

FCC Test Report

Product Name	Music & Story Player
Model No.	J2000
FCC ID	2ANI9-MN02A

Applicant	Muuselabs NV
Address	Rue du Tocsin 12, 1000 Brussels, Belgium

Date of Receipt	Apr. 20, 2021
Issued Date	May 24, 2021
Report No.	2140646R-E3032110103
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

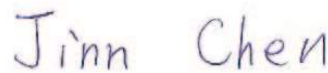
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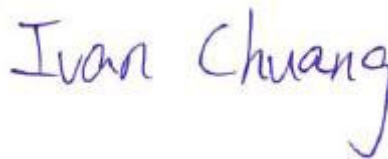
Product Name	Music & Story Player
Applicant	Muuselabs NV
Address	Rue du Tocsin 12, 1000 Brussels, Belgium
Manufacturer	Muuselabs NV
Model No.	J2000
FCC ID.	2ANI9-MN02A
EUT Rated Voltage	DC 5V (Power by USB) or DC 3.7V (Power by Battery)
EUT Test Voltage	DC 5V (Power by USB)
Trade Name	Jooki
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Jinn Chen)

Tested By :



(Senior Engineer / Ivan Chuang)

Approved By :



(Director / Vincent Lin)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	5
1.1. EUT Description.....	5
1.2. Tested System Details.....	6
1.3. Configuration of tested System	6
1.4. EUT Exercise Software	6
1.5. Test Facility	7
1.6. List of Test Equipment	8
1.7. Uncertainty	9
2. Conducted Emission.....	10
2.1. Test Setup	10
2.2. Limits	10
2.3. Test Procedure	11
2.4. Test Result of Conducted Emission.....	12
3. Radiated Emission.....	14
3.1. Test Setup	14
3.2. Limits	15
3.3. Test Procedure	16
3.4. Test Result of Radiated Emission.....	17
4. Band Edge	27
4.1. Test Setup	27
4.2. Limits	27
4.3. Test Procedure	27
4.4. Test Result of Band Edge	28
5. 20dB Bandwidth	30
5.1. Test Setup	30
5.2. Limits	30
5.3. Test Procedure	30
5.4. Test Result of 20dB Bandwidth.....	31
6. Frequency Tolerance	32
6.1. Test Setup	32
6.2. Limits	32
6.3. Test Procedure	32
6.4. Test Result of Frequency Stability.....	33
7. EMI Reduction Method During Compliance Testing	35
Attachment 1: EUT Test Photographs	
Attachment 2: EUT Detailed Photographs	

Revision History

Report No.	Version	Description	Issued Date
2140646R-E3032110103	V1.0	Initial issue of report.	May 24, 2021

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Music & Story Player
Trade Name	Jooki
Model No.	J2000
FCC ID	2ANI9-MN02A
Frequency Range	13.56MHz
Modulation	ASK
Antenna Type	Loop Antenna

Frequency of Each Channel:

Channel	Frequency
Channel 1:	13.56 MHz

Note:

1. This device is a Music & Story Player with a built-in 13.56MHz transceiver.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.225.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode	Mode 1: Transmit
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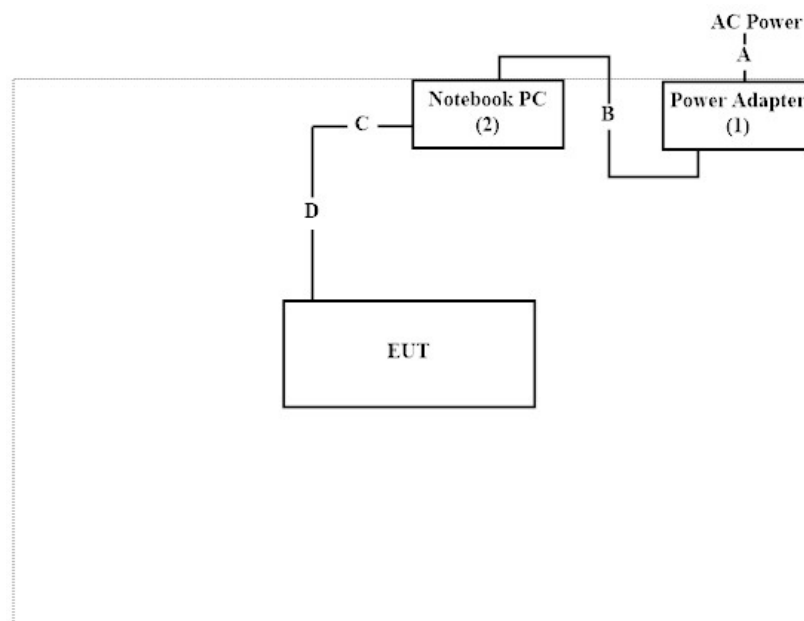
1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Power Adapter	N/A	N/A	N/A	N/A
2 Notebook PC	DELL	Latitude 5580	GDZN7H2	Non-Shielded, 0.8m

Signal Cable Type	Signal cable Description
A Power Cable	Non-shielded, 1.8m
B Power Cable	Non-shielded, 1.8m
C USB Cable	Shielded, 1.8m
D USB Cable	Non-shielded, 0.5m

1.3. Configuration of tested System



1.4. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.3.
- (2) Turn on the power of all equipment.
- (3) Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 °C	30°C
	Humidity (%RH)	10~90 %	64.5%
Radiated Emission	Temperature (°C)	10~40 °C	24.5 °C
	Humidity (%RH)	10~90 %	68.2 %
Conductive	Temperature (°C)	10~40 °C	29.8 °C
	Humidity (%RH)	10~90 %	59.0 %

USA : FCC Registration Number: TW0031,TW0033

Canada : IC Registration Number: 26443,26930

Site Description : Accredited by TAF
Accredited Number: 3023

For Conducted measurements

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City
Phone number : 886-2-2602-7968
Fax number : 866-2-2602-3286
Email address : info.tw@dekra.com
Website : <http://www.dekra.com.tw>

For Radiated measurements

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 6, Lane 75, Wenlin St., Linkou Dist.,
New Taipei City 24457, Taiwan, R.O.C.
Phone number : 886-2-2602-7968
Fax number : 866-2-2602-3286
Email address : info.tw@dekra.com
Website : <http://www.dekra.com.tw>

1.6. List of Test Equipment

For Conduction measurements /SH1

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	EMI Test Receiver	R&S	ESR7	101601	2021.01.04	2022.01.03
X	Two-Line V-Network	R&S	ENV216	101306	2021.04.08	2022.04.07
X	Two-Line V-Network	R&S	ENV216	101307	2021.05.04	2022.05.03
X	Coaxial Cable	Quietek	RG400_BNC	RF001	2021.05.24	2022.05.23

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0.

For Conducted measurements /SH2

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Temperature Chamber	KSON	THS-D4T-100	A0606	2020.04.22	2021.04.21
X	Spectrum Analyzer	R&S	FSV40	101149	2019.12.16	2020.12.15

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.5.

For Radiated measurements /AC3

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	56736	2021.04.14	2022.04.13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	01125	2020.07.31	2021.07.30
	Horn Antenna	ETS-Lindgren	3117	00227700	2020.11.03	2021.11.02
	Horn Antenna	Com-Power	AH-840	10090014	2020.08.05	2021.08.04
X	Pre-Amplifier	EMCI	EMC001330	060736	2020.08.03	2021.08.02
	Pre-Amplifier	EMCI	EMC051835SE	20200701	2020.08.03	2021.08.02
	Pre-Amplifier	EMCI	EMC05820SE	20200703	2020.08.03	2021.08.02
	Pre-Amplifier	EMCI	EMC184045SE	20200705	2020.08.04	2021.08.03
	Filter	MICRO TRONICS	BRM50702	G249	2020.08.25	2021.08.24
	Filter	MICRO TRONICS	BRM50716	G187	2020.08.25	2021.08.24
X	EMI Test Receiver	R&S	ESR7	102792	2020.12.15	2021.12.14
X	Spectrum Analyzer	R&S	FSV40	101894	2021.03.10	2022.03.09
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF003	2020.09.18	2021.09.17
	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2020.06.10	2021.06.09

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0.

