Test Report No:
2430723R-RFUSV07S-A

TEST REPORT
FCC Rules&Regulations

Product Name	Handheld Tablet
Brand Name	Toast Inc.
Model No.	TG310
FCC ID	2AMNG-TG310
Applicant´s Name / Address	Toast, Incorporated 333 Summer St, Boston, Massachusetts, United States 02210
Manufacturer's Name / Address	Toast, Incorporated 333 Summer St, Boston, Massachusetts, United States 02210
Test Method Requested, Standard	FCC CFR Title 47 Part 15 Subpart C Section 15.225 ANSI C63.10-2013
Verdict Summary	IN COMPLIANCE
Documented By	Jennie She Jennie She
Approved By	Allen Lin Allen Lin
Date of Receipt	Mar. 22, 2024
Date of Issue	Apr. 07, 2025
Report Version	V1.0

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Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

General Conditions

1. The test results relate only to the samples tested.
2. 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.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. 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.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Apr. 07, 2025

Summary of Test Result

Report Clause	Test Items	Result (PASS/FAIL)	Remark
3	AC Power Line Conducted Emission	PASS	-
4	Emission Bandwidth	PASS	-
6	Field Strength of Fundamental Emissions and Spectrum Mask	PASS	-
7	Radiated Emission	PASS	-
5	Frequency Stability	PASS	-

Comments and Explanations
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

1. General Information

1.1. EUT Description

Frequency Range	13.553 ~ 13.567 MHz
Operation Frequency	13.56 MHz
Channel Number	1 Channel
Type of Modulation	ASK

Accessories Information					
No.	Equipment Name	Brand Name	Model No.	Rating	Remark
1	Power Adaptor	Toast Inc.	FC015A05-050030U	INPUT: 100~240V, 50/60Hz, 0.5A OUTPUT: 5V / 3A, 15W	Type-C Interface
No.	Equipment Name	Description			
2	Cable	Shielded, 0.8m			
3	Li-ion polymer Battery Pack	3.8V, 5200mAh			

Antenna Information				
Ant.	Brand Name	Model No.	Type	Gain (dBi)
1	Toast Inc.	Toast Go ant	Loop	N/A

1.2. EUT Information

EUT Power Type	From Adapter / Host system

1.3. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.4-2003

The following reference test guidance is not within the scope of accreditation of TAF:

- FCC KDB 174176
- FCC KDB 414788 D01 v01r01

1.4. Testing Location Information

Testing Location Information		
Test Laboratory：DEKRA Testing and Certification Co., Ltd.		
	1 (TAF: 3024)	ADD: No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958 Test site Designation No. TW3024 with FCC. Conformity Assessment Body Identifier (CABID) TW3024 with ISED.
	2 (TAF: 3024)	ADD: No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958 Test site Designation No. TW3024 with FCC. Conformity Assessment Body Identifier (CABID) TW3024 with ISED.
Test site number for address 1 includes HC-SR02 and HC-CB10. Test site number for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12.		

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
AC Conduction Emission	HC-SR02	Cyril Chen	25 / 65	2024/12/10~2025/03/11
Radiated Emission	HC-CB02	Brook Cheng	20 / 58	2024/12/10~2025/03/10

1.5. Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2).

Test item	Uncertainty
AC Power Line Conducted Emission	± 2.34 dB
Emission Bandwidth	± 282.55 Hz
Field Strength of Fundamental Emissions and Spectrum Mask	± 3.52 dB
Radiated Emission	± 3.52 dB
Frequency Stability	± 282.55 Hz

1.6. List of Test Equipment

HC-SR02

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	9kHz-30MHz, 4line/100A	2024/12/02	2025/12/01
EMI Test Receiver	R&S	ESR3	102608	9 kHz - 3.6 GHz	2024/09/11	2025/09/10
Two-Line V-Network	R&S	ENV216	100096	9kHz-30MHz	2024/06/03	2025/06/02
Coaxial Cable(9 m)	Harbour	RG-400	HC-SR02	9 kHz–2500 MHz	2024/08/15	2025/08/14
EMI Testing System	Audix	e3 210616 dekra V9	HC-SR02	N/A	N/A	N/A

HC-CB02

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	10 Hz-40 GHz	2024/10/04	2025/10/03
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1272	30 MHz-2 GHz	2024/04/29	2025/04/28
Pre-Amplifier	EMCI	EMC01820I	980365	30M-8 GHz,20 dB	2024/04/02	2025/04/01
Wideband Radio Communication Tester	R&S	CMW500	106071	LTE 4G	2024/01/25	2025/01/24
Wideband Radio Communication Tester	R&S	CMW500	106071	LTE 4G	2025/01/16	2026/01/15
Coaxial Cable	Huber+Suhner, Rosnol	SF102_UP0264	HC-CB02-1	18-40 GHz, 3 m	2024/08/13	2025/08/12
Magnetic Loop Antenna	Teseq	HLA 6121	44287	0.01-30 MHz	2024/10/17	2025/10/16

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2. Test Configuration of EUT

2.1. Test Condition

EUT Operational Condition			
Testing Voltage	Vnom (AC 110V/60Hz)	Vmax (AC 127V/60Hz)	Vmin (AC 94V/60Hz)

2.2. The Worst Case Measurement Configuration

Tests Item	AC Power Line Conducted Emission
Test Condition	AC power line conducted measurement for line and neutral
Operating Mode	Transmit
1	Adapter with Pogo pins cable
2	Adapter with USB Type-C cable
3	Notebook with USB Type-C cable

Tests Item	Emission Bandwidth Frequency Stability
Test Condition	Radiated measurement at transmit chains

Tests Item	Field Strength of Fundamental Emissions and Spectrum Mask Radiated Emission
Test Condition	Radiated measurement
Operating Mode 9kHz ~ 30MHz	Transmit
Operating Mode 30MHz ~ 1GHz	Transmit
1	Adapter with Pogo pins cable
2	Adapter with USB Type-C cable
3	Notebook with USB Type-C cable
The EUT was performed at X axis, Y axis and Z axis position for radiated spurious emission test. The worst case was found at X axis, so the measurement will follow this same test configuration.	

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.3. Tested System Details

Test Mode: Mode1

N/A

Test Mode: Mode2

N/A

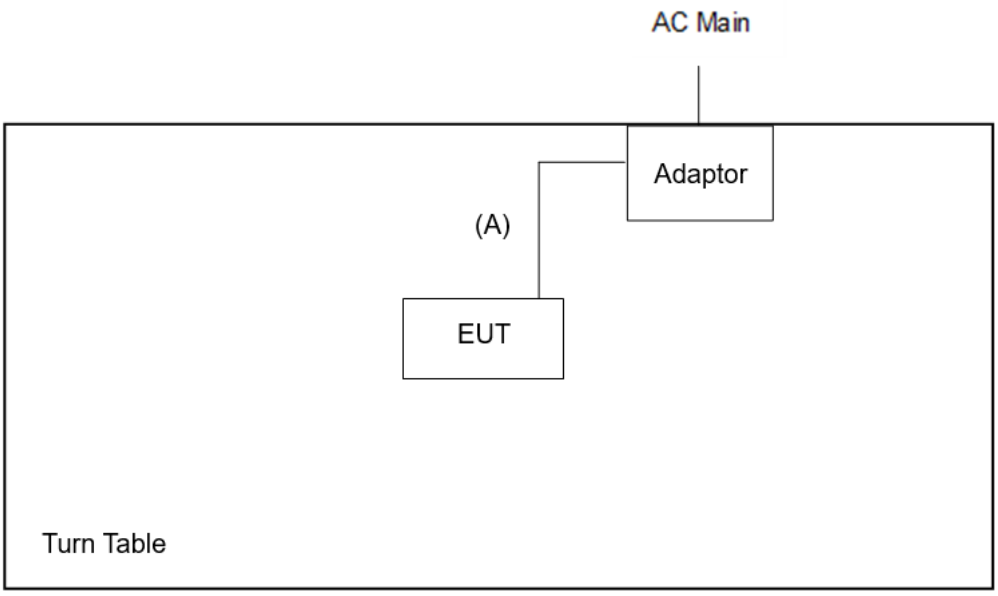
Test Mode: Mode3

No.	Equipment	Brand Name	Model No.	Serial No.
1	Notebook	ASUS	E402S	GBN0CV14W224476

