

6.8 Transmitter Spurious Emission-Radiated

6.8.1 Measurement Limit

Standard	Limit
FCC 47 Part 15.247,15.205,15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in 25.205(a), must also comply with the radiated emission limits specified in 15.209(a)(see 15.205(c)).

The measurement is according to ANSI C63.10 clause 11.11 and 11.12.

6.8.2 Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009~0.49	2400/F (kHz)	129-94
0.49~1.705	24000/F (kHz)	74-63
1.705~30	30	70
30~88	100	40
88~216	150	43.5
216~960	200	46
Above 960	500	54

6.8.3 Test procedures

The measurement is according to ANSI C63.10 clause 11.11 and 11.12.

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.10-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height varied from 1m to 4m and the EUT azimuth were varied from 0° to 360° in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Test Settings – Below 1GHz (Quasi-Peak Field Strength Measurements)

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = 100 kHz.
3. Set the VBW = 300 kHz.
4. Detector = quasi-peak.
5. Sweep time = auto couple.

6. Trace mode = max hold.
7. Trace was allowed to stabilize.

Test Settings – Above 1GHz (Peak Field Strength Measurements)

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = 1MHz.
3. Set the VBW = 3MHz.
4. Detector = peak
5. Trace mode = max hold
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

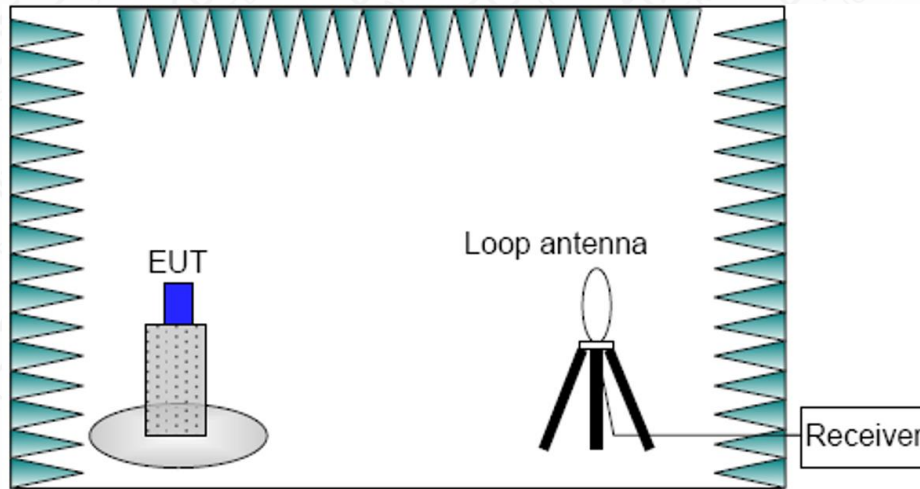
Test Settings – Above 1GHz (Average Field Strength Measurements)

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = 1MHz.
3. Set the VBW = 3MHz.
4. Detector = power average (RMS).
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span} \setminus \setminus \text{RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

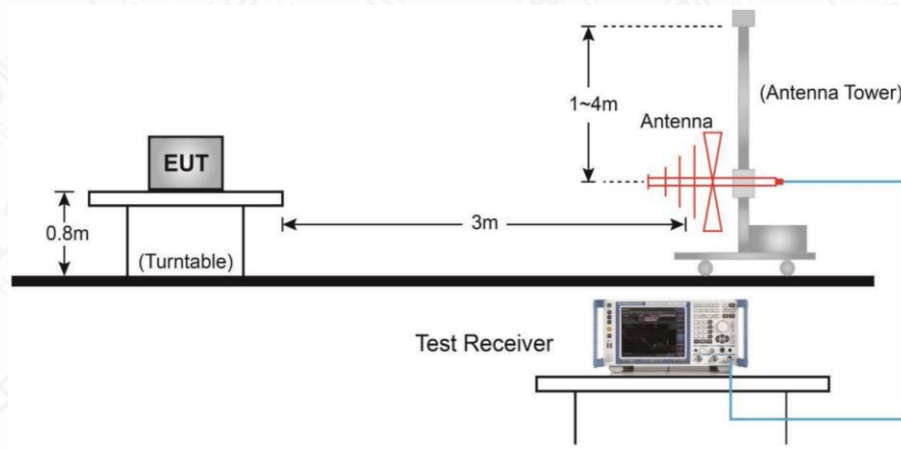
Frequency of emission	RBW/VBW	Sweep Time (s)
0.009~30	9KHz/30KHz	Auto
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

6.8.4 Test Setup

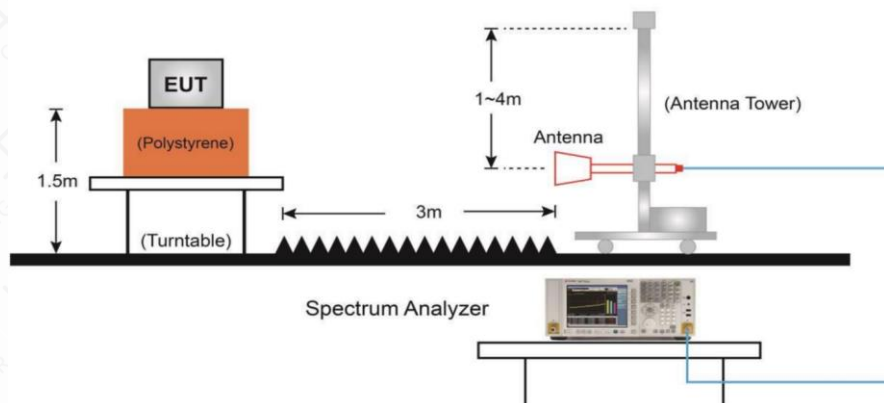
Below 30MHz Test Setup



Below 1GHz Test Setup



Above 1GHz Test Setup



6.8.5 Measurement Results

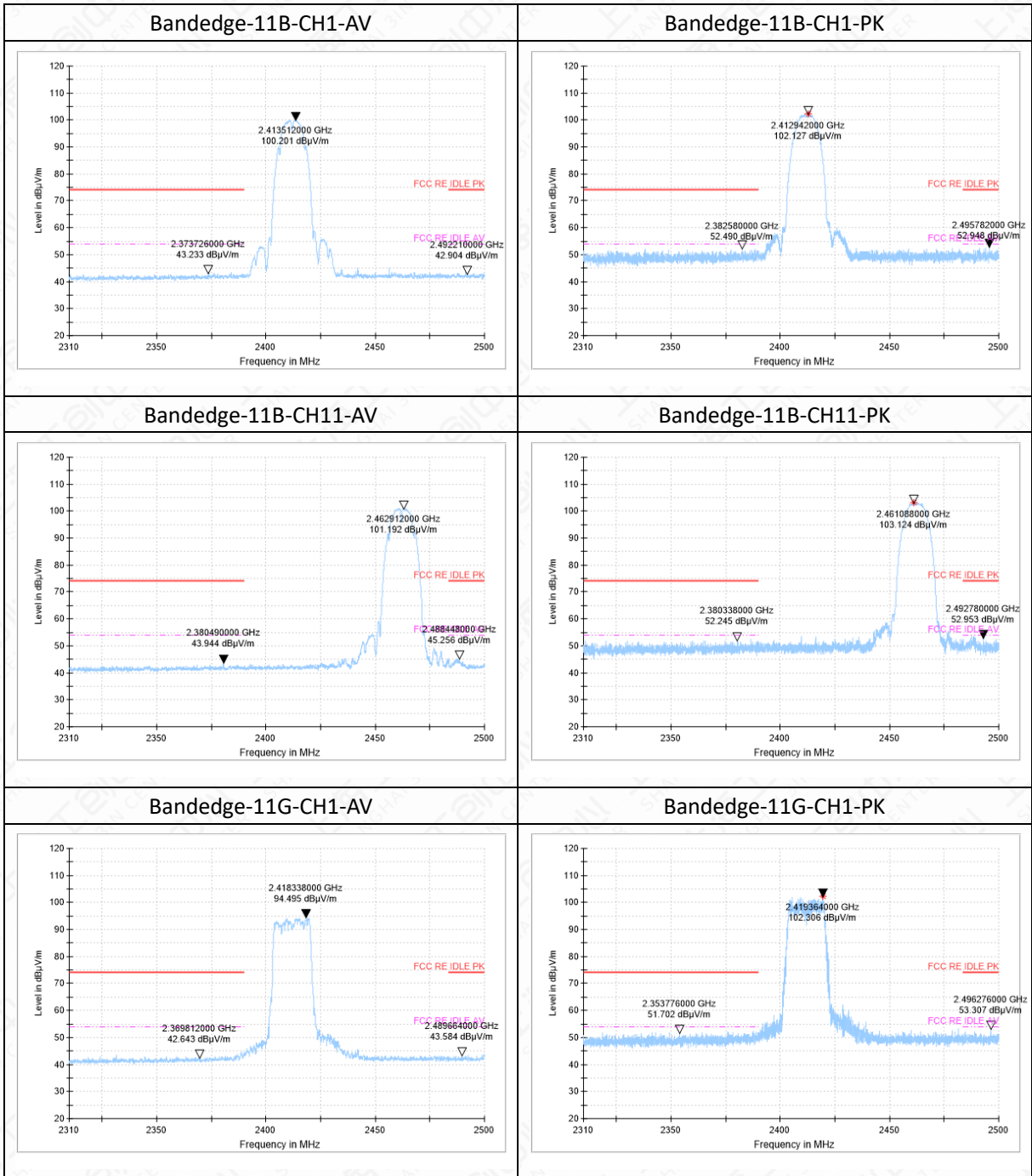
A "reference path loss" is established and A_{Rpi} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

