

FCC Test Report

Report No.: RF190109C01-2

FCC ID: S6J2173

Test Model: 2173

Received Date: Jan. 30, 2019

Test Date: Feb. 14 ~ Mar. 20, 2019

Issued Date: Mar. 27, 2019

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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33383, TAIWAN (R.O.C.)

FCC Registration / 788550 / TW0003
Designation Number:



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Table of Contents

Release Control Record	3
1 Certificate of Conformity.....	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Modification Record	5
3 General Information.....	6
3.1 General Description of EUT	6
3.2 Description of Test Modes	6
3.2.1 Test Mode Applicability and Tested Channel Deta	7
3.3 Description of Support Units	8
3.3.1 Configuration of System under Test	8
3.4 General Description of Applied Standards	8
4 Test Types and Results	9
4.1 Radiated Emission Measurement	9
4.1.1 Limits of Radiated Emission Measurement	9
4.1.2 Test Instruments	10
4.1.3 Test Procedures.....	11
4.1.4 Deviation from Test Standard	12
4.1.5 Test Set Up	12
4.1.6 EUT Operating Conditions.....	12
4.1.7 Test Results	13
4.2 Conducted Emission Measurement	68
4.2.1 Limits of Conducted Emission Measurement	68
4.2.2 Test Instruments	68
4.2.3 Test Procedures.....	69
4.2.4 Deviation from Test Standard	69
4.2.5 Test Setup.....	69
4.2.6 EUT Operating Conditions.....	69
4.2.7 Test Results	70
4.3 Frequency Stability.....	80
4.3.1 Limits of Frequency Stability Measurement	80
4.3.2 Test Setup.....	80
4.3.3 Test Instruments	80
4.3.4 Test Procedure	80
4.3.5 Deviation fromTest Standard	81
4.3.6 EUT Operating Conditions.....	81
4.3.7 Test Result.....	81
4.4 20dB Bandwidth	86
4.4.1 Limits of 20dB Bandwidth Measurement	86
4.4.2 Test Setup.....	86
4.4.3 Test Instruments	86
4.4.4 Test Procedures.....	86
4.4.5 Deviation from Test Standard	86
4.4.6 EUT Operating Conditions.....	86
4.4.7 Test Results	87
5 Pictures of Test Arrangements.....	92
Appendix – Information of the Testing Laboratories	93

Release Control Record

Issue No.	Description	Date Issued
RF190109C01-2	Original release	Mar. 27, 2019

1 Certificate of Conformity

Product: 2173 BLUETOOTH LF, HF & NFC RFID READER

Brand: TECHNOLOGY SOLUTIONS (UK) LTD

Test Model: 2173

Sample Status: Engineering sample

Applicant: Technology Solutions (UK) Ltd

Test Date: Feb. 14 ~ Mar. 20, 2019

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.225)
47 CFR FCC Part 15, Subpart C (Section 15.215)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen, **Date:** Mar. 27, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Mar. 27, 2019
Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.225, 15.215)			
FCC Clause	Test Item	Result	Remarks
15.207	Conducted emission test	Pass	Meet the requirement of limit. Minimum passing margin is -2.89dB at 13.56250MHz
15.225 (a)	The field strength of any emissions within the band 13.553-13.567 MHz	Pass	Meet the requirement of limit. Minimum passing margin is -58.72dB at 13.56MHz.
15.225 (b)	The field strength of any emissions within the bands 13.410-13.553 MHz and 13.567-13.710 MHz	Pass	Meet the requirement of limit.
15.225 (c)	The field strength of any emissions within the bands 13.110-13.410 MHz and 13.710-14.010 MHz	Pass	Meet the requirement of limit.
15.225 (d)	The field strength of any emissions appearing outside of the 13.110-14.010 MHz band	Pass	Meet the requirement of limit. Minimum passing margin is -6.20dB at 187.07MHz.
15.225 (e)	The frequency tolerance	Pass	Meet the requirement of limit.
15.215 (c)	20dB Bandwidth	Pass	Meet the requirement of limit.

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

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.64 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	2173 BLUETOOTH LF, HF & NFC RFID READER
Brand	TECHNOLOGY SOLUTIONS (UK) LTD
Test Model	2173
Sample Status	Engineering sample
Nominal Voltage	5Vdc (adapter) 3.7Vdc (battery)
Modulation Type	ASK
Operating Frequency	13.56MHz
Data Rate	Up to 848 kbit/s
Field Strength	NFC: 65.28dBuV/m RFID: 62.47dBuV/m
Antenna Type	PCB Trace Antenna
Antenna Connector	NA
Accessory Device	Refer to Note
Cable Supplied	1.45m non-shielded snapon cable with one core

Note:

1. All models are listed as below. PN: 2173-BT-LF-HF-IMG was chosen for final test.

Model	PN	Description
2173	2173-BT-IMG	2D Barcode Imager Only (Without HF/LF RFID) The RFID function will be disabled by software
	2173-BT-LF-HF-A1	HF/LF RFID Only (Without 2D Barcode Scanner)
	2173-BT-LF-HF-IMG	HF/LF RFID with 2D Barcode Imager

2. The EUT consumes power from the following adapter and battery.

Adapter	
Brand	STONTRONICS
Model	DSA-10PFP-05
Input Power	100-240Vac, ~50/60Hz, 0.3A
Output Power	5Vdc, 2A

Battery	
Brand	VARTA
Model	56456 701 099 - 1ICP5/35/62
Rating	3.7Vdc, 1200mAh, 4.5Wh

3.2 Description of Test Modes

1 channel is provided to this EUT

Channel	Freq. (MHz)
1	13.56

3.2.1 Test Mode Applicability and Tested Channel Data

EUT Configure Mode	Applicable to				Description
	RE	PLC	FS	EB	
A	√	√	√	√	NFC: Tag Type A
B	√	√	√	√	NFC: Tag Type B
C	√	√	√	√	NFC: Tag Type F
D	√	√	√	√	NFC: Tag Type V
E	√	√	√	√	RFID

Where RE: Radiated Emission
FS: Frequency Stability

PLC: Power Line Conducted Emission
EB: 20dB Bandwidth measurement

Note: The antenna had been pre-tested on the positioned of each 3 axis. The worst cases were found when positioned on Y-plane.

Radiated Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
A, B, C, D, E	1	1	ASK

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
A, B, C, D, E	1	1	ASK

Frequency Stability:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
A, B, C, D, E	1	1	ASK

20dB Bandwidth:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
A, B, C, D, E	1	1	ASK

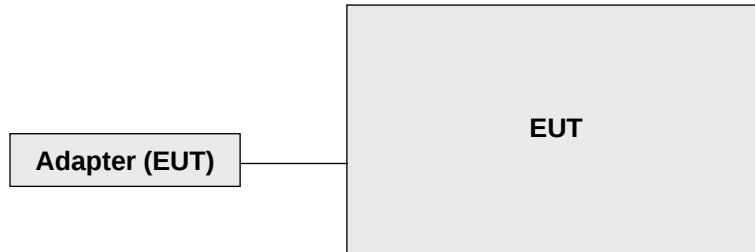
Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
PLC	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
FS	25 deg. C, 66% RH	3.7Vdc	Noah Chang
BW	25 deg. C, 70% RH	120Vac, 60Hz	Gavin Wu

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.225)

FCC Part 15, Subpart C (15.215)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission Measurement

4.1.1 Limits of Radiated Emission Measurement

The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

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 § 15.209.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jan. 03, 2019	Jan. 02, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 4.
 3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
 4. The IC Site Registration No. is 7450F-4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

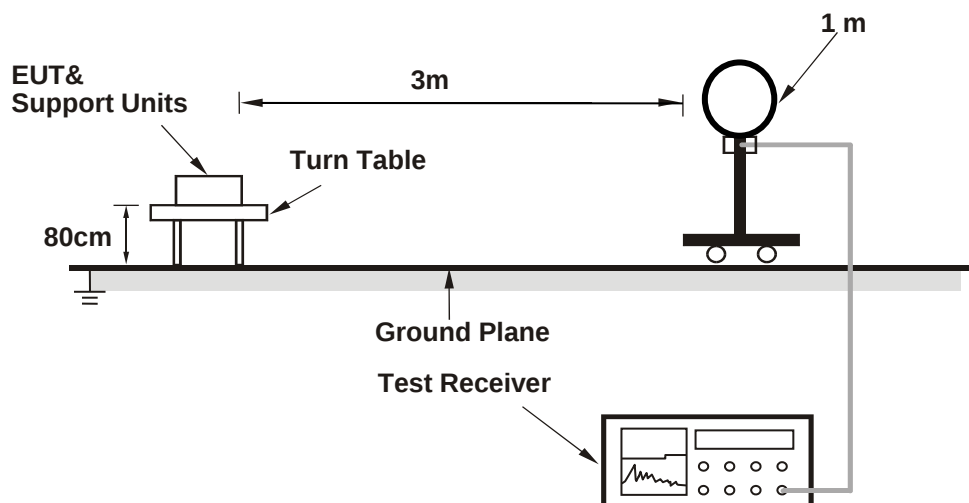
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

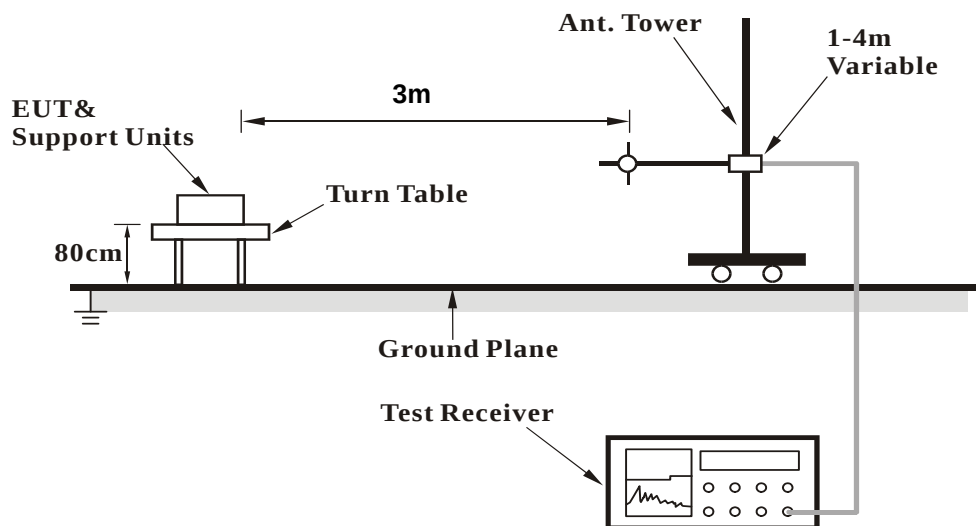
No deviation.

4.1.5 Test Set Up

For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

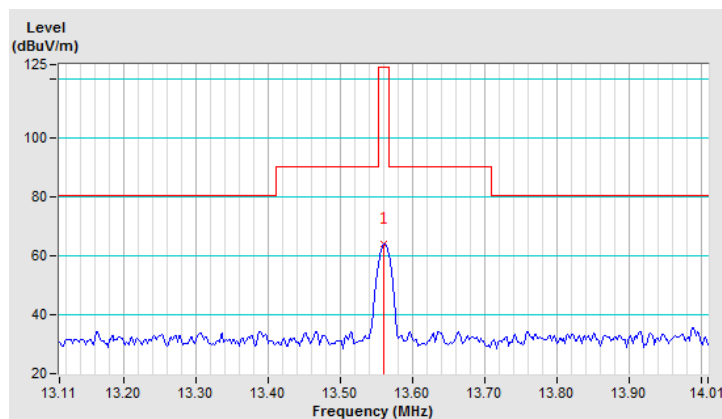
Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	64.03 QP	124.00 QP	-59.97	1.00	172	42.22	21.81

- Remarks:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

$$\begin{aligned}
 13.56\text{MHz} &= 15848\text{uV/m} && 30\text{m} \\
 &= 84\text{dBuV/m} && 30\text{m} \\
 &= 84+20\log(30/3)^2 && 3\text{m} \\
 &= 124\text{dBuV/m}
 \end{aligned}$$



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	61.10 QP	124.00 QP	-62.90	1.00	90	39.29	21.81

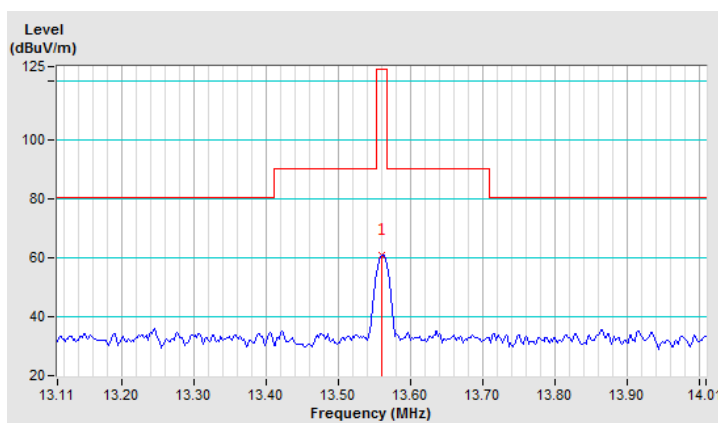
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84 + 20\log(30/3)^2$ 3m
 = 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

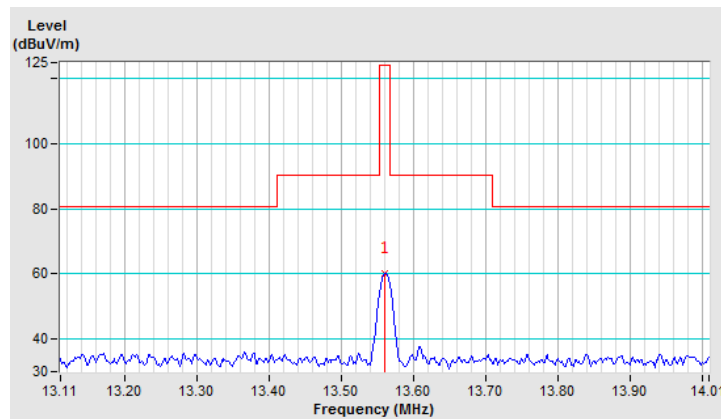
Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	60.23 QP	124.00 QP	-63.77	1.00	179	38.42	21.81

- Remarks:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

$$\begin{aligned}
 13.56\text{MHz} &= 15848\text{uV/m} & 30\text{m} \\
 &= 84\text{dBuV/m} & 30\text{m} \\
 &= 84+20\log(30/3)^2 & 3\text{m} \\
 &= 124\text{dBuV/m}
 \end{aligned}$$

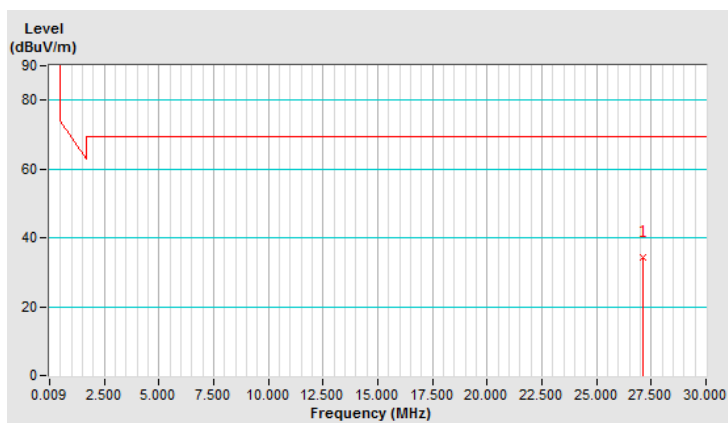


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	34.25 QP	69.54 QP	-35.29	1.00	154	12.15	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

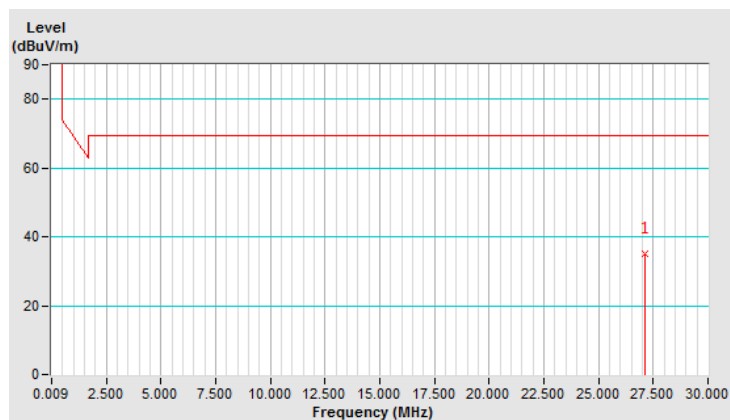


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	34.96 QP	69.54 QP	-34.58	1.00	117	12.86	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

