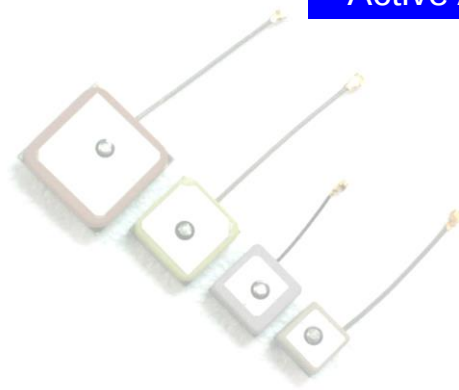




Data Sheet

Product Name : Wide-band GNSS Active antenna

AMOTECH Part No. : AGAF3823-S0-A1

	Designed	Checked		Approved
Date	/	/	/	/

Revision no	Content	Page	Date	Name
0	First, documented	-	2025.08.08	JH. KIM
1	1.1 Antenna silkscreen marking updated 1.4 Mechanical Specifications updated. 2. Appearance updated. 8. Caution and Warranty updated	2,3,13	26.03.31	IJ.KIM



■ HEAD OFFICE 5B-1L, 617, NAMCHON-DONG, NAMDONG-GU, INCHOEN-CITY, KOREA TEL : 82-32-821-0363 FAX : 82-32-811-0283 ■ Vietnam FACTORY Lot CN13,Khai Quang Industrial Zone, Vinh Phuc Ward, Phu Tho province, Viet Nam TEL: 84-211-3844-868 FAX: 84-211-3844-946	Designed	Checked		Approved
	26.04.02		26.04.02	26.04.02

Notes

*The contents of this data sheet are subject to change without notice.
Please confirm the specifications and delivery conditions when placing your order.*

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1. Specifications

1.1 FPCB Antenna Element Electrical Specifications Rev.1

No	Item	Spec.		Unit	Remark
		L/L1 Band	L5/L2/E6 Band		
1	Frequency	1539.0 ~ 1606.0	1166.0 ~ 1288.0	MHz	Note: 1)
2	Gain @Zenith	Typ. 1.5	Typ. 1.0	dBic	
4	Axial Ratio @Zenith	Typ. 0.5 ~ 1.0	Typ. 0.5 ~ 1.0	dB	
5	Polarization	RHCP	RHCP	-	
6	Impedance	50		ohm	
7	Antenna	AGAF3823_Rev.1		-	

Note: 1) Test condition : with Hybrid coupler, 50mm Semi-Rigid Cable

1.2 LNA Electrical Specifications

No	Item	Spec.		Unit	Remark
		L/L1 Band	L5/L2/E6 Band		
1	Frequency	1539.0 ~ 1606.0	1166.0 ~ 1288.0	MHz	-
2	Gain	Typ. 28.0 @5V	Typ. 30.0 @5V	dB	-
3	Noise Figure	Typ. 2.8 ~ 3.9 @5V	Typ. 2.6 ~ 3.2 @5V	dB	-
4	Impedance	50		ohm	-
5	Voltage Range	DC 2.8 ~ 5.0		V	-
6	Current	Typ. 18.0 @ 5V		mA	-

1.3 Overall Performance

No	Item	Spec.		Unit	Remark
		L/L1 Band	L5/L2/E6 Band		
1	Frequency	1539.0 ~ 1606.0	1166.0 ~ 1288.0	MHz	Note:2)
2	Total System Zenith Gain	Typ. 29.0	Typ. 30.0	dBic	
3	Axial Ratio @zenith	Typ. 1.0	Typ. 1.0	dB	
4	Output Impedance	50		ohm	

Note:2) Test condition : DC 5V, 100mm Φ 1.13mm Cable.

