

**Report No.:** RF180131E09-1

**FCC ID:** KA2CS8525LHA1

**Test Model:** DCS-8525LH

**Received Date:** Jan. 31, 2018

**Test Date:** Feb. 08 to 23, 2018

**Issued Date:** Mar. 15, 2018

**Applicant:** D-Link Corporation

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

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

**FCC Registration /  
Designation Number:** 723255 / TW2022



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### Release Control Record

Issue No.	Description	Date Issued
RF180131E09-1	Original release.	Mar. 15, 2018

## 1 Certificate of Conformity

**Product:** Full HD Pan & Tilt Wi-Fi Camera

**Brand:** D-Link

**Test Model:** DCS-8525LH

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** D-Link Corporation

**Test Date:** Feb. 08 to 23, 2018

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
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 :** Phoenix Huang , **Date:** Mar. 15, 2018  
Phoenix Huang / Specialist

**Approved by :** May Chen , **Date:** Mar. 15, 2018  
May Chen / Manager

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C, E (SECTION 15.247, 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -3.12dB at 0.39219MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -2.1dB at 63.42MHz.

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.33 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.10 dB
	6GHz ~ 18GHz	4.85 dB
	18GHz ~ 40GHz	5.24 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Full HD Pan & Tilt Wi-Fi Camera
Brand	D-Link
Test Model	DCS-8525LH
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	5Vdc from power adapter
Modulation Type	<b>For WLAN</b> CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM <b>For BT-LE: GFSK</b>
Modulation Technology	<b>For WLAN: DSSS, OFDM</b> <b>For BT-LE: DTS</b>
Transfer Rate	<b>For WLAN</b> 802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 72.2Mbps <b>For BT-LE: 1Mbps</b>
Operating Frequency	<b>For WLAN: 2.412 ~ 2.462GHz</b> <b>For BT-LE: 2.402 ~ 2.480GHz</b>
Number of Channel	<b>For WLAN</b> 802.11b, 802.11g, 802.11n (HT20): 11 <b>For BT-LE: 40</b>
Output Power	<b>For WLAN: 418.794mW</b> <b>For BT-LE: 14.322mW</b>
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1, SD Card x1, Wall-mounted stand x1
Data Cable Supplied	Ethernet Cable x1 (Unshielded, 1m)

Note:

- For BT-LE the Maximum power was refer to the FCC test report (Report No.: RF180131E09B)
- Simultaneously transmission condition.

Condition	Technology
WLAN	Bluetooth

3. The EUT must be supplied with a power adapter and following table:

Brand	Model No.	Spec.
Amigo	AMS135-0502000FU	Input: 100-240Vac, 0.5A, 50/60Hz Output: 5Vdc, 2A DC output cable (Unshielded, 3m)

4. The antenna provided to the EUT, please refer to the following table:

Brand Name	Model No.	Antenna Net Gain (dBi)	Frequency range (GHz ~ GHz)	Antenna Type	Connector Type	Cable Length (mm)
HL TECHNOLOGY	533080193409G	1.91	2.4~2.4835	Dipole	i-pex(MHF)	70

5. The EUT incorporates a SISO function.

<b>MODULATION MODE</b>	<b>DATA RATE (MCS)</b>	<b>TX &amp; RX CONFIGURATION</b>	
<b>802.11b</b>	1 ~ 11Mbps	1TX	1RX
<b>802.11g</b>	6 ~ 54Mbps	1TX	1RX
<b>802.11n (HT20)</b>	MCS 0~7	1TX	1RX

6. 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.

### 3.1.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE $<$ 1G	PLC	OB	
-	√	√	√	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement      **RE $<$ 1G**: Radiated Emission below 1GHz

**PLC**: Power Line Conducted Emission      **OB**: Conducted Out-Band Emission Measurement

**Note**: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **Y-plane**.

#### **Radiated Emission Test (Above 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
802.11g + BT-LE	1 to 11	6	OFDM	BPSK
	0 to 39	19	DTS	GFSK

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

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
802.11g + BT-LE	1 to 11	6	OFDM	BPSK
	0 to 39	19	DTS	GFSK

