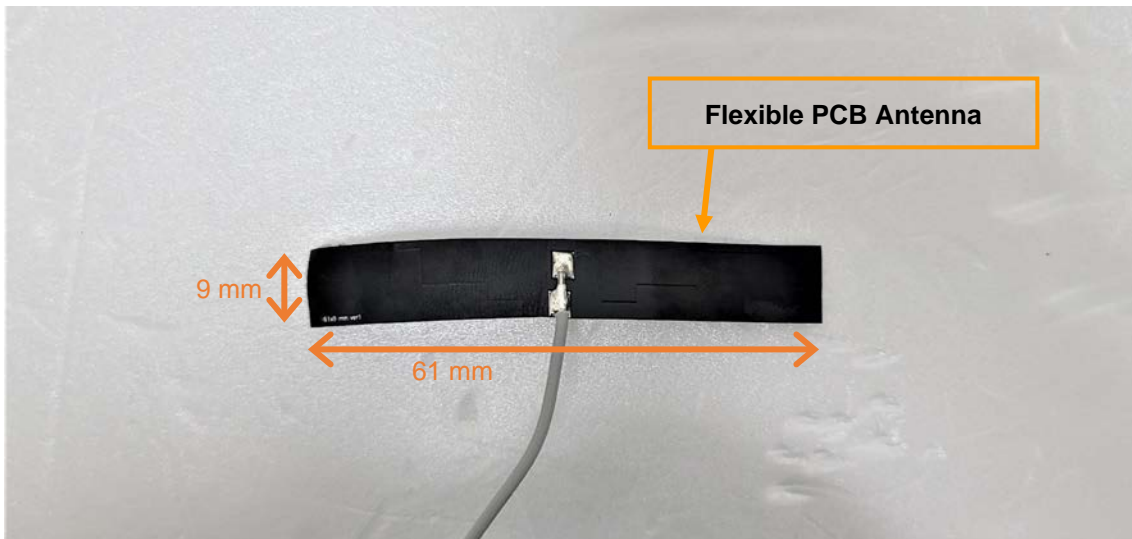


Antenna Information


Item	Contents
Antenna Type	Flexible PCB Antenna
Antenna peak gain	2.75 dB i
Manufacturer / Model name	SANGSHIN ELECOM CO., LTD. / KSCA-F2650MS619A
Address of manufacturer	507, Dangsang-ro, Yeonseo-myeon, Sejong-si, Republic of Korea
Test laboratory	SANGSHIN ELECOM CO., LTD.
Size Information	Length : 9 mm / Width : 61mm



APPROVAL SHEET

CUSTOMER: Golfzone Deca

TYPE	Flexible PCB Antenna
PART NO.	KSCA-F2650MS619A
SPEC NO.	CA-PA-220010A
DATE	2022-11-15

DESIGN	CHECK	APPROVAL
SY KIM		



SANGSHIN ELECOM CO., LTD.

HEAD OFFICE & FACTORY

507 DANGSANRO YUNSUHMYON SEJONGSI

THE REPUBLIC OF KOREA

TEL : (044) 865-9008

FAX : (044) 865-9339

SANGSHIN

Golfzone Deca	SPECIFICATION	SPEC NO. : CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

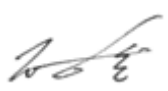
Dear Golfzone Deca

No.		ISSUE	
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Approval Sheet

UNIT NAME	Flexible PCB Antenna
MODEL NO	KSCA-F2650MS619A
ITEM NO.	
MANUFACTURER	SANGSHIN ELECOM CO.,LTD.

Conditional Approval
1.
2.
3.

Golfzone Deca APPROVAL	ELECTRONIC	ITEM	Written by	Checked by	Approve by
		Dep./Name			
		Signature			
	MECHANIC	ITEM	Written by	Checked by	Approve by
		Dep./Name			
		Signature			
MANUFACTURER ARROVAL	ITEM	Written by	Checked by	Approve by	
	Dep./Name	R&D1	R&D1	R&D	
	Signature	SY Kim			

Golfzone Deca	SPECIFICATION	SPEC NO. : CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

INDEX

1 Specification	5
2 Dimensions	6
3 Test Process	7
4 Test DATA	8

Golfzone Deca	SPECIFICATION	SPEC NO. : CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

