

*Application note*

1.88-1.93 GHz DECT ANTENNA

*10 x 3.2 x 2.0 mm Ceramic Chip Antenna
(Ground Cleared Under Antenna 10.80 x 6.25 mm)*

Pulse Part Number: W3022

Status

Author	JaP	Version	2.0.1
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W3022 1.88-1.93 GHz DECT Antenna General Features and Applications

Ground cleared under antenna, clearance area **10.80 x 6.25 mm**

Features

- Omni directional radiation
- Low profile
- Compact size W x L x H (10 x 3.2 x 2 mm)
- Low weight (310 mg)
- Lead free materials
- Fully SMD compatible
- Lead free soldering compatible
- Tape and reel packing
- RoHS compliant product



Applications

- DECT bands (European + US)
- 1.88 – 1.93 GHz

Electrical specifications @ +25 °C

Note: Electrical characteristics depend on test board (GP) size and antenna positioning on GP and ground clearance area size.

1.88 – 1.93 GHz DECT

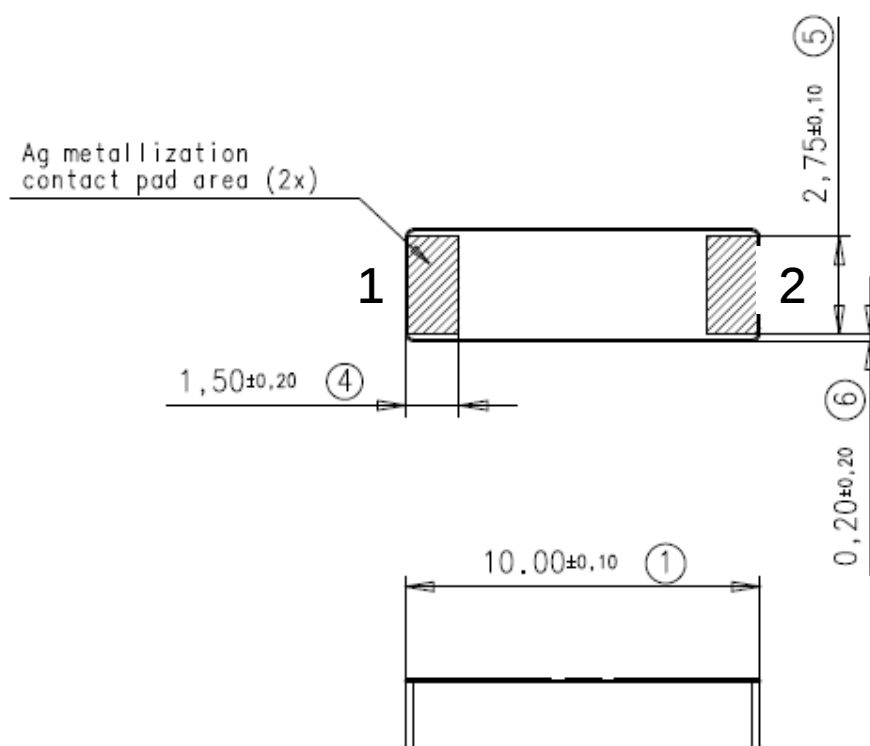
Typical performance

(Test board size 80 x 37 mm, PWB ground clearance area **10.80 x 6.25 mm**, position 1 on PWB, see Page 9)

Frequency Range [MHz]	Linear Max Gain [dBi]	Efficiency [%] / [dB]	Return loss min. [dB]	Impedance [Ω]	Operating Temperature [°C]
1880 – 1930	2.5 (peak) 2.0 (band edges)	80 / -1 (peak) 70 / -1,55 (band edges)	-12	50	-40 to +85

W3022 1.88-1.93 GHz DECT antenna terminal configuration and dimensions

Ground cleared under antenna, clearance area **10.80 x 6.25 mm**



No.	Terminal Name	Terminal Dimensions
1	Feed / GND	1.5 x 2.75 mm
2	Feed / GND	1.5 x 2.75 mm
Antenna is symmetrical. Either of terminals 1 or 2 can be Feed / GND		

W3022 1.88-1.93 GHz DECT Antenna PWB Layout Specifications

Ground cleared under antenna, clearance area **10.80 x 6.25 mm**

Matching and tuning component values depend on application and surrounding mechanics / materials.

