Embedded GSM /UMTS antenna ANT-GXE474



Multiband SMD antenna on 24 mm x 5.5 mm x 4.4 mm only

The ANT-GXE474 multiband cellular antenna builds on the success of several SMD tri-band antennas, by extending functionality to cover all worldwide cellular bands between 800 MHz and 2200 MHz – GSM, CDMA, DCS, PCS, WCDMA, UMTS, HSPA, GPRS and EDGE.

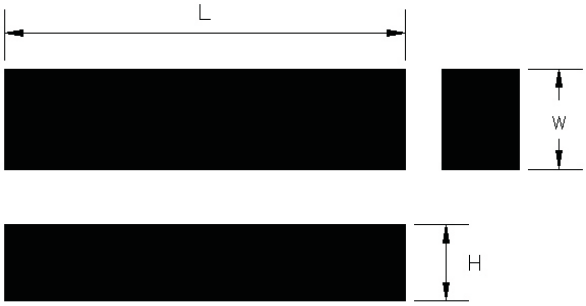
This IFA antenna is particularly suited for mounting on the edge of a PCB. It measures 24 mm x 5.5 mm x 4.4 mm and is delivered on tape and reel for efficient and accurate assembly.

If tuning is required it can be tuned for the device environment with no need for new tooling. The antenna is robust enough to meet all temperature and mechanical specifications required for automotive environments.

Typical applications include automotive, remote monitoring, M2M, telematics, telemedicine, AVL, utility metering, mobile devices, point-of-sale, navigation, location based services and communication products.

1 Mechanical specification

Electrode	Silver
Dimensions in mm (L x W x H)	24.0 x 5.5 x 4.4
Operating Temperature	-35 ~ +85



Unit: mm Tolerance 0.15 mm

Round Solutions GmbH & Co KG
Tel +49 6103 270440 Fax +49 6103 27044199
info@roundsolutions.com wwww.roundsolutions.com

2 Electrical Specifications

Item	GSM850/900	GSM 1800	GSM 1900	UMTS 2100
Frequency	824 ~ 960 MHz	1710 ~ 1850 MHz	1850 ~ 1990 MHz	1920 ~ 2170 MHz
VSWR	3.0 : 1 max.	3.0 : 1 max.	3.0 : 1 max.	3.0 : 1 max.
Peak Gain	1.5 dBi	3.5 dBi	3.5 dBi	3.5 dBi
Eff. [%] @ min.	50%	70%	60%	60%
Polarization	Linear			
Radiation Pattern	Omni-directional			
Nominal Impedance	50 Ohm			
Ground plane size	106 mm x 45 mm			
Matching tuning	Tuning by changed ground plane / matching circuit as option			

These values are measured on the matched reference test board version a.

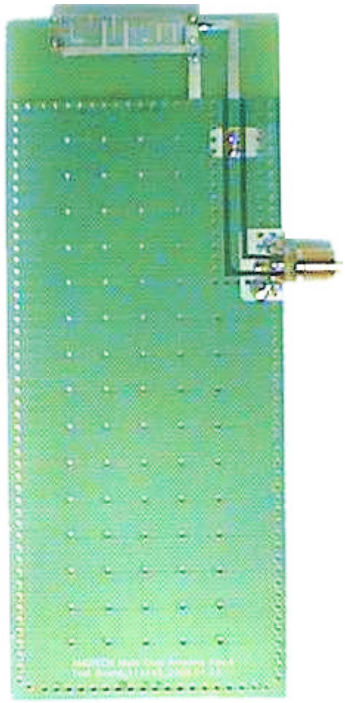
Item	GSM850/900	GSM 1800	GSM 1900	UMTS 2100
Frequency	824 ~ 960 MHz	1710 ~ 1850 MHz	1850 ~ 1990 MHz	1920 ~ 2170 MHz
VSWR	3.0 : 1 max.	3.0 : 1 max.	3.0 : 1 max.	3.0 : 1 max.
Peak Gain	1.5 dBi	3.5 dBi	3.5 dBi	3.5 dBi
Eff. [%] @ min.	60%	77%	71%	55%
Polarization	Linear			
Radiation Pattern	Omni-directional			
Nominal Impedance	50 Ohm			
Ground plane size	100.5 mm x 45 mm			
Matching tuning	Matching circuit as opton			

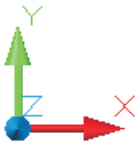
These values are measured on the matched reference test board version b.

