FCC Test Report

Report No.:	RF180914C35
FCC ID:	E2K-DWRFID1803
Test Model:	DWRFID1803
Received Date:	Sep. 14, 2018
Test Date:	Oct. 24 ~ Oct. 26, 2018
Issued Date:	Nov. 02, 2018
Applicant:	Dell Inc.
Address:	One Dell Way, Round Rock, Texas 78682, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

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 11
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 79
4.2.1 Limits of Conducted Emission Measurement 79
4.2.2 Test Instruments 79
4.2.3 Test Procedures 80
4.2.4 Deviation from Test Standard 80
4.2.5 Test Setup 80
4.2.6 EUT Operating Conditions 80
4.2.7 Test Results 81
4.3 Frequency Stability 93
4.3.1 Limits of Frequency Stability Measurement 93
4.3.2 Test Setup 93
4.3.3 Test Instruments 93
4.3.4 Test Procedure 93
4.3.5 Deviation fromTest Standard 93
4.3.6 EUT Operating Conditions 93
4.3.7 Test Result 94
4.4 20dB Bandwidth 96
4.4.1 Limits of 20dB Bandwidth Measurement 96
4.4.2 Test Setup 96
4.4.3 Test Instruments 96
4.4.4 Test Procedures 96
4.4.5 Deviation from Test Standard 96
4.4.6 EUT Operating Conditions 96
4.4.7 Test Results 97

5 Pictures of Test Arrangements 103

Appendix – Information on the Testing Laboratories 104

Release Control Record

Issue No.	Description	Date Issued
RF180914C35	Original release	Nov. 02, 2018

1 Certificate of Conformity

Product:	RFID 13.56MHz Wireless Module
Brand:	DELL
Model:	DWRFID1803
Sample Status:	Engineering sample
Applicant:	Dell Inc.
Test Date:	Oct. 24 ~ Oct. 26, 2018
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 : Celine Chou , **Date:** Nov. 02, 2018

Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Nov. 02, 2018

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 -6.97dB at 13.56130MHz
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 -77.27dB 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 -3.5dB at 47.36MHz.
15.225 (e)	The frequency tolerance	Pass	Meet the requirement of limit.
15.215 (c)	20dB Bandwidth	Pass	Meet the requirement of limit.

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) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	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	RFID 13.56MHz Wireless Module
Brand	DELL
Model	DWRFID1803
Sample Status	Engineering sample
Power Supply Rating	3.3Vdc (host equipment)
Modulation Type	ASK
Date Rate	Type A: 106kbit/s Type B: 106kbit/s Type F: 212kbit/s, 424kbit/s
Operating Frequency	13.56MHz
Field Strength	Hong Bo Loop Ant.: Type A: 45.8dBuV/m Type B: 45.5dBuV/m Type F: 45.7dBuV/m Speed Loop Ant.: Type A: 46.5dBuV/m Type B: 46.7dBuV/m Type F: 46.7dBuV/m
Antenna Type	Refer to note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. The EUT is authorized for use in specific End-product and list as below:

Product name	Brand	Model
Portable Computer	DELL	P110G

2. The EUT uses following antennas.

Manufacturer	Model	Type	Gain
Hong Bo	260-24226 (DC330025S2L)	Loop antenna	0 dBi
Speed	F.0W.FH-6071-001-00 (DC33002610L)	Loop antenna	0 dBi

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 Deta

EUT Configure Mode	Applicable to				Description
	RE	PLC	FS	EB	
A	√	√	√	√	With Hong Bo Loop Ant.
B	√	√	√	√	With Speed Loop Ant.

Where RE: Radiated Emission PLC: Power Line Conducted Emission

FS: Frequency Stability EB: 20dB Bandwidth measurement

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	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	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	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	1	1	ASK

Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE	25 deg. C, 69% RH	120Vac, 60Hz	Noah Chang
PLC	23 deg. C, 61% RH	120Vac, 60Hz	Willy Cheng
FS	25 deg. C, 70% RH	120Vac, 60Hz	Noah Chang
BW	25 deg. C, 69% RH	120Vac, 60Hz	Noah Chang

3.3 Description of Support Units

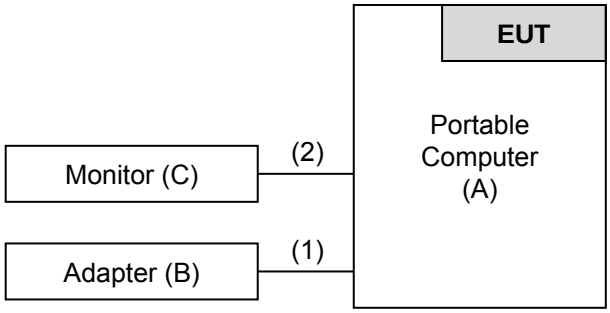
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Portable Computer	DELL	P110G	NA	NA	Provided by client
B.	Adapter	DELL	DA90PM170	NA	NA	Provided by client
C.	Monitor	DELL	U2410	CN-0J257M-72872-0A6-02NL	FCC DoC Approved	-

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Type C cable	1	1.75	Y	0	Provided by client
2.	HDMI Cable	1	1	Y	0	-

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)
KDB 414788 D01 Radiated Test Site v01r01
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	ESIB7	100187	May 29, 2018	May 28, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
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 IC 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:

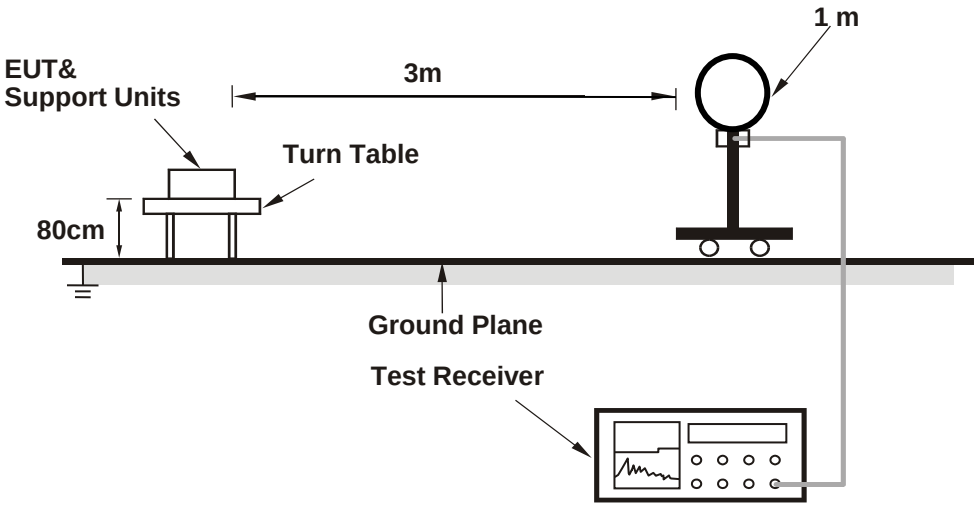
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 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

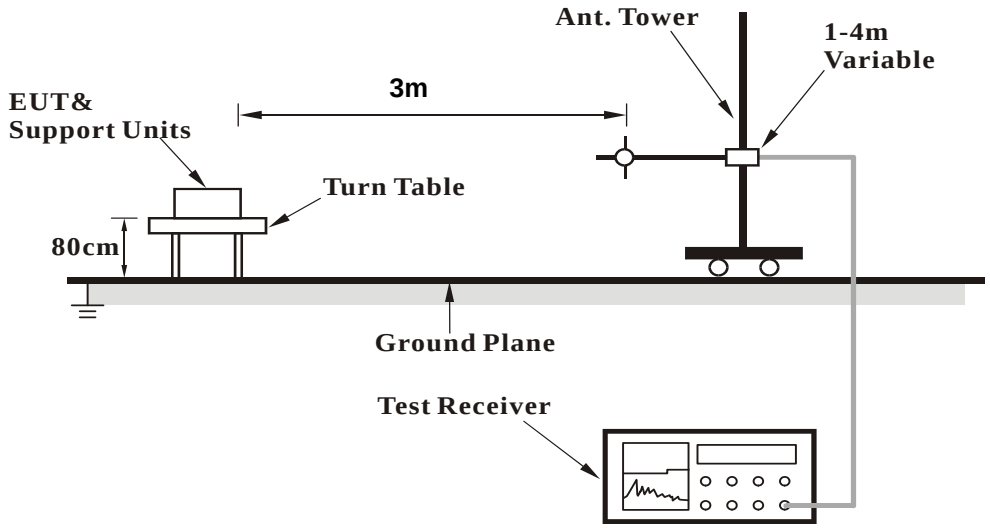
No deviation.

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).

KDB 414788 OATS and Chamber Correlation Justification
- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

Test Mode A (Type A)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	45.8 QP	124.0 QP	-78.2	1.0	247.0	24.0	21.8

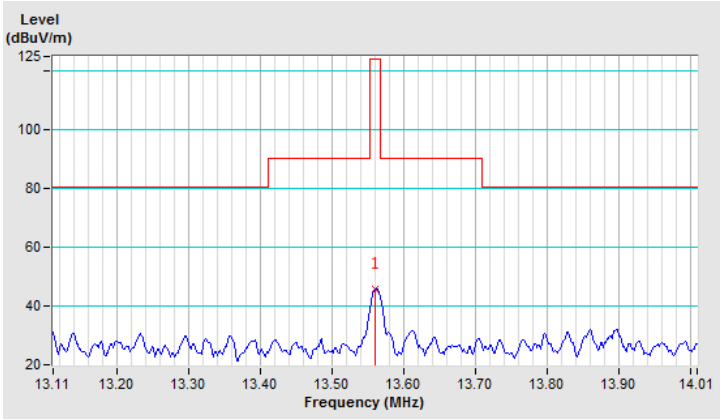
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	5.8 QP	84.0 QP	-78.2

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	43.0 QP	124.0 QP	-81.0	1.0	100.0	21.2	21.8

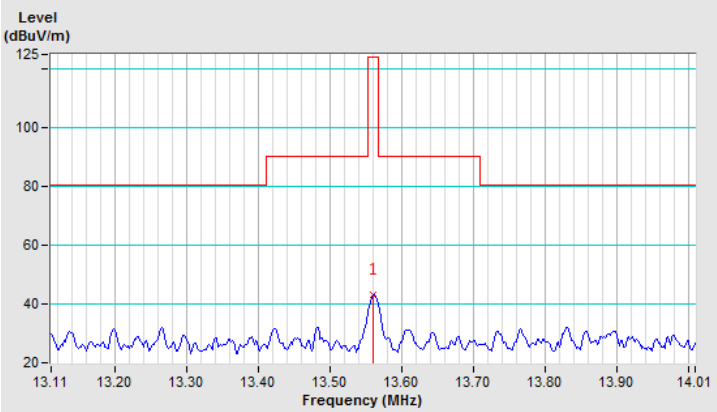
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	3.0 QP	84.0 QP	-81.0

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	41.5 QP	124.0 QP	-82.5	1.0	233.0	19.7	21.8

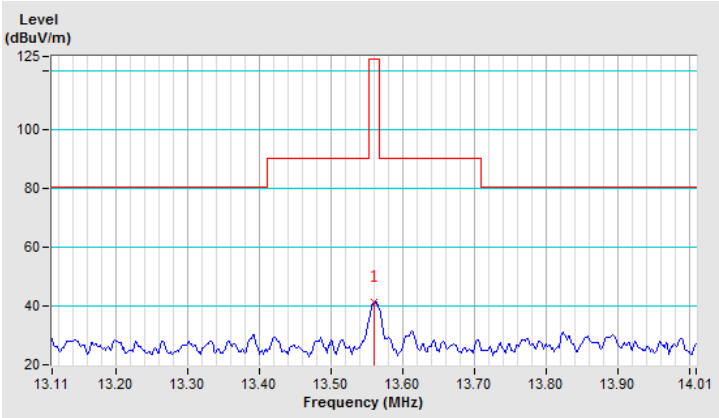
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	1.5 QP	84.0 QP	-82.5

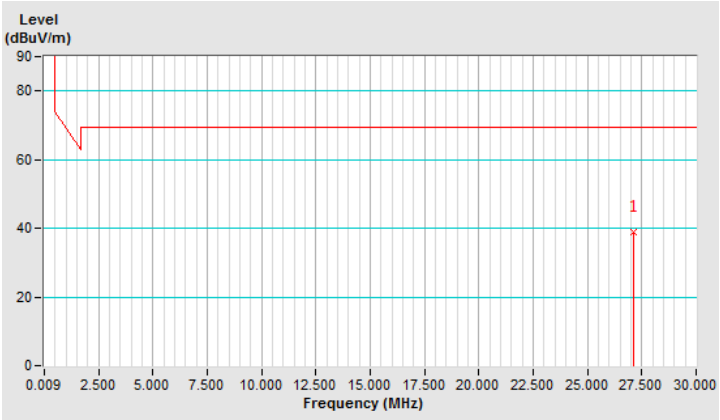
Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.99 QP	69.54 QP	-30.55	1.00	288	16.89	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

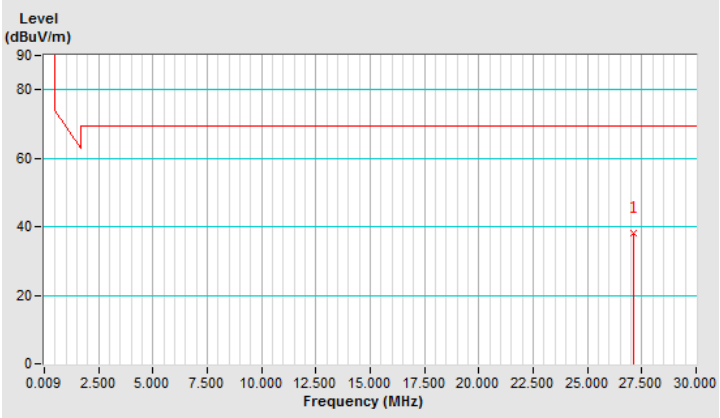


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.22 QP	69.54 QP	-31.32	1.00	211	16.12	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

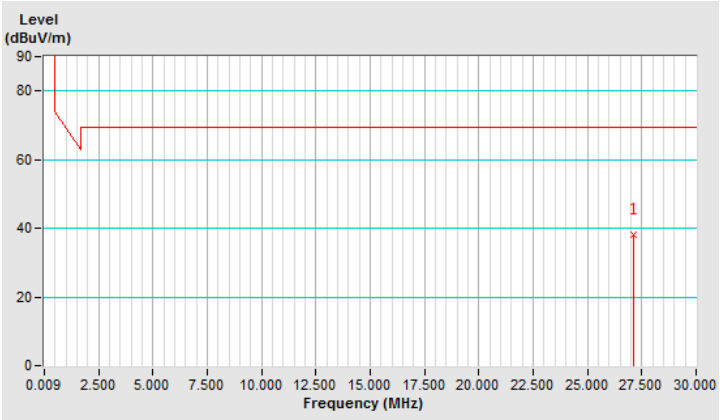


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.12 QP	69.54 QP	-31.42	1.00	263	16.02	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

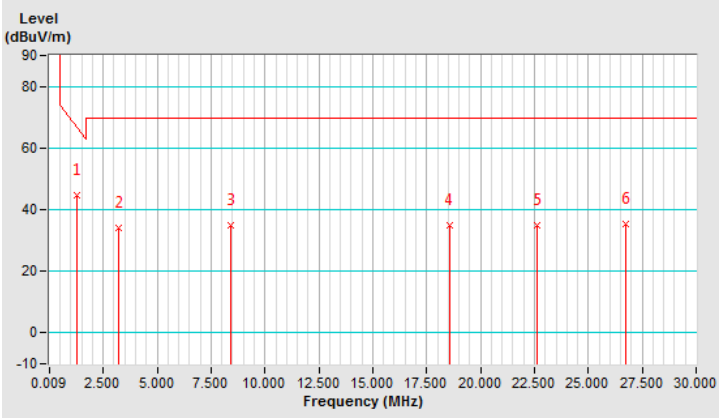


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	1.27	44.74 QP	65.54 QP	-20.80	1.00	12	24.76	19.98
2	3.19	34.26 QP	69.54 QP	-35.28	1.00	298	14.65	19.61
3	8.41	35.09 QP	69.54 QP	-34.45	1.00	73	13.70	21.39
4	18.54	34.83 QP	69.54 QP	-34.71	1.00	19	12.99	21.84
5	22.62	34.71 QP	69.54 QP	-34.83	1.00	267	12.77	21.94
6	26.76	35.35 QP	69.54 QP	-34.19	1.00	356	13.26	22.09

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

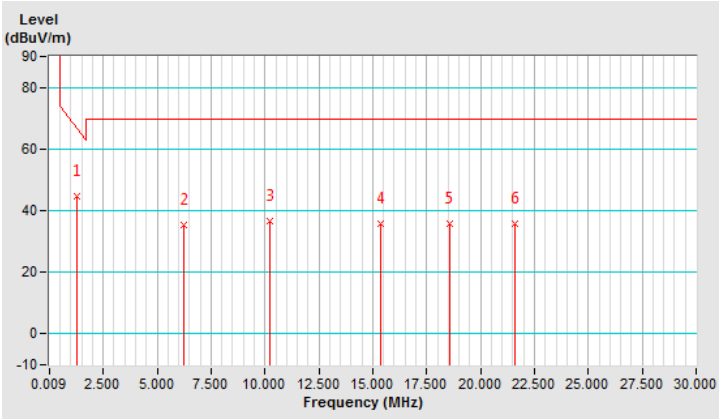


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	1.27	44.84 QP	65.54 QP	-20.70	1.00	307	24.86	19.98
2	6.25	35.27 QP	69.54 QP	-34.27	1.00	10	14.42	20.85
3	10.21	36.56 QP	69.54 QP	-32.98	1.00	126	14.77	21.79
4	15.36	35.89 QP	69.54 QP	-33.65	1.00	16	14.07	21.82
5	18.54	35.66 QP	69.54 QP	-33.88	1.00	111	13.82	21.84
6	21.60	35.86 QP	69.54 QP	-33.68	1.00	192	13.95	21.91

