

承認	検認	検認	担当
<div style="border: 1px solid red; border-radius: 50%; padding: 5px; width: 60px; margin: 0 auto;">                     技術                      '25.07.11                      高瀬                 </div>		<div style="border: 1px solid red; border-radius: 50%; padding: 5px; width: 60px; margin: 0 auto;">                     技術                      '25.07.10                      武田                 </div>	<div style="border: 1px solid red; border-radius: 50%; padding: 5px; width: 60px; margin: 0 auto;">                     技術                      '25.07.10                      内野                 </div>

## 技適基準適合証明用アンテナ特性資料

# Antenna Characteristics Document for Technical Regulations Conformity Certification

**T18-051-1117**

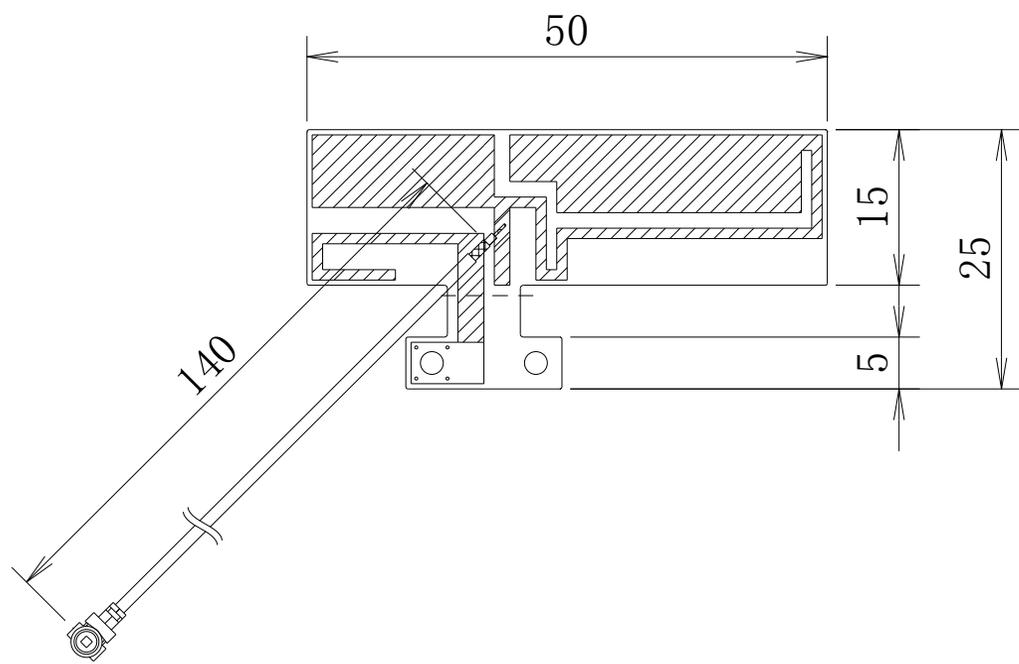
9 JULY,2024

Staf Corporation Electric Group

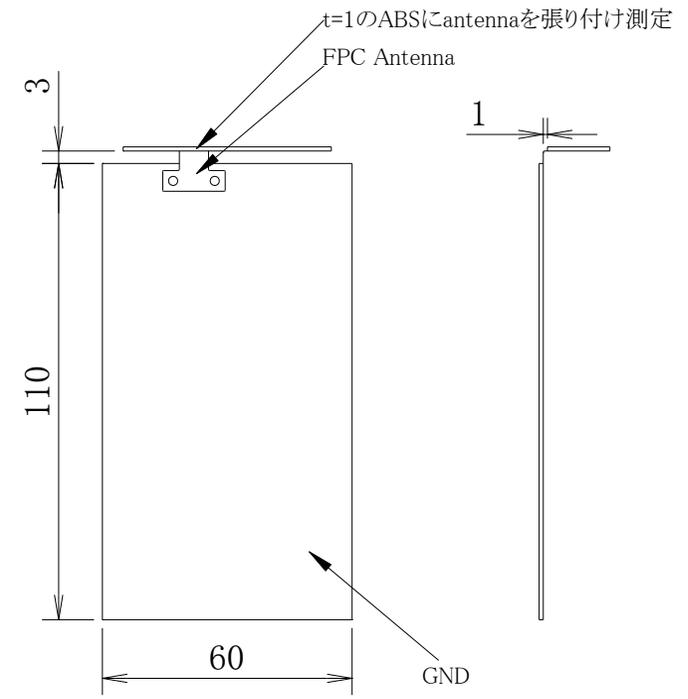
# 1.仕様 Specification

項目	記載内容
メーカー名 Manufacturer	スタッフ株式会社 Staf Corporation
品名 (製品名称) Product Name	アンテナ Antenna
技適申請番号 Application Number	T18-051-1117
測定周波数 Frequency	617~5850[MHz]
アンテナ型式 Antenna Type	Monopole Antenna ( $\lambda/4$ )
最大絶対利得 Maximum Absolute Gain	617~5850[MHz]: 3[dBi]以下 617~5850[MHz]: 3[dBi] or less ※但し、B41(2496~2690[MHz])、B40(2300~2400[MHz])、B30(2305~2360[MHz])、Wi-Fi2G(2400~2500[MHz])に限り、4[dBi]以下 詳細はグラフ参照のこと ※However, for B41 (2496~2690[MHz]), B40(2300~2400[MHz]), B30(2305~2360[MHz]), Wi-Fi2G(2400~2500[MHz]), 4[dBi] or less See graph for details
インピーダンス Impedance	50 $\Omega$
コネクタ形状 Connector Type	U.FL

