IKEA OF SWEDEN AB

TEST REPORT

SCOPE OF WORK:
FCC Part 15 subpart B – EMC report

Model:
ICPSW5-5NA-1

REPORT NUMBER
170700760SHA-001/Amendment1

ISSUE DATE
August 24,2022

DOCUMENT CONTROL NUMBER
TTRFFCCPART15b_V1

Intertek Testing Services Shanghai,
Building No.86, 1198 Qinzhou Road (North),
Caohejing Development Zone,
Shanghai 200233, China

Telephone: 86 21 6127 8200
www.intertek.com

Report no. 170700760SHA-001/Amendment1

Applicant : **IKEA OF SWEDEN AB**
Box 702, SE-343 81, Älmhult, SWEDEN

Manufacturer : **Jiangyin Wonder Electronic Co., Ltd.**
No.129, Yungu Road, Gushan Town, Jiangyin City,
Jiangsu Province, China

Summary

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2020): Radio Frequency Devices (Subpart B)

ANSI C63.4 (2014): American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

PREPARED BY:	REVIEWED BY:
Star Guo	Andy Chen
Project Engineer	Reviewer

Contents

Revision History

Report No.	Version	Description	Issued Date
170700760SHA-001/Amendment1	Rev. 01	Initial issue of report	August 24,2022

Measurement result summary

TEST ITEM	FCC REFERENCE	TEST RESULT	NOTE
Conducted emission	15.107	Pass	
Radiation emission	15.109	Pass	

Notes: 1: NA =Not Applicable

2: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

3: Additions, Deviations and Exclusions from Standards: None.

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product Name	:	Class 2 Power Supply
Type/Model	:	ICPSW5-5NA-1
Description of EUT	:	We tested one model, and listed the worst data as the representative. **Amendment 1:** The original test report ref. No. 170700760SHA-001 dated November 14, 2017 was modified on August 24,2022 to include the following additions and/or changes: Update the standards to the latest edition. After evaluation, no test was performed again.
Rating	:	Input: 100-240VAC, 50/60Hz, Max 200mA, 7W. Output: 5VDC, Max 1A, 5W
Brand name	:	IKEA
Mains lead	:	unshielded, undetachable
Data cable	:	None
I/O Port	:	None
Category of EUT	:	Class B
EUT type	:	☒ Table top ☐ Floor standing
Highest operating frequency	:	Less than 1.705MHz
Sample received date	:	July 11, 2017
Sample identification No.	:	--
Date of test	:	July 11-17, 2017

1.2 Description of Test Facility

Name	:	Intertek Testing Services Shanghai
Address	:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone	:	86 21 61278200
Telefax	:	86 21 54262353
The test facility is recognized, certified, or accredited by these organizations	:	CNAS Accreditation Lab Registration No. CNAS L0139 FCC Accredited Lab Designation Number: CN1175 IC Registration Lab CAB identifier.: CN0051 VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252 A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2020): Radio Frequency Device: Subpart B

ANSI C63.4 (2014): Interim Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz.

2.2 Mode of operation during the test

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency is specified if used.

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No.	Name	Band and Model	Description
-	-	-	-

2.5 Record of climatic conditions

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (Kpa)
Conducted emission	24	46	NA
Radiated Emission	24	46	NA

Notes: NA =Not Applicable

2.6 Instrument list

Conducted Emission / Disturbance Power / Tri-loop Test / CDN method					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESCS 30	EC 2107	2023-07-8
☒	A.M.N.	R&S	ESH2-Z5	EC 3119	2022-11-9
☒	Shielded room	Zhongyu	-	EC 2838	2023-01-11
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESIB 26	EC 3045	2022-10-19
☒	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2023-8-5
☒	Semi-anechoic chamber	Albatross project	-	EC 3048	2022-08-22
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☐	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2023-03-25
☒	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 5198	2023-03-10
☒	Pressure meter	YM3	Shanghai Mengde	EC 3320	2023-07-21