#### **Power Line Conducted Emission Test:**

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
802.11g + BT-LE	1 to 11	6	OFDM	BPSK
	0 to 39	19	DTS	GFSK



**Conducted Out-Band Emission Measurement:**

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
802.11g + BT-LE	1 to 11	6	OFDM	BPSK
	0 to 39	19	DTS	GFSK

**Test Condition:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	22deg. C, 68%RH	120Vac, 60Hz	Steven Chiang
RE<1G	22deg. C, 67%RH	120Vac, 60Hz	Robert Cheng
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
OB	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

### 3.2 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.	Micro SD Card	Transcend	16GB	NA	NA	Supplied by client
B.	Laptop	DELL	E5430	DM1SKV1	FCC DoC	Provided by Lab
C.	Laptop	DELL	E5430	GM1SKV1	FCC DoC	Provided by Lab

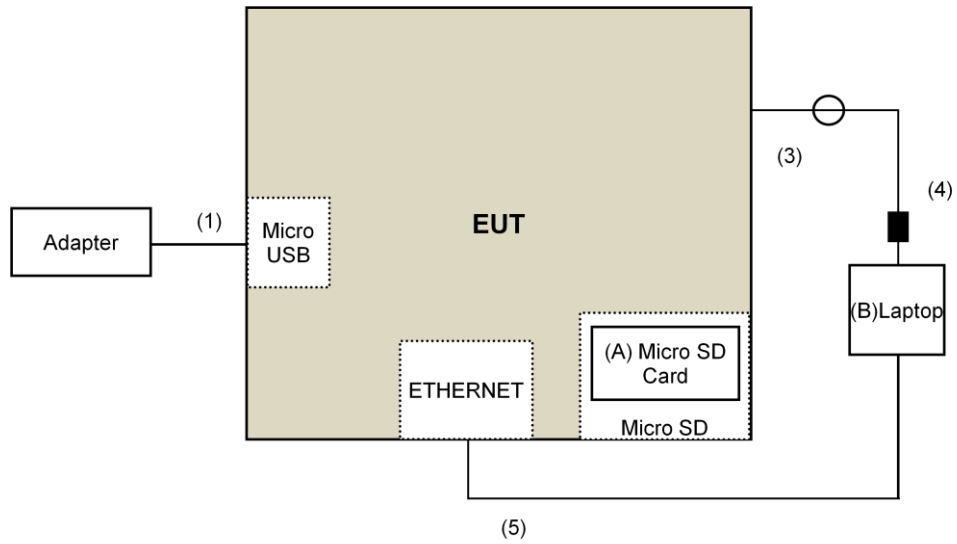
Note:

