



# TEST REPORT

**APPLICANT** : GP Electronics (SZ) Limited

**PRODUCT NAME** : FPC Antenna

**MODEL NAME** : GPE 2107-1801+0/MGear C4207-810021-A(SSR-220258)  
: GPE 2107-1811+0/MGear C4207-810020-A(SSR-220257)

**TRADE NAME** : N/A

**BRAND NAME** : N/A

**STANDARD(S)** : IEEE Std 149-2021

**RECEIPT DATE** : 2023-07-28

**TEST DATE** : 2023-07-31

**ISSUE DATE** : 2023-08-03



Edited by: Fang Jinshan  
Fang Jinshan(Rapporteur)

Approved by: Chi Shide  
Chi Shide(Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2023-08-03	First edition



# 1. Technical Information

Note: Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	GP Electronics (SZ) Limited
<b>Applicant Address:</b>	14/F,T1 Building, Shumyip Upperhills,No.5001 Huanggang RD, Futian District,Shenzhen,Guangdong,China (Postal Code: 518038)
<b>Manufacturer:</b>	GP Electronics (Huizhou) Co., Ltd.
<b>Manufacturer Address:</b>	No.3,Xing Ping East Road,Dong Jiang Science & Technology Park,Zhong Kai Hi-Tech Industrial Development Zone,Huizhou, Guangdong,China (Postal Code: 516003)

## 1.2. Equipment Under Test (EUT) Description

<b>Wireless Type</b>	N/A
<b>Frequency</b>	2402MHz-2480MHz,5180MHz-5825MHz
<b>IMEI</b>	N/A
<b>Sample No.</b>	1#,2#
<b>Sample Description</b>	Antenna for WiFi / Bluetooth (S1832)



## 2. Test Results

### 2.1. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	IEEE Std 149-2021	IEEE Recommended Practice for Antenna Measurements

### 2.2. Test Conditions

Test Environment Conditions:

Relative Humidity(%):	25 - 75
Temperature(°C):	10 - 30

### 2.3. Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.



## 2.4. Test Results lists

### 2.4.1. Gain

Frequency (MHz)	Gain(dBi)	
	GPE 2107-1801+0 / MGear C4207-810021-A (SSR-220258)	GPE 2107-1811+0 / MGear C4207-810020-A (SSR-220257)
2402	2.76	1.22
2412	2.78	1.22
2422	2.68	1.32
2432	2.62	1.48
2441	2.70	1.77
2442	2.66	1.74
2452	2.85	2.09
2462	2.77	2.24
2480	2.67	2.67
5180	2.77	2.04
5200	2.41	1.42
5220	2.15	0.91
5240	2.24	1.12
5260	2.68	1.33
5280	2.48	1.27
5300	2.44	1.34
5320	2.31	1.44
5500	3.99	3.44
5520	3.70	3.38
5540	3.59	3.41
5560	3.46	3.42
5580	3.78	3.80
5600	3.34	3.42
5620	2.93	3.12
5640	2.48	2.77
5660	2.58	2.67
5680	2.60	2.36
5745	2.21	2.20



5765	2.25	2.00
5785	2.05	1.99
5805	1.75	1.49
5825	1.94	1.78

### 2.4.2. Efficiency

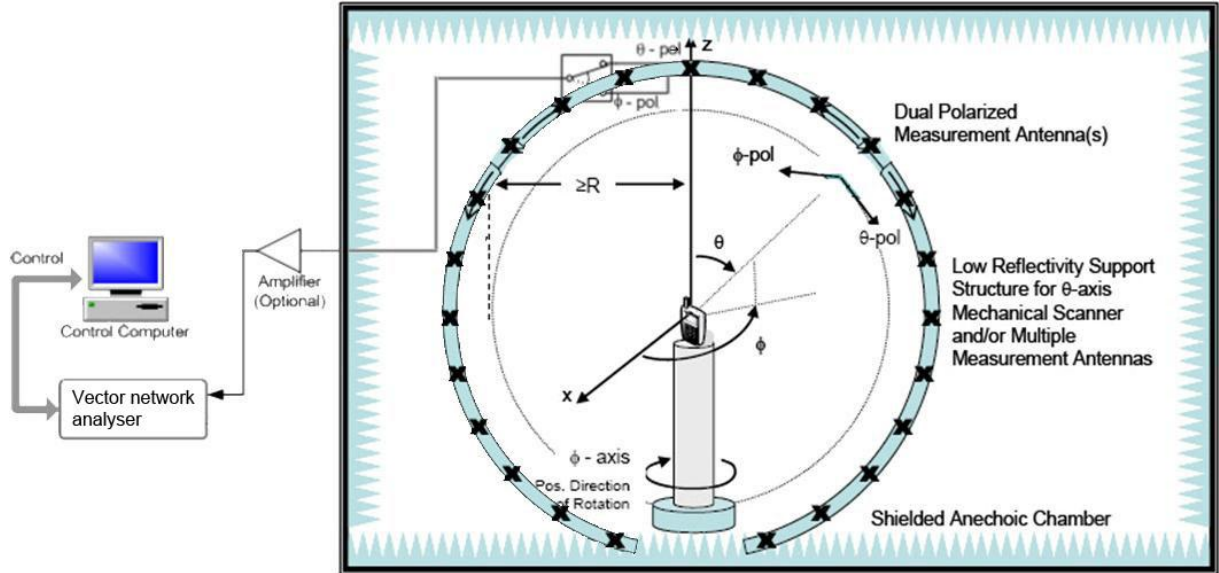
Frequency (MHz)	Efficiency(%)	
	GPE 2107-1801+0 / MGear C4207-810021-A (SSR-220258)	GPE 2107-1811+0 / MGear C4207-810020-A (SSR-220257)
2402	54.45	50.67
2412	54.18	50.54
2422	54.01	50.43
2432	54.22	50.87
2441	55.42	52.37
2442	55.23	52.27
2452	58.04	55.24
2462	57.48	55.46
2480	57.59	56.76
5180	66.23	59.97
5200	62.39	56.44
5220	60.27	54.63
5240	59.89	55.51
5260	64.81	61.48
5280	60.68	59.33
5300	61.21	61.00
5320	58.25	59.47
5500	67.98	59.83
5520	65.55	56.35
5540	65.93	56.12
5560	66.15	56.75
5580	71.95	63.12
5600	68.26	62.20
5620	64.98	61.03
5640	62.66	60.43



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5660	66.29	65.00
5680	66.00	65.15
5745	64.51	63.67
5765	66.35	64.48
5785	65.90	63.50
5805	59.50	56.24
5825	59.58	55.42

