

Data Sheet

CUSTOMER: Advantech

MODEL NAME: WB-AV001 Dipole Ant HF(163mm)

AWAN P/N: AEEEE-000008



B2-F, No. 207-1, Sec. 3, Bei-Hsin Rd.,

Xindian Dist., New Taipei City,

Taiwan (R.O.C.)

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1. Description

1.1 Specifications

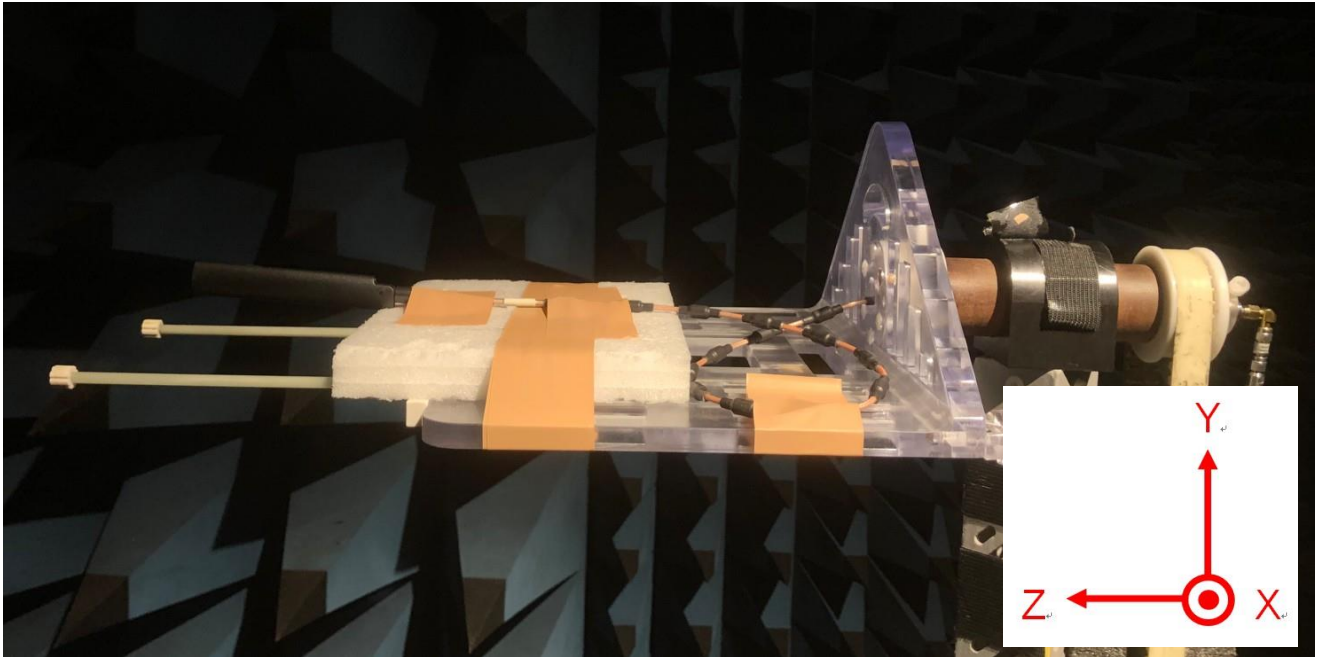
Antennas Type	Dipole Antenna for LoRa application	
Connector Type	RP-SMA	
Impedance	50Ω	
Polarization	Linear	
Radiation pattern	Omni-directional	
Frequency	863~928 MHz	
VSWR	≤3	
Peak gain(dBi)	863~928 MHz	Upright : 2.9 dBi Bend : 2.23 dBi
Cable Loss	863~928 MHz	N/A
Antenna Dimension	L163 x φ 15(mm)	