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info@roundsolutions.com wwww.roundsolutions.com

3 Measurement

Set for measurement with test board version a.



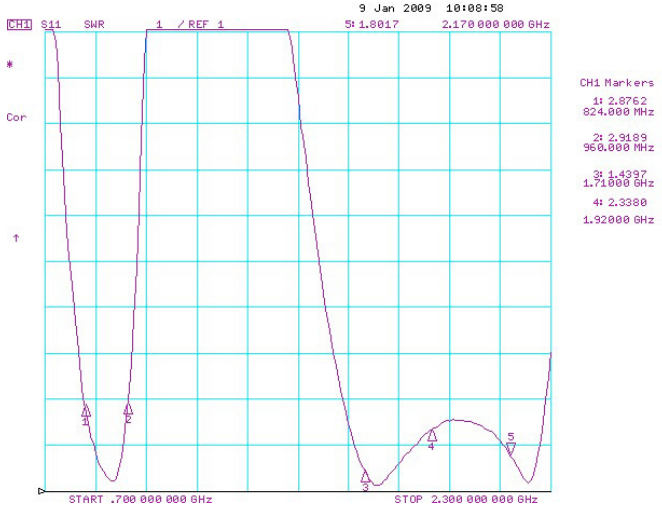


Board size: 114x45mm
Antenna Radiation the coordinate system
[X axis: the axis of rotation]

3.1 Electrical Characteristic

Antenna matching on the reference test board version a.

S11(Return loss & VSWR) Quad Band (GSM850, DCS, PCS, UMTS)



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info@roundsolutions.com wwww.roundsolutions.com

4 Radiation Characteristic

Measurement setup ,6 m x 3 m x 3 m Anechoic Chamber, Matching on the standard test board (114 mm x 45 mm) ,Temperature 25 ℃ / Humidity 50~55%

EGSM (GSM850)

@836MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-0.11	-16.96	0.54	-15.29
Elevation ZX	-2.96	-18.69	0.96	-14.31
Elevation ZY	-2.98	-14.91	0.38	-10.67

@881MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-0.07	-17.98	0.56	-16.67
Elevation ZX	-3.01	-19.86	0.49	-15.13
Elevation ZY	-2.20	-13.68	0.24	-8.74

DCS (GSM1800)

@1747MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-2.77	-7.02	-1.05	-3.02
Elevation ZX	-1.14	-11.00	3.71	-7.31
Elevation ZY	-2.20	-7.29	2.46	-3.27

@1842MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-2.21	-8.86	0.03	-4.49
Elevation ZX	-1.82	-11.41	4.22	-6.61
Elevation ZY	-3.23	-5.06	2.00	-0.52

PCS (GSM1900)

@1880MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-3.27	-10.10	-0.80	-6.53
Elevation ZX	-2.03	-11.02	4.15	-6.85
Elevation ZY	-3.49	-4.75	2.31	-0.86

@1960MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-4.56	-12.65	-0.52	-7.32
Elevation ZX	-1.40	-10.64	4.20	-5.87
Elevation ZY	-3.08	-4.28	2.49	-0.31

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UMTS (WCDMA2100)

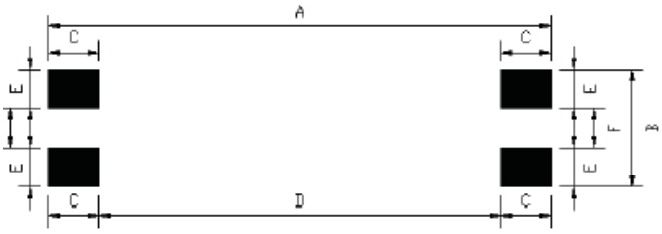
@1960MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-4.56	-12.65	-0.52	-7.32
Elevation ZX	-1.40	-10.64	4.20	-5.87
Elevation ZY	-3.08	-4.28	2.49	-0.31

