



SYNZEN

PRODUCT DATASHEET

CAPH | FPC Adhesive Antenna | 4G LTE | NB-IoT

Part Number / Name

- SZK-C-3L30
- CAPH

Features

- Constellation class ultra small
- Omnidirectional
- Dimensions: 30.0 x 15.0 x 0.2 (mm)

Applications

- Smart Meters
- Femtocells
- Remote Monitoring
- Smart Grid
- Asset Tracking
- Wearable Tech



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Introduction

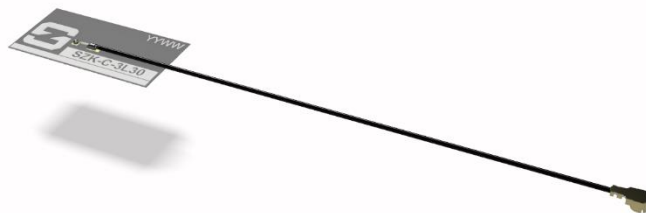
As a part of the revolutionary 4G LTE / NB-IoT technology, CAPH is a radical departure from the conventional antennas that typically occupy more space and offer less versatility. With its groundbreaking design, it deftly sidesteps these limitations, offering an exciting alternative for wireless device manufacturers seeking to enhance the performance of their products without increasing their size or weight.

CAPH offers unparalleled advantages when it comes to size. Its miniaturized design does not compromise on performance, delivering robust 4G LTE and NB-IoT connectivity in a package that's compact enough to fit even the most space-constrained devices. This makes CAPH a highly attractive proposition for a wide range of applications.

- 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.

Typical Applications

- Asset Tracking
- Precision agriculture
- Smart cities
- Fleet management
- Personal Safety
- Emergency response
- Wearable Tech



General Specifications

Part Number	SZK-C-3L30
Name	CAPH
Dimensions	30.0 x 15.0 x 0.2 (mm)
Antenna Type	FPC + Cable
Weight	<1.5g
Connector	MHF1
Cable Length	100mm
Adhesive backing	3M 868

*Alternate cable length/connectors are available upon request.

Electrical / RF Specifications*

Band	Frequency Range (MHz)	Avg Efficiency (%)	Peak Gain (dBi)	Impedance	Polarization
4G LTE B5,8,12,13,14,17,18,20,26,27,28,29	698-960	>55	4.50	50Ω	Linear
4G LTE B24	1525-1660.5	>60	3.10		
4G LTE B1,2,3,4,9,23,35,39,66	1710-2200	>75	4.50		
4G LTE B40	2300-2400	>75	4.20		
4G LTE B7,38,41	2490-2690	>60	3.50		

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

Environmental Specifications

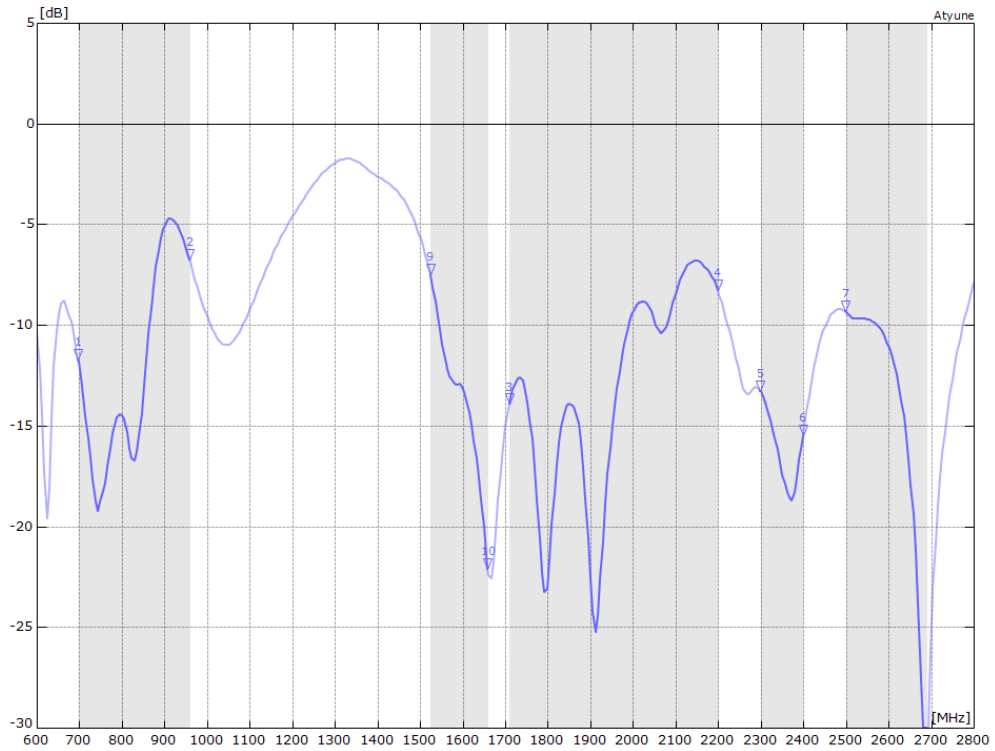
Operational Temperature	-40 to +85 (°C)
Storage Temperature	-10 to +40 (°C)
Relative Humidity	≤75%
Moisture Sensitivity Level (MSL)	NA
RoHs & REACH compliant	Yes