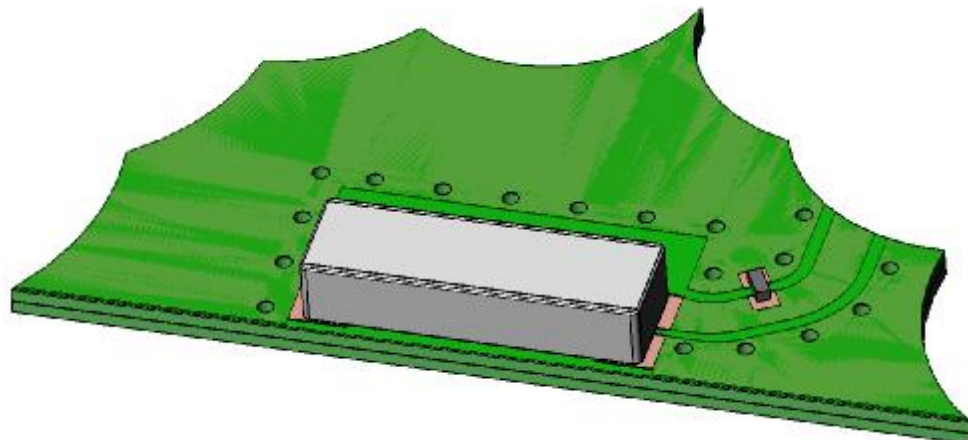
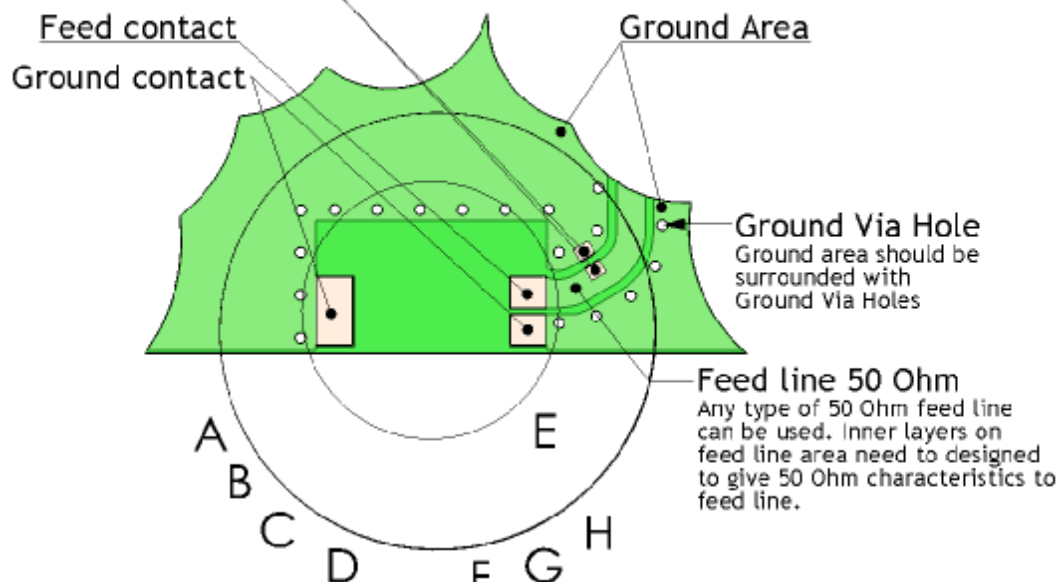
Feed line should be designed to match 50 Ω characteristic impedance, depending on PWB material and thickness.

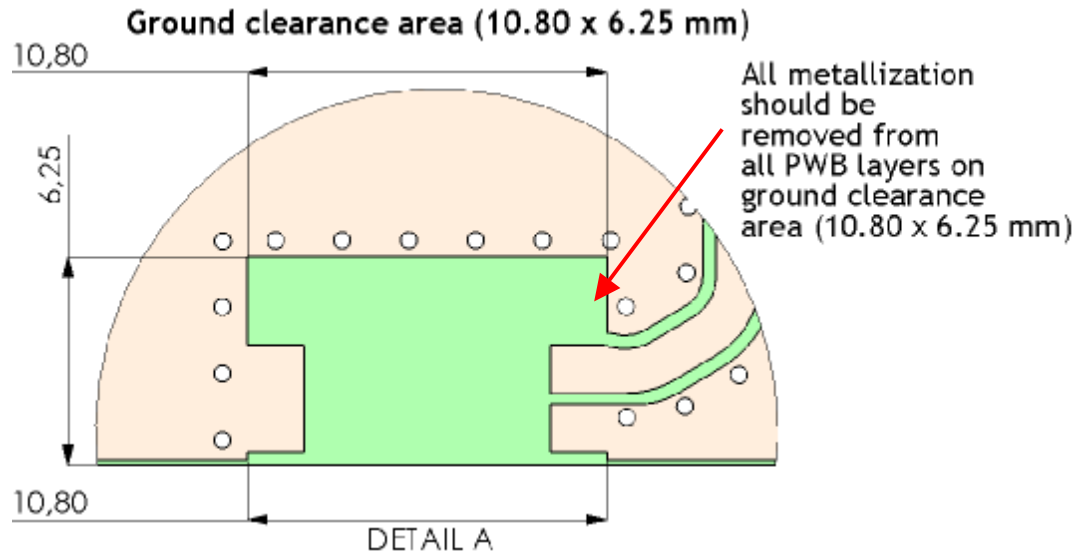
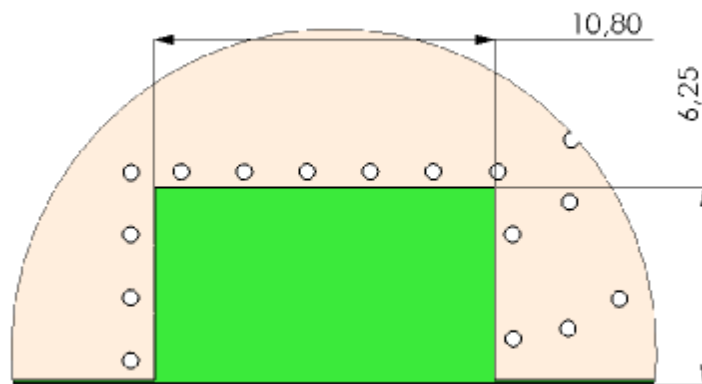
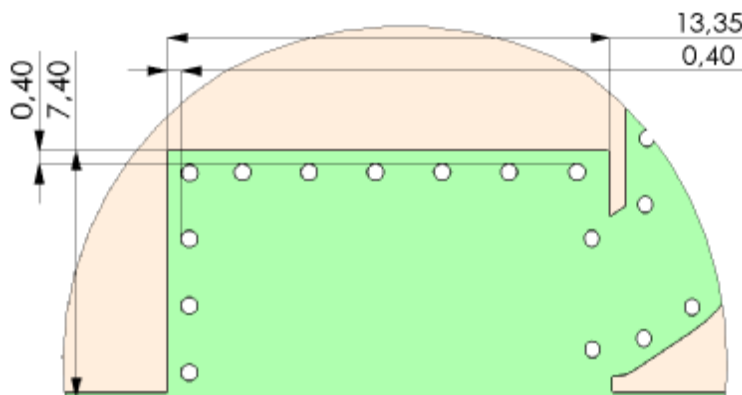
Recommended test board layout for electrical characteristic measurement, test board outline size 80 x 37 mm.

