

## FCC Test Report (WPC)

**Report No.:** RF160712D02A

**FCC ID:** 2AAZG3045A1

**Model No.:** M2

**Received Date:** Feb. 8, 2017

**Test Date:** Feb. 15, 2017

**Issued Date:** Feb. 22, 2017

**Applicant:** DYE PRECISION, INC.

**Address:** 10637 Scripps Summit Court San Diego, CA 92131

**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.)



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

<b>Release Control Record.....</b>	<b>3</b>
<b>1 Certificate of Conformity.....</b>	<b>4</b>
<b>2 Summary of Test Results .....</b>	<b>5</b>
2.1 Measurement Uncertainty.....	5
2.2 Modification Record.....	5
<b>3 General Information.....</b>	<b>6</b>
3.1 General Description of EUT .....	6
3.2 Description of Test Modes .....	7
3.2.1 Test Mode Applicability and Tested Channel Detail.....	7
3.3 Description of Support Units .....	8
3.3.1 Configuration of System under Test .....	8
3.4 General Description of Applied Standards.....	9
<b>4 Test Types and Results.....</b>	<b>10</b>
4.1 Radiated Emission and Bandedge Measurement.....	10
4.1.1 Limits of Radiated Emission and Bandedge Measurement .....	10
4.1.2 Test Instruments .....	11
4.1.3 Test Procedures .....	12
4.1.4 Deviation from Test Standard .....	12
4.1.5 Test Set Up.....	13
4.1.6 EUT Operating Conditions .....	13
4.1.7 Test Results.....	14
4.2 Conducted Emission Measurement .....	16
4.2.1 Limits of Conducted Emission Measurement.....	16
4.2.2 Test Instruments .....	16
4.2.3 Test Procedures .....	17
4.2.4 Deviation from Test Standard .....	17
4.2.5 Test Setup .....	17
4.2.6 EUT Operating Conditions .....	17
4.2.7 Test Results.....	18
<b>5 Pictures of Test Arrangements.....</b>	<b>22</b>
<b>Appendix – Information on the Testing Laboratories .....</b>	<b>23</b>

### Release Control Record

Issue No.	Description	Date Issued
RF160712D02A	Original release.	Feb. 22, 2017

## 1 Certificate of Conformity

**Product:** M2

**Brand:** DYE

**Model No.:** M2

**Sample Status:** Mass Production

**Applicant:** DYE PRECISION, INC.

**Test Date:** Feb. 15, 2017

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.209)  
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 :**



Celia Chen / Supervisor

**Date:**

Feb. 22, 2017

**Approved by :**



Rex Lai / Assistant Manager

**Date:**

Feb. 22, 2017

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.209)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -16.88dB at 0.24375MHz.
15.209	Radiated Emission Test	PASS	Meet the requirement of limit. Minimum passing margin is -8.86dB at 138.080MHz.

### 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	2.77 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1000MHz	5.32 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	M2
Brand	DYE
Test Model	M2
Status of EUT	Mass Production
Power Supply Rating	7.4Vdc from battery or 5Vdc from USB interface
Modulation Type	AM Modulation
Operating Frequency	110-205kHz
Tested Frequency	123kHz
Antenna Type	Coil antenna
Antenna Connector	N/A
Accessory Device	N/A
Data Cable Supplied	N/A
Maximum power output from the charging coil	5 watts

Note:

1. The EUT is a paintball gun with Qi function.
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

1 channel is provided to this EUT:

Channel	Frequency (kHz)
1	123

#### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE<1G	PLC	
A	√	√	Charging Mode (EUT)
B	-	√	Operating + Charging Mode (EUT + Adapter)
C	-	√	Operating + Charging Mode (EUT + Notebook)

Where **RE<1G**: Radiated Emission below 1GHz **PLC**: Power Line Conducted Emission

#### Radiated Emission Test (Below 1GHz):

- ☒ 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
A	1	1

#### 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
B & C	1	1

#### Test Condition:

APPLICABLE TO	EUT CONFIGURE MODE	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	B	29deg. C, 65%RH	120Vac, 60Hz (Adapter)	Ian Chang
	C	29deg. C, 65%RH	120Vac, 60Hz (System)	Ian Chang
RE<1G	A	29deg. C, 73% RH	7.4Vdc	Ian Chang