Supported Band List

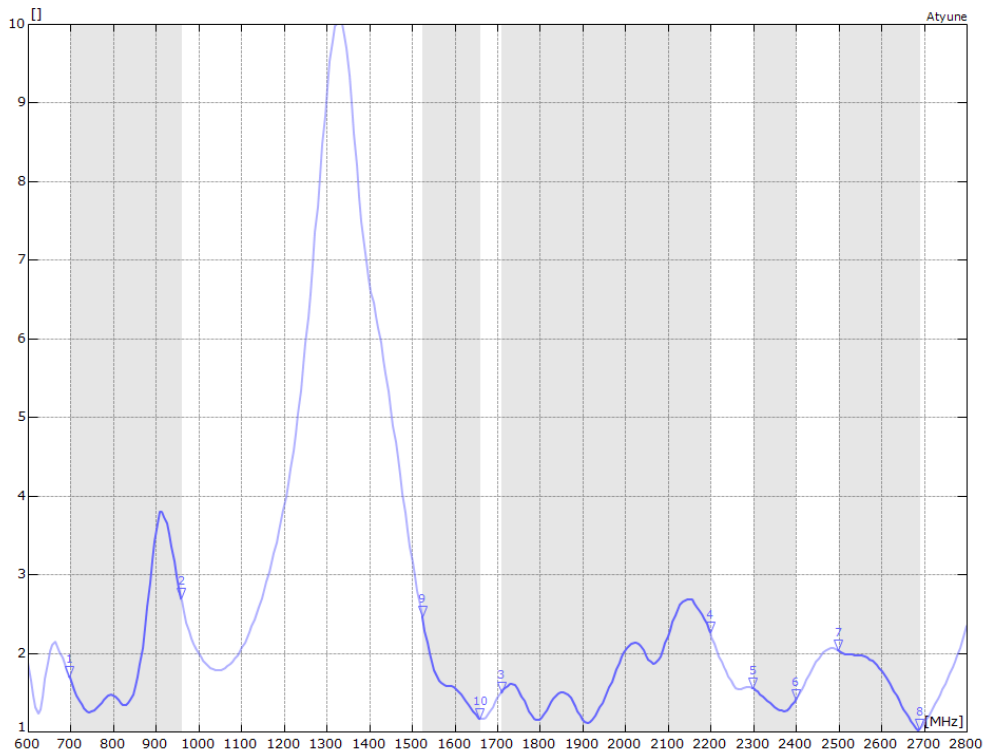
Band	Frequency Band	Uplink(MHz)	Downlink (MHz)	Supported
1	2100	1920-1980	2110-2170	YES
2	1900	1850-1910	1930-1990	YES
3	1800	1710-1785	1805-1880	YES
4	1700	1710-1755	2110-2155	YES
5	850	824-849	869-894	YES
7	2600	2500-2570	2620-2690	YES
8	900	880-915	925-960	YES
9		1749.9-1784.9	1844.9-1879.9	YES
10	1700	1710-1770	2110-2170	YES
11	1500	1427.9-1447.9	1475.9-1495.9	NO
12	700	699-716	729-746	YES
13	700	777-787	746-756	YES
14	700	788-798	758-768	YES
17	700	704-716	734-746	YES
18	850	815-830	860-875	YES
19	850	830-845	875-890	YES
20	800	832-862	791-821	YES
21	1500	1447.9-1462.9	1495.9-1510.9	NO
22	3500	3410-3490	3510-3590	NO
24	1600	1626.5-1660.5	1525-1559	YES
25	1900	1850-1915	1930-1995	YES
26	850	814-849	859-894	YES
27	800	807-824	852-869	YES
28	700	703-748	758-803	YES
29	700	N/A	717-728	YES
30	2300	2305-2315	2350-2360	YES
31		452.5-457.5	462.5-467.5	NO
32	1500	N/A	1452-1496	NO
33	2100	1900-1920		YES
34	2100	2010-2025		YES
35	1900	1850-1910		YES
36	1900	1930-1990		YES
37		1910-1930		YES
38	2600	2570-2620		YES
39	1900	1880-1920		YES
40	2300	2300-2400		YES
41	2500	2496-2690		YES
42	3500	3400-3600		NO
43	3700	3600-3800		NO
44	700	703-803		YES
45	1500	1447-1467		NO
46	5200	5150-5925		NO
47	5900	5855-5925		NO
48	3600	3550-3700		NO
50	1500	1430-1517		NO
51	1500	1427-1432		NO
65	2100	1920-2010	2110-2200	YES
66	1700	1710-1780	2110-2200	YES
67	700	N/A	738-758	YES
68	700	698-728	753-783	YES
69	2600	N/A	2570-2620	YES
70	2000	1695-1710	1995-2020	YES
71		663-698	617-652	NO
74		1427-1518		YES
77		3300-4200		NO
78		3300-3800		NO
79		4400-5000		NO
85		698-716	728-746	YES

