

FCC Test Report

Report No.: RF190530C17B-5

FCC ID: H8NCDR8011

Test Model: CDR8010-DBB1

Series Model: CDR8011-DBA1, CDR8011-DDA1, CDR8011-DDB1, CDR8011-SBA1, CDR8011-SBB1, CDR8011-SDA1, CDR8011-SDB1 (refer to item 3.1 for more details)

Received Date: Feb. 25, 2019

Test Date: May 07 ~ Aug. 28, 2019

Issued Date: Sep. 02, 2019

Applicant: ASKEY COMPUTER CORP.

Address: 10F, NO. 119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY
23585, TAIWAN, R.O.C.

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

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



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Release Control Record

Issue No.	Description	Date Issued
RF190530C17B-5	Original release	Sep. 02, 2019

1 Certificate of Conformity

Product: iDVR800

Brand: ASKEY

Test Model: CDR8010-DBB1

Series Model: CDR8011-DBA1, CDR8011-DDA1, CDR8011-DDB1, CDR8011-SBA1,
CDR8011-SBB1, CDR8011-SDA1, CDR8011-SDB1 (refer to item 3.1 for more
details)

Sample Status: Engineering sample

Applicant: ASKEY COMPUTER CORP.

Test Date: May 07 ~ Aug. 28, 2019

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

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

Prepared by : Pettie Chen , **Date:** Sep. 02, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Sep. 02, 2019
Bruce Chen / Senior 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	NA	EUT is powered from DC
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 -74.0dB 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 -4.8dB at 33.79MHz.
15.225 (e)	The frequency tolerance	Pass	Meet the requirement of limit.
15.215 (c)	20dB Bandwidth	Pass	Meet the requirement of limit.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	iDVR800
Brand	ASKEY
Test Model	CDR8010-DBB1
Series Model	CDR8011-DBA1, CDR8011-DDA1, CDR8011-DDB1, CDR8011-SBA1, CDR8011-SBB1, CDR8011-SDA1, CDR8011-SDB1
Model Difference	Refer to Note
Sample Status	Engineering sample
Nominal Voltage	12Vdc / 24Vdc (Car Charger) 3.7Vdc (Battery)
Modulation Type	ASK
Operating Frequency	13.56MHz
Data Rate	Up to 424 kbit/s
Field Strength	50.0dBuV/m (QP) (3m)
Antenna Type	Loop antenna (Brand: INPAQ, Model: NF-C-F8-R0-091-A)
Antenna Connector	NA
Accessory Device	Car charger, SD Card
Cable Supplied	NA

Note:

1. All models are listed as below. Model CDR8010-DBB1 is the representative for final test.

Model	PCB	Camera	NFC	Fan	eSIM	RAM
CDR8010-DBB1	Same PCB	Dual	Yes	Yes	N/A	3GB
CDR8011-DBA1			Yes	Yes		N/A
CDR8011-DDA1			Yes	No		N/A
CDR8011-DDB1			Yes	No		3GB
CDR8011-SBA1		Single	Yes	Yes		N/A
CDR8011-SBB1			Yes	Yes		3GB
CDR8011-SDA1			Yes	No		N/A
CDR8011-SDB1			Yes	No		3GB

2. The EUT is powered by the following car charger and battery.

Car charger	
Brand	Sunny
Model	SYD1202-1005
Input Power	12Vdc / 24Vdc, 1.5A
Output Power	5Vdc, 2.1A
Power Line	5.1m cable with USB Type C connector

Battery	
Brand	FUJI ELECTRONICS(SHENZHEN)CO., LTD
Model	ICP463048XS
Rating	3.7Vdc, 750mA

3.2 Description of Test Modes

1 channel is provided to this EUT

Channel	Freq. (MHz)
1	13.56

3.2.1 Test Mode Applicability and Tested Channel Data

EUT Configure Mode	Applicable to				Description
	RE	PLC	FS	EB	
A	√	NOTE 2	√	√	NFC: Tag Type A
B	√	NOTE 2	√	√	NFC: Tag Type B
C	√	NOTE 2	√	√	NFC: Tag Type F

Where RE: Radiated Emission
 FS: Frequency Stability
 PLC: Power Line Conducted Emission
 EB: 20dB Bandwidth measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.
2. No need to concern of PLC due to the EUT is powered from DC.

Radiated Emission Test:

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

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

Frequency Stability:

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

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

20dB Bandwidth:

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

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

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE	22 deg. C, 68% RH	3.7Vdc	Willy Cheng
	23 deg. C, 68% RH		Greg Lin
FS	23 deg. C, 68% RH	3.7Vdc	Willy Cheng
BW	22 deg. C, 68% RH	3.7Vdc	Willy Cheng

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.

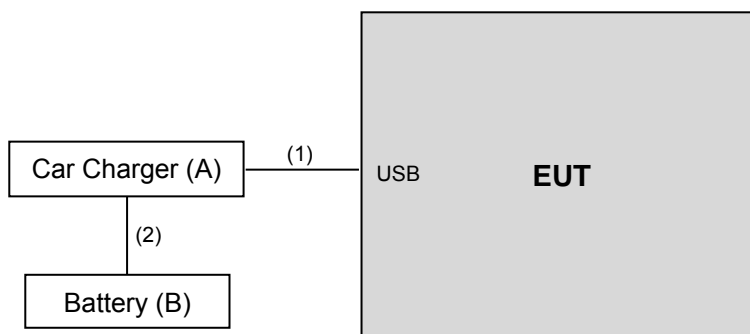
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Car Charger	Sunny	SYD1202-1005	NA	NA	Accessory of EUT
B.	Battery	YUASA	ST-CLN126-6S	NA	NA	-

Note:

1. 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 to car charger	1	5.1	N	0	Accessory of EUT
2.	DC cable	1	1	N	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)

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission Measurement

4.1.1 Limits of Radiated Emission Measurement

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

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

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

The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

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

Note:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jan. 03, 2019	Jan. 02, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
			Jul. 01, 2019	Jun. 30, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2018	Aug. 07, 2019
			Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 19, 2019	Feb. 18, 2020
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 19, 2019	Jan. 18, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Aug. 08, 2018	Aug. 07, 2019
			Jul. 11, 2019	Jul. 10, 2020
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 31, 2018	Jul. 30, 2019
			Jul. 30, 2019	Jul. 29, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY551900 04/MY55190007/MY5521 0005	Jul. 17, 2018	Jul. 16, 2019
			Jul. 15, 2019	Jul. 14, 2020

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 9.