2.7 Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted emission at mains ports	9kHz ~ 150kHz	3.71 dB
	150kHz ~ 30MHz	3.31 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.04 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.97 dB
	6GHz ~ 18GHz	5.29 dB

3 Conducted emission

Test result: PASS

3.1 Limits

3.1.1 Limits for conducted emission of class A device

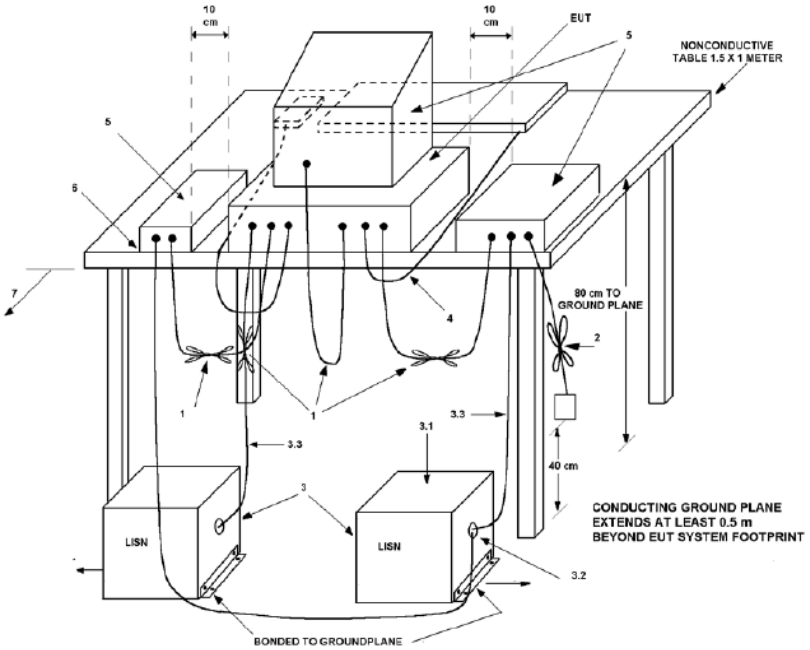
Frequency range (MHz)	Limits dB(μV) Quasi-peak	Average
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60
Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.		

3.1.2 Limits for conducted emission of class B device

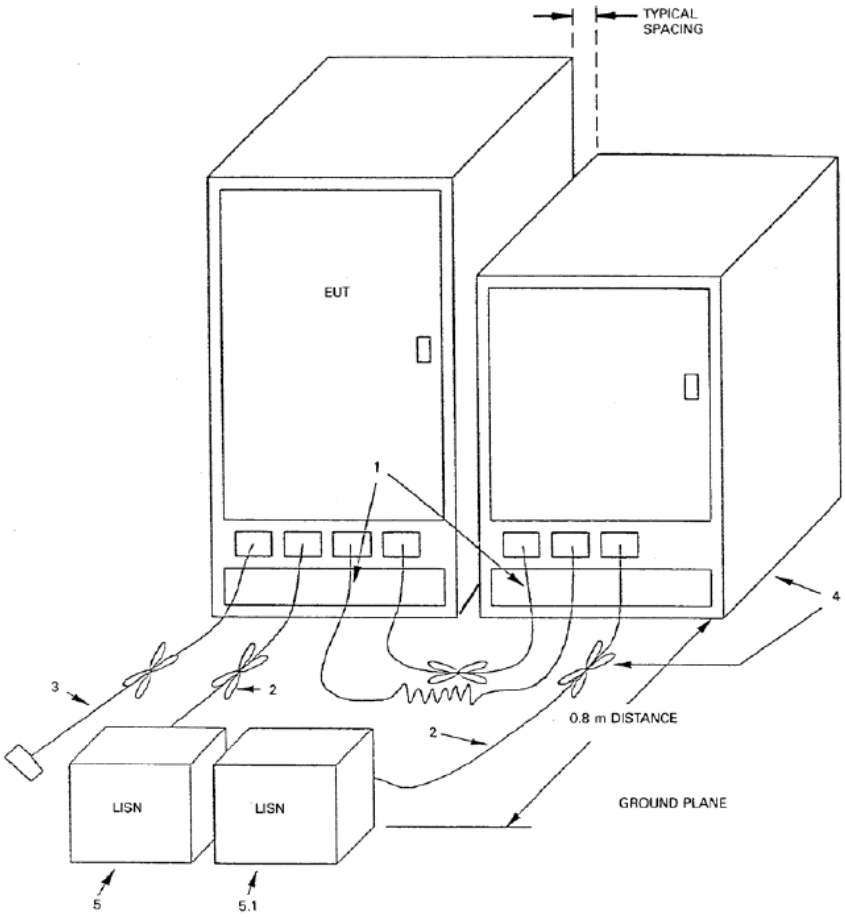
Frequency range (MHz)	Limits dB(μV) Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50
Note: 1. * Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz 2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out. 3. At the transition frequency, the more stringent limit shall apply.		

