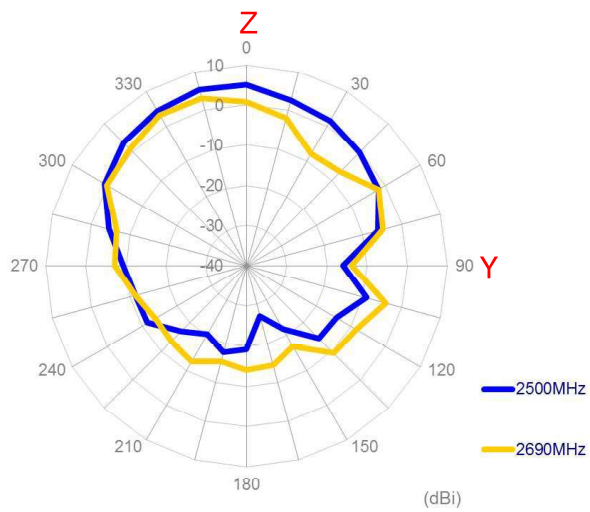
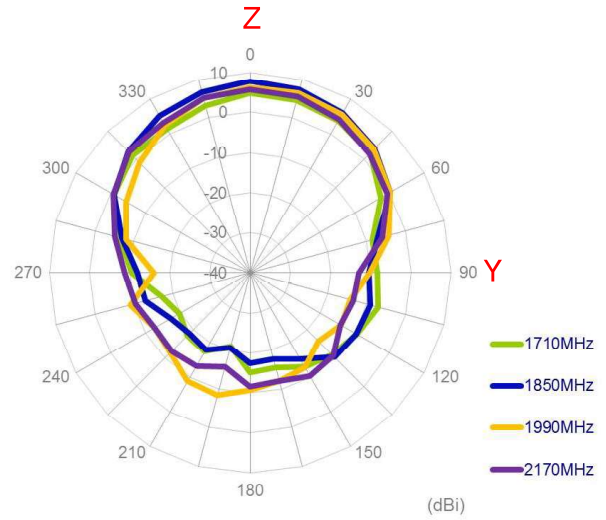
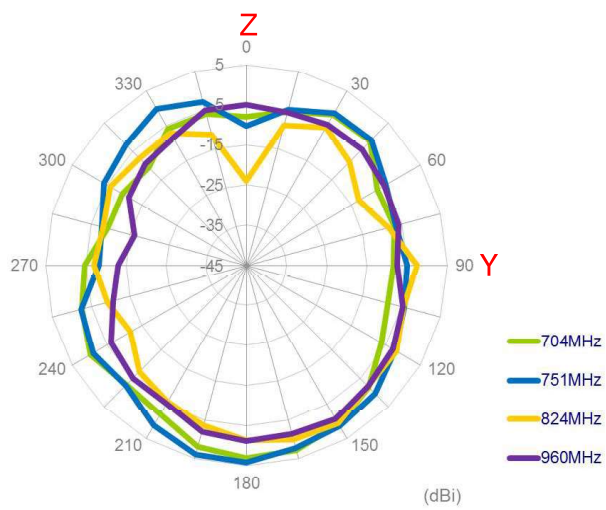
XY Plane



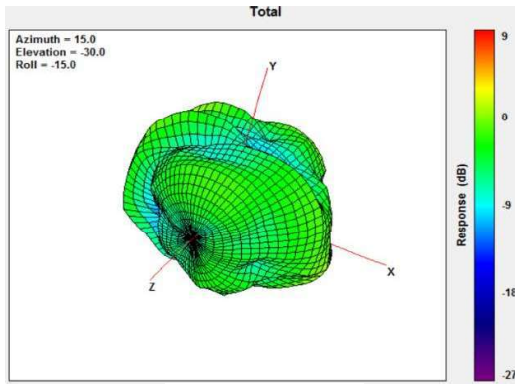
XZ Plane



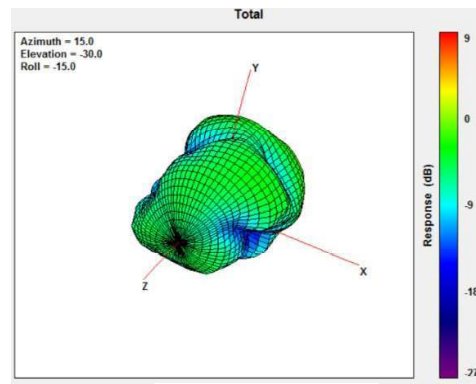
YZ Plane



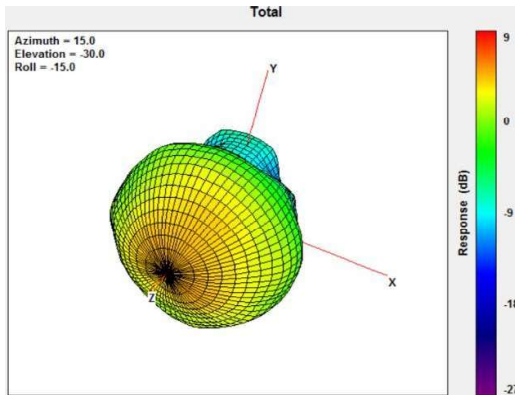
3.3.10. 3D Radiation pattern (MIMO2 with 1M cable length on the 50*50 ground plane)



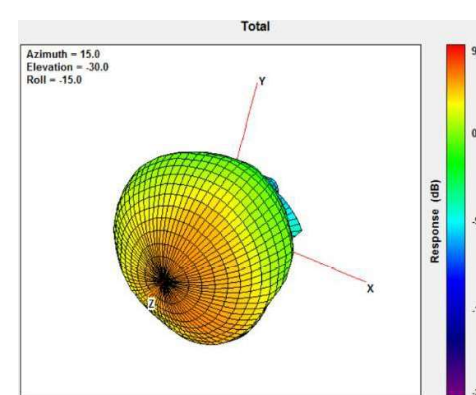
704MHz



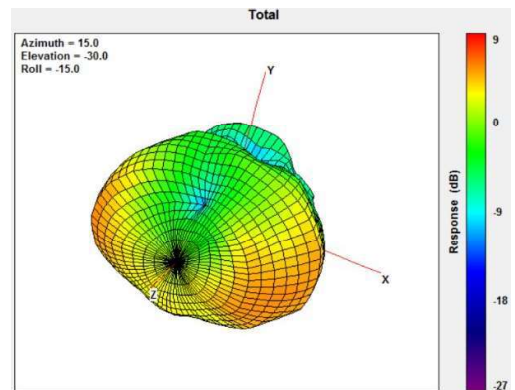
960MHz



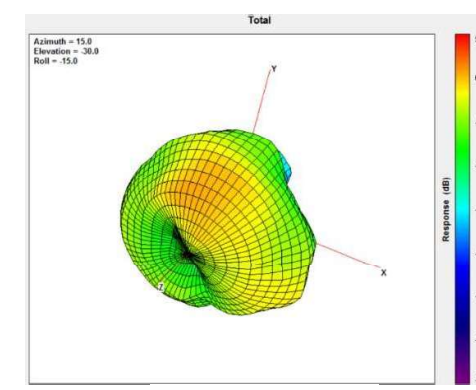
1710MHz



2170MHz

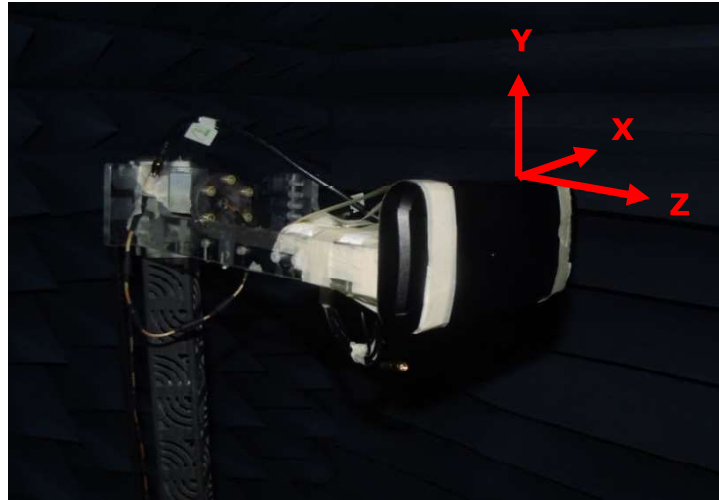


2690MHz



3500MHz

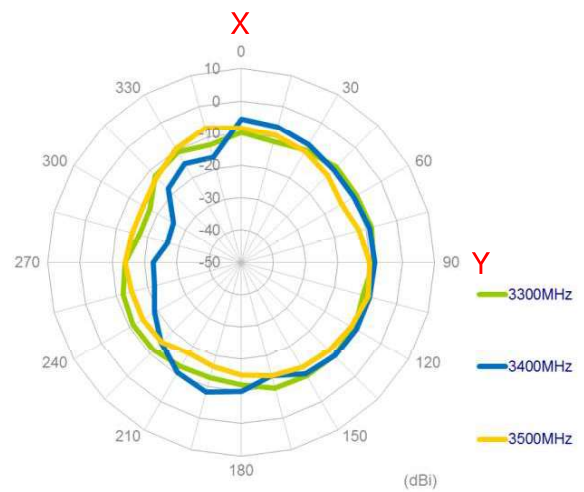
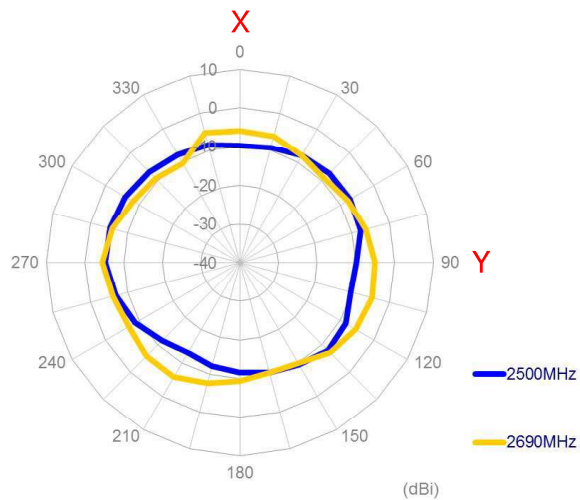
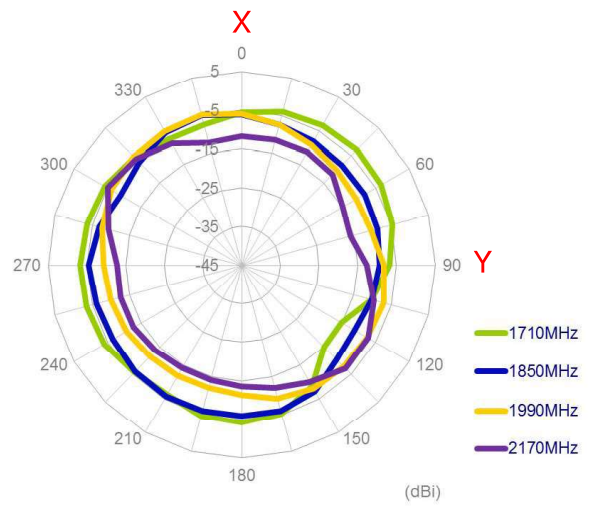
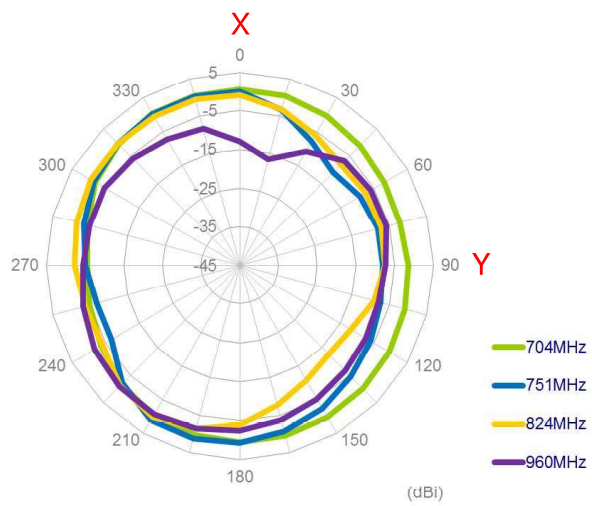
3.3.11. Test Setup for Antenna Radiation Pattern (ETS Anechoic chamber)