PWB layout for W3022 1.88-1.93 GHz DECT Antenna

Note: All dimensions are in metric system.

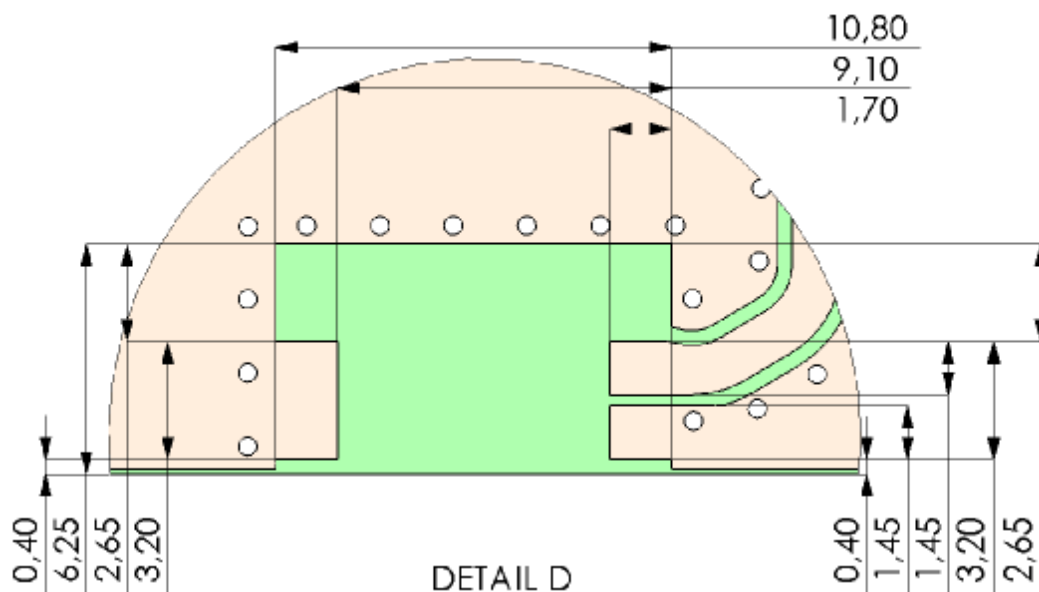
Matching Component (optional shunt)



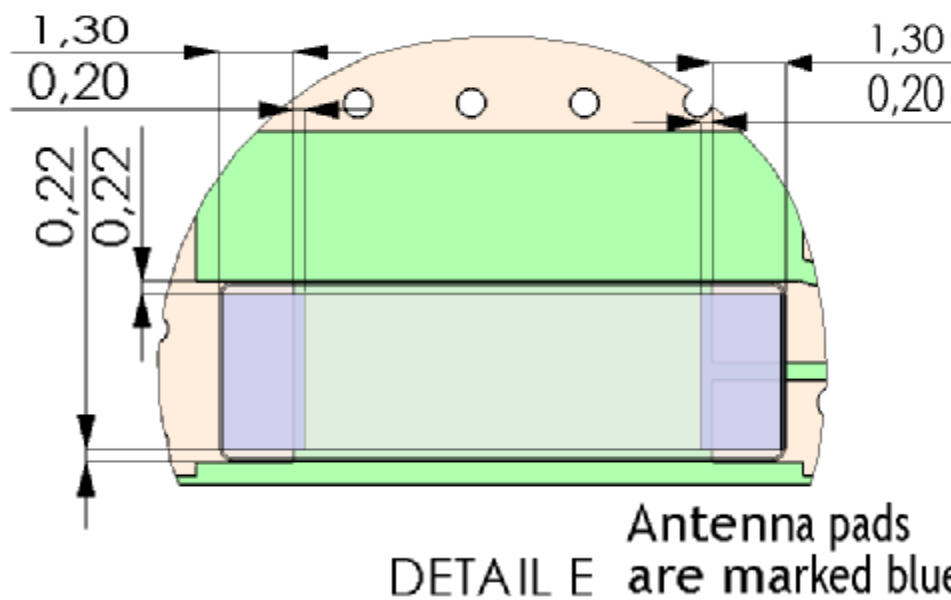
Ground clearance area for W3022 1.88-1.93 GHz DECT Antenna**Opening in bottom/inner ground layers****Opening in other layers (no ground/ RF)**