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

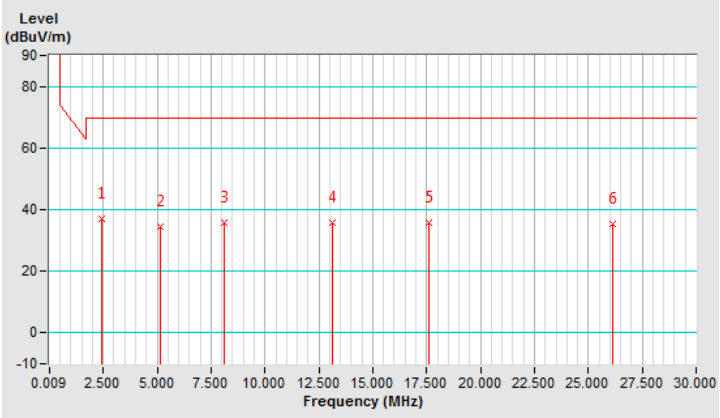


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	2.41	37.08 QP	69.54 QP	-32.46	1.00	327	17.41	19.67
2	5.17	34.47 QP	69.54 QP	-35.07	1.00	234	13.89	20.58
3	8.11	35.80 QP	69.54 QP	-33.74	1.00	57	14.48	21.32
4	13.15	35.63 QP	69.54 QP	-33.91	1.00	31	13.82	21.81
5	17.58	35.97 QP	69.54 QP	-33.57	1.00	232	14.13	21.84
6	26.10	35.38 QP	69.54 QP	-34.16	1.00	10	13.32	22.06

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

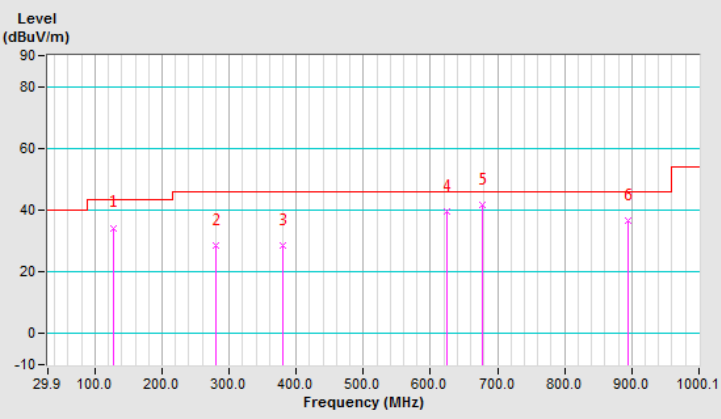


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	126.92	34.3 QP	43.5	-9.2	1.99 H	269	44.8	-10.5
2	280.21	28.7 QP	46.0	-17.3	1.00 H	179	37.0	-8.3
3	379.17	28.6 QP	46.0	-17.4	1.00 H	27	35.3	-6.7
4	623.66	39.6 QP	46.0	-6.4	1.00 H	105	41.3	-1.7
5	677.99	41.5 QP	46.0	-4.5	1.00 H	349	42.3	-0.8
6	895.32	36.8 QP	46.0	-9.2	1.99 H	7	33.4	3.4

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

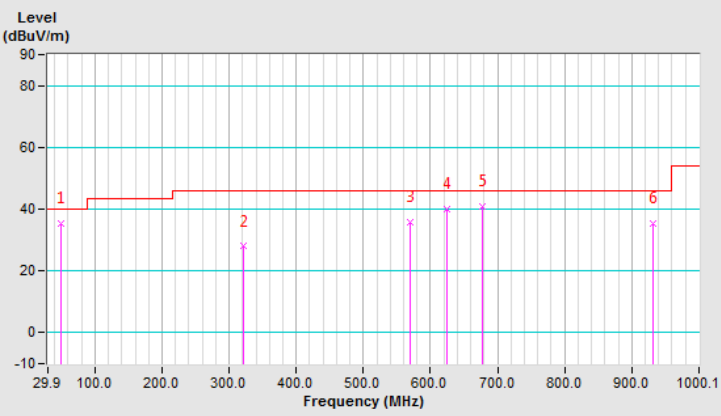


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	49.30	35.3 QP	40.0	-4.7	1.01 V	2	43.9	-8.6
2	320.96	27.9 QP	46.0	-18.1	1.51 V	7	35.4	-7.5
3	569.33	35.8 QP	46.0	-10.2	1.01 V	13	39.4	-3.6
4	623.66	40.2 QP	46.0	-5.8	1.01 V	159	41.9	-1.7
5	677.99	40.7 QP	46.0	-5.3	1.51 V	58	41.5	-0.8
6	932.19	35.4 QP	46.0	-10.6	1.51 V	7	31.3	4.1

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



Test Mode A (Type B)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	45.5 QP	124.0 QP	-78.5	1.0	198.0	23.7	21.8

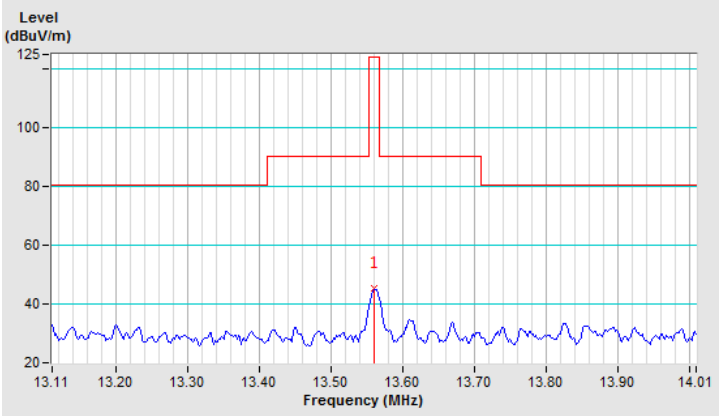
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	5.5 QP	84.0 QP	-78.5

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	43.2 QP	124.0 QP	-80.8	1.0	347.0	21.4	21.8

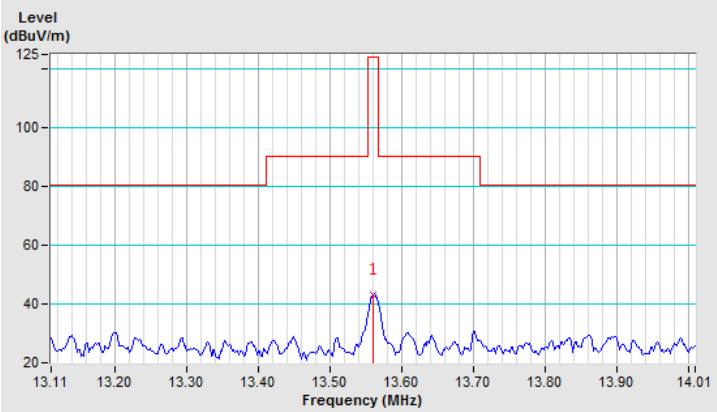
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	3.2 QP	84.0 QP	-80.8

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	41.5 QP	124.0 QP	-82.5	1.0	57.0	19.7	21.8

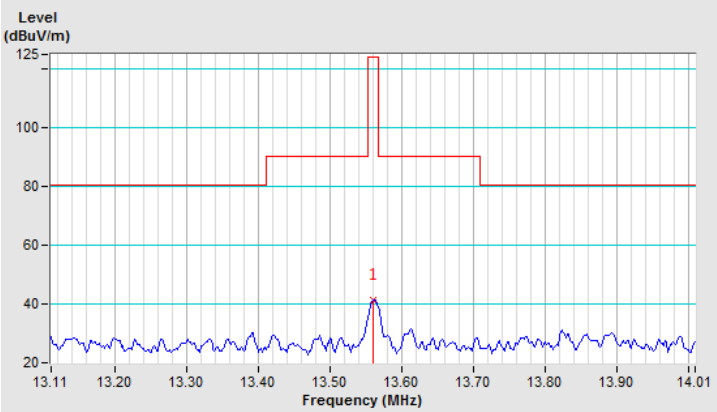
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	1.5 QP	84.0 QP	-82.5

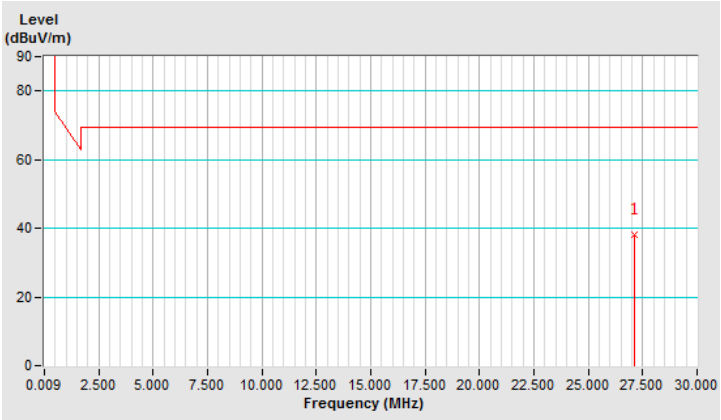
Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.11 QP	69.54 QP	-31.43	1.00	185	16.01	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

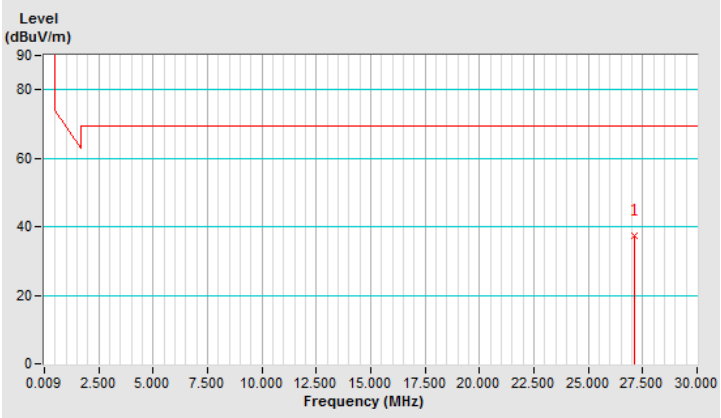


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	37.20 QP	69.54 QP	-32.34	1.00	77	15.10	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

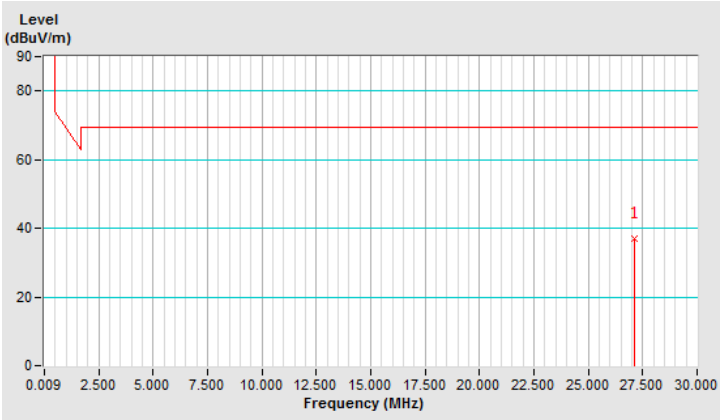


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	36.83 QP	69.54 QP	-32.71	1.00	100	14.73	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

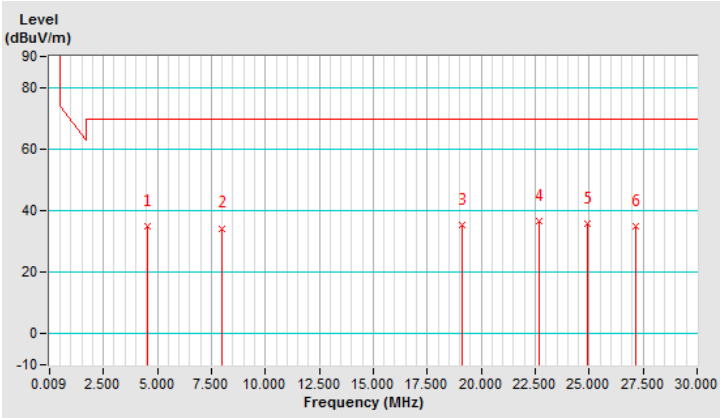


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	4.57	34.86 QP	69.54 QP	-34.68	1.00	119	14.54	20.32
2	7.99	34.28 QP	69.54 QP	-35.26	1.00	132	12.99	21.29
3	19.14	35.36 QP	69.54 QP	-34.18	1.00	179	13.52	21.84
4	22.68	36.81 QP	69.54 QP	-32.73	1.00	21	14.87	21.94
5	24.90	35.60 QP	69.54 QP	-33.94	1.00	139	13.58	22.02
6	27.18	35.02 QP	69.54 QP	-34.52	1.00	113	12.92	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

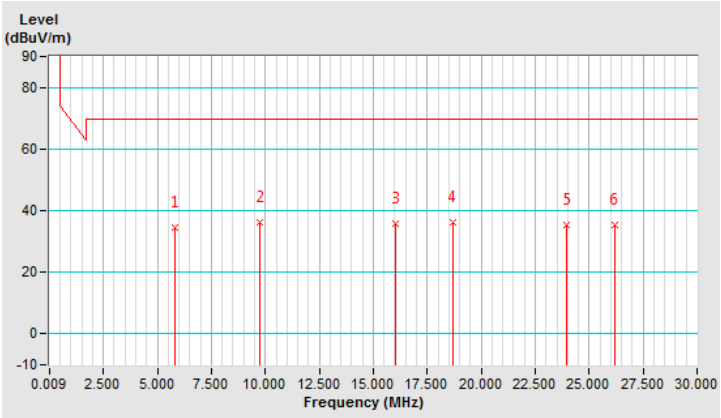


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	5.83	34.64 QP	69.54 QP	-34.90	1.00	190	13.89	20.75
2	9.73	36.37 QP	69.54 QP	-33.17	1.00	36	14.65	21.72
3	16.02	35.59 QP	69.54 QP	-33.95	1.00	359	13.76	21.83
4	18.66	36.09 QP	69.54 QP	-33.45	1.00	248	14.25	21.84
5	23.94	35.18 QP	69.54 QP	-34.36	1.00	235	13.19	21.99
6	26.16	35.19 QP	69.54 QP	-34.35	1.00	184	13.12	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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

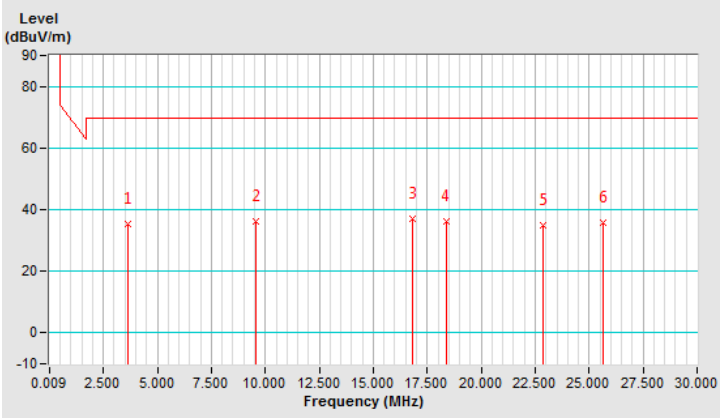


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	3.61	35.52 QP	69.54 QP	-34.02	1.00	10	15.70	19.82
2	9.55	35.99 QP	69.54 QP	-33.55	1.00	10	14.31	21.68
3	16.80	37.23 QP	69.54 QP	-32.31	1.00	10	15.40	21.83
4	18.36	36.26 QP	69.54 QP	-33.28	1.00	10	14.42	21.84
5	22.86	35.00 QP	69.54 QP	-34.54	1.00	339	13.05	21.95
6	25.62	35.69 QP	69.54 QP	-33.85	1.00	10	13.64	22.05

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

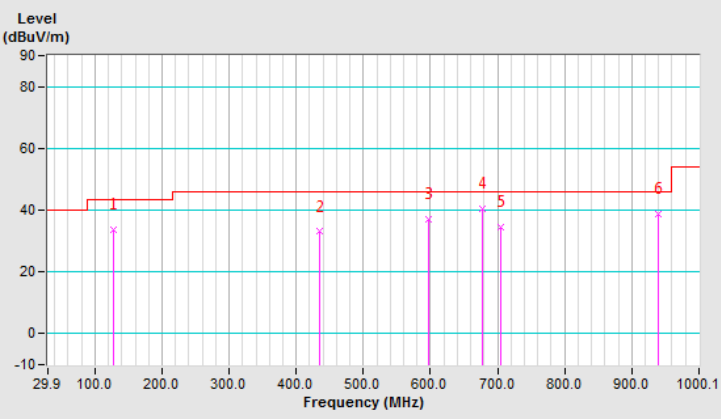


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	126.92	33.7 QP	43.5	-9.8	2.00 H	255	44.2	-10.5
2	435.44	33.0 QP	46.0	-13.0	2.00 H	13	38.7	-5.7
3	596.50	37.1 QP	46.0	-8.9	1.51 H	6	39.6	-2.5
4	677.99	40.5 QP	46.0	-5.5	1.01 H	1	41.3	-0.8
5	705.16	34.6 QP	46.0	-11.4	2.00 H	1	34.9	-0.3
6	939.95	38.6 QP	46.0	-7.4	1.51 H	132	34.4	4.2

