

承認	検認	検認	担当
技術 '24. 12.04 高瀬			技術 '24. 12.04 武田

# 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

### T18-078-1127

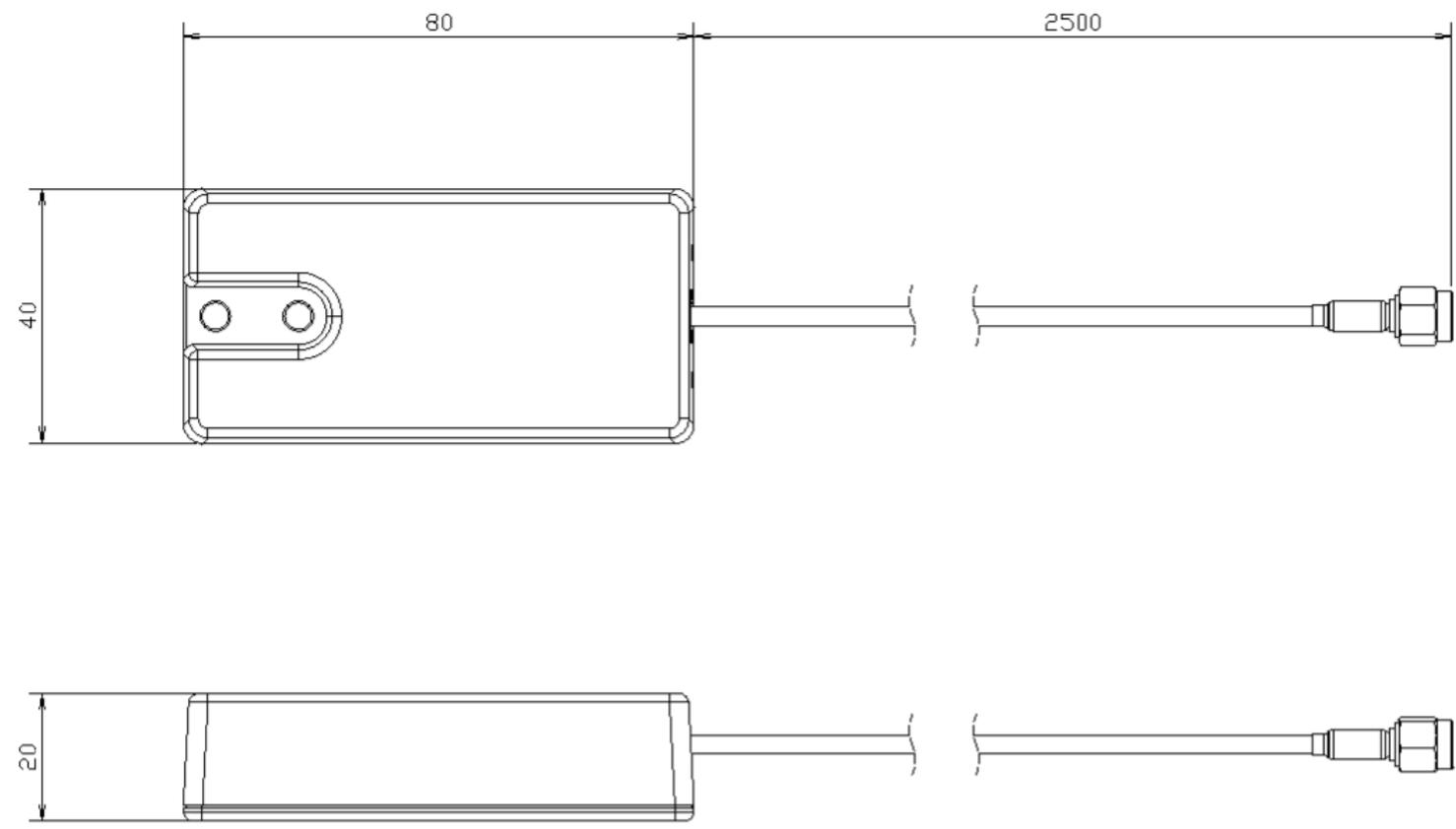
04 DECEMBER, 2024  
Staf Corporation  
Electric Group

Address: Staf Bldg. 2-6-12 Shin-Yokohama, Kohoku-ku,  
Yokohama-shi, Kanagawa-ken, Japan

# 1.仕様 Specification

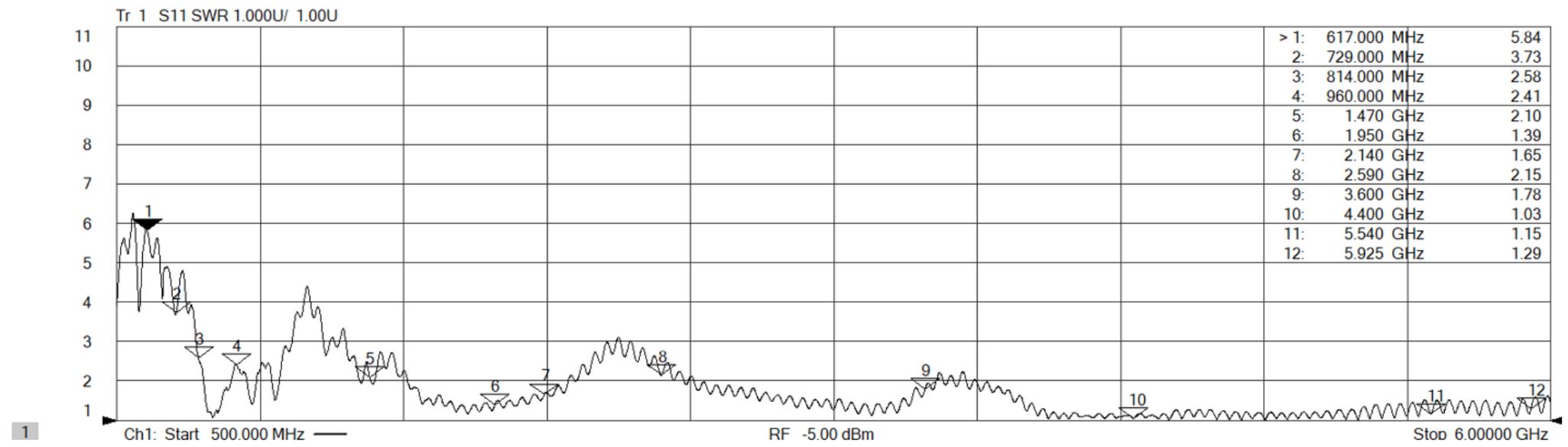
項目	記載内容
メーカー名 Manufacturer	スタッフ株式会社 Staf Corporation
品名 (製品名称) Product Name	アンテナ Antenna
技適申請番号 Application Number	T18-078-1127
測定周波数 Frequency	617~5850[MHz]
アンテナ型式 Antenna Type	Dipole Antenna ( $\lambda/2$ )
最大絶対利得 Maximum Absolute Gain	617~5850[MHz]:3[dBi]以下 617~5850[MHz]:3[dBi] or less ※但し、B41(2496~2690[MHz])に限り、4[dBi]以下 詳細はグラフ参照のこと ※However, for B41 (2496~2690[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	SMA

## 2.外形図 Outside Dimension Drawing



単位:mm  
Unit:mm

# 3.VSWR

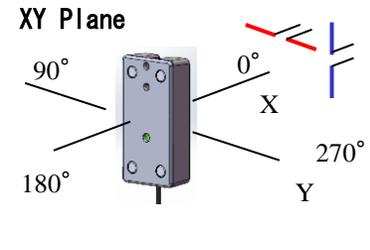
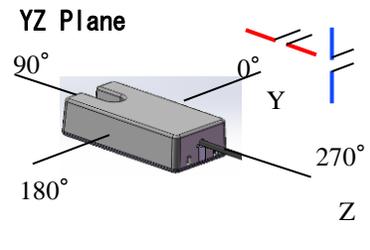
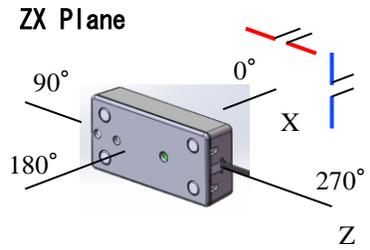
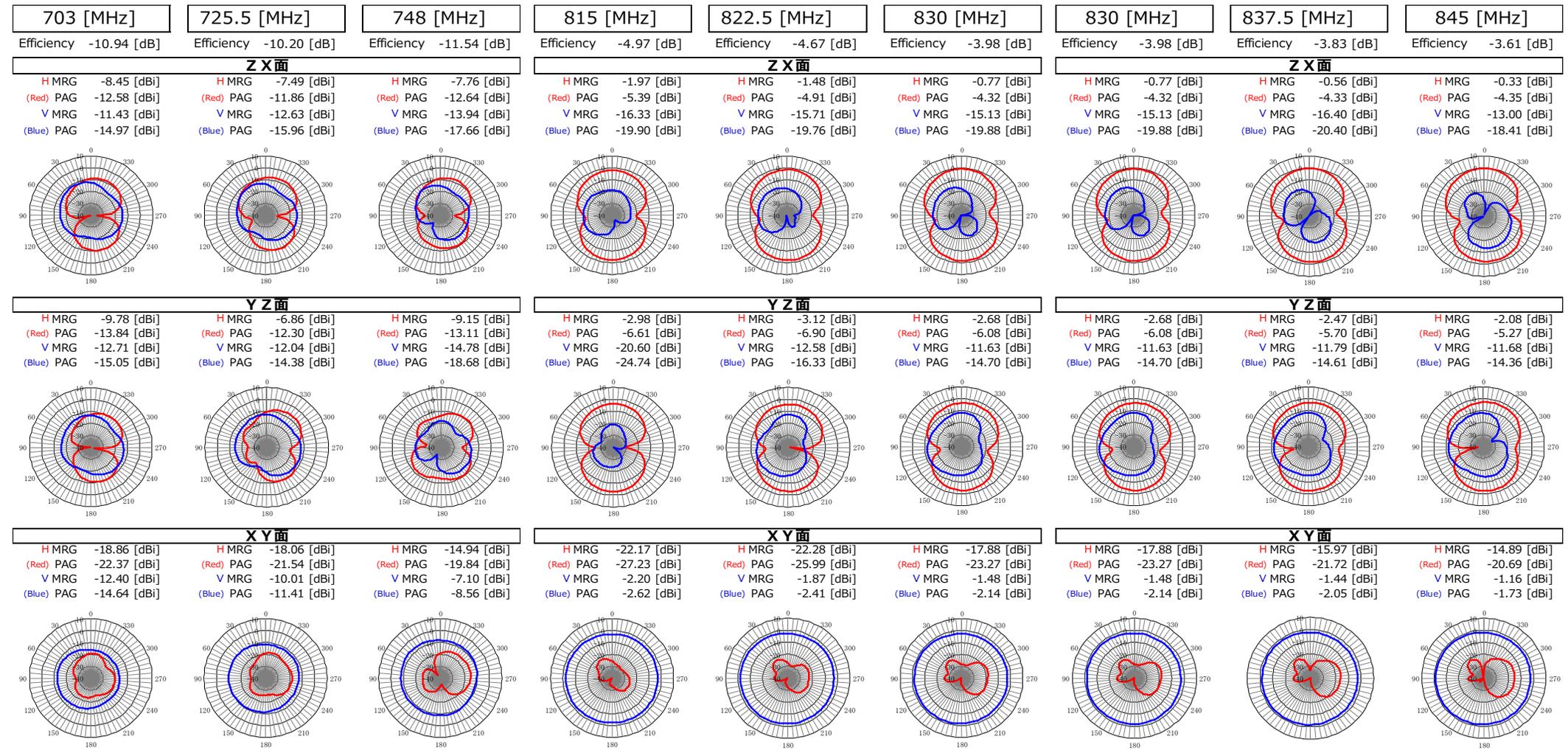


# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

## B28

## B18

## B19



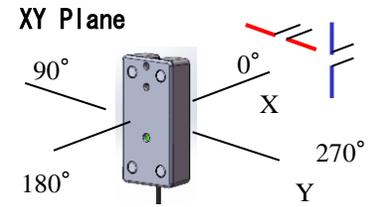
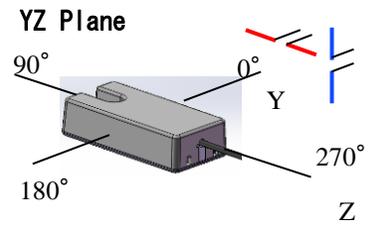
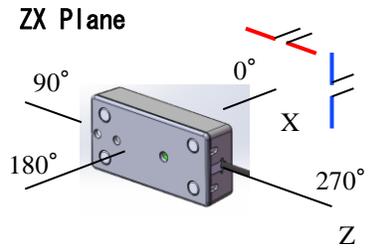
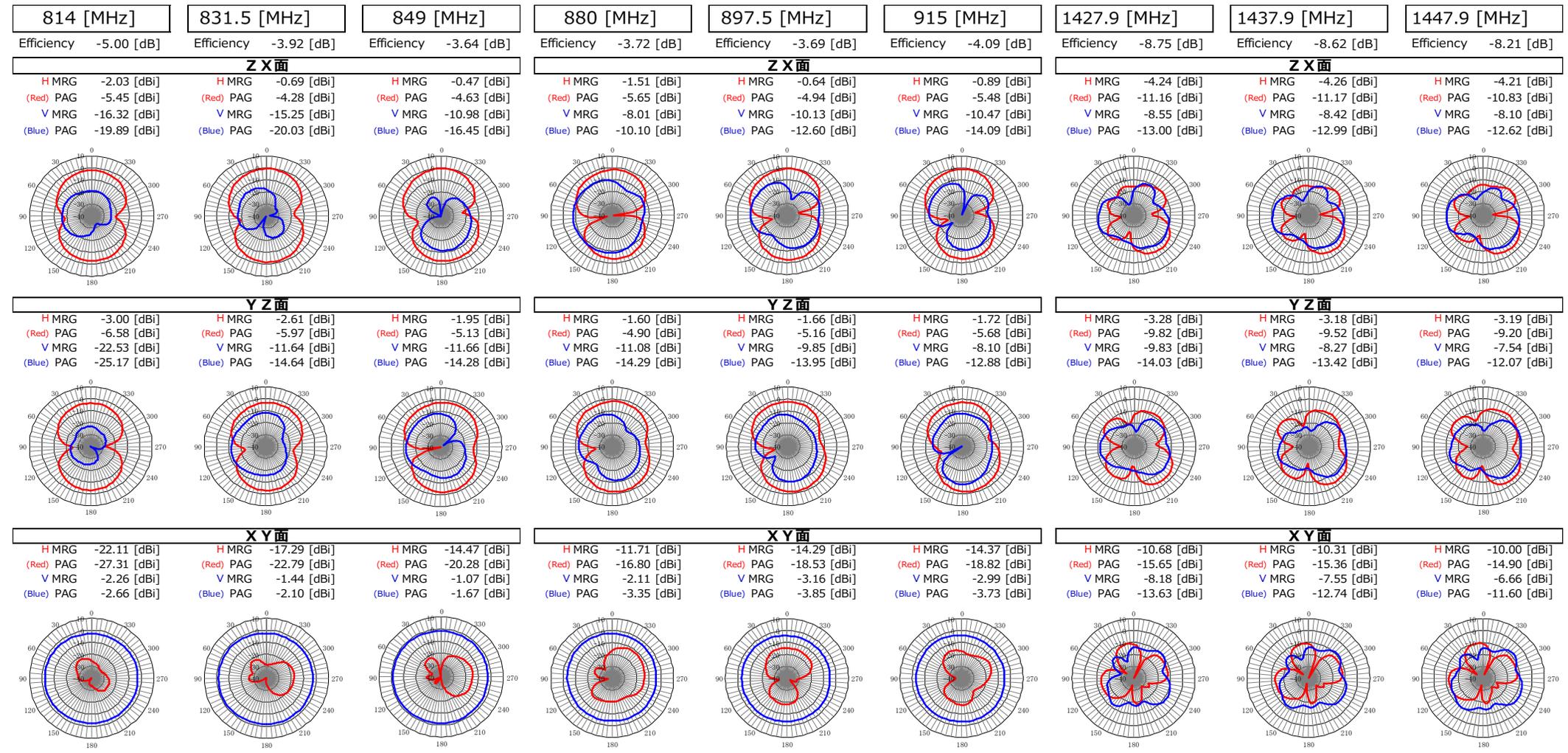
— 水平偏波 Horizontal Polarized Wave      MRG = 最大利得 Maximum Absolute Gain  
— 垂直偏波 Vertical Polarized Wave      PAG = 平均利得 Pattern Average Gain