3.2 Test setup

☒ For table top equipment



☐ For floor standing equipment

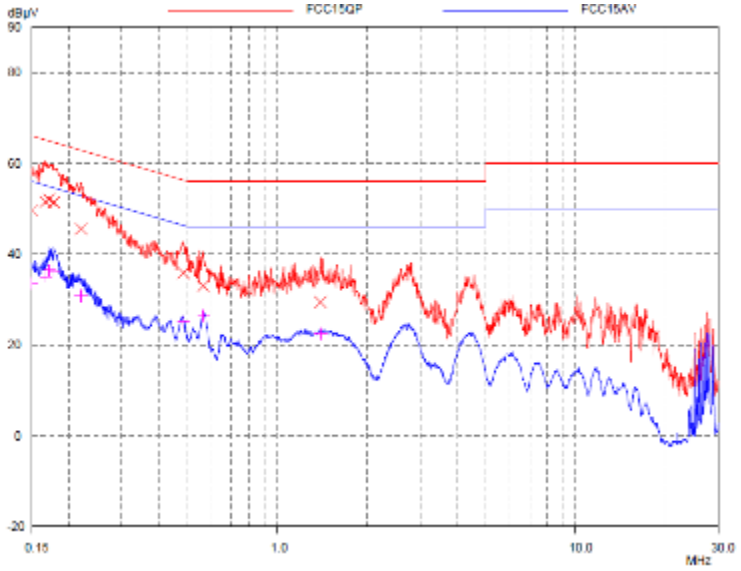


3.3 Test Setup and Test Procedure

Measurement was performed in shielded room, and instruments used were following clause 4 and clause 5 of ANSI 63.4.
Detailed test procedure was following clause 7.3 of ANSI 63.4.
EUT arrangement and operation conditions were according to clause 6 and clause 7 of ANSI 63.4.
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