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

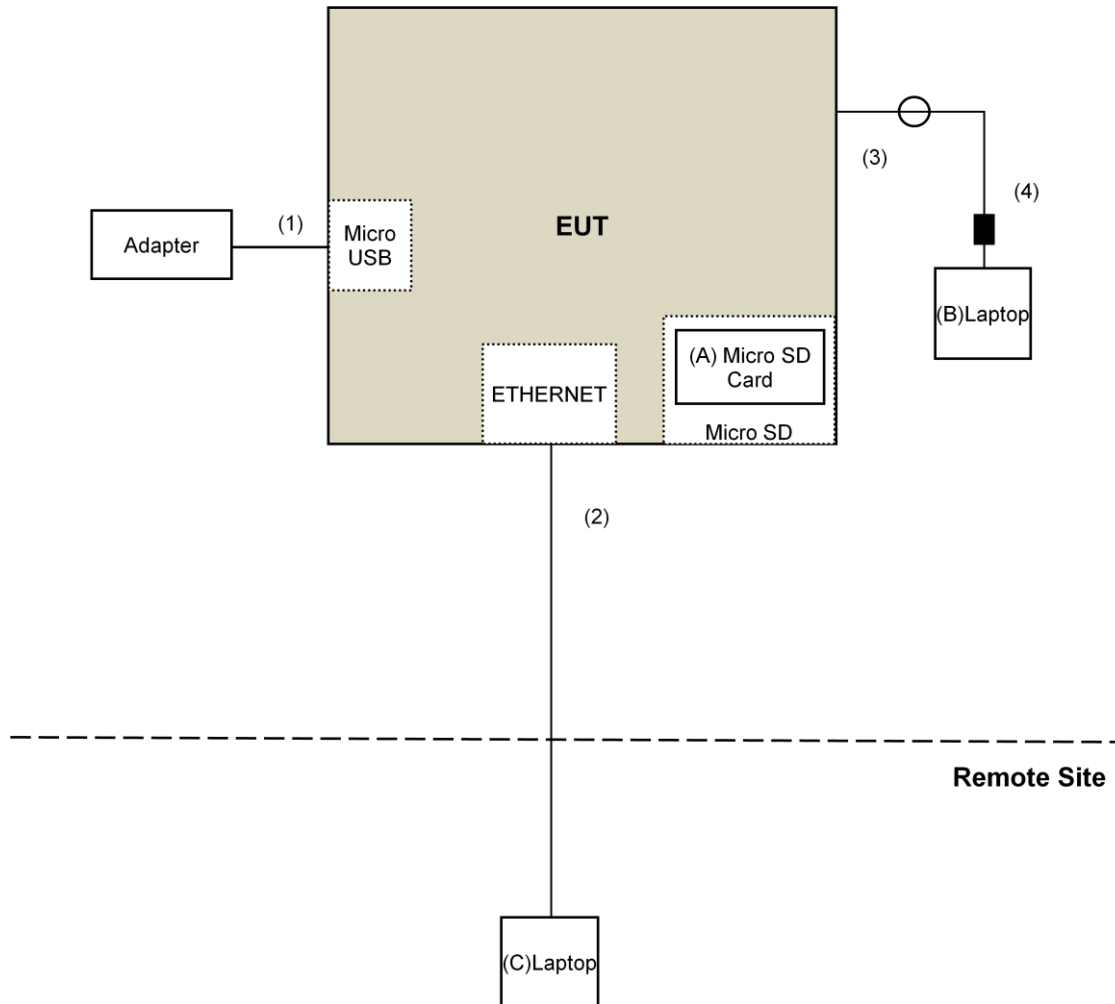
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	3	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	Console Cable	1	0.5	No	0	Supplied by client (for RF Setup)
4.	USB Cable	1	1.2	Yes	1	Provided by Lab
5.	RJ-45 Cable	1	3	No	0	Provided by Lab

### 3.2.1 Configuration of System under Test

For Conducted emission test:



For Radiated emission test:



## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

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

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 08, 2017	July 07, 2018
Loop Antenna <sup>(*)</sup> TESEQ	HLA 6121	45745	May 19, 2017	May 18, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-01	Nov. 09, 2017	Nov. 08, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCI	EMC12630SE	980385	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM- SM-1200 EMC104-SM- SM-2000 EMC104-SM- SM-5000	160923 150318 150321	Jan. 29, 2018 Jan. 29, 2018 Jan. 29, 2018	Jan. 28, 2019 Jan. 28, 2019 Jan. 28, 2019
Pre-Amplifier EMCI	EMC184045S E	980387	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	EMC102-KM- KM-1200	160925	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer Agilent	E4446A	MY48250254	Nov. 21, 2017	Nov. 20, 2018

**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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The CANADA Site Registration No. is 20331-2
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date: Feb. 22 to 23, 2018

#### 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. 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:**

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:**

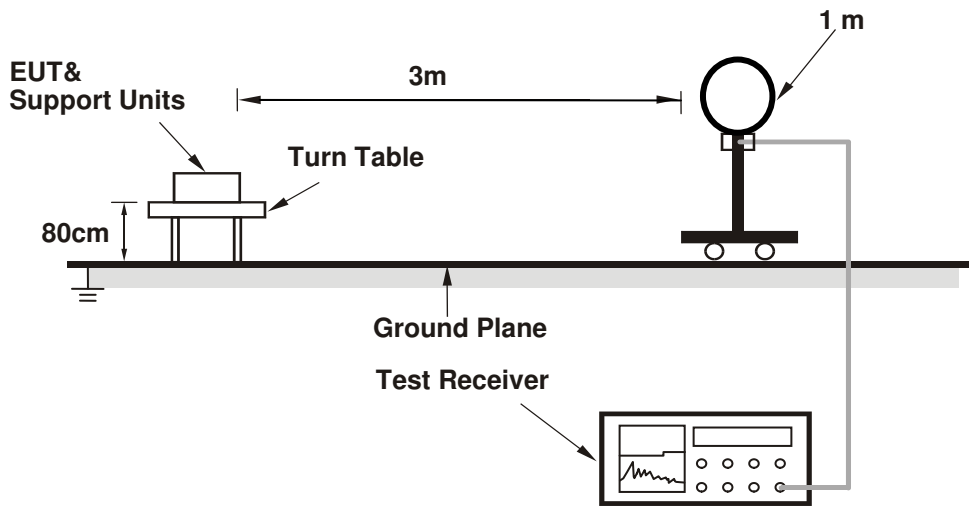
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