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

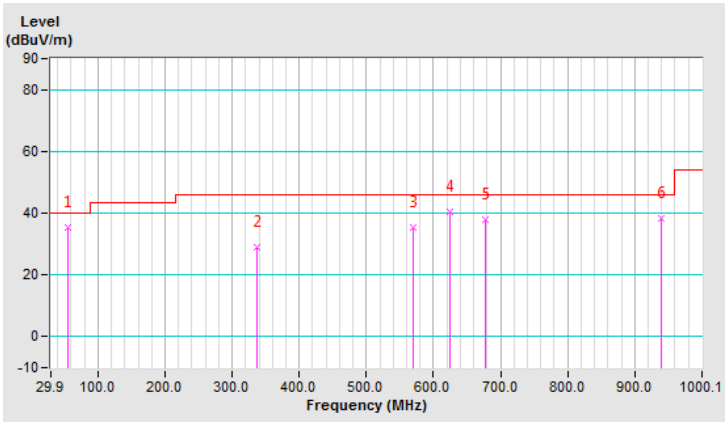


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	55.13	35.4 QP	40.0	-4.6	1.50 V	136	44.2	-8.8
2	336.48	29.0 QP	46.0	-17.0	1.50 V	33	36.3	-7.3
3	569.33	35.4 QP	46.0	-10.6	1.00 V	16	39.0	-3.6
4	623.66	40.5 QP	46.0	-5.5	1.00 V	167	42.2	-1.7
5	677.99	38.0 QP	46.0	-8.0	1.50 V	57	38.8	-0.8
6	939.95	38.2 QP	46.0	-7.8	1.99 V	211	34.0	4.2

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



Test Mode A (Type F)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	45.7 QP	124.0 QP	-78.3	1.0	132.0	23.9	21.8

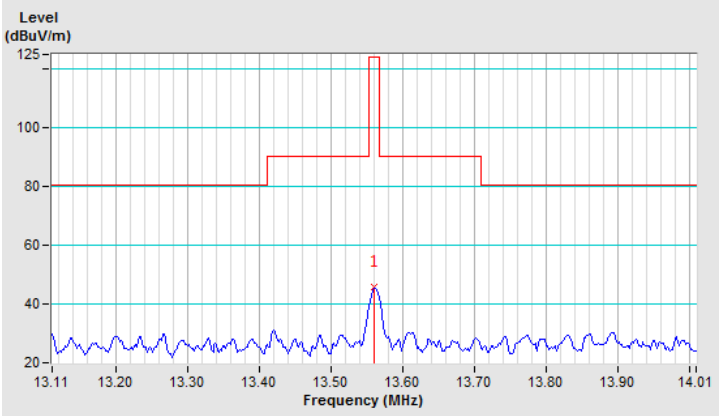
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	5.7 QP	84.0 QP	-78.3

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	42.3 QP	124.0 QP	-81.7	1.0	173.0	20.5	21.8

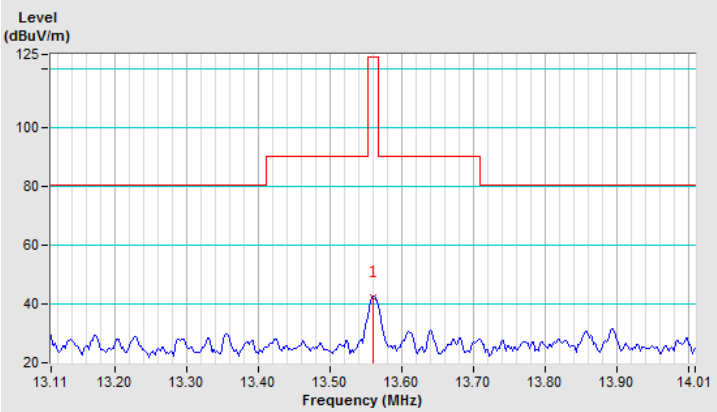
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	2.3 QP	84.0 QP	-81.7

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	41.6 QP	124.0 QP	-82.4	1.0	210.0	19.8	21.8

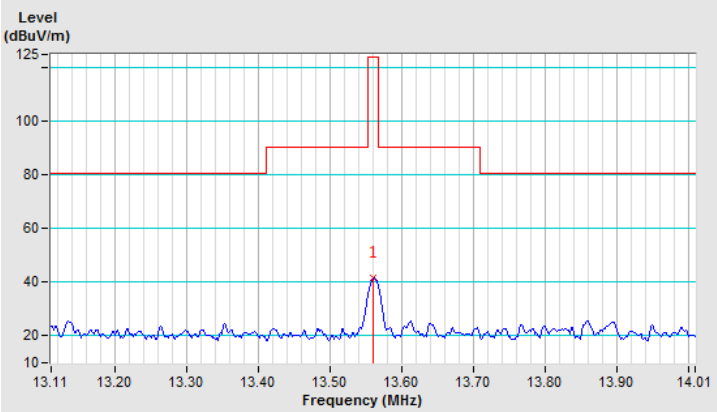
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	1.6 QP	84.0 QP	-82.4

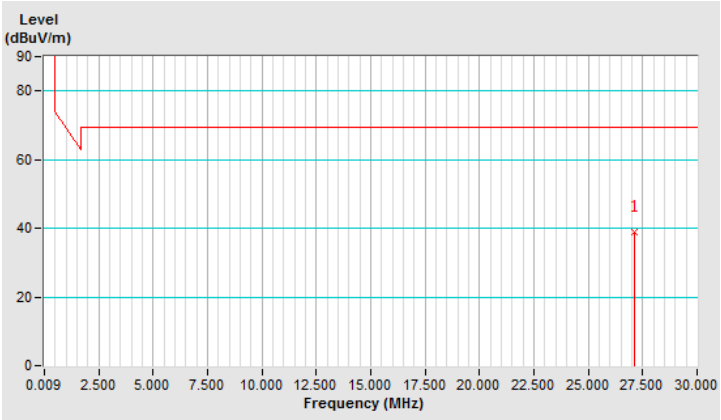
Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.92 QP	69.54 QP	-30.62	1.00	274	16.82	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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

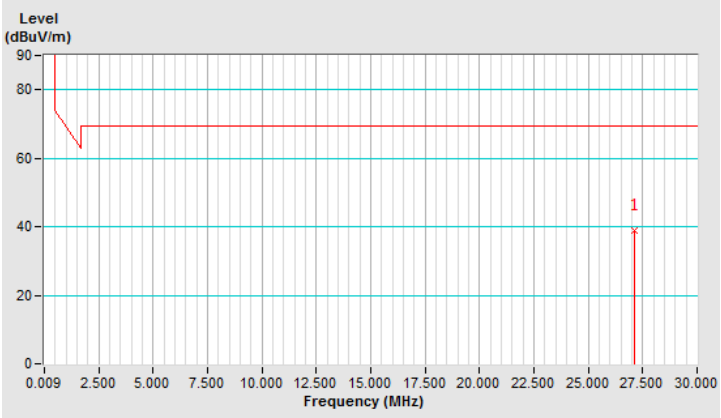


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.99 QP	69.54 QP	-30.55	1.00	107	16.89	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

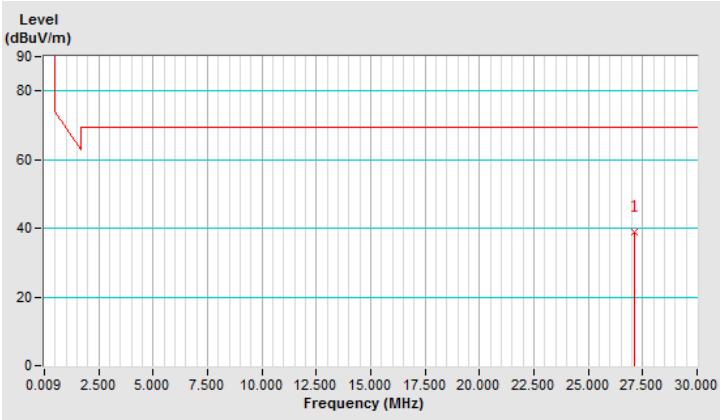


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	38.77 QP	69.54 QP	-30.77	1.00	144	16.67	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

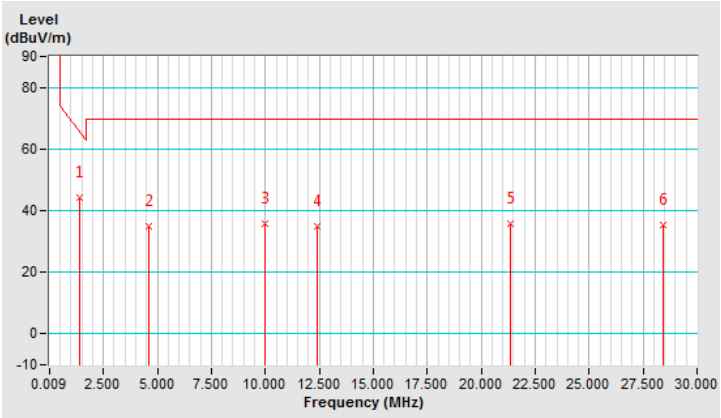


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	1.39	44.39 QP	64.75 QP	-20.36	1.00	110	24.44	19.95
2	4.63	34.83 QP	69.54 QP	-34.71	1.00	284	14.48	20.35
3	9.97	35.60 QP	69.54 QP	-33.94	1.00	40	13.82	21.78
4	12.43	34.85 QP	69.54 QP	-34.69	1.00	75	13.05	21.80
5	21.36	35.79 QP	69.54 QP	-33.75	1.00	164	13.89	21.90
6	28.44	35.14 QP	69.54 QP	-34.40	1.00	358	12.99	22.15

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

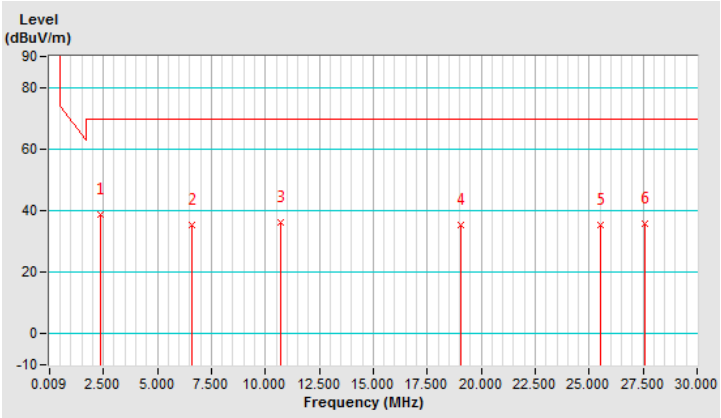


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	2.35	38.57 QP	69.54 QP	-30.97	1.00	247	18.88	19.69
2	6.61	35.25 QP	69.54 QP	-34.29	1.00	128	14.31	20.94
3	10.69	36.04 QP	69.54 QP	-33.50	1.00	143	14.25	21.79
4	19.08	35.42 QP	69.54 QP	-34.12	1.00	267	13.58	21.84
5	25.50	35.42 QP	69.54 QP	-34.12	1.00	47	13.38	22.04
6	27.60	35.88 QP	69.54 QP	-33.66	1.00	264	13.76	22.12

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

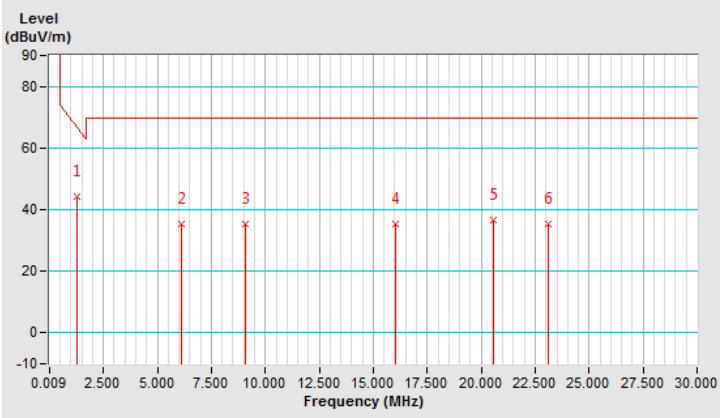


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	1.27	44.21 QP	65.54 QP	-21.33	1.00	15	24.23	19.98
2	6.13	35.30 QP	69.54 QP	-34.24	1.00	11	14.48	20.82
3	9.07	35.26 QP	69.54 QP	-34.28	1.00	101	13.70	21.56
4	16.02	35.41 QP	69.54 QP	-34.13	1.00	283	13.58	21.83
5	20.58	36.74 QP	69.54 QP	-32.80	1.00	22	14.87	21.87
6	23.10	35.54 QP	69.54 QP	-34.00	1.00	7	13.58	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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

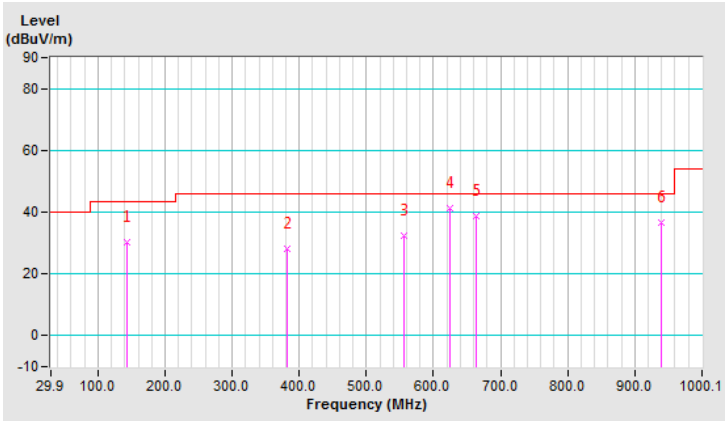


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	142.44	30.2 QP	43.5	-13.3	2.00 H	243	39.3	-9.1
2	381.11	28.0 QP	46.0	-18.0	1.00 H	39	34.7	-6.7
3	555.75	32.2 QP	46.0	-13.8	1.49 H	13	36.2	-4.0
4	623.66	41.4 QP	46.0	-4.6	1.00 H	96	43.1	-1.7
5	664.41	38.9 QP	46.0	-7.1	1.00 H	6	40.0	-1.1
6	939.95	36.4 QP	46.0	-9.6	1.49 H	111	32.2	4.2

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

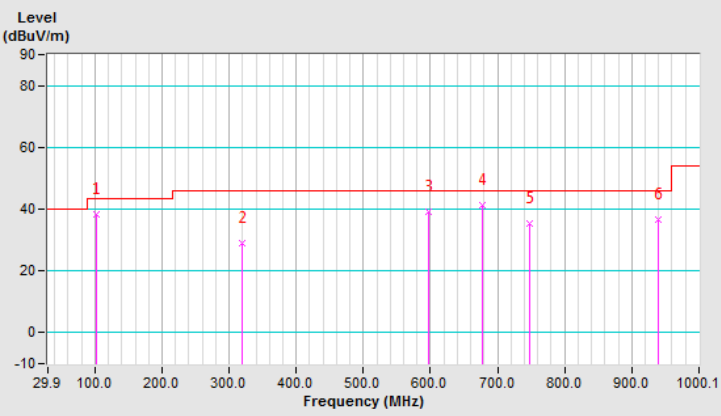


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	101.69	38.5 QP	43.5	-5.0	1.01 V	281	51.5	-13.0
2	319.02	29.1 QP	46.0	-16.9	1.50 V	7	36.6	-7.5
3	596.50	39.2 QP	46.0	-6.8	1.01 V	4	41.7	-2.5
4	677.99	41.2 QP	46.0	-4.8	1.50 V	63	42.0	-0.8
5	747.85	35.2 QP	46.0	-10.8	1.50 V	24	34.2	1.0
6	939.95	36.7 QP	46.0	-9.3	1.01 V	300	32.5	4.2

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



Test Mode B (Type A)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	46.5 QP	124.0 QP	-77.5	1.0	111.0	24.7	21.8

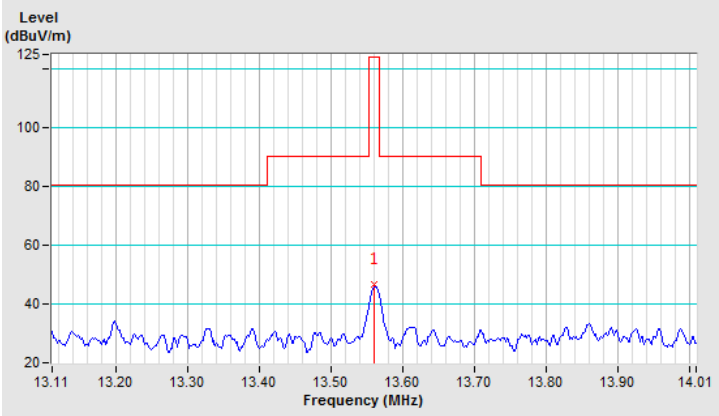
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	6.5 QP	84.0 QP	-77.5

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	44.1 QP	124.0 QP	-79.9	1.0	17.0	22.3	21.8

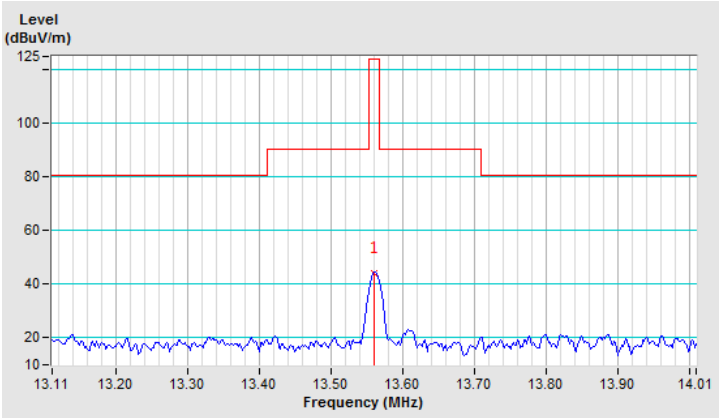
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	4.1 QP	84.0 QP	-79.9

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	42.1 QP	124.0 QP	-81.9	1.0	191.0	20.3	21.8

