

FCC Test Report

Report No.: RF140205E02B

FCC ID: MCLT77H519

Test Model: T77H519

Received Date: Feb. 05, 2014

Test Date: Nov. 10, 2015

Issued Date: Nov. 18, 2015

Applicant: HON HAI PRECISION IND. CO., LTD.

Address: 5F-1,5 Hsin-An Road Hsinchu, Science-Based Industrial Park Taiwan,
R.O.C.

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

Lab Address: No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin
Chu Hsien 307, Taiwan R.O.C.

Test Location (1): No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin
Chu Hsien 307, Taiwan R.O.C.

Test Location (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin
Chu Hsien 307, Taiwan R.O.C.

Test Location (3): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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	7
3.2.1 Test Mode Applicability and Tested Channel Detail.....	8
3.3 Description of Support Units	9
3.3.1 Configuration of System under Test	9
3.4 General Description of Applied Standards	10
4 Test Types and Results	11
4.1 Radiated Emission Measurement	11
4.1.1 Limits of Radiated Emission Measurement.....	11
4.1.2 Test Instruments	12
4.1.3 Test Procedures.....	13
4.1.4 Deviation from Test Standard	13
4.1.5 Test Set Up	14
4.1.6 EUT Operating Conditions.....	14
4.1.7 Test Results	15
4.2 Conducted Emission Measurement	19
4.2.1 Limits of Conducted Emission Measurement.....	19
4.2.2 Test Instruments	19
4.2.3 Test Procedures.....	20
4.2.4 Deviation from Test Standard	20
4.2.5 TEST SETUP	20
4.2.6 EUT Operating Conditions.....	20
4.2.7 Test Results	21
5 Pictures of Test Arrangements	23
Appendix – Information on the Testing Laboratories	24



A D T

Release Control Record

Issue No.	Description	Date Issued
RF140205E02B	Original release.	Nov. 18, 2015

1 Certificate of Conformity

Product: NFC Module

Brand: FOXCONN

Test Model: T77H519

Sample Status: ENGINEERING SAMPLE

Applicant: HON HAI PRECISION IND. CO., LTD.

Test Date: Nov. 10, 2015

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 EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Nov. 18, 2015
Elsie Hsu / Specialist

Approved by :  , **Date:** Nov. 18, 2015
May Chen / Manager

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 -10.87dB at 2.41406MHz.
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 -69.71dB at 13.56MHz.
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 -3.11dB at 267.36MHz.

Note: This report is prepared for FCC Class II change. (Added one new adapter)

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	Expended Uncertainty (k=2) (\pm)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz (966 Chamber 3)	30MHz ~ 1000MHz	5.37 dB
Radiated Emissions up to 1 GHz (3m Chamber 4)	30MHz ~ 1000MHz	5.19 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	NFC Module
Brand	FOXCONN
Test Model	T77H519
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 3.3V from host equipment
Modulation Type	ASK
Operating Frequency	13.56MHz
Number of Channel	1
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC Class II change. The difference compared with the Report No.: RF140205E02 design is as the following:

◆ Added an antenna as below table:

Original							
Antenna No	Brand	Model	Antenna Type	Gain(dBi)	Frequency Range (MHz to MHz)	Antenna Connector	Cable Length(mm)
1	Dexerials	ANT-T006E	PCB	NA	13.56	ACHR-02V-K	61
Newly							
Antenna No	Brand	Model	Antenna Type	Gain(dBi)	Frequency Range (MHz to MHz)	Antenna Connector	Cable Length(mm)
2	Dexerials	ANT-M031A	PCB	NA	13.56	ACHR-02V-K(HF)	40

◆ According to above conditions, only conducted emission and radiated emissions (below 1GHz) test items of new antenna need to be performed.

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

One channel was provided to this EUT:

Channel	FREQ. (MHz)
1	13.56

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE	PLC	
-	√	√	

Where **RE \geq 1G**: Radiated Emission above 1GHz **PLC**: Power Line Conducted Emission

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.

