

# APPROVAL SHEET

**Dipole ANTENNA**  
**2.4~2.5 GHz Band Working Frequency**  
**Halogens Free Product**  
**P/N: RFPCA330707IMAB301**

Customer : 智易科技股份有限公司

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Customer 's Part No. : 120800084800J

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Test Personnel : Kerry Wu

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Test Date : 2023/04/20

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Production : 佳邦科技股份有限公司竹南分公司  
INPAQ TECHNOLOGY CO., LTD. CHUNAN BRANCH

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350402 苗栗縣竹南鎮公義里 11 鄰科

Address : 義街 11 號  
No. 11, Keyi St., Zhunan Township, Miaoli County 350402 ,  
Taiwan (R.O.C.)

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\*Contents in this sheet are subject to change without prior notice.

Version	Date	Description	Author
V01	2021 JUL.	New Release	HWCHAN
V02	2023 APR.	更新測報	HWCHAN
V03	2023 JUN.	取消端子保護套	HWCHAN

**ELECTRICAL CHARACTERISTICS**

Item	Specification
Frequency Range	2.4 ~2.5 GHz
Impedance	50 Ohm Nominal
VSWR	2.0 (Max)
Gain	1.94 dBi
Radiation	Omni-directional
Polarization	Linear Vertical
Admitted Power	1W
Operation Temperature	-20°C ~ +65°C

\*note-1: Electrical characteristics will depend on customer's final application.