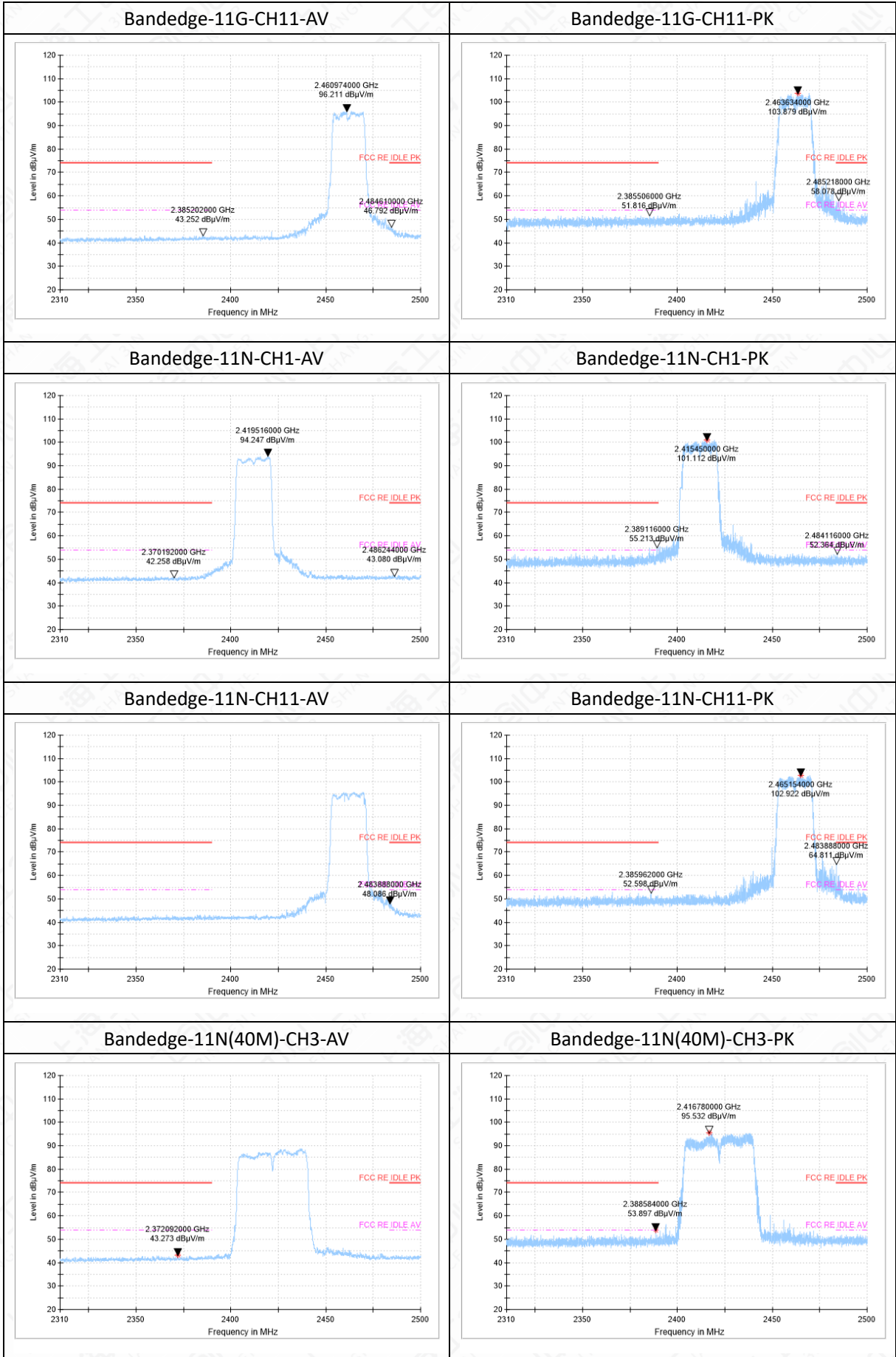
P_{Mea} is the field strength recorded from the instrument.

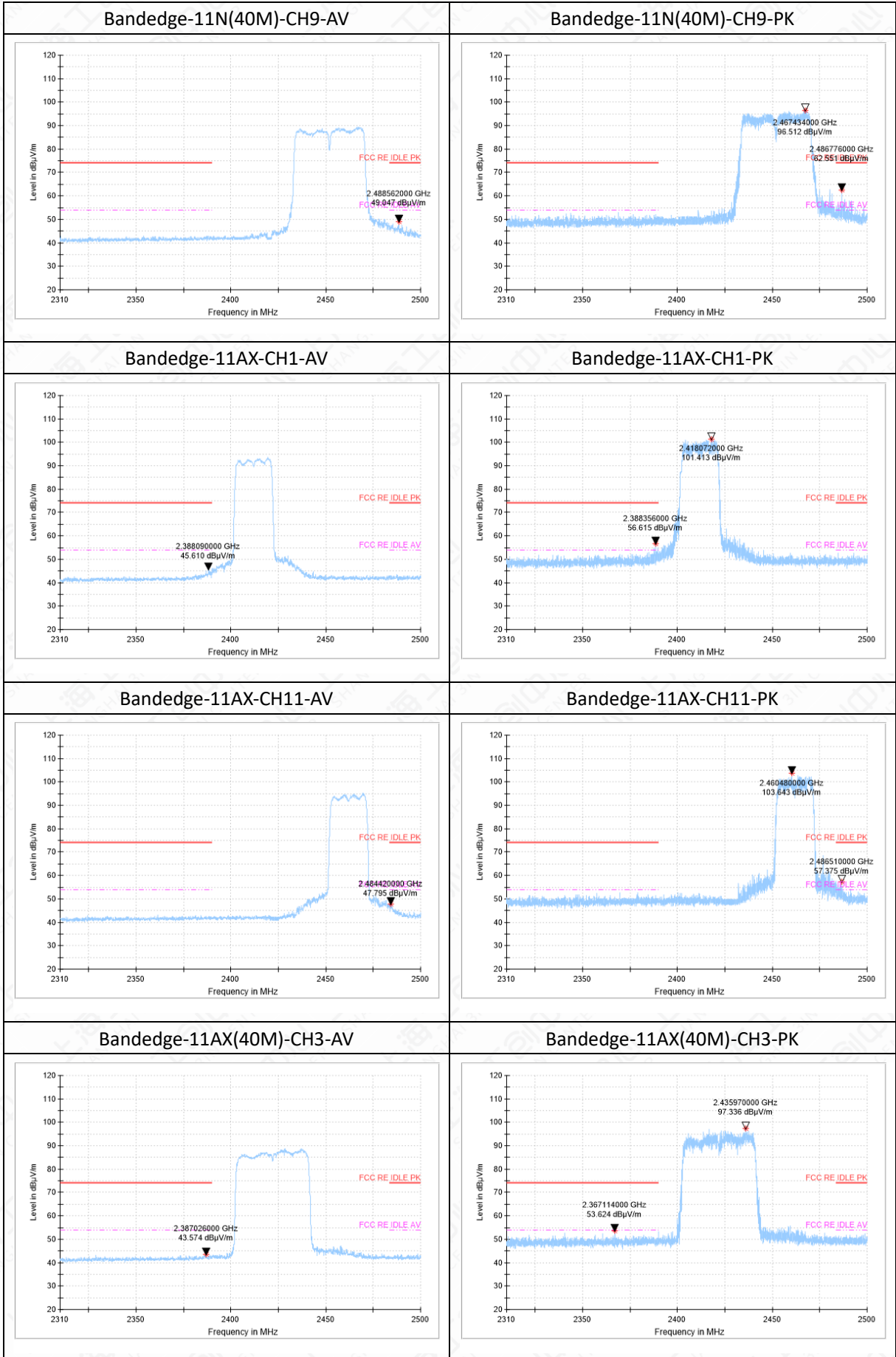
The measurement results are obtained as described below:

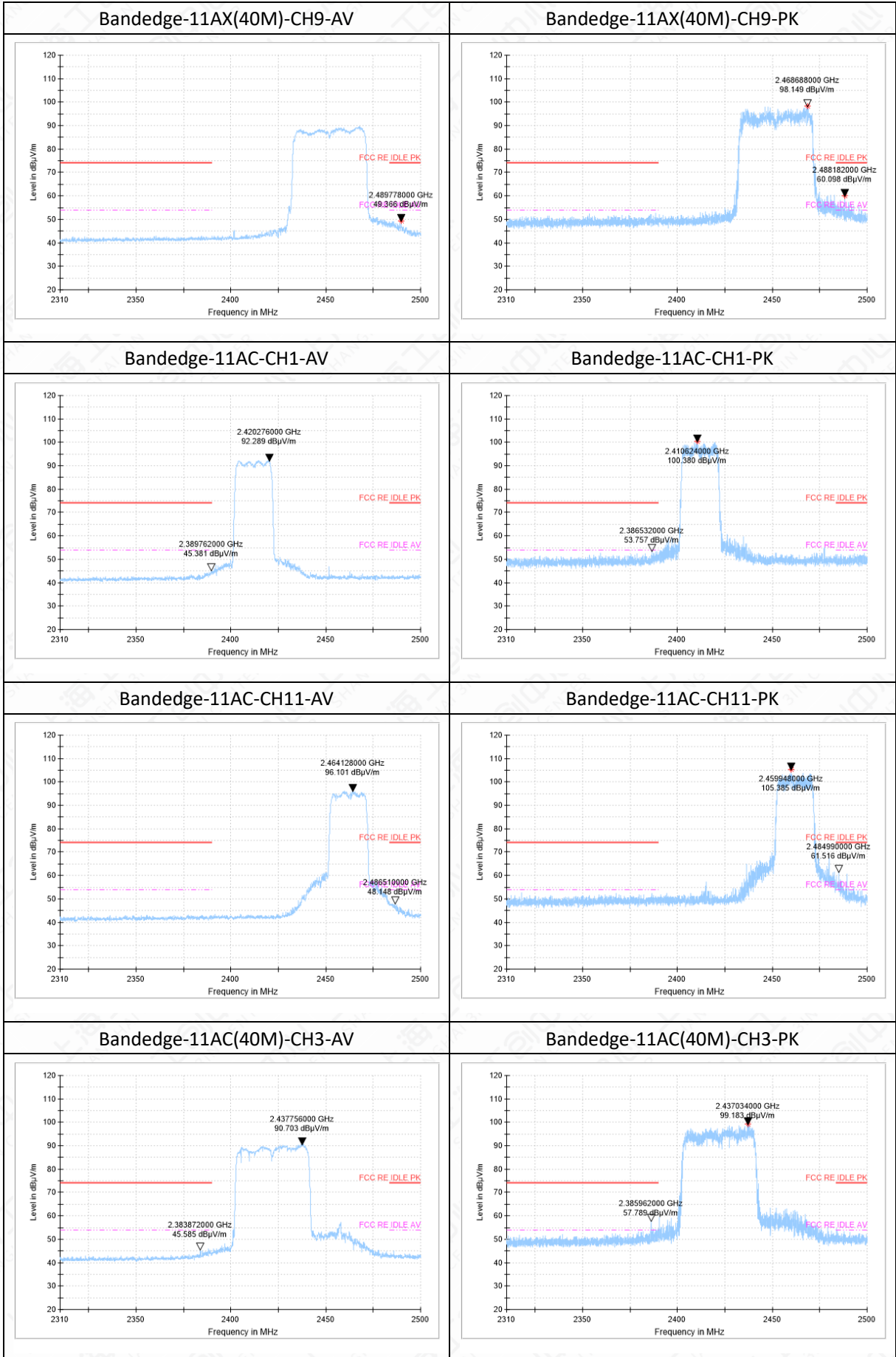
$$A_{Rpi} = \text{Cable loss} + \text{Antenna Factor} - \text{Preamplifier gain}$$

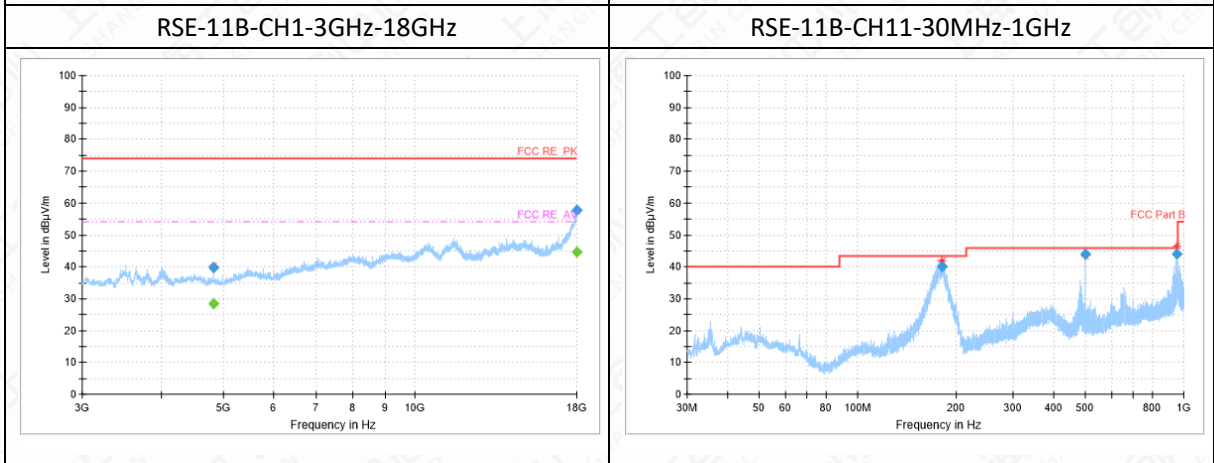
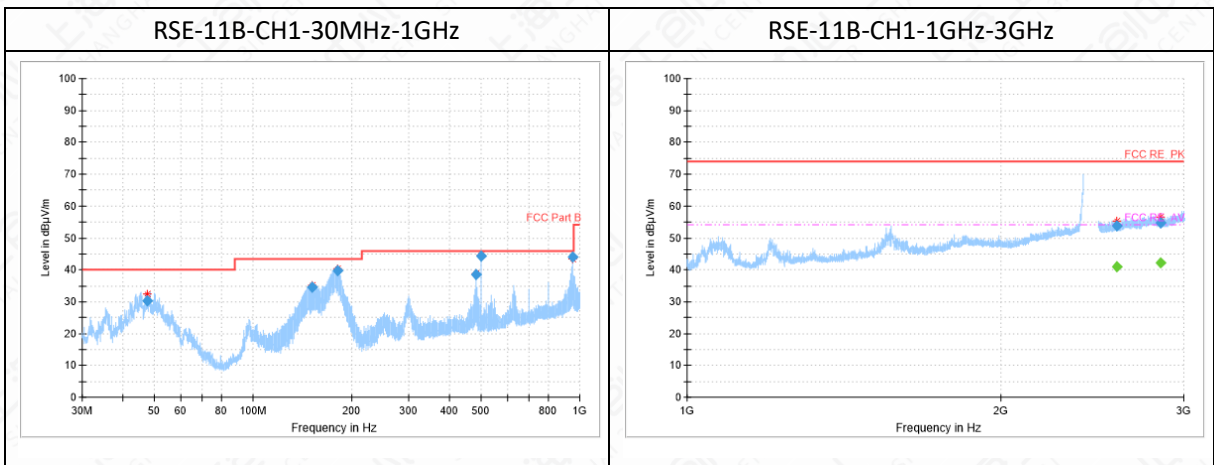
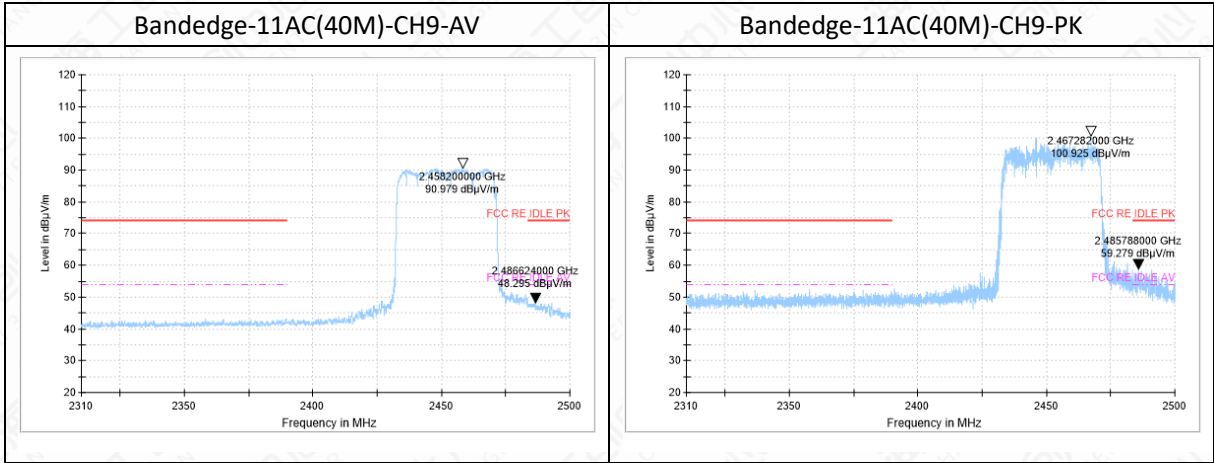
$$\text{Result} = P_{Mea} + \text{Cable loss} + \text{Antenna Factor} - \text{Preamplifier gain} = P_{Mea} + A_{Rpi}$$