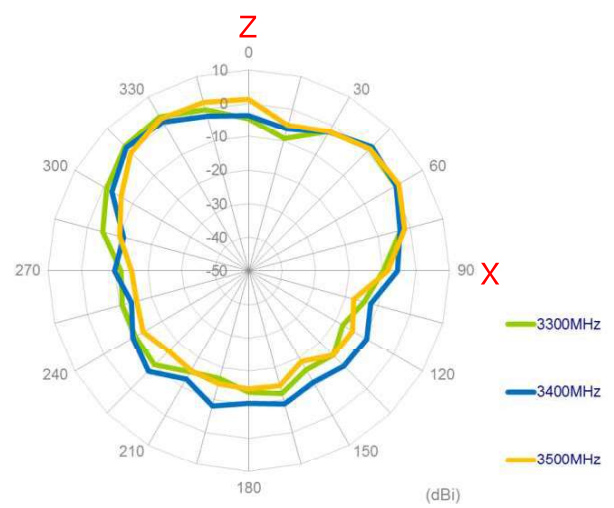
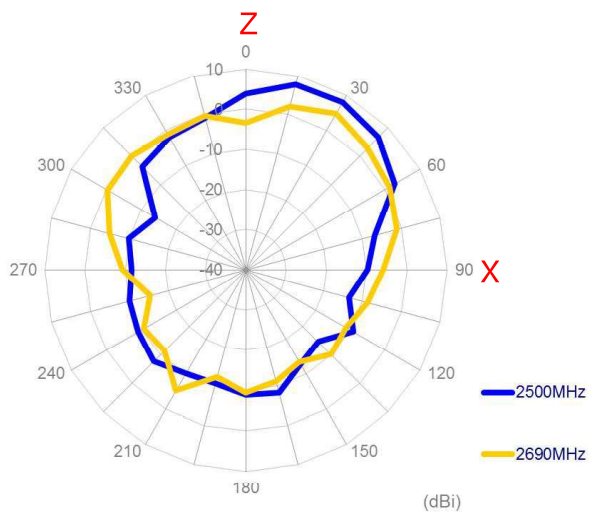
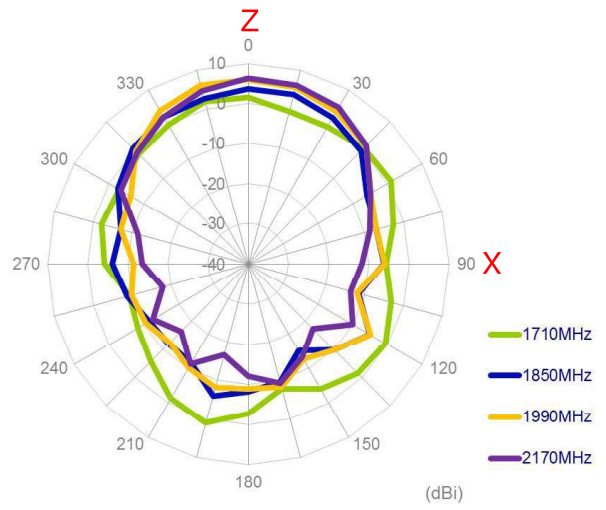
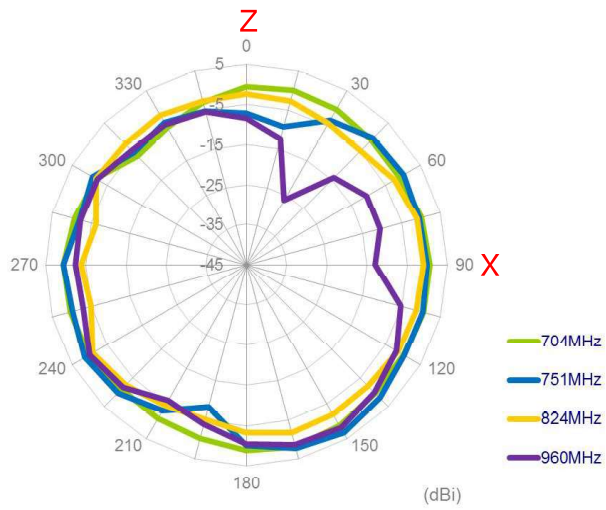
In free space

3.3.12. 2D Radiation pattern (MIMO1 with 1M cable length in free space)

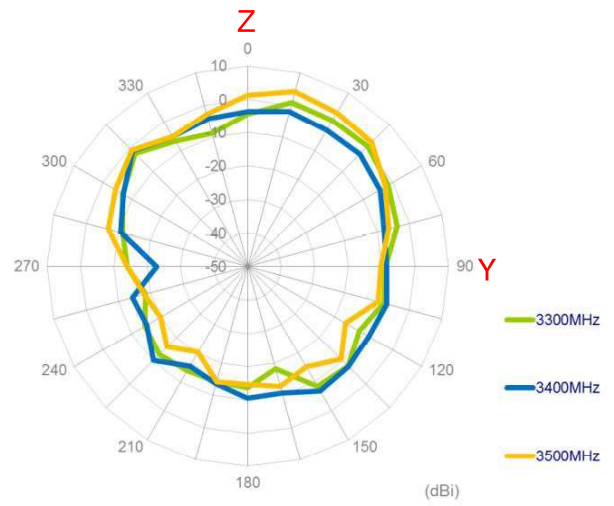
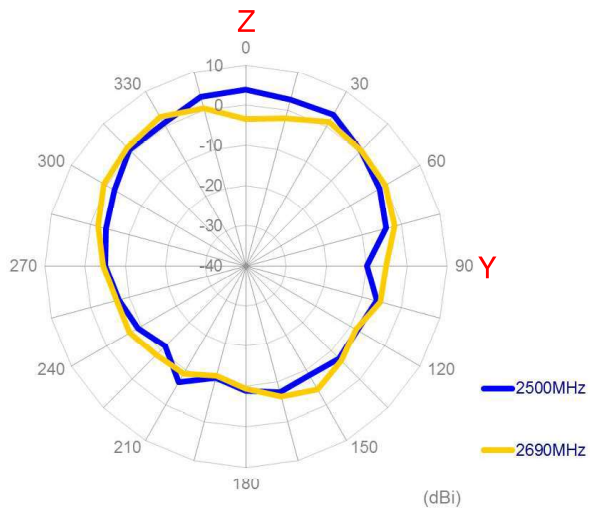
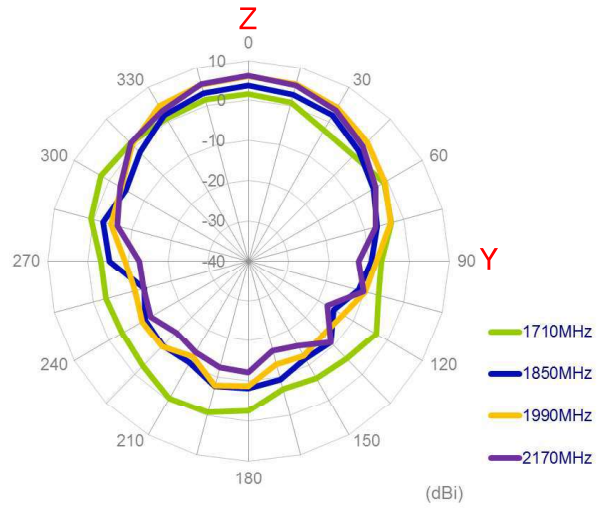
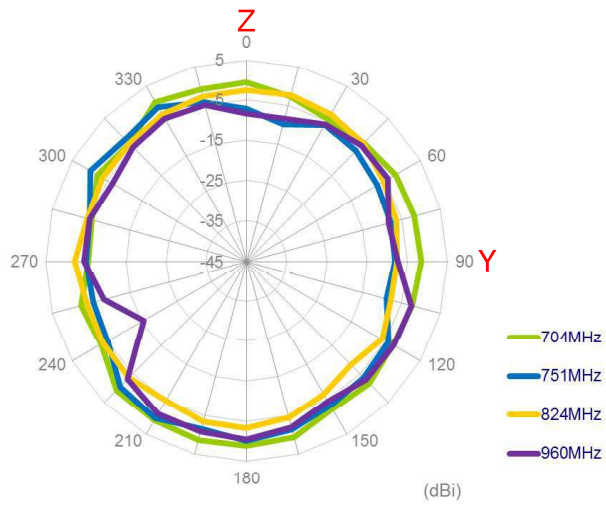
XY Plane



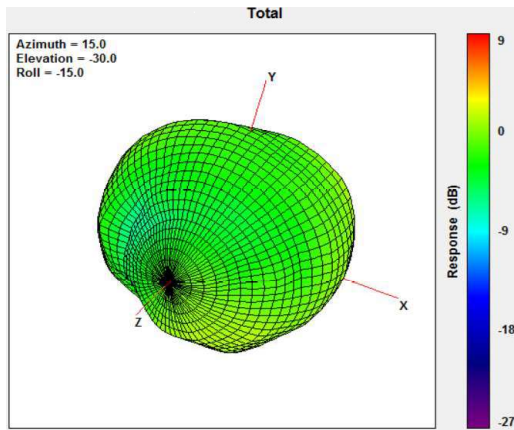
XZ Plane



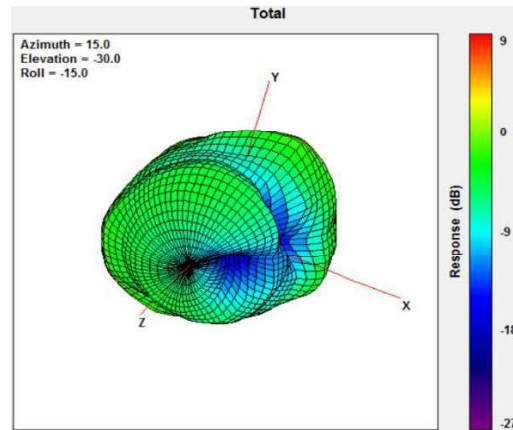
YZ Plane



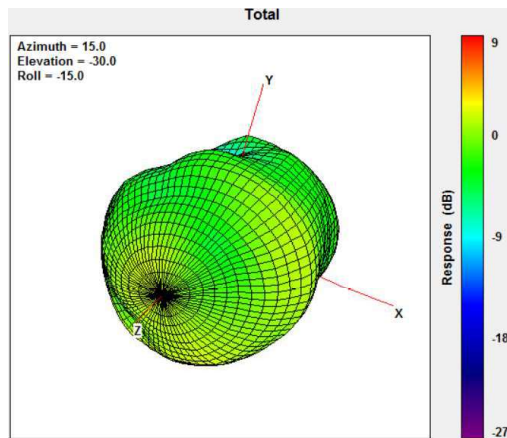
3.3.13. 3D Radiation pattern (MIMO1 with 1M cable length in free space)



