FCC Part 15.249

TEST REPORT

For

Hangzhou Meari Technology Co., Ltd.

Room 604-605, Building 1,No.768 Jianghong Road, Changhe street, Binjiang District, Hangzhou, Zhejiang, China

FCC ID: 2AG7C-BELL5

Report Type: Class II Permissive Change Report	**Product Type:** Wireless DoorBell

Report Producer : Jane Chen

Report Number : RXZ211227004RF02

Report Date : 2022-03-18

Reviewed By: Andy Shih

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RXZ211227004	RXZ211227004RF02	2022-03-18	Original Report	Jane Chen

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1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant	Hangzhou Meari Technology Co., Ltd.
	Room 604-605, Building 1,No.768 Jianghong Road, Changhe street, Binjiang District, Hangzhou, Zhejiang, China
Manufacturer	Hangzhou Meari Technology Co., Ltd.
	Room 604-605, Building 1,No.768 Jianghong Road, Changhe street, Binjiang District, Hangzhou, Zhejiang, China
Brand(Trade) Name	N/A
Product (Equipment)	Wireless DoorBell
Main Model Name	Bell 5S
Series Model Name	Bell 5X, Bell 5T, Bell 8S, Bell 8X, Bell 8T
Model Discrepancy	Please see the declaration letter
Frequency Range	915 MHz
Antenna Specification	FPC Antenna / 2 dBi
Power Operation (Voltage Range)	☒ AC Type ☒ Adapter1 Brand Name: GPO Model: GTA92-0501000US I/P: 100-240Vac, 50/60Hz, 0.3A O/P: 5Vdc, 1.0A, 5.0W Adapter2 Brand Name: SZTY Model: TPA-46B050100UU I/P: 100-240Vac, 50/60Hz, 0.2A O/P: 5Vdc, 1000mA ☐ By AC Power Cord ☐ PoE
	☒ DC Type 12-24V ☐ Battery ☐ DC Power Supply ☒ External from USB Cable ☐ External DC Adapter
	☐ Host System
Received Date	Dec. 28, 2021
Date of Test	Jan. 20, 2022 ~ Mar. 17, 2022

**All measurement and test data in this report was gathered from production sample serial number: RXZ211227004-01 , RXZ211227004-02 (Assigned by BACL, New Taipei Laboratory).*

1.2 Objective

This report is prepared on behalf of *Hangzhou Meari Technology Co., Ltd.* in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communication Commission's rules.

This is a CIIPC report base on the original report RSHA210513002-00B with FCC ID: 2AG7C-BELL5 which was granted on 2021-08-23, the differences between the original device and the current one are as follows:

1. Change the MCU (non-RF part).

Model: Bell 5S, Bell 5X, Bell 5T, Bell 8S, Bell 8X, Bell 8T

2. Replacement antenna, same antenna type, same antenna gain value.

Model: Bell 8S, Bell 8X, Bell 8T

The above differences will affect part of tests, "AC Line Conducted Emissions" and "Radiated Emissions" were presented in this report, and other data were referred to the original report.

1.3 Related Submittal(s)/Grant(s)

FCC Part15.247 DTS submissions with FCC ID: 2AG7C-BELL5

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

1.5 Statement of Compliance

Decision Rule: No, (The test results do not include MU judgment)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.
Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

1.6 Measurement Uncertainty

Parameter	Uncertainty
AC Mains	+/- 2.36 dB
Emissions, radiated	+/- 5.22 dB
Temperature	+/- 1.27 ℃
Humidity	+/- 3 %

1.7 Environmental Conditions

Test Site	Test Data	Temperature (℃)	Relative Humidity (%)	ATM Pressure (hPa)	Test Engineer
AC Line Conducted Emissions	2022/1/20~2022/1/25	22.6	63	1010	Boris
Radiation Spurious Emissions	2022/1/20~2022/3/17	17.6~25.6	58~75	1010	Howard

1.8 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) to collect test data is located on

☒70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3732) and the FCC designation No.TW3732 under the Mutual Recognition Agreement (MRA) in FCC Test.

2 System Test Configuration

2.1 Description of Test Configuration

For SRD mode, only 1 channel (915MHz) was used.

Channel	Frequency (MHz)
1	915

The system was configured for testing in an engineering mode, which was provided by manufacturer.

2.2 Equipment Modifications

No modification was made to the EUT.

2.3 EUT Exercise Software

Use the button for signal transmission.

Test Frequency	915 MHz
Power Level Setting	Default

2.4 Test Mode

Mode 1	Bell 5S+Adapter: GTA92-0501000US
Mode 2	Bell 5S+Adapter: TPA-46B050100UU
Mode 3	Bell 8S+Adapter: GTA92-0501000US
Mode 4	Bell 8S+Adapter: TPA-46B050100UU
Mode 5	Bell 5S+12V DC Power Supply
Mode 6	Bell 8S+12V DC Power Supply

Bell 5S (Sample serial number: RXZ211227004-01)

Bell 8S (Sample serial number: RXZ211227004-02) for test Above 1GHz Radiated Spurious Emissions.

2.5 Support Equipment List and Details

Description	Manufacturer	Model Number	S/N
DC Power Source	KIKUSUI	PMC35-2	MK002127

2.6 External Cable List and Details

Cable Description	Length (m)	From	To
Micro USB Cable	1	adapter	EUT

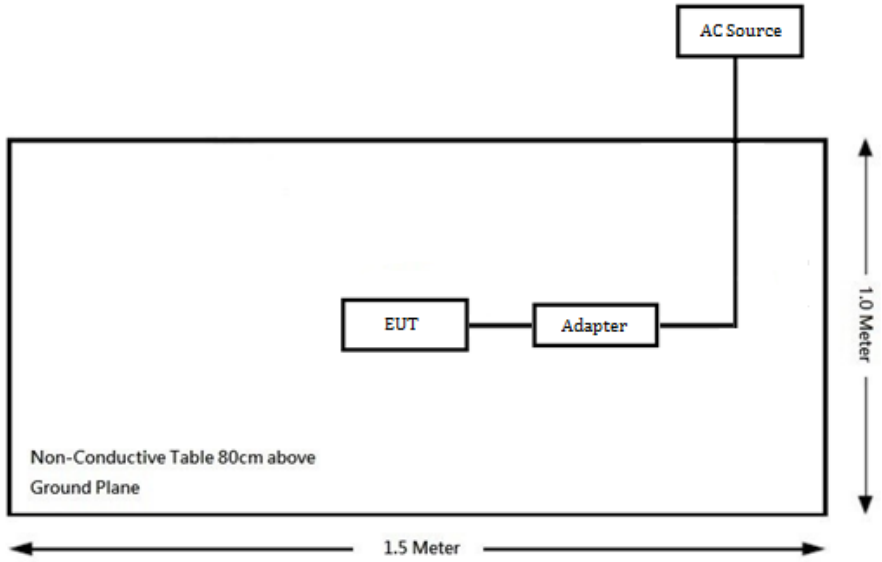
2.7 Block Diagram of Test Setup

See test photographs attached in setup photos for the actual connections between EUT and support equipment.

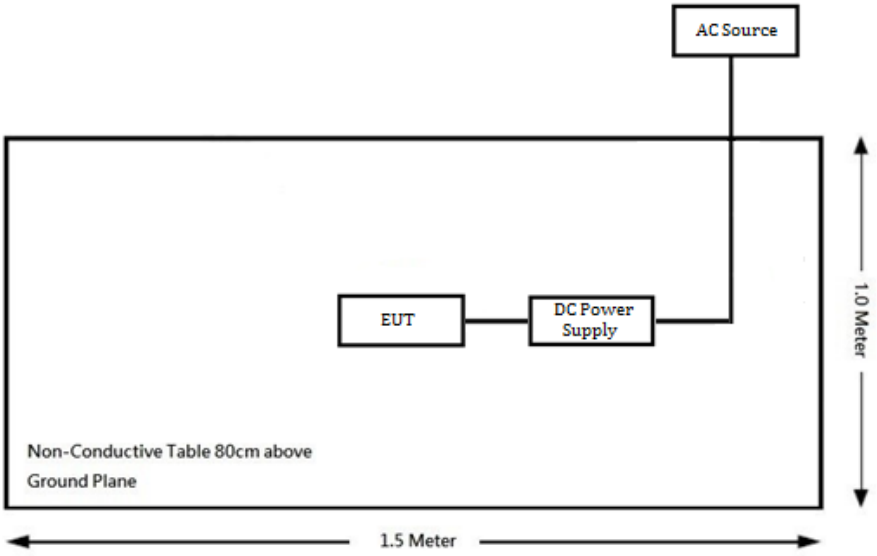
Radiation:

Below 1GHz:

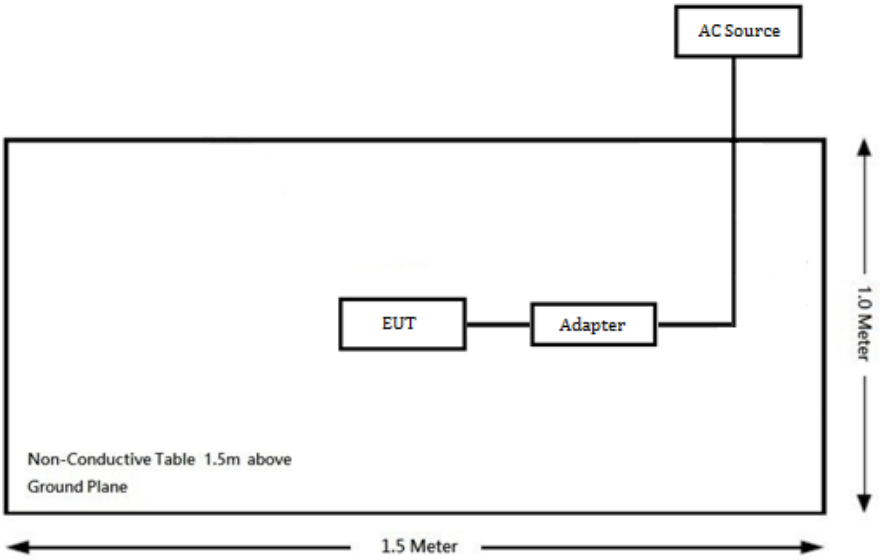
For Adapter



For DC Power Supply

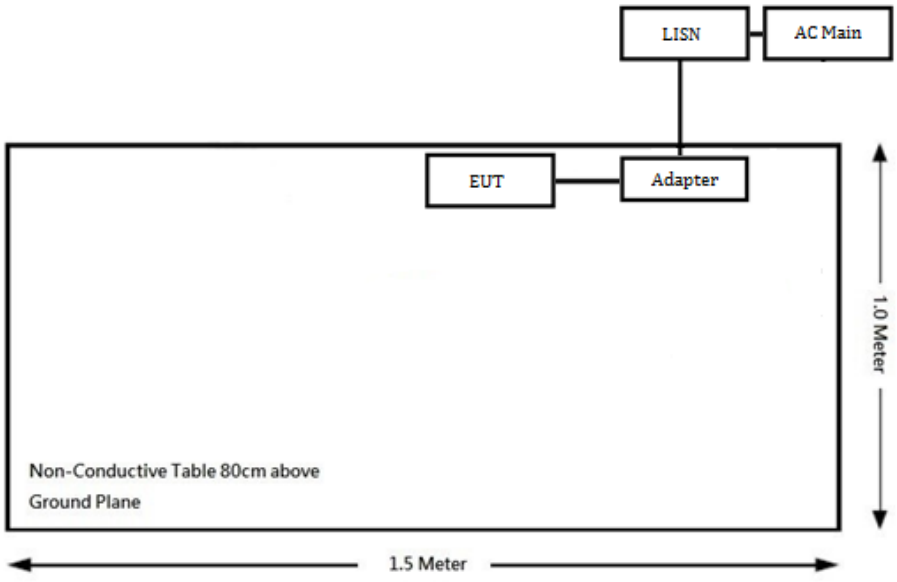


Above 1GHz:

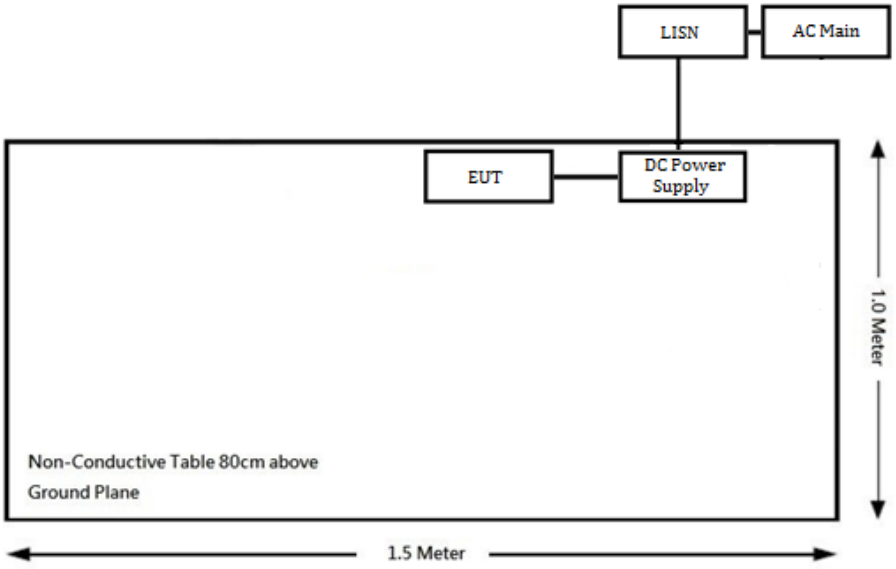


Conduction:

For Adapter



For DC Power Supply



3 Summary of Test Results

FCC Rules	Description of Test	Results
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209,§15.249	Radiated Emissions	Compliance
§15.215 (c)	20 dB Emission Bandwidth	Compliance*

Compliance*: Please referred to FCC ID: 2AG7C-BELL5 granted on 2021-08-23. Report No.: RSHA210513002-00A, which was tested by Bay Area Compliance Laboratories Corp. (Kunshan).

4 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conduction Room (CON-A)					
LISN	Rohde & Schwarz	ENV216	101612	2022/1/14	2023/1/13
EMI Test Receiver	Rohde & Schwarz	ESW8	100947	2021/7/23	2022/7/22
Pulse Limiter	Rohde & Schwarz	ESH3Z2	TXZEM104	2021/7/29	2022/7/28
RF Cable	EMEC	EM-CB5D	1	2021/6/11	2022/6/10
Software	AUDIX	E3	V9.150826k	N.C.R	N.C.R
Radiated Room (966-A)					
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & EMEC	JB6 / UNAT-6+	A061204/ATT-09-012	2022/1/5	2023/1/4
Horn Antenna	EMCO	SAS-571	1020	2021/4/23	2022/4/22
Preamplifier	Sonoma	310N	130602	2021/6/8	2022/6/7
Preamplifier	A.H. system Inc.	PAM-0118P	466	2021/11/4	2022/11/3
Spectrum Analyzer	Rohde & Schwarz	FSV40	101435	2022/1/13	2023/1/12
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2021/11/9	2022/11/8
Micro flex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2021/2/1	2022/1/31
				2022/1/24	2023/1/23
Coaxial Cable	COMMATE	PEWC	8Dr	2021/12/24	2022/12/23
Coaxial Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2021/2/1	2022/1/31
				2022/1/24	2023/1/23
Coaxial Cable	JUNFLON	J12J102248-00-B-5	AUG-07-15-044	2021/12/24	2022/12/23
Cable	EMC	EMC105-SM-SM-10000	201003	2021/2/3	2022/2/2
				2021/1/24	2023/1/23
Software	Farad	EZ_EMC	BACL-03A1	N.C.R	N.C.R

***Statement of Traceability:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Institute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements*

5 FCC §15.203 – Antenna Requirements

5.1 Applicable Standard

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

5.2 Antenna Information

The EUT has a FPC Antenna for SRD, which was permanently attached to the EUT, antenna gain is 2dBi, fulfill the requirement of this section, please refer to the EUT photos.

Result: Compliance.

6 FCC §15.207(a) – AC Line Conducted Emissions

6.1 Applicable Standard

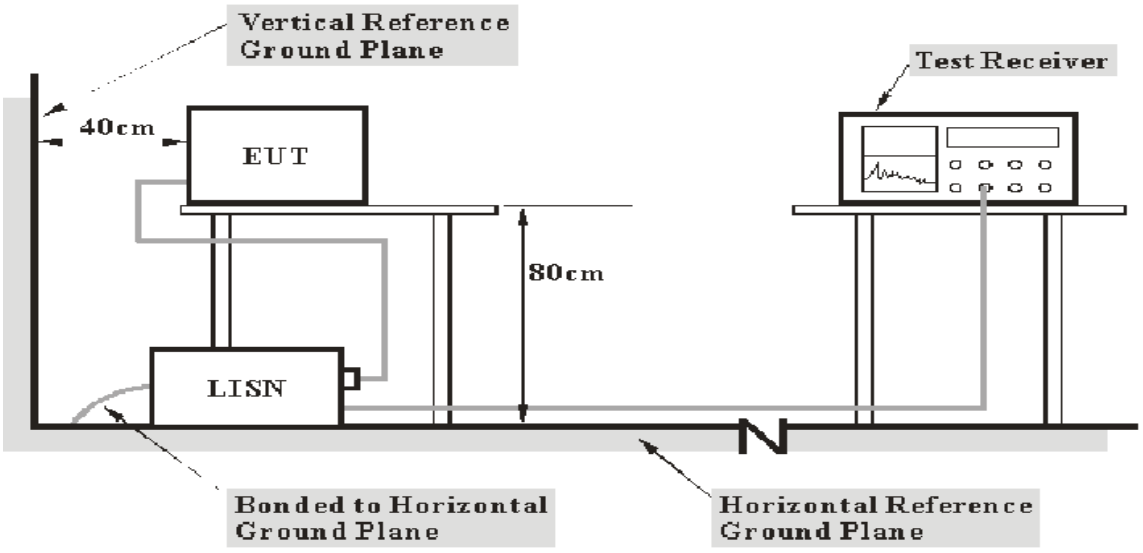
According to §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 Note 1	56 to 46 Note 1
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency.

6.2 EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

6.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150kHz to 30MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations

Frequency Range	IF B/W
150kHz – 30MHz	9kHz

6.4 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

6.5 Corrected Factor & Margin Calculation

The factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

The “Over Limit” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of -7 dB means the emission is 7 dB below the limit. The equation for Over Limit calculation is as follows:

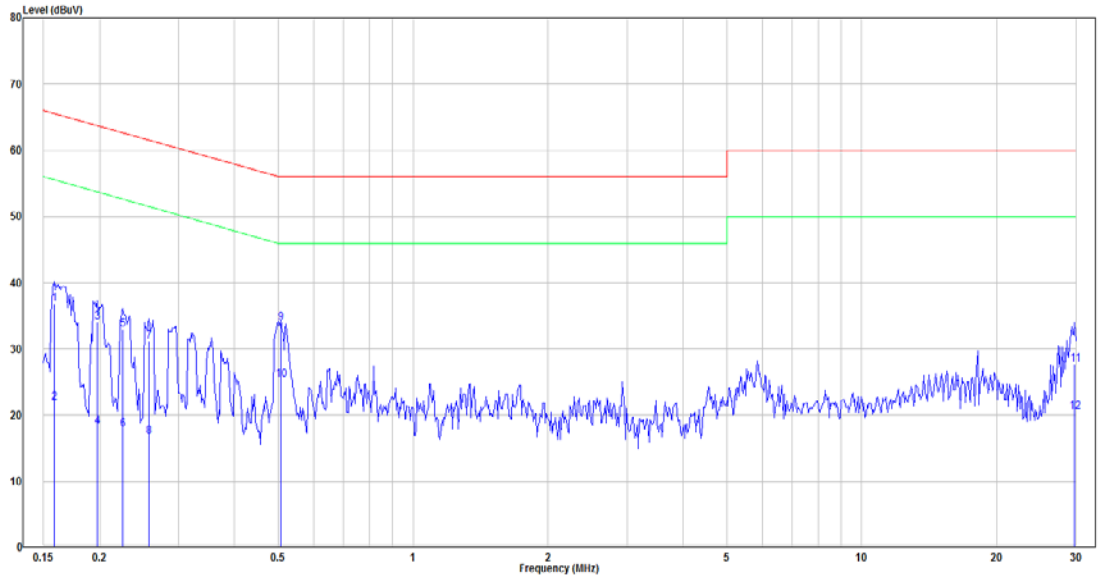
Over Limit = Level – Limit Line

6.6 Test Results

Test Mode: Transmitting

Mode 1

Main: AC120 V, 60 Hz, Line



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.158	17.32	19.50	36.82	65.56	-28.74	QP
2	0.158	2.34	19.50	21.84	55.56	-33.72	Average
3	0.198	14.59	19.50	34.09	63.71	-29.62	QP
4	0.198	-1.29	19.50	18.21	53.71	-35.50	Average
5	0.226	13.37	19.50	32.87	62.61	-29.74	QP
6	0.226	-1.58	19.50	17.92	52.61	-34.69	Average
7	0.258	11.62	19.50	31.12	61.51	-30.39	QP
8	0.258	-2.73	19.50	16.77	51.51	-34.74	Average
9	0.507	14.45	19.52	33.97	56.00	-22.03	QP
10	0.507	5.84	19.52	25.36	46.00	-20.64	Average
11	29.841	7.75	19.96	27.71	60.00	-32.29	QP
12	29.841	0.56	19.96	20.52	50.00	-29.48	Average

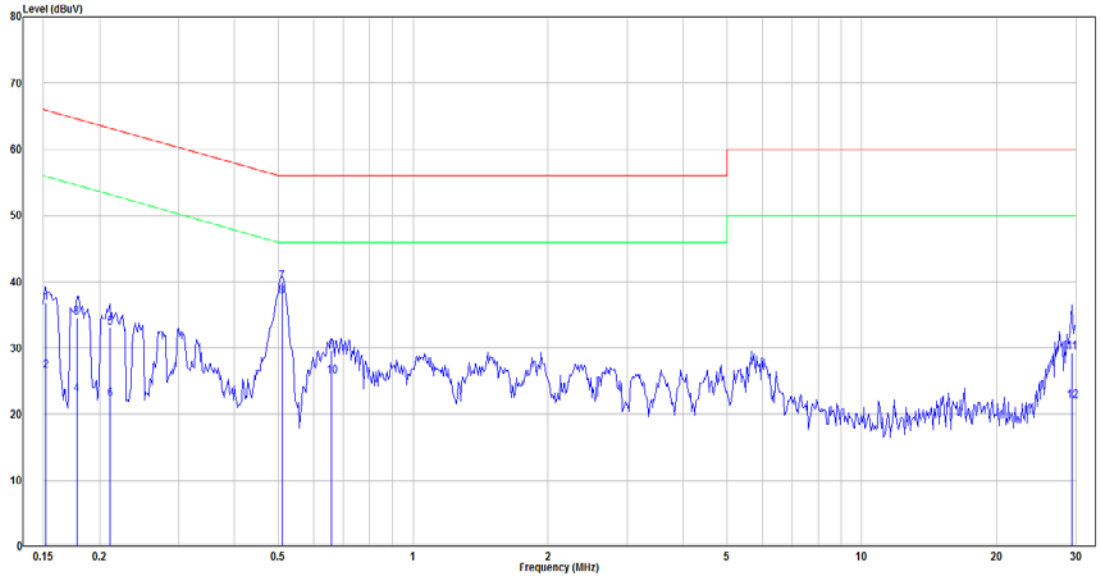
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Main: AC120 V, 60 Hz, Neutral