## 2.外形図 Outside Dimension Drawing

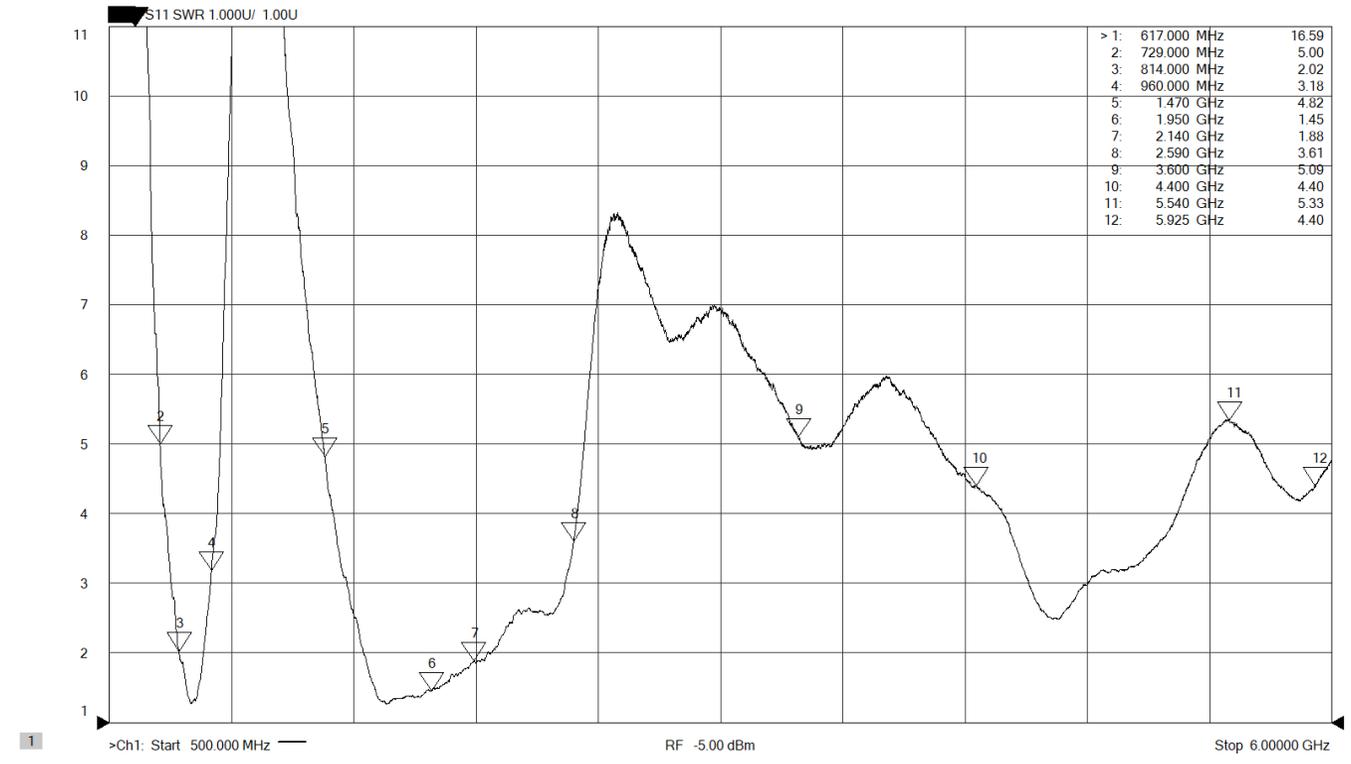


推奨基板  
Recommended board

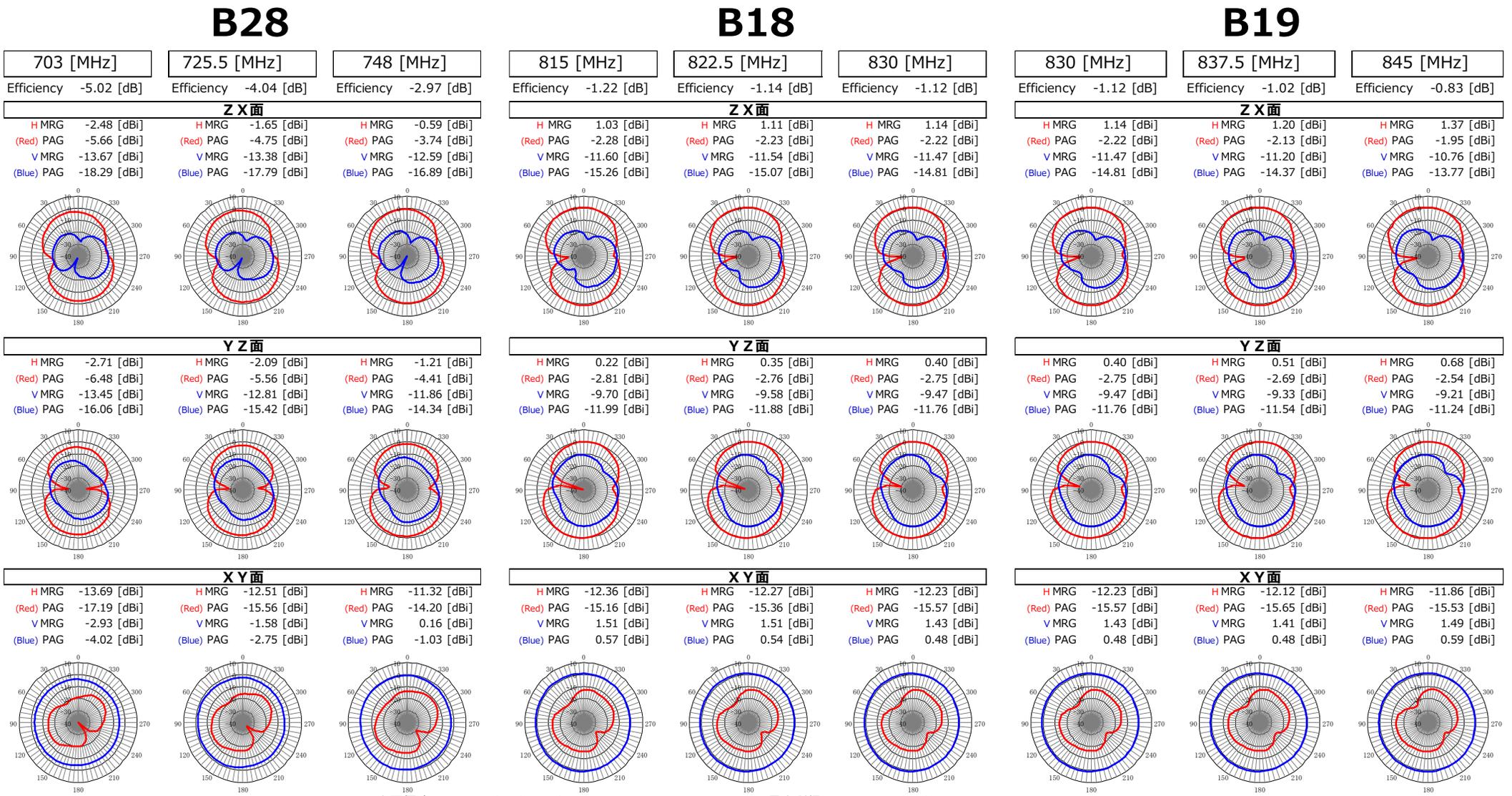
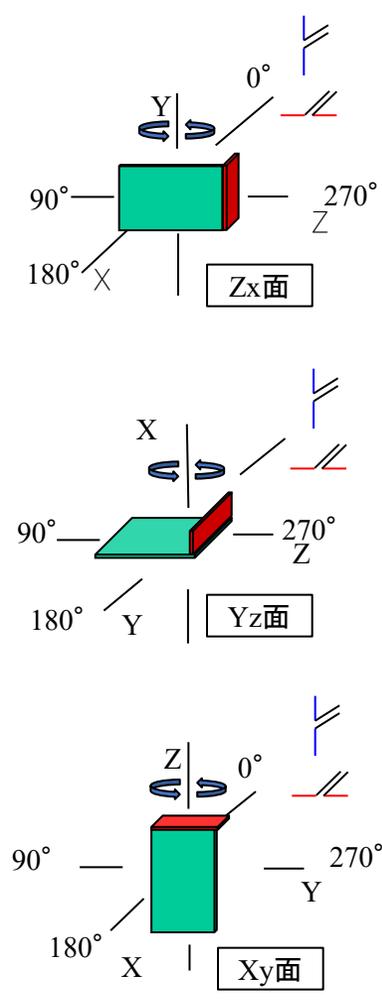


単位:mm  
Unit:mm

3.VSWR

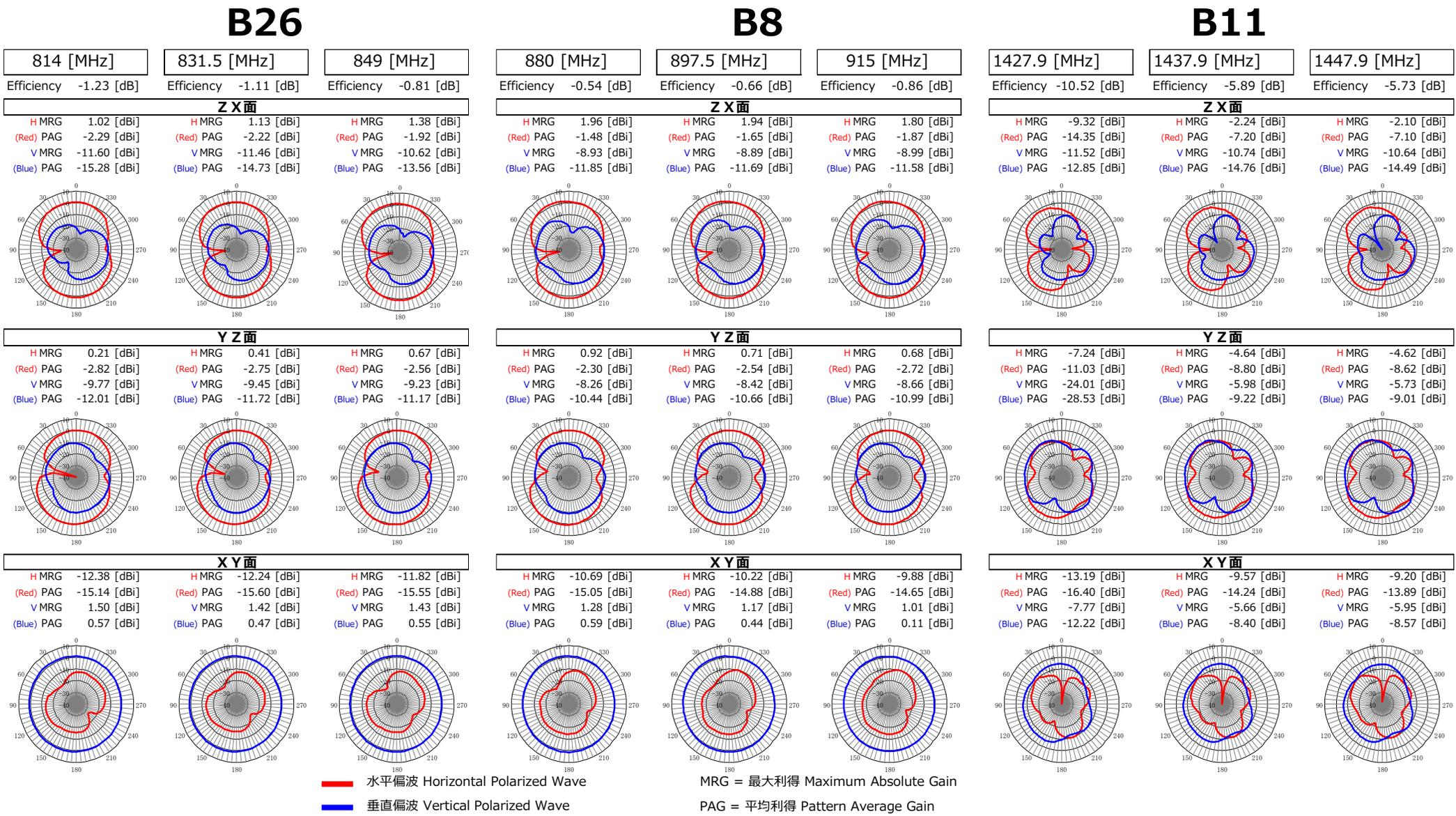
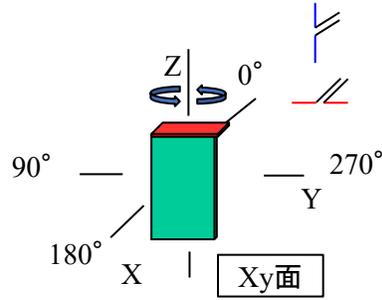
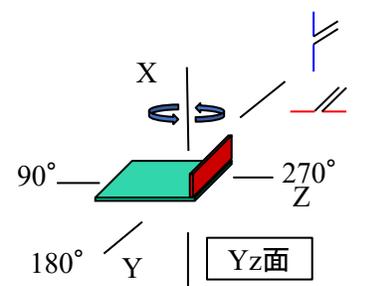
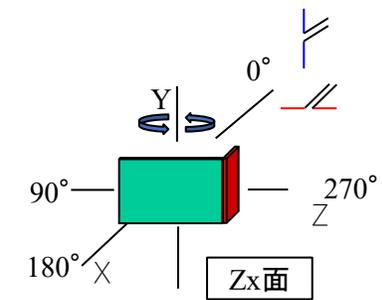


# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics



— 水平偏波 Horizontal Polarized Wave  
— 垂直偏波 Vertical Polarized Wave  
 MRG = 最大利得 Maximum Absolute Gain  
 PAG = 平均利得 Pattern Average Gain

