

4G LTE / NB-IOT FPC

EARENDEL

4G LTE / NB-IoT FPC Adhesive Antenna

SZK-C-2L28

FREQUENCY
617 to 2690 MHz

PEAK GAIN
Up to 4.60 dBi

CONNECTOR
MHF1, 70 mm

SIZE
50.0 × 8.5 × 0.2 mm

LOW BAND	617 to 960 MHz	Covers B5, B8, B12, B13, B14, B17, B18, B20, B26, B27, B28, B29, B71
L BAND	1427 to 1660.5 MHz	Covers B24
MID BAND	1710 to 2200 MHz	Covers B1, B2, B3, B4, B9, B23, B35, B39, B66
2.3 GHZ	2300 to 2400 MHz	Covers B40
2.6 GHZ	2490 to 2690 MHz	Covers B7, B38, B41

1 Introduction

EARENDEL, a 4G LTE / NB-IoT flexible antenna. Despite its compact size of 50 mm by 8.5 mm, this antenna delivers robust performance. Its small size allows for easy integration into even the slimmest devices. With this antenna, you are choosing a balance of compact design and strong connectivity.

— Features

- ◆ For 4G LTE / NB-IoT and global cellular applications
- ◆ Simple integration, plug and be operational without designing on board antenna
- ◆ Can be tuned to your device using additional Pi network
- ◆ Alternate cable lengths and connectors available upon request

— Applications

- | | |
|-------------------------|----------------------|
| ◆ Asset Tracking | ◆ Personal Safety |
| ◆ Precision Agriculture | ◆ Emergency Response |
| ◆ Smart Cities | ◆ Wearable Tech |
| ◆ Fleet Management | |

2 Mechanical Specifications

Part Number	SZK-C-2L28
Name	EARENDEL
Dimensions (mm)	50.0 × 8.5 × 0.2
Antenna Type	FPC + Cable
Weight	<1.5 g
Connector*	MHF1
Cable Length*	70 mm
Adhesive Backing	3M 868

*Alternate cable length and connectors available on request

3 Electrical / RF Specifications

Band	Frequency Range (MHz)	Avg Efficiency (%)	Peak Gain (dBi)	Impedance	Polarization
5G NR/4G LTE B5, 8, 12, 13, 14, 17, 18, 20, 26, 27, 28, 29, 71	617 to 960	>60	4.60	50 Ω	Linear
5G NR/4G LTE B24	1427 to 1660.5	>70	3.60		
5G NR/4G LTE B1, 2, 3, 4, 9, 23, 35, 39, 66	1710 to 2200	>55	3.20		
5G NR/4G LTE B40	2300 to 2400	>65	1.70		
5G NR/4G LTE B7, 38, 41	2490 to 2690	>50	1.00		

Note: All performance stated is measured on 2 mm ABS plastic, RF chokes used to prevent cable radiation.

4 Environmental

Operational Temperature	-40 to +85°C
Storage Temperature	-10 to +40°C
Relative Humidity	≤75%
Moisture Sensitivity Level (MSL)	NA
RoHS and REACH compliant	Yes