PWB pad dimensions and antenna position for W3022 1.88-1.93 GHz DECT Antenna

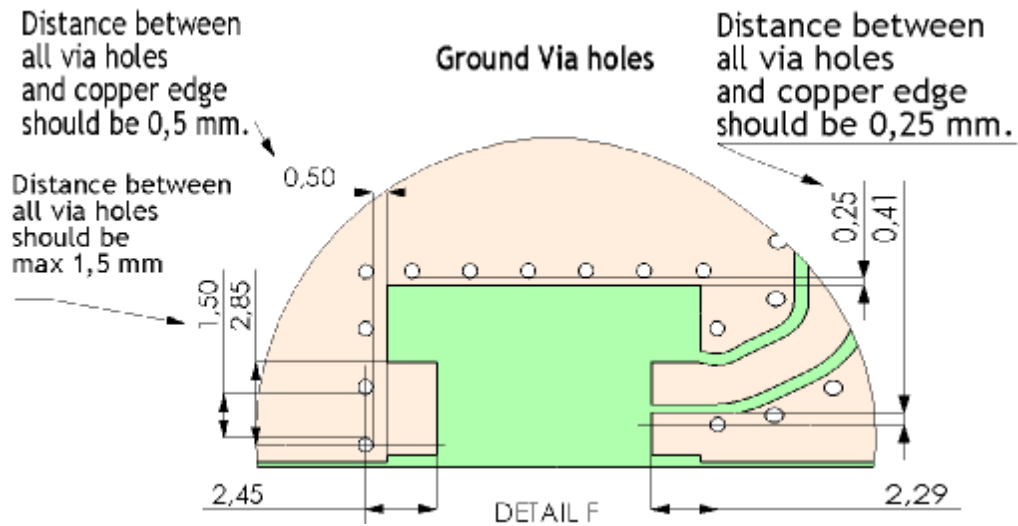
Pad dimensions in top copper



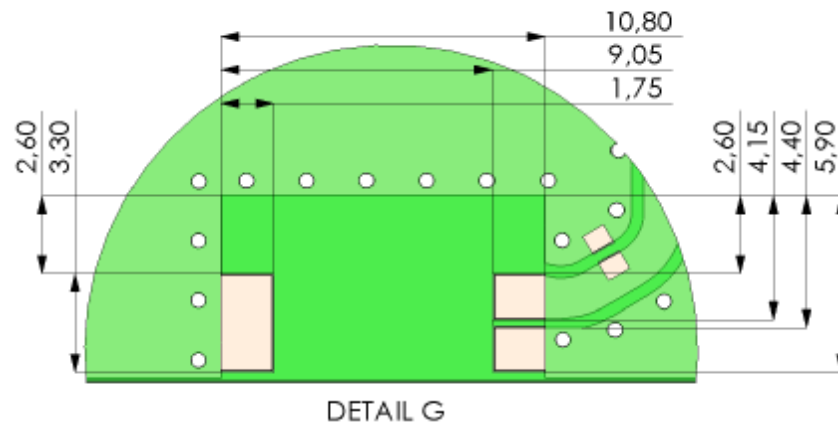
Antenna position on PWB layout



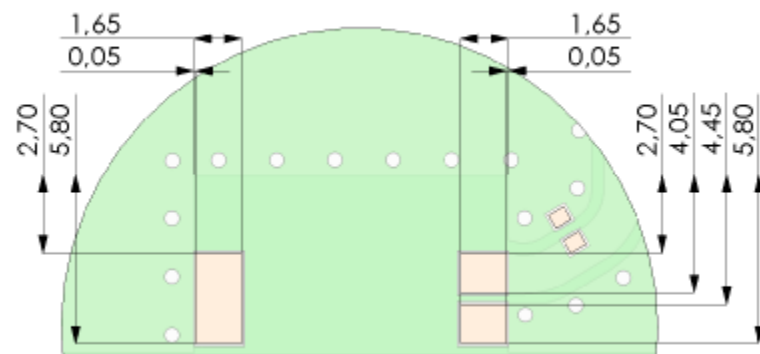
Typical ground via hole placement in PWB layout for W3022 1.88-1.93 GHz DECT Antenna



Solder resist opening and Paste stencil recommendation for W3022 1.88-1.93 GHz DECT Antenna