2.4. Configuration of tested System

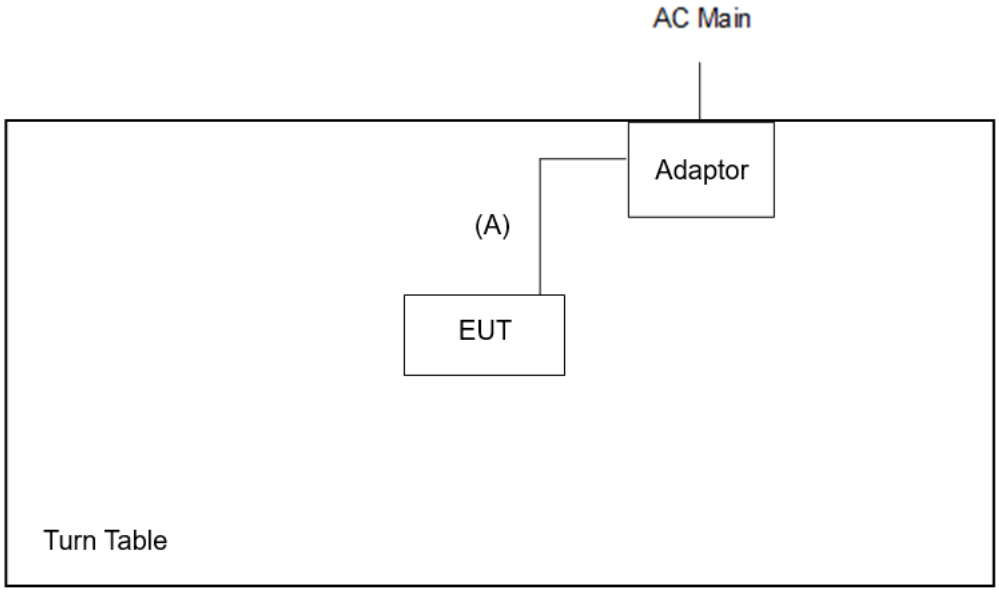
Test Mode: Mode1

Connection Diagram



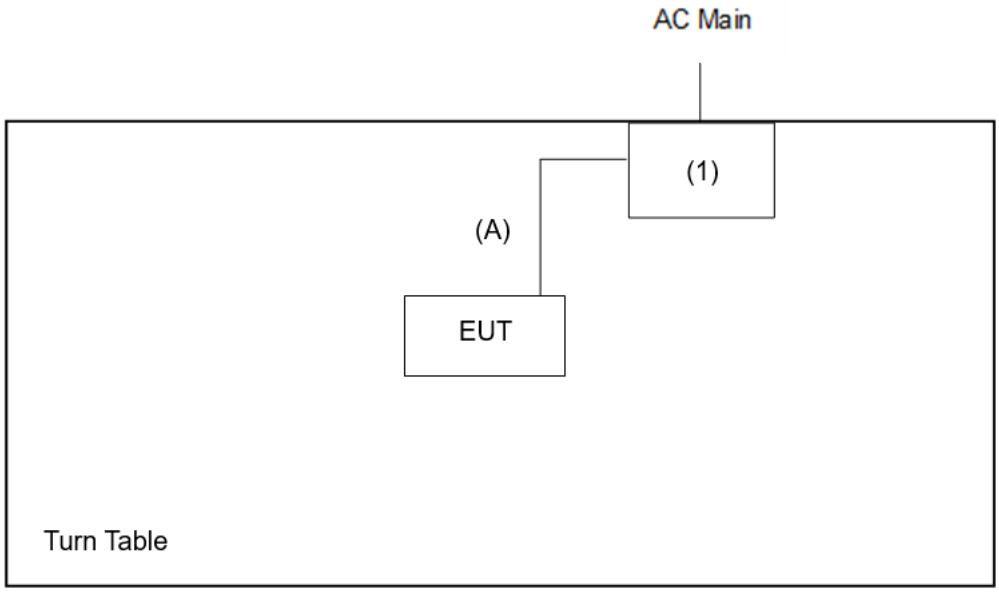
Signal Cable Type		Signal cable Description
A	Power Adaptor cable	Shielded, 0.8m

Test Mode: Mode2

Connection Diagram


Signal Cable Type		Signal cable Description
A	USB Cable (Tpye C to C)	Non-Shielded, 2m

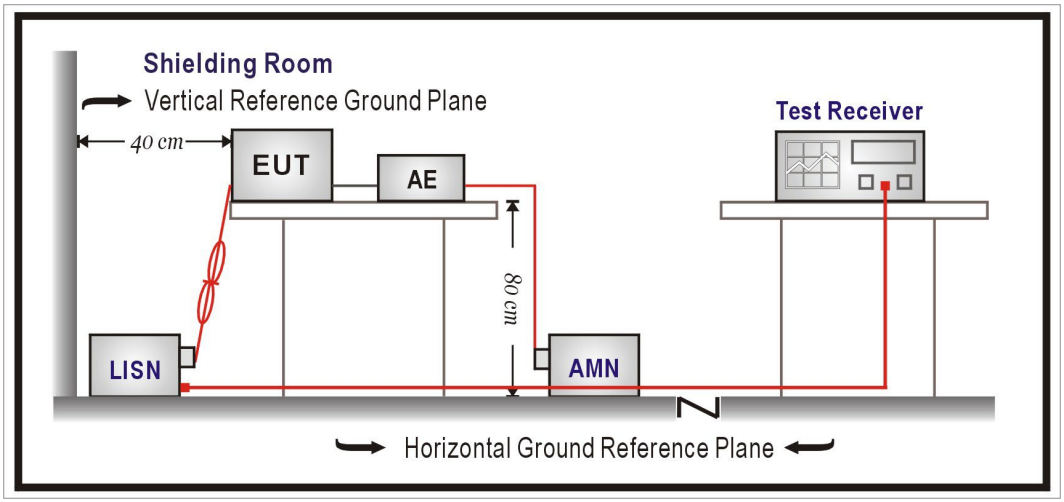
Test Mode: Mode3

Connection Diagram


Signal Cable Type		Signal cable Description
A	USB Cable (Tpye C to A)	Non-Shielded, 1.88m

3. AC Power Line Conducted Emission

3.1. Test Setup



3.2. Test Limit

Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

3.3. 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 50 ohm termination. (Please refer 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 C63.10: 2013 on conducted measurement.