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.152	17.32	19.50	36.82	65.91	-29.09	QP
2	0.152	7.08	19.50	26.58	55.91	-29.33	Average
3	0.178	15.09	19.50	34.59	64.59	-30.00	QP
4	0.178	3.44	19.50	22.94	54.59	-31.65	Average
5	0.211	13.53	19.49	33.02	63.18	-30.16	QP
6	0.211	2.83	19.49	22.32	53.18	-30.86	Average
7	0.510	20.51	19.52	40.03	56.00	-15.97	QP
8	0.510	18.21	19.52	37.73	46.00	-8.27	Average
9	0.658	10.04	19.52	29.56	56.00	-26.44	QP
10	0.658	6.28	19.52	25.80	46.00	-20.20	Average
11	29.371	9.27	20.01	29.28	60.00	-30.72	QP
12	29.371	1.97	20.01	21.98	50.00	-28.02	Average

Note:

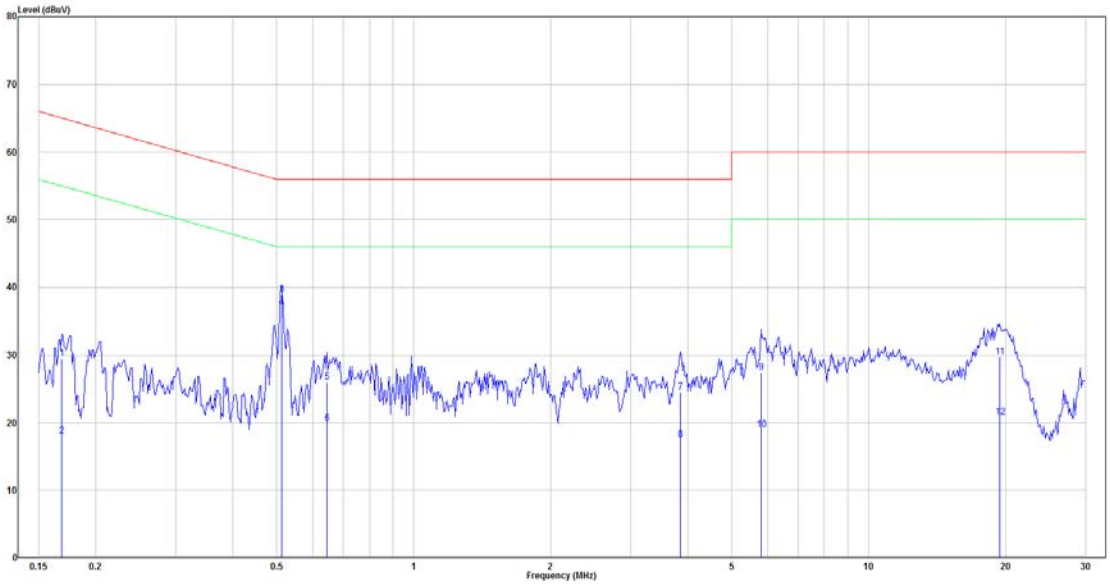
Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Mode 2

Main: AC120 V, 60 Hz, Line



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.169	9.96	19.50	29.46	65.03	-35.57	QP
2	0.169	-1.42	19.50	18.08	55.03	-36.95	Average
3	0.513	19.46	19.52	38.98	56.00	-17.02	QP
4	0.513	17.48	19.52	37.00	46.00	-9.00	Average
5	0.644	6.51	19.53	26.04	56.00	-29.96	QP
6	0.644	0.34	19.53	19.87	46.00	-26.13	Average
7	3.860	4.86	19.63	24.49	56.00	-31.51	QP
8	3.860	-2.22	19.63	17.41	46.00	-28.59	Average
9	5.805	7.73	19.67	27.40	60.00	-32.60	QP
10	5.805	-0.66	19.67	19.01	50.00	-30.99	Average
11	19.428	9.88	19.82	29.70	60.00	-30.30	QP
12	19.428	1.00	19.82	20.82	50.00	-29.18	Average

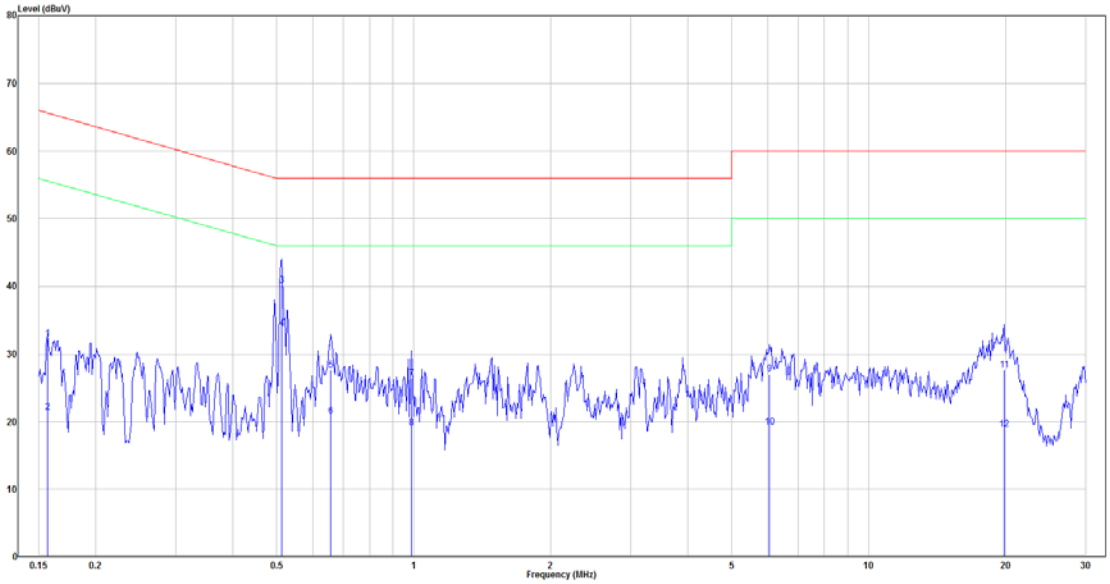
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Main: AC120 V, 60 Hz, Neutral



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.156	12.80	19.50	32.30	65.65	-33.35	QP
2	0.156	1.89	19.50	21.39	55.65	-34.26	Average
3	0.513	20.56	19.52	40.08	56.00	-15.92	QP
4	0.513	14.27	19.52	33.79	46.00	-12.21	Average
5	0.658	8.15	19.53	27.68	56.00	-28.32	QP
6	0.658	1.29	19.53	20.82	46.00	-25.18	Average
7	0.989	6.80	19.54	26.34	56.00	-29.66	QP
8	0.989	-0.51	19.54	19.03	46.00	-26.97	Average
9	6.056	7.37	19.68	27.05	60.00	-32.95	QP
10	6.056	-0.52	19.68	19.16	50.00	-30.84	Average
11	19.845	7.81	19.82	27.63	60.00	-32.37	QP
12	19.845	-1.03	19.82	18.79	50.00	-31.21	Average

Note:

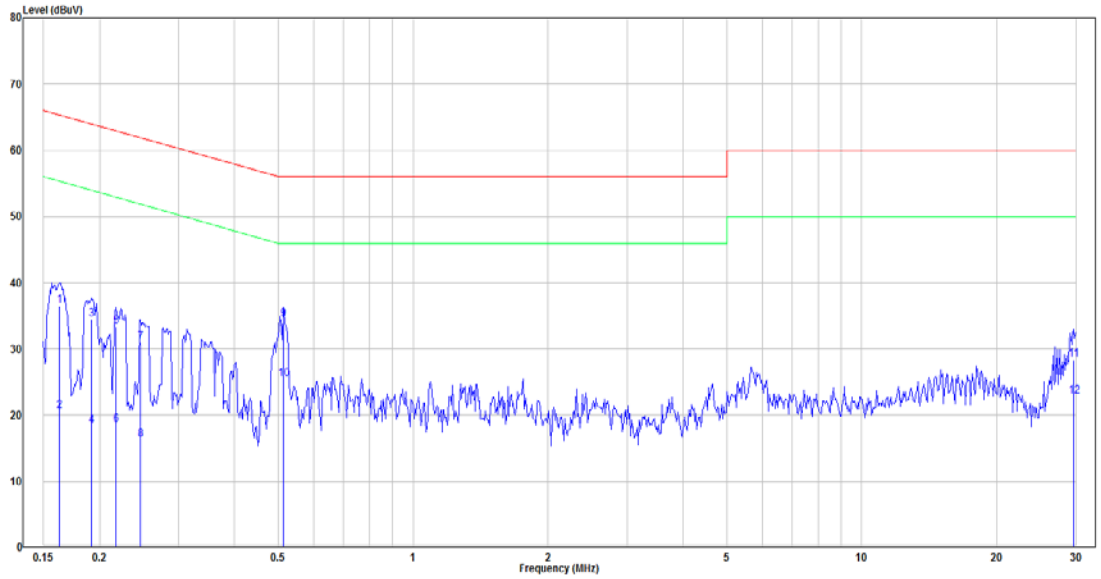
Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Mode 3

Main: AC120 V, 60 Hz, Line



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.162	17.05	19.50	36.55	65.34	-28.79	QP
2	0.162	1.07	19.50	20.57	55.34	-34.77	Average
3	0.191	14.98	19.50	34.48	63.98	-29.50	QP
4	0.191	-1.06	19.50	18.44	53.98	-35.54	Average
5	0.217	13.83	19.50	33.33	62.92	-29.59	QP
6	0.217	-0.99	19.50	18.51	52.92	-34.41	Average
7	0.247	11.56	19.50	31.06	61.86	-30.80	QP
8	0.247	-3.13	19.50	16.37	51.86	-35.49	Average
9	0.513	14.97	19.52	34.49	56.00	-21.51	QP
10	0.513	5.96	19.52	25.48	46.00	-20.52	Average
11	29.684	8.42	19.96	28.38	60.00	-31.62	QP
12	29.684	2.86	19.96	22.82	50.00	-27.18	Average

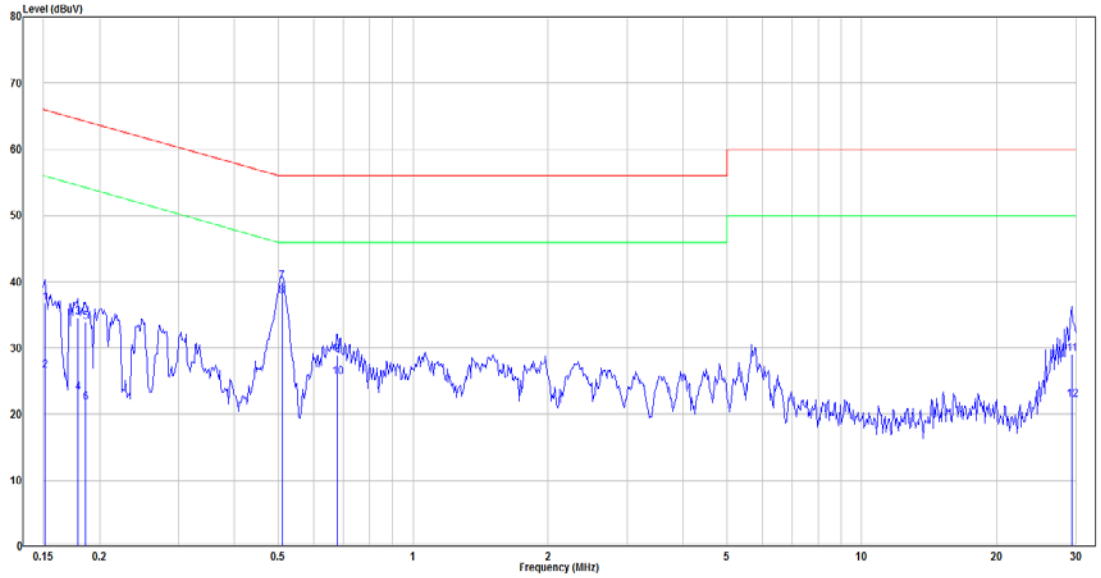
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Main: AC120 V, 60 Hz, Neutral