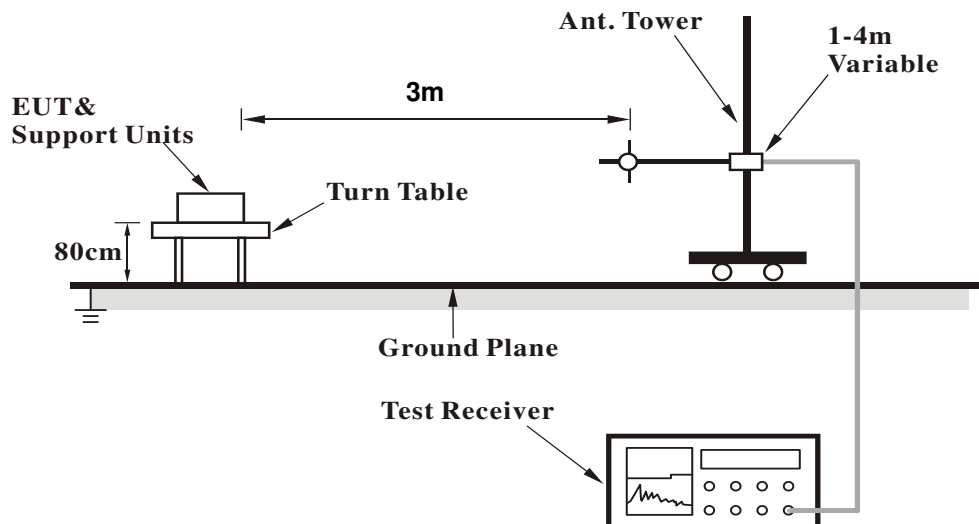
No deviation.

4.1.5 Test Setup

**For Radiated emission below 30MHz**

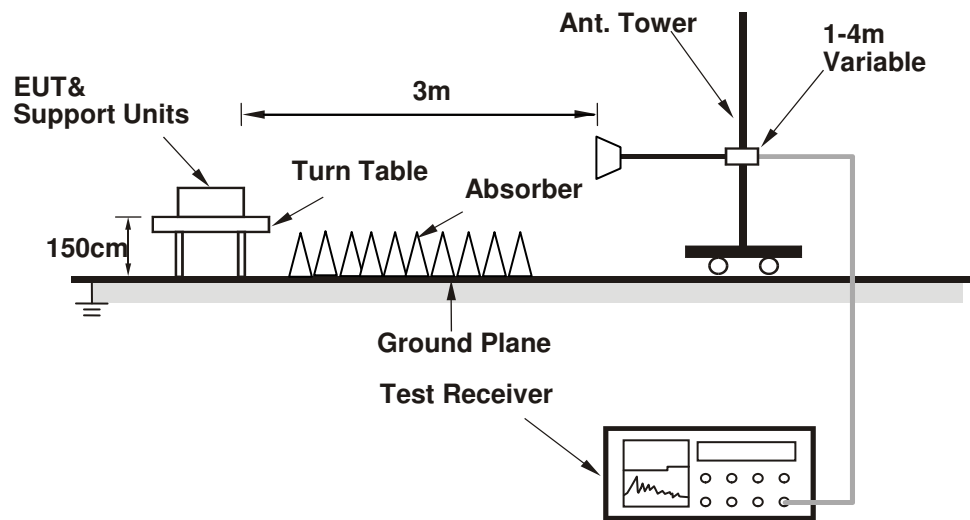


**For Radiated emission 30MHz to 1GHz**





### For Radiated emission above 1GHz



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

#### 4.1.6 EUT Operating Conditions

- a. Connected the EUT with the Laptop which is placed on remote site.
- b. Controlling software (MPTool\_Ver:30.12.20150826) has been activated to set the EUT on specific status.