## Annex A Test Setup Photos

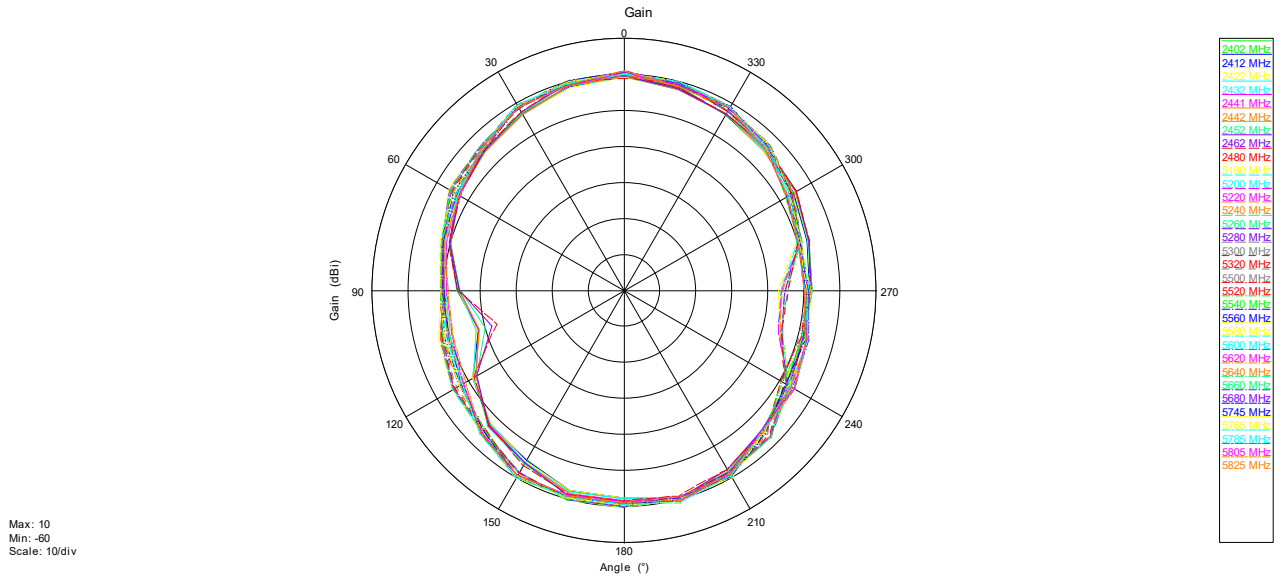




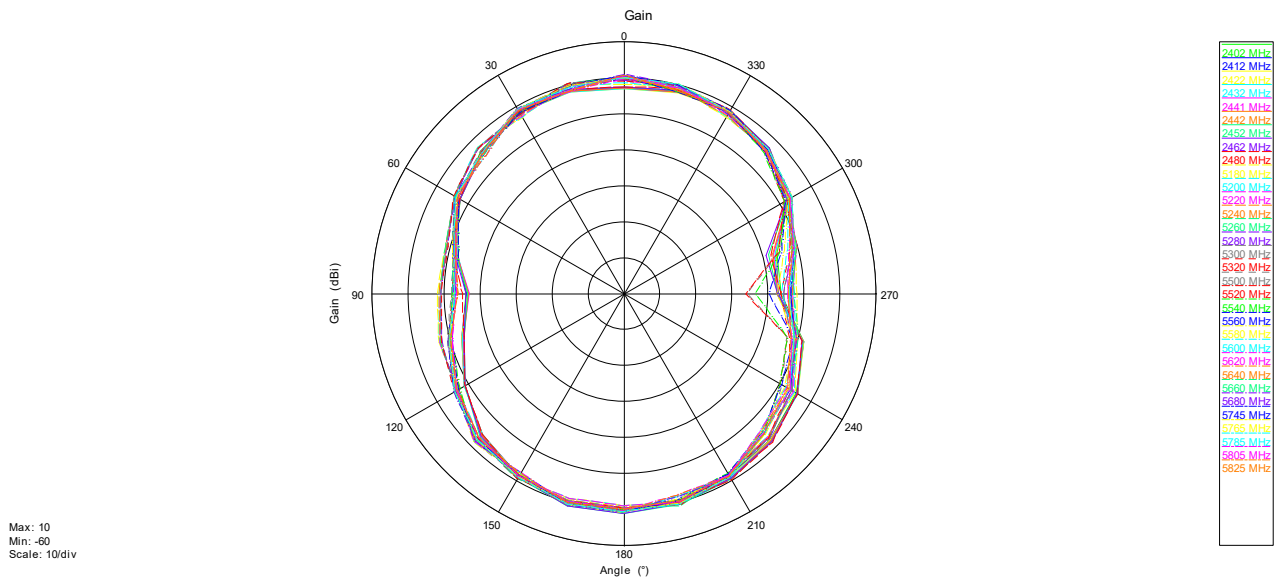
## Annex B Figures

### 1. 2D Radiation Pattern

Phi=0°



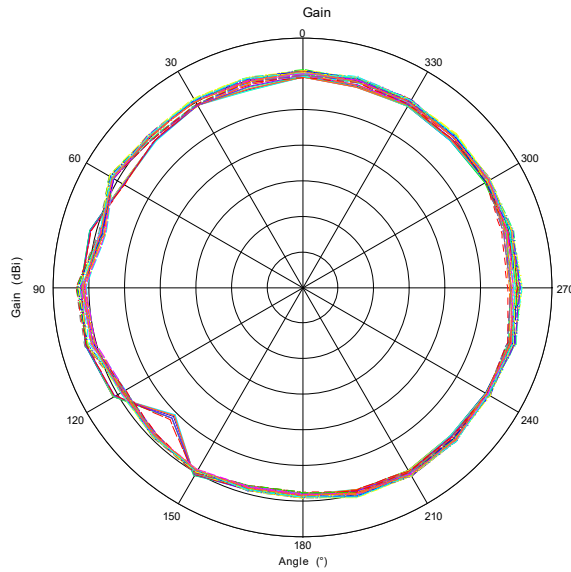
GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)



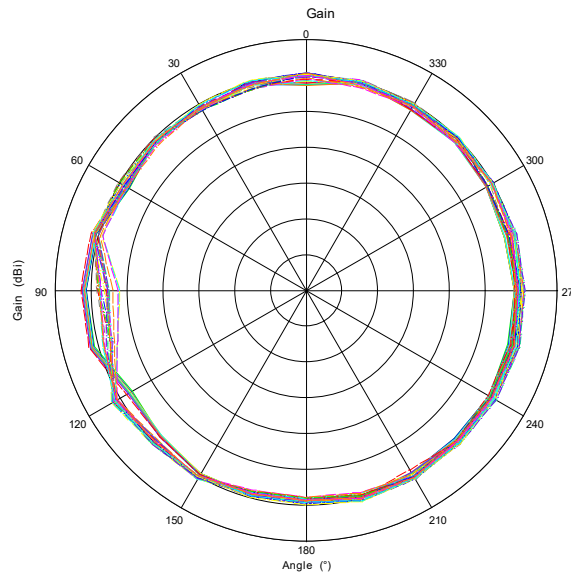
Phi=90°



2402 MHz
2412 MHz
2422 MHz
2432 MHz
2441 MHz
2442 MHz
2452 MHz
2462 MHz
2480 MHz
5180 MHz
5200 MHz
5220 MHz
5240 MHz
5260 MHz
5280 MHz
5300 MHz
5320 MHz
5500 MHz
5520 MHz
5540 MHz
5560 MHz
5580 MHz
5600 MHz
5620 MHz
5640 MHz
5660 MHz
5680 MHz
5745 MHz
5765 MHz
5785 MHz
5805 MHz
5825 MHz

Max: 10  
Min: -60  
Scale: 10/div

GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



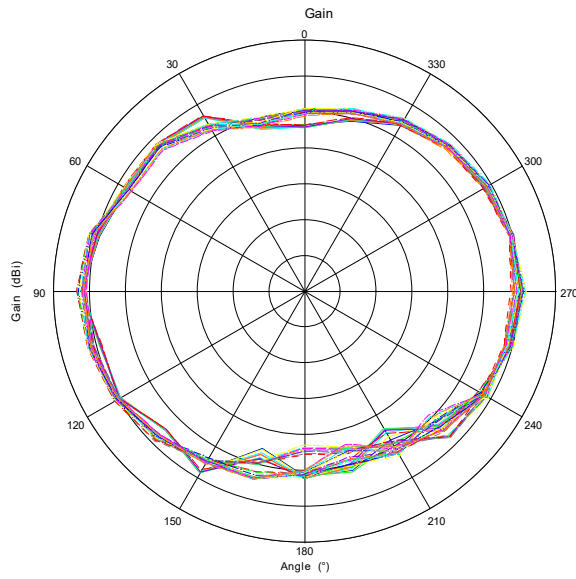
2402 MHz
2412 MHz
2422 MHz
2432 MHz
2441 MHz
2442 MHz
2452 MHz
2462 MHz
2480 MHz
5180 MHz
5200 MHz
5220 MHz
5240 MHz
5260 MHz
5280 MHz
5300 MHz
5320 MHz
5500 MHz
5520 MHz
5540 MHz
5560 MHz
5580 MHz
5600 MHz
5620 MHz
5640 MHz
5660 MHz
5680 MHz
5745 MHz
5765 MHz
5785 MHz
5805 MHz
5825 MHz

Max: 10  
Min: -60  
Scale: 10/div

GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)