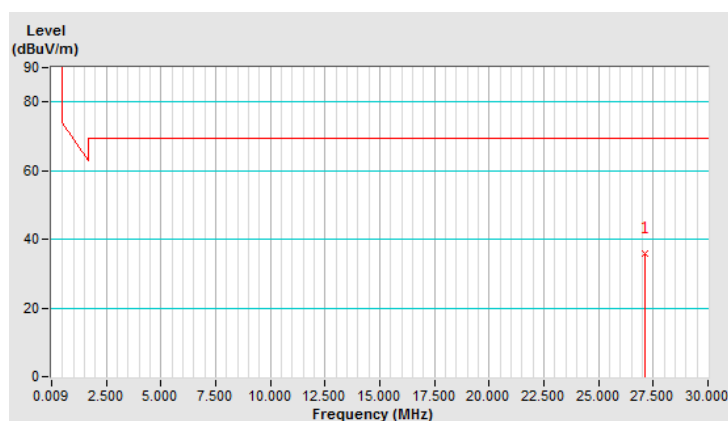


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Ground-Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	35.81 QP	69.54 QP	-33.73	1.00	57	13.71	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

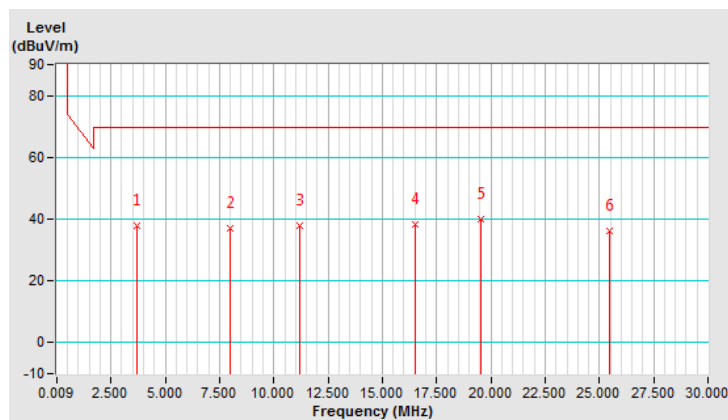


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3.67	37.68 QP	69.54 QP	-31.86	1.00	253	17.83	19.85
2	7.99	37.12 QP	69.54 QP	-32.42	1.00	234	15.83	21.29
3	11.17	37.71 QP	69.54 QP	-31.83	1.00	81	15.91	21.80
4	16.50	38.36 QP	69.54 QP	-31.18	1.00	10	16.53	21.83
5	19.56	40.00 QP	69.54 QP	-29.54	1.00	226	18.15	21.85
6	25.44	36.37 QP	69.54 QP	-33.17	1.00	204	14.33	22.04

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

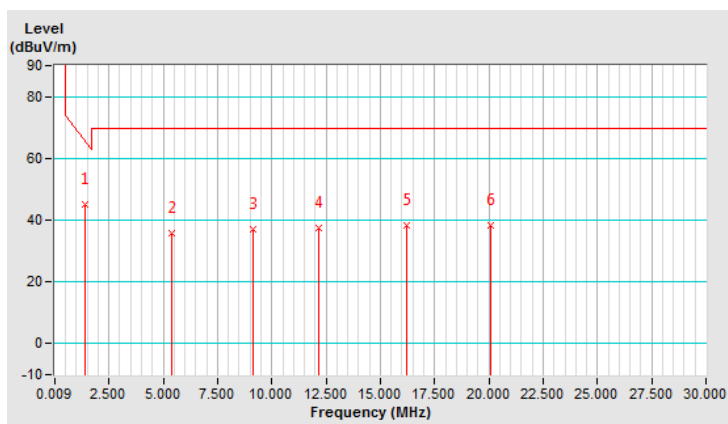


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.39	45.10 QP	64.75 QP	-19.65	1.00	322	25.15	19.95
2	5.41	35.85 QP	69.54 QP	-33.69	1.00	242	15.21	20.64
3	9.13	37.04 QP	69.54 QP	-32.50	1.00	54	15.47	21.57
4	12.19	37.51 QP	69.54 QP	-32.03	1.00	193	15.71	21.80
5	16.20	38.14 QP	69.54 QP	-31.40	1.00	16	16.31	21.83
6	20.10	38.17 QP	69.54 QP	-31.37	1.00	290	16.32	21.85

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

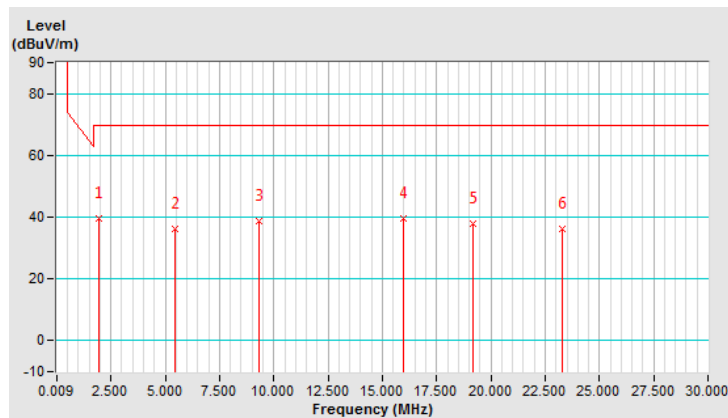


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.93	39.60 QP	69.54 QP	-29.94	1.00	10	19.80	19.80
2	5.47	36.18 QP	69.54 QP	-33.36	1.00	65	15.52	20.66
3	9.31	38.92 QP	69.54 QP	-30.62	1.00	187	17.30	21.62
4	15.96	39.43 QP	69.54 QP	-30.11	1.00	205	17.60	21.83
5	19.20	37.93 QP	69.54 QP	-31.61	1.00	282	16.08	21.85
6	23.28	36.35 QP	69.54 QP	-33.19	1.00	117	14.39	21.96

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

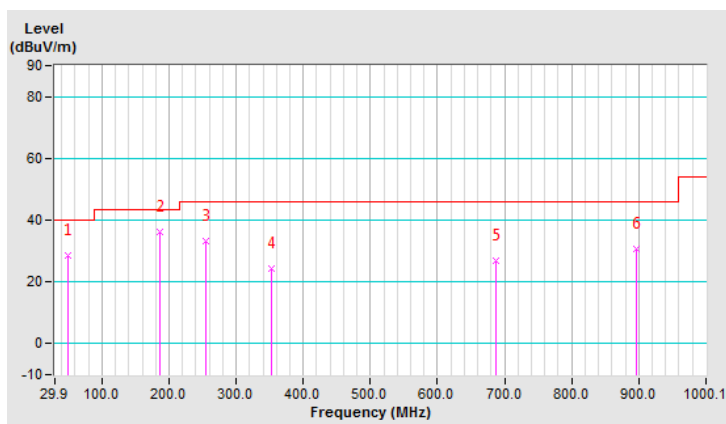


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	49.30	28.50 QP	40.00	-11.50	1.50 H	339	37.40	-8.90
2	187.07	36.00 QP	43.50	-7.50	1.00 H	269	46.90	-10.90
3	254.99	33.10 QP	46.00	-12.90	1.00 H	267	42.40	-9.30
4	352.01	24.20 QP	46.00	-21.80	1.50 H	156	31.50	-7.30
5	687.70	27.00 QP	46.00	-19.00	1.00 H	9	27.90	-0.90
6	897.26	30.60 QP	46.00	-15.40	1.00 H	9	27.30	3.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

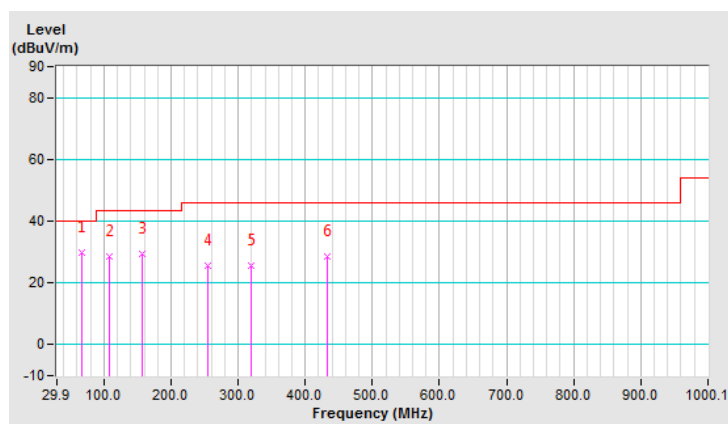


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	A		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	66.77	29.80 QP	40.00	-10.20	1.00 V	318	40.40	-10.60
2	107.52	28.60 QP	43.50	-14.90	1.50 V	205	40.80	-12.20
3	157.97	29.20 QP	43.50	-14.30	1.50 V	13	37.90	-8.70
4	254.99	25.70 QP	46.00	-20.30	1.50 V	196	35.00	-9.30
5	319.02	25.40 QP	46.00	-20.60	1.50 V	298	32.90	-7.50
6	433.50	28.70 QP	46.00	-17.30	1.00 V	309	34.60	-5.90

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	63.83 QP	124.00 QP	-60.17	1.00 V	25	42.02	21.81

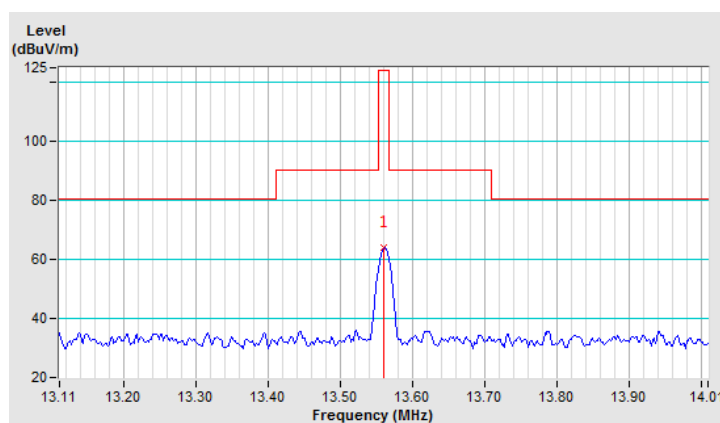
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84 + 20\log(30/3)^2$ 3m
 = 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	60.38 QP	124.00 QP	-63.62	1.00	282	38.57	21.81

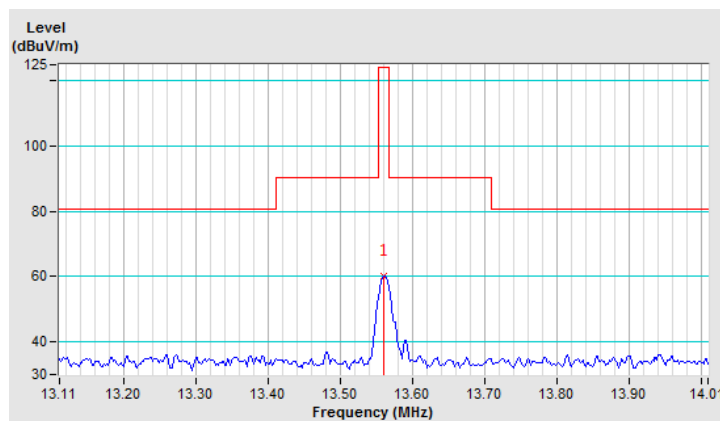
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84+20\log(30/3)^2$ 3m
 = 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	58.89 QP	124.00 QP	-65.11	1.00	19	37.08	21.81

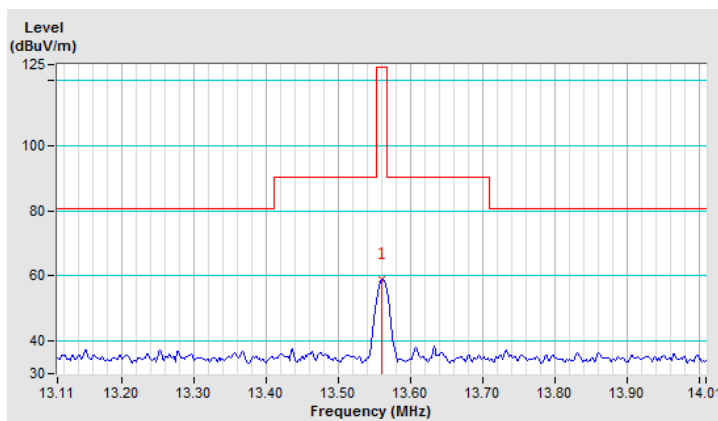
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84 + 20\log(30/3)^2$ 3m
 = 124dBuV/m

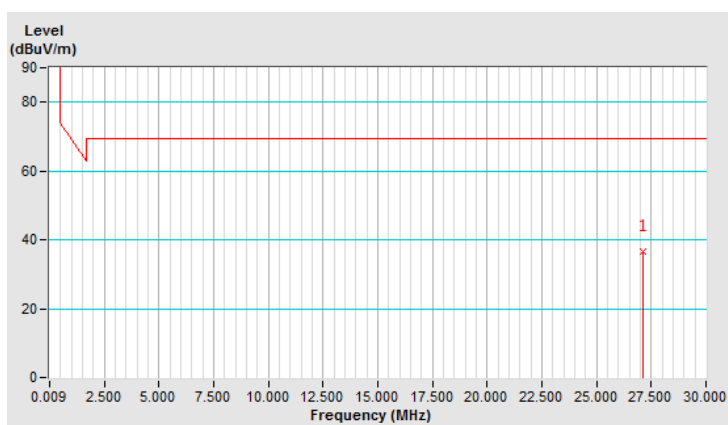


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	36.72 QP	69.54 QP	-32.82	1.00	186	14.62	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

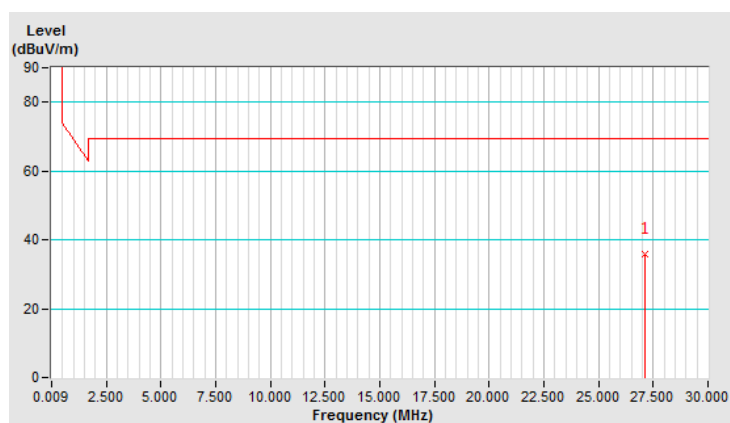


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	35.92 QP	69.54 QP	-33.62	1.00	86	13.82	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

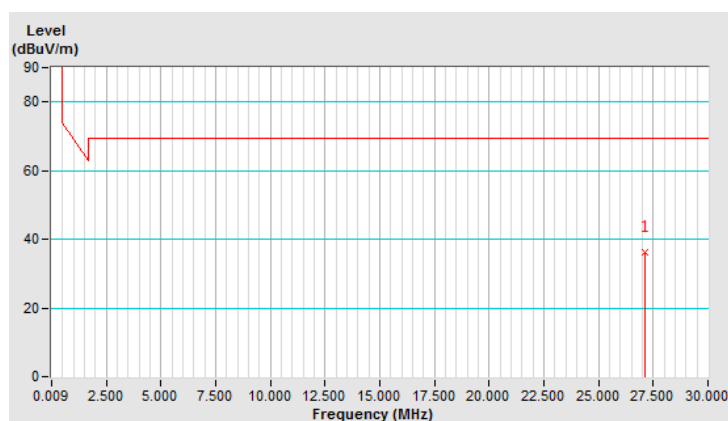


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Ground-Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	36.20 QP	69.54 QP	-33.34	1.00	267	14.10	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

