

SPECIFICATION

- Part No. : **G20.B.305111.wmc**
- Product Name : Hercules Covert Wall and Cabinet Mounted Cellular Antenna
- Features : GSM / CDMA /DCS /PCS / WCDMA / UMTS / HSDPA
850/900/1700/1800/1900/2100 MHz
High Efficiency - Omni-directional Pattern
Covert and Vandal Resistant
IP67 and IP69K Waterproof
Standard is 3M Cable NFC200
SMA(M)-Customizable
ROHS Compliant

Photo:



1. Introduction

The Wall Mount G20 Hercules Gen II is a high performance covert wall mounted cellular antenna for 2G and 3G applications. This antenna can easily fix to a wall or metal surface. The Wall Mount G20 antenna has omnidirectional radiation patterns across all bands ensuring constant reception and transmission.

Applications

- Smart City Outdoors Utility and Traffic Management
 - On Building Wall
 - On Street Metal Cabinet

PC housing is resistant to vandalism and direct attack. The Hercules and the connection internally to the bracket is completely IP67 waterproof. The bracket allows complete concealment of the cable for a more secure integration and cleaner installation. The cable can also be routed out of the back wall of the bracket into the interior of the mounting wall for added security against vandalism. The standard version comes with 3 meters extremely low loss NFC200 (0.3dB against 0.7dB per meter for RG58) to allow for flexibility of placement. The cable and connector can be completely customized.

2. Specification

ELECTRICAL					
Standard	GSM	GSM	DCS	PCS	UMTS/ HSPA
Band (MHz)	850	900	1800	1900	2100
Frequency (MHz)	824~894	880~960	1710~1880	1850~1990	1920~2170
Efficiency (%)					
30 cm cable length	45.64	70.44	75.09	63.10	54.48
1 meter cable length	43.59	67.27	68.48	57.80	50.15
2 meters cable length	40.32	61.35	61.56	51.51	44.54
3 meters cable length	37.33	56.84	54.40	45.24	38.97
5 meters cable length	32.05	53.61	50.65	40.64	33.64
Average Gain(dBi)					
30 cm cable length	-3.68	-1.53	-1.27	-2.04	-2.76
1 meter cable length	-3.88	-1.73	-1.67	-2.41	-3.12
2 meters cable length	-4.21	-2.13	-2.14	-2.91	-3.64
3 meters cable length	-4.54	-2.47	-2.67	-3.48	-4.22
5 meters cable length	-5.28	-3.23	-3.75	-4.60	-5.33
Peak Gain(dBi)					
30 cm cable length	2.07	3.21	4.21	3.48	2.81
1 meter cable length	1.87	3.01	3.81	3.10	2.45
2 meters cable length	1.54	2.61	3.34	2.60	1.93
3 meters cable length	1.21	2.28	2.81	2.04	1.35
5 meters cable length	0.47	1.51	1.73	0.92	0.24
Impedance	50Ω				
Polarization	Linear				
Radiation Pattern	Omni				
Input Power	5 W				
MECHANICAL					
Antenna Dimensions	Height = 29 mm and Diameter = 49 mm				
Bracket Dimensions	Height = 92.4 mm and Length = 128.7 mm				
Antenna Cable Length	3M NFC200 – Fully Customizable				
Connector	SMA-Male – Fully Customizable				
Antenna Casing	PC				
Bracket Casing	Plastic: PC+ABS, Metal: Aluminum				
Base and Thread	Nickel plated steel				
Thread Diameter	18 mm				
Weather proof gasket	CR4305 foam with 3M9448B double-sided adhesive				
Sealant	Rubber Stopper				
Weight	340g				
ENVIRONMENTAL					
Protection	IP67 and IP69K				
Corrosion	5% NaCl for 48hrs - Nickel plated steel base and thread				
Temperature Range	-40°C to +85°C				
Thermal Shock	100 cycles -40°C to +85°C				
Humidity	Non-condensing 65°C 95% RH				
Shock (Drop Test)	1m drop on concrete 6 axes				