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

## B26

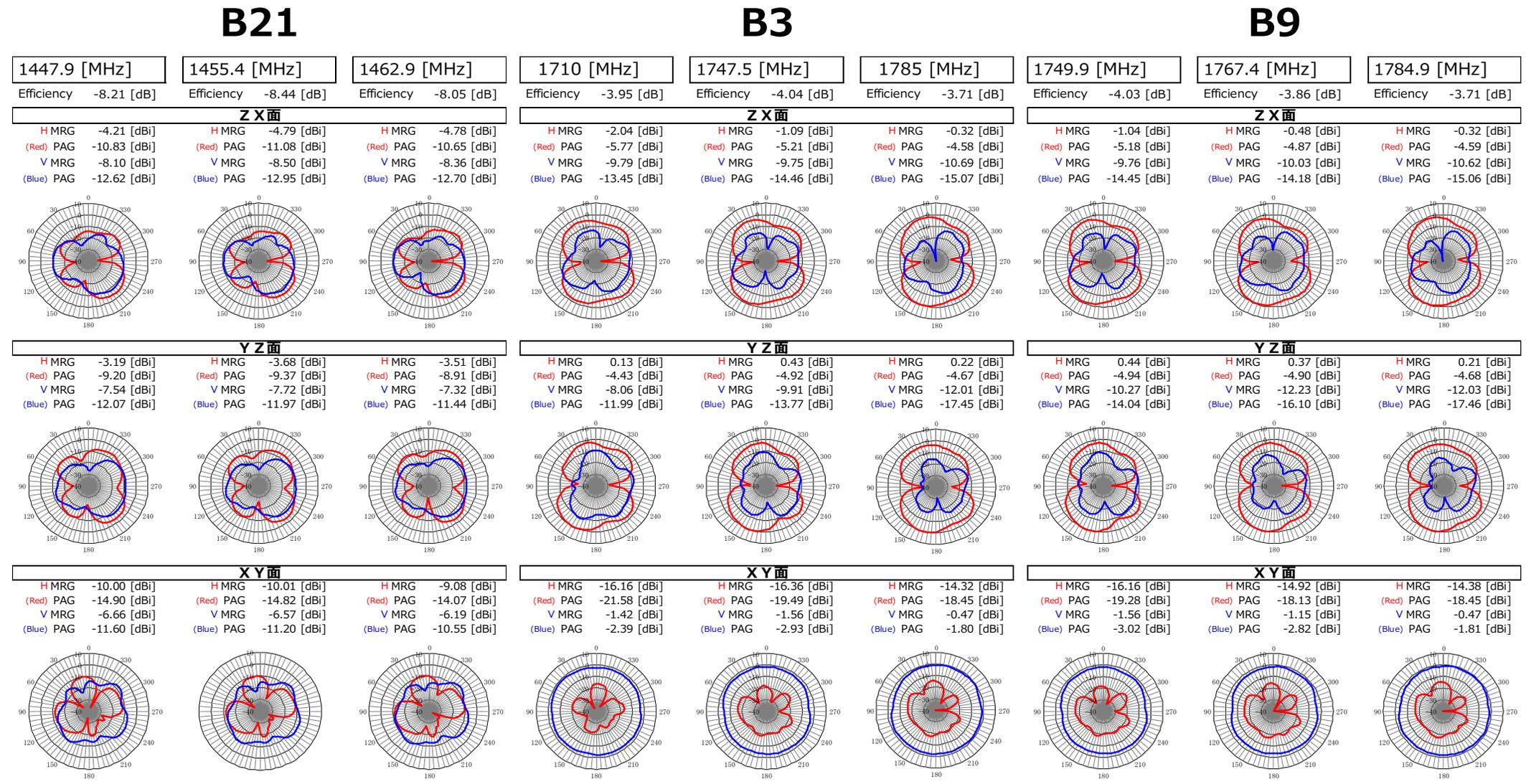
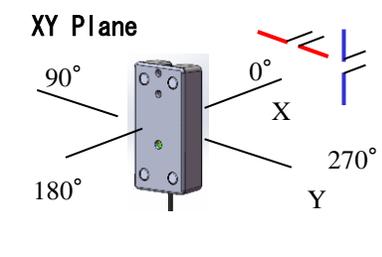
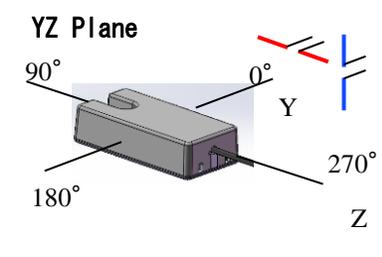
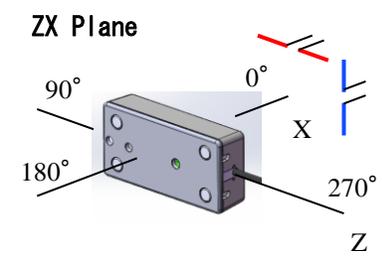
## B8

## B11



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



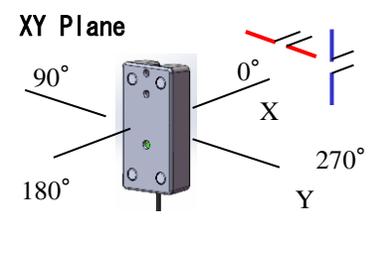
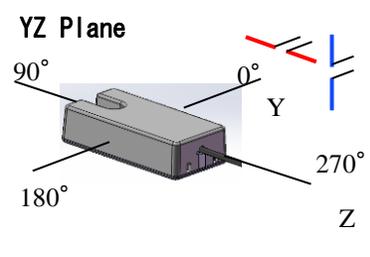
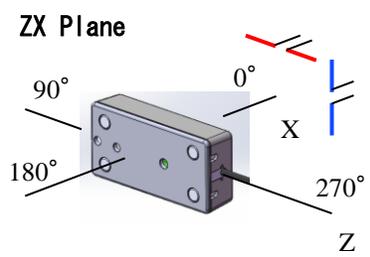
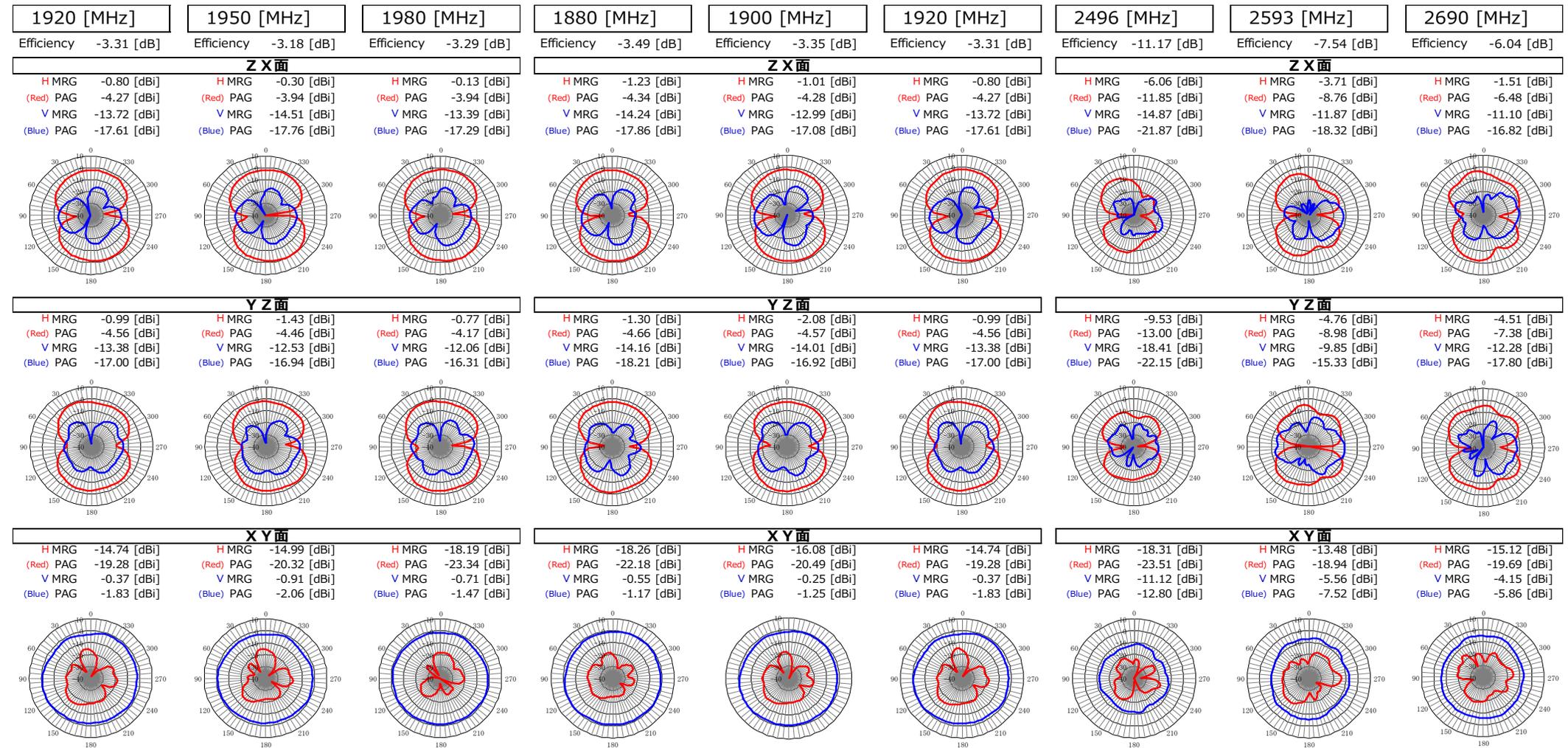
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# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