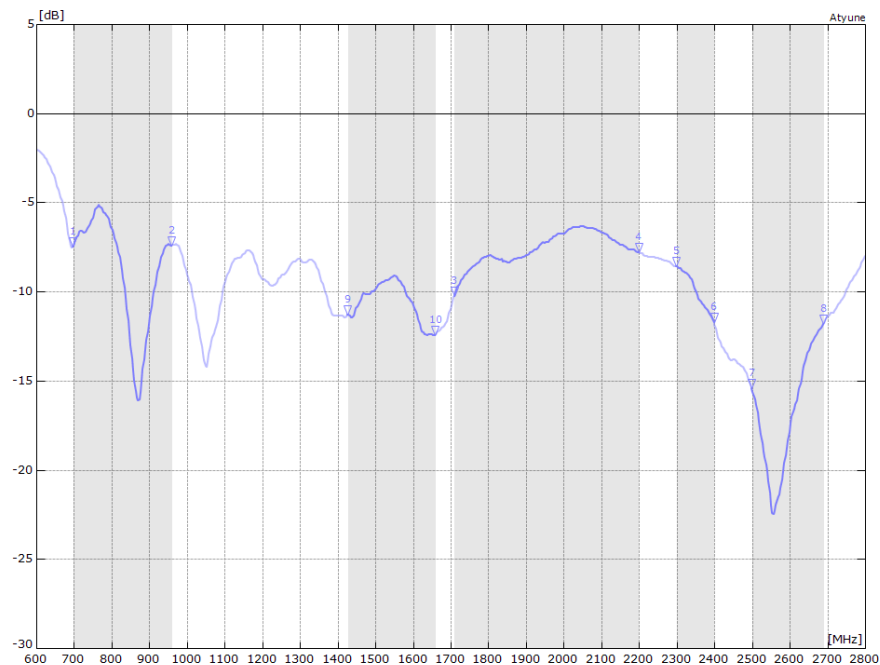
5 4G LTE / NB-IoT Supported Band List

Band	Freq. Band (MHz)	Uplink (MHz)	Downlink (MHz)	Supported
1	2100	1920 to 1980	2110 to 2170	YES
2	1900	1850 to 1910	1930 to 1990	YES
3	1800	1710 to 1785	1805 to 1880	YES
4	1700	1710 to 1755	2110 to 2155	YES
5	850	824 to 849	869 to 894	YES
7	2600	2500 to 2570	2620 to 2690	YES
8	900	880 to 915	925 to 960	YES
9		1749.9 to 1784.9	1844.9 to 1879.9	YES
10	1700	1710 to 1770	2110 to 2170	YES
11	1500	1427.9 to 1447.9	1475.9 to 1495.9	NO
12	700	699 to 716	729 to 746	YES
13	700	777 to 787	746 to 756	YES
14	700	788 to 798	758 to 768	YES
17	700	704 to 716	734 to 746	YES
18	850	815 to 830	860 to 875	YES
19	850	830 to 845	875 to 890	YES
20	800	832 to 862	791 to 821	YES
21	1500	1447.9 to 1462.9	1495.9 to 1510.9	NO
22	3500	3410 to 3490	3510 to 3590	NO
24	1600	1626.5 to 1660.5	1525 to 1559	YES
25	1900	1850 to 1915	1930 to 1995	YES
26	850	814 to 849	859 to 894	YES
27	800	807 to 824	852 to 869	YES
28	700	703 to 748	758 to 803	YES