1.2 Antenna Picture

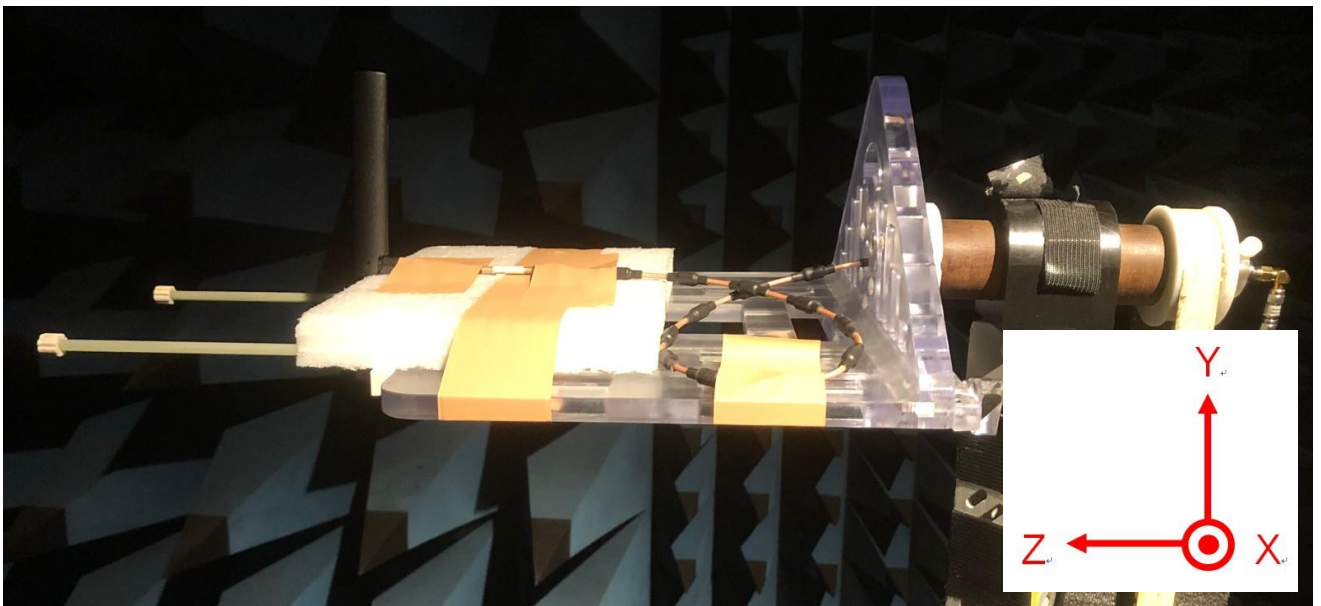


Dipole Antenna

1.3 Antenna Setup Picture



Dipole Antenna(upright)



Dipole Antenna(bend)

2. Electrical Specification

2.1 Test Equipment

- A. VSWR and input impedance: Agilent 8720/8753 Network Analyzer
- B. Antenna gain and efficiency: ETS three-dimensional anechoic chamber

2.2 Test Setup

2.2.1 Frequency Range

- A. 600~960 MHz
- B. 1400~6000 MHz

2.2.2 VSWR

Step 1: The antenna is arranged on the customer provided test fixture(see figure. 1).

Step 2: The VSWR of the antenna is measured via Agilent 8720/8753 Network Analyzer (see figure. 1).



Figure.1

2.2.3 Radiation pattern and Gain

- A. The 3D chamber provides less than -40dB reflectivity from 500MHz to 7.125GHz and a 40cm diameter spherical quiet zone. The measurement results are calibrated using both dipoles and standard gain horns (see figure. 2).
- B. The antenna under tested is arranged in the turned table and a decoupling sleeve is used to reduce feed line radiation (see figure. 3).
- C. The measured results of the radiation patterns and antenna gain are obtained from the control system and showed on the monitor (see figure. 4 and 5).