## B1

## B39

## B41



— 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

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

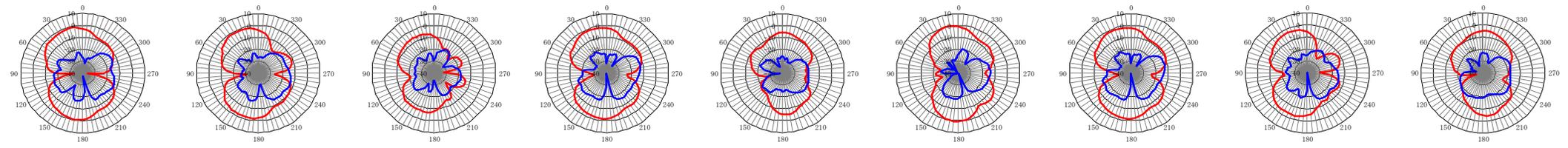
## B42

## n77

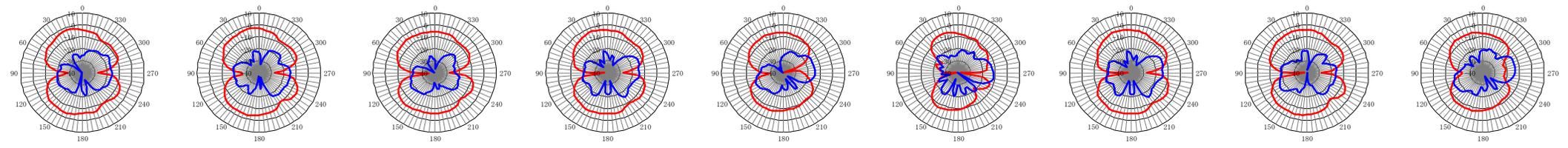
## n78

3400 [MHz] Efficiency -4.76 [dB]	3500 [MHz] Efficiency -4.92 [dB]	3600 [MHz] Efficiency -7.68 [dB]	3300 [MHz] Efficiency -5.23 [dB]	3750 [MHz] Efficiency -8.53 [dB]	4200 [MHz] Efficiency -5.79 [dB]	3300 [MHz] Efficiency -5.23 [dB]	3550 [MHz] Efficiency -6.00 [dB]	3800 [MHz] Efficiency -8.13 [dB]
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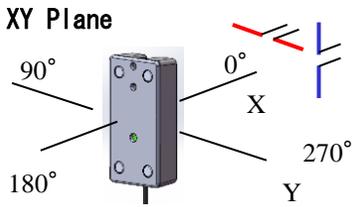
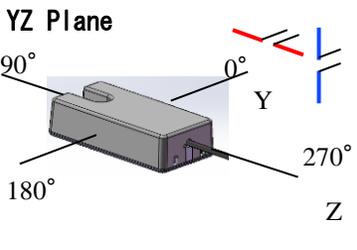
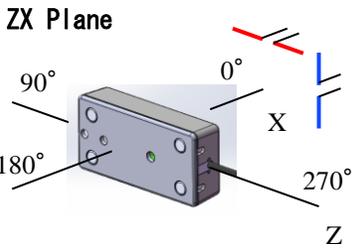
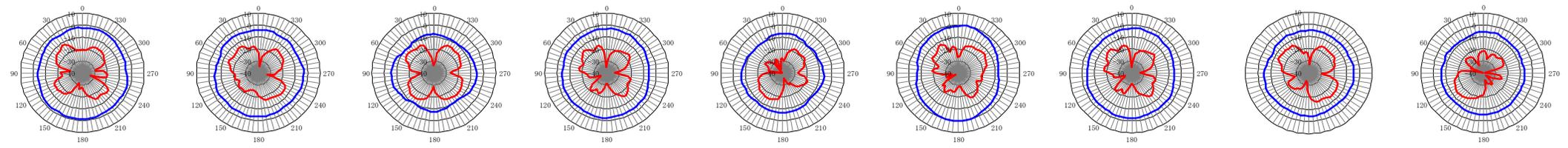
Z X 面			Z X 面			Z X 面		
H MRG -0.56 [dBi] (Red) PAG -5.28 [dBi] V MRG -12.54 [dBi] (Blue) PAG -17.56 [dBi]	H MRG -1.27 [dBi] (Red) PAG -5.90 [dBi] V MRG -12.24 [dBi] (Blue) PAG -18.08 [dBi]	H MRG -6.21 [dBi] (Red) PAG -10.45 [dBi] V MRG -17.53 [dBi] (Blue) PAG -21.91 [dBi]	H MRG -1.16 [dBi] (Red) PAG -5.64 [dBi] V MRG -12.25 [dBi] (Blue) PAG -17.55 [dBi]	H MRG -4.81 [dBi] (Red) PAG -10.36 [dBi] V MRG -16.94 [dBi] (Blue) PAG -21.93 [dBi]	H MRG 0.68 [dBi] (Red) PAG -5.00 [dBi] V MRG -13.81 [dBi] (Blue) PAG -19.98 [dBi]	H MRG -1.16 [dBi] (Red) PAG -5.64 [dBi] V MRG -12.25 [dBi] (Blue) PAG -17.55 [dBi]	H MRG -2.90 [dBi] (Red) PAG -7.53 [dBi] V MRG -14.29 [dBi] (Blue) PAG -19.55 [dBi]	H MRG -3.96 [dBi] (Red) PAG -9.39 [dBi] V MRG -15.44 [dBi] (Blue) PAG -19.90 [dBi]



Y Z 面			Y Z 面			Y Z 面		
H MRG -2.16 [dBi] (Red) PAG -6.40 [dBi] V MRG -15.02 [dBi] (Blue) PAG -20.02 [dBi]	H MRG -2.15 [dBi] (Red) PAG -5.99 [dBi] V MRG -14.55 [dBi] (Blue) PAG -19.53 [dBi]	H MRG -4.49 [dBi] (Red) PAG -6.93 [dBi] V MRG -17.15 [dBi] (Blue) PAG -22.13 [dBi]	H MRG -2.98 [dBi] (Red) PAG -6.83 [dBi] V MRG -13.18 [dBi] (Blue) PAG -19.18 [dBi]	H MRG -5.56 [dBi] (Red) PAG -9.16 [dBi] V MRG -14.12 [dBi] (Blue) PAG -19.90 [dBi]	H MRG -5.25 [dBi] (Red) PAG -10.56 [dBi] V MRG -10.94 [dBi] (Blue) PAG -18.85 [dBi]	H MRG -2.98 [dBi] (Red) PAG -6.83 [dBi] V MRG -13.18 [dBi] (Blue) PAG -19.18 [dBi]	H MRG -3.67 [dBi] (Red) PAG -6.39 [dBi] V MRG -15.08 [dBi] (Blue) PAG -19.81 [dBi]	H MRG -5.35 [dBi] (Red) PAG -9.47 [dBi] V MRG -13.35 [dBi] (Blue) PAG -19.04 [dBi]



X Y 面			X Y 面			X Y 面		
H MRG -11.81 [dBi] (Red) PAG -17.83 [dBi] V MRG -1.02 [dBi] (Blue) PAG -2.72 [dBi]	H MRG -13.47 [dBi] (Red) PAG -17.93 [dBi] V MRG -3.04 [dBi] (Blue) PAG -4.15 [dBi]	H MRG -13.59 [dBi] (Red) PAG -16.75 [dBi] V MRG -5.38 [dBi] (Blue) PAG -7.75 [dBi]	H MRG -13.90 [dBi] (Red) PAG -19.78 [dBi] V MRG -2.19 [dBi] (Blue) PAG -3.62 [dBi]	H MRG -15.54 [dBi] (Red) PAG -21.06 [dBi] V MRG -5.97 [dBi] (Blue) PAG -7.59 [dBi]	H MRG -11.98 [dBi] (Red) PAG -18.31 [dBi] V MRG 0.32 [dBi] (Blue) PAG -2.60 [dBi]	H MRG -13.90 [dBi] (Red) PAG -19.78 [dBi] V MRG -2.19 [dBi] (Blue) PAG -3.62 [dBi]	H MRG -13.11 [dBi] (Red) PAG -17.66 [dBi] V MRG -4.00 [dBi] (Blue) PAG -5.21 [dBi]	H MRG -13.53 [dBi] (Red) PAG -20.79 [dBi] V MRG -4.97 [dBi] (Blue) PAG -6.43 [dBi]

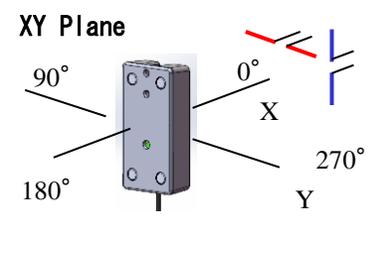
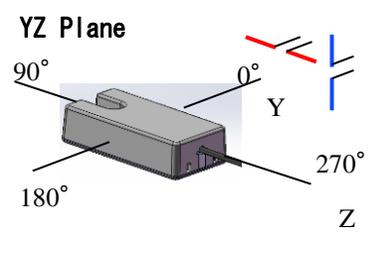
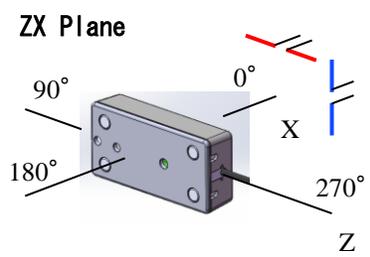
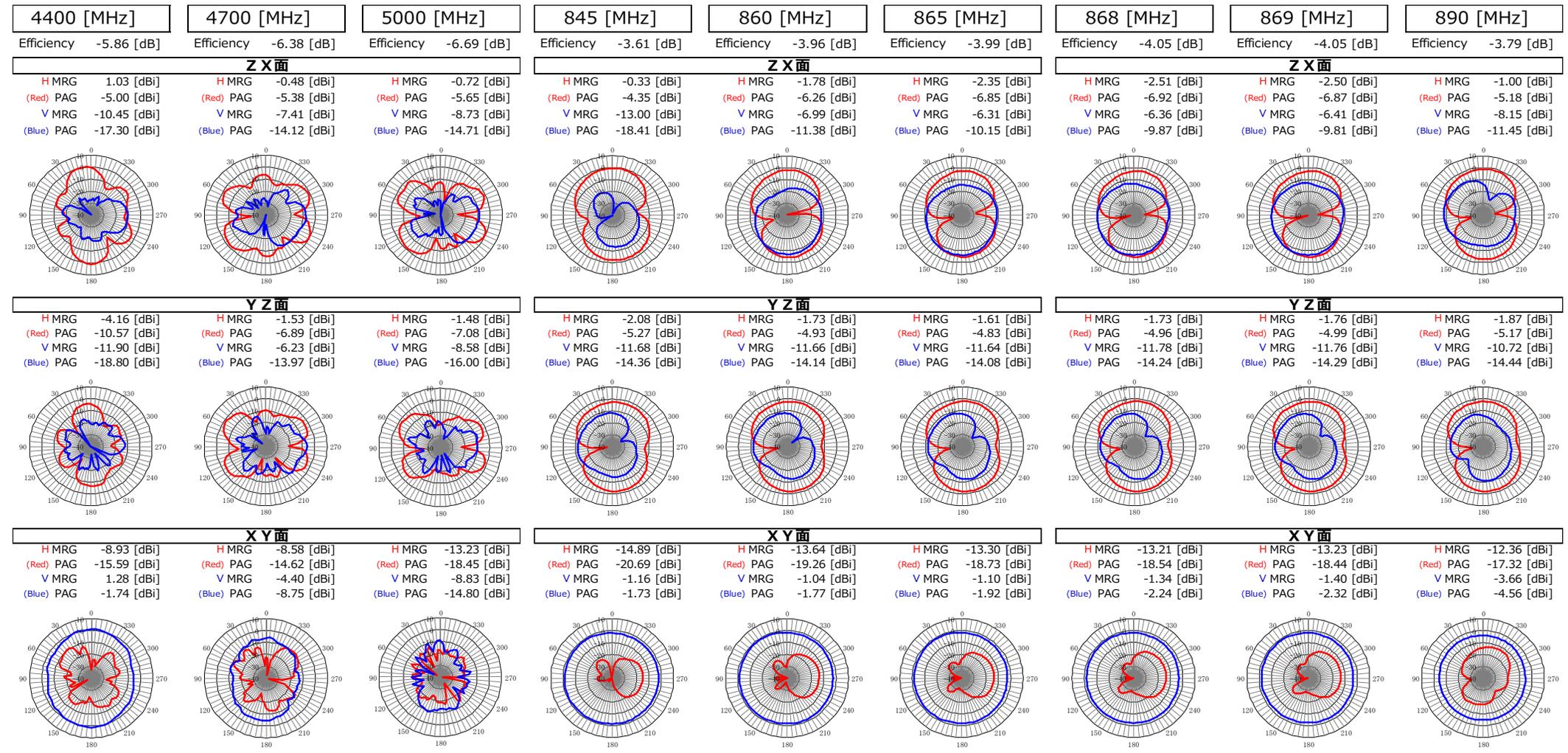


