



Datasheet

Part No.: **SXP.25.4.A.08**

Description: 2320 ~ 2345 MHz SDARS 25mm Patch Antenna
(Satellite Digital Audio Radio System)

Features:

- 25*25*4mm Terrablast Patch Antenna
- Excellent Efficiency: >75%
- High Gain (Up to 9.2 dBiC at Zenith)
- Excellent Impact Resistance
- Ultra-Lightweight @ 5.6g
- Optimized LHCP Radiation Pattern
- Pin & Adhesive Mounting
- Manufactured in an IATF16949 Approved Facility
- RoHS & REACH Compliant

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1. Introduction



The Taoglas SXP.25.4.A.08 is part of a series of patch antennas designed for use with Satellite Digital Audio Radio Services (SDARS). It features left-hand circular polarization, low in-band axial ratio, and excellent gain characteristics in the 2320 to 2345 MHz band, making it compatible with the most popular satellite radio services available in many new vehicles.

SXP.25 comes in a convenient, compact form factor, with dimensions of 25mm x 25mm x 4mm. It is manufactured using Taoglas' patent pending Terrablast antenna technology, resulting in an ultra-lightweight patch that is 30% lighter than standard ceramic patches with ultra-impact resistant characteristics.

For further optimization to customer-specific device environments, custom tuned patch antennas can be supplied. Your regional Taoglas sales office can help you identify the best patch antenna for your specific SDARS application.

2. Specifications

Electrical	
Frequency	SIRIUS : 2326.25 MHz \pm 6.25 MHz XM : 2338.75 MHz \pm 6.25 MHz
Centre Frequency	2332.5 MHz \pm 12.5 MHz
Return Loss	SIRIUS: -10 dB max. XM: -10 dB max.
Zenith Gain	SIRIUS: +9 dBiC typ. XM: +9.2 dBiC typ.
Efficiency	SIRIUS: 78% XM: 77%
Axial Ratio	<3 @ Zenith
Polarization	LHCP
Impedance	50 Ω
Mechanical	
Dimensions	25 x 25 x 4mm
Pin Length	1.6mm
Pin Diameter	0.9mm
Weight	5.6g
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
Reliability	
Low Temperature	-40°C, 24hrs
High Temperature	+85°C, 48hrs
Temperature Cycling	ISO16750 standard, total 240hrs
Temperature Step	ISO16750 standard, total 300mins
Drop Test	12m passed
Shock	10 shocks/ axis, 6 faces
Vibration	ISO16750 standard, 8 hours / axis
Pin pull force	>5kg-f

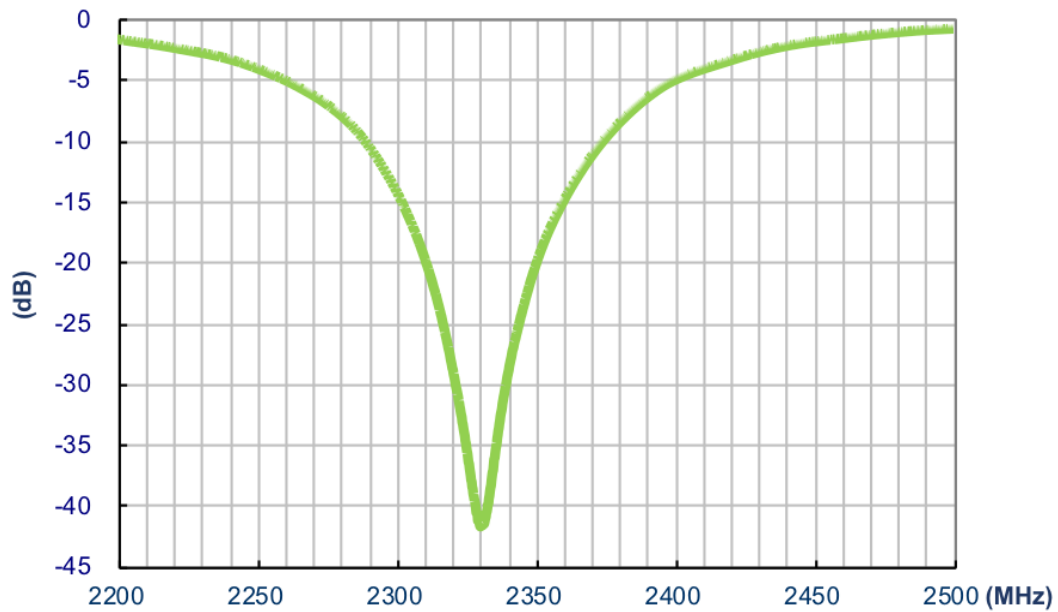
* Antenna properties were measured with the antenna mounted on 70*70mm Ground Plane