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

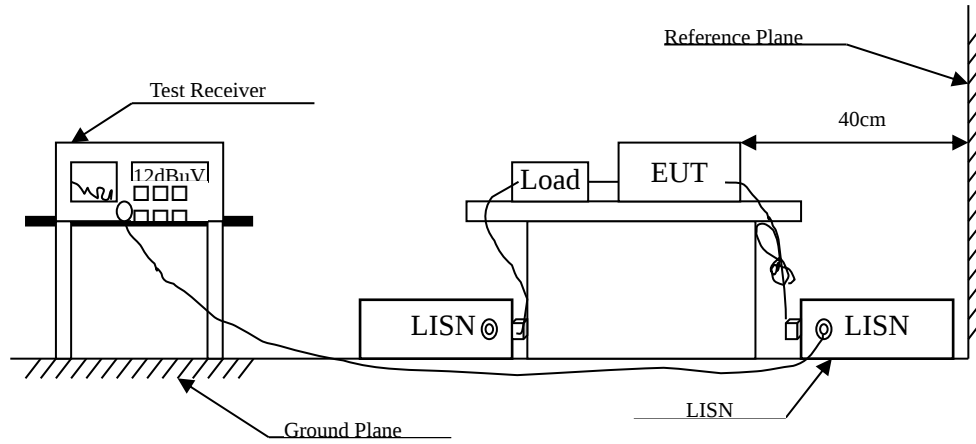
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	Uncertainty	
Conducted Emission	± 3.42 dB	
Radiated Emission	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
Band Edge	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
20dB Bandwidth	± 682.83 Hz	
Frequency Tolerance	± 682.83 Hz	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56 ^(註)	56-46 ^(註)
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

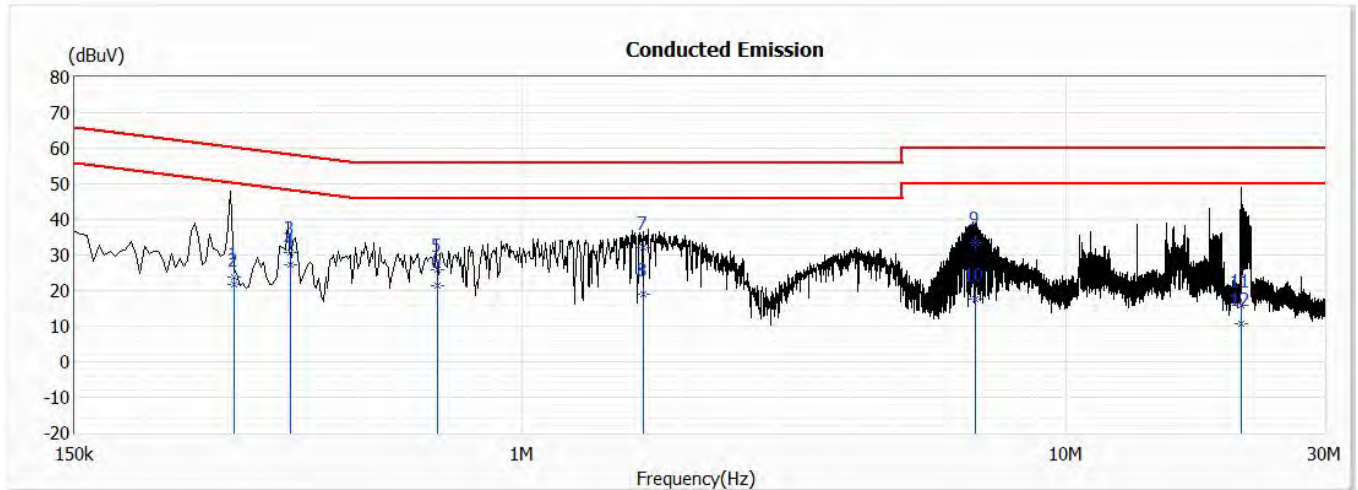
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Test Result of Conducted Emission

Product : Music & Story Player
 Test Item : Conducted Emission Test
 Power Line : L 1
 Test Mode : Mode 1: Transmit
 Test Date : 2021/05/21

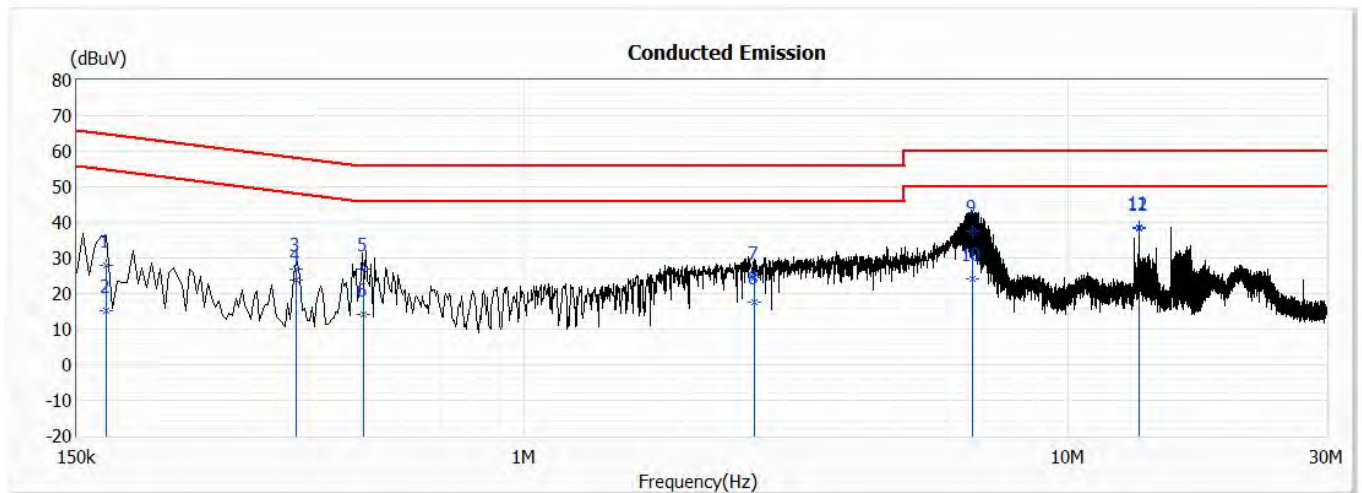


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.294	23.88	60.40	-36.52	14.23	9.65	QP
2	0.294	21.85	50.40	-28.55	12.20	9.65	AV
3	0.374	30.65	58.41	-27.76	20.99	9.66	QP
*4	0.374	27.27	48.41	-21.14	17.61	9.66	AV
5	0.698	25.69	56.00	-30.31	16.02	9.67	QP
6	0.698	21.21	46.00	-24.79	11.54	9.67	AV
7	1.672	32.06	56.00	-23.94	22.35	9.71	QP
8	1.672	18.88	46.00	-27.12	9.17	9.71	AV
9	6.823	33.53	60.00	-26.47	23.70	9.83	QP
10	6.823	17.42	50.00	-32.58	7.59	9.83	AV
11	21.028	15.76	60.00	-44.24	5.79	9.97	QP
12	21.028	10.74	50.00	-39.26	0.77	9.97	AV

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Music & Story Player
 Test Item : Conducted Emission Test
 Power Line : N
 Test Mode : Mode 1: Transmit
 Test Date : 2021/05/21



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.170	28.06	64.95	-36.89	18.39	9.67	QP
2	0.170	15.22	54.95	-39.73	5.55	9.67	AV
3	0.380	26.87	58.28	-31.41	17.20	9.67	QP
4	0.380	23.84	48.28	-24.44	14.17	9.67	AV
5	0.505	26.90	56.00	-29.10	17.23	9.67	QP
6	0.505	14.05	46.00	-31.95	4.38	9.67	AV
7	2.648	24.50	56.00	-31.50	14.76	9.74	QP
8	2.648	17.46	46.00	-28.54	7.72	9.74	AV
9	6.684	37.73	60.00	-22.27	27.88	9.85	QP
10	6.684	24.26	50.00	-25.74	14.41	9.85	AV
11	13.559	38.52	60.00	-21.48	28.55	9.97	QP
*12	13.559	38.40	50.00	-11.60	28.43	9.97	AV