— 水平偏波 Horizontal Polarized Wave      MRG = 最大利得 Maximum Absolute Gain  
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# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

## n79

## Sub-GHz Band



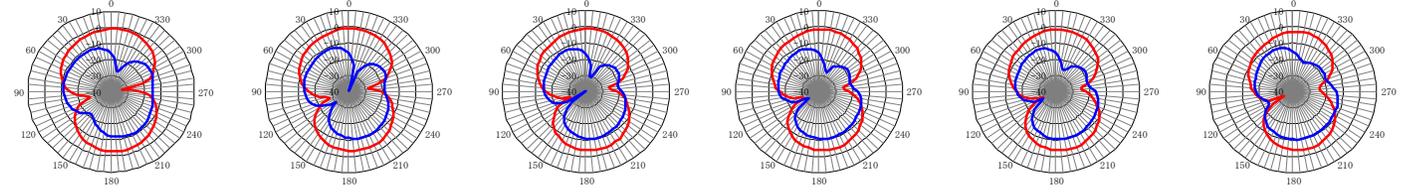
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# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

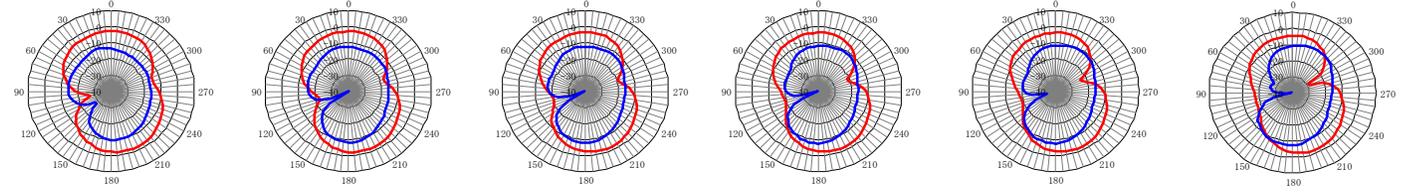
## Sub-GHz Band

902 [MHz]	915 [MHz]	922 [MHz]	928 [MHz]	930 [MHz]	940 [MHz]
Efficiency -3.93 [dB]	Efficiency -4.09 [dB]	Efficiency -4.43 [dB]	Efficiency -4.55 [dB]	Efficiency -4.59 [dB]	Efficiency -5.10 [dB]

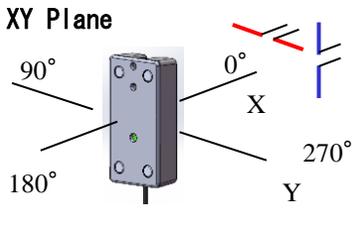
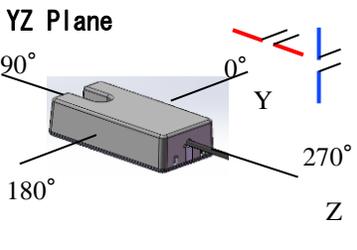
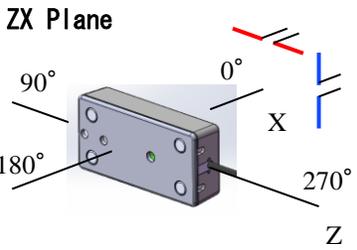
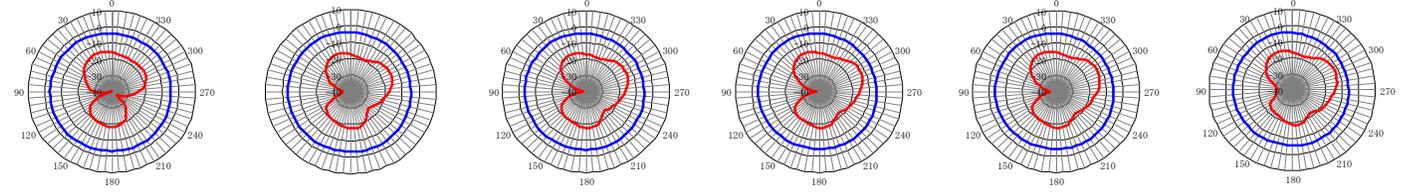
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H MRG -0.80 [dBi]	H MRG -0.89 [dBi]	H MRG -1.15 [dBi]	H MRG -1.35 [dBi]	H MRG -1.46 [dBi]	H MRG -2.70 [dBi]
(Red) PAG -5.16 [dBi]	(Red) PAG -5.48 [dBi]	(Red) PAG -5.92 [dBi]	(Red) PAG -6.19 [dBi]	(Red) PAG -6.29 [dBi]	(Red) PAG -7.25 [dBi]
V MRG -10.85 [dBi]	V MRG -10.47 [dBi]	V MRG -10.55 [dBi]	V MRG -10.33 [dBi]	V MRG -10.27 [dBi]	V MRG -10.20 [dBi]
(Blue) PAG -13.30 [dBi]	(Blue) PAG -14.09 [dBi]	(Blue) PAG -14.54 [dBi]	(Blue) PAG -14.46 [dBi]	(Blue) PAG -14.36 [dBi]	(Blue) PAG -13.87 [dBi]



Y Z 面					
H MRG -1.82 [dBi]	H MRG -1.72 [dBi]	H MRG -1.87 [dBi]	H MRG -1.78 [dBi]	H MRG -1.76 [dBi]	H MRG -1.95 [dBi]
(Red) PAG -5.46 [dBi]	(Red) PAG -6.01 [dBi]	(Red) PAG -6.01 [dBi]	(Red) PAG -6.15 [dBi]	(Red) PAG -6.21 [dBi]	(Red) PAG -6.78 [dBi]
V MRG -9.53 [dBi]	V MRG -8.10 [dBi]	V MRG -7.90 [dBi]	V MRG -7.60 [dBi]	V MRG -7.50 [dBi]	V MRG -7.29 [dBi]
(Blue) PAG -13.82 [dBi]	(Blue) PAG -12.88 [dBi]	(Blue) PAG -12.84 [dBi]	(Blue) PAG -12.57 [dBi]	(Blue) PAG -12.47 [dBi]	(Blue) PAG -12.08 [dBi]



X Y 面					
H MRG -14.75 [dBi]	H MRG -14.37 [dBi]	H MRG -13.24 [dBi]	H MRG -12.44 [dBi]	H MRG -12.21 [dBi]	H MRG -11.74 [dBi]
(Red) PAG -19.33 [dBi]	(Red) PAG -18.82 [dBi]	(Red) PAG -18.09 [dBi]	(Red) PAG -17.51 [dBi]	(Red) PAG -17.37 [dBi]	(Red) PAG -17.22 [dBi]
V MRG -3.01 [dBi]	V MRG -2.99 [dBi]	V MRG -3.27 [dBi]	V MRG -3.27 [dBi]	V MRG -3.27 [dBi]	V MRG -3.67 [dBi]
(Blue) PAG -3.77 [dBi]	(Blue) PAG -3.73 [dBi]	(Blue) PAG -4.19 [dBi]	(Blue) PAG -4.39 [dBi]	(Blue) PAG -4.44 [dBi]	(Blue) PAG -5.15 [dBi]