29	700	N/A	717 to 728	YES
30	2300	2305 to 2315	2350 to 2360	YES
31		452.5 to 457.5	462.5 to 467.5	NO
32	1500	N/A	1452 to 1496	NO
33	2100		1900 to 1920	YES

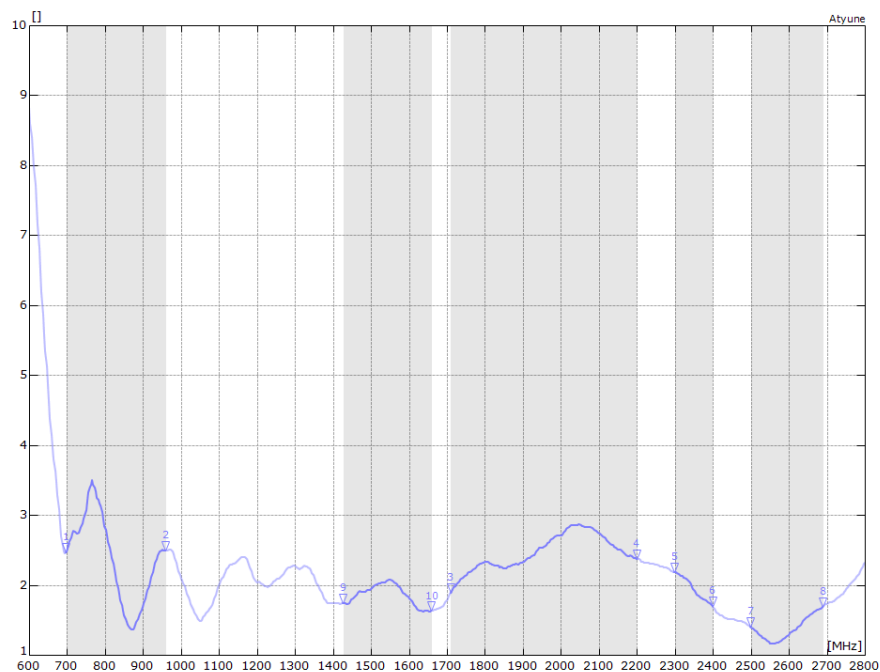
Band	Freq. Band (MHz)	Uplink (MHz)	Downlink (MHz)	Supported
34	2100		2010 to 2025	YES
35	1900		1850 to 1910	YES
36	1900		1930 to 1990	YES
37			1910 to 1930	YES
38	2600		2570 to 2620	YES
39	1900		1880 to 1920	YES
40	2300		2300 to 2400	YES
41	2500		2496 to 2690	YES
42	3500		3400 to 3600	NO
43	3700		3600 to 3800	NO
44	700		703 to 803	YES
45	1500		1447 to 1467	NO
46	5200		5150 to 5925	NO
47	5900		5855 to 5925	NO
48	3600		3550 to 3700	NO
50	1500		1430 to 1517	NO
51	1500		1427 to 1432	NO
65	2100	1920 to 2010	2110 to 2200	YES
66	1700	1710 to 1780	2110 to 2200	YES
67	700	N/A	738 to 758	YES
68	700	698 to 728	753 to 783	YES
69	2600	N/A	2570 to 2620	YES
70	2000	1695 to 1710	1995 to 2020	YES
71		663 to 698	617 to 652	NO
74			1427 to 1518	YES
77			3300 to 4200	NO
78			3300 to 3800	NO
79			4400 to 5000	NO
85		698 to 716	728 to 746	YES

