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TAOGLAS®



Datasheet

Part No:
GW.51.5153W

Description:

White Wi-Fi® 2.4/5.8/7.1GHz 5dBi Dipole Terminal Mount Antenna RP-SMA(M) Hinged

Features:

- 2.4/5.8/7.1GHz Band Operation
- Wi-Fi® 6/7 Compatible
- 5dBi Gain
- High Efficiency up to 80%
- Hinged RP-SMA (M) Connector
- Height: 198mm
- Diameter: 13mm
- RoHS & Reach Compliant

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1. Introduction



The Taoglas GW.51 is a white full band Wi-Fi® terminal mount dipole antenna. At just 198mm in height and 13mm in diameter, the robust TPEE enclosure can be mounted straight or at right angle to the device with its hinged RP-SMA(M) connector. It is ideal for applications such as Bluetooth®, BLE, ZigBee®, Wi-Fi® 6 & 7 and Wireless LAN. The GW.51, designed for superior performance and reliability, has an omnidirectional radiation pattern and extremely high efficiency, and gain on all Wi-Fi® bands.

Typical applications include:

- Smart Home - Gateways/Routers - Connected Agriculture

The GW.51 has up to 5dBi Peak making it a cost-effective, high-performing choice for any indoor or outdoor application. Many module manufacturers specify peak gain limits for any antennas that are to be connected to that module. Those peak gain limits are based on free-space conditions. In practice, the peak gain of an antenna tested in free space can degrade by at least 1 or 2dBi when installed.

So ideally you should go for a slightly higher peak gain antenna than mentioned on the module specification to compensate for this effect. This provides you with improved performance. Upon testing any of our antennas with your device and appropriate layout, integration technique, or cable, we can work with you to make any of our antennas' perform below the peak gain limits.

Taoglas can then issue a specification and/or report for the selected antenna in your device that will clearly show it complying with the peak gain limits. You can be assured that you are meeting the regulatory requirements for that module whilst getting the best performance possible, without exceeding the peak gain limits.

The GW.51.5153W comes with a rotatable 90° hinged RP-SMA connector and it is also available in black (GW.51.5153) as standard and this can be customized subject to MOQ and NRE. For further information, or support to test and integrate this product please contact your regional Taoglas customer support team.

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2. Specifications

Electrical			
Frequency (MHz)	**2400~2500**	**4900~5850**	**5925~7125**
Efficiency (%)			
Free space	63	61	60
30X30cm Ground plane	64	65	64
Average Gain (dB)			
Free space	-1.99	-2.14	-2.23
30X30cm Ground plane	-1.94	-1.89	-1.94
Peak Gain (dBi)			
Free space	5.23	5.54	6.57
30X30cm Ground plane	4.52	6.38	8.83
Impedance	50Ω		
Polarization	Linear		
Radiation Pattern	Omni		
Max. input power	1W		
Mechanical			
Height	198 ±3.3 mm		
Planner Dimension	198*Ø13 mm		
Casing	TPEE		
Connector	RP-SMA(M)		
Weight	22.5 g		
Environmental			
Temperature Range	-40°C to 85°C		
Humidity	Non-condensing 65°C 95% RH		

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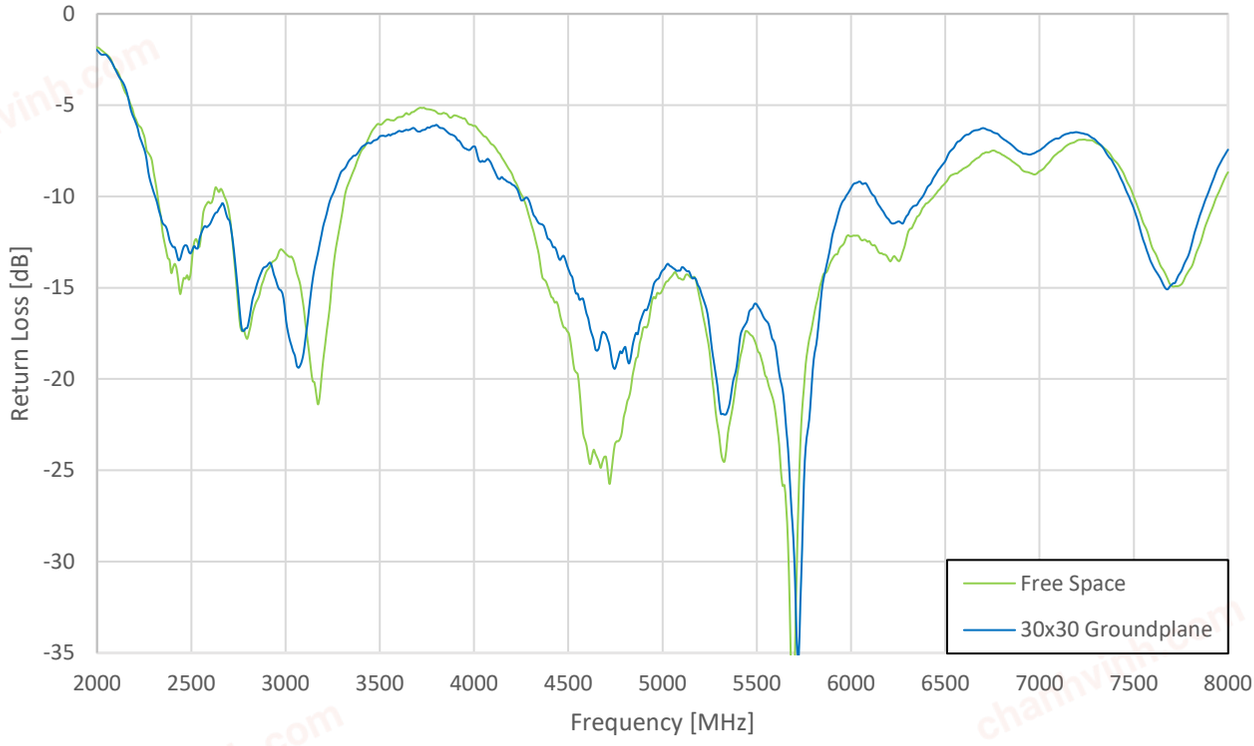
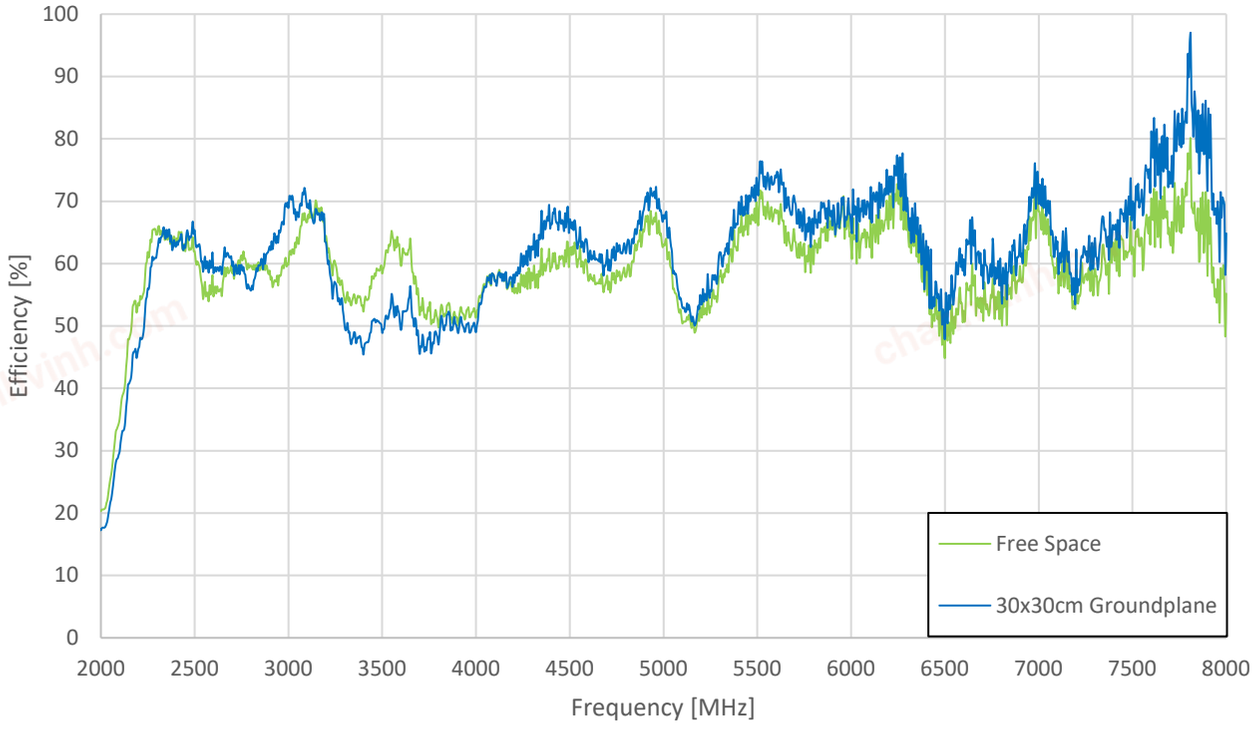
3. Antenna Characteristics

