

【TN0051A】 Wi-Fi/Bluetooth Antenna**1.Specification**

Antenna Type : Inverted F Antenna

Part No. ANT1 : 2406952-9

ANT2 : 2406951-8

Antenna Gain(Peak) : ANT1 Bluetooth 0.92dBi

ANT1 Wi-Fi 5GHz 1.57dBi

ANT2 Wi-Fi 2.4GH 1.01dBi

ANT2 Wi-Fi 5GHz 2.14dBi

Frequency Band : Wi-Fi 2.4GHz 2402 - 2480 MHz

Wi-Fi 5GHz(W52) 5170 - 5250 MHz

Wi-Fi 5GHz(W58) 5735 - 5835 MHz

Bluetooth 2402 - 2480 MHz

2.Appearance / Dimension

See fig.1 on another Document.(TN0051A_Antenna Photo)

Measurement content**1.Measurement condition**

- Reference ANT : Dual-Ridge horn antenna, SH600-154, MVG
- Measuring instrument : ENA Network Analyzer, E5071C, Keysight
- Range of measurement : 360 degree/5 degree step
- Measurement layout : The measurement environment is measured with the following layout.
- The measurement instrument was calibrated on April 9, 2025.

See fig2 on another Document.(TN0051A_Antenna Photo)

2.Measurement direction

See fig3 on another Document.(TN0051A_Antenna Photo)

•Test dates : 2025/8/19

•Names of test personnel : Daisuke Nozue(Hirschmann Car Communication,inc)

•Names of commercial test software being used : Automated Antenna and OTA Measurement Software Suite, Wave Studio, MVG
Near-Field to Far-Field Transformation Software, MV-Sphere, MVG

3. Antenna gain

3-1. Average Gain Left ANT1 +/-100deg(200deg), XY/ZX

frequency	$\pm 100^\circ$ Average Gain[dBi]			
[MHz]	XY	ZX	XY/ZX	In Band
2402	-5.39	-3.57	-4.39	-4.57
2441	-5.26	-4.47	-4.85	
2480	-4.43	-4.58	-4.50	
5170	-3.98	-2.49	-3.17	-2.69
5210	-3.36	-2.05	-2.66	
5250	-2.85	-1.76	-2.27	
5250	-2.85	-1.76	-2.27	-2.03
5290	-2.47	-1.33	-1.86	
5330	-2.69	-1.34	-1.96	
5490	-3.86	-2.94	-3.38	-3.25
5600	-3.50	-2.69	-3.08	
5710	-3.22	-3.37	-3.29	
5735	-3.12	-3.75	-3.43	-3.51
5785	-2.81	-4.06	-3.39	
5835	-3.04	-4.53	-3.72	

3-2. Average Gain Left ANT1 +/-180deg(360deg), XY/ZX

frequency	360° Average Gain[dBi]				
[MHz]	XY	YZ	ZX	XY/YZ/ZX	In Band
2402	-4.78	-2.76	-3.10	-3.46	-3.68
2441	-4.37	-3.52	-4.19	-4.01	
2480	-3.45	-3.23	-4.09	-3.58	
5170	-5.62	-4.60	-3.88	-4.64	-4.16
5210	-4.99	-4.16	-3.54	-4.19	
5250	-4.26	-3.67	-3.23	-3.70	
5250	-4.26	-3.67	-3.23	-3.70	-3.39
5290	-3.73	-3.22	-2.78	-3.23	
5330	-3.81	-3.36	-2.72	-3.27	
5490	-5.26	-4.93	-4.01	-4.70	-4.49
5600	-5.00	-4.30	-3.87	-4.36	
5710	-4.61	-4.08	-4.60	-4.42	
5735	-4.47	-4.02	-4.89	-4.45	-4.34
5785	-4.00	-3.66	-5.18	-4.23	
5835	-4.14	-3.56	-5.61	-4.36	