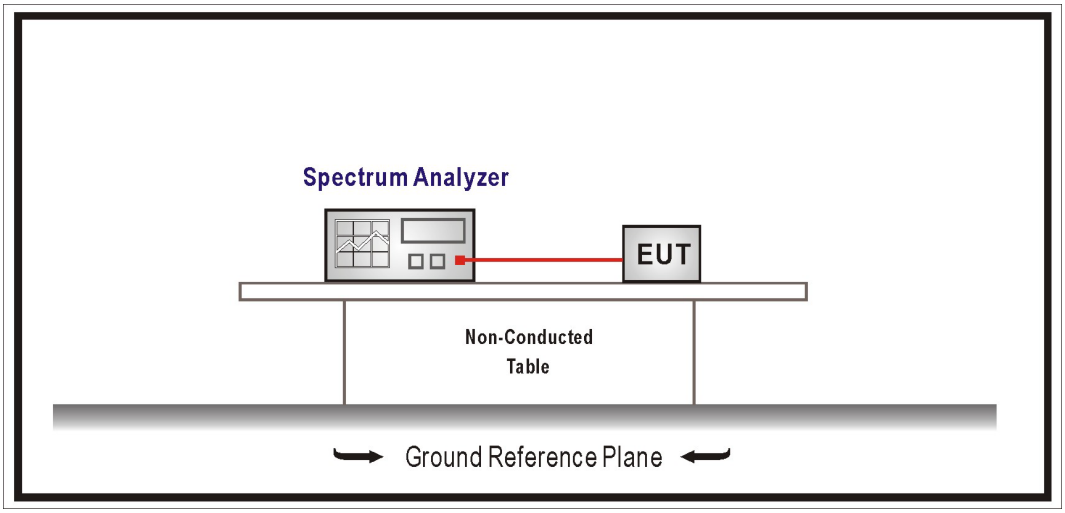
Conducted emissions were invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

3.4. Test Result of AC Power Line Conducted Emission

Refer as Appendix A

4. Emission Bandwidth

4.1. Test Setup



4.2. Test Limit

Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553 ~ 13.567 MHz.

4.3. Test Procedures

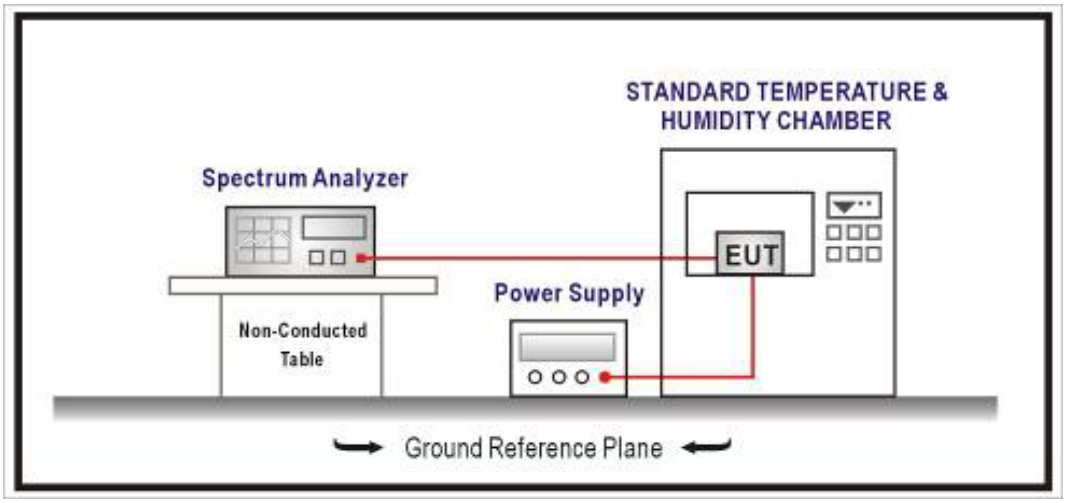
1. For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.
2. Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

4.4. Test Result of Emission Bandwidth

Refer as Appendix B

5. Frequency Stability

5.1. Test Setup



5.2. Test Limit

Carrier frequency stability shall be maintained to ±0.01% (±100 ppm).

5.3. Test Procedures

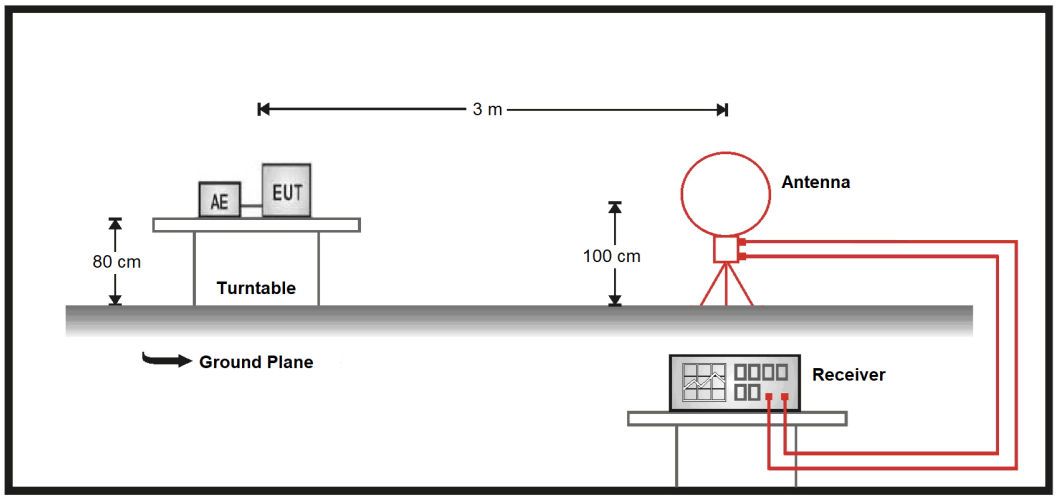
The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature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

5.4. Test Result of Frequency Stability

Refer as Appendix C

6. Field Strength of Fundamental Emissions and Spectrum Mask

6.1. Test Setup



6.2. Test Limit

Field Strength of Fundamental Emissions			
Frequencies (MHz)	Field Strength (microvolts/meter) at 30m	Field Strength (dBµV/m) at 10m	Field Strength (dBµV/m) at 3m
13.553 – 13.567 MHz	15848	103.08 (QP)	124 (QP)
Quasi peak measurement of the fundamental.			

Spectrum Mask					
Description	Compliance with the spectrum mask is tested using a spectrum analyzer with RBW set to a 9kHz for the band 13.553 – 13.567 MHz.				
Limit	Freq. of Emission (MHz)	Field Strength			
		(uV/m)@30m	(dBuV/m)@30m	(dBuV/m)@10m	(dBuV/m)@3m
	1.705~13.110	30	29.5	48.6	69.5
	13.110~13.410	106	40.5	59.6	80.5
	13.410~13.553	334	50.5	69.6	90.5
	13.553~13.567	15848	84.0	103.1	124.0
	13.567~13.710	334	50.5	69.6	90.5
	13.710~14.010	106	40.5	59.6	80.5
	14.010~30.000	30	29.5	48.6	69.5

6.3. Test Procedure

1. Configure the EUT according to ANSI C63.10: 2013. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. For Fundamental emissions, use the receiver to measure QP reading.
5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
6. Compliance with the spectrum mask is tested using a spectrum analyzer with RBW set to a 9kHz for the band 13.553 – 13.567 MHz.