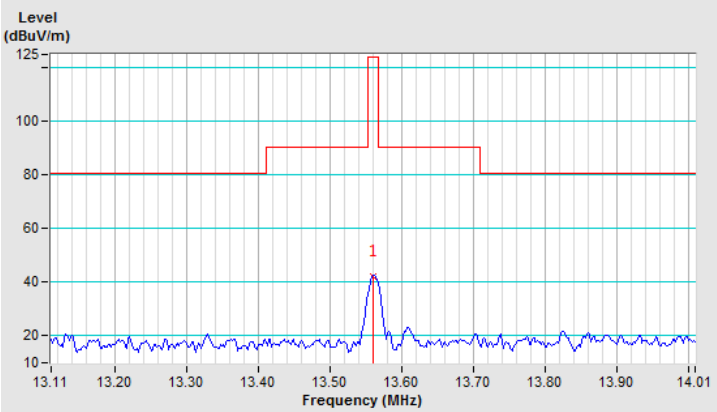
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	2.1 QP	84.0 QP	-81.9

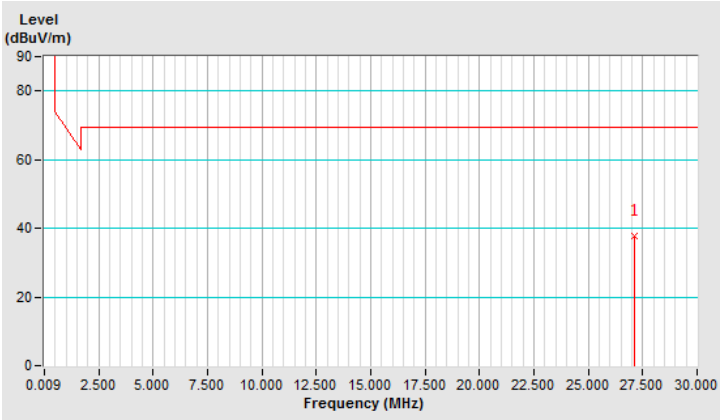
Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	37.88 QP	69.54 QP	-31.66	1.00	233	15.78	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

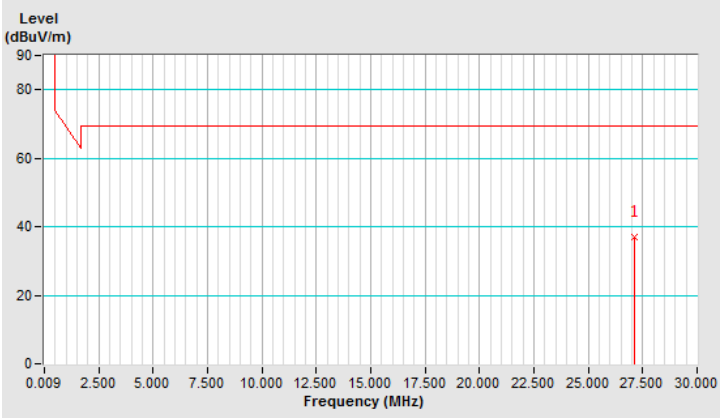


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	36.98 QP	69.54 QP	-32.56	1.00	330	14.88	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

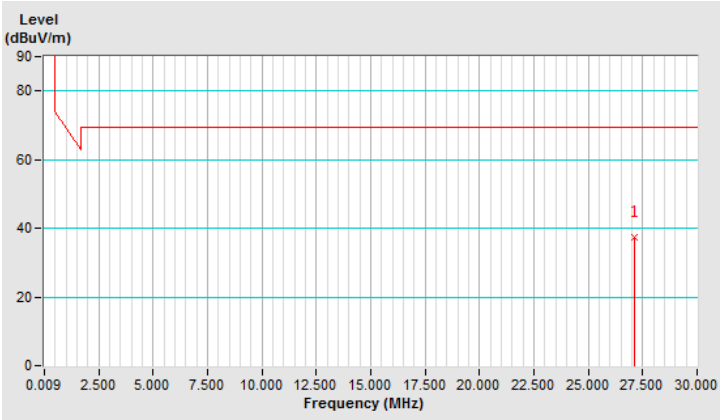


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	37.22 QP	69.54 QP	-32.32	1.00	22	15.12	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

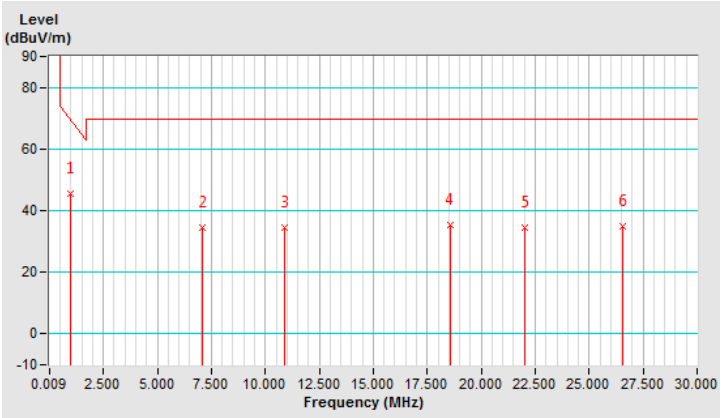


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	0.97	45.50 QP	67.90 QP	-22.40	1.00	212	25.40	20.10
2	7.09	34.70 QP	69.50 QP	-34.80	1.00	148	13.60	21.10
3	10.87	34.40 QP	69.50 QP	-35.10	1.00	91	12.60	21.80
4	18.54	35.50 QP	69.50 QP	-34.00	1.00	317	13.70	21.80
5	22.02	34.60 QP	69.50 QP	-34.90	1.00	45	12.70	21.90
6	26.58	34.80 QP	69.50 QP	-34.70	1.00	8	12.70	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

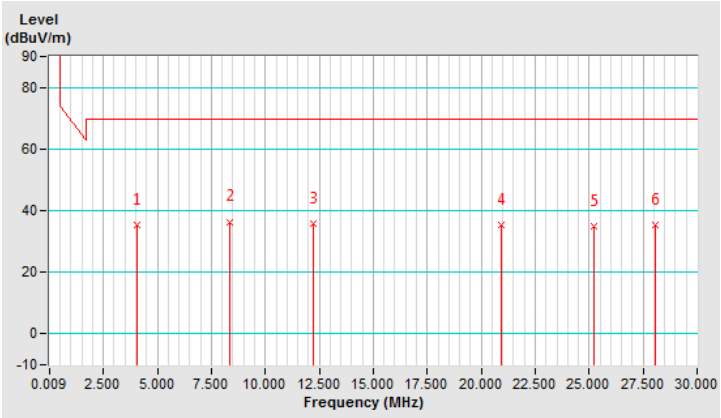


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	4.09	35.30 QP	69.50 QP	-34.20	1.00	301	15.20	20.10
2	8.35	36.40 QP	69.50 QP	-33.10	1.00	249	15.00	21.40
3	12.25	35.80 QP	69.50 QP	-33.70	1.00	121	14.00	21.80
4	20.94	35.50 QP	69.50 QP	-34.00	1.00	133	13.60	21.90
5	25.20	35.10 QP	69.50 QP	-34.40	1.00	316	13.10	22.00
6	28.08	35.20 QP	69.50 QP	-34.30	1.00	198	13.10	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

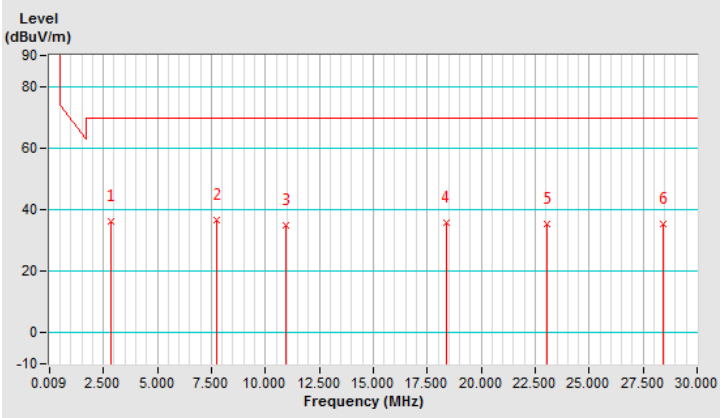


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	2.83	36.10 QP	69.50 QP	-33.40	1.00	155	16.50	19.60
2	7.75	36.50 QP	69.50 QP	-33.00	1.00	66	15.30	21.20
3	10.93	34.90 QP	69.50 QP	-34.60	1.00	346	13.10	21.80
4	18.36	35.60 QP	69.50 QP	-33.90	1.00	296	13.80	21.80
5	23.04	35.40 QP	69.50 QP	-34.10	1.00	15	13.40	22.00
6	28.44	35.50 QP	69.50 QP	-34.00	1.00	54	13.40	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

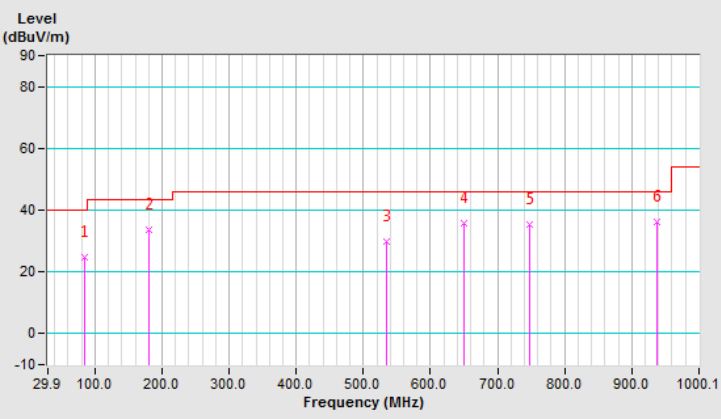


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	84.23	24.9 QP	40.0	-15.1	1.50 H	177	38.7	-13.8
2	181.25	33.5 QP	43.5	-10.0	1.50 H	1	43.7	-10.2
3	534.40	29.8 QP	46.0	-16.2	1.50 H	339	34.2	-4.4
4	650.83	35.8 QP	46.0	-10.2	1.00 H	323	37.2	-1.4
5	747.85	35.4 QP	46.0	-10.6	1.00 H	175	34.4	1.0
6	938.01	36.3 QP	46.0	-9.7	1.50 H	113	32.2	4.1

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

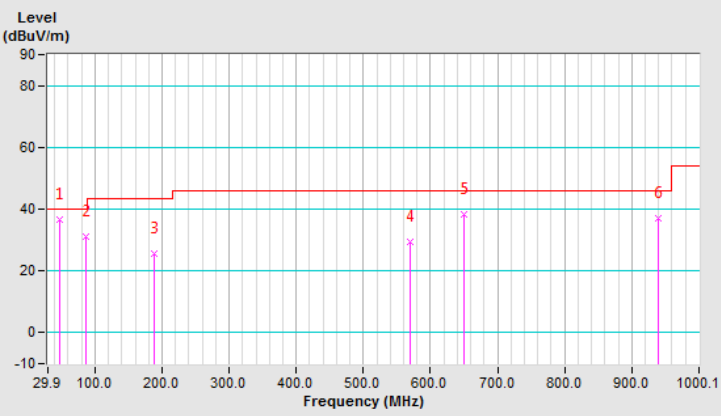


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	**47.36**	**36.5 QP**	**40.0**	**-3.5**	**1.00 V**	**17**	**45.2**	**-8.7**
2	86.17	31.2 QP	40.0	-8.8	1.50 V	275	45.2	-14.0
3	189.01	25.8 QP	43.5	-17.7	1.99 V	278	37.0	-11.2
4	569.33	29.5 QP	46.0	-16.5	1.00 V	0	33.1	-3.6
5	650.83	38.2 QP	46.0	-7.8	1.00 V	168	39.6	-1.4
6	939.95	37.2 QP	46.0	-8.8	1.50 V	38	33.0	4.2

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



Test Mode B (Type B)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	46.7 QP	124.0 QP	-77.3	1.0	301.0	24.9	21.8

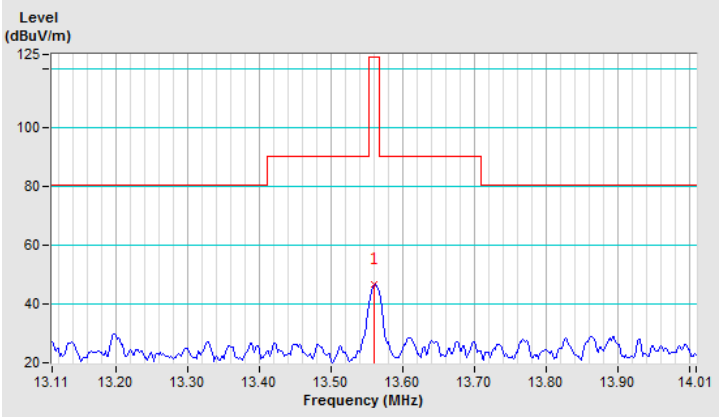
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	6.7 QP	84.0 QP	-77.3

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	44.2 QP	124.0 QP	-79.8	1.0	177.0	22.4	21.8

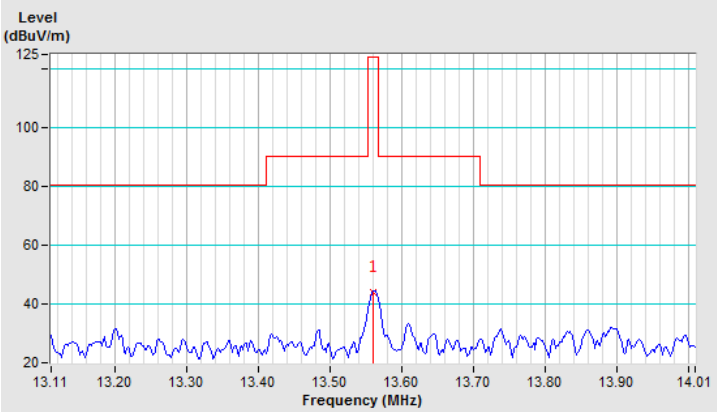
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	4.2 QP	84.0 QP	-79.8

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	42.9 QP	124.0 QP	-81.1	1.0	355.0	21.1	21.8

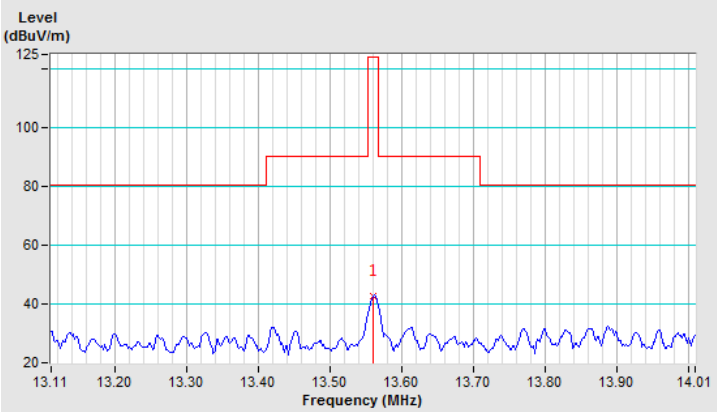
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	2.9 QP	84.0 QP	-81.1

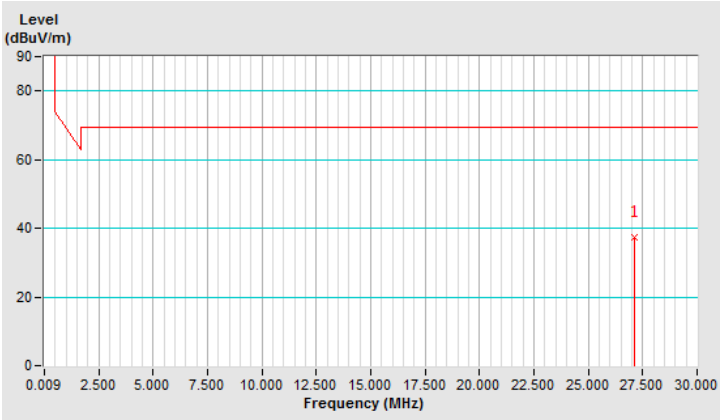
Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	37.21 QP	69.54 QP	-32.33	1.00	21	15.11	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

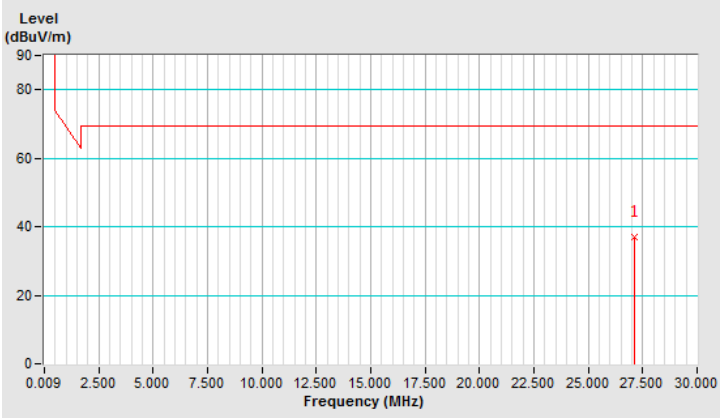


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	36.88 QP	69.54 QP	-32.66	1.00	111	14.78	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

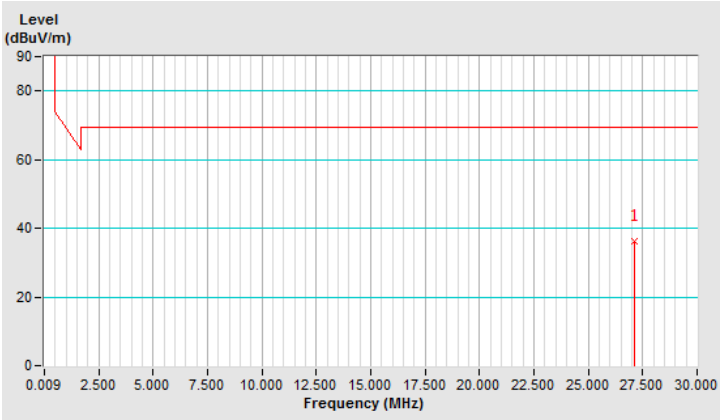


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	36.10 QP	69.54 QP	-33.44	1.00	153	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