3.1 Return Loss



3.2 Efficiency



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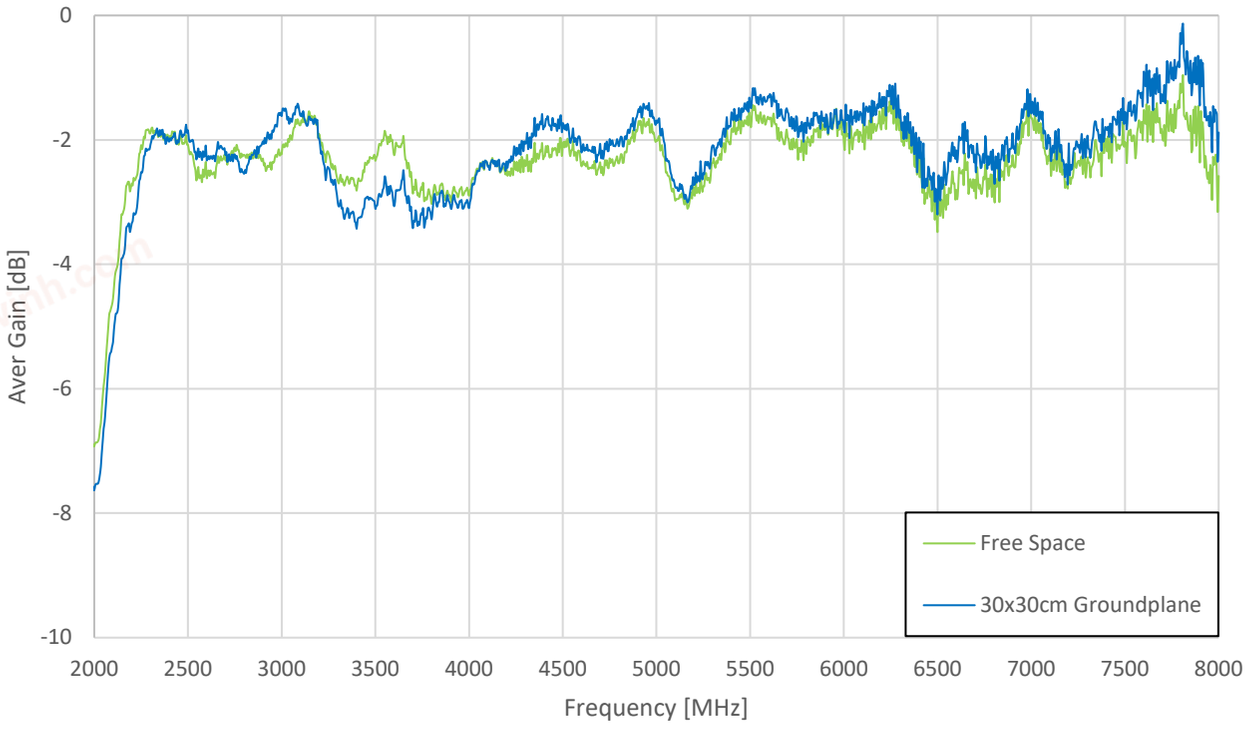
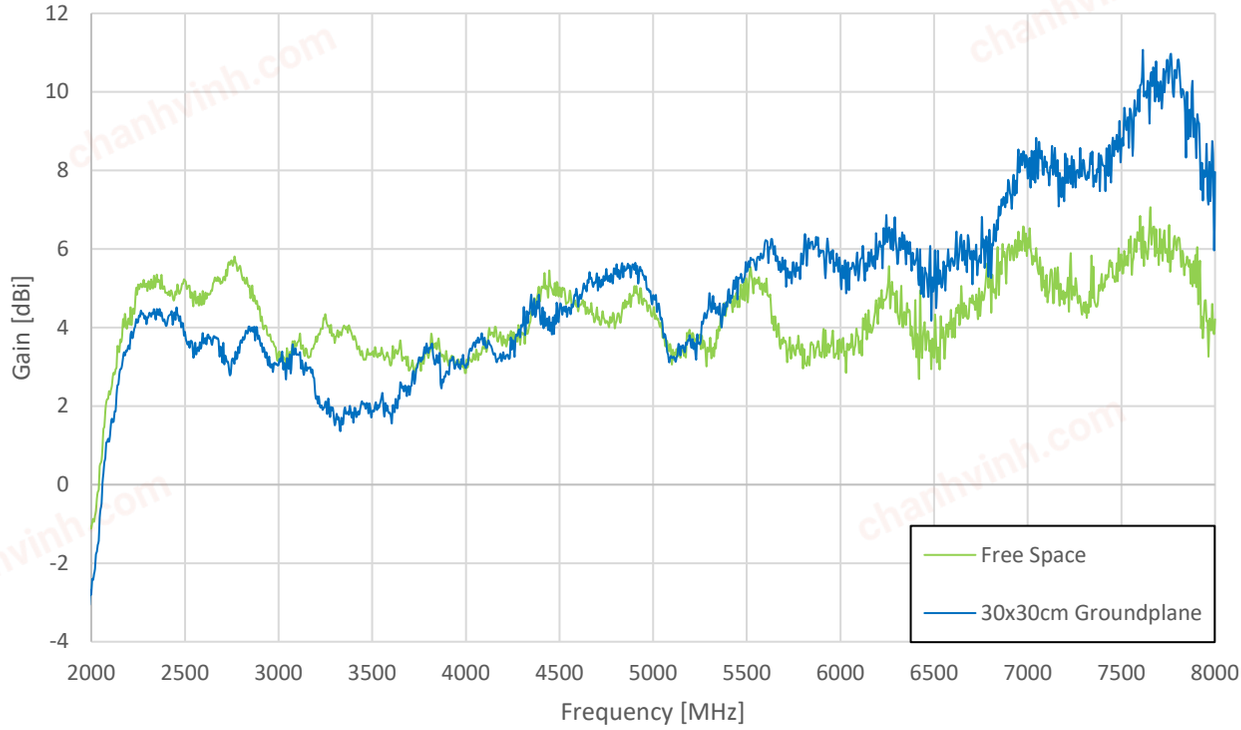
3.3 Average Gain