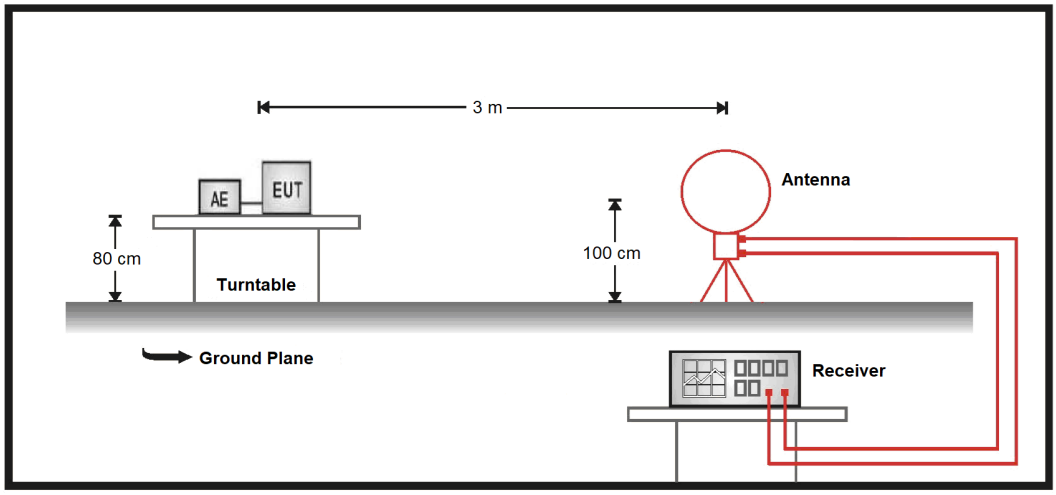
6.4. Test Result of Field Strength of Fundamental Emissions and Spectrum Mask

Refer as Appendix D

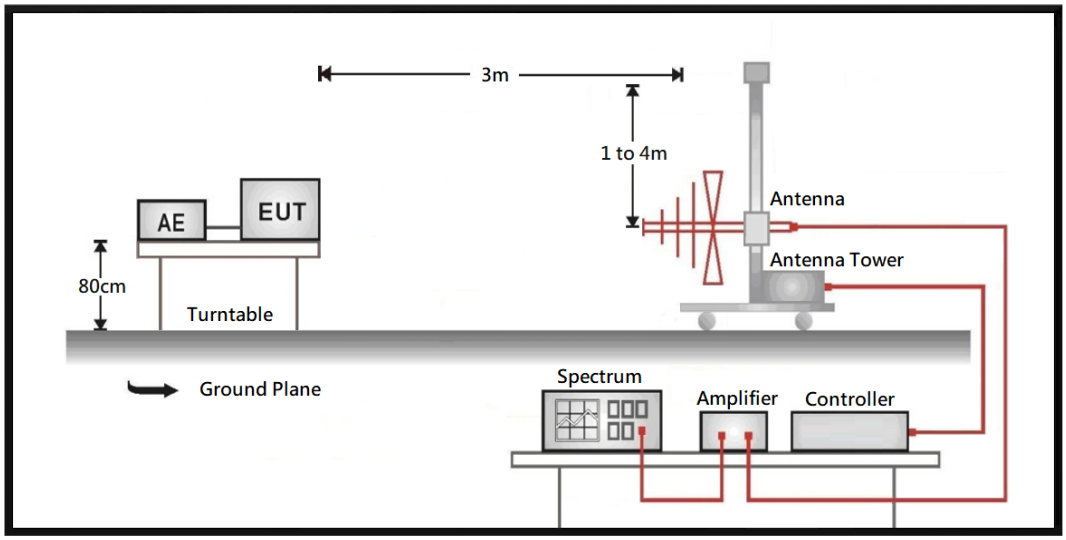
7. Radiated Emission

7.1. Test Setup

9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



7.2. Test Limit

The field strength of any emissions which appear outside of 13.553 ~ 13.567MHz band shall not exceed the general radiated emissions limits.

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	20 log (2400/F(kHz))	300
0.490 – 1.705	24000/F(kHz)	20 log (24000/F(kHz))	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
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

7.3. Test Procedure

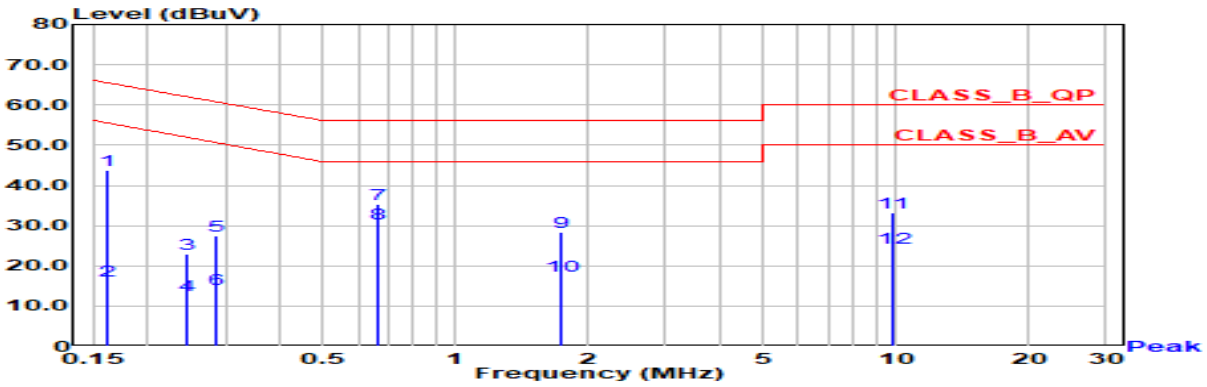
1. Configure the EUT according to ANSI C63.10: 2013. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

7.4. Test Result of Radiated Emission

Refer as Appendix E

Appendix A. Test Result of AC Power Line Conducted Emission

Test Mode	Mode1	Phase	Line
Test Condition	13.56 MHz		

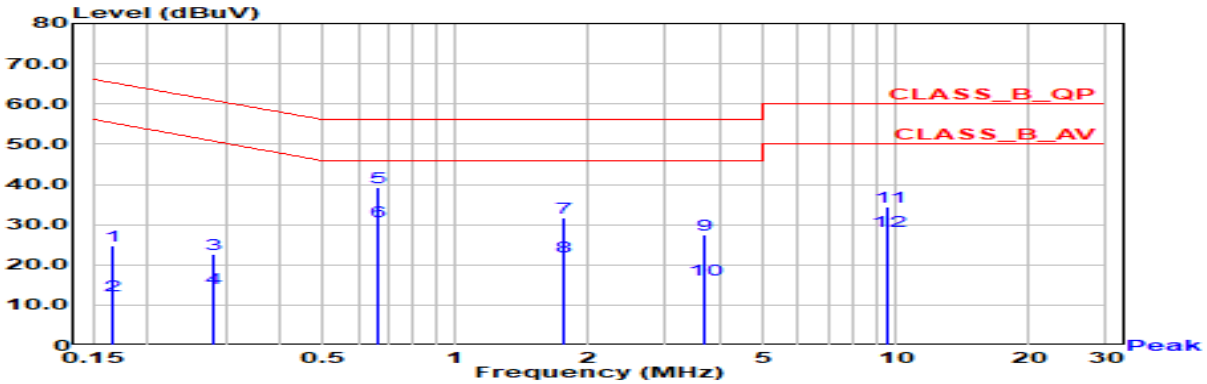


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.161	43.80	65.42	-21.62	34.18	9.62	QP
2	0.161	16.43	55.42	-38.98	6.81	9.62	AV
3	0.244	23.03	61.97	-38.94	13.40	9.63	QP
4	0.244	12.79	51.97	-39.18	3.16	9.63	AV
5	0.285	27.58	60.67	-33.09	17.95	9.63	QP
6	0.285	14.22	50.67	-36.45	4.59	9.63	AV
*7	0.663	35.26	56.00	-20.74	25.59	9.67	QP
*8	0.663	30.35	46.00	-15.65	20.68	9.67	AV
9	1.727	28.32	56.00	-27.68	18.58	9.74	QP
10	1.727	17.56	46.00	-28.44	7.82	9.74	AV
11	9.803	33.29	60.00	-26.71	23.22	10.06	QP
12	9.803	24.58	50.00	-25.42	14.52	10.06	AV