RF Characteristics

S₁₁



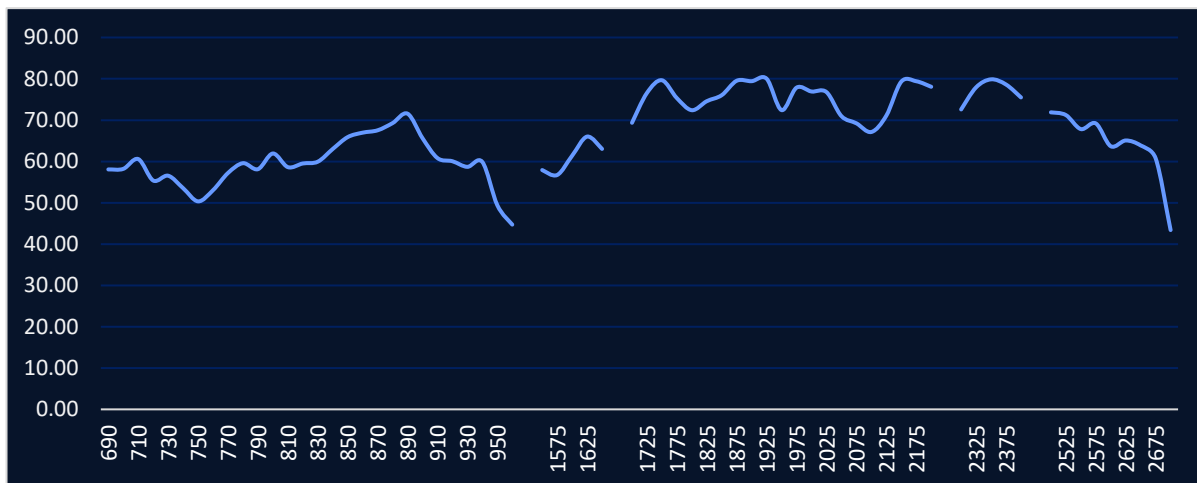
VSWR



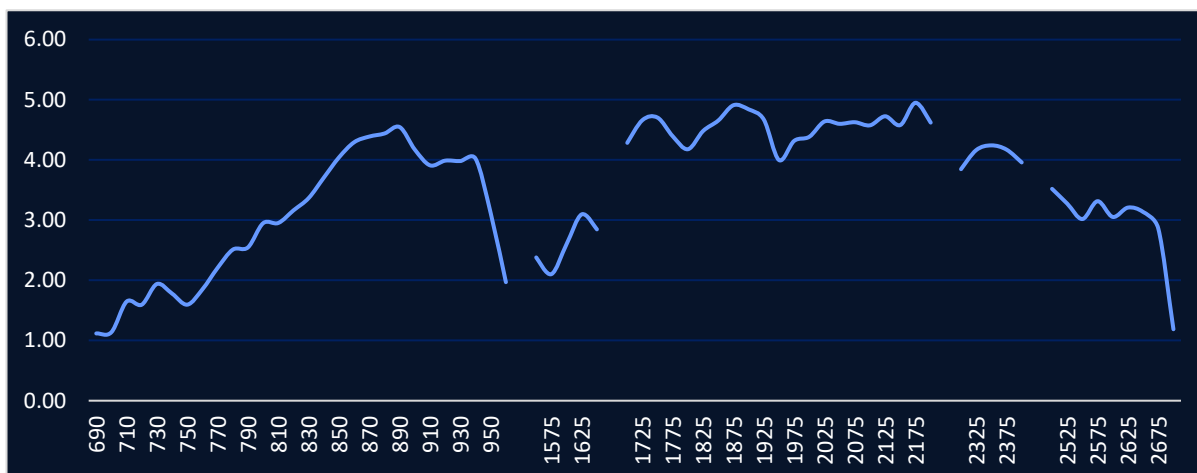


Performance

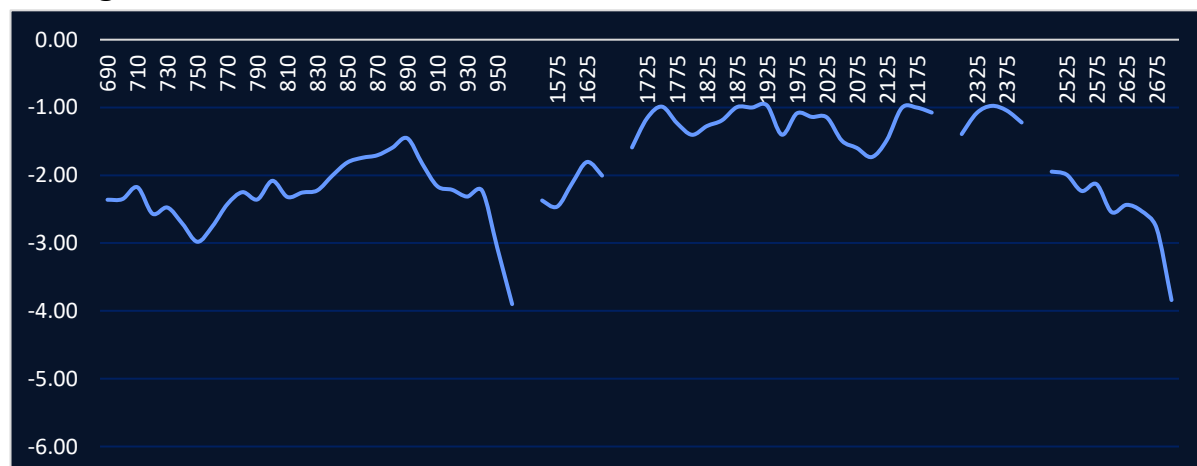
Efficiency



Peak Gain



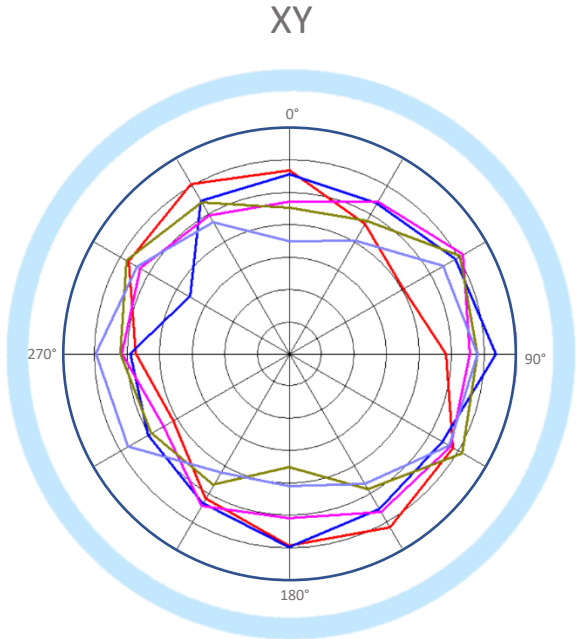
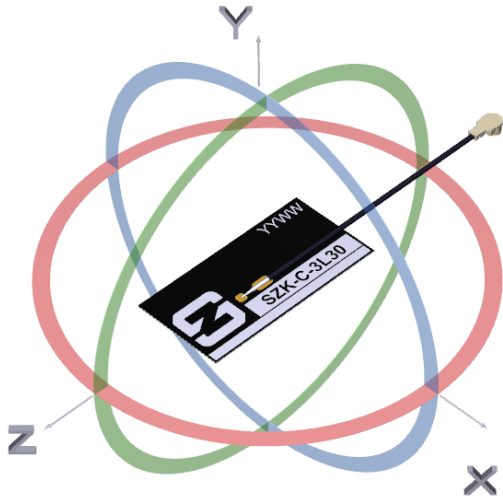
Average Gain