3.4 Test Protocol

Test Curve:
L line

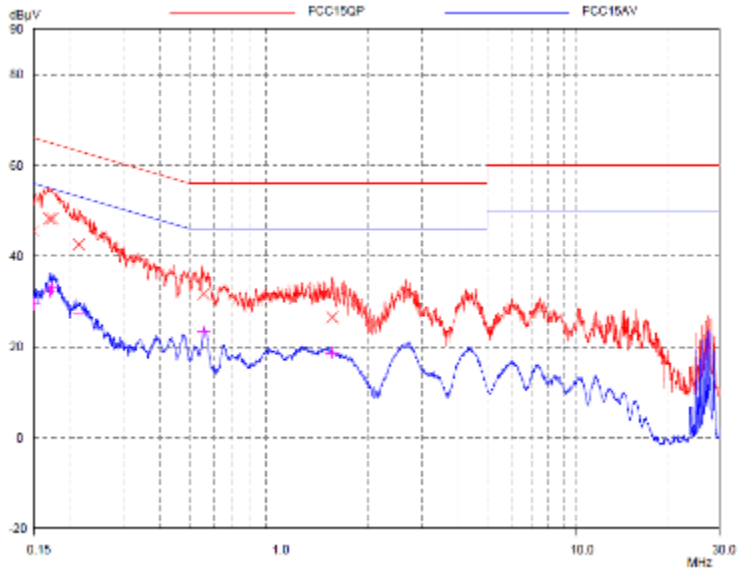


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.15	49.60	66.00	16.40
0.1664	51.54	65.14	13.60
0.17112	52.00	64.91	12.91
0.17738	51.37	64.61	13.24
0.21917	45.61	62.85	17.24
0.48313	35.86	56.29	20.43
0.56227	32.98	56.00	23.02
1.39156	29.40	56.00	26.60

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.15	33.55	56.00	22.45
0.1664	35.06	55.14	20.08
0.17112	36.45	54.91	18.46
0.17738	36.30	54.61	18.31
0.21917	30.79	52.85	22.06
0.48313	25.14	46.29	21.15
0.56227	26.41	46.00	19.59
1.39156	22.52	46.00	23.48

N line



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.15	45.61	66.00	20.39
0.16908	48.26	65.01	16.75
0.17249	48.29	64.84	16.55
0.21228	42.52	63.12	20.60
0.5578	31.67	56.00	24.33
1.50722	26.56	56.00	29.44

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.15	29.44	56.00	26.56
0.16908	32.19	55.01	22.82
0.17249	32.94	54.84	21.90
0.21228	27.16	53.12	25.96
0.5578	23.40	46.00	22.60
1.50722	18.70	46.00	27.30

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBuV + 12.00dB = 22.00dBuV;
Margin = 66.00dBuV – 22.00dBuV = 44.00dB.

4 Radiated emission

Test result: **PASS**

4.1 Radiated emission limits

4.1.1 Limits for radiated emission of class A device

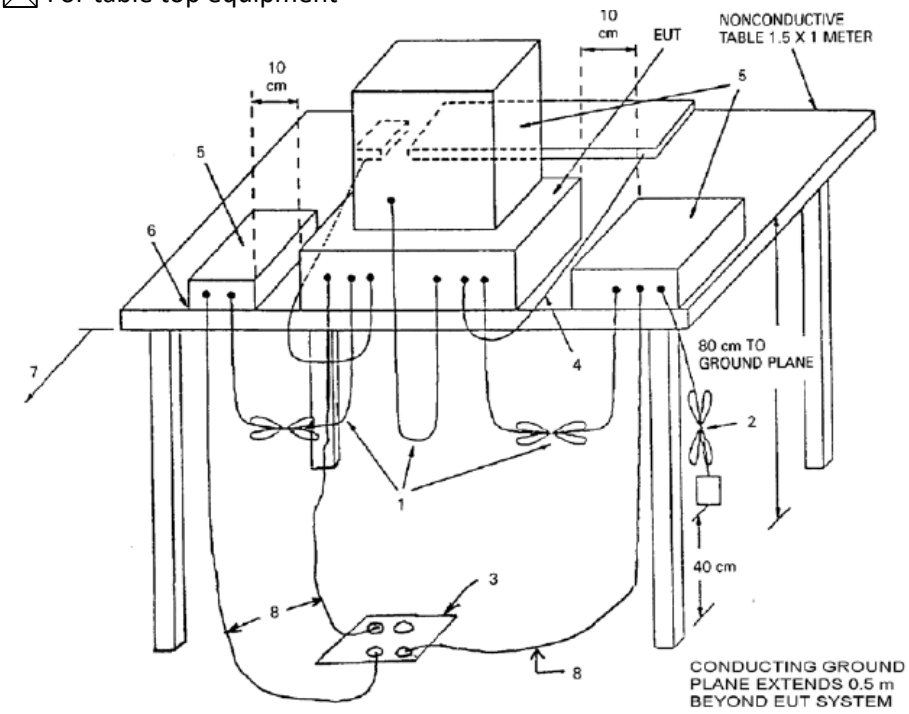
Frequency (MHz)	Permitted limit in dBμV/m (Quasi-peak) of Measurement Distance 10m
30 ~ 88	39
88 ~ 216	43.5
216 ~ 960	46.4
Above 960	49.5
Notes: 1. for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades. 2. At the transition frequency, the more stringent limit shall apply.	