RADIATED EMISSION TEST:

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

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
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.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
1	1	ASK

TEST CONDITION:

Applicable To	Environmental Conditions	Input Power	Tested By
RE<1G	25deg. C, 69%RH	120Vac, 60Hz	Robert Cheng
	25deg. C, 70%RH		
PLC	25deg. C, 68%RH	120Vac, 60Hz	Jason Huang

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.

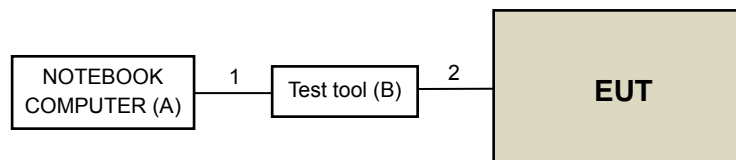
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	Dell	D830	10026042688	FCC DoC	Provided by Lab
B.	Test tool	NA	NA	NA	NA	Supplied by Client

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.	USB to Mini USB	1	1.1	Y	0	Provided by Lab
2.	Data	1	0.2	N	0	Supplied by Client

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.

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

For 30~1000MHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY54450088	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-06	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Feb. 03, 2015	Feb. 02, 2016
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 03, 2015	Apr. 02, 2016
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998
5. The CANADA Site Registration No. is 20331-2
6. Tested Date: Nov. 10, 2015

For below 30MHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 12, 2015	Aug. 11, 2016
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 13, 2014	Jan. 12, 2016
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2015	Jan. 17, 2016
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. 3.
4. The FCC Site Registration No. is 147459
6. The CANADA Site Registration No. is 20331-1
8. Tested Date: Nov. 10, 2015

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. 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. Height of receiving 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

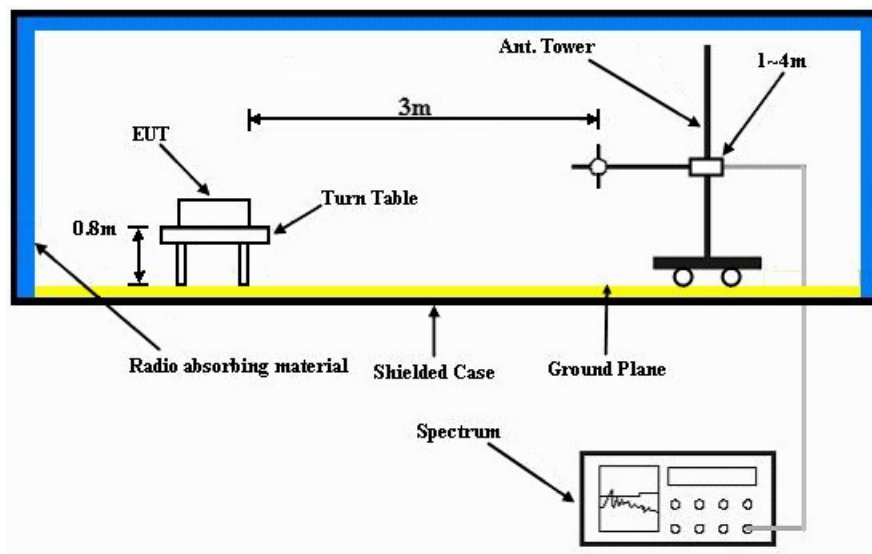
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection 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 $> 98\%$) 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 the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

1. Turn on the power of all equipment.
2. The support unit 1 (NB) runs a test program "NFCTestTool.exe" to link EUT under transmission condition continuously.