6 RF Characteristics

S11 Parameter



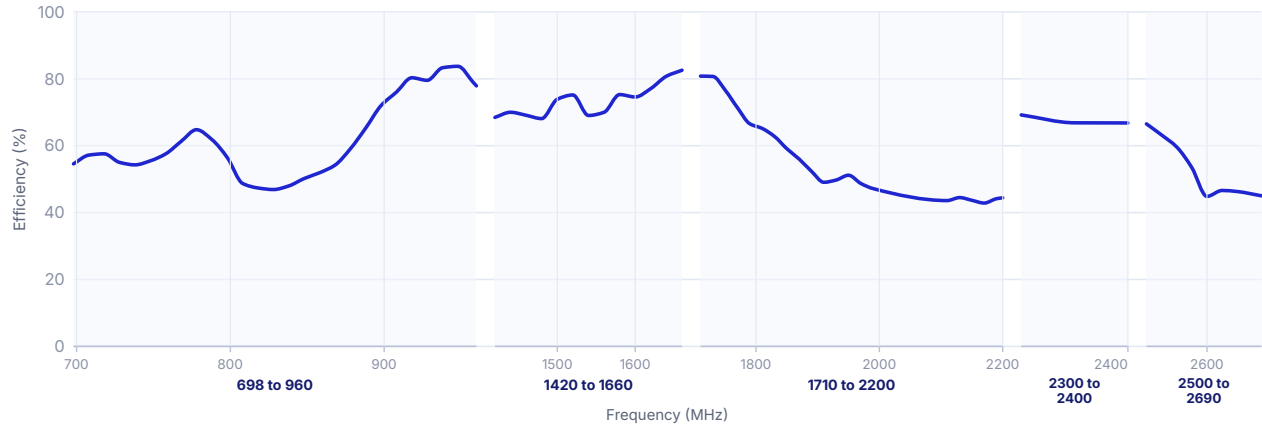
VSWR



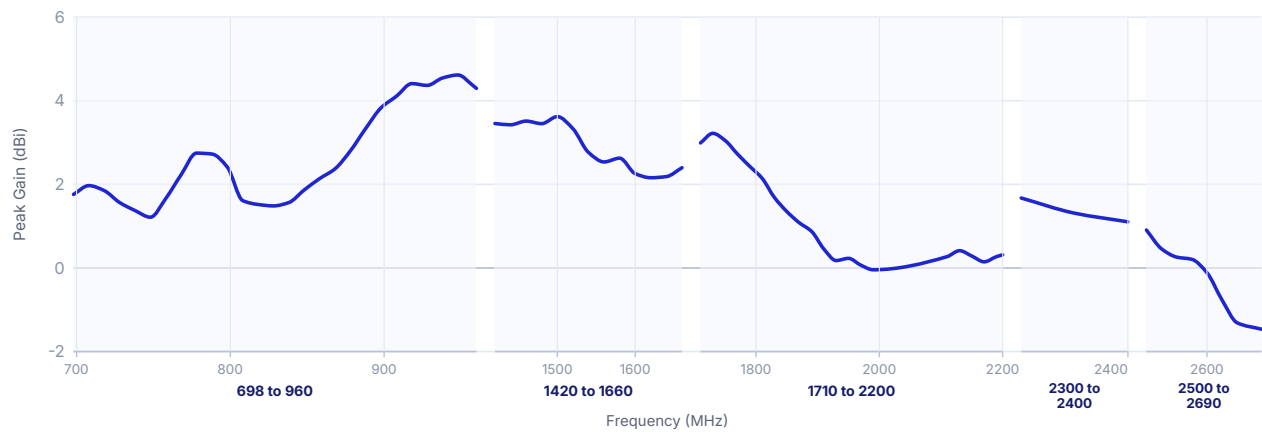
7

Antenna Performance

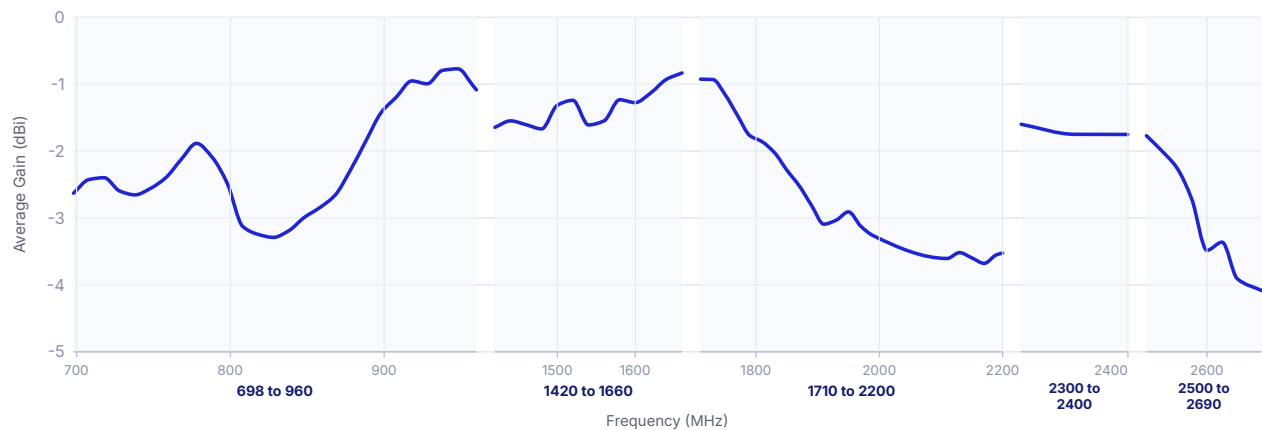
Efficiency



Peak Gain

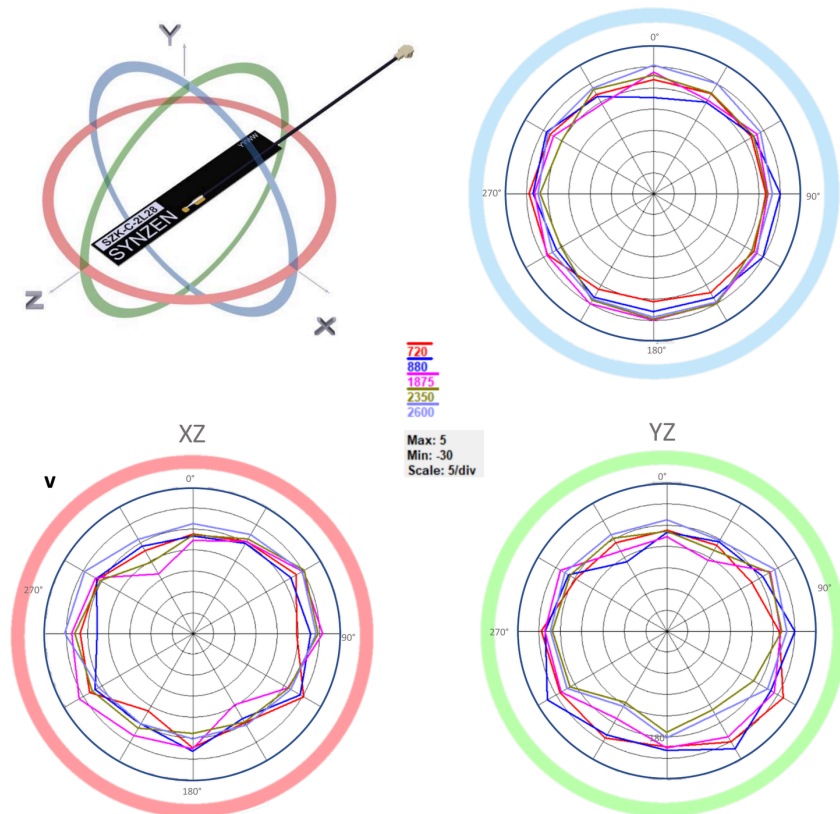