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.151	17.38	19.50	36.88	65.96	-29.08	QP
2	0.151	7.01	19.50	26.51	55.96	-29.45	Average
3	0.179	15.17	19.50	34.67	64.55	-29.88	QP
4	0.179	3.70	19.50	23.20	54.55	-31.35	Average
5	0.186	14.38	19.49	33.87	64.20	-30.33	QP
6	0.186	2.20	19.49	21.69	54.20	-32.51	Average
7	0.510	20.50	19.52	40.02	56.00	-15.98	QP
8	0.510	18.21	19.52	37.73	46.00	-8.27	Average
9	0.679	9.39	19.52	28.91	56.00	-27.09	QP
10	0.679	6.03	19.52	25.55	46.00	-20.45	Average
11	29.371	9.11	20.01	29.12	60.00	-30.88	QP
12	29.371	2.08	20.01	22.09	50.00	-27.91	Average

Note:

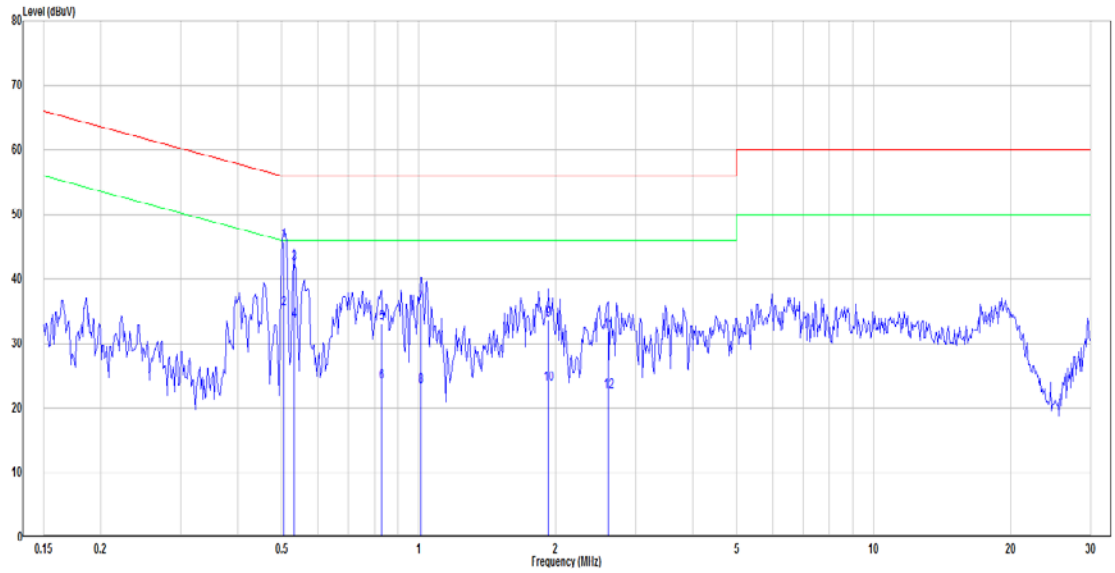
Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Mode 4

Main: AC120 V, 60 Hz, Line



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.505	26.26	19.52	45.78	56.00	-10.22	QP
2	0.505	15.82	19.52	35.34	46.00	-10.66	Average
3	0.532	22.88	19.52	42.40	56.00	-13.60	QP
4	0.532	13.96	19.52	33.48	46.00	-12.52	Average
5	0.830	13.63	19.53	33.16	56.00	-22.84	QP
6	0.830	4.44	19.53	23.97	46.00	-22.03	Average
7	1.010	16.69	19.54	36.23	56.00	-19.77	QP
8	1.010	3.87	19.54	23.41	46.00	-22.59	Average
9	1.928	14.03	19.58	33.61	56.00	-22.39	QP
10	1.928	4.06	19.58	23.64	46.00	-22.36	Average
11	2.608	12.16	19.60	31.76	56.00	-24.24	QP
12	2.608	2.82	19.60	22.42	46.00	-23.58	Average

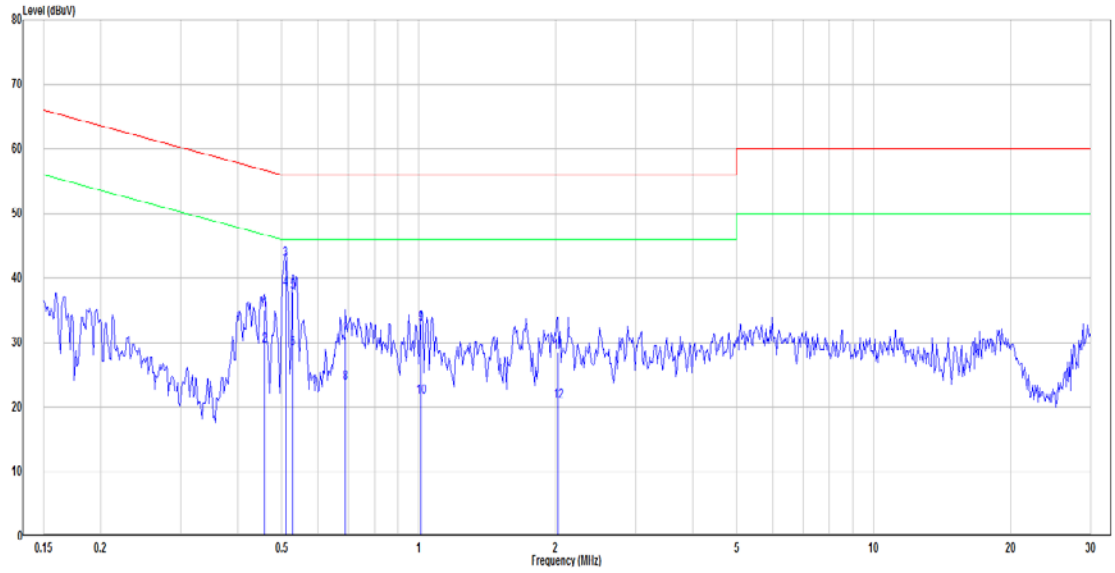
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Main: AC120 V, 60 Hz, Neutral



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.459	15.52	19.52	35.04	56.71	-21.67	QP
2	0.459	9.98	19.52	29.50	46.71	-17.21	Average
3	0.510	23.26	19.52	42.78	56.00	-13.22	QP
4	0.510	18.59	19.52	38.11	46.00	-7.89	Average
5	0.529	18.35	19.52	37.87	56.00	-18.13	QP
6	0.529	9.50	19.52	29.02	46.00	-16.98	Average
7	0.690	11.43	19.52	30.95	56.00	-25.05	QP
8	0.690	4.19	19.52	23.71	46.00	-22.29	Average
9	1.010	13.34	19.53	32.87	56.00	-23.13	QP
10	1.010	1.96	19.53	21.49	46.00	-24.51	Average
11	2.023	8.91	19.57	28.48	56.00	-27.52	QP
12	2.023	1.31	19.57	20.88	46.00	-25.12	Average

Note:

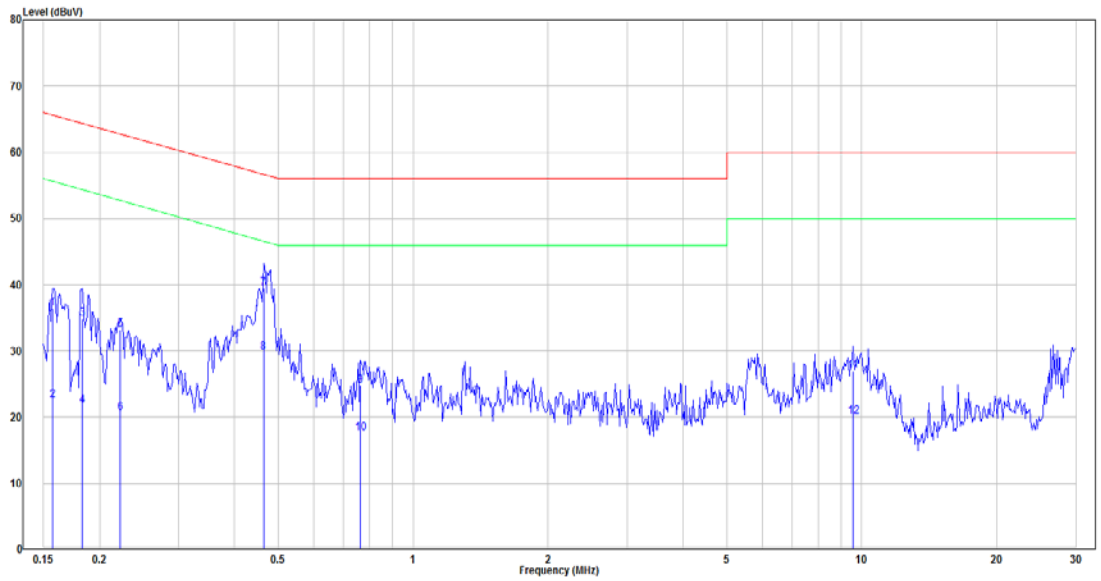
Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Mode 5

Main: AC120 V, 60 Hz, Line



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.157	16.83	19.50	36.33	65.60	-29.27	QP
2	0.157	3.10	19.50	22.60	55.60	-33.00	Average
3	0.182	15.34	19.50	34.84	64.37	-29.53	QP
4	0.182	2.27	19.50	21.77	54.37	-32.60	Average
5	0.222	13.71	19.50	33.21	62.74	-29.53	QP
6	0.222	1.17	19.50	20.67	52.74	-32.07	Average
7	0.464	19.86	19.52	39.38	56.63	-17.25	QP
8	0.464	10.25	19.52	29.77	46.63	-16.86	Average
9	0.763	5.18	19.53	24.71	56.00	-31.29	QP
10	0.763	-1.99	19.53	17.54	46.00	-28.46	Average
11	9.552	7.25	19.74	26.99	60.00	-33.01	QP
12	9.552	0.34	19.74	20.08	50.00	-29.92	Average

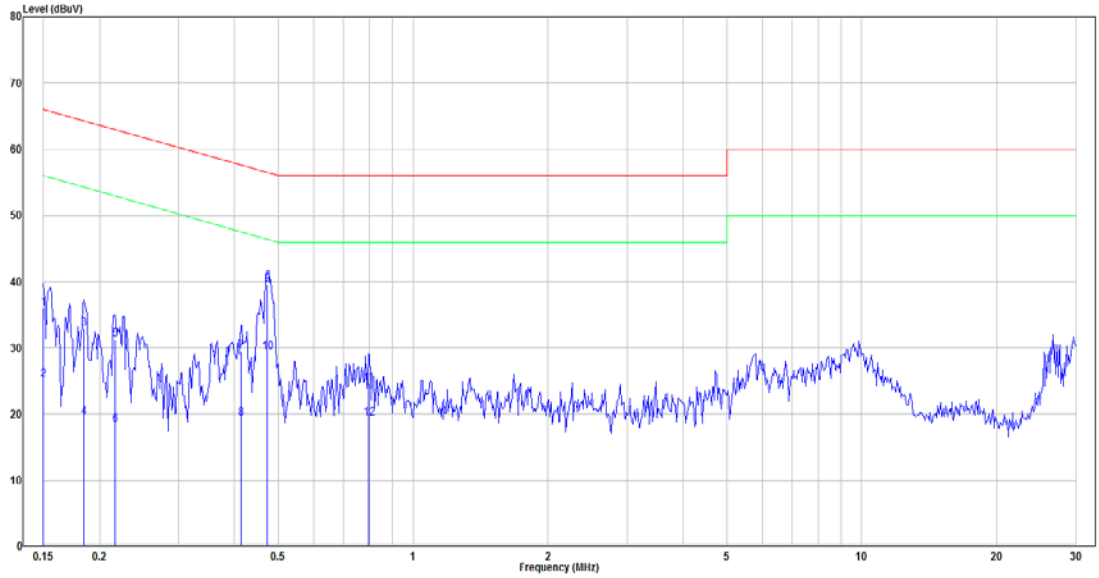
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Main: AC120 V, 60 Hz, Neutral