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

Note:

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

For Radiated emission above 30MHz

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

Note:

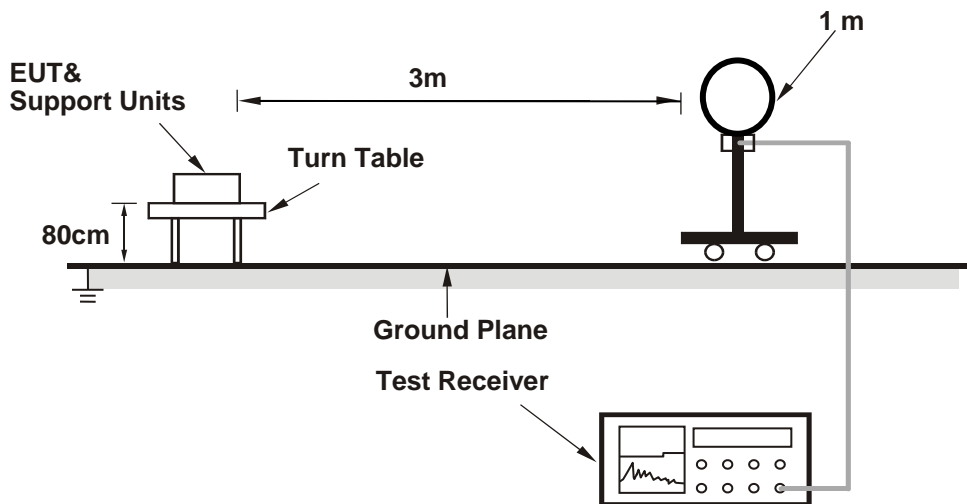
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

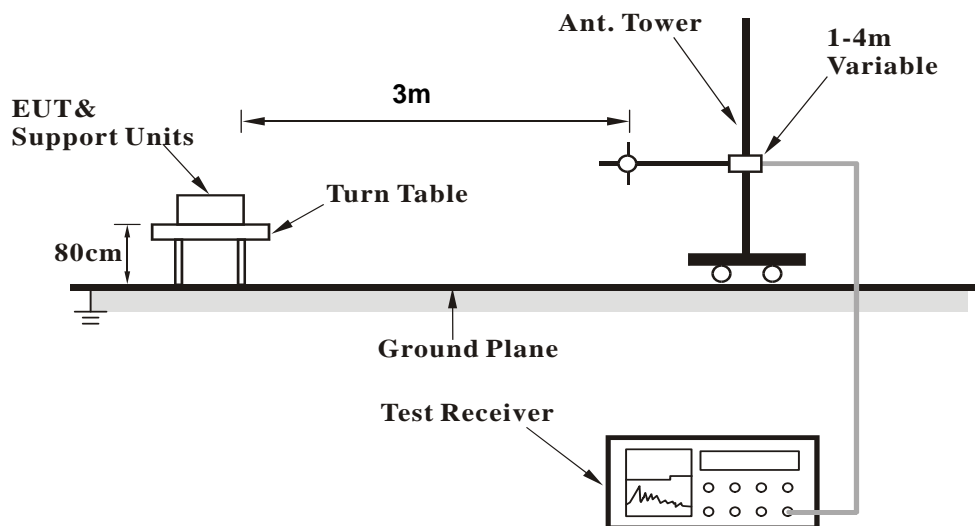
No deviation.

4.1.5 Test Set Up

For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



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

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	A		

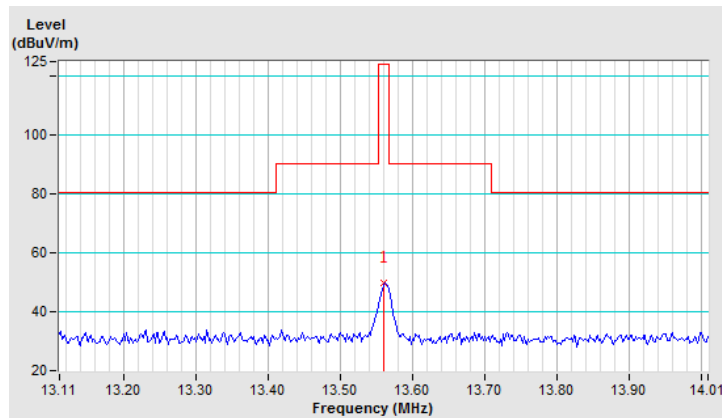
Antenna Polarity & Test Distance: Loop Antenna Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	49.9 QP	124.0 QP	-74.1	1.00	342	28.1	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	A		

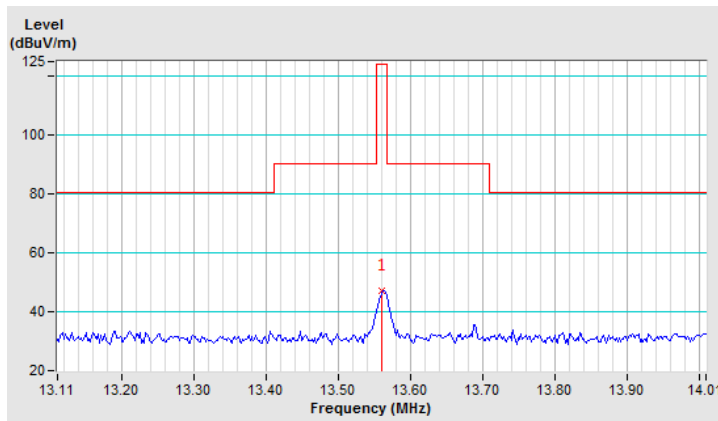
Antenna Polarity & Test Distance: Loop Antenna Perpendicular At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	47.1 QP	124.0 QP	-76.9	1.00	253	25.3	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
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 &= 124\text{dBuV/m}
 \end{aligned}$$



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	A		

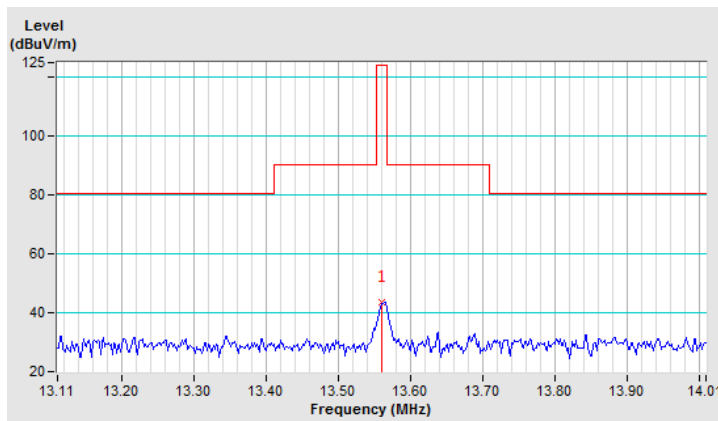
Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	43.5 QP	124.0 QP	-80.5	1.00	157	21.7	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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

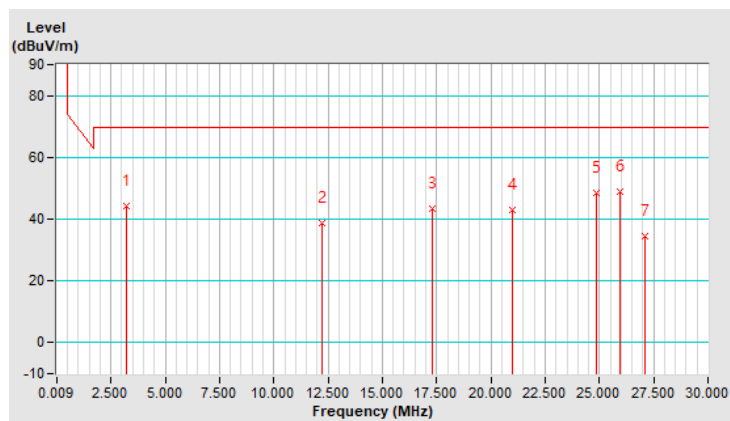


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna 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	3.23	44.2 QP	69.5 QP	-25.3	1.00	223	24.6	19.6
2	12.22	38.9 QP	69.5 QP	-30.6	1.00	207	17.1	21.8
3	17.31	43.5 QP	69.5 QP	-26.0	1.00	246	21.7	21.8
4	21.01	42.8 QP	69.5 QP	-26.7	1.00	351	20.9	21.9
5	24.86	48.4 QP	69.5 QP	-21.1	1.00	231	26.4	22.0
6	25.96	49.1 QP	69.5 QP	-20.4	1.00	57	27.0	22.1
7	27.12	34.4 QP	69.5 QP	-35.1	1.00	17	12.3	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