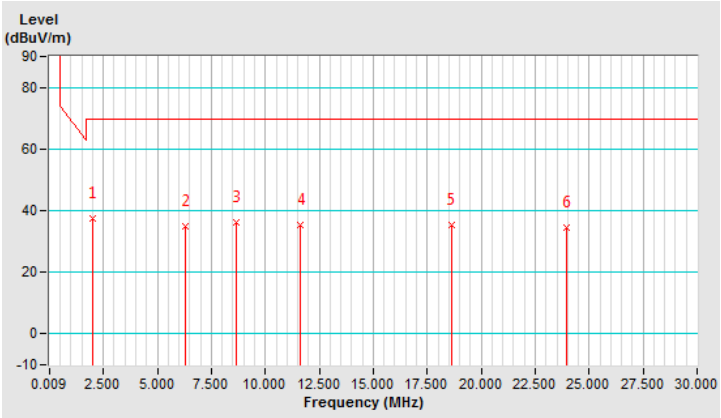


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	1.99	37.50 QP	69.50 QP	-32.00	1.00	271	17.70	19.80
2	6.31	35.10 QP	69.50 QP	-34.40	1.00	301	14.20	20.90
3	8.65	36.00 QP	69.50 QP	-33.50	1.00	264	14.50	21.50
4	11.65	35.30 QP	69.50 QP	-34.20	1.00	331	13.50	21.80
5	18.60	35.40 QP	69.50 QP	-34.10	1.00	11	13.60	21.80
6	23.94	34.60 QP	69.50 QP	-34.90	1.00	11	12.60	22.00

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

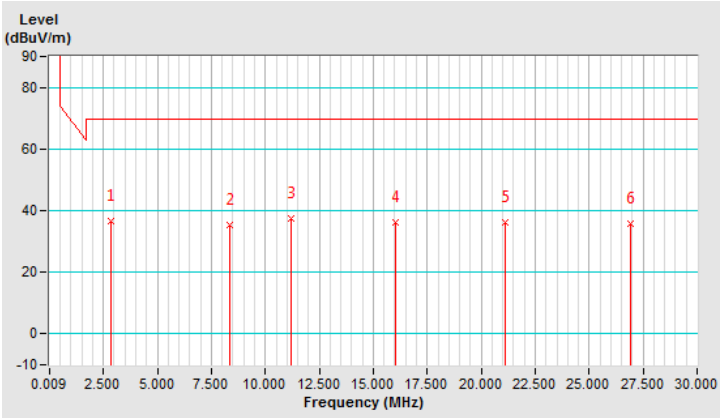


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	2.83	36.70 QP	69.50 QP	-32.80	1.00	9	17.10	19.60
2	8.35	35.20 QP	69.50 QP	-34.30	1.00	33	13.80	21.40
3	11.17	37.50 QP	69.50 QP	-32.00	1.00	281	15.70	21.80
4	16.02	36.20 QP	69.50 QP	-33.30	1.00	93	14.40	21.80
5	21.12	36.00 QP	69.50 QP	-33.50	1.00	165	14.10	21.90
6	26.94	35.70 QP	69.50 QP	-33.80	1.00	9	13.60	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

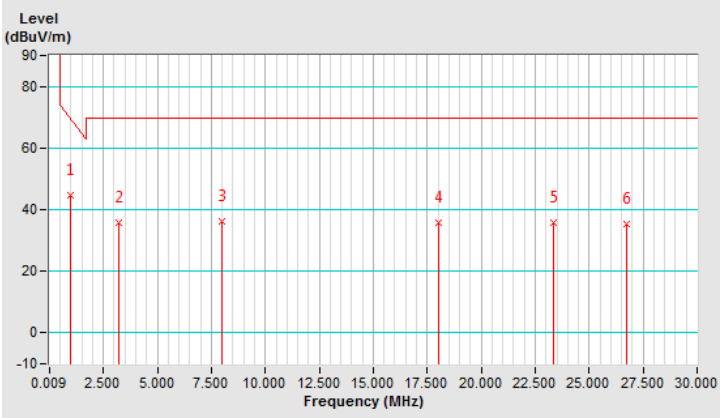


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	0.97	44.50 QP	67.90 QP	-23.40	1.00	104	24.40	20.10
2	3.19	35.80 QP	69.50 QP	-33.70	1.00	1	16.20	19.60
3	7.99	36.20 QP	69.50 QP	-33.30	1.00	38	14.90	21.30
4	18.00	35.80 QP	69.50 QP	-33.70	1.00	264	14.00	21.80
5	23.34	35.80 QP	69.50 QP	-33.70	1.00	350	13.80	22.00
6	26.76	35.40 QP	69.50 QP	-34.10	1.00	189	13.30	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

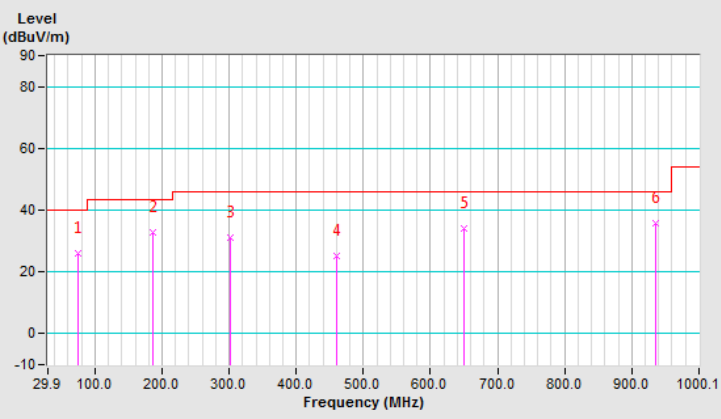


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	74.53	25.9 QP	40.0	-14.1	1.50 H	187	37.1	-11.2
2	187.07	32.8 QP	43.5	-10.7	1.00 H	177	43.7	-10.9
3	301.56	31.3 QP	46.0	-14.7	1.00 H	208	39.3	-8.0
4	460.67	25.2 QP	46.0	-20.8	1.00 H	110	30.6	-5.4
5	650.83	34.0 QP	46.0	-12.0	1.50 H	110	35.4	-1.4
6	936.07	35.7 QP	46.0	-10.3	1.00 H	247	31.7	4.0

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

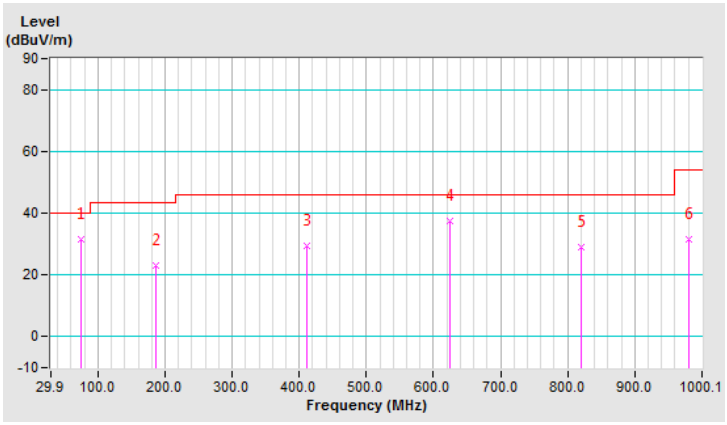


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	74.53	31.4 QP	40.0	-8.6	1.50 V	284	42.6	-11.2
2	187.07	23.1 QP	43.5	-20.4	1.00 V	302	34.0	-10.9
3	412.16	29.4 QP	46.0	-16.6	1.00 V	206	35.8	-6.4
4	623.66	37.5 QP	46.0	-8.5	2.00 V	6	39.2	-1.7
5	819.64	29.0 QP	46.0	-17.0	1.50 V	305	26.7	2.3
6	980.70	31.6 QP	54.0	-22.4	1.00 V	191	27.0	4.6

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



Test Mode B (Type F)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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**	**46.7 QP**	**124.0 QP**	**-77.3**	**1.0**	**22.0**	**24.9**	**21.8**

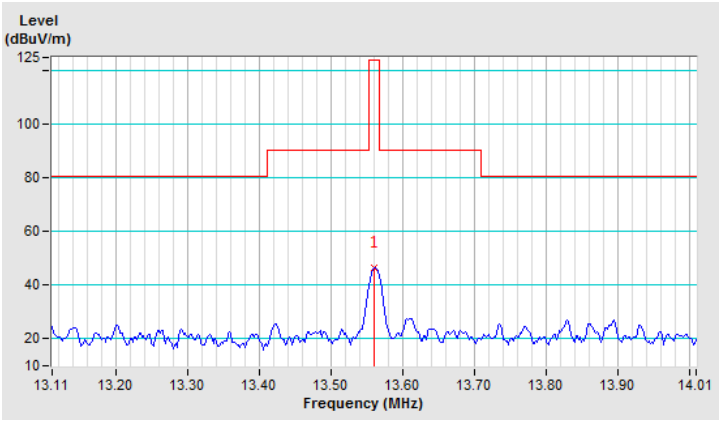
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	6.7 QP	84.0 QP	-77.3

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	44.2 QP	124.0 QP	-79.8	1.0	319.0	22.4	21.8

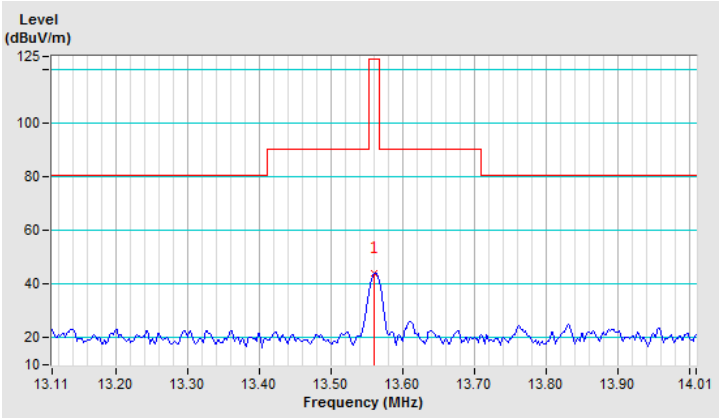
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	4.2 QP	84.0 QP	-79.8

Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	41.9 QP	124.0 QP	-82.1	1.0	177.0	20.1	21.8

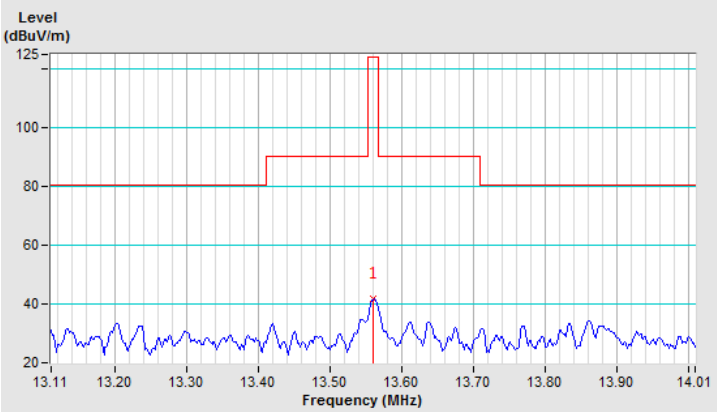
Remarks:

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
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



Antenna Polarity & Test Distance: Loop Antenna Open At 30m				
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*13.56	1.9 QP	84.0 QP	-82.1

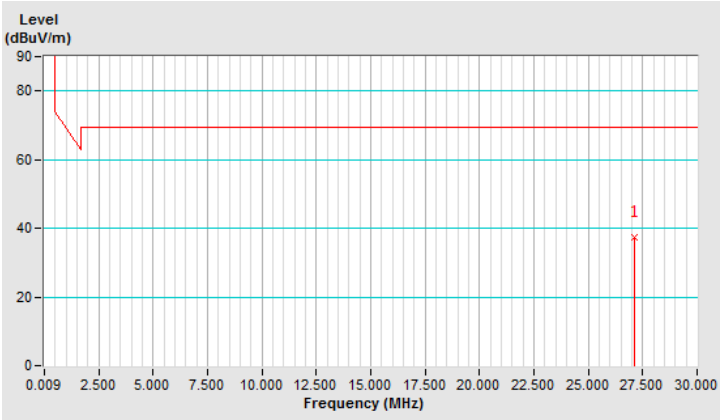
Remarks: Emission Level at 30m = Emission Level at 3m + $20\log(3/30)^2$

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	37.22 QP	69.54 QP	-32.32	1.00	144	15.12	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

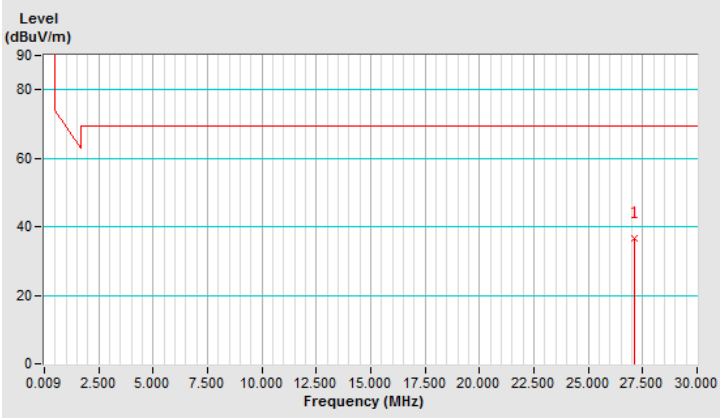


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	36.71 QP	69.54 QP	-32.83	1.00	353	14.61	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

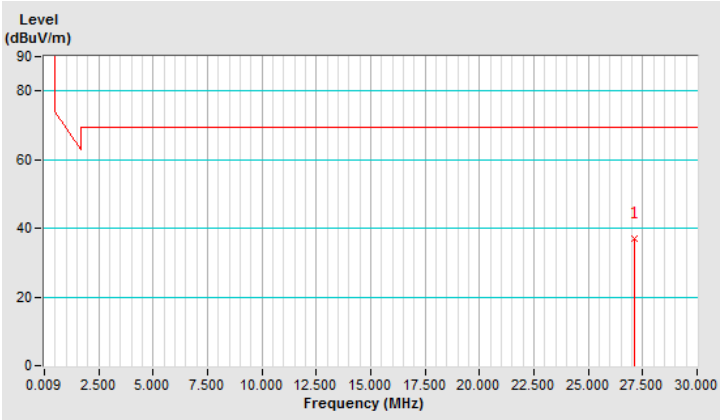


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	36.88 QP	69.54 QP	-32.66	1.00	198	14.78	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

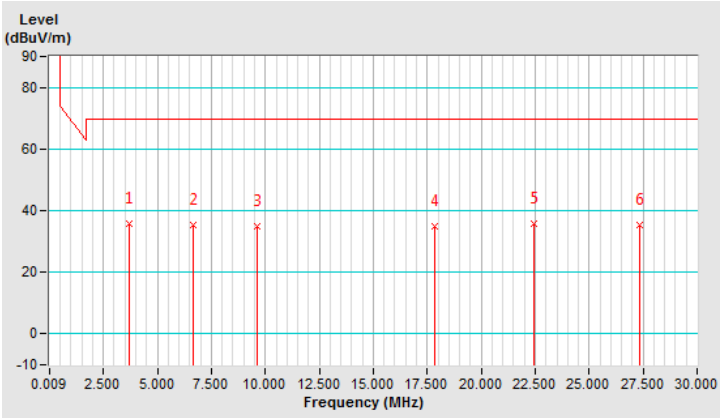


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	35.70 QP	69.50 QP	-33.80	1.00	250	15.80	19.90
2	6.67	35.30 QP	69.50 QP	-34.20	1.00	355	14.30	21.00
3	9.61	34.80 QP	69.50 QP	-34.70	1.00	268	13.10	21.70
4	17.82	35.10 QP	69.50 QP	-34.40	1.00	9	13.30	21.80
5	22.44	35.90 QP	69.50 QP	-33.60	1.00	294	14.00	21.90
6	27.36	35.30 QP	69.50 QP	-34.20	1.00	266	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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

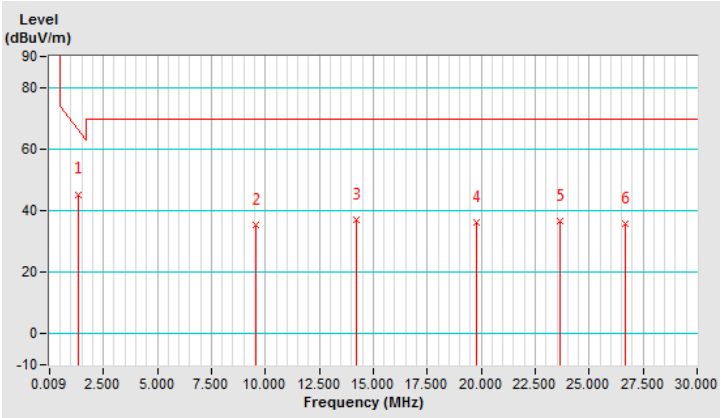


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	45.30 QP	65.10 QP	-19.80	1.00	201	25.30	20.00
2	9.55	35.50 QP	69.50 QP	-34.00	1.00	193	13.80	21.70
3	14.22	37.00 QP	69.50 QP	-32.50	1.00	113	15.20	21.80
4	19.80	36.10 QP	69.50 QP	-33.40	1.00	357	14.30	21.80
5	23.64	36.60 QP	69.50 QP	-32.90	1.00	214	14.60	22.00
6	26.70	35.90 QP	69.50 QP	-33.60	1.00	214	13.80	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