### 3.3 Description of Support Units

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	Apple	A1385	N/A	FCC DoC Approved	Provided by Lab
B.	NOTEBOOK COMPUTER	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab
C.	Cable Free Charging	DYE	CFC CHARGER	N/A	2AAZG9194A1	Supplied by client

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

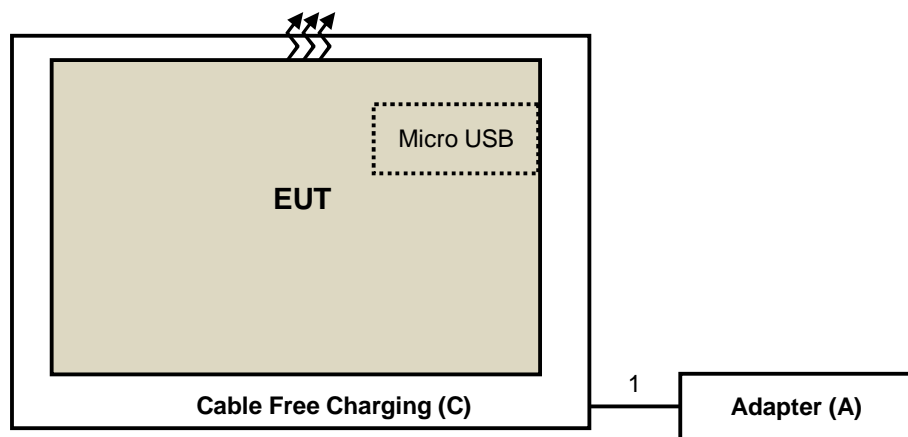
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Micro USB cable	1	0.23	Y	0	Supplied by client

Note: The core(s) is(are) originally attached to the cable(s).

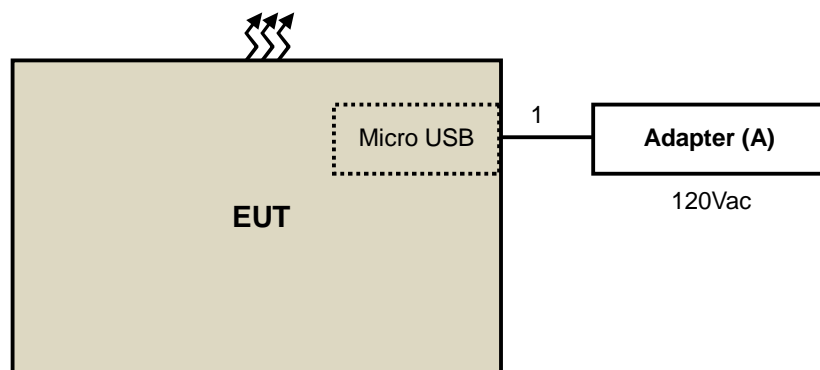
#### 3.3.1 Configuration of System under Test

##### TEST CONFIGURATION

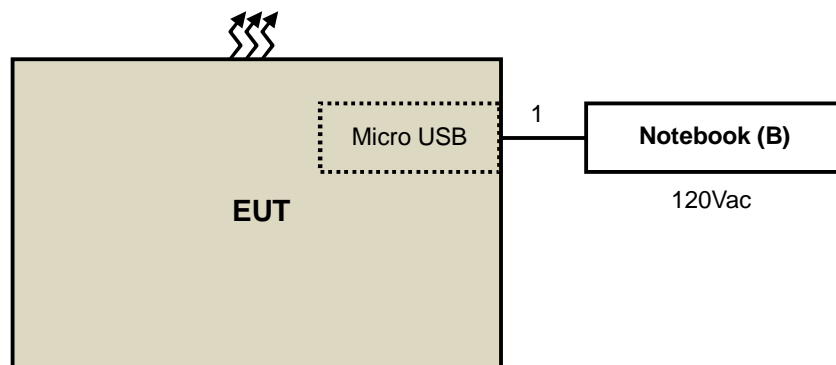
##### Mode A



##### Mode B



##### Mode C





### 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 (15.209)**

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 and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

##### FOR FREQUENCY BELOW 30MHz

FREQUENCY (MHz)	FIELD STRENGTH (dBuV/m)		MEASUREMENT DISTANCE (meters)
	uV/m	dBuV/m	
0.009 – 0.490	2400 / F (kHz)	48.52-13.80	300
0.490 – 1.705	24000 / F (kHz)	33.80-22.97	30
1.705 – 30.0	30	29.54	30