Remark:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Transmit	Phase	Neutral
Test Condition	13.56 MHz		

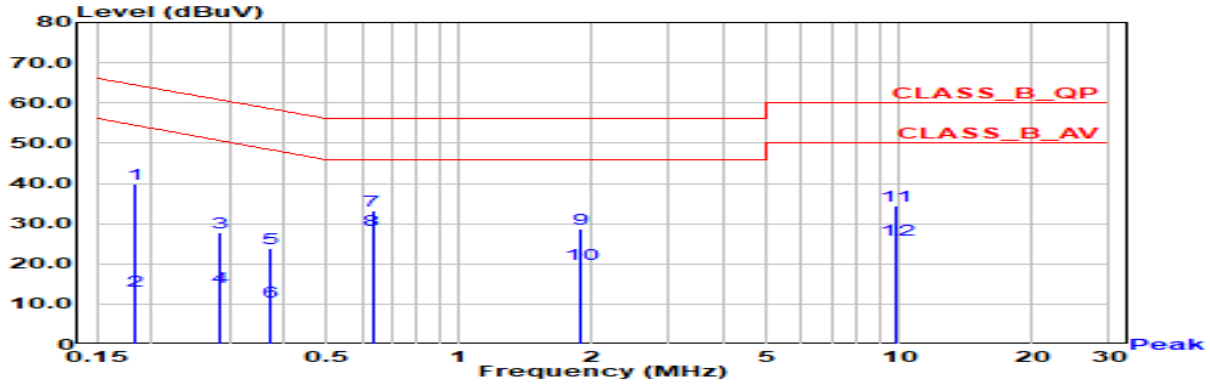


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.165	24.66	65.19	-40.53	15.04	9.62	QP
2	0.165	12.29	55.19	-42.90	2.67	9.62	AV
3	0.283	22.58	60.72	-38.13	12.95	9.63	QP
4	0.283	14.14	50.72	-36.58	4.51	9.63	AV
*5	0.663	39.17	56.00	-16.83	29.50	9.67	QP
*6	0.663	30.86	46.00	-15.14	21.19	9.67	AV
7	1.770	31.77	56.00	-24.23	22.01	9.76	QP
8	1.770	22.18	46.00	-23.82	12.42	9.76	AV
9	3.693	27.38	56.00	-28.62	17.54	9.85	QP
10	3.693	16.44	46.00	-29.56	6.59	9.85	AV
11	9.608	34.44	60.00	-25.56	24.34	10.10	QP
12	9.608	28.52	50.00	-21.48	18.42	10.10	AV

Remark:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode2	Phase	Line
Test Condition	13.56 MHz		

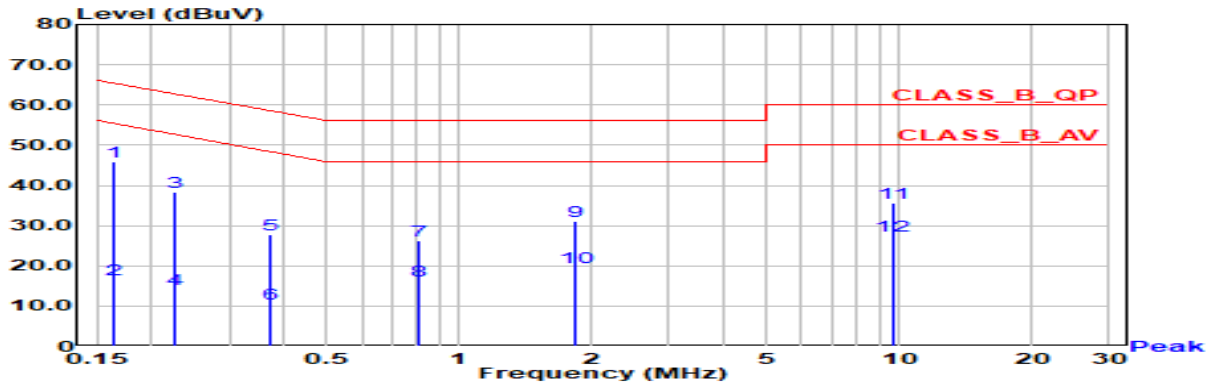


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.184	39.73	64.29	-24.57	30.10	9.62	QP
2	0.184	13.36	54.29	-40.93	3.74	9.62	AV
3	0.285	27.88	60.68	-32.79	18.25	9.63	QP
4	0.285	14.18	50.68	-36.50	4.55	9.63	AV
5	0.374	23.76	58.42	-34.67	14.12	9.64	QP
6	0.374	10.49	48.42	-37.93	0.85	9.64	AV
7	0.634	33.28	56.00	-22.72	23.62	9.66	QP
*8	0.634	28.34	46.00	-17.66	18.68	9.66	AV
9	1.878	28.59	56.00	-27.41	18.83	9.75	QP
10	1.878	19.97	46.00	-26.03	10.22	9.75	AV
11	9.783	34.28	60.00	-25.72	24.22	10.06	QP
12	9.783	25.97	50.00	-24.03	15.91	10.06	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode2	Phase	Neutral
Test Condition	13.56 MHz		