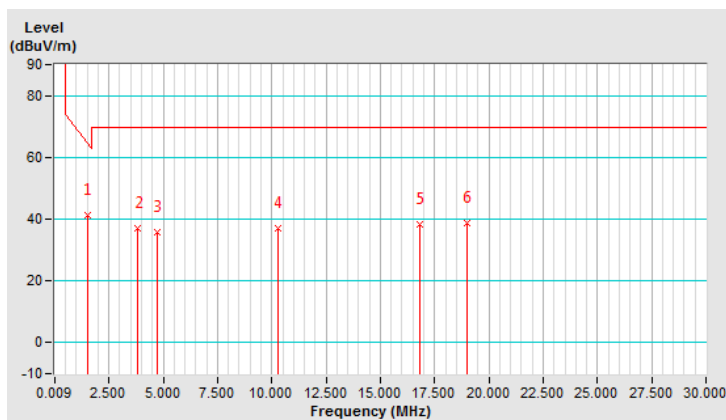


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.51	41.39 QP	64.03 QP	-22.64	1.00	166	21.48	19.91
2	3.85	36.88 QP	69.54 QP	-32.66	1.00	313	16.93	19.95
3	4.75	35.92 QP	69.54 QP	-33.62	1.00	58	15.51	20.41
4	10.27	37.11 QP	69.54 QP	-32.43	1.00	9	15.32	21.79
5	16.80	38.42 QP	69.54 QP	-31.12	1.00	31	16.59	21.83
6	19.02	38.61 QP	69.54 QP	-30.93	1.00	140	16.77	21.84

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

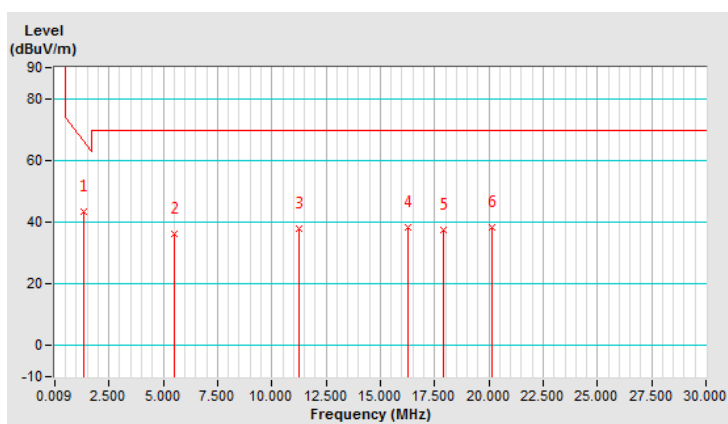


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.33	43.52 QP	65.14 QP	-21.62	1.00	228	23.56	19.96
2	5.53	36.15 QP	69.54 QP	-33.39	1.00	322	15.48	20.67
3	11.23	37.95 QP	69.54 QP	-31.59	1.00	63	16.15	21.80
4	16.26	38.42 QP	69.54 QP	-31.12	1.00	181	16.59	21.83
5	17.88	37.48 QP	69.54 QP	-32.06	1.00	242	15.64	21.84
6	20.16	38.18 QP	69.54 QP	-31.36	1.00	282	16.32	21.86

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

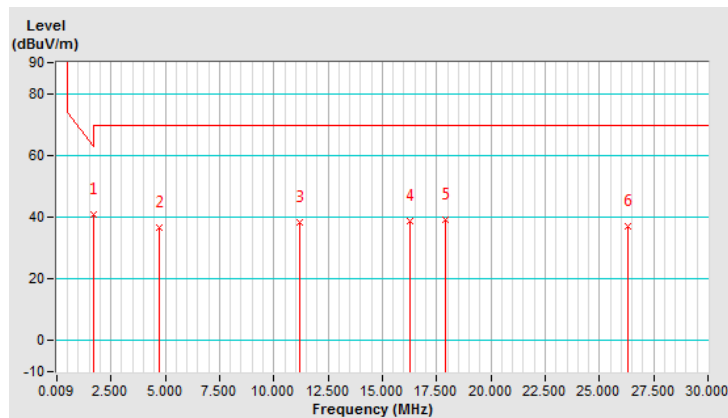


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.69	40.87 QP	63.05 QP	-22.18	1.00	228	21.01	19.86
2	4.75	36.80 QP	69.54 QP	-32.74	1.00	16	16.39	20.41
3	11.17	38.13 QP	69.54 QP	-31.41	1.00	30	16.33	21.80
4	16.26	38.76 QP	69.54 QP	-30.78	1.00	82	16.93	21.83
5	17.88	39.31 QP	69.54 QP	-30.23	1.00	9	17.47	21.84
6	26.34	36.91 QP	69.54 QP	-32.63	1.00	32	14.84	22.07

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

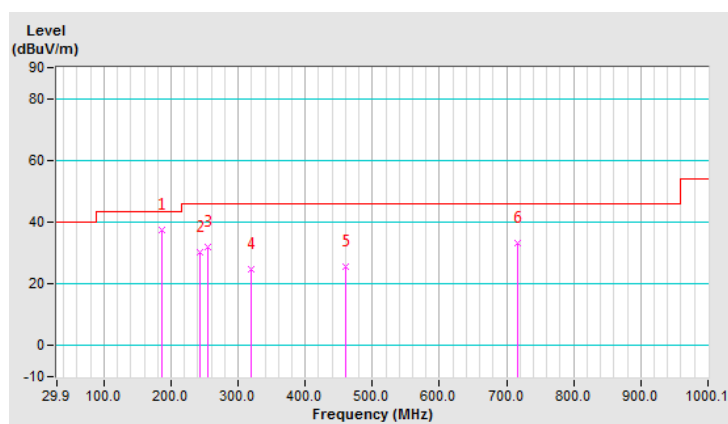


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	187.07	37.30 QP	43.50	-6.20	1.00 H	288	48.20	-10.90
2	243.34	30.40 QP	46.00	-15.60	1.00 H	251	40.00	-9.60
3	254.99	32.00 QP	46.00	-14.00	1.00 H	274	41.30	-9.30
4	319.02	24.60 QP	46.00	-21.40	1.00 H	259	32.10	-7.50
5	460.67	25.70 QP	46.00	-20.30	1.00 H	353	31.30	-5.60
6	716.80	33.20 QP	46.00	-12.80	1.00 H	62	33.30	-0.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

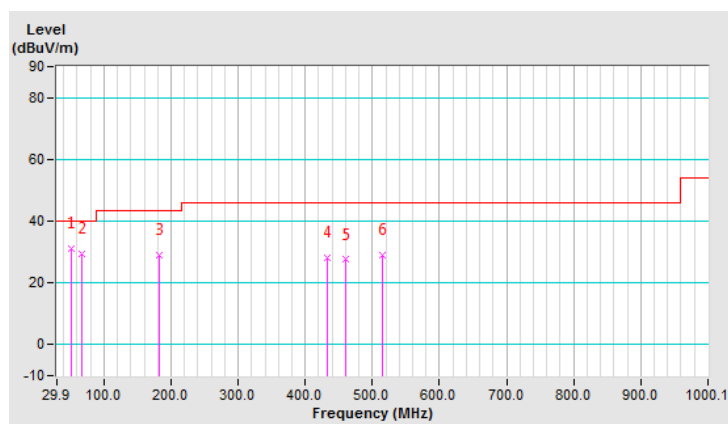


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	B		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	51.24	31.20 QP	40.00	-8.80	1.00 V	175	40.20	-9.00
2	66.77	29.60 QP	40.00	-10.40	1.00 V	311	40.20	-10.60
3	183.19	29.10 QP	43.50	-14.40	1.00 V	201	39.70	-10.60
4	433.50	28.30 QP	46.00	-17.70	1.00 V	280	34.20	-5.90
5	460.67	27.50 QP	46.00	-18.50	1.00 V	228	33.10	-5.60
6	515.00	28.90 QP	46.00	-17.10	1.00 V	274	33.60	-4.70

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	65.28 QP	124.00 QP	-58.72	1.00	170	43.47	21.81

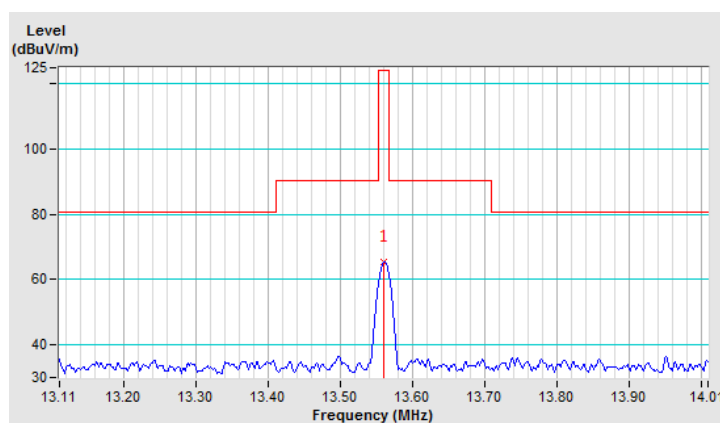
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84+20\log(30/3)^2$ 3m
 = 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	61.86 QP	124.00 QP	-62.14	1.00	89	40.05	21.81

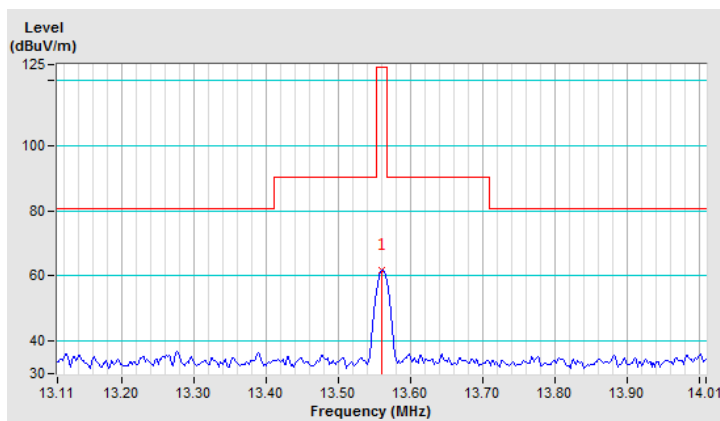
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

$$\begin{aligned}
 13.56\text{MHz} &= 15848\text{uV/m} & 30\text{m} \\
 &= 84\text{dBuV/m} & 30\text{m} \\
 &= 84+20\log(30/3)^2 & 3\text{m} \\
 &= 124\text{dBuV/m}
 \end{aligned}$$



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	60.11 QP	124.00 QP	-63.89	1.00	10	38.30	21.81

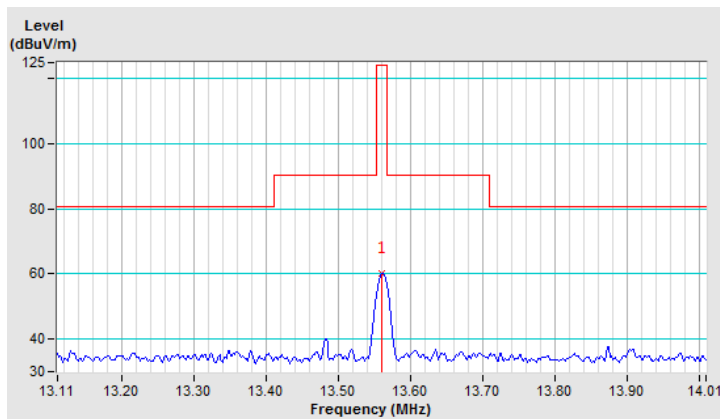
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84 + 20\log(30/3)^2$ 3m
 = 124dBuV/m

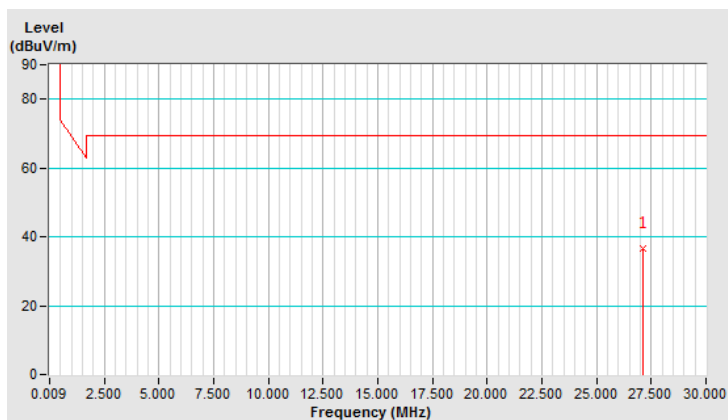


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	36.75 QP	69.54 QP	-32.79	1.00	211	14.65	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

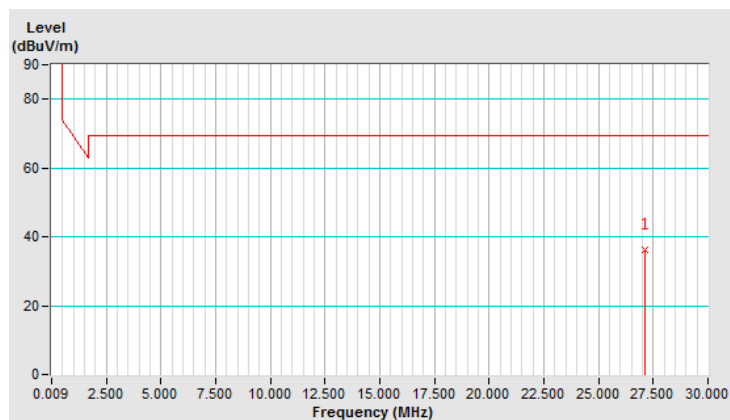


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	36.10 QP	69.54 QP	-33.44	1.00	177	14.00	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

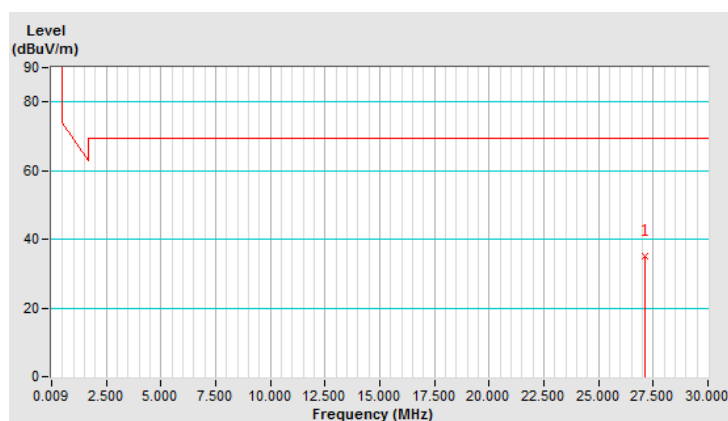


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Ground-Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	35.10 QP	69.54 QP	-34.44	1.00	254	13.00	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

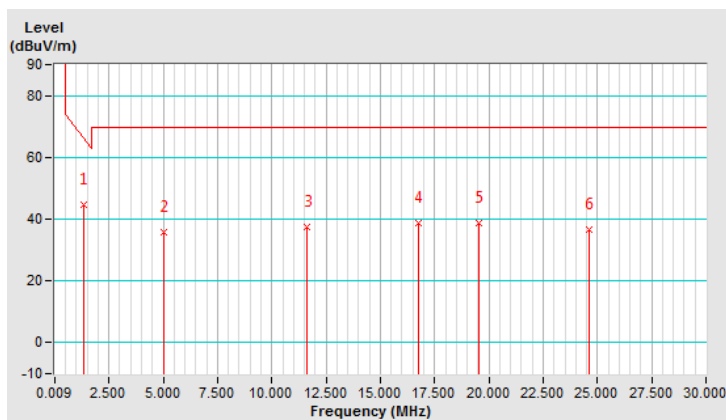


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.33	44.52 QP	65.14 QP	-20.62	1.00	102	24.56	19.96
2	5.05	35.70 QP	69.54 QP	-33.84	1.00	238	15.15	20.55
3	11.65	37.31 QP	69.54 QP	-32.23	1.00	297	15.51	21.80
4	16.74	38.85 QP	69.54 QP	-30.69	1.00	216	17.02	21.83
5	19.56	38.67 QP	69.54 QP	-30.87	1.00	315	16.82	21.85
6	24.60	36.57 QP	69.54 QP	-32.97	1.00	205	14.56	22.01