3. Antenna Characteristics

3.1 Testing setup



Figure.1 Test setup with bracket

3.2 Return loss

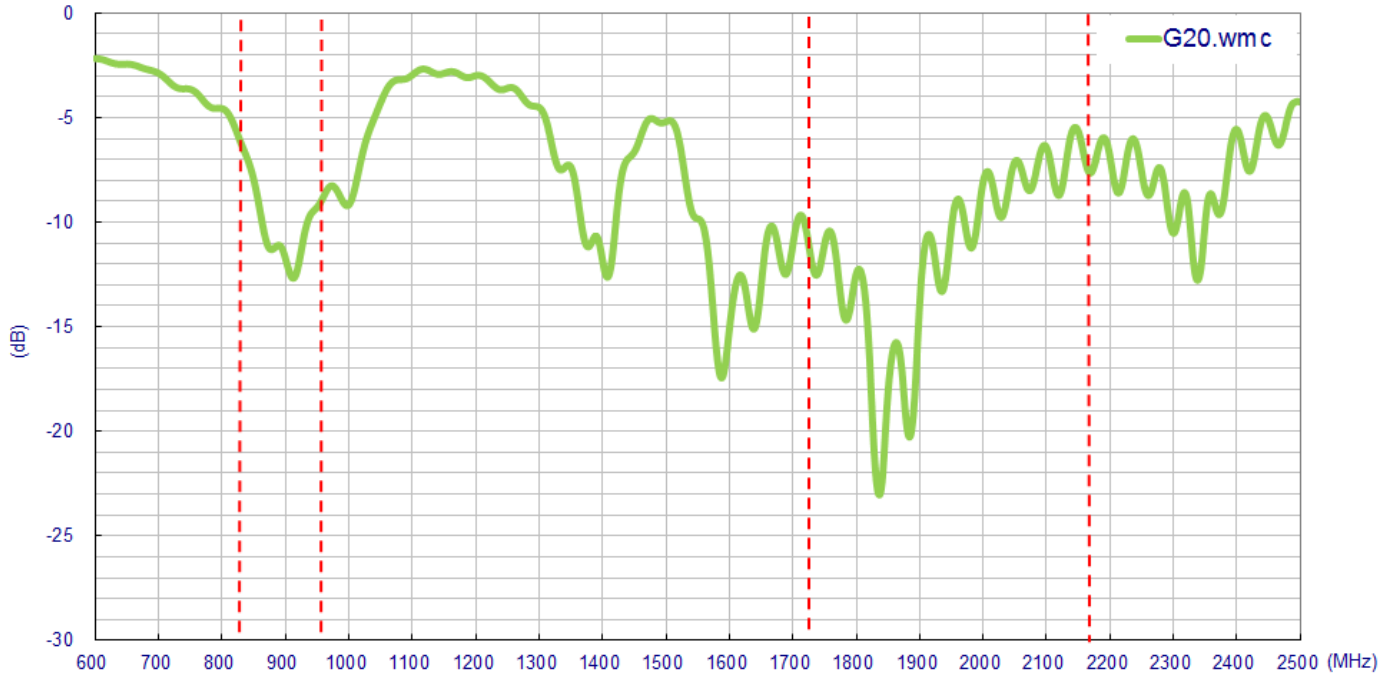


Figure2. Return loss of G20.B.305111.wmc with 3 meters cable length

3.3 Efficiency

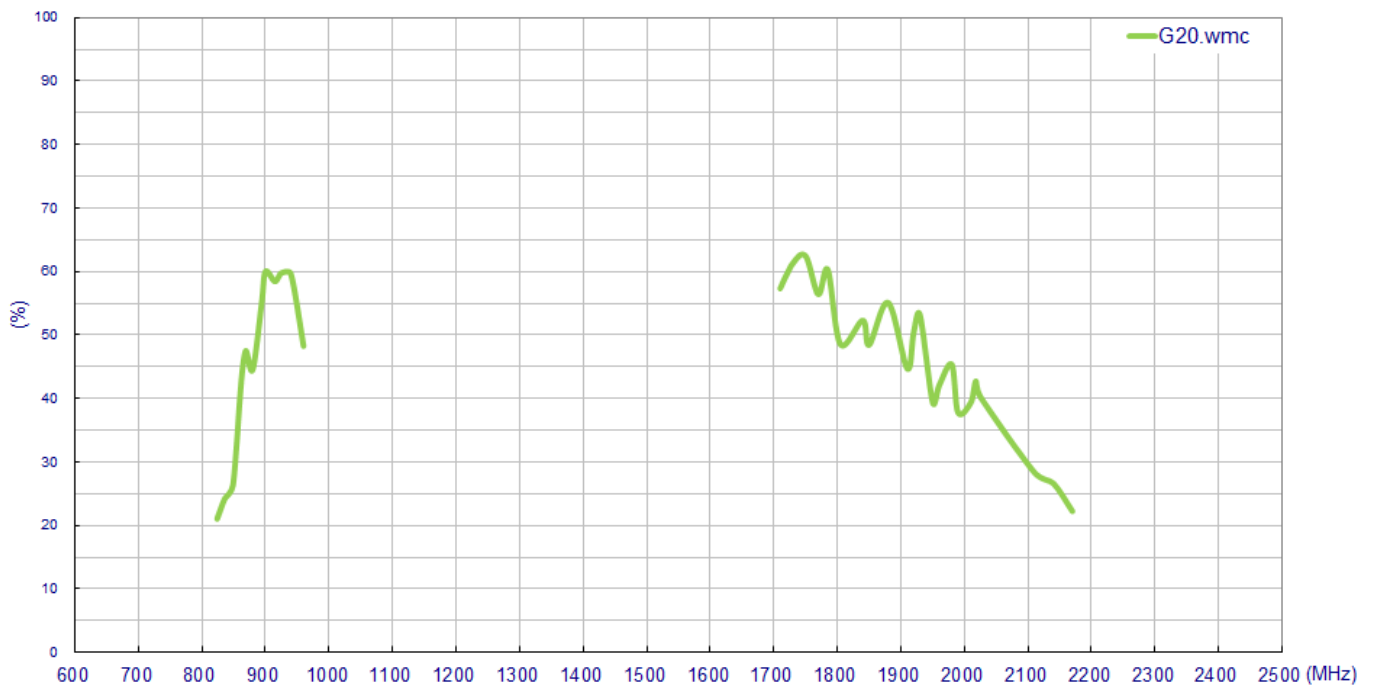


Figure3. Efficiency of G20.B.305111.wmc with 3 meters cable length

3.4 Peak gain

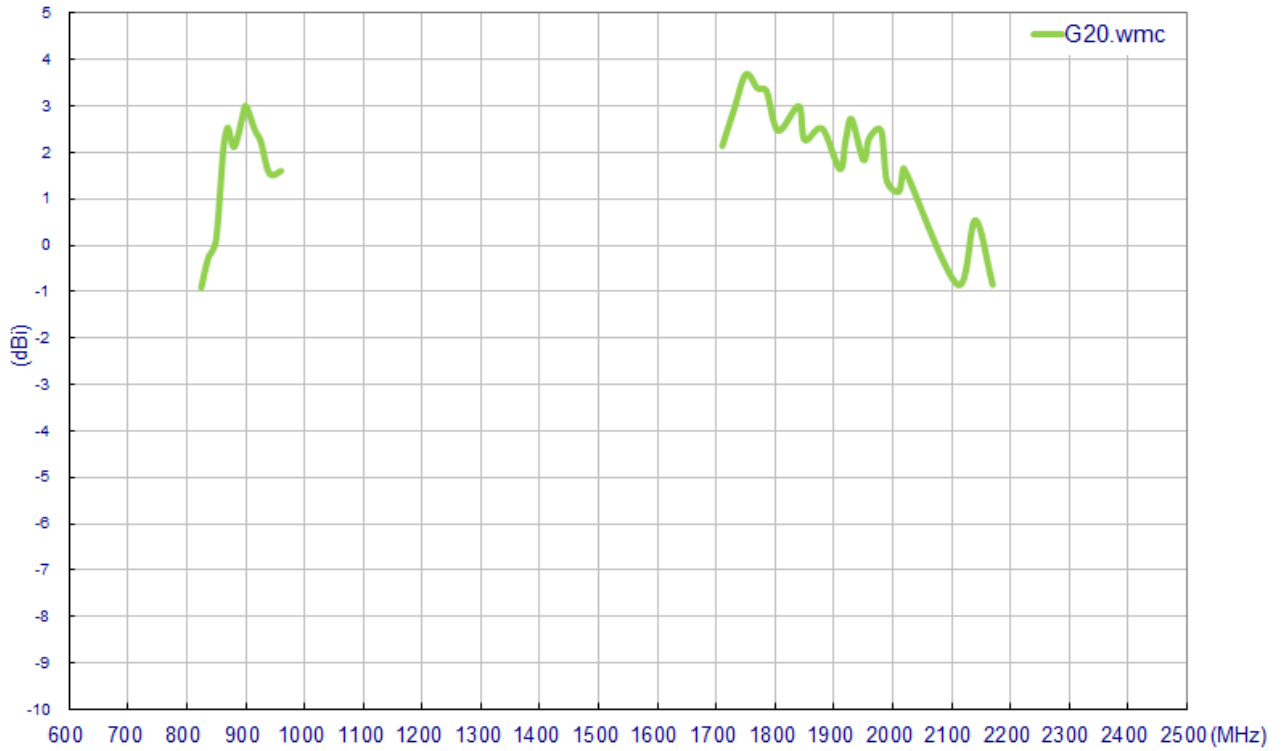


Figure4. Peak gain of G20.B.305111.wmc with 3 meters cable length