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.150	16.44	19.51	35.95	66.00	-30.05	QP
2	0.150	5.68	19.51	25.19	56.00	-30.81	Average
3	0.184	13.41	19.49	32.90	64.28	-31.38	QP
4	0.184	-0.02	19.49	19.47	54.28	-34.81	Average
5	0.216	11.81	19.49	31.30	62.96	-31.66	QP
6	0.216	-1.14	19.49	18.35	52.96	-34.61	Average
7	0.413	10.02	19.51	29.53	57.59	-28.06	QP
8	0.413	-0.09	19.51	19.42	47.59	-28.17	Average
9	0.474	20.07	19.52	39.59	56.45	-16.86	QP
10	0.474	9.85	19.52	29.37	46.45	-17.08	Average
11	0.796	5.06	19.53	24.59	56.00	-31.41	QP
12	0.796	-0.14	19.53	19.39	46.00	-26.61	Average

Note:

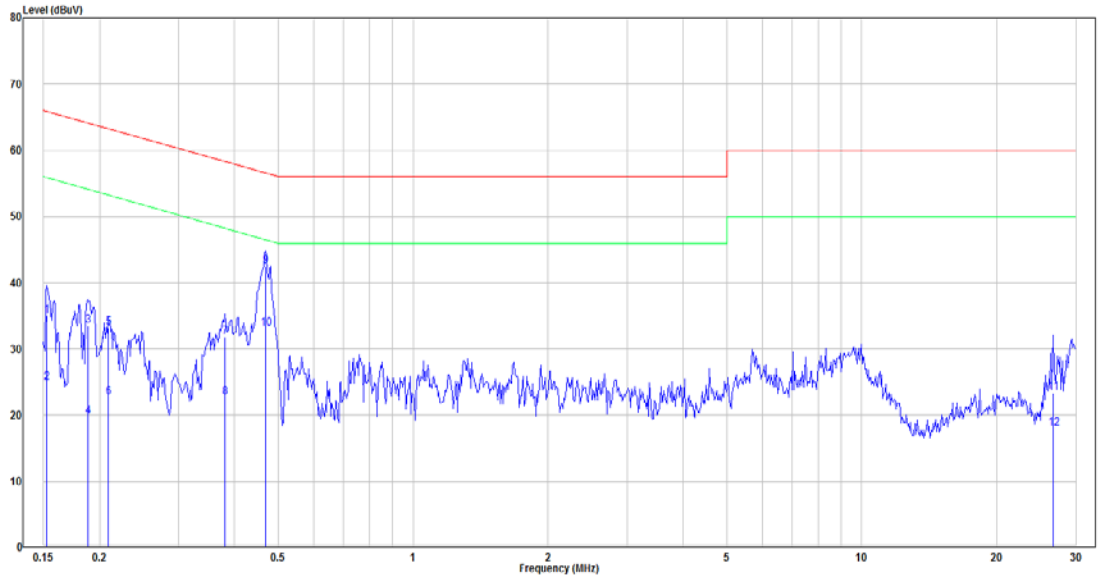
Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Mode 6

Main: AC120 V, 60 Hz, Line



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.152	15.45	19.50	34.95	65.87	-30.92	QP
2	0.152	5.40	19.50	24.90	55.87	-30.97	Average
3	0.188	14.01	19.50	33.51	64.11	-30.60	QP
4	0.188	0.32	19.50	19.82	54.11	-34.29	Average
5	0.209	13.77	19.50	33.27	63.23	-29.96	QP
6	0.209	3.21	19.50	22.71	53.23	-30.52	Average
7	0.381	12.30	19.51	31.81	58.25	-26.44	QP
8	0.381	3.23	19.51	22.74	48.25	-25.51	Average
9	0.469	22.91	19.52	42.43	56.54	-14.11	QP
10	0.469	13.59	19.52	33.11	46.54	-13.43	Average
11	26.699	3.40	19.93	23.33	60.00	-36.67	QP
12	26.699	-1.93	19.93	18.00	50.00	-32.00	Average

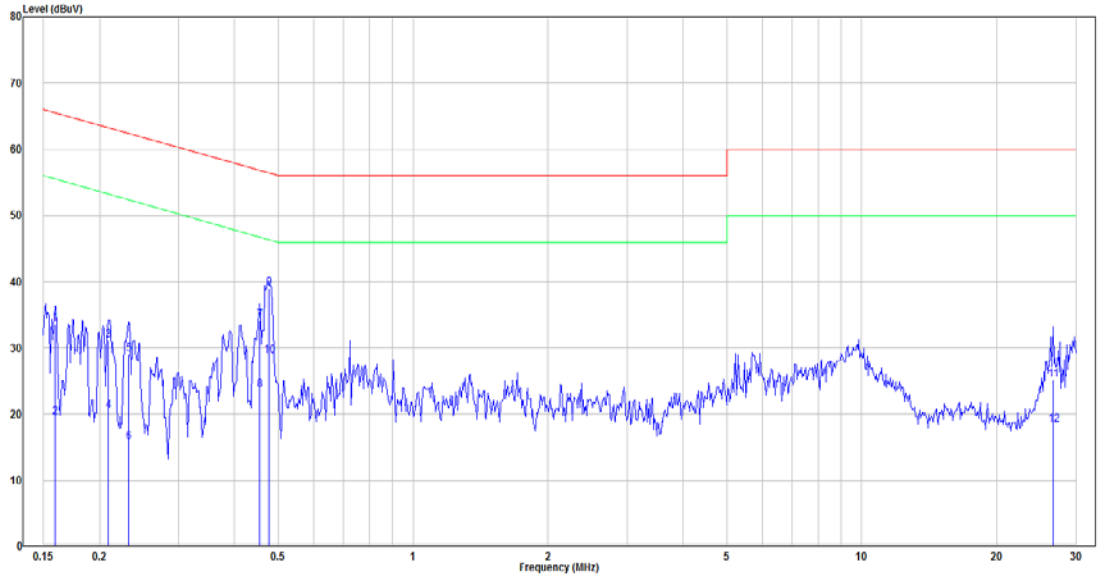
Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

Main: AC120 V, 60 Hz, Neutral



No.	Frequency	Reading	Correct	Result	Limit	Over limit	Remark
	(MHz)	(dBµV)	Factor(dB)	(dBµV)	(dBµV)	(dB)	
1	0.159	14.11	19.50	33.61	65.52	-31.91	QP
2	0.159	-0.01	19.50	19.49	55.52	-36.03	Average
3	0.209	11.70	19.49	31.19	63.23	-32.04	QP
4	0.209	0.93	19.49	20.42	53.23	-32.81	Average
5	0.232	9.62	19.49	29.11	62.39	-33.28	QP
6	0.232	-3.70	19.49	15.79	52.39	-36.60	Average
7	0.454	14.63	19.52	34.15	56.80	-22.65	QP
8	0.454	4.09	19.52	23.61	46.80	-23.19	Average
9	0.476	19.52	19.52	39.04	56.41	-17.37	QP
10	0.476	9.31	19.52	28.83	46.41	-17.58	Average
11	26.699	5.20	19.99	25.19	60.00	-34.81	QP
12	26.699	-1.53	19.99	18.46	50.00	-31.54	Average

Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

7 FCC §15.209, §15.205 , §15.249 - Radiated Emissions

7.1 Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

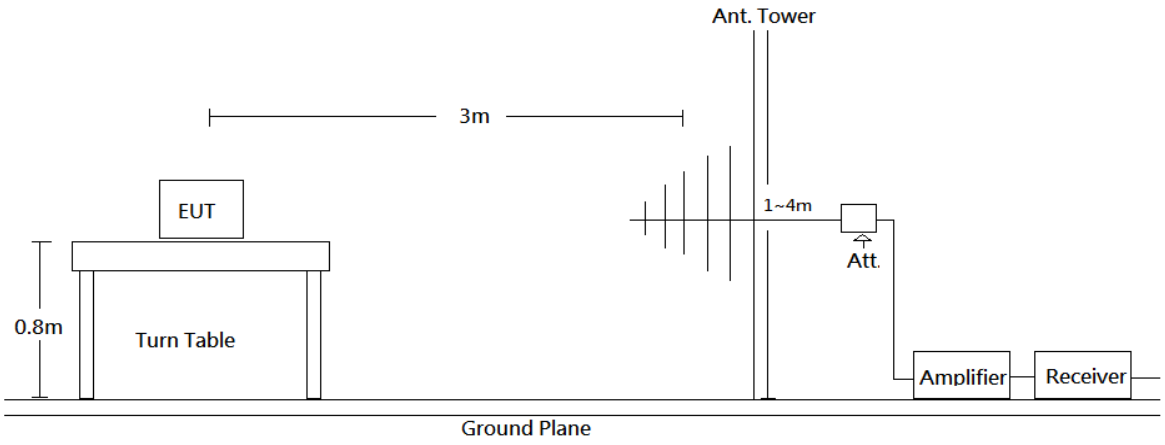
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (millivolts/meter)
920-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

7.2 EUT Setup

Below 1 GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.249 limits.

7.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 1 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

Frequency Range	RBW	VBW	Duty cycle	Measurement method
30-1000 MHz	120 kHz	/	/	QP

7.4 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz.

7.5 Corrected Factor & Margin Calculation

The Correct Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Result – Limit

7.6 Test Results

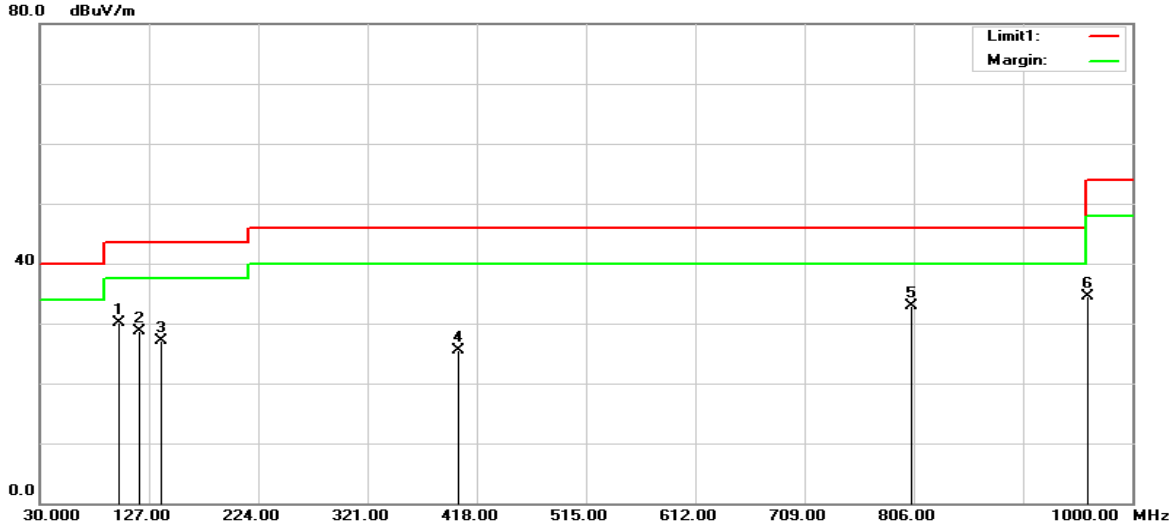
Test Mode: Transmitting

(Pre-scan with three orthogonal axis, and worse case as Y axis.)