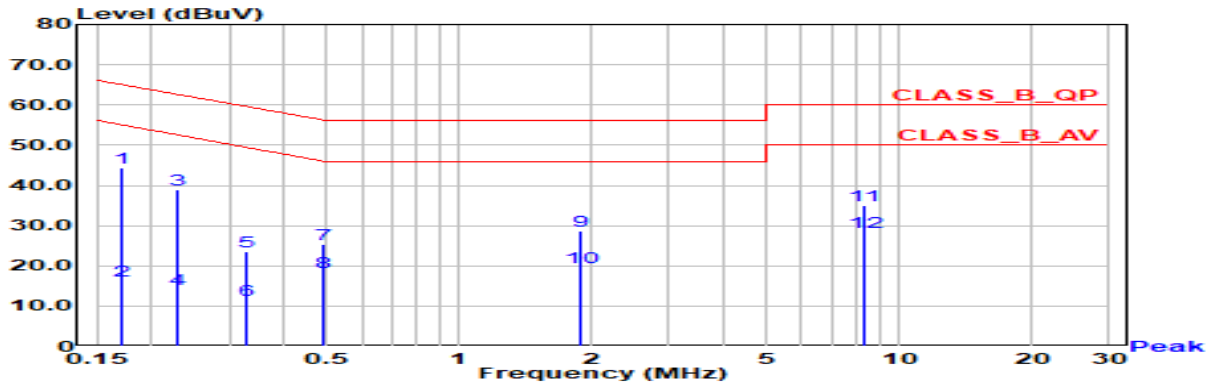


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.165	45.83	65.23	-19.40	36.21	9.62	QP
2	0.165	16.51	55.23	-38.71	6.89	9.62	AV
3	0.225	38.43	62.64	-24.21	28.80	9.63	QP
4	0.225	14.13	52.64	-38.50	4.51	9.63	AV
5	0.372	27.81	58.46	-30.66	18.17	9.64	QP
6	0.372	10.64	48.46	-37.82	1.00	9.64	AV
7	0.806	26.35	56.00	-29.65	16.66	9.69	QP
8	0.806	16.43	46.00	-29.57	6.74	9.69	AV
9	1.845	30.95	56.00	-25.05	21.19	9.76	QP
10	1.845	19.60	46.00	-26.40	9.84	9.76	AV
11	9.634	35.61	60.00	-24.39	25.50	10.10	QP
12	9.634	27.34	50.00	-22.66	17.24	10.10	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode3	Phase	Line
Test Condition	13.56 MHz		

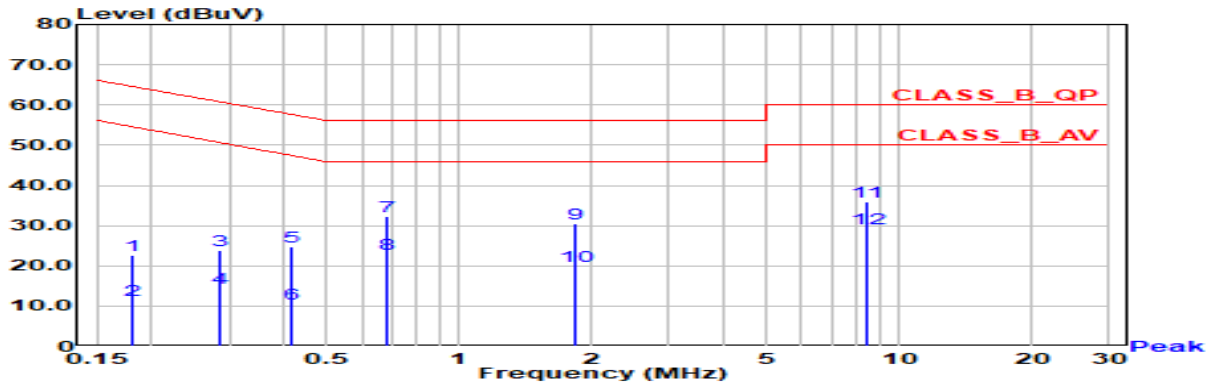


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.172	44.27	64.87	-20.60	34.64	9.62	QP
2	0.172	16.30	54.87	-38.57	6.68	9.62	AV
3	0.229	38.97	62.48	-23.51	29.35	9.63	QP
4	0.229	14.04	52.48	-38.44	4.41	9.63	AV
5	0.326	23.62	59.55	-35.94	13.98	9.64	QP
6	0.326	11.45	49.55	-38.10	1.82	9.64	AV
7	0.491	25.36	56.14	-30.78	15.71	9.65	QP
8	0.491	18.52	46.14	-27.63	8.87	9.65	AV
9	1.878	28.54	56.00	-27.46	18.79	9.75	QP
10	1.878	19.55	46.00	-26.45	9.80	9.75	AV
11	8.340	35.15	60.00	-24.85	25.13	10.01	QP
12	8.340	28.36	50.00	-21.64	18.35	10.01	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode3	Phase	Neutral
Test Condition	13.56 MHz		



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.180	22.72	64.50	-41.78	13.10	9.62	QP
2	0.180	11.46	54.50	-43.05	1.83	9.62	AV
3	0.287	23.85	60.60	-36.76	14.22	9.63	QP
4	0.287	14.60	50.60	-36.01	4.96	9.63	AV
5	0.414	24.73	57.56	-32.83	15.09	9.64	QP
6	0.414	10.57	47.56	-36.99	0.93	9.64	AV
7	0.683	32.23	56.00	-23.77	22.56	9.67	QP
8	0.683	22.99	46.00	-23.01	13.32	9.67	AV
9	1.845	30.49	56.00	-25.51	20.73	9.76	QP
10	1.845	19.84	46.00	-26.16	10.08	9.76	AV
11	8.433	36.04	60.00	-23.96	25.98	10.06	QP
*12	8.433	29.33	50.00	-20.67	19.27	10.06	AV

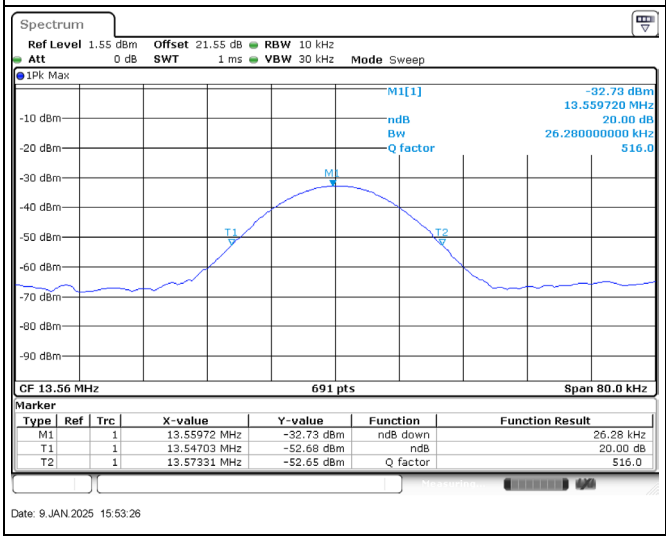
Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

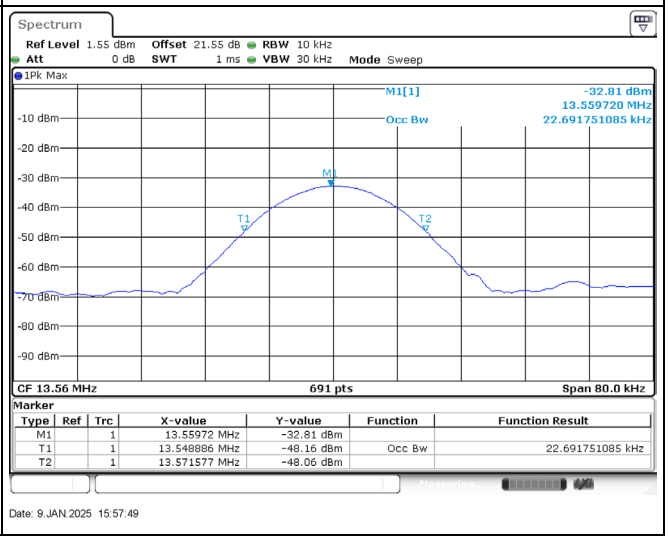
Appendix B. Test Result of Emission Bandwidth

Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)	Limit (kHz)
13.56	26.28	22.69	-