#### 4.1.7 Test Results

##### Above 1GHz Data

<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz	<b>DETECTOR FUNCTION</b>	Peak (PK) Average (AV)
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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	4874.00	44.3 PK	74.0	-29.7	1.76 H	289	41.4	2.9
2	4874.00	39.2 AV	54.0	-14.8	1.76 H	289	36.3	2.9
3	4880.00	37.8 PK	74.0	-36.2	1.45 H	168	34.9	2.9
4	4880.00	30.0 AV	54.0	-24.0	1.45 H	168	27.1	2.9
5	7311.00	42.5 PK	74.0	-31.5	1.59 H	122	33.2	9.3
6	7311.00	33.4 AV	54.0	-20.6	1.59 H	122	24.1	9.3
7	7320.00	44.5 PK	74.0	-29.5	2.53 H	243	35.1	9.4
8	7320.00	34.5 AV	54.0	-19.5	2.53 H	243	25.1	9.4
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	4874.00	48.7 PK	74.0	-25.3	1.49 V	173	45.8	2.9
2	4874.00	42.9 AV	54.0	-11.1	1.49 V	173	40.0	2.9
3	4880.00	40.0 PK	74.0	-34.0	1.37 V	291	37.1	2.9
4	4880.00	33.5 AV	54.0	-20.5	1.37 V	291	30.6	2.9
5	7311.00	44.3 PK	74.0	-29.7	1.77 V	338	35.0	9.3
6	7311.00	35.3 AV	54.0	-18.7	1.77 V	338	26.0	9.3
7	7320.00	43.5 PK	74.0	-30.5	1.89 V	224	34.1	9.4
8	7320.00	33.9 AV	54.0	-20.1	1.89 V	224	24.5	9.4

#### 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

**Below 1GHz Data:**

<b>FREQUENCY RANGE</b>	9kHz ~ 1GHz	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
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**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	58.88	35.2 QP	40.0	-4.8	1.65 H	304	43.3	-8.1
2	131.82	41.1 QP	43.5	-2.4	1.75 H	166	50.0	-8.9
3	248.11	41.0 QP	46.0	-5.0	1.42 H	211	50.1	-9.1
4	311.85	37.6 QP	46.0	-8.4	1.65 H	99	44.3	-6.7
5	648.12	34.6 QP	46.0	-11.4	1.44 H	88	33.7	0.9
6	900.12	41.0 QP	46.0	-5.0	1.88 H	88	36.6	4.4

**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)
<b>1</b>	<b>63.42</b>	<b>37.9 QP</b>	<b>40.0</b>	<b>-2.1</b>	<b>1.45 V</b>	<b>165</b>	<b>46.7</b>	<b>-8.8</b>
2	131.72	36.0 QP	43.5	-7.5	1.77 V	165	44.9	-8.9
3	166.65	39.2 QP	43.5	-4.3	1.77 V	88	47.3	-8.1
4	241.26	40.2 QP	46.0	-5.8	1.65 V	244	49.6	-9.4
5	288.81	39.4 QP	46.0	-6.6	1.66 V	345	46.9	-7.5
6	900.65	36.5 QP	46.0	-9.5	1.25 V	44	32.0	4.5

**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

## 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.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Nov. 01, 2017	Oct. 31, 2018
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 2017	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 29, 2017	Sep. 28, 2018
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
Software BVADT	BVADT_Cond_ V7.3.7.4	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 Conduction 1.
3. Tested Date: Feb. 13, 2018