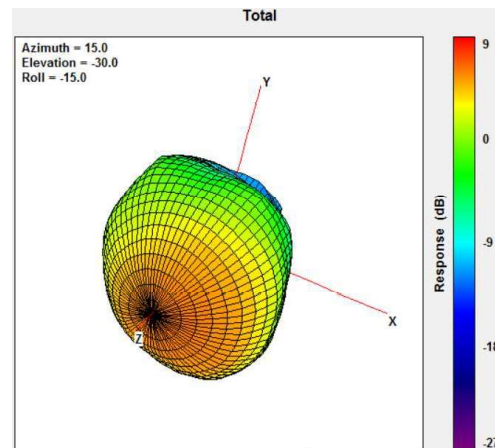
704MHz



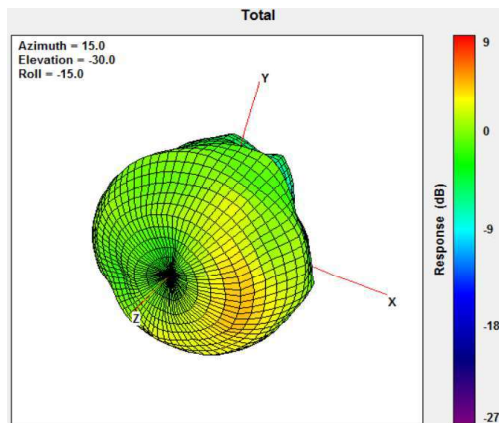
960MHz



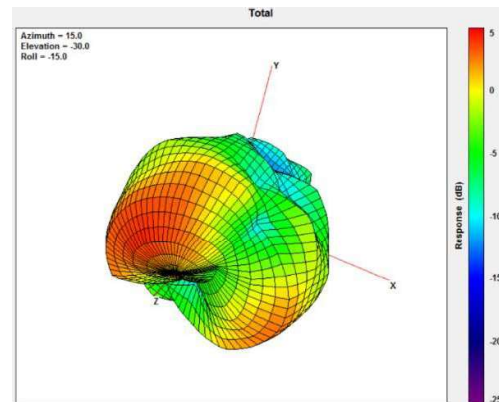
1710MHz



2170MHz



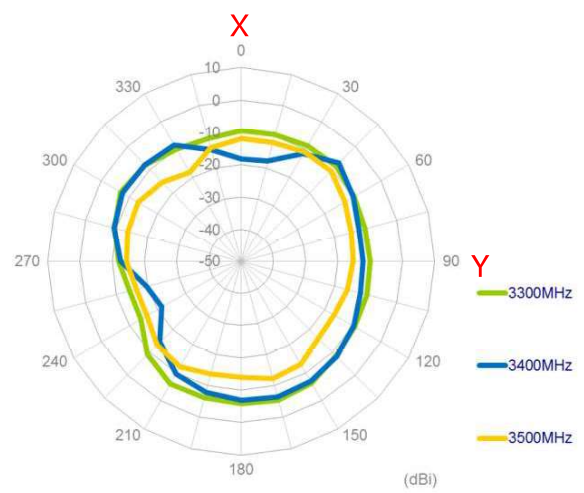
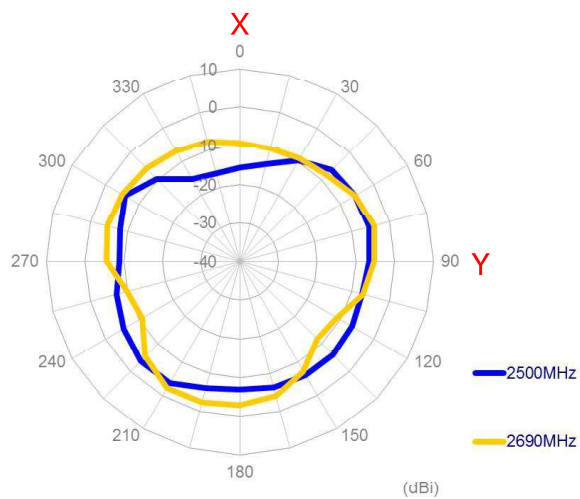
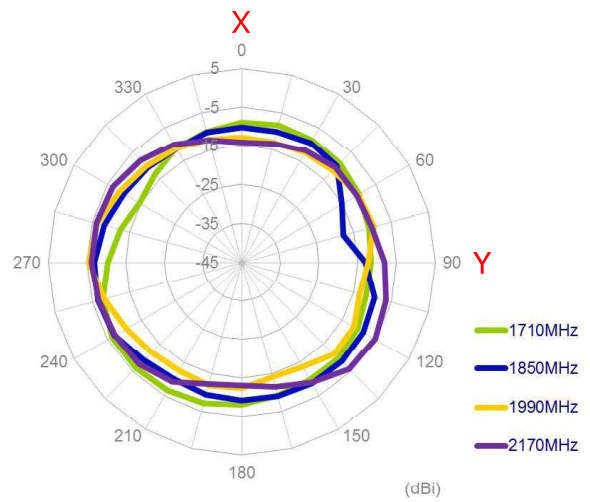
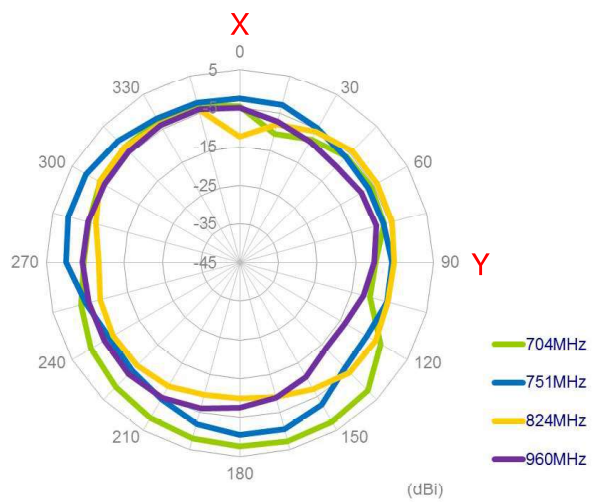
2690MHz



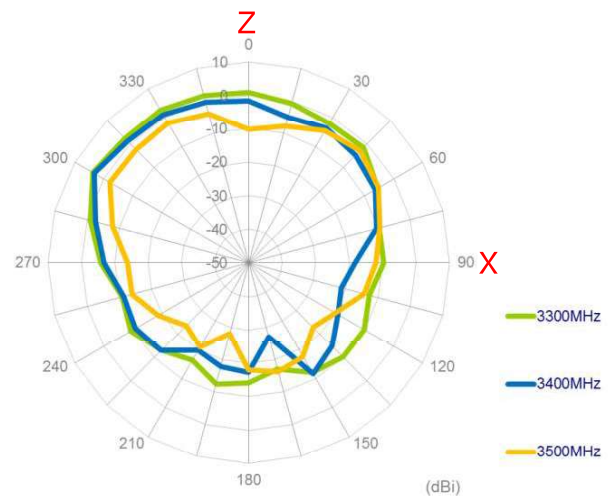
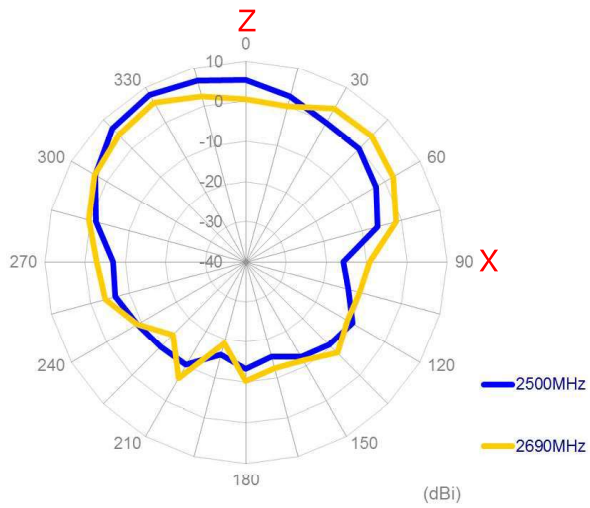
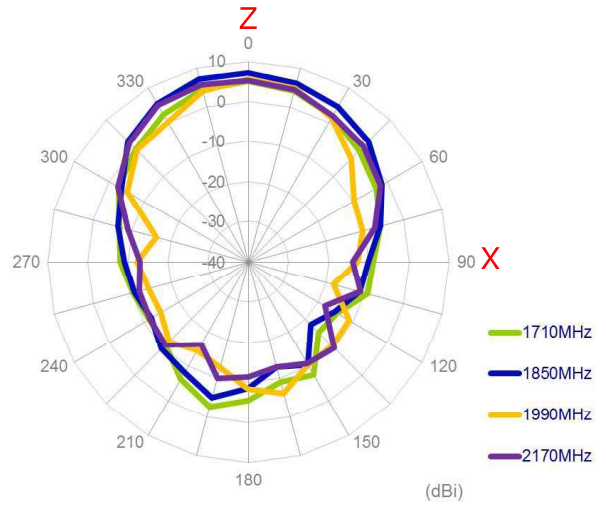
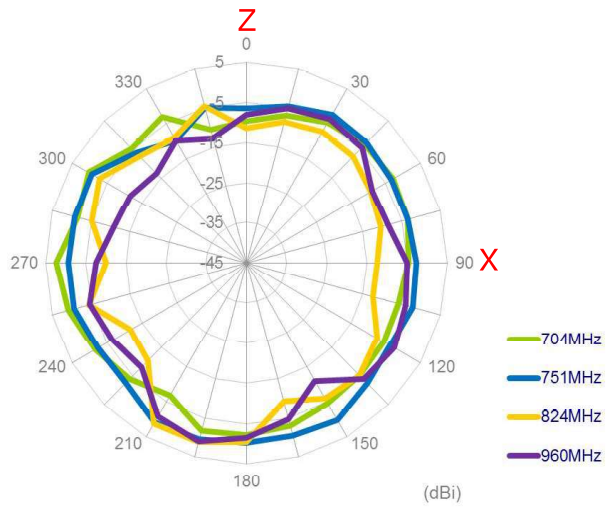
3500MHz

3.3.14. 2D Radiation pattern (MIMO2 with 1M cable length in free space)

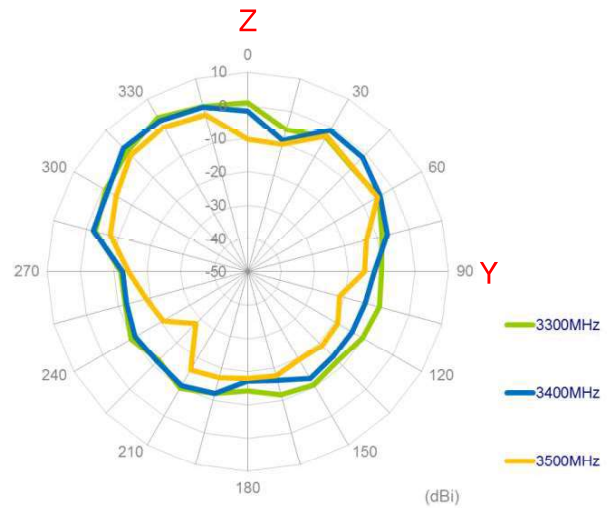
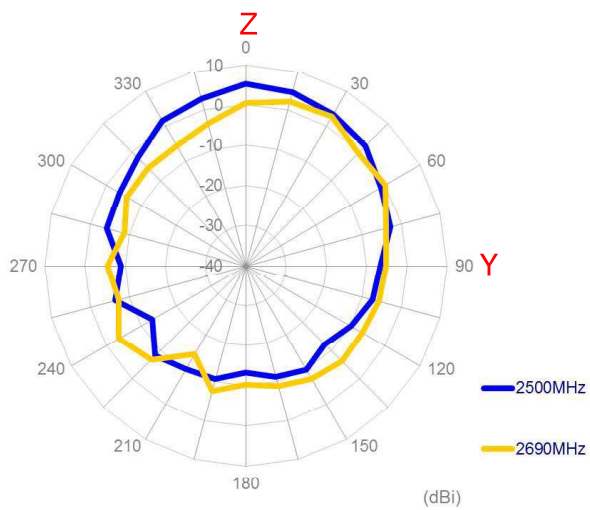
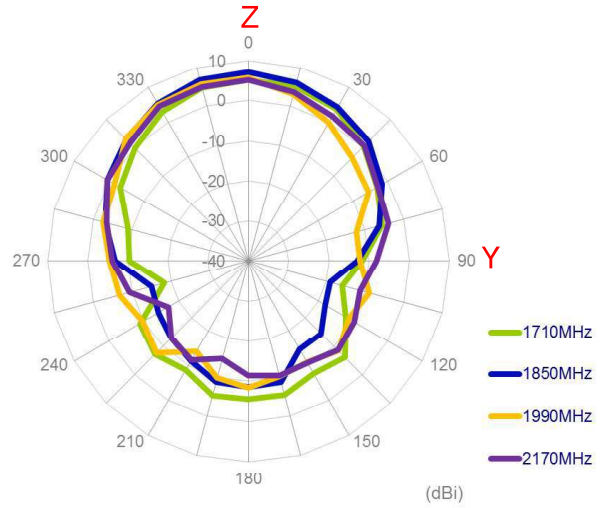
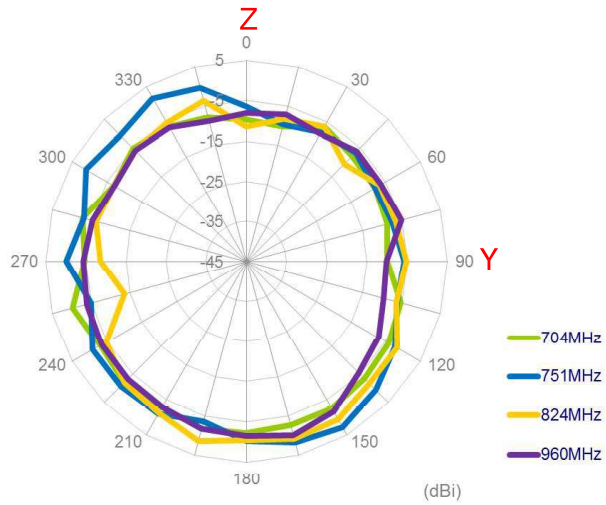
XY Plane