3.5 Average gain

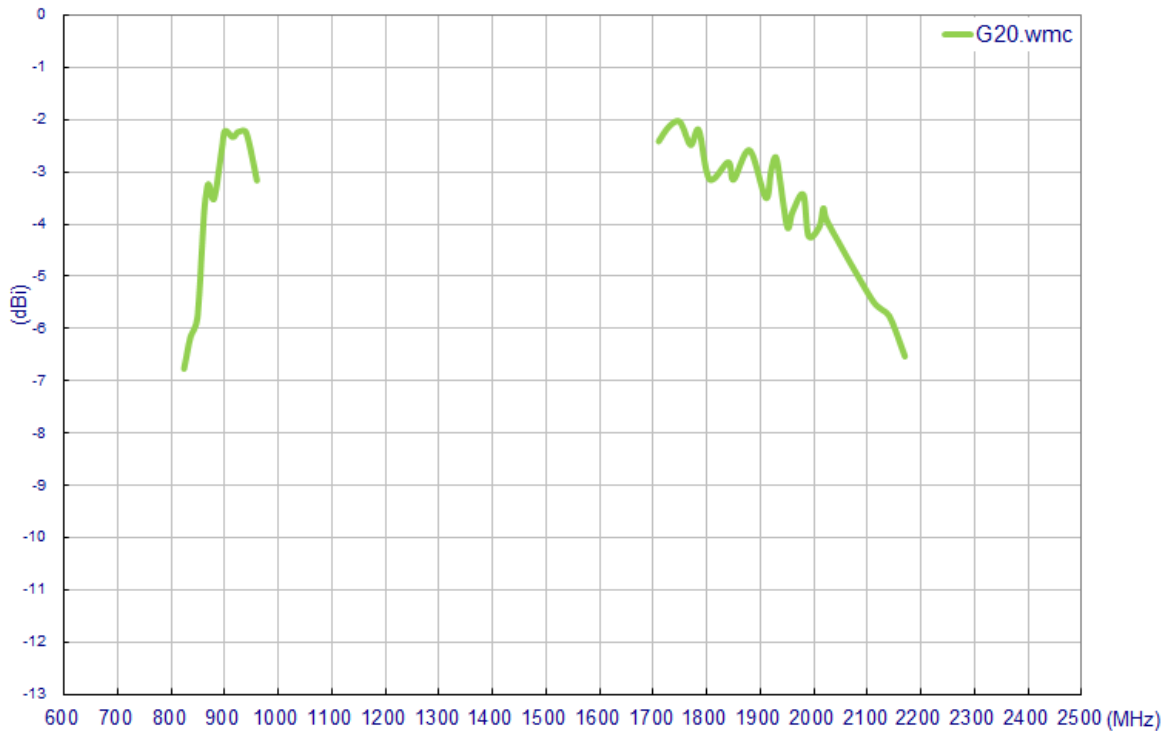


Figure5. Average gain of G20.B.305111.wmc with 3 meters cable length

4. Antenna Radiation Patterns

4.1 Testing setup

The antenna radiation patterns were measured in ETS Anechoic Chamber. The measurement setup as below,

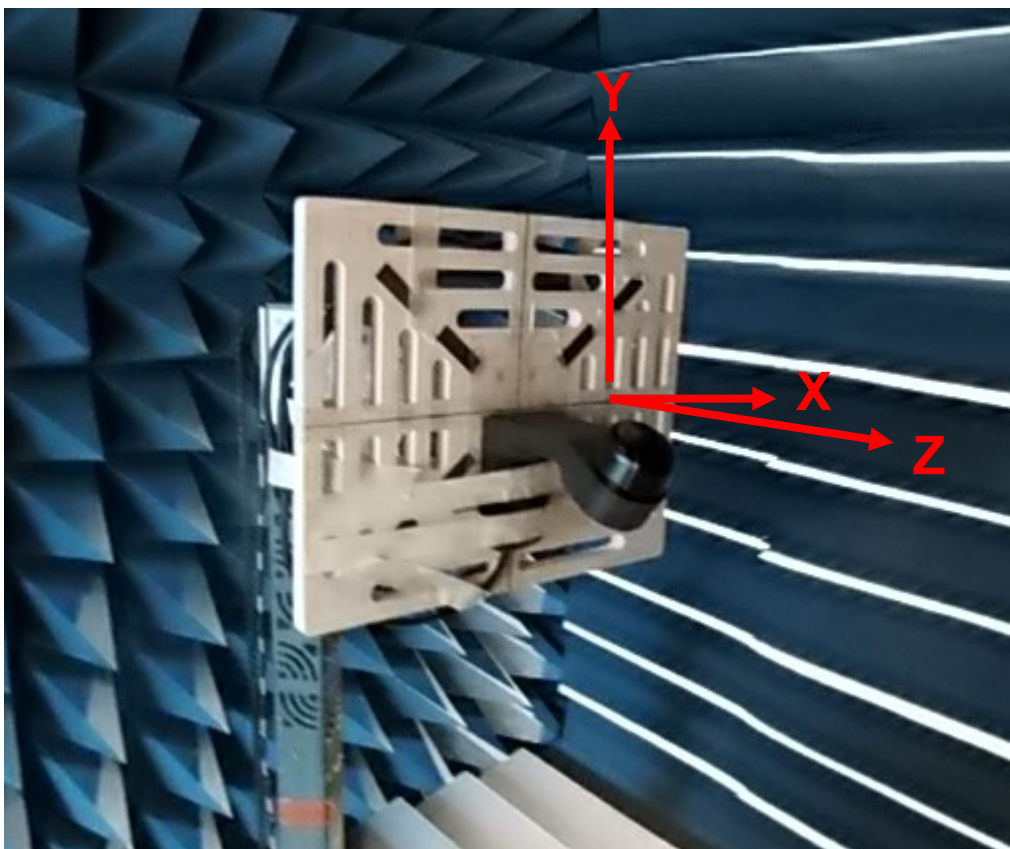
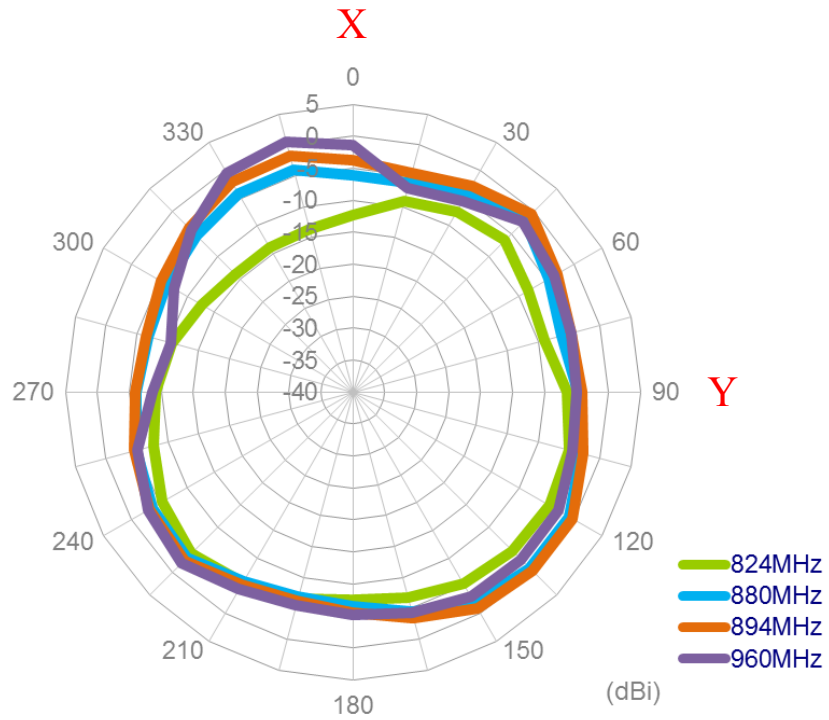
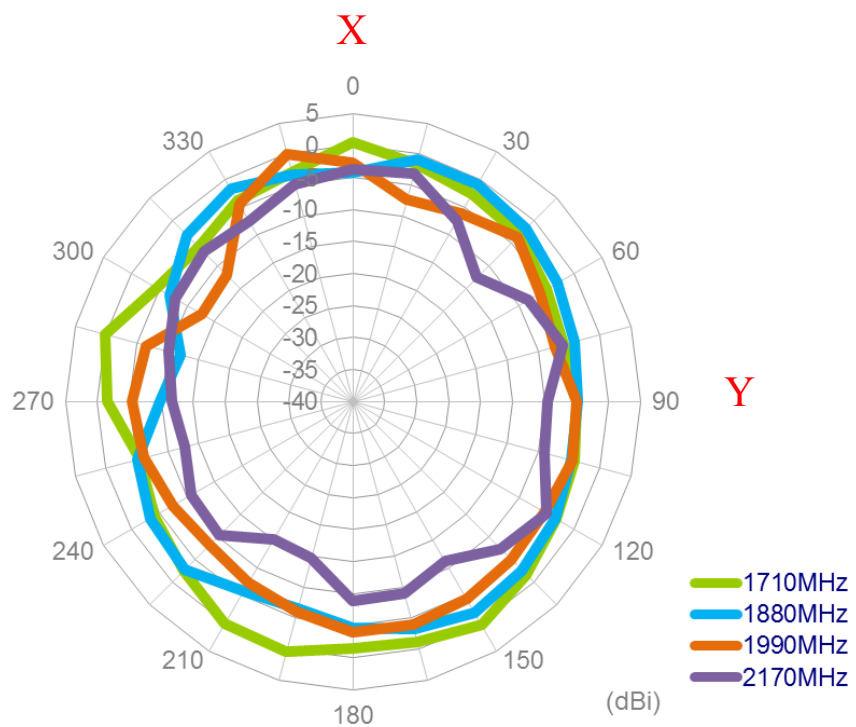