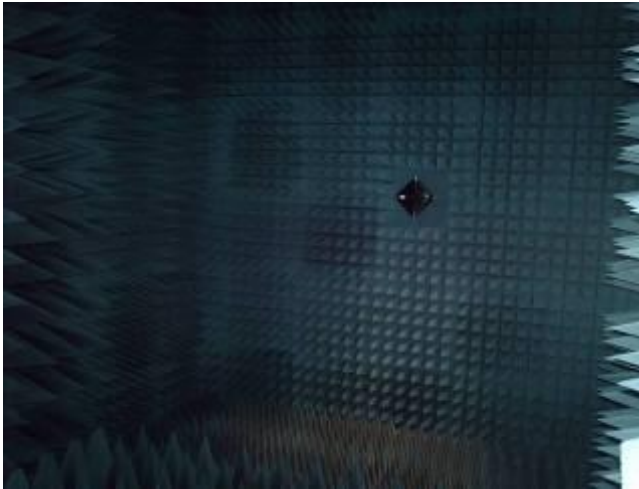


Figure. 2

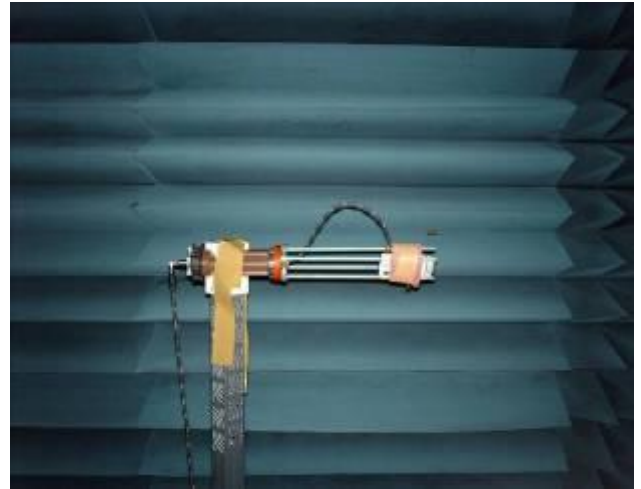


Figure. 3



Figure. 4



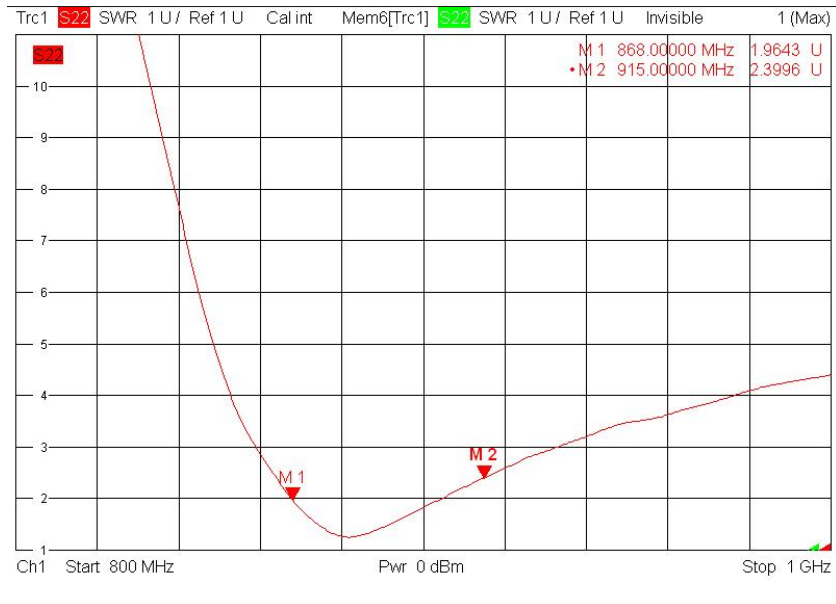
Figure. 5

3. Performance Data

3.1 VSWR



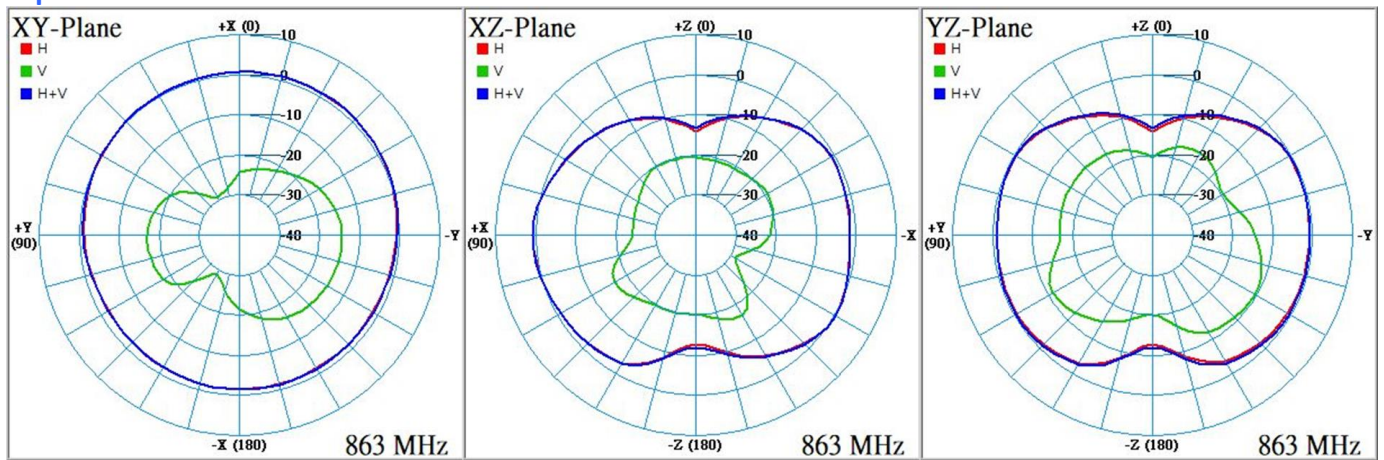
Dipole Antenna(Upright)