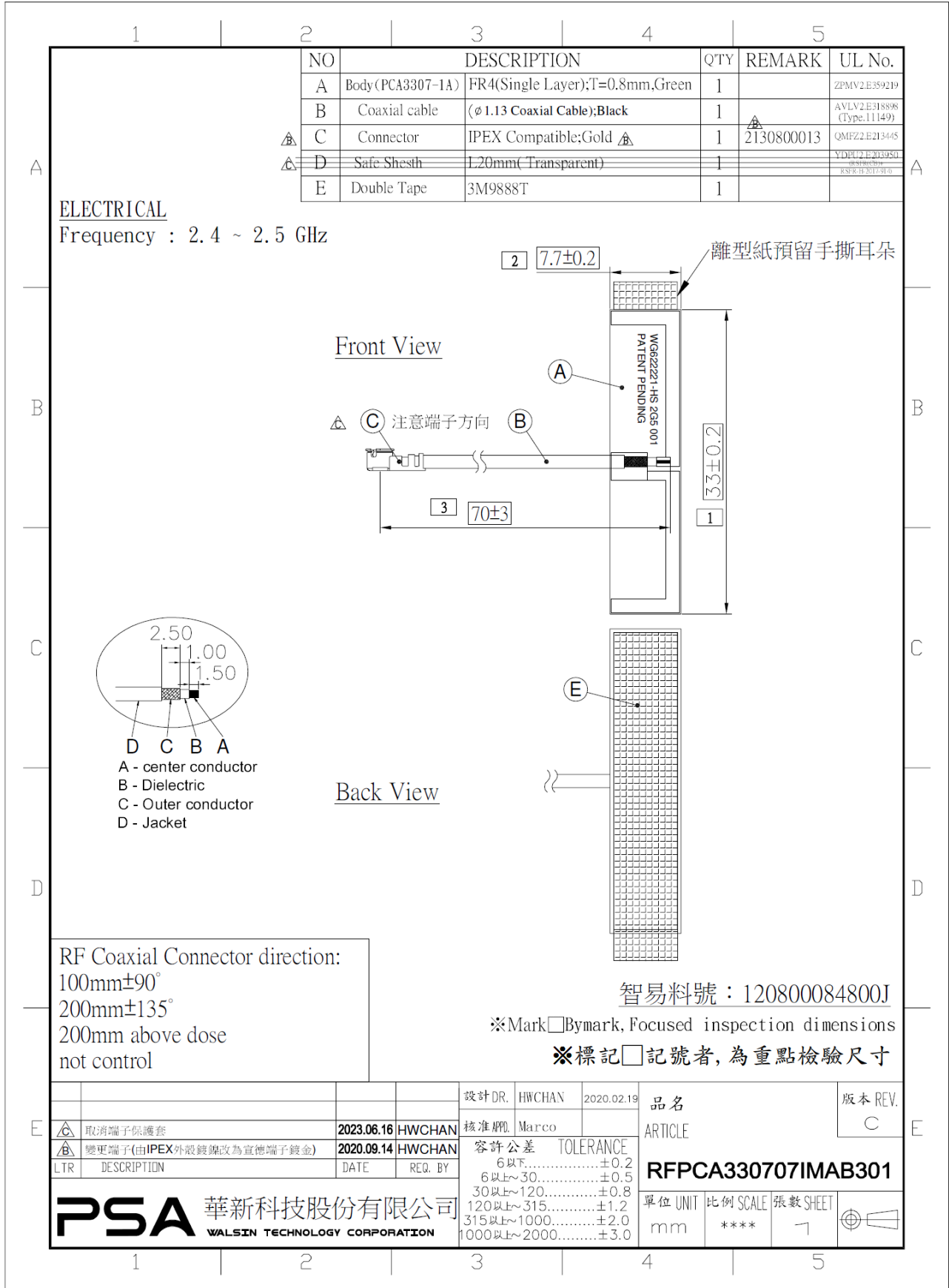
**MATERIAL TABLE**

Items	Description
Dipole Antenna	FR4(Single Layer);綠漆;T=0.8mm
Coaxial cable	φ 1.13 Coaxial Cable ; Black
Connector	IPEX Compatible(Gold)
Double Tape	3M9888T

**ORDERING RULE**

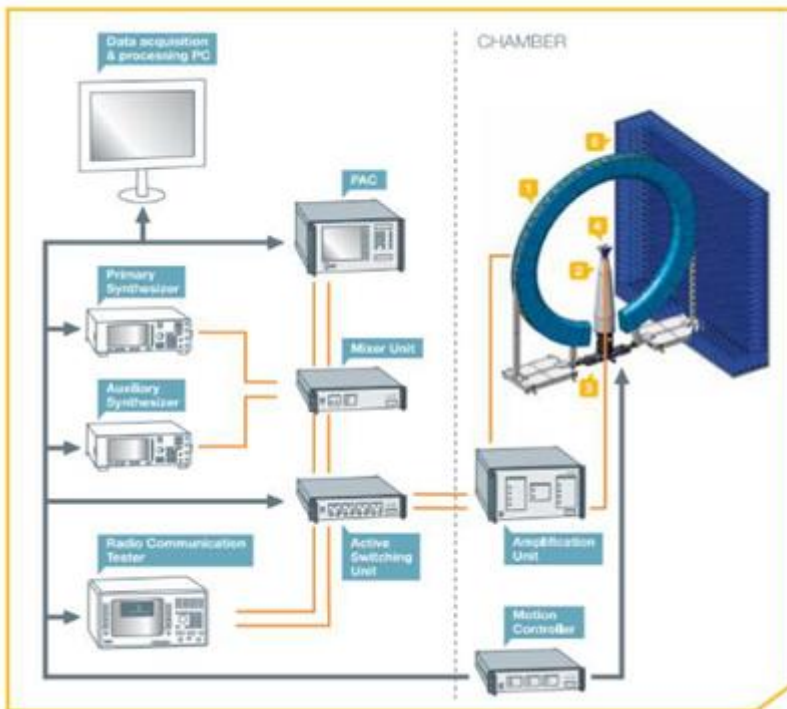
RF	PCA	3307	07	I	M	A	B	3	01
Type Code	Product Code	Dipole Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	Dipole Antenna	Per 2 digits of length, width e.g.3307 Length 33.0mm, Width7.7mm	2 digits for cable length e.g.: 07 Cable Length: 7.0cm	A: N C:MCX D:IPEX III E: IPEX IV F: IPEX A13 H: Hirose I: IPEX M: MMCX S: SMA T: TNC U:MURATA N: None	A: Reverse Female B: Reverse Male F: Female M: Male N: None	0: 0GHz 3: 3GHz 5: 5GHz 6: 6GHz A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band N: NFC T: LTE band W: WCDMA band	B: MP T:Durin g Test X: Pile Run	0:None 1:∅0.81 3:∅1.13 4:∅1.13 Low Loss 6:RG316 7:∅1.37 8:RG178 Low Loss	01~99 series number