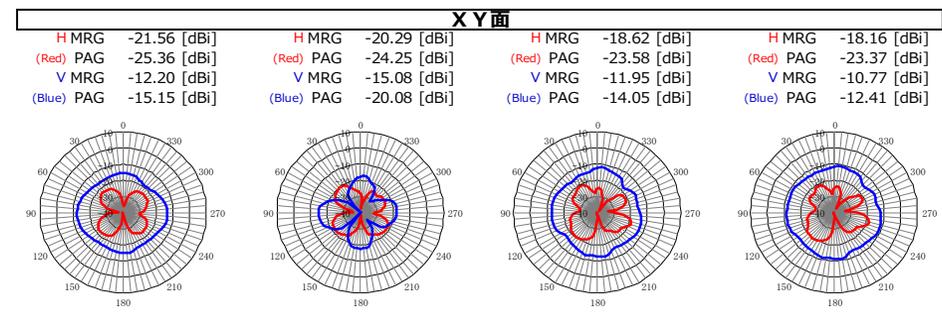
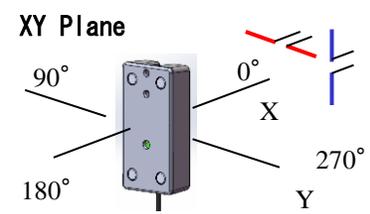
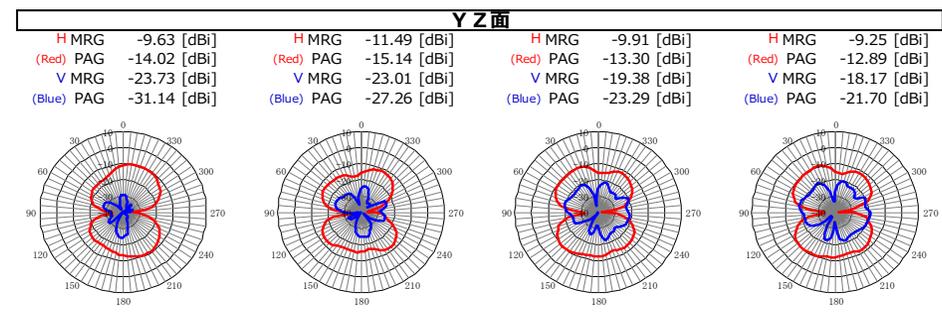
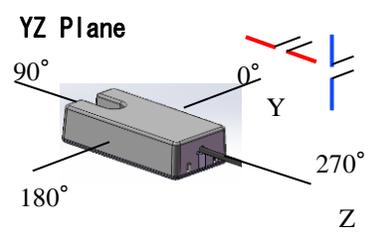
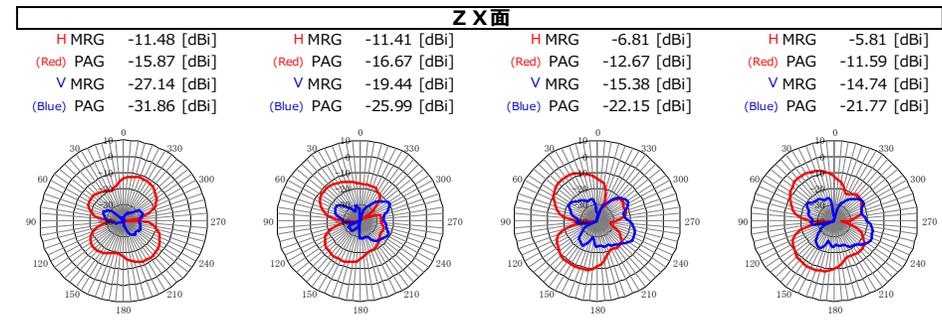
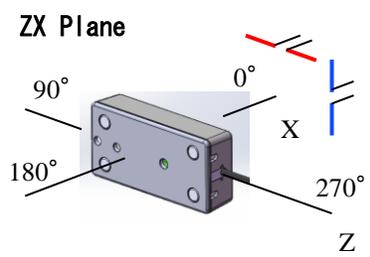


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# 4. 利得・指向性特性 Gain and Radiation Pattern Characteristics

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

2400 [MHz]	2442 [MHz]	2483.5 [MHz]	2500 [MHz]
Efficiency -13.71 [dB]	Efficiency -14.63 [dB]	Efficiency -11.84 [dB]	Efficiency -10.93 [dB]



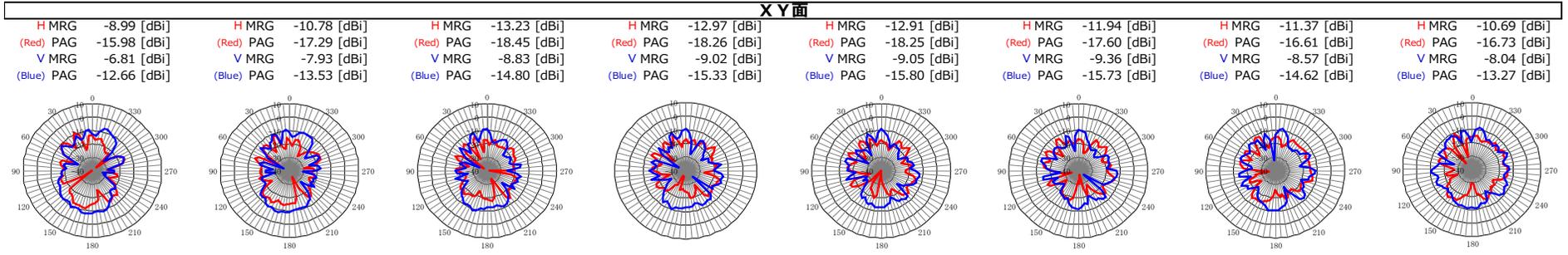
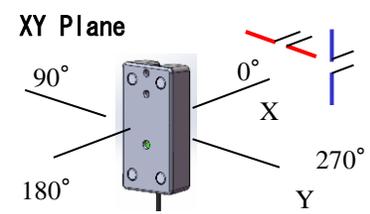
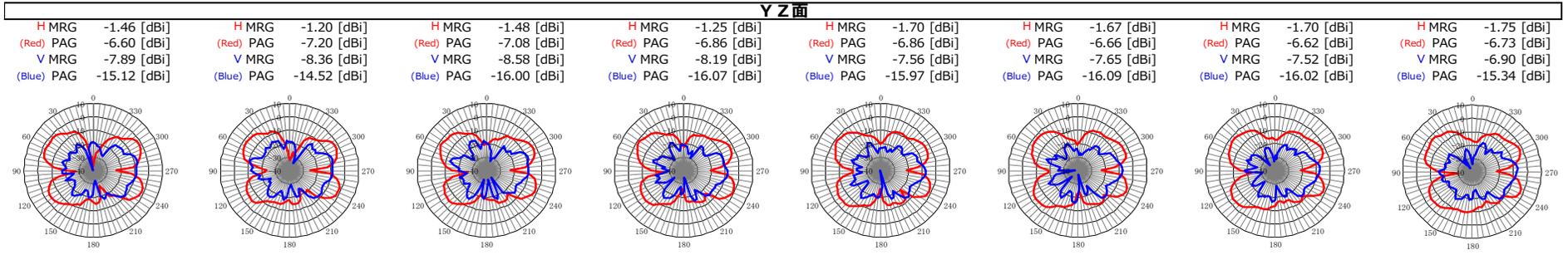
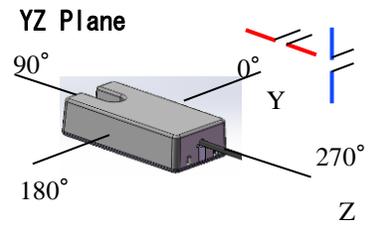
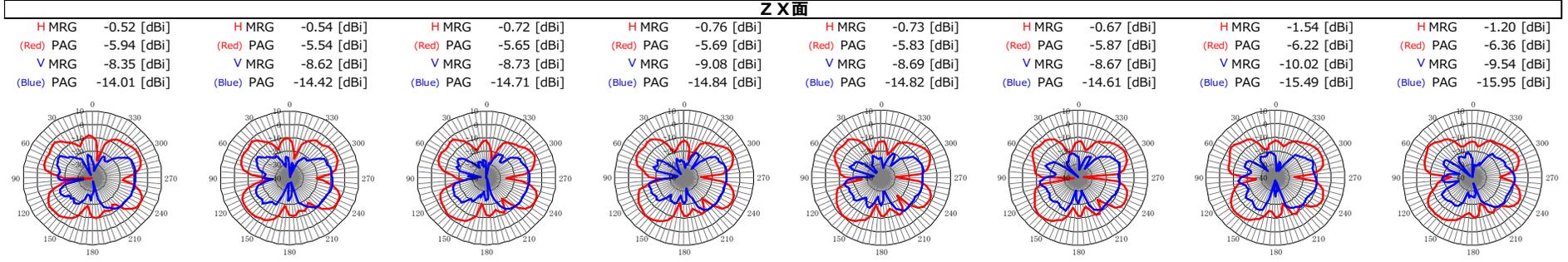
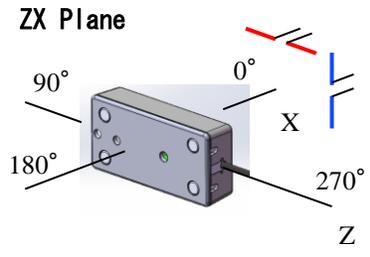
— 水平偏波 Horizontal Polarized Wave  
 — 垂直偏波 Vertical Polarized Wave

MRG = 最大利得 Maximum Absolute Gain  
 PAG = 平均利得 Pattern Average Gain

# 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 -6.57 [dB]	Efficiency -6.56 [dB]	Efficiency -6.69 [dB]	Efficiency -6.49 [dB]	Efficiency -6.56 [dB]	Efficiency -6.40 [dB]	Efficiency -6.48 [dB]	Efficiency -6.61 [dB]