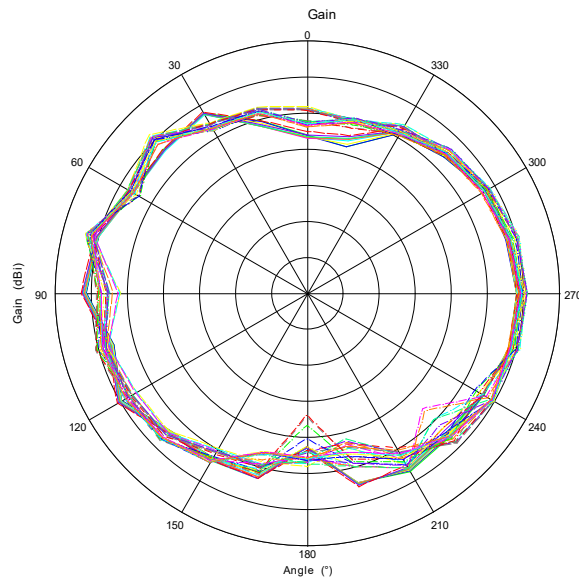


Theta=90°



Max: 10  
Min: -60  
Scale: 10/div

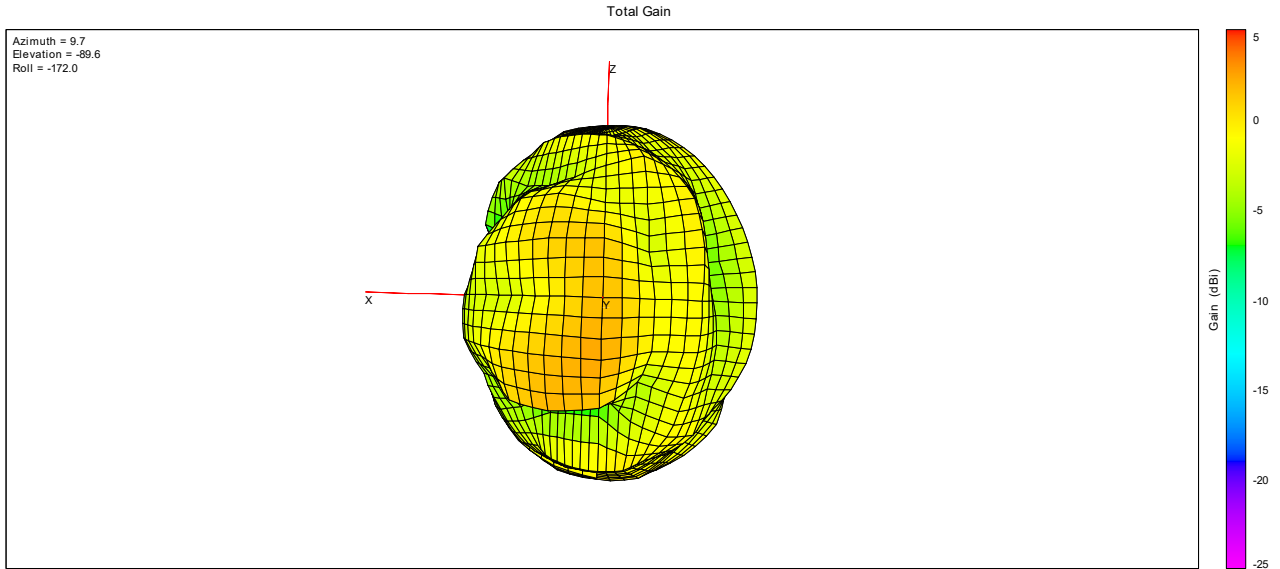
GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



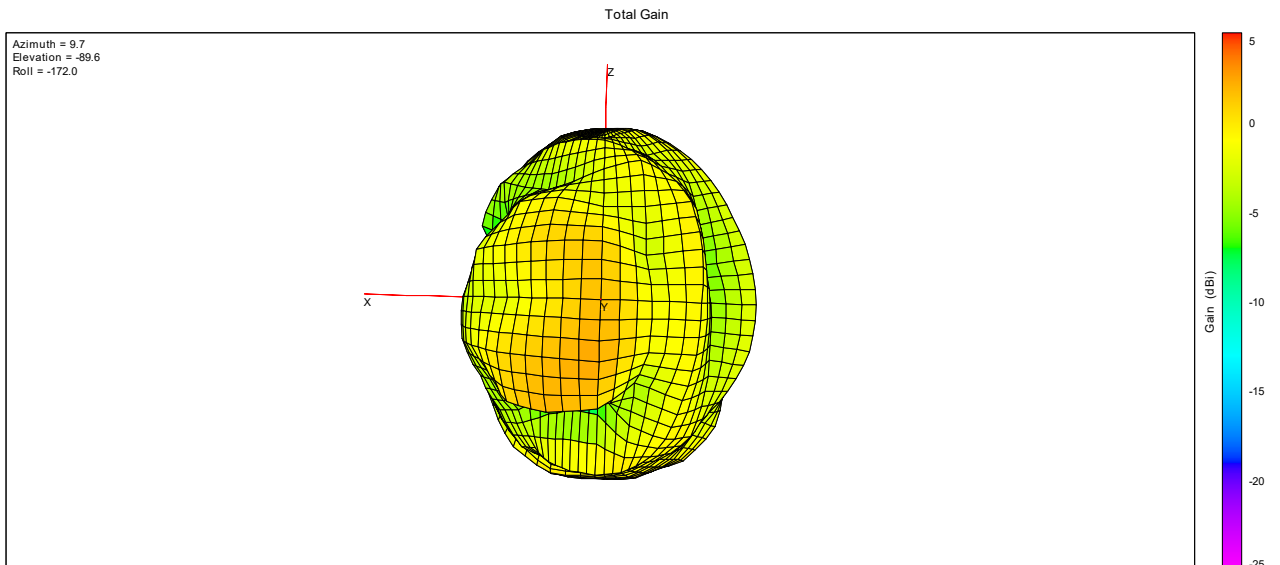
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Min: -60  
Scale: 10/div

GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)

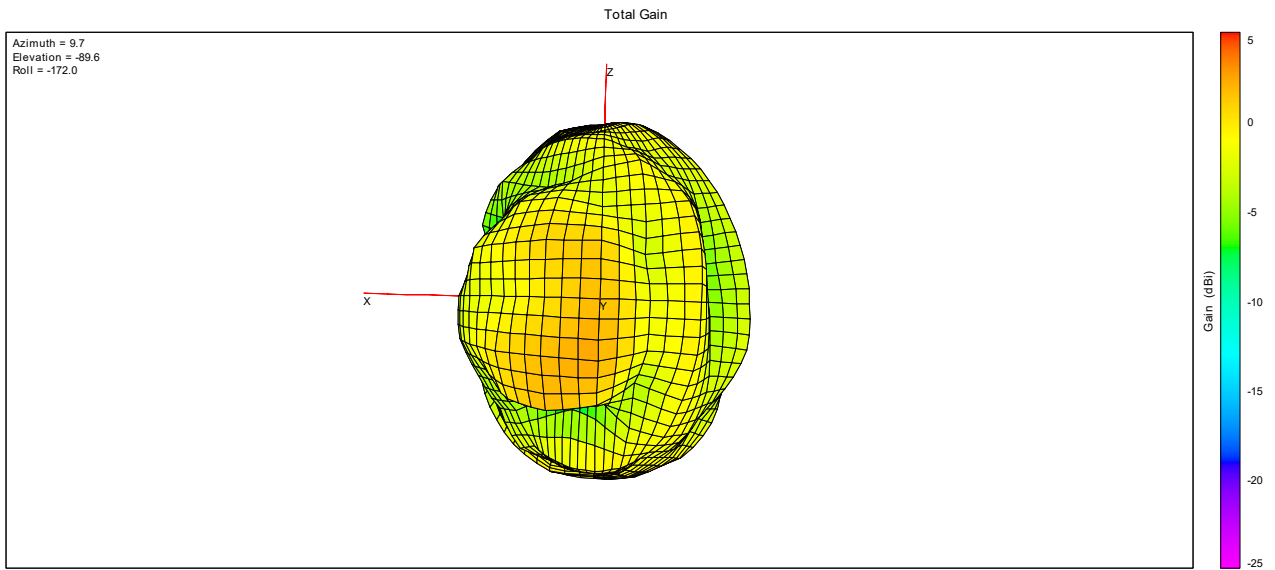
## 2. 3D Radiation Pattern



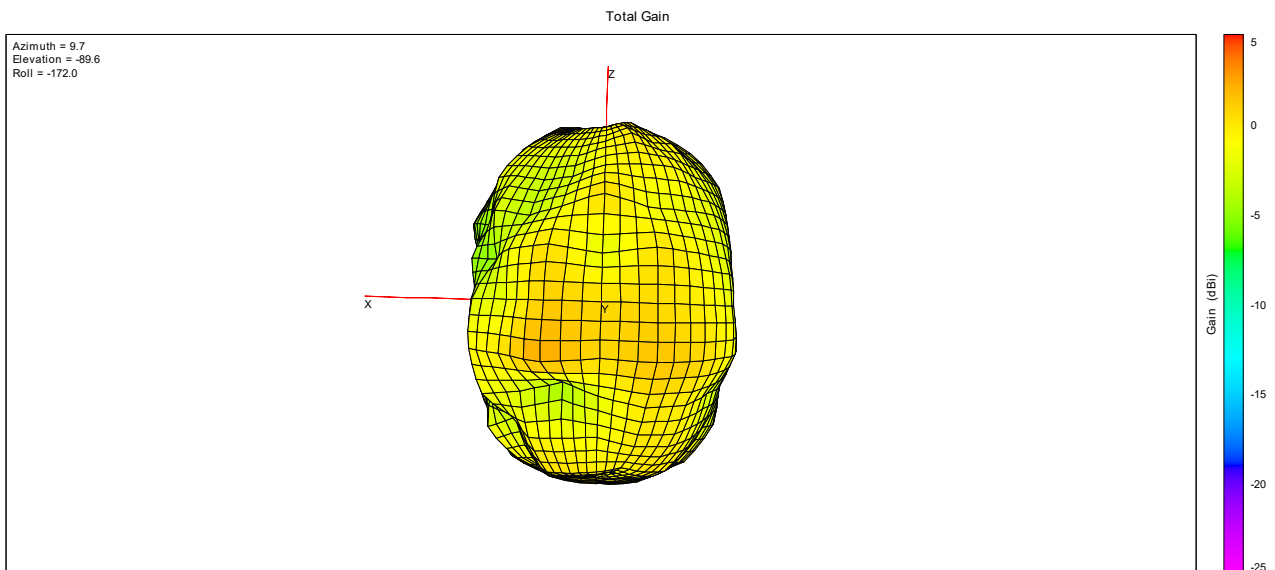
2402MHz\_GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