# DIMENSIONS



## Test Equipment and Calibration

ENA Series Network Analyzer	AGILENT	E5071C	MY46419201	100kHz~8.5GHz	Feb. 21, 2023	Feb. 20, 2024
VNA Calibration Kit	TS RF	TS85033E-F	-	DC~9GHz	N.C.R.	N.C.R.



SG 64 uses analog RF signal generators to emit EM waves from the probe array to the antenna under test (AUT) or vice versa.

It uses the NPAC as an RF receiver for antenna measurements. The NPAC also drives the electronic scanning of the probe array.

The NPAC includes the fastest and most accurate sources and receivers on the market.

Device	Type/Model	Serial#	Manufacturer	Calibrated Date	Calibrated Unit
SG64 Chamber	Standard	SG64	MVG	2023/03/30	2024/03/30
Turn Table	Customization	-	Machinery Dept.	2023/03/30	2024/03/30
New Probe Array Controller	N/A	1102341-4535	MVG	2023/03/30	2024/03/30
Power Supply Unit	N/A	1103211-13204	MVG	2023/03/30	2024/03/30
Active Switching Unit	N/A	1102347-7214	MVG	2023/03/30	2024/03/30
TX Amplification Unit	N/A	1102527-5909	MVG	2023/03/30	2024/03/30
RX Amplification Unit	N/A	1102536-3823	MVG	2023/03/30	2024/03/30
Transfer Switching Unit	N/A	1102183-3351	MVG	2023/03/30	2024/03/30
Mixer Unit	N/A	1102545-7208	MVG	2023/03/30	2024/03/30
Power And Control Unit	N/A	1102706-7209	MVG	2023/03/30	2024/03/30
Antenna Probe	DP 400-6000	-	MVG	2023/03/30	2024/03/30
Cable 13.7m-400MHz to 18GHz	SS402	00100A1F5A1XXS	Woken	2023/03/30	2024/03/30

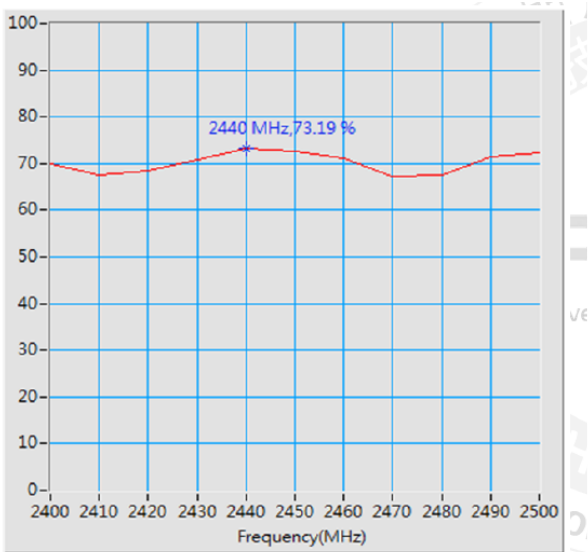
## ELECTRICAL CHARACTERISTICS

- Place the device at the center of the chamber.
- Connect the antenna cable to RF cable of the chamber
- Run IETS-Lindgren SW test measurement
- Get 3D data in 2.8125 degree step from phi  $0^{\circ}\sim 360^{\circ}$  and theta  $-90^{\circ}\sim +90^{\circ}$ , including efficiency, peak gain, 2D & 3D radiation pattern.