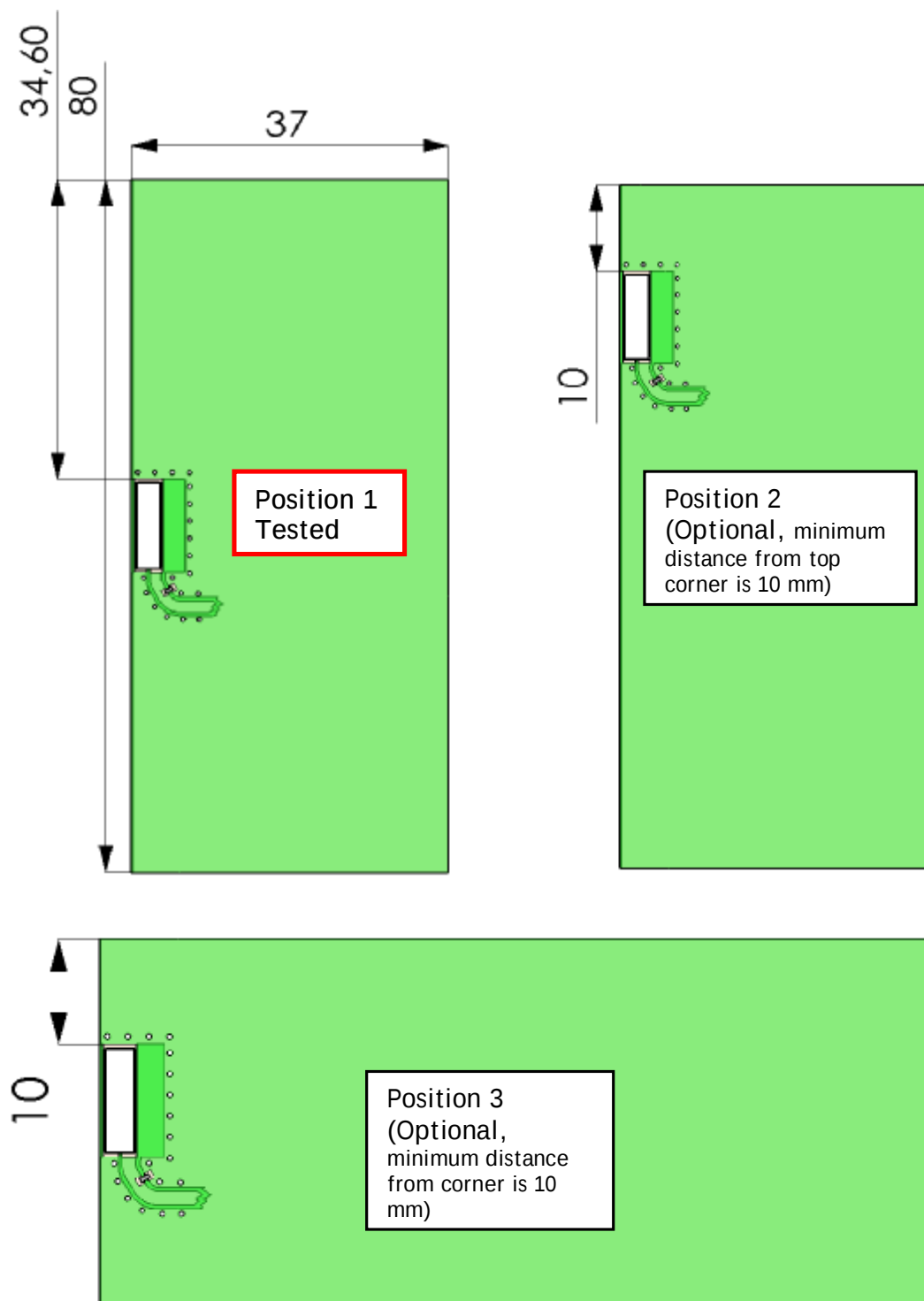
Paste stencil recommendation



Paste stencil thickness recommendation is 0,1 mm

Recommended antenna position on PWB for W3022 1.88-1.93 GHz DECT Antenna

Our test PWB size is 37 x 80 mm, other sized boards can be used depending on customer device size (minimum 35 x 35 mm)



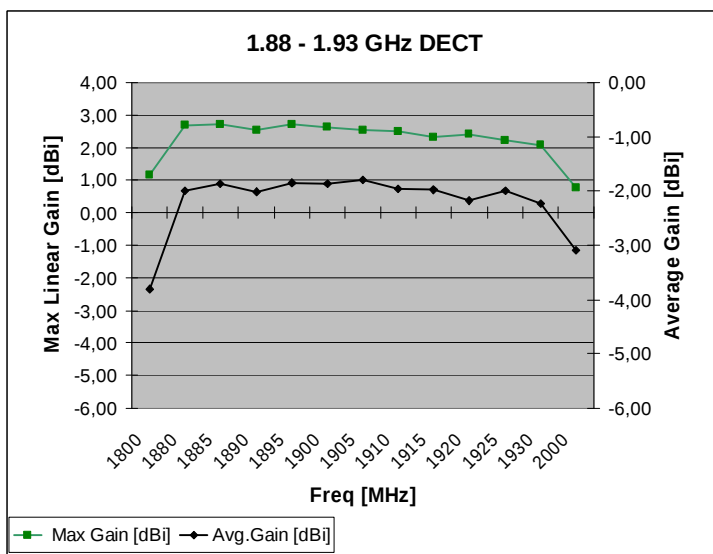
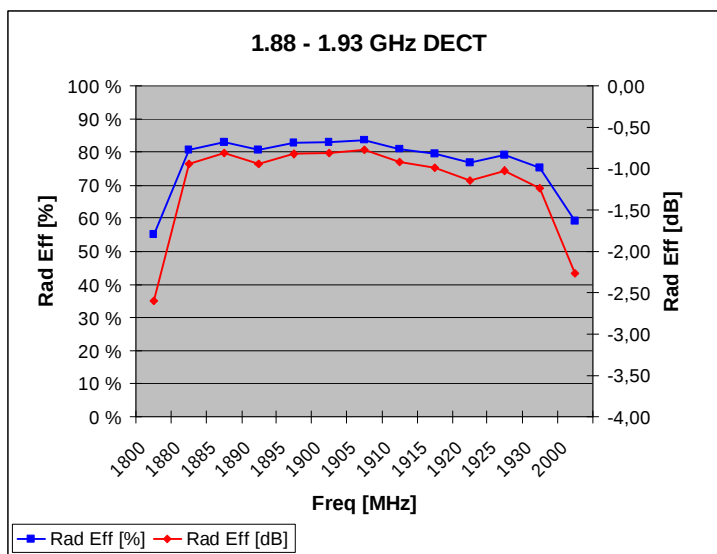
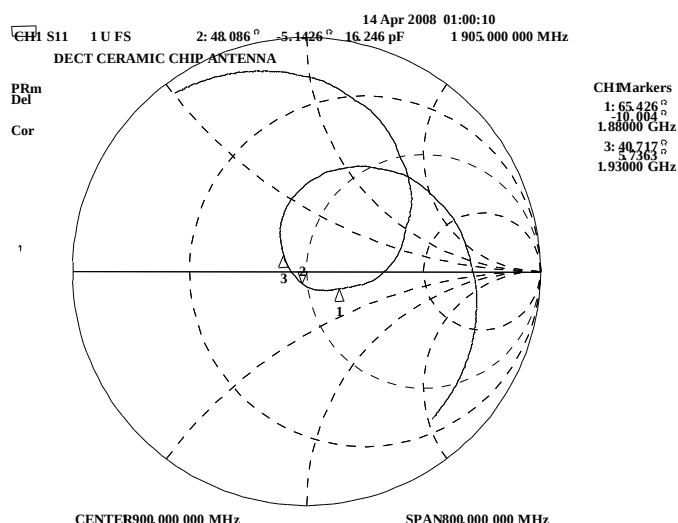
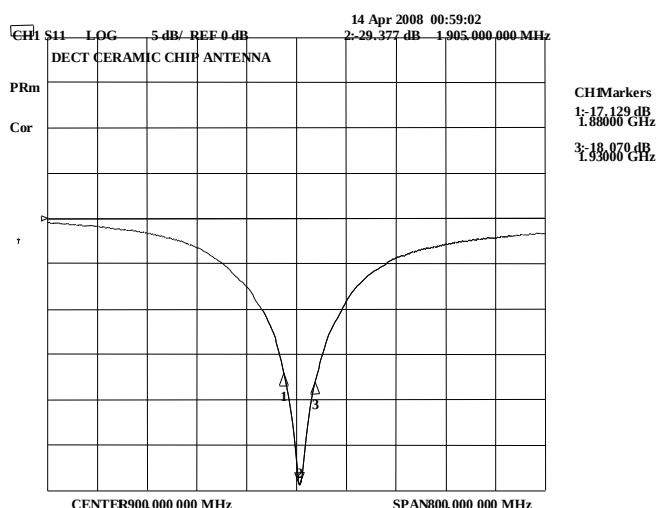
W3022 1.88-1.93 GHz DECT Antenna Test Set Up and Measurement Performance

Ground cleared under antenna, clearance area **10.80 x 6.25 mm**

Typical Electrical Characteristics (T=25°C)

Measured on the 80 x 37 mm test board with matching circuit (2,7 pF shunt matching capacitor on feed). Measured in antenna position 1 on PWB layout, see page 9.

