

【TN0040A】 Bluetooth/Wi-Fi Antenna

1. Specification

Antenna Type : Sheet Metal Antenna

Part No. Bluetooth : ANT2507-A3.0-W/U-115-A
Wi-Fi : ANT2313-A3.0-W/U-230-W

See fig1,2 on another Document. (【TN0040A】 Antenna_Photo)

Antenna Gain(Peak) : Bluetooth -0.99dBi
Wi-Fi 2.4GHz 0.63dBi
Wi-Fi 5GHz 3.79dBi (W52)
3.34dBi (W58)

Frequency Band : Bluetooth 2400 - 2483.5 MHz
Wi-Fi 2.4GHz 2400 - 2483.5 MHz
Wi-Fi 5GHz 5170 - 5250 MHz (W52)
5735 - 5835 MHz (W58)

2. Measurement content

Measurement condition

- Measurement ANT : ETS-LINDGREN 3115 (1-18GHz)
- Reference ANT : ETS-LINDGREN 3160-03 (1.7-2.6GHz) / 3160-05 (3.95-5.85GHz)
- Measuring instrument : P9372A (Keysight network analyzer)

- Measured distance : 3m (1.5m high)
- Range of measurement : 360 degree / 5 degree step
- Measurement layout : The measurement environment is measured with the following layout.

See fig3 on another Document. (【TN0040A】 Antenna_Photo)

Measurement direction

XY plane

ZX plane

See fig4 on another Document. (【TN0040A】 Antenna_Photo)

- Test dates : 2022/7/12
- Names of test personnel : Shinpei Matagawa (NISSEI ELECTRIC CO.,LTD.)
- Names of commercial test software being used : Antenna gain measurement system(NISSEI ELECTRONICS CO.,LTD.)

3. Antenna gain

3-1. Antenna-Bluetooth (2.4GHz-Band)

frequency [MHz]	Plane	plane of polarization	360° Peak [dBi]	360° Average [dBi]	Composite true value	Composite [dBi]	DIP [dBi]	DIP-AVE [dB]
2402	XY	HOR.	-6.12	-8.86	0.48	-3.22	-7.31	4.01
		VER.	-1.04	-4.60				
	ZX	HOR.	-2.33	-6.63	0.48	-3.14	-11.64	8.35
		VER.	-1.85	-5.73				
2441	XY	HOR.	-5.09	-9.66	0.50	-3.03	-7.62	4.33
		VER.	-1.48	-4.09				
	ZX	HOR.	-0.99	-6.01	0.49	-3.06	-10.60	7.31
		VER.	-2.37	-6.12				
2480	XY	HOR.	-6.02	-10.52	0.44	-3.52	-7.50	4.21
		VER.	-2.25	-4.48				
	ZX	HOR.	-2.04	-6.56	0.41	-3.84	-10.67	7.38
		VER.	-3.62	-7.16				

-3.29 dBi Ave
-0.99 dBi Max Peak

3-2. Antenna-WiFi (2.4GHz-Band)

frequency [MHz]	Plane	plane of polarization	360° Peak [dBi]	360° Average [dBi]	Composite true value	Composite [dBi]	DIP [dBi]	DIP-AVE [dB]
2402	XY	HOR.	-6.02	-10.38	0.23	-6.39	-13.31	8.72
		VER.	-1.48	-8.60				
	ZX	HOR.	-2.40	-6.20	0.29	-5.45	-14.88	10.29
		VER.	-8.81	-13.45				
2441	XY	HOR.	-6.99	-9.86	0.29	-5.40	-12.83	8.24
		VER.	-0.58	-7.33				
	ZX	HOR.	0.18	-4.46	0.43	-3.70	-21.83	17.24
		VER.	-7.85	-11.64				
2480	XY	HOR.	-5.88	-8.78	0.34	-4.69	-14.43	9.84
		VER.	-1.01	-6.83				
	ZX	HOR.	0.63	-3.68	0.52	-2.86	-22.06	17.48
		VER.	-6.51	-10.54				

-4.59 dBi Ave
0.63 dBi Max Peak

3-3. Antenna-WiFi (5GHz-W52)

frequency [MHz]	Plane	plane of polarization	360° Peak [dBi]	360° Average [dBi]	Composite true value	Composite [dBi]	DIP [dBi]	DIP-AVE [dB]
5170	XY	HOR.	3.05	-3.39	0.55	-2.58	-19.79	17.25
		VER.	-3.41	-10.24				
	ZX	HOR.	-6.65	-11.63	0.56	-2.51	-16.28	13.74
		VER.	3.15	-3.07				
5210	XY	HOR.	3.79	-3.39	0.57	-2.41	-16.26	13.72
		VER.	-1.91	-9.36				
	ZX	HOR.	-6.15	-11.12	0.56	-2.53	-16.83	14.29
		VER.	3.19	-3.17				
5250	XY	HOR.	3.79	-3.53	0.56	-2.50	-20.64	18.10
		VER.	-1.24	-9.26				
	ZX	HOR.	-6.01	-11.21	0.53	-2.73	-18.51	15.97
		VER.	3.15	-3.39				

-2.54 dBi Ave
3.79 dBi Max Peak

3-4. Antenna-WiFi (5GHz-W58)

frequency [MHz]	Plane	plane of polarization	360° Peak [dBi]	360° Average [dBi]	Composite true value	Composite [dBi]	DIP [dBi]	DIP-AVE [dB]
5735	XY	HOR.	3.34	-4.29	0.48	-3.15	-19.54	16.68
		VER.	-4.51	-9.51				
	ZX	HOR.	-0.97	-7.61	0.55	-2.63	-18.60	15.75
		VER.	1.99	-4.29				
5785	XY	HOR.	3.31	-4.14	0.50	-3.03	-19.32	16.47
		VER.	-4.36	-9.49				
	ZX	HOR.	-0.15	-7.27	0.57	-2.46	-19.31	16.46
		VER.	2.11	-4.20				
5835	XY	HOR.	2.89	-4.41	0.47	-3.28	-17.18	14.33
		VER.	-4.60	-9.70				
	ZX	HOR.	-1.02	-7.65	0.54	-2.65	-19.29	16.44
		VER.	1.85	-4.29				

-2.85 dBi Ave
3.34 dBi Max Peak