Prüfbericht-Nr.: *Test Report No.:*	**CN222IN3 001**	**Auftrags-Nr.:** *Order No.:*	**244385665, 244409822**	**Seite 1 von 62** *Page 1 of 62*
Kunden-Referenz-Nr.: *Client Reference No.:*	**1288983**	**Auftragsdatum:** *Order date.:*	**2022-01-05**	
Auftraggeber: *Client:*	**IKEA of Sweden AB** Box 702, SE-343 81, Älmhult Sweden			
Prüfgegenstand: *Test item:*	**VAPPEBY Peanut**			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	**E2125** FCC ID: FHO-E2125			
Auftrags-Inhalt: *Order content:*	**TÜV Rheinland EMC service**			
Prüfgrundlage: *Test specification:*	**FCC 47 CFR Part 15, Subpart B:2020 Class B** **ICES-003:2020, ICES-005:2018**			
Wareneingangsdatum: *Date of receipt:*	**2022-01-05**			
Prüfmuster-Nr.: *Test sample No.:*	**A003094054-006**			
Prüfzeitraum: *Testing period:*	**Refer to test report**			
Ort der Prüfung: *Place of testing:*	**Refer to clause 1.1**			
Prüflaboratorium: *Testing laboratory:*	**TÜV Rheinland (Shanghai) Co., Ltd.**			
Prüfergebnis*: *Test result*:*	**Pass**			

geprüft von: / *tested by:* Xuelan Zhang

Datum: / *Date:* 2022-06-13 Xuelan Zhang

Stellung: / *Position:* Senior project manager

genehmigt von: / *authorized by:* Jiayi Zhou

Datum: / *Date:* 2022-06-13 Jiayi Zhou

Stellung: / *Position:* Senior manager

Sonstiges / *Other:*	

Zustand des Prüfgegenstandes bei Anlieferung: **Prüfmuster vollständig und unbeschädigt**
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet
Legend: P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested

V05

TEST SUMMARY

5.1.1 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE
Result:
Passed

5.2.1 RADIATED EMISSION （30 MHz - 1 GHz）
Result:
Passed

5.2.2 RADIATED EMISSION (ABOVE 1 GHz)
Result:
Passed

Contents

1 Test Sites

1.1 Test Facilities

Laboratory: TÜV Rheinland (Shanghai) Co., Ltd.
Address: No.177, 178, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, China
The used test equipment is in accordance with CISPR 16-1 series standards for measurement of radio interference.

Refer to Clause 6 for test and measurement instruments.

2 General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is a VAPPEBY Peanut. For the further information, refer to the user's manual.

2.2 Ratings and System Details

Type designation	:	ICPSW24-19-1 (for power supply); E2125 (for VAPPEBY Peanut); ICPSW24-7-3 (for alternative power supply)
Rated input (power supply)	:	AC 100-240 V, 50/60 Hz; 0.4 A; 23 W (for ICPSW24-19-1) AC 100-240 V, 50/60 Hz; 0.11 A; 10 W (for ICPSW24-7-3)
Rated output (power supply)	:	DC 24 V, Max. 0.8 A; Max. 19 W (for ICPSW24-19-1) DC 24 V, Max. 0.29 A; Max. 7.0 W (for ICPSW24-7-3)
Rated input (for VAPPEBY Peanut)	:	DC 24 V, Max. 0.8 A; Max. 19 W
Rated output (for VAPPEBY Peanut)	:	Audio 4 W, Lighting 1.5 W
Protection class	:	II (for power supply) III (for VAPPEBY Peanut)

2.3 Independent Operation Modess

The basic operation modes are the below,

1. Continuously playing 1 kHz audio signal by Bluetooth with AC adapter
2. Continuously playing 1 kHz audio signal by Bluetooth with Battery
3. lamp dimming with AC adapter
4. lamp dimming with battery
5. Standby with AC input port
6. Standby with battery

2.4 Description of interconnecting cables

None.

2.5 Noise Generating and Noise Suppressing Parts

Refer to the circuit diagram for further information.

2.6 Highest frequency generated or used in the device or on which the device operates or tunes

The highest frequency used in the EUT is 2.4GHz.

2.7 Submitted Documents

Circuit diagram, user's manual and rating label.

3 Test Set-up and Operation Modes

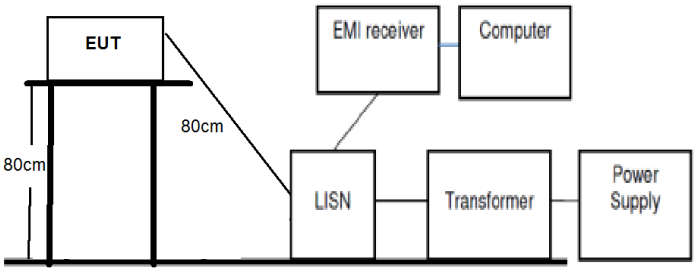
3.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible emission level. The test conditions were adapted accordingly in reference to the instructions for use.

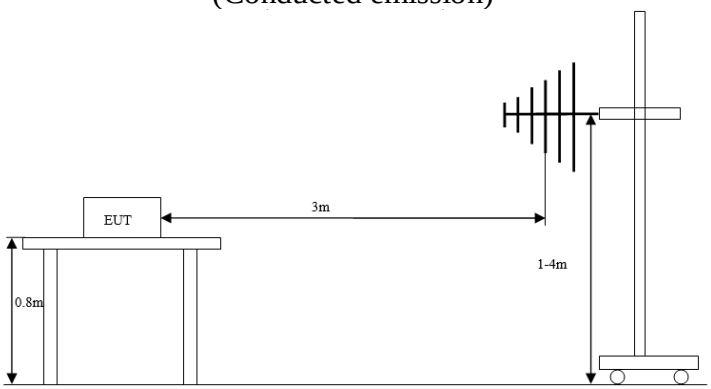
Refer to the related paragraph of this report.
The sequence of testing:
1. Radiated emission tests were performed on 2022-01-26, 2022-03-09, 2022-03-16.
2. Conducted emission tests were performed on 2022-01-12, 2022-03-16.

3.2 Equipment and cable arrangement

Block diagram for both conducted emission and radiated emission tests is as follows:



(Conducted emission)



(Radiated emission)

Also refer to photographs on clause 6 for test setups for both conducted emission test and radiated emission test.

3.3 Test Software

No special test software was used during the tests.

3.4 Special Accessories and Auxiliary Equipment

During the tests, the below equipment were used.

No.	Equipment	Model	Manufacturer
1	Cell phone	STF-AL10	Huawei

3.5 Countermeasures to achieve EMC Compliance

No other special measure is employed to achieve the requirement.

4 Conformity Decision Rule

For all EMI tests included in this report, as measurement uncertainties are less than the values U_{CISPR} given in CISPR 16-4-2, compliance with the limits is determined by comparing measurement results directly with corresponding limits without taking into consideration of measurement uncertainties.

5 Test Results E M I S S I O N

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Mains Terminal Continuous Disturbance Voltage

Result:	**Passed**

Date of testing	:	2022-01-12, 2022-03-16
Test procedure	:	FCC 47 CFR Part 15, Subpart B:2020, ICES-003:2020, ICES-005:2018, ANSI C63.4-2014 and CISPR 16-2-1
Frequency range	:	0.15 – 30 MHz
Limits	:	Quasi-peak limit: 0.15 - 0.5 MHz, 66 to 56 dBµV (decrease with the logarithm of frequency); 0.5 - 5 MHz, 56 dBµV; 5 - 30 MHz, 60 dBµV Average limit: 0.15 - 0.5 MHz, 56 to 46 dBµV (decrease with the logarithm of frequency); 0.5 – 5 MHz, 46 dBµV; 5 – 30 MHz, 50 dBµV
Bandwidth of EMI receiver for final measurement	:	9 kHz
Measurement time for final measurement	:	1 s
Kind of test site	:	Shielded room
Input voltage	:	AC 120 V, 60 Hz
Operational mode	:	Modes 1+3 and 5 as defined in clause 2.3
Ambient condition	:	Temperature: 21.3-23.3 °C; Relative humidity: 41.8-45.8 %
Expanded measurement uncertainty (k=2)	:	3.39 dB

The measurement setup was made according to ANSI C63.4-2014 in a shielded room.

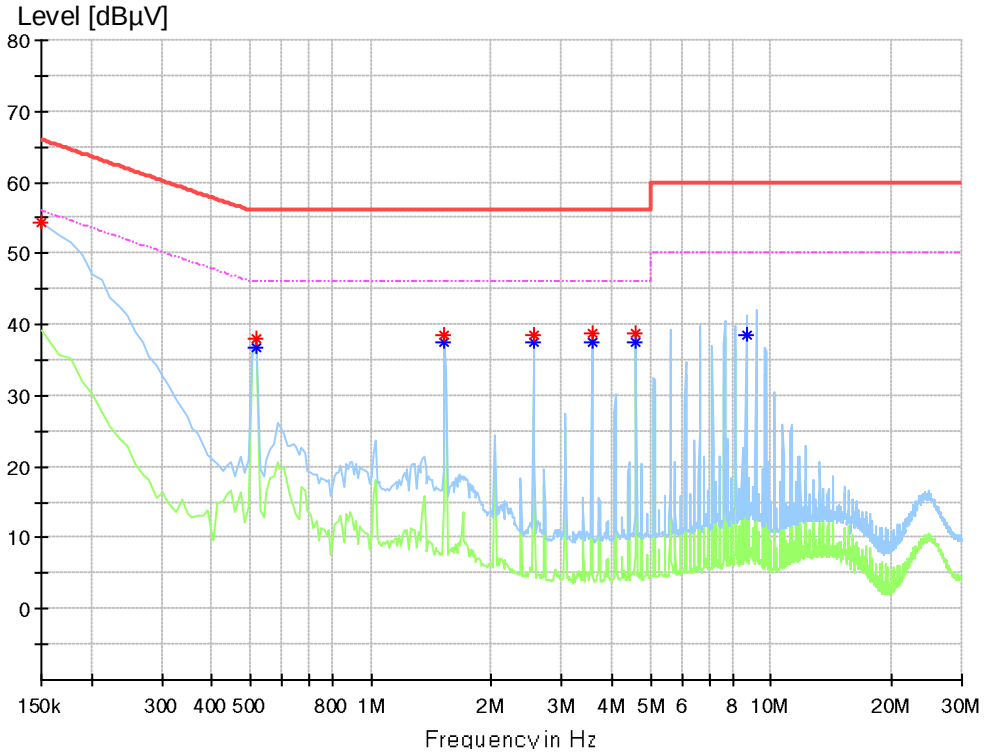
The measurement equipment like test rece1ivers, quasi-peak detector and artificial mains network (AMN) are in compliance with CISPR 16-1 series standards.
The tested object was set-up on a wooden support. The EUT was set 0.8 m away from the AMN. The cord longer than necessary to be connected to the AMN was folded forth and back parallel so as to form a bundle with a length between 0.3 m and 0.4 m.
The disturbance voltage test was performed on the neutral line and phase line of the power supply of the EUT respectively.

The following figures and tables were those measured by an automatic measuring system. Both quasi-peak and average measurements were performed. In the following spectral diagram, "✳" mean Quasi-Peak Value and "✳" mean Average Value results.

Notes on following tables of conducted emission results and conversions:

Level (dBµV): final measurement results by using quasi-peak detector and average detector
Transd (dB): transducer factor including cable loss, insertion loss of artificial mains network and gain of pre-amplifier (if used)
Margin: Limit (dBµV) - Level (dBµV)

Figure 1: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L, modes 1+3, power supply ICPSW24-19-1



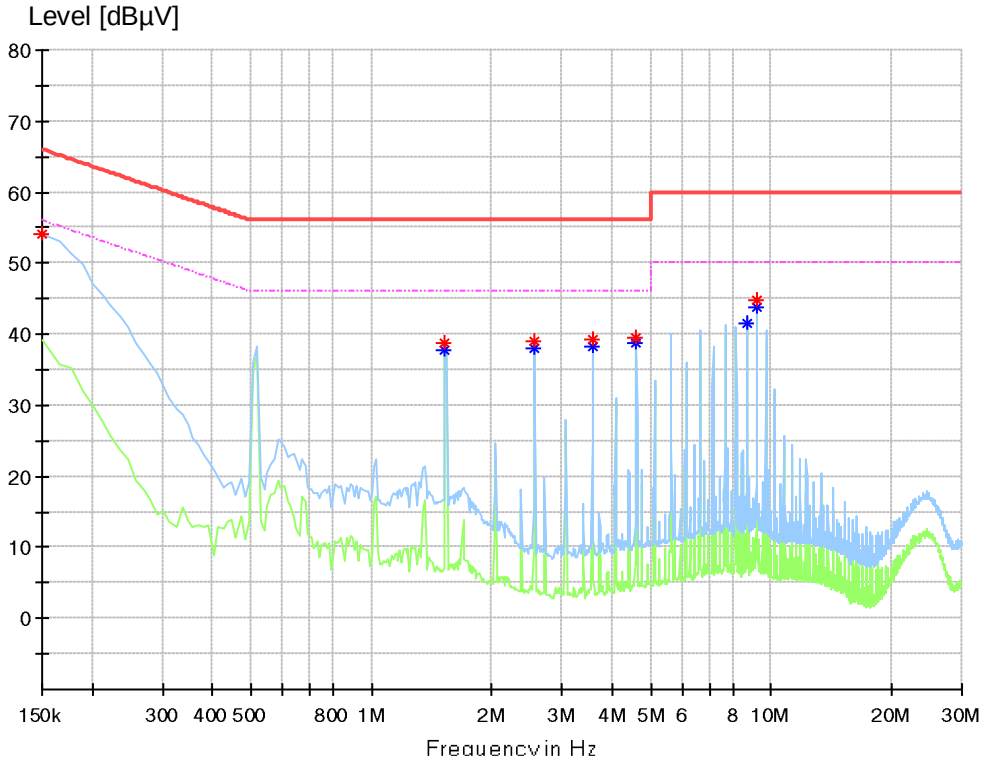
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)
0.515625	37.95	56.00	18.05
1.528125	38.47	56.00	17.53
2.551875	38.55	56.00	17.45
3.564375	38.66	56.00	17.34
4.588125	38.84	56.00	17.16
0.150000	54.26	66.00	11.74

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)
0.515625	36.74	46.00	9.26
1.528125	37.51	46.00	8.49
2.551875	37.53	46.00	8.47
3.564375	37.48	46.00	8.52
4.588125	37.41	46.00	8.59
8.671875	38.63	50.00	11.37

Figure 2: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N, modes 1+3, power supply ICPSW24-19-1



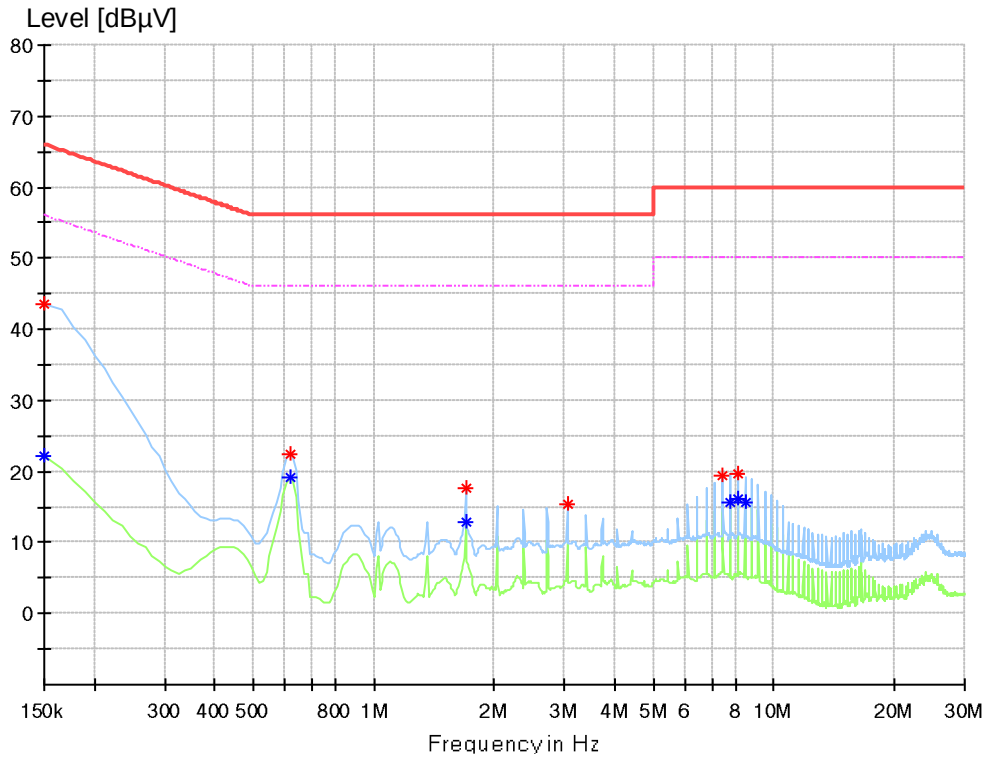
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)
1.528125	38.88	56.00	17.12
2.551875	38.97	56.00	17.03
3.575625	39.25	56.00	16.75
4.599375	39.54	56.00	16.46
9.200625	44.73	60.00	15.27
0.150000	54.02	66.00	11.98

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)
1.528125	37.87	46.00	8.13
2.551875	38.03	46.00	7.97
3.575625	38.33	46.00	7.67
4.599375	38.65	46.00	7.35
8.683125	41.48	50.00	8.52
9.200625	43.72	50.00	6.28

Figure 3: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L, mode 5, power supply ICPSW24-19-1



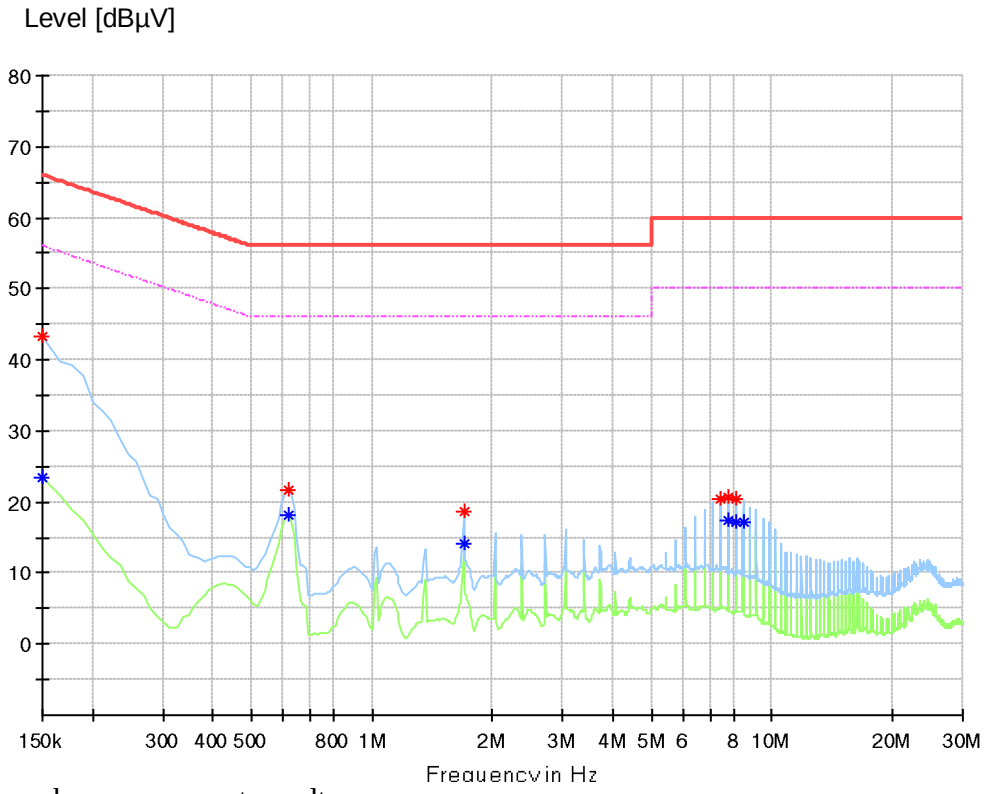
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)
3.046875	15.49	56.00	40.51
1.696875	17.63	56.00	38.37
7.456875	19.50	60.00	40.50
8.131875	19.76	60.00	40.24
0.616875	22.53	56.00	33.47
0.150000	43.62	66.00	22.38