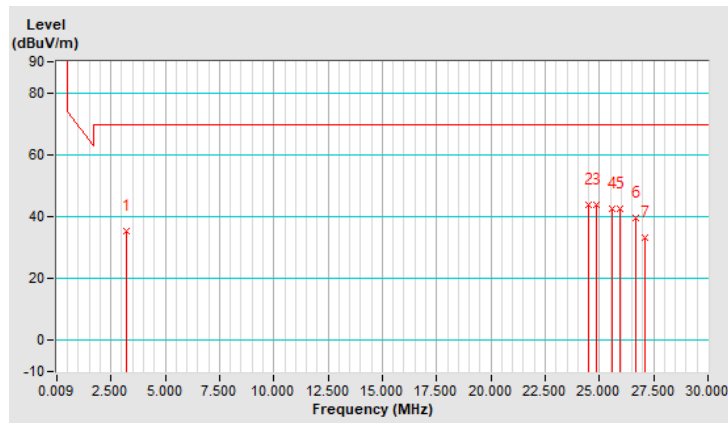


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Perpendicular 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	3.23	35.3 QP	69.5 QP	-34.2	1.00	281	15.7	19.6
2	24.47	43.7 QP	69.5 QP	-25.8	1.00	274	21.7	22.0
3	24.86	43.8 QP	69.5 QP	-25.7	1.00	47	21.8	22.0
4	25.58	42.5 QP	69.5 QP	-27.0	1.00	147	20.5	22.0
5	25.96	42.5 QP	69.5 QP	-27.0	1.00	248	20.4	22.1
6	26.68	39.7 QP	69.5 QP	-29.8	1.00	138	17.6	22.1
7	27.12	33.3 QP	69.5 QP	-36.2	1.00	200	11.2	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

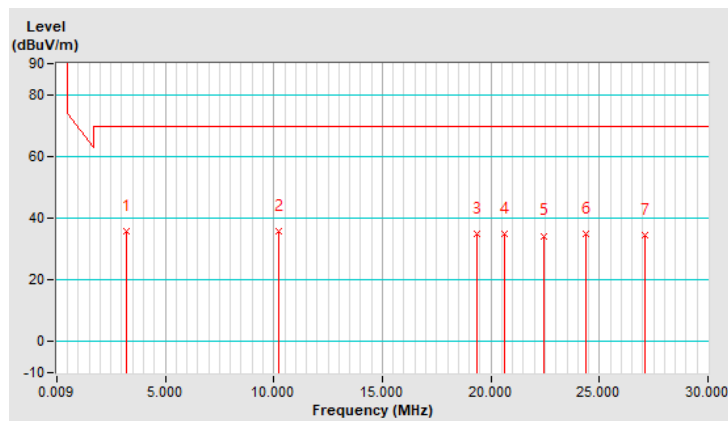


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	A		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3.23	35.8 QP	69.5 QP	-33.7	1.00	41	16.2	19.6
2	10.25	35.6 QP	69.5 QP	-33.9	1.00	120	13.8	21.8
3	19.33	35.0 QP	69.5 QP	-34.5	1.00	18	13.2	21.8
4	20.63	34.9 QP	69.5 QP	-34.6	1.00	8	13.0	21.9
5	22.45	34.3 QP	69.5 QP	-35.2	1.00	4	12.4	21.9
6	24.38	34.9 QP	69.5 QP	-34.6	1.00	166	12.9	22.0
7	27.12	34.5 QP	69.5 QP	-35.0	1.00	208	12.4	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

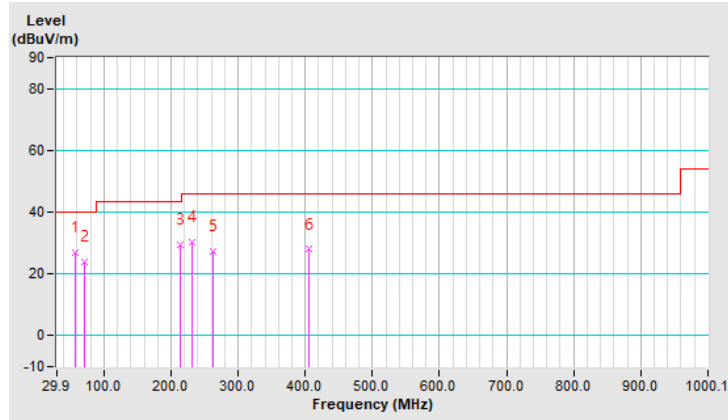


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Greg Lin
Test Mode	A		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	57.12	26.9 QP	40.0	-13.1	1.99 H	130	37.2	-10.3
2	70.73	24.0 QP	40.0	-16.0	1.99 H	13	35.8	-11.8
3	214.61	29.3 QP	43.5	-14.2	1.00 H	159	40.7	-11.4
4	232.11	30.1 QP	46.0	-15.9	1.00 H	89	40.9	-10.8
5	263.21	27.3 QP	46.0	-18.7	1.00 H	68	36.6	-9.3
6	405.15	27.9 QP	46.0	-18.1	1.00 H	5	33.6	-5.7

Remarks:

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

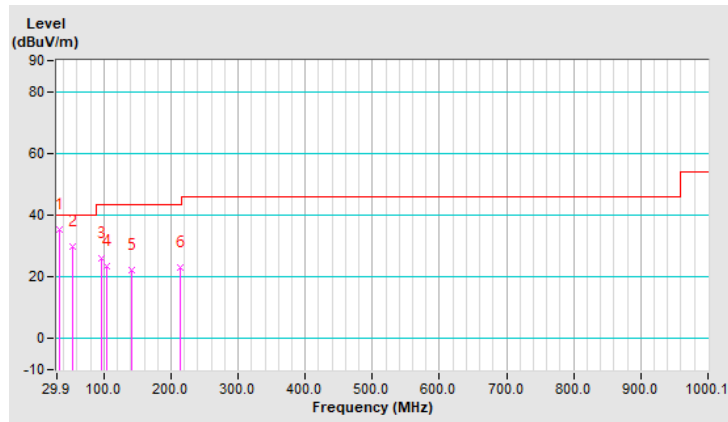


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Greg Lin
Test Mode	A		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.79	35.2 QP	40.0	-4.8	1.01 V	209	46.1	-10.9
2	53.23	29.7 QP	40.0	-10.3	1.99 V	273	39.7	-10.0
3	96.01	26.2 QP	43.5	-17.3	1.01 V	188	40.3	-14.1
4	103.78	23.5 QP	43.5	-20.0	1.01 V	131	36.6	-13.1
5	140.72	22.0 QP	43.5	-21.5	1.99 V	192	32.0	-10.0
6	214.61	23.1 QP	43.5	-20.4	1.01 V	0	34.5	-11.4

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	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	24 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	B		