Typical Return Loss S11/ impedance, free space efficiency and gain



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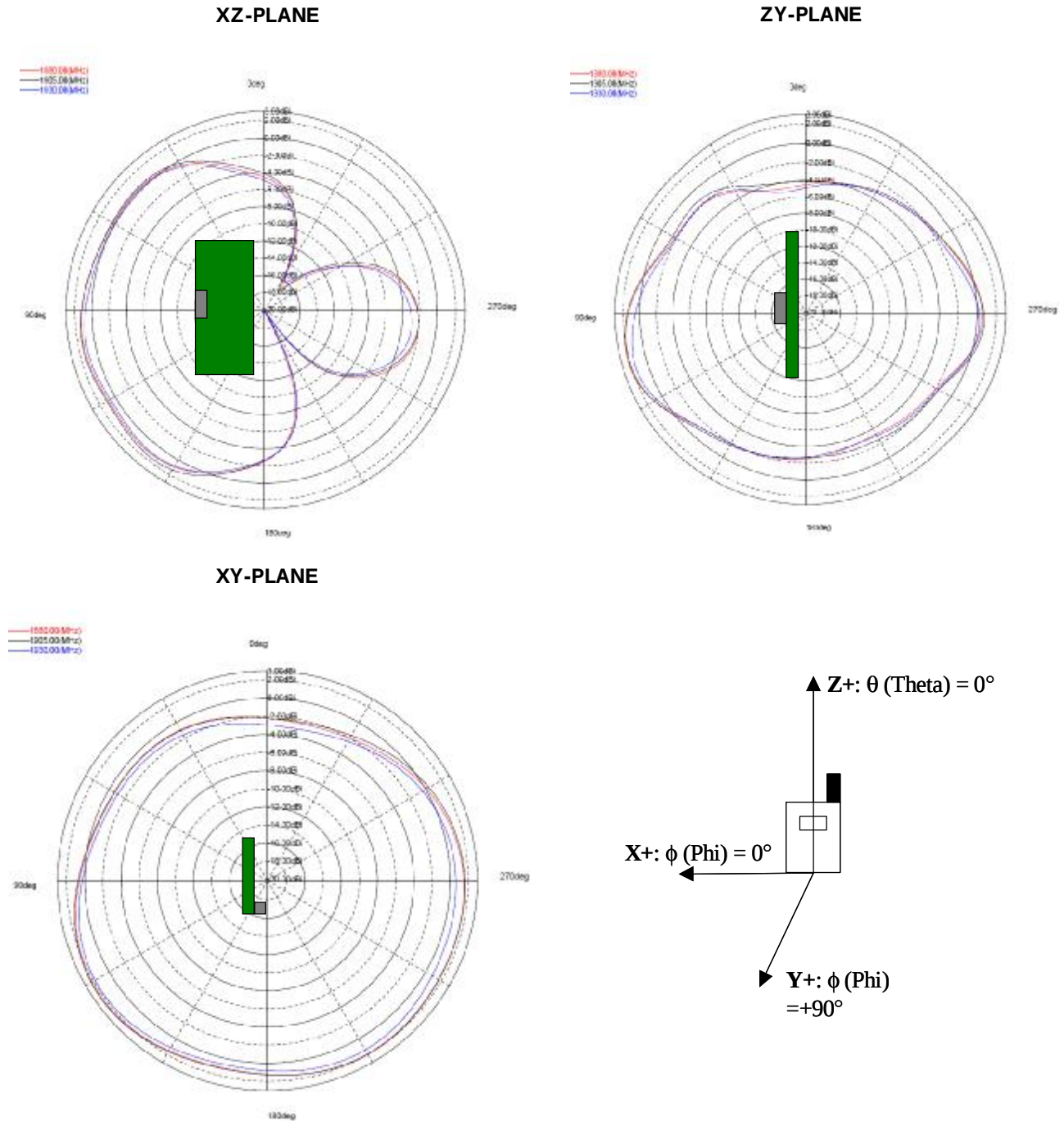
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Typical Free Space Radiation Patterns

