FCC Test Report

Report No.: FD191108C22

FCC ID: ACJ932AT1906

Test Model: AT1906

Received Date: Nov. 8, 2019

Test Date: Jan. 15 to 16, 2020

Issued Date: Feb. 5, 2020

Applicant: Panasonic Corporation of North America

Address: Two Riverfront Plaza, 9th Floor Newark, NJ 07102-5490

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

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FCC Registration/ Designation Number: 418586 / TW1078

Testing Laboratory 2021

Certificate #4327.01

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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 Description of EUT 6
3.2 Features of EUT 6
3.3 Operating Modes of EUT and Determination of Worst Case Operating Mode 7
3.4 Test Program Used and Operation Descriptions 7
3.5 Primary Clock Frequencies of Internal Source 7

4 Configuration and Connections with EUT **8**

4.1 Connection Diagram of EUT and Peripheral Devices 8
4.2 Configuration of Peripheral Devices and Cable Connections 9

5 Radiated Emissions up to 1 GHz **10**

5.1 Limits 10
5.2 Test Instruments 10
5.3 Test Arrangement 11
5.4 Test Results 12

6 Radiated Emissions above 1 GHz **16**

6.1 Limits 16
6.2 Test Instruments 17
6.3 Test Arrangement 18
6.4 Test Results 19

7 Pictures of Test Arrangements **23**

Appendix – Information of the Testing Laboratories **24**

Release Control Record

Issue No.	Description	Date Issued
FD191108C22	Original release.	Feb. 5, 2020

1 Certificate of Conformity

Product: Display Audio

Brand: Panasonic

Test Model: AT1906

Sample Status: Engineering sample

Applicant: Panasonic Corporation of North America

Test Date: Jan. 15 to 16, 2020

Standards: 47 CFR FCC Part 15, Subpart B, Class B
ICES-003:2016 Issue 6, updated Apr. 2019, 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 : Jessica Cheng , **Date:** Feb. 5, 2020

Jessica Cheng / Senior Specialist

Approved by : Jim Hsiang , **Date:** Feb. 5, 2020

Jim Hsiang / Associate Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart B / ICES-003:2016 Issue 6, updated Apr. 2019, 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	Without AC power port of the EUT	N/A
15.109	6.2.1	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -0.36 dB at 741.76 MHz	Pass
	6.2.2	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -0.76 dB at 1112.62 MHz	Pass

Note:

1. There is no deviation to the applied test methods and requirements covered by the scope of this report.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. N/A: Not Applicable

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.57 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.96 dB
	Above 6GHz	4.84 dB

2.2 Modification Record

There were no modifications required for compliance.

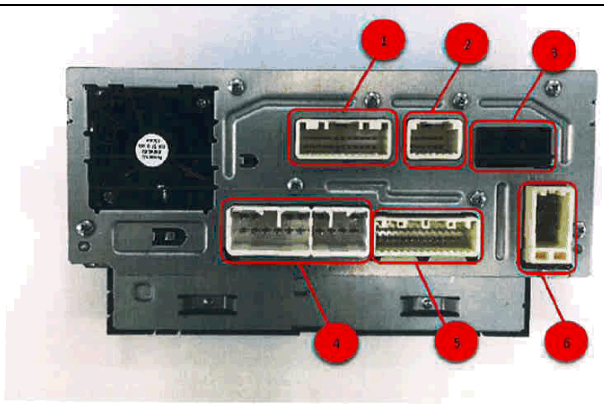
3 General Information

3.1 Description of EUT

Product	Display Audio
Brand	Panasonic
Test Model	AT1906
Sample Status	Engineering sample
Operating Software	N/A
Operating Frequency	AM: 530 kHz to 1710 kHz, FM: 76.0 MHz to 108 MHz receiver
Power Supply Rating	DC 12V, 10 A
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. The EUT is a Display Audio with following transmission function & Interface :

Function	Interface
➢ Wifi (5GHz/ 2.4GHz) ➢ Bluetooth ➢ FM /AM	 No. / Detail 1 PVM control (Image + UART) /Sensor / (Alarm: Option) : 24Pin 2 RSE (HDMI output) 3 HDMI (DTV) 4 Power Connector: 10Pin+6Pin 5 Steering SW Connector / Vehicle I/F /CAN / AUX VTR : 28 Pin 6 Radio AM/FM /RDS ANT Connector

3.2 Features of EUT

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

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

1. The EUT has been pre-tested under following test modes, and test **mode 2, mode 8** was the worst case for final test.