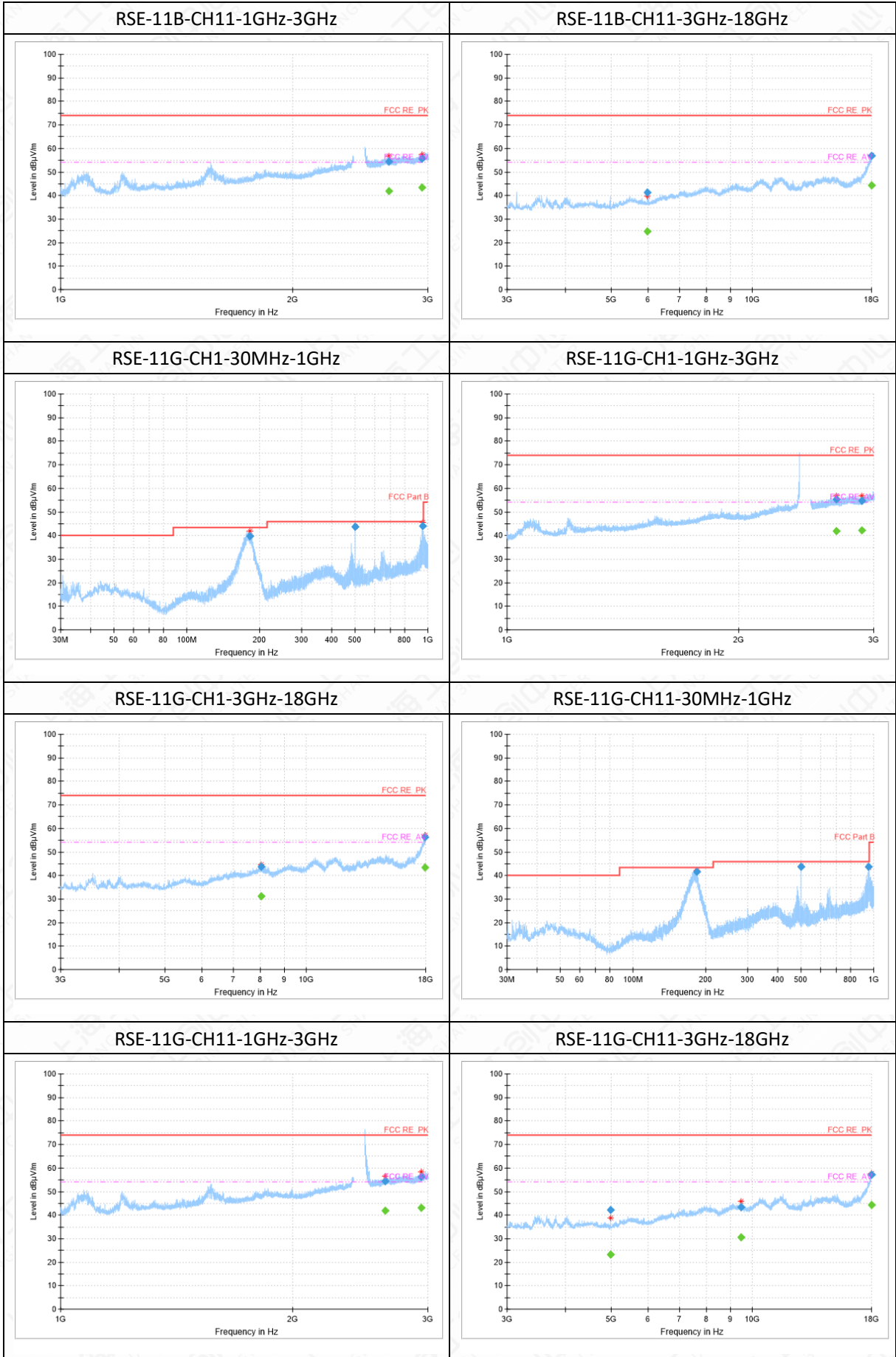


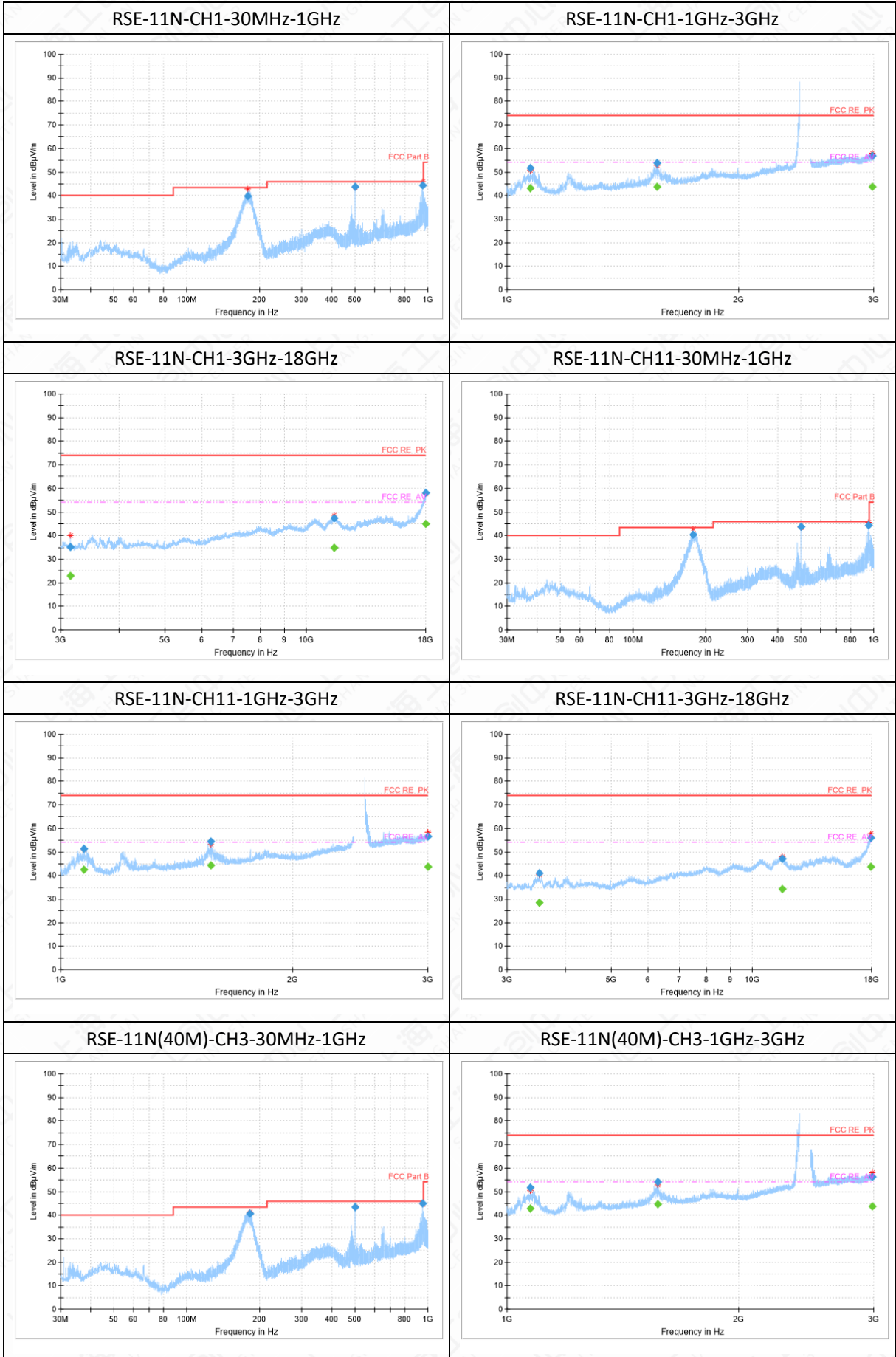


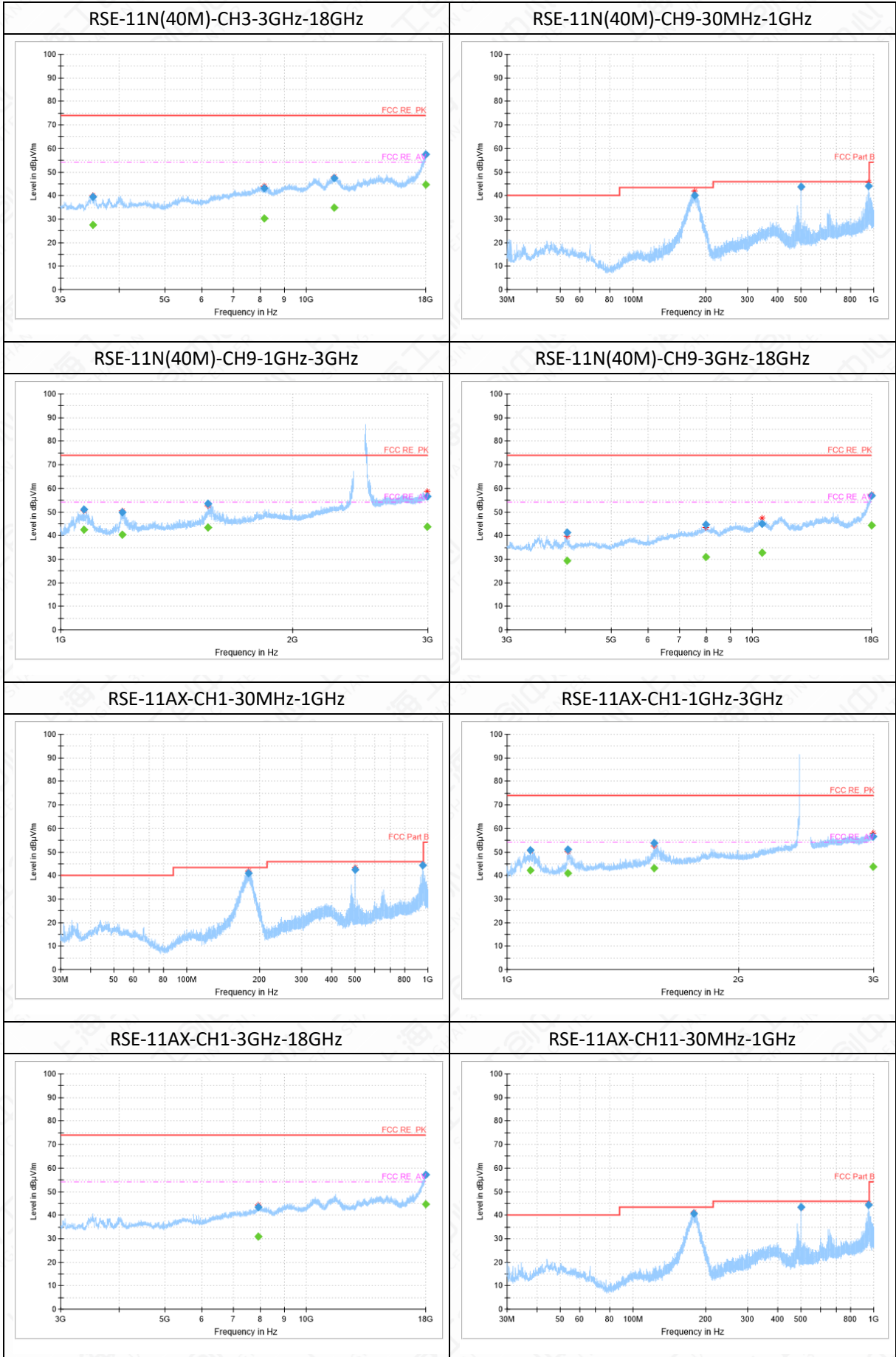


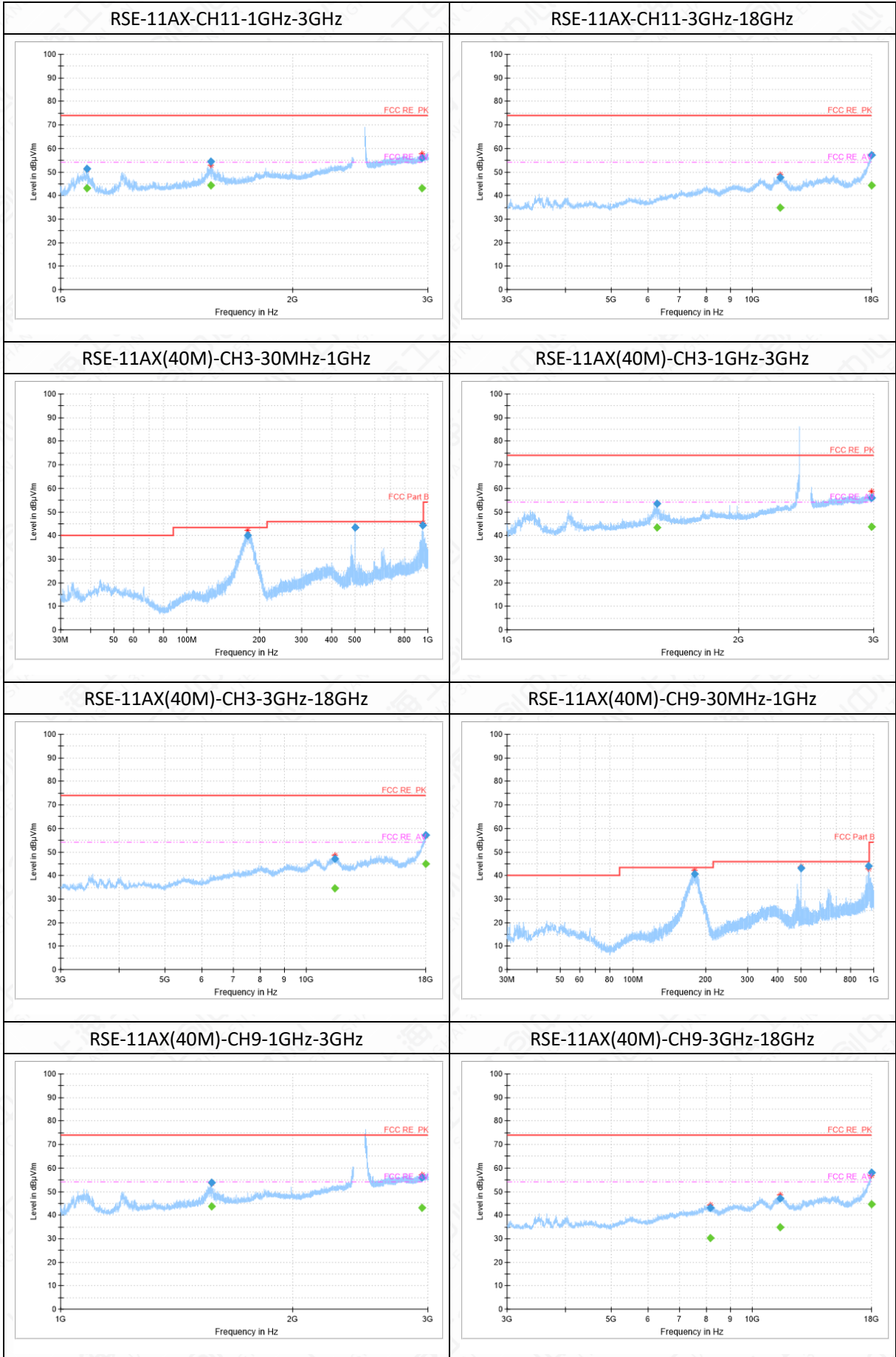


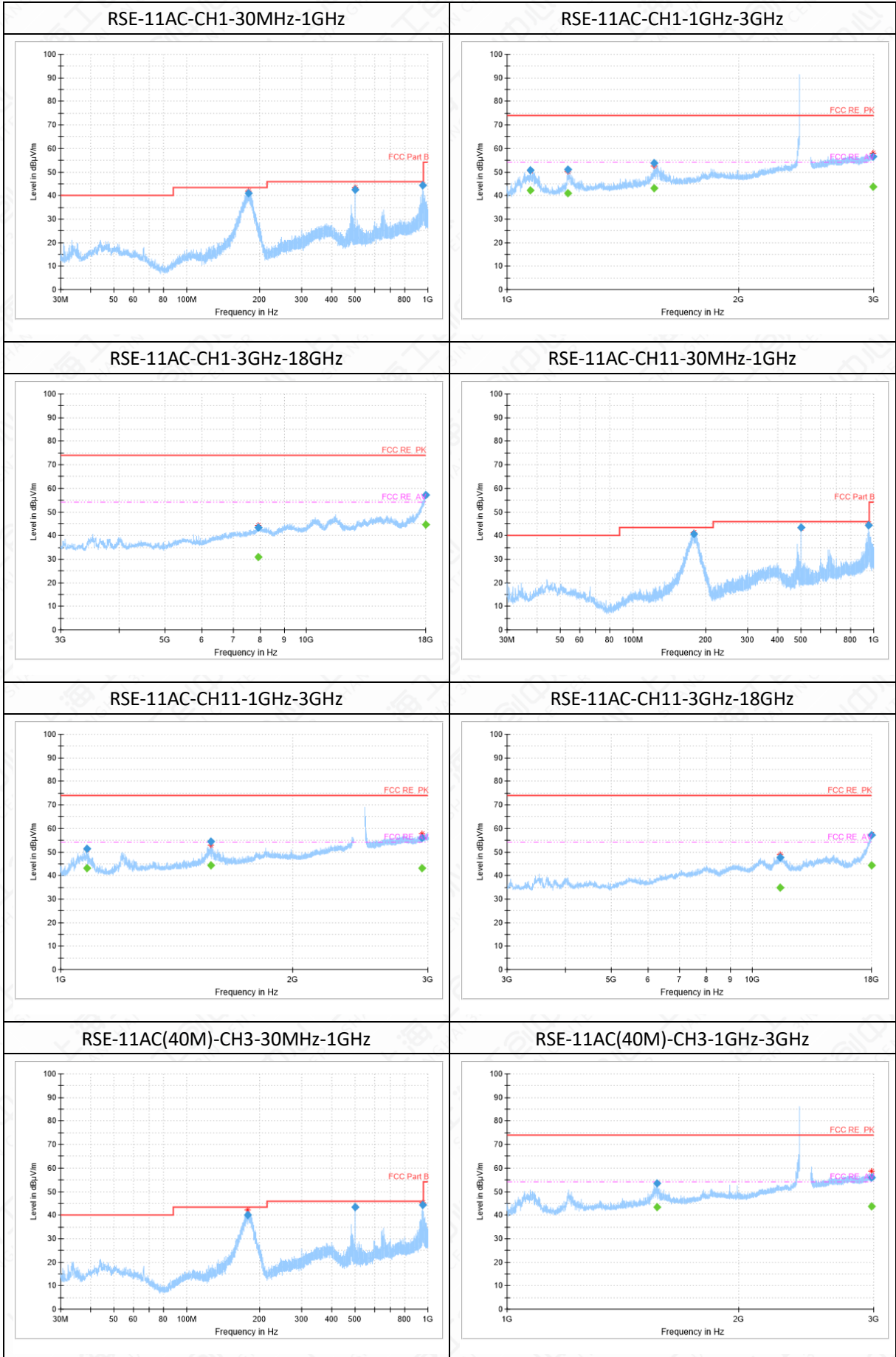


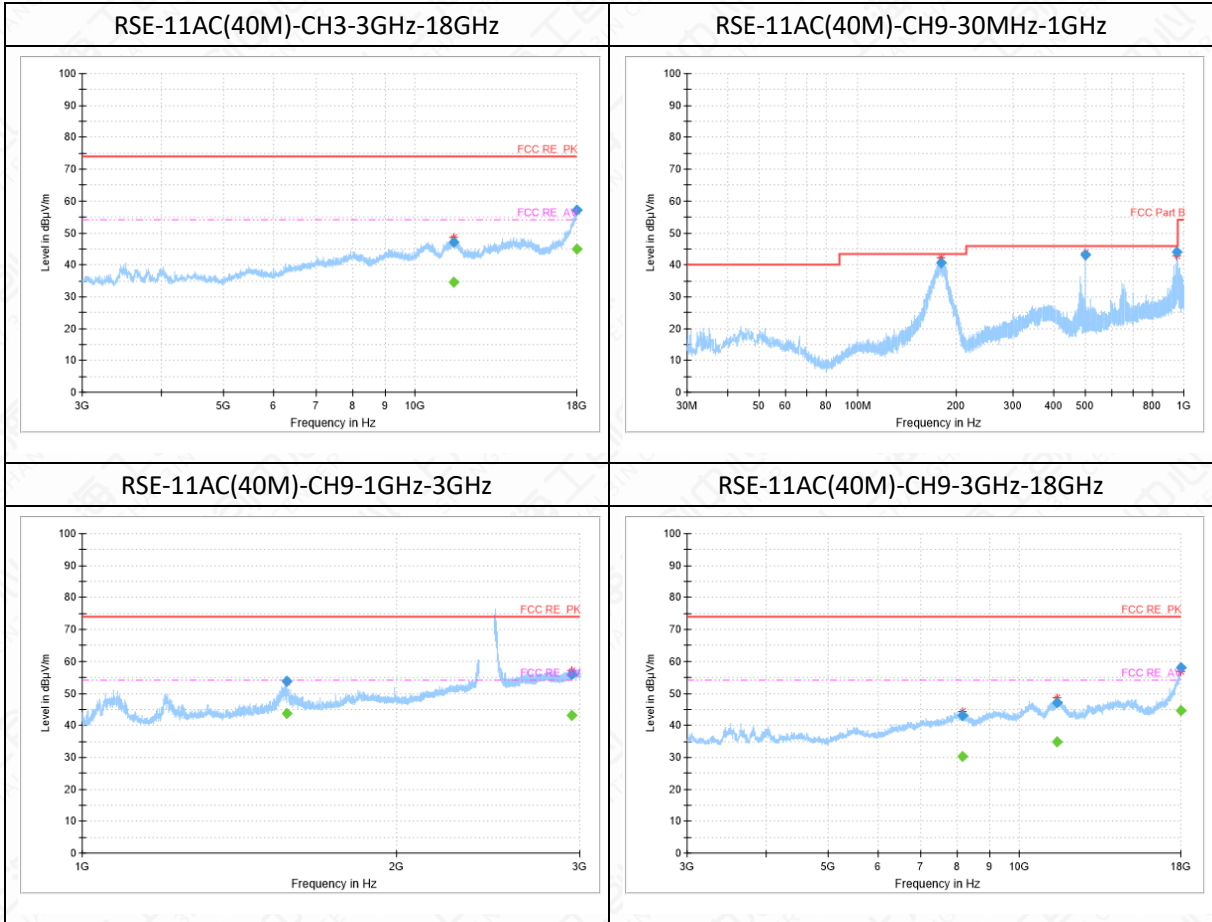












Note:1. The out-of- limit signal in the picture is the main frequency signal.

2. Only data in worst mode is provided.

3. Sweep the whole frequency band through the range from 30MHz to the 10th harmonic of the carrier, the Emissions in the frequency band 18GHz-26.5GHz is more than 20dB below the limit are not report.

4. The test data below 30MHz is more than 20dB lower than the limit value, so it is not provided in the report.

5. Horizontal and vertical polarity is all have been tested, the result of them is synthesized in the above data diagram.

RSE-11AX-CH1-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
180.3	40.94	-14	54.94	2.56	43.50	H
500.0	42.49	-6	48.49	3.51	46.00	H
949.9	44.3	1	43.3	1.70	46.00	H

RSE-11AX-CH1-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.3	50.82	3	47.82	23.18	74.00	H
1199.8	51.06	4	47.06	22.94	74.00	H
1554.1	53.86	8	45.86	20.14	74.00	H
2993.4	56.61	19	37.61	17.39	74.00	V

RSE-11AX-CH1-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.3	42.25	3	39.25	11.75	54.00	H
1199.8	40.87	4	36.87	13.13	54.00	H
1554.1	43.18	8	35.18	10.82	54.00	H
2993.4	43.61	19	24.61	10.39	54.00	V

RSE-11AX-CH1-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