#### 4.2.3 Test Procedures

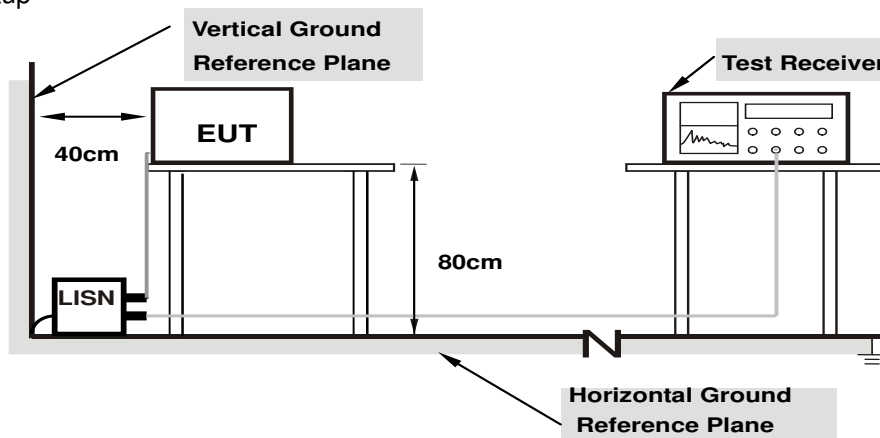
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

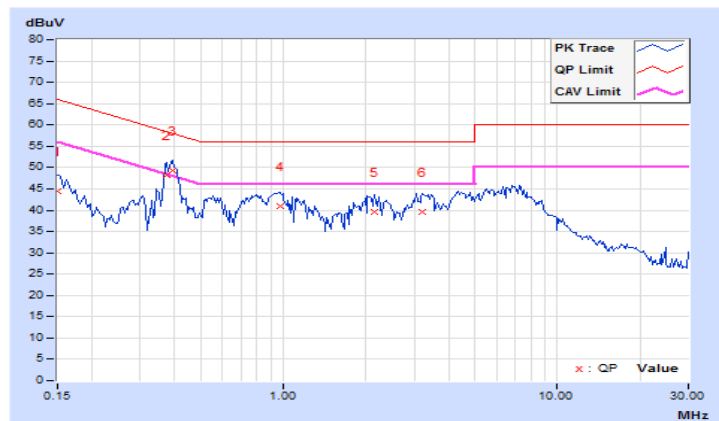
#### 4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	10.14	34.35	23.81	44.49	33.95	66.00	56.00	-21.51
2	0.37656	10.19	38.14	28.25	48.33	38.44	58.35	48.35	-10.02	-9.91
<b>3</b>	<b>0.39219</b>	<b>10.20</b>	<b>39.18</b>	<b>34.70</b>	<b>49.38</b>	<b>44.90</b>	<b>58.02</b>	<b>48.02</b>	<b>-8.64</b>	<b>-3.12</b>
4	0.97031	10.25	30.62	25.53	40.87	35.78	56.00	46.00	-15.13	-10.22
5	2.16016	10.31	29.20	22.66	39.51	32.97	56.00	46.00	-16.49	-13.03
6	3.20313	10.38	29.29	22.11	39.67	32.49	56.00	46.00	-16.33	-13.51

#### 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

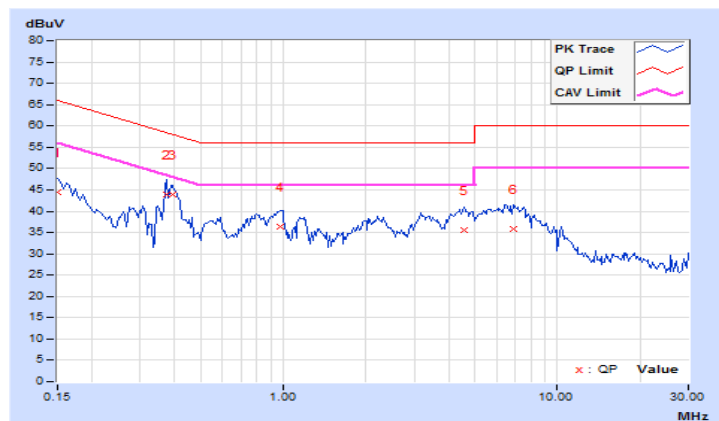


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.05	34.26	21.42	44.31	31.47	66.00	56.00	-21.69	-24.53
2	0.37656	10.09	33.83	22.32	43.92	32.41	58.35	48.35	-14.43	-15.94
3	0.39219	10.10	33.87	29.84	43.97	39.94	58.02	48.02	-14.05	-8.08
4	0.97422	10.12	26.17	20.01	36.29	30.13	56.00	46.00	-19.71	-15.87
5	4.56641	10.32	25.16	17.77	35.48	28.09	56.00	46.00	-20.52	-17.91
6	6.91406	10.46	25.46	18.46	35.92	28.92	60.00	50.00	-24.08	-21.08