Mode	Test Condition
1	USB in Mode + DC 12V
2	DTV (HDMI) Mode + DC 12V
3	BT Mode + DC 12V
4	WiFi (2.4G) Mode + DC 12V
5	WiFi (5G) Mode + DC 12V
6	WiFi Miracast Mode + DC 12V
7	Rear Camera Mode + DC 12V
8	FM (88MHz) + DC 12V
9	FM (98MHz) + DC 12V
10	FM (108MHz) + DC 12V

2. Test modes are presented in the report as below.

Mode	Test Condition
Radiated emission test (30MHz ~ 1GHz)	
1	DTV (HDMI) Mode + DC 12V
2	FM (88MHz) + DC 12V
Radiated emission test (Above 1GHz)	
1	DTV (HDMI) Mode + DC 12V

3.4 Test Program Used and Operation Descriptions

a. Turned on the power of all equipment.

b. DVD Player sent video signal to the EUT and external monitor via EUT and then they displayed “color bar" messages on their screens simultaneously. (For Mode 1)

c. DVD Player sent audio signal to the speaker via EUT. (For Mode 1)

d. Signal generator sent 1 kHz audio signal to the speaker via EUT. (For Mode 2)

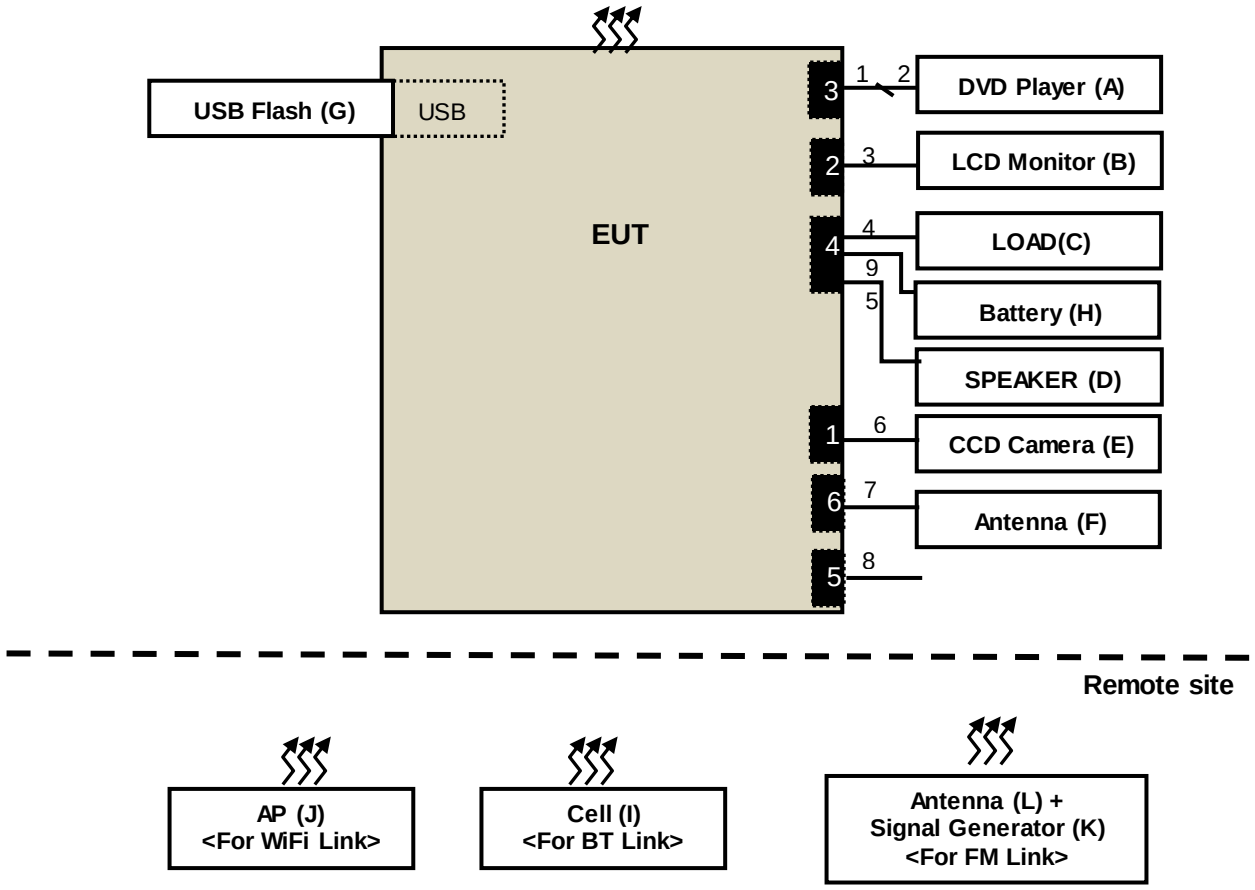
e. Steps b-d were repeated.