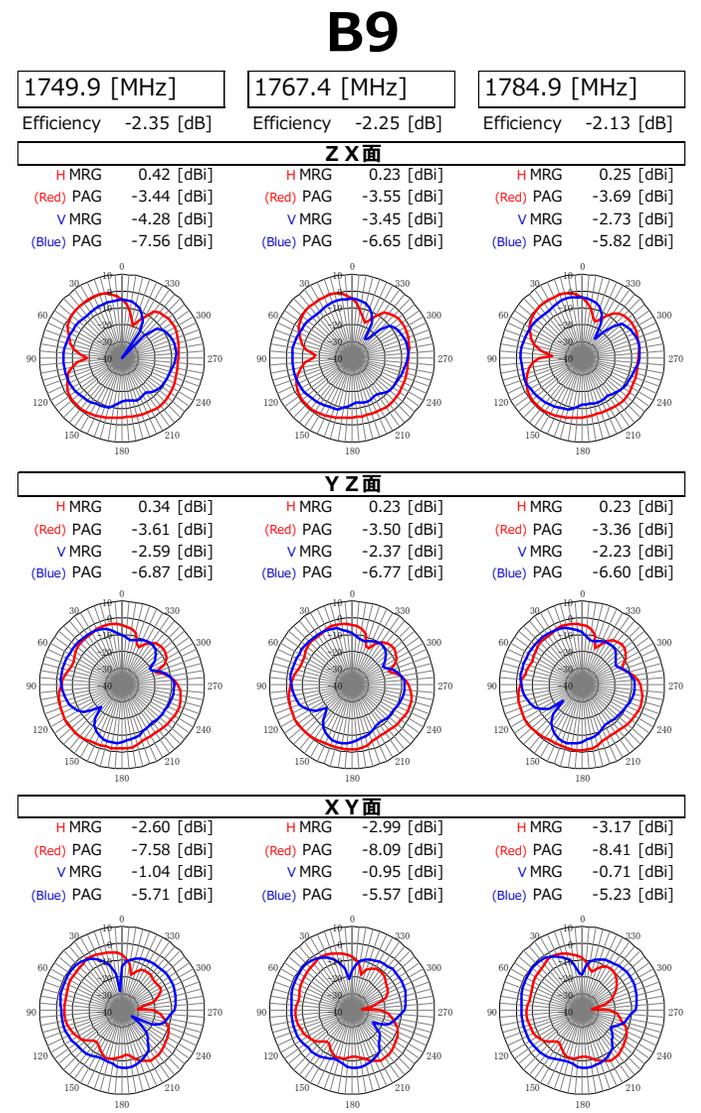
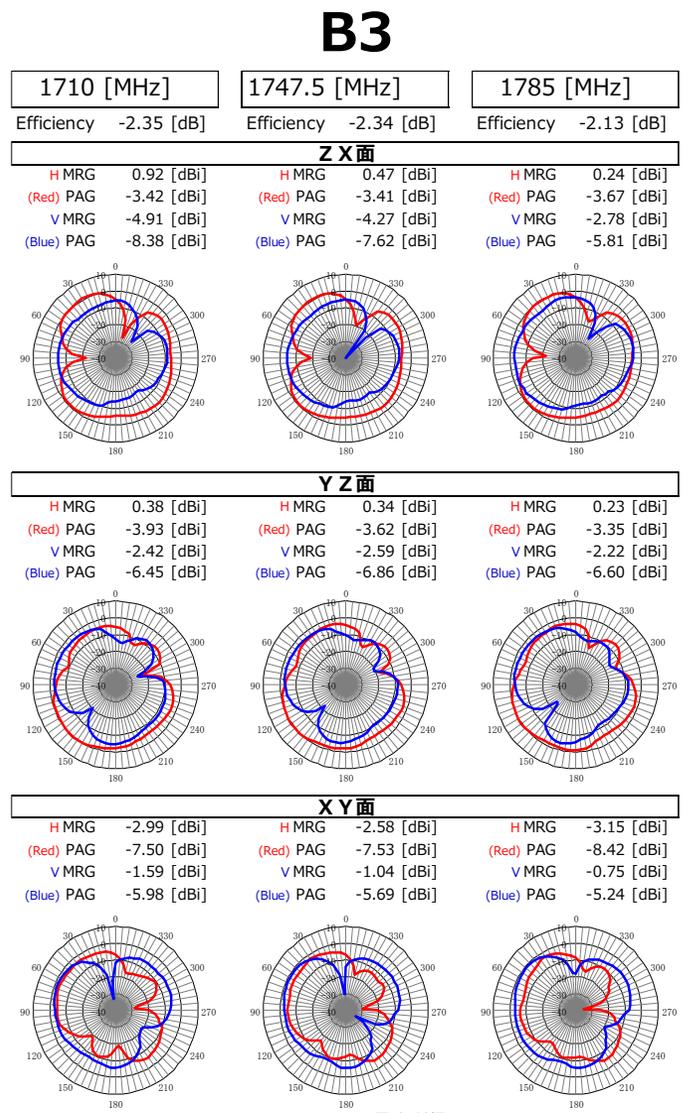
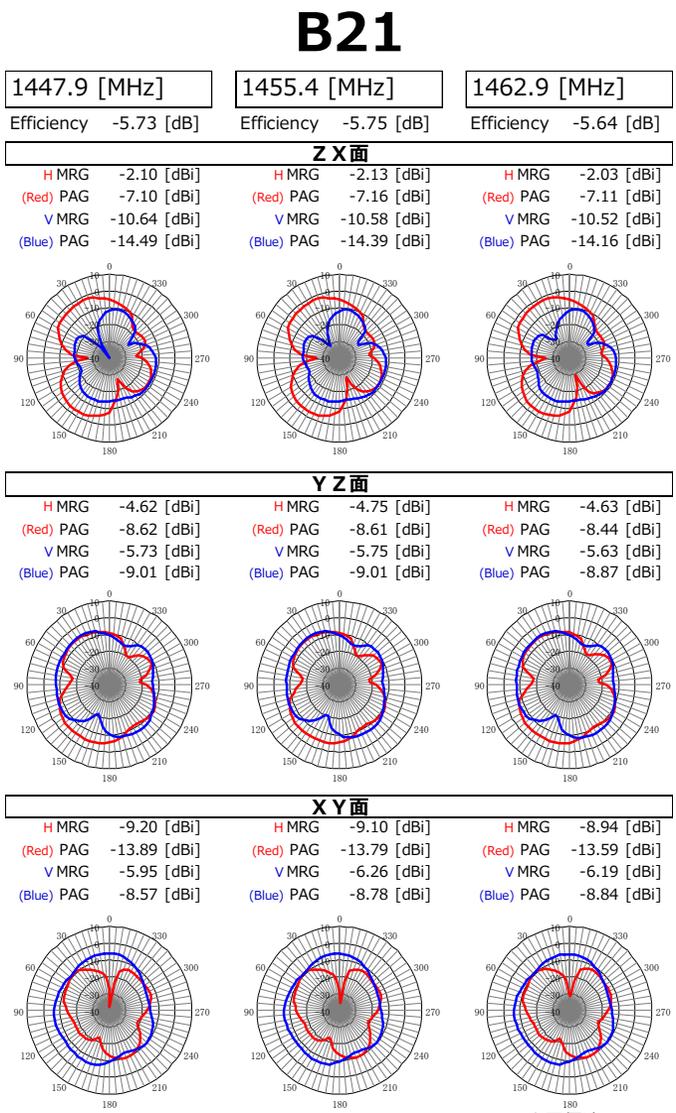
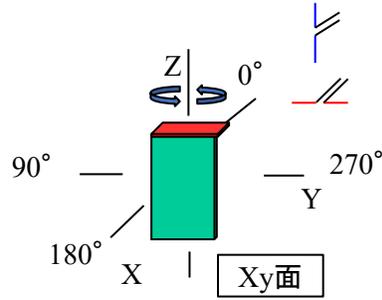
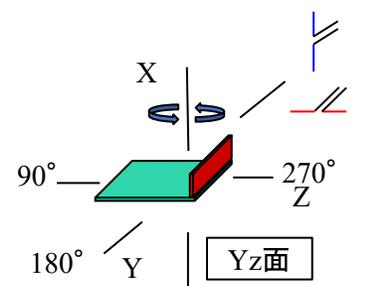
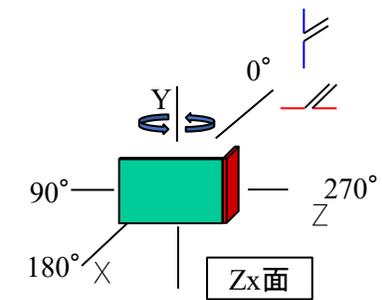
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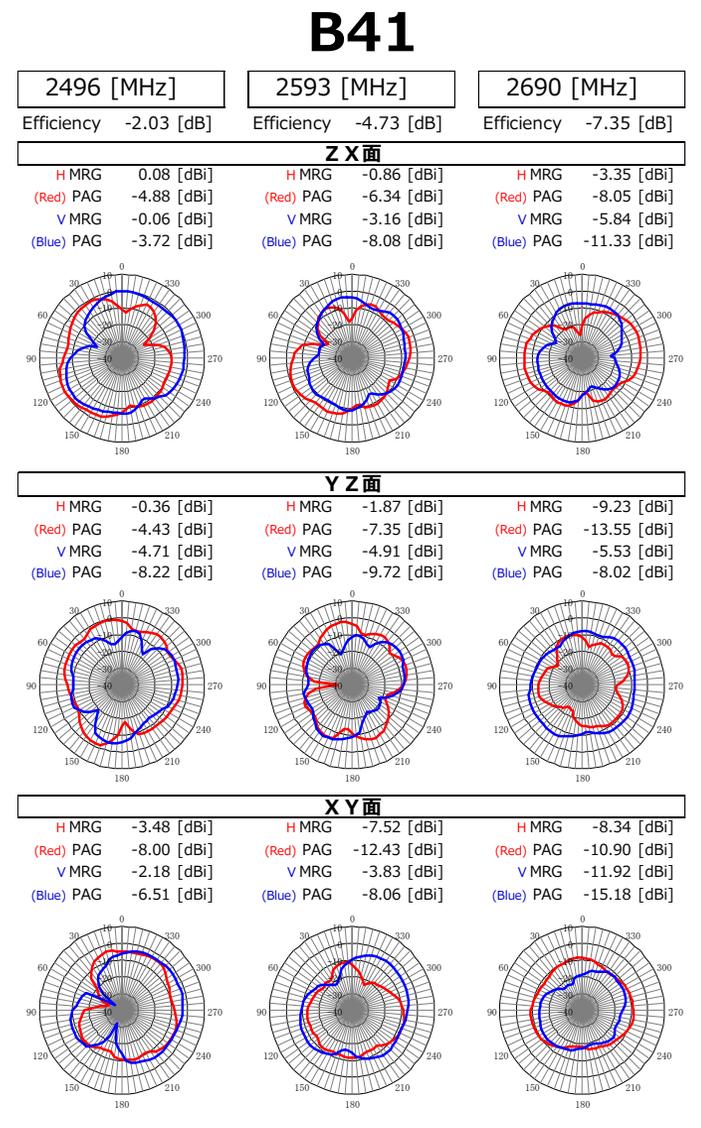
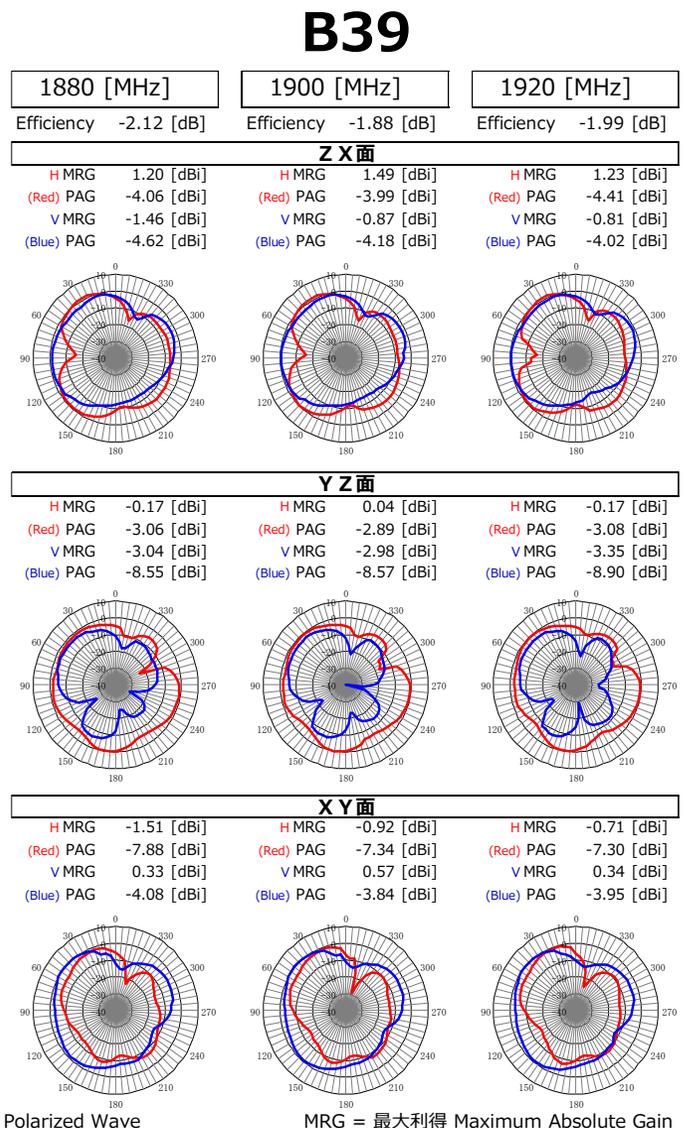