3.4 Peak Gain



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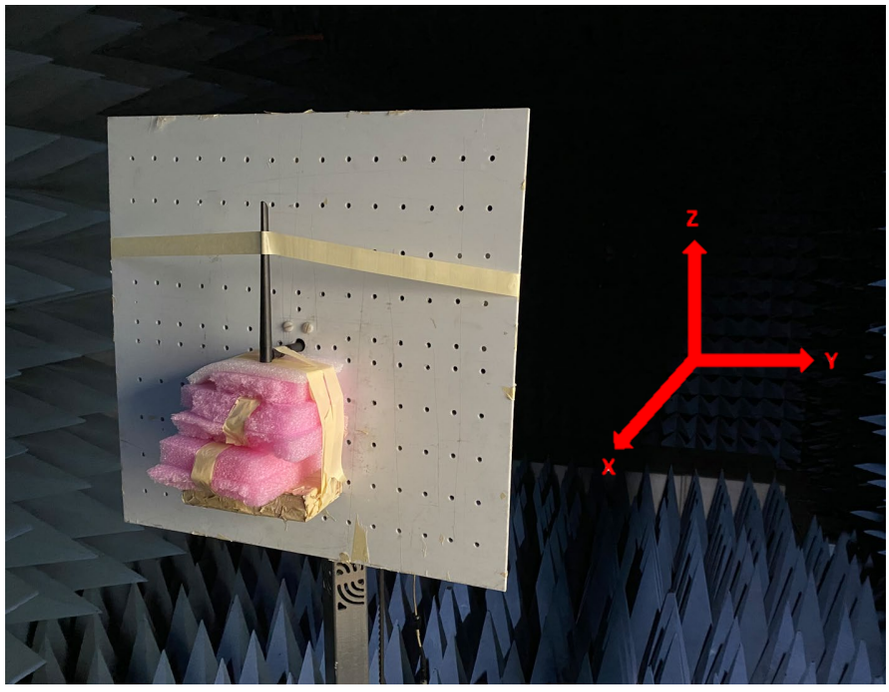
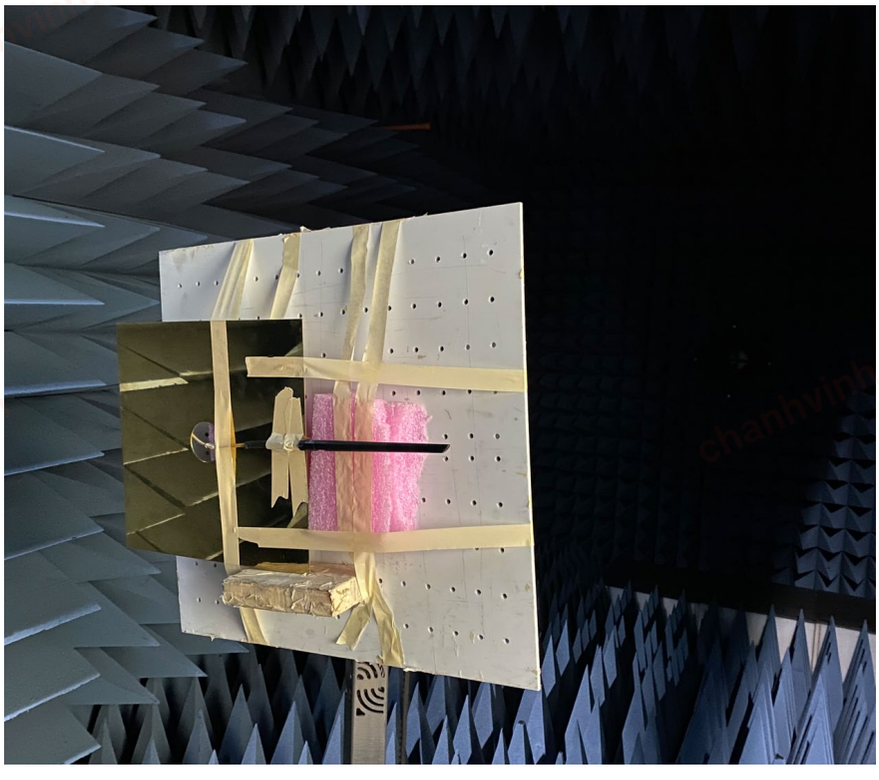
4. Radiation Patterns