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)
0.150000	22.23	56.00	33.77
0.616875	19.26	46.00	26.74
1.696875	12.97	46.00	33.03
7.794375	15.76	50.00	34.24
8.131875	16.12	50.00	33.88
8.480625	15.73	50.00	34.27

Figure 4: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N, mode 5, power supply ICPSW24-19-1



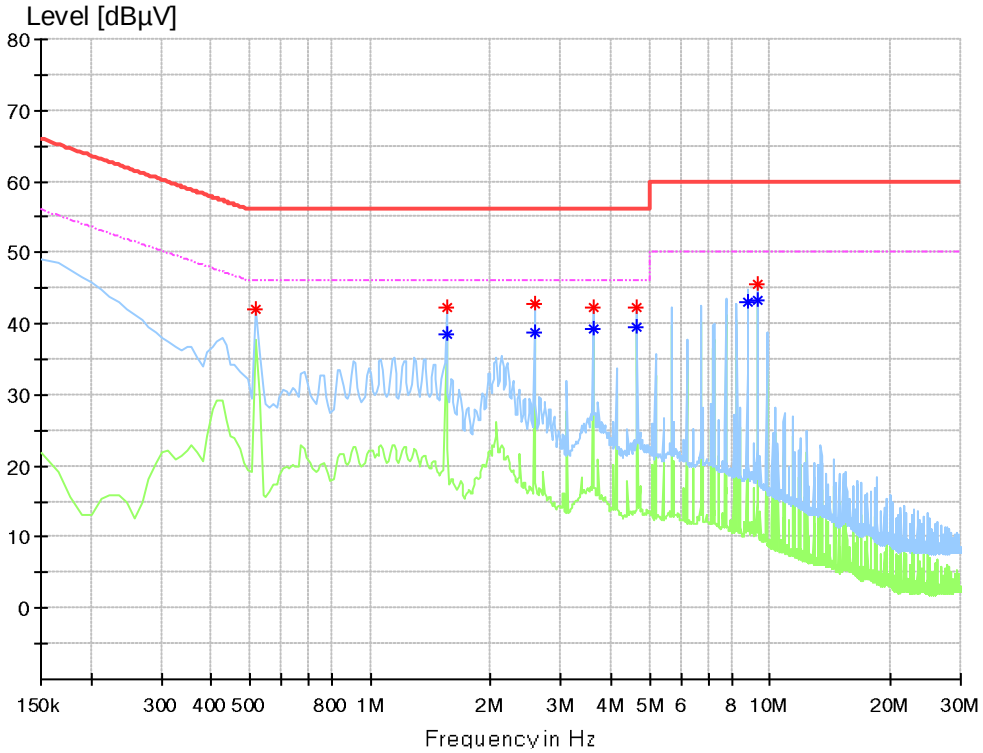
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)
1.696875	18.60	56.00	37.40
8.131875	20.35	60.00	39.65
7.456875	20.40	60.00	39.60
7.794375	20.61	60.00	39.39
0.616875	21.74	56.00	34.26
0.150000	43.30	66.00	22.70

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)
0.150000	23.49	56.00	32.51
0.616875	18.28	46.00	27.72
1.696875	14.19	46.00	31.81
7.794375	17.40	50.00	32.60
8.131875	17.15	50.00	32.85
8.469375	17.12	50.00	32.88

Figure 5: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L, modes 1+3, power supply ICPSW24-7-3



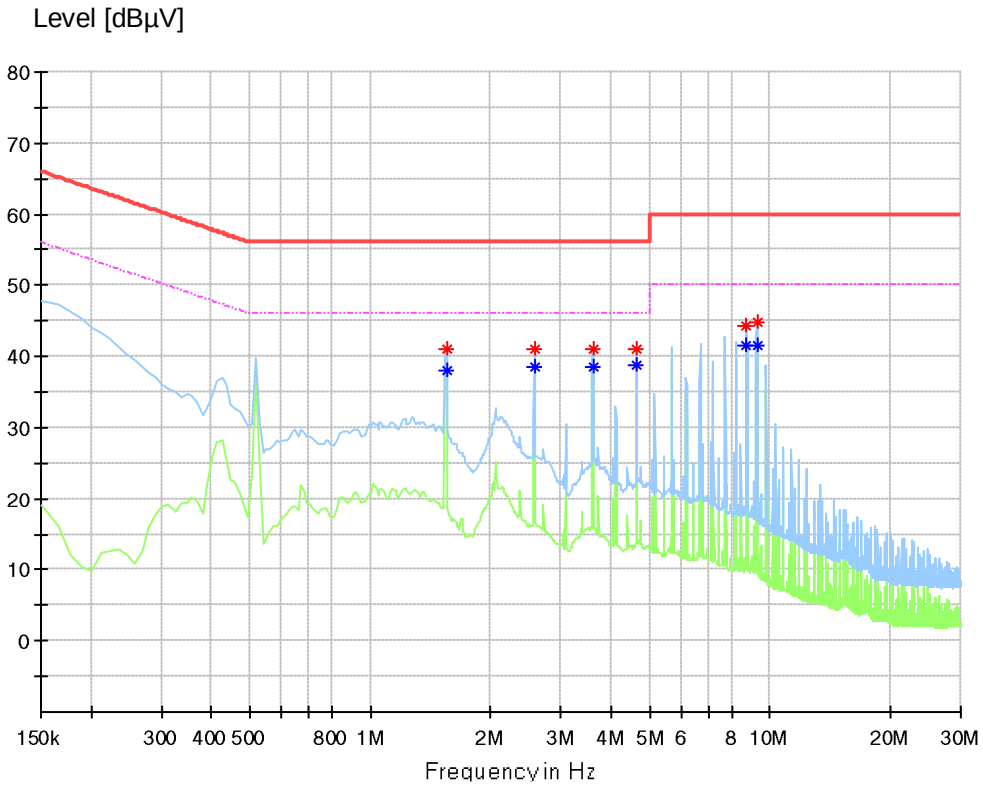
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Line
0.515625	42.10	56.00	13.90	L1
4.644375	42.27	56.00	13.73	L1
1.550625	42.32	56.00	13.68	L1
3.609375	42.42	56.00	13.59	L1
2.585625	42.72	56.00	13.28	L1
9.290625	45.44	60.00	14.56	L1

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line
1.550625	38.40	46.00	7.60	L1
2.585625	38.88	46.00	7.12	L1
3.609375	39.23	46.00	6.77	L1
4.644375	39.48	46.00	6.52	L1
8.773125	42.94	50.00	7.06	L1
9.290625	43.21	50.00	6.79	L1

Figure 6: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N, modes 1+3, power supply ICPSW24-7-3



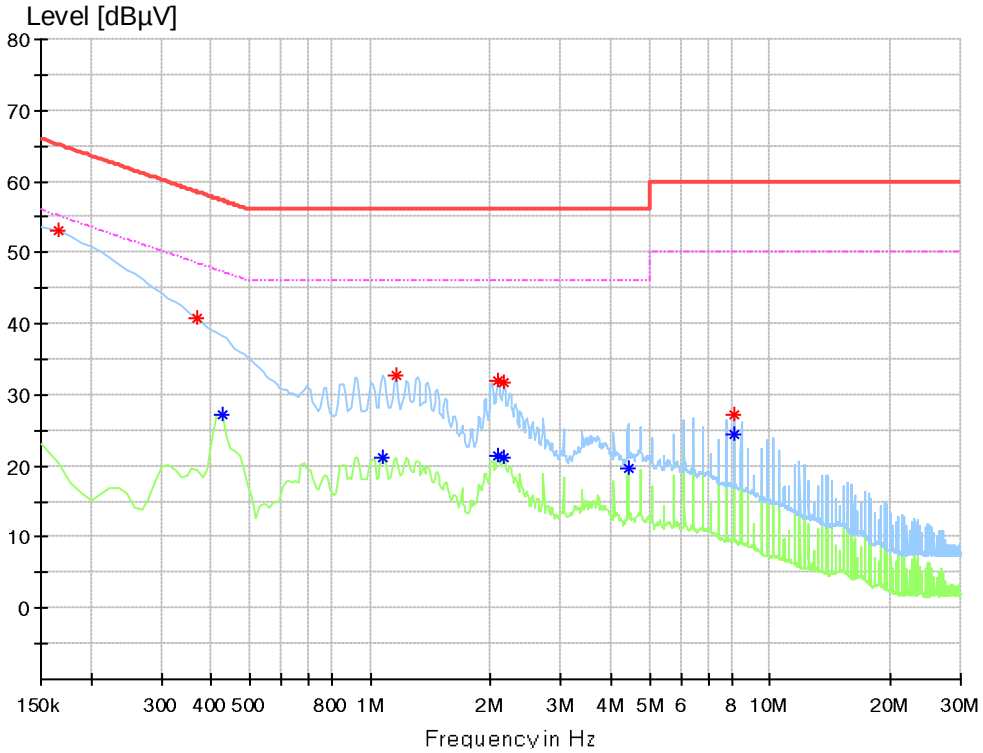
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Line
1.550625	40.99	56.00	15.01	N
4.633125	41.01	56.00	14.99	N
2.574375	41.03	56.00	14.97	N
3.609375	41.08	56.00	14.92	N
8.750625	44.23	60.00	15.77	N
9.268125	44.85	60.00	15.15	N

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line
1.550625	38.00	46.00	8.00	N
2.574375	38.55	46.00	7.45	N
3.609375	38.61	46.00	7.39	N
4.633125	38.89	46.00	7.11	N
8.750625	41.52	50.00	8.48	N
9.268125	41.42	50.00	8.58	N

Figure 7: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L, mode 5, power supply ICPSW24-7-3



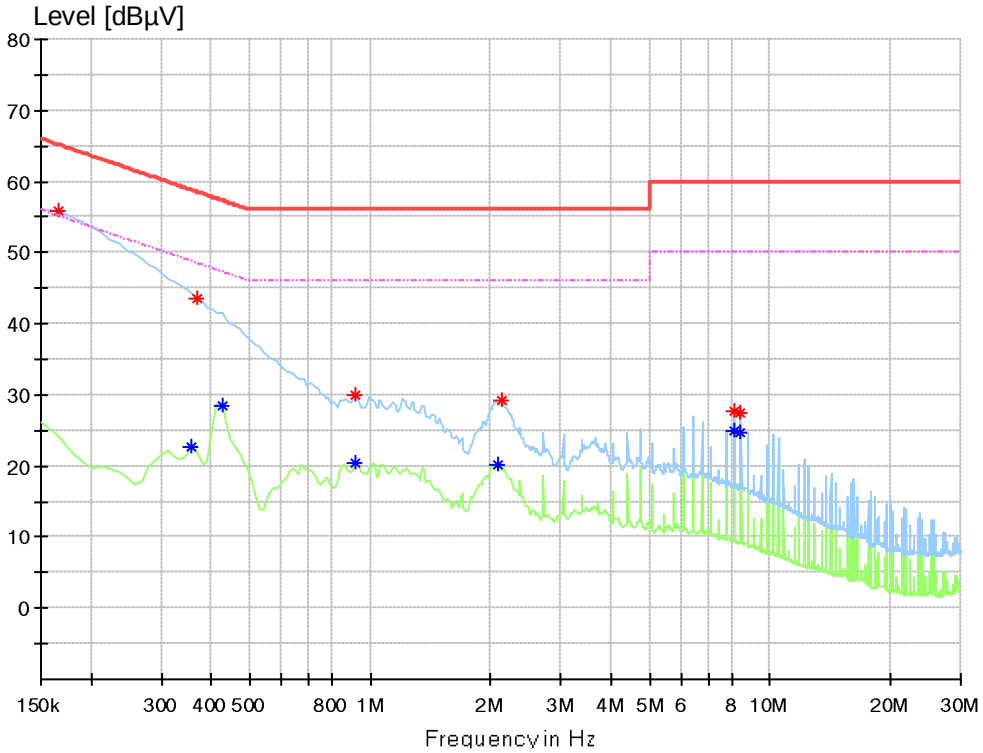
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Line
8.131875	27.30	60.00	32.70	L1
2.169375	31.86	56.00	24.14	L1
2.090625	32.05	56.00	23.95	L1
1.156875	32.73	56.00	23.27	L1
0.369375	40.77	58.52	17.74	L1
0.166875	53.22	65.12	11.90	L1

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line
0.425625	27.08	47.34	20.25	L1
1.078125	21.26	46.00	24.74	L1
2.090625	21.37	46.00	24.63	L1
2.169375	21.08	46.00	24.92	L1
4.408125	19.68	46.00	26.32	L1
8.131875	24.36	50.00	25.64	L1

Figure 8: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N, mode 5, power supply ICPSW24-7-3



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Line
8.458125	27.55	60.00	32.45	N
8.120625	27.75	60.00	32.25	N
2.124375	29.26	56.00	26.74	N
0.920625	29.86	56.00	26.14	N
0.369375	43.61	58.52	14.91	N
0.166875	55.90	65.12	9.22	N

Final Average measurement result:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line
0.358125	22.62	48.77	26.15	N
0.425625	28.57	47.34	18.77	N
0.920625	20.50	46.00	25.50	N
2.090625	20.14	46.00	25.86	N
8.120625	24.93	50.00	25.07	N
8.458125	24.76	50.00	25.24	N

5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated emission （30 MHz - 1 GHz）

Result:	**Passed**

Date of testing	:	2022-01-26; 2022-03-16
Test procedure	:	FCC 47 CFR Part 15, Subpart B:2020, ICES-003:2020, ICES-005:2018, ANSI C63.4-2014 and CISPR 16-2-3
Frequency range	:	30 – 1000 MHz
Limits	:	Quasi-peak limits (3 m distance): 30 – 88 MHz, 40 dBµV/m; 88 – 216 MHz, 43.5 dBµV/m; 216 – 1000 MHz, 46 dBµV/m (see Note 1)
Bandwidth of EMI receiver for final measurement	:	120 kHz
Measurement time for final measurement	:	1 s
Kind of test site	:	Semi-anechoic chamber
Operational mode	:	Modes 1+3, 2+4, 5, 6 as defined in clause 2.3 (for power supply ICPSW24-19-1) Modes 1+3, 5 as defined in clause 2.3 (for power supply ICPSW24-7-3)
Input voltage	:	AC 120 V; 60 Hz; DC 3.6 V
Ambient condition	:	Temperature: 21.6-22.6 °C; Relative humidity: 42.1-47.1 %
Expanded measurement uncertainty (k=2)	:	5.49 dB

The radiated disturbance test was carried out in a semi-anechoic chamber. The test distance from the receiving antenna to the EUT is 3 m. The normalized site attenuation of the semi-anechoic chamber is regularly calibrated to ensure the radiated disturbance test results are valid. During the test, the EUT was placed on a 0.8 m high wooden table above the reference ground plane. The wooden table was rotated 360° around and the height of the antenna was varied from 1 m to 4 m to find the maximum disturbance. The test was performed with the antenna both in its horizontal and vertical polarizations.

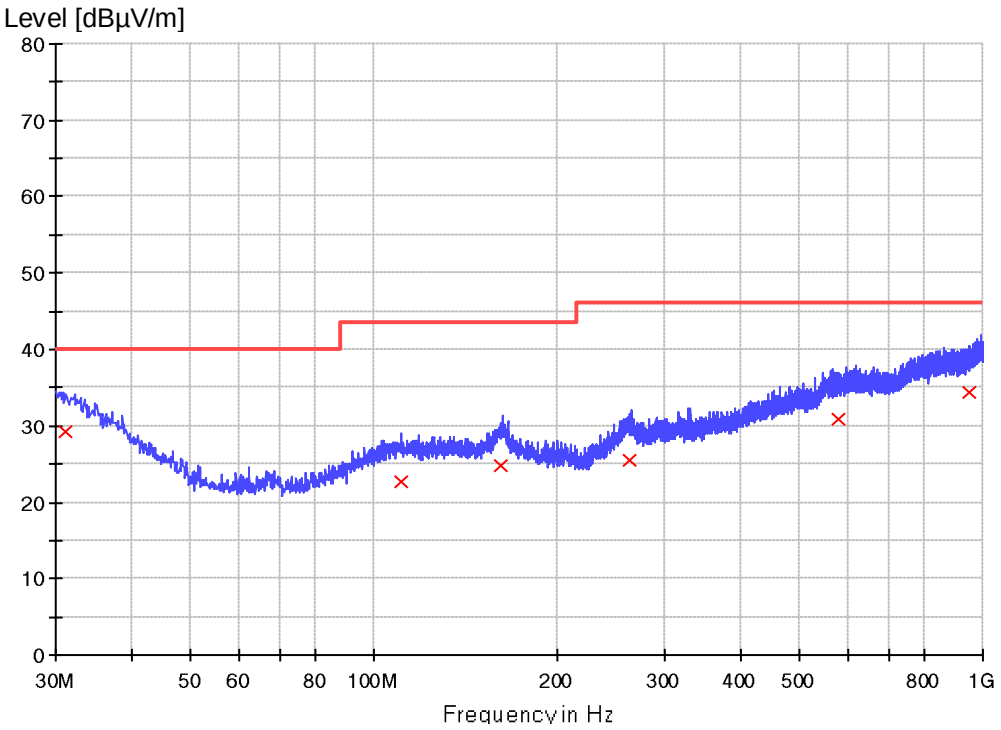
The following figures and tables were those measured by an automatic measurement system. A preview test was firstly performed with peak detector. The final test was performed with quasi-peak at those critical frequencies during the preview test. In the following spectral diagram, "×" means quasi-peak test results.

Note 1: The Class B limits in ICES-005:2018 Table 4 are more stringent than those in FCC Part 15 subpart B §15.109 (a) and Class B limits in ICES-003:2020 Table 2. Therefore, the former are used in following figures and tables.