30MHz-1GHz:

Mode 1

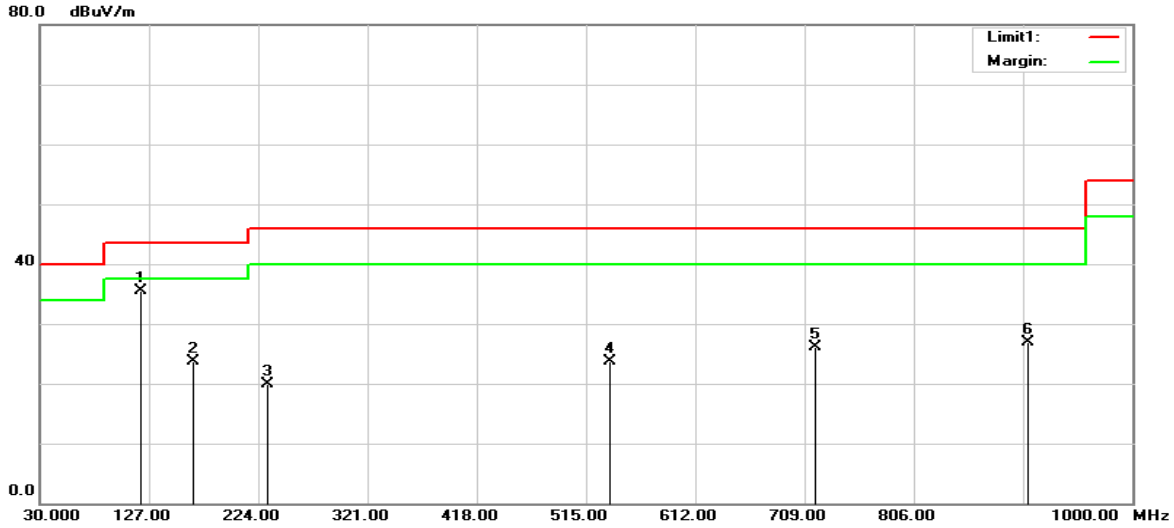
Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
99.8400	44.08	-14.06	30.02	43.50	-13.48	100	125	peak
118.2700	39.46	-10.69	28.77	43.50	-14.73	100	222	peak
137.6700	37.80	-10.66	27.14	43.50	-16.36	100	325	peak
401.5100	33.33	-7.86	25.47	46.00	-20.53	100	85	peak
804.0600	33.78	-0.93	32.85	46.00	-13.15	100	94	peak
960.2300	32.24	2.35	34.59	54.00	-19.41	100	106	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Vertical

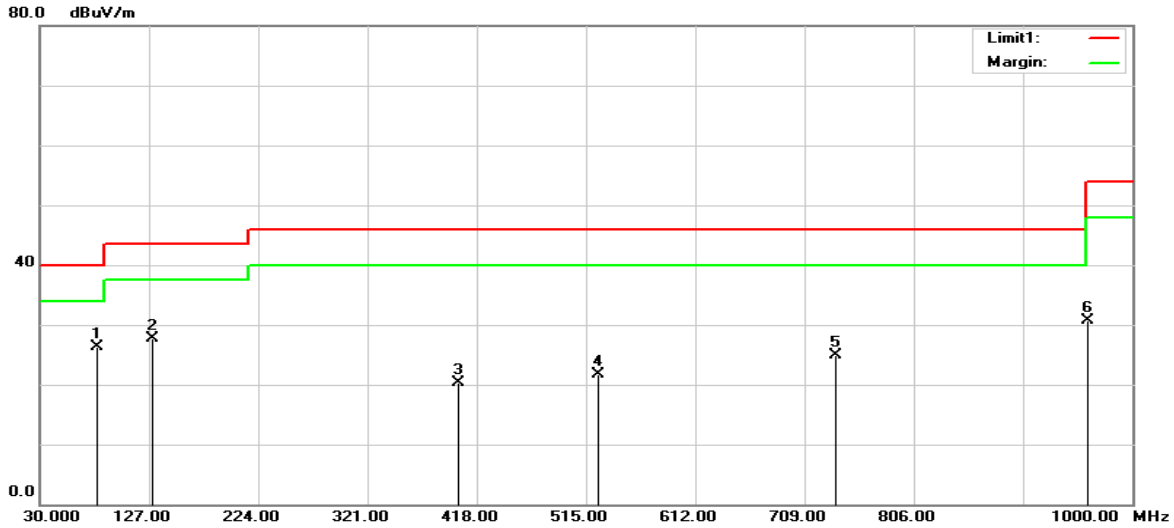


Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
120.2100	45.85	-10.27	35.58	43.50	-7.92	100	215	peak
165.8000	35.48	-11.71	23.77	43.50	-19.73	100	322	peak
231.7600	32.46	-12.58	19.88	46.00	-26.12	100	157	peak
536.3400	29.25	-5.64	23.61	46.00	-22.39	100	58	peak
718.7000	28.59	-2.56	26.03	46.00	-19.97	100	96	peak
907.8500	25.68	1.30	26.98	46.00	-19.02	100	113	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Mode 2

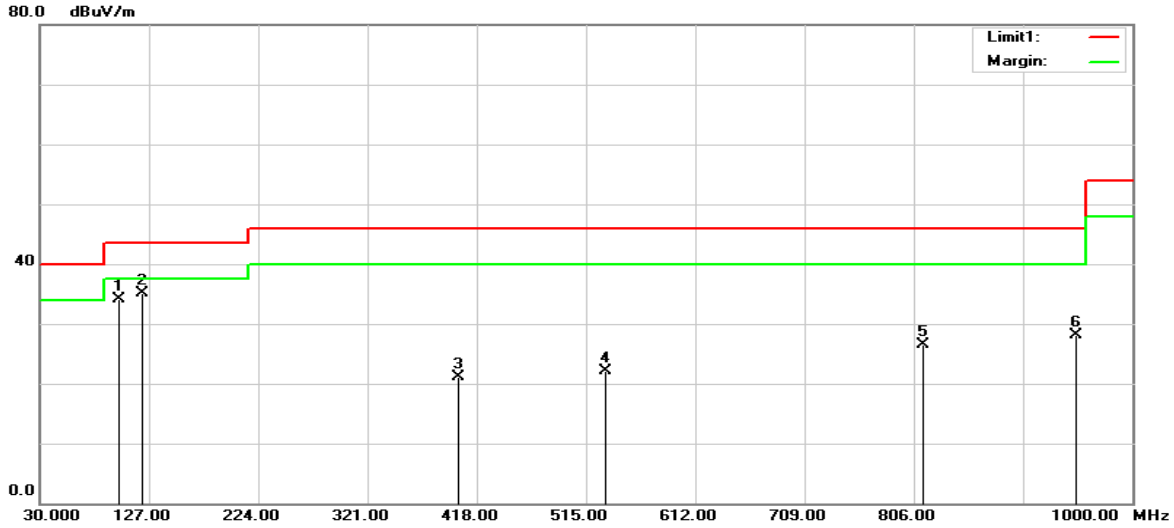
Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
81.4100	42.94	-16.62	26.32	40.00	-13.68	100	157	peak
129.9100	37.75	-10.13	27.62	43.50	-15.88	100	221	peak
401.5100	28.20	-7.86	20.34	46.00	-25.66	100	134	peak
525.6700	27.50	-5.72	21.78	46.00	-24.22	100	85	peak
737.1300	27.30	-2.42	24.88	46.00	-21.12	100	45	peak
960.2300	28.37	2.35	30.72	54.00	-23.28	100	341	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Vertical

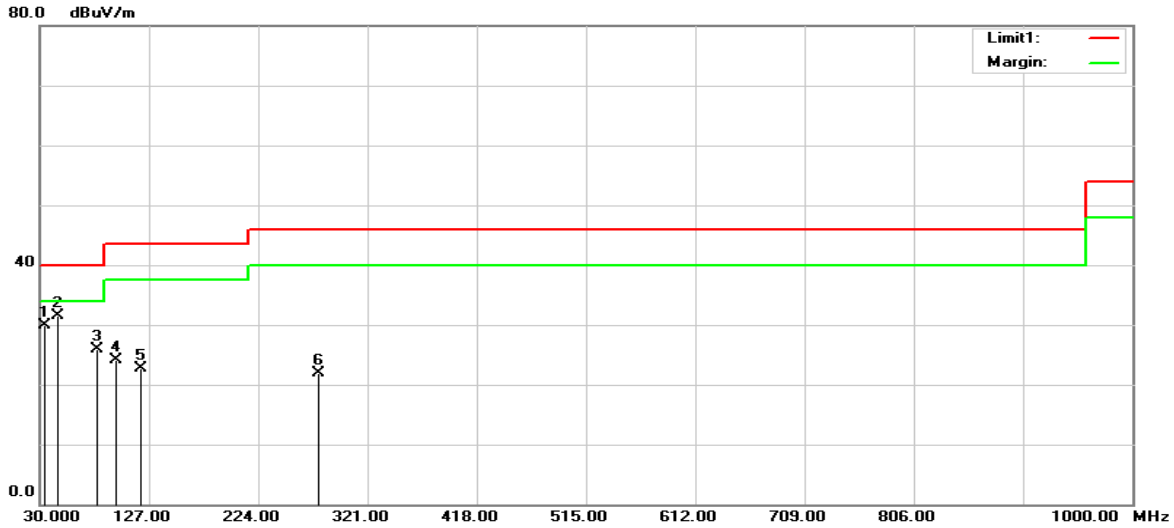


Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
99.8400	48.21	-14.06	34.15	43.50	-9.35	100	149	peak
121.1800	45.23	-10.21	35.02	43.50	-8.48	100	324	peak
401.5100	28.93	-7.86	21.07	46.00	-24.93	100	89	peak
532.4600	27.81	-5.64	22.17	46.00	-23.83	100	45	peak
814.7300	27.20	-0.75	26.45	46.00	-19.55	100	138	peak
949.5600	25.93	2.11	28.04	46.00	-17.96	100	214	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Mode 3

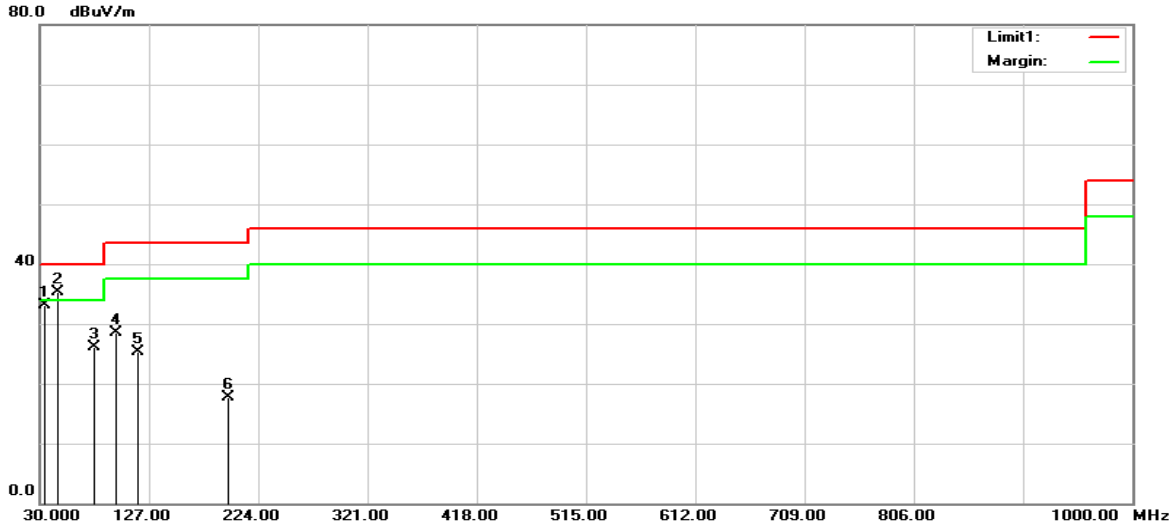
Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
34.8500	36.89	-7.01	29.88	40.00	-10.12	100	359	peak
45.5200	45.98	-14.45	31.53	40.00	-8.47	100	3	peak
81.4100	42.68	-16.80	25.88	40.00	-14.12	100	354	peak
97.9000	38.90	-14.87	24.03	43.50	-19.47	100	62	peak
120.2100	33.11	-10.48	22.63	43.50	-20.87	100	176	peak
277.3500	32.33	-10.45	21.88	46.00	-24.12	100	3	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Vertical