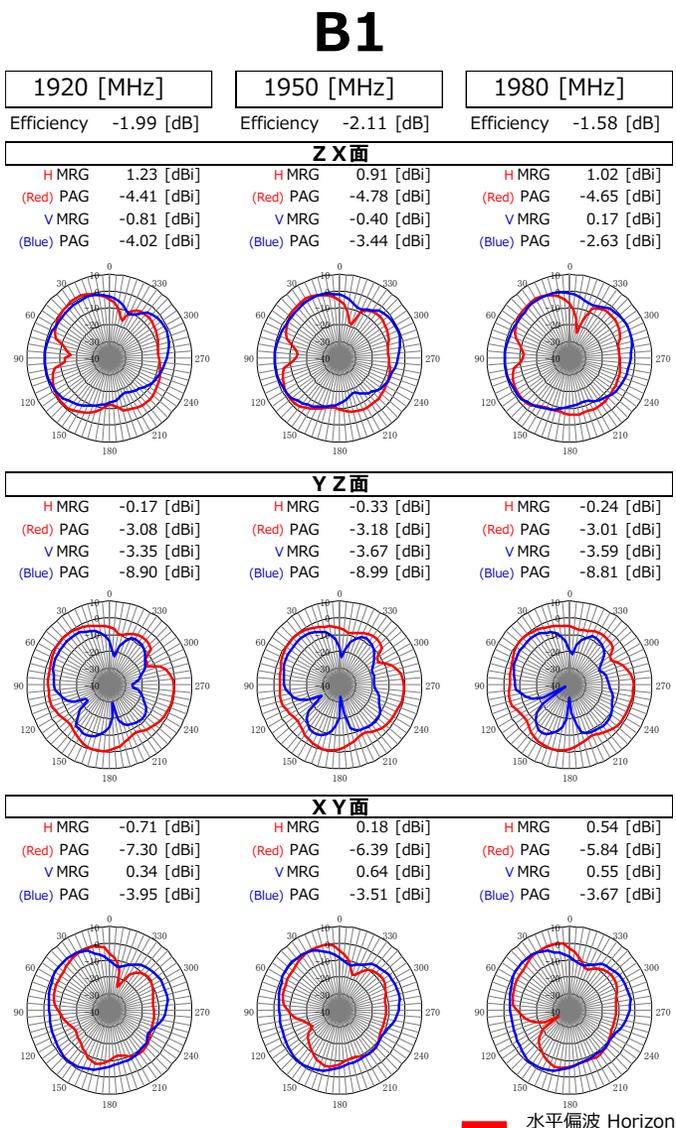
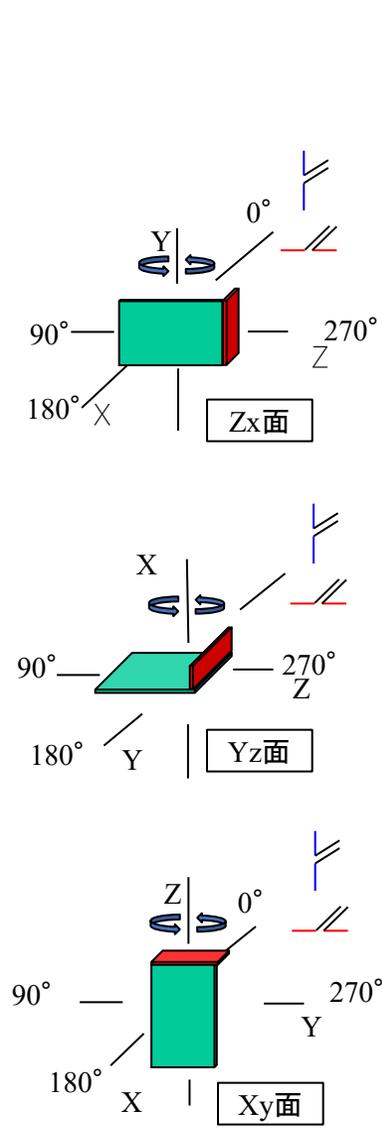
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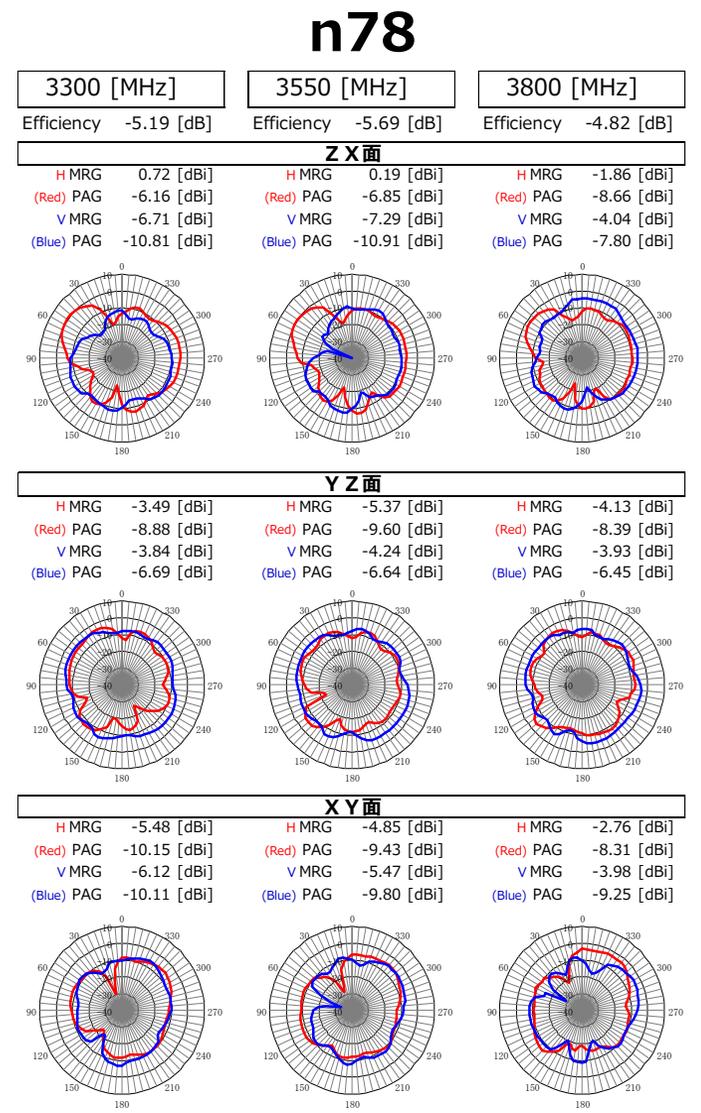
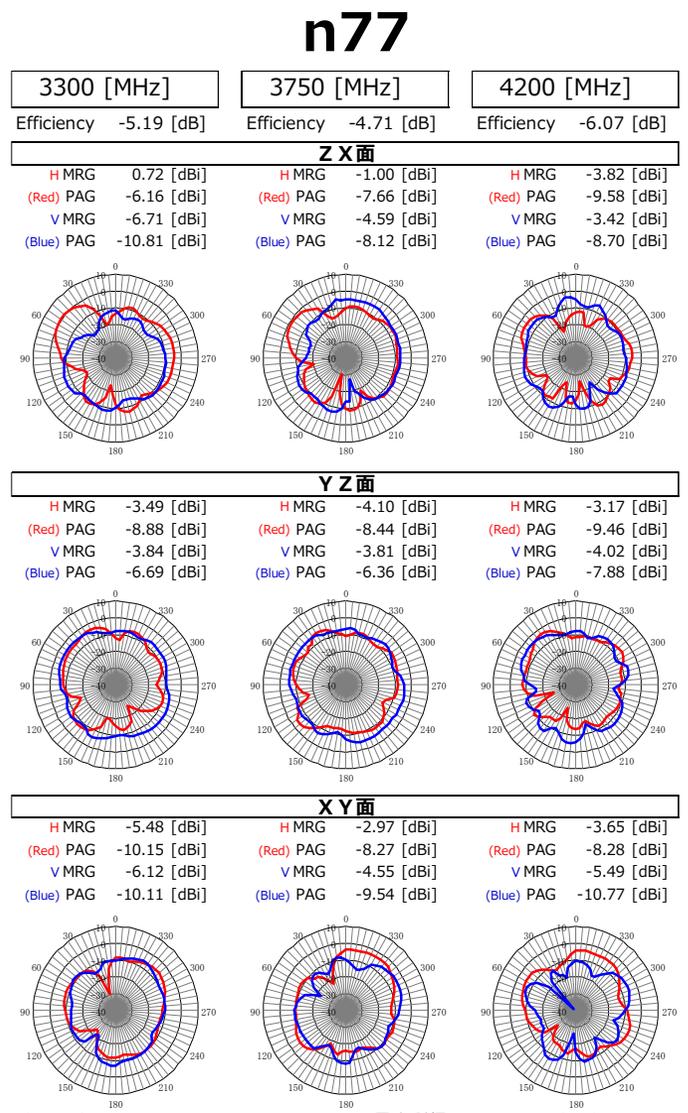
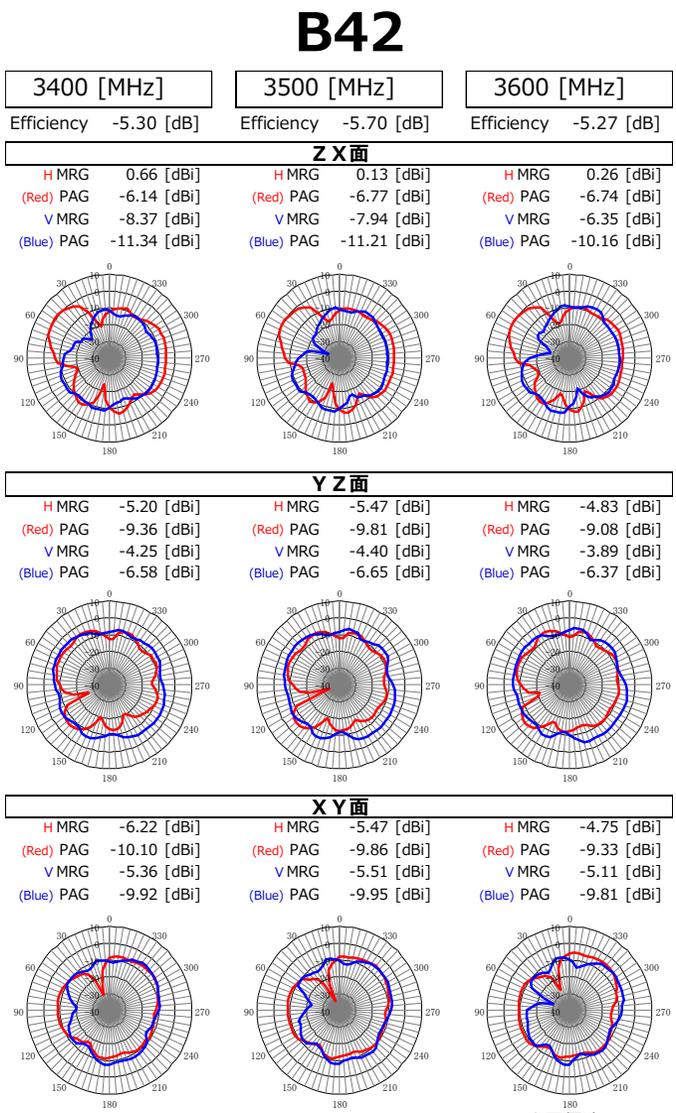
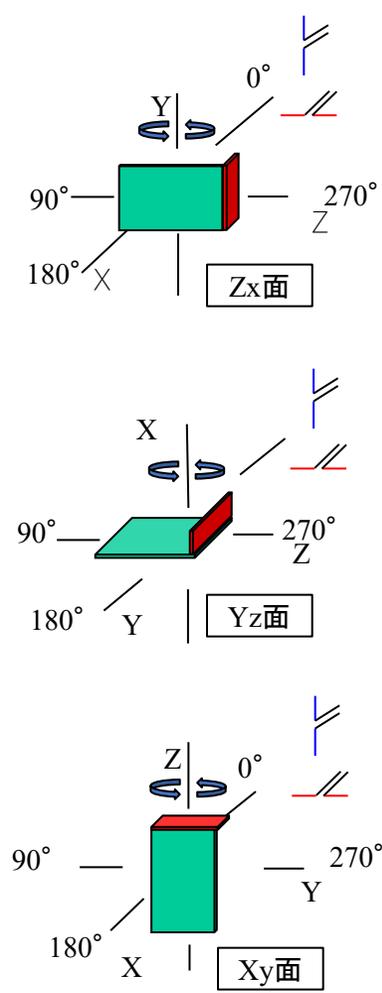