Notes on following tables of radiated emission results and conversions:

QuasiPeak (dBµV/m): final measurement results by using quasi-peak detector
Corr. (dB): correction factor including: antenna factor, cable loss, and gain of pre-amplifier (if used)
Margin: Limit (dBµV/m) - QuasiPeak (dBµV/m)

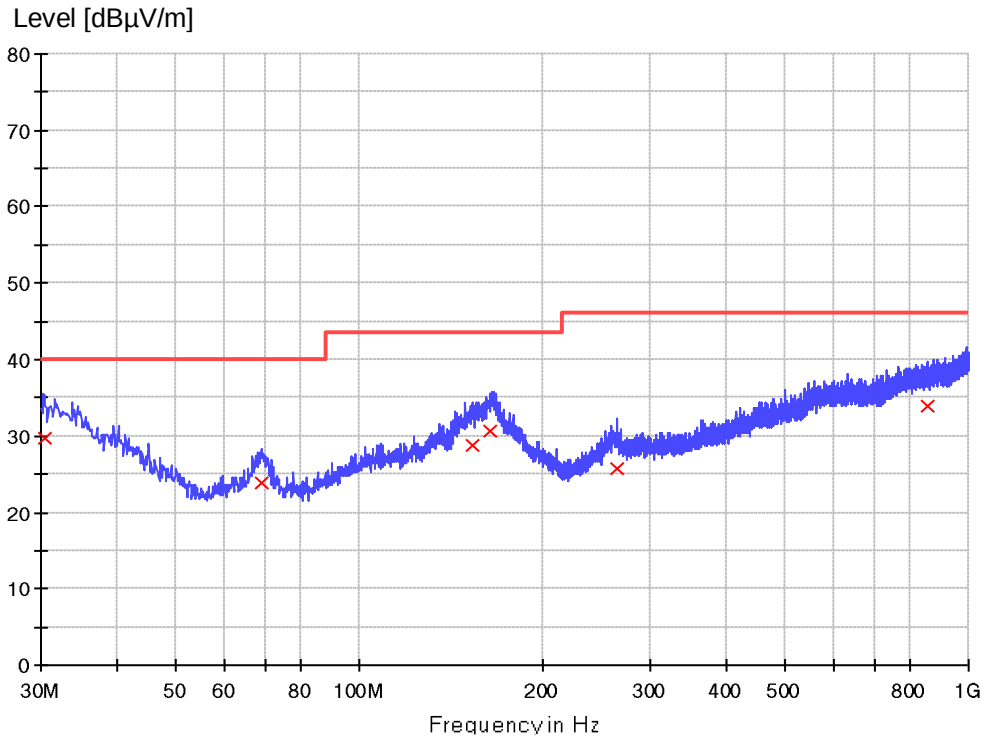
Figure 9: Spectral Diagrams and measurement results, horizontal polarization (30 MHz to 1 GHz), Modes 1+3, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.212500	29.3	1000.0	120.000	100.0	H	36.0	24.8	10.7	40.0
110.631250	22.6	1000.0	120.000	100.0	H	15.0	18.5	20.9	43.5
162.041250	24.9	1000.0	120.000	100.0	H	60.0	16.7	18.6	43.5
262.557500	25.6	1000.0	120.000	100.0	H	100.0	20.7	20.4	46.0
580.353750	30.9	1000.0	120.000	100.0	H	90.0	26.1	15.1	46.0
946.407500	34.3	1000.0	120.000	100.0	H	88.0	28.3	11.7	46.0

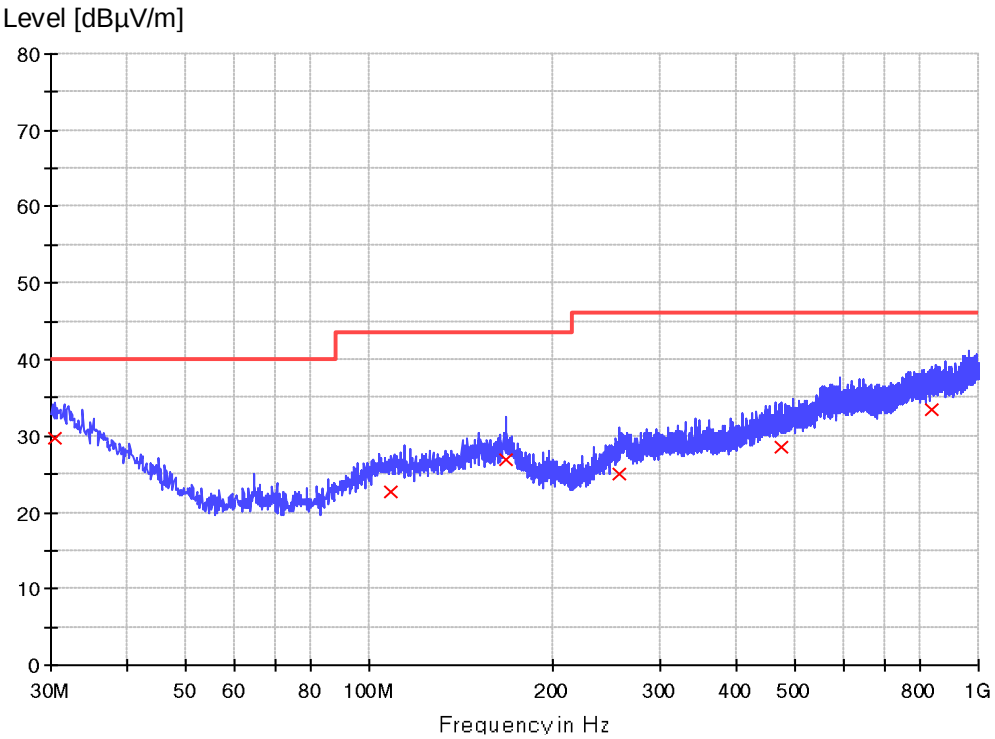
Figure 10: Spectral Diagrams and measurement results, vertical polarization (30 MHz to 1 GHz), Modes 1+3, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.363750	29.7	1000.0	120.000	100.0	V	12.0	25.2	10.3	40.0
69.163750	23.7	1000.0	120.000	100.0	V	69.0	13.1	16.3	40.0
153.190000	28.8	1000.0	120.000	100.0	V	0.0	17.0	14.7	43.5
164.466250	30.6	1000.0	120.000	100.0	V	15.0	16.5	12.9	43.5
265.103750	25.8	1000.0	120.000	100.0	V	69.0	20.7	20.2	46.0
853.287500	33.9	1000.0	120.000	100.0	V	50.0	27.9	12.1	46.0

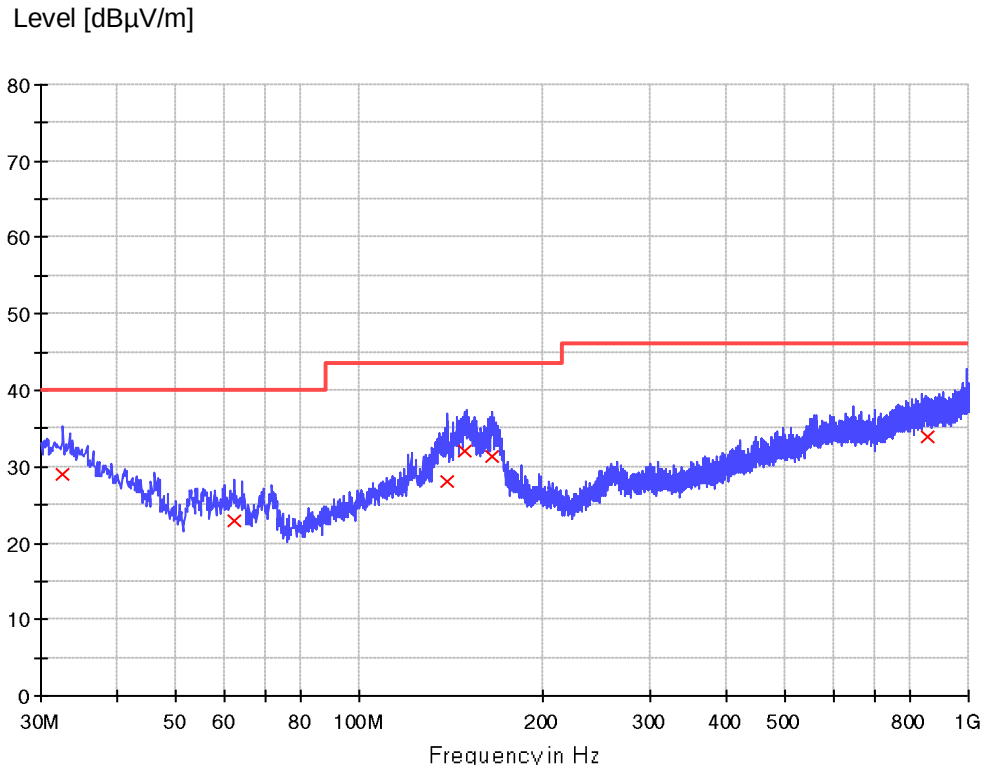
Figure 11: Spectral Diagrams and measurement results, horizontal polarization (30 MHz to 1 GHz), Modes 2+4, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.485000	29.7	1000.0	120.000	100.0	H	120.0	25.2	10.3	40.0
108.448750	22.6	1000.0	120.000	100.0	H	36.0	18.4	20.9	43.5
167.255000	27.0	1000.0	120.000	130.0	H	80.0	16.5	16.5	43.5
256.616250	25.1	1000.0	120.000	100.0	H	0.0	20.2	20.9	46.0
473.653750	28.5	1000.0	120.000	120.0	H	12.0	24.5	17.5	46.0
835.827500	33.4	1000.0	120.000	150.0	H	69.0	27.5	12.6	46.0

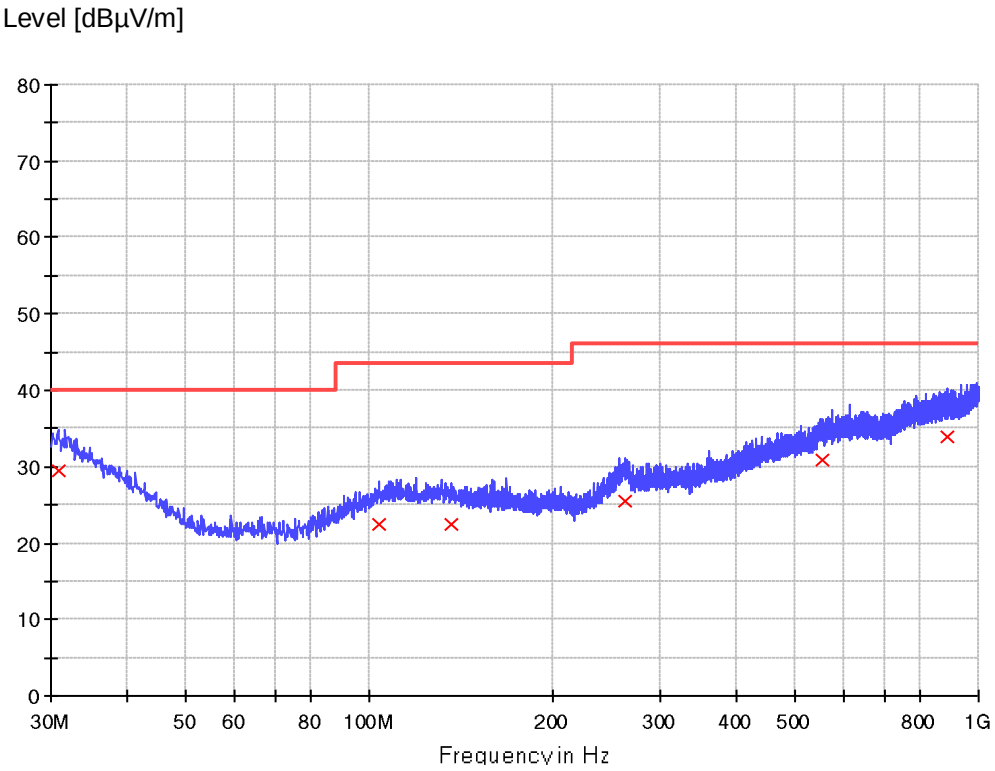
Figure 12: Spectral Diagrams and measurement results, vertical polarization (30 MHz to 1 GHz), Modes 2+4, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
32.546250	29.0	1000.0	120.000	100.0	V	12.0	24.1	11.0	40.0
62.373750	22.9	1000.0	120.000	100.0	V	5.0	12.8	17.1	40.0
139.367500	28.1	1000.0	120.000	100.0	V	69.0	18.1	15.4	43.5
148.825000	32.0	1000.0	120.000	100.0	V	90.0	17.3	11.5	43.5
165.557500	31.4	1000.0	120.000	110.0	V	120.0	16.5	12.1	43.5
859.350000	33.9	1000.0	120.000	102.0	V	60.0	28.0	12.1	46.0

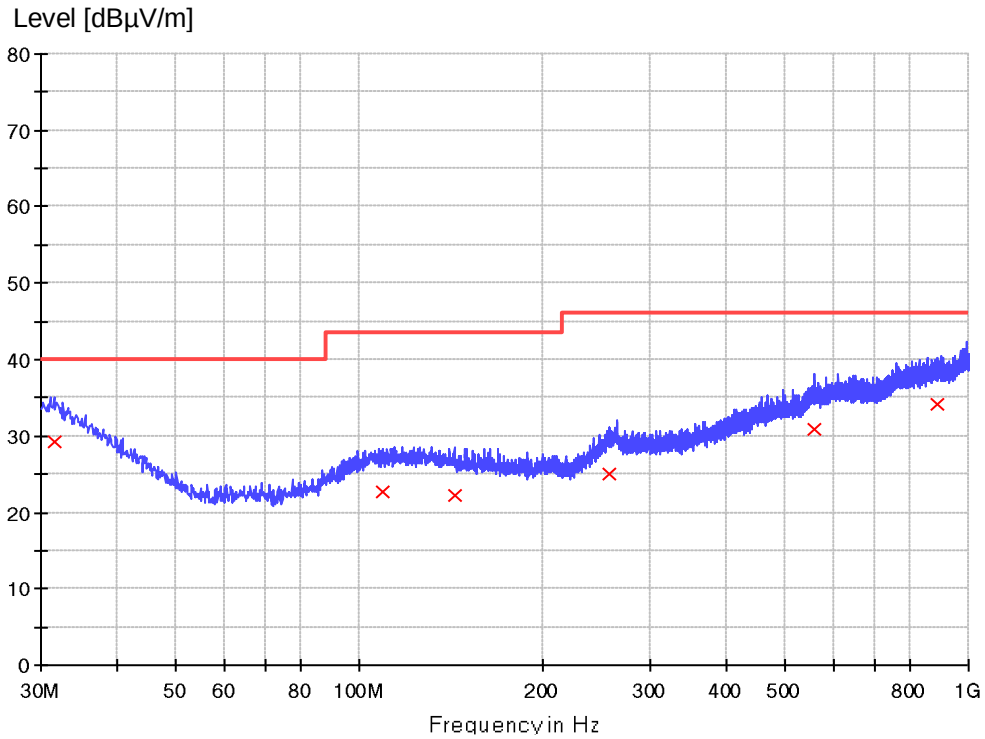
Figure 13: Spectral Diagrams and measurement results, horizontal polarization (30 MHz to 1 GHz), Mode 5, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.848750	29.5	1000.0	120.000	100.0	H	150.0	25.0	10.5	40.0
103.720000	22.5	1000.0	120.000	100.0	H	0.0	18.1	21.0	43.5
136.215000	22.5	1000.0	120.000	100.0	H	13.0	18.4	21.0	43.5
262.436250	25.5	1000.0	120.000	100.0	H	60.0	20.7	20.5	46.0
553.800000	30.9	1000.0	120.000	100.0	H	55.0	26.4	15.1	46.0
887.116250	34.0	1000.0	120.000	100.0	H	90.0	28.0	12.0	46.0

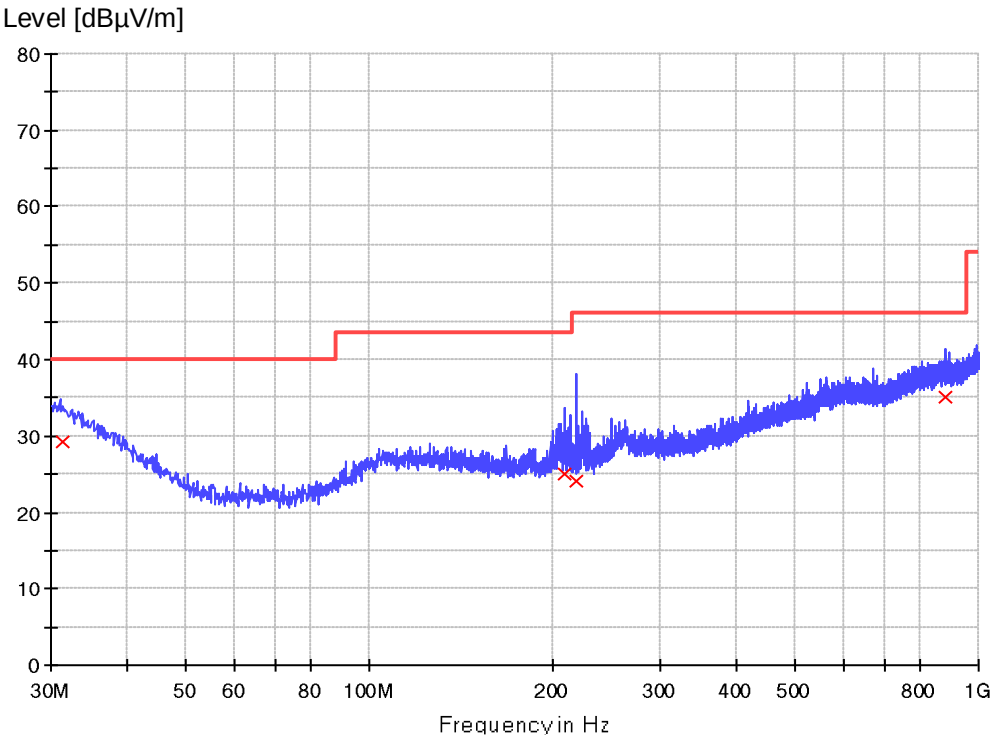
Figure 14: Spectral Diagrams and measurement results, vertical polarization (30 MHz to 1 GHz), Mode 5, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.576250	29.1	1000.0	120.000	100.0	V	36.0	24.7	10.9	40.0
109.055000	22.6	1000.0	120.000	100.0	V	15.0	18.5	20.9	43.5
143.005000	22.2	1000.0	120.000	100.0	V	69.0	17.9	21.3	43.5
257.222500	25.1	1000.0	120.000	100.0	V	0.0	20.3	20.9	46.0
556.952500	30.9	1000.0	120.000	100.0	V	120.0	26.4	15.1	46.0
891.360000	34.0	1000.0	120.000	100.0	V	0.0	28.1	12.0	46.0

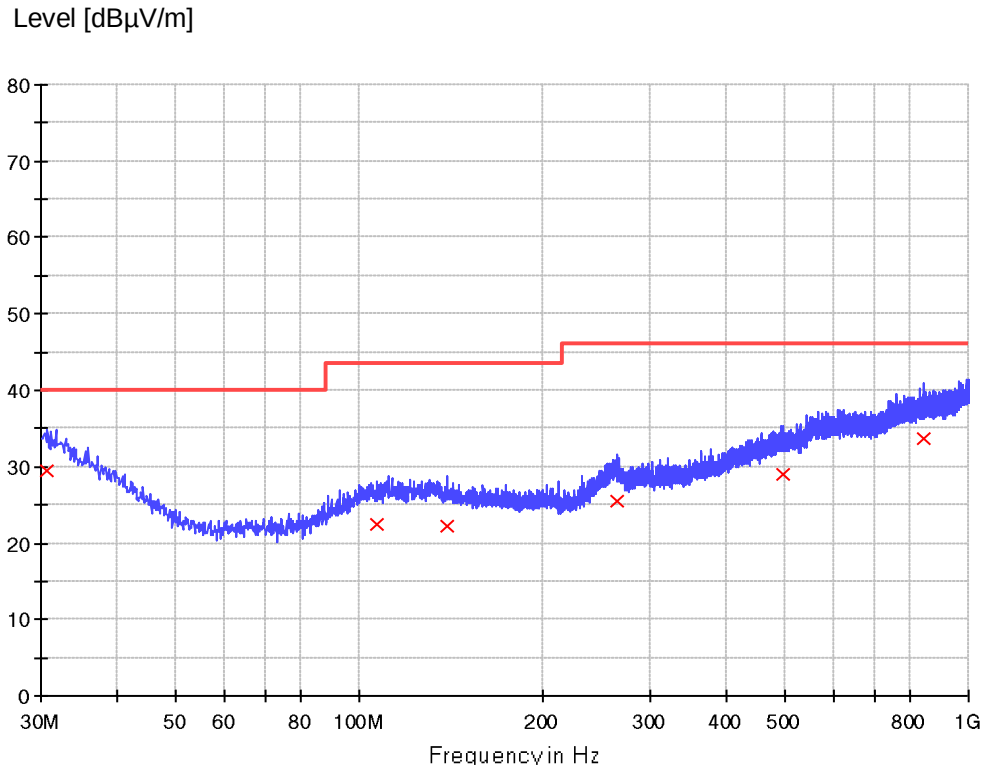
Figure 15: Spectral Diagrams and measurement results, horizontal polarization (30 MHz to 1 GHz), Mode 6, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.440000	29.3	1000.0	120.000	100.0	H	-180.0	24.7	10.7	40.0
209.340000	25.0	1000.0	120.000	150.0	H	180.0	16.1	18.5	43.5
218.880000	24.1	1000.0	120.000	162.0	H	-180.0	15.9	21.9	46.0
884.580000	35.1	1000.0	120.000	130.0	H	0.0	28.0	10.9	46.0