4.1 Test Setup



Free space



30 x30cm Ground plane

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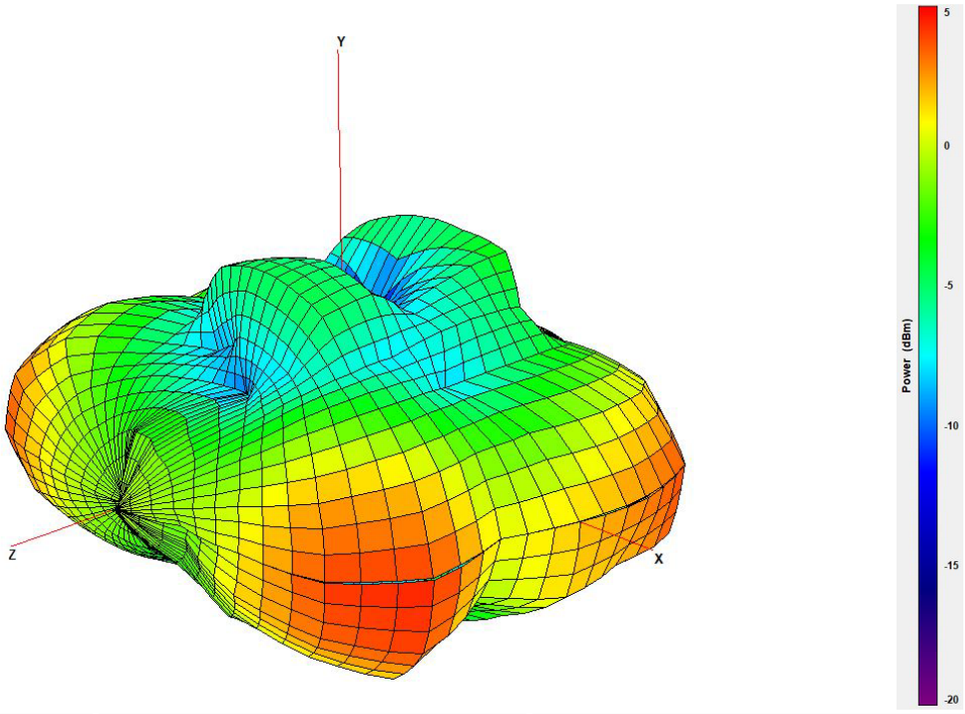
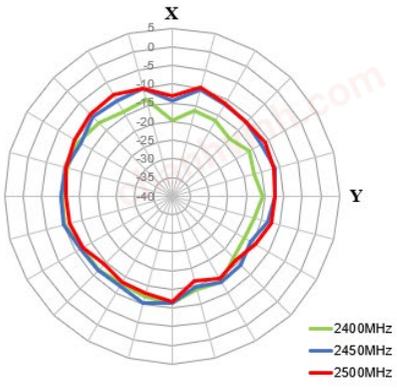
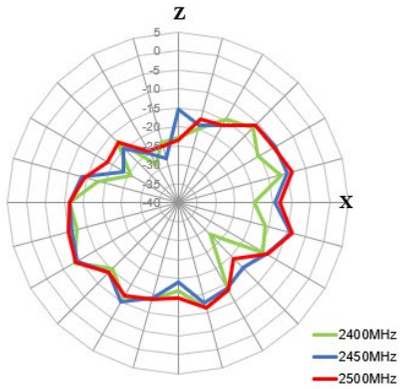
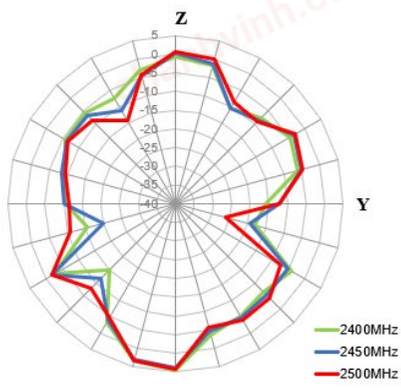
4.2 2400MHz 3D and 2D Radiation Patterns – Free space