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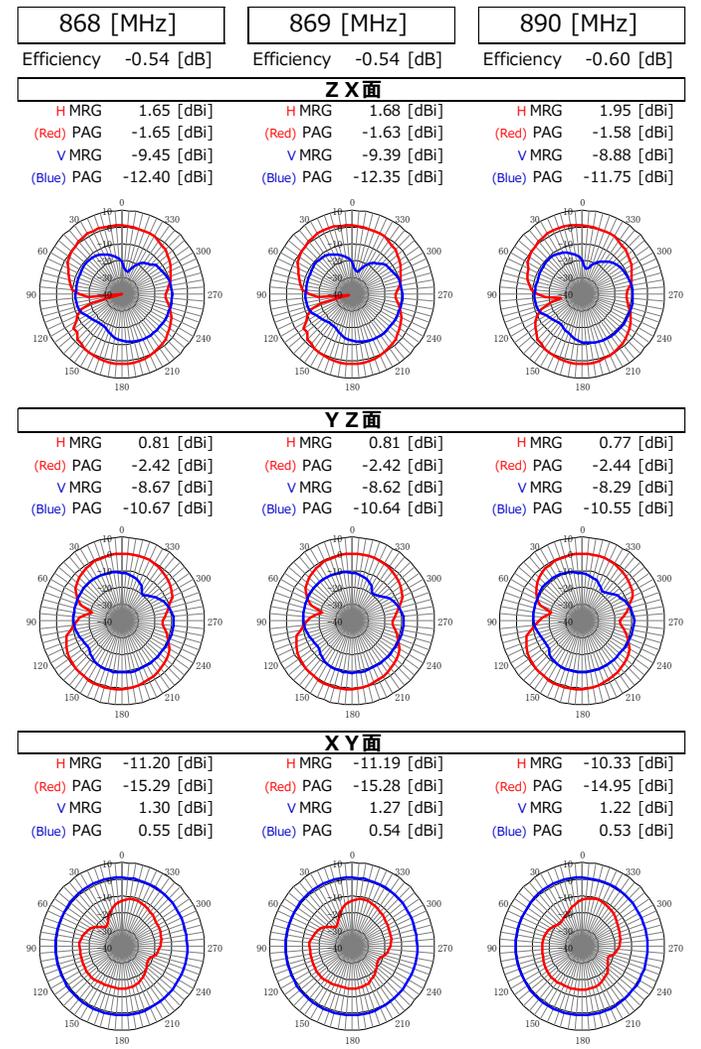
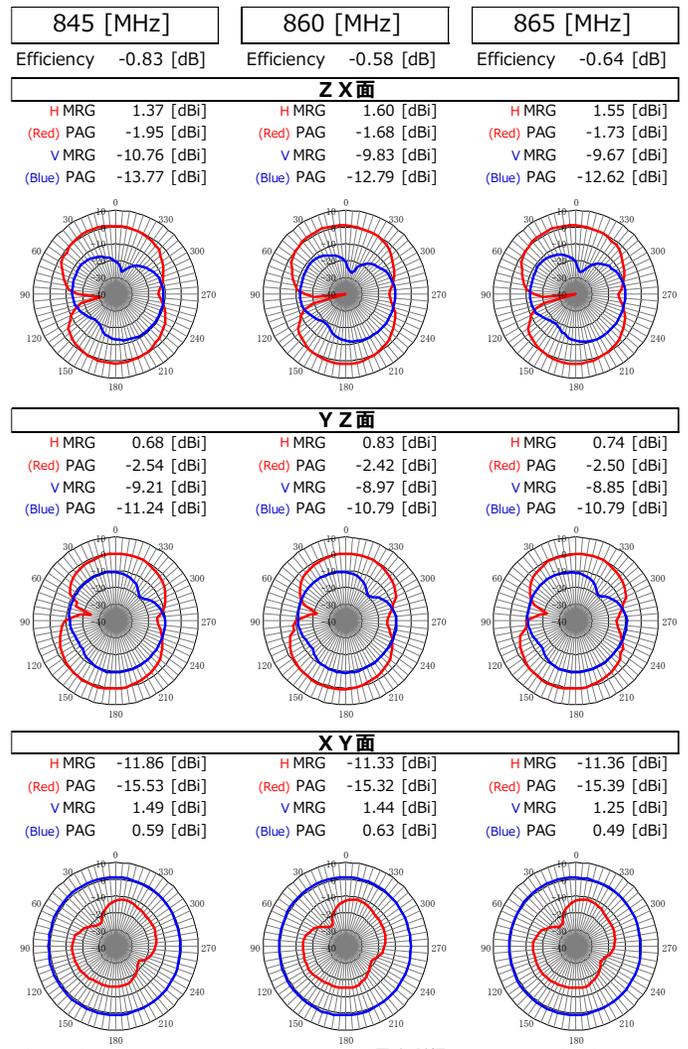
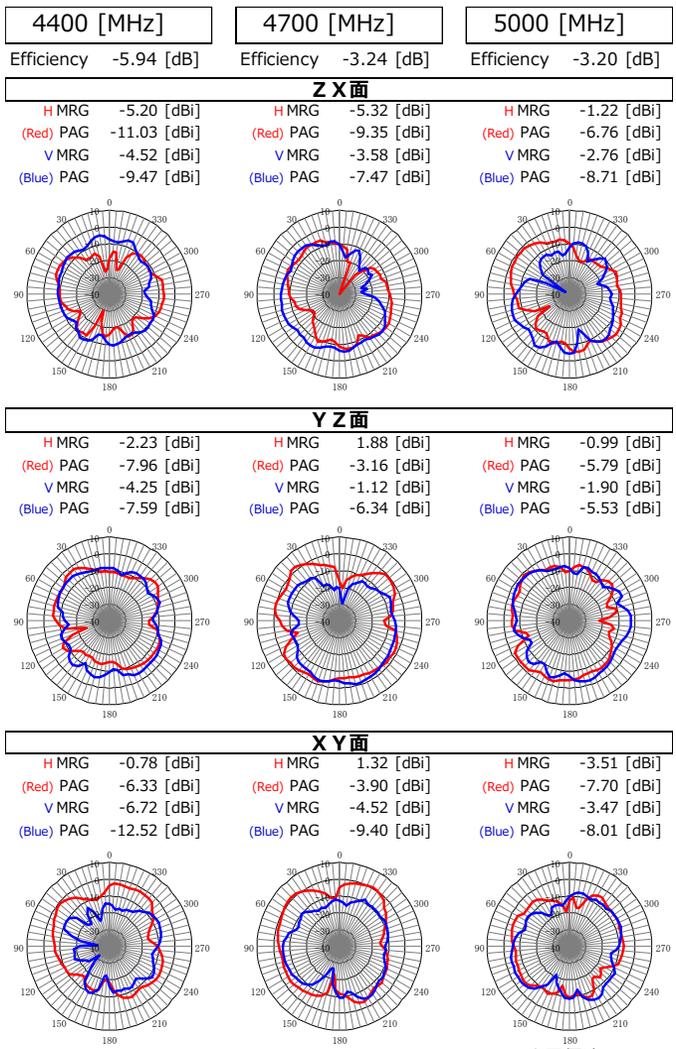
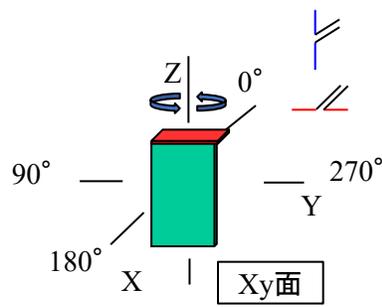
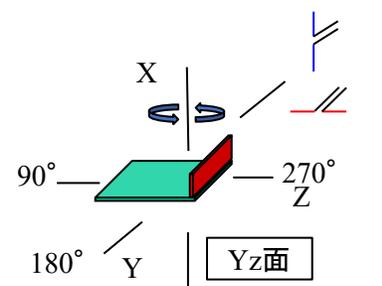
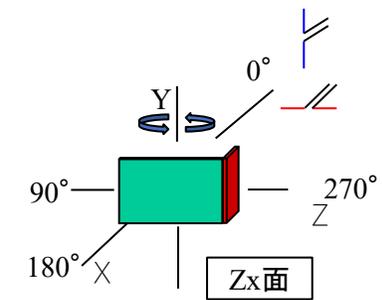
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# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