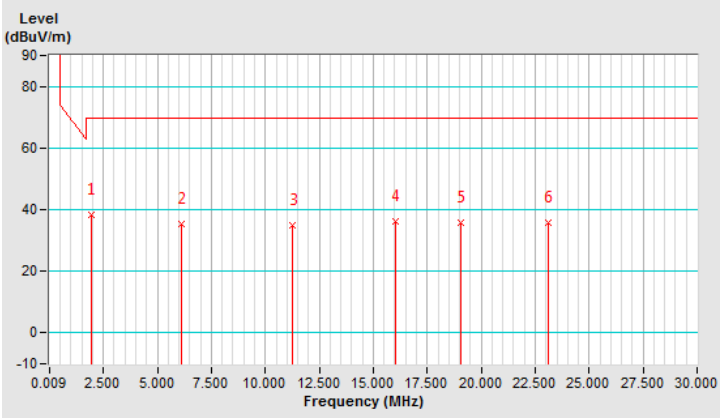


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	1.93	38.50 QP	69.50 QP	-31.00	1.00	263	18.70	19.80
2	6.13	35.40 QP	69.50 QP	-34.10	1.00	239	14.60	20.80
3	11.29	35.00 QP	69.50 QP	-34.50	1.00	192	13.20	21.80
4	16.02	36.10 QP	69.50 QP	-33.40	1.00	286	14.30	21.80
5	19.08	35.80 QP	69.50 QP	-33.70	1.00	34	14.00	21.80
6	23.10	35.90 QP	69.50 QP	-33.60	1.00	133	13.90	22.00

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

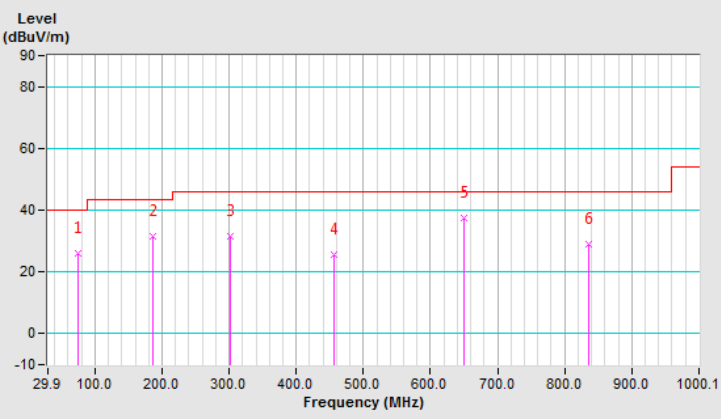


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	74.53	25.9 QP	40.0	-14.1	1.50 H	167	37.1	-11.2
2	187.07	31.4 QP	43.5	-12.1	1.00 H	159	42.3	-10.9
3	301.56	31.6 QP	46.0	-14.4	1.00 H	28	39.6	-8.0
4	456.79	25.7 QP	46.0	-20.3	1.00 H	103	31.1	-5.4
5	650.83	37.4 QP	46.0	-8.6	1.50 H	345	38.8	-1.4
6	835.17	29.1 QP	46.0	-16.9	1.00 H	74	26.5	2.6

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

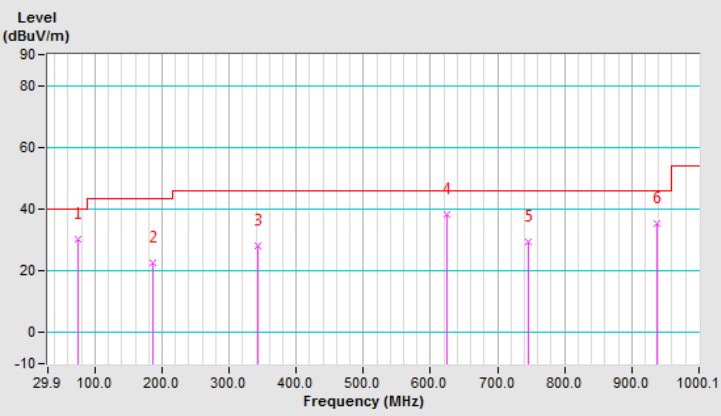


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz (System)	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 69% RH	Tested By	Noah Chang

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	74.53	30.2 QP	40.0	-9.8	2.00 V	181	41.4	-11.2
2	187.07	22.8 QP	43.5	-20.7	1.00 V	289	33.7	-10.9
3	342.30	28.2 QP	46.0	-17.8	1.00 V	172	35.6	-7.4
4	623.66	38.4 QP	46.0	-7.6	1.50 V	19	40.1	-1.7
5	745.91	29.3 QP	46.0	-16.7	1.50 V	165	28.3	1.0
6	938.01	35.3 QP	46.0	-10.7	1.00 V	76	31.2	4.1

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	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
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-2040.

4.2.3 Test Procedures

a. 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.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

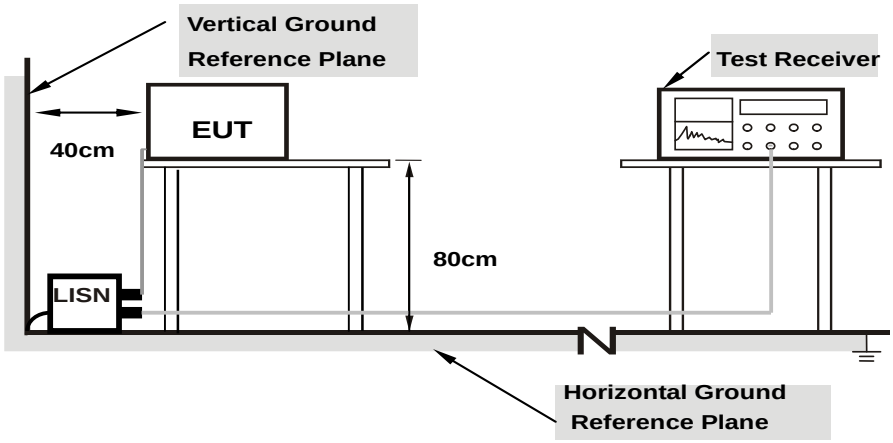
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

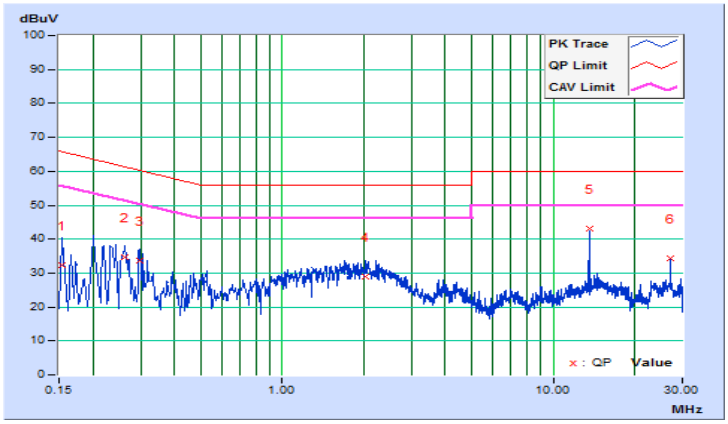
Test Mode A (Type A)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.67	22.58	6.67	32.25	16.34	65.79	55.79	-33.54	-39.45
2	0.26339	9.67	24.97	10.97	34.64	20.64	61.32	51.32	-26.68	-30.68
3	0.29740	9.67	23.96	5.59	33.63	15.26	60.32	50.32	-26.69	-35.06
4	2.03071	9.68	19.32	12.07	29.00	21.75	56.00	46.00	-27.00	-24.25
5	**13.56130**	**9.87**	**33.21**	**33.16**	**43.08**	**43.03**	**60.00**	**50.00**	**-16.92**	**-6.97**
6	27.12118	9.92	24.50	22.59	34.42	32.51	60.00	50.00	-25.58	-17.49

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.

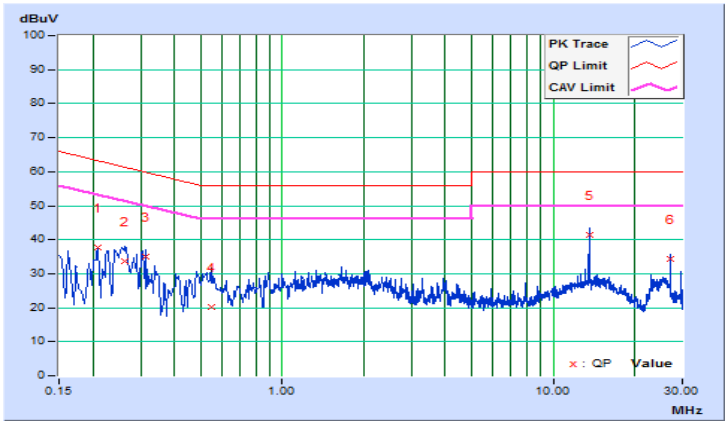


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20865	9.67	28.16	14.47	37.83	24.14	63.26	53.26	-25.43	-29.12
2	0.26346	9.67	23.92	10.74	33.59	20.41	61.32	51.32	-27.73	-30.91
3	0.31432	9.67	25.39	13.07	35.06	22.74	59.86	49.86	-24.80	-27.12
4	0.54882	9.67	10.57	0.07	20.24	9.74	56.00	46.00	-35.76	-36.26
5	13.56130	9.92	31.37	31.26	41.29	41.18	60.00	50.00	-18.71	-8.82
6	27.12118	10.04	24.28	22.78	34.32	32.82	60.00	50.00	-25.68	-17.18

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.



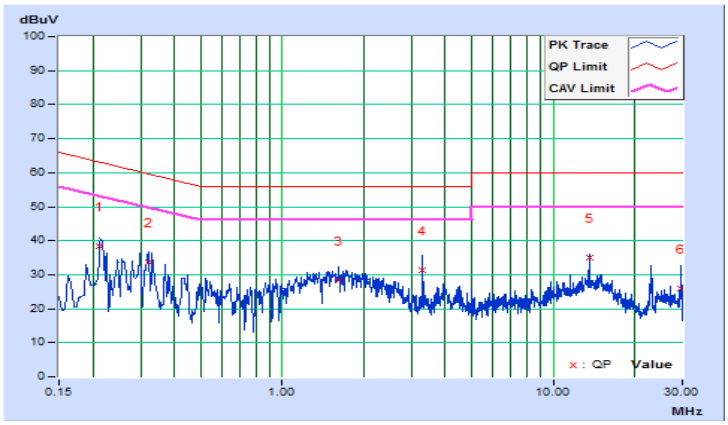
Test Mode A (Type B)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21256	9.67	28.75	12.45	38.42	22.12	63.10	53.10	-24.68	-30.98
2	0.32187	9.66	24.10	15.02	33.76	24.68	59.66	49.66	-25.90	-24.98
3	1.61234	9.67	18.71	11.92	28.38	21.59	56.00	46.00	-27.62	-24.41
4	3.28973	9.71	21.65	7.14	31.36	16.85	56.00	46.00	-24.64	-29.15
5	13.56130	9.87	25.06	23.72	34.93	33.59	60.00	50.00	-25.07	-16.41
6	29.69396	9.92	16.00	4.56	25.92	14.48	60.00	50.00	-34.08	-35.52

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.

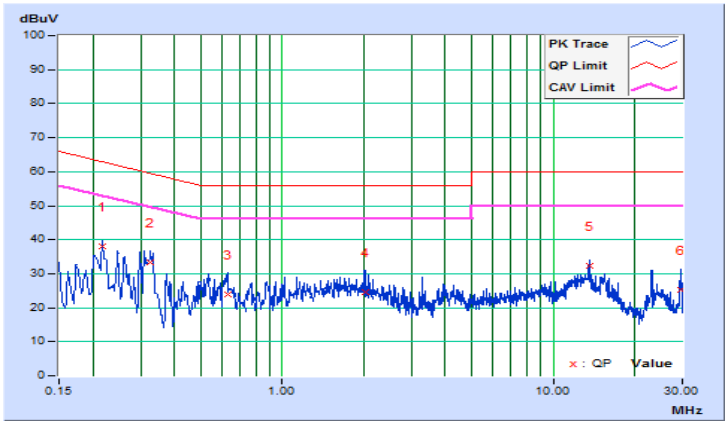


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21647	9.67	28.38	14.89	38.05	24.56	62.95	52.95	-24.90	-28.39
2	0.32614	9.67	23.82	12.00	33.49	21.67	59.55	49.55	-26.06	-27.88
3	0.62702	9.66	14.15	5.36	23.81	15.02	56.00	46.00	-32.19	-30.98
4	2.03071	9.68	14.95	6.78	24.63	16.46	56.00	46.00	-31.37	-29.54
5	13.56130	9.92	22.25	21.01	32.17	30.93	60.00	50.00	-27.83	-19.07
6	29.71742	10.05	15.20	12.27	25.25	22.32	60.00	50.00	-34.75	-27.68

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.



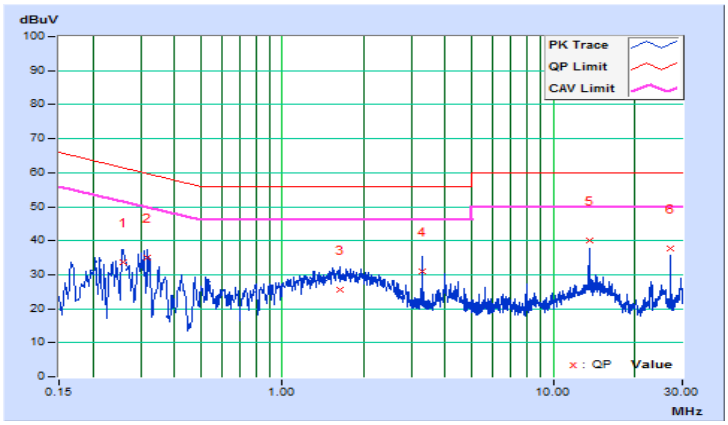
Test Mode A (Type F)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.25796	9.67	23.90	4.87	33.57	14.54	61.50	51.50	-27.93	-36.96
2	0.31813	9.66	25.23	14.94	34.89	24.60	59.76	49.76	-24.87	-25.16
3	1.63971	9.67	15.77	7.38	25.44	17.05	56.00	46.00	-30.56	-28.95
4	3.28973	9.71	21.13	8.08	30.84	17.79	56.00	46.00	-25.16	-28.21
5	13.56130	9.87	30.03	29.22	39.90	39.09	60.00	50.00	-20.10	-10.91
6	27.12118	9.92	27.88	26.01	37.80	35.93	60.00	50.00	-22.20	-14.07

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.

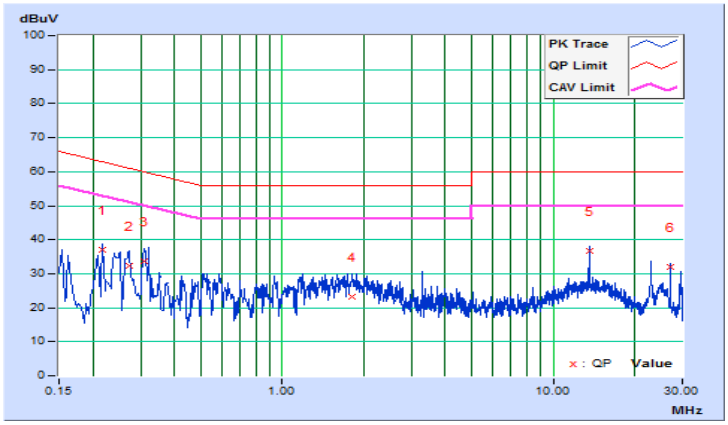


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21647	9.67	27.40	13.89	37.07	23.56	62.95	52.95	-25.88	-29.39
2	0.27120	9.67	22.52	14.00	32.19	23.67	61.08	51.08	-28.89	-27.41
3	0.31021	9.67	23.90	7.49	33.57	17.16	59.96	49.96	-26.39	-32.80
4	1.81175	9.67	13.72	6.31	23.39	15.98	56.00	46.00	-32.61	-30.02
5	13.56130	9.92	26.89	26.43	36.81	36.35	60.00	50.00	-23.19	-13.65
6	27.12118	10.04	21.90	21.63	31.94	31.67	60.00	50.00	-28.06	-18.33

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.



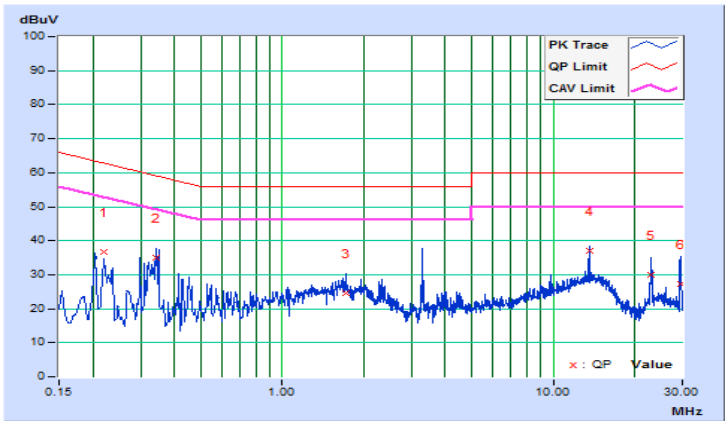
Test Mode B (Type A)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.22038	9.67	27.03	12.23	36.70	21.90	62.80	52.80	-26.10	-30.90
2	0.34159	9.66	25.35	14.55	35.01	24.21	59.16	49.16	-24.15	-24.95
3	1.71400	9.67	14.81	9.68	24.48	19.35	56.00	46.00	-31.52	-26.65
4	13.56130	9.87	27.10	26.29	36.97	36.16	60.00	50.00	-23.03	-13.84
5	23.11734	9.91	20.10	6.36	30.01	16.27	60.00	50.00	-29.99	-33.73
6	29.62749	9.92	17.19	2.71	27.11	12.63	60.00	50.00	-32.89	-37.37

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.