3-3. Average Gain Right ANT2 +/-100deg(200deg), XY/ZX

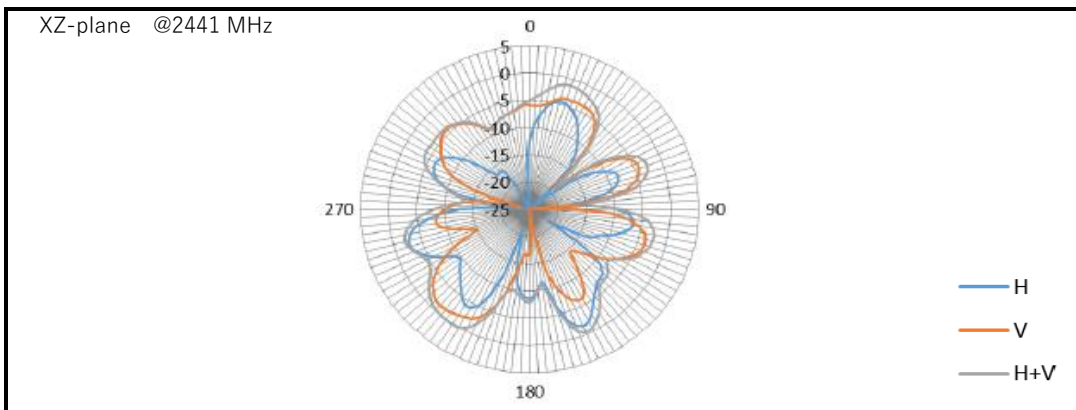
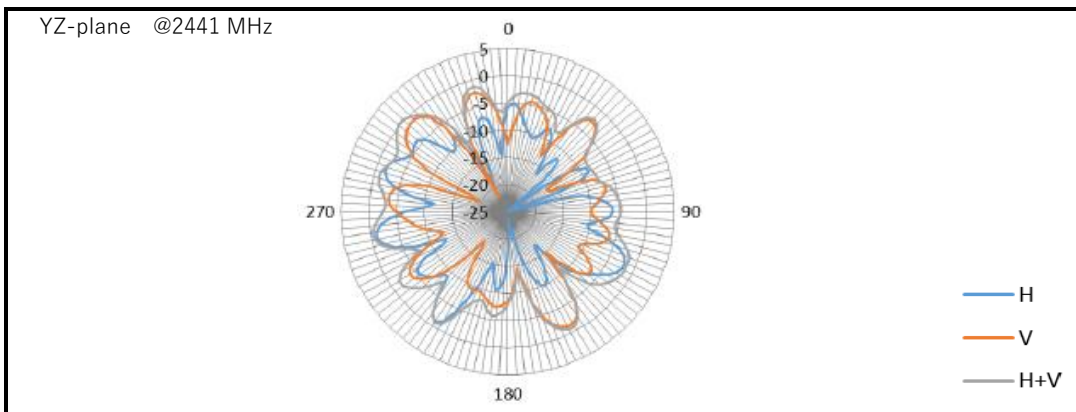
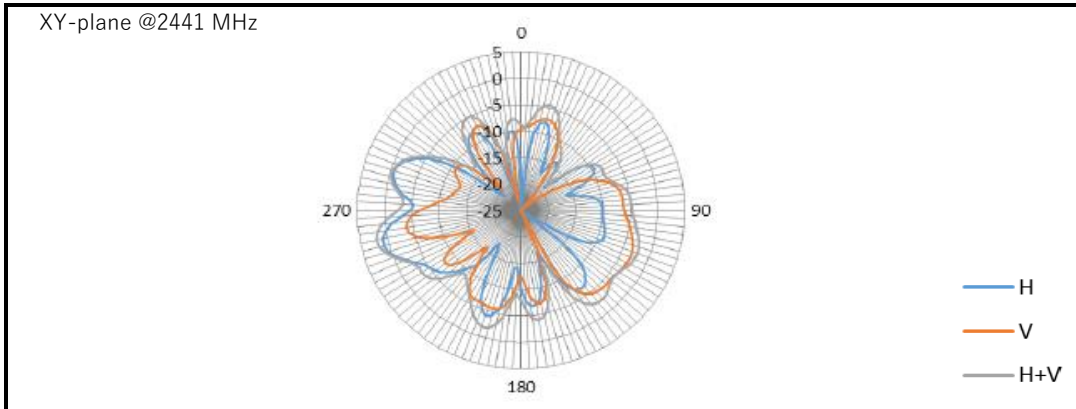
frequency [MHz]	± 100° Average Gain[dBi]			
	XY	ZX	XY/ZX	In Band
2402	-5.07	-1.96	-3.24	-3.40
2441	-4.85	-2.86	-3.74	
2480	-3.37	-3.13	-3.25	
5170	-4.44	-3.74	-4.07	-3.65
5210	-3.97	-3.43	-3.69	
5250	-3.50	-2.97	-3.23	
5250	-3.50	-2.97	-3.23	-3.02
5290	-3.17	-2.50	-2.82	
5330	-3.13	-2.90	-3.01	
5490	-2.88	-2.15	-2.50	-1.97
5600	-2.09	-1.31	-1.68	
5710	-1.45	-2.12	-1.77	
5735	-1.22	-2.24	-1.70	-1.70
5785	-0.86	-1.99	-1.39	
5835	-1.54	-2.60	-2.04	

