

FCC Test Report

Report No.: FD171218C14

Test Model: 2Q55200

FCC ID: NM82Q55200

Received Date: Dec. 18, 2017

Test Date: Dec. 29, 2017 ~ Dec. 30, 2017

Issued Date: Jan. 16, 2018

Applicant: HTC Corporation

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**FCC Registration /
Designation Number:** 328930 / TW1050



Certificate #4327.01



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Release Control Record


Issue No.	Description	Date Issued
FD171218C14	Original Release	Jan. 16, 2018

1 Certificate of Conformity

Product: Smartphone
Brand: HTC
Test Model: 2Q55200
Sample Status: Production Unit
Applicant: HTC Corporation
Test Date: Dec. 29, 2017 ~ Dec. 30, 2017
Standards: 47 CFR FCC Part 15, Subpart B, Class B
ICES-003:2016 Issue 6, Class B
ANSI C63.4:2014

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:** Jan. 16, 2018
Ivonne Wu / Supervisor

Approved by :  , **Date:** Jan. 16, 2018
Carl Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart B / ICES-003:2016 Issue 6, Class B
ANSI C63.4:2014

FCC Clause	ICES-003 Clause	Test Item	Result/Remarks	Verdict
15.107	6.1	AC Power Line Conducted Emissions	Minimum passing Class B margin is -18.53 dB at 0.18910 MHz	Pass
15.109	6.2.1	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -4.13 dB at 177.50 MHz	Pass
	6.2.2	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -21.47 dB at 3556.95 MHz	Pass

Note: There is no deviation to the applied test methods and requirements covered by the scope of this report.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	4.70 dB
Radiated Emissions above 1 GHz	Above 1 GHz	2.26 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 Features of EUT

The tests reported herein were performed according to the method specified by HTC Corporation, for detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.2 General Description of EUT

Product	Smartphone
Brand	HTC
Test Model	2Q55200
Status of EUT	Production Unit
Operating Software	Android 8.0.0
Power Supply Rating	3.85 Vdc (Battery) 5 Vdc or 9 Vdc or 12 Vdc (Adapter) 5 Vdc (Host equipment)
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT accessories list refers to EUT Photo.pdf.

3.3 Operating Modes of EUT and Determination of Worst Case Operating Mode

Test modes are presented in the report as below.

Mode	Test Condition
Conducted Emission	
1	GSM 850 Link + BT Link + WLAN (2.4G) Link + NFC On + GPS & GLONASS Rx + USB Cable 1 + Adapter 1
2	WCDMA 1900 Link + BT Link + WLAN (5G) Link + NFC On + ANT+ + USB Cable 2 + Adapter 2
3	LTE Band 5 Link + BT Link + WLAN (2.4G) Link + NFC On + Camera + USB Cable 1 + USB Link
4	LTE Band 7 Link + BT Link + WLAN (2.4G) Link + NFC On + MPEG4 + USB Cable 2 + USB Link
Radiated Emission	
1	GSM 850 Link + BT Link + WLAN (2.4G) Link + NFC On + GPS & GLONASS Rx + USB Cable 1 + Adapter 1
2	WCDMA 1900 Link + BT Link + WLAN (5G) Link + NFC On + GPS & GLONASS Rx + USB Cable 2 + Adapter 2
3	LTE Band 5 Link + BT Link + WLAN (2.4G) Link + NFC On + ANT+ + USB Cable 1 + USB Link
4	LTE Band 7 Link + BT Link + WLAN (2.4G) Link + NFC On + Camera + USB Cable 2 + USB Link
5	LTE Band 12 Link + BT Link + WLAN (2.4G) Link + NFC On + MPEG4 + Earphone
6	Power Delivery Mode

Remark:

1. For conducted emission test, test mode 1 was the worst case and only this mode was presented in the report.
2. For radiated emission test, test mode 1 was the worst case and only this mode was presented in the report.