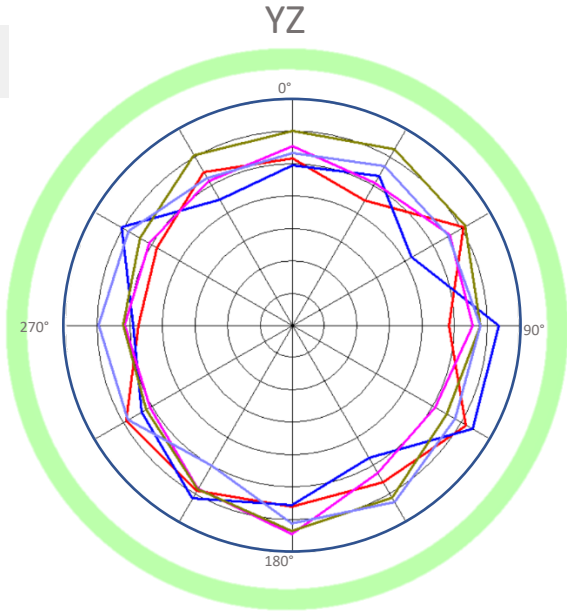
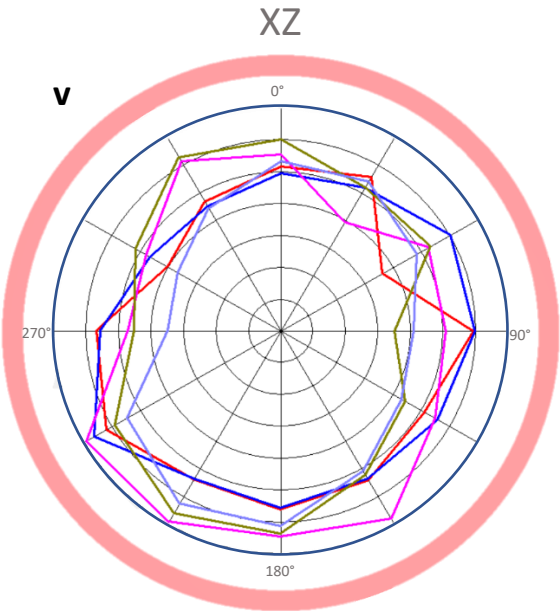
Radiated Performance – 2D

2D Polar Plot 698-2700MHz

The data shown was measured on a 2mm thick section of ABS.

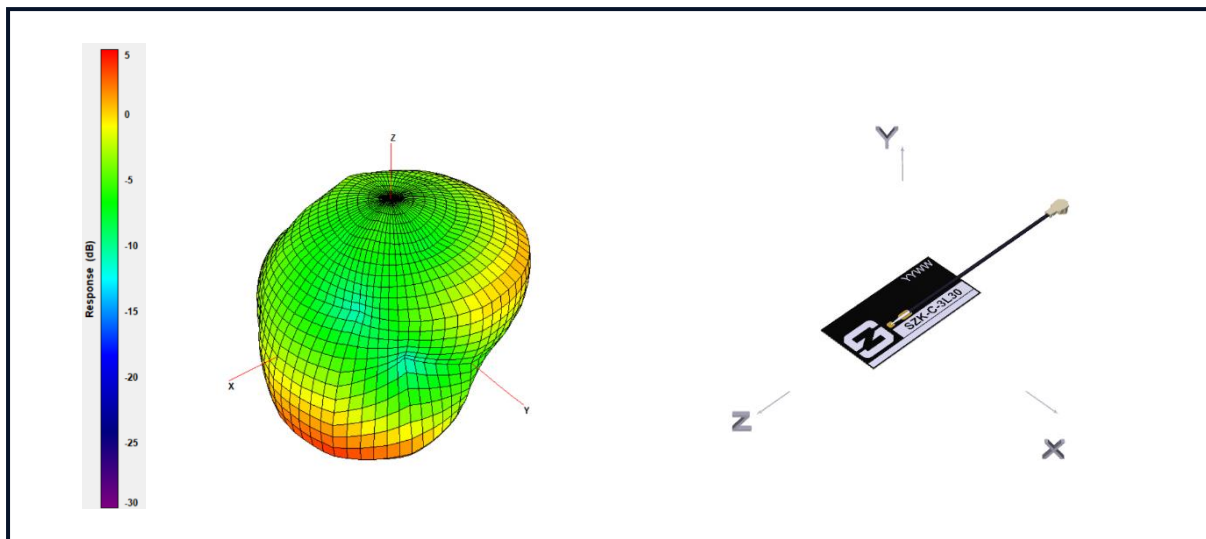
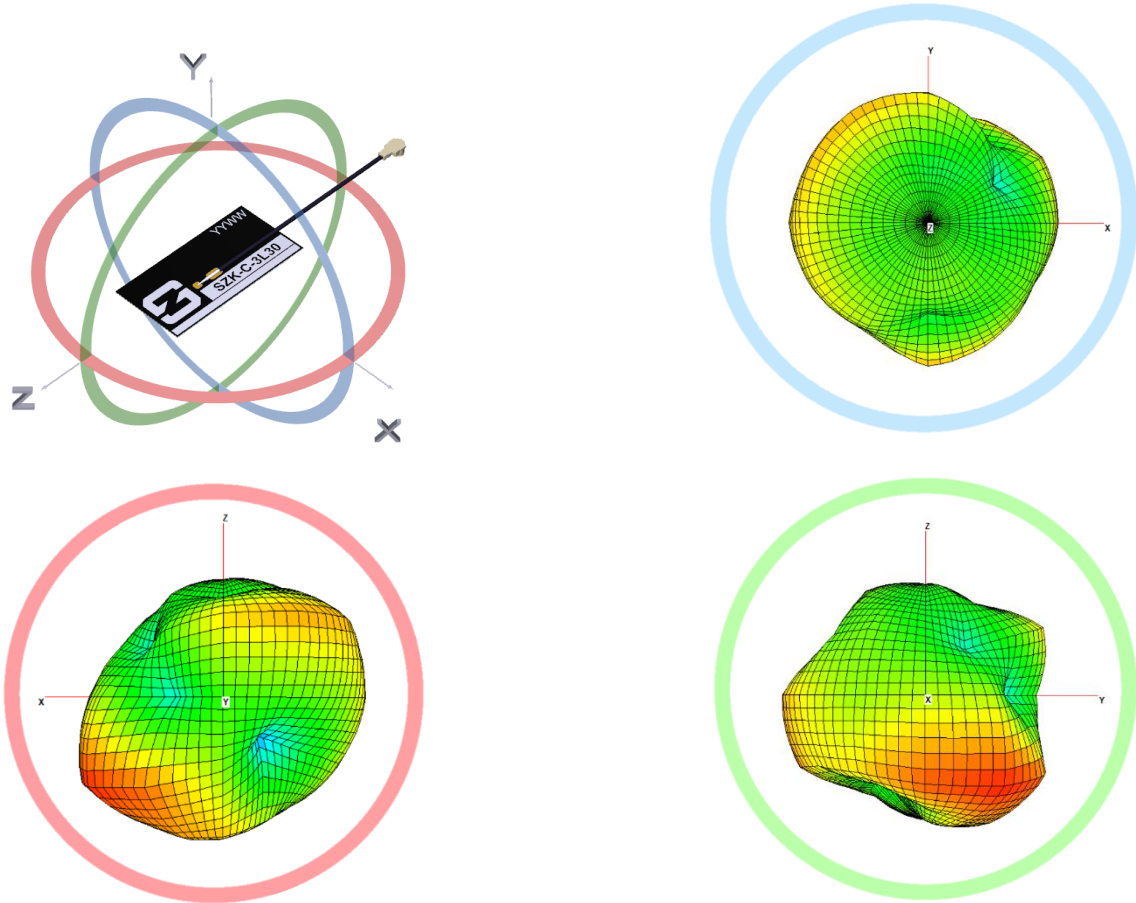