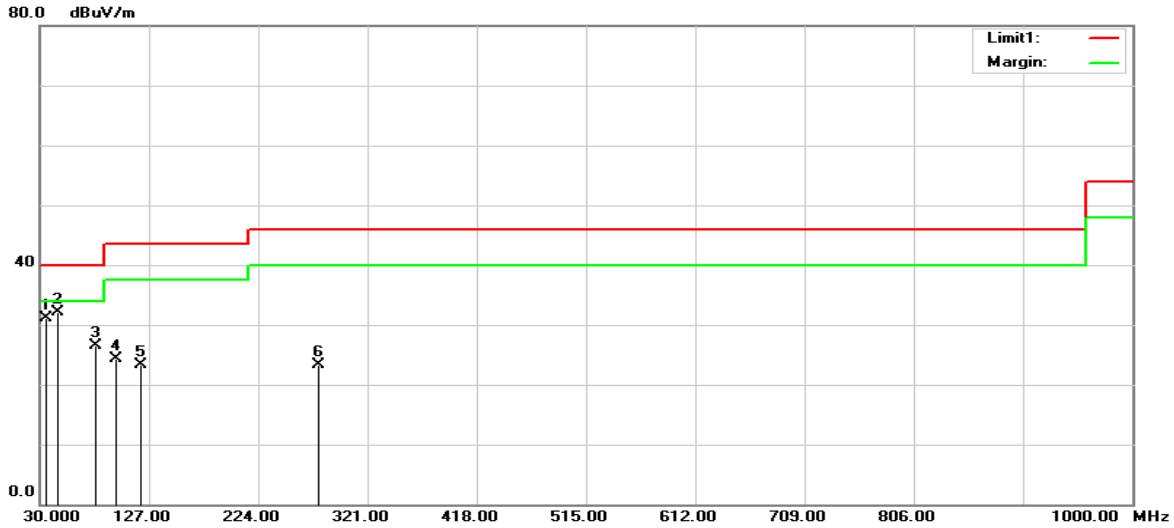


Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
34.8500	40.17	-7.01	33.16	40.00	-6.84	100	346	peak
45.5200	49.84	-14.45	35.39	40.00	-4.61	100	1	peak
78.5000	42.70	-16.61	26.09	40.00	-13.91	100	164	peak
97.9000	43.30	-14.87	28.43	43.50	-15.07	100	131	peak
117.3000	36.30	-10.91	25.39	43.50	-18.11	100	168	peak
196.8400	29.35	-11.68	17.67	43.50	-25.83	100	46	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Mode 4

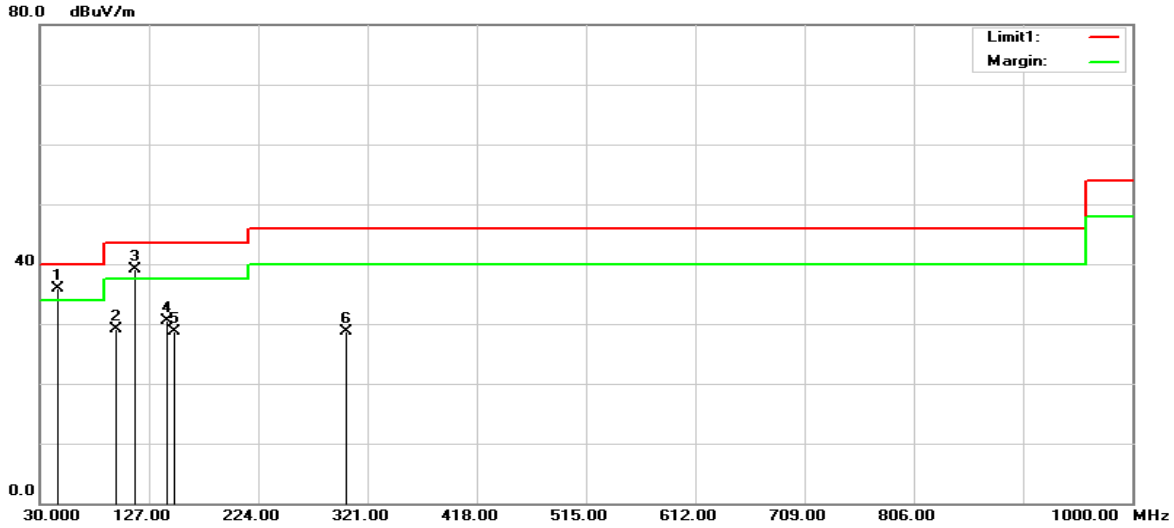
Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
35.8200	39.29	-8.24	31.05	40.00	-8.95	100	174	peak
45.5200	46.48	-14.45	32.03	40.00	-7.97	100	66	peak
79.4700	43.06	-16.61	26.45	40.00	-13.55	100	201	peak
97.9000	39.16	-14.87	24.29	43.50	-19.21	100	123	peak
120.2100	33.88	-10.48	23.40	43.50	-20.10	100	72	peak
277.3500	33.83	-10.45	23.38	46.00	-22.62	100	8	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Vertical

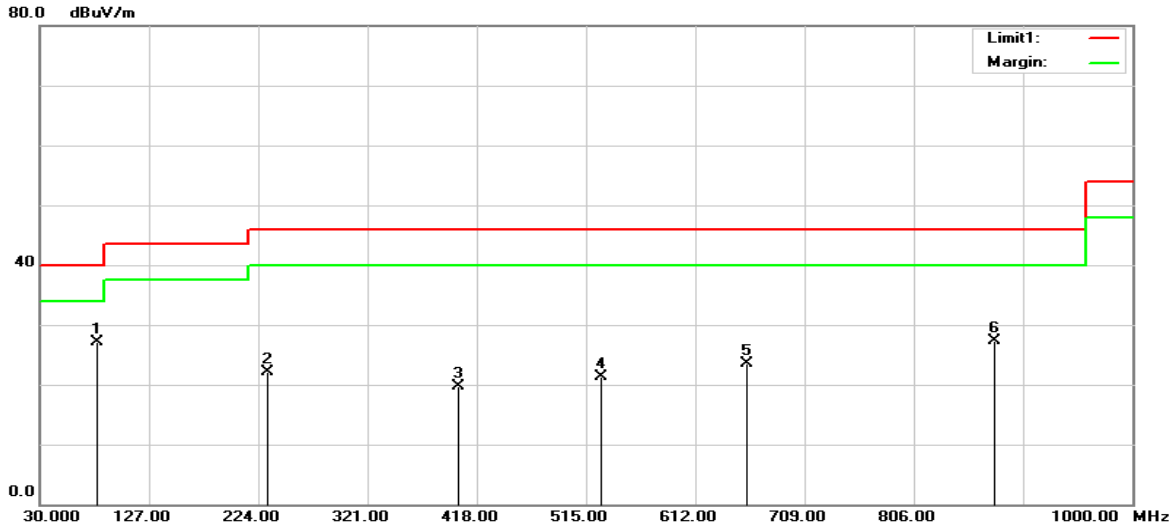


Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
45.5200	50.36	-14.45	35.91	40.00	-4.09	100	272	peak
97.9000	43.89	-14.87	29.02	43.50	-14.48	100	1	peak
114.3900	50.24	-11.18	39.06	43.50	-4.44	100	77	peak
142.5200	41.54	-11.00	30.54	43.50	-12.96	100	29	peak
149.3100	39.99	-11.37	28.62	43.50	-14.88	100	3	peak
302.5700	38.81	-10.20	28.61	46.00	-17.39	100	95	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Mode 5

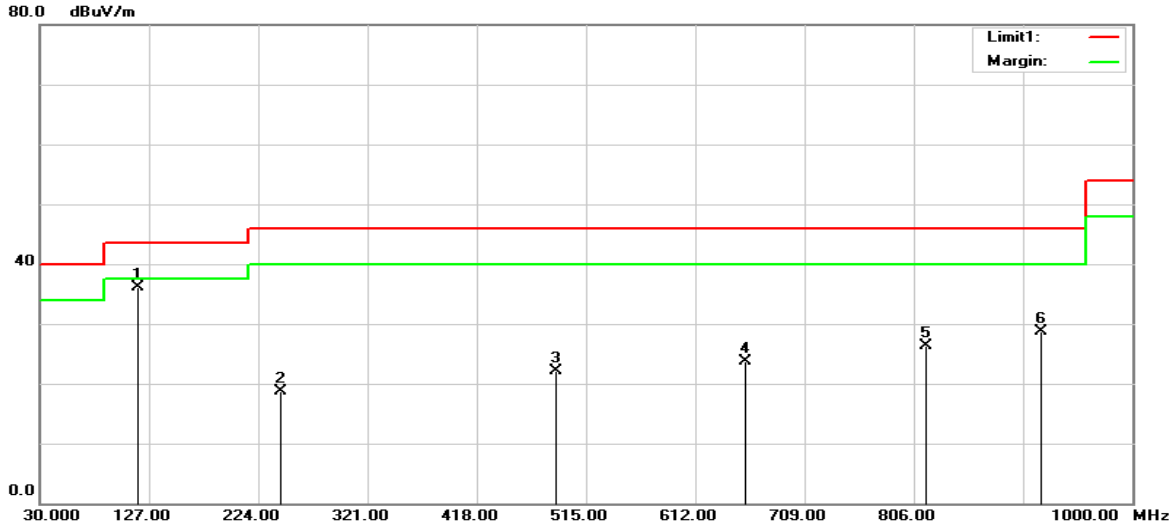
Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
81.4100	43.75	-16.62	27.13	40.00	-12.87	100	125	peak
231.7600	34.69	-12.58	22.11	46.00	-23.89	100	322	peak
401.5100	27.47	-7.86	19.61	46.00	-26.39	100	254	peak
528.5800	27.03	-5.66	21.37	46.00	-24.63	100	88	peak
657.5900	27.18	-3.67	23.51	46.00	-22.49	100	45	peak
877.7800	27.00	0.40	27.40	46.00	-18.60	100	135	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Vertical

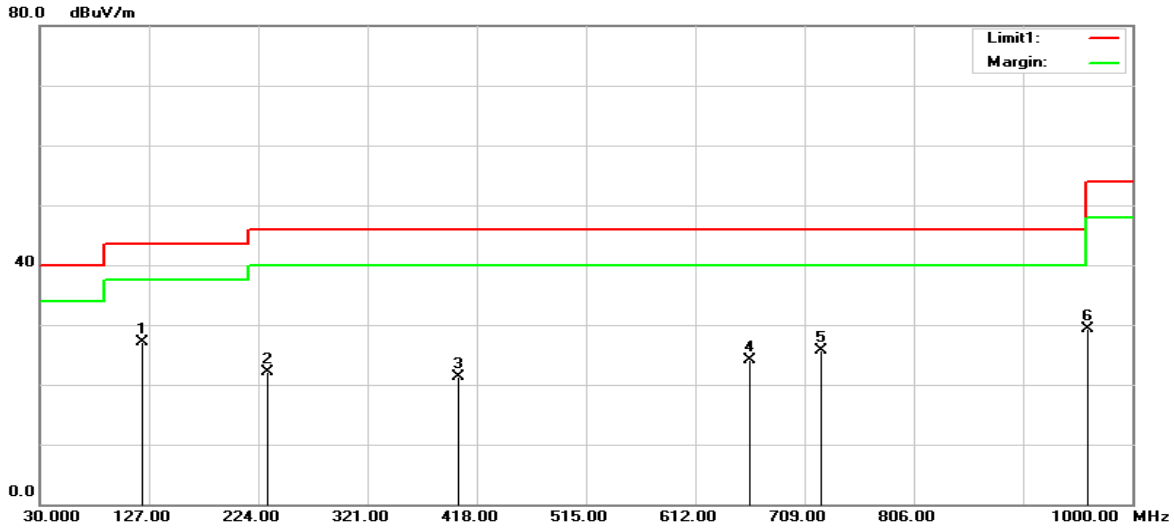


Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
117.3000	46.76	-10.73	36.03	43.50	-7.47	100	125	peak
244.3700	31.01	-12.23	18.78	46.00	-27.22	100	258	peak
487.8400	27.96	-5.83	22.13	46.00	-23.87	100	328	peak
656.6200	27.44	-3.67	23.77	46.00	-22.23	100	55	peak
816.6700	26.92	-0.71	26.21	46.00	-19.79	100	42	peak
919.4900	27.02	1.61	28.63	46.00	-17.37	100	228	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Mode 6