Average Gain



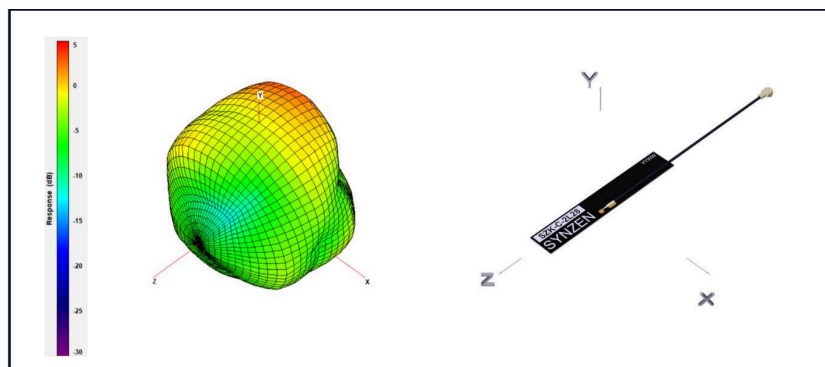
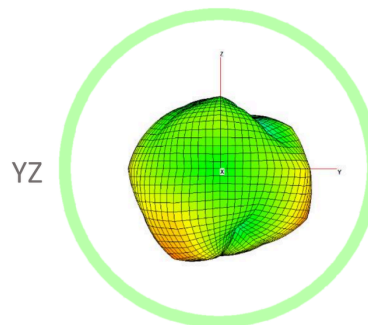
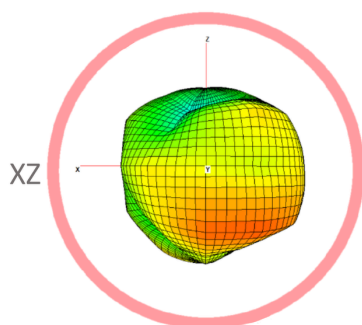
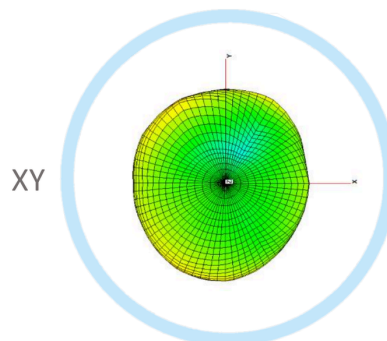
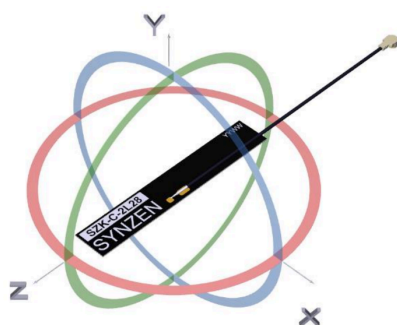
8 2D Polar Plot 698 to 2690 MHz