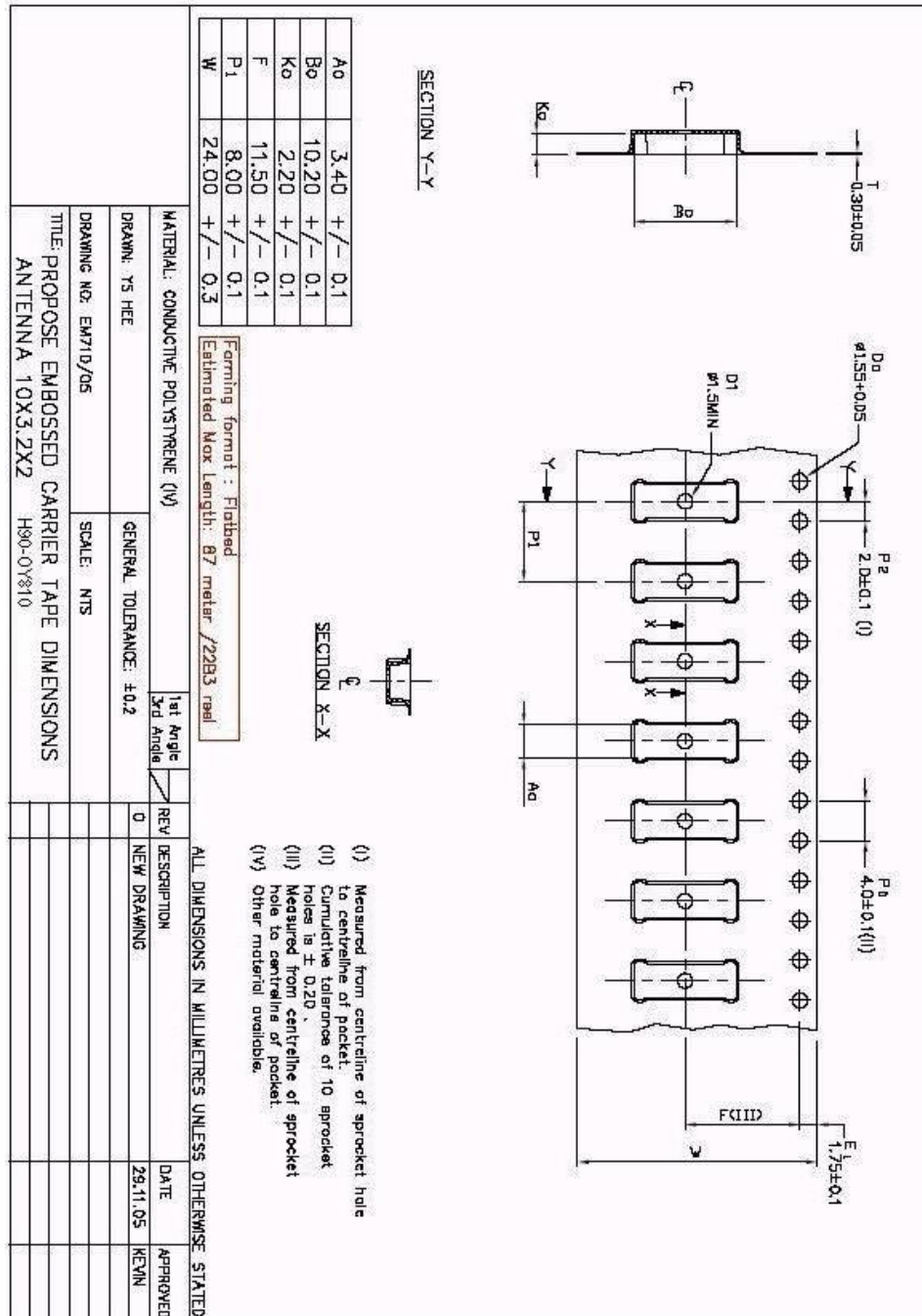


W3022 1.88-1.93 GHz DECT Antenna Packing

General

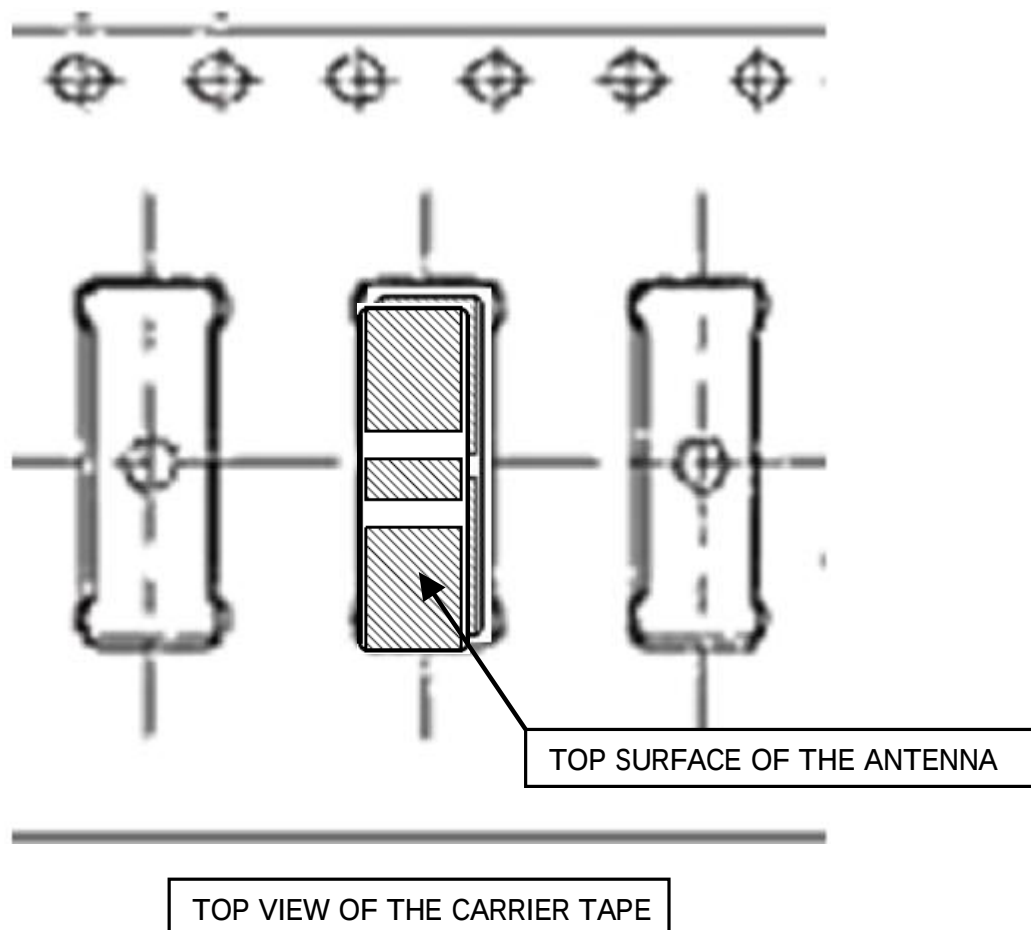
Tape and reel packing is used. Carrier tape, reel and box dimensions are presented in following pictures.