XM Gain Requirements (Satellite) – Ground Plane			
AUT Location	Elevation Angle(degrees)	XM Sirius Limits(dBic)	Measured Average Gain(dBic)
Passive Ground Plane	$20 \leq \phi \leq 25$	0.5	2.4
	$25 \leq \phi \leq 30$	1	3.4
	$30 \leq \phi \leq 50$	2	4.7
	$50 \leq \phi \leq 70$	4	6.9
	$70 \leq \phi \leq 90$	2	8.1

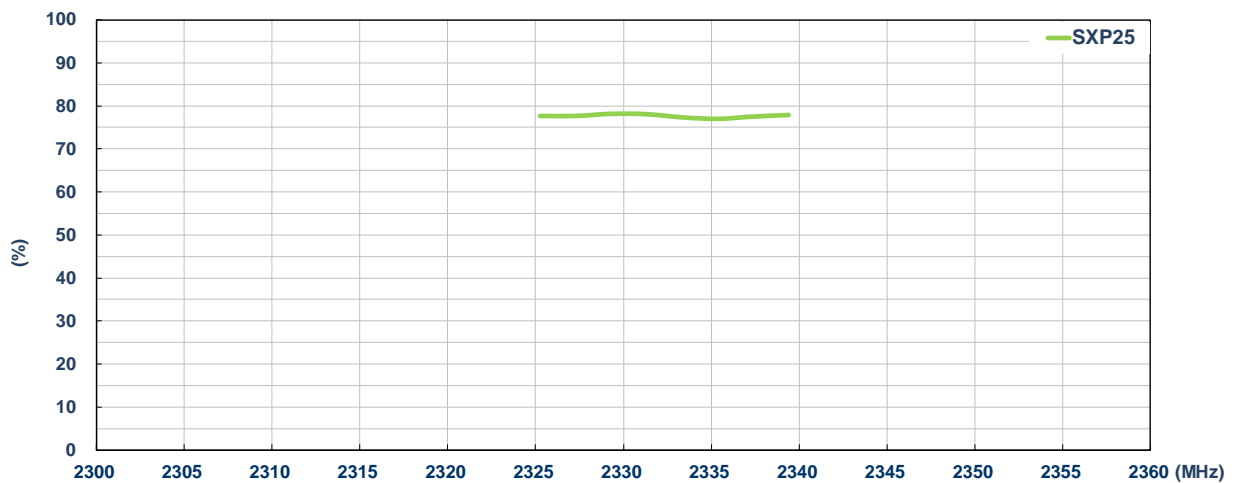
XM Gain Requirements (Terrestrial) – Ground Plane			
AUT Location	Elevation Angle(degrees)	Antenna Mean Passive VP Gain Over Solid Angle (dBi)	Antenna P/P Gain variation (dB)
Passive Ground Plane	$0^\circ \leq \phi \leq 10^\circ$	-3.1dBi	-
	$\Phi = 5^\circ$	-	2326.25MHz=1.6 dBic 2338.75MHz=1.3 dBic