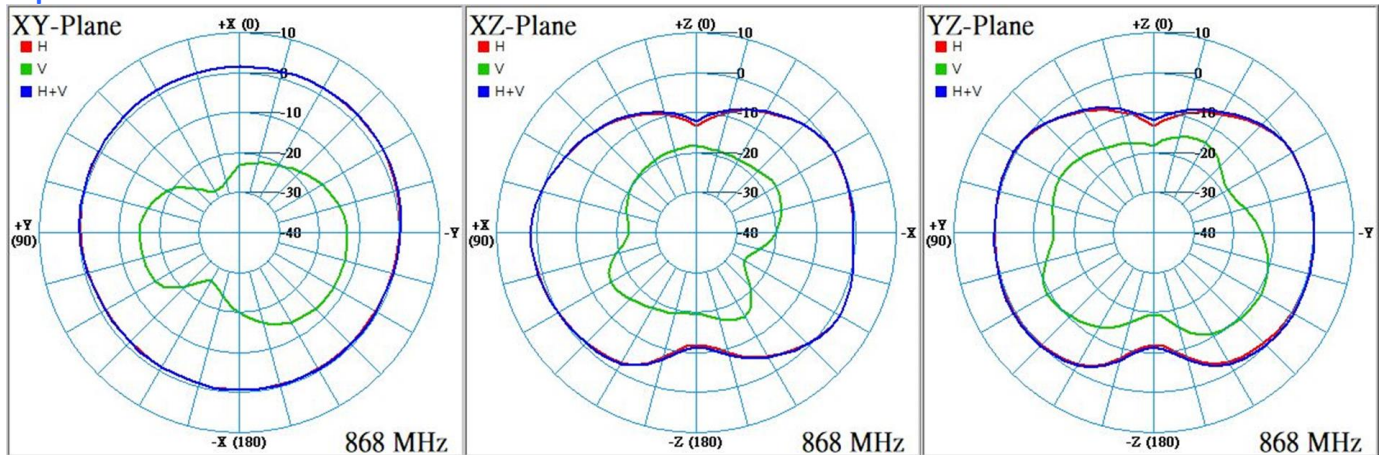
Dipole Antenna(Bend)