3.4 Test Program Used and Operation Descriptions

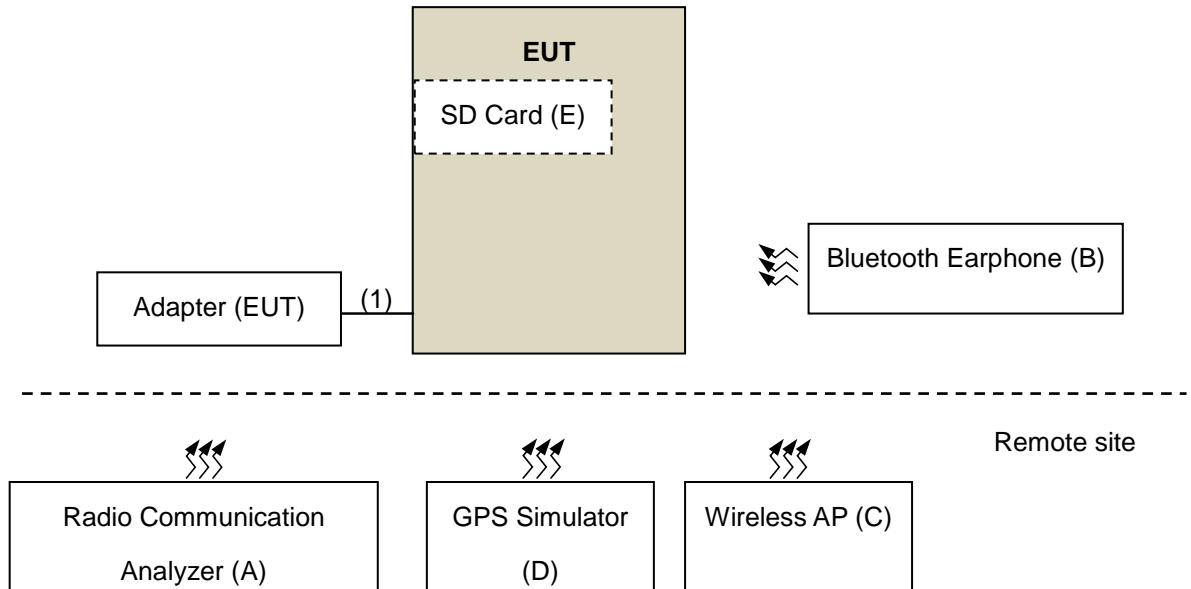
- a. The EUT linked with Bluetooth earphone.
- b. The NFC function was turned on.
- c. The EUT communicated data with the Radio Communication Analyzer, GPS simulator, and Wireless AP, which acted as communication partners.

3.5 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 5000 MHz, provided by HTC Corporation, for detailed internal source, please refer to the manufacturer's specifications.

4 Configuration and Connections with EUT

4.1 Connection Diagram of EUT and Peripheral Devices



4.2 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8820C	6201010284	N/A	--
B.	BLUETOOTH EARPHONE	ELECOM	LBT-MPHS400	N/A	N/A	--
C.	Wireless N Dual band Router	D-LINK	DIR-815	PVK21B5000399	KA21R815A1	--
D.	GPS simulator	T&E	GS-50	610493	N/A	--
E.	SD Card	Transcend	N/A	N/A	N/A	--

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items A~D acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Type C Cable	1	1.15	Y	0	Accessory of the EUT

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

5 Conducted Emissions at Mains Ports

5.1 Limits

Frequency (MHz)	Class A (dBUV)		Class B (dBUV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Notes: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases linearly with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

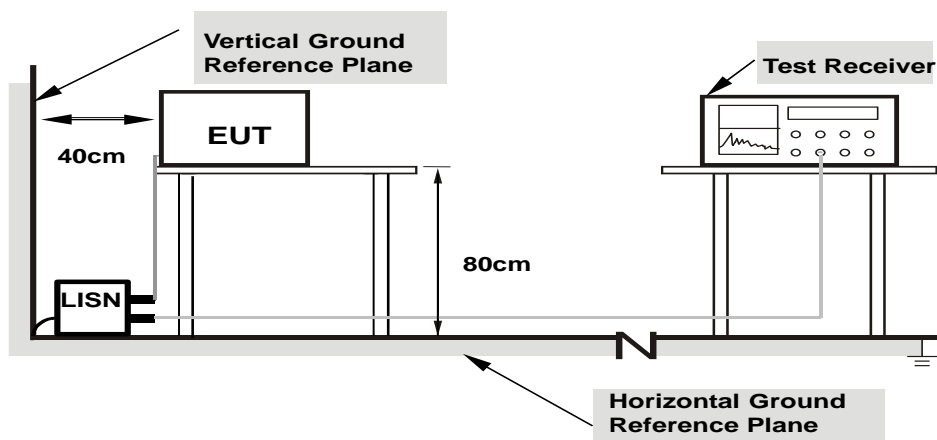
2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