@2140MHz	Ave. gain (dBi)		Peak. Gain (dBi)	
	E-plane	H-plane	E-plane	H-plane
Azimuth XY	-7.99	-12.33	-3.23	-6.32
Elevation ZX	-2.89	-14.24	2.46	-10.02
Elevation ZY	-4.88	-6.62	0.82	-2.75

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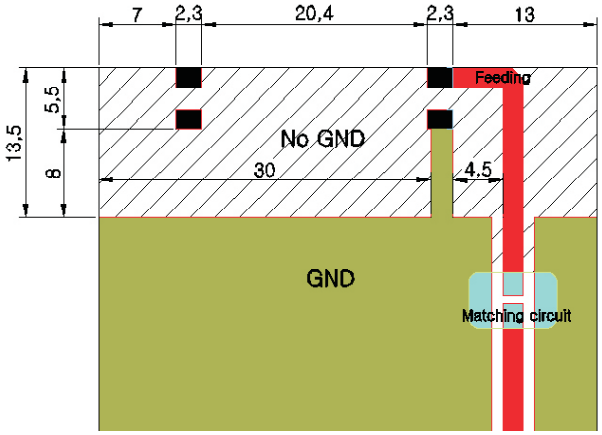
5 Soldering recommendations

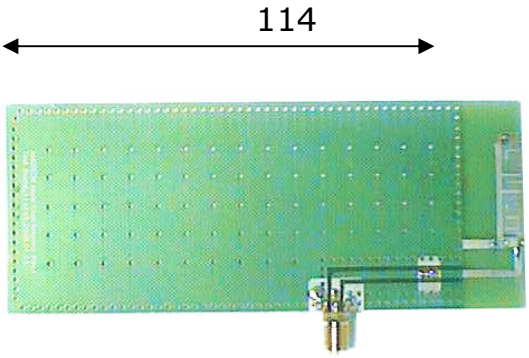