3.2 Radiation pattern & Gain(Dipole Antenna Upright)

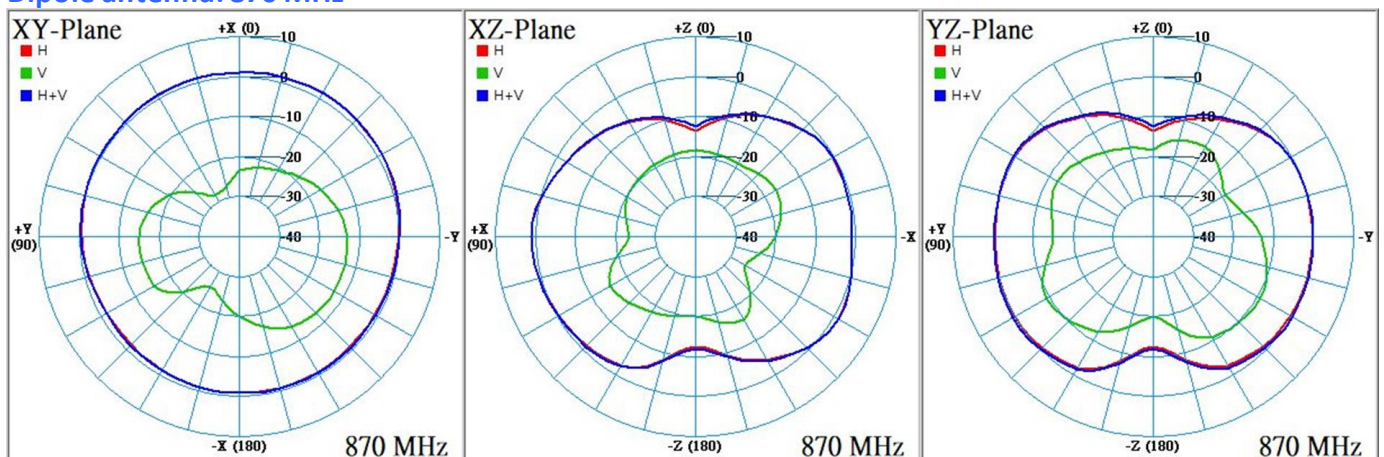
Dipole antenna: 863 MHz



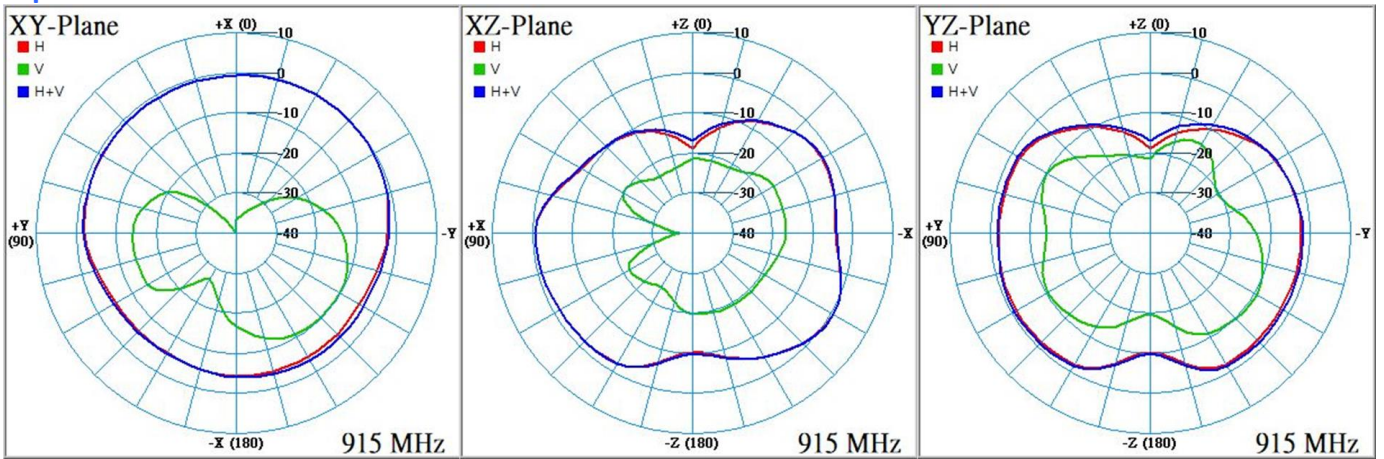
Dipole antenna: 868 MHz



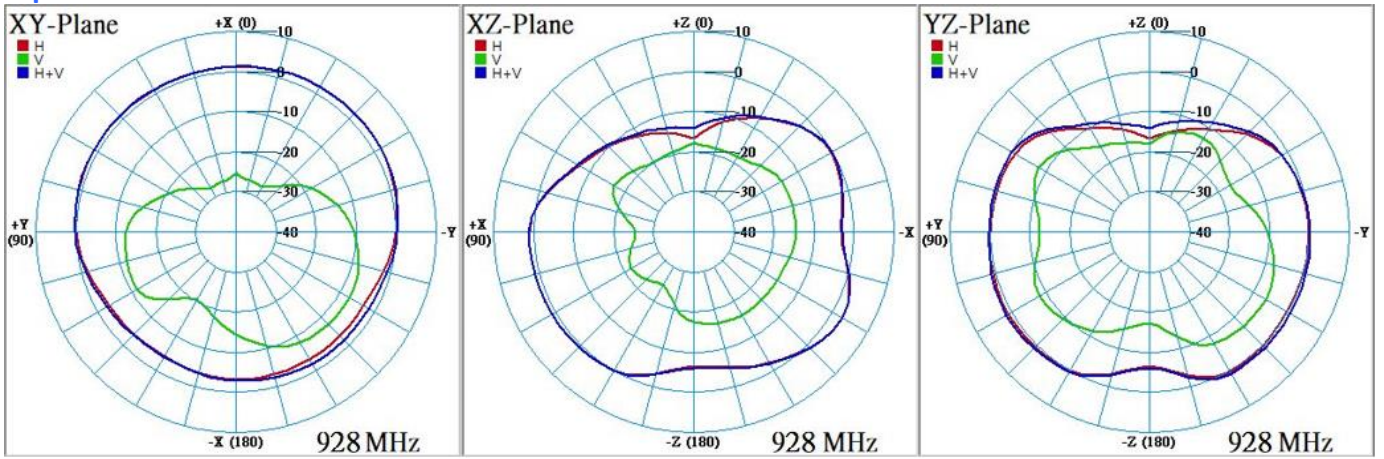