720
 880
 1875
 2350
 2600
 Max: 5
 Min: -30
 Scale: 5/div



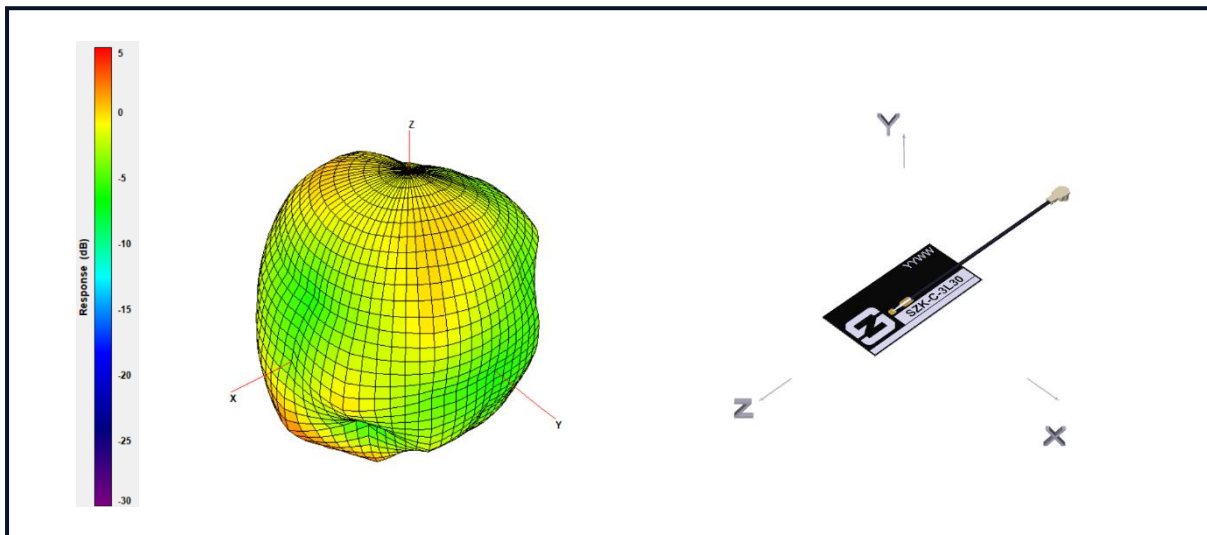
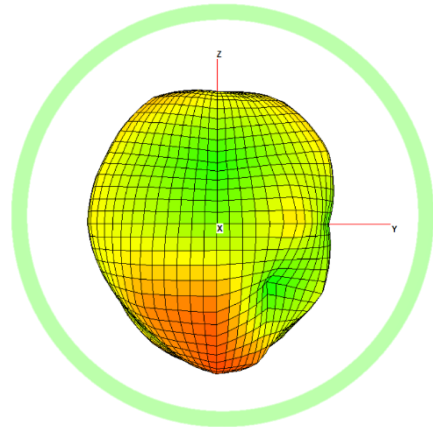
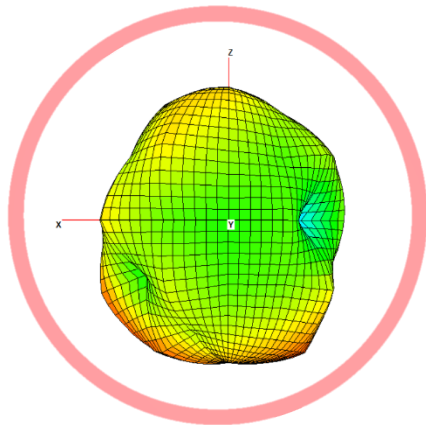
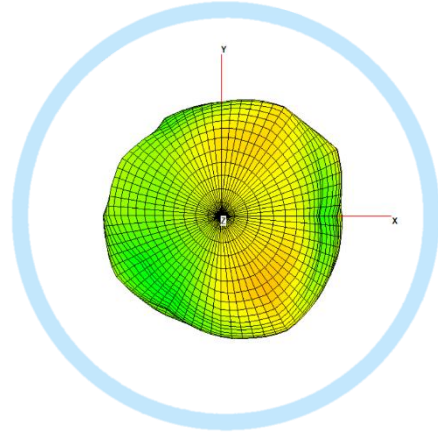
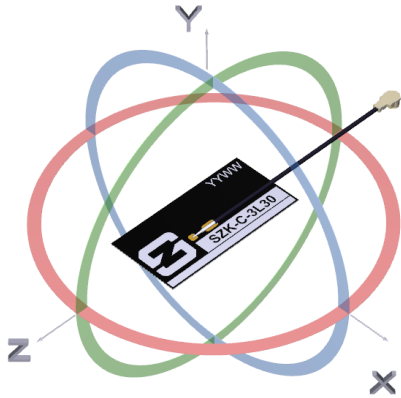
Radiated Performance – 3D at 880MHz

The data shown was measured on a 2mm thick section of ABS.