Figure.6 Testing Setup in ETS Anechoic Chamber

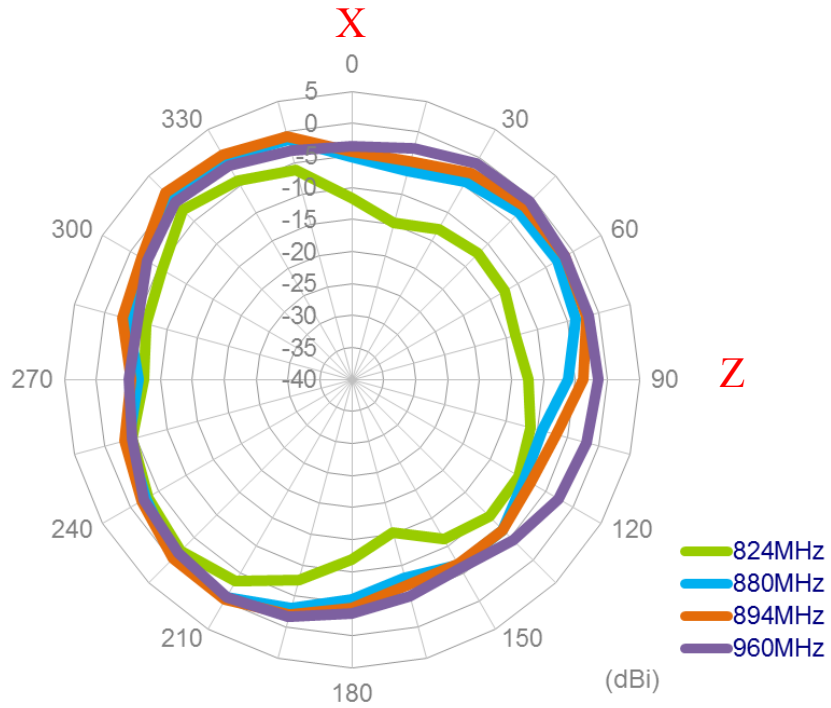
4.2 Antenna radiation patterns (Antenna with L-bracket and 3 meters cable length) X-Y plane (824MHz~960MHz)



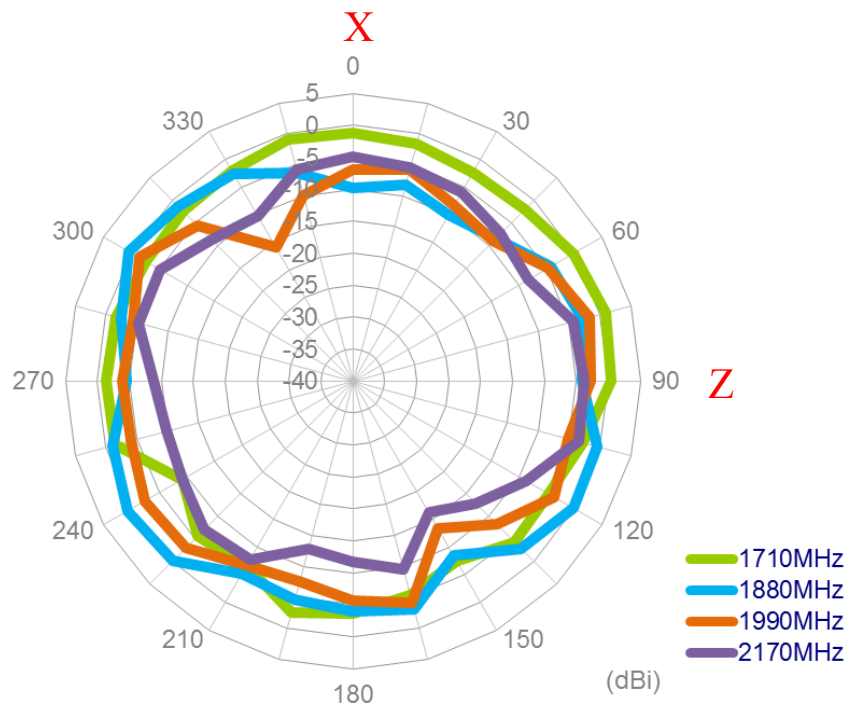
X-Y plane (1710MHz~2170MHz)