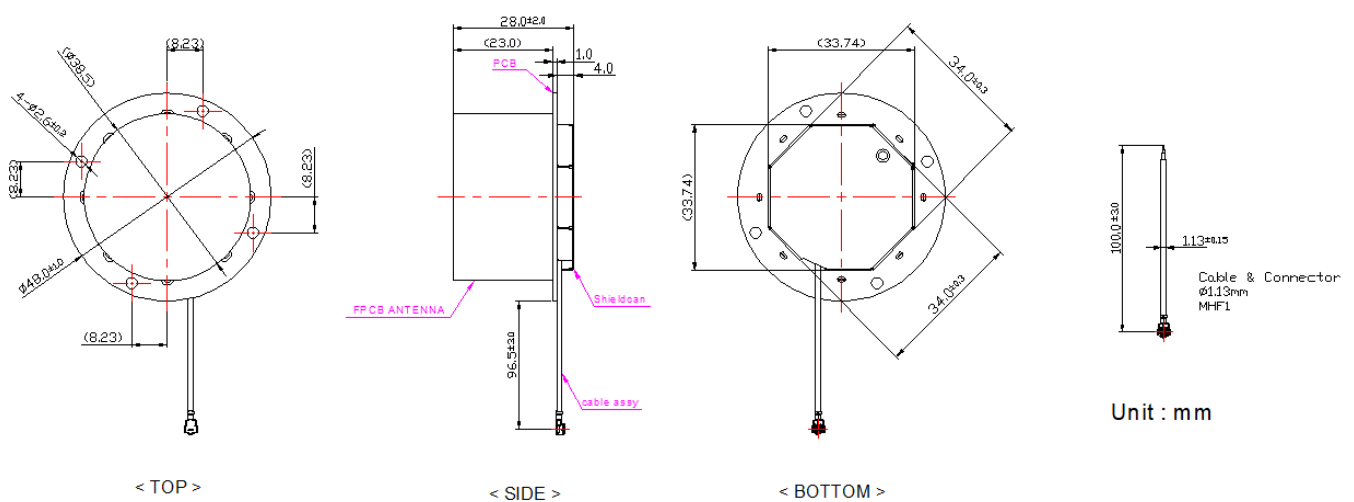
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1.4 Mechanical Specifications Rev.1

No	Item	Spec.	Unit
1	Antenna	FPCB / Φ 38.5	mm
2	Width	Φ 48.0 $\pm$ 1.0	mm
3	Height	28.0 $\pm$ 2.0	mm
4	Weight	9.7	g
5	Cable / Connector	Φ 1.13, L1=96.5 $\pm$ 3mm / MHF1 (U.FL compatible)	-

2. Appearance Rev.1

2.1 Outer Appearance



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3. Part No.

Part No. : AGAF XXXXXX - XX - XX
 (1) (2) (3) (4)

- (1) : AMOTECH GNSS Active FPCB Antenna
- (2) : Antenna Size
- (3) : Revision No.
- (4) : Model No.

4. Environmental Specifications

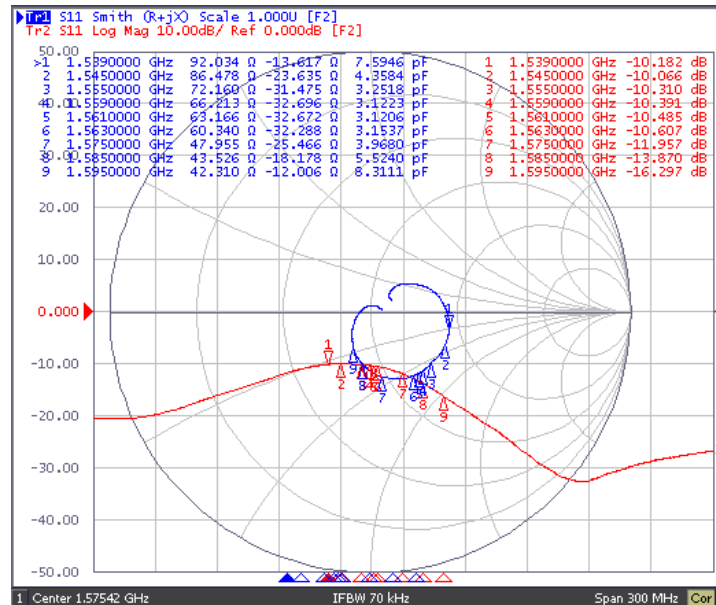
No	Item	Spec.	Unit
1	Operating Temp.	-40 ~ +85	°C
2	Storage Temp.	-40 ~ +85	°C