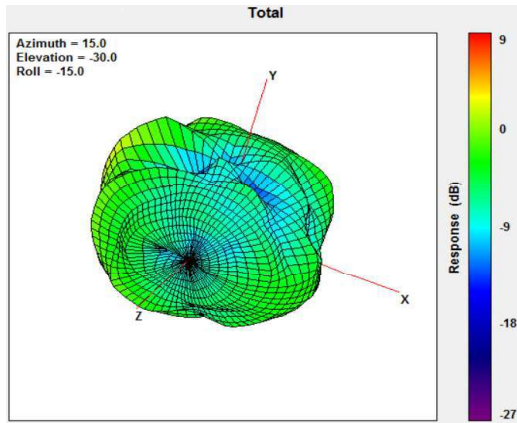
XZ Plane



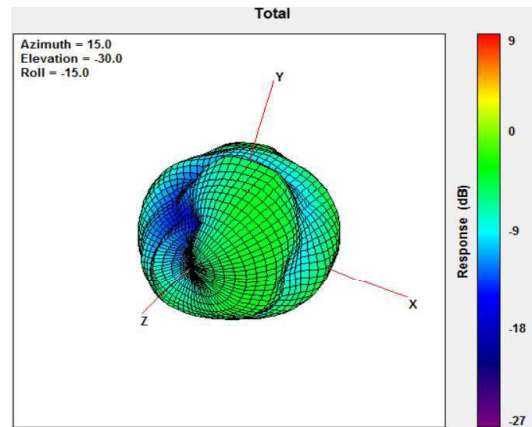
YZ Plane



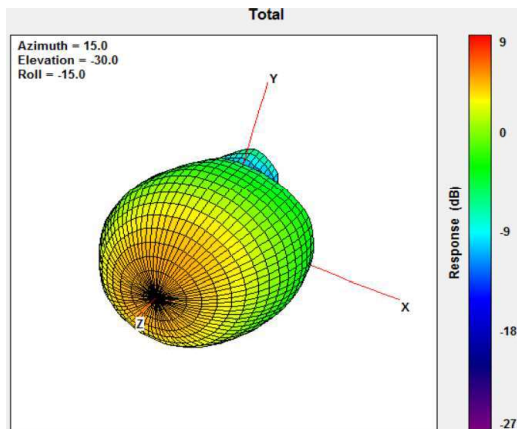
3.3.15. 2D Radiation pattern (MIMO2 with 1M cable length in free space)



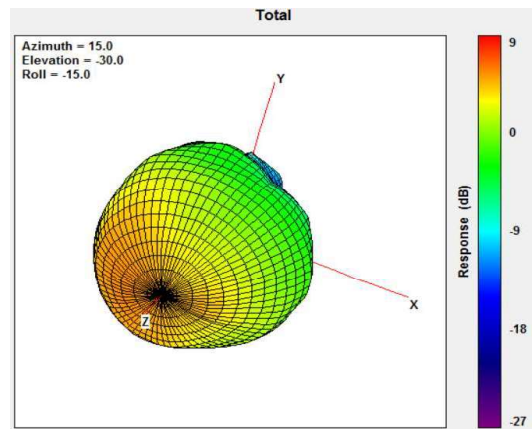
704MHz



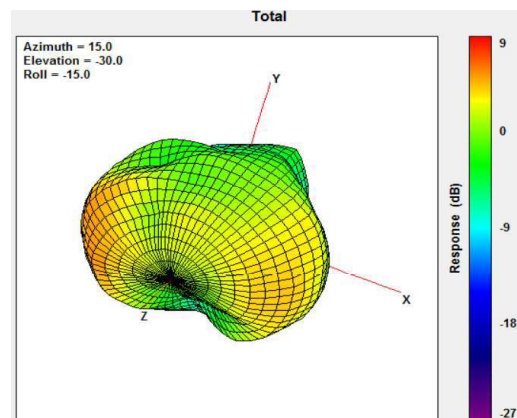
960MHz



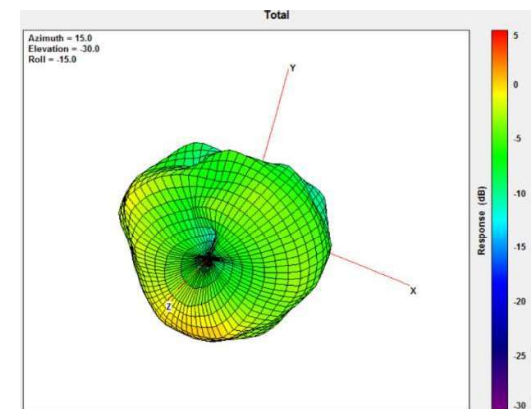
1710MHz



2170MHz

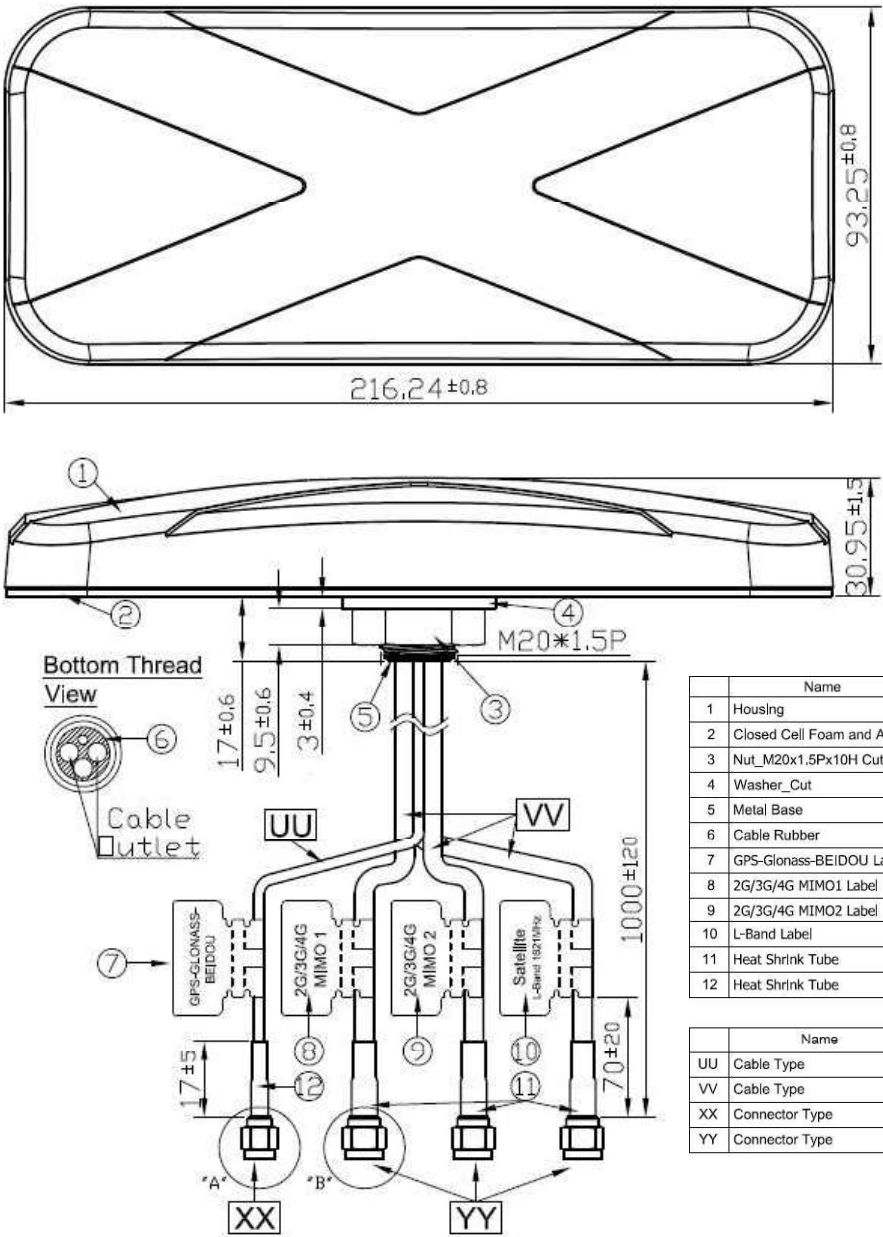


2690MHz



3500MHz

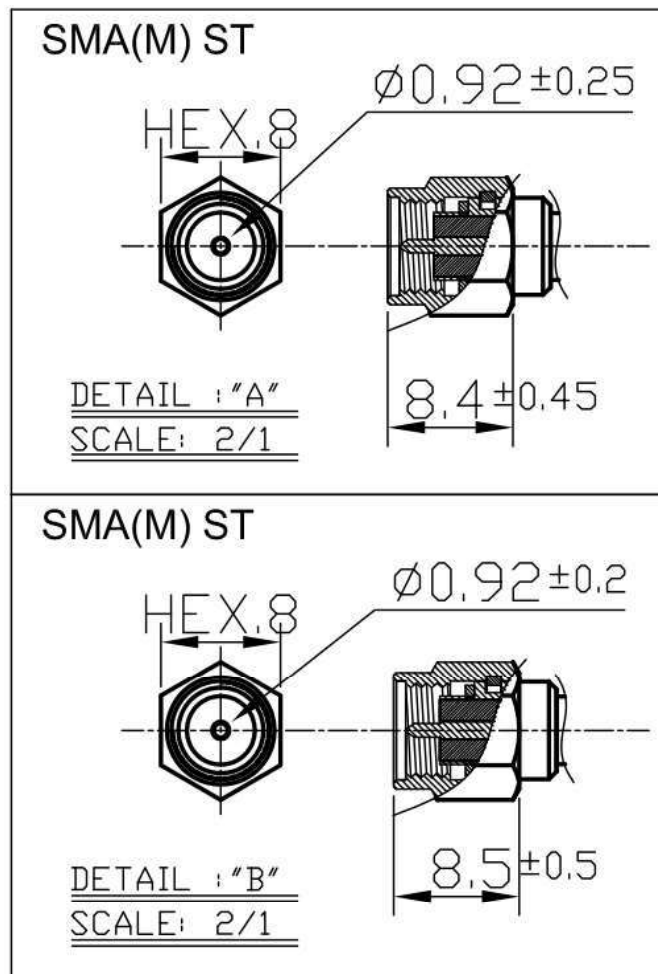
4. Mechanical Drawing (Unit: mm)



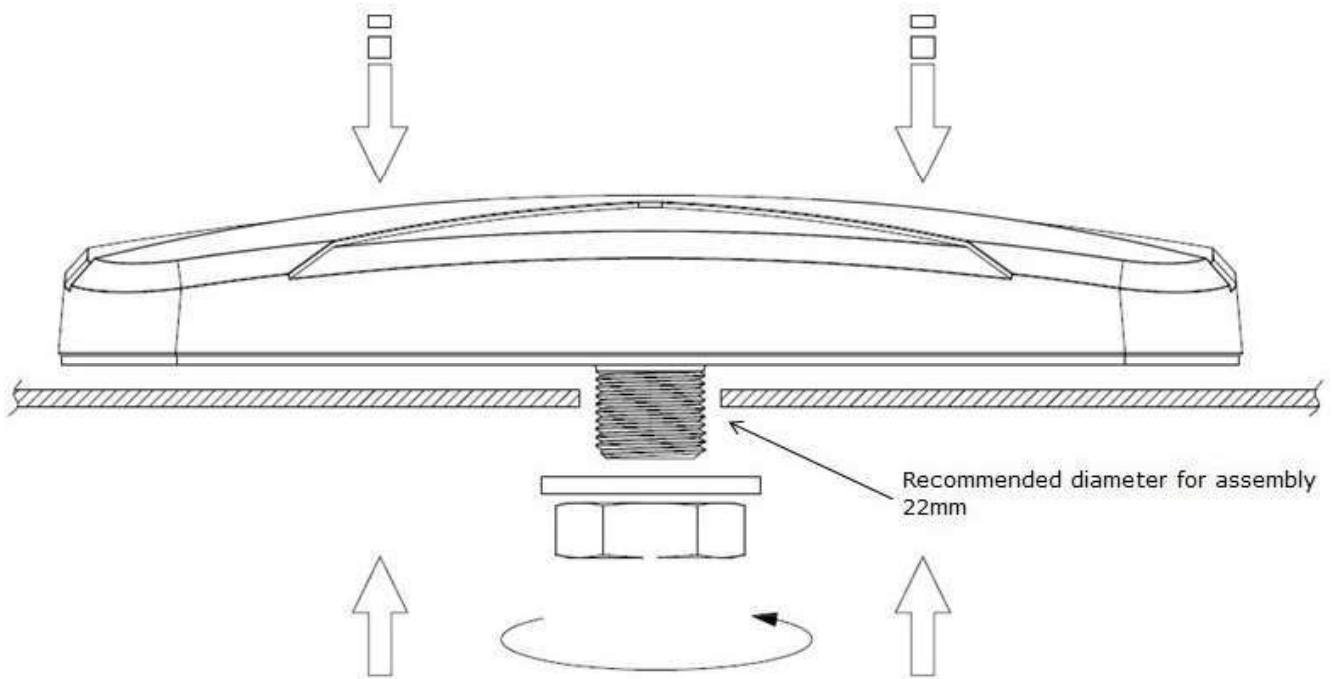
	Name	P/N	Material	Finish	QTY
1	Housing	000113K000066A	ABS+PC	Black	1
2	Closed Cell Foam and Adhesive Tape	001013K000039A	3M 9448+CR-4305	Black	1
3	Nut_M20x1.5Px10H Cut	000413E030061A	Steel	NI Plated	1
4	Washer_Cut	000413E040061A	Steel	NI Plated	1
5	Metal Base	000313K000060A	AL	NI Plated	1
6	Cable Rubber	000713E000063A	Silicone Rubber	Black	1
7	GPS-Glonass-BEIDOU Label	001014E030051A	Coated Paper	Orange	1
8	2G/3G/4G MIMO1 Label	001012L080051A	Coated Paper	Gray	1
9	2G/3G/4G MIMO2 Label	001012L090051A	Coated Paper	White	1
10	L-Band Label	001014I000051A	Coated Paper	Moccasin	1
11	Heat Shrink Tube	001311F010013A	PE	Black	3
12	Heat Shrink Tube	001311F000013A	PE	Black	1