3. Antenna Characteristics

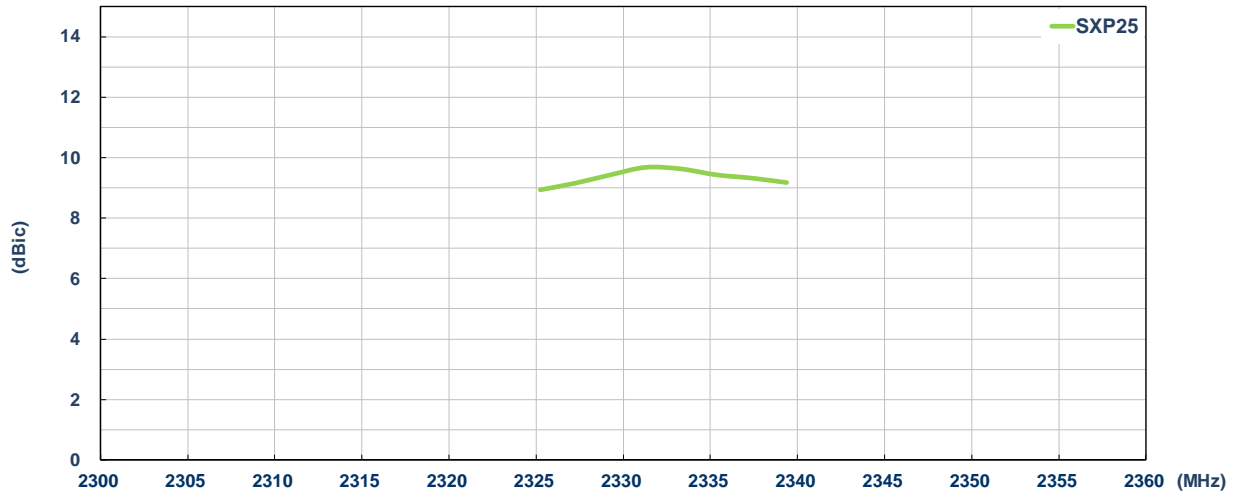
3.1 Return Loss S11



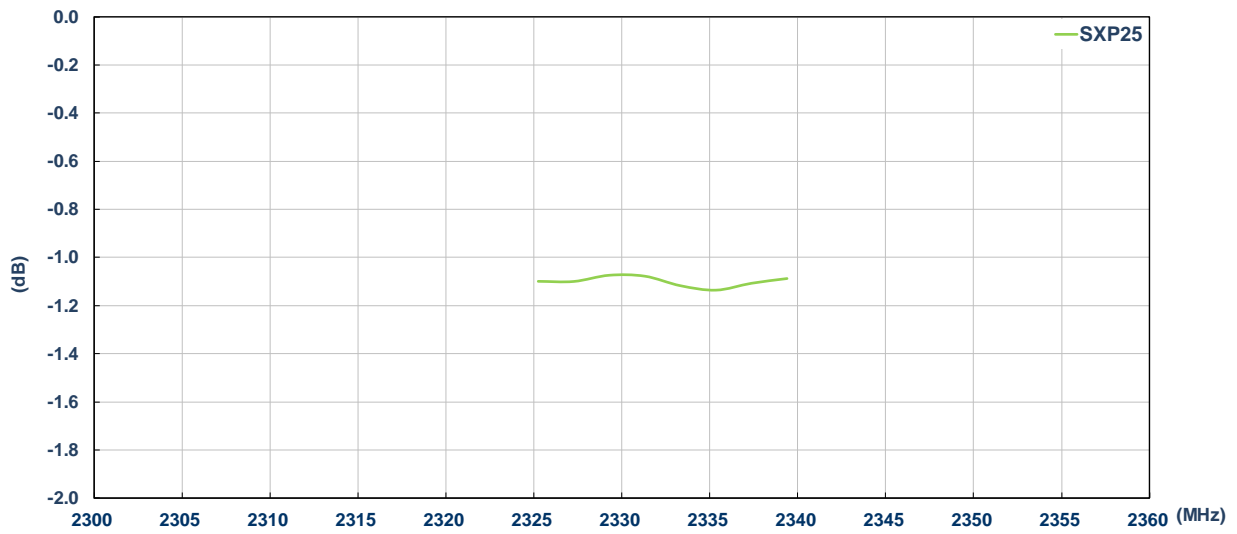
3.2 Efficiency