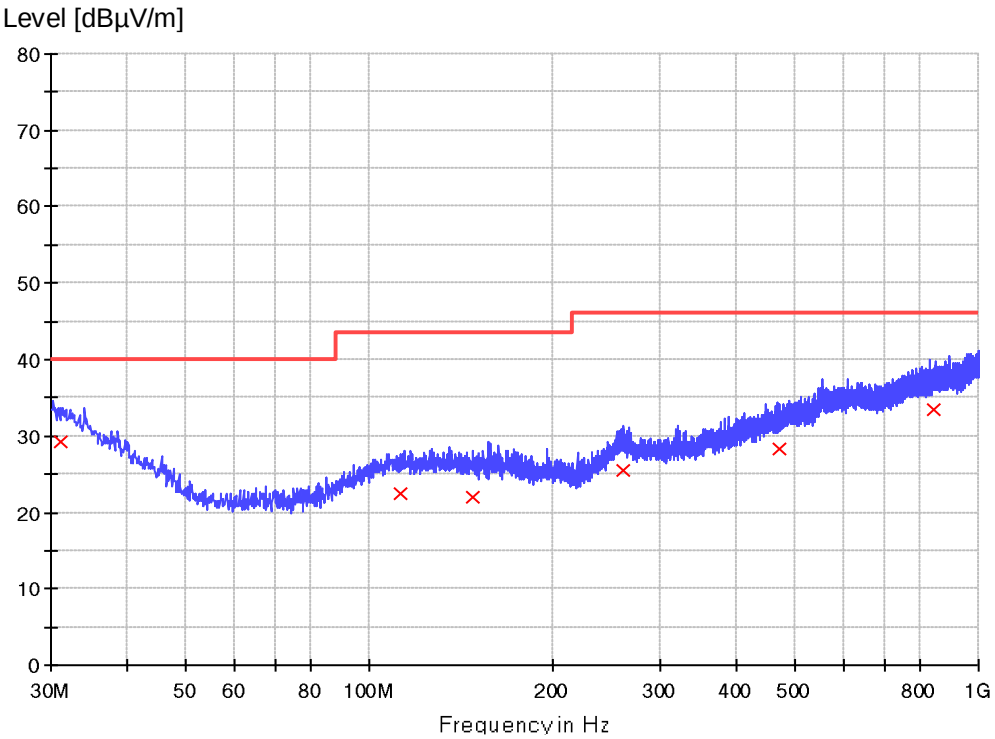
Figure 16: Spectral Diagrams and measurement results, vertical polarization (30 MHz to 1 GHz), Mode 6, power supply ICPSW24-19-1



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.727500	29.5	1000.0	120.000	100.0	V	12.0	25.0	10.5	40.0
106.630000	22.5	1000.0	120.000	100.0	V	5.0	18.3	21.0	43.5
139.125000	22.3	1000.0	120.000	100.0	V	69.0	18.1	21.2	43.5
264.982500	25.5	1000.0	120.000	100.0	V	45.0	20.7	20.5	46.0
497.540000	29.0	1000.0	120.000	110.0	V	120.0	24.9	17.0	46.0
846.740000	33.8	1000.0	120.000	105.0	V	15.0	27.8	12.2	46.0

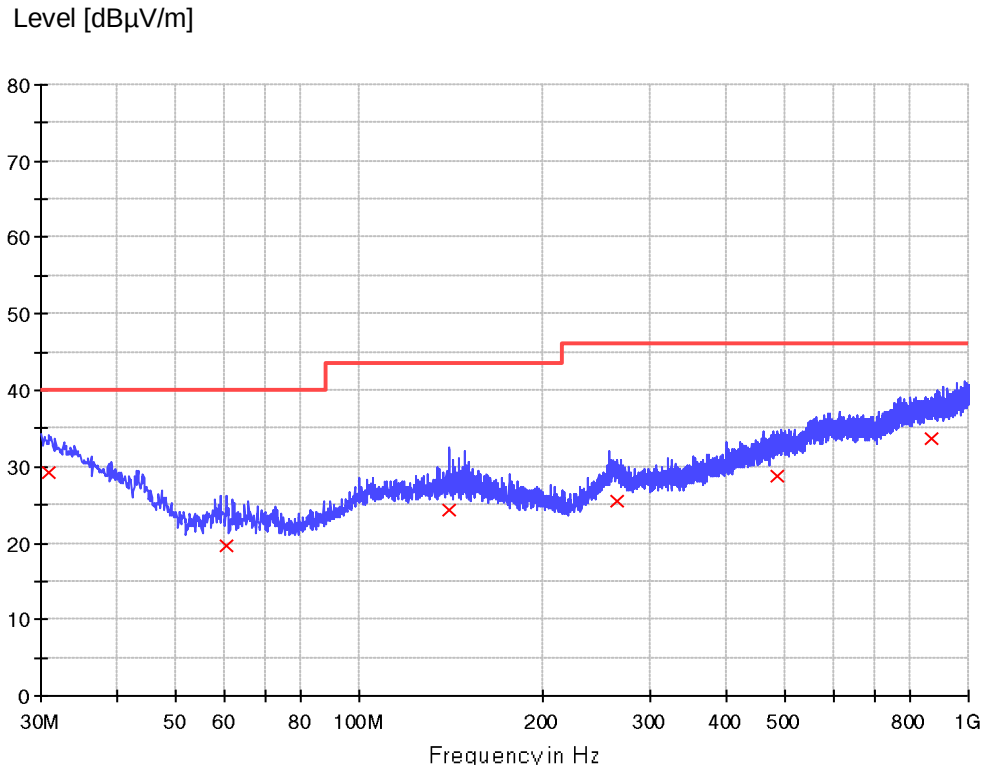
Figure 17: Spectral Diagrams and measurement results, horizontal polarization (30 MHz to 1 GHz), Modes 1+3, power supply ICPSW24-7-3



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.212500	29.2	1000.0	120.000	100.0	H	69.0	24.8	10.8	40.0
112.328750	22.6	1000.0	120.000	100.0	H	120.0	18.5	20.9	43.5
148.097500	22.0	1000.0	120.000	100.0	H	150.0	17.4	21.5	43.5
261.830000	25.4	1000.0	120.000	100.0	H	25.0	20.7	20.6	46.0
471.956250	28.4	1000.0	120.000	100.0	H	45.0	24.5	17.6	46.0
841.890000	33.5	1000.0	120.000	100.0	H	122.0	27.7	12.5	46.0

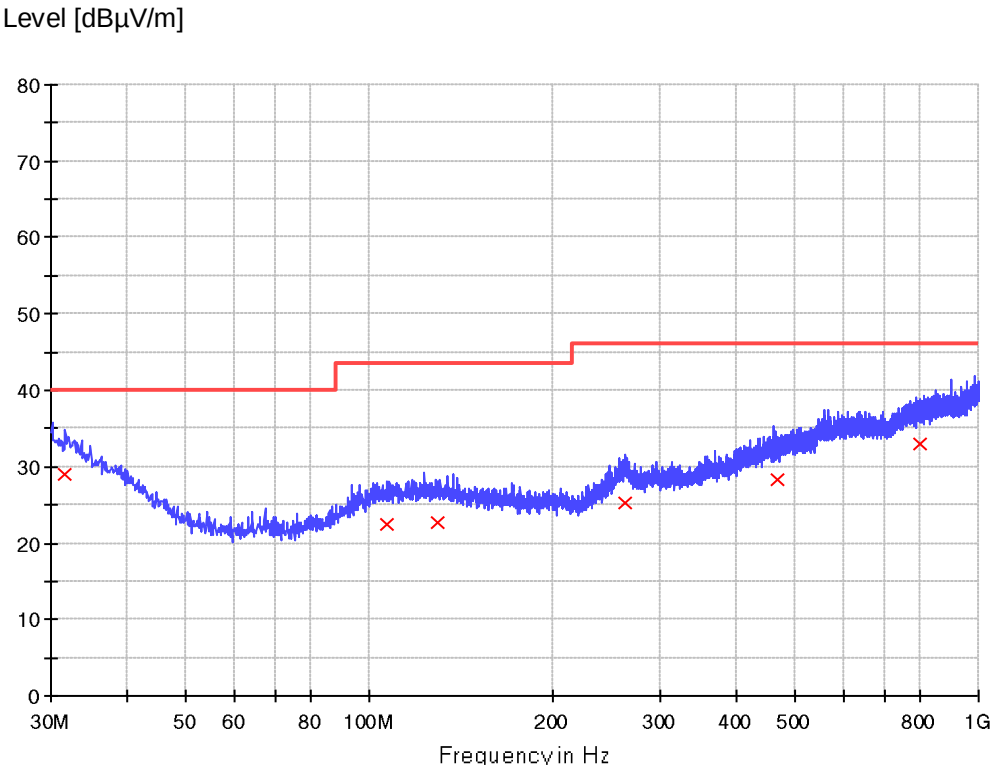
Figure 18: Spectral Diagrams and measurement results, vertical polarization (30 MHz to 1 GHz), Modes 1+3, power supply ICPSW24-7-3



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.970000	29.3	1000.0	120.000	100.0	V	69.0	24.9	10.7	40.0
60.312500	19.6	1000.0	120.000	100.0	V	123.0	12.8	20.4	40.0
140.095000	24.3	1000.0	120.000	100.0	V	77.0	18.1	19.2	43.5
264.255000	25.4	1000.0	120.000	100.0	V	69.0	20.7	20.6	46.0
485.900000	28.7	1000.0	120.000	100.0	V	158.0	24.8	17.3	46.0
866.261250	33.8	1000.0	120.000	100.0	V	0.0	27.9	12.2	46.0

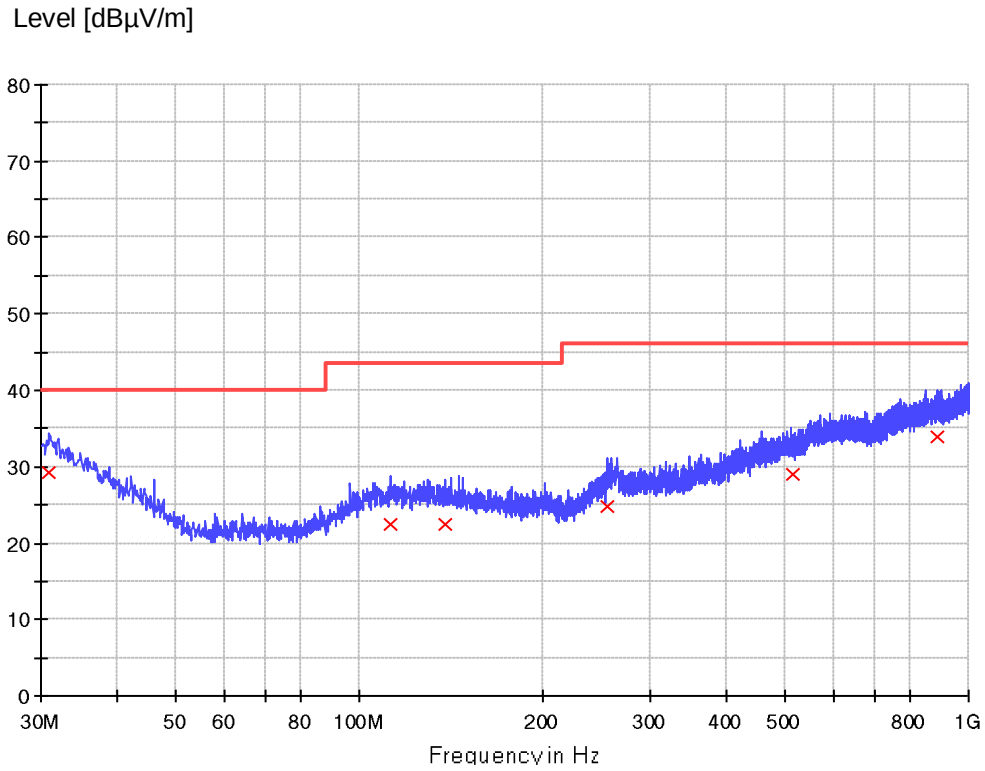
Figure 19: Spectral Diagrams and measurement results, horizontal polarization (30 MHz to 1 GHz), Mode 5, power supply ICPSW24-7-3



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.697500	29.0	1000.0	120.000	100.0	H	30.0	24.6	11.0	40.0
106.630000	22.5	1000.0	120.000	100.0	H	60.0	18.3	21.0	43.5
129.425000	22.6	1000.0	120.000	100.0	H	150.0	18.7	20.9	43.5
263.042500	25.3	1000.0	120.000	100.0	H	40.0	20.7	20.7	46.0
467.227500	28.2	1000.0	120.000	100.0	H	69.0	24.3	17.8	46.0
801.271250	33.0	1000.0	120.000	100.0	H	0.0	27.4	13.0	46.0

Figure 20: Spectral Diagrams and measurement results, vertical polarization (30 MHz to 1 GHz), Mode 5, power supply ICPSW24-7-3



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/ m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.970000	29.3	1000.0	120.000	100.0	V	36.0	24.9	10.7	40.0
112.086250	22.6	1000.0	120.000	100.0	V	120.0	18.5	20.9	43.5
138.518750	22.5	1000.0	120.000	100.0	V	80.0	18.2	21.0	43.5
255.767500	24.9	1000.0	120.000	100.0	V	0.0	20.1	21.1	46.0
513.181250	29.1	1000.0	120.000	100.0	V	3.0	25.0	16.9	46.0
885.903750	33.8	1000.0	120.000	100.0	V	69.0	28.0	12.2	46.0

5.2.2 Radiated emission (Above 1 GHz)

Result:	**Passed**

Date of testing	:	2022-01-26, 2022-03-09
Port	:	Enclosure
Test procedure	:	FCC 47 CFR Part 15, Subpart B:2020, ANSI C63.4-2014 and CISPR 16-2-3 ICES-003:2020
Limit	:	Above 1 GHz, Peak limit: 74 dBµV/m; Average limit: 54 dBµV/m
Frequency range	:	1-18 GHz Note: The highest frequency in the EUT is 2.4 GHz. According to FCC Part 15 subpart B §15.33 (b) (1), the upper frequency for radiated emission measurement is 12 GHz. The actual test frequency is up to 18 GHz and 13 GHz.
Bandwidth of EMI receiver for final measurement	:	1000 kHz
Measurement time for final measurement	:	1 s
Test distance	:	3 m
Kind of test site	:	Semi-anechoic chamber
Operational mode	:	Modes 1, 2, 5, 6 as defined in clause 2.3 (for power supply ICPSW24-19-1) Modes 1, 5 as defined in clause 2.3 (for power supply ICPSW24-7-3)
Input voltage	:	AC 120 V; 60 Hz; DC 3.6 V
Earthing	:	No earthing (as class II equipment)
Ambient condition	:	Temperature: 21.6-22.6 °C; Relative humidity: 42.1-47.1 %

The radiated disturbance test was carried out in a semi-anechoic chamber. The test distance from the receiving antenna to the EUT is 3 m. The normalized site attenuation of the semi-anechoic chamber is regularly calibrated to ensure the radiated disturbance test results are valid. During the test, the EUT was placed on a poly table, which is 0.8 m high. The wooden table was rotated 360° around and the antenna was varied from 1 m to 4 m to find the maximum disturbance. The test was performed with the antenna both in its horizontal and vertical polarizations.

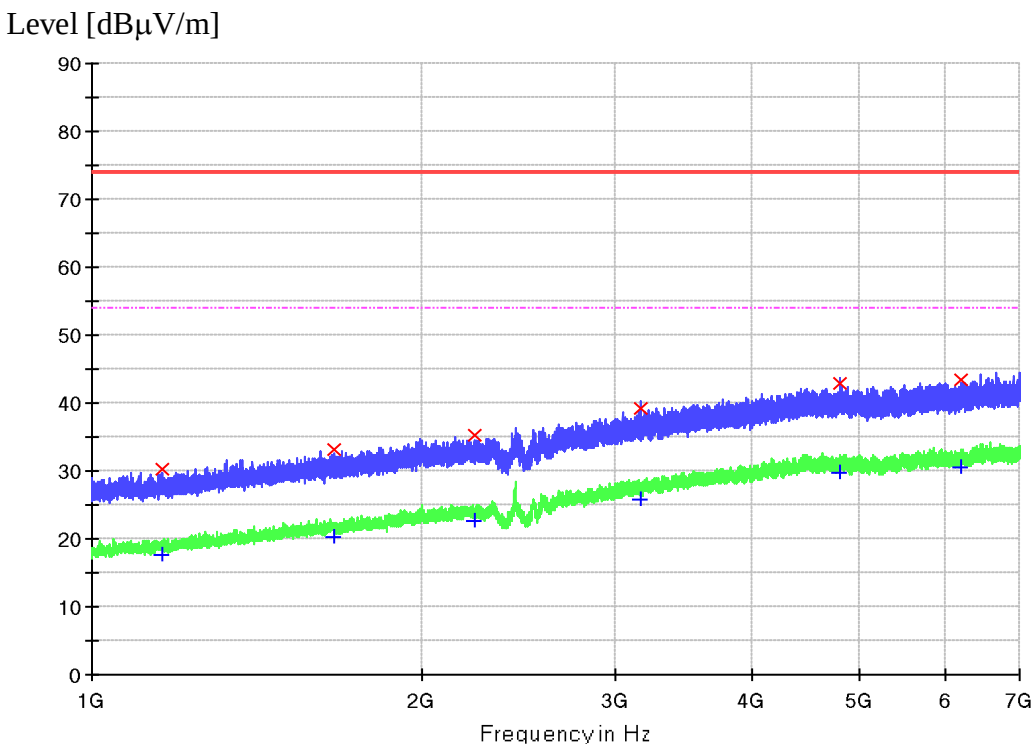
The following figures and tables were those measured by an automatic measurement system. The final test was performed with peak detector and average detector at those critical frequencies during the preview test. In the following figure, “x(red)” means measurement results with peak detector and “+ (blue)” means measurement results with average detector.

Notes on following tables of radiated emission results and conversions:

Peak (dBµV/m): final measurement results by using peak detector
Average (dBµV/m): final measurement results by using average detector

Corr. (dB): correction factor including: antenna factor, cable loss, and gain of pre-amplifier (if used)
Margin: Limit PK (dBµV/m) - Peak (dBµV/m)
Limit CAV (dBµV/m) – Average (dBµV/m)

Figure 21: Spectral Diagrams and measurement results, 1-7 GHz, horizontal polarization, mode 1, power supply ICPSW24-19-1



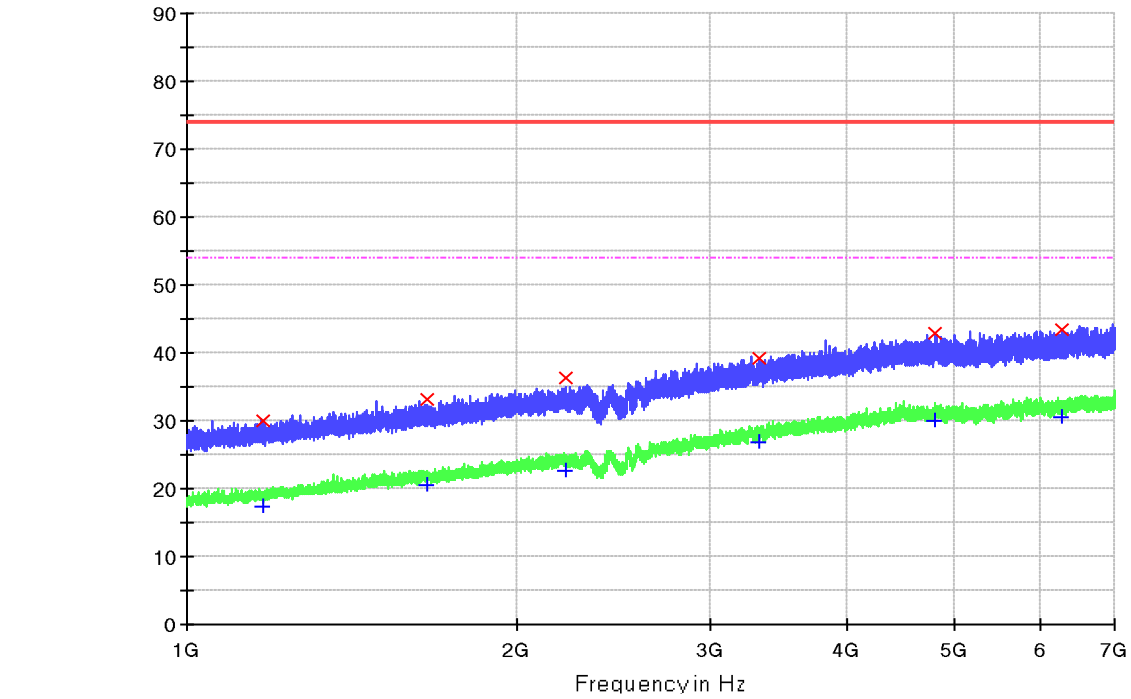
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1158.062500	30.3	1000.000	100.0	H	120.0	-21.5	43.7	74.0
1665.250000	33.3	1000.000	100.0	H	0.0	-18.0	40.7	74.0
2236.562500	35.1	1000.000	100.0	H	60.0	-15.2	38.9	74.0
3166.750000	39.3	1000.000	100.0	H	18.0	-10.9	34.7	74.0
4798.375000	42.9	1000.000	100.0	H	77.0	-6.5	31.1	74.0
6198.812500	43.4	1000.000	100.0	H	60.0	-5.4	30.6	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1158.062500	17.6	1000.000	100.0	H	120.0	-21.5	36.4	54.0
1665.250000	20.3	1000.000	100.0	H	0.0	-18.0	33.7	54.0
2236.562500	22.6	1000.000	100.0	H	60.0	-15.2	31.4	54.0
3166.750000	25.9	1000.000	100.0	H	18.0	-10.9	28.1	54.0
4798.375000	29.8	1000.000	100.0	H	77.0	-6.5	24.2	54.0
6198.812500	30.6	1000.000	100.0	H	60.0	-5.4	23.4	54.0