**Remarks:**

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

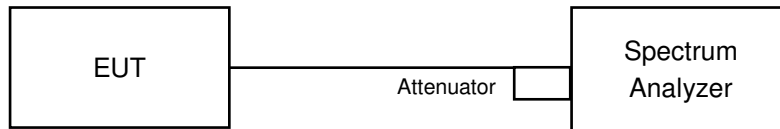


### 4.3 Conducted Out of Band Emission Measurement

#### 4.3.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

#### 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

##### MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

##### MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

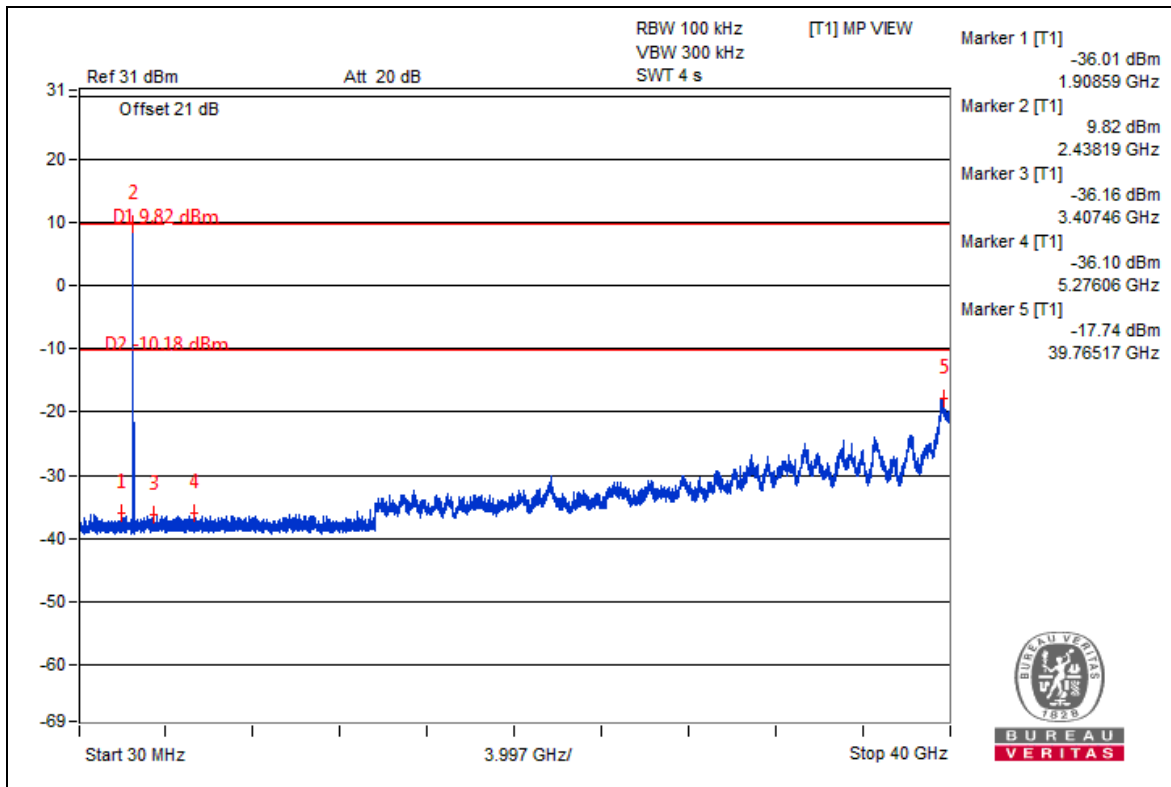
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.3.7 Test Results

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



## 2.4GHz\_802.11g CH6 + BT-LE CH19



## 5 Pictures of Test Arrangements

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

## Appendix – Information on the Testing Laboratories

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