##### FOR FREQUENCY BETWEEN 30-1000MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30-88	90	39.1	100	40.0
88-216	150	43.5	150	43.5
216-960	210	46.4	200	46.0
Above 960	300	49.5	500	54.0

#### 4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 26, 2016	Feb. 25, 2017
HP Preamplifier	8449B	3008A01201	Feb. 26, 2016	Feb. 25, 2017
MITEQ Preamplifier	AMF-6F-260400-3 3-8P	892164	Mar. 01, 2016	Feb. 28, 2017
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 08, 2017	Feb. 07, 2018
Schwarzbeck Antenna	VULB 9168	139	Dec. 13, 2016	Dec. 12, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 29, 2015	May 28, 2017
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 30, 2016	Dec. 29, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 27, 2016	Dec. 26, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15. 9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 15, 2016	Aug. 14, 2017
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 15, 2016	Aug. 14, 2017
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	May 25, 2016	May 24, 2017
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2016	Jul. 25, 2017
Loop Antenna EMCI	LPA600	270	Aug. 20, 2015	Aug. 19, 2017

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

#### 4.1.3 Test Procedures

##### **For Frequency range 9kHz~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. Both X and Y axes 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:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

##### **For Frequency range 30 ~ 1000MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:**

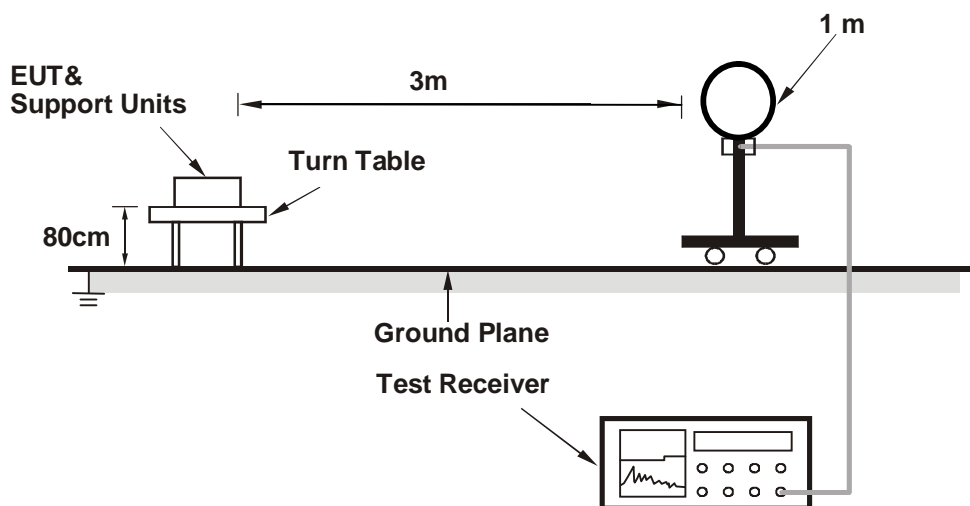
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

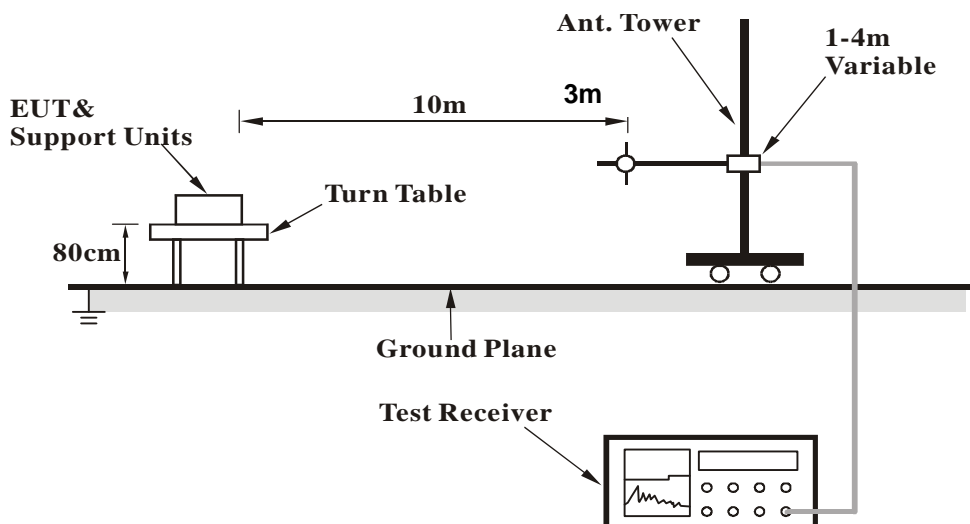
No deviation.