20dB Bandwidth



99% Bandwidth



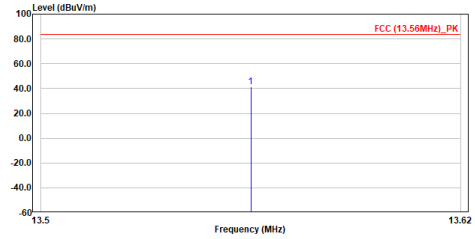
Appendix C. Test Result of Frequency Stability

Test Conditions		Center Frequency (MHz)			Frequency Tolerance (%)	Limit (%)
		f_L	f_C	f_H		
20℃	94V	13.54888	13.56023	13.57157	0.00166	± 0.01
20℃	110V	13.54888	13.56023	13.57157	0.00166	± 0.01
20℃	127V	13.54865	13.56029	13.57192	0.00210	± 0.01

Test Conditions		Center Frequency (MHz)			Frequency Tolerance (%)	Limit (%)
		f_L	f_C	f_H		
-20℃	4.5V	13.54877	13.56023	13.57169	0.00170	± 0.01
-10℃	4.5V	13.54888	13.56017	13.57146	0.00125	± 0.01
0℃	4.5V	13.54877	13.56023	13.57169	0.00170	± 0.01
10℃	4.5V	13.54877	13.56017	13.57157	0.00125	± 0.01
20℃	4.5V	13.54888	13.56023	13.57157	0.00166	± 0.01
30℃	4.5V	13.54888	13.56023	13.57157	0.00166	± 0.01
40℃	4.5V	13.54888	13.56017	13.57146	0.00125	± 0.01
50℃	4.5V	13.54900	13.56023	13.57146	0.00170	± 0.01

Appendix D.1 Test Result of Field Strength of Fundamental Emissions

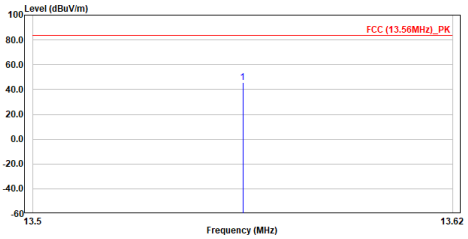
Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_EUT Y = Ant X
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	13.560	41.71	84.00	-42.29	60.16	-18.45	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

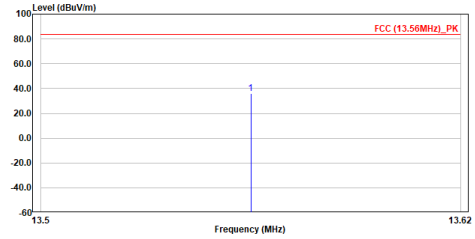
Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_EUT Y = Ant Y
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	13.560	45.41	84.00	-38.59	63.86	-18.45	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_EUT Y = Ant Z
Test by :Scott Chang



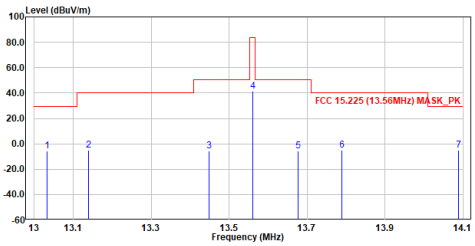
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	13.560	35.82	84.00	-48.18	54.27	-18.45	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

-

Appendix D.2 Test Result of Spectrum Mask

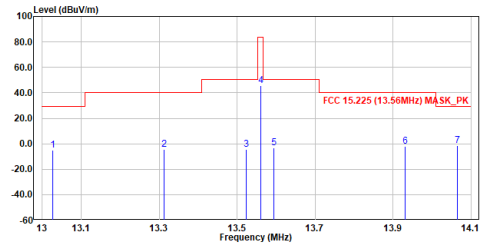
Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_X axis
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	13.034	-5.47	29.50	-34.97	13.02	-18.49	QP
2	13.139	-5.06	40.50	-45.56	13.42	-18.48	QP
3	13.449	-5.93	50.50	-56.43	12.53	-18.46	QP
4	13.560	41.73	84.00	-42.27	60.18	-18.45	QP
5	13.677	-5.56	50.50	-56.06	12.88	-18.44	QP
6	13.789	-4.99	40.50	-45.49	13.44	-18.43	QP
7	14.089	-4.96	29.50	-34.46	13.45	-18.41	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

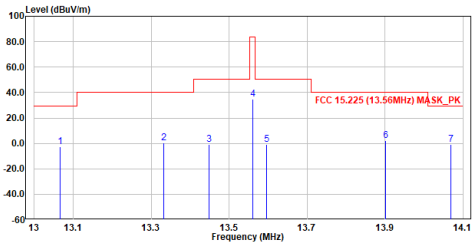
Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_Y axis
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	13.027	-5.00	29.50	-34.50	13.49	-18.49	QP
2	13.312	-4.32	40.50	-44.82	14.15	-18.47	QP
3	13.523	-4.62	50.50	-55.12	13.83	-18.45	QP
4	13.560	45.46	84.00	-38.54	63.91	-18.45	QP
5	13.594	-3.46	50.50	-53.96	14.99	-18.45	QP
6	13.931	-2.10	40.50	-42.60	16.32	-18.42	QP
7	14.064	-1.58	29.50	-31.08	16.84	-18.42	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_Z axis
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	13.066	-2.45	29.50	-31.95	16.04	-18.49	QP
2	13.332	0.51	40.50	-39.99	18.98	-18.47	QP
3	13.448	-1.11	50.50	-51.61	17.35	-18.46	QP
4	13.560	35.01	84.00	-48.99	53.46	-18.45	QP
5	13.596	-0.59	50.50	-51.09	17.86	-18.45	QP
6	13.901	2.37	40.50	-38.13	20.80	-18.43	QP
7	14.069	-0.81	29.50	-30.31	17.61	-18.42	QP

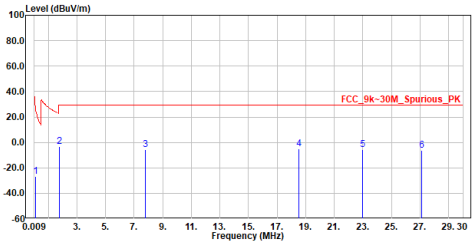
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

-

Appendix E. Test Result of Radiated Emission

9 kHz ~ 30 MHz

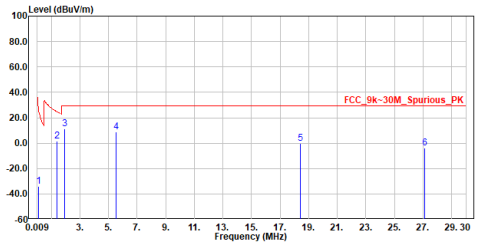
Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_X axis
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.114	-26.79	26.47	-53.26	34.35	-61.14	QP
2	1.748	-2.98	29.54	-32.52	17.53	-20.51	QP
3	7.792	-5.49	29.54	-35.03	13.96	-19.45	QP
4	18.498	-5.02	29.54	-34.56	13.09	-18.11	QP
5	22.982	-5.40	29.54	-34.94	12.63	-18.03	QP
6	27.121	-6.09	29.54	-35.63	11.98	-18.07	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