5. Typical Characteristics

5.1 Typical S11 of Patch Antenna

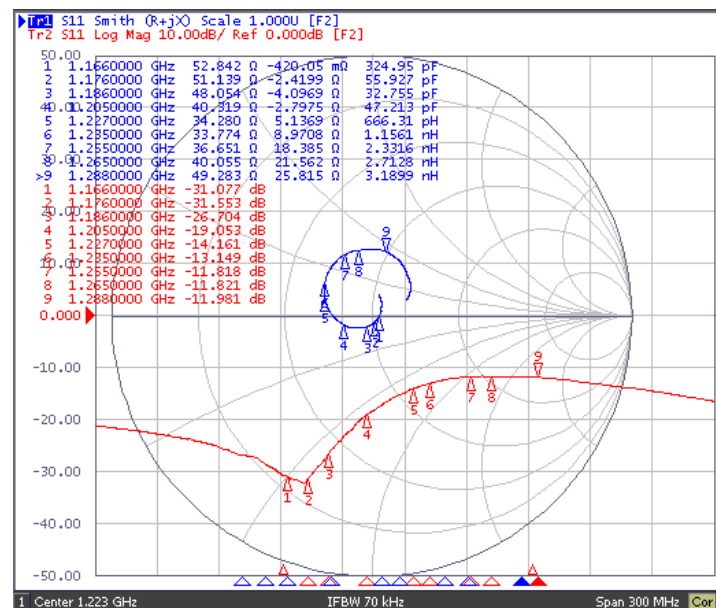
(Test condition: with Hybrid coupler, 50mm Semi-Rigid Cable)

5.1.1 L/L1 Band (1539~1606MHz)



[Log mag & Smith Chart]

5.1.2 L2/L5/E6 Band (1166~1288MHz)

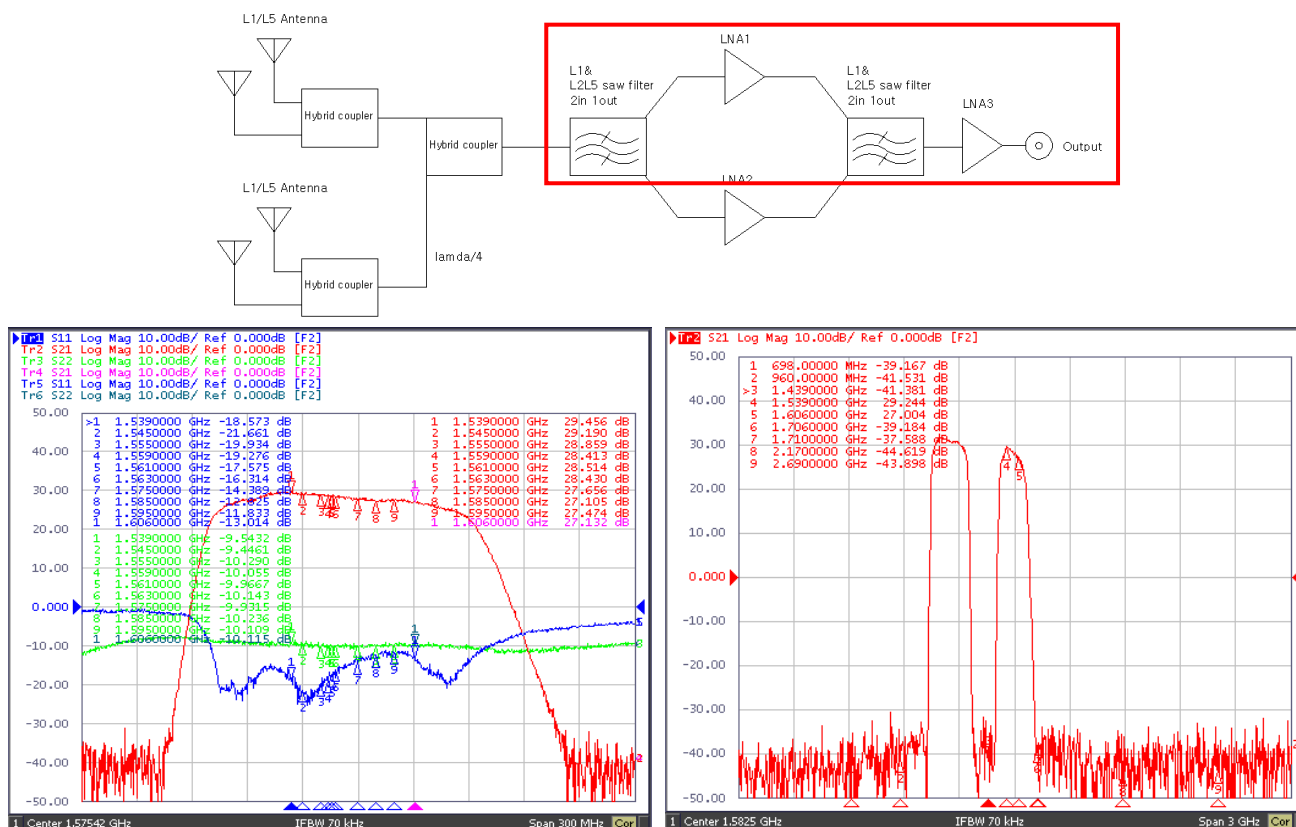


[Log mag & Smith Chart]