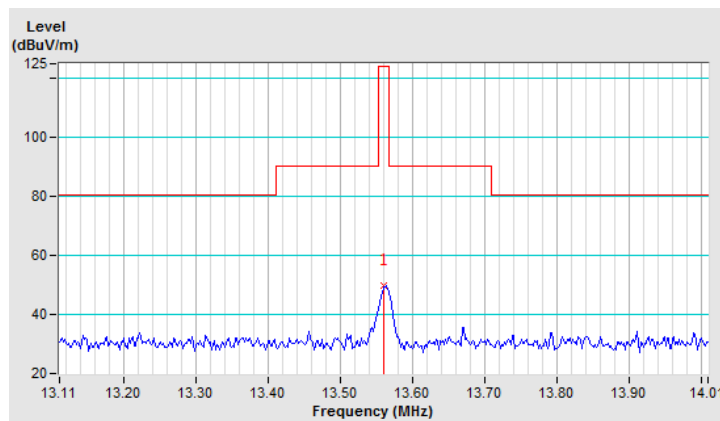
Antenna Polarity & Test Distance: Loop Antenna Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	49.9 QP	124.0 QP	-74.1	1.00	343	28.1	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	24 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	B		

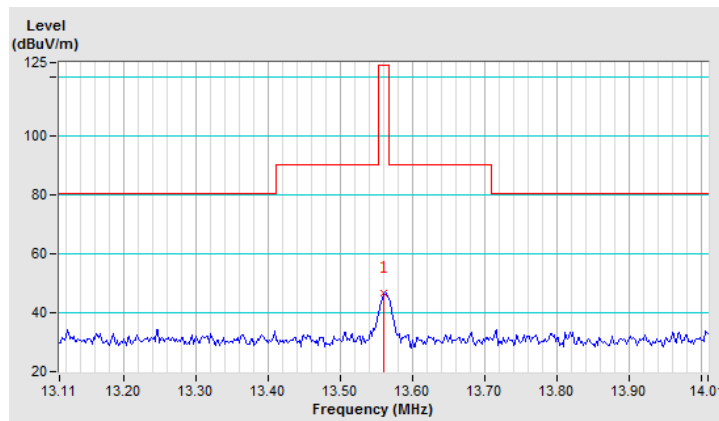
Antenna Polarity & Test Distance: Loop Antenna Perpendicular At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	46.8 QP	124.0 QP	-77.2	1.00	258	25.0	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	24 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	B		

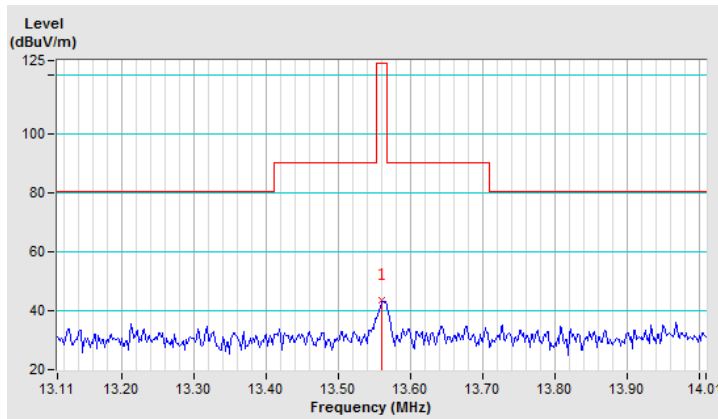
Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	43.7 QP	124.0 QP	-80.3	1.00	160	21.9	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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

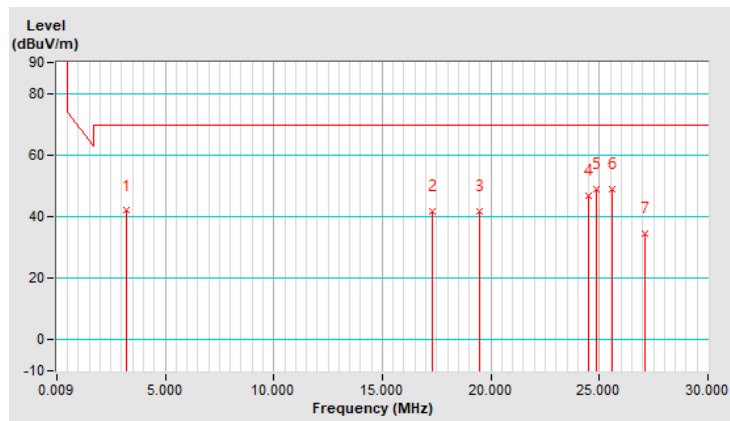


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna 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	3.23	41.9 QP	69.5 QP	-27.6	1.00	104	22.3	19.6
2	17.31	41.7 QP	69.5 QP	-27.8	1.00	94	19.9	21.8
3	19.47	41.8 QP	69.5 QP	-27.7	1.00	246	20.0	21.8
4	24.47	46.9 QP	69.5 QP	-22.6	1.00	283	24.9	22.0
5	24.86	48.8 QP	69.5 QP	-20.7	1.00	279	26.8	22.0
6	25.58	48.9 QP	69.5 QP	-20.6	1.00	179	26.9	22.0
7	27.12	34.4 QP	69.5 QP	-35.1	1.00	74	12.3	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

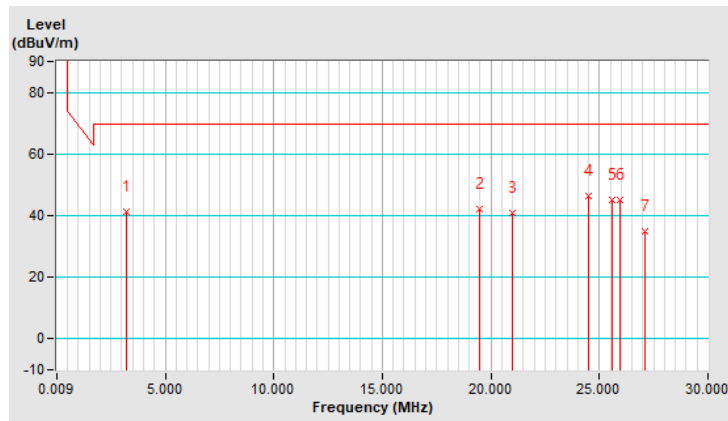


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Perpendicular 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	3.23	41.3 QP	69.5 QP	-28.2	1.00	15	21.7	19.6
2	19.47	42.0 QP	69.5 QP	-27.5	1.00	160	20.2	21.8
3	21.01	40.7 QP	69.5 QP	-28.8	1.00	216	18.8	21.9
4	24.47	46.2 QP	69.5 QP	-23.3	1.00	27	24.2	22.0
5	25.58	45.2 QP	69.5 QP	-24.3	1.00	140	23.2	22.0
6	25.96	45.1 QP	69.5 QP	-24.4	1.00	48	23.0	22.1
7	27.12	35.1 QP	69.5 QP	-34.4	1.00	57	13.0	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

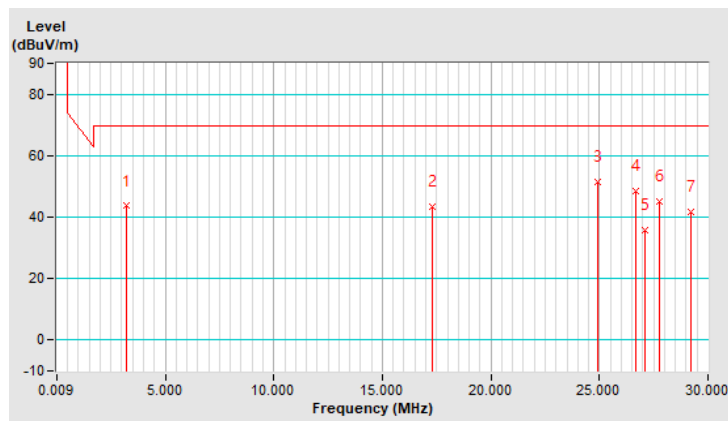


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	B		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3.23	43.6 QP	69.5 QP	-25.9	1.00	114	24.0	19.6
2	17.31	43.5 QP	69.5 QP	-26.0	1.00	124	21.7	21.8
3	24.91	51.6 QP	69.5 QP	-17.9	1.00	312	29.6	22.0
4	26.68	48.4 QP	69.5 QP	-21.1	1.00	48	26.3	22.1
5	27.12	35.9 QP	69.5 QP	-33.6	1.00	243	13.8	22.1
6	27.79	45.1 QP	69.5 QP	-24.4	1.00	243	23.0	22.1
7	29.23	41.8 QP	69.5 QP	-27.7	1.00	66	19.6	22.2