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

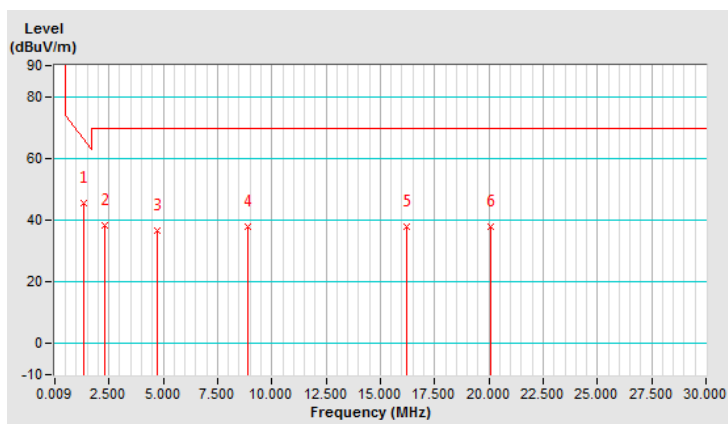


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.33	45.57 QP	69.54 QP	-19.57	1.00	345	25.61	19.96
2	2.29	38.39 QP	69.54 QP	-31.15	1.00	218	18.69	19.70
3	4.75	36.57 QP	69.54 QP	-32.97	1.00	9	16.16	20.41
4	8.89	37.78 QP	69.54 QP	-31.76	1.00	46	16.27	21.51
5	16.20	37.91 QP	69.54 QP	-31.63	1.00	199	16.08	21.83
6	20.10	38.08 QP	69.54 QP	-31.46	1.00	117	16.23	21.85

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

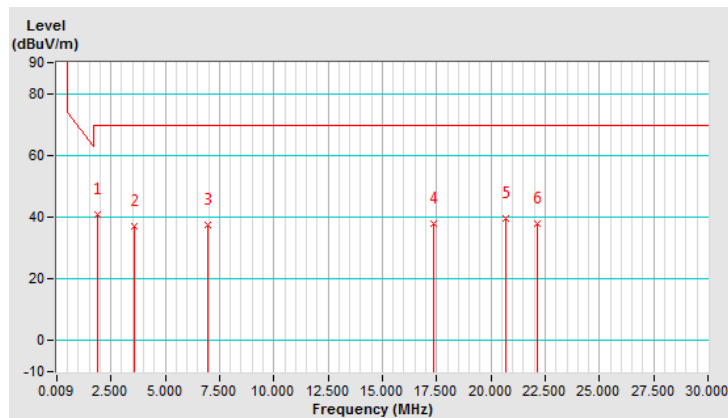


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.87	40.68 QP	69.54 QP	-28.86	1.00	334	20.86	19.82
2	3.55	37.21 QP	69.54 QP	-32.33	1.00	10	17.42	19.79
3	6.97	37.56 QP	69.54 QP	-31.98	1.00	10	16.53	21.03
4	17.34	38.00 QP	69.54 QP	-31.54	1.00	69	16.17	21.83
5	20.70	39.67 QP	69.54 QP	-29.87	1.00	264	17.80	21.87
6	22.14	37.85 QP	69.54 QP	-31.69	1.00	299	15.93	21.92

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

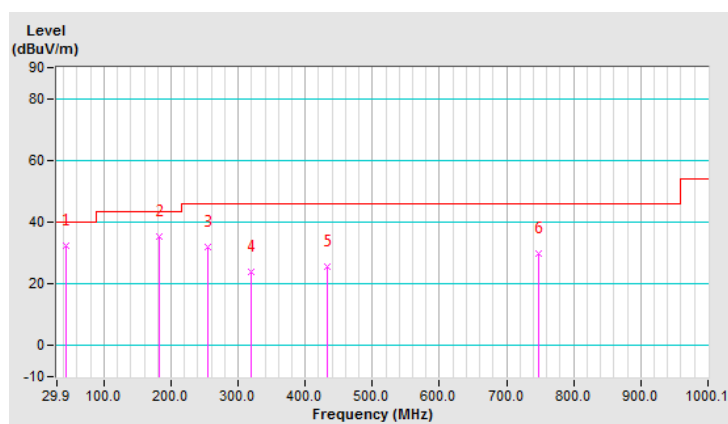


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	43.48	32.30 QP	40.00	-7.70	1.00 H	117	41.40	-9.10
2	183.19	35.50 QP	43.50	-8.00	1.00 H	291	46.10	-10.60
3	254.99	32.00 QP	46.00	-14.00	1.00 H	259	41.30	-9.30
4	319.02	24.00 QP	46.00	-22.00	1.00 H	256	31.50	-7.50
5	433.50	25.40 QP	46.00	-20.60	1.00 H	295	31.30	-5.90
6	747.85	30.00 QP	46.00	-16.00	1.00 H	10	29.10	0.90

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

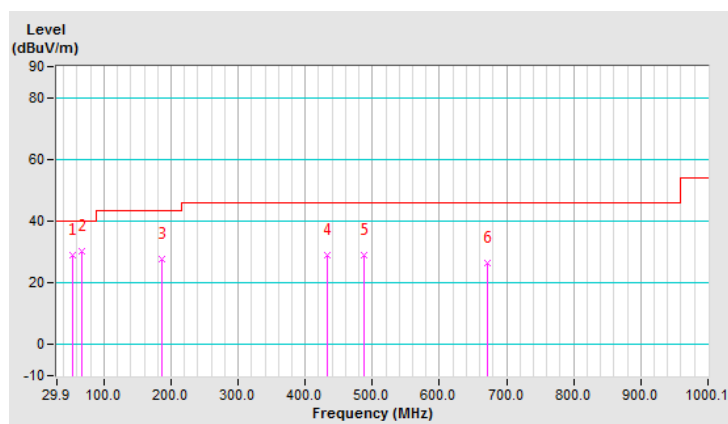


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	C		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	53.18	28.80 QP	40.00	-11.20	1.50 V	292	37.90	-9.10
2	66.77	30.10 QP	40.00	-9.90	1.00 V	312	40.70	-10.60
3	187.07	27.60 QP	43.50	-15.90	1.00 V	177	38.50	-10.90
4	433.50	28.90 QP	46.00	-17.10	1.50 V	277	34.80	-5.90
5	487.83	29.10 QP	46.00	-16.90	1.00 V	112	34.30	-5.20
6	672.17	26.50 QP	46.00	-19.50	1.00 V	217	27.60	-1.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	61.74 QP	124.00 QP	-62.26	1.00	180	39.93	21.81

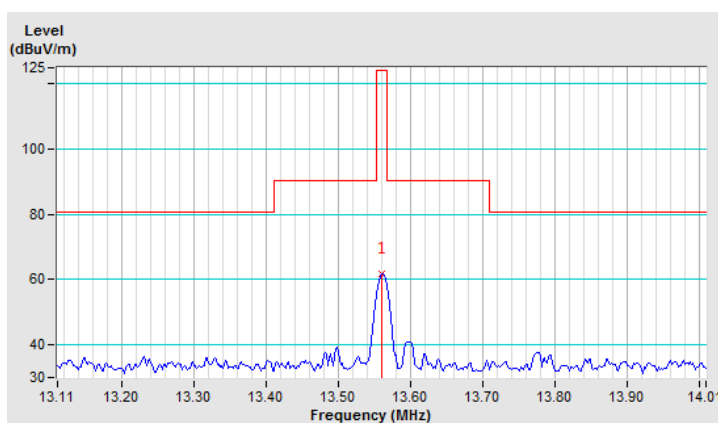
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84+20\log(30/3)^2$ 3m
 = 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	58.24 QP	124.00 QP	-65.76	1.00	86	36.43	21.81

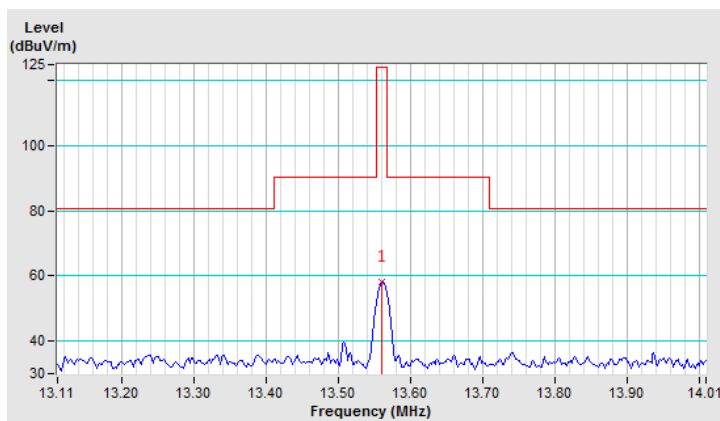
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
= 84dBuV/m 30m
= $84 + 20\log(30/3)^2$ 3m
= 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	56.72 QP	124.00 QP	-67.28	1.00	4	34.91	21.81

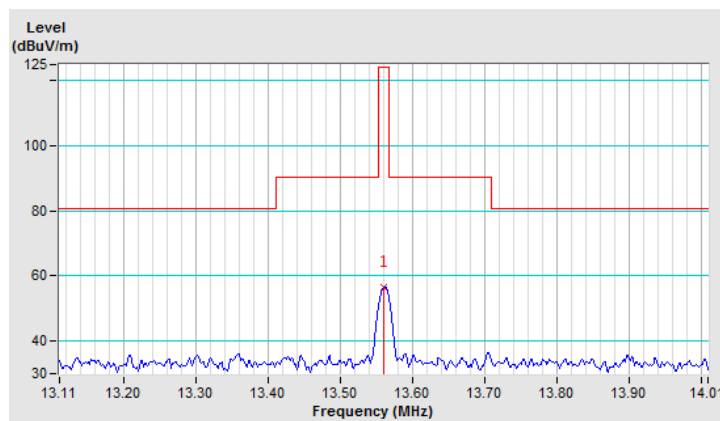
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84 + 20\log(30/3)^2$ 3m
 = 124dBuV/m

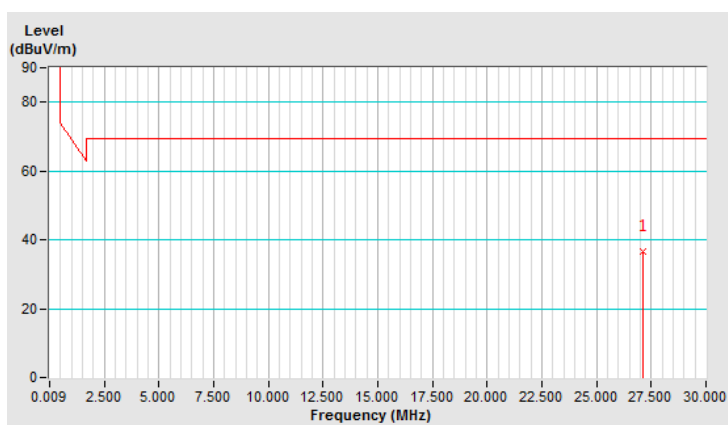


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	36.75 QP	69.54 QP	-32.79	1.00	229	14.65	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

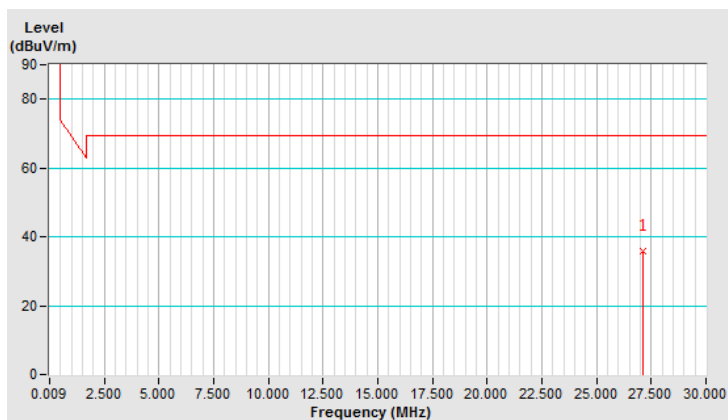


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	35.86 QP	69.54 QP	-33.68	1.00	155	13.76	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

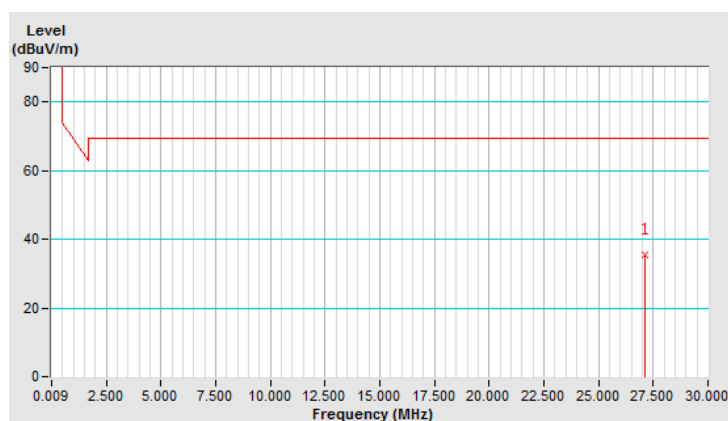


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Ground-Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	35.30 QP	69.54 QP	-34.24	1.00	85	13.20	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

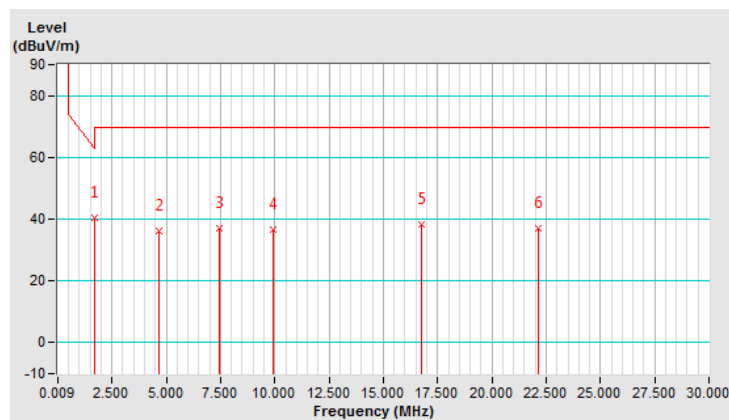


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.69	40.47 QP	63.05 QP	-22.58	1.00	9	20.61	19.86
2	4.69	36.25 QP	69.54 QP	-33.29	1.00	149	15.87	20.38
3	7.45	37.15 QP	69.54 QP	-32.39	1.00	137	16.00	21.15
4	9.91	36.75 QP	69.54 QP	-32.79	1.00	246	14.98	21.77
5	16.74	38.28 QP	69.54 QP	-31.26	1.00	103	16.45	21.83
6	22.14	36.94 QP	69.54 QP	-32.60	1.00	189	15.02	21.92

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

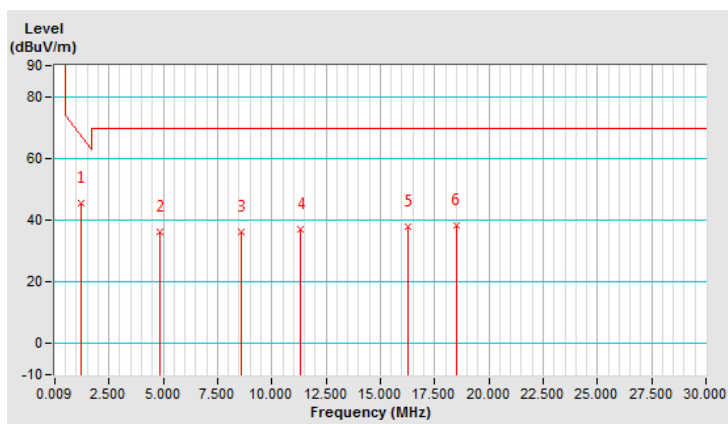


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1.21	45.40 QP	65.96 QP	-20.56	1.00	180	25.41	19.99
2	4.87	36.18 QP	69.54 QP	-33.36	1.00	8	15.71	20.47
3	8.59	36.30 QP	69.54 QP	-33.24	1.00	265	14.86	21.44
4	11.35	37.00 QP	69.54 QP	-32.54	1.00	286	15.20	21.80
5	16.26	37.81 QP	69.54 QP	-31.73	1.00	140	15.98	21.83
6	18.48	38.33 QP	69.54 QP	-31.21	1.00	357	16.49	21.84