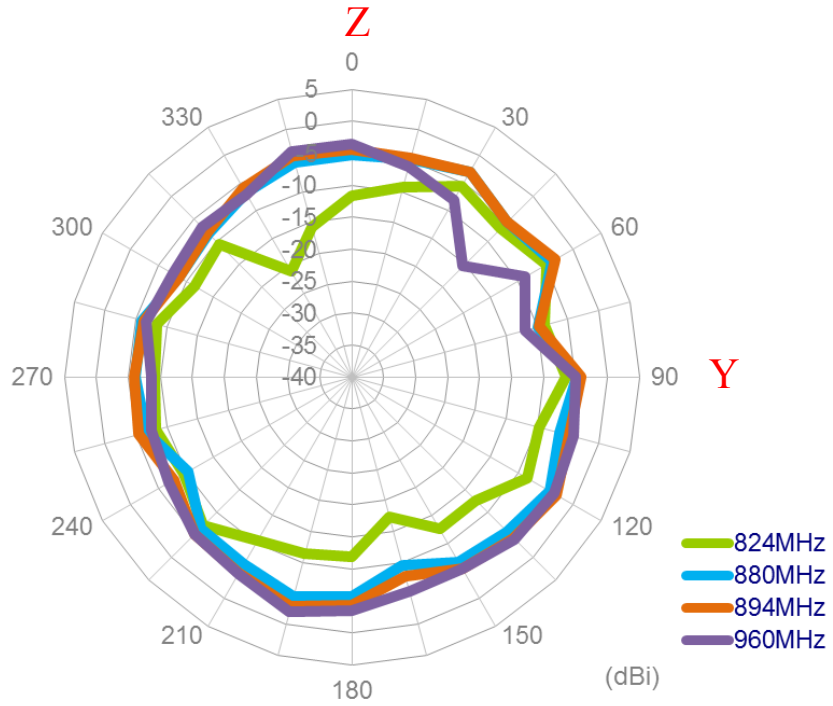
X-Z plane (824MHz~960MHz)



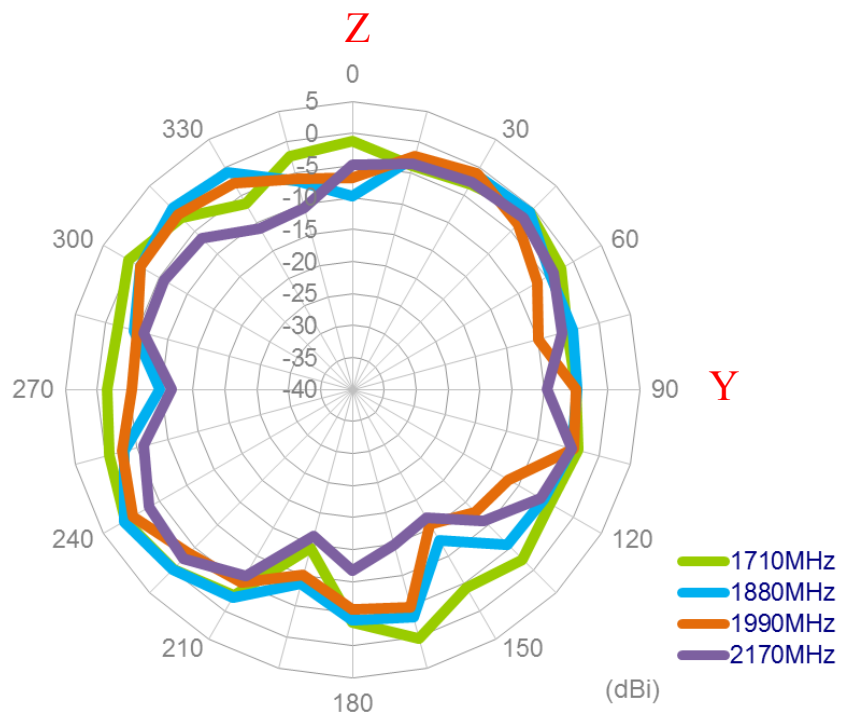
X-Z plane (1710MHz~2170MHz)