## S-Parameter



## ■ Antenna Efficiency & Peak Gain



Maximum Efficiency at 2440MHz : 73.19%

Frequency (GHz)	Efficiency (%)	Peak gain (dBi)
2.4	69.97	1.75
2.45	72.59	1.94
2.5	72.20	1.37

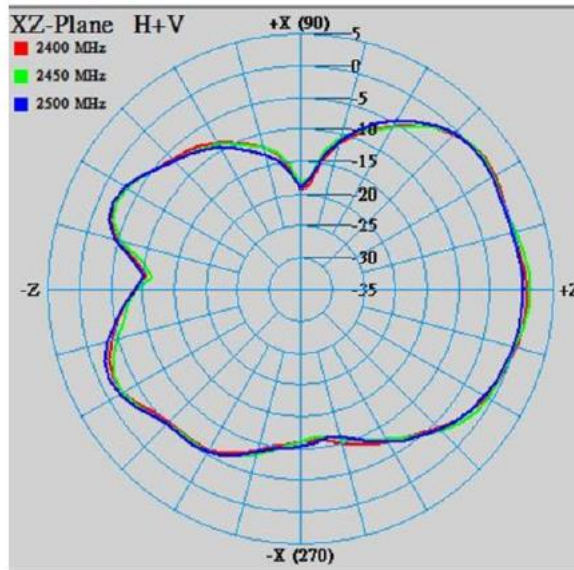
## RADIATION PATTERN

2400~2500 MHz

X-Z Plane

Phi=0.00deg

Gain . dB

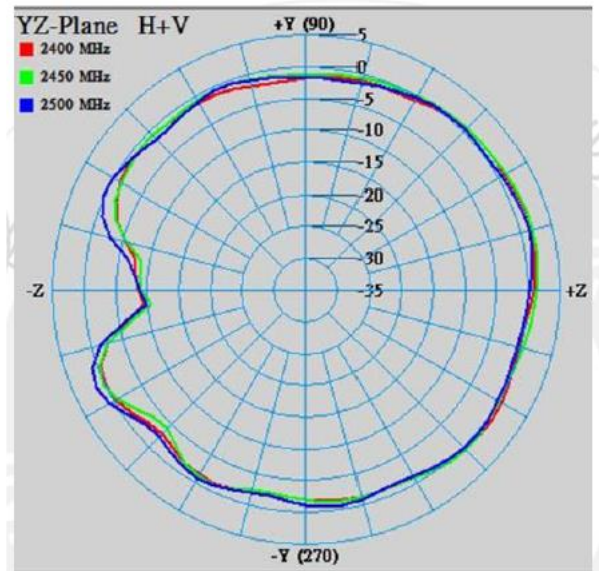




### Y-Z Plane

Phi=90.00deg

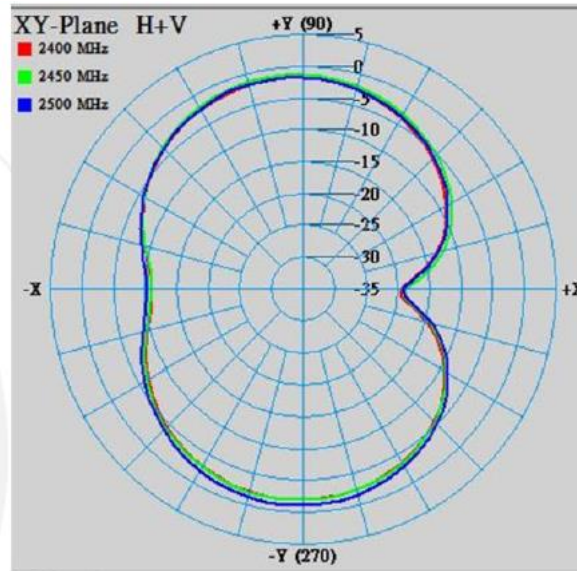
Gain . dB



X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2400	0.81	-3.77	1.75	-0.94	-1.72	-4.79
2450	1.34	-3.73	1.92	-0.77	-1.28	-4.49
2500	0.19	-3.86	1.36	-0.81	-1.09	-4.33