## n79

## Sub-GHz Band

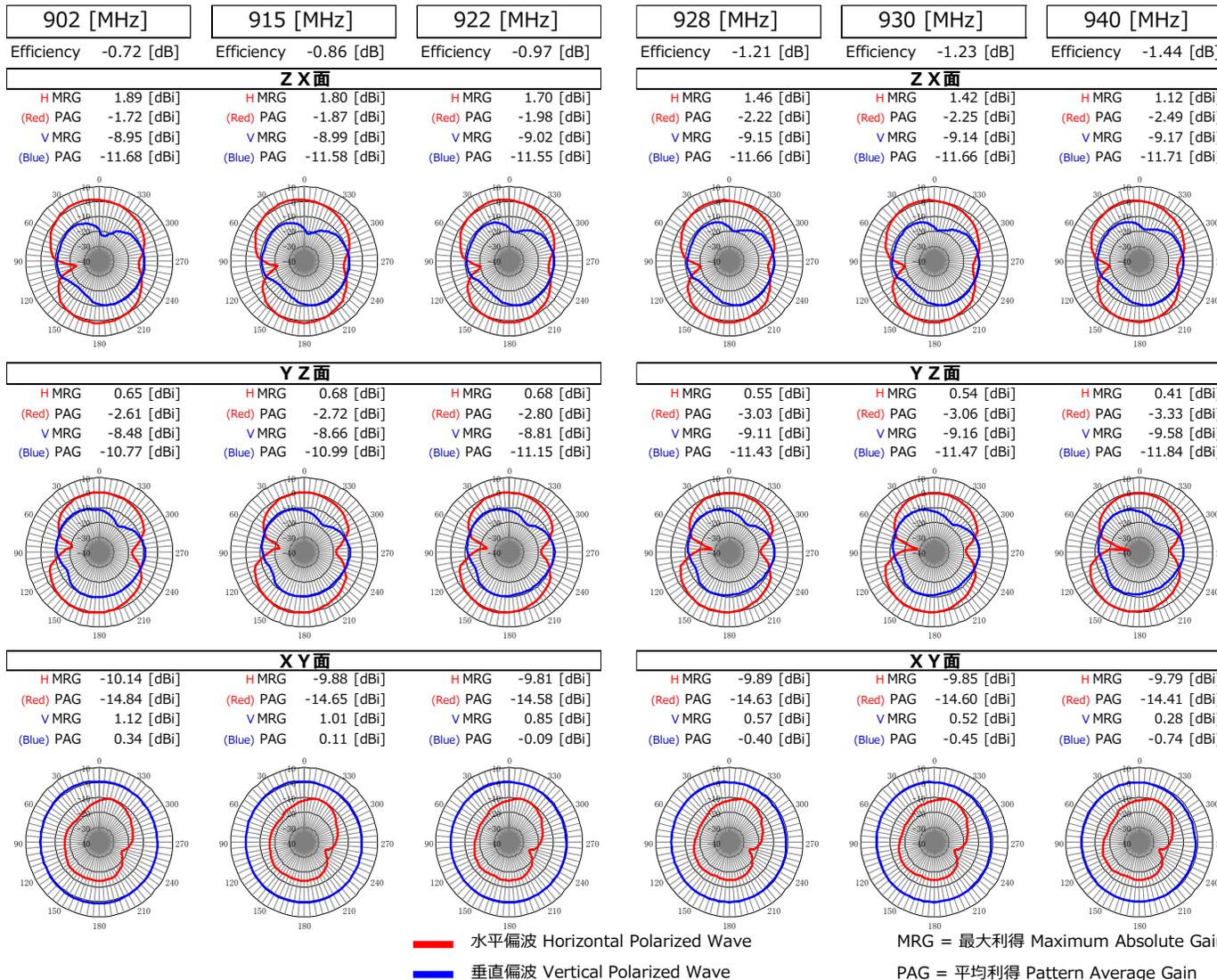
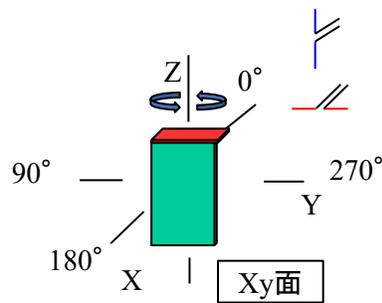
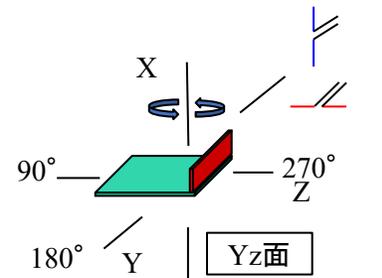
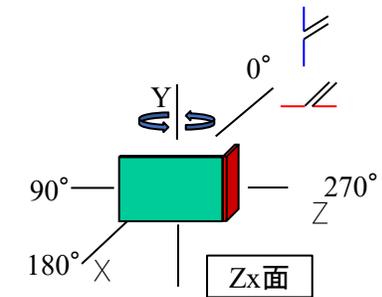


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# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

## Sub-GHz Band

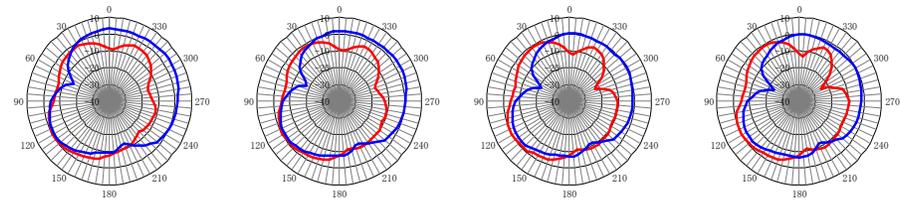


# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

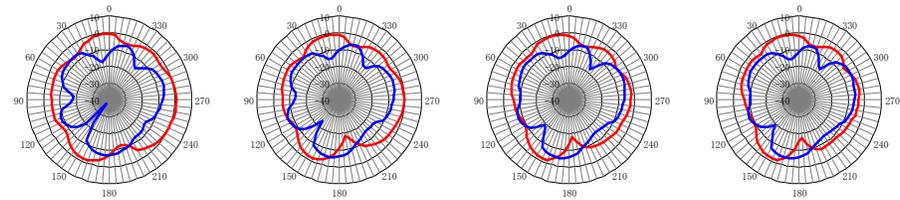
## 2.4GHz Band(Wi-Fi,etc.)

2400 [MHz]	2442 [MHz]	2483.5 [MHz]	2500 [MHz]
Efficiency -0.45 [dB]	Efficiency -1.19 [dB]	Efficiency -1.79 [dB]	Efficiency -2.07 [dB]

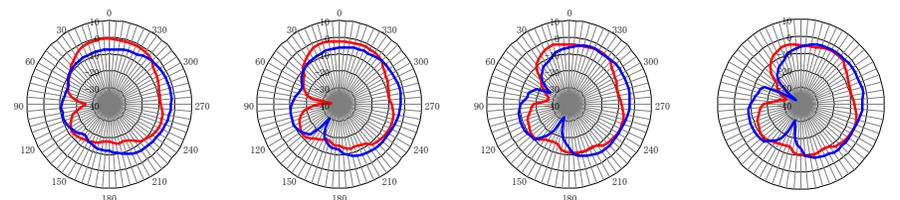
Z X面			
H MRG -0.47 [dBi]	H MRG -0.71 [dBi]	H MRG 0.00 [dBi]	H MRG 0.14 [dBi]
(Red) PAG -5.29 [dBi]	(Red) PAG -5.10 [dBi]	(Red) PAG -4.80 [dBi]	(Red) PAG -4.86 [dBi]
V MRG 3.84 [dBi]	V MRG 2.54 [dBi]	V MRG 0.65 [dBi]	V MRG -0.16 [dBi]
(Blue) PAG -0.29 [dBi]	(Blue) PAG -1.50 [dBi]	(Blue) PAG -3.10 [dBi]	(Blue) PAG -3.87 [dBi]



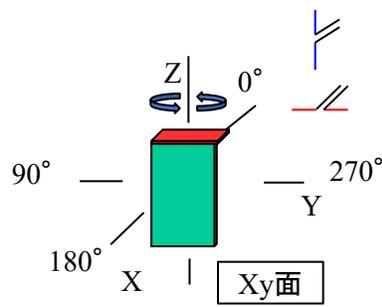
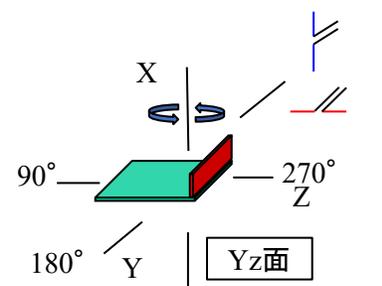
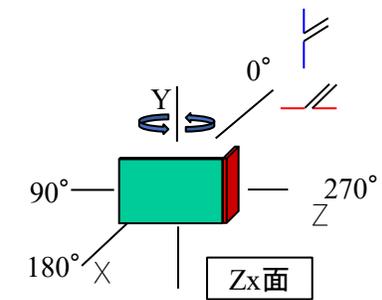
Y Z面			
H MRG 0.93 [dBi]	H MRG -0.34 [dBi]	H MRG -0.43 [dBi]	H MRG -0.25 [dBi]
(Red) PAG -2.78 [dBi]	(Red) PAG -3.73 [dBi]	(Red) PAG -4.22 [dBi]	(Red) PAG -4.42 [dBi]
V MRG -5.65 [dBi]	V MRG -5.10 [dBi]	V MRG -4.81 [dBi]	V MRG -4.63 [dBi]
(Blue) PAG -9.42 [dBi]	(Blue) PAG -8.71 [dBi]	(Blue) PAG -8.26 [dBi]	(Blue) PAG -8.16 [dBi]



X Y面			
H MRG -0.75 [dBi]	H MRG -2.04 [dBi]	H MRG -3.14 [dBi]	H MRG -3.52 [dBi]
(Red) PAG -6.46 [dBi]	(Red) PAG -7.09 [dBi]	(Red) PAG -7.83 [dBi]	(Red) PAG -8.00 [dBi]
V MRG -2.05 [dBi]	V MRG -2.17 [dBi]	V MRG -2.30 [dBi]	V MRG -2.15 [dBi]
(Blue) PAG -6.62 [dBi]	(Blue) PAG -6.65 [dBi]	(Blue) PAG -6.59 [dBi]	(Blue) PAG -6.41 [dBi]



— 水平偏波 Horizontal Polarized Wave  
 — 垂直偏波 Vertical Polarized Wave

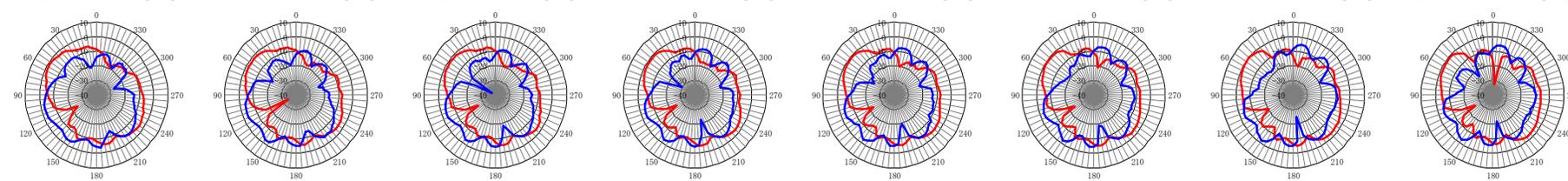


# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

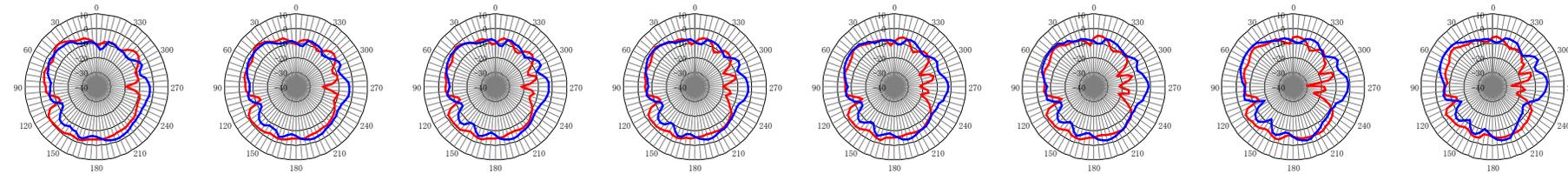
## 5GHz Band(Wi-Fi,etc.)