1. Specification

1.1 Part Numbering

F 2650M S619 A
 ① ② ③ ④

- ① FPCB
- ② Center frequency
- ③ Size
- ④ Antenna Version

1.2 Electrical Specification

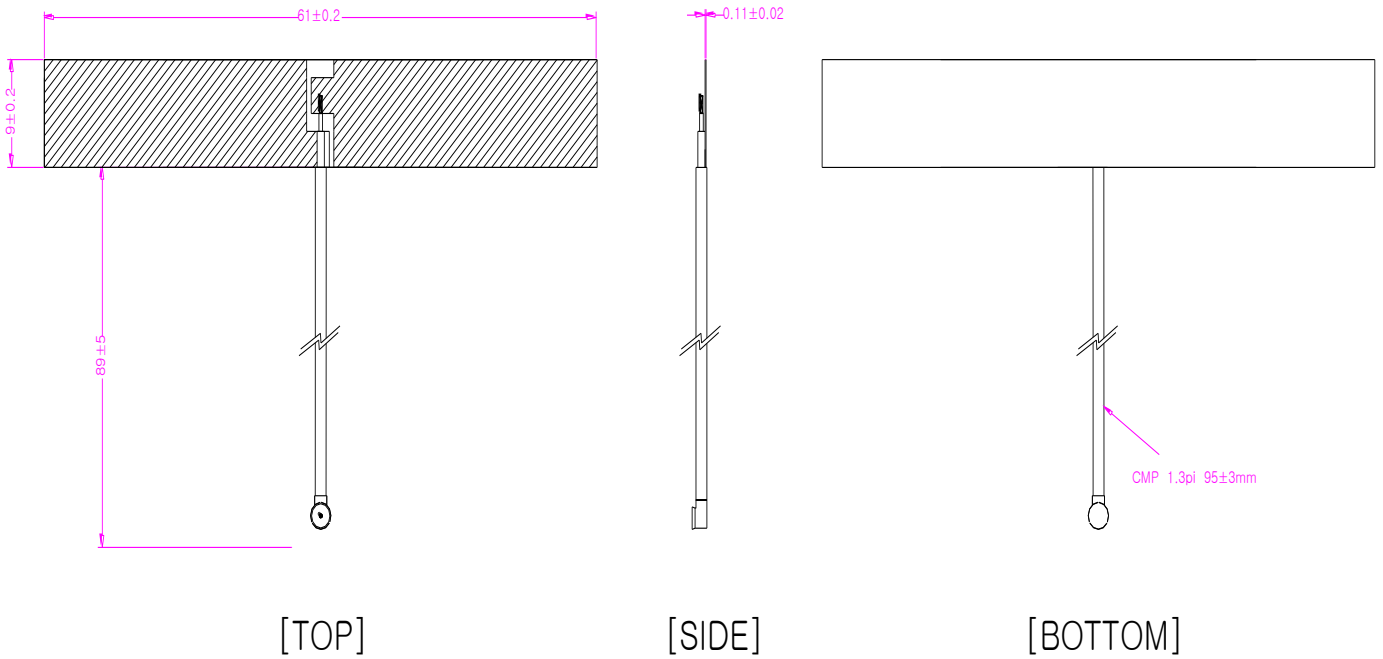
Item	Specifications
Operating Frequency	2400 ~ 2500 MHz
Return Loss @ Fc	10 dB min.
Impedance	50 Ω
Polarization	Linear

1.3 Environment Specification

- 1) Operating Temperature Range : -30°C ~ 85°C
- 2) Storage Temperature Range : -30°C ~ 85°C

Golfzone Deca	SPECIFICATION	SPEC NO. : CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

2. Dimensions



Tolerance Unless
 Otherwise Specified: ± 0.2
 Unit: mm

Golfzone Deca	SPECIFICATION	SPEC NO. : CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

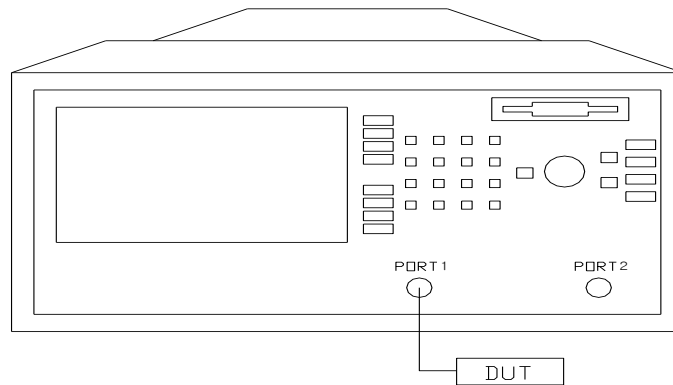
3. Test proess

3.1 Test Equipment

3.1.1 Test Equipment

NETWORK ANALYZER (HP 8753E, HP 8753ES ..)

3.1.2 Configuration



3.2 Test Method

3.2.1 Measurement Equipment Setting

- 1) Connect Cable [N-TYPE(Male)Connector-SMA(Male)Connector] to Network Analyzer.
- 2) Connect each port of Network Analyzer and N-type (Male) Connector of Cable.
- 3) Set Span 800 MHz, Center 2650 MHz, Number of point 401 and perform 1 PORT Full Calibration.
- 4) Connect the cable's SMA(Male)Connector and the U.FL connector.