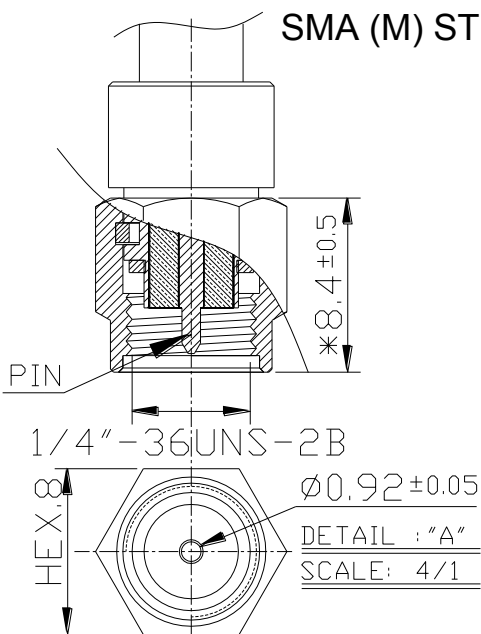
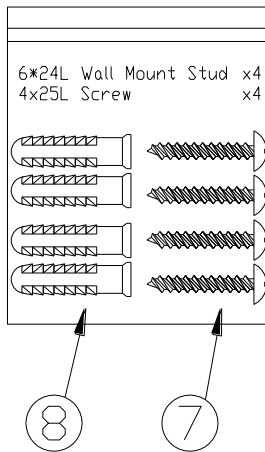
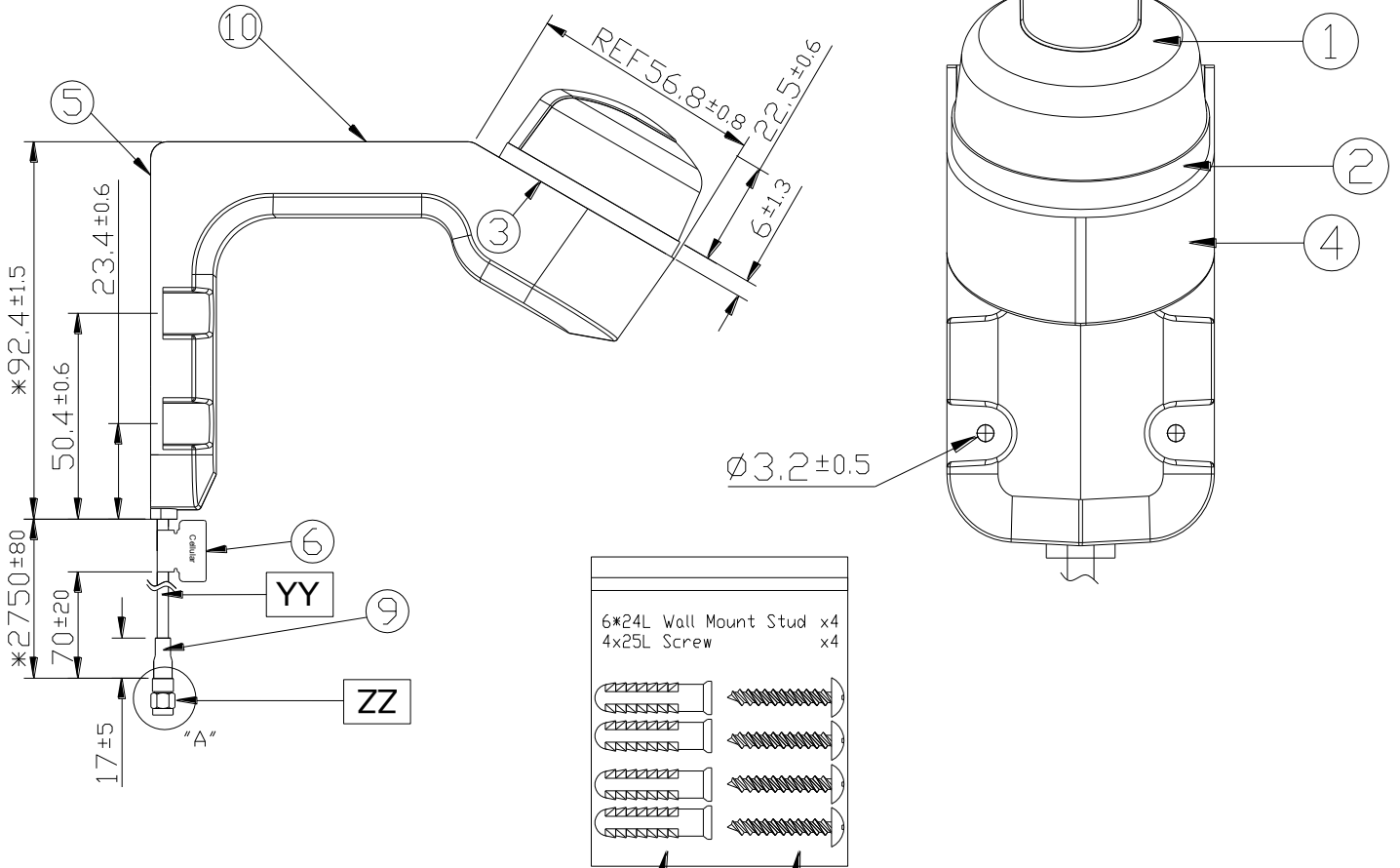
Y-Z plane (824MHz~960MHz)



Y-Z plane (1710MHz~2170MHz)



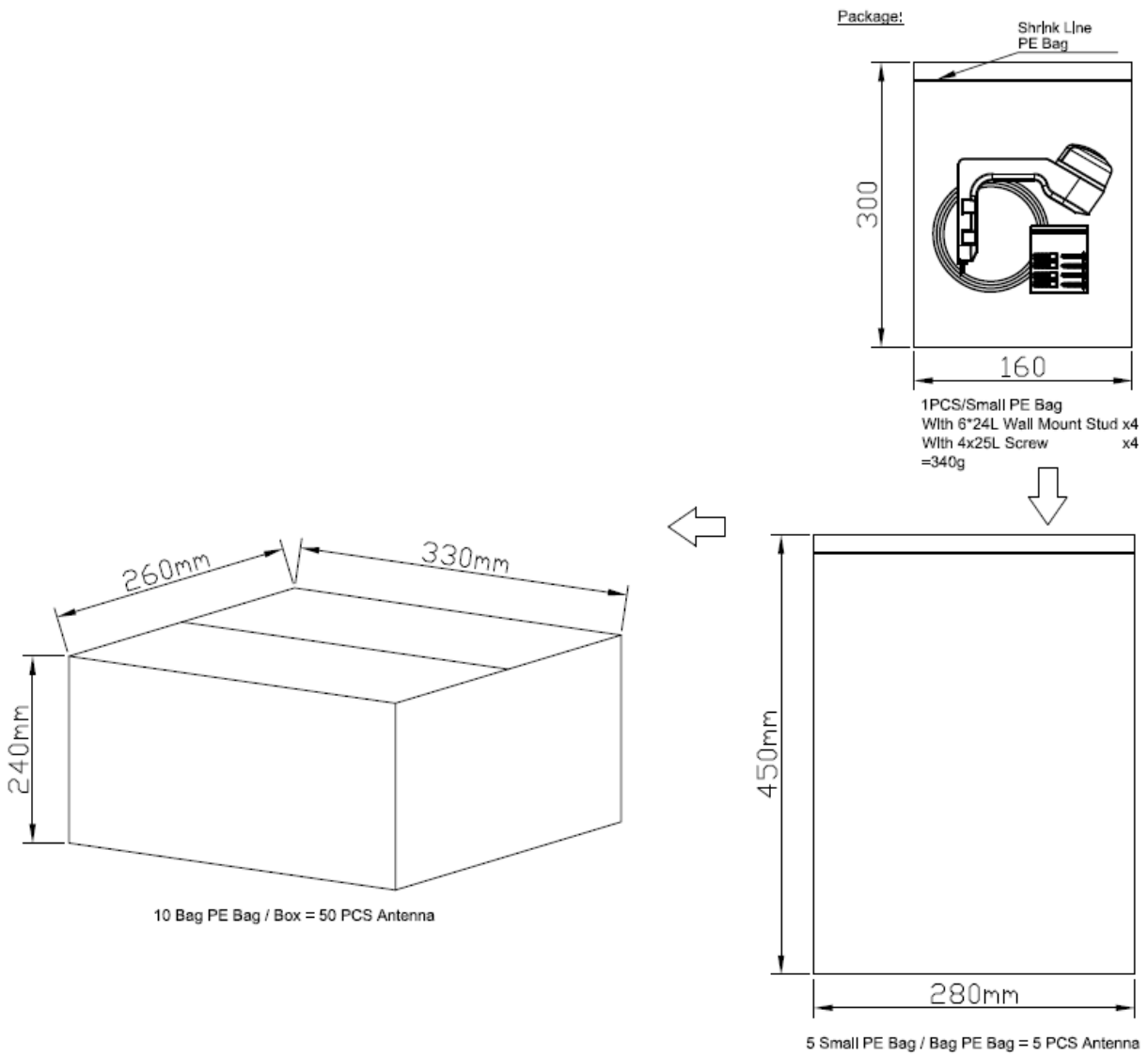
5. DRAWING



	Name	P/N	Material	Finish	QTY
1	Housing	000113F000010A	PC	Black	1
2	Closed Cell Foam	001011F040001A	CR 4305	Black	1
3	3M Double Adhesive	001011F040001A	3M 9448 WC	White Liner	1
4	Bracket Housing	000111I020020A	PC+ABS	Black	1
5	Bracket	000511J040020A	AL	Black	1
6	Cellular Label	001011F020017A	Coated Paper	Blue	1
7	∅ 4*25L Screw	000411A040054A	Stainless Steel	N/A	4
8	∅ 6*24L Wall Mount Stud	000411A050054A	Nylon	White	4
9	Heat Shrink Tube	001311F010013A	PE	Black	1
10	∅ 3*8 SCREW	000411C020054A	Steel	Black	6