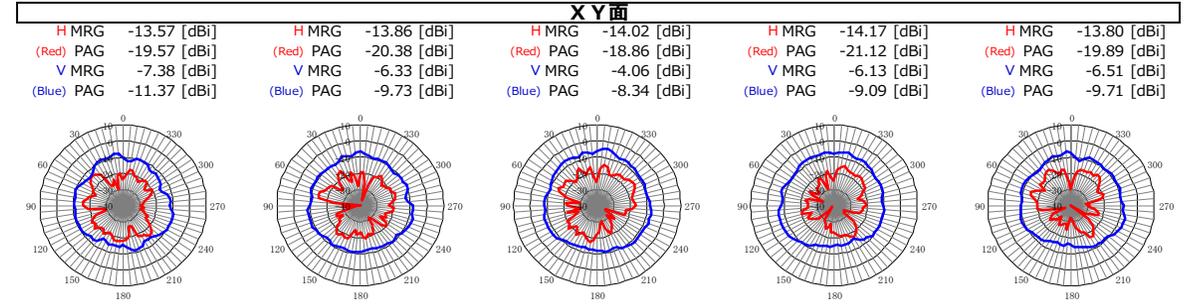
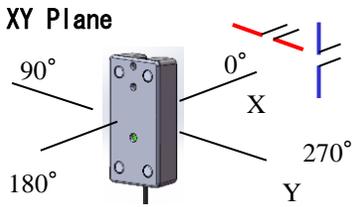
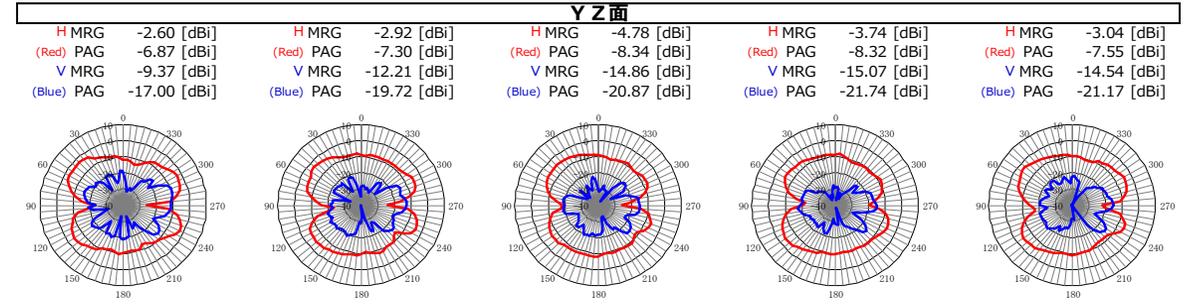
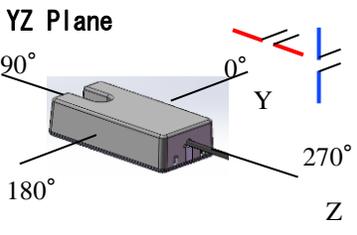
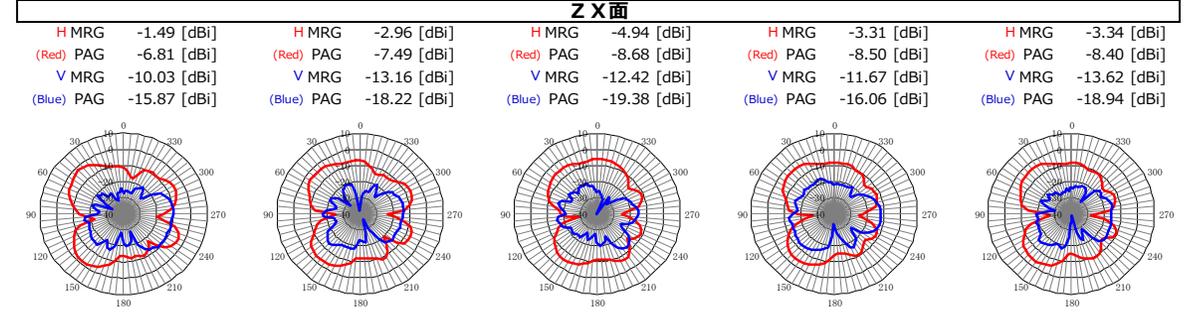
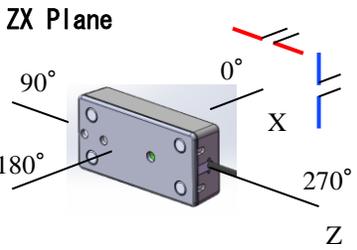


— 水平偏波 Horizontal Polarized Wave      MRG = 最大利得 Maximum Absolute Gain  
— 垂直偏波 Vertical Polarized Wave      PAG = 平均利得 Pattern Average Gain

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

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

5350 [MHz]	5500 [MHz]	5650 [MHz]	5750 [MHz]	5850 [MHz]
Efficiency -6.75 [dB]	Efficiency -7.20 [dB]	Efficiency -8.09 [dB]	Efficiency -7.97 [dB]	Efficiency -7.70 [dB]



— 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)	600	617	630	634.5	652	660	663	680.5	698	699	703	704	707.5	710	716
Maximum Absolute Gain(dBi)	-11.93	-11.93	-11.81	-11.99	-12.13	-11.49	-11.62	-9.44	-8.59	-8.52	-8.45	-8.43	-8.15	-7.80	-7.28
Efficiency(dB)	-13.06	-14.59	-14.37	-14.78	-13.83	-12.49	-12.98	-11.06	-10.97	-10.97	-10.94	-10.89	-10.56	-10.31	-10.35

Frequency(MHz)	725.5	729	734	737.5	740	746	748	751	756	758	763	768	777	780.5	782
Maximum Absolute Gain(dBi)	-6.86	-6.97	-7.22	-7.22	-7.16	-7.23	-7.10	-6.87	-6.34	-6.18	-5.80	-5.61	-4.75	-4.57	-4.53
Efficiency(dB)	-10.20	-10.28	-10.60	-10.91	-11.02	-11.27	-11.54	-11.82	-11.66	-11.45	-10.64	-9.88	-8.12	-7.66	-7.51

Frequency(MHz)	787	788	791	793	798	803	806	814	815	821	822.5	824	830	831.5	832
Maximum Absolute Gain(dBi)	-4.41	-4.40	-4.20	-3.99	-3.34	-3.12	-2.85	-2.03	-1.97	-1.57	-1.48	-1.38	-0.77	-0.69	-0.68
Efficiency(dB)	-7.06	-7.00	-6.80	-6.60	-5.91	-5.85	-5.66	-5.00	-4.97	-4.75	-4.67	-4.56	-3.98	-3.92	-3.91

Frequency(MHz)	836.5	837.5	845	847	849	859	860	862	865	867.5	868	869	875	876.5	880
Maximum Absolute Gain(dBi)	-0.60	-0.56	-0.33	-0.39	-0.47	-1.08	-1.04	-0.99	-1.10	-1.30	-1.34	-1.40	-1.54	-1.54	-1.51
Efficiency(dB)	-3.87	-3.83	-3.61	-3.63	-3.64	-3.98	-3.96	-3.95	-3.99	-4.05	-4.05	-4.05	-3.73	-3.63	-3.72

Frequency(MHz)	881.5	882.5	890	894	897.5	900	902	915	922	925	928	930	940	942.5	960
Maximum Absolute Gain(dBi)	-1.38	-1.31	-1.00	-0.78	-0.64	-0.31	-0.80	-0.89	-1.15	-1.29	-1.35	-1.46	-1.95	-1.92	-1.53
Efficiency(dB)	-3.68	-3.66	-3.79	-3.72	-3.69	-3.52	-3.93	-4.09	-4.43	-4.53	-4.55	-4.59	-5.10	-5.15	-5.06

Frequency(MHz)	1176.5	1227.6	1246.0	1278.8	1427.9	1437.9	1440.0	1447.9	1455.4	1462.9	1475.9	1485.9	1495.9	1503.4	1510.9
Maximum Absolute Gain(dBi)	-4.45	-13.54	-11.45	-8.10	-3.28	-3.18	-3.12	-3.19	-3.68	-3.51	-3.66	-2.65	-2.21	-2.14	-2.53
Efficiency(dB)	-9.14	-17.31	-14.13	-11.23	-8.75	-8.62	-8.60	-8.21	-8.44	-8.05	-7.99	-7.57	-7.09	-6.68	-6.66

Frequency(MHz)	1575.42	1602	1710	1732.5	1740	1745	1747.5	1749.9	1755	1767.4	1780	1784.9	1785	1805	1842.5
Maximum Absolute Gain(dBi)	-1.76	-2.26	0.13	0.42	0.52	0.40	0.43	0.44	0.42	0.37	0.16	0.21	0.22	-0.10	-0.75
Efficiency(dB)	-6.37	-6.18	-3.95	-4.00	-3.79	-4.06	-4.04	-4.03	-4.01	-3.86	-3.81	-3.71	-3.71	-3.62	-3.44

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

Frequency(MHz)	1844.9	1850	1862.4	1879.9	1880	1882.5	1900	1910	1915	1920	1930	1950	1960	1962.5	1980
Maximum Absolute Gain(dBi)	-0.73	-0.66	-0.65	-0.55	-0.55	-0.46	-0.25	-0.32	-0.43	-0.37	-0.51	-0.30	-0.32	-0.33	-0.13
Efficiency(dB)	-3.45	-3.41	-3.51	-3.49	-3.49	-3.41	-3.35	-3.40	-3.43	-3.31	-3.26	-3.18	-3.35	-3.39	-3.29