3-4. Average Gain Right ANT2 +/-180deg(360deg), XY/ZX

frequency [MHz]	360° Average Gain[dBi]				
	XY	YZ	ZX	XY/YZ/ZX	In Band
2402	-4.25	-3.27	-1.81	-2.99	-3.04
2441	-3.92	-3.07	-2.51	-3.13	
2480	-2.99	-2.98	-3.00	-2.99	
5170	-6.13	-5.93	-4.87	-5.61	-5.16
5210	-5.63	-5.45	-4.67	-5.23	
5250	-5.05	-4.81	-4.24	-4.69	
5250	-5.05	-4.81	-4.24	-4.69	-4.34
5290	-4.58	-4.17	-3.79	-4.17	
5330	-4.37	-4.13	-4.08	-4.19	
5490	-4.25	-3.99	-3.10	-3.75	-3.23
5600	-3.53	-2.90	-2.60	-2.99	
5710	-3.18	-2.42	-3.46	-3.00	
5735	-2.91	-2.37	-3.54	-2.92	-2.82
5785	-2.43	-2.18	-3.15	-2.57	
5835	-3.04	-2.51	-3.51	-3.00	

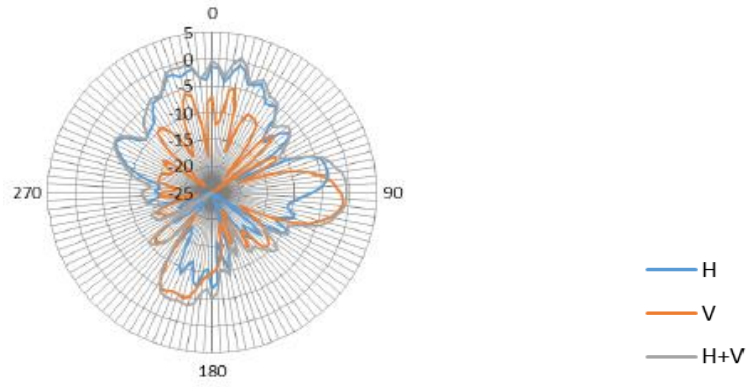
4. Radio wave radiation pattern (directivity graph)

4-1. Antenna1-Left (2.4GHzBand)

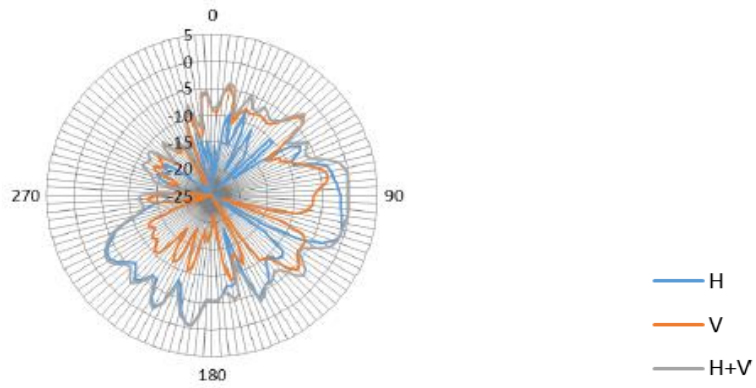


4-2. Antenna1-Left (5GHzBand)