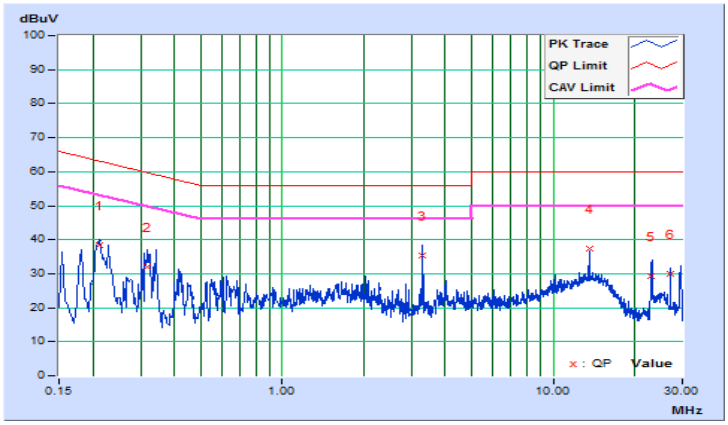


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21226	9.67	28.85	14.85	38.52	24.52	63.12	53.12	-24.60	-28.60
2	0.31813	9.67	22.27	13.88	31.94	23.55	59.76	49.76	-27.82	-26.21
3	3.28973	9.71	25.72	12.31	35.43	22.02	56.00	46.00	-20.57	-23.98
4	13.56130	9.92	27.39	26.61	37.31	36.53	60.00	50.00	-22.69	-13.47
5	23.04716	10.02	19.38	7.29	29.40	17.31	60.00	50.00	-30.60	-32.69
6	27.12118	10.04	19.90	19.59	29.94	29.63	60.00	50.00	-30.06	-20.37

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.



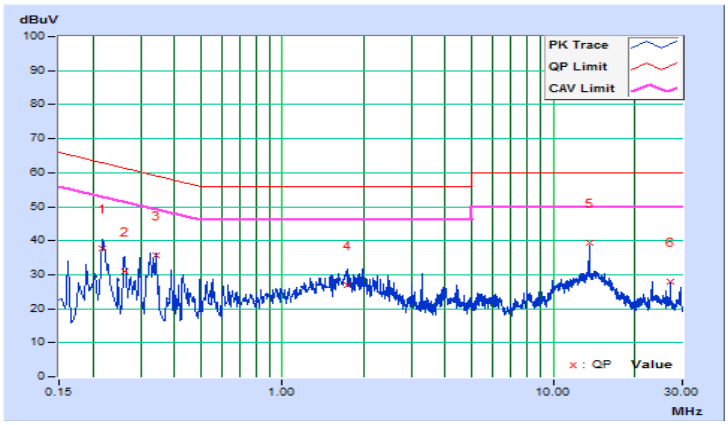
Test Mode B (Type B)

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21679	9.67	27.89	12.79	37.56	22.46	62.94	52.94	-25.38	-30.48
2	0.26138	9.67	21.30	5.66	30.97	15.33	61.39	51.39	-30.42	-36.06
3	0.34159	9.66	26.17	15.93	35.83	25.59	59.16	49.16	-23.33	-23.57
4	1.75310	9.67	17.10	9.78	26.77	19.45	56.00	46.00	-29.23	-26.55
5	13.56130	9.87	29.36	28.69	39.23	38.56	60.00	50.00	-20.77	-11.44
6	27.12118	9.92	18.18	16.83	28.10	26.75	60.00	50.00	-31.90	-23.25

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.

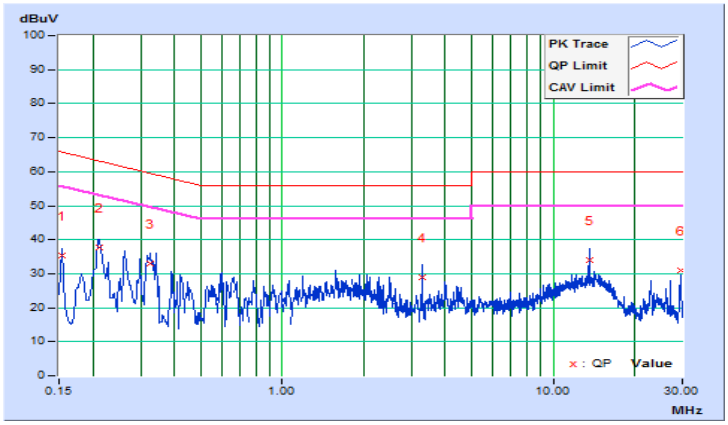


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.68	25.52	9.26	35.20	18.94	65.79	55.79	-30.59	-36.85
2	0.21059	9.67	27.92	9.87	37.59	19.54	63.18	53.18	-25.59	-33.64
3	0.32614	9.67	23.24	9.85	32.91	19.52	59.55	49.55	-26.64	-30.03
4	3.28973	9.71	19.14	6.60	28.85	16.31	56.00	46.00	-27.15	-29.69
5	13.56130	9.92	24.12	22.99	34.04	32.91	60.00	50.00	-25.96	-17.09
6	29.58448	10.05	20.92	11.00	30.97	21.05	60.00	50.00	-29.03	-28.95

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.



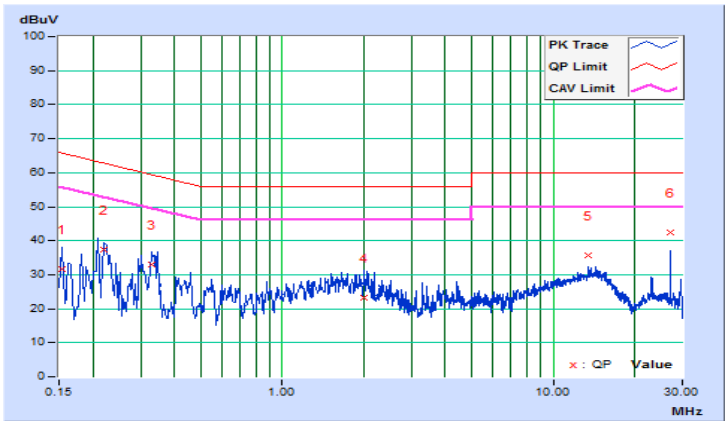
Test Mode B (Type F)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.67	22.07	6.96	31.74	16.63	65.79	55.79	-34.05	-39.16
2	0.22082	9.67	27.54	12.99	37.21	22.66	62.79	52.79	-25.58	-30.13
3	0.32986	9.66	23.25	8.17	32.91	17.83	59.45	49.45	-26.54	-31.62
4	2.00334	9.68	13.52	7.14	23.20	16.82	56.00	46.00	-32.80	-29.18
5	13.55739	9.87	25.83	24.68	35.70	34.55	60.00	50.00	-24.30	-15.45
6	27.12118	9.92	32.66	32.50	42.58	42.42	60.00	50.00	-17.42	-7.58

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.

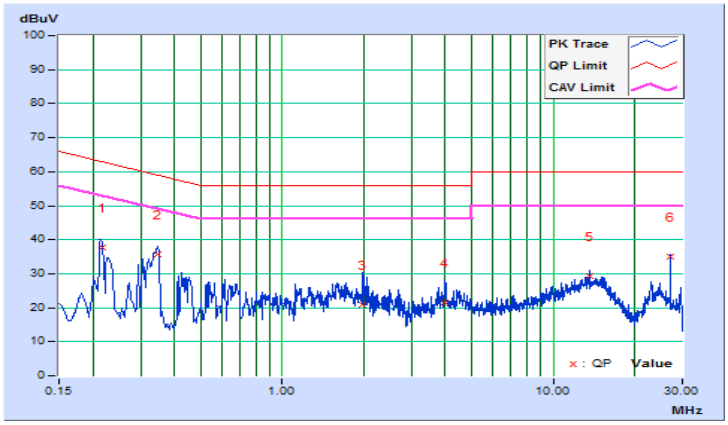


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21647	9.67	27.93	14.38	37.60	24.05	62.95	52.95	-25.35	-28.90
2	0.34550	9.67	26.02	16.51	35.69	26.18	59.07	49.07	-23.38	-22.89
3	1.98770	9.68	11.33	3.61	21.01	13.29	56.00	46.00	-34.99	-32.71
4	3.99353	9.73	11.76	4.51	21.49	14.24	56.00	46.00	-34.51	-31.76
5	13.56130	9.92	19.52	16.68	29.44	26.60	60.00	50.00	-30.56	-23.40
6	27.12118	10.04	25.93	25.02	35.97	35.06	60.00	50.00	-24.03	-14.94

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.

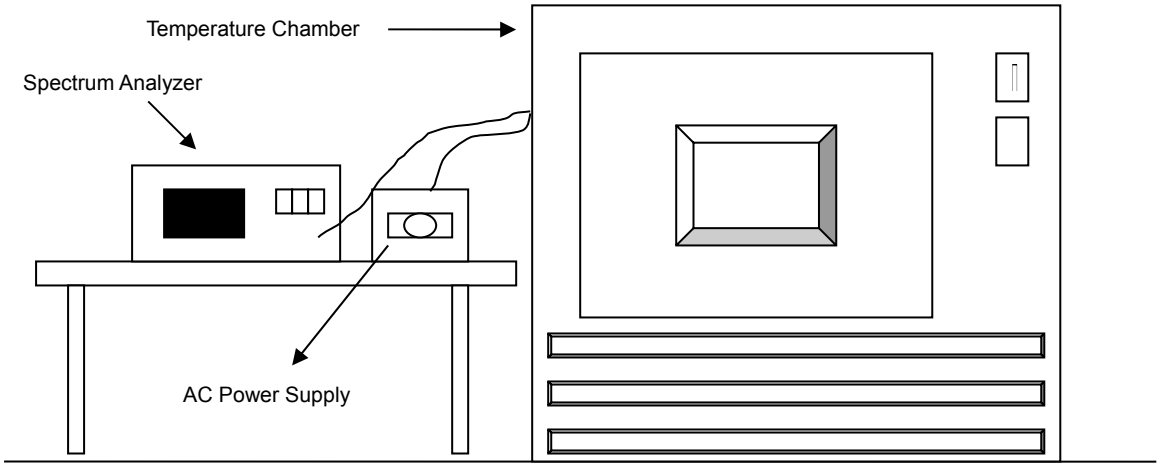


4.3 Frequency Stability

4.3.1 Limits of Frequency Stability Measurement

The frequency tolerance of the carrier signal shall be maintained within +/- 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

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turned the EUT on and coupled its output to a spectrum analyzer.

c. Turned the EUT off and set the chamber to the highest temperature specified.

d. 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.

e. Repeated step 2 and 3 with the temperature chamber set to the lowest temperature.

f. 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 fromTest 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. (℃)	Power Supply (Vac)	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	120	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029
40	120	13.55992	-0.00059	13.55994	-0.00044	13.55993	-0.00052	13.55993	-0.00052
30	120	13.56003	0.00022	13.56002	0.00015	13.56003	0.00022	13.56003	0.00022
20	120	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
10	120	13.55995	-0.00037	13.55995	-0.00037	13.55996	-0.00029	13.55995	-0.00037
0	120	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015
-10	120	13.55994	-0.00044	13.55994	-0.00044	13.55994	-0.00044	13.55994	-0.00044
-20	120	13.55997	-0.00022	13.55996	-0.00029	13.55997	-0.00022	13.55998	-0.00015

Frequency Stability Versus Voltage									
TEMP. (℃)	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	138	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
	120	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
	102	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022

Test Mode B

Frequency Stability Versus Temp.									
TEMP. (℃)	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	120	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.55998	-0.00015
40	120	13.56002	0.00015	13.56002	0.00015	13.56003	0.00022	13.56002	0.00015
30	120	13.56002	0.00015	13.56002	0.00015	13.56002	0.00015	13.56001	0.00007
20	120	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55997	-0.00022
10	120	13.55999	-0.00007	13.55998	-0.00015	13.55997	-0.00022	13.55997	-0.00022
0	120	13.55996	-0.00029	13.55996	-0.00029	13.55995	-0.00037	13.55996	-0.00029
-10	120	13.56002	0.00015	13.56001	0.00007	13.56001	0.00007	13.56001	0.00007
-20	120	13.56002	0.00015	13.56002	0.00015	13.56002	0.00015	13.56002	0.00015

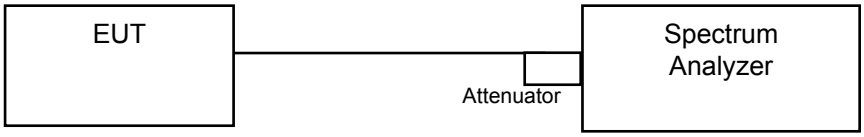
Frequency Stability Versus Voltage									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	138	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55997	-0.00022
	120	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55997	-0.00022
	102	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55997	-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

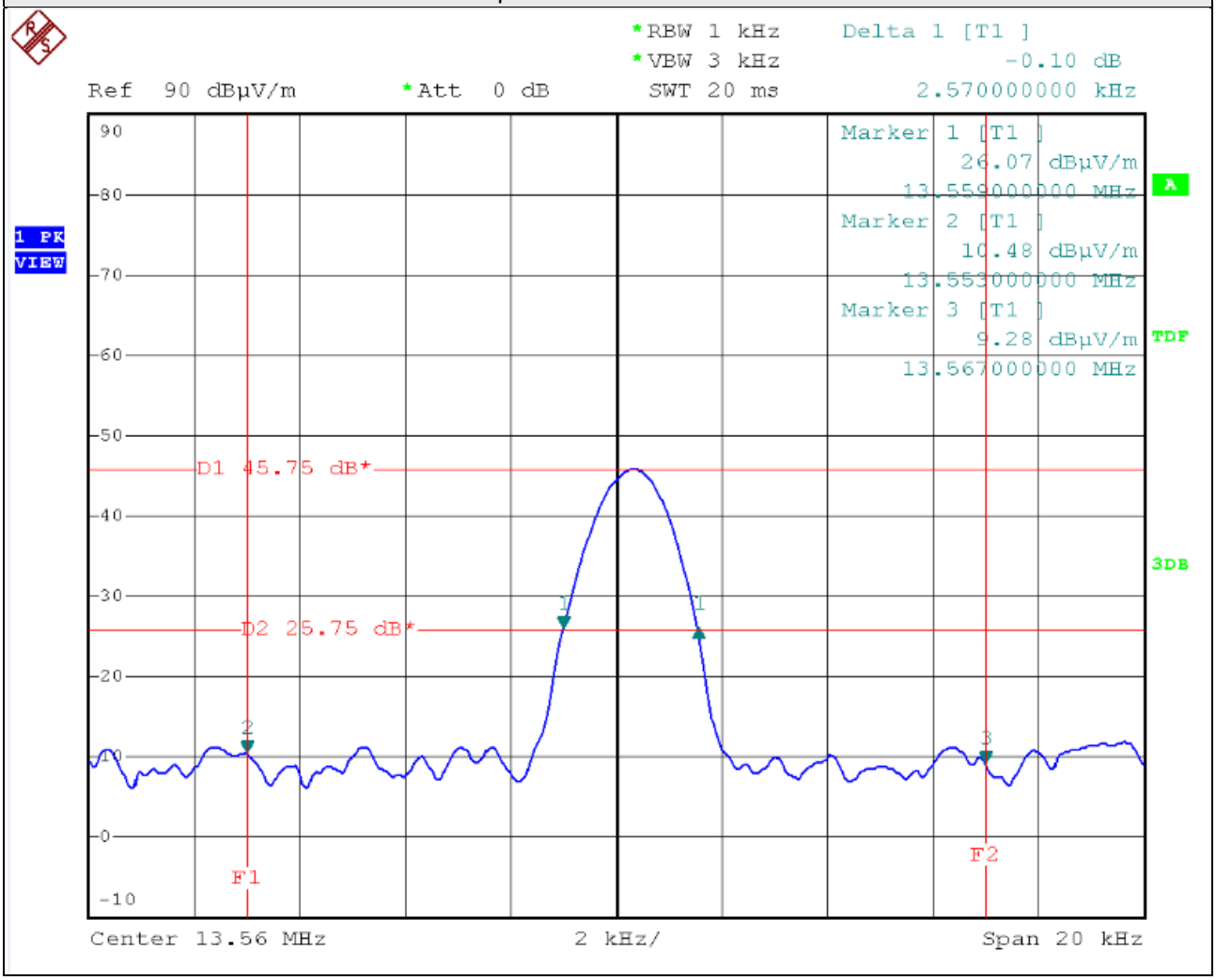
Same as Item 4.1.6.