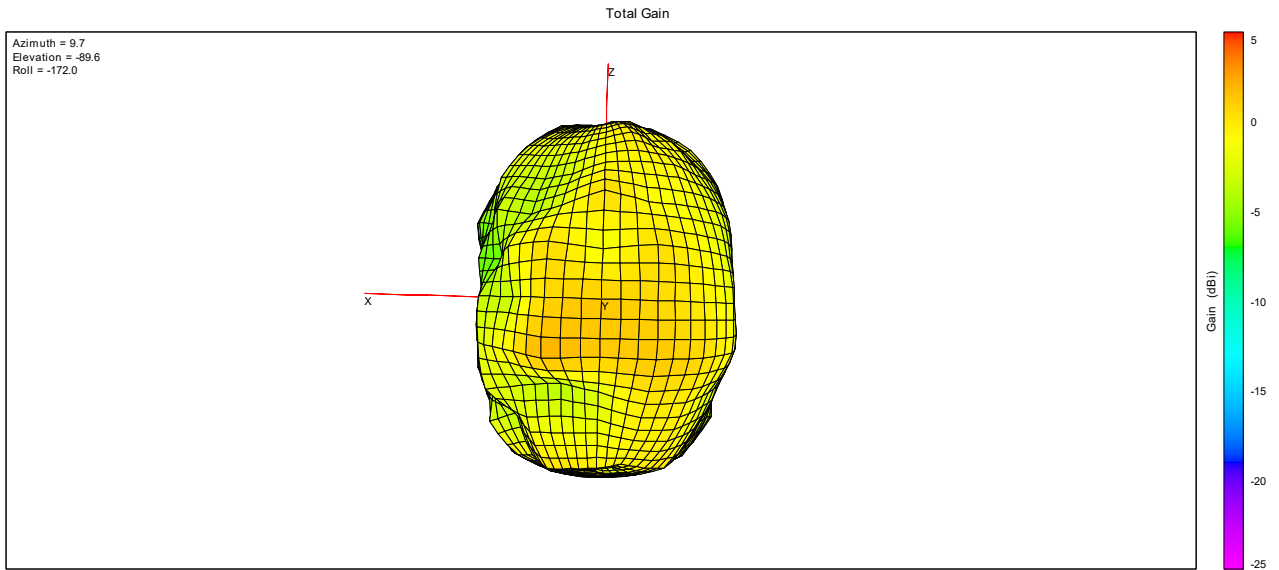
2441MHz\_GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



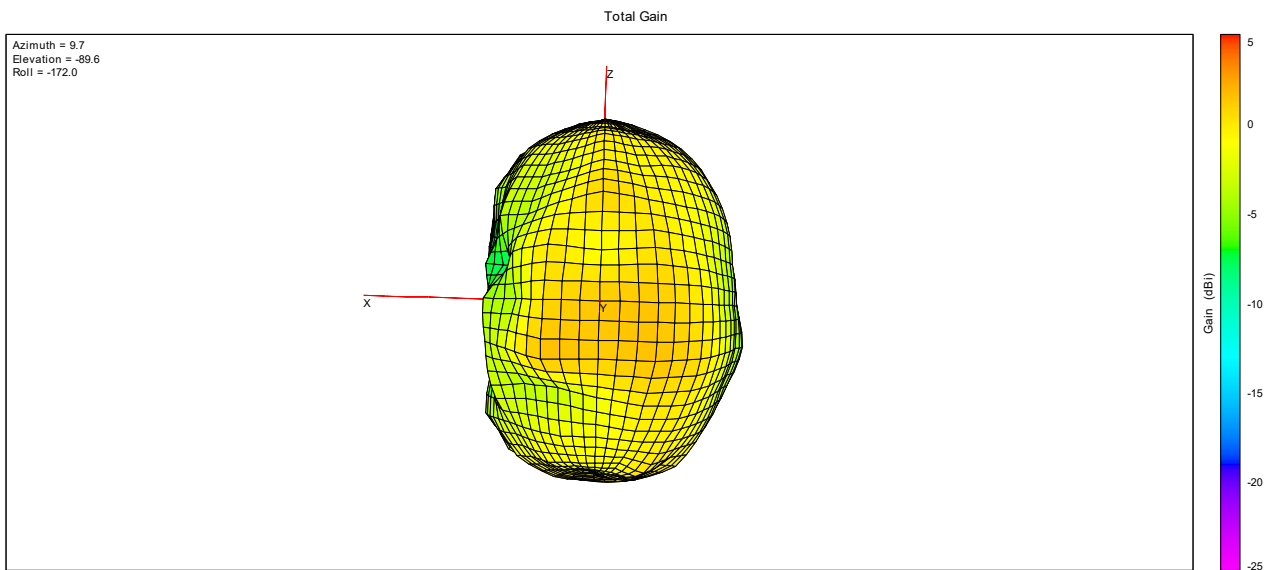
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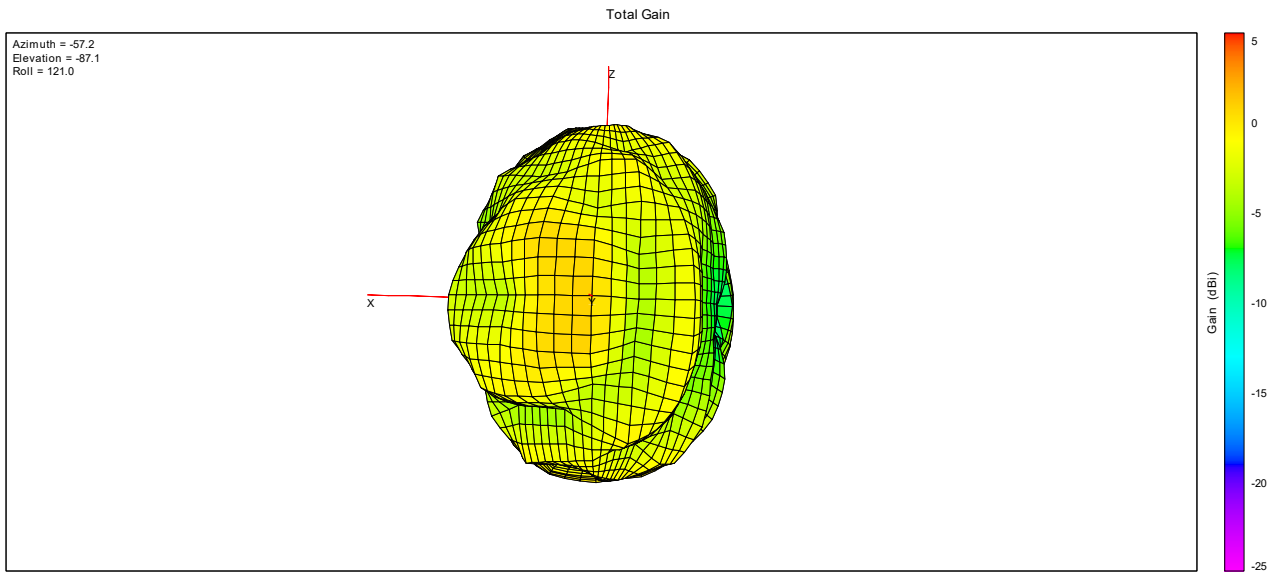
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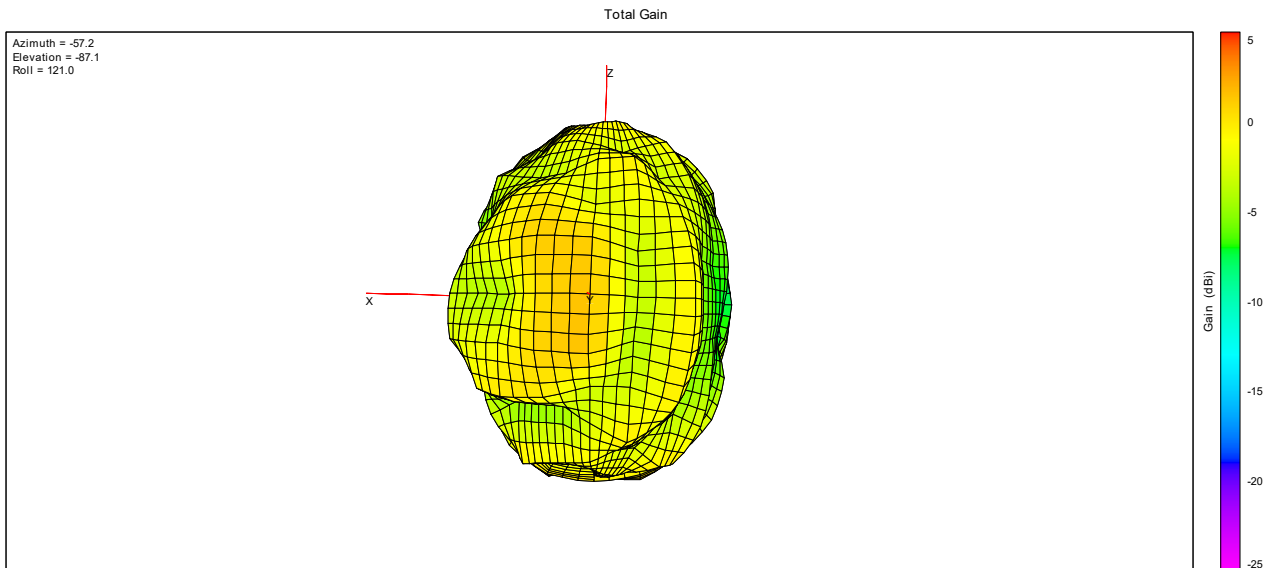
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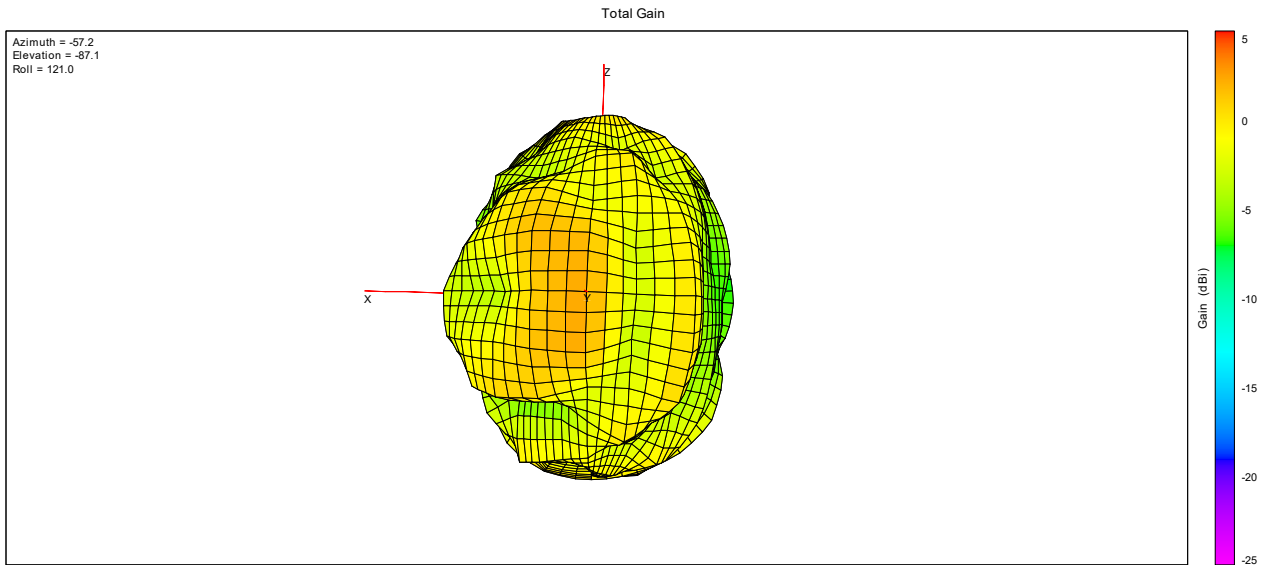
5825MHz\_GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