Carrier tape

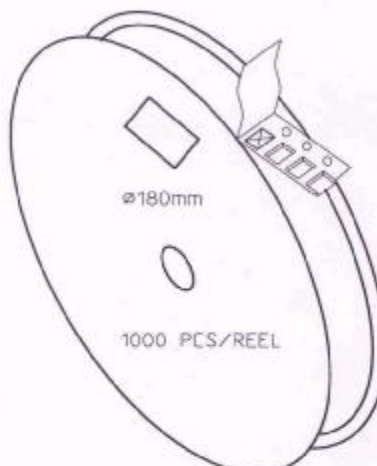
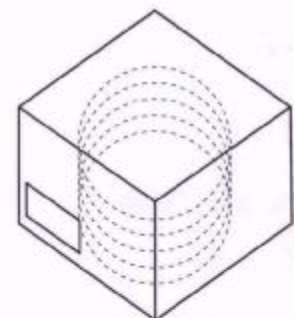
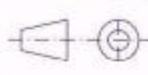


Block orientation

Antenna soldering pads facing down to the bottom of the carrier tape.

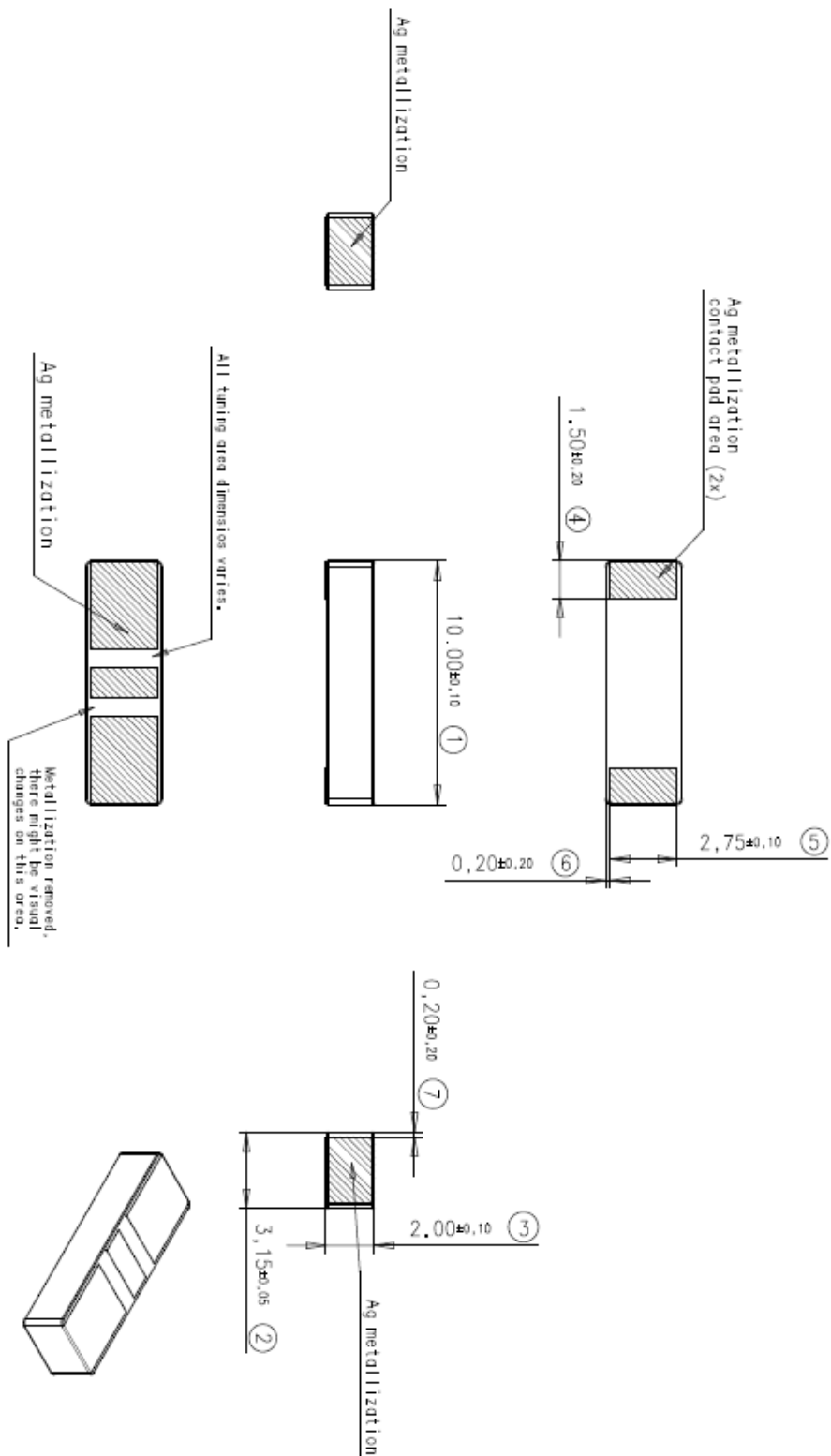


Packing form

		CARRIER TAPE H85-00188 width=24,00 depth=2.20 COVER TAPE H85-00159 width=21.20 LENGTH OF TAPE: - Leader section: min 350 mm before component section - Trailer section: min 40 mm after component section. Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.	
		BOX H85-00128 1 pcs (182x182x125) - LABEL 1 pcs/BOX REEL H85-00160 4 pcs (D180, W28) - REEL LABEL 1 pcs/REEL	
MATERIAL			
HANDLINGS			
		RAT I O	DRWN 160107 PeHa H
			DGNER G
			CHKD F
			APPRD E
			APPRD BY D
PRODUCT H90-OY810			C
DENOMINATION PACKING FORM			B
			A
		VERSION	MOD/DATE/NAME

W3022 1.88-1.93 GHz DECT Antenna

Mechanical Outline



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