4.1.2 Limits for radiated emission of class B device

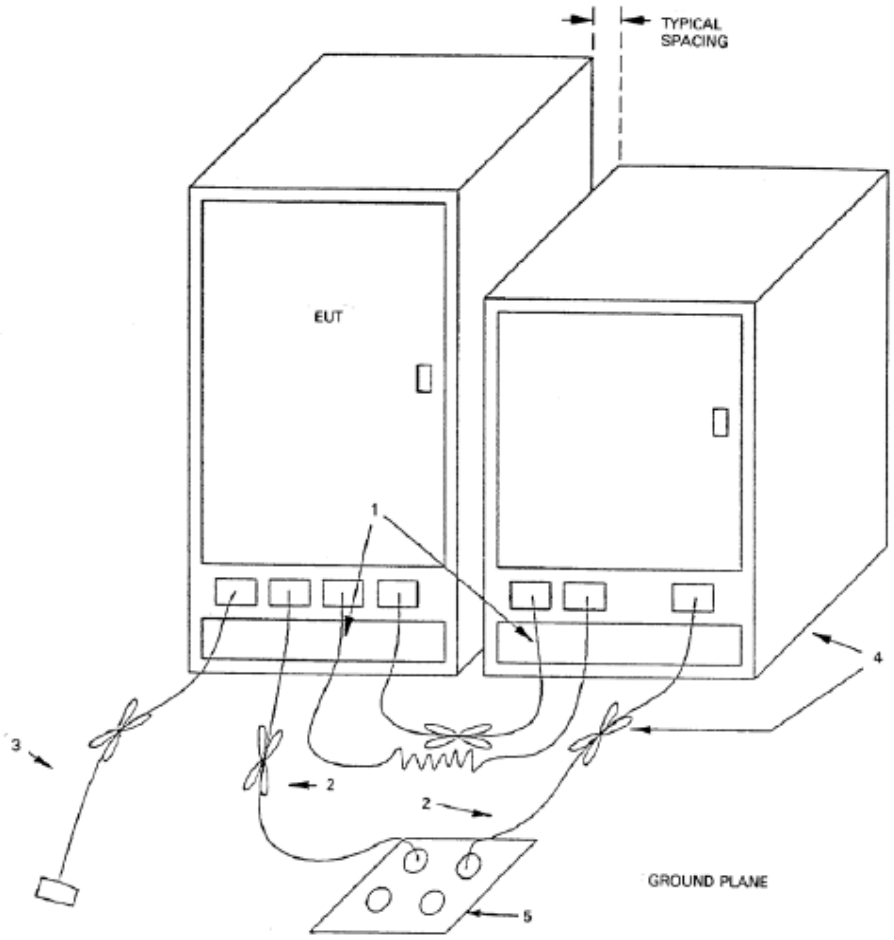
Frequency (MHz)	Permitted limit in dBμV/m (Quasi-peak) of Measurement Distance 3m
30 ~ 88	40.0
88 ~ 216	43.5
216 ~ 960	46.0
Above 960	54.0
Notes: 1. for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades. 2. At the transition frequency, the more stringent limit shall apply.	

4.2 Block diagram and test set up

☒ For table top equipment



☐ For floor standing equipment



4.3 Test Setup and Test Procedure

The measurement was performed in a semi-anechoic chamber.