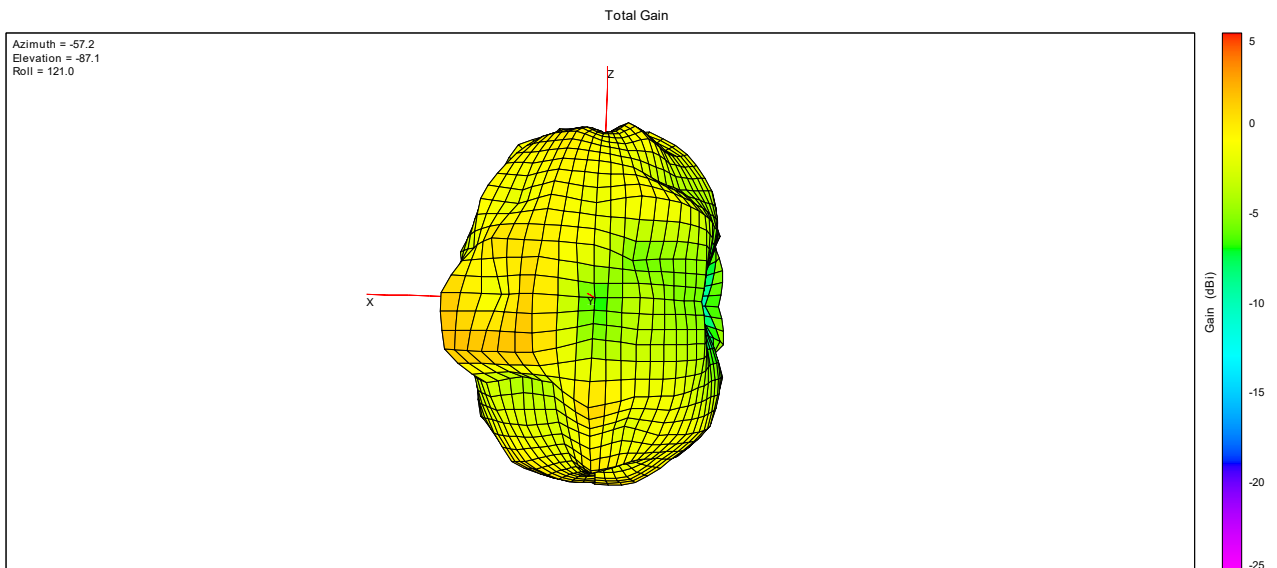
2402MHz\_GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)



2441MHz\_GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)

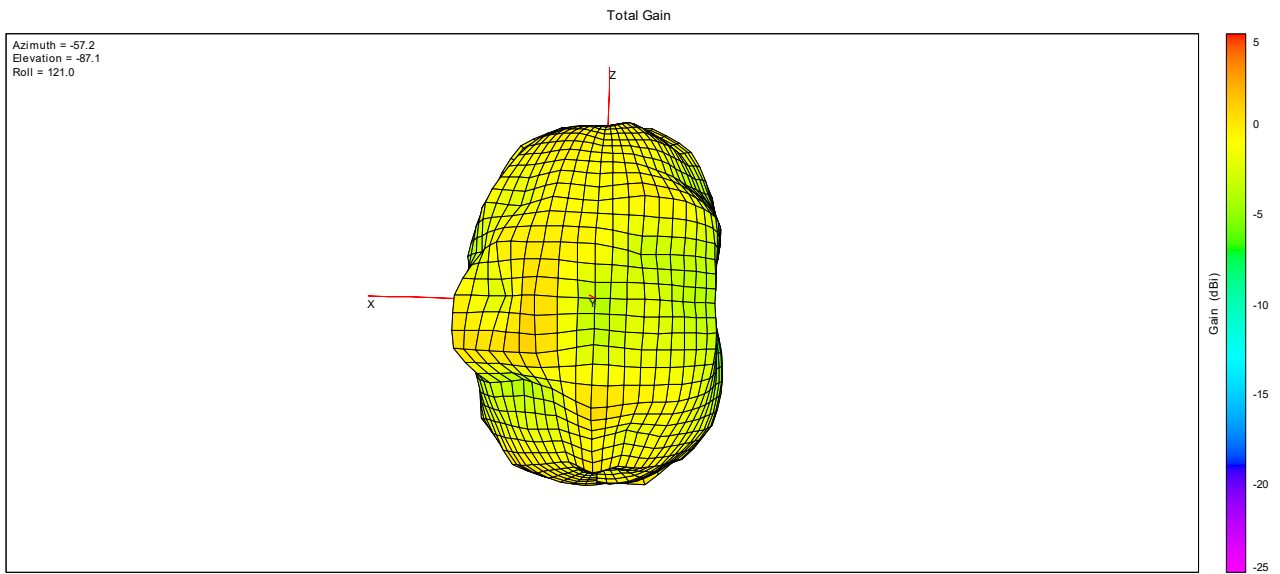


2480MHz\_GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)