4.4.7 Test Results

Test Mode A (Type A)

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.559	13.56157	13.553~13.567	Pass

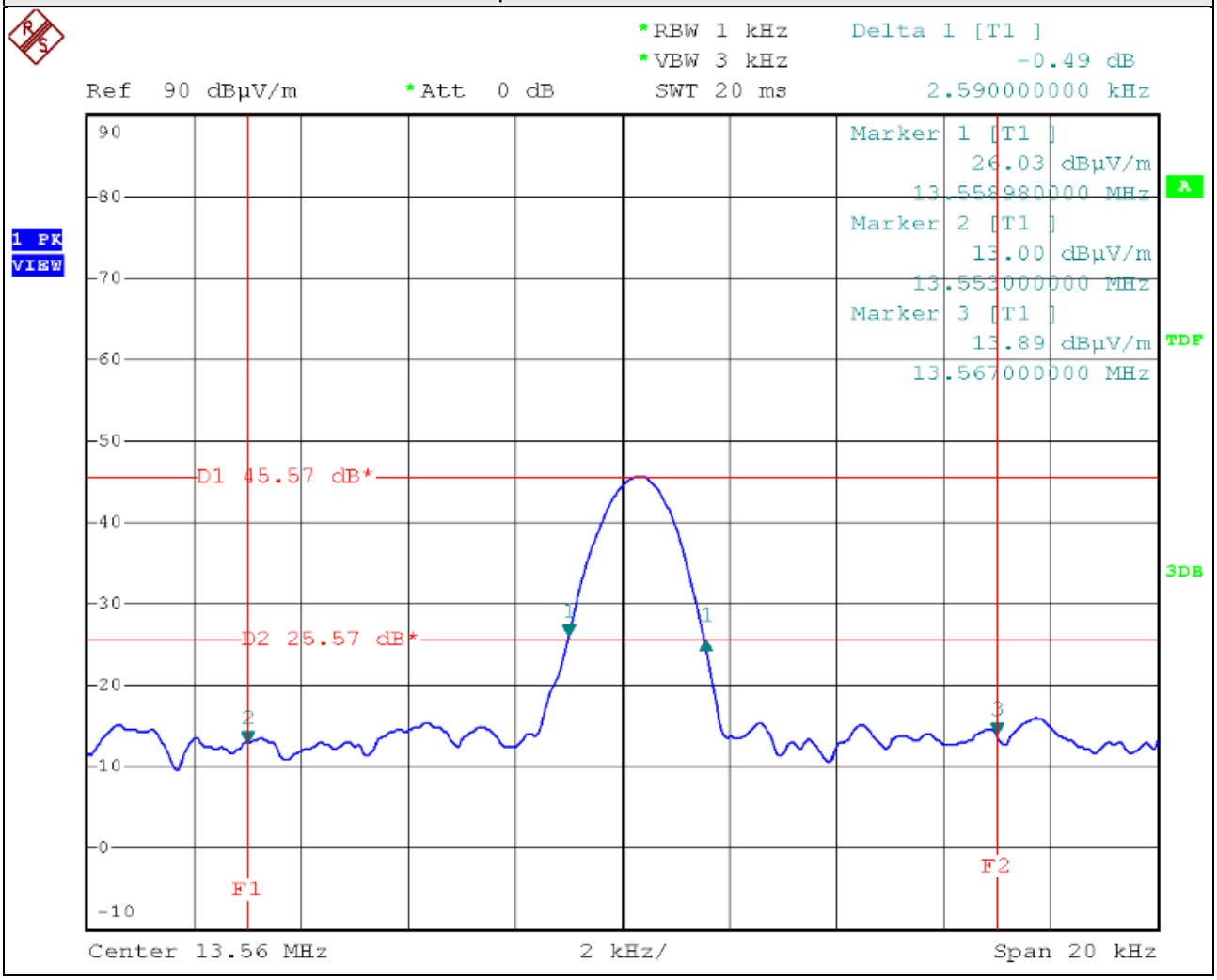
Spectrum Plot of Value



Test Mode A (Type B)

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55898	13.56157	13.553~13.567	Pass

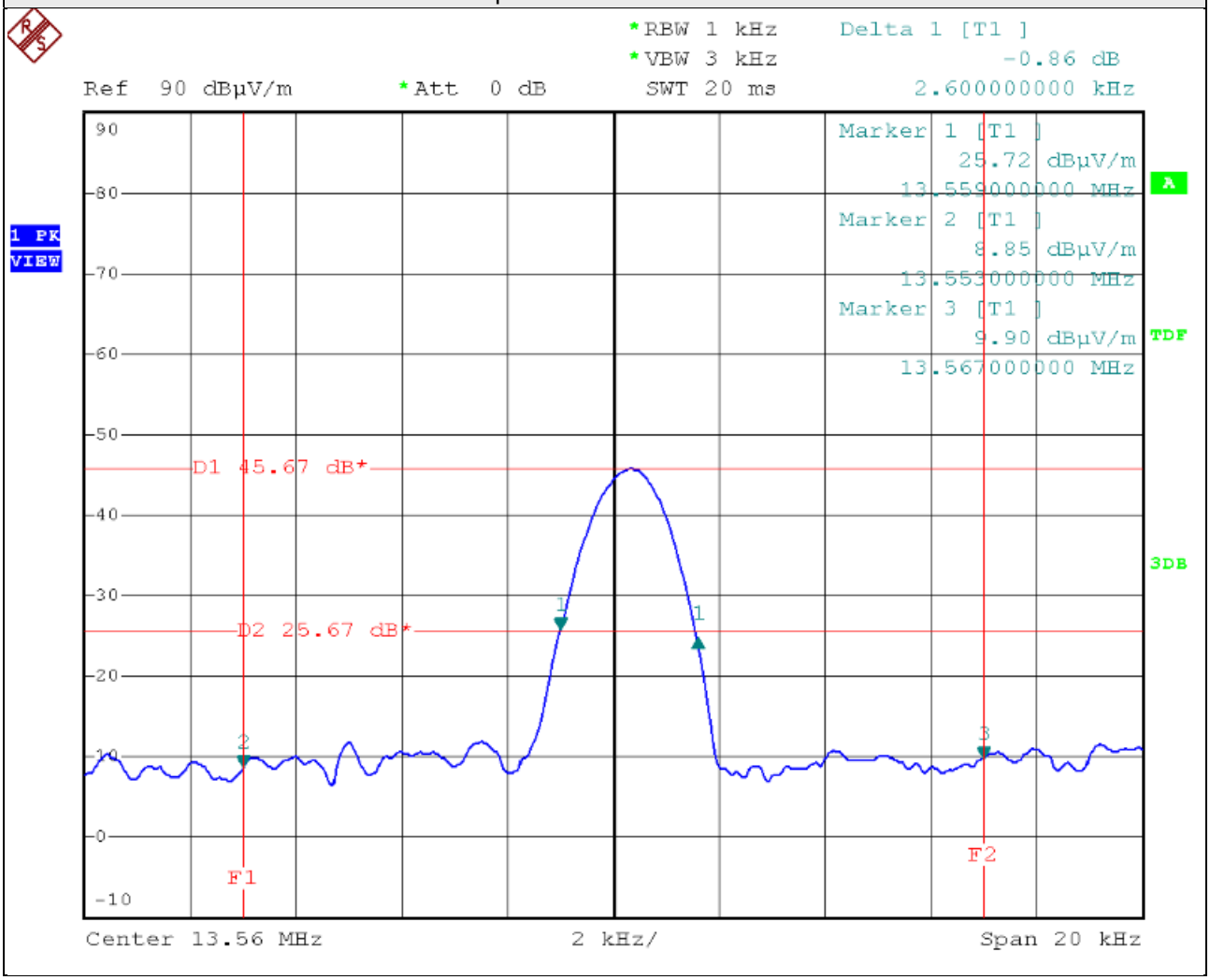
Spectrum Plot of Value



Test Mode A (Type F)

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.559	13.5616	13.553~13.567	Pass

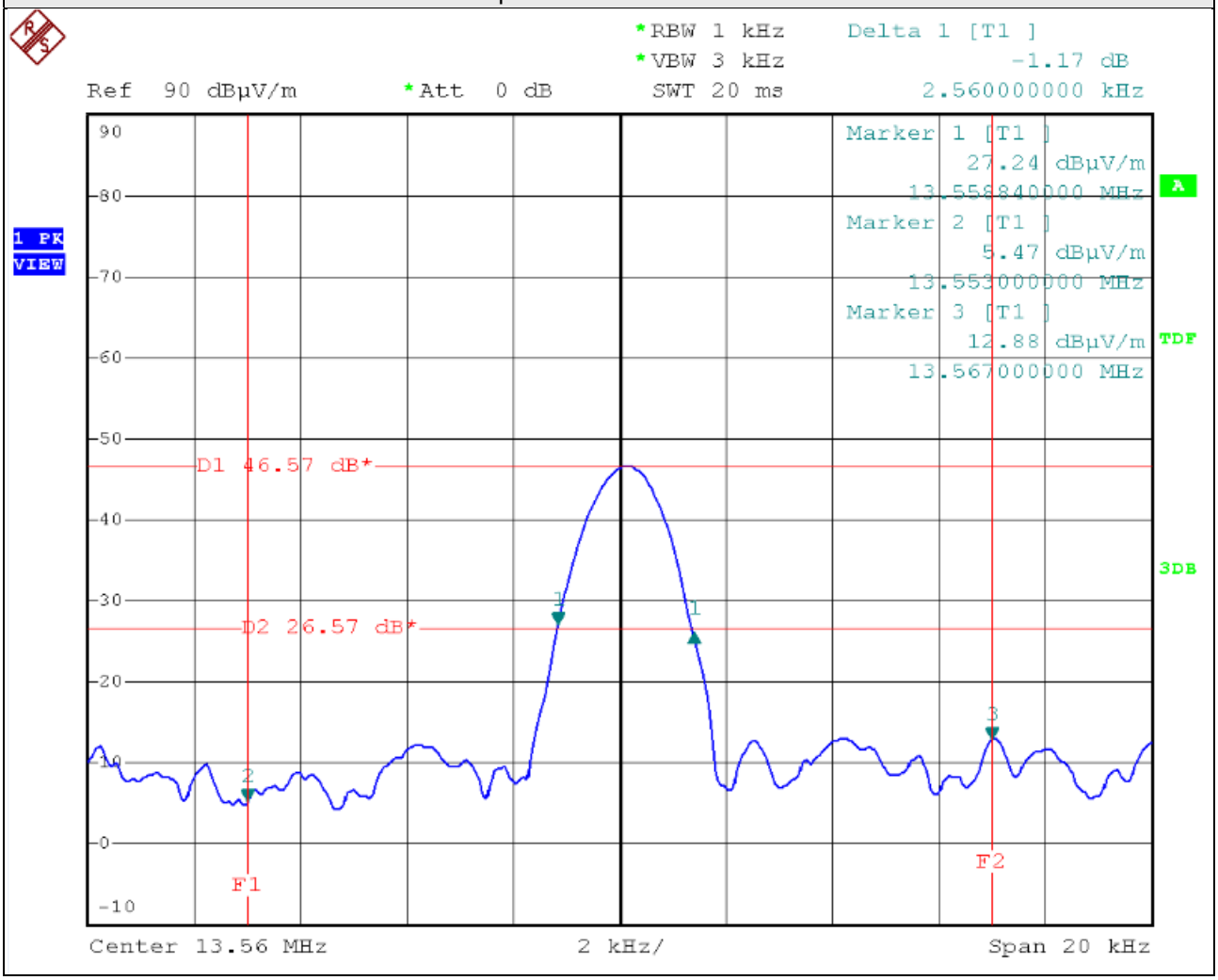
Spectrum Plot of Value



Test Mode B (Type A)

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55884	13.5614	13.553~13.567	Pass

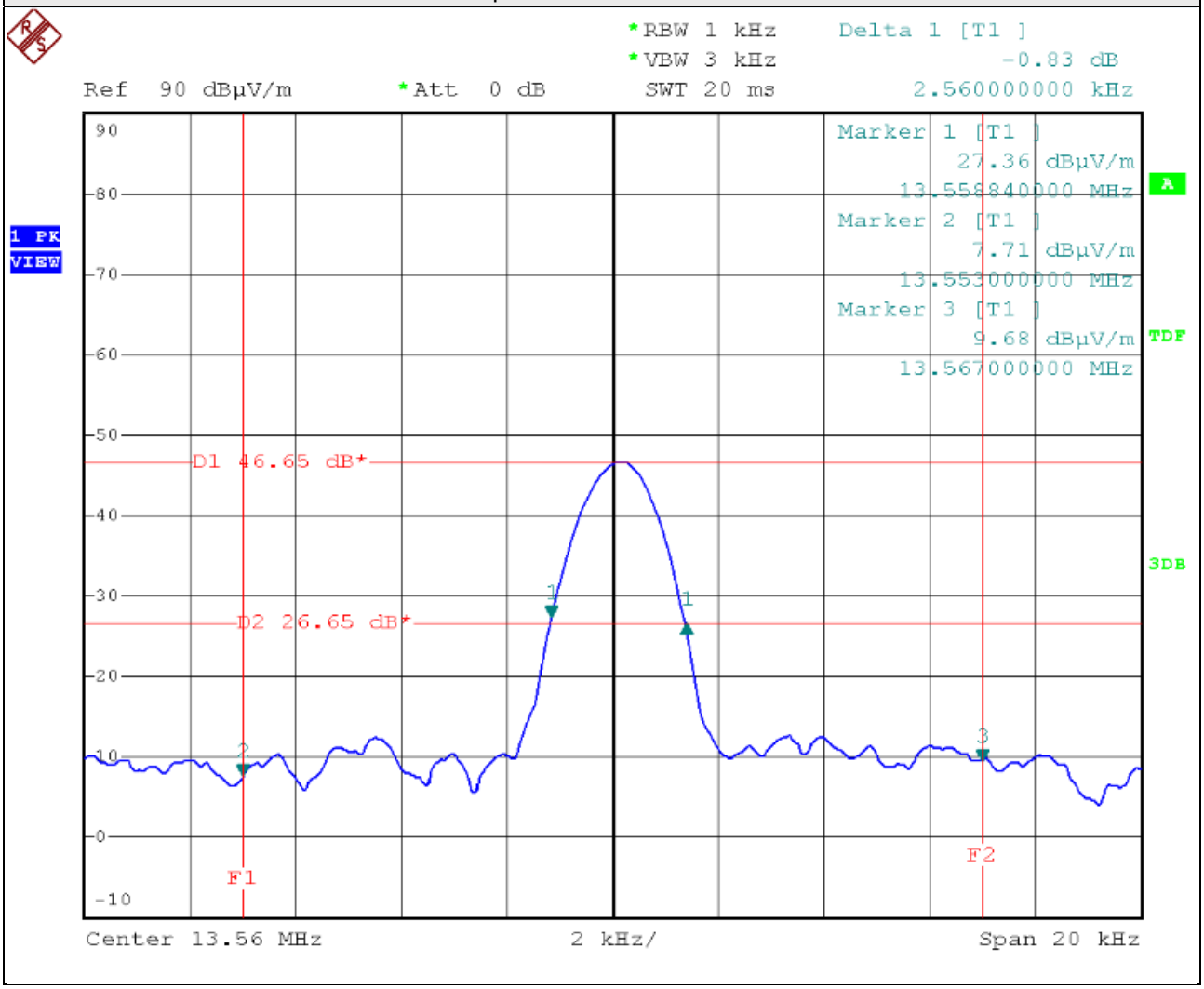
Spectrum Plot of Value



Test Mode B (Type B)

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55884	13.5614	13.553~13.567	Pass

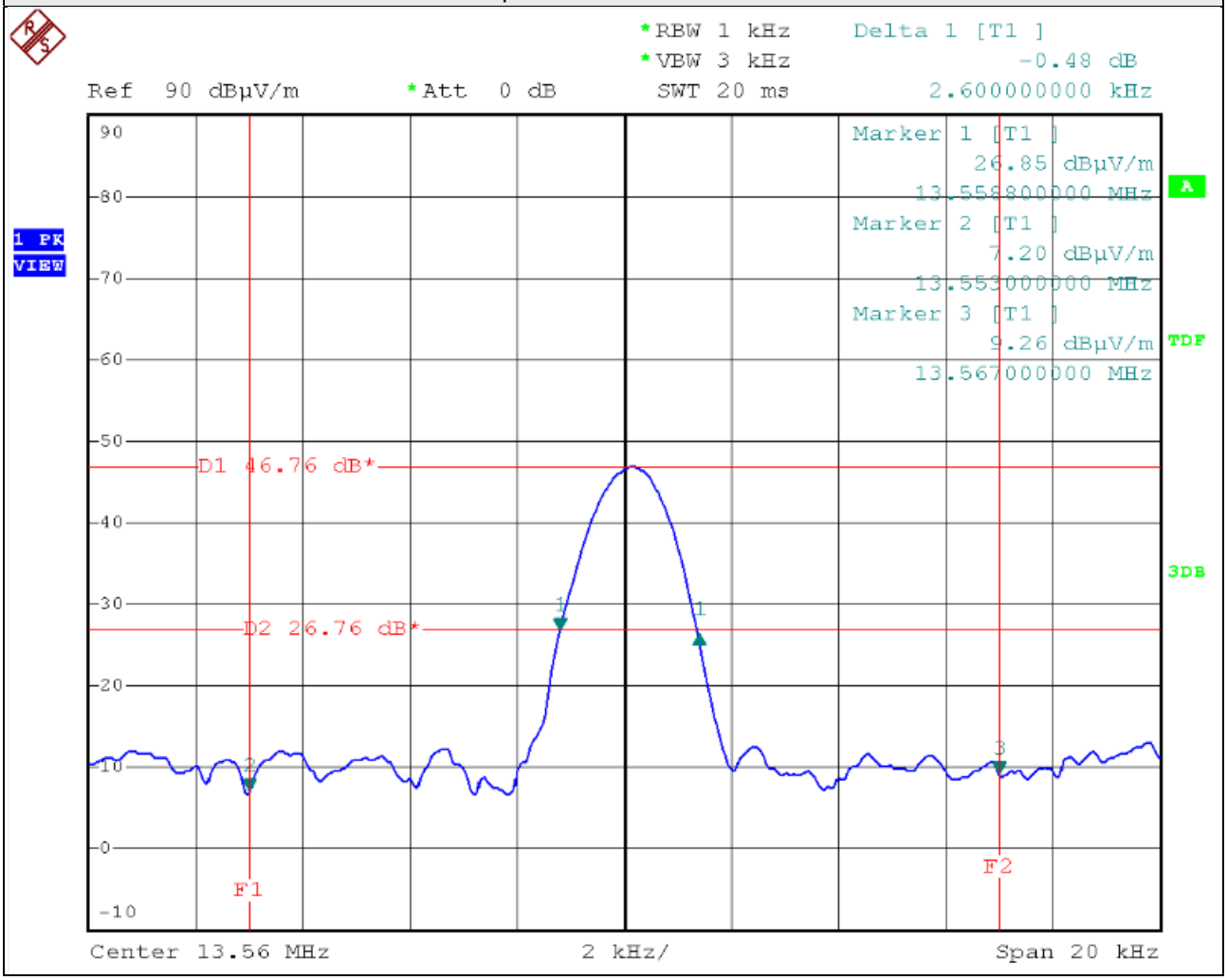
Spectrum Plot of Value



Test Mode B (Type F)

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.5588	13.5614	13.553~13.567	Pass

Spectrum Plot of Value



5 Pictures of Test Arrangements

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

Appendix – Information on 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:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---