MEASURED ON A 2 MM THICK SECTION OF ABS



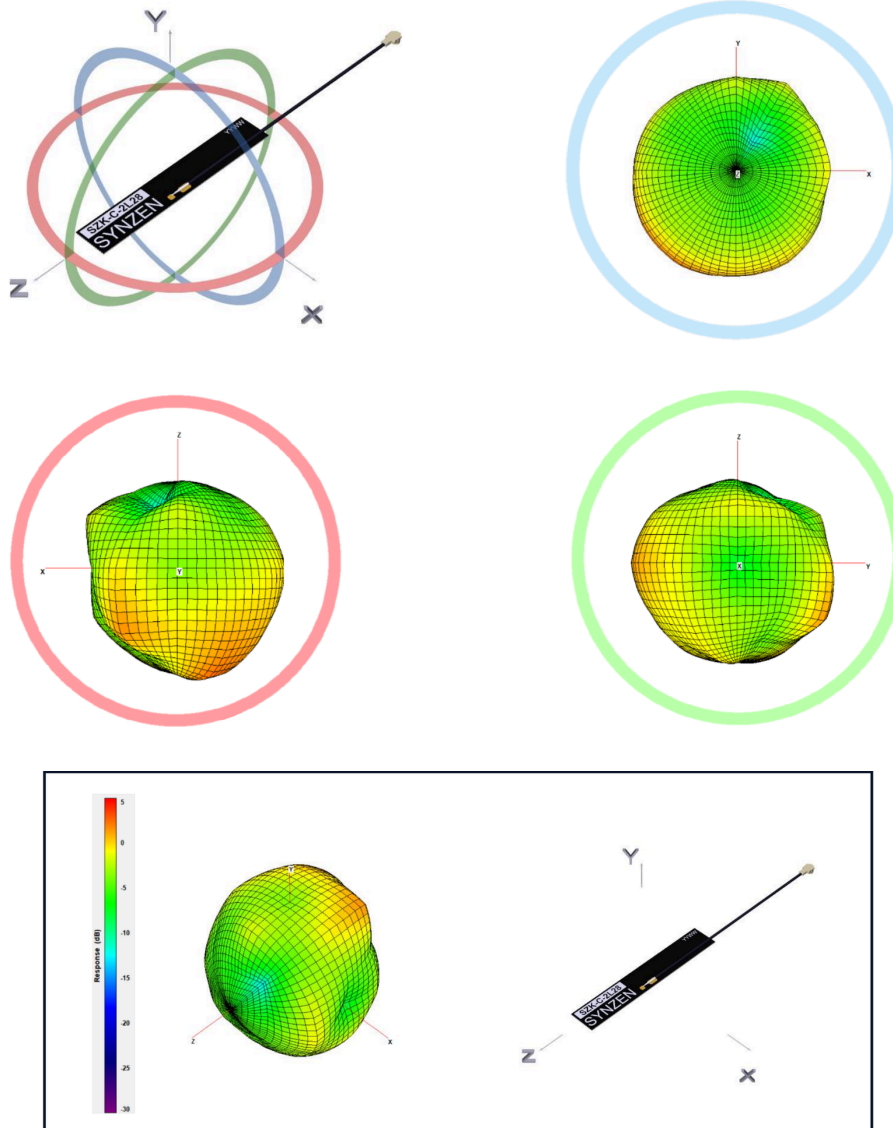
9 3D Radiation Pattern at 880 MHz

MEASURED ON A 2 MM THICK SECTION OF ABS, FREQUENCY POINT 880 MHZ



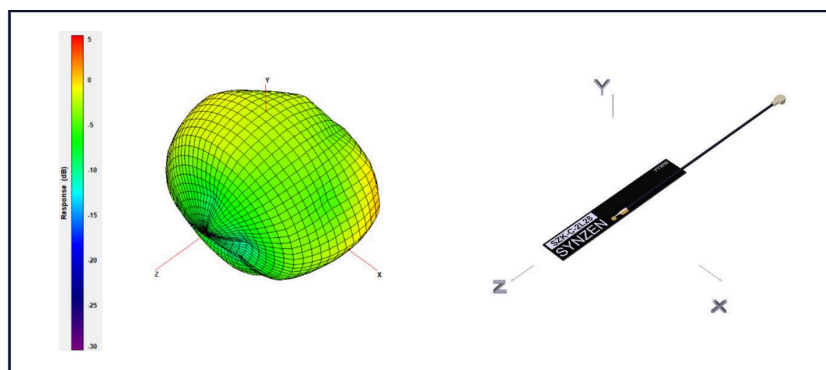
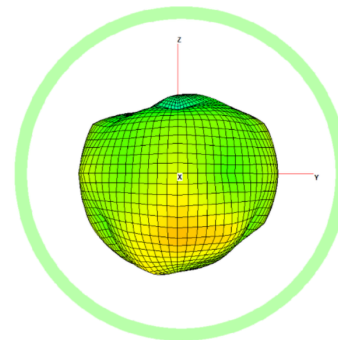
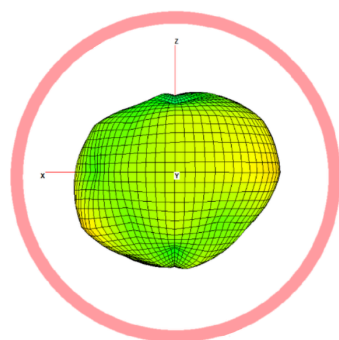
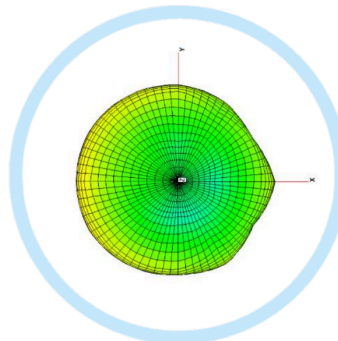
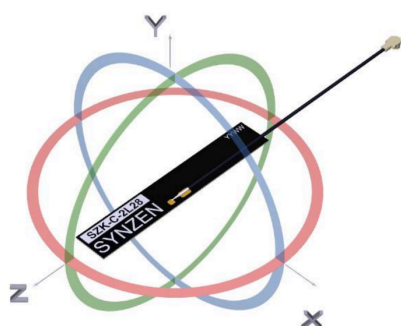
10 3D Radiation Pattern at 1575 MHz