5.3 Test Arrangement

- 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/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

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



- Note:**
- Support units were connected to second LISN.
 - Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

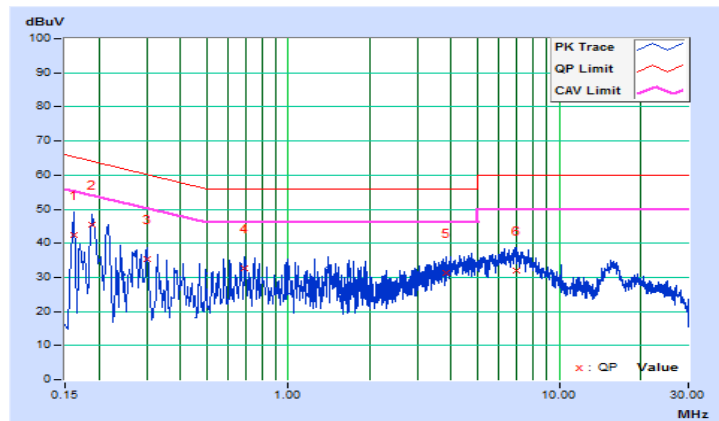
5.4 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	16°C, 77%RH
Tested by	Fox Chang	Test Date	2017/12/29
Test Mode	Mode 1		

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	0.16173	10.45	32.10	20.84	42.55	31.29	65.37	55.37	-22.82	-24.08
2	0.18910	10.45	35.10	22.36	45.55	32.81	64.08	54.08	-18.53	-21.27
3	0.30135	10.47	24.79	16.47	35.26	26.94	60.21	50.21	-24.95	-23.27
4	0.68958	10.47	22.16	14.68	32.63	25.15	56.00	46.00	-23.37	-20.85
5	3.81367	10.61	20.83	15.34	31.44	25.95	56.00	46.00	-24.56	-20.05
6	6.93385	10.75	21.18	13.24	31.93	23.99	60.00	50.00	-28.07	-26.01

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

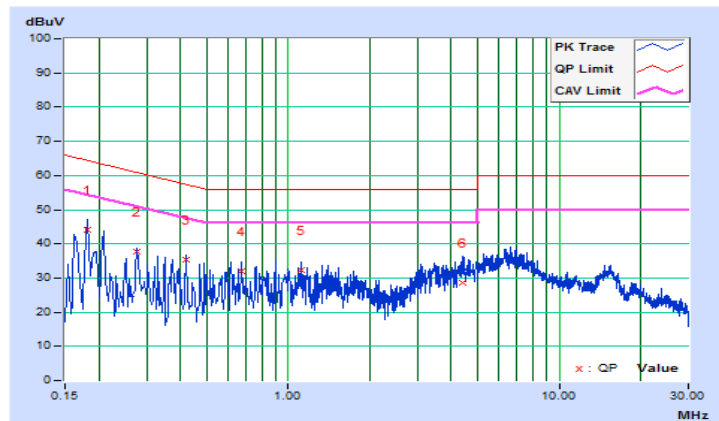


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	16°C, 77%RH
Tested by	Fox Chang	Test Date	2017/12/29
Test Mode	Mode 1		

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	0.18128	10.21	33.99	19.09	44.20	29.30	64.43	54.43	-20.23	-25.13
2	0.27512	10.23	27.37	15.01	37.60	25.24	60.96	50.96	-23.36	-25.72
3	0.41979	10.25	24.98	14.28	35.23	24.53	57.45	47.45	-22.22	-22.92
4	0.67394	10.25	21.74	10.09	31.99	20.34	56.00	46.00	-24.01	-25.66
5	1.12359	10.26	22.22	5.36	32.48	15.62	56.00	46.00	-23.52	-30.38
6	4.39235	10.42	18.04	8.58	28.46	19.00	56.00	46.00	-27.54	-27.00

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



6 Radiated Emissions up to 1 GHz

6.1 Limits

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		

Radiated Emissions Limits at 3 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54		

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).
3. QP detector shall be applied if not specified.