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

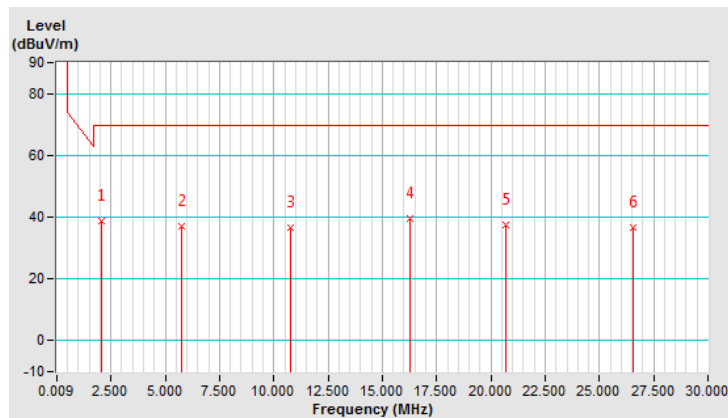


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2.05	38.74 QP	69.54 QP	-30.80	1.00	53	18.97	19.77
2	5.77	36.93 QP	69.54 QP	-32.61	1.00	11	16.20	20.73
3	10.75	36.50 QP	69.54 QP	-33.04	1.00	10	14.71	21.79
4	16.26	39.62 QP	69.54 QP	-29.92	1.00	303	17.79	21.83
5	20.70	37.62 QP	69.54 QP	-31.92	1.00	120	15.75	21.87
6	26.58	36.64 QP	69.54 QP	-32.90	1.00	245	14.56	22.08

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

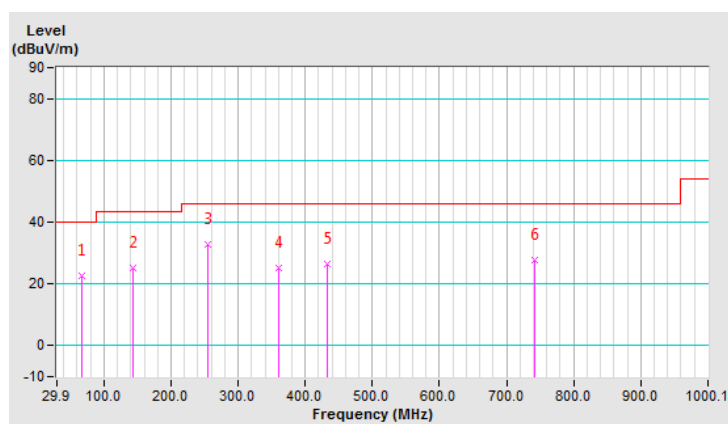


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	66.77	22.50 QP	40.00	-17.50	1.00 H	253	33.10	-10.60
2	142.44	25.10 QP	43.50	-18.40	1.50 H	104	34.20	-9.10
3	254.99	32.90 QP	46.00	-13.10	1.00 H	266	42.20	-9.30
4	359.77	25.00 QP	46.00	-21.00	1.50 H	320	32.20	-7.20
5	433.50	26.60 QP	46.00	-19.40	1.00 H	74	32.50	-5.90
6	742.03	27.80 QP	46.00	-18.20	1.00 H	293	27.00	0.80

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

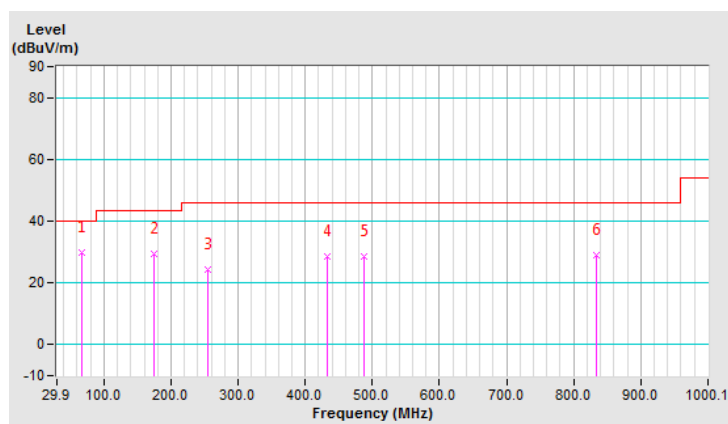


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	D		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	66.77	29.70 QP	40.00	-10.30	1.00 V	330	40.30	-10.60
2	175.43	29.20 QP	43.50	-14.30	1.50 V	63	38.90	-9.70
3	254.99	24.40 QP	46.00	-21.60	1.00 V	245	33.70	-9.30
4	433.50	28.70 QP	46.00	-17.30	1.00 V	289	34.60	-5.90
5	487.83	28.60 QP	46.00	-17.40	1.50 V	114	33.80	-5.20
6	833.23	28.90 QP	46.00	-17.10	1.00 V	283	26.60	2.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	62.47 QP	124.00 QP	-61.53	1.00	211	40.66	21.81

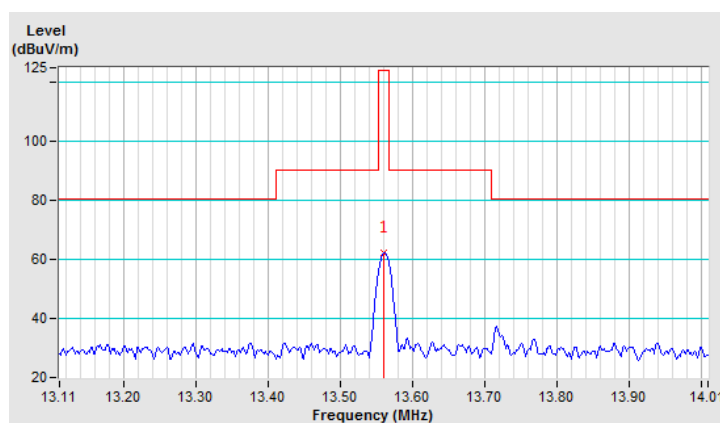
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

13.56MHz = 15848uV/m 30m
 = 84dBuV/m 30m
 = $84 + 20\log(30/3)^2$ 3m
 = 124dBuV/m



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	61.48 QP	124.00 QP	-62.52	1.00	244	39.67	21.81

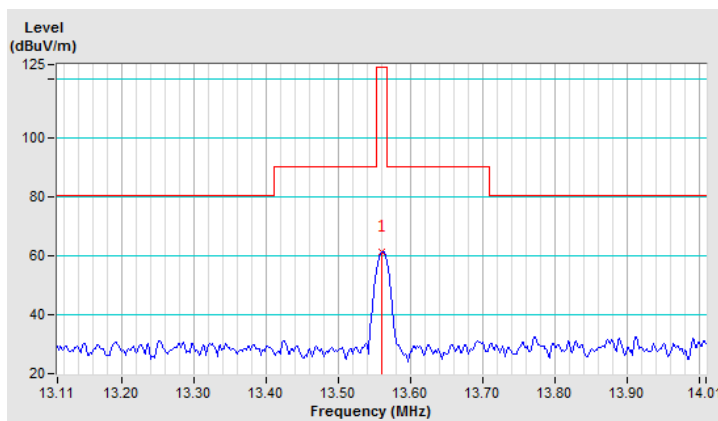
Remarks:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

$$\begin{aligned}
 13.56\text{MHz} &= 15848\text{uV/m} & 30\text{m} \\
 &= 84\text{dBuV/m} & 30\text{m} \\
 &= 84+20\log(30/3)^2 & 3\text{m} \\
 &= 124\text{dBuV/m}
 \end{aligned}$$



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

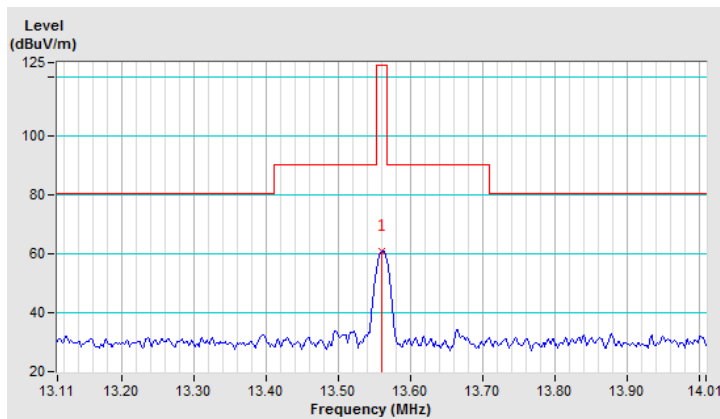
Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	61.05 QP	124.00 QP	-62.95	1.00	354	39.24	21.81

- Remarks:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

$$\begin{aligned}
 13.56\text{MHz} &= 15848\text{uV/m} & 30\text{m} \\
 &= 84\text{dBuV/m} & 30\text{m} \\
 &= 84+20\log(30/3)^2 & 3\text{m} \\
 &= 124\text{dBuV/m}
 \end{aligned}$$

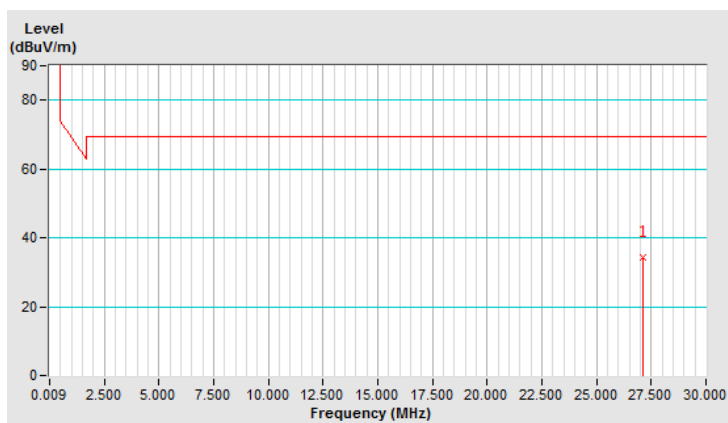


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	34.30 QP	69.54 QP	-35.24	1.00	15	12.20	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

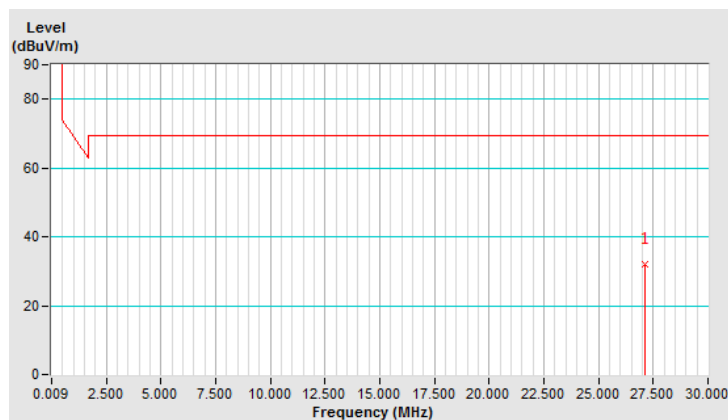


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	32.12 QP	69.54 QP	-37.42	1.00	342	10.02	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

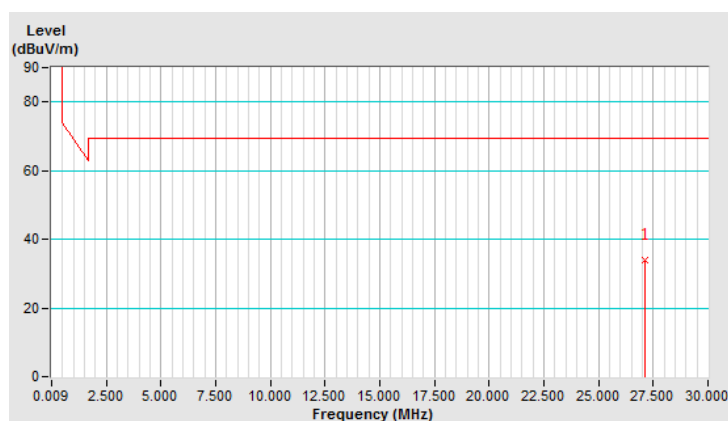


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Ground-Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	27.12	33.89 QP	69.54 QP	-35.65	1.00	26	11.79	22.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

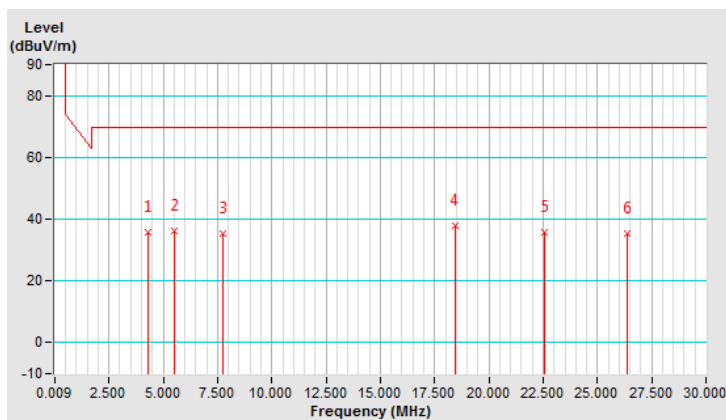


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4.33	35.96 QP	69.54 QP	-33.58	1.00	69	15.77	20.19
2	5.53	36.15 QP	69.54 QP	-33.39	1.00	322	15.48	20.67
3	7.75	35.25 QP	69.54 QP	-34.29	1.00	318	14.02	21.23
4	18.42	37.82 QP	69.54 QP	-31.72	1.00	280	15.98	21.84
5	22.56	35.61 QP	69.54 QP	-33.93	1.00	133	13.67	21.94
6	26.40	35.23 QP	69.54 QP	-34.31	1.00	282	13.16	22.07

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

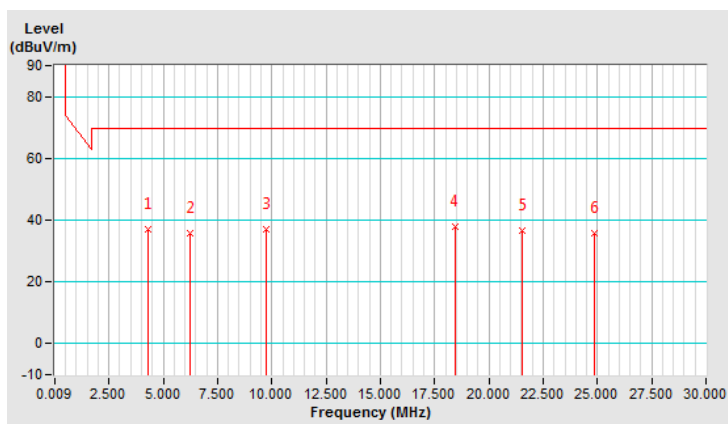


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4.33	36.96 QP	69.54 QP	-32.58	1.00	69	16.77	20.19
2	6.25	35.58 QP	69.54 QP	-33.96	1.00	166	14.73	20.85
3	9.73	36.99 QP	69.54 QP	-32.55	1.00	284	15.27	21.72
4	18.42	37.82 QP	69.54 QP	-31.72	1.00	280	15.98	21.84
5	21.54	36.55 QP	69.54 QP	-32.99	1.00	339	14.65	21.90
6	24.84	35.74 QP	69.54 QP	-33.80	1.00	112	13.72	22.02

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

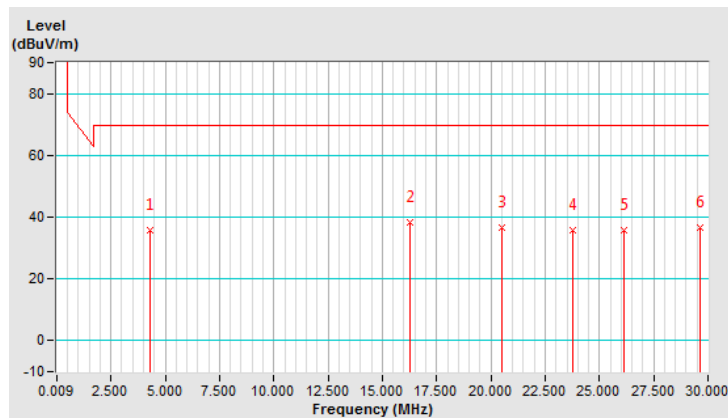


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4.33	35.96 QP	69.54 QP	-33.58	1.00	69	15.77	20.19
2	16.26	38.42 QP	69.54 QP	-31.12	1.00	181	16.59	21.83
3	20.52	36.68 QP	69.54 QP	-32.86	1.00	282	14.81	21.87
4	23.76	35.77 QP	69.54 QP	-33.77	1.00	56	13.79	21.98
5	26.10	35.85 QP	69.54 QP	-33.69	1.00	299	13.79	22.06
6	29.64	36.60 QP	69.54 QP	-32.94	1.00	353	14.41	22.19