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

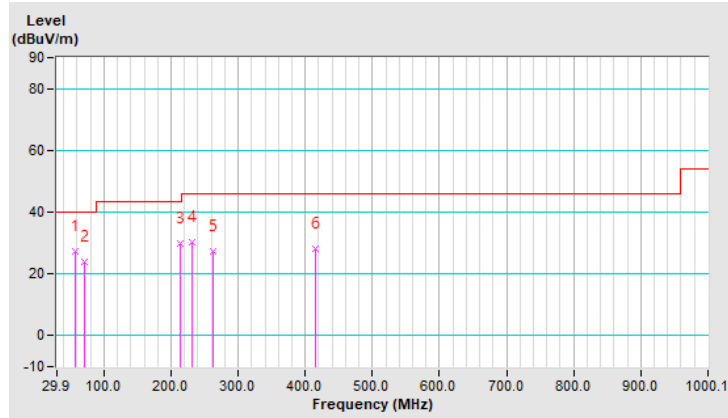


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Greg Lin
Test Mode	B		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	57.12	27.1 QP	40.0	-12.9	2.00 H	358	37.4	-10.3
2	70.73	24.1 QP	40.0	-15.9	2.00 H	186	35.9	-11.8
3	214.61	29.7 QP	43.5	-13.8	1.00 H	144	41.1	-11.4
4	232.11	30.1 QP	46.0	-15.9	1.00 H	72	40.9	-10.8
5	263.21	27.2 QP	46.0	-18.8	1.00 H	76	36.5	-9.3
6	414.87	28.2 QP	46.0	-17.8	1.51 H	85	33.7	-5.5

Remarks:

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

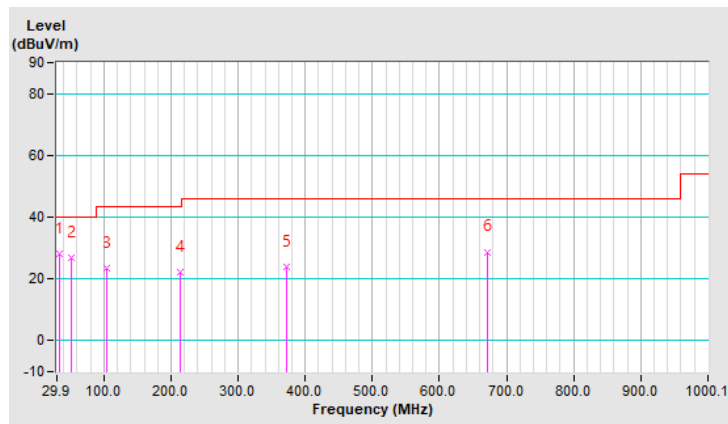


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Greg Lin
Test Mode	B		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.79	28.1 QP	40.0	-11.9	1.50 V	288	39.0	-10.9
2	51.29	26.9 QP	40.0	-13.1	1.50 V	273	36.8	-9.9
3	103.78	23.4 QP	43.5	-20.1	1.50 V	203	36.5	-13.1
4	214.61	22.4 QP	43.5	-21.1	1.00 V	21	33.8	-11.4
5	372.09	23.7 QP	46.0	-22.3	1.00 V	149	30.1	-6.4
6	671.52	28.8 QP	46.0	-17.2	1.50 V	3	30.0	-1.2

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	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	C		

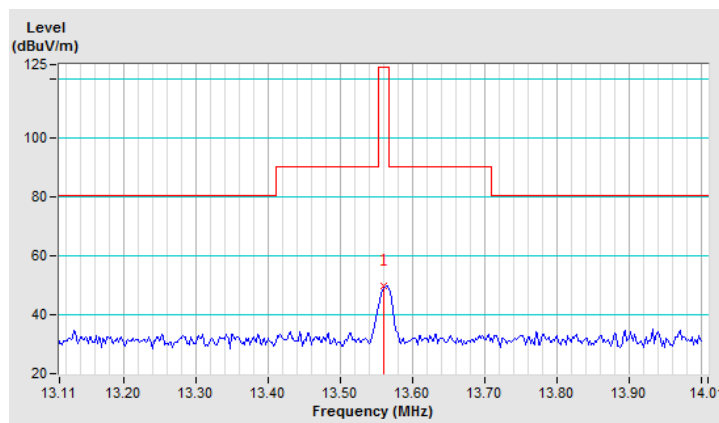
Antenna Polarity & Test Distance: Loop Antenna Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	50.0 QP	124.0 QP	-74.0	1.00	339	28.2	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	C		

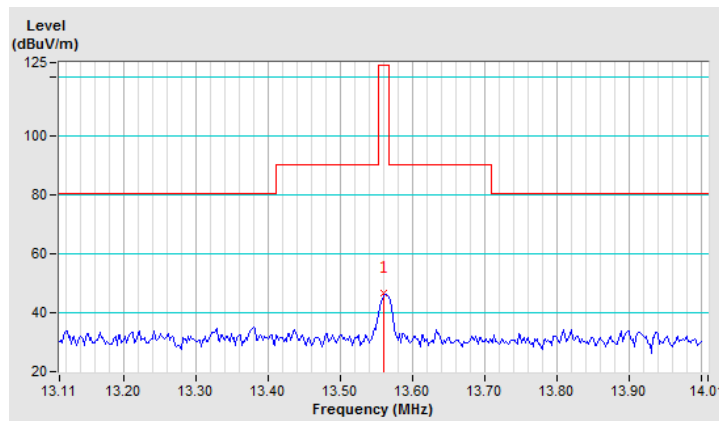
Antenna Polarity & Test Distance: Loop Antenna Perpendicular At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	46.8 QP	124.0 QP	-77.2	1.00	260	25.0	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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



EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	13.553 ~ 13.567MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	C		

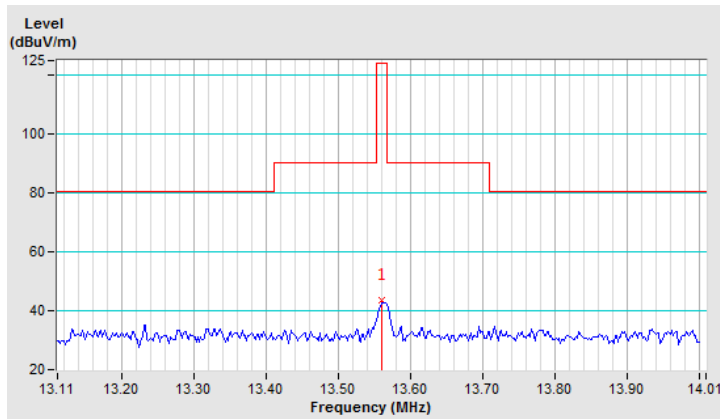
Antenna Polarity & Test Distance: Loop Antenna Ground Parallel At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*13.56	43.8 QP	124.0 QP	-80.2	1.00	150	22.0	21.8