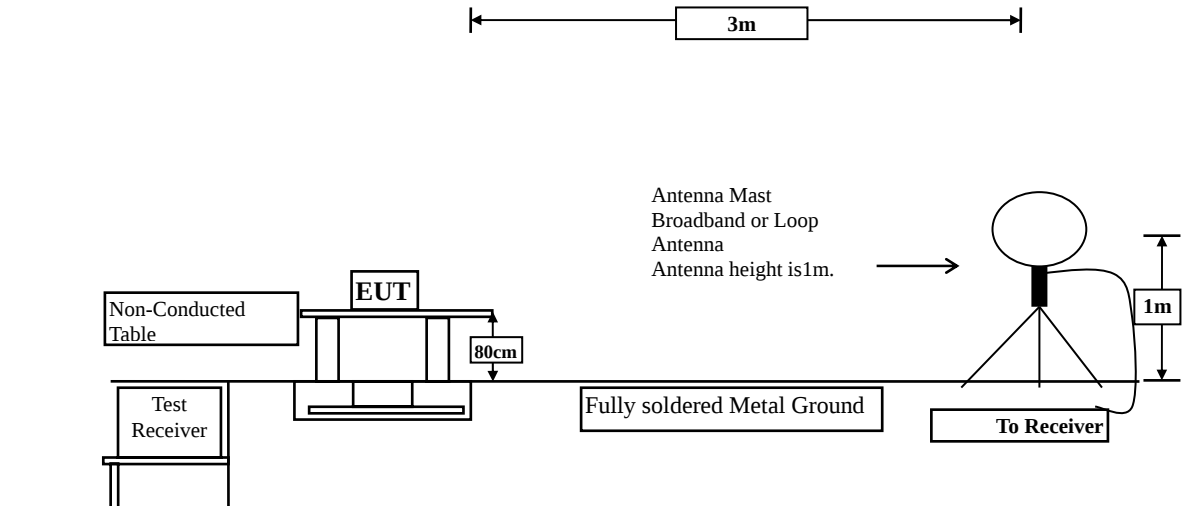
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

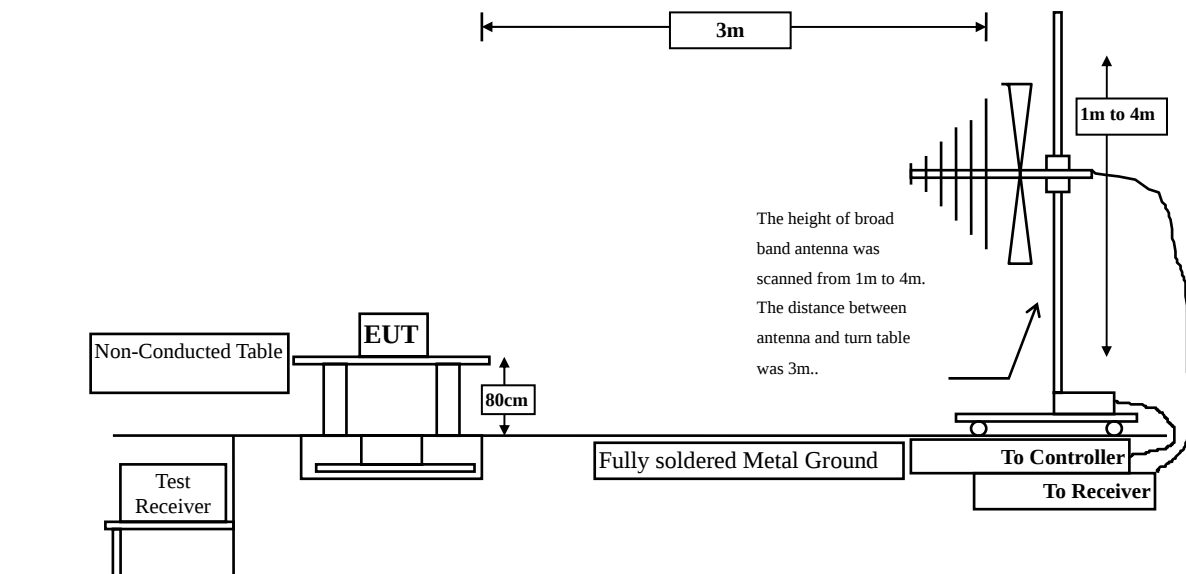
3. Radiated Emission

3.1. Test Setup

Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



3.2. Limits

➤ Fundamental electric field strength Limit

FCC Part 15 Subpart C Paragraph 15.225 Limits				
Fundamental Frequency MHz	Field strength of fundamental			
	uV/m	Distance (meter)	dBuV/m	Distance (meter)
13.553 – 13.567	15848	30	124	3
13.410 – 13.553 and 13.567 – 13.710	334	30	90.47	3
13.110 – 13.410 and 13.710 – 14.010	106	30	80.50	3
Outside of the 13.110 – 14.010	See 15.209 Limits			

Remarks :

1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. The emission limit in this paragraph is based on measurement instrumentation employing an quasi-peak detector.

➤ Spurious electric field strength Limit

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks :

1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.3. Test Procedure

Fundamental electric field strength:

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum electric field strength.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna which is 1 meter above ground. All X-axis, Y-axis and Z-axis polarization of the antenna are set on measurement.

Spurious electric field strength:

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

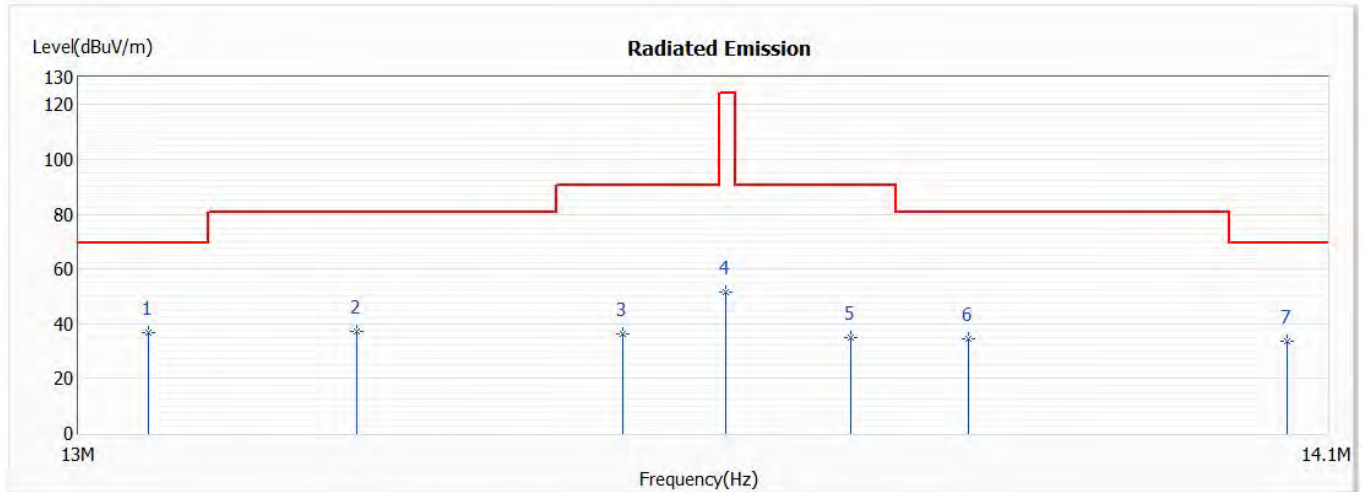
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth below 30MHz setting on the field strength meter is 9kHz and above 30MHz is 120kHz. The frequency range from 9kHz to 10th harmonics is checked.

3.4. Test Result of Radiated Emission

Product : Music & Story Player
 Test Item : Fundamental Radiated Emission
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Horizontal_X-axis