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 5000MHz, provided by Panasonic Corporation of North America, 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.	DVD Player	SONY	BDP-S7200	N/A	N/A	Provided by Lab
B.	LCD Monitor	DELL	U2410	CN082WXD728720 CC0KVL	N/A	Provided by Lab
C.	LOAD	N/A	N/A	N/A	N/A	Supplied by client
D.	SPEAKER	N/A	N/A	N/A	N/A	Supplied by client
E.	CCD Camera	N/A	N/A	N/A	N/A	Supplied by client
F.	Antenna	N/A	N/A	N/A	N/A	Supplied by client
G.	USB Flash	SP	8GB	N/A	N/A	Provided by Lab
H.	Battery	SMF	NX120-7L	N/A	N/A	Provided by Lab
I.	Cell Phone	ASUS	ASUS_A001	N/A	N/A	Provided by Lab
J.	AP	D-LINK	DIR-815	N/A	N/A	Provided by Lab
K.	Signal Generator	HP	8648A	3430U00217	N/A	Provided by Lab
L.	Antenna	Schwarzbeck	VULB9168	9168-306	N/A	Provided by Lab

Note:
1. All power cords of the above support units are non-shielded (1.8m).
2. Items I-L acted as communication partners to transfer data.

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Signal cable	1	0.5	Y	0	Supplied by client
2.	HDMI cable	1	2.0	Y	0	Provided by Lab
3.	Video cable	1	1.8	Y	0	Provided by Lab
4.	Signal cable	1	2.0	N	0	Supplied by client
5.	Signal cable	2	2.5	N	0	Supplied by client
6.	Signal cable	1	3.5	N	0	Supplied by client
7.	Signal cable	1	3.0	Y	0	Supplied by client
8.	Signal cable	1	5.0	N	0	Supplied by client
9.	DC cable	1	2.0	N	0	Supplied by client

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

5 Radiated Emissions up to 1 GHz

5.1 Limits

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

Radiated Emissions Limits at 10 meters (dBµV/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 (dBµV/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 (dBuV/m) = 20 log Emission level (uV/m).
3. QP detector shall be applied if not specified.

5.2 Test Instruments

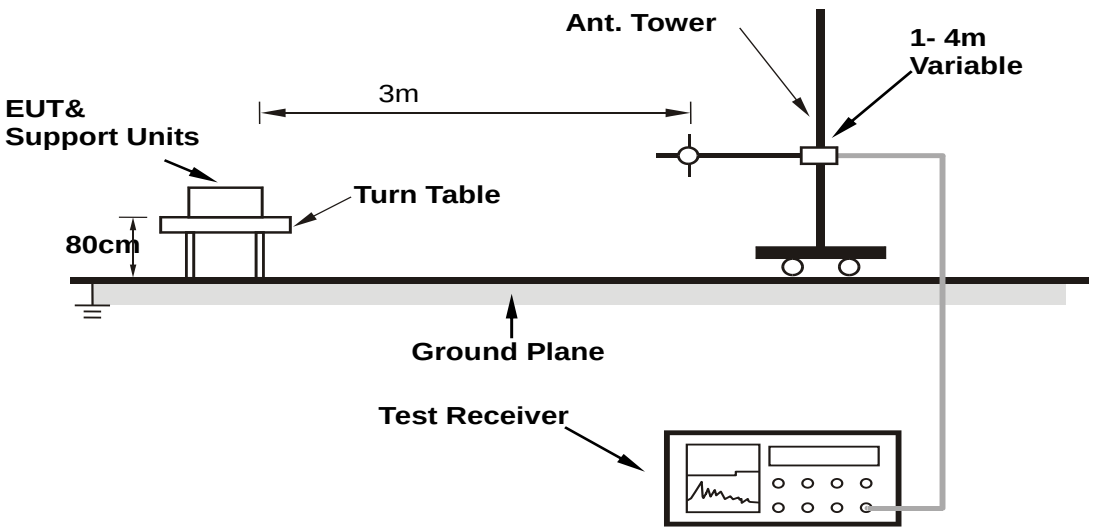
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Preamplifier	8447D	2944A10386	Feb. 19, 2019	Feb. 18, 2020
Agilent Test Receiver	N9038A	MY51210137	Jun. 6, 2019	Jun. 5, 2020
Schwarzbeck Antenna	VULB9168	9168-434	Nov. 8, 2019	Nov. 7, 2020
Max Full. Turn Table & Tower	MF7802	MF780208103	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
WOKEN RF cable With 5dB PAD	8D	CABLE-CH7-01	Jan. 21, 2019	Jan. 20, 2020