7907.9	43.48	0	43.48	30.52	74.00	H
17973.2	57.17	19	38.17	16.83	74.00	V

RSE-11AX-CH1-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
7907.9	30.9	0	30.9	23.10	54.00	H
17973.2	44.57	19	25.57	9.43	54.00	V

RSE-11AX-CH11-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
179.2	40.73	-15	55.73	2.77	43.50	H
500.0	43.53	-6	49.53	2.47	46.00	H

949.9	44.35	1	43.35	1.65	46.00	H
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RSE-11AX-CH11-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1081.8	51.32	3	48.32	22.68	74.00	H
1566.2	54.52	8	46.52	19.48	74.00	H
2949.5	56.1	19	37.1	17.90	74.00	V

RSE-11AX-CH11-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1081.8	43.04	3	40.04	10.96	54.00	H
1566.2	44.37	8	36.37	9.63	54.00	H
2949.5	43.27	19	24.27	10.73	54.00	V

RSE-11AX-CH11-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11489.5	47.58	5	42.58	26.42	74.00	V
17975.1	57.33	19	38.33	16.67	74.00	H

RSE-11AX-CH11-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11489.5	34.86	5	29.86	19.14	54.00	V
17975.1	44.47	19	25.47	9.53	54.00	H

RSE-11AX(40M)-CH3-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
179.2	39.94	-15	54.94	3.56	43.50	H
500.0	43.48	-6	49.48	2.52	46.00	H
949.8	44.33	1	43.33	1.67	46.00	H

RSE-11AX(40M)-CH3-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1566.1	53.5	8	45.5	20.50	74.00	H
2981.8	55.96	19	36.96	18.04	74.00	V

RSE-11AX(40M)-CH3-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1566.1	43.37	8	35.37	10.63	54.00	H