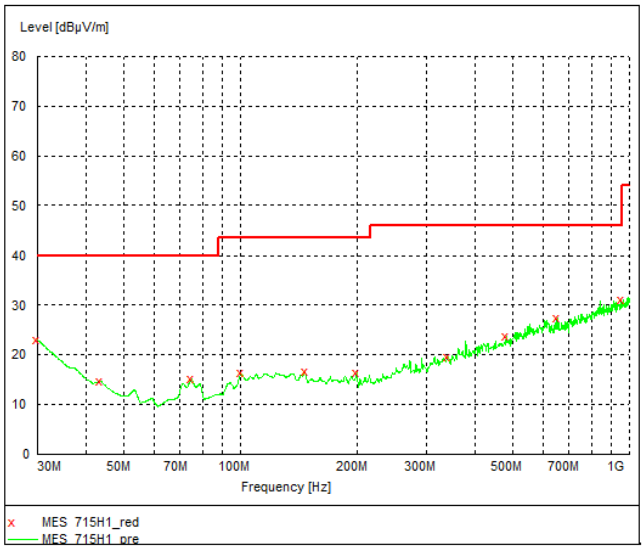
The distance from EUT to receiving antenna is 3 meter.

Measurement was performed according to clause 4 and clause 5 of ANSI 63.4.
Test procedure was according to clause 8.3 of ANSI 63.4.
EUT arrangement and operate condition were according to clause 6 and clause 8 of ANSI 63.4.
The bandwidth setting on R&S Test Receiver was 120 kHz.
The required measurement frequency range was checked.

4.4 Test Protocol

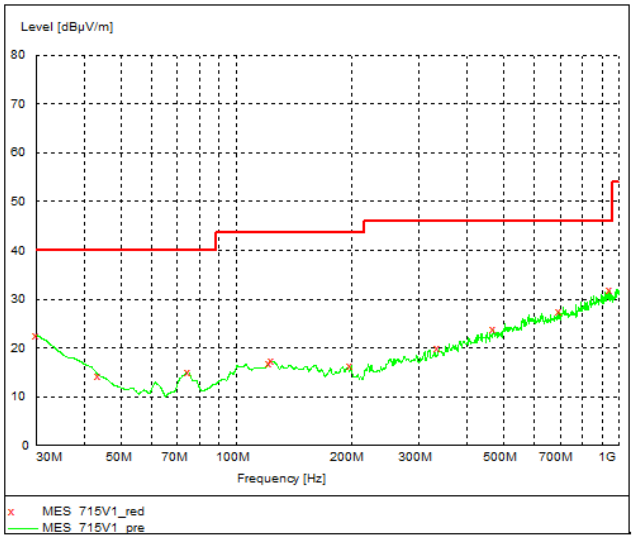
Test Curve:

Horizontal



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB
30.000000	23.00	21.0	40.0	17.0
43.607214	14.70	12.2	40.0	25.3
74.709419	15.10	8.6	40.0	24.9
99.979960	16.50	12.2	43.5	27.0
146.633267	16.60	12.6	43.5	26.9
199.118236	16.30	12.2	43.5	27.2
341.022044	19.60	16.9	46.0	26.4
482.925852	23.70	19.9	46.0	22.3
652.044088	27.40	22.1	46.0	18.6
953.346693	31.00	25.4	46.0	15.0

Vertical



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB
30.000000	22.60	21.0	40.0	17.4
43.607214	14.30	12.2	40.0	25.7
74.709419	15.00	8.6	40.0	25.0
121.362725	16.90	14.0	43.5	26.6
123.306613	17.20	13.9	43.5	26.3
199.118236	16.30	12.2	43.5	27.2
337.134269	19.80	16.7	46.0	26.2
469.318637	23.70	19.7	46.0	22.3
694.809619	27.30	22.4	46.0	18.7
943.627255	31.70	25.3	46.0	14.3

Remark: 1. Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB, Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV, limit = 40.00dBuV/m. Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m; Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m; Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80dB.

*****END of the report*****