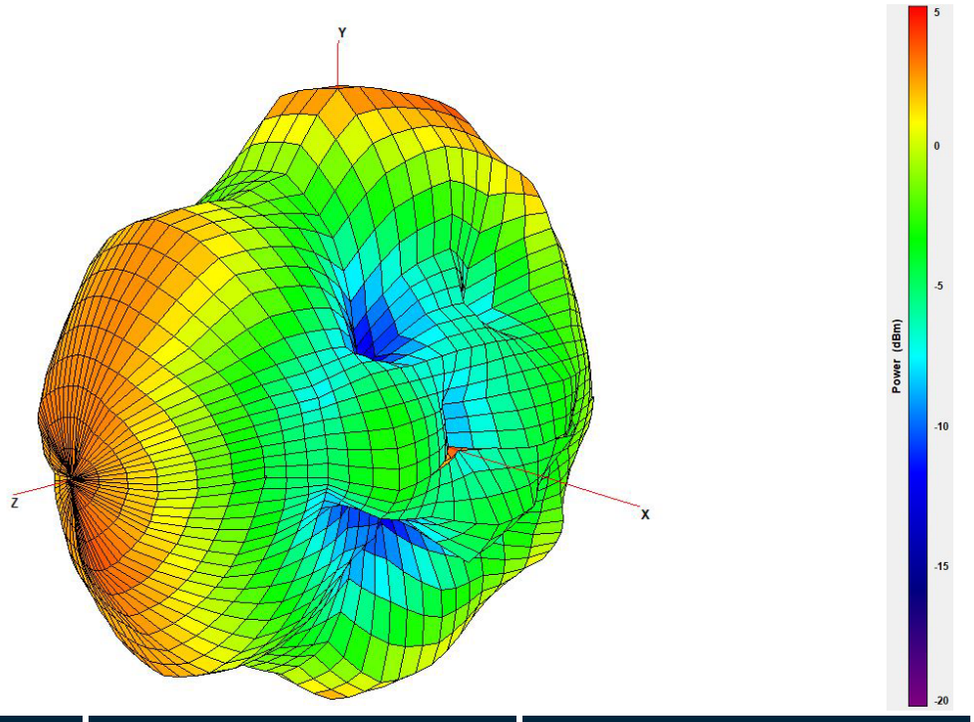
XY Plane	XZ Plane	YZ Plane



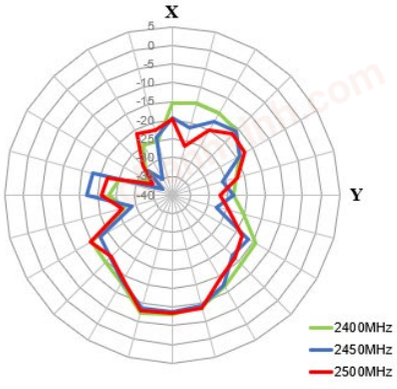


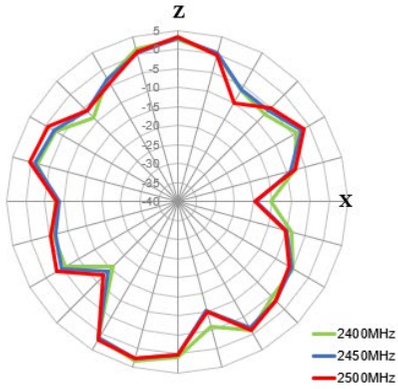


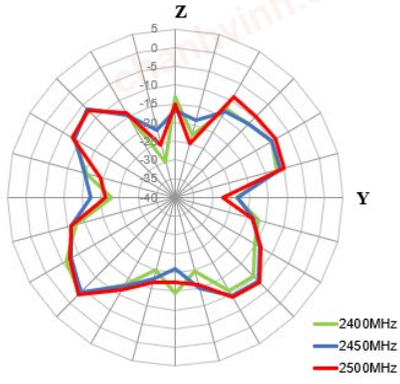
4.3 2400MHz 3D and 2D Radiation Patterns – 30x30cm Ground plane



XY Plane	XZ Plane	YZ Plane







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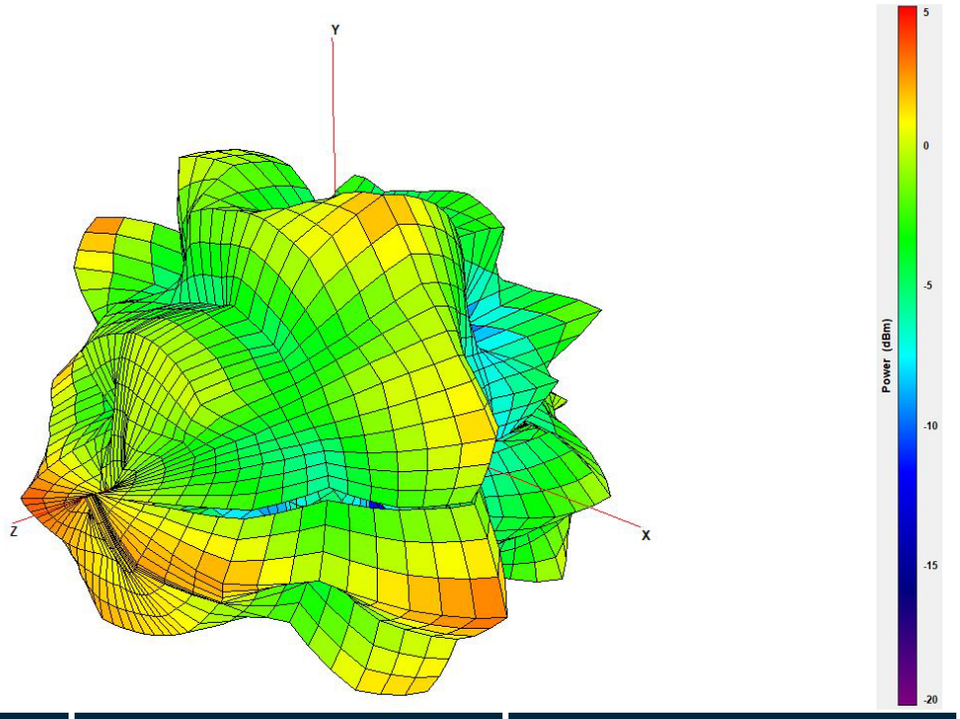
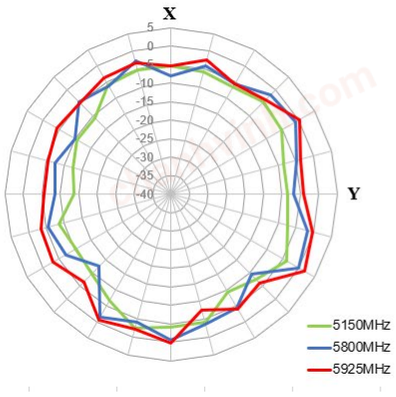
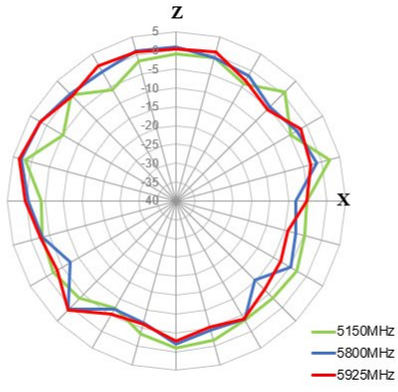
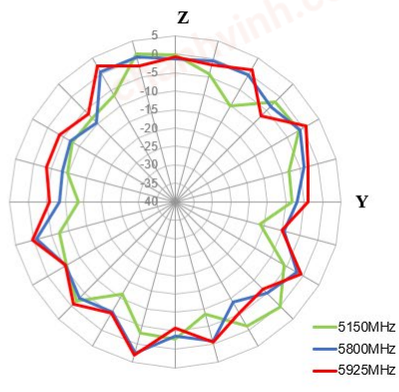
4.4 5800MHz 3D and 2D Radiation Patterns – Free space