2981.8	43.6	19	24.6	10.40	54.00	V

RSE-11AX(40M)-CH3-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11526.1	47.11	5	42.11	26.89	74.00	H
17999.1	57.29	20	37.29	16.71	74.00	H

RSE-11AX(40M)-CH3-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11526.1	34.7	5	29.7	19.30	54.00	H
17999.1	44.88	20	24.88	9.12	54.00	H

RSE-11AX(40M)-CH9-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
180.8	40.82	-14	54.82	2.68	43.50	H
500.0	43.01	-6	49.01	2.99	46.00	H
949.9	44.1	1	43.1	1.90	46.00	H

RSE-11AX(40M)-CH9-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1570.4	53.69	8	45.69	20.31	74.00	H
2945.5	56.1	19	37.1	17.91	74.00	H

RSE-11AX(40M)-CH9-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1570.4	43.85	8	35.85	10.15	54.00	H
2945.5	43.19	19	24.19	10.81	54.00	H

RSE-11AX(40M)-CH9-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
8157.2	43.07	0	43.07	30.93	74.00	V
11491.4	47.22	5	42.22	26.78	74.00	V

17997.2	58.15	20	38.15	15.85	74.00	H
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RSE-11AX(40M)-CH9-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
8157.2	30.27	0	30.27	23.73	54.00	V
11491.4	34.94	5	29.94	19.06	54.00	V
17997.2	44.74	20	24.74	9.26	54.00	H

RSE-11B-CH1-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
47.5	30.31	-12	42.31	9.69	40.00	V
151.9	34.57	-16	50.57	8.93	43.50	H
180.9	39.68	-14	53.68	3.82	43.50	V
481.8	38.43	-6	44.43	7.57	46.00	H
500.0	44.31	-6	50.31	1.69	46.00	H
949.8	44.02	1	43.02	1.98	46.00	H