6.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ (V)	ESR	101240	Oct. 24, 2017	Oct. 23, 2018
Test Receiver ROHDE & SCHWARZ (H)	ESR	101264	Dec. 25, 2017	Dec. 24, 2018
BILOG Antenna SCHWARZBECK (V)	VULB9168	9168-160	Nov. 29, 2017	Nov. 28, 2018
BILOG Antenna SCHWARZBECK (H)	VULB9168	9168-156	Nov. 29, 2017	Nov. 28, 2018
Preamplifier Agilent (V)	310N	352924	Jul. 12, 2017	Jul. 11, 2018
Preamplifier Agilent (H)	310N	352923	Jul. 12, 2017	Jul. 11, 2018
RF signal cable (with 5dB PAD) Times (V)	LMR-600 (18M) +LMR-400 (7M)	CABLE-CH1 (VER) -01	Oct. 24, 2017	Oct. 23, 2018
RF signal cable (with 5dB PAD) Times (H)	LMR-600 (11.8M) +LMR-400 (7M)	CABLE-CH1 (HOR) -01	Oct. 24, 2017	Oct. 23, 2018
Software BV ADT	BV ADT_Radiated_ V8.7.08	NA	NA	NA
Antenna Tower (V)	MFA-440	9707	NA	NA
Antenna Tower (H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller (V)	MF7802	074	NA	NA
Controller (H)	MF7802	08093	NA	NA

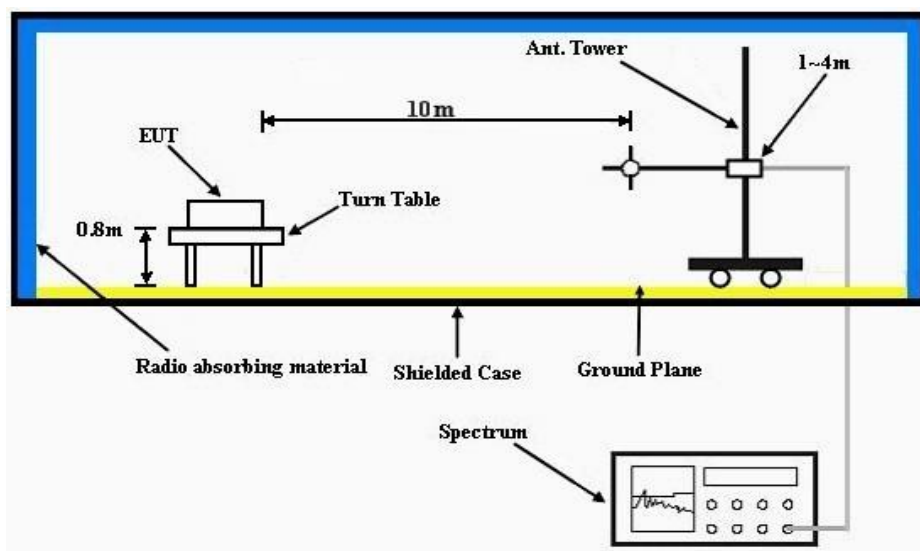
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 1.
3. The IC Site Registration No. is IC 7450F-1.
4. The VCCI Site Registration No. is R-1893.

6.3 Test Arrangement

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna is a broadband antenna, and its height 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.
- 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.
- 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.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for quasi-peak detection (QP) at frequency below 1 GHz.