Figure 22: Spectral Diagrams and measurement results, 1-7 GHz, vertical polarization, mode 1, power supply ICPSW24-19-1



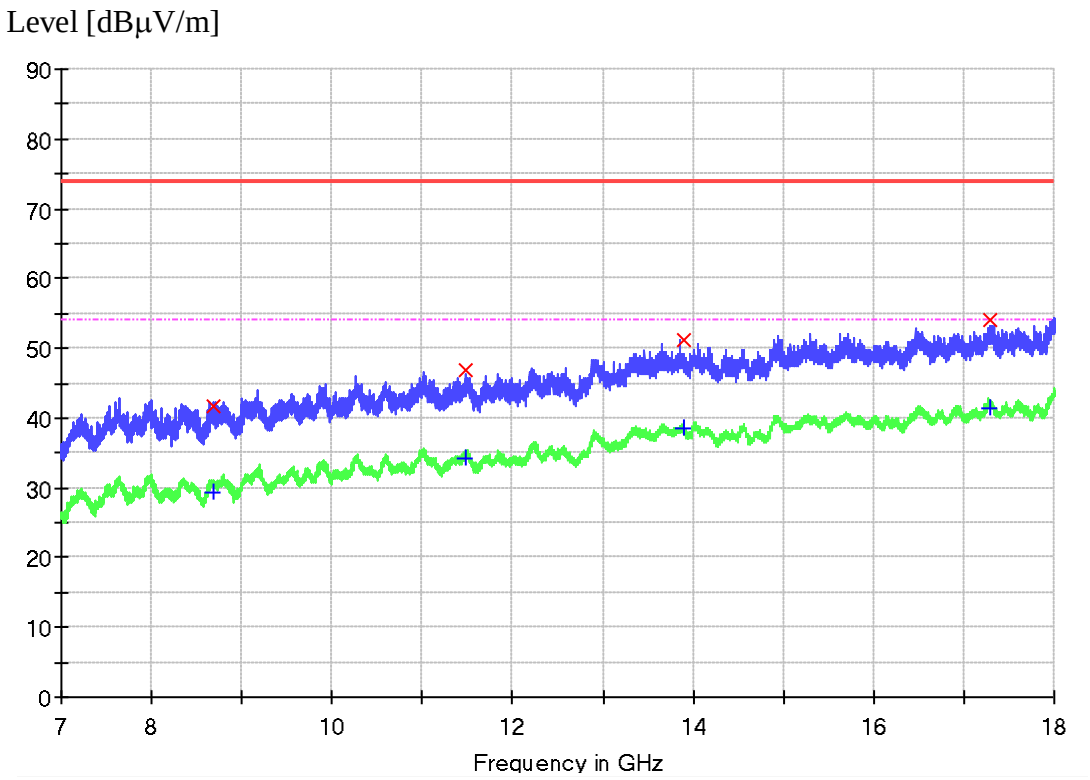
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1172.875000	30.0	1000.000	100.0	V	15.0	-21.4	44.0	74.0
1656.625000	33.1	1000.000	100.0	V	33.0	-18.0	40.9	74.0
2214.250000	36.2	1000.000	100.0	V	180.0	-15.3	37.8	74.0
3322.375000	39.2	1000.000	100.0	V	69.0	-10.3	34.8	74.0
4807.187500	42.9	1000.000	100.0	V	5.0	-6.5	31.1	74.0
6268.375000	43.5	1000.000	100.0	V	120.0	-5.2	30.5	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1172.875000	17.4	1000.000	100.0	V	15.0	-21.4	36.6	54.0
1656.625000	20.5	1000.000	100.0	V	33.0	-18.0	33.5	54.0
2214.250000	22.6	1000.000	100.0	V	180.0	-15.3	31.4	54.0
3322.375000	26.7	1000.000	100.0	V	69.0	-10.3	27.3	54.0
4807.187500	30.0	1000.000	100.0	V	5.0	-6.5	24.0	54.0
6268.375000	30.4	1000.000	100.0	V	120.0	-5.2	23.6	54.0

Figure 23: Spectral Diagrams and measurement results, 7-18 GHz, horizontal polarization, mode 1, power supply ICPSW24-19-1



Final Peak measurement results:

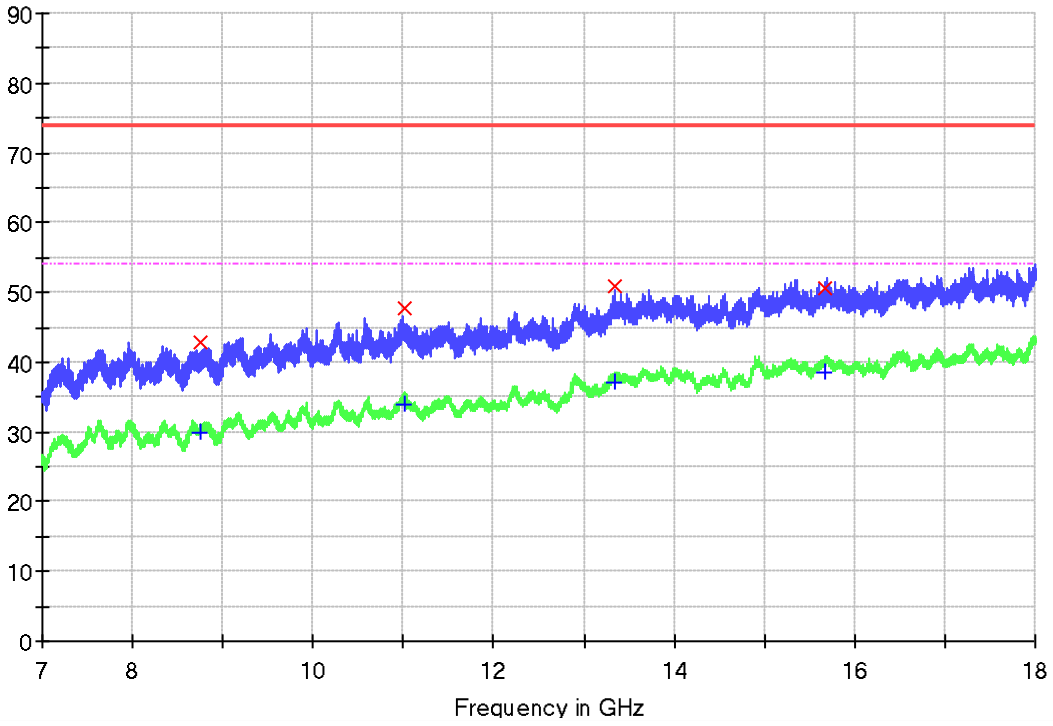
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
8681.166667	41.8	1000.0	1000.000	150.0	H	-90.0	-1.8	32.2	74.0
11478.833333	46.8	1000.0	1000.000	150.0	H	-90.0	1.4	27.2	74.0
13895.166667	51.2	1000.0	1000.000	150.0	H	-90.0	4.5	22.8	74.0
17290.500000	54.2	1000.0	1000.000	150.0	H	-90.0	8.9	19.8	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
8681.166667	29.4	1000.0	1000.000	150.0	H	-90.0	-1.8	24.6	54.0
11478.833333	34.3	1000.0	1000.000	150.0	H	-90.0	1.4	19.7	54.0
13895.166667	38.5	1000.0	1000.000	150.0	H	-90.0	4.5	15.5	54.0
17290.500000	41.4	1000.0	1000.000	150.0	H	-90.0	8.9	12.6	54.0

Figure 24: Spectral Diagrams and measurement results, 7-18 GHz, vertical polarization, mode 1, power supply ICPSW24-19-1

Level [dBµV/m]



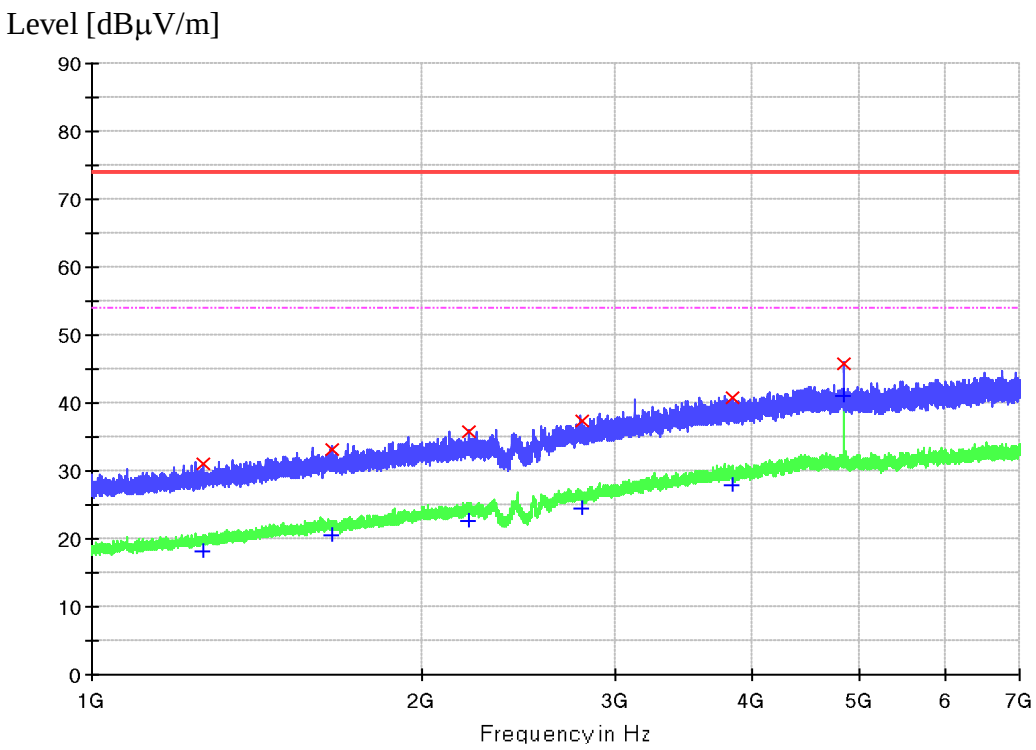
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
8761.833333	42.8	1000.0	1000.000	150.0	V	-90.0	-1.6	31.2	74.0
11023.250000	47.8	1000.0	1000.000	150.0	V	-90.0	0.9	26.2	74.0
13337.833333	50.8	1000.0	1000.000	150.0	V	-90.0	3.1	23.2	74.0
15667.083333	50.6	1000.0	1000.000	150.0	V	-90.0	6.5	23.4	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
8761.833333	30.0	1000.0	1000.000	150.0	V	-90.0	-1.6	24.0	54.0
11023.250000	33.9	1000.0	1000.000	150.0	V	-90.0	0.9	20.1	54.0
13337.833333	37.1	1000.0	1000.000	150.0	V	-90.0	3.1	16.9	54.0
15667.083333	38.4	1000.0	1000.000	150.0	V	-90.0	6.5	15.6	54.0

Figure 25: Spectral Diagrams and measurement results, 1-7 GHz, horizontal polarization, mode 2, power supply ICPSW24-19-1



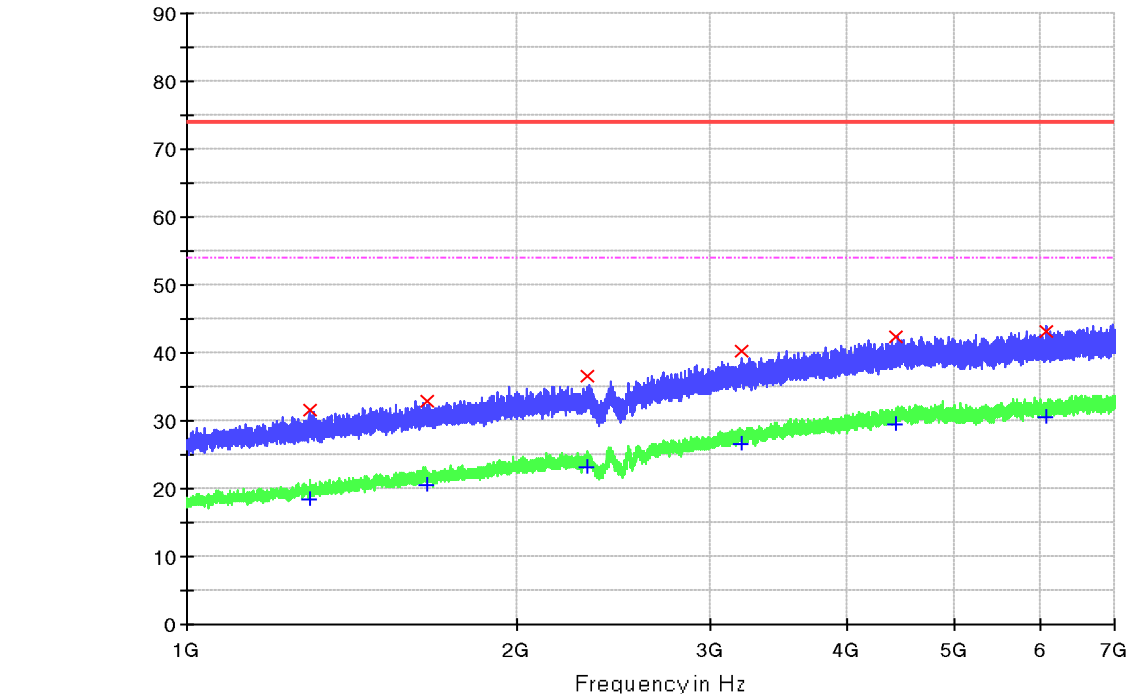
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1264.562500	31.1	1000.000	100.0	H	180.0	-20.7	42.9	74.0
1652.312500	33.1	1000.000	100.0	H	180.0	-18.0	40.9	74.0
2205.250000	35.8	1000.000	100.0	H	180.0	-15.3	38.2	74.0
2798.687500	37.5	1000.000	100.0	H	180.0	-12.7	36.5	74.0
3837.062500	40.7	1000.000	100.0	H	180.0	-8.7	33.3	74.0
4840.000000	45.9	1000.000	100.0	H	180.0	-6.5	28.1	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1264.562500	18.2	1000.000	100.0	H	180.0	-20.7	35.8	54.0
1652.312500	20.5	1000.000	100.0	H	180.0	-18.0	33.5	54.0
2205.250000	22.6	1000.000	100.0	H	180.0	-15.3	31.4	54.0
2798.687500	24.6	1000.000	100.0	H	180.0	-12.7	29.4	54.0
3837.062500	27.9	1000.000	100.0	H	180.0	-8.7	26.1	54.0
4840.000000	41.0	1000.000	100.0	H	180.0	-6.5	13.0	54.0

Figure 26: Spectral Diagrams and measurement results, 1-7 GHz, vertical polarization, mode 2, power supply ICPSW24-19-1



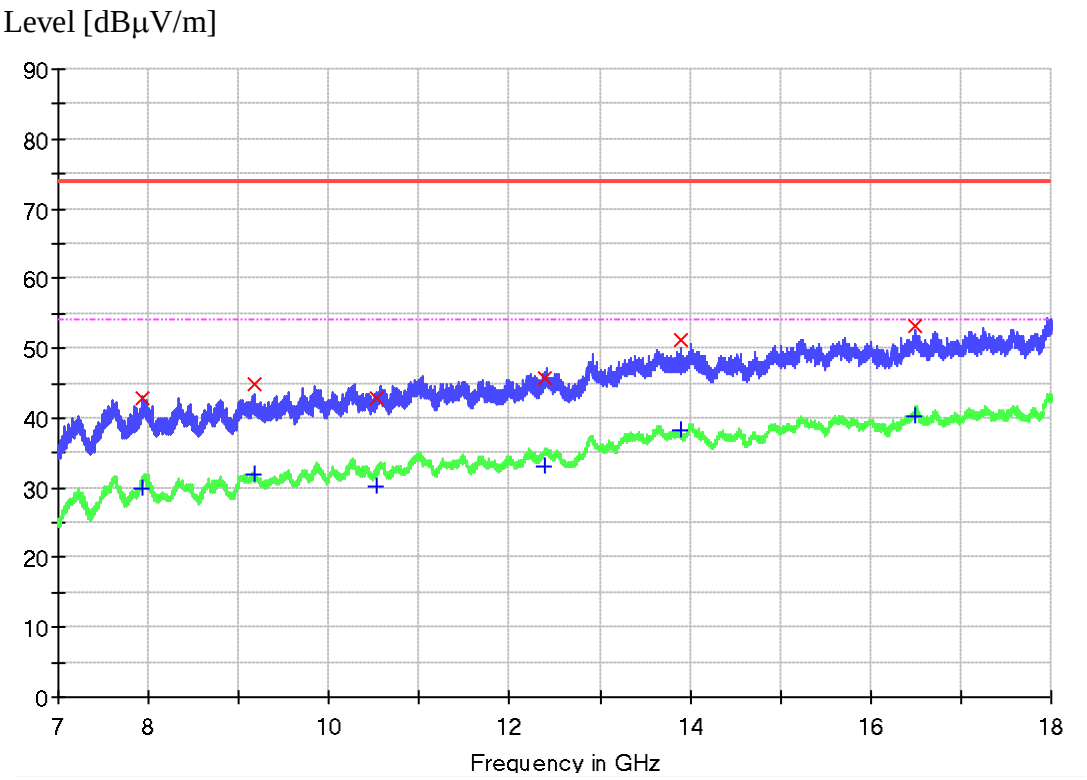
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1291.937500	31.5	1000.000	100.0	V	12.0	-20.5	42.5	74.0
1653.812500	32.8	1000.000	100.0	V	69.0	-18.0	41.2	74.0
2314.187500	36.7	1000.000	100.0	V	60.0	-14.9	37.3	74.0
3194.500000	40.3	1000.000	100.0	V	100.0	-10.8	33.7	74.0
4416.062500	42.3	1000.000	100.0	V	30.0	-6.6	31.7	74.0
6064.187500	43.1	1000.000	100.0	V	150.0	-5.8	30.9	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1291.937500	18.4	1000.000	100.0	V	12.0	-20.5	35.6	54.0
1653.812500	20.5	1000.000	100.0	V	69.0	-18.0	33.5	54.0
2314.187500	23.1	1000.000	100.0	V	60.0	-14.9	30.9	54.0
3194.500000	26.5	1000.000	100.0	V	100.0	-10.8	27.5	54.0
4416.062500	29.4	1000.000	100.0	V	30.0	-6.6	24.6	54.0
6064.187500	30.6	1000.000	100.0	V	150.0	-5.8	23.4	54.0

Figure 27: Spectral Diagrams and measurement results, 7-18 GHz, horizontal polarization, mode 2, power supply ICPSW24-19-1