RSE-11B-CH1-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2586.3	53.83	16	37.83	20.17	74.00	V
2848.6	54.86	18	36.86	19.14	74.00	V

RSE-11B-CH1-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2586.3	40.86	16	24.86	13.14	54.00	V
2848.6	42.24	18	24.24	11.76	54.00	V

RSE-11B-CH1-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
4823.5	39.89	-7	46.89	34.12	74.00	V
17998.1	57.73	20	37.73	16.27	74.00	H

RSE-11B-CH1-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
4823.5	28.53	-7	35.53	25.47	54.00	V

17998.1	44.69	20	24.69	9.31	54.00	H
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RSE-11B-CH11-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
181.3	39.98	-14	53.98	3.52	43.50	H
500.0	43.89	-6	49.89	2.11	46.00	H
949.8	44.17	1	43.17	1.83	46.00	H

RSE-11B-CH11-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2671.9	54.4	17	37.4	19.60	74.00	V
2949.4	55.72	19	36.72	18.28	74.00	V

RSE-11B-CH11-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2671.9	41.9	17	24.9	12.10	54.00	V
2949.4	43.41	19	24.41	10.59	54.00	V

RSE-11B-CH11-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
5988.2	41.18	-6	47.18	32.82	74.00	V
17976.5	57.01	19	38.01	16.99	74.00	V

RSE-11B-CH11-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
5988.2	24.9	-6	30.9	29.10	54.00	V
17976.5	44.44	19	25.44	9.56	54.00	V

RSE-11G-CH1-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
183.0	39.65	-14	53.65	3.85	43.50	H
500.0	43.6	-6	49.6	2.40	46.00	H
949.8	44.1	1	43.1	1.90	46.00	H

RSE-11G-CH1-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
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2679.2	55.33	17	38.33	18.67	74.00	V
2894.4	54.8	18	36.8	19.20	74.00	V

RSE-11G-CH1-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2679.2	41.89	17	24.89	12.11	54.00	V
2894.4	42.22	18	24.22	11.78	54.00	V

RSE-11G-CH1-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
8019.9	43.8	0	43.8	30.20	74.00	V
17922.2	56.16	18	38.16	17.84	74.00	V

RSE-11G-CH1-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
8019.9	31.22	0	31.22	22.78	54.00	V
17922.2	43.35	18	25.35	10.65	54.00	V

RSE-11G-CH11-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
183.5	41.55	-14	55.55	1.95	43.50	H
500.0	43.78	-6	49.78	2.22	46.00	H
949.8	43.66	1	42.66	2.34	46.00	H

RSE-11G-CH11-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2640.1	54.5	17	37.5	19.50	74.00	H
2941.7	56.14	19	37.14	17.86	74.00	H

RSE-11G-CH11-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
2640.1	41.83	17	24.83	12.17	54.00	H
2941.7	43.26	19	24.26	10.74	54.00	H

RSE-11G-CH11-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
4984.6	42.07	-5	47.07	31.93	74.00	V
9466.9	43.34	2	41.34	30.66	74.00	H
17976.6	57.06	19	38.06	16.94	74.00	H

RSE-11G-CH11-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
4984.6	23.12	-5	28.12	30.88	54.00	V
9466.9	30.66	2	28.66	23.34	54.00	H
17976.6	44.42	19	25.42	9.58	54.00	H

RSE-11N-CH1-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
179.2	39.82	-15	54.82	3.68	43.50	H
500.0	43.58	-6	49.58	2.42	46.00	H
949.8	44.36	1	43.36	1.64	46.00	H

RSE-11N-CH1-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.5	51.57	3	48.57	22.43	74.00	H
1566.4	53.89	8	45.89	20.11	74.00	H
2983.8	56.83	19	37.83	17.17	74.00	V

RSE-11N-CH1-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.5	43.15	3	40.15	10.85	54.00	H
1566.4	43.85	8	35.85	10.15	54.00	H
2983.8	43.68	19	24.68	10.32	54.00	V

RSE-11N-CH1-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
3148.1	35.08	-11	46.08	38.92	74.00	V
11489.5	47.47	5	42.47	26.53	74.00	H

18000.0	57.99	20	37.99	16.01	74.00	V
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RSE-11N-CH1-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
3148.1	22.86	-11	33.86	31.14	54.00	V
11489.5	34.86	5	29.86	19.14	54.00	H
18000.0	45.01	20	25.01	8.99	54.00	V

RSE-11N-CH11-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
177.6	40.29	-15	55.29	3.21	43.50	H
500.0	43.63	-6	49.63	2.37	46.00	H
949.9	44.37	1	43.37	1.63	46.00	H

RSE-11N-CH11-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.7	51.25	3	48.25	22.75	74.00	H
1566.4	54.32	8	46.32	19.68	74.00	H
2997.0	56.59	20	36.59	17.41	74.00	H

RSE-11N-CH11-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.7	42.56	3	39.56	11.44	54.00	H
1566.4	44.37	8	36.37	9.63	54.00	H
2997.0	43.65	20	23.65	10.35	54.00	H

RSE-11N-CH11-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
3512.9	40.98	-11	51.98	33.02	74.00	V
11611.0	47	5	42	27.00	74.00	H
17954.0	55.97	19	36.97	18.03	74.00	H

RSE-11N-CH11-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
3512.9	28.52	-11	39.52	25.48	54.00	V

11611.0	34.16	5	29.16	19.84	54.00	H
17954.0	43.69	19	24.69	10.31	54.00	H

RSE-11N(40M)-CH3-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
182.4	40.52	-14	54.52	2.98	43.50	H
500.0	43.53	-6	49.53	2.47	46.00	H
949.8	44.98	1	43.98	1.02	46.00	H

RSE-11N(40M)-CH3-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.7	51.59	3	48.59	22.41	74.00	H
1570.4	54.04	8	46.04	19.96	74.00	H
2988.2	56.34	19	37.34	17.66	74.00	V

RSE-11N(40M)-CH3-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.7	42.8	3	39.8	11.20	54.00	H
1570.4	44.56	8	36.56	9.44	54.00	H
2988.2	43.8	19	24.8	10.20	54.00	V

RSE-11N(40M)-CH3-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
3511.4	39.52	-11	50.52	34.48	74.00	V
8160.0	43.12	0	43.12	30.88	74.00	H
11474.5	47.43	5	42.43	26.57	74.00	V
17974.2	57.41	19	38.41	16.59	74.00	V

RSE-11N(40M)-CH3-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
3511.4	27.63	-11	38.63	26.37	54.00	V
8160.0	30.17	0	30.17	23.83	54.00	H
11474.5	34.79	5	29.79	19.21	54.00	V
17974.2	44.54	19	25.54	9.46	54.00	V

RSE-11N(40M)-CH9-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
180.8	40.11	-14	54.11	3.39	43.50	H
500.0	43.59	-6	49.59	2.41	46.00	H
949.8	44.15	1	43.15	1.85	46.00	H

RSE-11N(40M)-CH9-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.5	51.01	3	48.01	22.99	74.00	H
1201.9	49.79	4	45.79	24.21	74.00	H
1554.5	53.57	8	45.57	20.43	74.00	H
2992.3	56.56	19	37.56	17.44	74.00	H

RSE-11N(40M)-CH9-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.5	42.49	3	39.49	11.51	54.00	H
1201.9	40.36	4	36.36	13.64	54.00	H
1554.5	43.5	8	35.5	10.50	54.00	H
2992.3	43.63	19	24.63	10.37	54.00	H

RSE-11N(40M)-CH9-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
4025.6	41.32	-10	51.32	32.68	74.00	V
7961.8	44.63	0	44.63	29.37	74.00	H
10524.4	45.1	4	41.1	28.90	74.00	H
17994.9	56.87	20	36.87	17.13	74.00	H

RSE-11N(40M)-CH9-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
4025.6	29.22	-10	39.22	24.78	54.00	V
7961.8	30.92	0	30.92	23.08	54.00	H
10524.4	32.85	4	28.85	21.15	54.00	H
17994.9	44.33	20	24.33	9.67	54.00	H

RSE-11AC-CH1-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
180.3	40.94	-14	54.94	2.56	43.50	H
500.0	42.49	-6	48.49	3.51	46.00	H
949.9	44.3	1	43.3	1.70	46.00	H

RSE-11AC-CH1-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.3	50.82	3	47.82	23.18	74.00	H
1199.8	51.06	4	47.06	22.94	74.00	H
1554.1	53.86	8	45.86	20.14	74.00	H
2993.4	56.61	19	37.61	17.39	74.00	V

RSE-11AC-CH1-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1071.3	42.25	3	39.25	11.75	54.00	H
1199.8	40.87	4	36.87	13.13	54.00	H
1554.1	43.18	8	35.18	10.82	54.00	H
2993.4	43.61	19	24.61	10.39	54.00	V

RSE-11AC-CH1-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
7907.9	43.48	0	43.48	30.52	74.00	H
17973.2	57.17	19	38.17	16.83	74.00	V

RSE-11AC-CH1-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
7907.9	30.9	0	30.9	23.10	54.00	H
17973.2	44.57	19	25.57	9.43	54.00	V