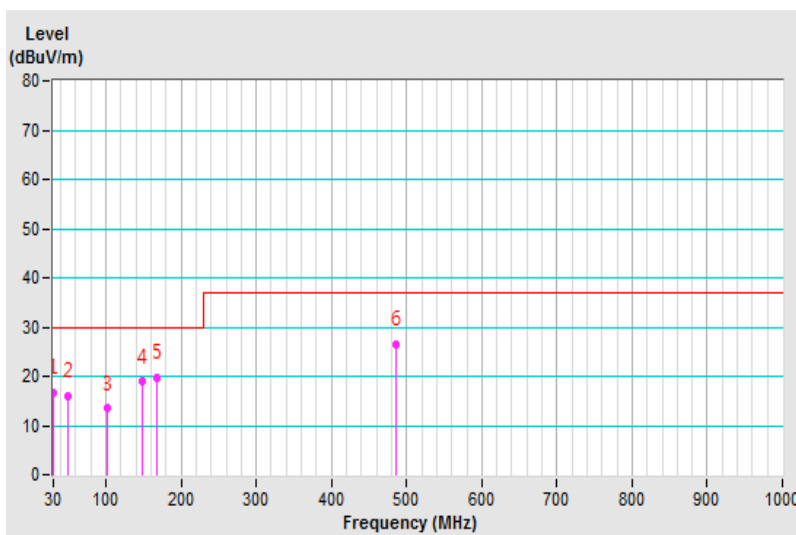
6.4 Test Results

Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 63%RH
Tested by	Rolan Zheng	Test Date	2017/12/29
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.05	16.68 QP	30.00	-13.32	3.00 H	261	31.92	-15.24
2	49.93	16.08 QP	30.00	-13.92	4.00 H	67	29.56	-13.48
3	101.69	13.42 QP	30.00	-16.58	2.00 H	76	30.87	-17.45
4	147.42	18.87 QP	30.00	-11.13	1.00 H	323	32.16	-13.29
5	167.07	19.68 QP	30.00	-10.32	4.00 H	146	33.09	-13.41
6	486.60	26.37 QP	37.00	-10.63	2.00 H	35	34.39	-8.02

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

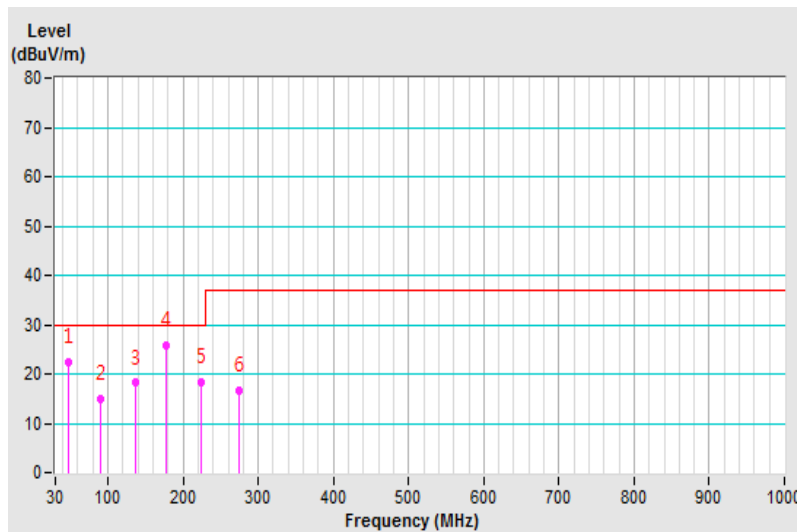


Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 63%RH
Tested by	Rolan Zheng	Test Date	2017/12/29
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	46.59	22.44 QP	30.00	-7.56	1.00 V	90	35.89	-13.45
2	90.05	14.98 QP	30.00	-15.02	1.50 V	272	33.74	-18.76
3	137.29	18.16 QP	30.00	-11.84	1.50 V	2	32.00	-13.84
4	177.50	25.87 QP	30.00	-4.13	1.00 V	264	40.01	-14.14
5	223.96	18.24 QP	30.00	-11.76	1.00 V	359	34.30	-16.06
6	275.13	16.69 QP	37.00	-20.31	1.00 V	0	29.42	-12.73

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



7 Radiated Emissions above 1 GHz

7.1 Limits

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 49.5	Avg: 43.5	Not defined	Not defined
Above 3000	Peak: 69.5	Peak: 63.5	Not defined	Not defined

Radiated Emissions Limits at 3 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 60	Avg: 54	Avg: 56 Peak: 76	Avg: 50 Peak: 70
Above 3000	Peak: 80	Peak: 74	Avg: 60 Peak: 80	Avg: 54 Peak: 74

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000 MHz, 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 20 dB under any condition of modulation.