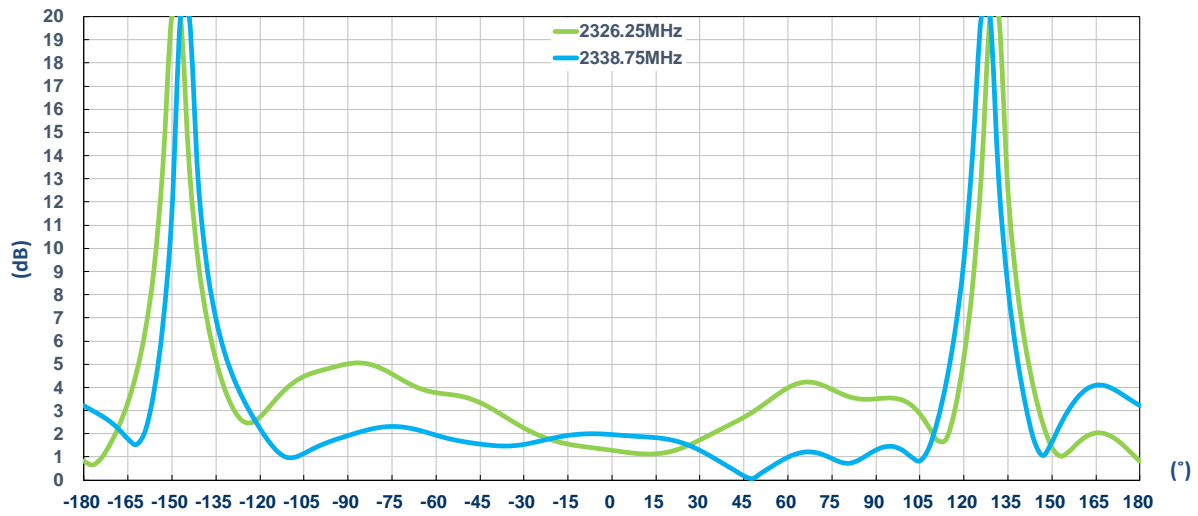
3.3 Peak Gain



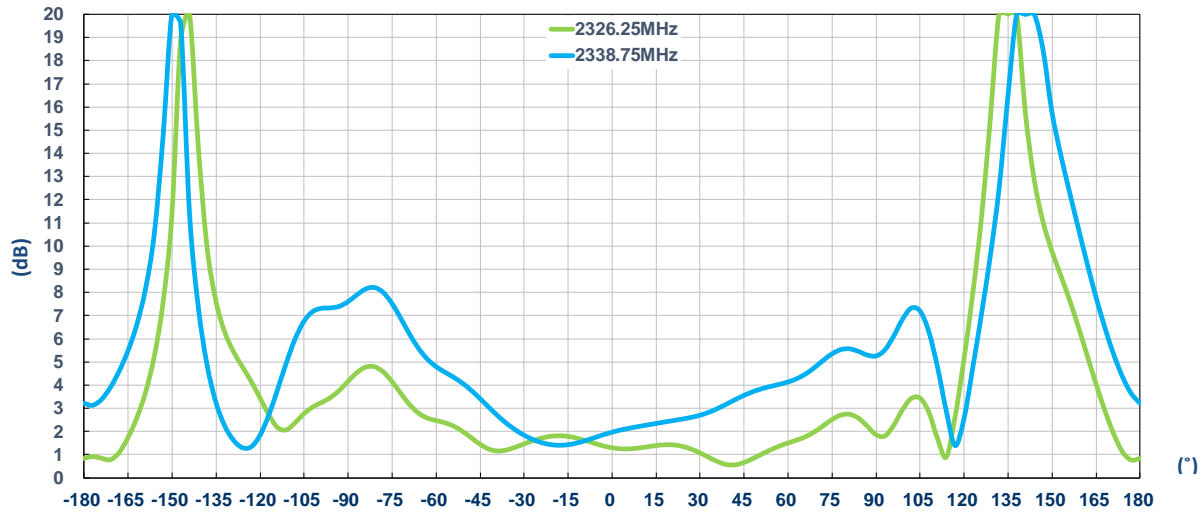
3.4 Average Gain



3.5 Axial Ratio @ Phi=0°

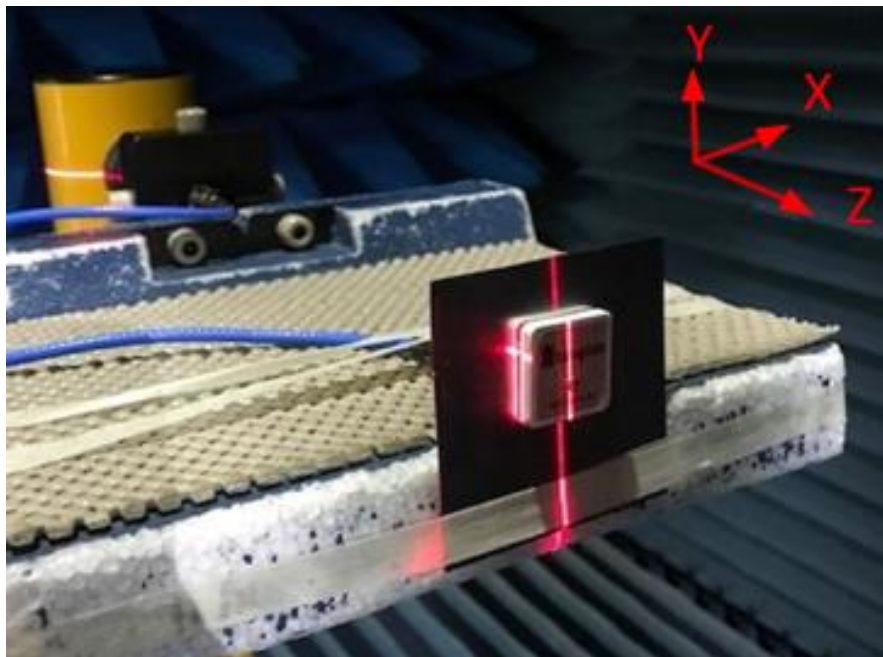