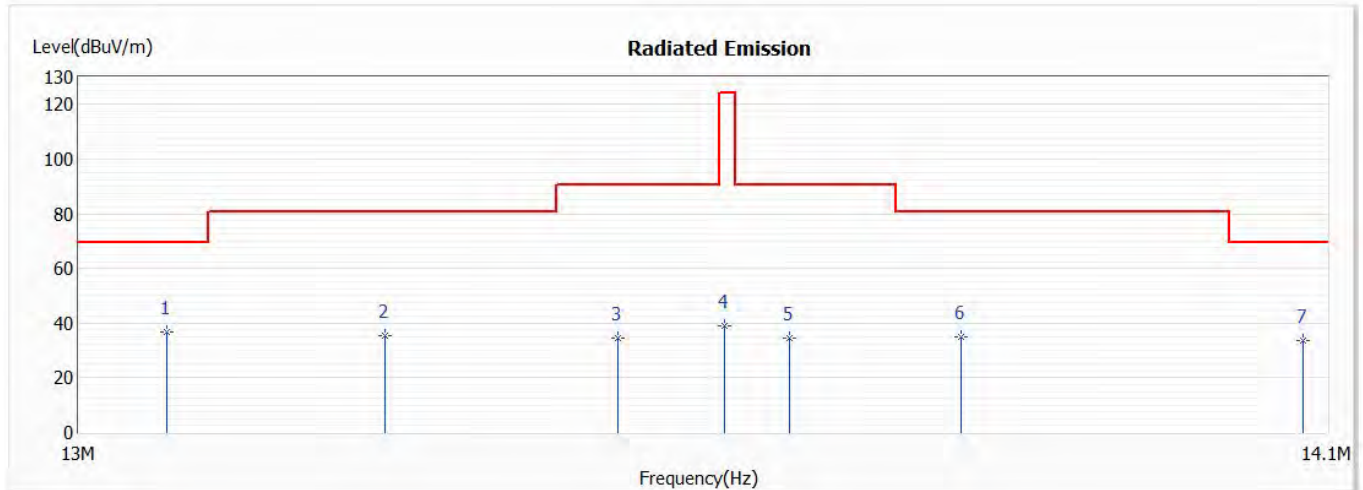
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.059	36.69	69.50	-32.81	16.35	20.34	QP
2	13.237	37.19	80.50	-43.31	16.92	20.27	QP
3	13.468	36.39	90.47	-54.08	16.22	20.17	QP
4	13.559	51.42	124.00	-72.58	31.28	20.14	QP
5	13.669	35.16	90.47	-55.31	15.07	20.09	QP
6	13.774	34.73	80.50	-45.77	14.68	20.05	QP
7	14.063	33.48	69.50	-36.02	13.52	19.96	QP

Note:

1. Fundamental Limit = $84 \text{ dBuV/m} + 40 \cdot \log(30 \text{ m} / 3 \text{ m}) = 124 \text{ dBuV/m}$
2. All Readings below 1GHz are Quasi-Peak, above are average value.
3. "*" means the worst emission level.
4. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : Fundamental Radiated Emission
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Vertical_X-axis



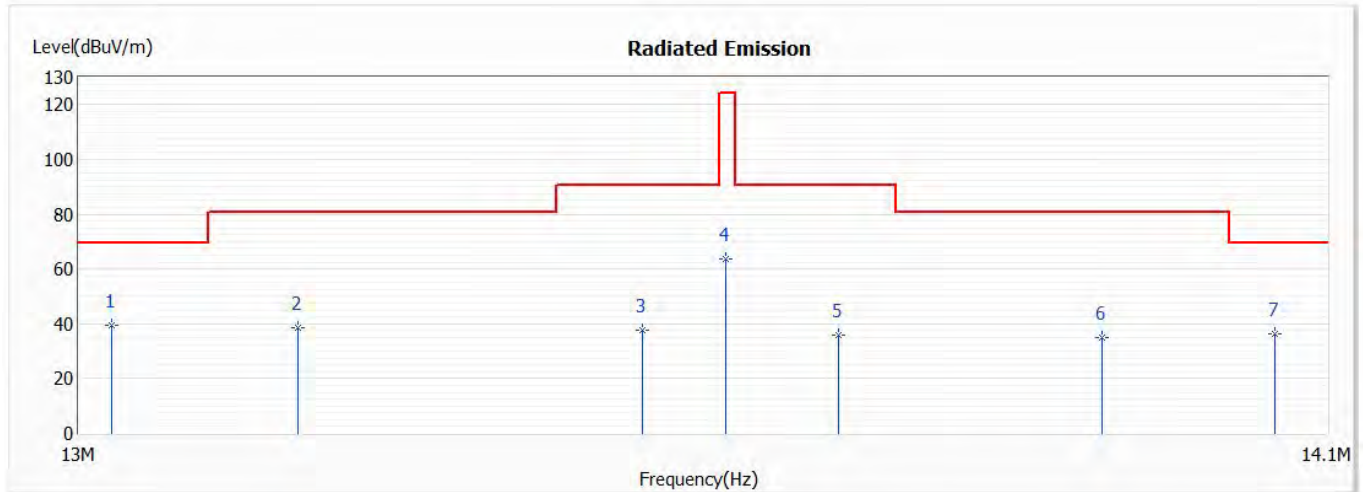
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.075	36.56	69.50	-32.94	16.23	20.33	QP
2	13.262	35.32	80.50	-45.18	15.06	20.26	QP
3	13.464	34.35	90.47	-56.12	14.18	20.17	QP
4	13.558	38.96	124.00	-85.04	18.82	20.14	QP
5	13.615	34.56	90.47	-55.91	14.45	20.11	QP
6	13.768	34.90	80.50	-45.60	14.85	20.05	QP
7	14.077	33.53	69.50	-35.97	13.57	19.96	QP

Note:

1. Fundamental Limit=84dBuV/m + 40*Log (30(m)/3(m))=124dBuV/m
2. All Readings below 1GHz are Quasi-Peak, above are average value.
3. "*" means the worst emission level.
4. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : Fundamental Radiated Emission
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Horizontal_Y-axis

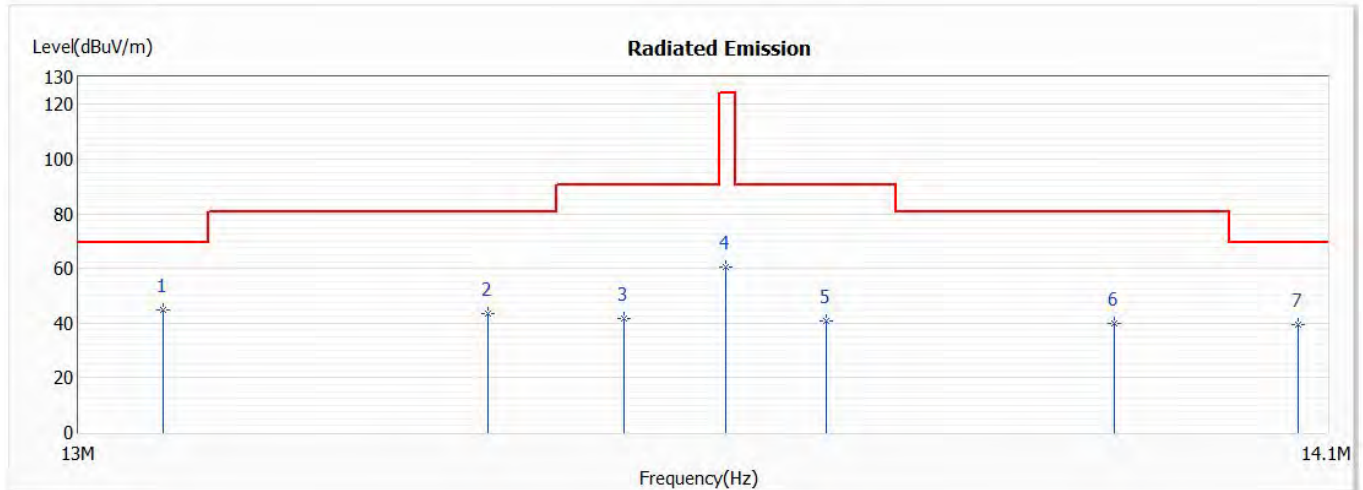


Note:

1. Fundamental Limit=84dBuV/m + 40*Log (30(m)/3(m))=124dBuV/m
2. All Readings below 1GHz are Quasi-Peak, above are average value.
3. "*" means the worst emission level.
4. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : Fundamental Radiated Emission
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Vertical_Y-axis