Dipole antenna: 870 MHz



Dipole antenna: 915 MHz

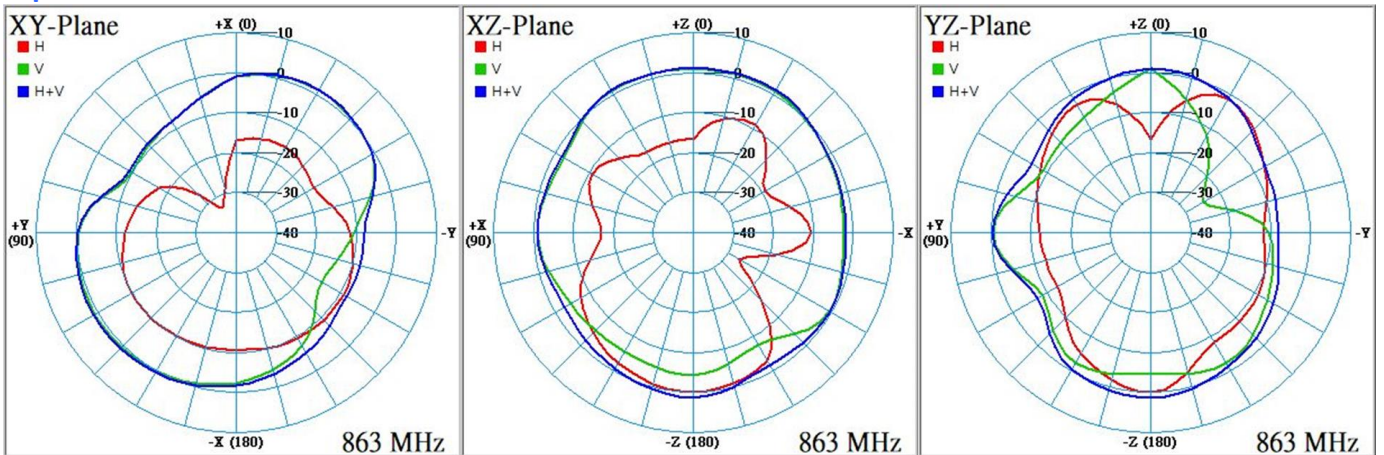


Dipole antenna: 928 MHz

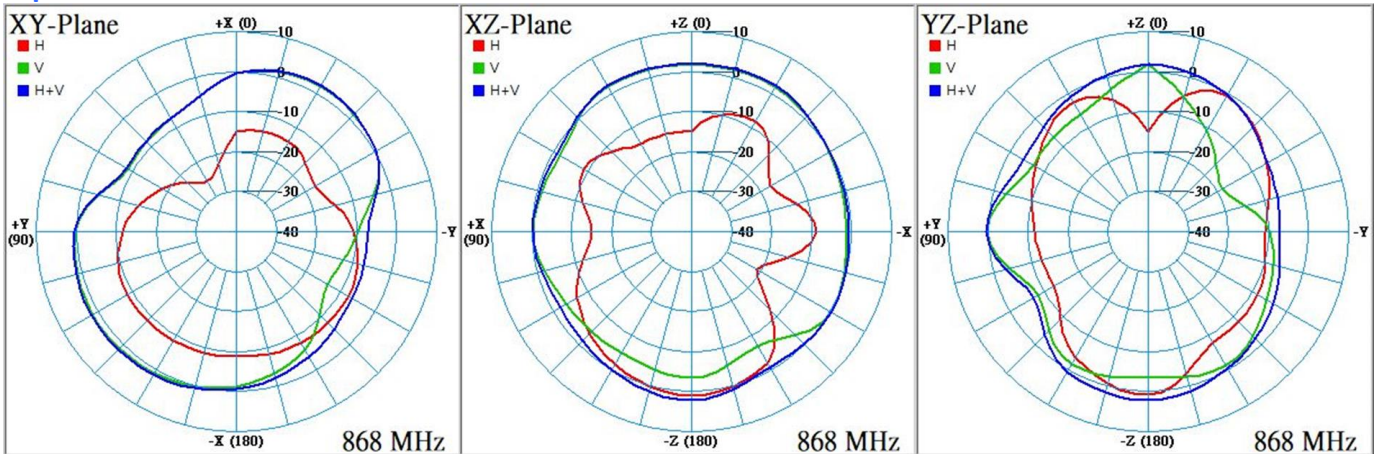


Radiation pattern & Gain(Dipole Antenna Bend)