4.1.7 Test Results

FREQUENCY RANGE	13.553 ~ 13.567MHz	DETECTOR FUNCTION	Quasi-Peak (QP)
------------------------	--------------------	--------------------------	-----------------

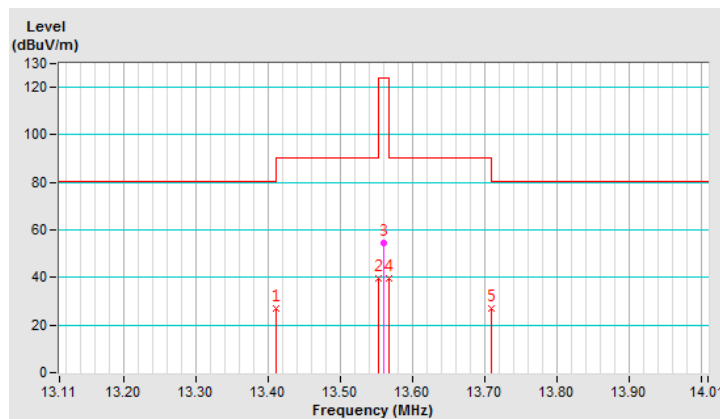
LOOP ANTENNA TEST DISTANCE: AT 3 M (X AXIS)								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	13.41	26.9 QP	80.5	-53.6	1.00 V	343	-10.88	37.82
2	13.55	39.4 QP	90.5	-51.0	1.00 V	343	1.63	37.80
3	*13.56	54.3 QP	124.0	-69.7	1.00 V	343	57.80	-3.51
4	13.57	39.9 QP	90.5	-50.6	1.00 V	343	2.06	37.79
5	13.71	26.7 QP	80.5	-53.8	1.00 V	343	-11.05	37.77

- 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. “ * “: Fundamental frequency.

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:

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



FREQUENCY RANGE	13.553 ~ 13.567MHz	DETECTOR FUNCTION	Quasi-Peak (QP)
-----------------	--------------------	-------------------	-----------------

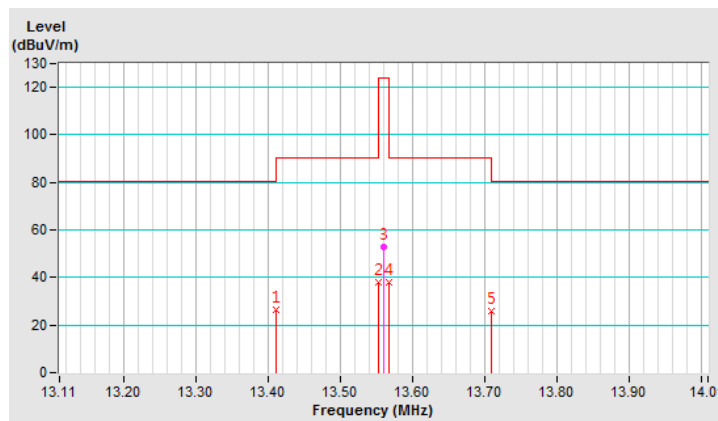
LOOP ANTENNA TEST DISTANCE: AT 3 M (Y AXIS)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	13.41	26.6 QP	80.5	-53.9	1.00 V	254	-11.24	37.82
2	13.55	38.0 QP	90.5	-52.5	1.00 V	254	0.15	37.80
3	*13.56	52.6 QP	124.0	-71.4	1.00 V	254	56.14	-3.51
4	13.57	38.2 QP	90.5	-52.2	1.00 V	254	0.44	37.79
5	13.71	26.0 QP	80.5	-54.5	1.00 V	254	-11.79	37.77

- 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. “ * “: Fundamental frequency.