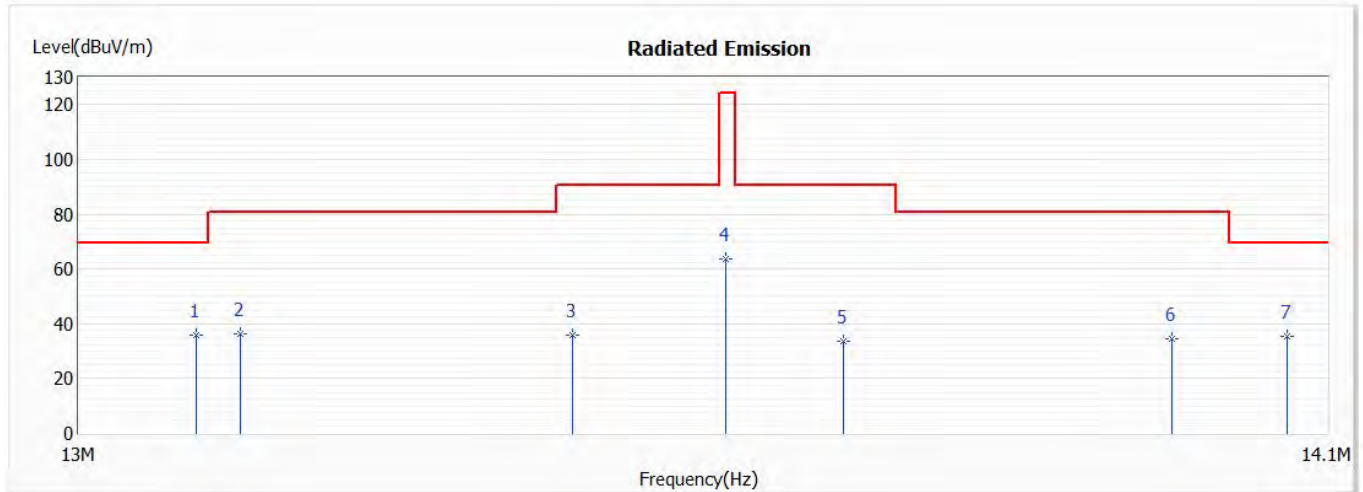
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.072	44.95	69.50	-24.55	24.62	20.33	QP
2	13.351	43.53	80.50	-36.97	23.31	20.22	QP
3	13.469	41.56	90.47	-48.91	21.39	20.17	QP
4	13.559	60.64	124.00	-63.36	40.50	20.14	QP
5	13.648	40.87	90.47	-49.60	20.77	20.10	QP
6	13.906	39.81	80.50	-40.69	19.81	20.00	QP
7	14.073	39.53	69.50	-29.97	19.57	19.96	QP

Note:

1. Fundamental Limit=84dBuV/m + 40*Log (30(m)/3(m))=124dBuV/m
2. All Readings below 1GHz are Quasi-Peak, above are average value.
3. "*" means the worst emission level.
4. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : Fundamental Radiated Emission
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Horizontal_Z-axis



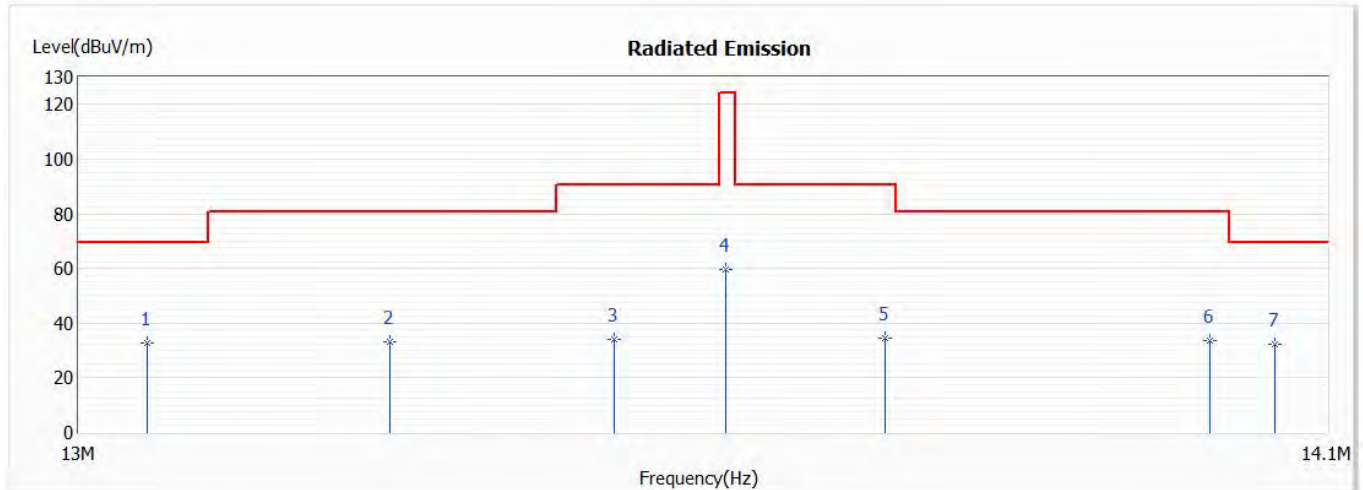
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.100	36.06	69.50	-33.44	15.74	20.32	QP
2	13.138	36.42	80.50	-44.08	16.12	20.30	QP
3	13.424	36.08	90.47	-54.39	15.89	20.19	QP
4	13.559	63.52	124.00	-60.48	43.38	20.14	QP
5	13.663	33.74	90.47	-56.73	13.65	20.09	QP
6	13.958	34.68	80.50	-45.82	14.70	19.98	QP
7	14.063	35.20	69.50	-34.30	15.24	19.96	QP

Note:

1. Fundamental Limit = $84 \text{ dBuV/m} + 40 \cdot \log(30 \text{ m} / 3 \text{ m}) = 124 \text{ dBuV/m}$
2. All Readings below 1GHz are Quasi-Peak, above are average value.
3. "*" means the worst emission level.
4. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : Fundamental Radiated Emission
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Vertical_Z-axis



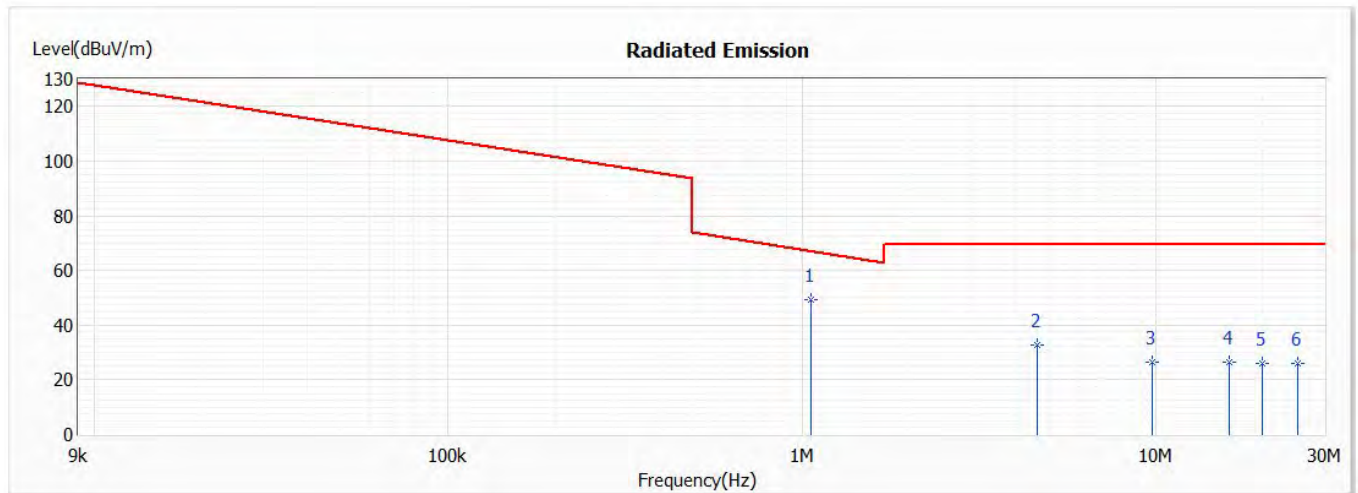
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.058	32.73	69.50	-36.77	12.39	20.34	QP
2	13.266	33.21	80.50	-47.29	12.96	20.25	QP
3	13.461	34.08	90.47	-56.39	13.90	20.18	QP
4	13.559	59.70	124.00	-64.30	39.56	20.14	QP
5	13.700	34.55	90.47	-55.92	14.47	20.08	QP
6	13.993	33.68	80.50	-46.82	13.72	19.96	QP
7	14.052	32.23	69.50	-37.27	12.27	19.96	QP

Note:

1. Fundamental Limit = $84 \text{ dBuV/m} + 40 \cdot \log(30 \text{ m} / 3 \text{ m}) = 124 \text{ dBuV/m}$
2. All Readings below 1GHz are Quasi-Peak, above are average value.
3. "*" means the worst emission level.
4. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : General Radiated Emission Data (below 30MHz)
 Test Mode : Mode 1: Transmit
 Test date : 2021/04/27