#### 4.1.5 Test Set Up

##### For Frequency range 9kHz~30MHz



##### For Frequency range 30 ~ 1000MHz



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

#### 4.1.6 EUT Operating Conditions

Set the EUT and cable free charging (provided by client) under charging condition.

#### 4.1.7 Test Results

##### Below 30MHz Data:

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	9kHz ~ 30MHz	<b>TEST MODE</b>	Mode A

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA OPEN 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	*0.123	52.85 QP	105.81	-52.96	2.00 H	19	37.59	15.26
2	0.246	41.81 QP	99.79	-57.98	2.00 H	69	32.50	9.31
3	0.369	48.69 QP	96.26	-47.57	2.00 H	264	42.59	6.10
4	8.586	22.39 QP	69.54	-47.15	2.00 H	355	25.99	-3.60
5	19.548	19.89 QP	69.54	-49.65	2.00 H	46	25.05	-5.16
6	25.943	21.39 QP	69.54	-48.15	2.00 H	16	28.11	-6.72
ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA CLOSE 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	*0.123	49.69 QP	105.81	-56.12	2.00 V	265	34.43	15.26
2	0.369	48.52 QP	96.26	-47.74	2.00 V	194	42.42	6.10
3	1.449	28.84 QP	64.38	-35.54	2.00 V	96	29.53	-0.69
4	16.152	26.65 QP	69.54	-42.89	2.00 V	155	30.83	-4.18
5	21.319	31.59 QP	69.54	-37.95	2.00 V	326	37.65	-6.06
6	25.998	37.69 QP	69.54	-31.85	2.00 V	328	44.32	-6.63

##### 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.
6. Loop antenna was used for all radiated emission below 30MHz.
7. Limit @3m=Limit@300m+40log(300 / 3)=Limit@300m+80
8. Limit @3m=Limit@30m+40log(30 / 3)=Limit@30m+40

#### Below 1GHz Data:

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz	<b>TEST MODE</b>	Mode A

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	53.760	18.52 QP	40.00	-21.48	2.42 H	158	27.91	-9.39
2	103.840	18.96 QP	43.50	-24.54	1.76 H	134	32.45	-13.49
3	138.080	34.64 QP	43.50	-8.86	2.69 H	338	44.66	-10.02
4	156.440	27.28 QP	43.50	-16.22	2.51 H	97	36.50	-9.22
5	219.550	22.79 QP	46.00	-23.21	1.87 H	143	34.39	-11.60
6	291.550	23.08 QP	46.00	-22.92	1.55 H	247	30.92	-7.84
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	57.660	27.28 QP	40.00	-12.72	1.94 V	236	37.05	-9.77
2	97.470	23.41 QP	43.50	-20.09	2.74 V	261	37.93	-14.52
3	138.460	27.85 QP	43.50	-15.65	2.18 V	209	37.87	-10.02
4	190.760	23.46 QP	43.50	-20.04	1.82 V	169	35.18	-11.72
5	293.820	22.63 QP	46.00	-23.37	1.54 V	264	30.44	-7.81
6	601.740	28.63 QP	46.00	-17.37	1.42 V	145	30.05	-1.42

#### 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
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 12, 2016	Apr. 11, 2017
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ENV216	101197	May 04, 2016	May 03, 2017
LISN With Adapter (for EUT)	AD10	C10Ada-002	May 04, 2016	May 03, 2017
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 23, 2016	Nov. 22, 2017
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 04, 2016	May 03, 2017
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C10.01	Feb. 14, 2017	Feb. 13, 2018
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 12, 2016	May 11, 2017
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 08, 2016	Nov. 07, 2017
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 08, 2016	Nov. 07, 2017

Notes: 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 Shielded Room No. 10.