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:

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



FREQUENCY RANGE	Below 30MHz	DETECTOR FUNCTION	Quasi-Peak (QP)
------------------------	-------------	--------------------------	-----------------

LOOP ANTENNA TEST DISTANCE: AT 3 M (X AXIS)								
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	0.61	49.1 QP	72.0	-22.9	1.00 V	315	45.33	3.72
2	1.20	46.5 QP	66.0	-19.5	1.00 V	360	46.07	0.47
3	2.40	43.1 QP	69.5	-26.5	1.00 V	346	44.77	-1.69
4	23.13	48.3 QP	69.5	-21.3	1.00 V	279	52.13	-3.84
5	24.96	50.4 QP	69.5	-19.1	1.00 V	5	53.84	-3.44
6	28.69	40.4 QP	69.5	-29.2	1.00 V	160	43.03	-2.67
LOOP ANTENNA TEST DISTANCE: AT 3 M (Y AXIS)								
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	0.60	48.8 QP	72.0	-23.2	1.00 V	266	45.07	3.75
2	1.21	44.0 QP	66.0	-22.0	1.00 V	294	43.56	0.46
3	2.41	39.6 QP	69.5	-29.9	1.00 V	266	41.35	-1.73
4	23.13	45.3 QP	69.5	-24.2	1.00 V	209	49.18	-3.84
5	24.90	49.8 QP	69.5	-19.7	1.00 V	212	53.27	-3.45
6	28.69	39.8 QP	69.5	-29.8	1.00 V	307	42.46	-2.67

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

FREQUENCY RANGE	30~1000MHz	DETECTOR FUNCTION	Quasi-Peak (QP)
------------------------	------------	--------------------------	-----------------

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	64.63	30.8 QP	40.0	-9.2	2.00 H	0	39.95	-9.19
2	232.39	41.7 QP	46.0	-4.3	1.50 H	50	51.95	-10.26
3	240.00	41.6 QP	46.0	-4.4	1.50 H	54	51.05	-9.44
4	251.89	42.1 QP	46.0	-3.9	1.00 H	75	51.26	-9.19
5	267.36	42.9 QP	46.0	-3.1	1.50 H	257	51.35	-8.46
6	797.80	40.5 QP	46.0	-5.6	1.00 H	40	37.13	3.32

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	30.10	33.6 QP	40.0	-6.4	1.50 V	332	43.29	-9.70
2	41.01	35.5 QP	40.0	-4.5	1.00 V	76	44.26	-8.73
3	64.87	34.7 QP	40.0	-5.3	1.50 V	237	43.92	-9.26
4	248.35	37.3 QP	46.0	-8.7	2.00 V	162	46.48	-9.20
5	285.30	39.8 QP	46.0	-6.2	1.50 V	328	47.58	-7.79
6	796.54	41.0 QP	46.0	-5.0	1.50 V	262	37.70	3.29

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.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 06, 2015	May 05, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 01, 2015	Aug. 31, 2016
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 11, 2015	June 10, 2016
RF Cable	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 23, 2015	Sep. 22, 2016
50 ohms Terminator	N/A	EMC-02	Oct. 01, 2015	Sep. 30, 2016
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Nov. 10, 2015

4.2.3 Test Procedures

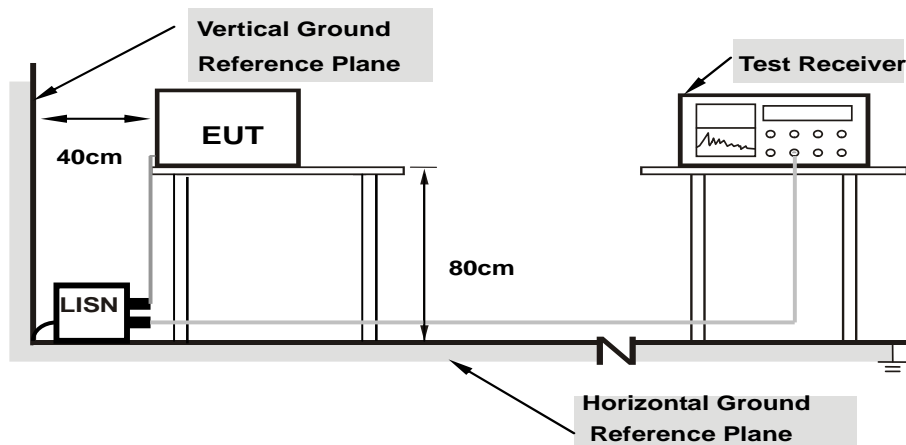
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