Horizontal



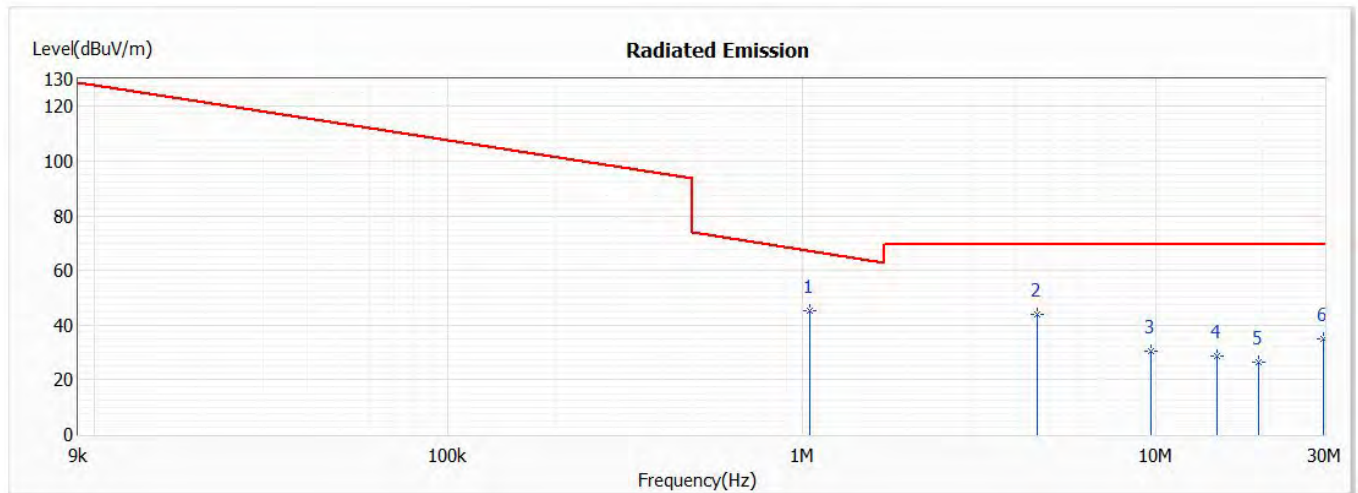
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1.056	49.51	67.15	-17.64	29.12	20.39	QP
2	4.637	32.82	69.54	-36.72	12.18	20.64	QP
3	9.744	26.46	69.54	-43.08	4.43	22.03	QP
4	16.155	26.50	69.54	-43.04	4.09	22.41	QP
5	19.976	26.15	69.54	-43.39	3.55	22.60	QP
6	25.152	25.82	69.54	-43.72	2.96	22.86	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “*” means the worst emission level.
3. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : General Radiated Emission Data (below 30MHz)
 Test Mode : Mode 1: Transmit
 Test date : 2021/04/27

Vertical



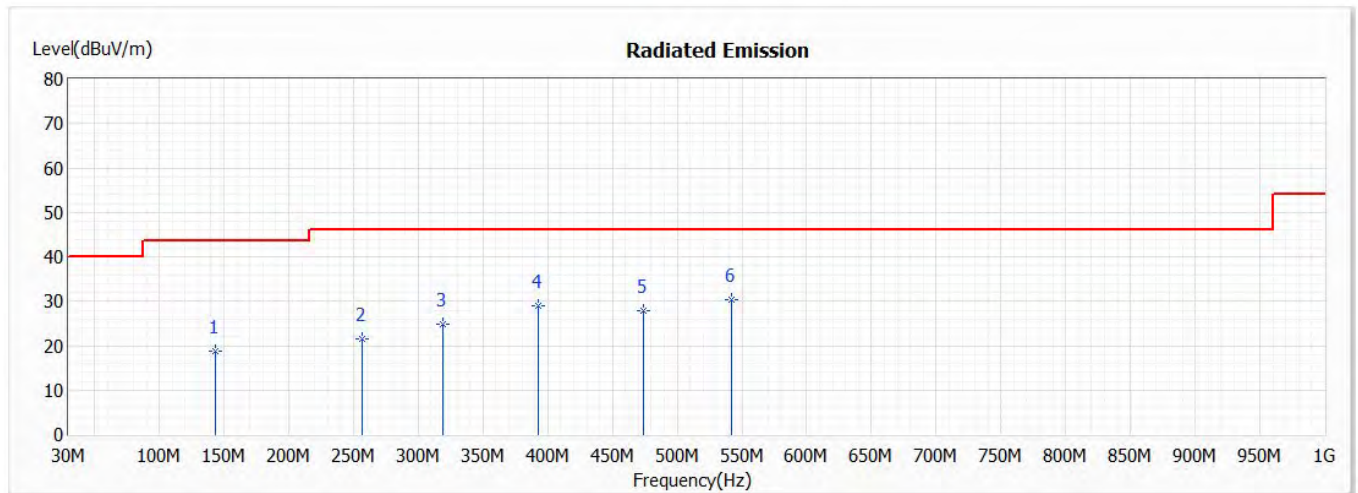
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1.055	45.31	67.15	-21.85	24.92	20.39	QP
2	4.608	43.81	69.54	-25.73	23.19	20.62	QP
3	9.680	30.34	69.54	-39.20	8.32	22.02	QP
4	14.875	28.51	69.54	-41.03	6.17	22.34	QP
5	19.528	26.30	69.54	-43.24	3.72	22.58	QP
6	29.675	35.11	69.54	-34.43	12.03	23.08	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “*” means the worst emission level.
3. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : General Radiated Emission Data (above 30MHz)
 Test Mode : Mode 1: Transmit
 Test date : 2021/04/27

Horizontal

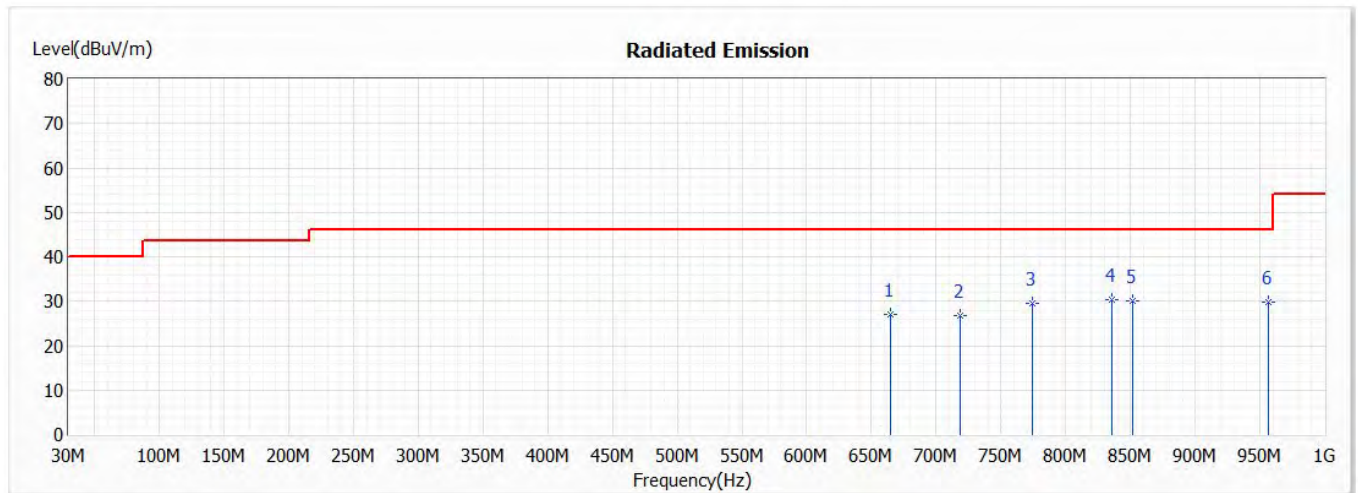


Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. "*" means the worst emission level.
3. Emission Level = Reading Level + Correct Factor

Product : Music & Story Player
 Test Item : General Radiated Emission Data (above 30MHz)
 Test Mode : Mode 1: Transmit
 Test date : 2021/04/27

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	664.380	26.92	46.00	-19.08	36.99	-10.07	QP
2	718.700	26.78	46.00	-19.22	36.03	-9.25	QP
3	773.990	29.57	46.00	-16.43	37.85	-8.28	QP
* 4	836.070	30.24	46.00	-15.76	37.94	-7.70	QP
5	851.590	29.99	46.00	-16.01	37.46	-7.47	QP
6	956.350	29.84	46.00	-16.16	35.78	-5.94	QP