3.2.2 Measurement of Electrical Characteristics.

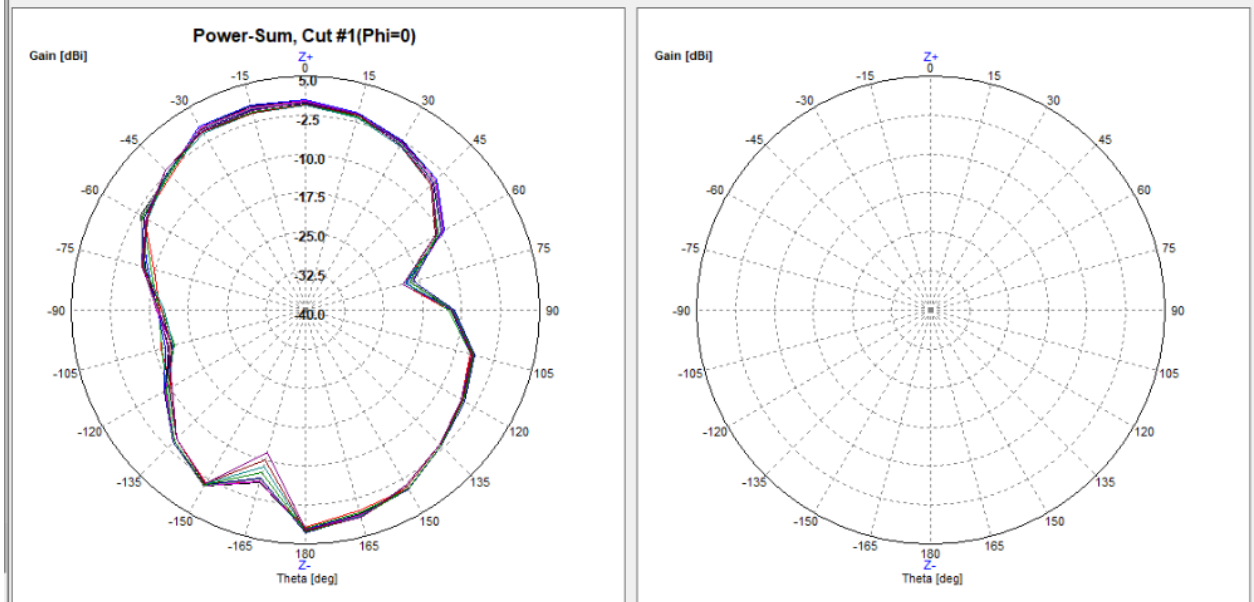
CH1 : Check whether the electrical characteristics of S11 satisfy 1.2.

Golfzone Deca	SPECIFICATION	SPEC NO.: CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

4 Test DATA

4.1 Antenna Chamber Data

No.	Freq.	Avg.	Peak	Null	Diff.	BW	F/B R.	SLLL3	SLLL2	SLLL1	SLLR1	SLLR2	SLLR3
		[dB]	[dB]	[deg]	[deg]	[deg]	[dB]	[deg]	[dB]	[deg]	[dB]	[deg]	[dB]
1	2400.000	-3.08	1.87	0.00	-20.61	75.00	22.49	5.91	1.23	165.00	999.00	999.00	999.00
2	2410.000	-2.84	2.03	0.00	-20.20	75.00	22.23	5.78	1.26	165.00	999.00	999.00	999.00
3	2420.000	-2.63	2.30	0.00	-19.92	75.00	22.23	5.67	1.49	165.00	999.00	999.00	999.00
4	2430.000	-2.70	2.40	0.00	-19.13	75.00	21.52	5.53	1.80	150.00	999.00	999.00	999.00
5	2440.000	-2.71	2.52	0.00	-19.09	75.00	21.62	5.32	1.80	345.00	999.00	999.00	999.00
6	2450.000	-2.71	2.67	0.00	-19.07	75.00	21.73	5.05	1.70	345.00	999.00	999.00	999.00
7	2460.000	-2.79	2.75	0.00	-18.63	75.00	21.37	4.79	1.68	345.00	999.00	999.00	999.00
8	2470.000	-2.98	2.65	0.00	-19.35	75.00	21.99	4.32	1.50	345.00	999.00	999.00	999.00
9	2480.000	-3.27	2.38	0.00	-20.15	75.00	22.53	4.01	1.37	345.00	999.00	999.00	999.00
10	2490.000	-3.16	2.44	0.00	-20.60	75.00	23.04	3.59	1.25	345.00	999.00	999.00	999.00



Frequency	2400 MHz	2420 MHz	2440 MHz	2460 MHz	2480MHz
Average [dBi]	-3.08	-2.63	-2.71	-2.79	-3.27
PeakGain [dBi]	1.87	2.30	2.52	2.75	2.38

Golfzone Deca	SPECIFICATION	SPEC NO. : CA-PA-220010A
SANGSHIN ELECOM	Flexible PCB Antenna	DATE : 2022-11-15

5. 포장사양



묶음 포장 = 5 EA

1 BOX = 200 EA

*포장사양은 고객 요청이나 납품 방법에 의해 변경될 수 있습니다.