5.2 Typical LNA Electrical Characteristics

(Test condition: Only LNA Circuit, 50mm Semi-Rigid Cable, 18mA @ 3.0 ~ 5.0V)

5.2.1 L/L1 band



► In band Gain

Freq.(MHz)	1539	1545	1555	1559	1561	1563	1575	1585	1595	1606
Gain(dB)	29.45	29.19	28.85	28.41	28.51	28.43	27.65	27.10	27.47	27.13
NF(dB)	2.82	2.85	2.90	3.06	3.12	3.11	3.51	3.96	3.79	3.84

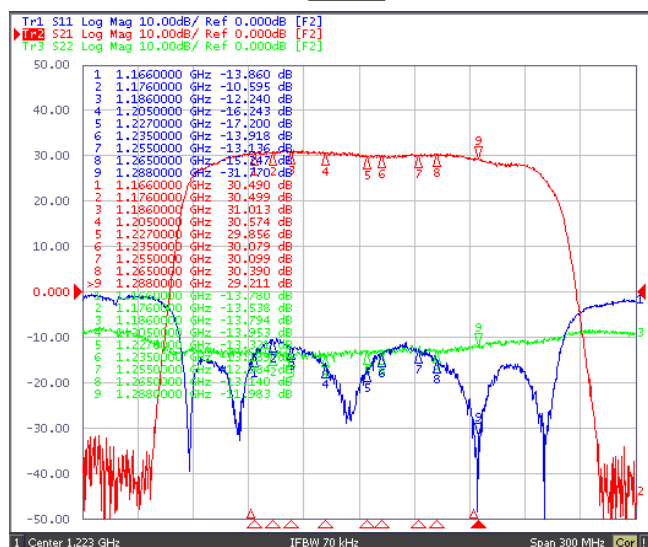
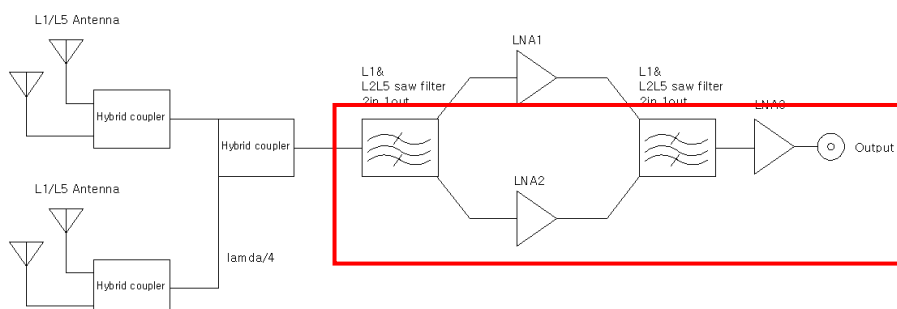
► Out of band Attenuation

Freq.(MHz)	698	960	1439 ($F_0-100\text{MHz}$)	1706 ($F_1+100\text{MHz}$)	1710	2170	2690
Atten.(dB)	68.40	70.77	70.62	66.18	64.58	71.61	70.89

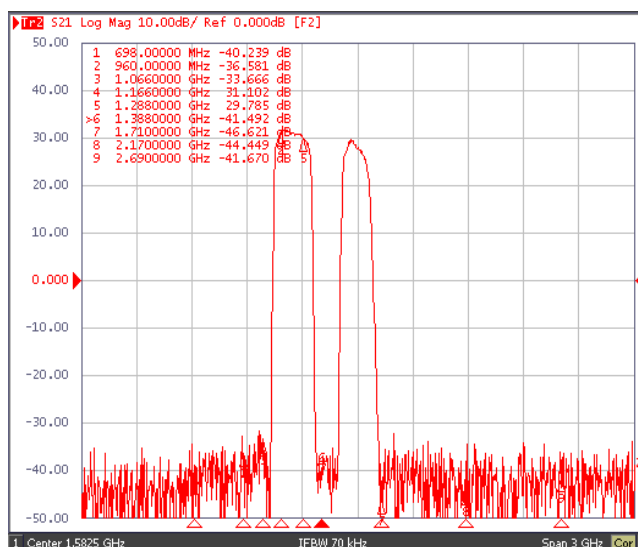
※ L1 Band F_0 : 1539MHz, F_1 : 1606MHz.