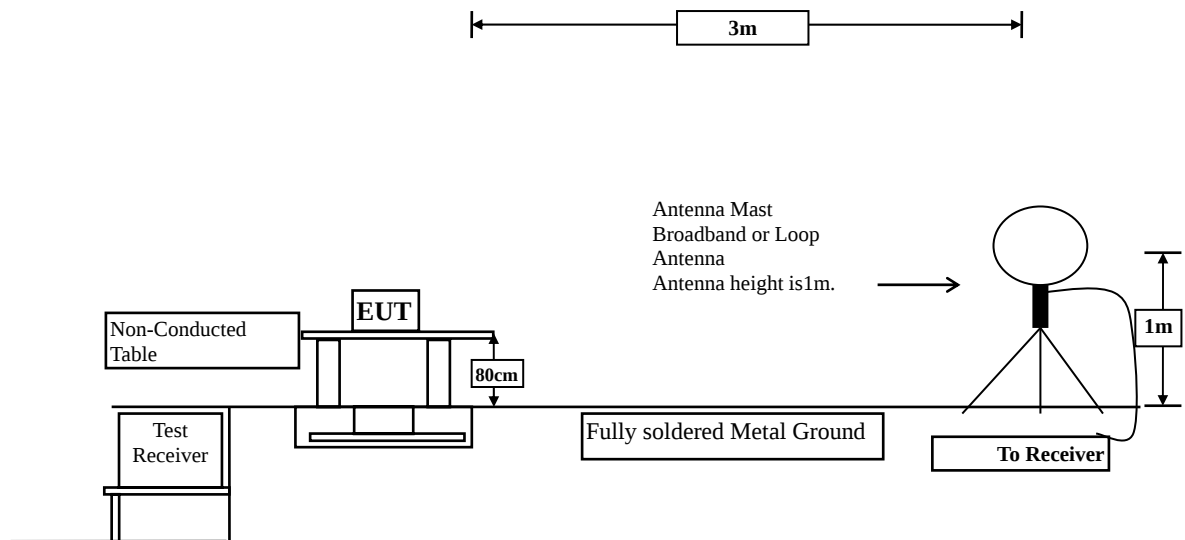
Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. "*" means the worst emission level.
3. Emission Level = Reading Level + Correct Factor

4. Band Edge

4.1. Test Setup

Radiated Emission Under 30MHz



4.2. Limits

The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in Section 15.209. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209.

4.3. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

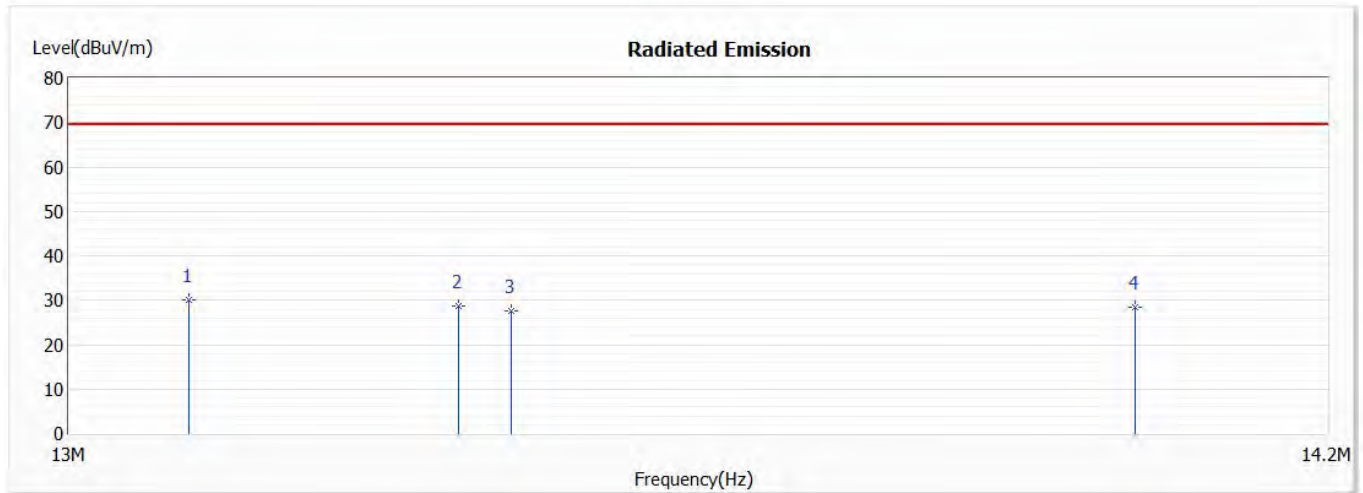
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth below 30MHz setting on the field strength meter is 9kHz and above 30MHz is 120kHz.

4.4. Test Result of Band Edge

Product : Music & Story Player
 Test Item : Band Edge Data
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Horizontal



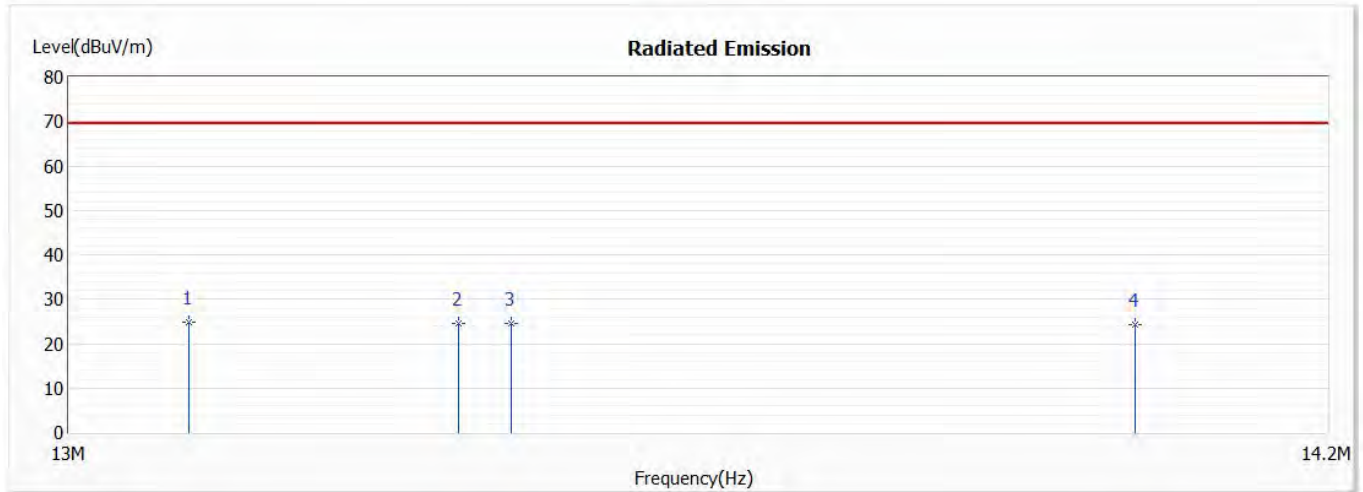
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.110	30.00	69.54	-39.54	9.68	20.32	QP
2	13.360	28.60	69.54	-40.94	8.38	20.22	QP
3	13.410	27.70	69.54	-41.84	7.50	20.20	QP
4	14.010	28.30	69.54	-41.24	8.34	19.96	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. "*" means the worst emission level.
3. Emission Level = Reading Level + Correct Factor.