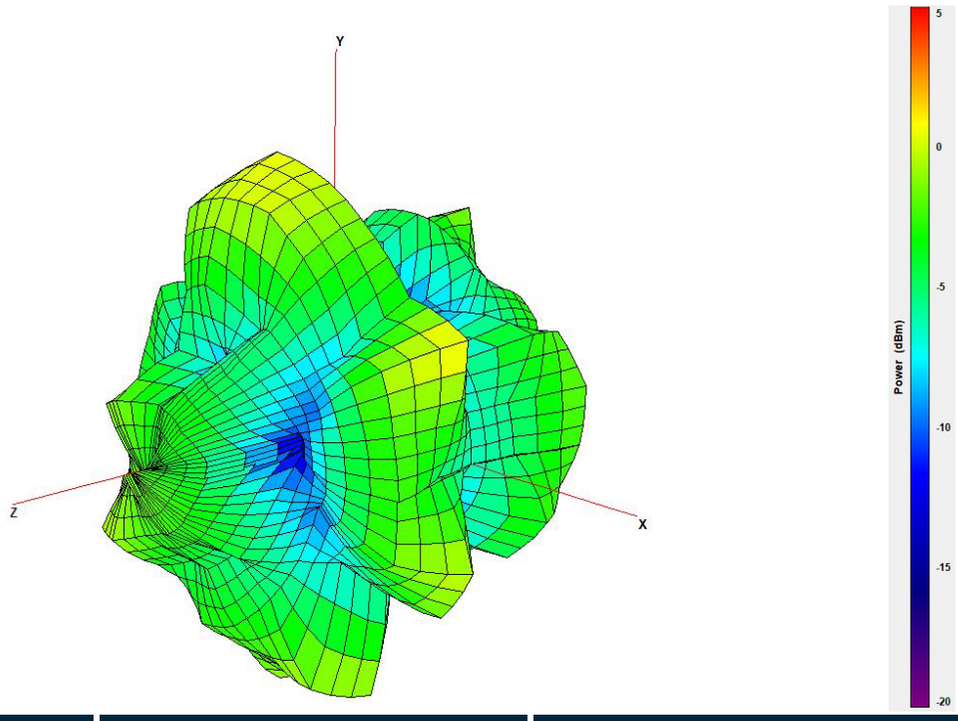
XY Plane	XZ Plane	YZ Plane



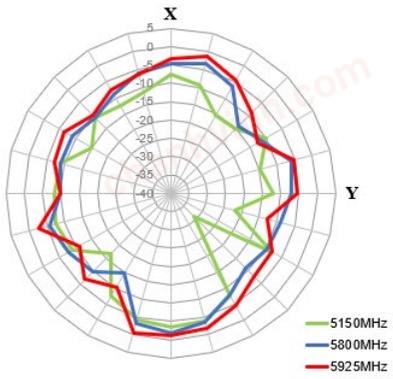


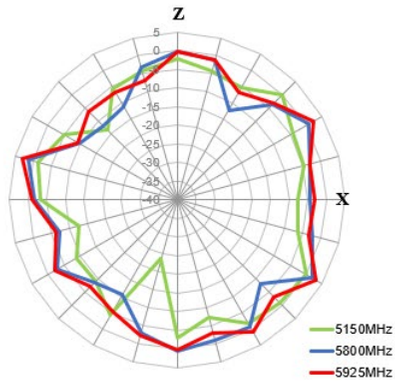


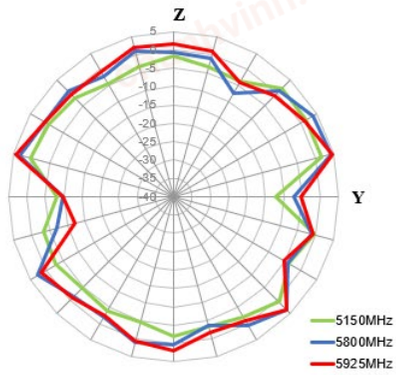
4.5 5800MHz 3D and 2D Radiation Patterns – 30x30cm Ground plane



XY Plane	XZ Plane	YZ Plane







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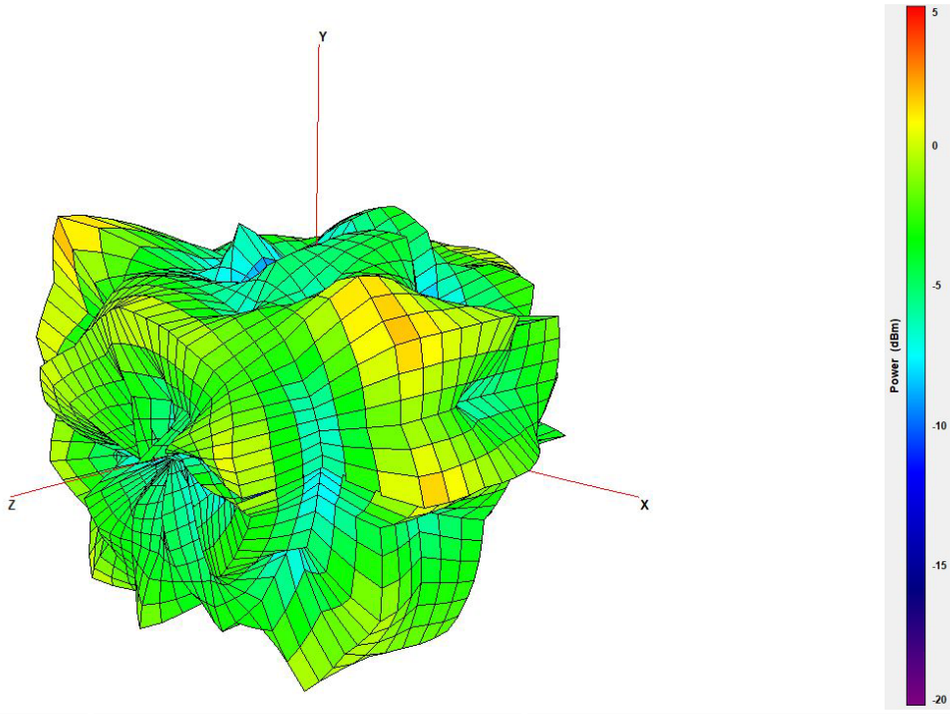
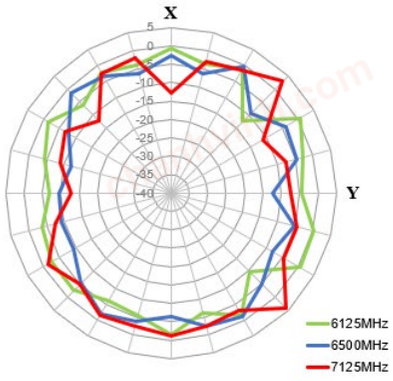
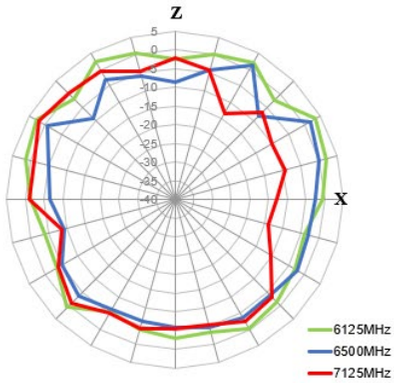
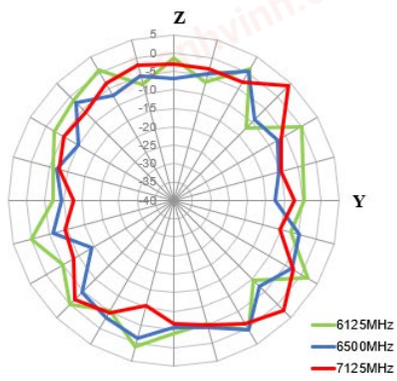
4.6 6500MHz 3D and 2D Radiation Patterns – Free space