	Name	P/N	Spec	Finish	QTY
UU	Cable Type	301313A000013A	RG174	Black	1
VV	Cable Type	301412K010013A	CFD200	Black	3
XX	Connector Type	200212G000013A	SMA(M)ST	Gold	1
YY	Connector Type	200214F000013A	SMA(M)ST	Gold	3

4.1 Connector Drawing (Unit: mm)



5. Installation



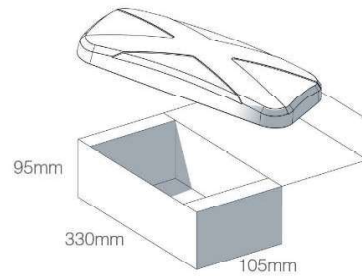
Recommended torque for mounting is 29.4 N.m
Maximum torque for mounting is 39.2 N.m

6. Packaging

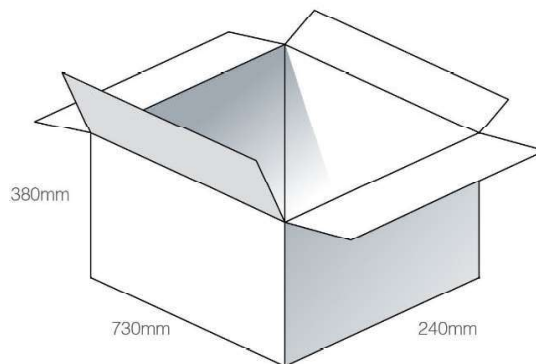
MA410.A.LBIJ.001

Packaging Specifications

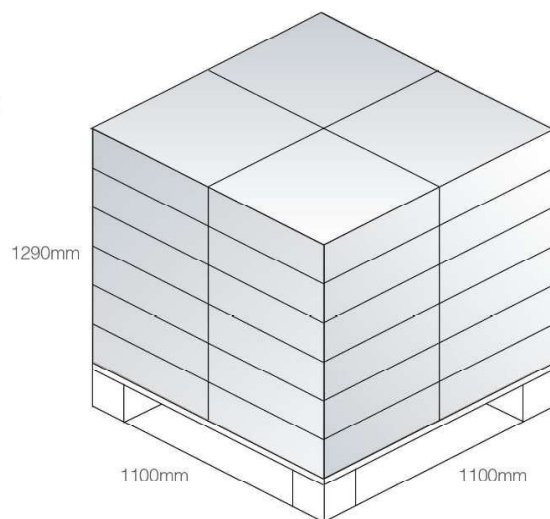
1pc MA410.A.LBIJ.001 per small box
Box Dimensions - 95*330*105mm
Weight - 700g



14 small boxes in one carton
Carton Dimensions - 730*380*240mm
Weight - 10.3Kg



Pallet Dimensions 1100*1100*1590mm
24 Cartons per Pallet
4 Cartons per layer
6 Layers

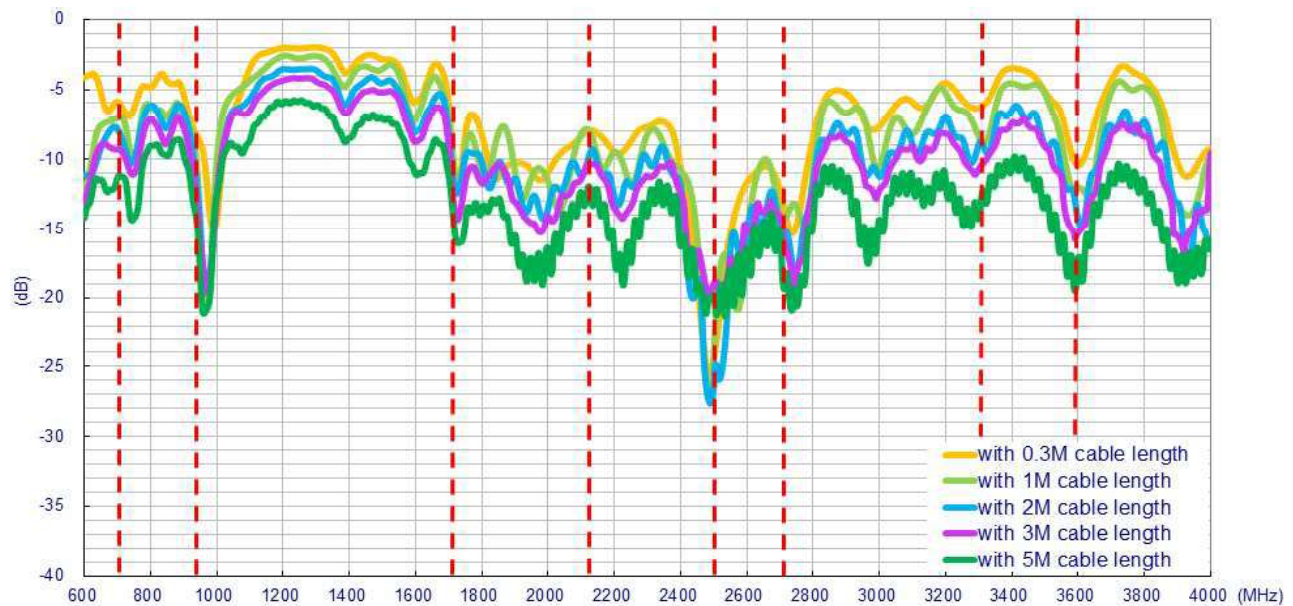


7. Application Note (LTE MIMO Antenna)

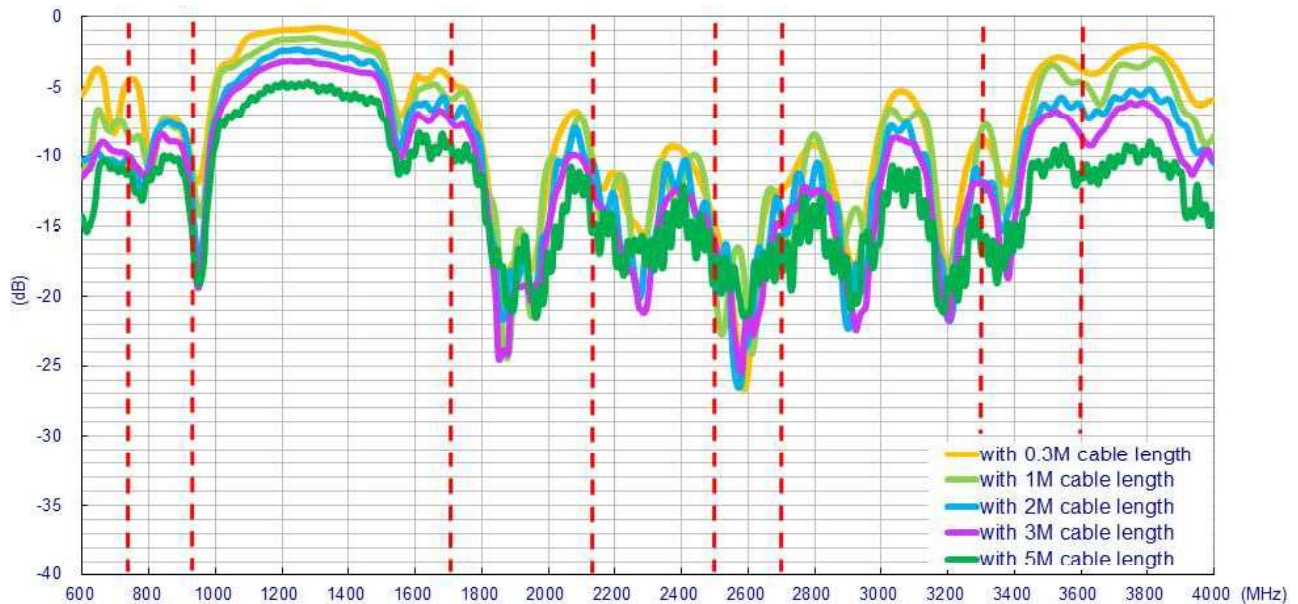
The MA410 antenna performance with different cable lengths and different environments is shown below.

7.1. On the 50*50cm ground plane

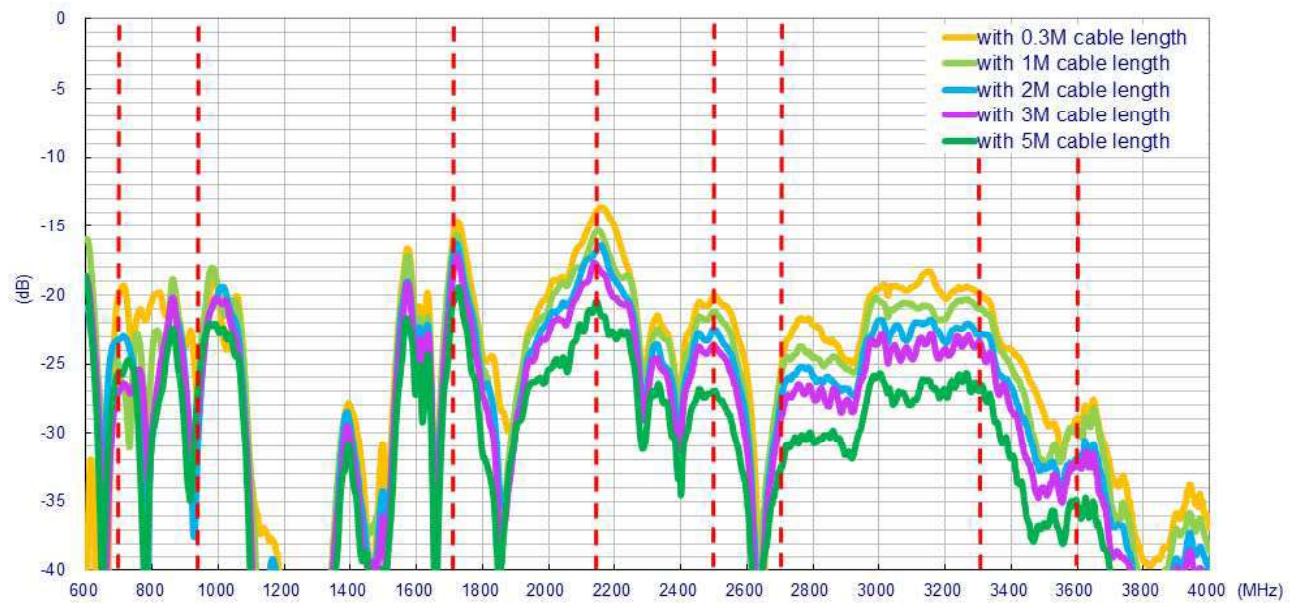
7.1.1. Return Loss (MIMO_1 on the 50*50cm ground plane)