Radiated Emissions Limits at 1.5 meters (dB μ V/m)		
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B
Above 18000	Avg: 66 Peak: 86	Avg: 60 Peak: 80

Note: Limit@1.5m = Limit@3m + 20log(3/1.5)

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

7.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ (V)	ESR	101240	Oct. 24, 2017	Oct. 23, 2018
Test Receiver ROHDE & SCHWARZ (H)	ESR	101264	Dec. 25, 2017	Dec. 24, 2018
BILOG Antenna SCHWARZBECK (V)	VULB9168	9168-160	Nov. 29, 2017	Nov. 28, 2018
BILOG Antenna SCHWARZBECK (H)	VULB9168	9168-156	Nov. 29, 2017	Nov. 28, 2018
Preamplifier Agilent (V)	310N	352924	Jul. 12, 2017	Jul. 11, 2018
Preamplifier Agilent (H)	310N	352923	Jul. 12, 2017	Jul. 11, 2018
RF signal cable (with 5dB PAD) Times (V)	LMR-600 (18M) +LMR-400 (7M)	CABLE-CH1 (VER) -01	Oct. 24, 2017	Oct. 23, 2018
RF signal cable (with 5dB PAD) Times (H)	LMR-600 (11.8M) +LMR-400 (7M)	CABLE-CH1 (HOR) -01	Oct. 24, 2017	Oct. 23, 2018
Software BV ADT	BV ADT_Radiated_ V8.7.08	NA	NA	NA
Antenna Tower (V)	MFA-440	9707	NA	NA
Antenna Tower (H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller (V)	MF7802	074	NA	NA
Controller (H)	MF7802	08093	NA	NA
HORN Antenna (with 4dB PAD) EMCO	3117	00034126	Nov. 30, 2017	Nov. 29, 2018
Preamplifier Agilent	8449B	3008A01959	Oct.16, 2017	Oct. 15, 2018
Spectrum Analyzer Agilent	E4446A	MY51100056	Oct. 25, 2017	Oct. 24, 2018
RF Coaxial Cable EMCI	EMC102-KM-KM-1 000	170819	Aug. 29, 2017	Aug. 28, 2018
RF Coaxial Cable EMCI	EMC102-KM-KM-3 000	170817	Aug. 29, 2017	Aug. 28, 2018
Fix tool for Boresight antenna	BAF-01	2	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2017	Nov. 13, 2018
HORN Antenna (with 3dB PAD) EMCO	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 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 test was performed in HwaYa Chamber 1.

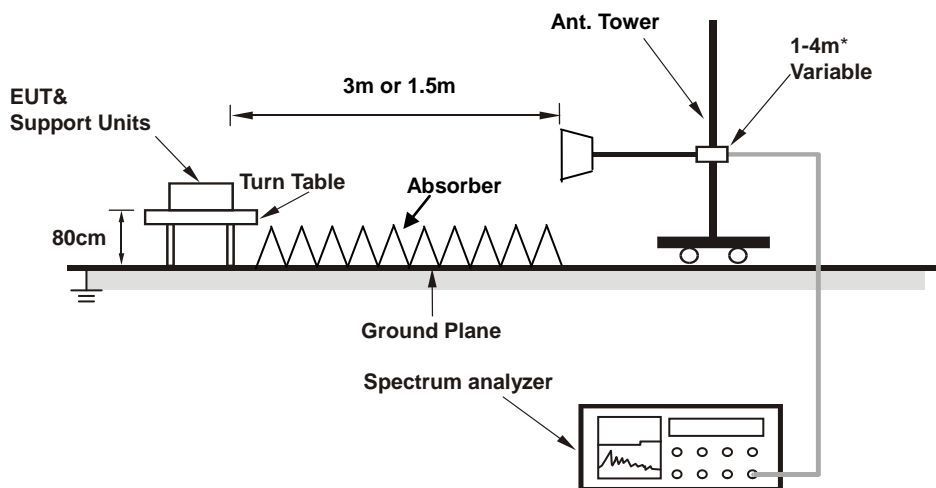
3. The IC Site Registration No. is IC 7450F-1.