3. The VCCI Site Registration No. C-1852.



#### 4.2.3 Test Procedures

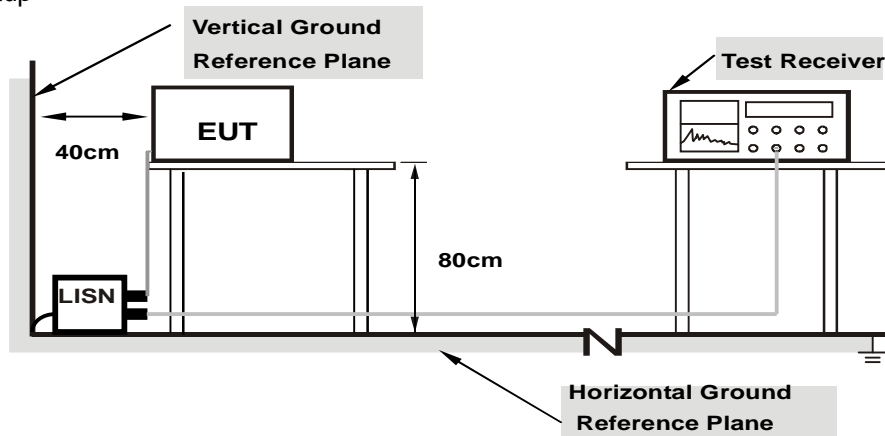
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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

##### Mode B

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

##### Mode C

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

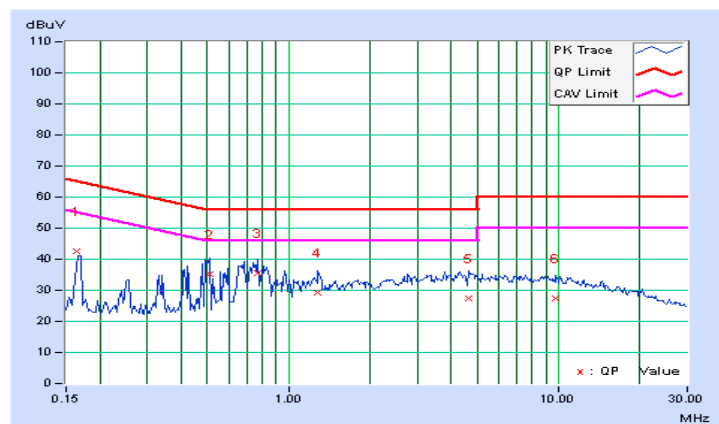
#### 4.2.7 Test Results

<b>Frequency Range</b>	150kHz ~ 30MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9kHz
<b>Test Mode</b>	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16444	9.70	32.72	19.93	42.42	29.63	65.24	55.24	-22.82	-25.61
2	0.50938	9.75	25.59	7.21	35.34	16.96	56.00	46.00	-20.66	-29.04
3	0.76719	9.79	25.81	13.53	35.60	23.32	56.00	46.00	-20.40	-22.68
4	1.28516	9.85	19.25	8.83	29.10	18.68	56.00	46.00	-26.90	-27.32
5	4.65234	10.07	17.45	9.73	27.52	19.80	56.00	46.00	-28.48	-26.20
6	9.78516	10.14	17.41	9.21	27.55	19.35	60.00	50.00	-32.45	-30.65