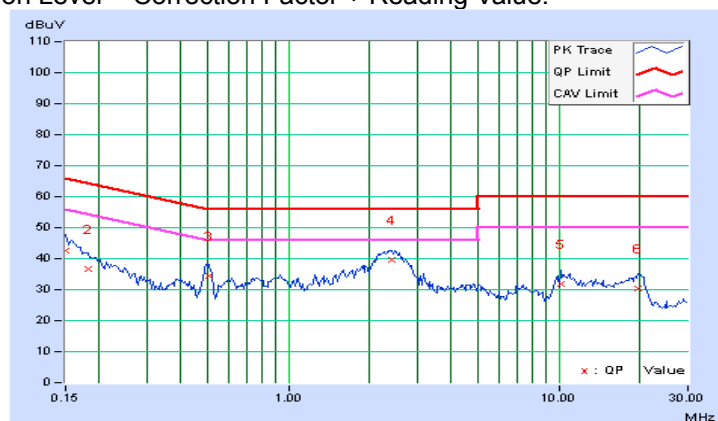
4.2.7 Test Results

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

No	Freq. [MHz]	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.26	32.34	18.27	42.60	28.53	66.00	56.00	-23.40	-27.47
2	0.18125	10.24	26.37	14.12	36.61	24.36	64.43	54.43	-27.82	-30.07
3	0.50938	10.23	24.04	19.75	34.27	29.98	56.00	46.00	-21.73	-16.02
4	2.41406	10.25	29.50	24.88	39.75	35.13	56.00	46.00	-16.25	-10.87
5	10.16797	10.53	21.19	15.97	31.72	26.50	60.00	50.00	-28.28	-23.50
6	19.70703	10.91	19.49	15.88	30.40	26.79	60.00	50.00	-29.60	-23.21

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.

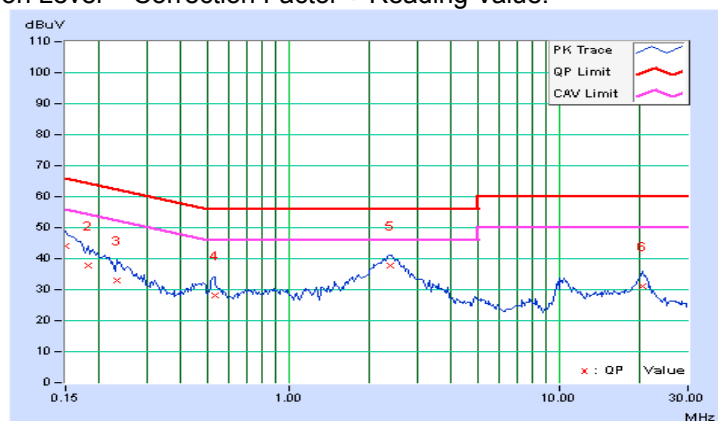


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	-----------------------------------

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.24	34.00	18.68	44.24	28.92	66.00	56.00	-21.76	-27.08
2	0.18125	10.22	27.43	15.04	37.65	25.26	64.43	54.43	-26.78	-29.17
3	0.23203	10.20	22.92	13.84	33.12	24.04	62.38	52.38	-29.25	-28.33
4	0.53281	10.21	18.02	12.99	28.23	23.20	56.00	46.00	-27.77	-22.80
5	2.38281	10.24	27.46	22.78	37.70	33.02	56.00	46.00	-18.30	-12.98
6	20.37109	10.95	20.12	15.68	31.07	26.63	60.00	50.00	-28.93	-23.37

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.



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 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 Lab/Telecom Lab

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety

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 ---