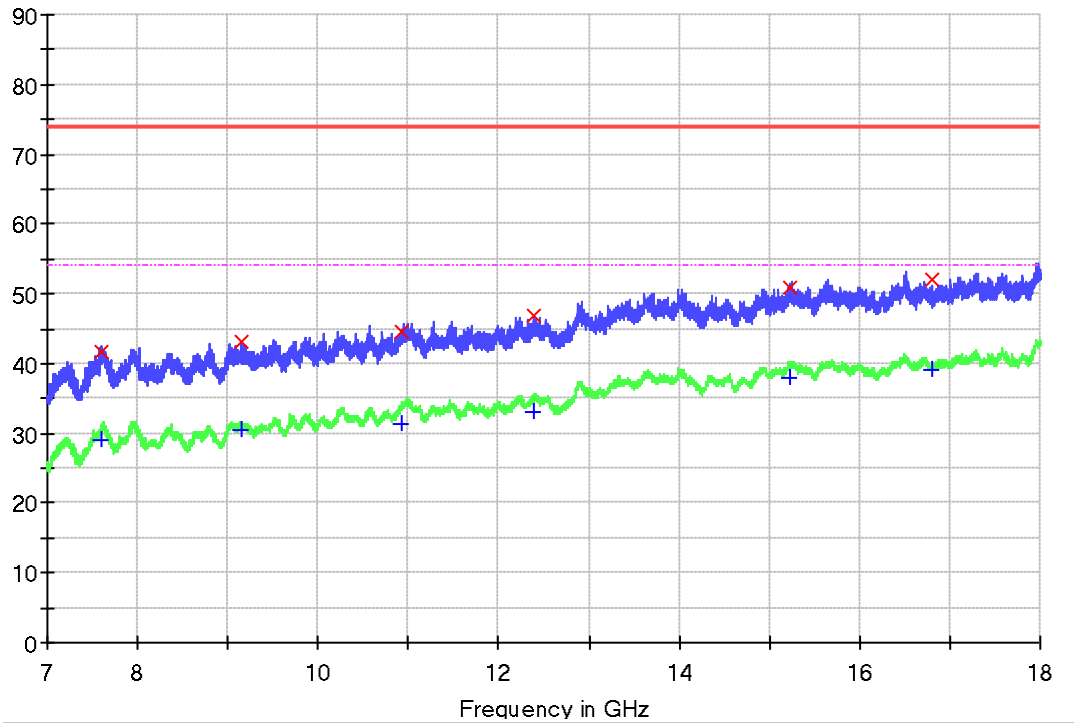
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
7938.666667	42.8	1000.0	1000.000	150.0	H	-13.0	-2.9	31.2	74.0
9171.583333	44.7	1000.0	1000.000	150.0	H	-13.0	-0.9	29.3	74.0
10518.166667	42.8	1000.0	1000.000	150.0	H	-13.0	0.3	31.2	74.0
12380.833333	45.8	1000.0	1000.000	150.0	H	-13.0	1.4	28.2	74.0
13904.333333	51.1	1000.0	1000.000	150.0	H	-13.0	4.6	22.9	74.0
16499.416667	53.2	1000.0	1000.000	150.0	H	-13.0	7.4	20.8	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
7938.666667	29.9	1000.0	1000.000	150.0	H	-13.0	-2.9	24.1	54.0
9171.583333	31.9	1000.0	1000.000	150.0	H	-13.0	-0.9	22.1	54.0
10518.166667	30.1	1000.0	1000.000	150.0	H	-13.0	0.3	23.9	54.0
12380.833333	33.0	1000.0	1000.000	150.0	H	-13.0	1.4	21.0	54.0
13904.333333	38.2	1000.0	1000.000	150.0	H	-13.0	4.6	15.8	54.0
16499.416667	40.2	1000.0	1000.000	150.0	H	-13.0	7.4	13.8	54.0

Figure 28: Spectral Diagrams and measurement results, 7-18 GHz, vertical polarization, mode 2, power supply ICPSW24-19-1



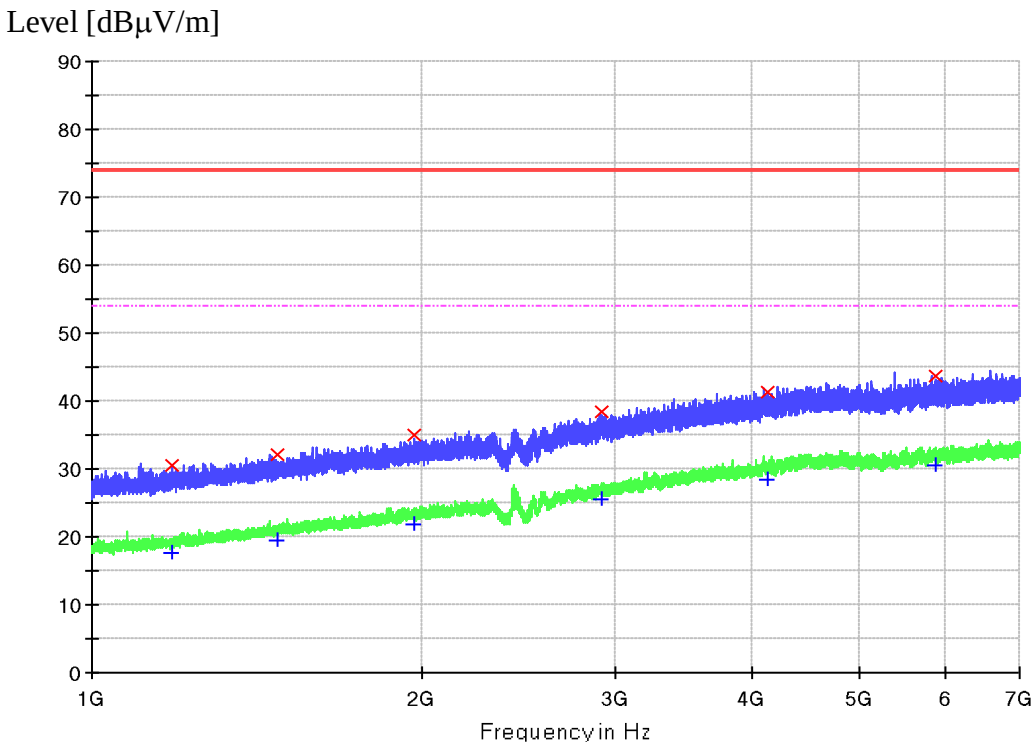
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
7588.500000	41.8	1000.0	1000.000	150.0	V	-13.0	-3.1	32.2	74.0
9140.416667	43.1	1000.0	1000.000	150.0	V	-13.0	-1.0	30.9	74.0
10934.333333	44.5	1000.0	1000.000	150.0	V	-13.0	0.9	29.5	74.0
12379.000000	46.9	1000.0	1000.000	150.0	V	-13.0	1.4	27.1	74.0
15237.166667	51.0	1000.0	1000.000	150.0	V	-13.0	6.3	23.0	74.0
16795.500000	52.0	1000.0	1000.000	150.0	V	-13.0	6.8	22.0	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
7588.500000	28.9	1000.0	1000.000	150.0	V	-13.0	-3.1	25.1	54.0
9140.416667	30.6	1000.0	1000.000	150.0	V	-13.0	-1.0	23.4	54.0
10934.333333	31.3	1000.0	1000.000	150.0	V	-13.0	0.9	22.7	54.0
12379.000000	32.9	1000.0	1000.000	150.0	V	-13.0	1.4	21.1	54.0
15237.166667	38.0	1000.0	1000.000	150.0	V	-13.0	6.3	16.0	54.0
16795.500000	39.0	1000.0	1000.000	150.0	V	-13.0	6.8	15.0	54.0

Figure 29: Spectral Diagrams and measurement results, 1-7 GHz, horizontal polarization, mode 5, power supply ICPSW24-19-1



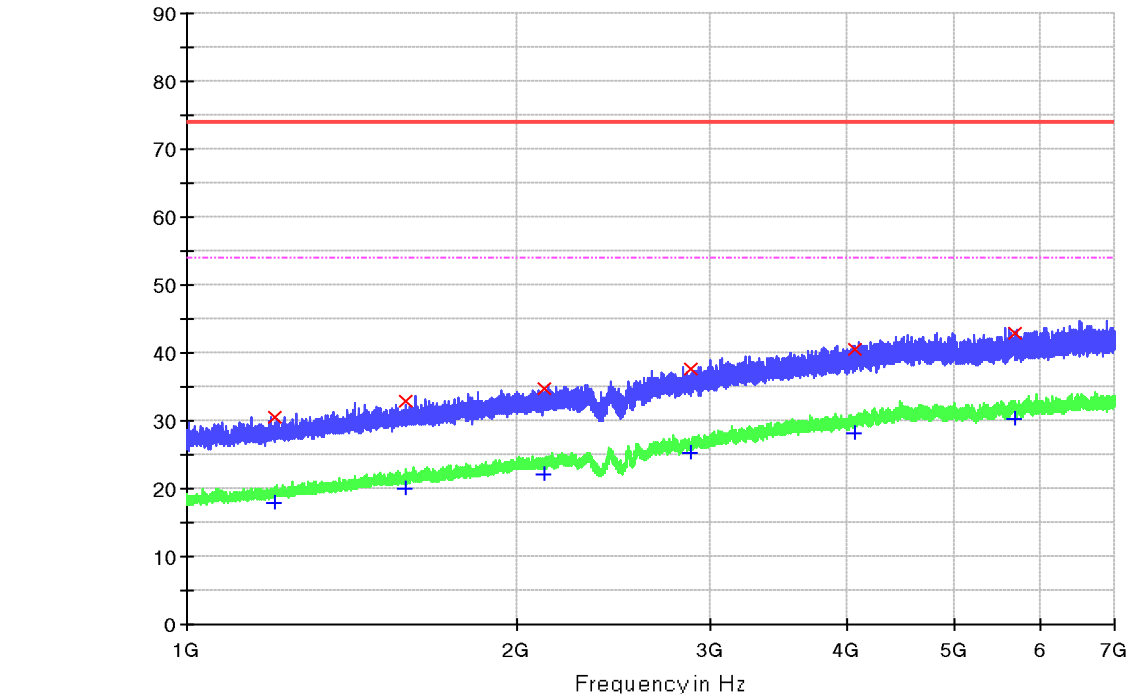
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1180.750000	30.5	1000.000	100.0	H	125.0	-21.4	43.5	74.0
1478.500000	32.0	1000.000	100.0	H	69.0	-19.1	42.0	74.0
1968.437500	35.0	1000.000	100.0	H	77.0	-16.4	39.0	74.0
2910.437500	38.5	1000.000	100.0	H	15.0	-12.2	35.5	74.0
4123.562500	41.4	1000.000	100.0	H	69.0	-7.8	32.7	74.0
5860.375000	43.6	1000.000	100.0	H	150.0	-5.7	30.4	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1180.750000	17.6	1000.000	100.0	H	125.0	-21.4	36.4	54.0
1478.500000	19.5	1000.000	100.0	H	69.0	-19.1	34.5	54.0
1968.437500	21.8	1000.000	100.0	H	77.0	-16.4	32.2	54.0
2910.437500	25.4	1000.000	100.0	H	15.0	-12.2	28.6	54.0
4123.562500	28.5	1000.000	100.0	H	69.0	-7.8	25.5	54.0
5860.375000	30.6	1000.000	100.0	H	150.0	-5.7	23.4	54.0

Figure 30: Spectral Diagrams and measurement results, 1-7 GHz, vertical polarization, mode 5, power supply ICPSW24-19-1



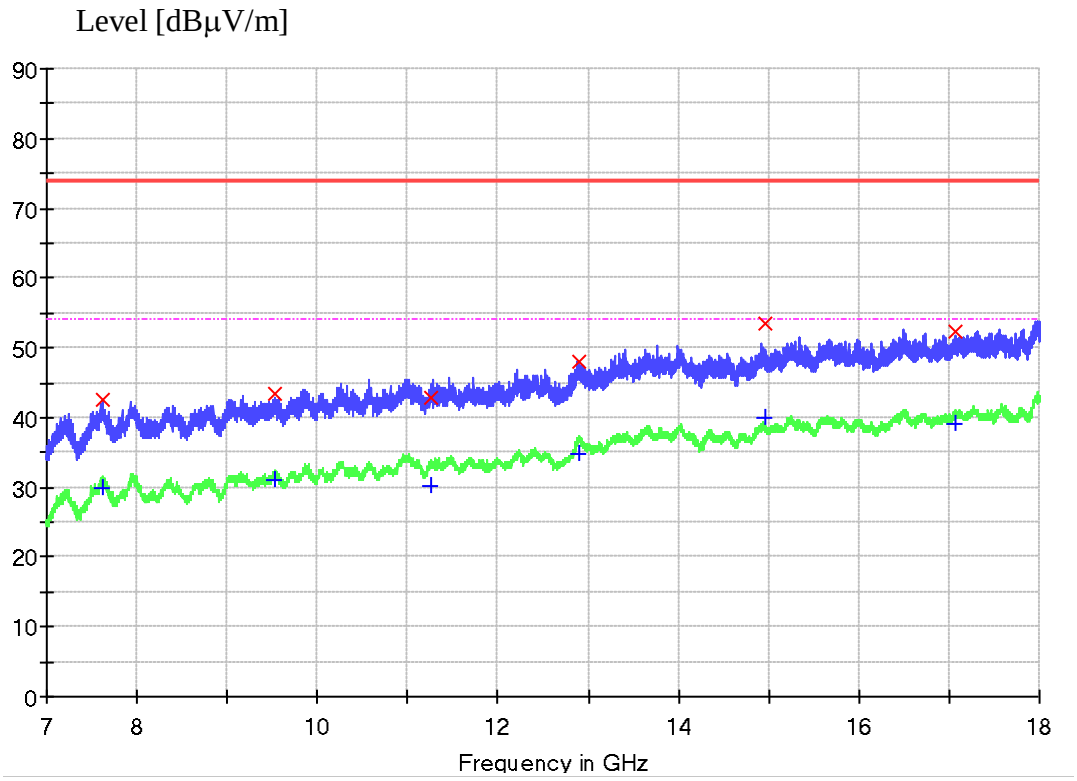
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1200.437500	30.6	1000.000	100.0	V	12.0	-21.2	43.4	74.0
1582.375000	32.9	1000.000	100.0	V	69.0	-18.4	41.1	74.0
2117.500000	34.8	1000.000	100.0	V	7.0	-15.8	39.2	74.0
2882.875000	37.6	1000.000	100.0	V	69.0	-12.3	36.4	74.0
4054.937500	40.7	1000.000	100.0	V	77.0	-8.1	33.3	74.0
5673.812500	43.0	1000.000	100.0	V	150.0	-5.6	31.0	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1200.437500	17.8	1000.000	100.0	V	12.0	-21.2	36.2	54.0
1582.375000	20.1	1000.000	100.0	V	69.0	-18.4	33.9	54.0
2117.500000	22.2	1000.000	100.0	V	7.0	-15.8	31.8	54.0
2882.875000	25.2	1000.000	100.0	V	69.0	-12.3	28.8	54.0
4054.937500	28.2	1000.000	100.0	V	77.0	-8.1	25.8	54.0
5673.812500	30.4	1000.000	100.0	V	150.0	-5.6	23.6	54.0

Figure 31: Spectral Diagrams and measurement results, 7-18 GHz, horizontal polarization, mode 5, power supply ICPSW24-19-1



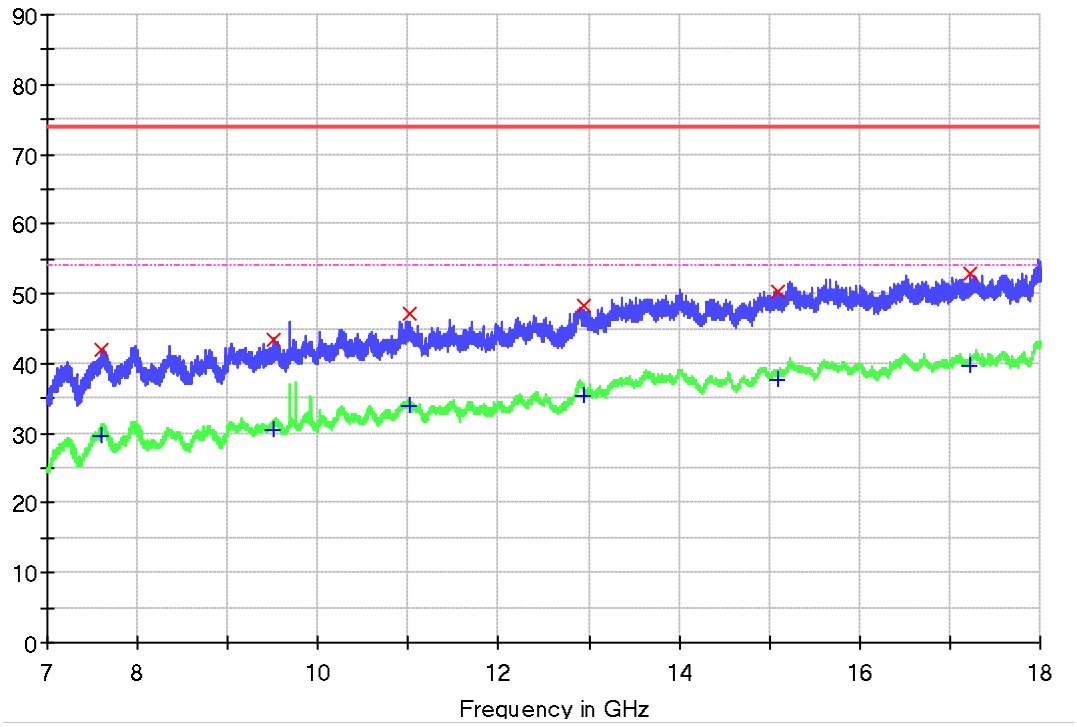
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
7616.916667	42.5	1000.0	1000.000	150.0	H	-180.0	-3.1	31.5	74.0
9519.916667	43.6	1000.0	1000.000	150.0	H	-180.0	-0.7	30.4	74.0
11268.916667	42.9	1000.0	1000.000	150.0	H	-180.0	0.9	31.1	74.0
12889.583333	48.0	1000.0	1000.000	150.0	H	-180.0	3.2	26.0	74.0
14965.833333	53.6	1000.0	1000.000	150.0	H	-180.0	5.4	20.4	74.0
17071.416667	52.3	1000.0	1000.000	150.0	H	-180.0	7.6	21.7	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
7616.916667	29.9	1000.0	1000.000	150.0	H	-180.0	-3.1	24.1	54.0
9519.916667	31.0	1000.0	1000.000	150.0	H	-180.0	-0.7	23.0	54.0
11268.916667	30.2	1000.0	1000.000	150.0	H	-180.0	0.9	23.8	54.0
12889.583333	34.8	1000.0	1000.000	150.0	H	-180.0	3.2	19.2	54.0
14965.833333	39.9	1000.0	1000.000	150.0	H	-180.0	5.4	14.1	54.0
17071.416667	39.2	1000.0	1000.000	150.0	H	-180.0	7.6	14.8	54.0

Figure 32: Spectral Diagrams and measurement results, 7-18 GHz, vertical polarization, mode 5, power supply ICPSW24-19-1



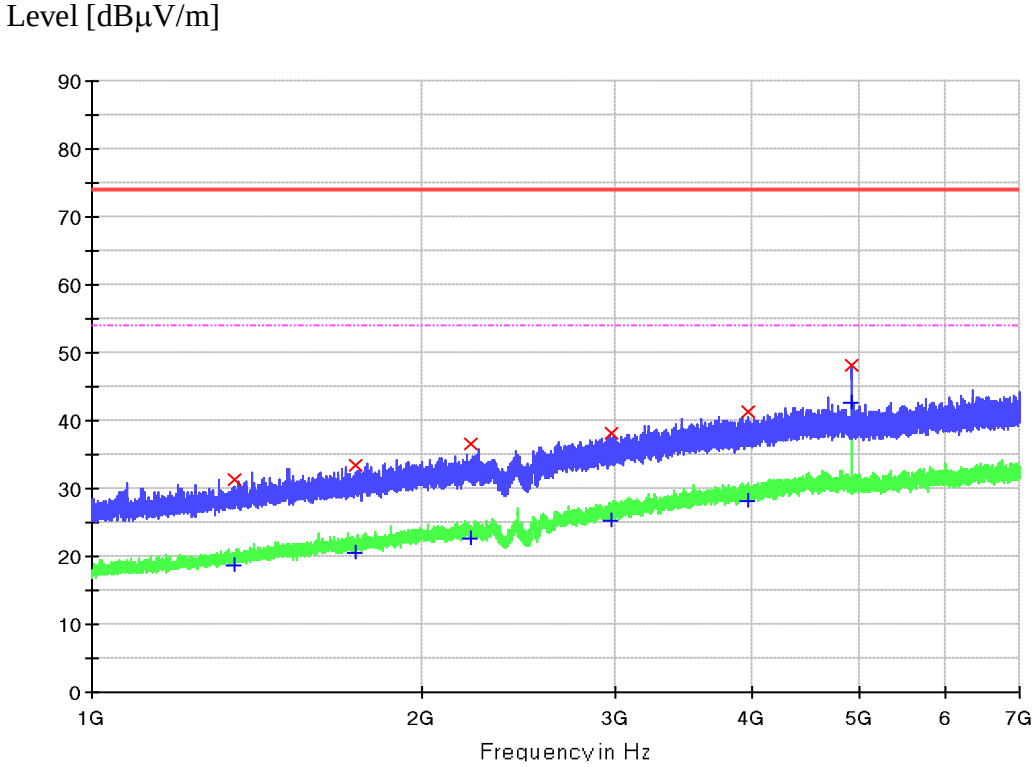
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
7593.083333	42.1	1000.0	1000.000	150.0	V	-180.0	-3.1	31.9	74.0
9510.750000	43.4	1000.0	1000.000	150.0	V	-180.0	-0.7	30.6	74.0
11021.416667	47.3	1000.0	1000.000	150.0	V	-180.0	0.9	26.7	74.0
12937.250000	48.2	1000.0	1000.000	150.0	V	-180.0	3.3	25.8	74.0
15105.166667	50.3	1000.0	1000.000	150.0	V	-180.0	5.4	23.7	74.0
17226.333333	53.0	1000.0	1000.000	150.0	V	-180.0	8.3	21.0	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
7593.083333	29.6	1000.0	1000.000	150.0	V	-180.0	-3.1	24.4	54.0
9510.750000	30.6	1000.0	1000.000	150.0	V	-180.0	-0.7	23.4	54.0
11021.416667	33.9	1000.0	1000.000	150.0	V	-180.0	0.9	20.1	54.0
12937.250000	35.4	1000.0	1000.000	150.0	V	-180.0	3.3	18.6	54.0
15105.166667	37.7	1000.0	1000.000	150.0	V	-180.0	5.4	16.3	54.0
17226.333333	39.6	1000.0	1000.000	150.0	V	-180.0	8.3	14.4	54.0