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. Above limits have been translated by the formula

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

Example:

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

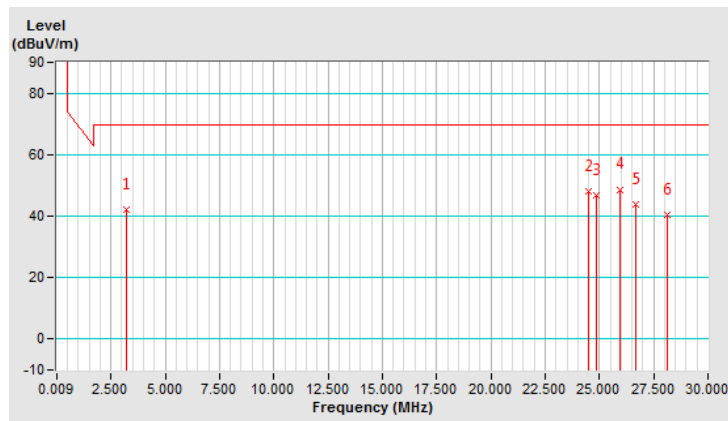


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna 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	3.23	42.3 QP	69.5 QP	-27.2	1.00	349	22.7	19.6
2	24.47	48.2 QP	69.5 QP	-21.3	1.00	15	26.2	22.0
3	24.86	46.7 QP	69.5 QP	-22.8	1.00	85	24.7	22.0
4	25.96	48.7 QP	69.5 QP	-20.8	1.00	29	26.6	22.1
5	26.68	43.7 QP	69.5 QP	-25.8	1.00	106	21.6	22.1
6	28.13	40.5 QP	69.5 QP	-29.0	1.00	177	18.4	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

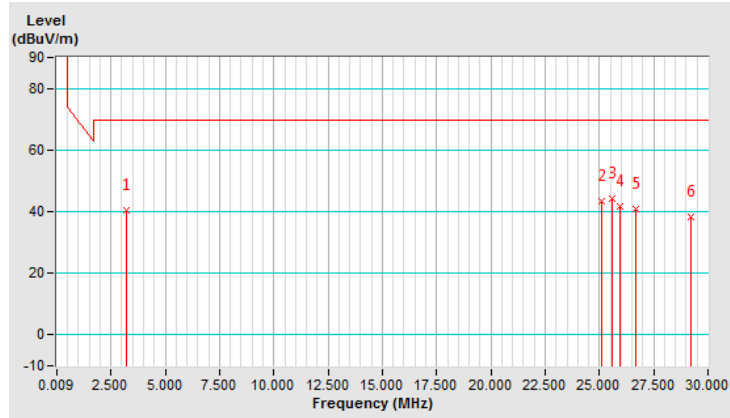


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Perpendicular 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	3.23	40.4 QP	69.5 QP	-29.1	1.00	341	20.8	19.6
2	25.10	43.5 QP	69.5 QP	-26.0	1.00	273	21.5	22.0
3	25.58	44.1 QP	69.5 QP	-25.4	1.00	38	22.1	22.0
4	25.96	41.9 QP	69.5 QP	-27.6	1.00	286	19.8	22.1
5	26.68	40.8 QP	69.5 QP	-28.7	1.00	88	18.7	22.1
6	29.23	38.1 QP	69.5 QP	-31.4	1.00	194	15.9	22.2

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

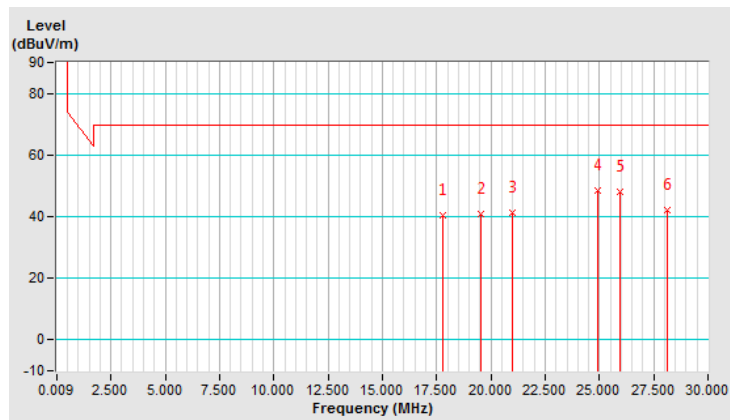


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 30MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Willy Cheng
Test Mode	C		

Antenna Polarity & Test Distance: Loop Antenna Ground Paralle At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	17.79	40.6 QP	69.5 QP	-28.9	1.00	302	18.8	21.8
2	19.52	40.7 QP	69.5 QP	-28.8	1.00	75	18.9	21.8
3	21.01	41.3 QP	69.5 QP	-28.2	1.00	61	19.4	21.9
4	24.91	48.6 QP	69.5 QP	-20.9	1.00	211	26.6	22.0
5	25.96	48.1 QP	69.5 QP	-21.4	1.00	325	26.0	22.1
6	28.13	42.1 QP	69.5 QP	-27.4	1.00	120	20.0	22.1

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

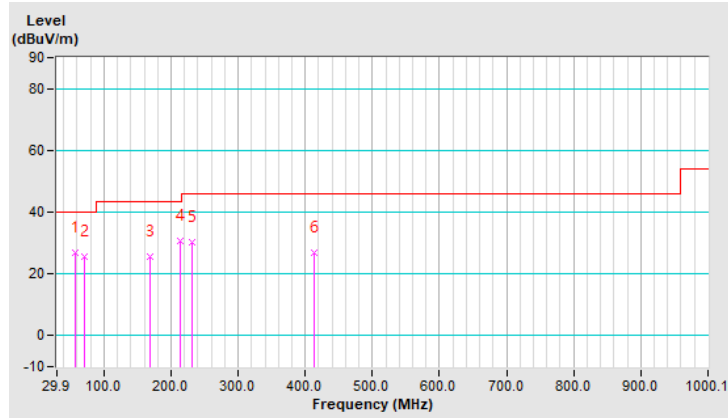


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Greg Lin
Test Mode	C		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	57.12	26.9 QP	40.0	-13.1	1.99 H	38	37.2	-10.3
2	70.73	25.4 QP	40.0	-14.6	1.99 H	181	37.2	-11.8
3	167.94	25.7 QP	43.5	-17.8	1.49 H	115	35.0	-9.3
4	214.61	30.8 QP	43.5	-12.7	1.49 H	163	42.2	-11.4
5	232.11	30.1 QP	46.0	-15.9	1.00 H	80	40.9	-10.8
6	412.92	26.8 QP	46.0	-19.2	1.00 H	5	32.4	-5.6