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber No. 7.
3. The VCCI Site Registration No. R-20008.
4. Tested Date: Jan. 15 to 16, 2020

5.3 Test Arrangement

a. 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.
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 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.
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 up to 1 GHz.

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



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

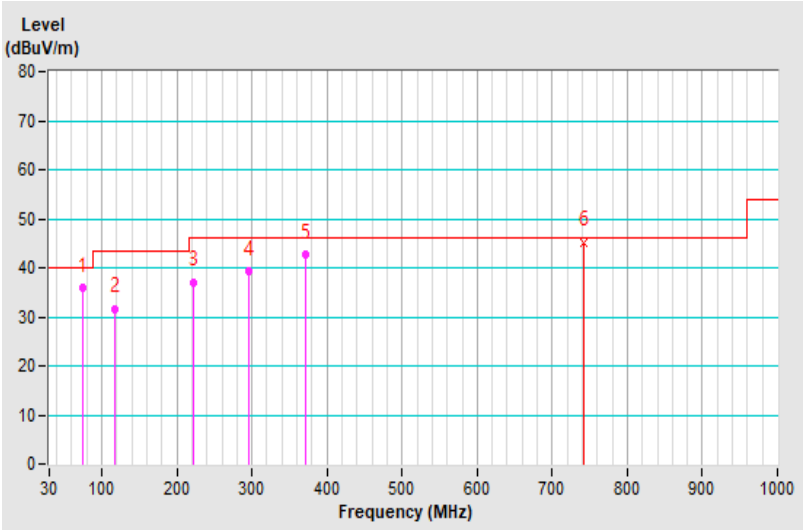
5.4 Test Results

Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	24℃, 66%RH
Tested by	ED. Lin		
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	74.18	35.77 QP	40.00	-4.23	2.46 H	132	48.95	-13.18
2	118.20	31.51 QP	43.50	-11.99	1.59 H	255	43.53	-12.02
3	222.54	36.98 QP	46.00	-9.02	1.43 H	158	49.38	-12.40
4	296.70	39.20 QP	46.00	-6.80	1.00 H	70	47.26	-8.06
5	370.88	42.62 QP	46.00	-3.38	1.07 H	43	49.13	-6.51
6	741.75	45.20 QP	46.00	-0.80	1.41 H	277	43.09	2.11

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

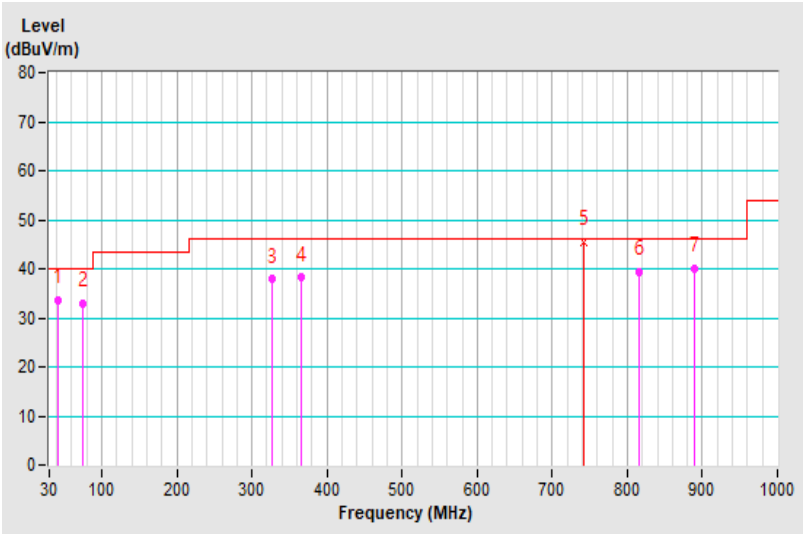


Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	24℃, 66%RH
Tested by	ED. Lin		
Test Mode	Mode 1		