3.6 Axial Ratio @ Phi=90°

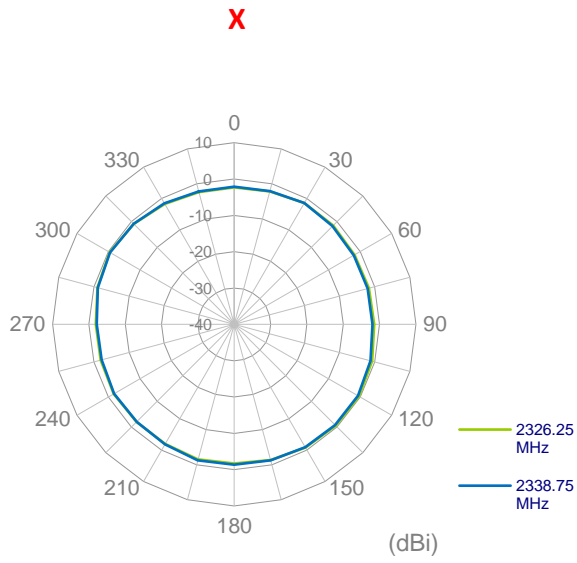


4. 2D Radiation Patterns

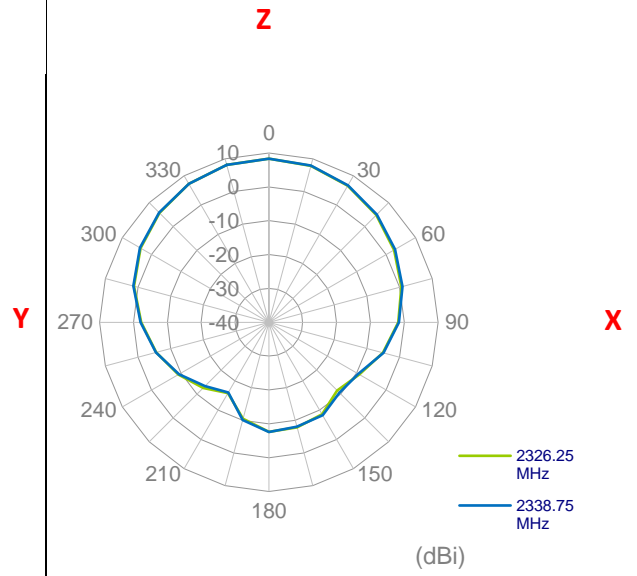
4.1 Test Setup