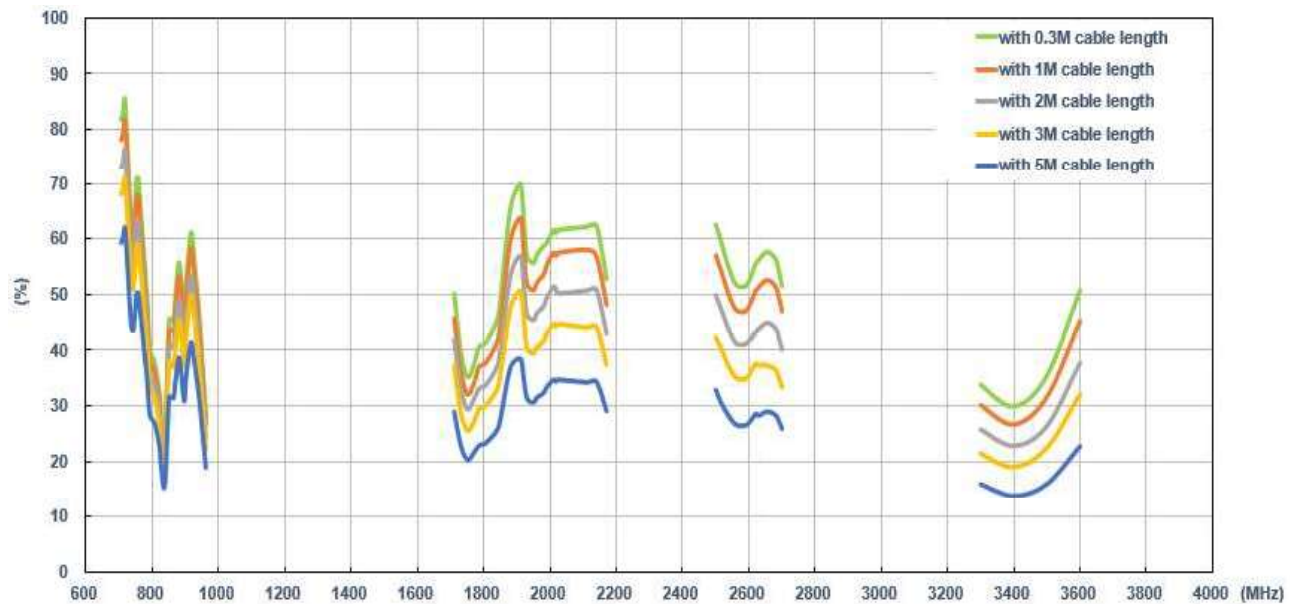
7.1.2. Return Loss (MIMO_2 on the 50*50cm ground plane)



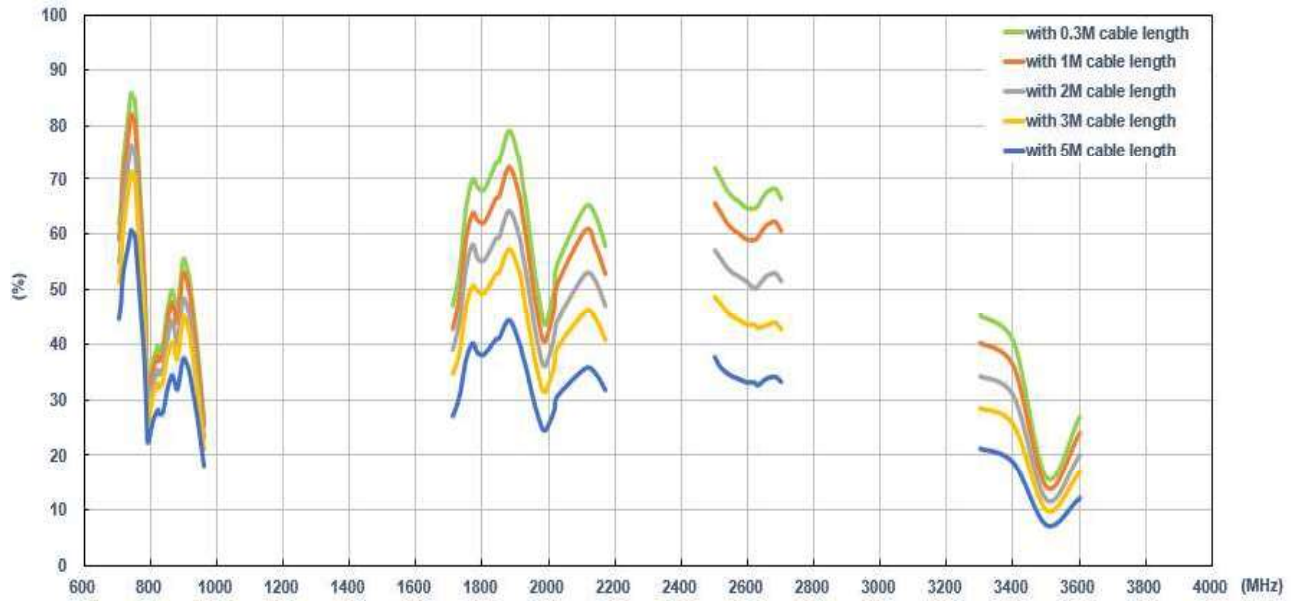
7.1.3. MIMO 1 & MIMO 2 Isolation (on the 50*50cm ground plane)



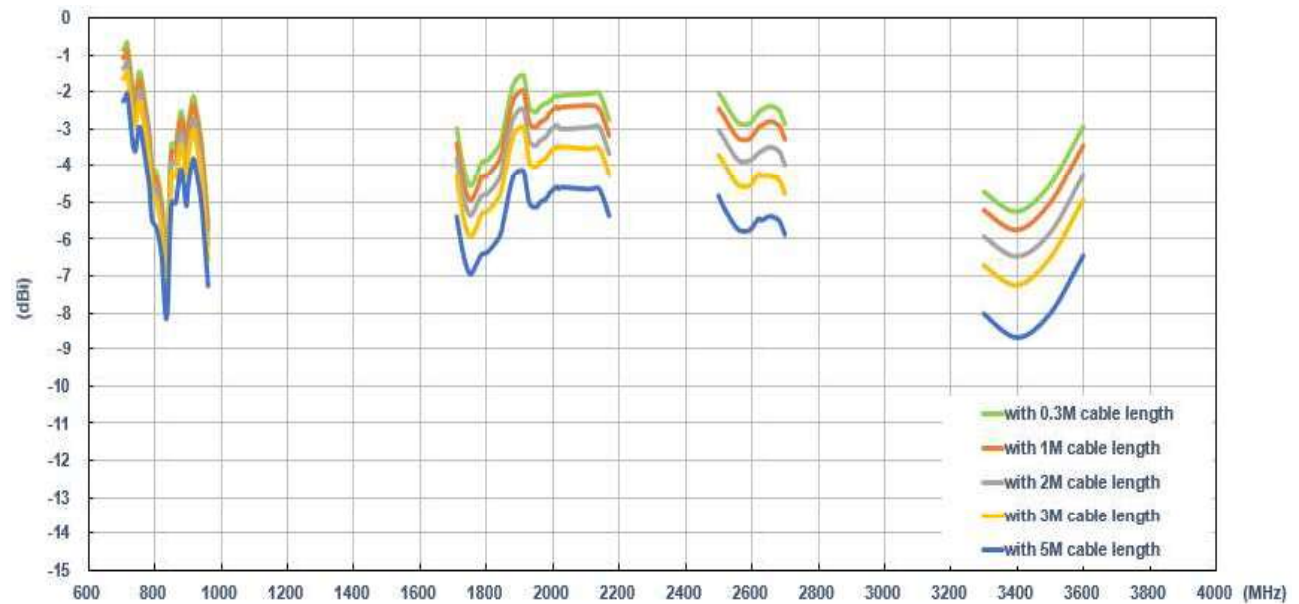
7.1.4. Efficiency (MIMO_1 on the 50*50cm ground plane)



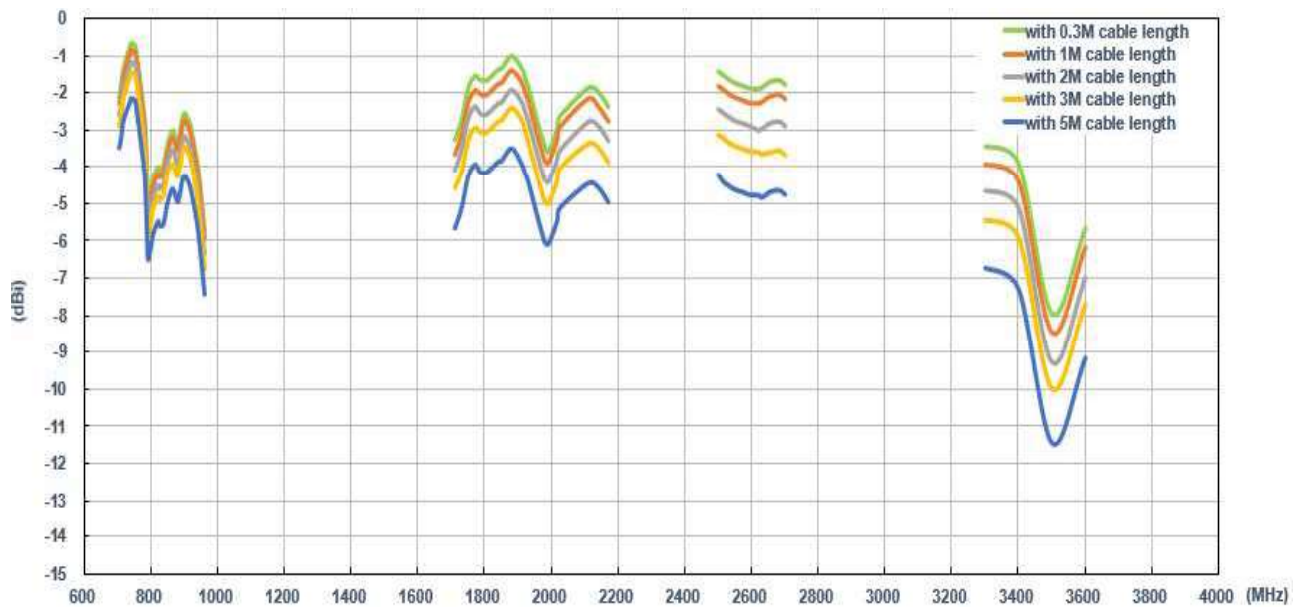
7.1.5. Efficiency (MIMO_2 on the 50*50cm ground plane)



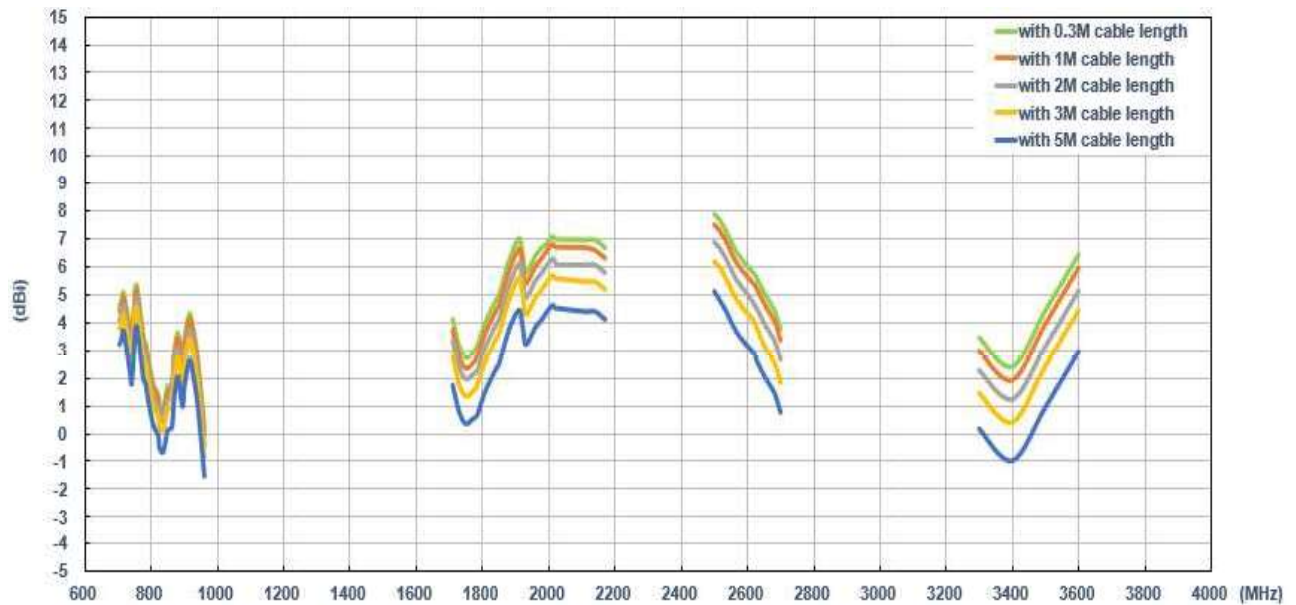
7.1.6. Average Gain (MIMO_1 on the 50*50cm ground plane)