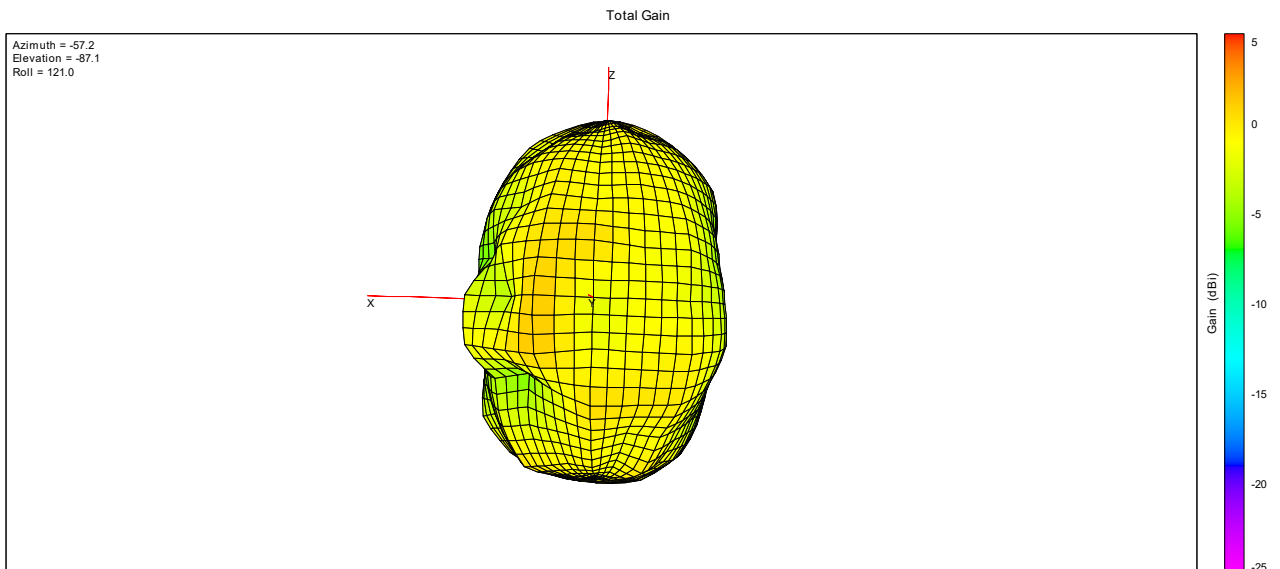


5180MHz\_GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)





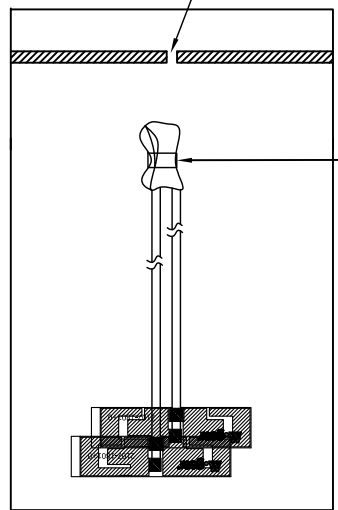
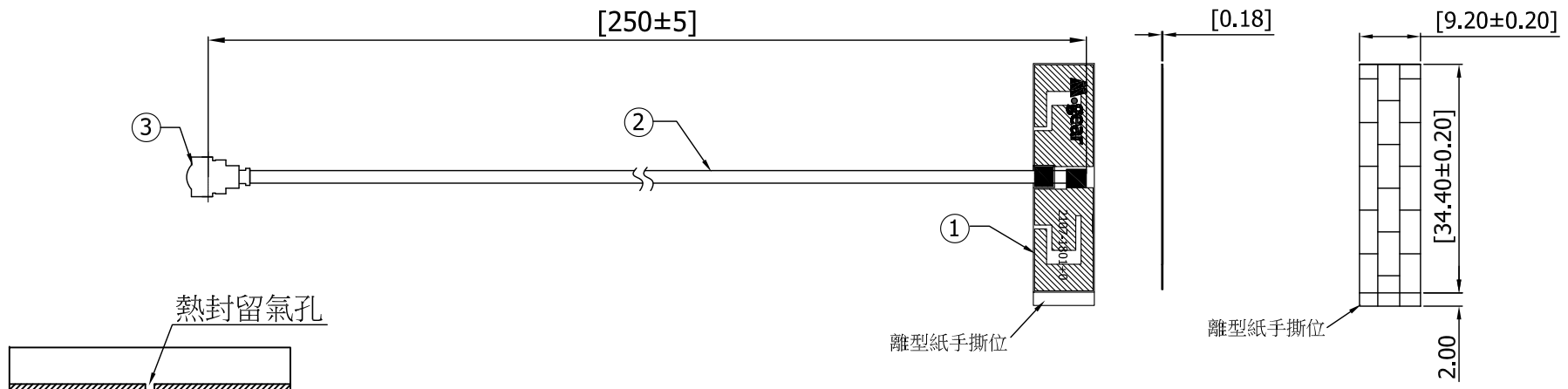
5300MHz\_GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)



5825MHz\_GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)

CG-

REV	DATE	DESCRIPTION
X1	09/07-2022	New Issue



Packing : 25 pcs/bag

3	Connector	I-PEX MHF 4L Connector	1	
2	Cable	Φ1.13 Low Loss Cable;Black[黑色]	1	
1	FPCB	PI+CU+AD	1	
NO	DESCRIPTION		Q'TY	REMARK

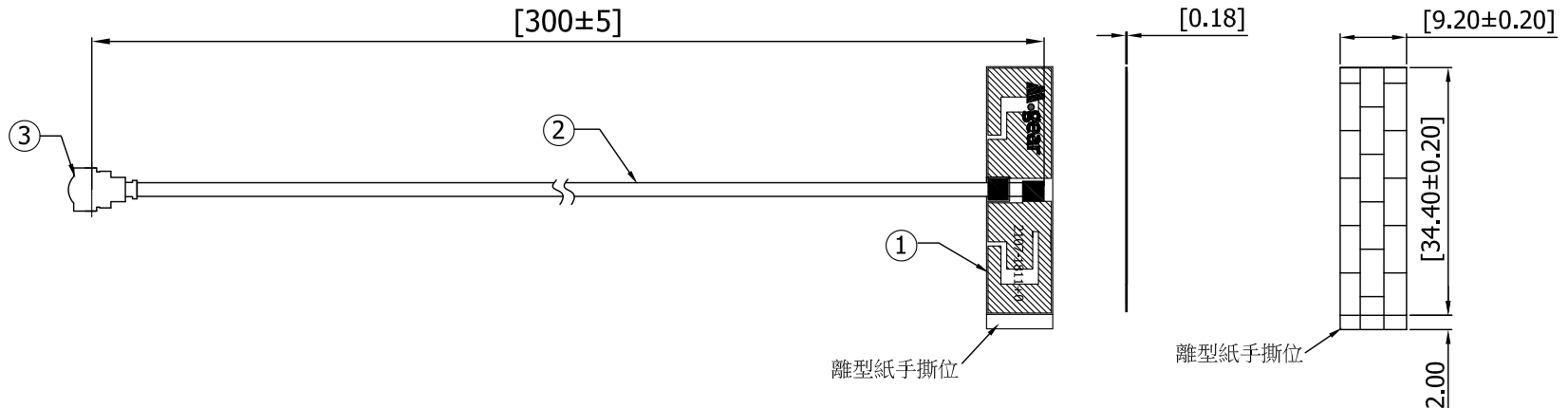
CUSTOMER'S SINGATURE	XX.	±5.0	APPROVED	CUSTOMER: 金山電子		
	X.	±3.0	Spring	PART NO : 2107-1801+0		
	.X	±1.0	CHECKED	PART NAME: RF Antenna Assembly		
	.XX	±0.3		W.Y P/NO : C4207-810021-A		
	.XXX	±0.1	DRAWING	REV	UNIT	FILE : SSR-220258
		白玉俠	X1	mm	SHEET : 1/1	