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	40.74	33.57 QP	40.00	-6.43	1.07 V	106	44.83	-11.26
2	74.18	32.95 QP	40.00	-7.05	1.00 V	259	46.13	-13.18
3	327.06	37.88 QP	46.00	-8.12	1.06 V	118	45.11	-7.23
4	365.81	38.18 QP	46.00	-7.82	1.00 V	114	44.84	-6.66
5	741.75	45.58 QP	46.00	-0.42	1.50 V	158	43.47	2.11
6	815.92	39.25 QP	46.00	-6.75	3.20 V	185	35.69	3.56
7	890.10	40.16 QP	46.00	-5.84	1.00 V	139	35.61	4.55

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

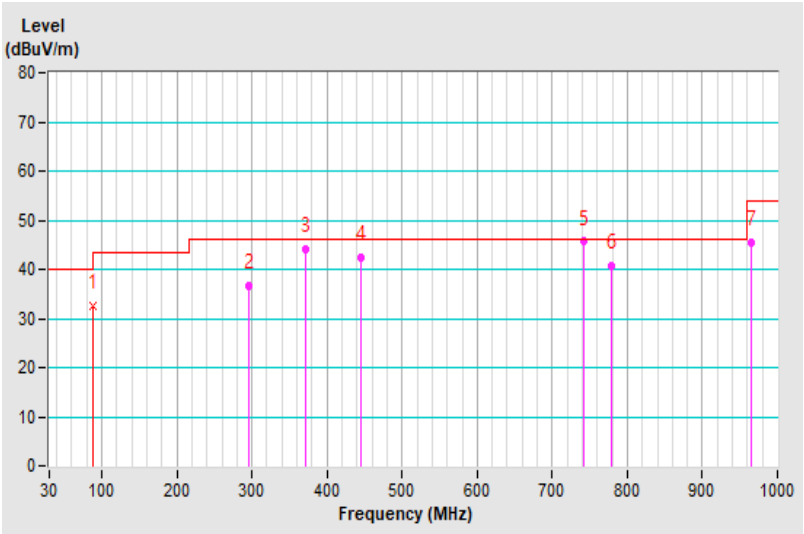


Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	24℃, 66%RH
Tested by	Chenghan Wu		
Test Mode	Mode 2		

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	88.39	32.59 QP	43.50	-10.91	1.00 H	154	48.15	-15.56
2	296.70	36.74 QP	46.00	-9.26	3.92 H	272	44.80	-8.06
3	370.88	44.20 QP	46.00	-1.80	2.15 H	300	50.71	-6.51
4	445.06	42.33 QP	46.00	-3.67	1.49 H	2	47.07	-4.74
5	**741.76**	**45.64 QP**	**46.00**	**-0.36**	**3.16 H**	**101**	**43.53**	**2.11**
6	777.97	40.77 QP	46.00	-5.23	3.95 H	196	37.87	2.90
7	964.28	45.47 QP	54.00	-8.53	2.89 H	229	39.57	5.90