	Name	P/N	Spec	Finish	QTY
YY	Cable Type	301412K000013A	NFC200	Black	1
ZZ	Connector Type	200211G010013A	SMA(M)	Gold	1

6. Packaging



7. Application Note

The G20.B.305111.wmc antenna measurement with different cable length, the performance is shown as below:

7.1 Return loss

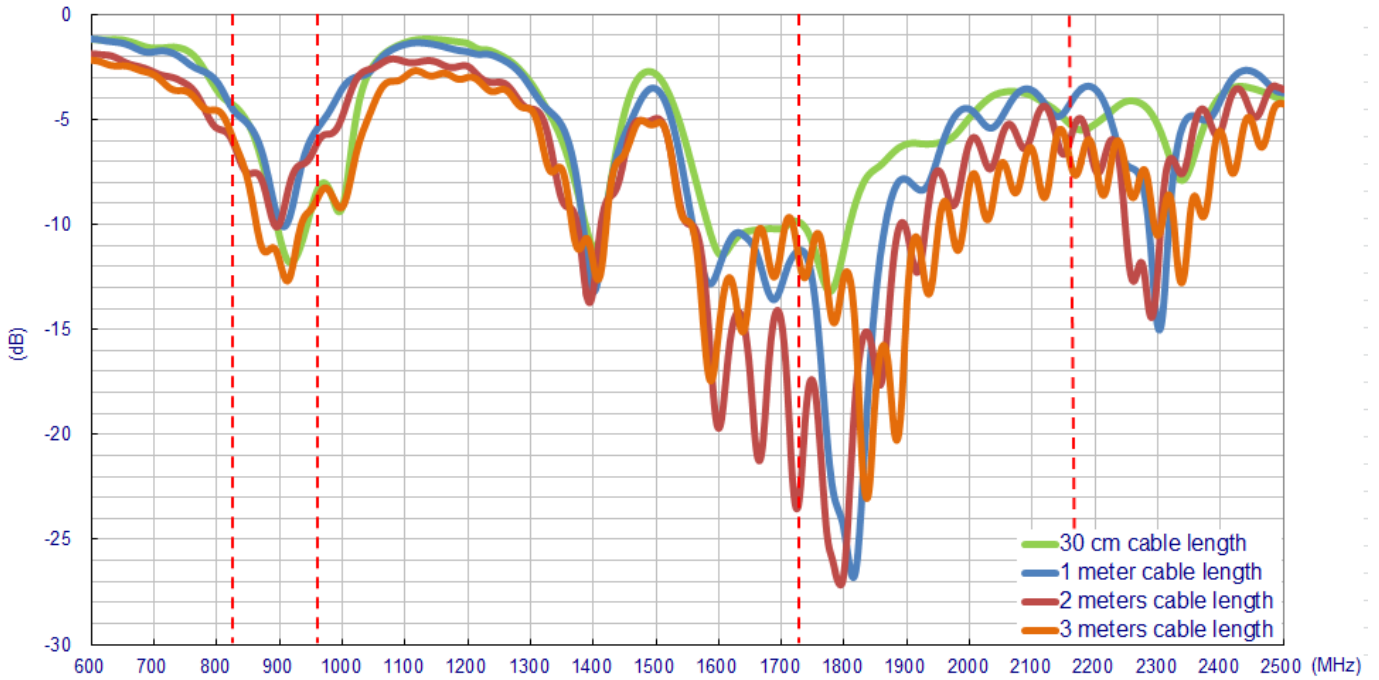


Figure 7. Measured the return loss of G20.B.305111.wmc Antenna with different cable length

7.2 Efficiency

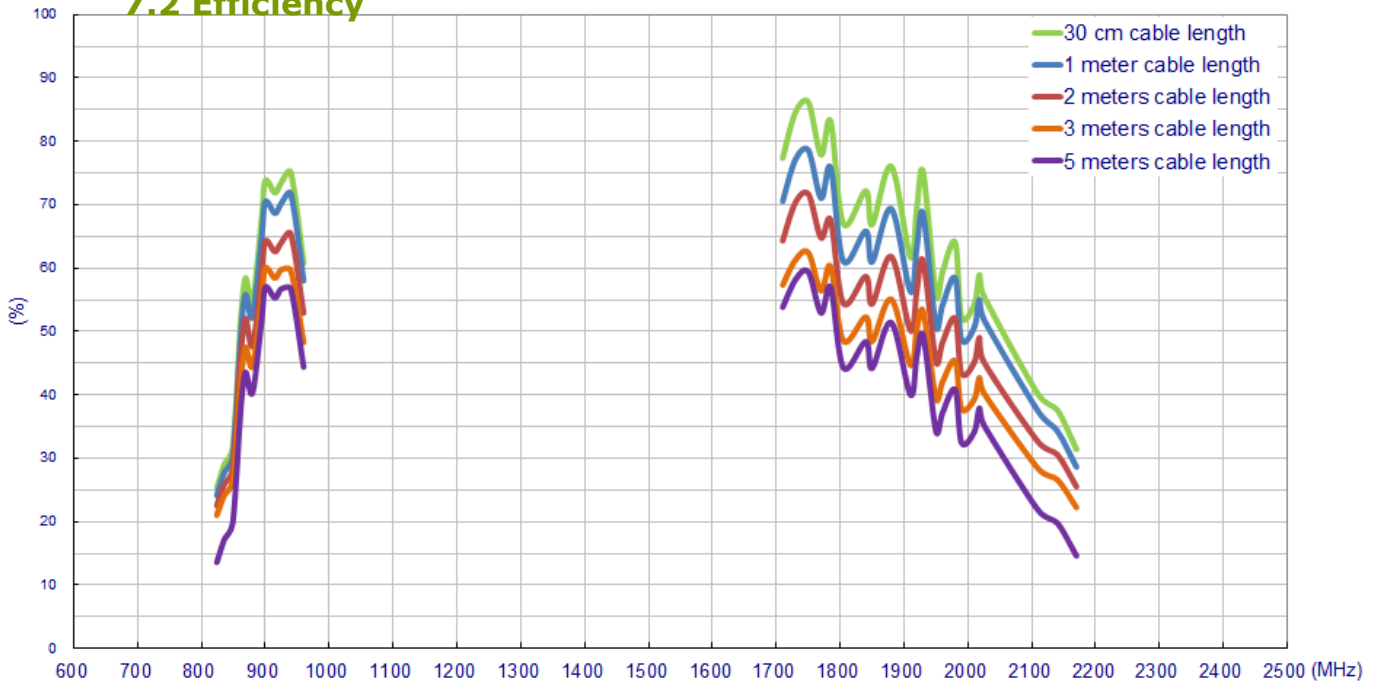


Figure 8. Measured the efficiency of G20.B.305111.wmc Antenna with different cable length