MEASURED ON A 2 MM THICK SECTION OF ABS, FREQUENCY POINT 1575 MHZ



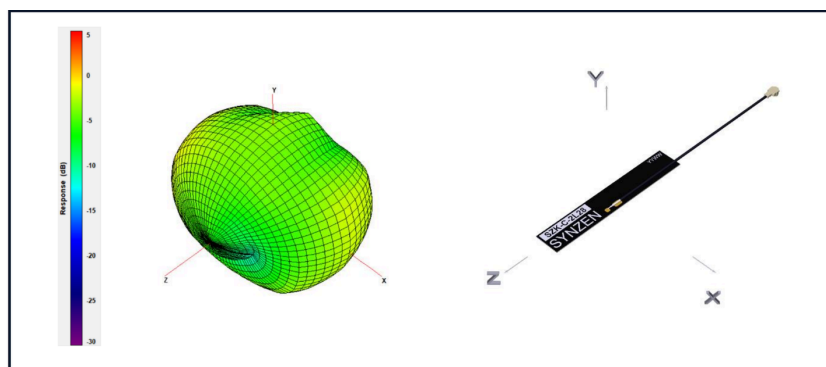
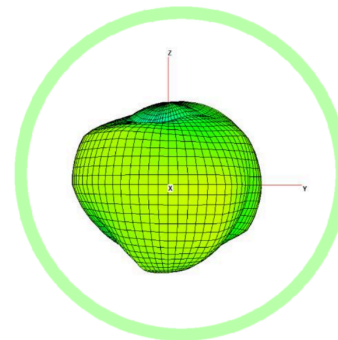
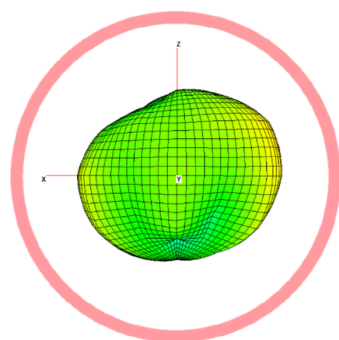
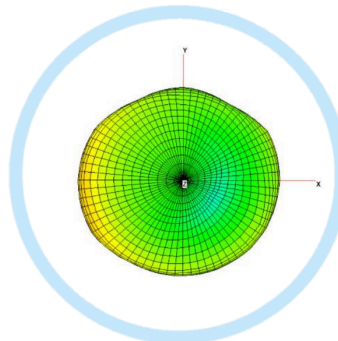
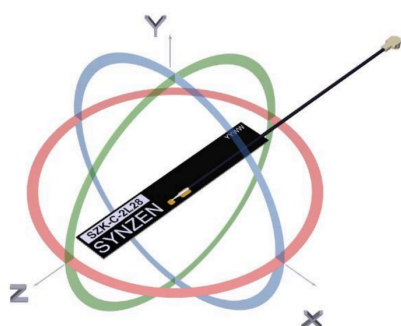
11 3D Radiation Pattern at 1880 MHz