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CG-

REV	DATE	DESCRIPTION
X1	09/07-2022	New Issue

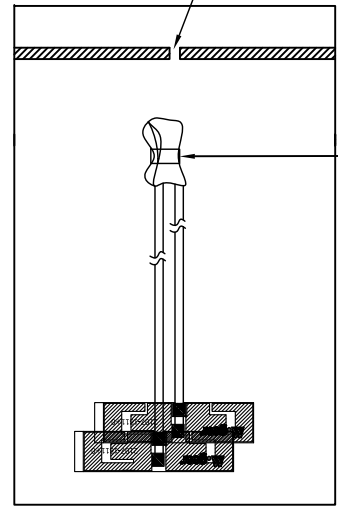


離型紙手撕位

離型紙手撕位

熱封留氣孔

用透明膠帶固定



Packing : 25 pcs/bag

3	Connector	I-PEX MHF 4L Connector	1	
2	Cable	Φ1.13 Low Loss Cable;Black[黑色]	1	
1	FPCB	PI+CU+AD	1	
NO	DESCRIPTION		Q'TY	REMARK

CUSTOMER'S SINGATURE

XX.	±5.0	APPROVED	Spring
X.	±3.0		
.X	±1.0	CHECKED	
.XX	±0.3		
.XXX	±0.1	DRAWING	白玉俠
⊕	∠		

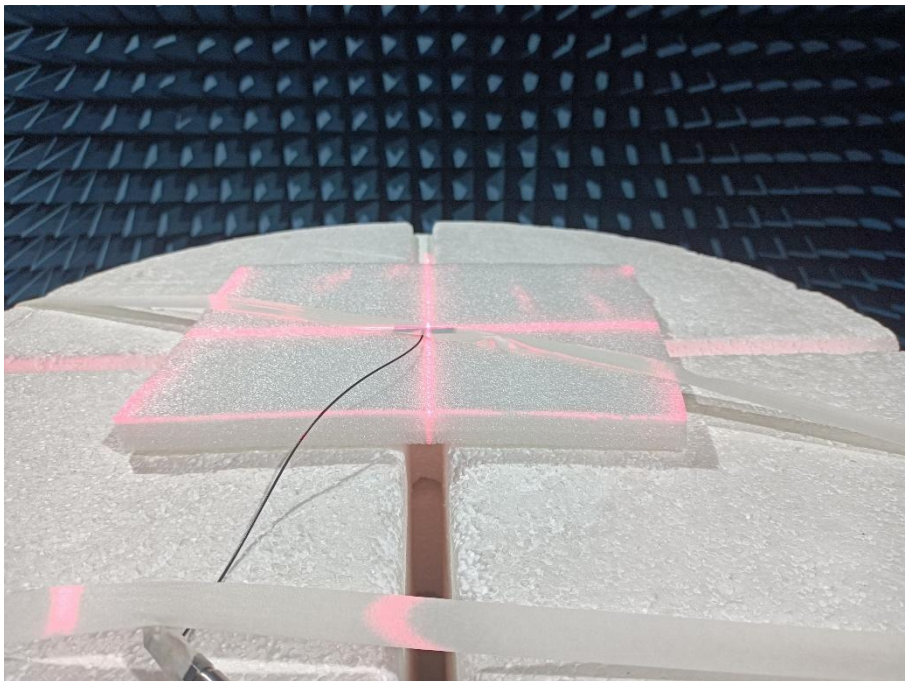
CUSTOMER: 金山電子		
PART NO : 2107-1811+0		
PART NAME: RF Antenna Assembly		
W.Y P/NO : C4207-810020-A		
REV	UNIT	FILE : SSR-220257
X1	mm	SHEET : 1/1

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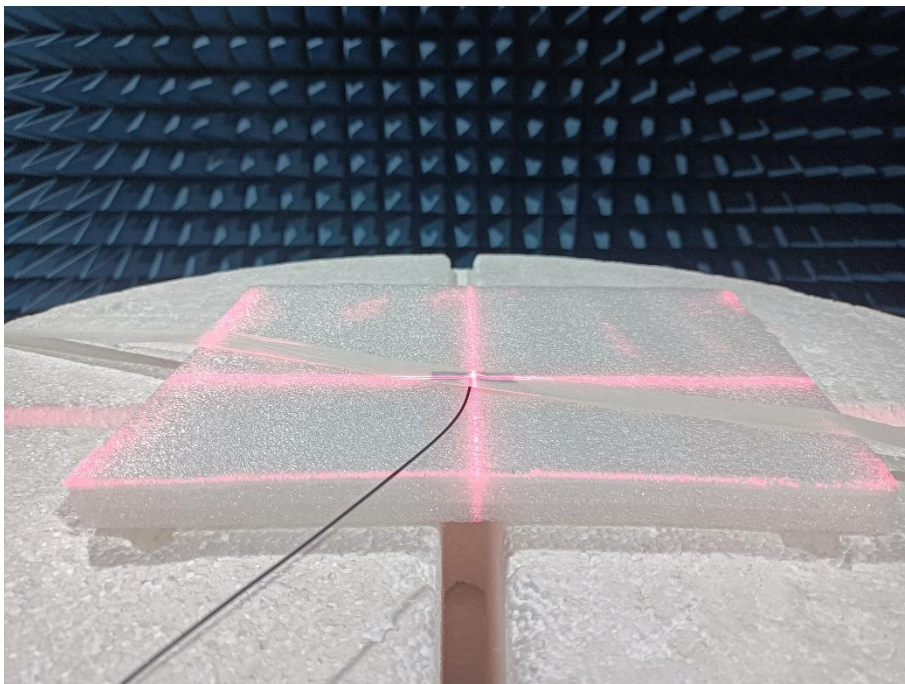
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## Annex C EUT Photos

### 1. Test environment

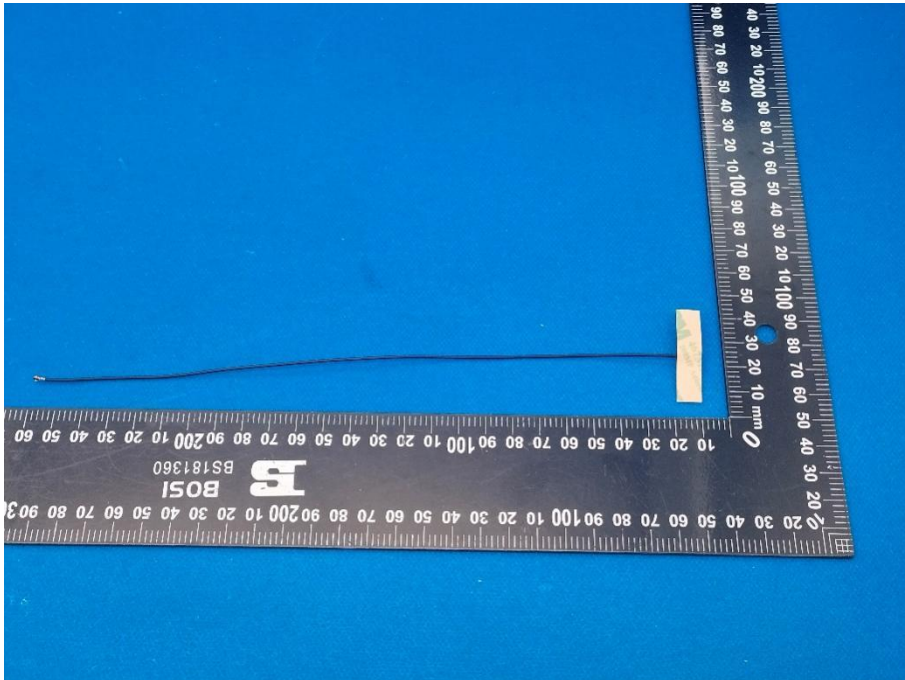
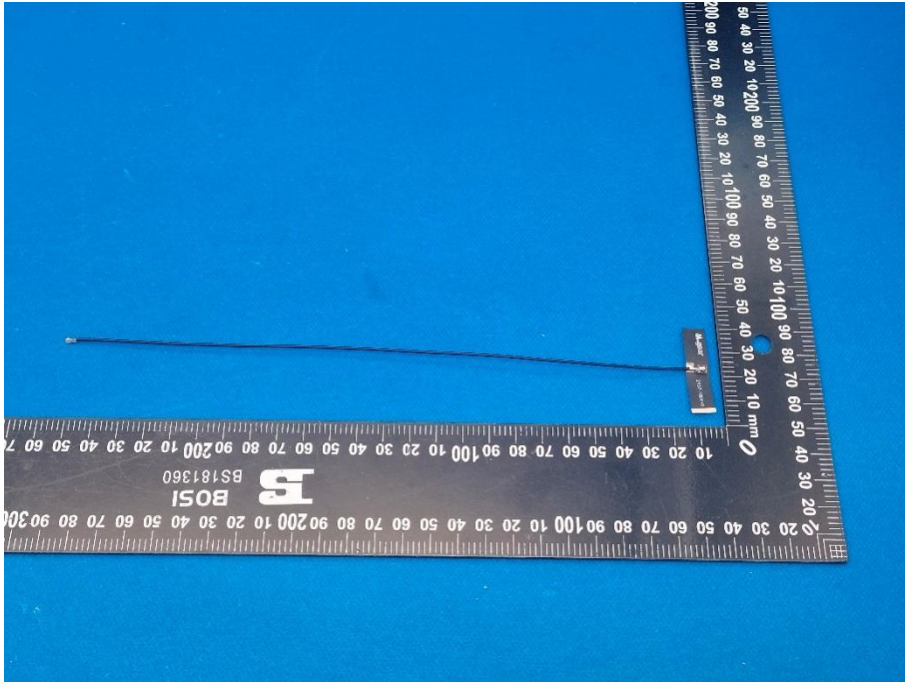