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

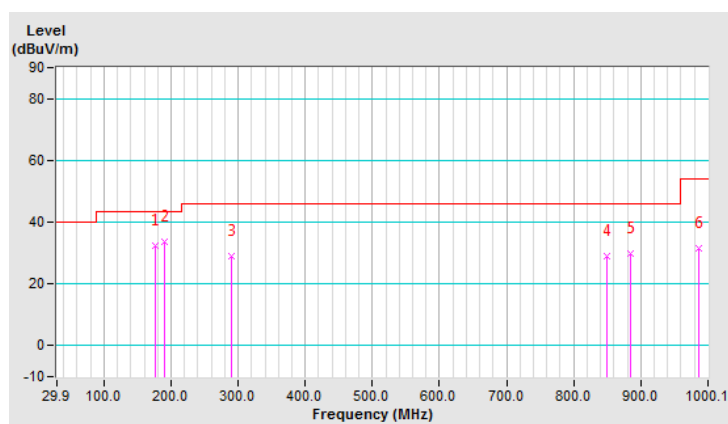


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	177.37	32.20 QP	43.50	-11.30	1.01 H	114	42.20	-10.00
2	190.95	33.60 QP	43.50	-9.90	1.50 H	128	44.80	-11.20
3	289.91	28.90 QP	46.00	-17.10	1.01 H	11	37.10	-8.20
4	848.75	29.10 QP	46.00	-16.90	1.50 H	263	26.60	2.50
5	885.62	30.00 QP	46.00	-16.00	1.01 H	136	27.00	3.00
6	986.52	31.40 QP	54.00	-22.60	1.50 H	263	27.00	4.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

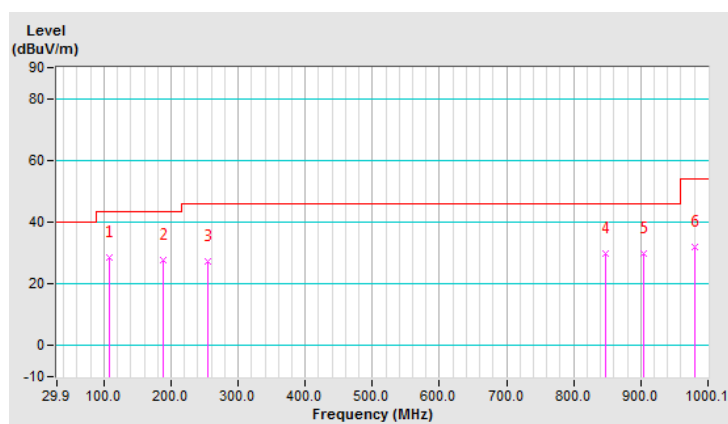


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Noah Chang
Test Mode	E		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	107.52	28.40 QP	43.50	-15.10	1.50 V	214	40.60	-12.20
2	189.01	27.60 QP	43.50	-15.90	1.00 V	226	38.70	-11.10
3	254.99	27.10 QP	46.00	-18.90	1.50 V	325	36.40	-9.30
4	846.81	30.00 QP	46.00	-16.00	1.00 V	263	27.50	2.50
5	905.02	29.80 QP	46.00	-16.20	1.00 V	18	26.10	3.70
6	980.70	31.80 QP	54.00	-22.20	1.50 V	275	27.40	4.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Jan. 03, 2019	Jan. 02, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-12040.
4. Test date: Feb. 23, 2019

4.2.3 Test Procedures

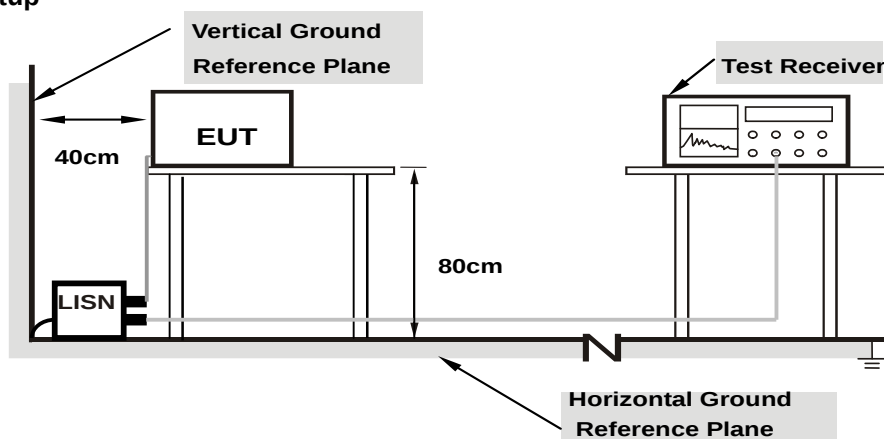
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

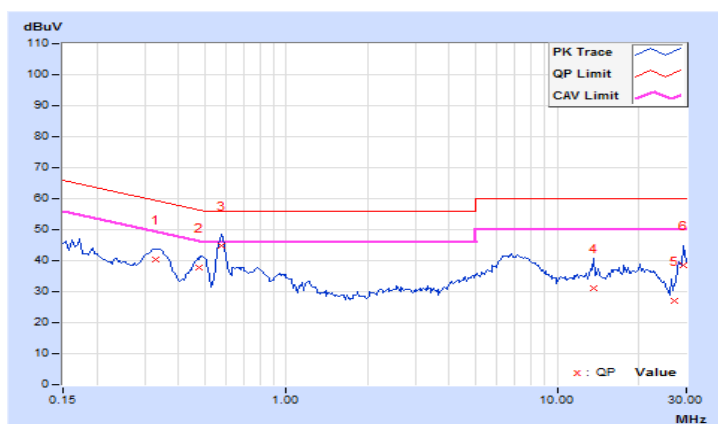
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.32969	10.18	30.26	18.72	40.44	28.90	59.46	49.46	-19.02	-20.56
2	0.47422	10.18	27.50	15.60	37.68	25.78	56.44	46.44	-18.76	-20.66
3	0.57969	10.19	34.76	26.24	44.95	36.43	56.00	46.00	-11.05	-9.57
4	13.62500	15.09	15.84	10.03	30.93	25.12	60.00	50.00	-29.07	-24.88
5	27.24219	16.76	10.14	5.36	26.90	22.12	60.00	50.00	-33.10	-27.88
6	29.23828	16.62	21.83	15.23	38.45	31.85	60.00	50.00	-21.55	-18.15

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

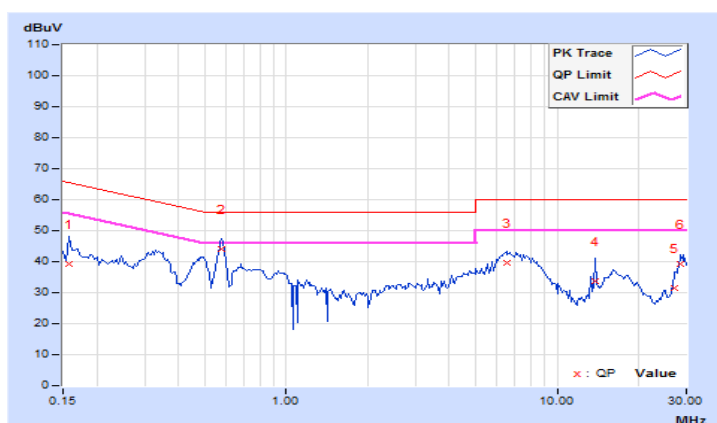


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.22	28.91	15.78	39.13	26.00	65.58	55.58	-26.45	-29.58
2	0.57969	10.19	34.06	22.73	44.25	32.92	56.00	46.00	-11.75	-13.08
3	6.52344	11.92	27.58	14.05	39.50	25.97	60.00	50.00	-20.50	-24.03
4	13.77344	14.22	19.55	12.91	33.77	27.13	60.00	50.00	-26.23	-22.87
5	27.15625	15.65	15.71	8.25	31.36	23.90	60.00	50.00	-28.64	-26.10
6	28.56250	16.01	23.38	16.33	39.39	32.34	60.00	50.00	-20.61	-17.66

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

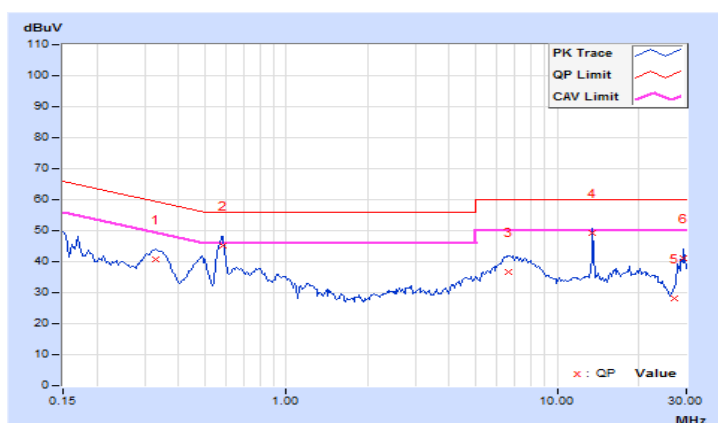


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
	[MHz]	(dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.32969	10.18	30.59	18.55	40.77	28.73	59.46	49.46	-18.69	-20.73
2	0.58359	10.19	34.88	25.76	45.07	35.95	56.00	46.00	-10.93	-10.05
3	6.63672	12.28	24.48	14.16	36.76	26.44	60.00	50.00	-23.24	-23.56
4	13.55859	15.06	34.27	28.94	49.33	44.00	60.00	50.00	-10.67	-6.00
5	27.25781	16.76	11.27	6.88	28.03	23.64	60.00	50.00	-31.97	-26.36
6	29.23438	16.62	24.56	19.06	41.18	35.68	60.00	50.00	-18.82	-14.32

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

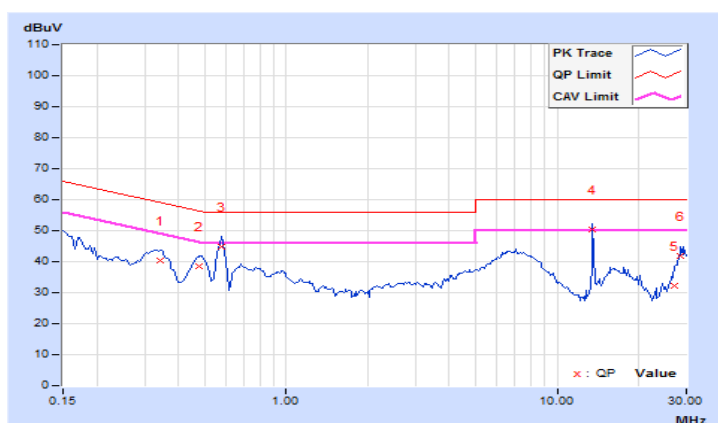


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.34141	10.19	30.13	17.25	40.32	27.44	59.17	49.17	-18.85	-21.73
2	0.47422	10.19	28.32	15.23	38.51	25.42	56.44	46.44	-17.93	-21.02
3	0.57969	10.19	34.78	23.37	44.97	33.56	56.00	46.00	-11.03	-12.44
4	13.55469	14.16	36.10	30.52	50.26	44.68	60.00	50.00	-9.74	-5.32
5	27.12109	15.64	16.40	8.25	32.04	23.89	60.00	50.00	-27.96	-26.11
6	28.68359	16.04	25.74	18.96	41.78	35.00	60.00	50.00	-18.22	-15.00

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

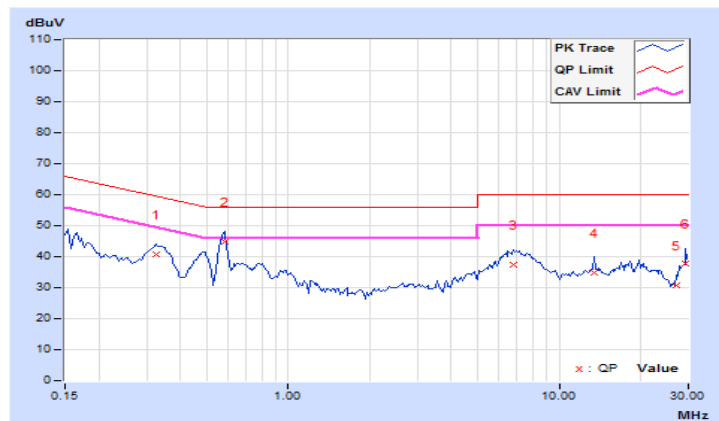


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.32578	10.18	30.45	19.13	40.63	29.31	59.56	49.56	-18.93	-20.25
2	0.58359	10.19	34.48	25.90	44.67	36.09	56.00	46.00	-11.33	-9.91
3	6.78125	12.35	25.17	15.90	37.52	28.25	60.00	50.00	-22.48	-21.75
4	13.48047	15.03	19.89	14.69	34.92	29.72	60.00	50.00	-25.08	-20.28
5	27.16016	16.77	13.85	8.03	30.62	24.80	60.00	50.00	-29.38	-25.20
6	29.23828	16.62	21.25	16.19	37.87	32.81	60.00	50.00	-22.13	-17.19

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

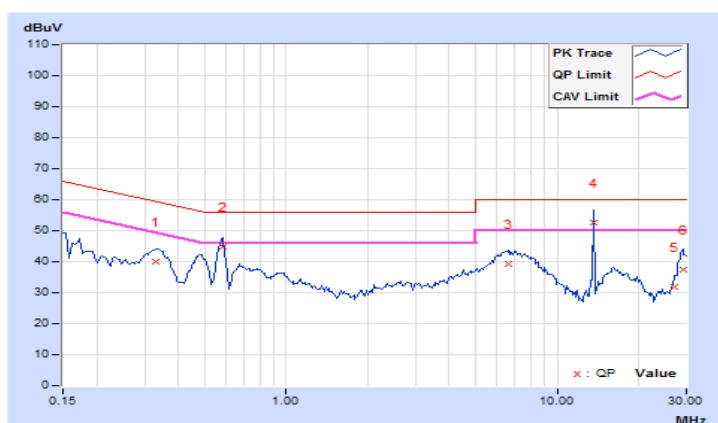


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.32969	10.19	29.72	16.41	39.91	26.60	59.46	49.46	-19.55	-22.86
2	0.58359	10.19	34.48	22.89	44.67	33.08	56.00	46.00	-11.33	-12.92
3	6.57813	11.94	27.20	13.70	39.14	25.64	60.00	50.00	-20.86	-24.36
4	13.56250	14.16	38.32	32.95	52.48	47.11	60.00	50.00	-7.52	-2.89
5	27.15625	15.65	16.34	9.69	31.99	25.34	60.00	50.00	-28.01	-24.66
6	29.10938	16.15	21.41	17.12	37.56	33.27	60.00	50.00	-22.44	-16.73

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

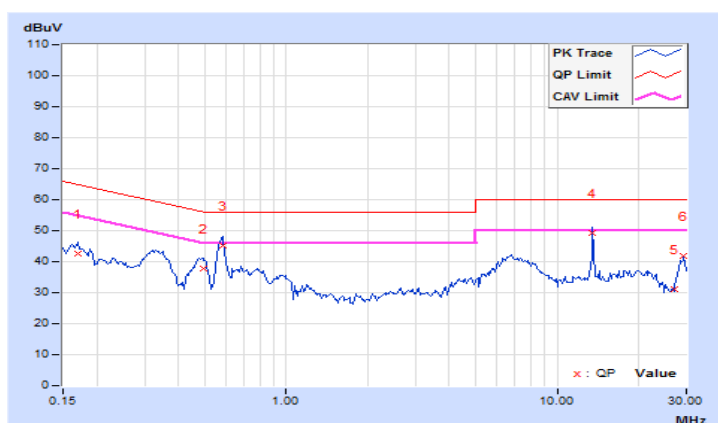


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	10.21	32.56	22.15	42.77	32.36	64.98	54.98	-22.21	-22.62
2	0.49375	10.18	27.75	16.05	37.93	26.23	56.10	46.10	-18.17	-19.87
3	0.58359	10.19	34.96	25.80	45.15	35.99	56.00	46.00	-10.85	-10.01
4	13.55859	15.06	34.17	28.86	49.23	43.92	60.00	50.00	-10.77	-6.08
5	27.15625	16.77	14.27	8.25	31.04	25.02	60.00	50.00	-28.96	-24.98
6	29.23438	16.62	25.13	18.90	41.75	35.52	60.00	50.00	-18.25	-14.48