RSE-11AC-CH11-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
179.2	40.73	-15	55.73	2.77	43.50	H
500.0	43.53	-6	49.53	2.47	46.00	H

949.9	44.35	1	43.35	1.65	46.00	H
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RSE-11AC-CH11-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1081.8	51.32	3	48.32	22.68	74.00	H
1566.2	54.52	8	46.52	19.48	74.00	H
2949.5	56.1	19	37.1	17.90	74.00	V

RSE-11AC-CH11-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1081.8	43.04	3	40.04	10.96	54.00	H
1566.2	44.37	8	36.37	9.63	54.00	H
2949.5	43.27	19	24.27	10.73	54.00	V

RSE-11AC-CH11-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11489.5	47.58	5	42.58	26.42	74.00	V
17975.1	57.33	19	38.33	16.67	74.00	H

RSE-11AC-CH11-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11489.5	34.86	5	29.86	19.14	54.00	V
17975.1	44.47	19	25.47	9.53	54.00	H

RSE-11AC(40M)-CH3-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
179.2	39.94	-15	54.94	3.56	43.50	H
500.0	43.48	-6	49.48	2.52	46.00	H
949.8	44.33	1	43.33	1.67	46.00	H

RSE-11AC(40M)-CH3-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1566.1	53.5	8	45.5	20.50	74.00	H
2981.8	55.96	19	36.96	18.04	74.00	V

RSE-11AC(40M)-CH3-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1566.1	43.37	8	35.37	10.63	54.00	H
2981.8	43.6	19	24.6	10.40	54.00	V

RSE-11AC(40M)-CH3-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11526.1	47.11	5	42.11	26.89	74.00	H
17999.1	57.29	20	37.29	16.71	74.00	H

RSE-11AC(40M)-CH3-3GHz-18GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
11526.1	34.7	5	29.7	19.30	54.00	H
17999.1	44.88	20	24.88	9.12	54.00	H

RSE-11AC(40M)-CH9-30MHz-1GHz

Frequency (MHz)	QuasiPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
180.8	40.82	-14	54.82	2.68	43.50	H
500.0	43.01	-6	49.01	2.99	46.00	H
949.9	44.1	1	43.1	1.90	46.00	H

RSE-11AC(40M)-CH9-1GHz-3GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1570.4	53.69	8	45.69	20.31	74.00	H
2945.5	56.1	19	37.1	17.91	74.00	H

RSE-11AC(40M)-CH9-1GHz-3GHz

Frequency (MHz)	Average(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
1570.4	43.85	8	35.85	10.15	54.00	H
2945.5	43.19	19	24.19	10.81	54.00	H

RSE-11AC(40M)-CH9-3GHz-18GHz

Frequency (MHz)	MaxPeak(dBμV/m)	ARpl (dB)	PMea (dBμV/m)	Margin(dB)	Limit(dBμV/m)	Polarity
8157.2	43.07	0	43.07	30.93	74.00	V
11491.4	47.22	5	42.22	26.78	74.00	V

17997.2	58.15	20	38.15	15.85	74.00	H
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RSE-11AC(40M)-CH9-3GHz-18GHz

Frequency (MHz)	Average(dB μ V/m)	ARpl (dB)	PMea (dB μ V/m)	Margin(dB)	Limit(dB μ V/m)	Polarity
8157.2	30.27	0	30.27	23.73	54.00	V
11491.4	34.94	5	29.94	19.06	54.00	V
17997.2	44.74	20	24.74	9.26	54.00	H

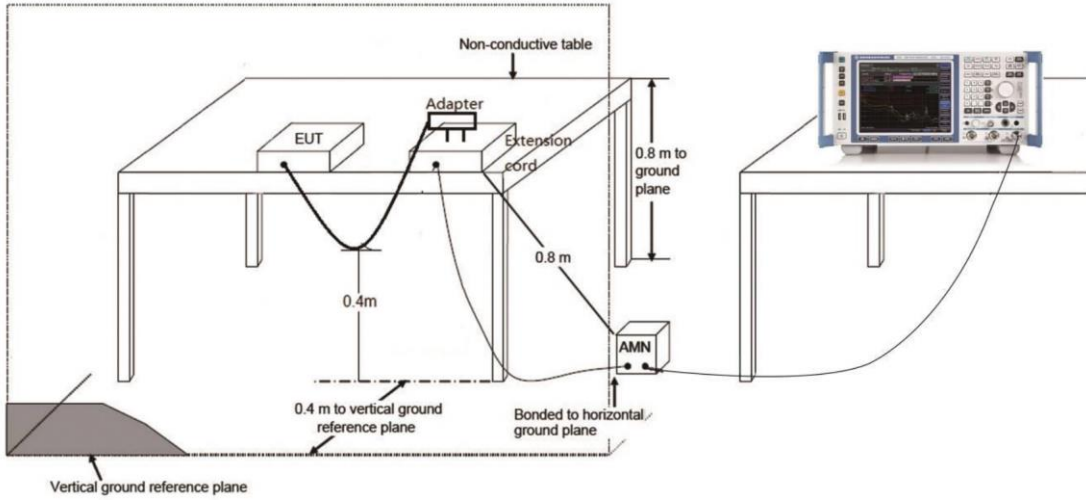
6.9 AC Powerline Conducted Emission

6.9.1 Method of Measurement: ANSI C63.10-2013-clause 6.2

1. The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.
2. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.
3. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.
4. If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.³⁶ Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

6.9.2 Test Setup



6.9.3 Test Condition

Voltage (V)	Frequency (Hz)
120	60

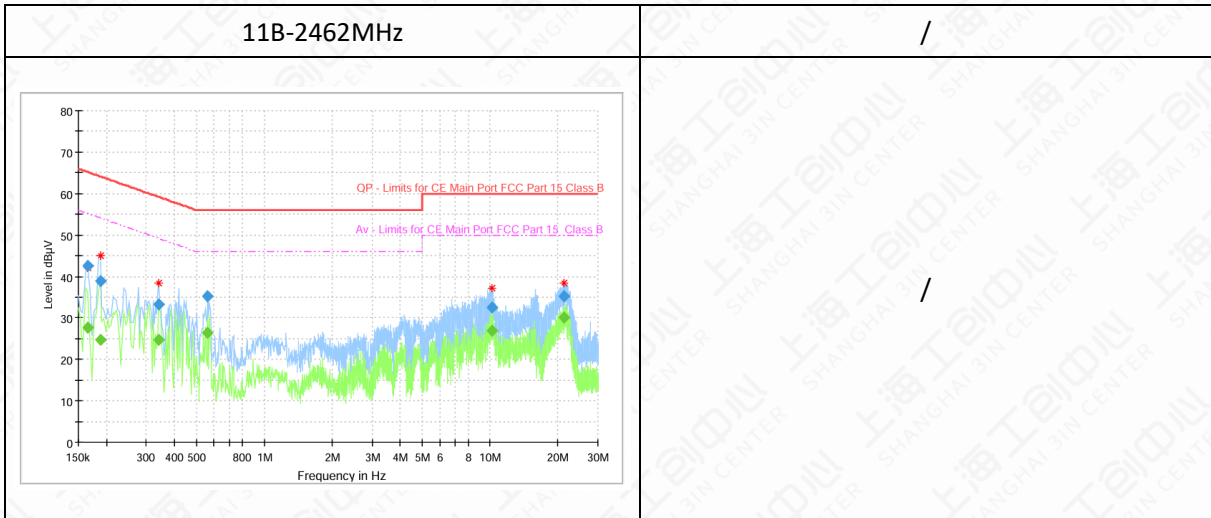
6.9.4 Measurement limit

(Quasi-peak-average Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Conclusion
0.15 to 0.5	66 to 56	56 to 46	P
0.5 to 5	56	46	
5 to 30	60	50	

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

6.9.5 Measurement Result



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas.Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.164925	42.46	---	65.21	22.75	15000.0	9.000	N	ON	8.2
0.164925	---	27.71	55.21	27.50	15000.0	9.000	N	ON	8.2
0.187313	39.00	---	64.16	25.16	15000.0	9.000	N	ON	6.5
0.187313	---	24.66	54.16	29.49	15000.0	9.000	N	ON	6.5
0.340294	33.29	---	59.20	25.90	15000.0	9.000	N	ON	7.9
0.340294	---	24.62	49.20	24.58	15000.0	9.000	N	ON	7.9
0.560438	35.35	---	56.00	20.65	15000.0	9.000	N	ON	9.6
0.560438	---	26.40	46.00	19.60	15000.0	9.000	N	ON	9.6
10.183331	---	26.87	50.00	23.13	15000.0	9.000	L1	ON	9.8
10.183331	32.57	---	60.00	27.43	15000.0	9.000	L1	ON	9.8
21.160669	---	30.00	50.00	20.00	15000.0	9.000	L1	ON	10.0
21.160669	35.22	---	60.00	24.78	15000.0	9.000	L1	ON	10.0

Note: All modes have been tested and only the worst mode is recorded in the report.

Annex A: Revised History

Version	Revised Content
V00	Initial

Annex B: Accreditation Certificate



Accredited Laboratory

A2LA has accredited

**INDUSTRIAL INTERNET INNOVATION CENTER
(SHANGHAI) CO., LTD.**
Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 20th day of September 2023.



Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

END OF REPORT