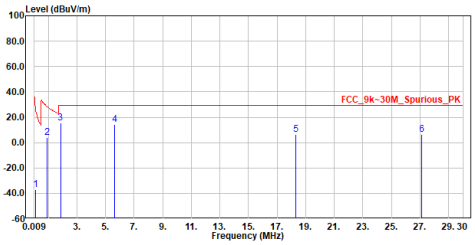
Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_Y axis
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.114	-34.10	26.47	-60.57	27.04	-61.14	QP
2	1.374	1.58	24.84	-23.26	22.04	-20.46	QP
3	1.943	11.47	29.54	-18.07	32.01	-20.54	QP
4	5.527	9.01	29.54	-20.53	29.23	-20.22	QP
5	18.408	-0.24	29.54	-29.78	17.87	-18.11	QP
6	27.121	-3.94	29.54	-33.48	14.13	-18.07	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

Site :HC-CB02
Condition :3m Loop
Mode :LF_TX_13.56MHz_Z axis
Test by :Scott Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.114	-37.19	26.47	-63.66	23.95	-61.14	QP
2	0.894	3.79	28.58	-24.79	24.19	-20.40	QP
3	1.853	15.65	29.54	-13.89	36.18	-20.53	QP
4	5.632	14.08	29.54	-15.46	34.27	-20.19	QP
5	18.289	6.45	29.54	-23.09	24.57	-18.12	QP
6	27.121	6.35	29.54	-23.19	24.42	-18.07	QP

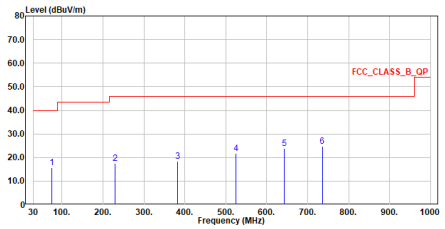
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert distance formula
= 40*log(3/300) = -80dB @300m
= 40*log(3/30) = -40dB @30m
5. The other emission levels were very low against the limit.

-

30 MHz ~ 1 GHz

Test Mode: Mode1

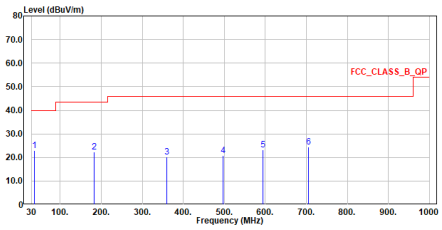
Site :HC-CB02
Condition :3m Horizontal
Mode :WIFI NFC_TX_LF
Test by :Brook Cheng



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	75.299	15.69	40.00	-24.31	21.38	-5.69	QP
2	228.850	17.48	46.00	-28.52	22.85	-5.37	QP
3	382.498	18.36	46.00	-27.64	18.06	0.30	QP
4	525.088	21.62	46.00	-24.38	18.29	3.33	QP
5	642.070	23.70	46.00	-22.30	17.67	6.03	QP
6	735.578	24.61	46.00	-21.39	17.00	7.61	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.
5. The other emission levels were very low against the limit.

Site :HC-CB02
Condition :3m Vertical
Mode :WIFI NFC_TX_LF
Test by :Brook Cheng

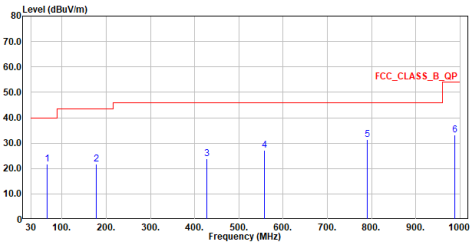


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	36.305	22.99	40.00	-17.01	25.78	-2.79	QP
2	182.872	22.38	43.50	-21.12	26.71	-4.33	QP
3	359.897	20.08	46.00	-25.92	20.92	-0.84	QP
4	497.055	20.80	46.00	-25.20	17.91	2.89	QP
5	593.764	23.26	46.00	-22.74	18.15	5.11	QP
6	705.217	24.48	46.00	-21.52	17.49	6.99	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.
5. The other emission levels were very low against the limit.

Test Mode: Mode2

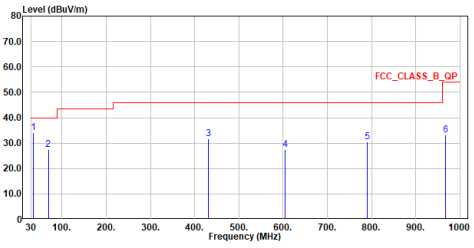
Site :HC-CB02
Condition :3m Horizontal
Mode :LF_TX_13.56MHz
Test by :Scott Chnag



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	66.375	21.83	40.00	-18.17	25.65	-3.82	QP
2	176.955	21.63	43.50	-21.87	25.27	-3.64	QP
3	427.700	23.83	46.00	-22.17	22.38	1.45	QP
4	557.680	27.05	46.00	-18.95	23.02	4.03	QP
5	790.480	31.40	46.00	-14.60	22.92	8.48	QP
6	987.875	33.21	54.00	-20.79	22.48	10.73	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.
5. The other emission levels were very low against the limit.

Site :HC-CB02
Condition :3m Vertical
Mode :LF_TX_13.56MHz
Test by :Scott Chnag

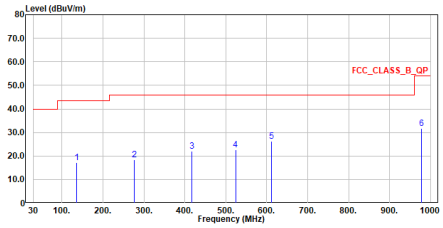


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	34.850	34.09	40.00	-5.91	36.73	-2.64	QP
2	68.800	27.36	40.00	-12.64	31.53	-4.17	QP
3	431.095	31.73	46.00	-14.27	30.17	1.56	QP
4	605.210	27.35	46.00	-18.65	21.68	5.67	QP
5	789.995	30.63	46.00	-15.37	22.15	8.48	QP
6	967.990	33.29	54.00	-20.71	22.62	10.67	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.
5. The other emission levels were very low against the limit.

Test Mode: Mode3

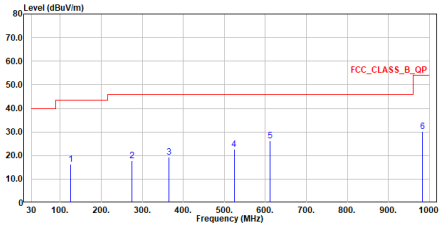
Site :HC-CB02
Condition :3m Horizontal
Mode :WIFI NFC_TX_LF
Test by :Brook Cheng



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	135.245	17.07	43.50	-26.43	20.95	-3.88	QP
2	276.380	18.44	46.00	-27.56	21.05	-2.61	QP
3	416.545	22.03	46.00	-23.97	21.00	1.03	QP
4	523.730	22.63	46.00	-23.37	19.27	3.36	QP
5	611.515	26.25	46.00	-19.75	20.46	5.79	QP
6	977.205	31.68	54.00	-22.32	21.02	10.66	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.
5. The other emission levels were very low against the limit.

Site :HC-CB02
Condition :3m Vertical
Mode :WIFI NFC_TX_LF
Test by :Brook Cheng



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	124.575	16.24	43.50	-27.26	21.29	-5.05	QP
2	273.955	17.75	46.00	-28.25	20.43	-2.68	QP
3	364.650	19.42	46.00	-26.58	20.05	-0.63	QP
4	523.730	22.75	46.00	-23.25	19.39	3.36	QP
5	611.030	26.21	46.00	-19.79	20.42	5.79	QP
6	982.540	30.24	54.00	-23.76	19.52	10.72	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.
5. The other emission levels were very low against the limit.