※ 698, 960, 1710, 2170, 2690 (MHz) is cellular band.

5.2.2 L2/L5/E6 band



< In band >



< Out of band >

► In band Gain

Freq.(MHz)	1166	1176	1186	1205	1227	1235	1255	1265	1288
Gain(dB)	30.49	30.49	31.01	30.58	29.65	30.07	30.09	30.39	29.21
NF(dB)	2.64	2.59	2.63	2.62	2.87	2.97	3.09	3.08	3.19

► Out of band Attenuation

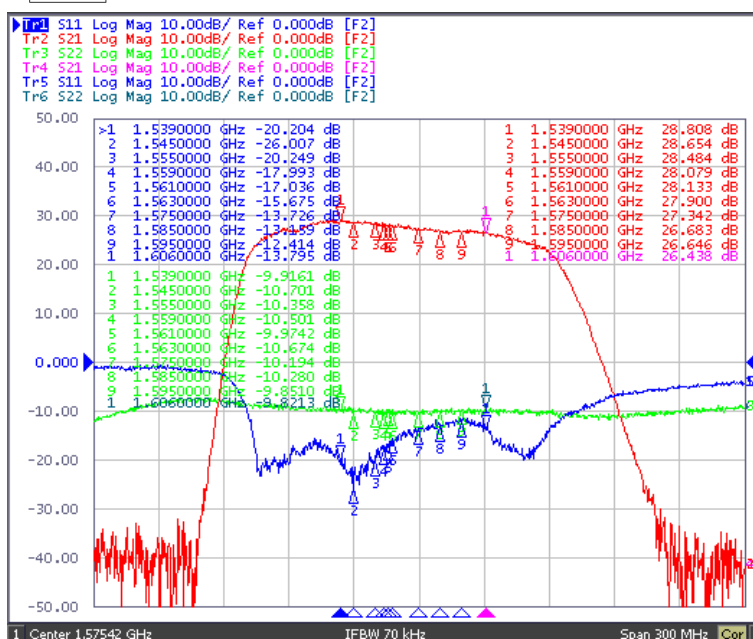
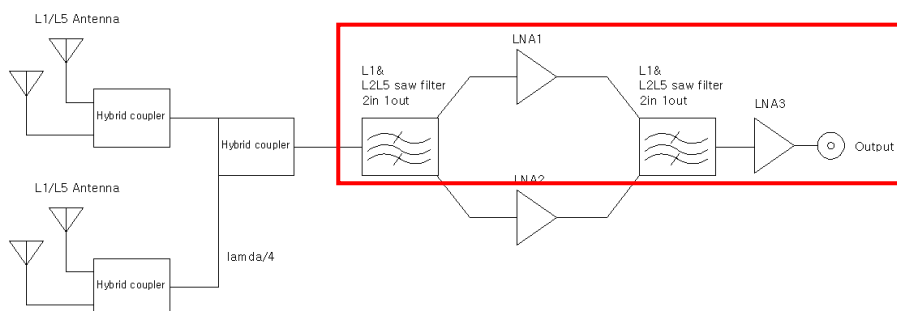
Freq.(MHz)	698	960	1066 (F ₀ -100MHz)	1388 (F ₁ +100MHz)	1710	2170	2690
Atten.(dB)	71.33	67.68	64.76	71.27	76.40	74.22	71.45

- ✖ L5 band F₀ : 1166MHz, F₁ : 1288MHz.
- ✖ 698, 960, 1710, 2170, 2690 (MHz) is cellular band.

5.3 Typical LNA Electrical Characteristics

(Test condition: Only LNA Circuit, 50mm Semi-Rigid Cable, 18mA @ 2.8V)