5.1 Soldering Land Pattern



A	25
B	5.5
C	2.3
D	20.4
E	1.8
F	1.9

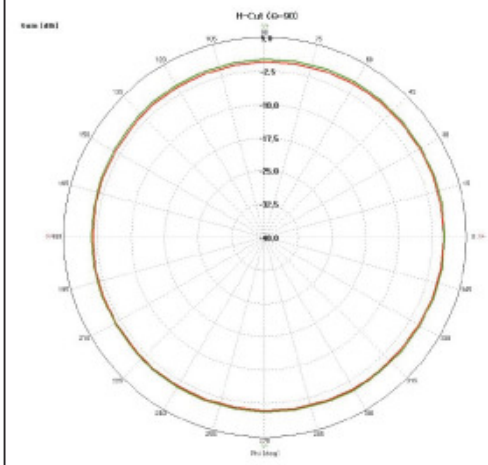
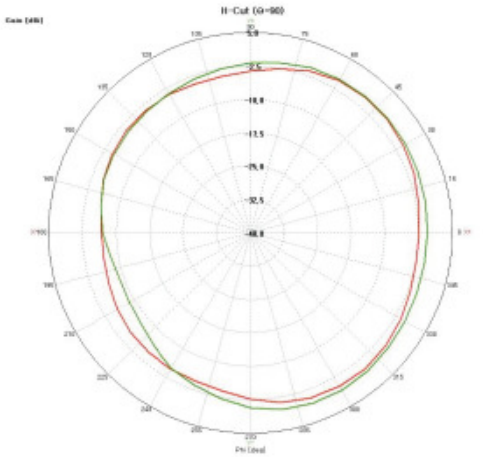
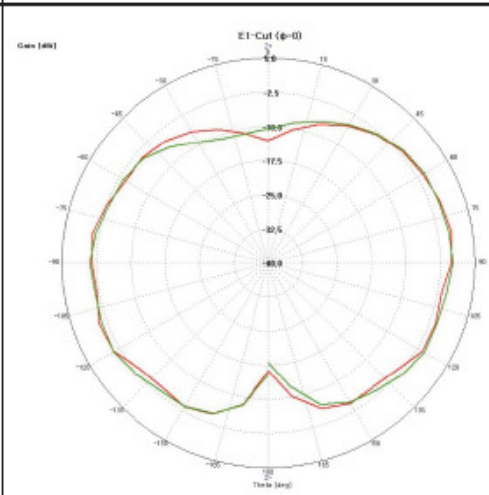
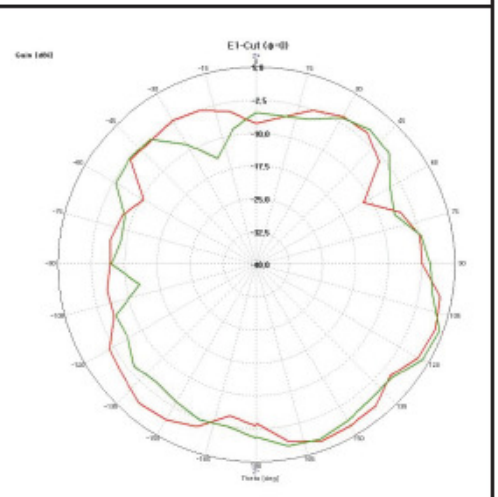
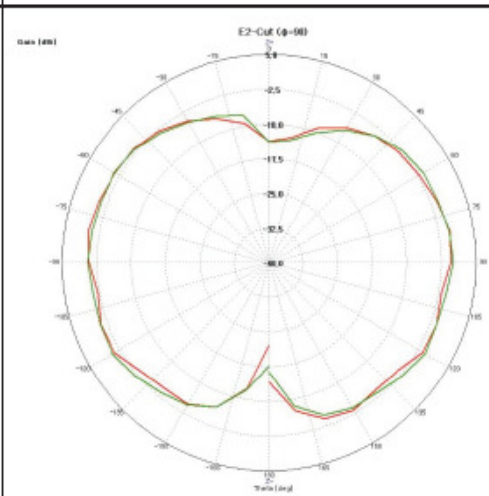
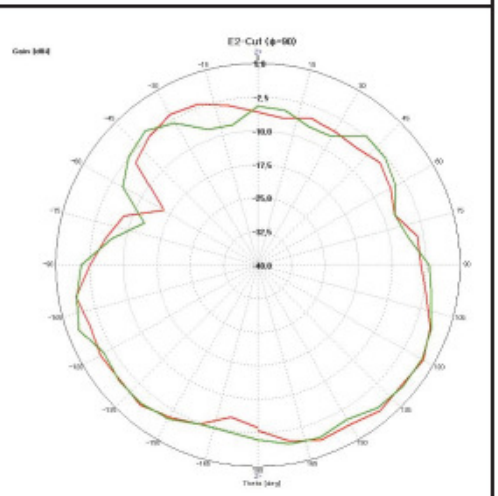
5.2 Placing of antenna and free space version a