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

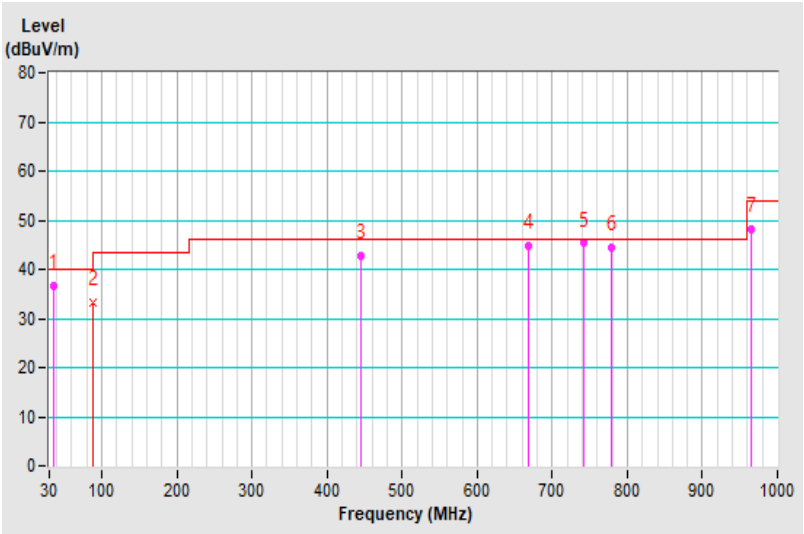


Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	24℃, 66%RH
Tested by	Chenghan Wu		
Test Mode	Mode 2		

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	36.18	36.54 QP	40.00	-3.46	1.03 V	202	48.35	-11.81
2	88.39	33.35 QP	43.50	-10.15	1.20 V	178	48.91	-15.56
3	445.06	42.73 QP	46.00	-3.27	2.80 V	222	47.47	-4.74
4	667.58	44.80 QP	46.00	-1.20	3.26 V	207	44.72	0.08
5	741.76	45.26 QP	46.00	-0.74	3.65 V	218	43.15	2.11
6	777.87	44.45 QP	46.00	-1.55	2.17 V	243	41.56	2.89
7	964.28	48.19 QP	54.00	-5.81	1.91 V	140	42.29	5.90

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



6 Radiated Emissions above 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 (dBµV/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 Peak: 69.5	Avg: 43.5 Peak: 63.5	Not defined	Not defined
Above 3000			Not defined	Not defined

Radiated Emissions Limits at 3 meters (dBµV/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 Peak: 80	Avg: 54 Peak: 74	Avg: 56 Peak: 76	Avg: 50 Peak: 70
Above 3000			Avg: 60 Peak: 80	Avg: 54 Peak: 74

Radiated Emissions Limits at 1.5 meters (dBµV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
Above 18000	Avg: 66 Peak: 86	Avg: 60 Peak: 80	Avg: 66 Peak: 86	Avg: 60 Peak: 80

Notes:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), 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.

Frequency Range of Radiated Measurement (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	5th harmonic of the highest frequency or 40GHz, whichever is lower

6.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Spectrum	E4446A	MY51100009	Jun. 6, 2019	Jun. 5, 2020
Agilent Test Receiver	N9038A	MY51210137	Jun. 6, 2019	Jun. 5, 2020
Agilent Preamplifier	8449B	3008A01924	Feb. 21, 2019	Feb. 20, 2020
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2019	Feb. 20, 2020
EMCI Preamplifier	EMC184045B	980235	Feb. 21, 2019	Feb. 20, 2020
ETS Preamplifier	3117-PA	00215857	Nov. 24, 2019	Nov. 23, 2020
Schwarzbeck Horn Antenna	BBHA-9170	212	Nov. 24, 2019	Nov. 23, 2020
EMCO Horn Antenna	3115	9312-4192	Nov. 24, 2019	Nov. 23, 2020
Max Full. Turn Table & Tower	MF7802	MF780208103	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
SUHNER RF cable With 3/4dB PAD	SF102	Cable-CH7-3.6m	Jul. 10, 2019	Jul. 9, 2020
MICRO-TRONICS Notch filter	BRC50703-01	010	May 30, 2019	May 29, 2020
MICRO-TRONICS Band Pass Filter	BRM17690	005	May 30, 2019	May 29, 2020