4. The VCCI Site Registration No. is R-1893, G-113.

7.3 Test Arrangement

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- For frequency range 1 GHz ~ 18 GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- For frequency range 18 GHz ~ 40 GHz, the EUT was set 1.5 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3 dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The spectrum analyzer system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

Note: The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1 GHz.



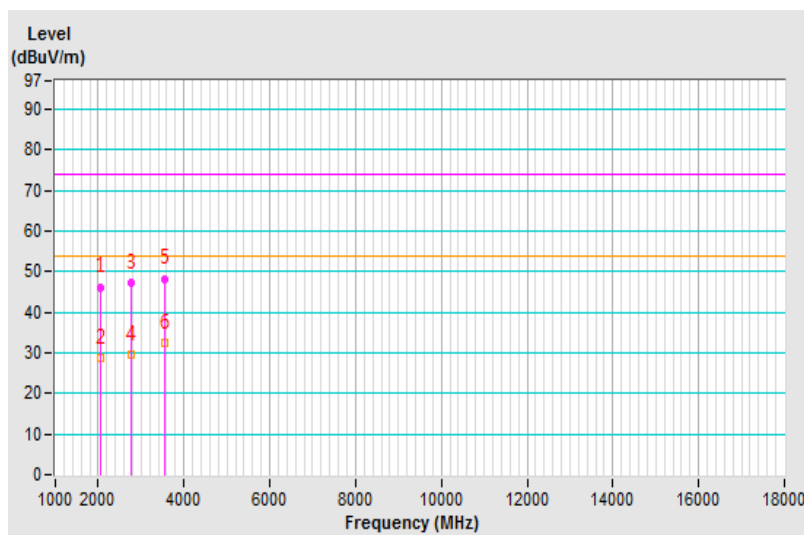
7.4 Test Results

Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 64%RH
Tested by	Fox Chang	Test Date	2017/12/30
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2060.55	46.20 PK	74.00	-27.80	1.28 H	353	42.39	3.81
2	2060.55	28.76 AV	54.00	-25.24	1.28 H	353	24.95	3.81
3	2782.81	47.09 PK	74.00	-26.91	1.00 H	153	43.40	3.69
4	2782.81	29.61 AV	54.00	-24.39	1.00 H	153	25.92	3.69
5	3556.95	48.29 PK	74.00	-25.71	1.42 H	299	42.79	5.50
6	3556.95	32.53 AV	54.00	-21.47	1.42 H	299	27.03	5.50

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



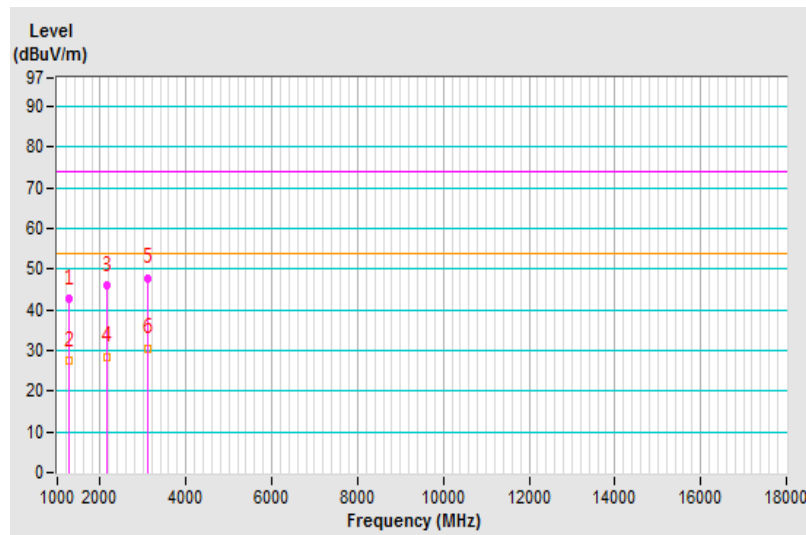
Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 64%RH
Tested by	Fox Chang	Test Date	2017/12/30
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1271.88	42.73 PK	74.00	-31.27	1.63 V	223	43.49	-0.76
2	1271.88	27.45 AV	54.00	-26.55	1.63 V	223	28.21	-0.76
3	2153.95	46.11 PK	74.00	-27.89	1.28 V	35	42.86	3.25
4	2153.95	28.51 AV	54.00	-25.49	1.28 V	35	25.26	3.25
5	3092.05	47.83 PK	74.00	-26.17	1.41 V	196	43.00	4.83
6	3092.05	30.58 AV	54.00	-23.42	1.41 V	196	25.75	4.83