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

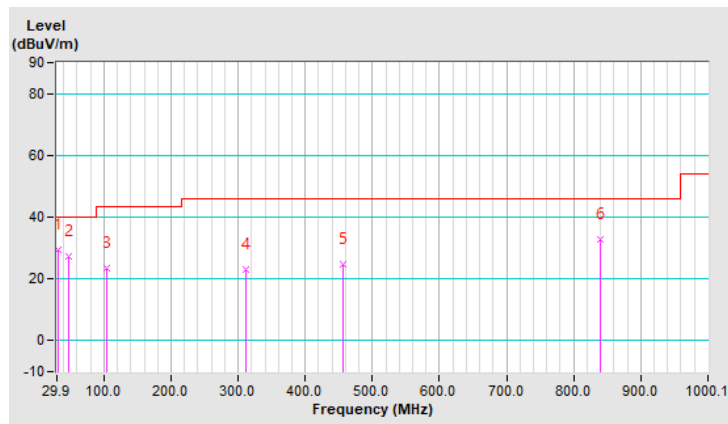


EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	Below 1000MHz
Input Power	120Vac, 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	23 deg. C, 68% RH	Tested By	Greg Lin
Test Mode	C		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.84	29.5 QP	40.0	-10.5	1.01 V	186	40.8	-11.3
2	47.40	27.2 QP	40.0	-12.8	1.01 V	319	37.1	-9.9
3	103.78	23.5 QP	43.5	-20.0	1.51 V	18	36.6	-13.1
4	311.82	23.0 QP	46.0	-23.0	1.51 V	130	30.7	-7.7
5	455.70	24.6 QP	46.0	-21.4	1.01 V	165	29.1	-4.5
6	840.67	32.6 QP	46.0	-13.4	1.01 V	15	30.6	2.0

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

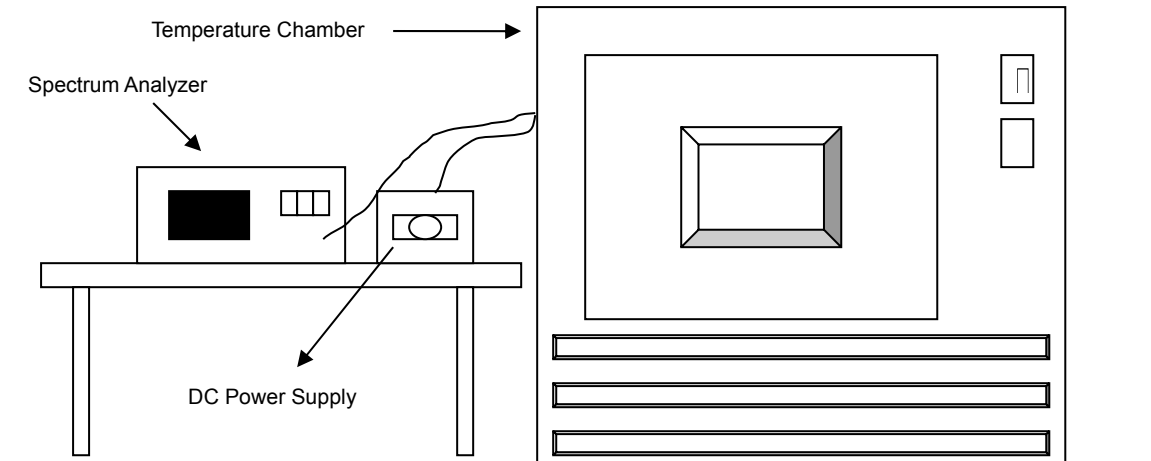


4.2 Frequency Stability

4.2.1 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.

4.2.2 Test Setup



4.2.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
			Jun. 03, 2019	Jun. 02, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
			Jun. 27, 2019	Jun. 26, 2020
DC Power Supply Topward	6306A	727263	NA	NA
True RMS Clamp Meter / Fluke	325	31130711WS	May 22, 2018	May 21, 2019
			May 21, 2019	May 20, 2020

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.4 Test Procedure

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC 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 d with the temperature chamber sets to each desired 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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

Same as Item 4.1.6.

4.2.7 Test Result

Test Mode A

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029	13.56005	0.00037
40	3.7	13.55994	-0.00044	13.55993	-0.00052	13.55992	-0.00059	13.55993	-0.00052
30	3.7	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029	13.55996	-0.00029
20	3.7	13.55997	-0.00022	13.55997	-0.00022	13.55998	-0.00015	13.55997	-0.00022
10	3.7	13.56003	0.00022	13.56003	0.00022	13.56004	0.00029	13.56003	0.00022
0	3.7	13.56001	0.00007	13.56001	0.00007	13.56002	0.00015	13.56002	0.00015
-10	3.7	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015
-20	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007

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

Test Mode B

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.55994	-0.00044	13.55995	-0.00037	13.55996	-0.00029	13.55995	-0.00037
40	3.7	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022
30	3.7	13.55993	-0.00052	13.55993	-0.00052	13.55993	-0.00052	13.55993	-0.00052
20	3.7	13.55994	-0.00044	13.55994	-0.00044	13.55995	-0.00037	13.55993	-0.00052
10	3.7	13.55993	-0.00052	13.55994	-0.00044	13.55994	-0.00044	13.55995	-0.00037
0	3.7	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015	13.55998	-0.00015
-10	3.7	13.56003	0.00022	13.56003	0.00022	13.56003	0.00022	13.56002	0.00015
-20	3.7	13.55993	-0.00052	13.55994	-0.00044	13.55994	-0.00044	13.55993	-0.00052

Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.55994	-0.00044	13.55994	-0.00044	13.55995	-0.00037	13.55993	-0.00052
	3.7	13.55994	-0.00044	13.55994	-0.00044	13.55995	-0.00037	13.55993	-0.00052
	3.145	13.55994	-0.00044	13.55994	-0.00044	13.55995	-0.00037	13.55993	-0.00052

Test Mode C

Frequency Stability Versus Temp.									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	3.7	13.56005	0.00037	13.56004	0.00029	13.56005	0.00037	13.56005	0.00037
40	3.7	13.55995	-0.00037	13.55995	-0.00037	13.55995	-0.00037	13.55996	-0.00029
30	3.7	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029	13.56005	0.00037
20	3.7	13.56005	0.00037	13.56004	0.00029	13.56004	0.00029	13.56003	0.00022
10	3.7	13.55995	-0.00037	13.55995	-0.00037	13.55995	-0.00037	13.55995	-0.00037
0	3.7	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029	13.56004	0.00029
-10	3.7	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007	13.55999	-0.00007
-20	3.7	13.56006	0.00044	13.56006	0.00044	13.56006	0.00044	13.56006	0.00044

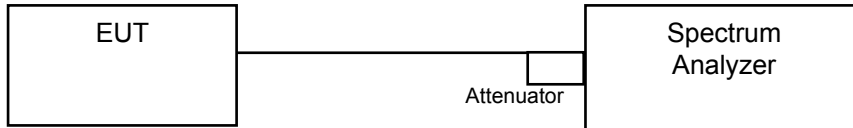
Frequency Stability Versus Voltage									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	4.255	13.56005	0.00037	13.56004	0.00029	13.56004	0.00029	13.56003	0.00022
	3.7	13.56005	0.00037	13.56004	0.00029	13.56004	0.00029	13.56003	0.00022
	3.145	13.56005	0.00037	13.56004	0.00029	13.56004	0.00029	13.56003	0.00022

4.3 20dB Bandwidth

4.3.1 Limits of 20dB Bandwidth Measurement

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

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 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.