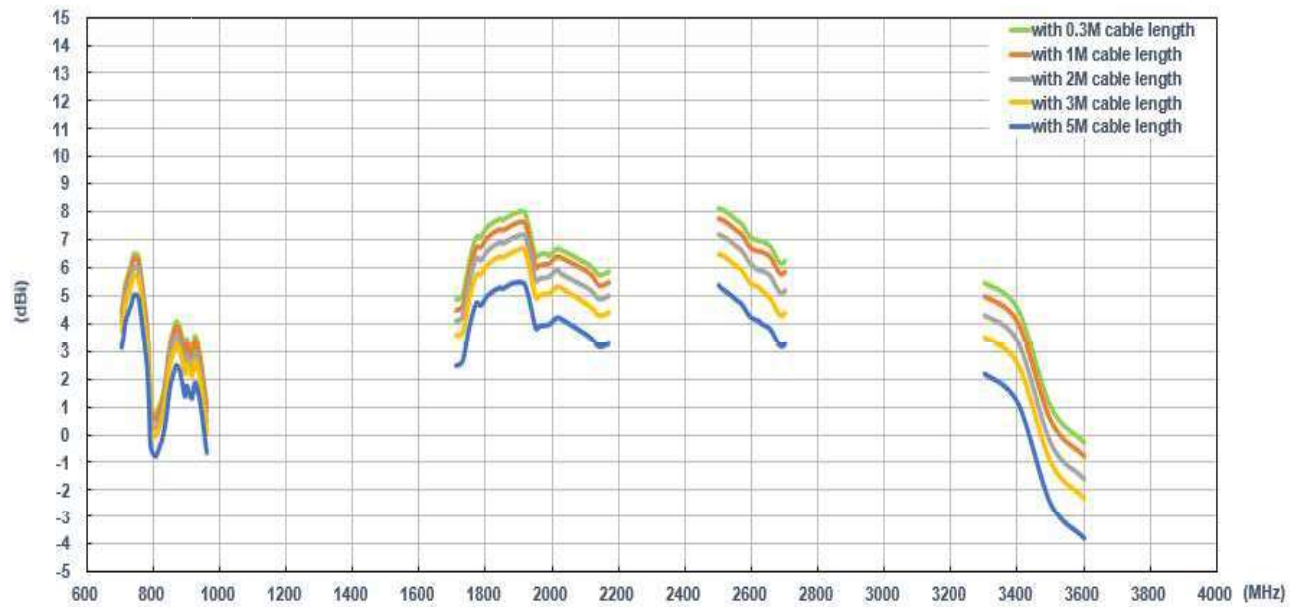
7.1.7. Average Gain (MIMO_2 on the 50*50cm ground plane)



7.1.8. Peak Gain (MIMO_1 on the 50*50cm ground plane)

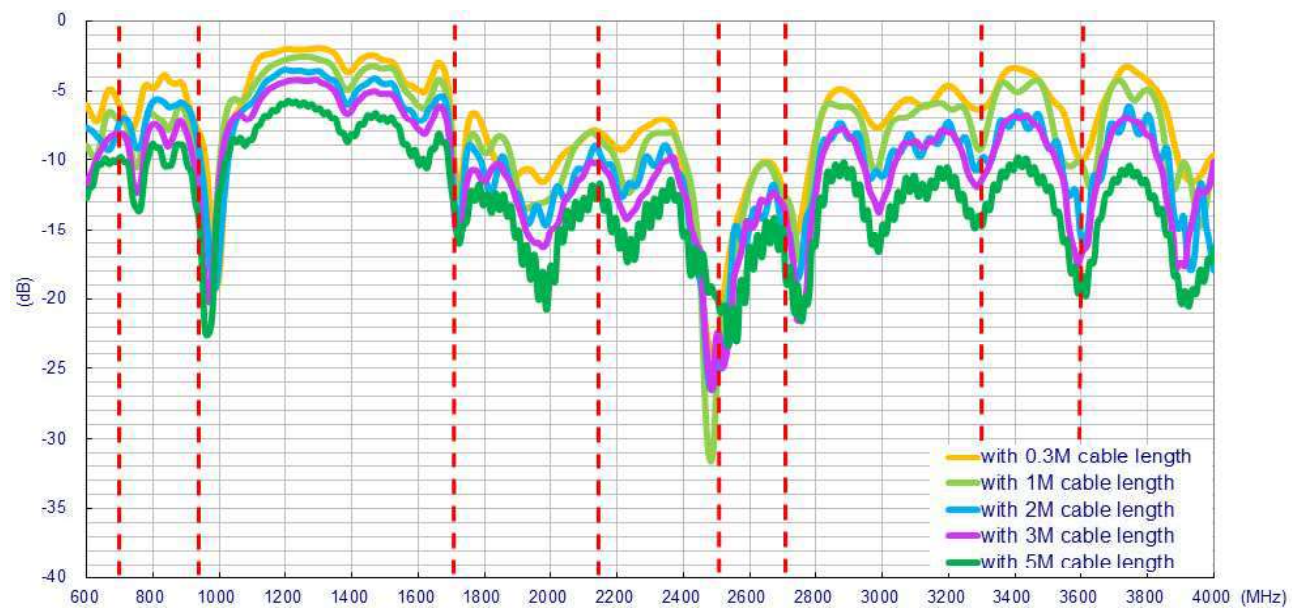


7.1.9. Peak Gain (MIMO_2 on the 50*50cm ground plane)

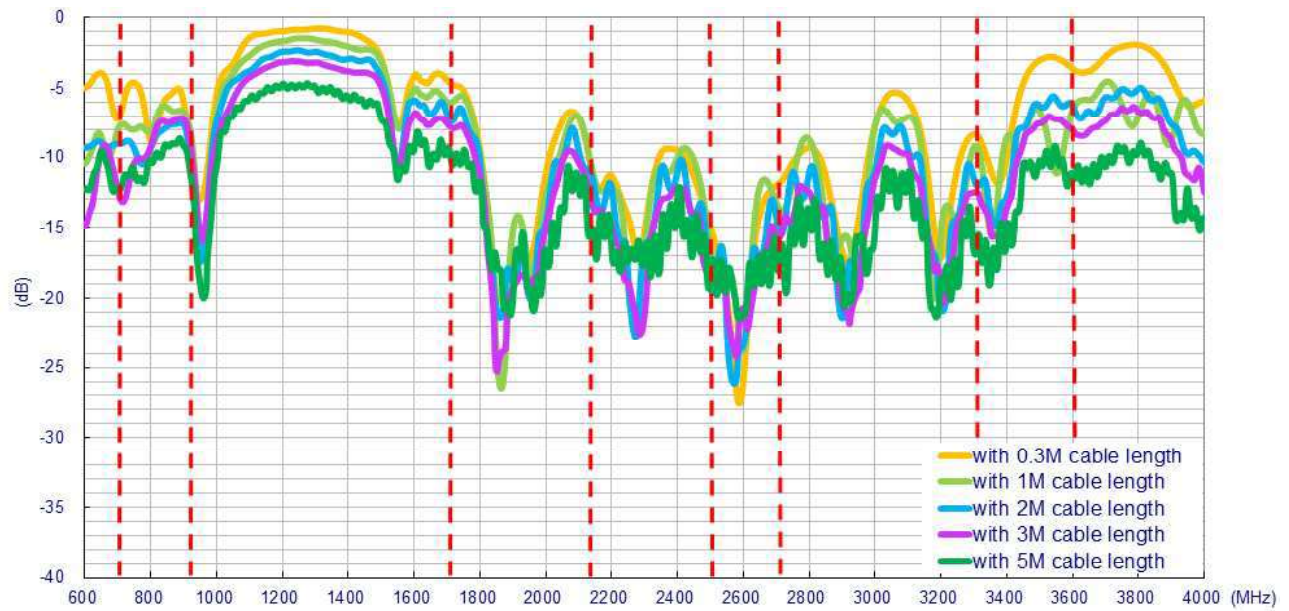


7.2. In free space

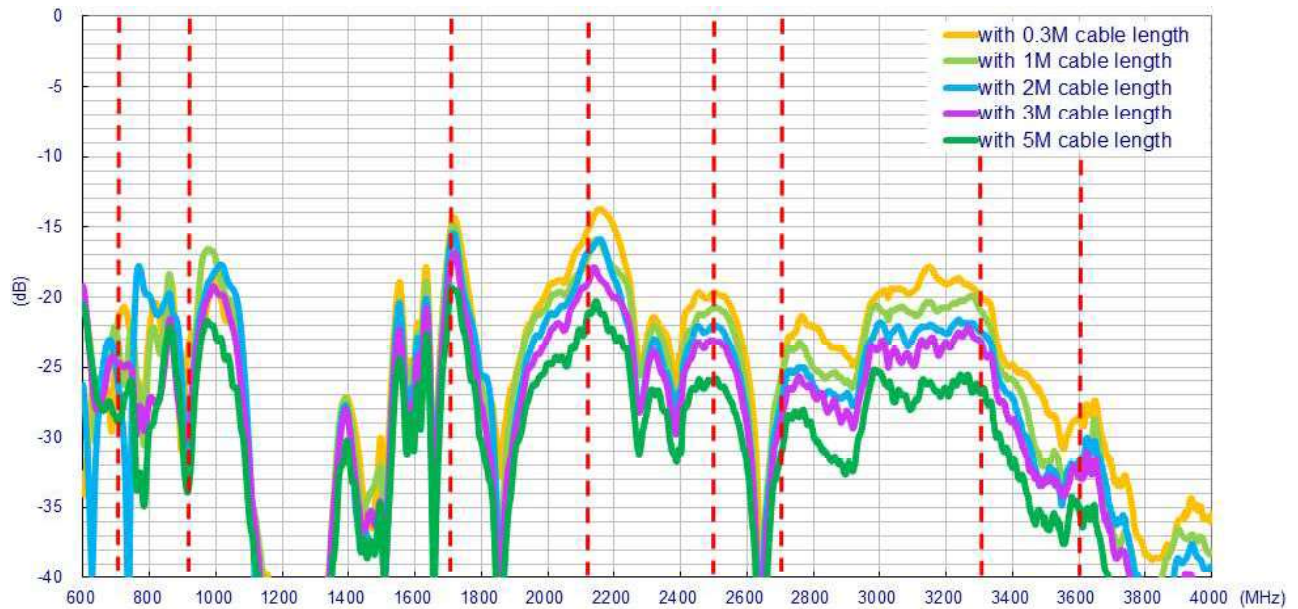
7.2.1. Return Loss (MIMO_1 in free space)



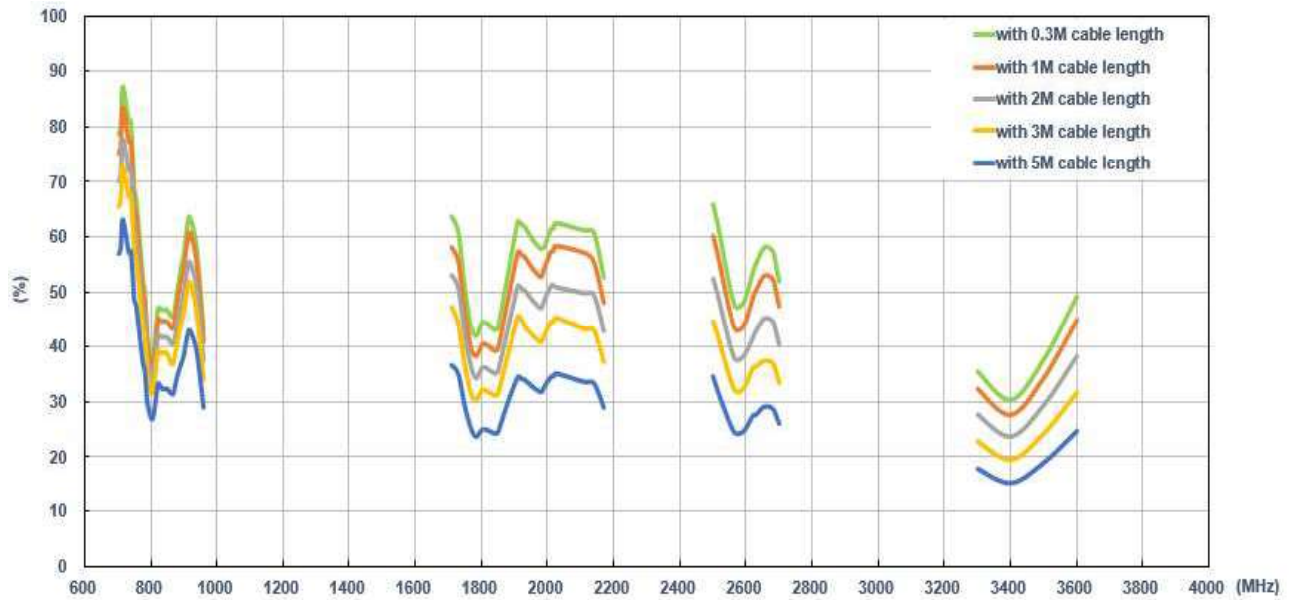
7.2.2. Return Loss (MIMO_2 in free space)