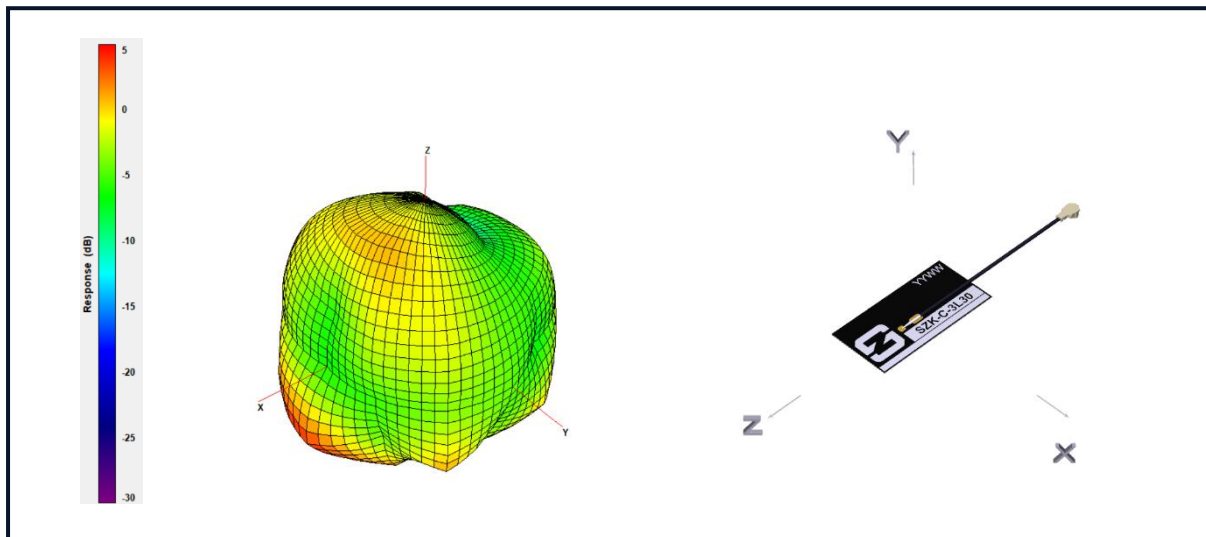
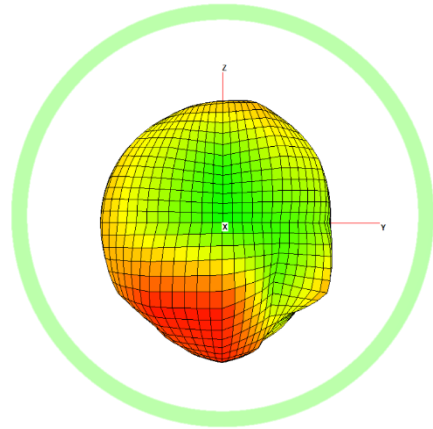
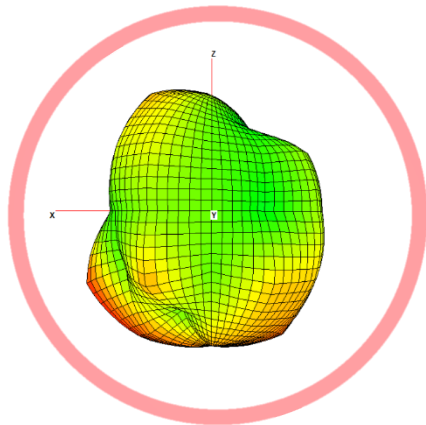
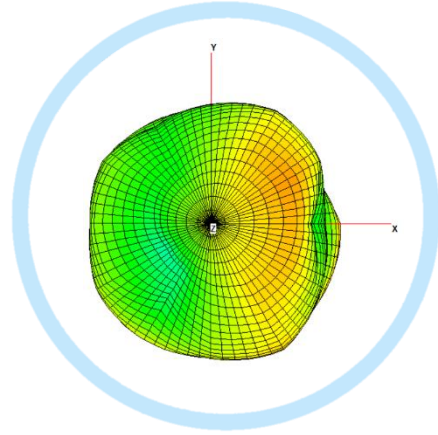
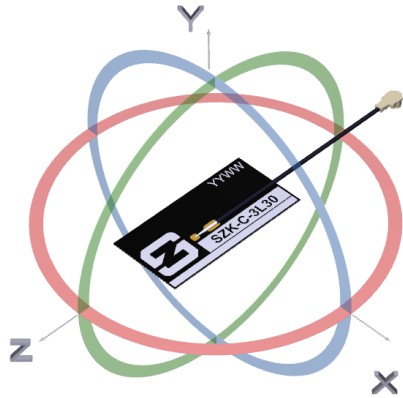
Radiated Performance – 3D at 1575MHz

The data shown was measured on a 2mm thick section of ABS.