4.3.5 Deviation from Test Standard

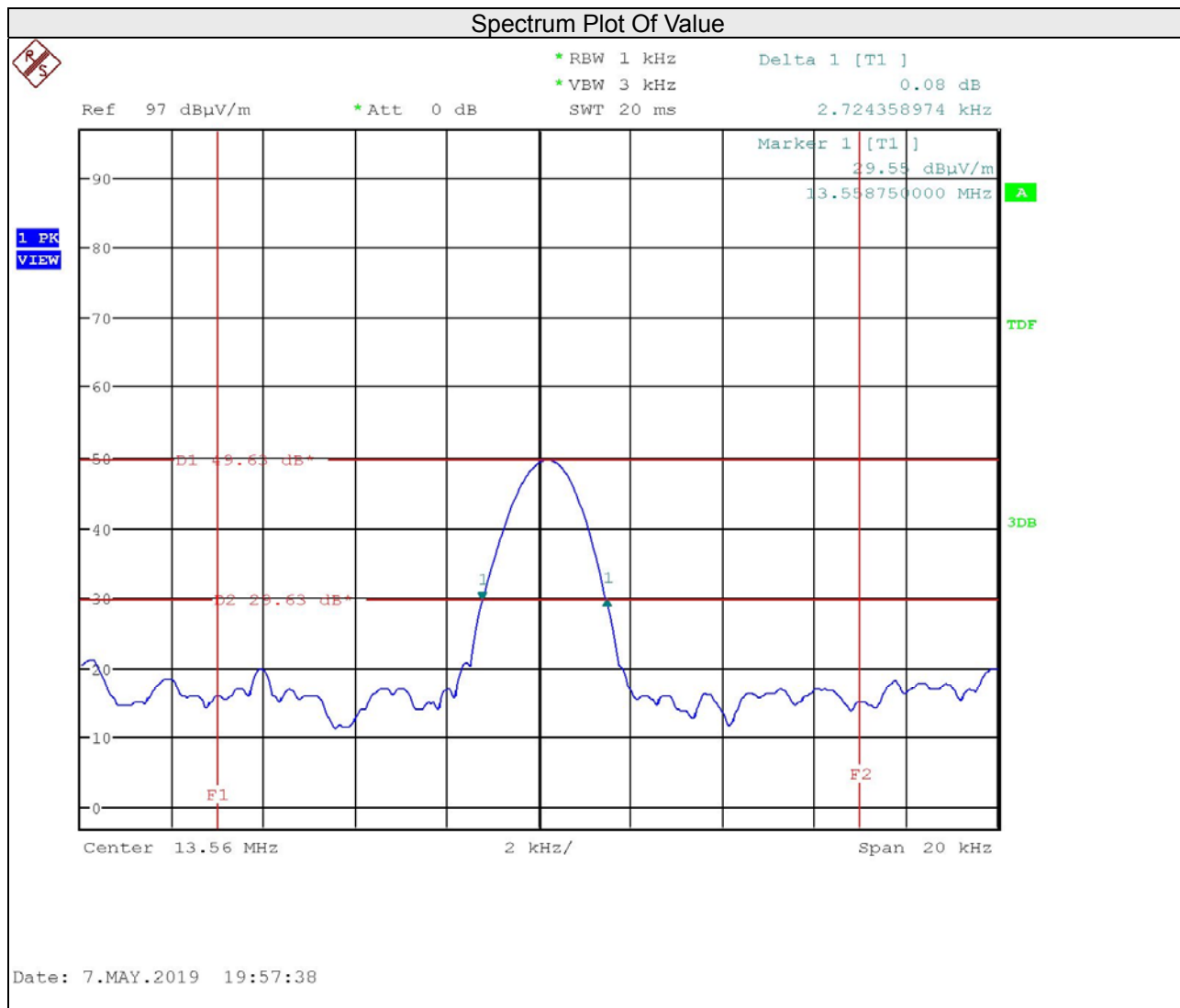
No deviation.

4.3.6 EUT Operating Conditions

Same as Item 4.1.6.

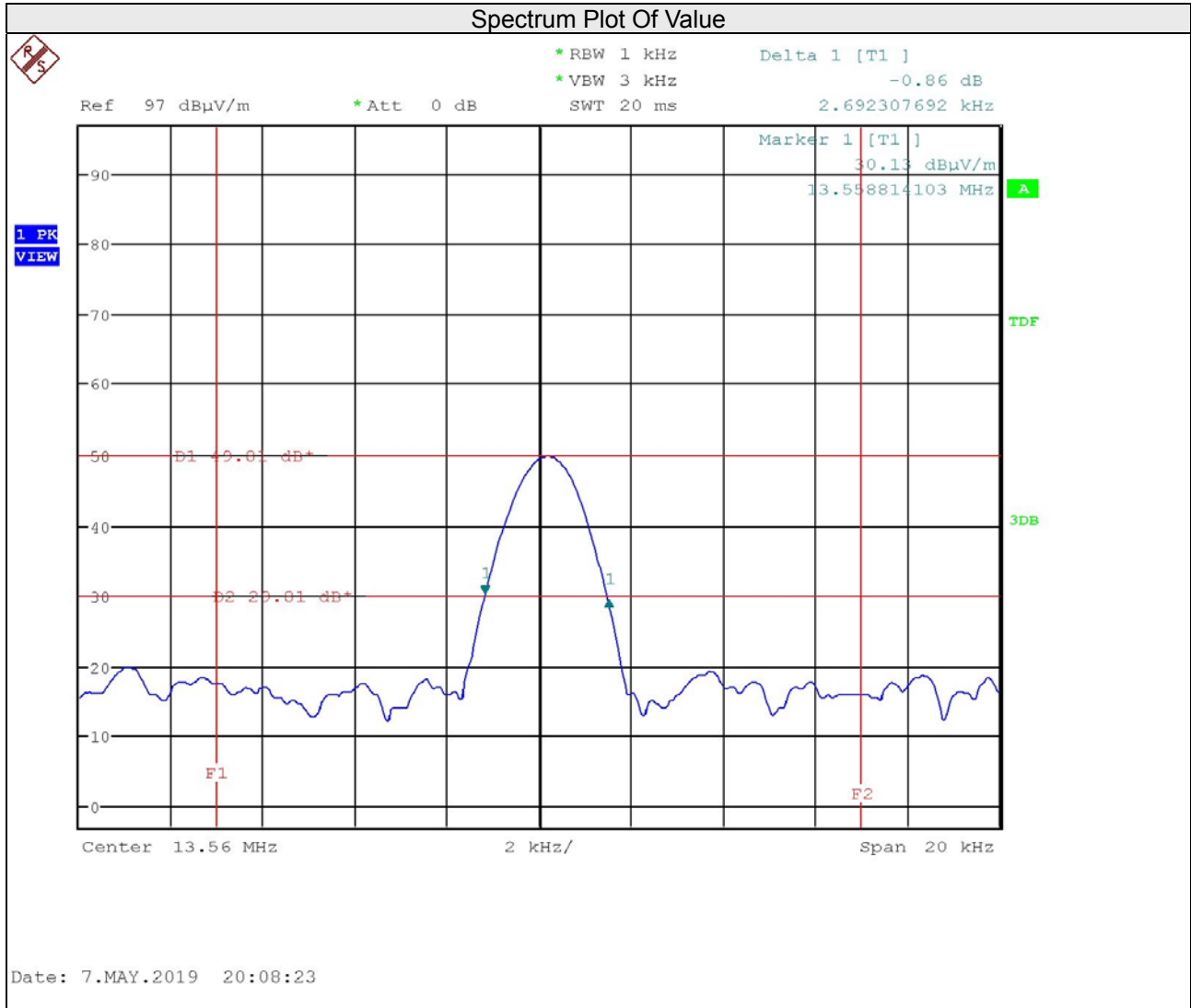
Test Mode B

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.55875	13.561474358974	13.553~13.567	Pass



Test Mode C

20dBc point (Low)	20dBc point (High)	Operating frequency band (MHz)	Pass / Fail
13.558814103	13.561506410692	13.553~13.567	Pass



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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Web Site: www.bureauveritas-adt.com

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

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