4900 [MHz]	4950 [MHz]	5000 [MHz]	5030 [MHz]	5060.5 [MHz]	5091 [MHz]	5150 [MHz]	5200 [MHz]
Efficiency -2.96 [dB]	Efficiency -3.09 [dB]	Efficiency -3.20 [dB]	Efficiency -3.08 [dB]	Efficiency -3.13 [dB]	Efficiency -2.90 [dB]	Efficiency -2.63 [dB]	Efficiency -3.25 [dB]

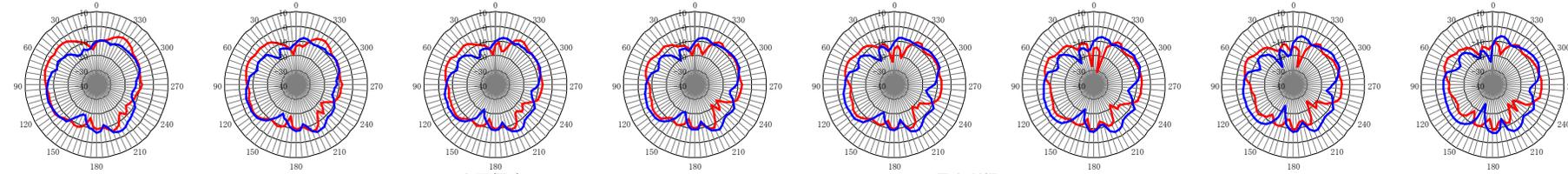
Z X面							
H MRG -1.32 [dBi]	H MRG -1.49 [dBi]	H MRG -1.22 [dBi]	H MRG -0.97 [dBi]	H MRG -0.89 [dBi]	H MRG -0.36 [dBi]	H MRG 0.08 [dBi]	H MRG -0.68 [dBi]
(Red) PAG -6.55 [dBi]	(Red) PAG -6.76 [dBi]	(Red) PAG -6.76 [dBi]	(Red) PAG -6.58 [dBi]	(Red) PAG -6.52 [dBi]	(Red) PAG -6.17 [dBi]	(Red) PAG -5.82 [dBi]	(Red) PAG -6.15 [dBi]
V MRG -2.53 [dBi]	V MRG -2.37 [dBi]	V MRG -2.76 [dBi]	V MRG -2.38 [dBi]	V MRG -2.37 [dBi]	V MRG -1.93 [dBi]	V MRG -1.53 [dBi]	V MRG -2.38 [dBi]
(Blue) PAG -7.91 [dBi]	(Blue) PAG -8.44 [dBi]	(Blue) PAG -8.71 [dBi]	(Blue) PAG -8.62 [dBi]	(Blue) PAG -8.68 [dBi]	(Blue) PAG -8.27 [dBi]	(Blue) PAG -7.94 [dBi]	(Blue) PAG -8.75 [dBi]



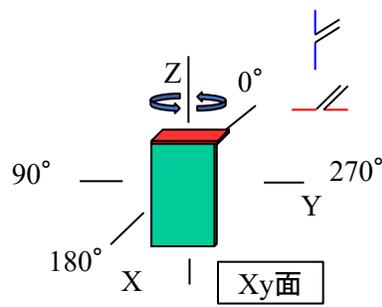
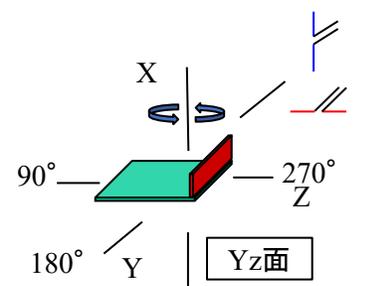
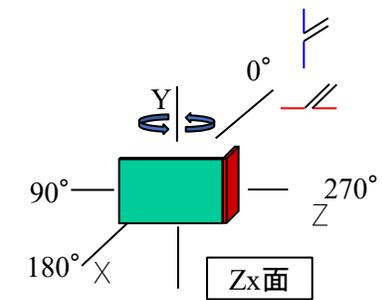
Y Z面							
H MRG -0.10 [dBi]	H MRG -0.27 [dBi]	H MRG -0.99 [dBi]	H MRG -1.20 [dBi]	H MRG -1.71 [dBi]	H MRG -1.70 [dBi]	H MRG -1.65 [dBi]	H MRG -2.29 [dBi]
(Red) PAG -4.63 [dBi]	(Red) PAG -5.16 [dBi]	(Red) PAG -5.79 [dBi]	(Red) PAG -5.93 [dBi]	(Red) PAG -6.10 [dBi]	(Red) PAG -5.95 [dBi]	(Red) PAG -5.87 [dBi]	(Red) PAG -6.63 [dBi]
V MRG -1.84 [dBi]	V MRG -2.29 [dBi]	V MRG -1.90 [dBi]	V MRG -1.72 [dBi]	V MRG -1.63 [dBi]	V MRG -0.88 [dBi]	V MRG -0.01 [dBi]	V MRG 0.44 [dBi]
(Blue) PAG -5.27 [dBi]	(Blue) PAG -5.48 [dBi]	(Blue) PAG -5.53 [dBi]	(Blue) PAG -5.47 [dBi]	(Blue) PAG -5.51 [dBi]	(Blue) PAG -4.98 [dBi]	(Blue) PAG -4.66 [dBi]	(Blue) PAG -4.93 [dBi]



X Y面							
H MRG -2.73 [dBi]	H MRG -3.33 [dBi]	H MRG -3.51 [dBi]	H MRG -4.18 [dBi]	H MRG -3.87 [dBi]	H MRG -3.89 [dBi]	H MRG -3.74 [dBi]	H MRG -3.83 [dBi]
(Red) PAG -6.64 [dBi]	(Red) PAG -7.33 [dBi]	(Red) PAG -7.70 [dBi]	(Red) PAG -8.47 [dBi]	(Red) PAG -8.61 [dBi]	(Red) PAG -8.60 [dBi]	(Red) PAG -9.11 [dBi]	(Red) PAG -9.16 [dBi]
V MRG -3.89 [dBi]	V MRG -3.76 [dBi]	V MRG -3.47 [dBi]	V MRG -3.77 [dBi]	V MRG -3.69 [dBi]	V MRG -3.40 [dBi]	V MRG -4.26 [dBi]	V MRG -4.34 [dBi]
(Blue) PAG -8.34 [dBi]	(Blue) PAG -8.40 [dBi]	(Blue) PAG -8.01 [dBi]	(Blue) PAG -8.26 [dBi]	(Blue) PAG -8.00 [dBi]	(Blue) PAG -7.64 [dBi]	(Blue) PAG -7.93 [dBi]	(Blue) PAG -7.93 [dBi]



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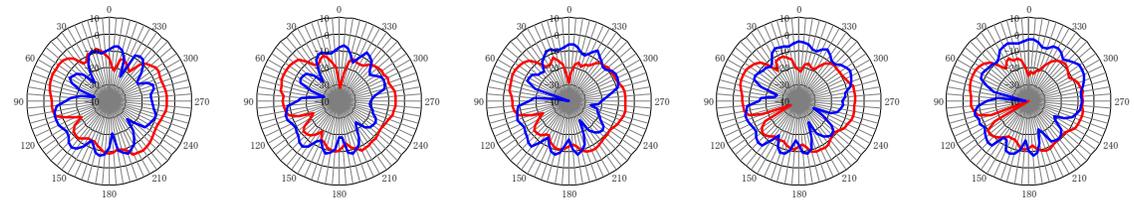


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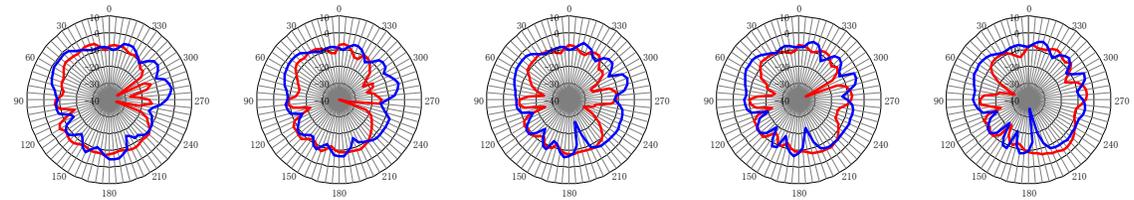
## 5GHz Band(Wi-Fi,etc.)

5350 [MHz]	5500 [MHz]	5650 [MHz]	5750 [MHz]	5850 [MHz]
Efficiency -5.05 [dB]	Efficiency -6.46 [dB]	Efficiency -5.84 [dB]	Efficiency -5.76 [dB]	Efficiency -5.24 [dB]

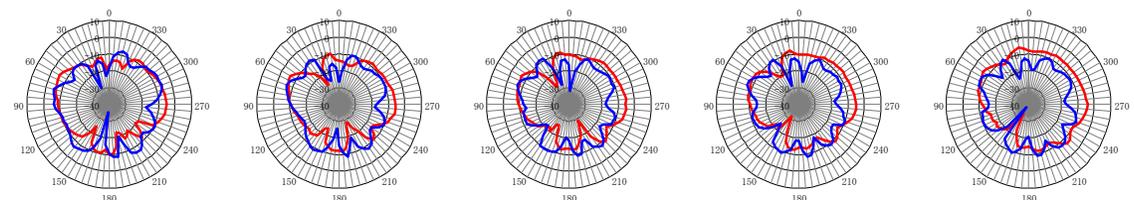
Z X面				
H MRG -1.91 [dBi]	H MRG -2.81 [dBi]	H MRG -2.42 [dBi]	H MRG -2.63 [dBi]	H MRG -2.73 [dBi]
(Red) PAG -6.94 [dBi]	(Red) PAG -8.52 [dBi]	(Red) PAG -8.29 [dBi]	(Red) PAG -8.52 [dBi]	(Red) PAG -8.63 [dBi]
V MRG -3.95 [dBi]	V MRG -5.07 [dBi]	V MRG -4.88 [dBi]	V MRG -4.05 [dBi]	V MRG -2.09 [dBi]
(Blue) PAG -10.09 [dBi]	(Blue) PAG -10.85 [dBi]	(Blue) PAG -9.99 [dBi]	(Blue) PAG -8.68 [dBi]	(Blue) PAG -7.11 [dBi]



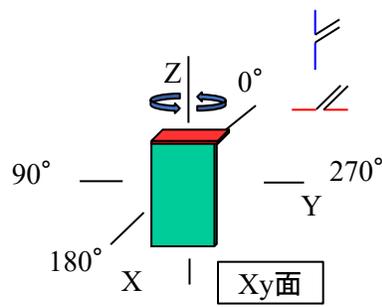
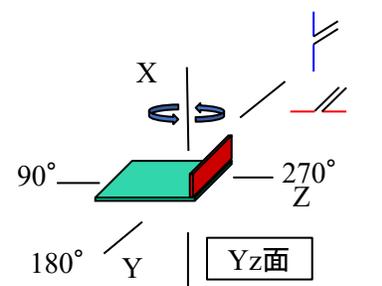
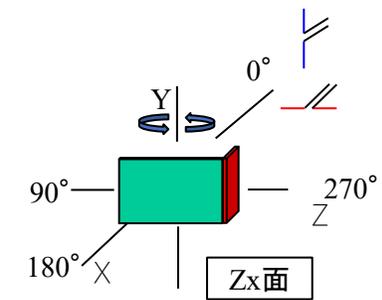
Y Z面				
H MRG -4.83 [dBi]	H MRG -6.25 [dBi]	H MRG -7.31 [dBi]	H MRG -5.65 [dBi]	H MRG -3.53 [dBi]
(Red) PAG -8.69 [dBi]	(Red) PAG -10.24 [dBi]	(Red) PAG -10.58 [dBi]	(Red) PAG -9.90 [dBi]	(Red) PAG -8.55 [dBi]
V MRG -1.10 [dBi]	V MRG -2.66 [dBi]	V MRG -2.35 [dBi]	V MRG -2.53 [dBi]	V MRG -3.04 [dBi]
(Blue) PAG -6.30 [dBi]	(Blue) PAG -7.34 [dBi]	(Blue) PAG -7.10 [dBi]	(Blue) PAG -7.23 [dBi]	(Blue) PAG -7.18 [dBi]