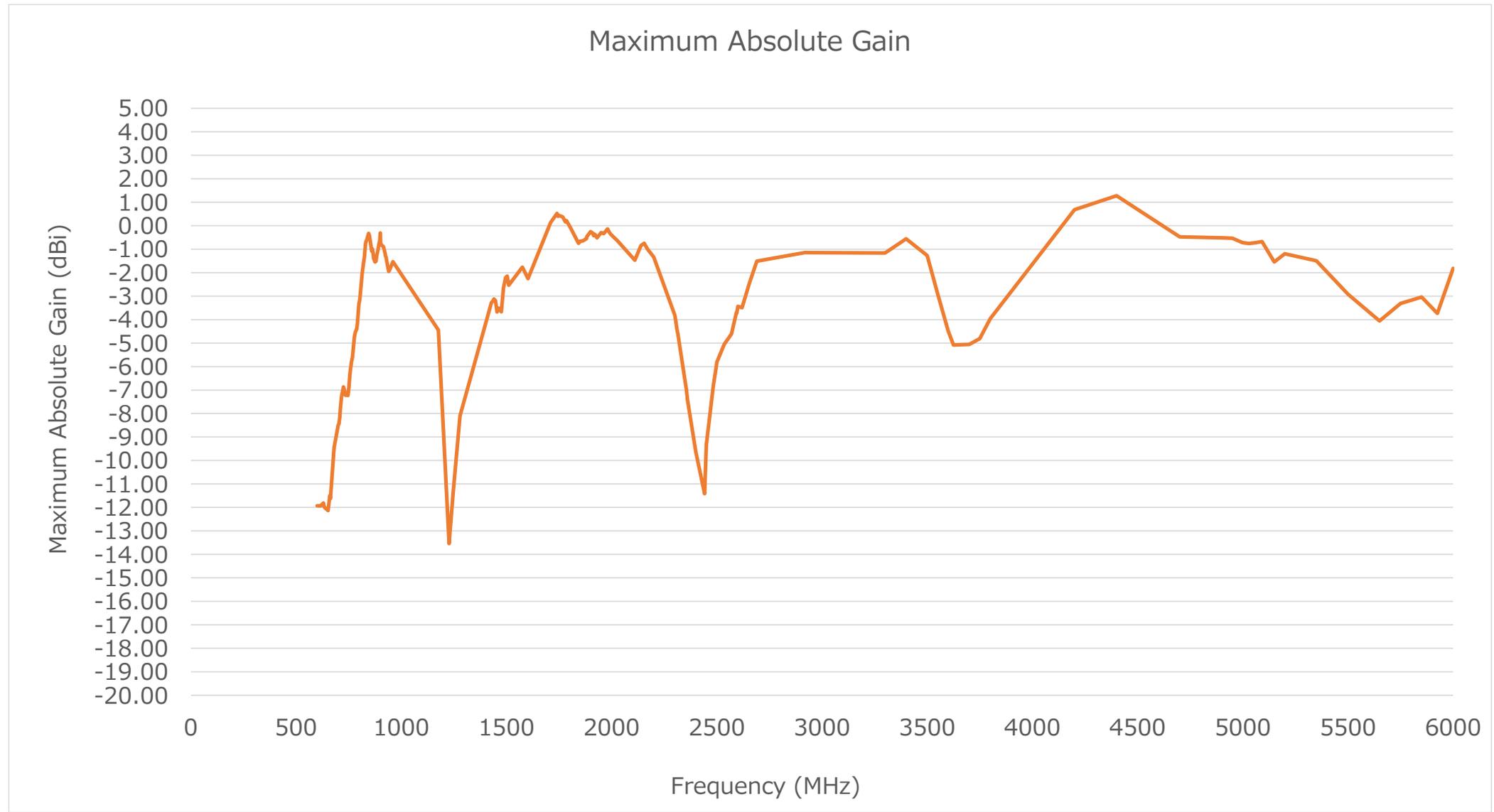
Frequency(MHz)	1990	1995	2010	2025	2110	2132.5	2140	2155	2170	2200	2300	2305	2310	2315	2350
Maximum Absolute Gain(dBi)	-0.30	-0.36	-0.49	-0.62	-1.47	-0.99	-0.84	-0.75	-1.00	-1.33	-3.81	-4.05	-4.40	-4.61	-6.68
Efficiency(dB)	-3.34	-3.36	-3.38	-3.60	-3.90	-4.02	-4.13	-4.24	-4.46	-4.59	-7.28	-7.54	-7.88	-8.06	-10.06

Frequency(MHz)	2355	2360	2400	2442	2450	2483.5	2496	2500	2535	2570	2593	2595	2600	2620	2655
Maximum Absolute Gain(dBi)	-6.94	-7.40	-9.63	-11.41	-9.34	-6.81	-6.06	-5.81	-5.05	-4.61	-3.71	-3.72	-3.43	-3.49	-2.45
Efficiency(dB)	-10.34	-10.85	-13.71	-14.63	-13.60	-11.84	-11.17	-10.93	-9.69	-8.62	-7.54	-7.55	-7.30	-7.41	-6.46

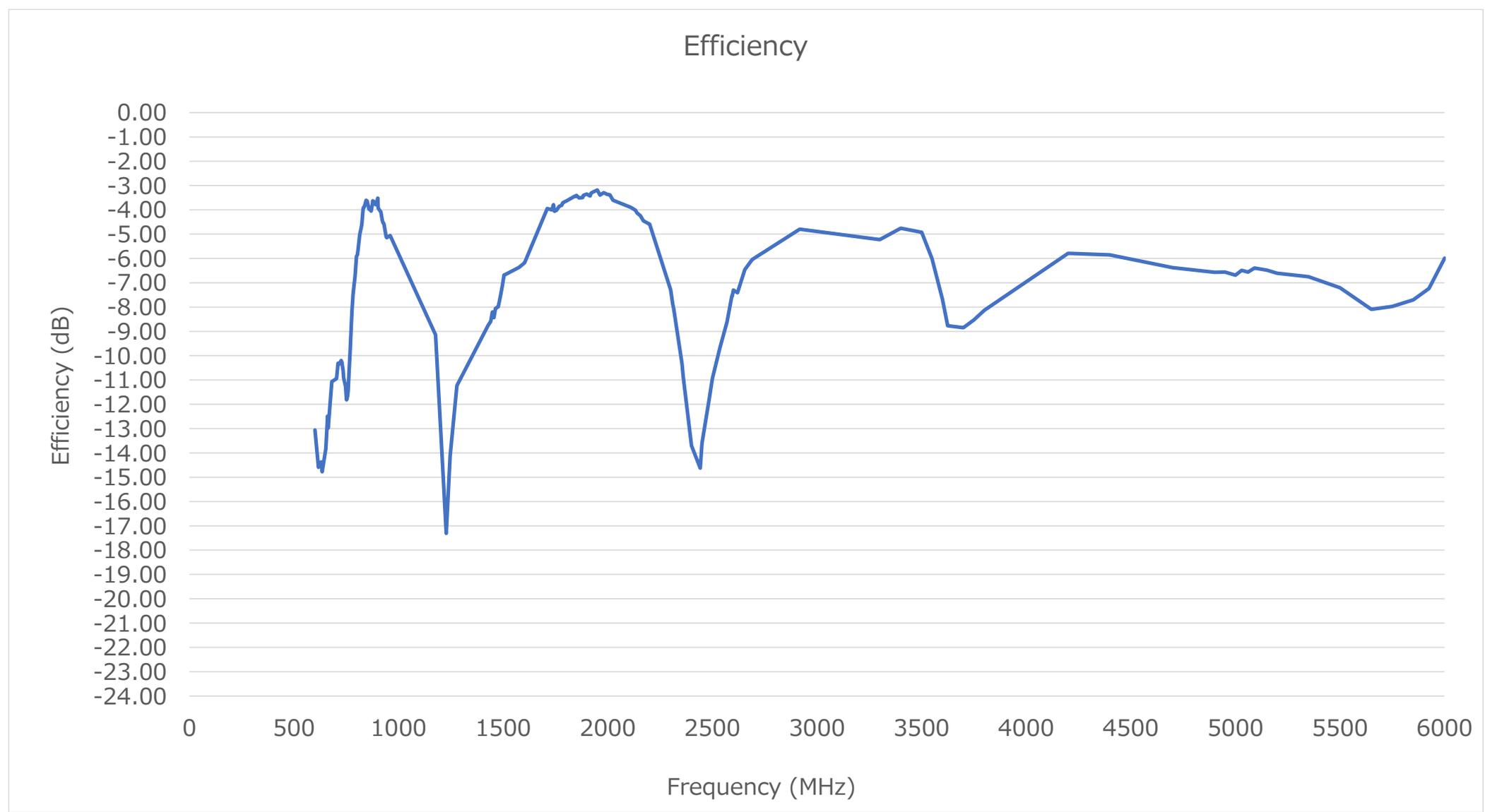
Frequency(MHz)	2690	2917.5	3300	3400	3500	3550	3600	3625	3700	3750	3800	4200	4400	4700	4900
Maximum Absolute Gain(dBi)	-1.51	-1.14	-1.16	-0.56	-1.27	-2.90	-4.49	-5.08	-5.06	-4.81	-3.96	0.68	1.28	-0.48	-0.52
Efficiency(dB)	-6.04	-4.80	-5.23	-4.76	-4.92	-6.00	-7.68	-8.77	-8.85	-8.53	-8.13	-5.79	-5.86	-6.38	-6.57

Frequency(MHz)	4950	5000	5030	5060.5	5091	5150	5200	5350	5500	5650	5750	5850	5925	6000
Maximum Absolute Gain(dBi)	-0.54	-0.72	-0.76	-0.73	-0.67	-1.54	-1.20	-1.49	-2.92	-4.06	-3.31	-3.04	-3.74	-1.81
Efficiency(dB)	-6.56	-6.69	-6.49	-6.56	-6.40	-6.48	-6.61	-6.75	-7.20	-8.09	-7.97	-7.70	-7.24	-5.99

# 6.最大利得 Maximum Absolute Gain



# 7.放射効率 Efficiency



## 8. 来歴 Revision History

日付 Date	変更前 Before Change	変更後 After Change	氏名 Name
2023/11/02	922MHz指向性、利得追加 (Add 922MHz Gain and Radiation Pattern )		Takeda
2024/12/04	測定周波数変更 (Frequency Change)		Takeda