#### 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

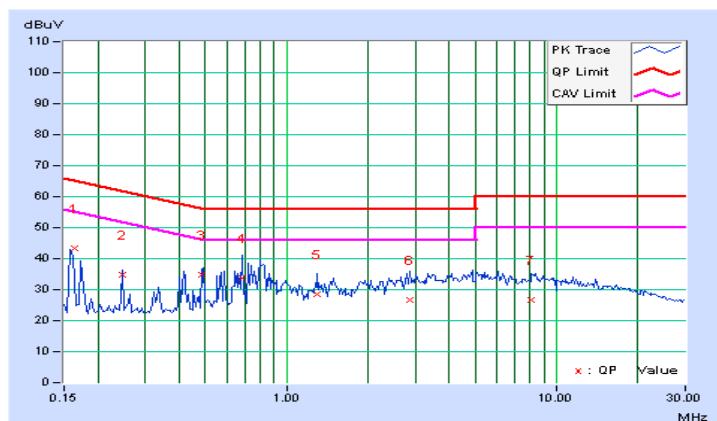


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16417	9.70	33.50	19.01	43.20	28.71	65.25	55.25	-22.05	-26.54
2	0.24766	9.70	25.15	10.05	34.85	19.75	61.84	51.84	-26.99	-32.09
3	0.48594	9.74	25.11	8.13	34.85	17.87	56.24	46.24	-21.39	-28.37
4	0.68125	9.77	23.99	9.63	33.76	19.40	56.00	46.00	-22.24	-26.60
5	1.30078	9.84	18.75	9.73	28.59	19.57	56.00	46.00	-27.41	-26.43
6	2.86719	9.99	16.69	8.41	26.68	18.40	56.00	46.00	-29.32	-27.60
7	8.03906	10.16	16.33	9.33	26.49	19.49	60.00	50.00	-33.51	-30.51

#### 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

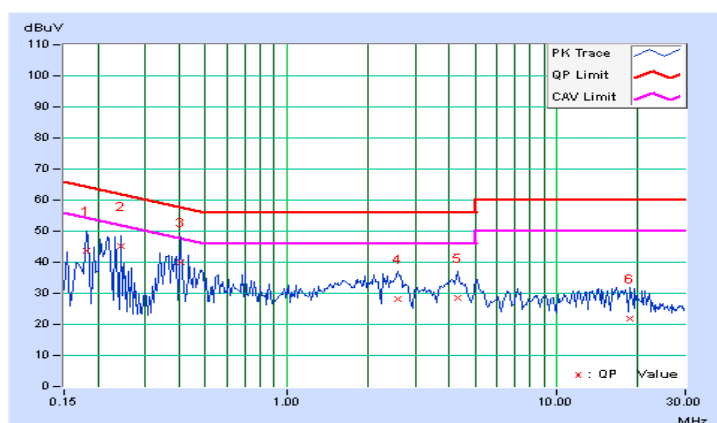


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Test Mode	Mode C		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	9.70	33.84	18.13	43.54	27.83	64.43	54.43	-20.89	-26.60
2	0.24375	9.70	35.39	17.71	45.09	27.41	61.97	51.97	-16.88	-24.56
3	0.40391	9.69	30.45	10.11	40.14	19.80	57.77	47.77	-17.63	-27.97
4	2.58594	9.81	18.25	9.97	28.06	19.78	56.00	46.00	-27.94	-26.22
5	4.31250	9.87	18.61	10.13	28.48	20.00	56.00	46.00	-27.52	-26.00
6	18.73438	9.94	11.95	1.35	21.89	11.29	60.00	50.00	-38.11	-38.71

#### 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

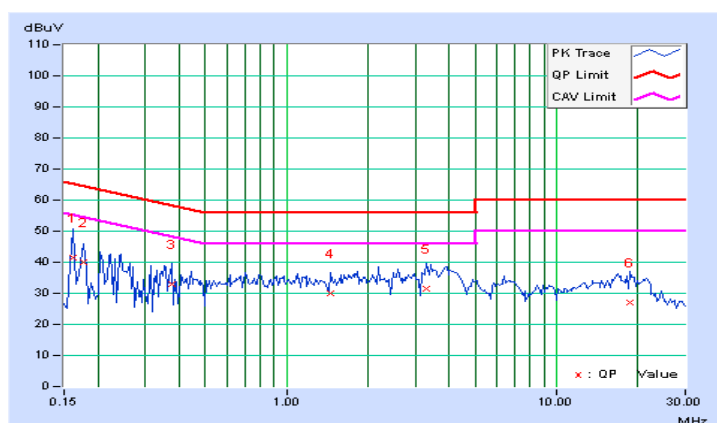


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Test Mode	Mode C		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	9.70	31.86	12.71	41.56	22.41	65.38	55.38	-23.82	-32.97
2	0.17734	9.69	30.49	17.49	40.18	27.18	64.61	54.61	-24.42	-27.42
3	0.37656	9.69	23.37	7.89	33.06	17.58	58.35	48.35	-25.29	-30.77
4	1.44922	9.75	20.33	13.39	30.08	23.14	56.00	46.00	-25.92	-22.86
5	3.28906	9.83	21.57	13.63	31.40	23.46	56.00	46.00	-24.60	-22.54
6	18.68359	9.95	17.21	8.95	27.16	18.90	60.00	50.00	-32.84	-31.10

**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/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](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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

--- END ---