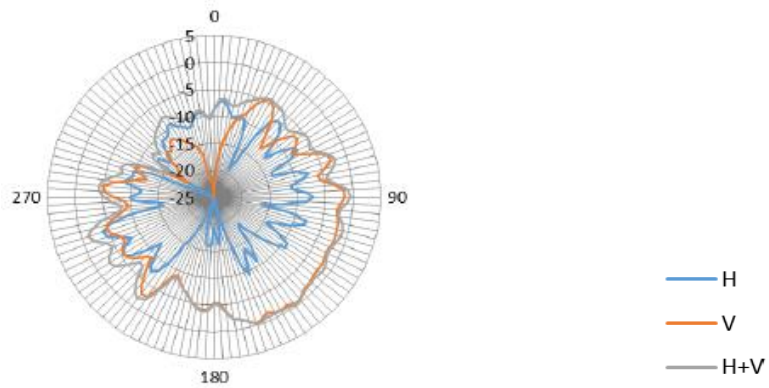
XY-plane @5490 MHz



YZ-plane @5490 MHz

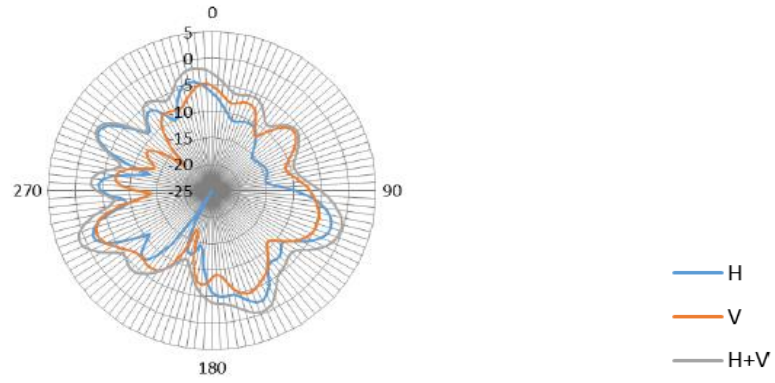


XZ-plane @5490 MHz

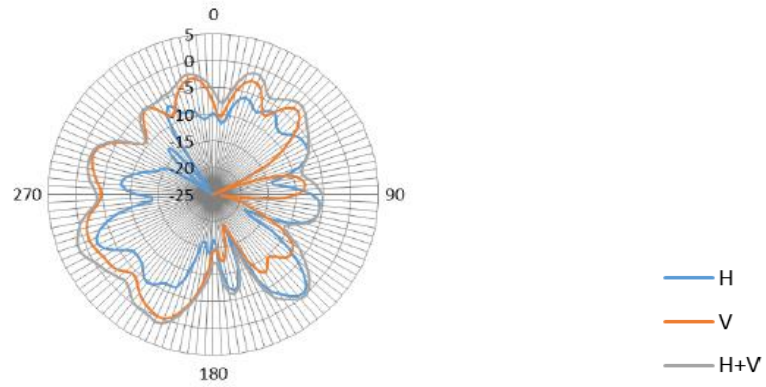


4-3. Antenna2-Right (2.4GHzBand)

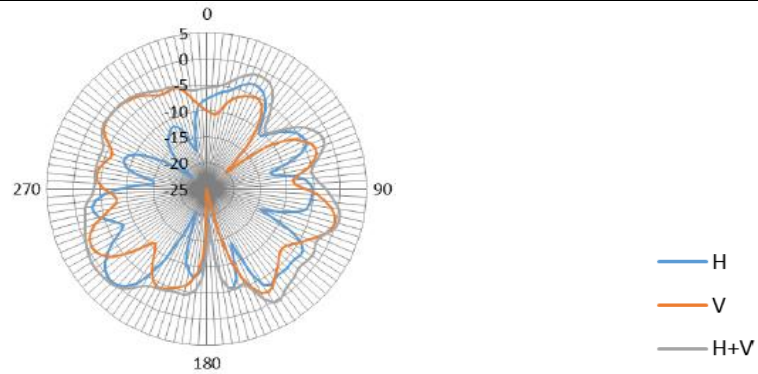
XY-plane @2441 MHz



YZ-plane @2441 MHz

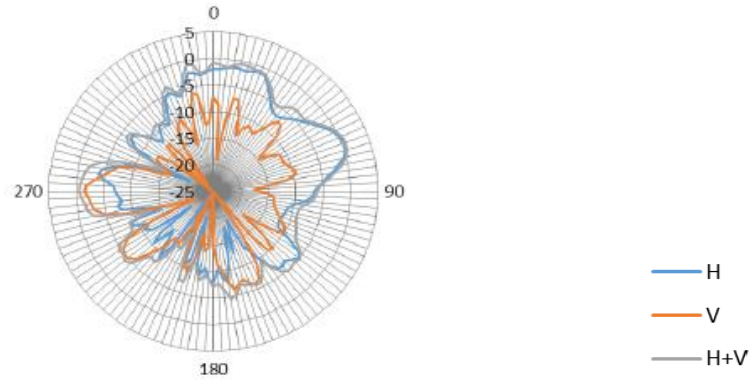


XZ-plane @2441 MHz

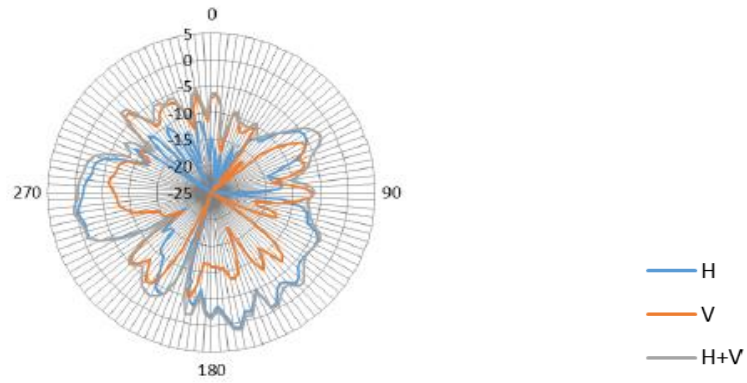


4-4. Antenna2-Right (5GHzBand)

XY-plane @5490 MHz



YZ-plane @5490 MHz



XZ-plane @5490 MHz