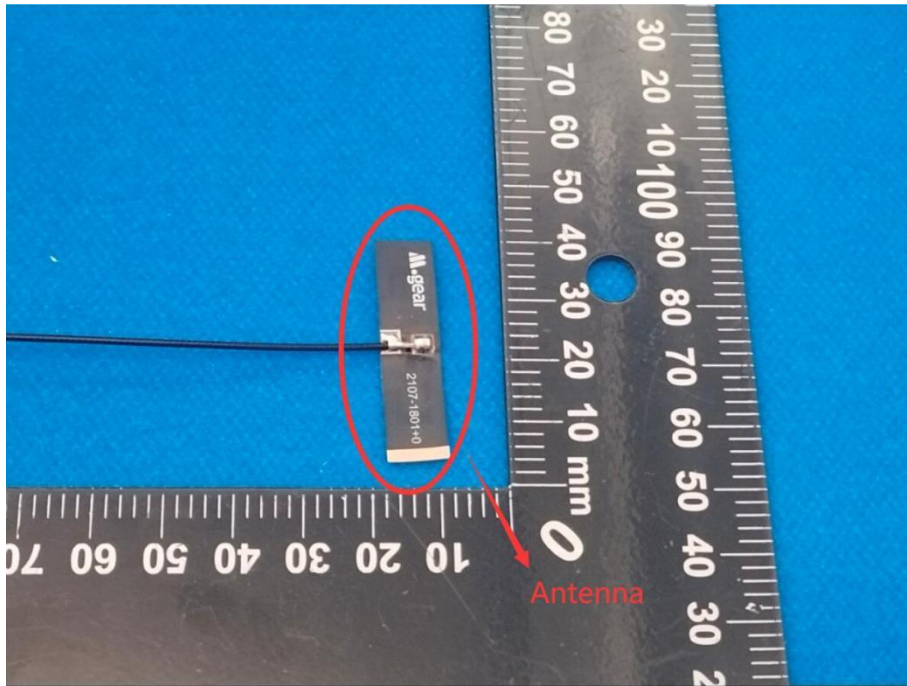
GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)



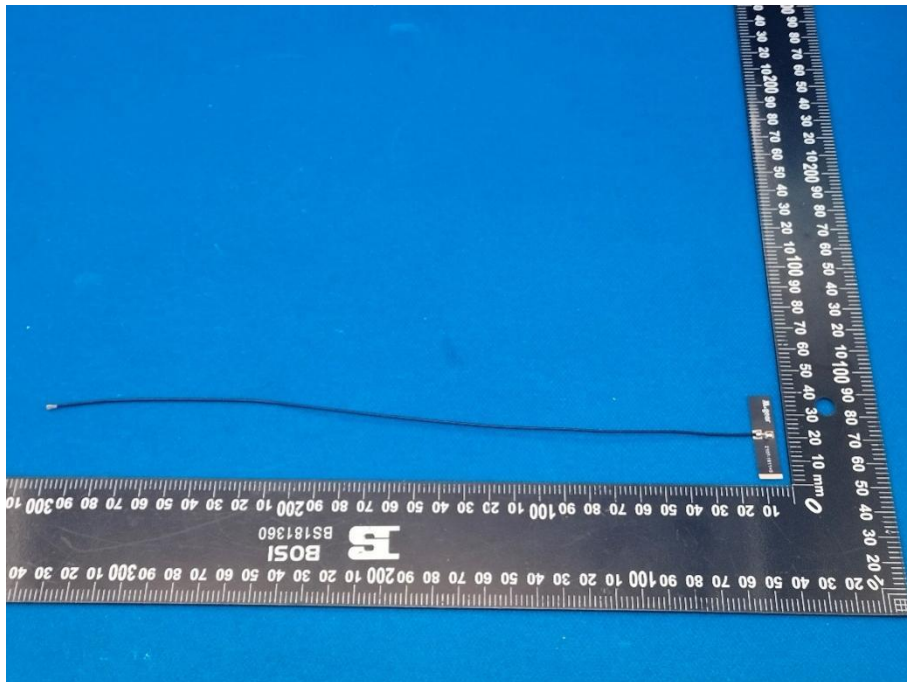
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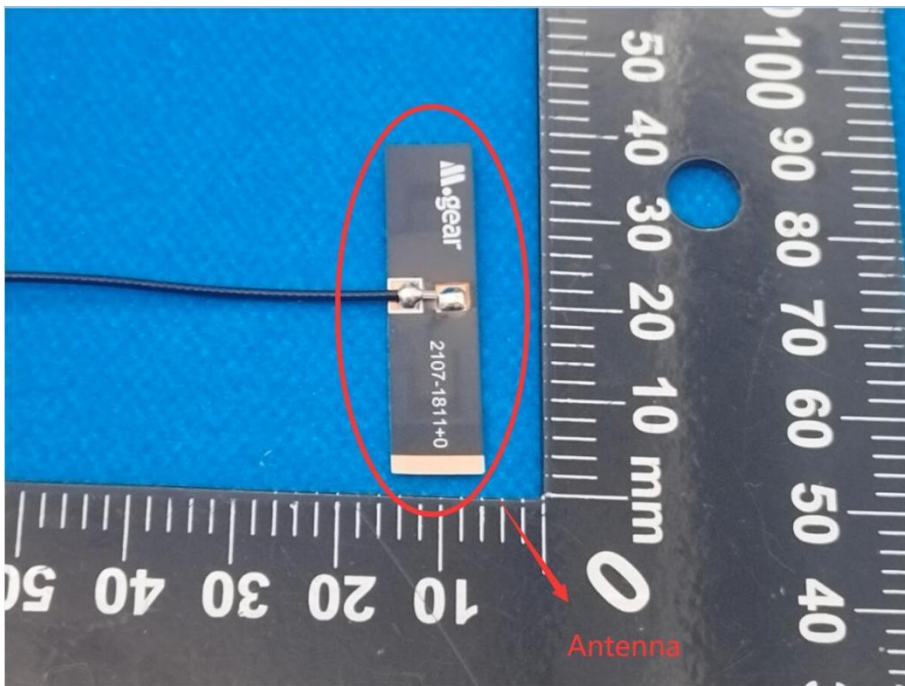
2. EUT





GPE 2107-1801+0 / MGear C4207-810021-A(SSR-220258)





GPE 2107-1811+0 / MGear C4207-810020-A(SSR-220257)





## Annex D General Information

### 1.1 Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

### 1.2 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China

### 1.3 Test Equipments Utilized

No.	Equipement Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Network Analyzer	MY46110140	E5071C	Agilent	2023.06.21	2024.06.20
2	OTA Chamber	TJ2235-Q1793	AMS-8923 -150	ETS	2022.11.30	2025.11.29
3	Antenna Measurement System	1685	EMQuest EMQ-100 V 1.13 Build 21267	ETS	N/A	N/A

————— END OF REPORT —————