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

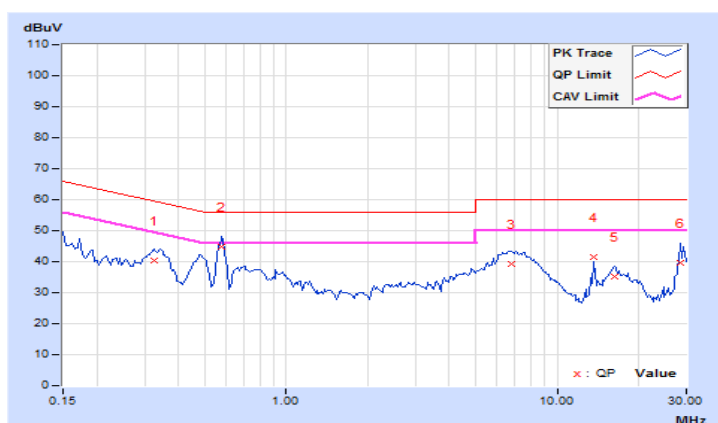


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.32578	10.19	30.31	17.57	40.50	27.76	59.56	49.56	-19.06	-21.80
2	0.57969	10.19	34.58	23.42	44.77	33.61	56.00	46.00	-11.23	-12.39
3	6.80078	12.02	27.26	14.10	39.28	26.12	60.00	50.00	-20.72	-23.88
4	13.56641	14.16	27.29	21.57	41.45	35.73	60.00	50.00	-18.55	-14.27
5	16.22656	14.60	20.51	13.82	35.11	28.42	60.00	50.00	-24.89	-21.58
6	28.68750	16.04	23.72	18.47	39.76	34.51	60.00	50.00	-20.24	-15.49

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

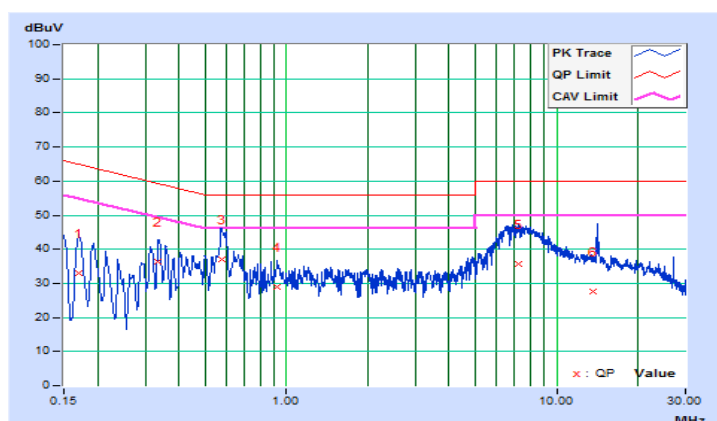


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	E		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17000	10.21	22.71	9.70	32.92	19.91	64.96	54.96	-32.04	-35.05
2	0.33413	10.18	26.26	14.84	36.44	25.02	59.35	49.35	-22.91	-24.33
3	0.57342	10.19	26.69	22.19	36.88	32.38	56.00	46.00	-19.12	-13.62
4	0.92200	10.21	18.79	10.63	29.00	20.84	56.00	46.00	-27.00	-25.16
5	7.20600	12.53	23.10	13.56	35.63	26.09	60.00	50.00	-24.37	-23.91
6	13.56000	15.06	12.69	6.75	27.75	21.81	60.00	50.00	-32.25	-28.19

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

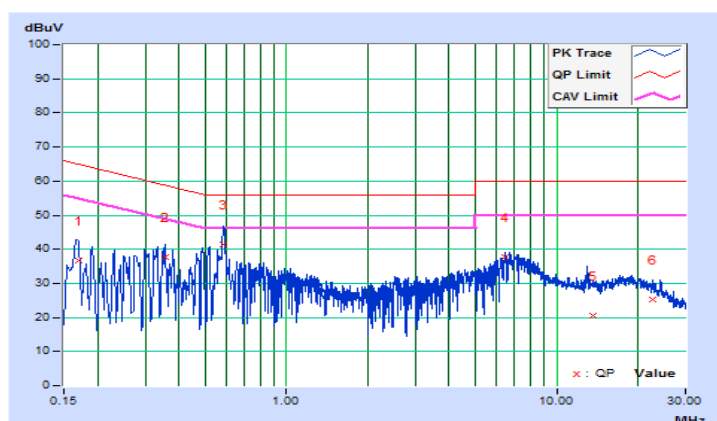


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	E		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17000	10.21	26.40	10.97	36.61	21.18	64.96	54.96	-28.35	-33.78
2	0.35407	10.19	27.48	13.10	37.67	23.29	58.87	48.87	-21.20	-25.58
3	0.58200	10.19	31.13	21.62	41.32	31.81	56.00	46.00	-14.68	-14.19
4	6.46600	11.90	25.65	11.50	37.55	23.40	60.00	50.00	-22.45	-26.60
5	13.56000	14.16	6.33	0.13	20.49	14.29	60.00	50.00	-39.51	-35.71
6	22.58200	14.93	10.43	1.13	25.36	16.06	60.00	50.00	-34.64	-33.94

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

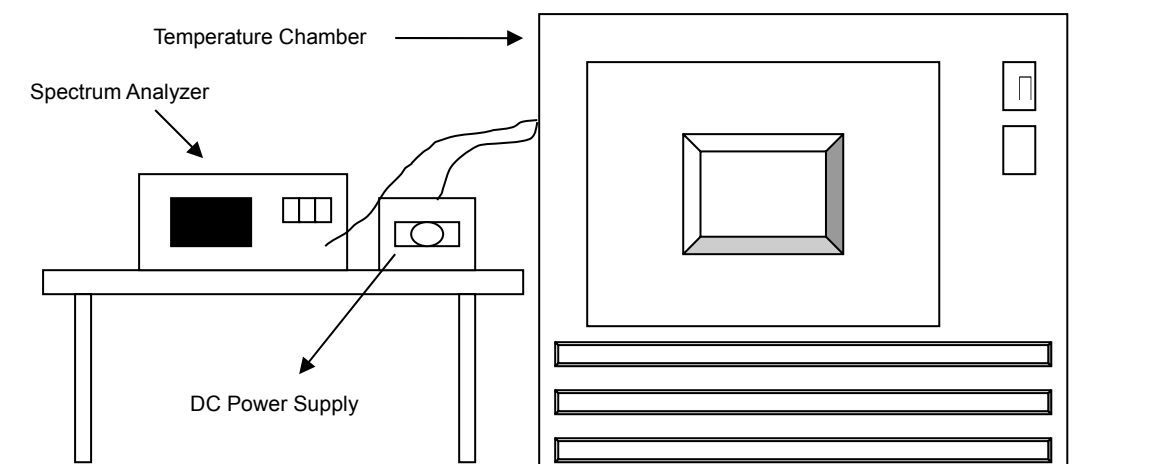


4.3 Frequency Stability

4.3.1 Limits of Frequency Stability Measurement

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.

4.3.2 Test Setup



4.3.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 11, 2018	Jun. 10, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
DC Power Supply Topward	6306A	727263	NA	NA

4.3.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turned the EUT on and coupled its output to a spectrum analyzer.
- Turned the EUT off and set the chamber to the highest temperature specified.
- Allowed sufficient time (approximately 30 min) for the temperature of the chamber to stabilize then turned the EUT on and measured the operating frequency after 2, 5, and 10 minutes.
- Repeated step d with the temperature chamber sets to each desired temperature.
- The test chamber was allowed to stabilize at $+20$ degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

Same as Item 4.1.6.

4.3.7 Test Result

Test Mode A

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.56000	0.00000	13.56001	0.00007	13.56000	0.00000	13.56000	0.00000
40	3.7	13.55996	-0.00029	13.55997	-0.00022	13.55996	-0.00029	13.55996	-0.00029
30	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.55998	-0.00015
20	3.7	13.56004	0.00029	13.56003	0.00022	13.56004	0.00029	13.56004	0.00029
10	3.7	13.55994	-0.00044	13.55996	-0.00029	13.55994	-0.00044	13.55995	-0.00037
0	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007
-10	3.7	13.56002	0.00015	13.56003	0.00022	13.56001	0.00007	13.56002	0.00015
-20	3.7	13.56006	0.00044	13.56007	0.00052	13.56006	0.00044	13.56006	0.00044

Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.56004	0.00029	13.56003	0.00022	13.56004	0.00029	13.56004	0.00029
	3.7	13.56004	0.00029	13.56003	0.00022	13.56004	0.00029	13.56004	0.00029
	3.145	13.56004	0.00029	13.56003	0.00022	13.56004	0.00029	13.56004	0.00029

Test Mode B

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.55994	-0.00044	13.55994	-0.00044	13.55994	-0.00044	13.55994	-0.00044
40	3.7	13.56001	0.00007	13.56002	0.00015	13.56001	0.00007	13.56000	0.00000
30	3.7	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029
20	3.7	13.55999	-0.00007	13.55997	-0.00022	13.55997	-0.00022	13.55998	-0.00015
10	3.7	13.55994	-0.00044	13.55994	-0.00044	13.55994	-0.00044	13.55995	-0.00037
0	3.7	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029
-10	3.7	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015	13.55999	-0.00007
-20	3.7	13.56004	0.00029	13.56002	0.00015	13.56003	0.00022	13.56003	0.00022

Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.55999	-0.00007	13.55997	-0.00022	13.55997	-0.00022	13.55998	-0.00015
	3.7	13.55999	-0.00007	13.55997	-0.00022	13.55997	-0.00022	13.55998	-0.00015
	3.145	13.55999	-0.00007	13.55997	-0.00022	13.55997	-0.00022	13.55998	-0.00015

Test Mode C

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
40	3.7	13.55999	-0.00007	13.55998	-0.00015	13.55998	-0.00015	13.55999	-0.00007
30	3.7	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029	13.56003	0.00022
20	3.7	13.56005	0.00037	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037
10	3.7	13.56001	0.00007	13.56000	0.00000	13.56001	0.00007	13.56001	0.00007
0	3.7	13.56005	0.00037	13.56005	0.00037	13.56005	0.00037	13.56004	0.00029
-10	3.7	13.56000	0.00000	13.56001	0.00007	13.56001	0.00007	13.56001	0.00007
-20	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.56000	0.00000

Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.56005	0.00037	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037
	3.7	13.56005	0.00037	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037
	3.145	13.56005	0.00037	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037

Test Mode D

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.55997	-0.00022	13.55997	-0.00022	13.55998	-0.00015	13.55997	-0.00022
40	3.7	13.56001	0.00007	13.56001	0.00007	13.56001	0.00007	13.56002	0.00015
30	3.7	13.56001	0.00007	13.56001	0.00007	13.56001	0.00007	13.56002	0.00015
20	3.7	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037	13.56005	0.00037
10	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007
0	3.7	13.55994	-0.00044	13.55994	-0.00044	13.55994	-0.00044	13.55993	-0.00052
-10	3.7	13.55995	-0.00037	13.55995	-0.00037	13.55995	-0.00037	13.55995	-0.00037
-20	3.7	13.56000	0.00000	13.56001	0.00007	13.56001	0.00007	13.56001	0.00007

Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037	13.56005	0.00037
	3.7	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037	13.56005	0.00037
	3.145	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037	13.56005	0.00037

Test Mode E

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55998	-0.00015	13.55999	-0.00007
40	3.7	13.56002	0.00015	13.56003	0.00022	13.56003	0.00022	13.56004	0.00029
30	3.7	13.55997	-0.00022	13.55997	-0.00022	13.55997	-0.00022	13.55996	-0.00029
20	3.7	13.56004	0.00029	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
10	3.7	13.55997	-0.00022	13.55997	-0.00022	13.55997	-0.00022	13.55997	-0.00022
0	3.7	13.56006	0.00044	13.56006	0.00044	13.56006	0.00044	13.56006	0.00044
-10	3.7	13.56002	0.00015	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
-20	3.7	13.55993	-0.00052	13.55994	-0.00044	13.55993	-0.00052	13.55993	-0.00052

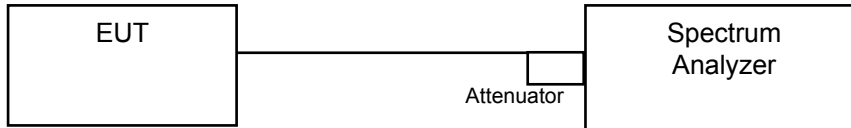
Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.56004	0.00029	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
	3.7	13.56004	0.00029	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
	3.145	13.56004	0.00029	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022

4.4 20dB Bandwidth

4.4.1 Limits of 20dB Bandwidth Measurement

The 20dB bandwidth shall be specified in operating frequency band.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 1kHz RBW and 3kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.4.5 Deviation from Test Standard

No deviation.

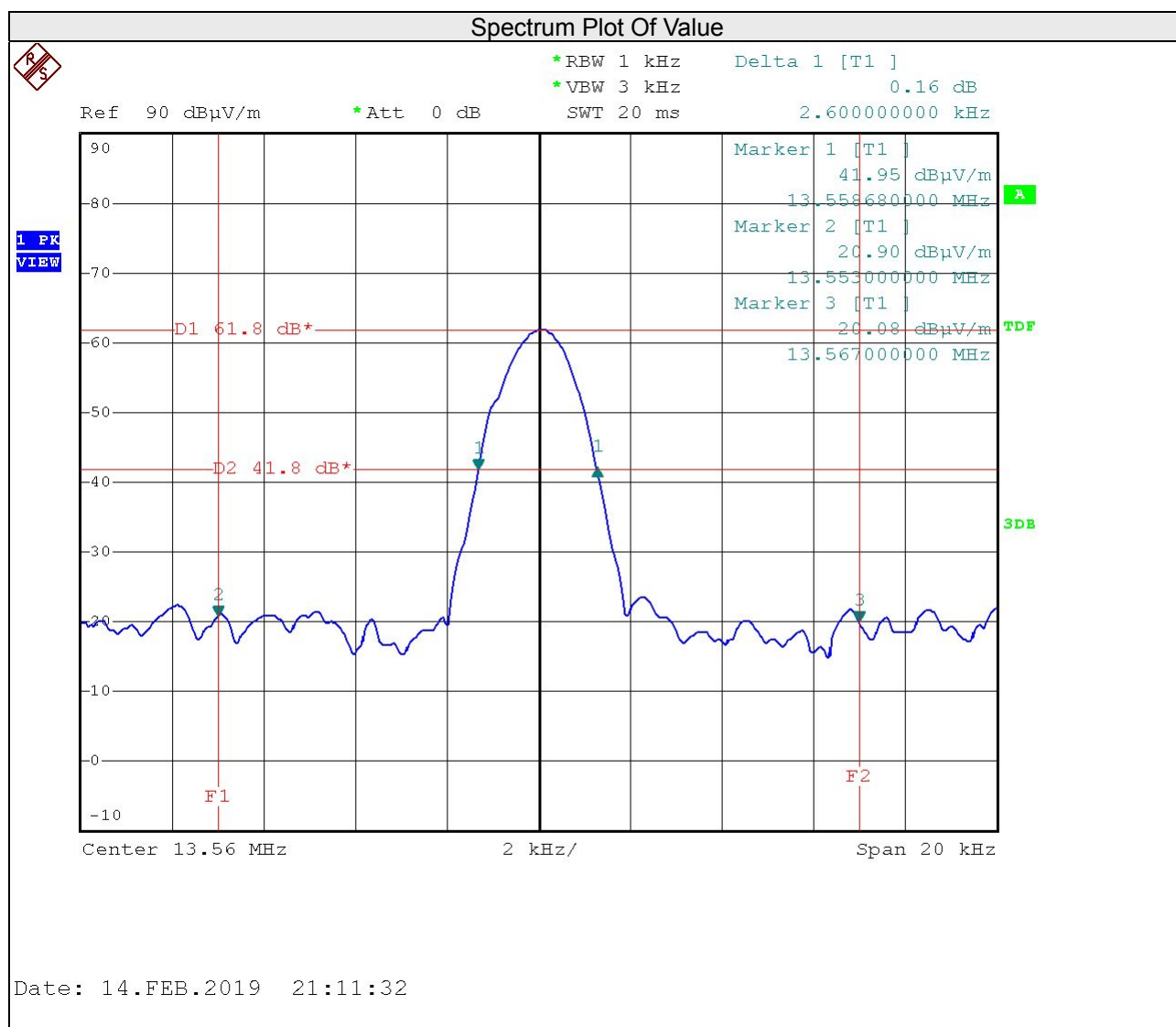
4.4.6 EUT Operating Conditions

Same as Item 4.1.6.