7.3 Average Gain

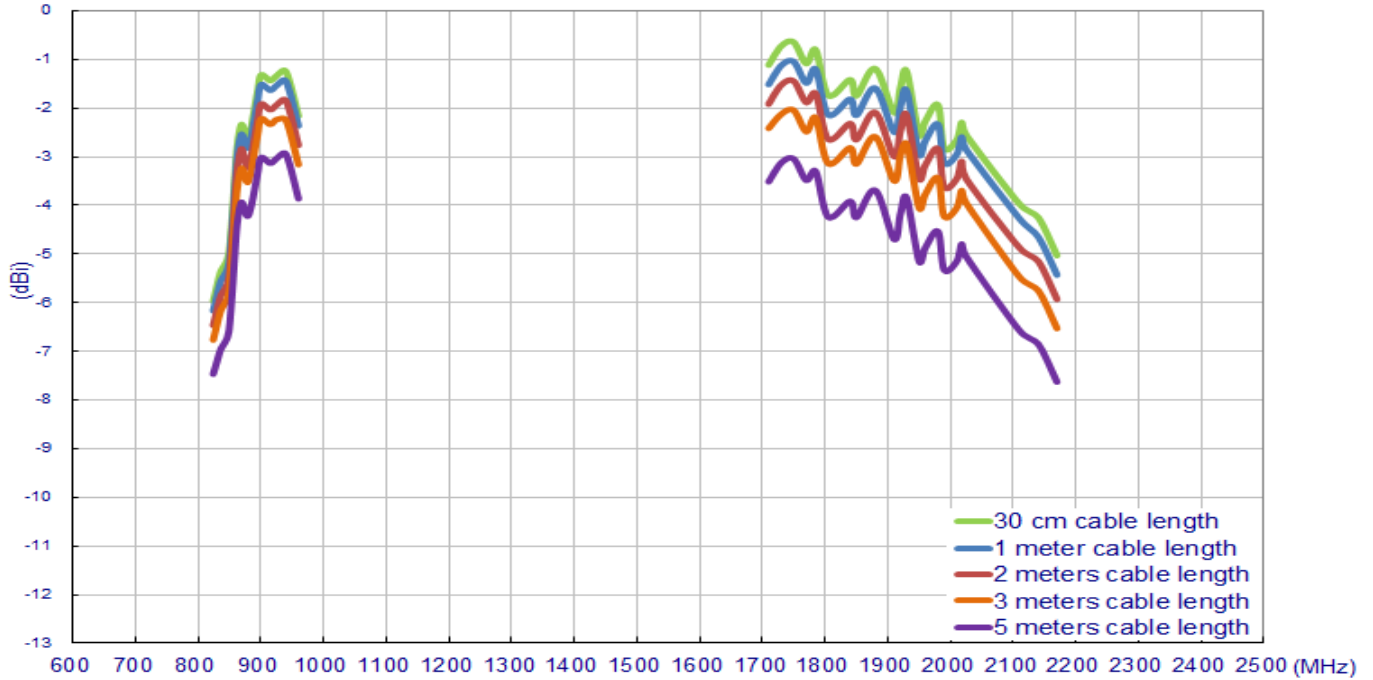


Figure 9. Measured the Average Gain of G20.B.305111.wmc Antenna with different cable length

7.4 Peak Gain

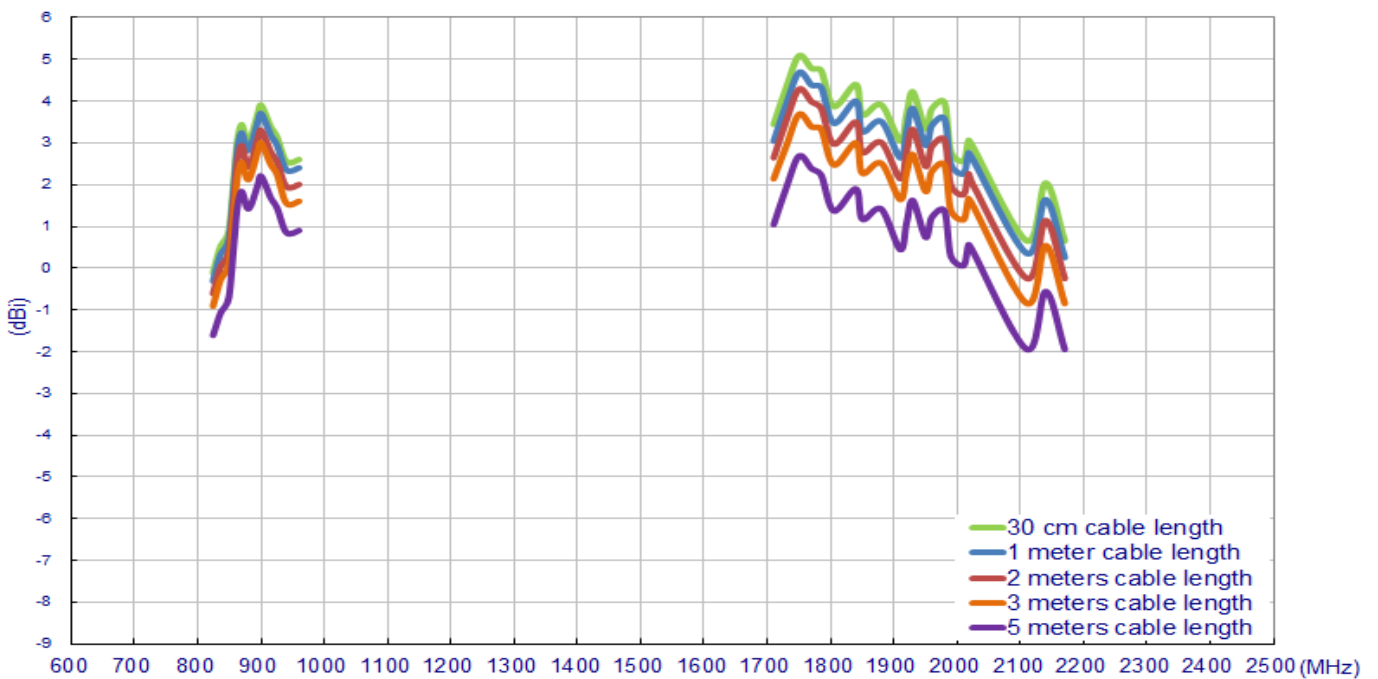


Figure 10. Measured the Peak Gain of G20.B.305111.wmc Antenna with different cable length

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