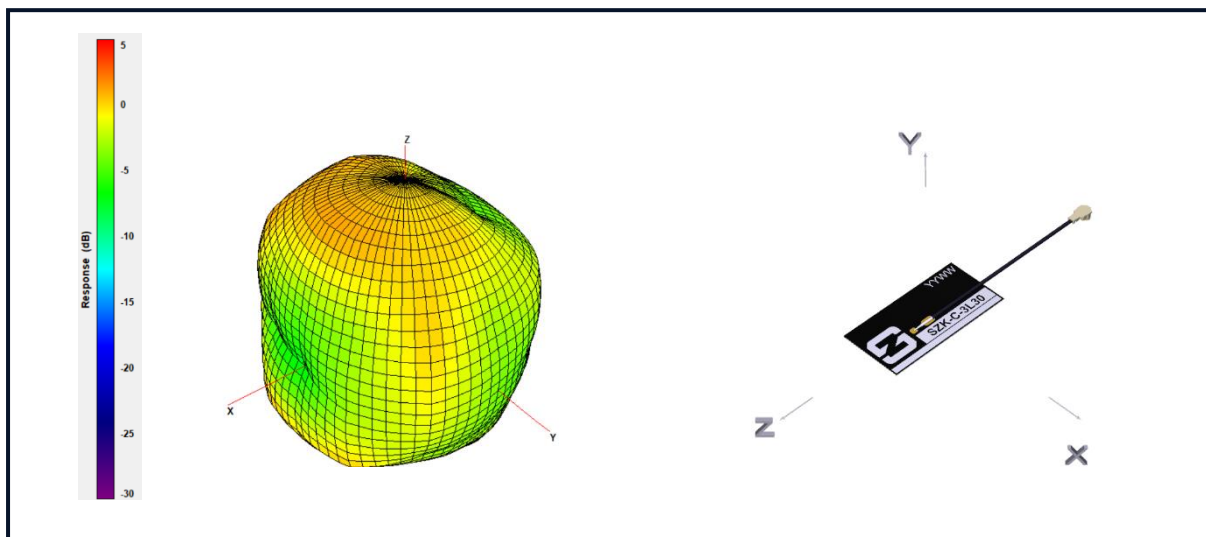
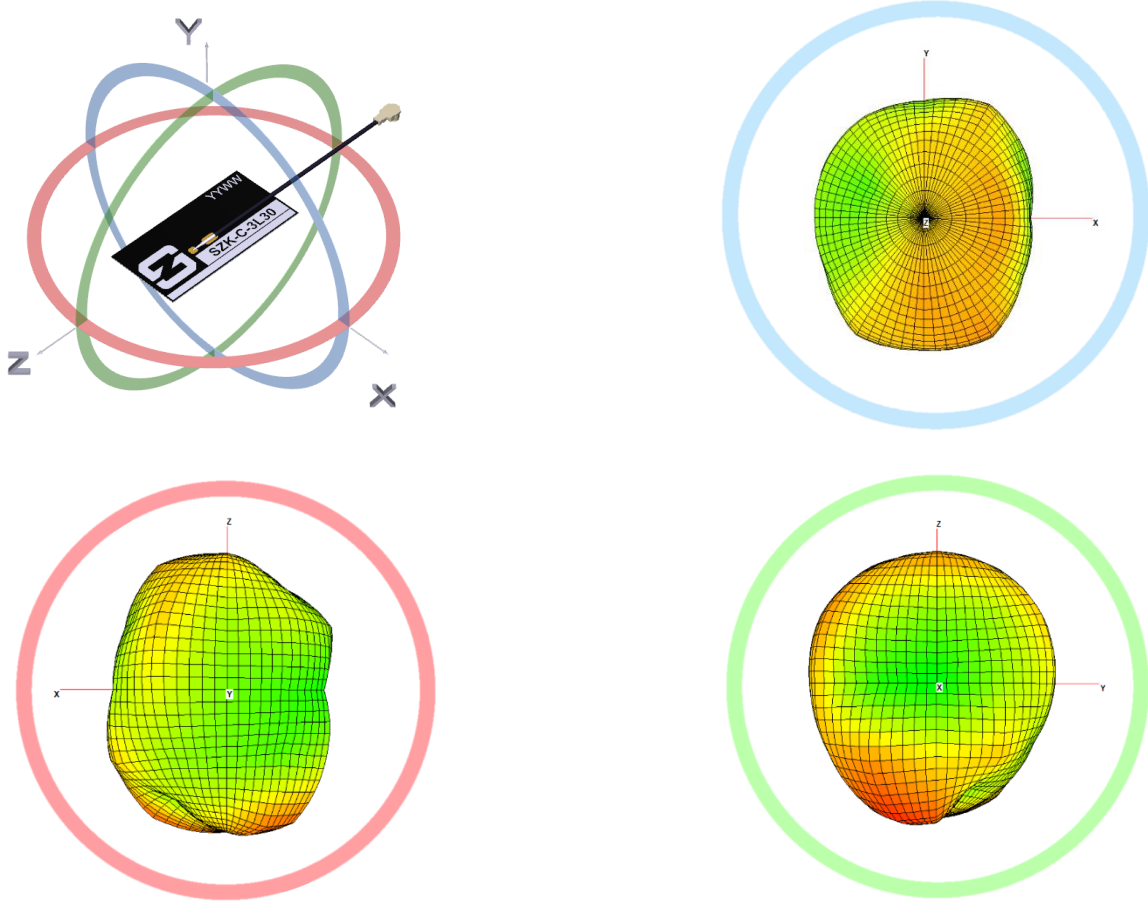
Radiated Performance – 3D at 1880MHz

The data shown was measured on a 2mm thick section of ABS.



Radiated Performance – 3D at 2350MHz

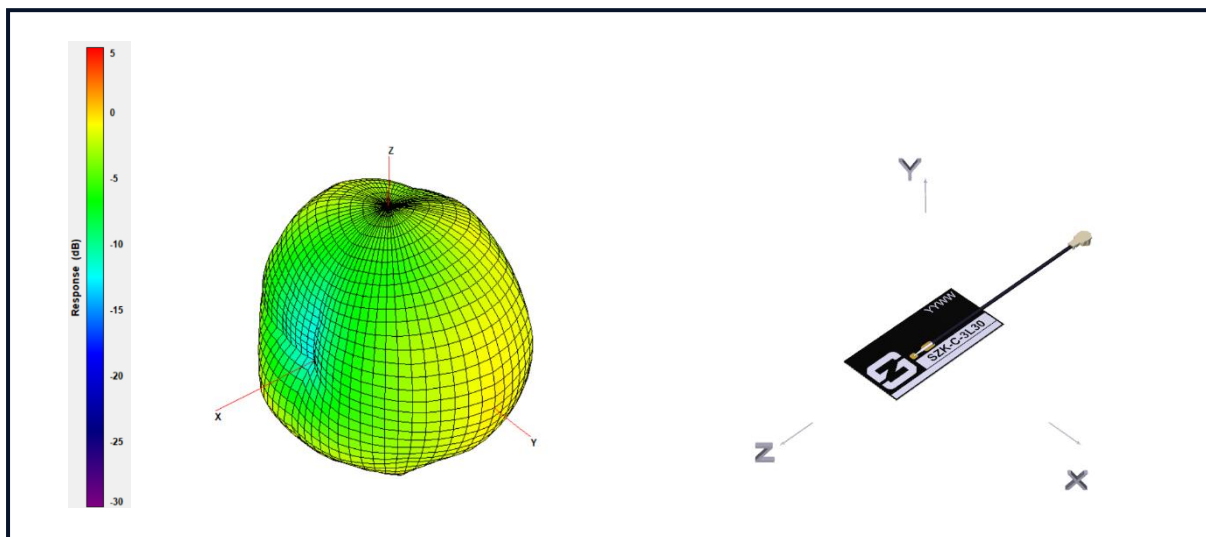
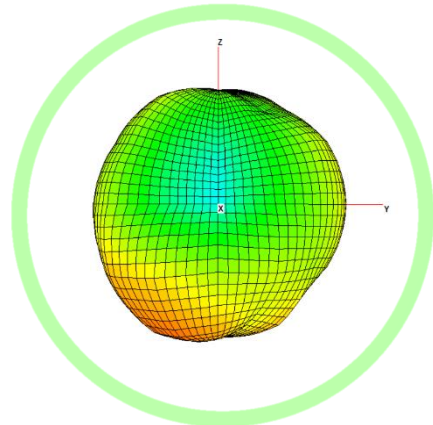
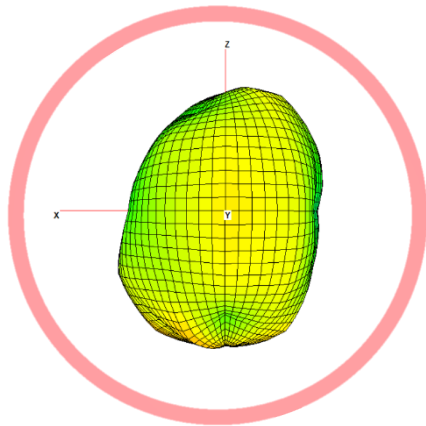
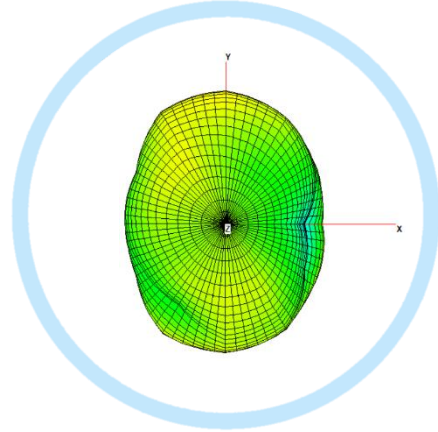
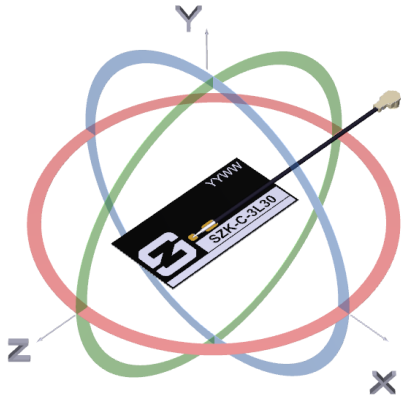
The data shown was measured on a 2mm thick section of ABS.