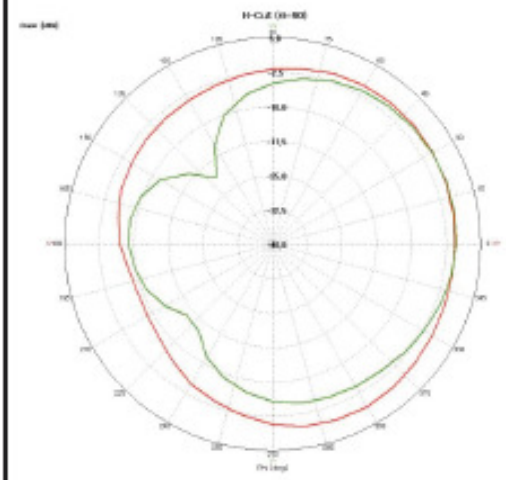
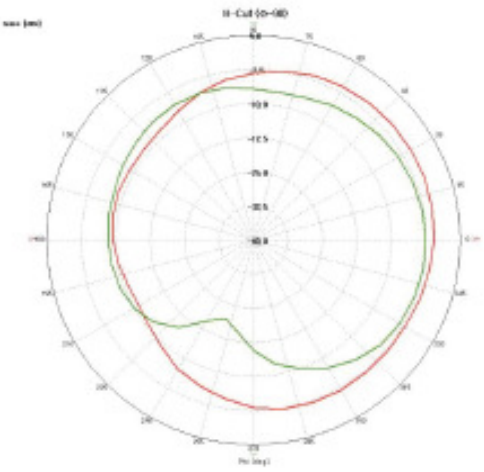
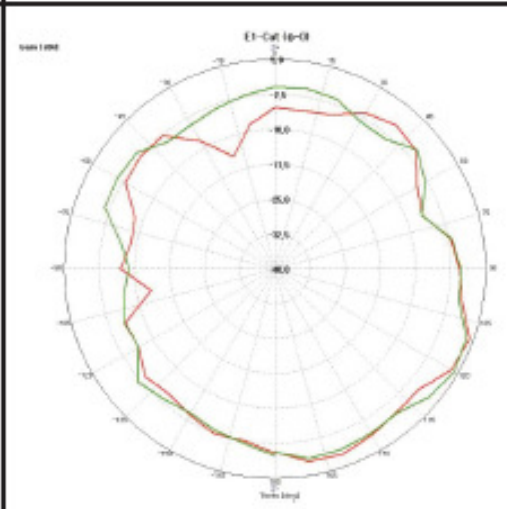
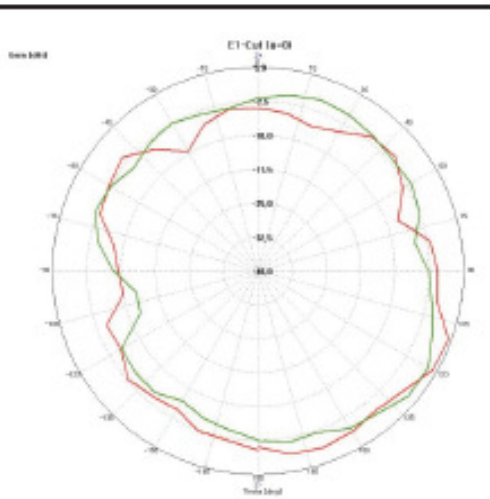
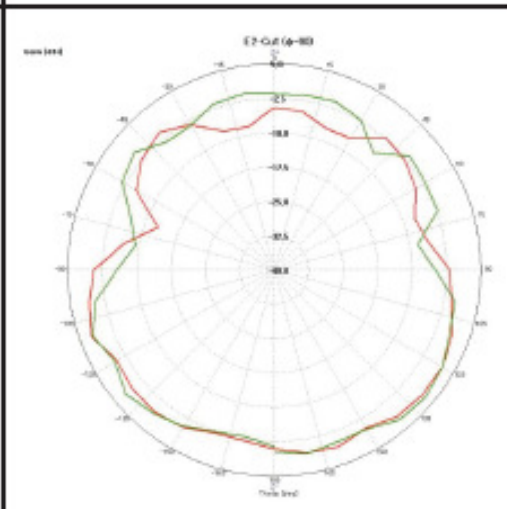
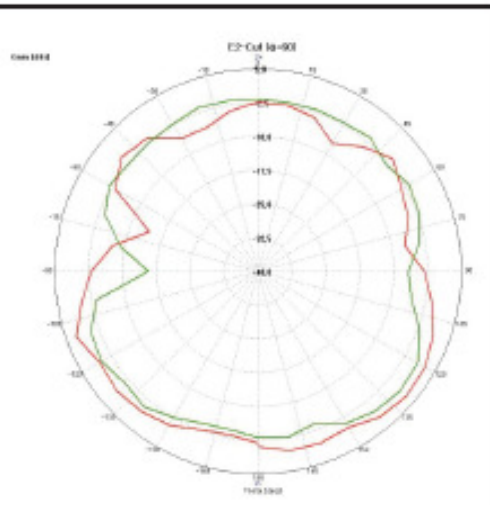


Round Solutions GmbH & Co KG
Tel +49 6103 270440 Fax +49 6103 27044199
info@roundsolutions.com wwww.roundsolutions.com