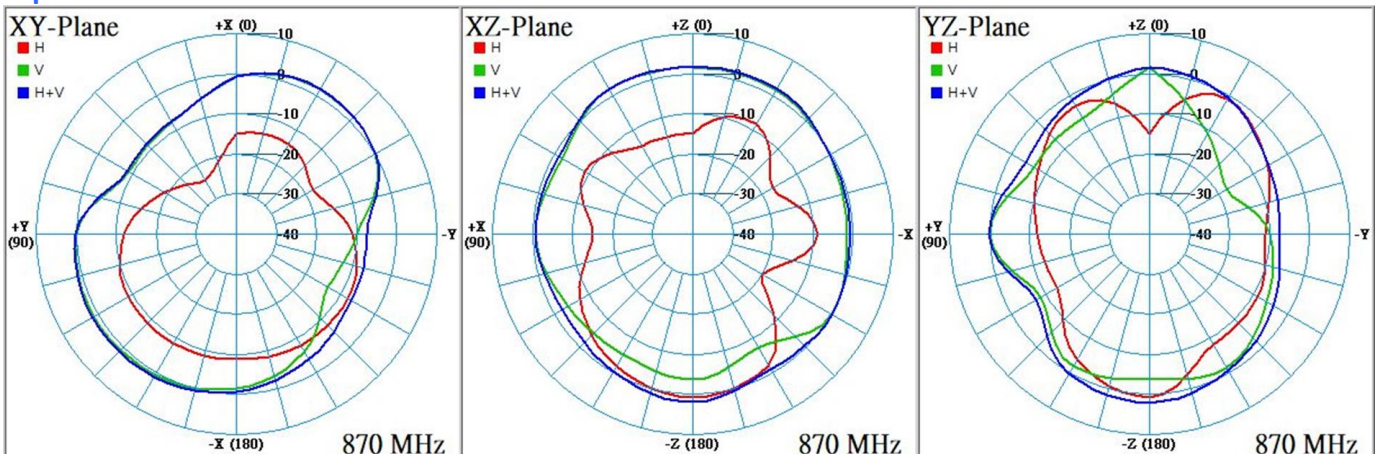
Dipole antenna: 863 MHz



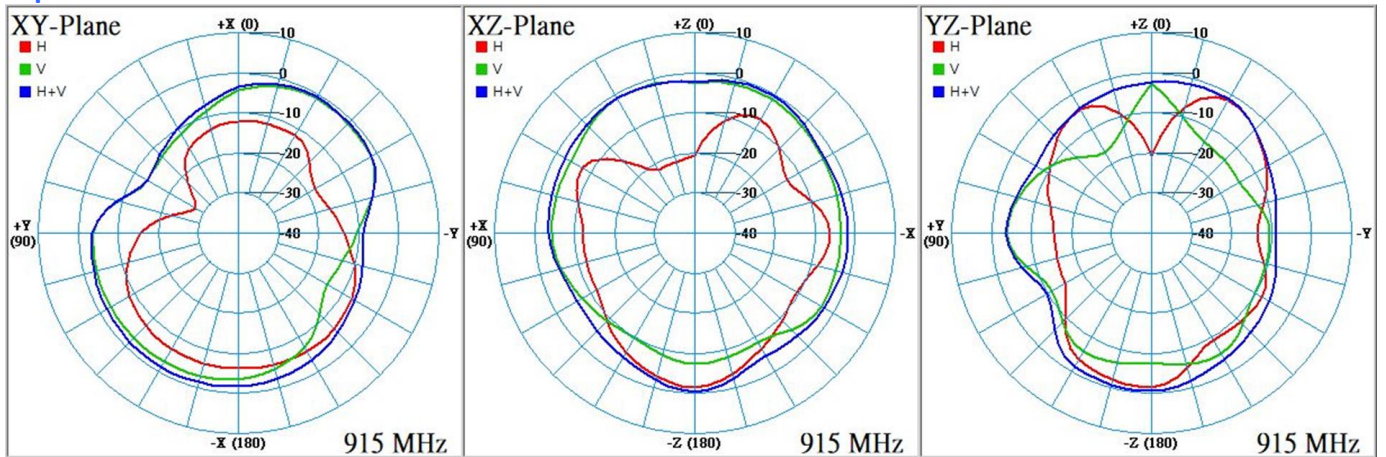
Dipole antenna: 868MHz



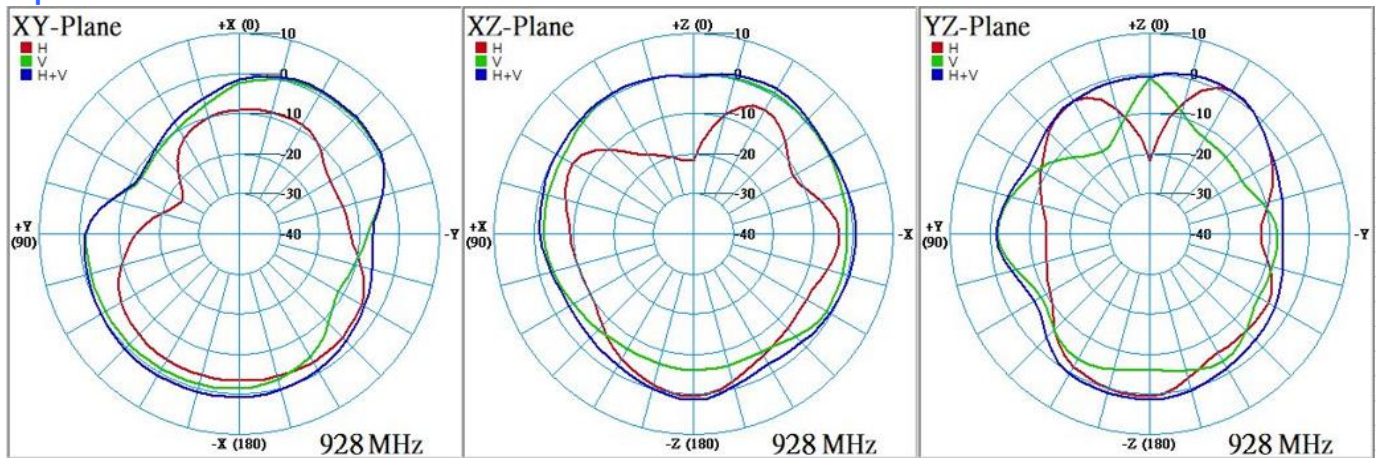
Dipole antenna: 870 MHz



Dipole antenna: 915 MHz



Dipole antenna: 928 MHz



3.3 Gain

Antenna Gain Table:

Dipole Antenna Gain(Upright)						
Frequency	XY Plan		XZ Plan		YZ Plan	
	Max Value (dBi)	Average (dBi)	Max Value (dBi)	Average (dBi)	Max Value (dBi)	Average (dBi)
863(MHz)	1	-0.51	-0.41	-2.39	0.65	-2.67
868(MHz)	1.81	0.33	0.68	-1.48	1.45	-1.81
870(MHz)	1.43	0.01	0.5	-1.76	1.22	-2.11
915(MHz)	-0.17	-1.06	-0.88	-2.31	0.67	-2.65
928(MHz)	1.8	-0.13	1.42	-1.19	2.9	-1.56
Dipole Antenna Gain(Bend)						
Frequency	XY Plan		XZ Plan		YZ Plan	
	Max Value (dBi)	Average (dBi)	Max Value (dBi)	Average (dBi)	Max Value (dBi)	Average (dBi)
863(MHz)	1.2	-1.85	1.25	-1.86	1.24	-0.39
868(MHz)	2.08	-0.95	2.22	-1.02	2.23	0.5
870(MHz)	1.82	-1.21	2	-1.28	1.99	0.26
915(MHz)	-0.86	-2.51	-0.56	-2.74	-0.44	-1.44