5.3.1 L/L1 band

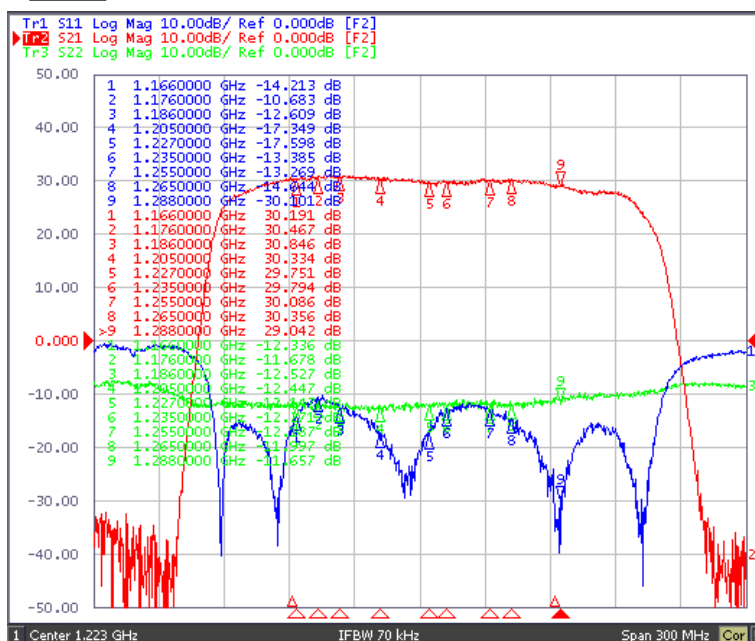
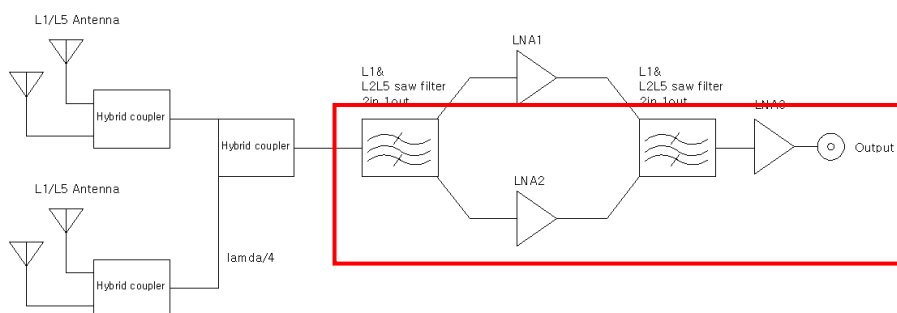


< In band >

► In band Gain

Freq.(MHz)	1539	1545	1555	1559	1561	1563	1575	1585	1595	1606
Gain(dB)	28.80	28.65	28.48	28.07	28.13	27.90	27.34	26.68	26.64	26.43
NF(dB)	2.91	2.91	2.96	3.05	3.10	3.15	3.53	3.88	3.50	3.88

5.3.2 L2/L5/E6 band



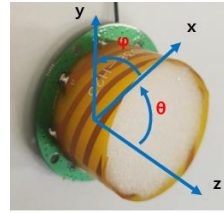
< In band >

► In band Gain

Freq.(MHz)	1166	1176	1186	1205	1227	1235	1255	1265	1288
Gain(dB)	30.19	30.46	30.84	30.33	29.75	29.79	30.08	30.35	29.04
NF(dB)	2.77	2.64	2.63	2.64	2.90	3.01	3.09	3.13	3.26

5.4 Overall Gain / Axial Ratio of active antenna

(Test condition : 100mm Φ 1.13 cable, 18mA @5V)



5.4.1 L/L1 Band Antenna RHCP Gain

Frequency [MHz]	Average Gain [dBic]	Peak Gain [dBic]	Zenith Gain [dBic]	Zenith AR [dB]
1539	26.35	31.68	31.13	0.90
1545	26.26	31.5.7	31.10	0.90
1555	25.16	30.46	30.16	1.03
1559	24.65	30.08	29.73	1.11
1561	24.49	29.99	29.61	1.10
1563	24.34	29.92	29.51	1.03
1575	23.68	29.49	29.07	0.88
1585	23.38	29.14	28.86	0.67
1595	22.88	28.75	28.40	0.81
1602	22.56	28.54	28.14	0.77
1606	22.18	28.15	27.81	0.70