Figure 33: Spectral Diagrams and measurement results, 1-7 GHz, horizontal polarization, mode 6, power supply ICPSW24-19-1



Final Peak measurement results:

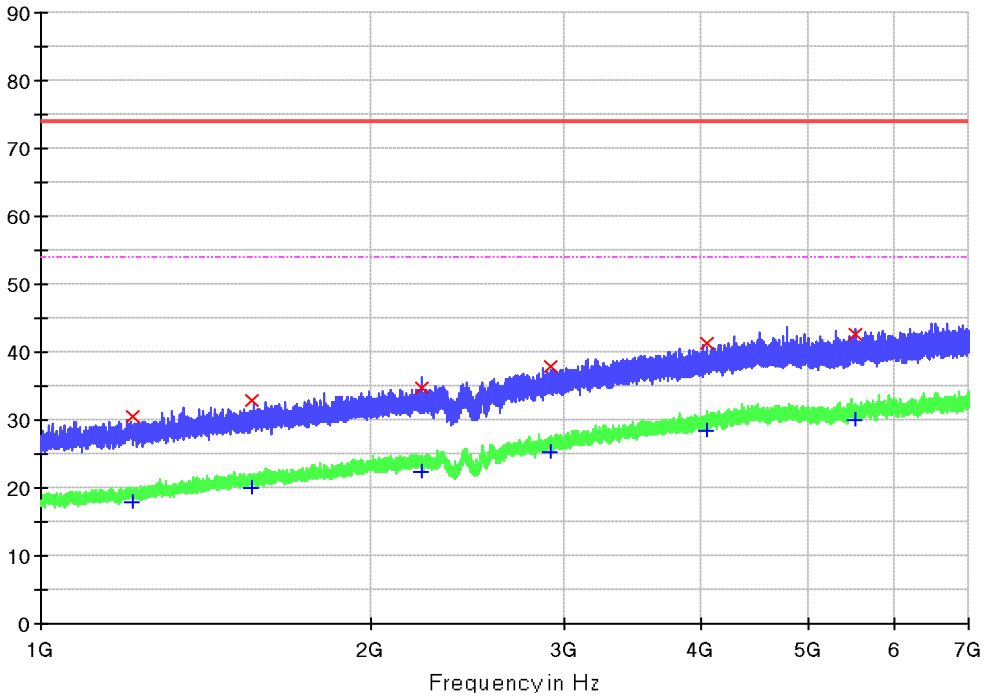
Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1348.562500	31.3	1000.000	100.0	H	120.0	-20.1	42.7	74.0
1739.125000	33.3	1000.000	100.0	H	30.0	-17.6	40.7	74.0
2212.562500	36.5	1000.000	100.0	H	50.0	-15.3	37.5	74.0
2977.750000	38.0	1000.000	100.0	H	15.0	-11.9	36.0	74.0
3964.000000	41.3	1000.000	100.0	H	33.0	-8.5	32.7	74.0
4918.000000	48.2	1000.000	100.0	H	69.0	-6.6	25.8	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1348.562500	18.8	1000.000	100.0	H	120.0	-20.1	35.2	54.0
1739.125000	20.6	1000.000	100.0	H	30.0	-17.6	33.4	54.0
2212.562500	22.5	1000.000	100.0	H	50.0	-15.3	31.5	54.0
2977.750000	25.2	1000.000	100.0	H	15.0	-11.9	28.8	54.0
3964.000000	28.3	1000.000	100.0	H	33.0	-8.5	25.7	54.0
4918.000000	42.7	1000.000	100.0	H	69.0	-6.6	11.3	54.0

Figure 34: Spectral Diagrams and measurement results, 1-7 GHz, vertical polarization, mode 6, power supply ICPSW24-19-1

Level [dBµV/m]



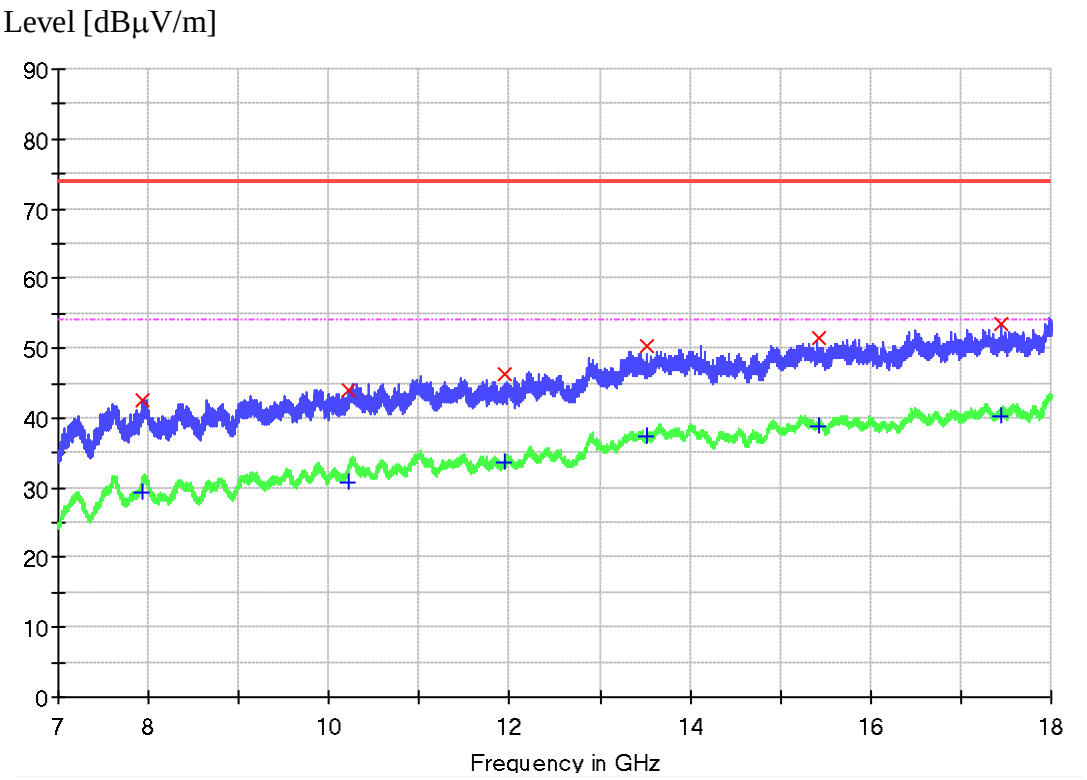
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1210.937500	30.6	1000.000	100.0	V	125.0	-21.2	43.4	74.0
1556.312500	32.9	1000.000	100.0	V	69.0	-18.6	41.1	74.0
2222.125000	34.9	1000.000	100.0	V	77.0	-15.3	39.1	74.0
2915.687500	37.8	1000.000	100.0	V	69.0	-12.2	36.2	74.0
4042.375000	41.3	1000.000	100.0	V	15.0	-8.2	32.7	74.0
5527.937500	42.5	1000.000	100.0	V	180.0	-5.7	31.5	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1210.937500	18.0	1000.000	100.0	V	125.0	-21.2	36.0	54.0
1556.312500	20.0	1000.000	100.0	V	69.0	-18.6	34.0	54.0
2222.125000	22.4	1000.000	100.0	V	77.0	-15.3	31.6	54.0
2915.687500	25.4	1000.000	100.0	V	69.0	-12.2	28.6	54.0
4042.375000	28.3	1000.000	100.0	V	15.0	-8.2	25.7	54.0
5527.937500	30.1	1000.000	100.0	V	180.0	-5.7	23.9	54.0

Figure 35: Spectral Diagrams and measurement results, 7-18 GHz, horizontal polarization, mode 6, power supply ICPSW24-19-1



Final Peak measurement results:

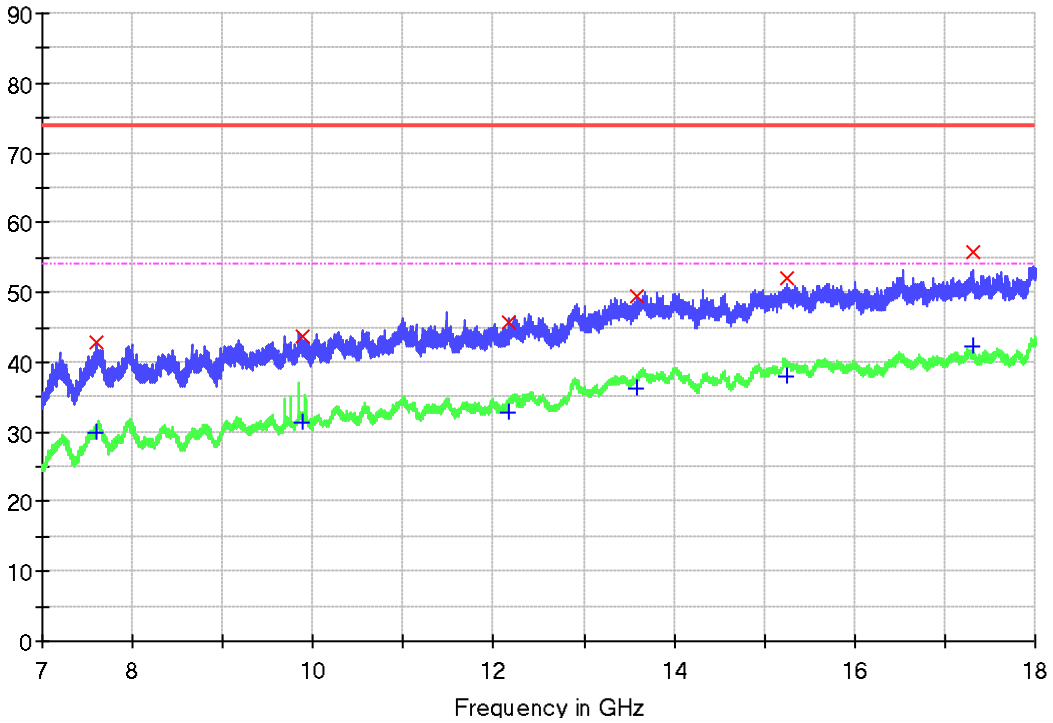
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
7935.916667	42.6	1000.0	1000.000	150.0	H	-180.0	-2.9	31.4	74.0
10224.833333	43.9	1000.0	1000.000	150.0	H	-180.0	0.3	30.1	74.0
11946.333333	46.4	1000.0	1000.000	150.0	H	-180.0	1.2	27.6	74.0
13520.250000	50.4	1000.0	1000.000	150.0	H	-180.0	3.1	23.6	74.0
15422.333333	51.6	1000.0	1000.000	150.0	H	-180.0	6.0	22.4	74.0
17440.833333	53.5	1000.0	1000.000	150.0	H	-180.0	8.3	20.5	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
7935.916667	29.5	1000.0	1000.000	150.0	H	-180.0	-2.9	24.5	54.0
10224.833333	30.9	1000.0	1000.000	150.0	H	-180.0	0.3	23.1	54.0
11946.333333	33.7	1000.0	1000.000	150.0	H	-180.0	1.2	20.3	54.0
13520.250000	37.5	1000.0	1000.000	150.0	H	-180.0	3.1	16.5	54.0
15422.333333	38.8	1000.0	1000.000	150.0	H	-180.0	6.0	15.2	54.0
17440.833333	40.1	1000.0	1000.000	150.0	H	-180.0	8.3	13.9	54.0

Figure 36: Spectral Diagrams and measurement results, 7-18 GHz, vertical polarization, mode 6, power supply ICPSW24-19-1

Level [dBµV/m]



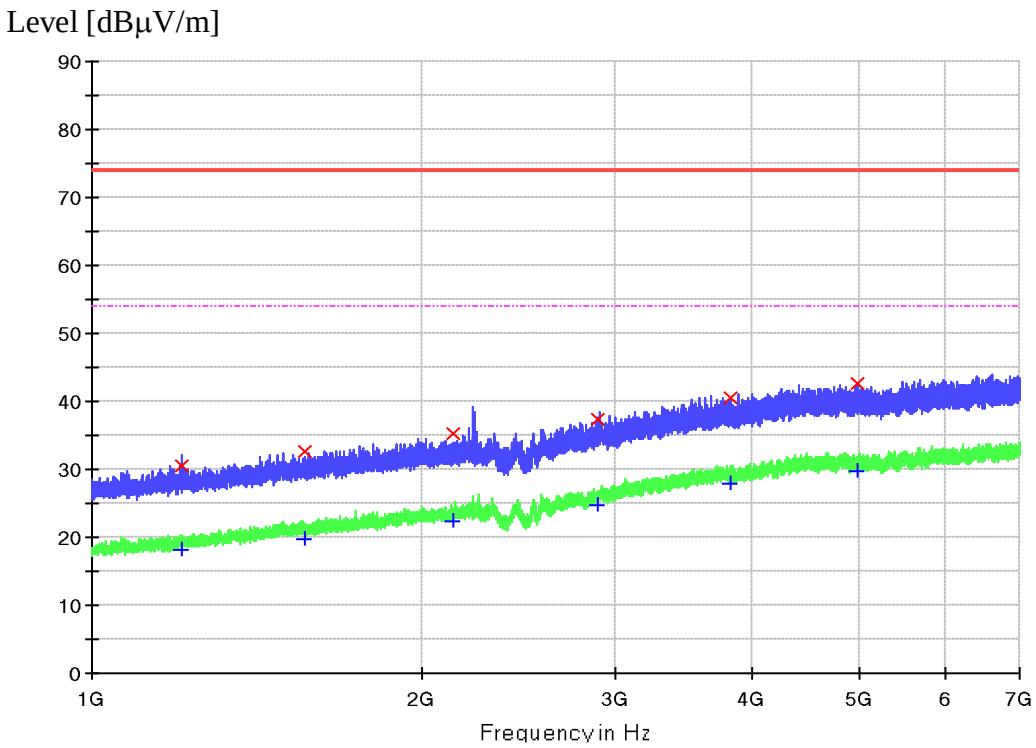
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
7608.666667	42.9	1000.0	1000.000	150.0	V	-13.0	-3.2	31.1	74.0
9876.500000	43.8	1000.0	1000.000	150.0	V	-13.0	-0.2	30.2	74.0
12164.500000	45.6	1000.0	1000.000	150.0	V	-13.0	1.4	28.4	74.0
13580.750000	49.5	1000.0	1000.000	150.0	V	-13.0	3.6	24.5	74.0
15257.333333	52.1	1000.0	1000.000	150.0	V	-13.0	6.1	21.9	74.0
17317.083333	55.9	1000.0	1000.000	150.0	V	-13.0	9.0	18.1	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
7608.666667	29.9	1000.0	1000.000	150.0	V	-13.0	-3.2	24.1	54.0
9876.500000	31.4	1000.0	1000.000	150.0	V	-13.0	-0.2	22.6	54.0
12164.500000	32.9	1000.0	1000.000	150.0	V	-13.0	1.4	21.1	54.0
13580.750000	36.1	1000.0	1000.000	150.0	V	-13.0	3.6	17.9	54.0
15257.333333	38.1	1000.0	1000.000	150.0	V	-13.0	6.1	15.9	54.0
17317.083333	42.2	1000.0	1000.000	150.0	V	-13.0	9.0	11.8	54.0

Figure 37: Spectral Diagrams and measurement results, 1-7 GHz, horizontal polarization, mode 1, power supply ICPSW24-7-3



Final Peak measurement results:

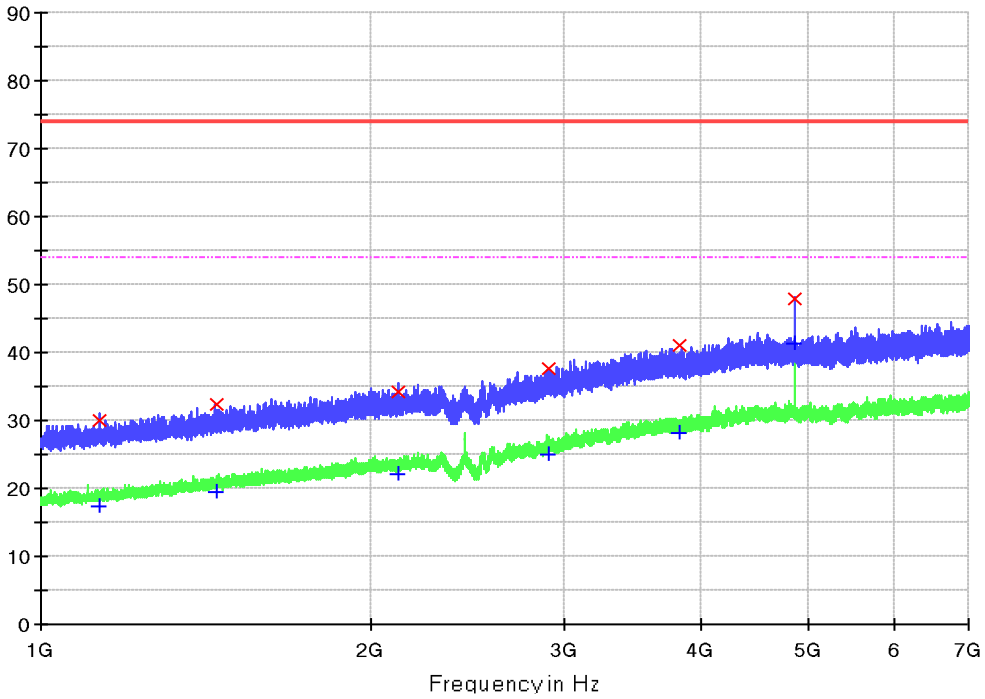
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1207.93750	30.6	1000.0	1000.000	150.0	H	-180.0	-21.2	43.4	74.0
1560.81250	32.7	1000.0	1000.000	150.0	H	-180.0	-18.5	41.3	74.0
2137.00000	35.4	1000.0	1000.000	150.0	H	-180.0	-15.7	38.6	74.0
2891.12500	37.3	1000.0	1000.000	150.0	H	-180.0	-12.3	36.7	74.0
3818.50000	40.5	1000.0	1000.000	150.0	H	-180.0	-8.7	33.5	74.0
4972.93750	42.7	1000.0	1000.000	150.0	H	-180.0	-6.7	31.3	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1207.93750	18.1	1000.0	1000.000	150.0	H	-180.0	-21.2	35.9	54.0
1560.81250	19.8	1000.0	1000.000	150.0	H	-180.0	-18.5	34.2	54.0
2137.00000	22.4	1000.0	1000.000	150.0	H	-180.0	-15.7	31.6	54.0
2891.12500	24.8	1000.0	1000.000	150.0	H	-180.0	-12.3	29.2	54.0
3818.50000	27.9	1000.0	1000.000	150.0	H	-180.0	-8.7	26.1	54.0
4972.93750	29.7	1000.0	1000.000	150.0	H	-180.0	-6.7	24.3	54.0

Figure 38: Spectral Diagrams and measurement results, 1-7 GHz, vertical polarization, mode 1, power supply ICPSW24-7-3

Level [dBµV/m]