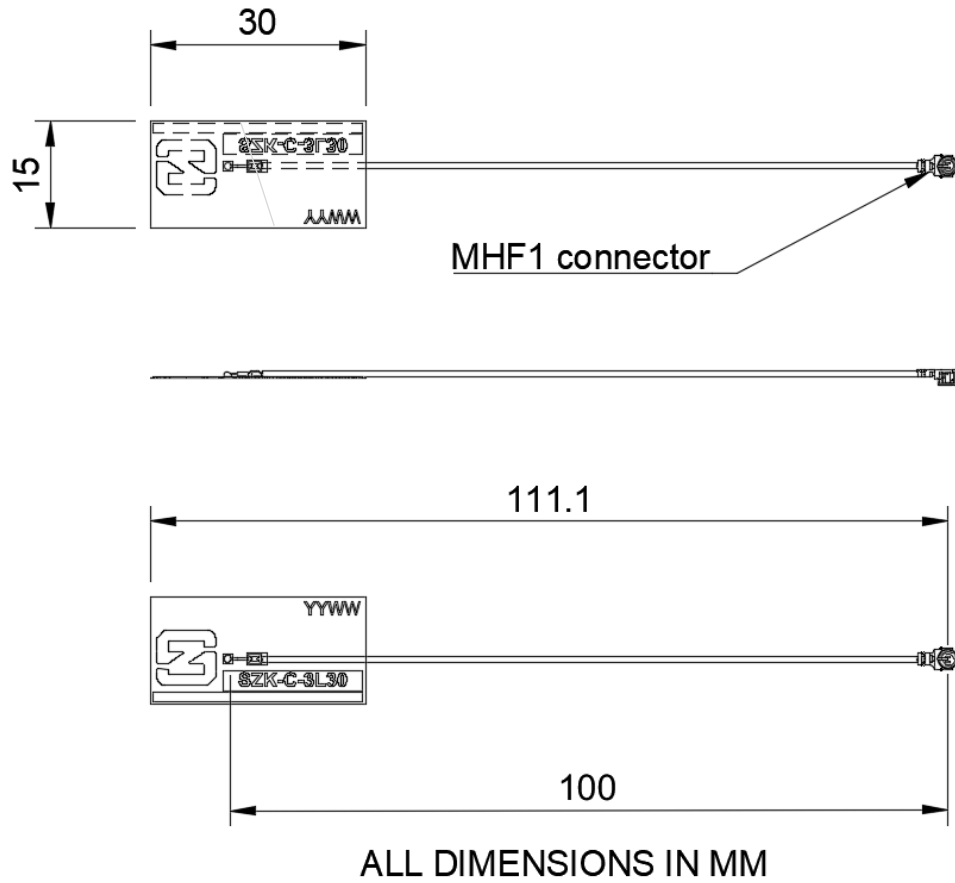


Radiated Performance – 3D at 2600MHz

The data shown was measured on a 2mm thick section of ABS.



Mechanical Drawing



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.

Packaging

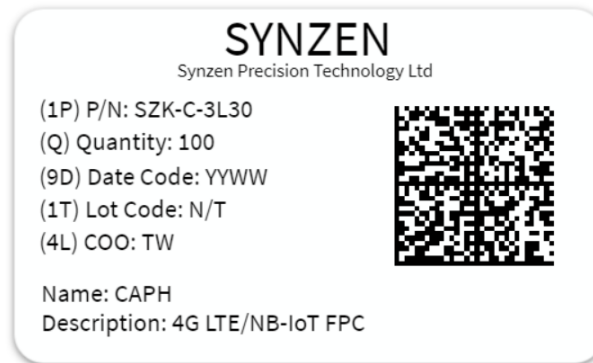
Antennas packed in PE bag (20 per bag)

Small bag dimensions: 28.5 x 9.5 (cm)

100pcs per larger PE bag with product label

Bag dimensions = 30 x 19 (cm)

Label



Environmental

Material Regulation

The antenna has been tested to conform to RoHS requirements. A certificate of conformance is available upon request.



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