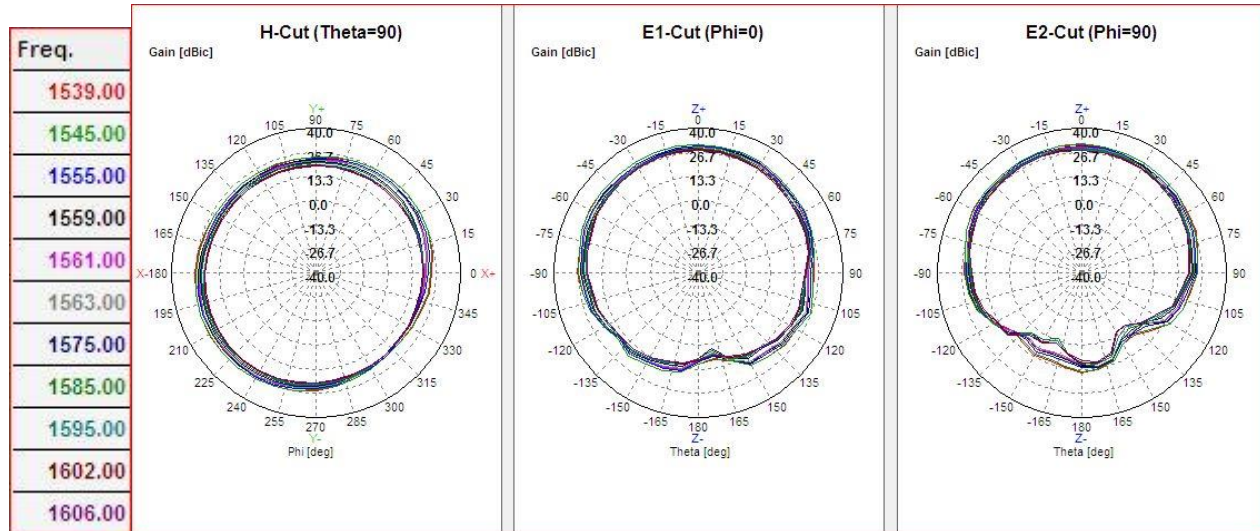
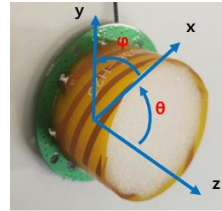
5.4.2 L2/L5/E6 Band Antenna RHCP Gain

Frequency [MHz]	Average Gain [dBic]	Peak Gain [dBic]	Zenith Gain [dBic]	Zenith AR [dB]
1166	24.38	29.90	29.66	0.89
1176	25.69	31.18	31.03	0.87
1186	26.99	32.55	32.41	0.82
1205	26.70	32.44	32.29	0.83
1227	25.68	31.63	31.41	0.84
1235	25.39	31.42	31.14	0.85
1255	24.26	30.39	30.01	0.78
1265	23.70	29.83	29.42	0.81
1285	22.93	28.91	28.58	0.63
1288	22.76	28.72	28.40	0.73

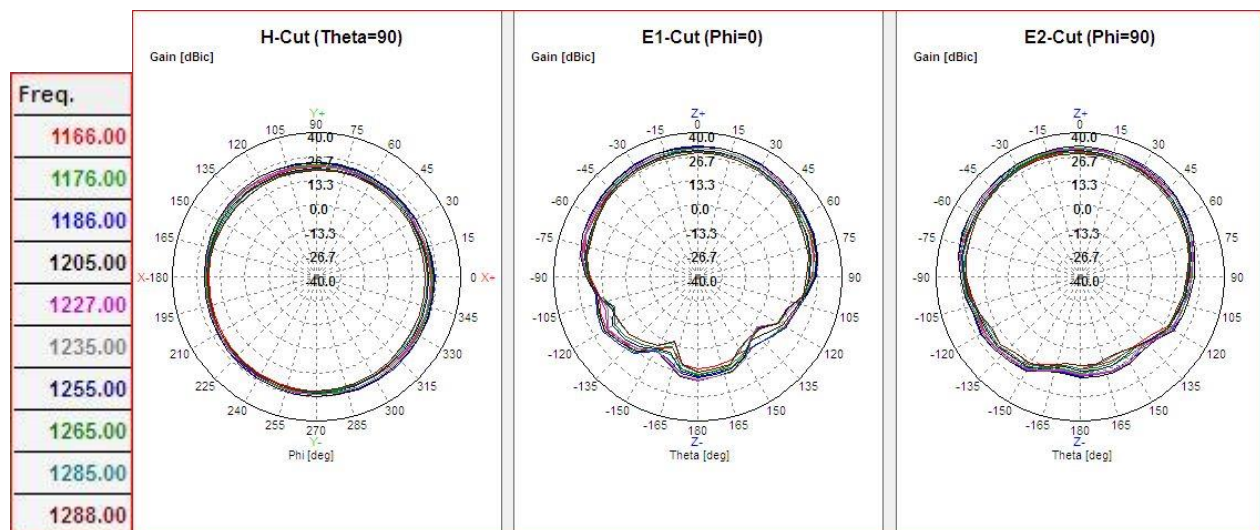
5.5 Radiation patterns of Active antenna