Product : Music & Story Player
 Test Item : Band Edge Data
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/14

Vertical



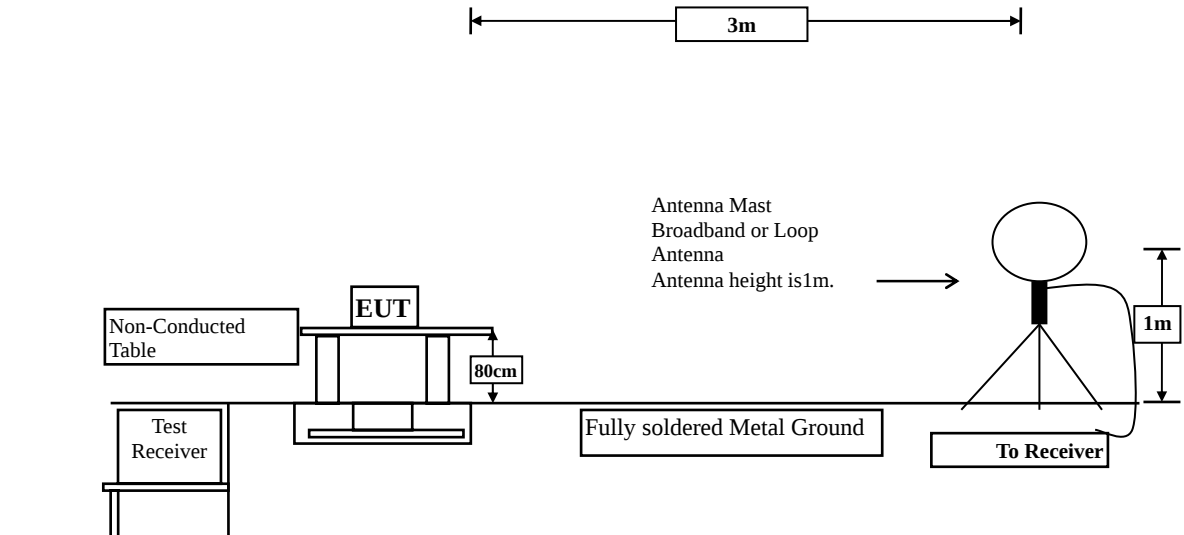
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	13.110	24.80	69.54	-44.74	4.48	20.32	QP
2	13.360	24.60	69.54	-44.94	4.38	20.22	QP
3	13.410	24.60	69.54	-44.94	4.40	20.20	QP
4	14.010	24.30	69.54	-45.24	4.34	19.96	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. "*" means the worst emission level.
3. Emission Level = Reading Level + Correct Factor.

5. 20dB Bandwidth

5.1. Test Setup



5.2. Limits

§15.215

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.217 through §15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

§15.225

Operation within the band 13.11MHz ~ 14.01MHz.

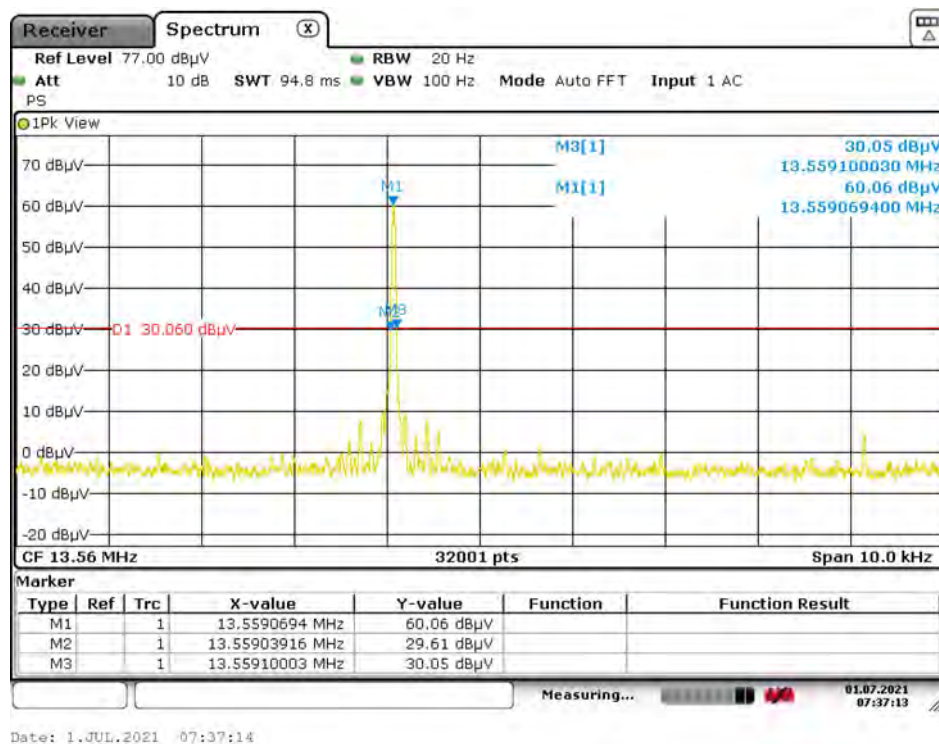
5.3. Test Procedure

The spectrum analyzer connects to the receiver antenna and setting the RBW = 20Hz, the VBW is set to 3 times or more than RBW.

5.4. Test Result of 20dB Bandwidth

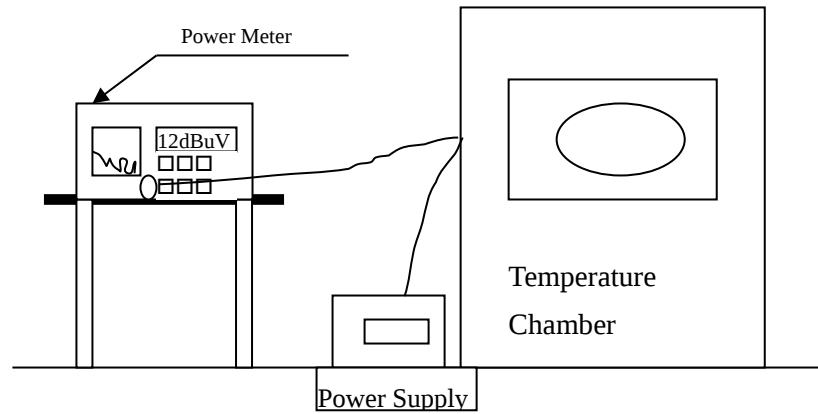
Product : Music & Story Player
 Test Item : 20dB Bandwidth
 Test date : 2021/05/24
 Test Mode : Mode 1: Transmit

Test Frequency (MHz)	Measurement Level (MHz)	Limit (MHz)	Result
13.56	13.5590	>13.11	PASS
	13.5591	<14.01	



6. Frequency Tolerance

6.1. Test Setup



6.2. Limits

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency.

6.3. Test Procedure

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

6.4. Test Result of Frequency Stability

Product : Music & Story Player
 Test Item : Frequency Tolerance
 Test Mode : Mode 1: Transmit
 Test date : 2021/05/24

Temperature (°C)	Voltage (V)	Observe Time	Declared Frequency (MHz)	Read Frequency (MHz)	Tolerance (%)	Limit (%)
20	12	start	13.56	13.56000	0.000000	± 0.01 %
		2mins	13.56	13.56000	0.000000	
		5mins	13.56	13.56000	0.000000	
		10mins	13.56	13.56000	0.000000	
20	13.8	start	13.56	13.56000	0.000000	± 0.01 %
		2mins	13.56	13.56000	0.000000	
		5mins	13.56	13.56000	0.000000	
		10mins	13.56	13.56000	0.000000	
20	10.2	start	13.56	13.56000	0.000000	± 0.01 %
		2mins	13.56	13.56000	0.000000	
		5mins	13.56	13.56000	0.000000	
		10mins	13.56	13.56000	0.000000	
50	12	start	13.56	13.55903	-0.007153	± 0.01 %
		2mins	13.56	13.55903	-0.007153	
		5mins	13.56	13.55903	-0.007153	
		10mins	13.56	13.55903	-0.007153	
40	12	start	13.56	13.55900	-0.007375	± 0.01 %
		2mins	13.56	13.55900	-0.007375	
		5mins	13.56	13.55900	-0.007375	
		10mins	13.56	13.55900	-0.007375	
30	12	start	13.56	13.56007	0.000516	± 0.01 %
		2mins	13.56	13.56007	0.000516	
		5mins	13.56	13.56007	0.000516	
		10mins	13.56	13.56007	0.000516	

10	12	start	13.56	13.56000	0.000000	± 0.01 %
		2mins	13.56	13.56000	0.000000	
		5mins	13.56	13.56000	0.000000	
		10mins	13.56	13.56000	0.000000	
0	12	start	13.56	13.56001	0.000074	± 0.01 %
		2mins	13.56	13.56001	0.000074	
		5mins	13.56	13.56001	0.000074	
		10mins	13.56	13.56001	0.000074	
-10	12	start	13.56	13.56050	0.003687	± 0.01 %
		2mins	13.56	13.56050	0.003687	
		5mins	13.56	13.56050	0.003687	
		10mins	13.56	13.56050	0.003687	
-20	12	start	13.56	13.56011	0.000811	± 0.01 %
		2mins	13.56	13.56011	0.000811	
		5mins	13.56	13.56011	0.000811	
		10mins	13.56	13.56011	0.000811	

7. EMI Reduction Method During Compliance Testing

No modification was made during testing.