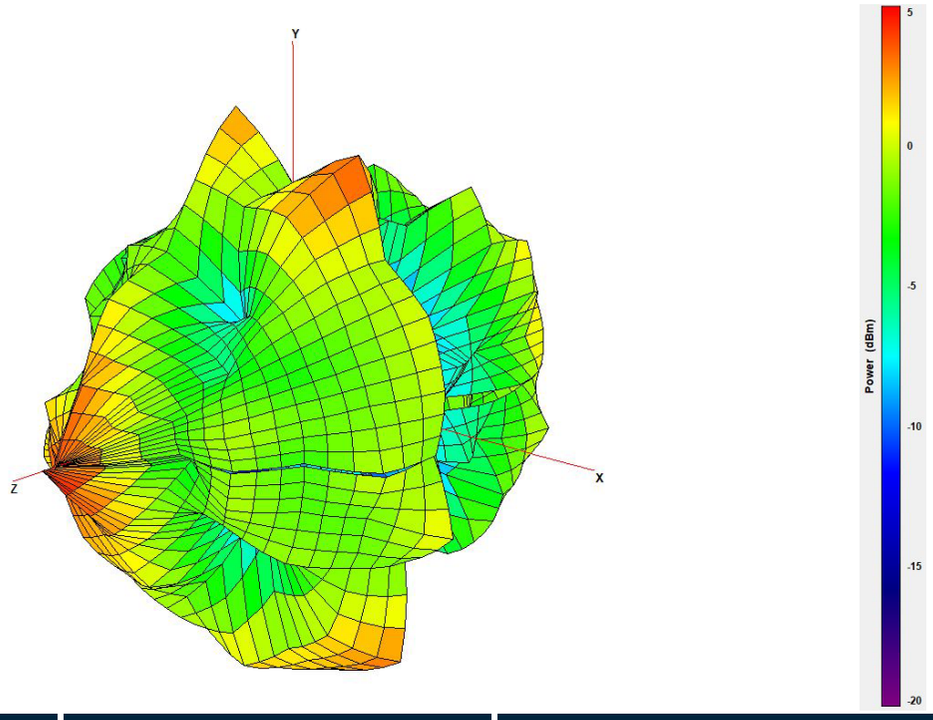
XY Plane	XZ Plane	YZ Plane



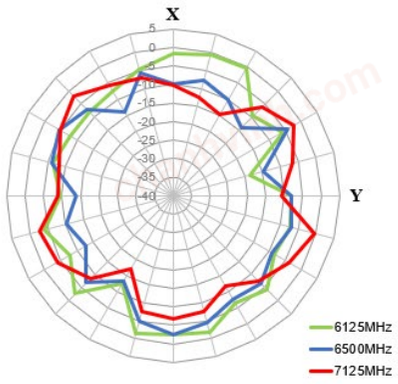


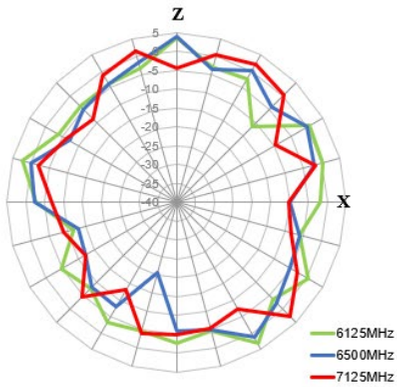


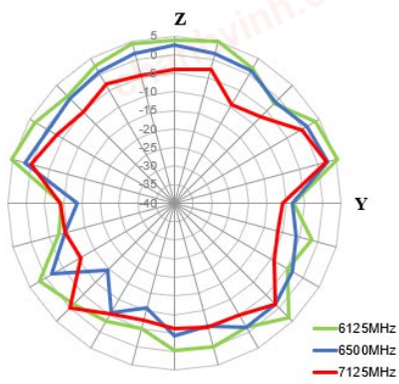
4.7 6500MHz 3D and 2D Radiation Patterns – 30x30cm Ground plane