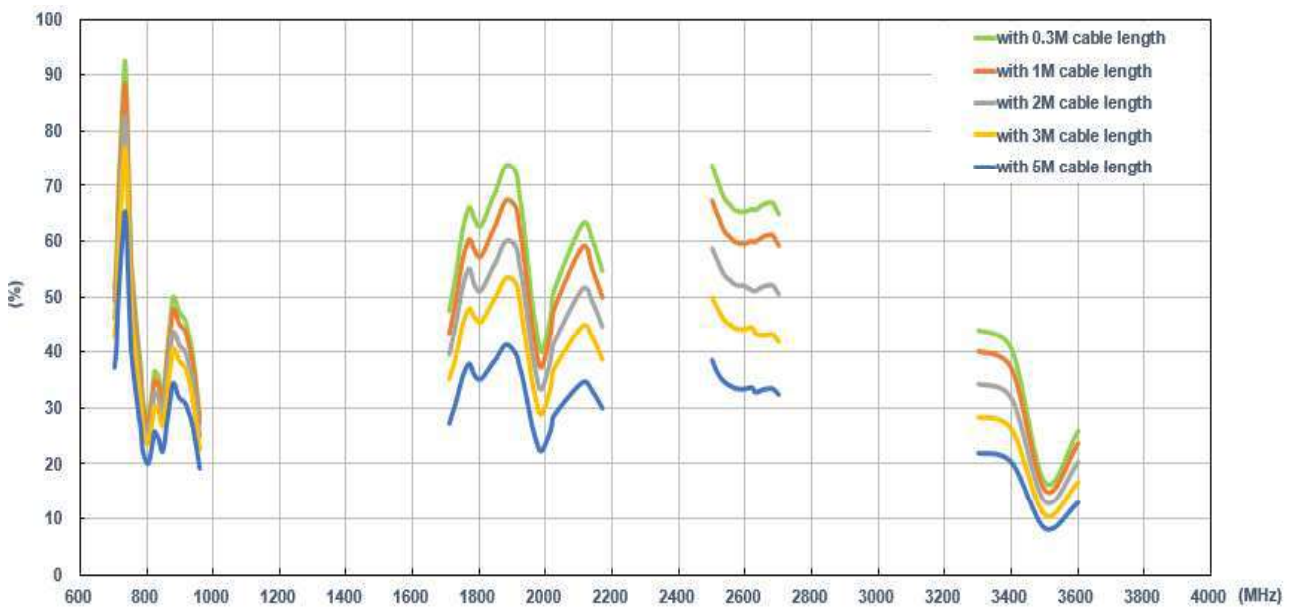
7.2.3. MIMO1 & MIMO2 Isolation (in free space)



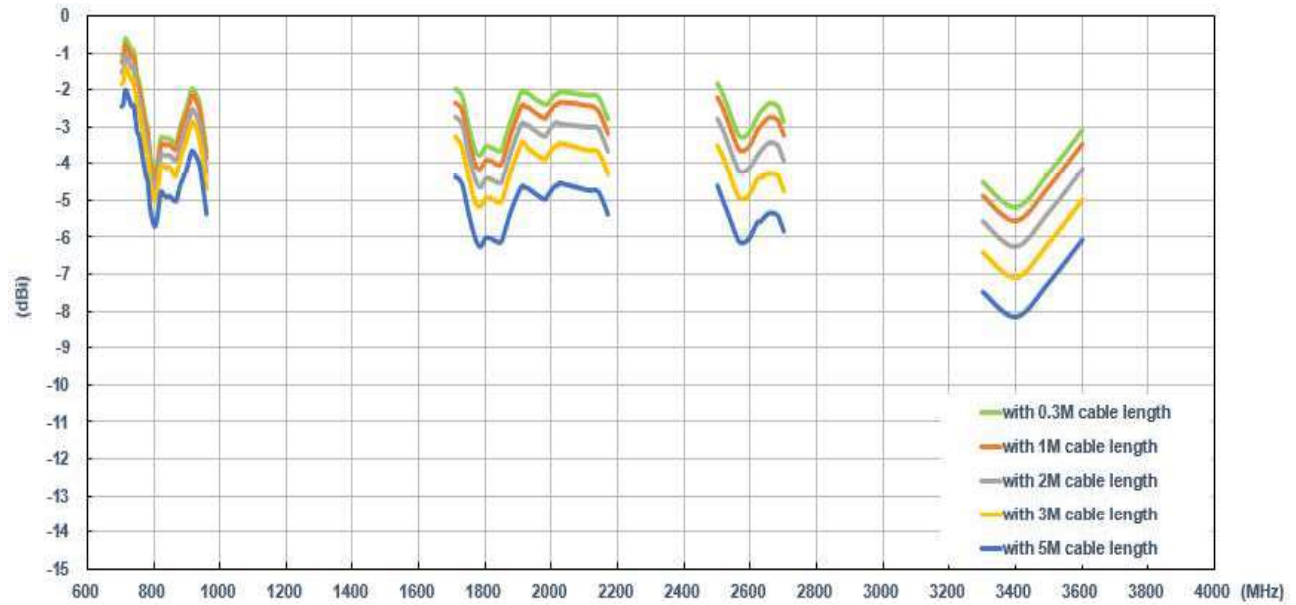
7.2.4. Efficiency (MIMO_1 in free space)



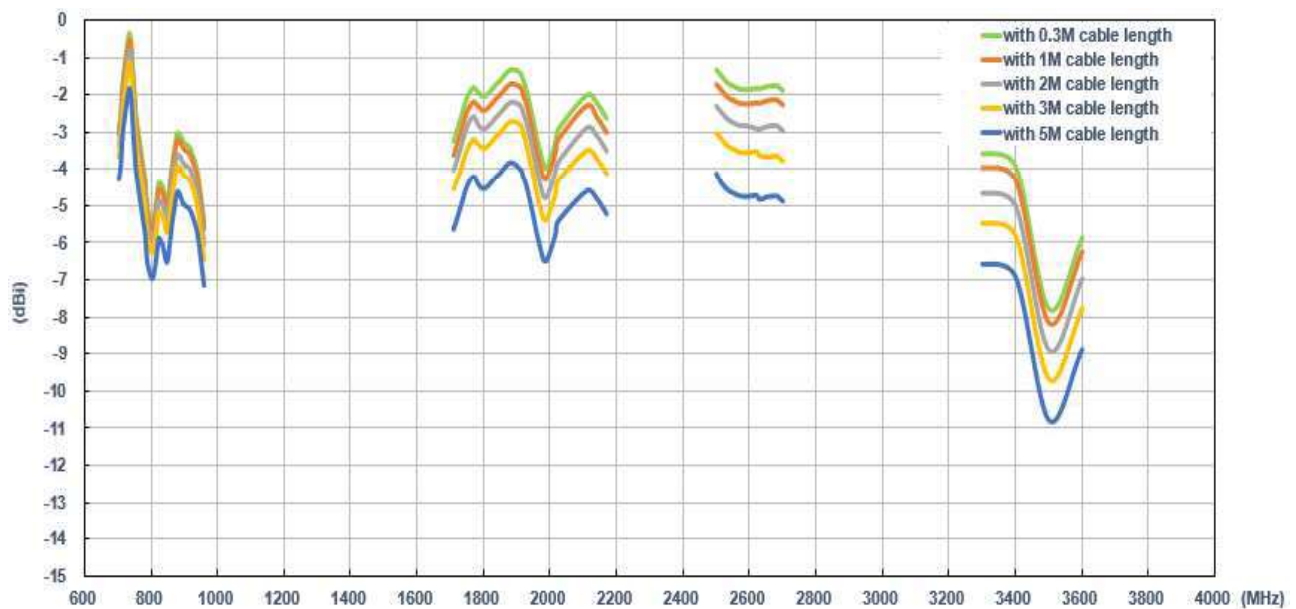
7.2.5. Efficiency (MIMO_2 in free space)



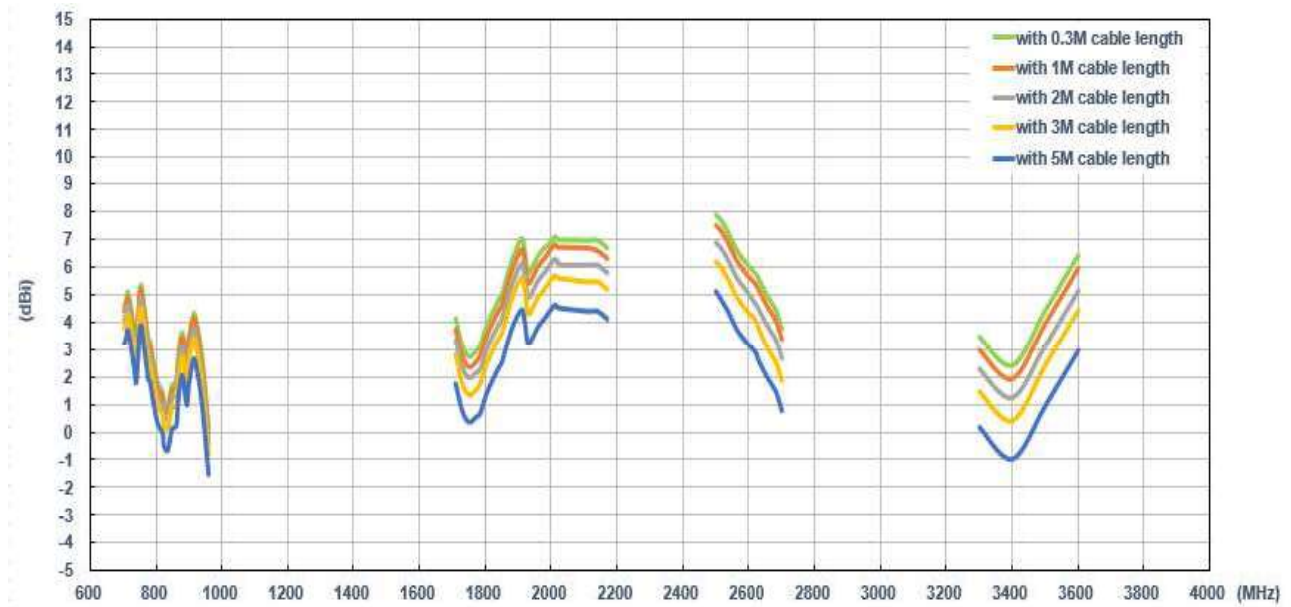
7.2.6. Average Gain (MIMO_1 in free space)



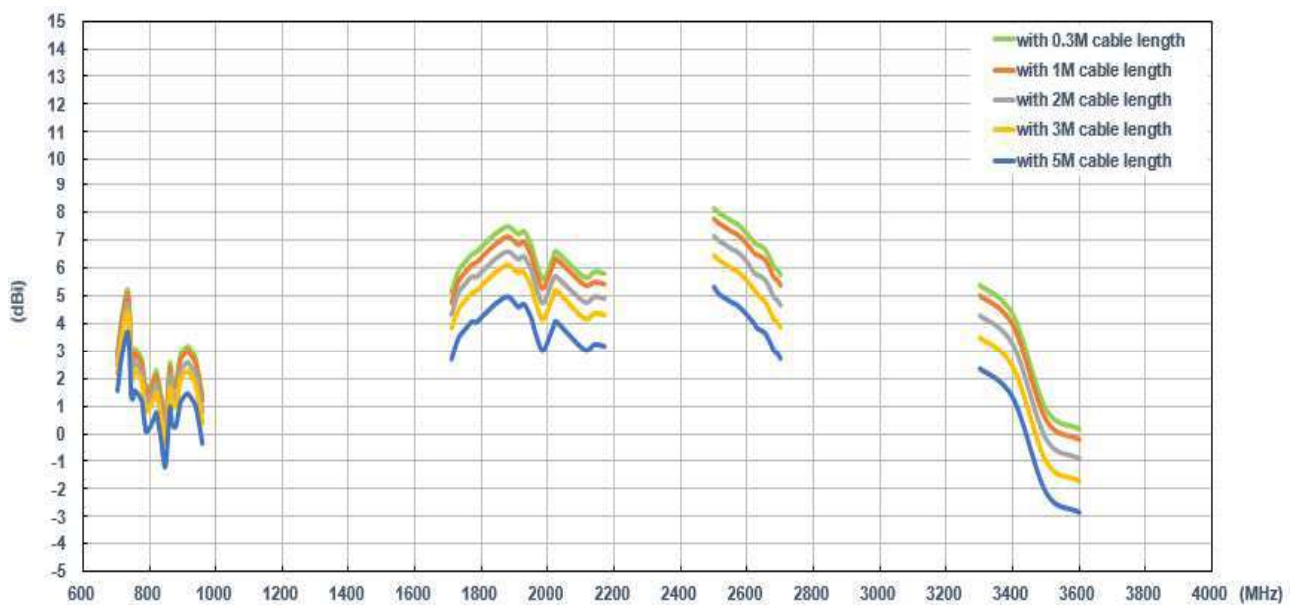
7.2.7. Average Gain (MIMO_2 in free space)



7.2.8. Peak Gain (MIMO_1 in free space)



7.2.9. Peak Gain (MIMO_2 in free space)



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