(Test condition : 100mm Φ 1.13 cable, 18mA @5V)

5.5.1 L/L1 Band



5.5.2 L2/L5/E6 Band



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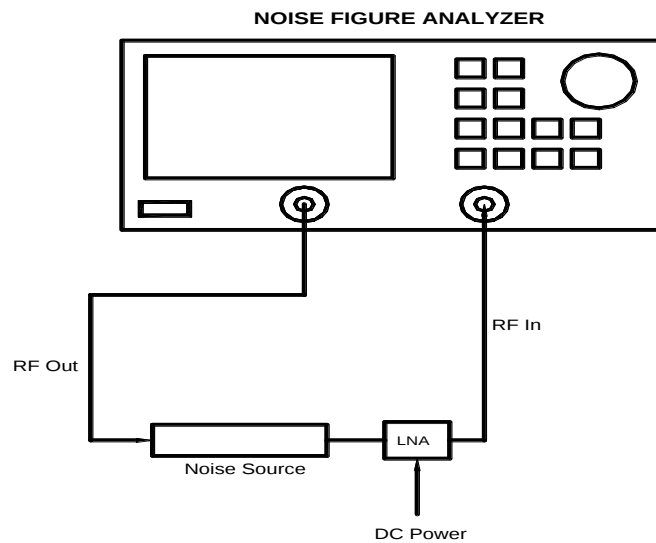
6. Test Method

6.1 LNA Gain and Noise Figure and Current Measurement

6.1.1 Measurement Equipment

- Noise Figure Analyzer, Power Supply, Bias Tee

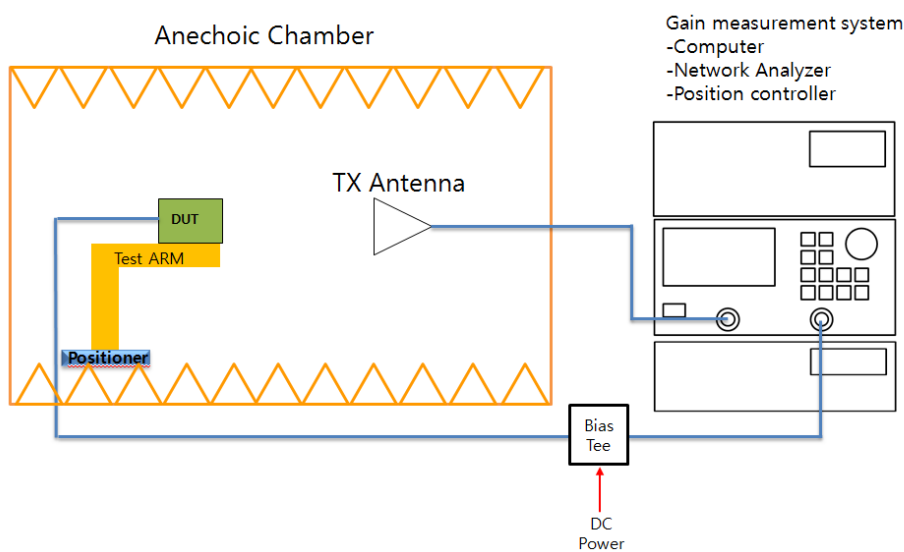
6.1.2 Measurement Diagram



6.2 Overall Performance Measurement

6.2.1 Measurement Equipment

- Network Analyzer, Anechoic chamber System, Power Supply, Bias-Tee



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7. Packing Rev.1

7.1 Tray

7.1.1. Dimension and Quantity

370 (W) x 330 (D) (mm)



- Quantity: 20 ea / tray

7.2 Box package

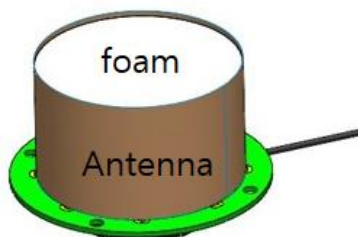
- Dimension : 390(W) x 375(D) x 205(H) (mm)

- Quantity: 100ea / box

***Outer boxes can be stacked up to 4 boxes.**



8. Caution and Warranty Rev.1



The foam inside the antenna is for packaging purposes. Please remove the foam before assembly. However, antenna performance will not be affected even if the foam is not removed.