MEASURED ON A 2 MM THICK SECTION OF ABS, FREQUENCY POINT 1880 MHZ



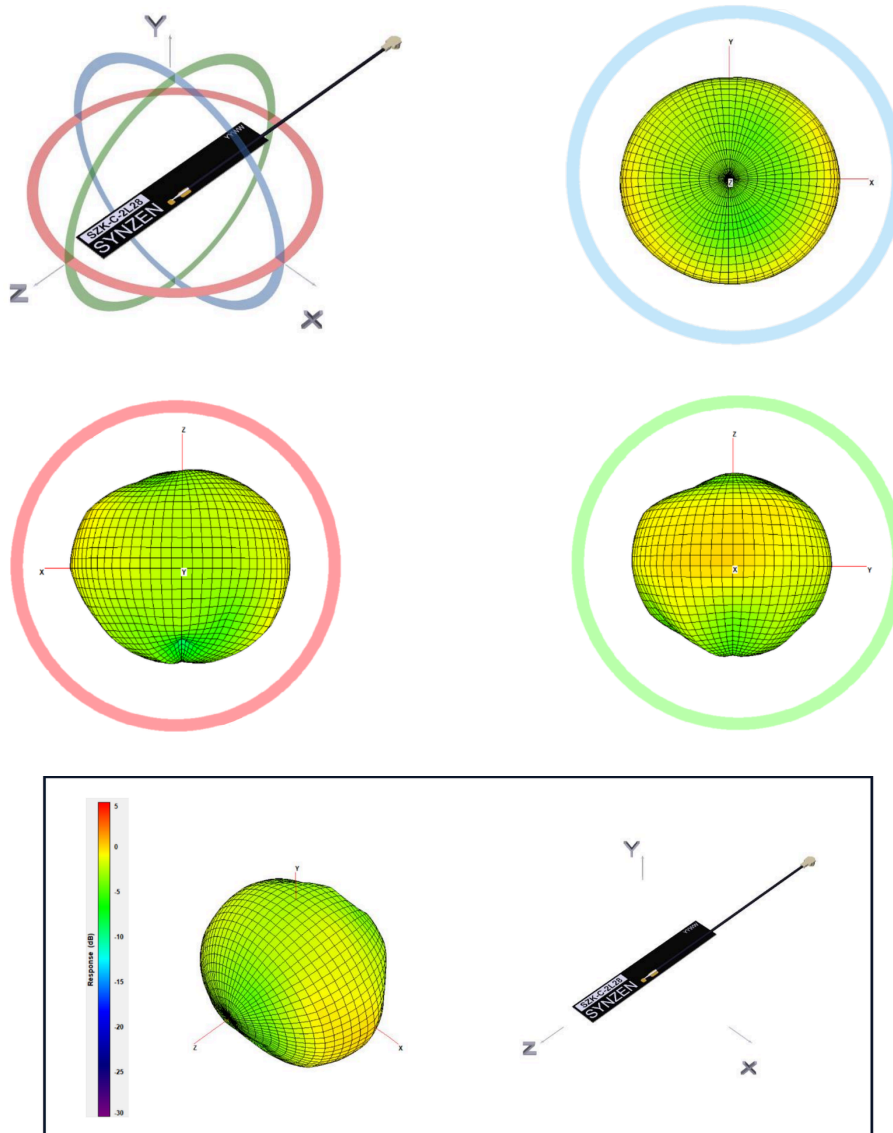
12 3D Radiation Pattern at 2350 MHz

MEASURED ON A 2 MM THICK SECTION OF ABS, FREQUENCY POINT 2350 MHZ

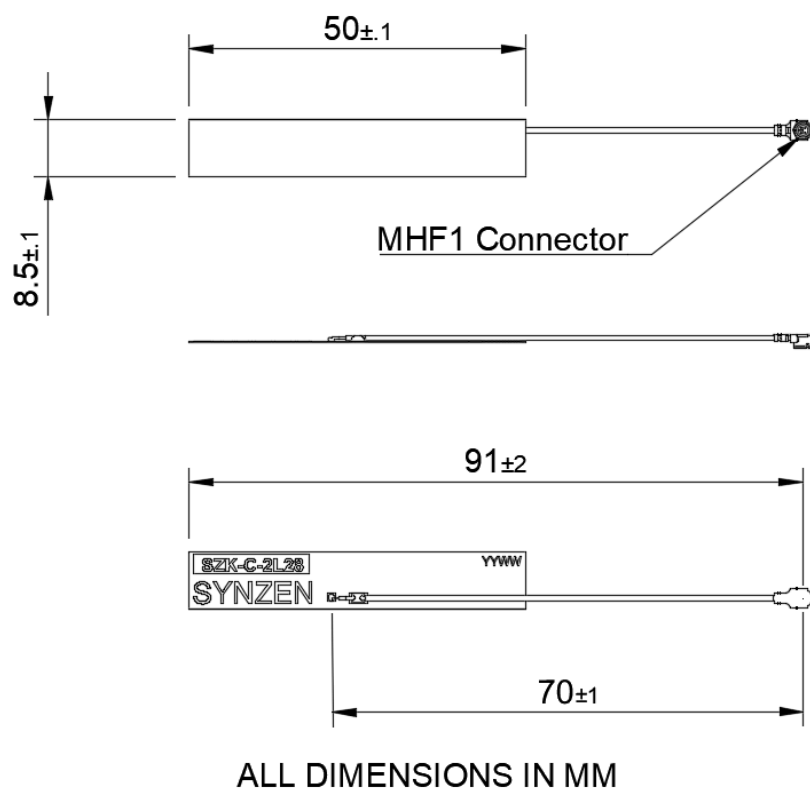


13 3D Radiation Pattern at 2600 MHz

MEASURED ON A 2 MM THICK SECTION OF ABS, FREQUENCY POINT 2600 MHZ



14 Antenna Mechanical Drawing



15 Adhesive Backing

The antenna comes with 3M 468 adhesive backing upon a PI Kapton substrate. An easy peel cut is on the back side for easy cover removal.

16 Bag and Packaging Information

- ◆ Antennas packed in PE bag (20 per bag)
- ◆ Small bag dimensions: 28.5 × 9.5 cm
- ◆ 100 pcs per larger PE bag with product label
- ◆ Bag dimensions: 30 × 19 cm

17

Compliance

ROHS

Compliant

Conforms to EU RoHS Directive 2011/65/EU as amended by Delegated Directive (EU) 2015/863.

REACH

Compliant

Conforms to EU REACH Regulation (EC) No 1907/2006.

CERTIFICATE

On request

A certificate of conformance is available upon request from sales@synzen.com.tw.

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