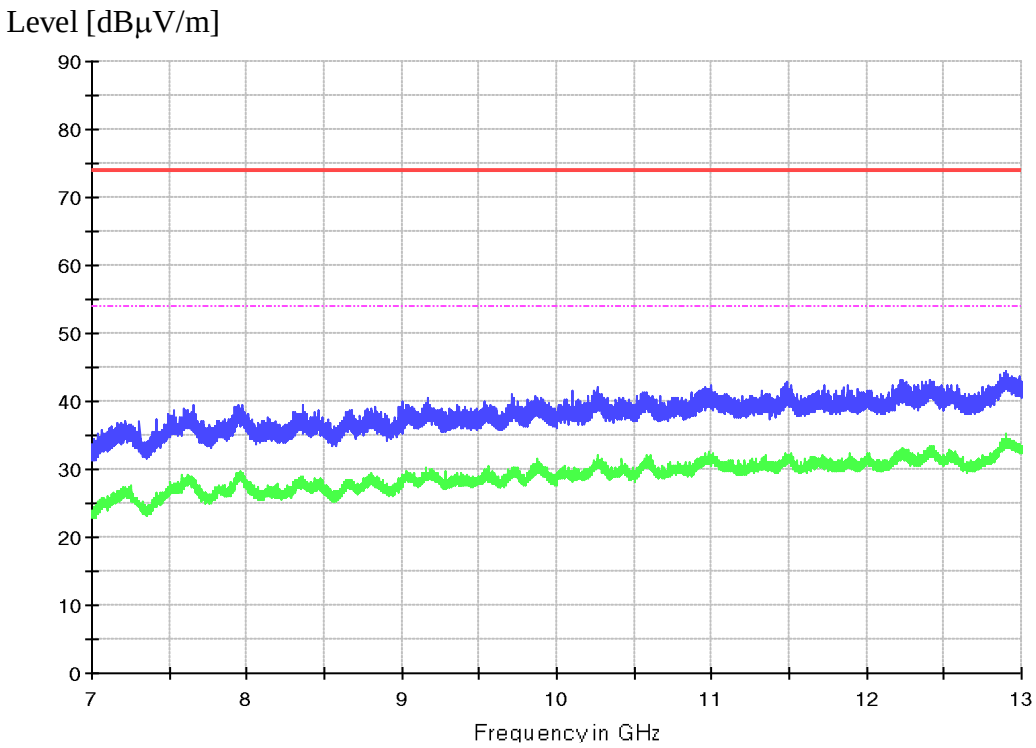
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1131.06250	30.1	1000.0	1000.000	150.0	V	12.0	-21.6	43.9	74.0
1448.68750	32.3	1000.0	1000.000	150.0	V	56.0	-19.3	41.7	74.0
2118.06250	34.2	1000.0	1000.000	150.0	V	77.0	-15.8	39.8	74.0
2906.31250	37.7	1000.0	1000.000	150.0	V	58.0	-12.2	36.3	74.0
3823.37500	40.9	1000.0	1000.000	150.0	V	120.0	-8.7	33.1	74.0
4858.75000	48.0	1000.0	1000.000	150.0	V	39.0	-6.5	26.0	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1131.06250	17.4	1000.0	1000.000	150.0	V	12.0	-21.6	36.6	54.0
1448.68750	19.5	1000.0	1000.000	150.0	V	56.0	-19.3	34.5	54.0
2118.06250	22.0	1000.0	1000.000	150.0	V	77.0	-15.8	32.0	54.0
2906.31250	25.1	1000.0	1000.000	150.0	V	58.0	-12.2	28.9	54.0
3823.37500	28.1	1000.0	1000.000	150.0	V	120.0	-8.7	25.9	54.0
4858.75000	41.2	1000.0	1000.000	150.0	V	39.0	-6.5	12.8	54.0

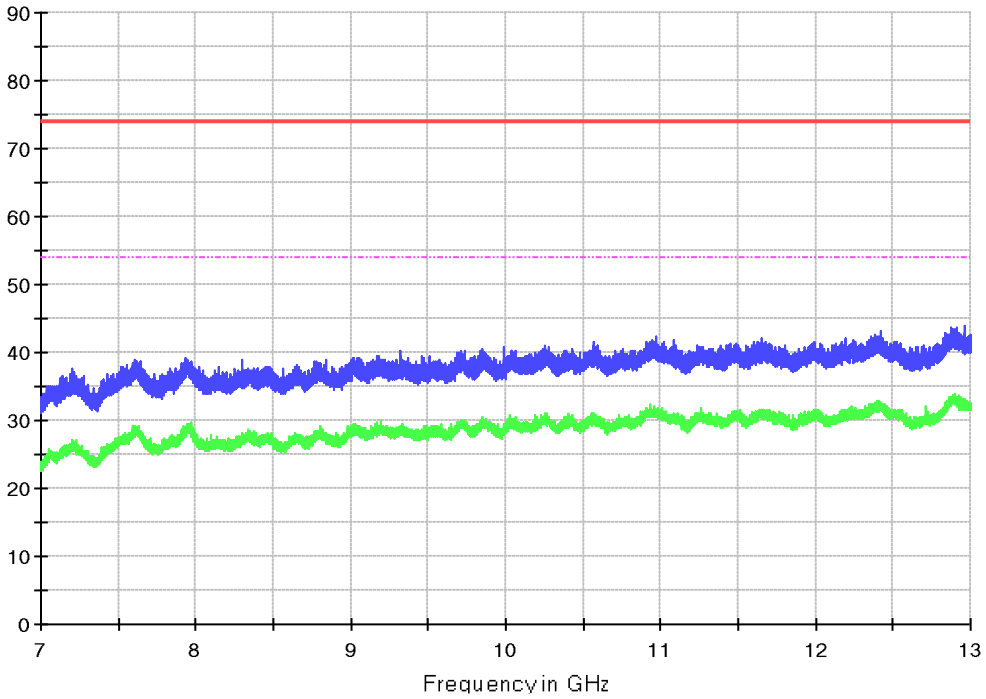
Figure 39: Spectral Diagrams and measurement results, 7-13 GHz, horizontal polarization, mode 1, power supply ICPSW24-7-3



Note: Because peak values were below average limits, therefore, further final measurement with average detector was not performed.

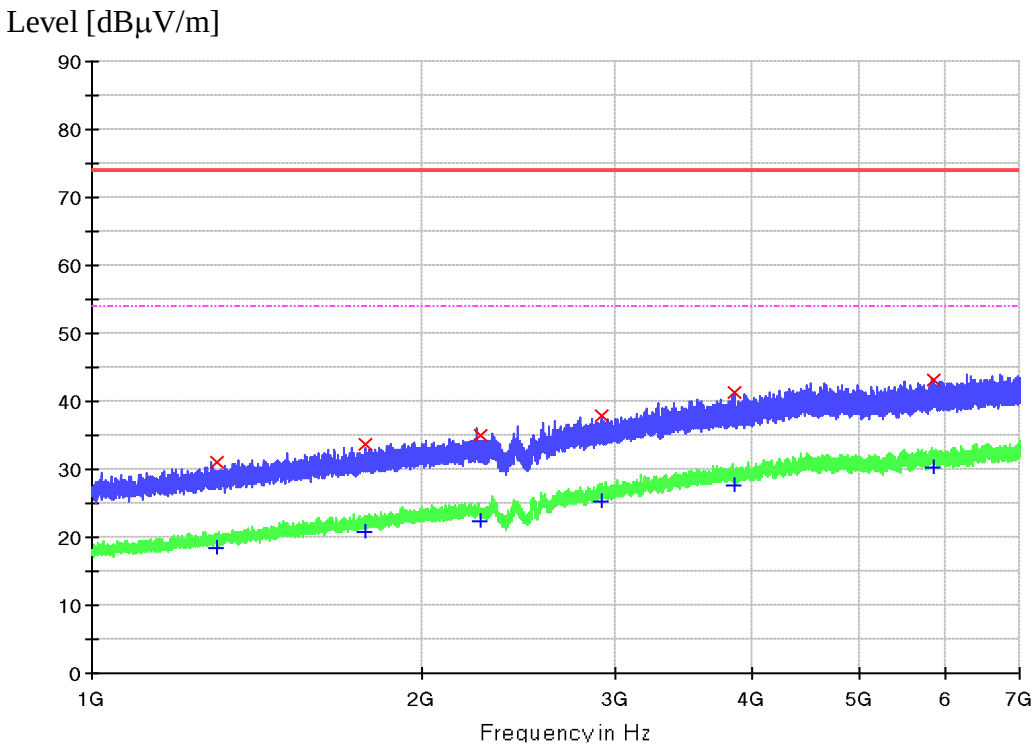
Figure 40: Spectral Diagrams and measurement results, 7-13 GHz, vertical polarization, mode 1, power supply ICPSW24-7-3

Level [dBµV/m]



Note: Because peak values were below average limits, therefore, further final measurement with average detector was not performed.

Figure 41: Spectral Diagrams and measurement results, 1-7 GHz, horizontal polarization, mode 5, power supply ICPSW24-7-3



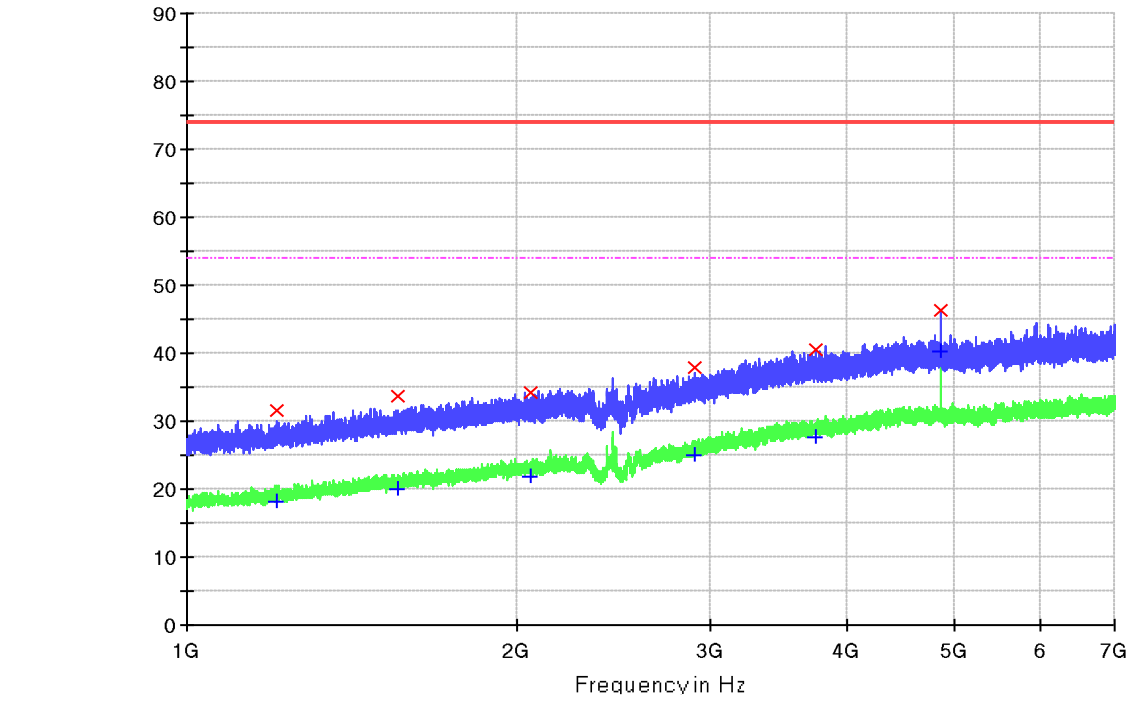
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1300.75000	31.0	1000.0	1000.000	150.0	H	180.0	-20.4	43.0	74.0
1777.75000	33.8	1000.0	1000.000	150.0	H	180.0	-17.5	40.2	74.0
2263.75000	35.1	1000.0	1000.000	150.0	H	180.0	-15.1	38.9	74.0
2910.43750	37.9	1000.0	1000.000	150.0	H	180.0	-12.2	36.1	74.0
3845.68750	41.3	1000.0	1000.000	150.0	H	180.0	-8.7	32.7	74.0
5841.25000	43.1	1000.0	1000.000	150.0	H	180.0	-5.7	30.9	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1300.75000	18.3	1000.0	1000.000	150.0	H	180.0	-20.4	35.7	54.0
1777.75000	20.9	1000.0	1000.000	150.0	H	180.0	-17.5	33.1	54.0
2263.75000	22.2	1000.0	1000.000	150.0	H	180.0	-15.1	31.8	54.0
2910.43750	25.3	1000.0	1000.000	150.0	H	180.0	-12.2	28.7	54.0
3845.68750	27.7	1000.0	1000.000	150.0	H	180.0	-8.7	26.3	54.0
5841.25000	30.3	1000.0	1000.000	150.0	H	180.0	-5.7	23.7	54.0

Figure 42: Spectral Diagrams and measurement results, 1-7 GHz, vertical polarization, mode 5, power supply ICPSW24-7-3



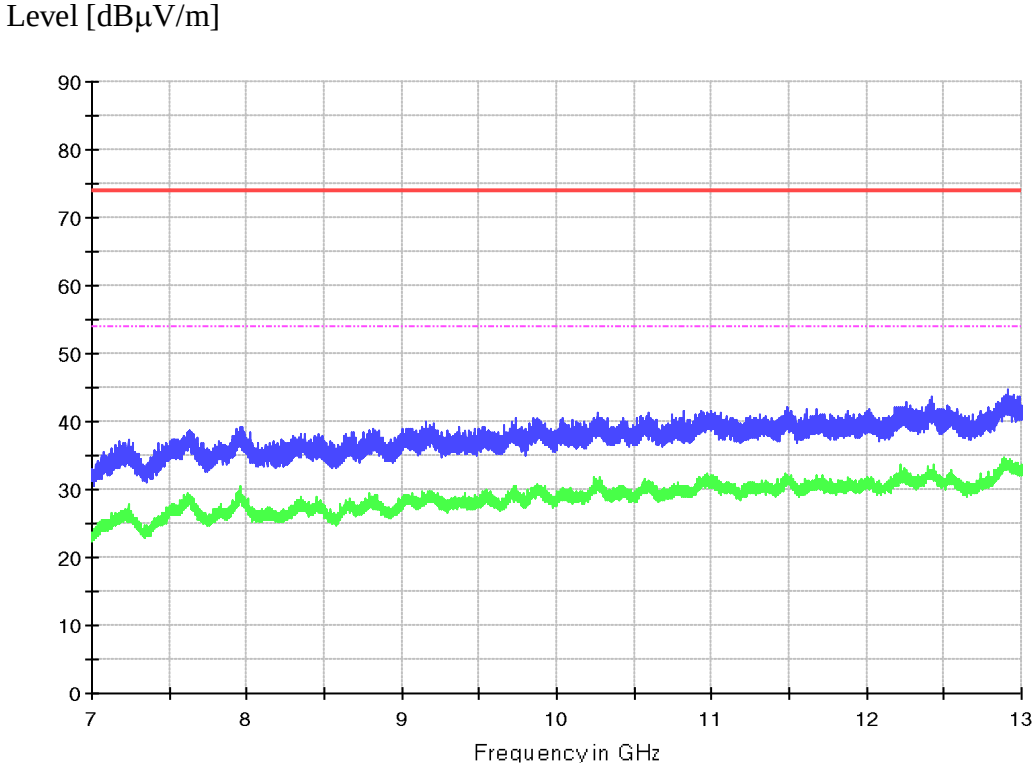
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1208.50000	31.5	1000.0	1000.000	150.0	V	12.0	-21.2	42.5	74.0
1556.50000	33.7	1000.0	1000.000	150.0	V	8.0	-18.6	40.3	74.0
2059.18750	34.3	1000.0	1000.000	150.0	V	45.0	-16.0	39.7	74.0
2905.93750	37.8	1000.0	1000.000	150.0	V	126.0	-12.2	36.2	74.0
3735.81250	40.6	1000.0	1000.000	150.0	V	77.0	-8.8	33.4	74.0
4863.62500	46.4	1000.0	1000.000	150.0	V	145.0	-6.5	27.6	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1208.50000	18.2	1000.0	1000.000	150.0	V	12.0	-21.2	35.8	54.0
1556.50000	20.0	1000.0	1000.000	150.0	V	8.0	-18.6	34.0	54.0
2059.18750	21.9	1000.0	1000.000	150.0	V	45.0	-16.0	32.1	54.0
2905.93750	25.1	1000.0	1000.000	150.0	V	126.0	-12.2	28.9	54.0
3735.81250	27.7	1000.0	1000.000	150.0	V	77.0	-8.8	26.3	54.0
4863.62500	40.2	1000.0	1000.000	150.0	V	145.0	-6.5	13.8	54.0

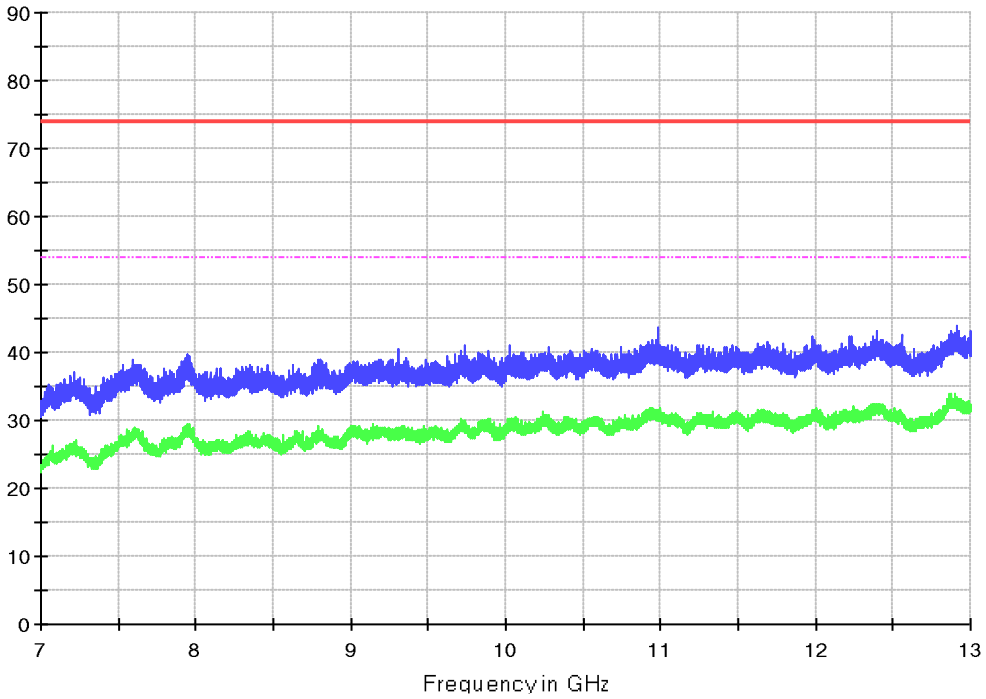
Figure 43: Spectral Diagrams and measurement results, 7-13 GHz, horizontal polarization, mode 5, power supply ICPSW24-7-3



Note: Because peak values were below average limits, therefore, further final measurement with average detector was not performed.

Figure 44: Spectral Diagrams and measurement results, 7-13 GHz, vertical polarization, mode 5, power supply ICPSW24-7-3

Level [dBµV/m]



Note: Because peak values were below average limits, therefore, further final measurement with average detector was not performed.

6 List of Test and Measurement Instruments

Equip.	Description	Model	Manufacturer	Last Date DD.MM.YYYY	Due Date DD.MM.YYYY
9023229	EMI test receiver	ESR3	Rohde&Schwarz	22.03.2021	22.03.2022
G1811403	Artificial mains network	ENV216	Rohde&Schwarz	04.11.2021	04.11.2022
G1824248	Dual display multimeter	F45	Fluke	18.09.2020	18.09.2022
G1811378	3m modified semi-anechoic chamber	SAC3	Frankonia	27.06.2019	27.06.2022
G1811402	EMI test receiver	ESCI	Rohde&Schwarz	01.09.2021	01.09.2022
G1811425	Bilog antenna	CBL 6112D	Teseq	10.03.2020	10.03.2023
G1811417	Log periodic antenna	HL050	Rohde&Schwarz	10.03.2020	10.03.2023
G1822702	Spectrum analyser	FSV40	Rohde&Schwarz	04.11.2021	04.11.2023
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	14.05.2021	14.05.2023

7 List of Figures

End of test report