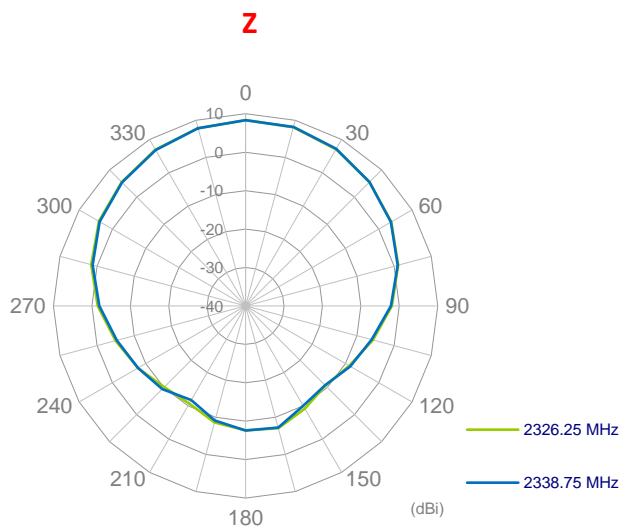
XY Plane



XZ Plane

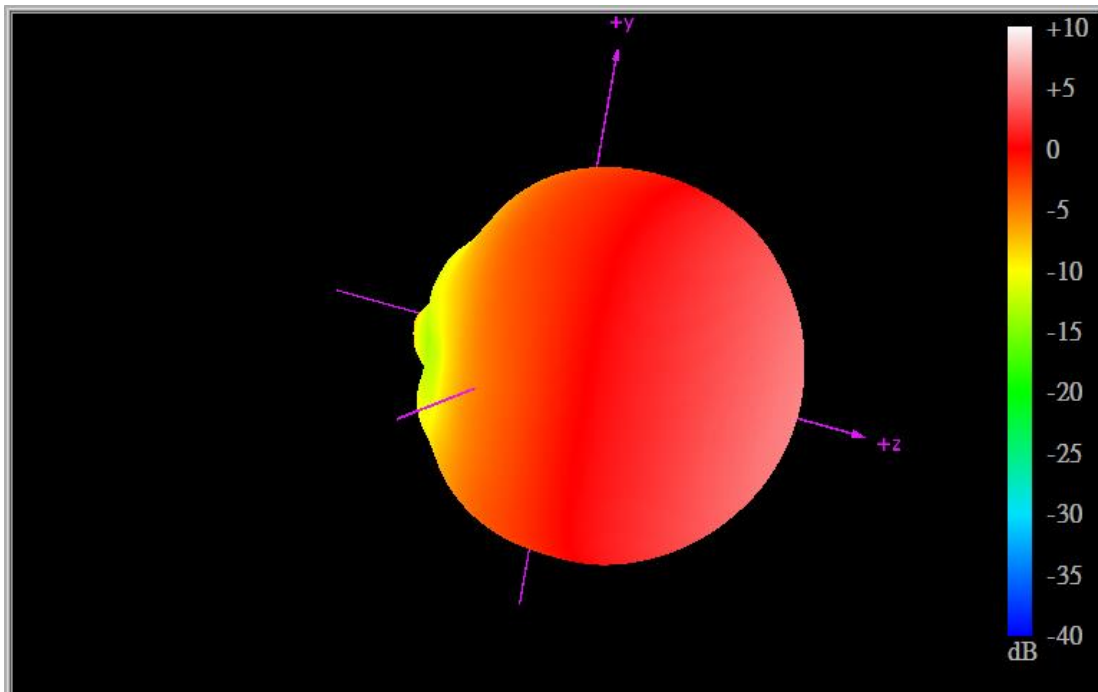


YZ Plane

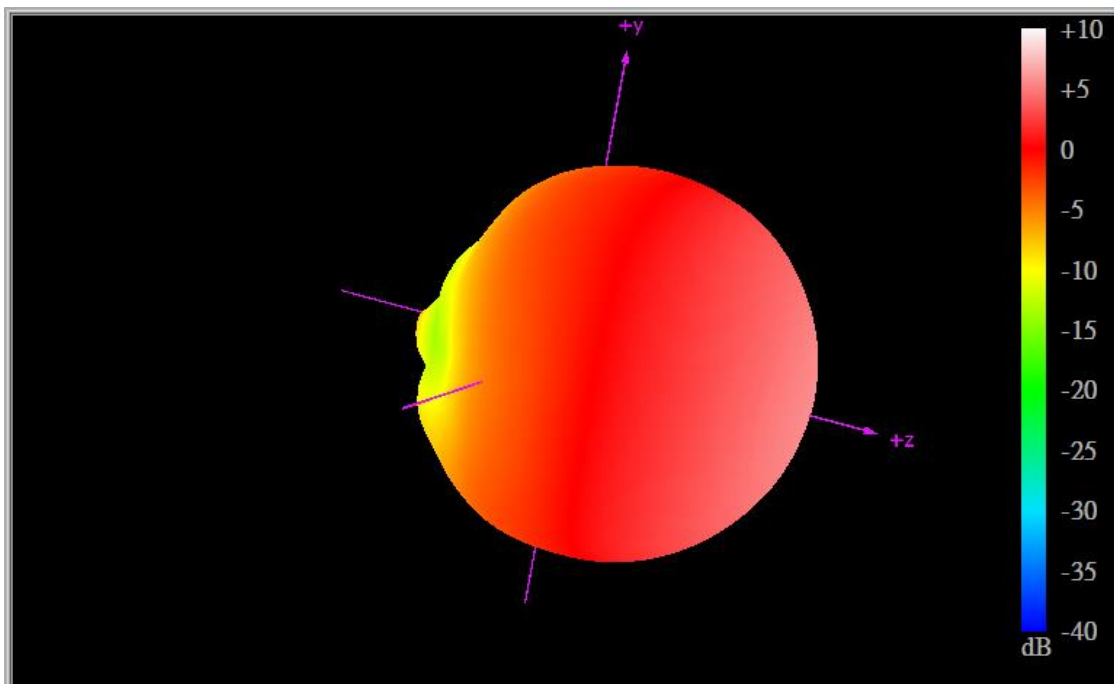