928(MHz)	1.29	-1.29	1.33	-1.65	1.69	-0.4

4. Mechanical Specification

4.1 Dimension Drawing (Dipole Antenna)

1	2	3	4	5	6	7	8
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AWAN P/N	AEEEE-000008
料號 P/N	

Rev.	EC#	Description	Drawn/Date	Checked/Date	Approved/Date
XI		NEW RELEASE	Forest 08/17/23	Sam 08/17/23	Sam 08/17/23

SPECIFICATION
1. Frequency Range : 868~915MHz

4	143.8mm*15.0mm ABS Block	1		Antenna Cover
3	L18.0mm*9.35mm PC Block	1		Antenna Base
2	SMA PLUG STRAIGHT standard	1		CONN
1	PC-178 Cable 50Ω Block	1		Cable
Item	Name	Q'ty	Part #	Material / Finish

Material / Finish	Spec	Rev	Date	
	XXX	001	08/17/23	Forest
	XXX	002	08/17/23	Sam
	XXX	003	08/17/23	Forest
	XXX	004	08/17/23	Sam
	XXX	005	08/17/23	Sam
	XXX	006	08/17/23	Sam
	XXX	007	08/17/23	Sam
	XXX	008	08/17/23	Sam
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	XXX	100	08/17/23	Sam

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Revision

Revision	Date	Change Notification	Notes
Rev.0	2023-09-21	---	