4.4.7 Test Results

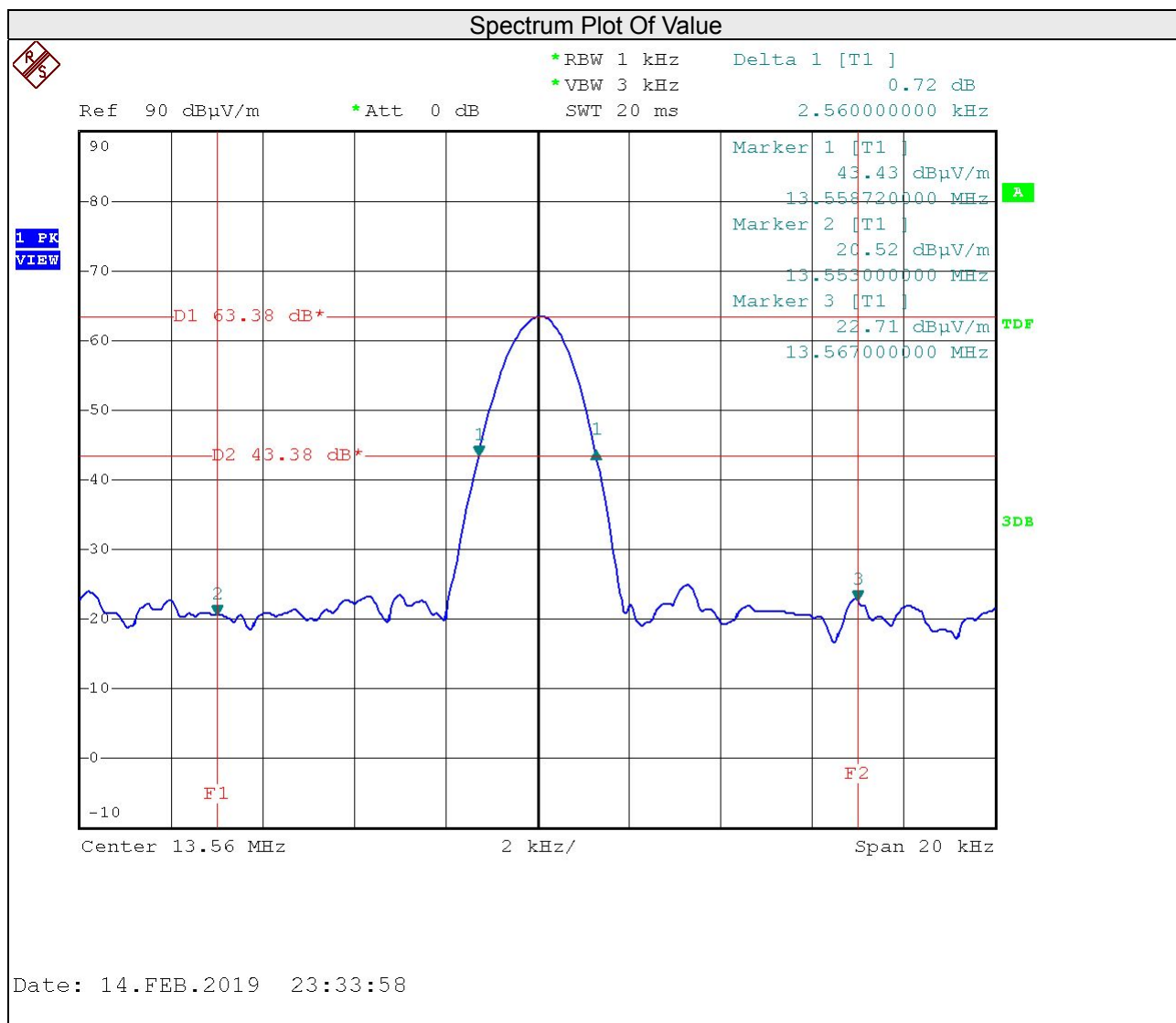
Test Mode A

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.555868	13.558468	13.553~13.567	Pass



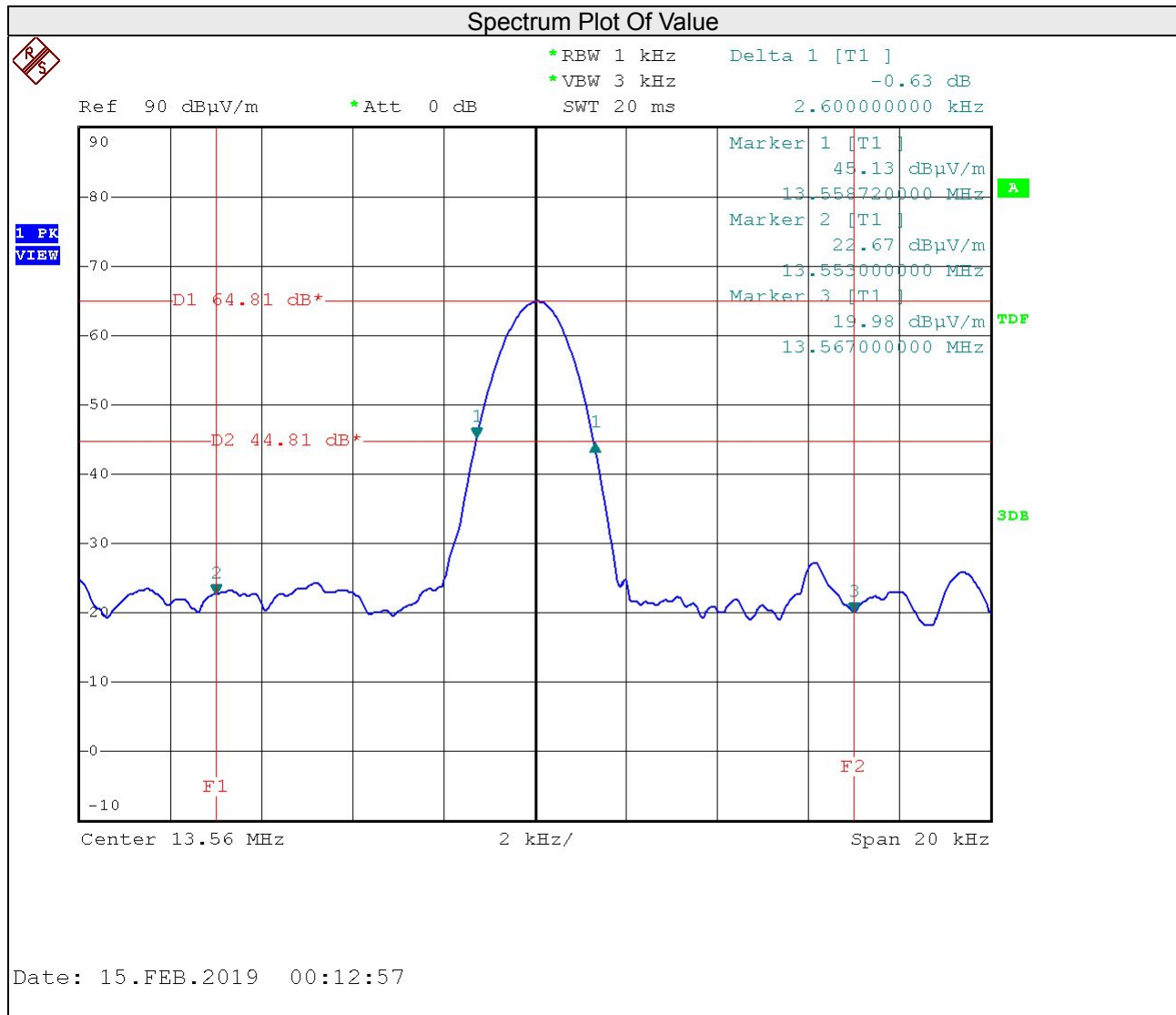
Test Mode B

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55872	13.56128	13.553~13.567	Pass



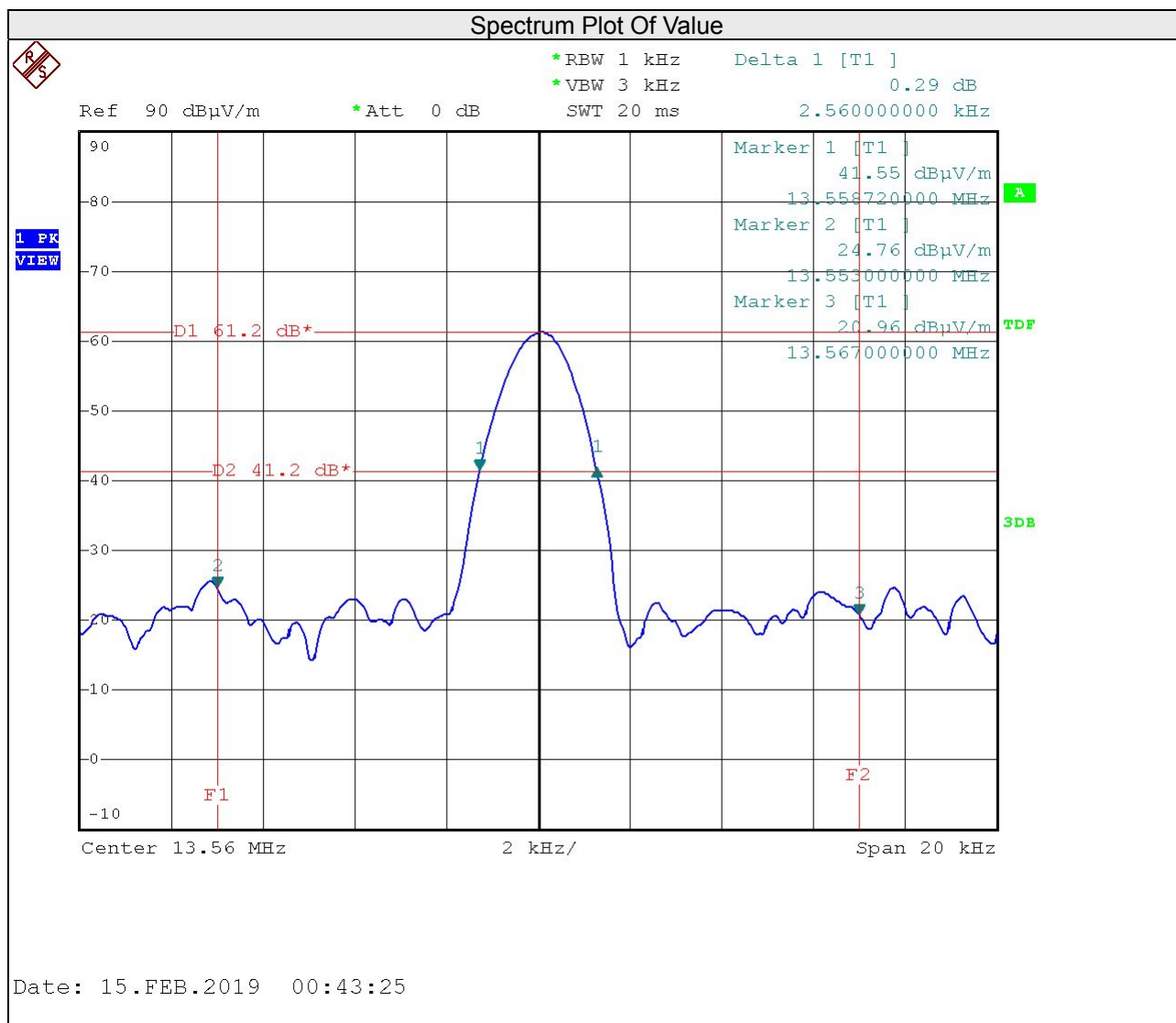
Test Mode C

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55872	13.56132	13.553~13.567	Pass



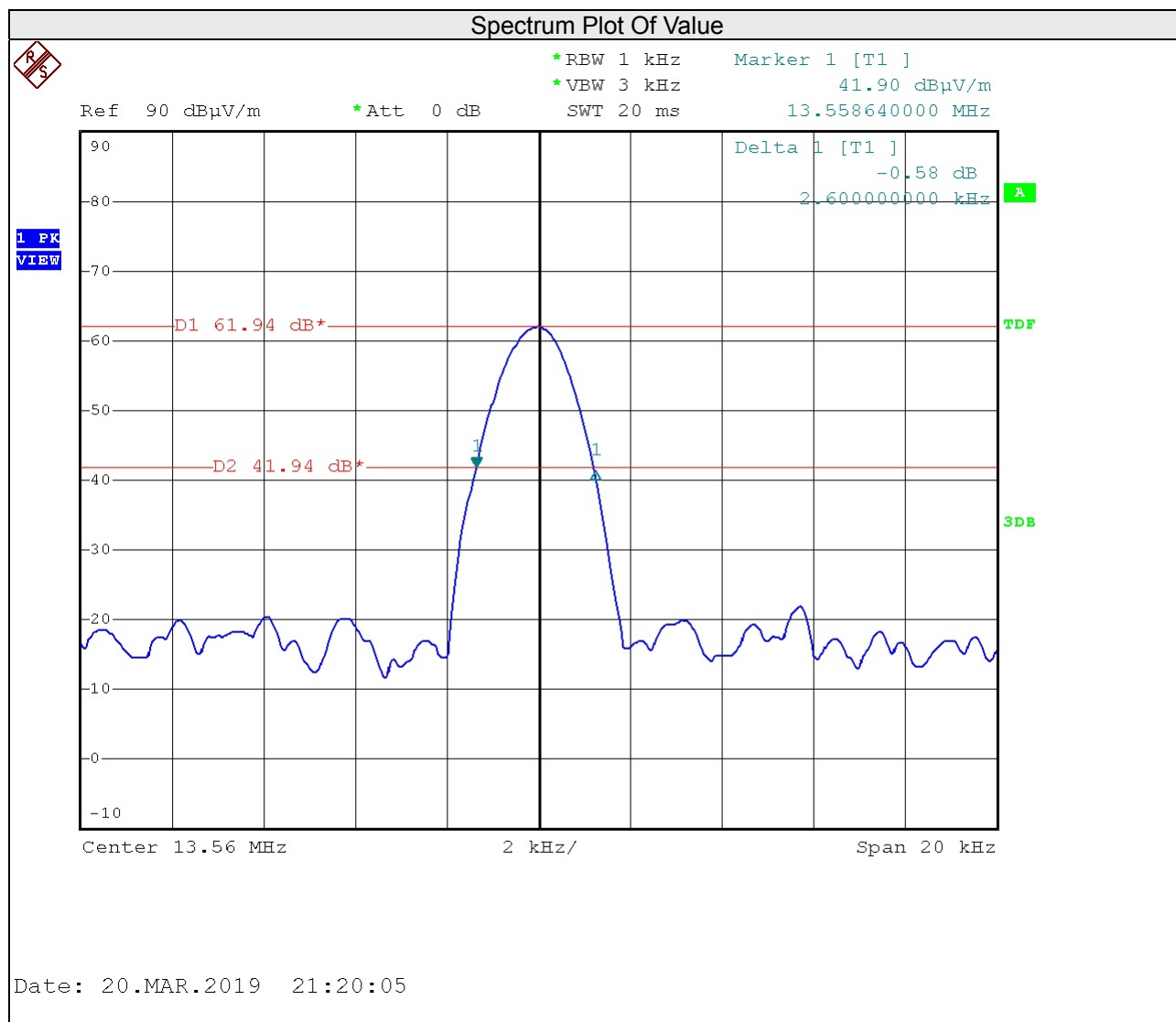
Test Mode D

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55872	13.56038	13.553~13.567	Pass



Test Mode E

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.555864	13.56124	13.553~13.567	Pass



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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