XY Plane	XZ Plane	YZ Plane







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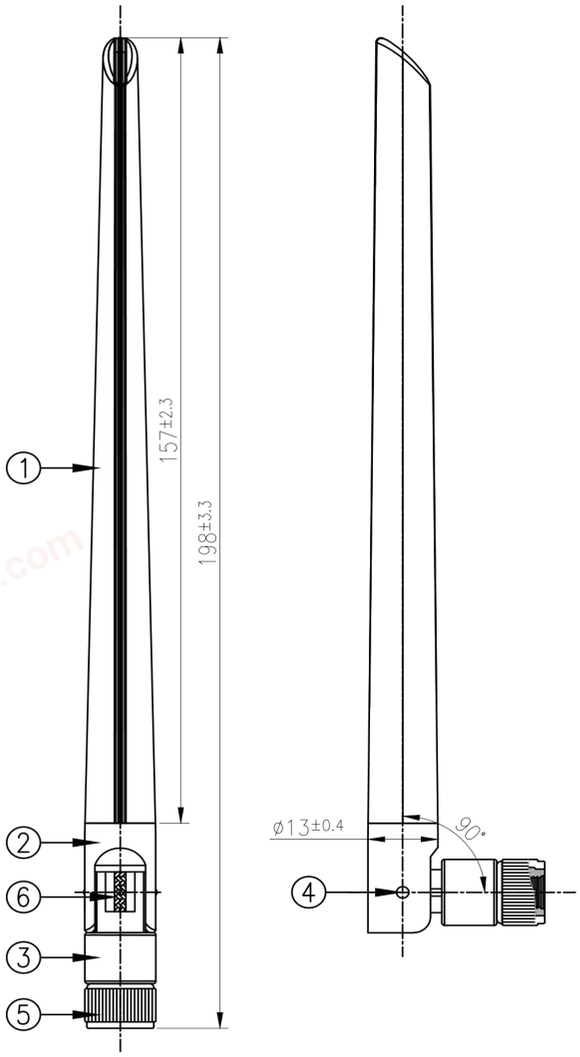
5. Mechanical Drawing (Units: mm)

ISO NO.: EDW-22-8-0841
STATE: Release
NOTES:

REV.	DESCRIPTION	ENG.	APPROVED	DATE
D01	Initial Design	Ruby	Aaron	2022/07/26



	Name	Material	Finish	QTY
1	Antenna Cap	TPEE	White	1
2	Upper Base	PBT+PC	White	1
3	Bottem Base	PBT+PC	White	1
4	Rivet	PBT+PC	White	2
5	RP-SMA(M)	POM	White	1
6	RG178 Coaxial Cable	FEP	Brown	1

APPROVED BY:	Aaron
CHECK BY:	Aaron
DRAWN BY:	Ruby
DATE:	2022/07/26
UNLESS OTHERWISE SPECFIED TOLERANCES ON:	XX.±0.5 X.±0.3 .X±0.2 .XX±0.1 .XXX±0.05
THIRD ANGLE PROJECTION	

TAOGLAS. TW Design Centre

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TITLE : 5dBi 2.4/5.8GHz Dipole Antenna RP-SMA(M) Hinged White Housing

PART NO. : GW.51.5153W

UNIT:	SCALE:	PAGES:	REV.
mm	1:1.25	1/1	D01

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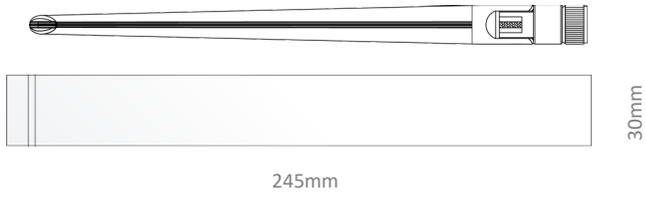
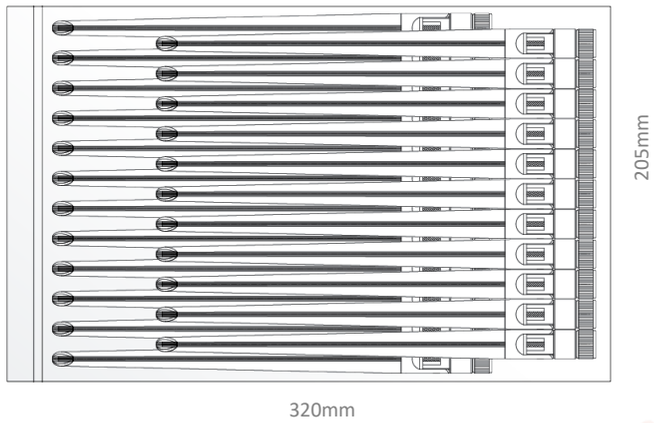
6. Packaging

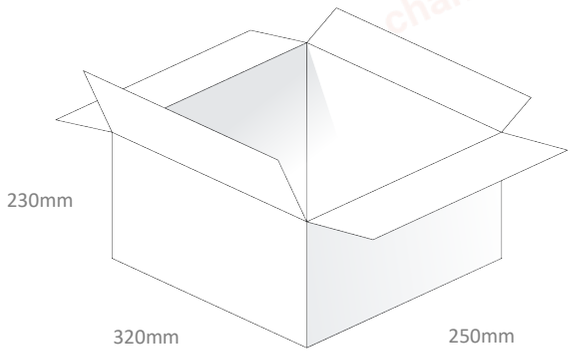
1pc GW.51.5153W per PE Bag
Bag Dimension: 245*30mm
Weight: 22.5g



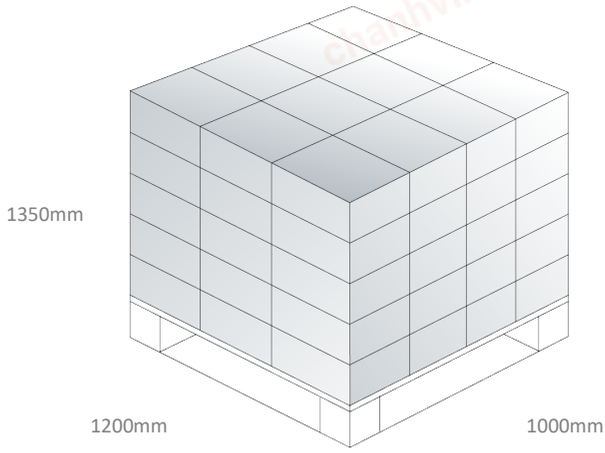
40pcs GW.51.5153W per Large PE Bag
Bag Dimensions: 320*205mm
Weight: 0.9Kg



400pcs GW.51.5153W per Carton
Dimensions: 320*250*230mm
Weight: 10Kg



Pallet Dimensions:
1200*1000*1350mm
60 Cartons Per Pallet
12 Cartons Per Layer, 5 Layers



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Changelog for the datasheet

SPE-19-8-087 – GW.51.5153W

Revision: B (Current Version)	
Date:	2022-07-29
Notes:	Updated data to include Wi-Fi 6.
Author:	Gary West

Previous Revisions

Revision: A (Original First Release)	
Date:	2022-07-25
Notes:	
Author:	Jack Conroy

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