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

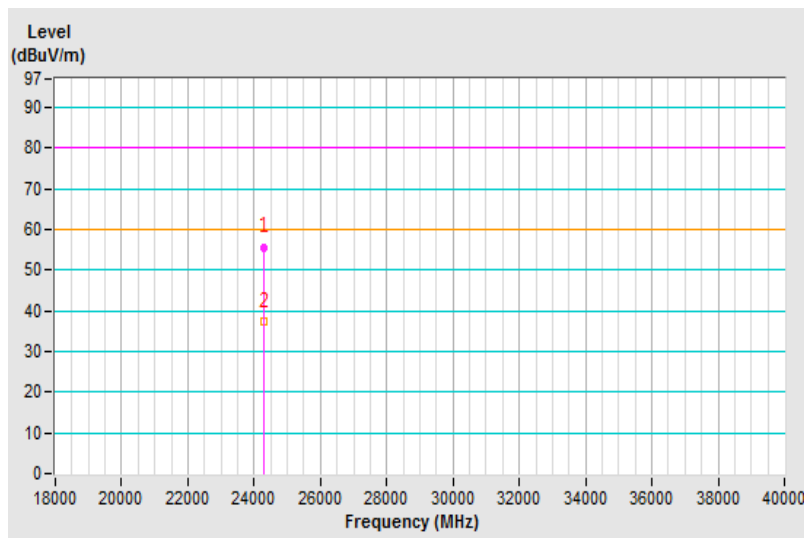


Frequency Range	18GHz ~ 40GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 64%RH
Tested by	Fox Chang	Test Date	2017/12/30
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 1.5 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	24313.65	55.68 PK	80.00	-24.32	1.00 H	288	54.54	1.14
2	24313.65	37.35 AV	60.00	-22.65	1.00 H	288	36.21	1.14

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

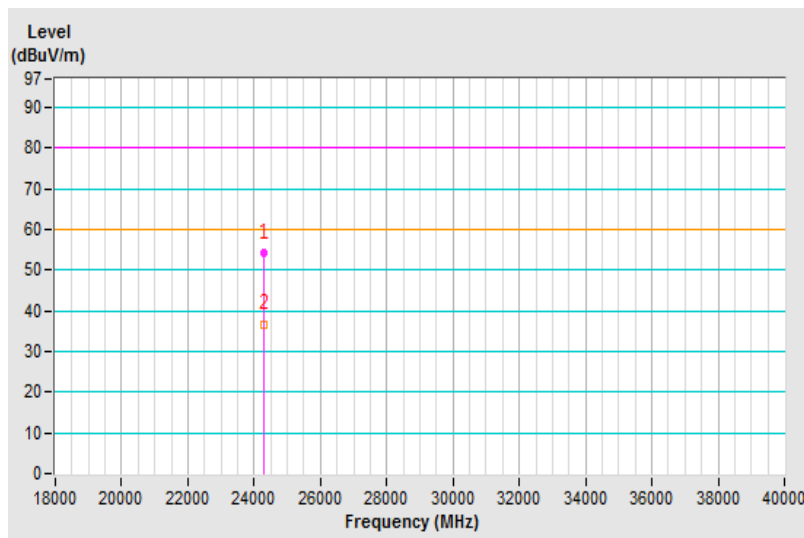


Frequency Range	18GHz ~ 40GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 64%RH
Tested by	Fox Chang	Test Date	2017/12/30
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 1.5 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	24312.83	54.35 PK	80.00	-25.65	1.00 V	71	53.20	1.15
2	24312.83	36.76 AV	60.00	-23.24	1.00 V	71	35.61	1.15

Remarks:

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



8 Pictures of Test Arrangements

Refer to Test Setup Photographs

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

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

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