5. 3D Radiation Patterns

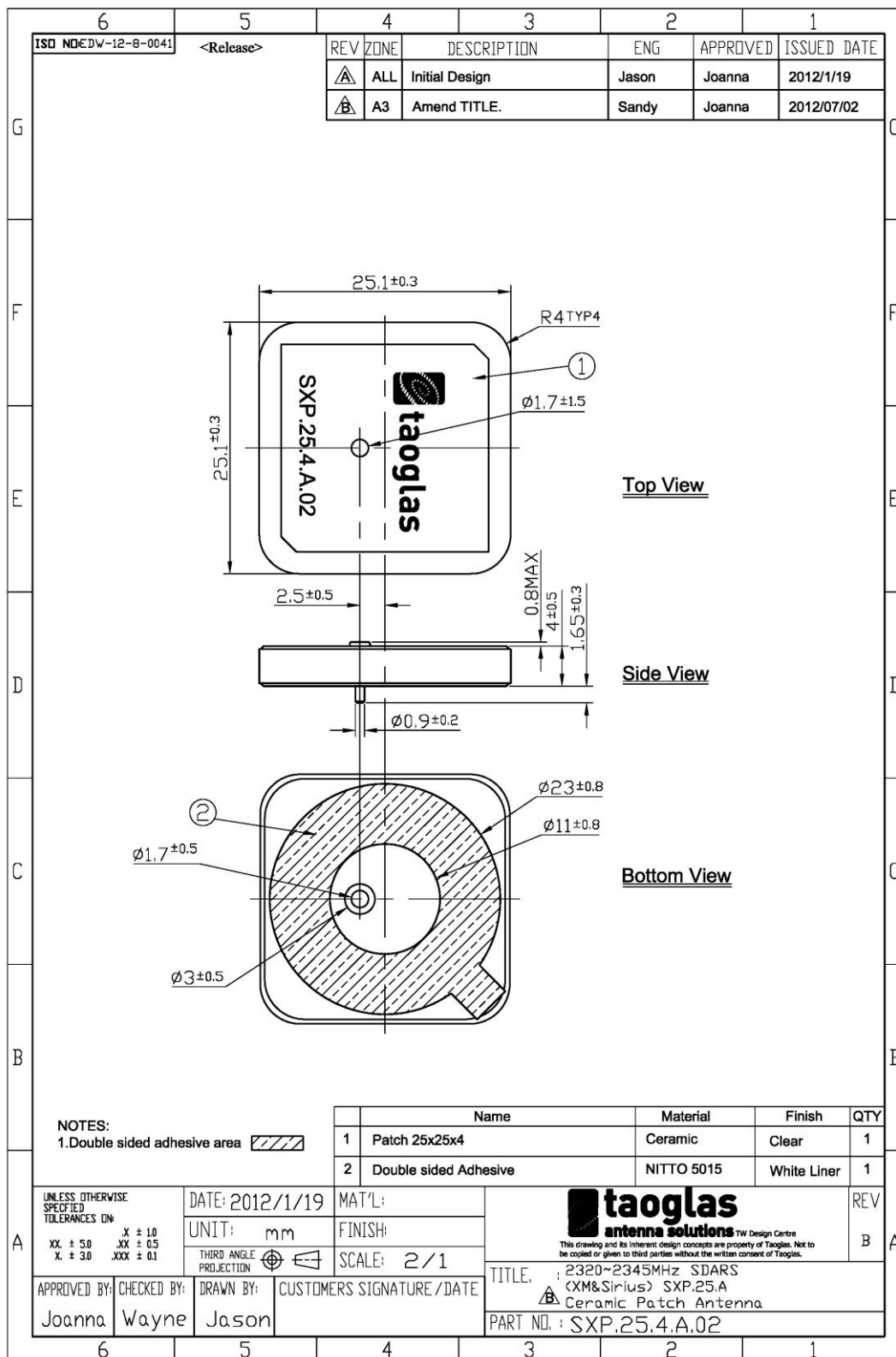
5.1 2326.25MHz



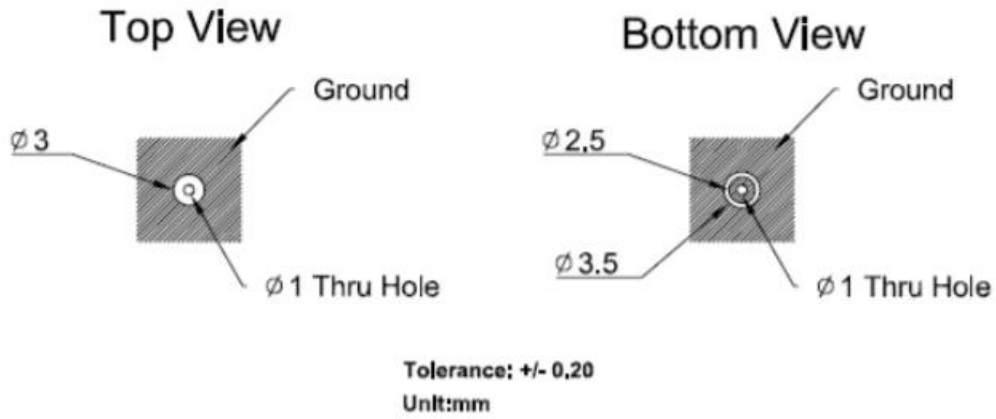
5.2 2338.75



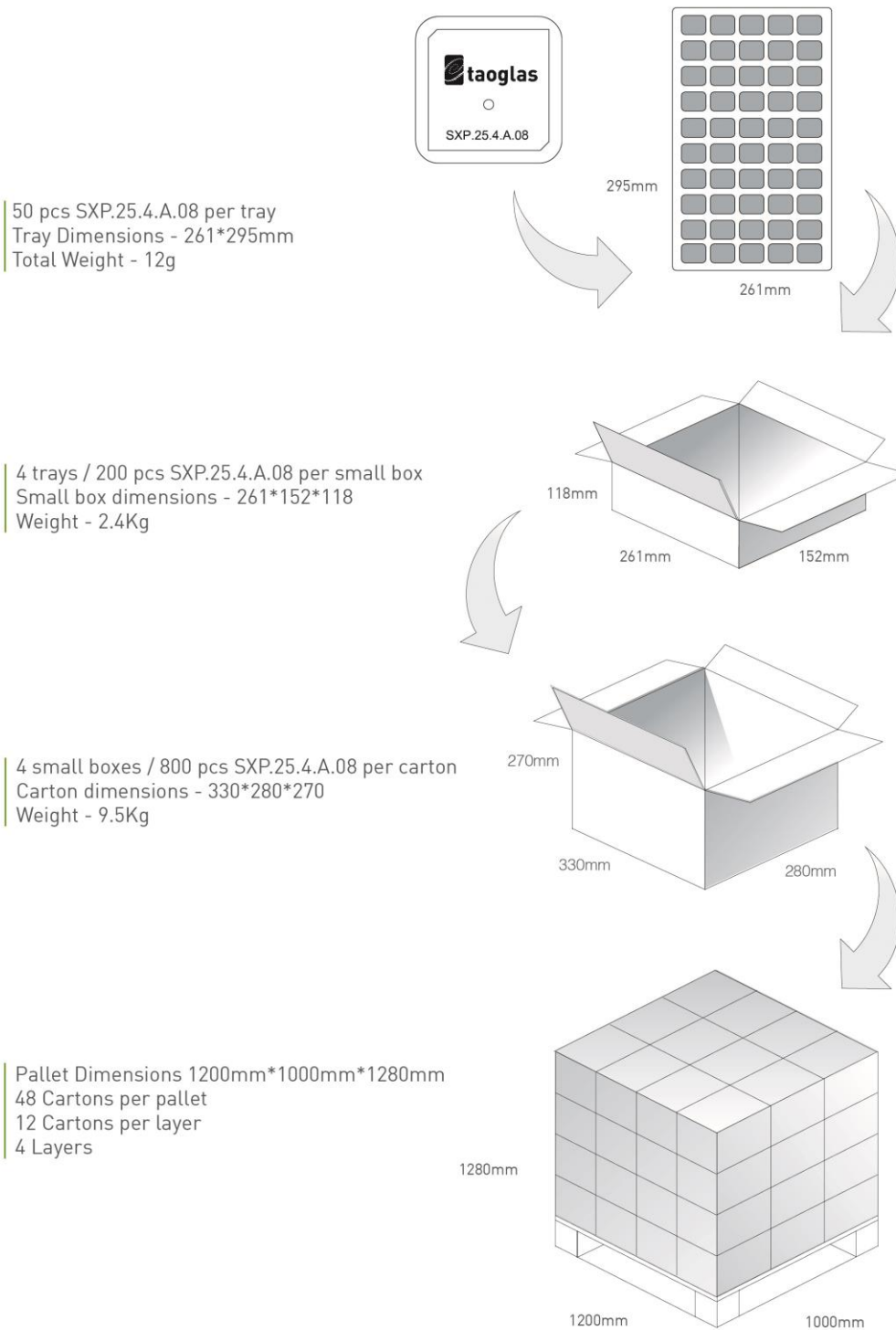
6. Mechanical Drawing-Patch (Units: mm)



7. PCB Footprint Recommendation



8. Packaging





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