6 Gain pattern measurement data

	GSM850	DCS(GSM1800)
H plane		
E1 plane		
E2 plane		

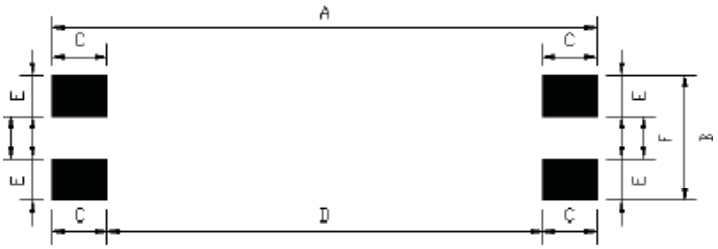
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Tel +49 6103 270440 Fax +49 6103 27044199
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	PCS(GSM1900)	UMTS
H plane		
E1 plane		
E2 plane		

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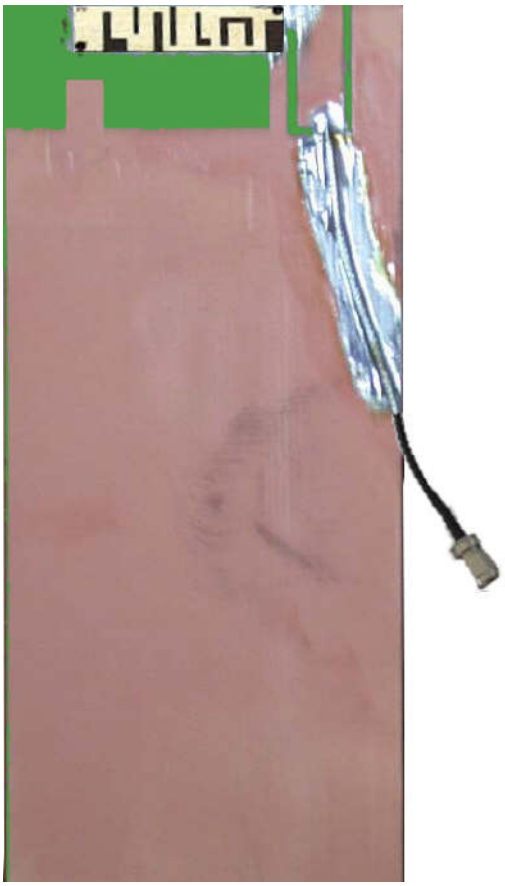
7 Soldering recommendations

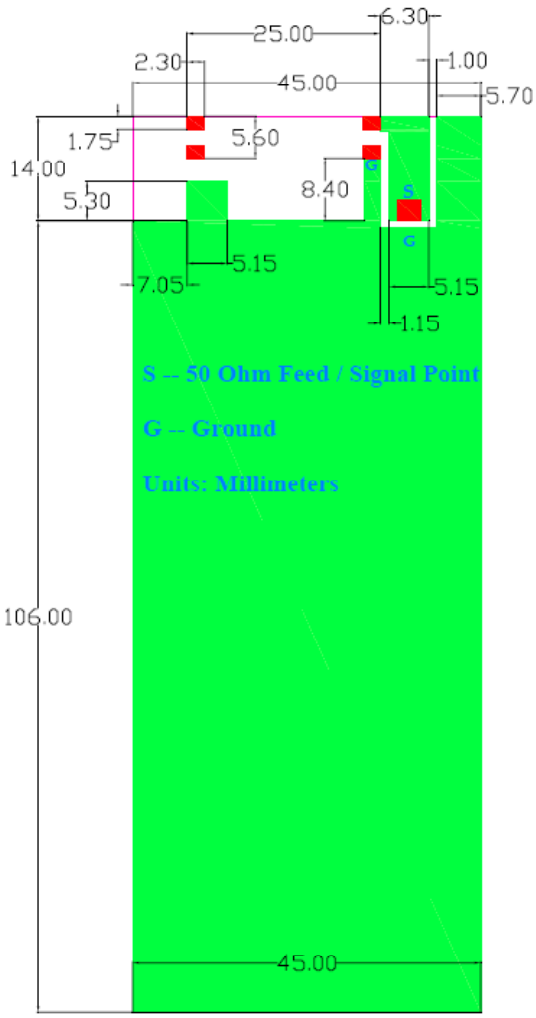
7.1 Soldering Land Pattern



A	25
B	5.5
C	2.3
D	20.4
E	1.8
F	1.9

7.2 Placing of antenna and free space version b





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