X Y面				
H MRG -4.98 [dBi]	H MRG -5.22 [dBi]	H MRG -4.84 [dBi]	H MRG -4.70 [dBi]	H MRG -3.96 [dBi]
(Red) PAG -9.74 [dBi]	(Red) PAG -10.63 [dBi]	(Red) PAG -9.96 [dBi]	(Red) PAG -9.84 [dBi]	(Red) PAG -8.71 [dBi]
V MRG -4.92 [dBi]	V MRG -6.07 [dBi]	V MRG -6.77 [dBi]	V MRG -6.93 [dBi]	V MRG -7.22 [dBi]
(Blue) PAG -9.69 [dBi]	(Blue) PAG -11.51 [dBi]	(Blue) PAG -11.96 [dBi]	(Blue) PAG -12.15 [dBi]	(Blue) PAG -12.06 [dBi]



— 水平偏波 Horizontal Polarized Wave      MRG = 最大利得 Maximum Absolute Gain  
— 垂直偏波 Vertical Polarized Wave      PAG = 平均利得 Pattern Average Gain



## 5.最大利得・放射効率 Maximum Absolute Gain and Efficiency

Frequency(MHz)	617	634.5	652	663	680.5	698	699	703	704	707.5	710	716	725.5	729	734
Maximum Absolute Gain(dBi)	-6.85	-5.28	-4.77	-4.63	-3.63	-2.60	-2.58	-2.48	-2.42	-2.34	-2.28	-2.00	-1.58	-1.13	-0.56
Efficiency(dB)	-9.61	-8.44	-8.07	-7.50	-6.17	-5.14	-5.13	-5.02	-4.94	-4.84	-4.76	-4.45	-4.04	-3.66	-3.37

Frequency(MHz)	737.5	740	746	748	751	756	758	763	768	777	780.5	782	787	788	791
Maximum Absolute Gain(dBi)	-0.32	-0.21	0.14	0.16	-0.05	0.00	0.14	0.19	0.39	0.87	1.04	1.10	1.12	1.13	1.29
Efficiency(dB)	-3.24	-3.18	-2.98	-2.97	-2.95	-2.96	-2.83	-2.86	-2.75	-2.36	-2.21	-2.15	-2.11	-2.07	-1.87

Frequency(MHz)	793	798	803	806	814	815	821	822.5	824	830	831.5	832	836.5	837.5	845
Maximum Absolute Gain(dBi)	1.30	1.33	1.41	1.40	1.50	1.51	1.50	1.51	1.48	1.43	1.42	1.41	1.41	1.41	1.49
Efficiency(dB)	-1.80	-1.69	-1.39	-1.37	-1.23	-1.22	-1.17	-1.14	-1.15	-1.12	-1.11	-1.10	-1.04	-1.02	-0.83

Frequency(MHz)	847	849	859	860	862	865	867.5	868	869	875	876.5	880	881.5	882.5	890
Maximum Absolute Gain(dBi)	1.45	1.43	1.58	1.60	1.59	1.55	1.66	1.65	1.68	1.75	1.77	1.96	1.90	1.92	1.95
Efficiency(dB)	-0.82	-0.81	-0.61	-0.58	-0.60	-0.64	-0.55	-0.54	-0.54	-0.54	-0.54	-0.54	-0.55	-0.56	-0.60

Frequency(MHz)	894	897.5	902	915	922	925	928	930	940	942.5	960	1176.45	1227.6	1246	1279
Maximum Absolute Gain(dBi)	1.94	1.94	1.89	1.80	1.70	1.56	1.46	1.42	1.12	1.13	0.69	-13.11	-8.76	-7.47	-6.45
Efficiency(dB)	-0.63	-0.66	-0.72	-0.86	-0.97	-1.12	-1.21	-1.23	-1.44	-1.40	-1.71	-14.87	-11.80	-10.83	-9.85

Frequency(MHz)	1427.9	1437.9	1447.9	1455.4	1462.9	1475.9	1485.9	1495.9	1503.9	1510.9	1575.42	1602	1710	1732.5	1745
Maximum Absolute Gain(dBi)	-2.33	-2.24	-2.10	-2.13	-2.03	-1.53	-1.02	-0.95	-0.77	-0.62	1.11	1.46	0.92	0.62	0.50
Efficiency(dB)	-6.00	-5.89	-5.73	-5.75	-5.64	-5.03	-4.38	-4.09	-3.82	-3.61	-2.64	-2.55	-2.35	-2.35	-2.33

Frequency(MHz)	1747.5	1749.9	1755	1767.4	1780	1784.9	1785	1805	1842.5	1844.9	1850	1862.4	1879.9	1880	1883
Maximum Absolute Gain(dBi)	0.47	0.42	0.36	0.23	0.24	0.25	0.24	0.74	1.27	1.23	1.20	1.10	1.14	1.20	1.25
Efficiency(dB)	-2.34	-2.35	-2.33	-2.25	-2.16	-2.13	-2.13	-1.94	-1.78	-1.83	-1.92	-2.08	-2.12	-2.12	-2.08

## 5.最大利得・放射効率 Maximum Absolute Gain and Efficiency

Frequency(MHz)	1900	1910	1915	1920	1930	1950	1960	1962.5	1980	1990	1995	2010	2017.5	2025	2110
Maximum Absolute Gain(dBi)	1.49	1.39	1.29	1.23	1.04	0.91	0.84	0.89	1.02	1.23	1.32	1.22	1.26	1.34	1.73
Efficiency(dB)	-1.88	-1.94	-1.99	-1.99	-2.04	-2.11	-2.02	-1.98	-1.58	-1.36	-1.30	-1.32	-1.27	-1.21	-0.88

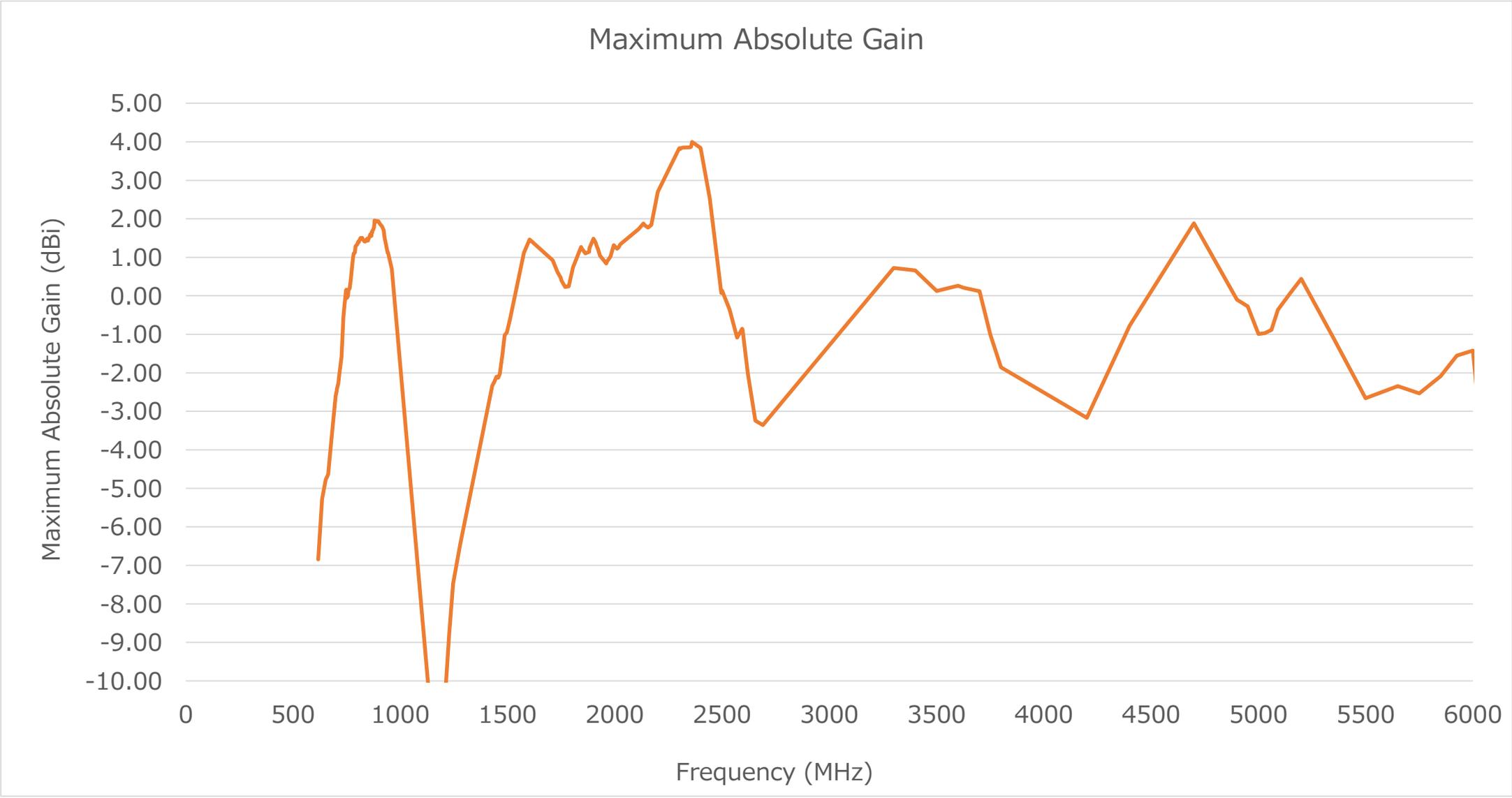
Frequency(MHz)	2132.5	2140	2155	2170	2200	2300	2305	2310	2315	2350	2355	2360	2400	2442	2484
Maximum Absolute Gain(dBi)	1.88	1.83	1.77	1.84	2.70	3.83	3.81	3.84	3.85	3.85	3.87	4.00	3.84	2.54	0.65
Efficiency(dB)	-0.69	-0.78	-0.99	-1.31	-0.96	-0.94	-0.97	-0.96	-0.97	-0.94	-0.90	-0.76	-0.45	-1.19	-1.79

Frequency(MHz)	2496	2500	2535	2570	2593	2595	2620	2655	2690	3300	3400	3500	3550	3600	3625
Maximum Absolute Gain(dBi)	0.08	0.14	-0.36	-1.08	-0.86	-0.88	-2.02	-3.24	-3.35	0.72	0.66	0.13	0.19	0.26	0.21
Efficiency(dB)	-2.03	-2.07	-3.32	-4.82	-4.73	-4.77	-5.95	-7.16	-7.35	-5.19	-5.30	-5.70	-5.69	-5.27	-5.13

Frequency(MHz)	3700	3750	3800	4200	4400	4700	4900	4950	5000	5030	5060.5	5091	5150	5200	5350
Maximum Absolute Gain(dBi)	0.12	-1.00	-1.86	-3.17	-0.78	1.88	-0.10	-0.27	-0.99	-0.97	-0.89	-0.36	0.08	0.44	-1.10
Efficiency(dB)	-4.00	-4.71	-4.82	-6.07	-5.94	-3.24	-2.96	-3.09	-3.20	-3.08	-3.13	-2.90	-2.63	-3.25	-5.05

Frequency(MHz)	5500	5650	5750	5850	5925	6000
Maximum Absolute Gain(dBi)	-2.66	-2.35	-2.53	-2.09	-1.55	-1.42
Efficiency(dB)	-6.46	-5.84	-5.76	-5.24	-5.11	-5.22

# 6.最大利得 Maximum Absolute Gain



# 7.放射効率 Efficiency