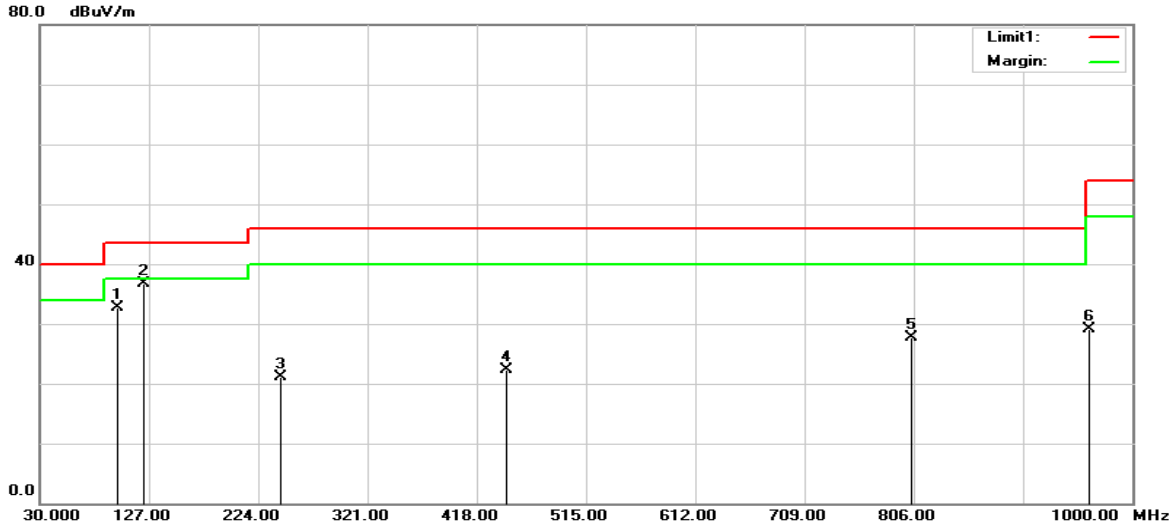
Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
121.1800	37.24	-10.21	27.03	43.50	-16.47	100	128	peak
232.7300	34.57	-12.54	22.03	46.00	-23.97	100	134	peak
401.5100	29.15	-7.86	21.29	46.00	-24.71	100	258	peak
660.5000	27.75	-3.64	24.11	46.00	-21.89	100	354	peak
723.5500	28.09	-2.44	25.65	46.00	-20.35	100	86	peak
960.2300	27.03	2.35	29.38	54.00	-24.62	100	79	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

Vertical

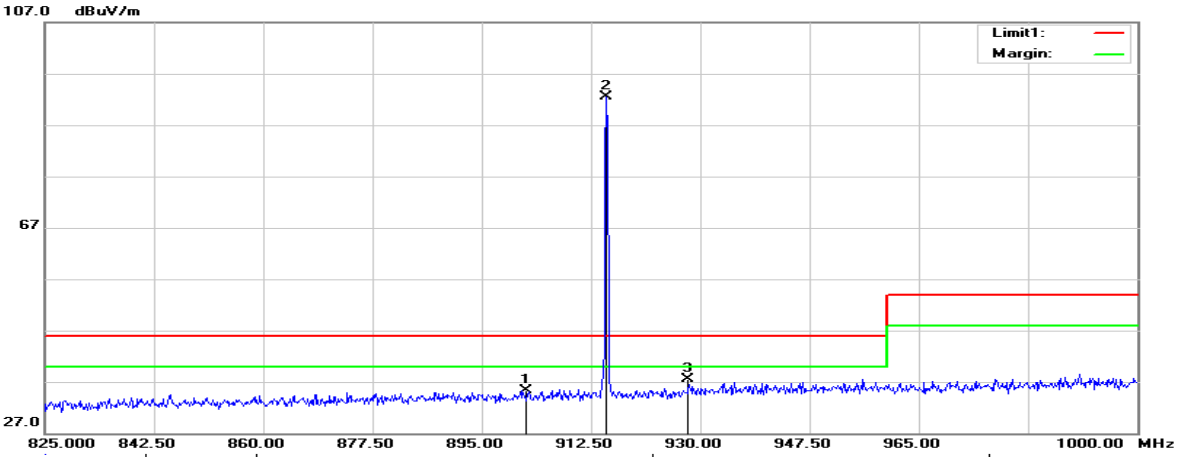


Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
98.8700	47.24	-14.59	32.65	43.50	-10.85	100	324	peak
122.1500	47.33	-10.72	36.61	43.50	-6.89	100	166	peak
243.4000	33.30	-12.23	21.07	46.00	-24.93	100	28	peak
444.1900	28.96	-6.61	22.35	46.00	-23.65	100	67	peak
804.0600	28.61	-0.93	27.68	46.00	-18.32	100	289	peak
962.1700	26.64	2.38	29.02	54.00	-24.98	100	145	peak

Result = Reading + Correct Factor
Margin = Result – Limit
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain
Spurious emissions more than 20 dB below the limit were not reported.

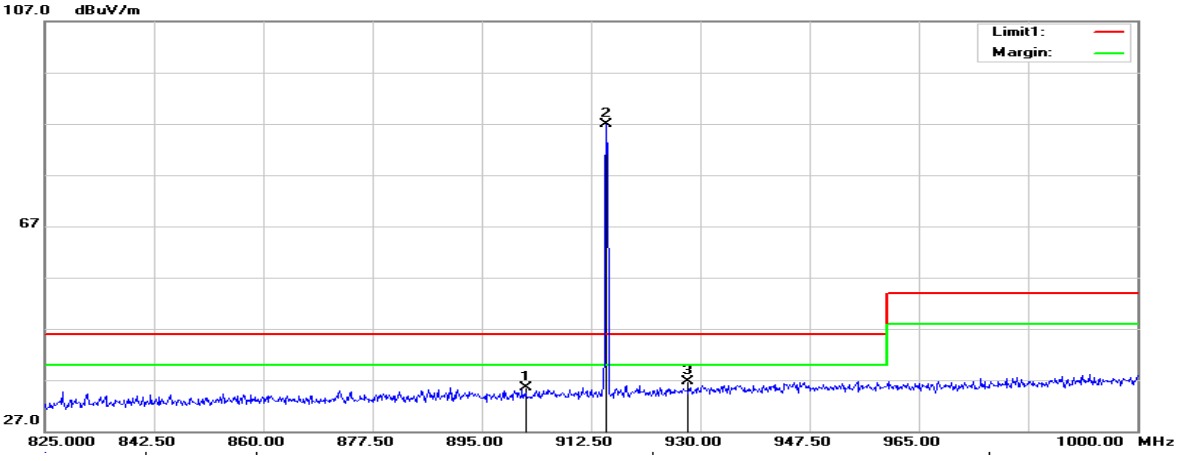
Fundamental:

Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
902.0000	30.03	5.33	35.36	46.00	-10.64	150	75	QP
915.0000	86.92	5.61	92.53	94.00	-1.47	150	206	QP
928.0000	31.27	6.22	37.49	46.00	-8.51	150	236	QP

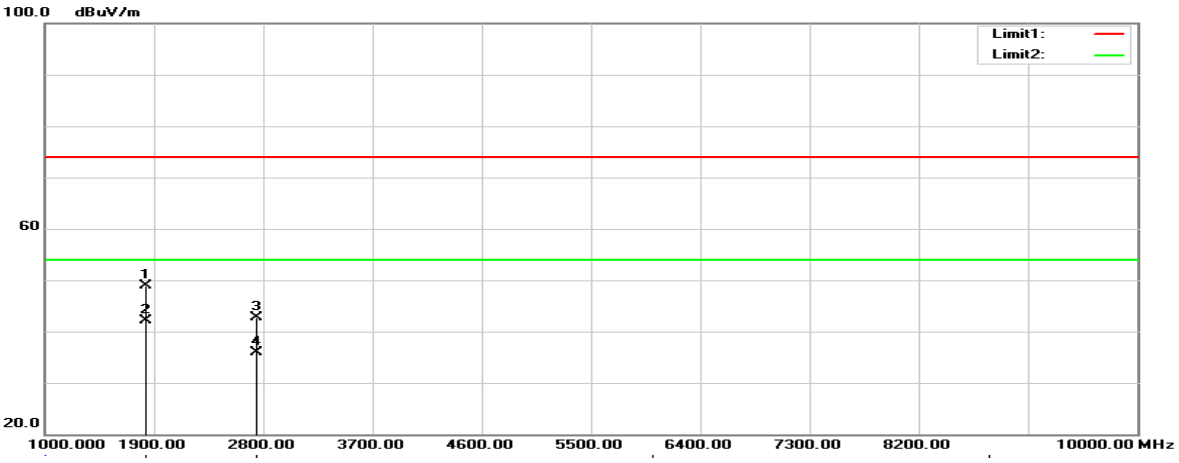
Vertical



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
902.0000	30.09	5.33	35.42	46.00	-10.58	150	27	QP
915.0000	81.31	5.61	86.92	94.00	-7.08	150	246	QP
928.0000	30.41	6.22	36.63	46.00	-9.37	150	14	QP

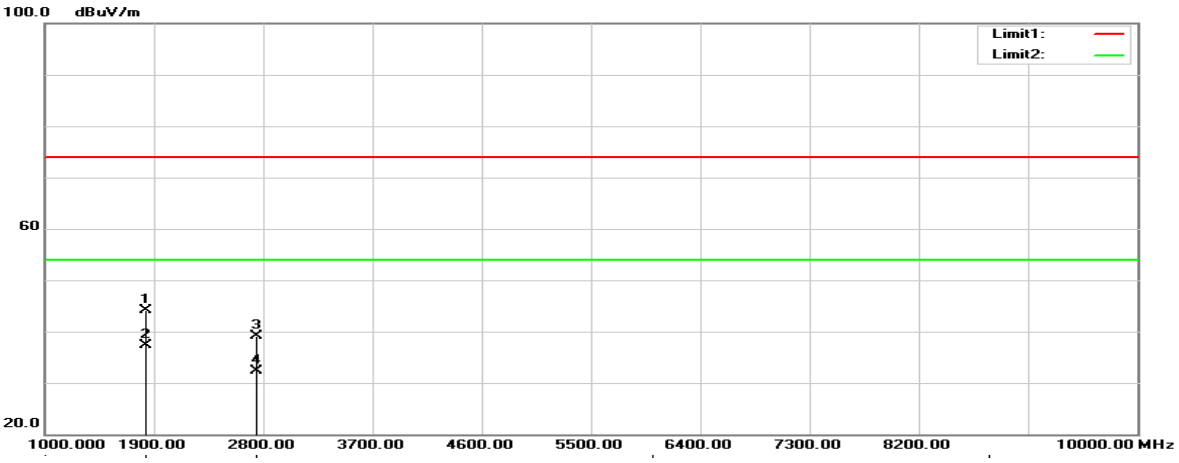
1GHz-10GHz:

Horizontal



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1830.000	61.53	-12.54	48.99	74.00	-25.01	150	212	peak
1830.000	54.67	-12.54	42.13	54.00	-11.87	150	212	AVG
2745.000	51.18	-8.40	42.78	74.00	-31.22	150	135	peak
2745.000	44.33	-8.40	35.93	54.00	-18.07	150	135	AVG

Vertical



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1830.000	56.68	-12.54	44.14	74.00	-29.86	150	227	peak
1830.000	49.83	-12.54	37.29	54.00	-16.71	150	227	AVG
2745.000	47.43	-8.40	39.03	74.00	-34.97	150	148	peak
2745.000	40.76	-8.40	32.36	54.00	-21.64	150	148	AVG

******* END OF REPORT *******