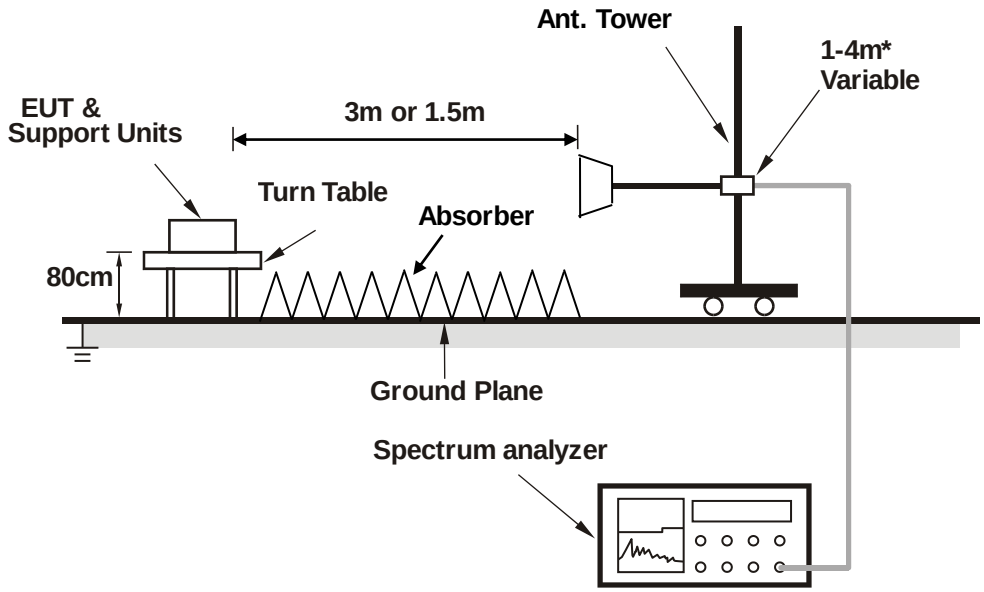
Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber No. 7.
3. The VCCI Site Registration No. G-10039
4. Tested Date: Jan. 16, 2020

6.3 Test Arrangement

a. The EUT was placed on the horizontal metal ground plane at an accredited test facility, orientated for normal use, but separated from metallic contact with the reference metal ground plane by insulation.
b. The EUT was set 3 meters / 1.5 meters away from the directional antenna, which was pointed towards the source of the emission within the EUT. This could be done by either pointing the antenna at an angle towards the source of the emission, or by rotating the EUT, in both height and polarization, to maximize the measured emission.
c. 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 3dB 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.
d. 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.
e. 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:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection (PK) at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency 1 GHz ~ 18 GHz, the EUT was set 3 meters away from the receiver antenna
3. For measurement of frequency 18 GHz ~ 40 GHz, the EUT was set 1.5 meters away from the receiver antenna



* :depends on the EUT height and the antenna 3dB beamwidth both.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

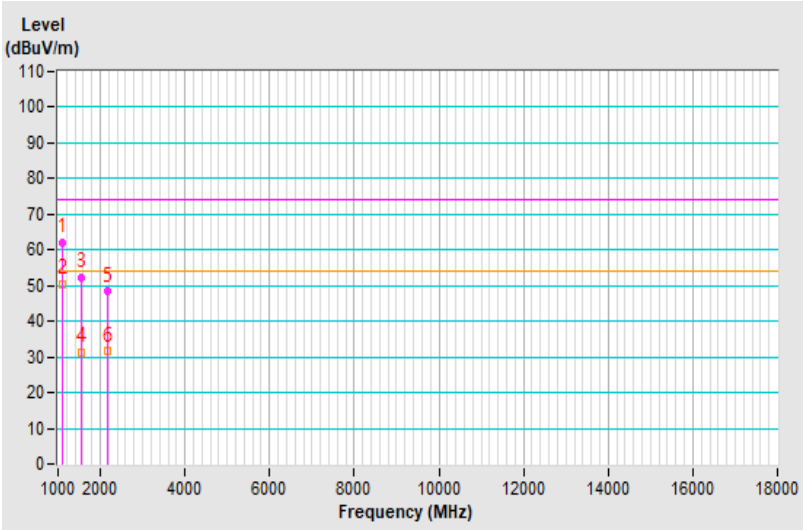
6.4 Test Results

Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	22℃, 78%RH
Tested by	Chenghan Wu		
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	1112.62	61.97 PK	74.00	-12.03	1.03 H	181	82.68	-20.71
2	1112.62	50.27 AV	54.00	-3.73	1.03 H	181	70.98	-20.71
3	1554.42	52.36 PK	74.00	-21.64	2.30 H	287	71.80	-19.44
4	1554.42	31.25 AV	54.00	-22.75	2.30 H	287	50.69	-19.44
5	2177.37	48.28 PK	74.00	-25.72	1.96 H	360	64.56	-16.28
6	2177.37	31.58 AV	54.00	-22.42	1.96 H	360	47.86	-16.28

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

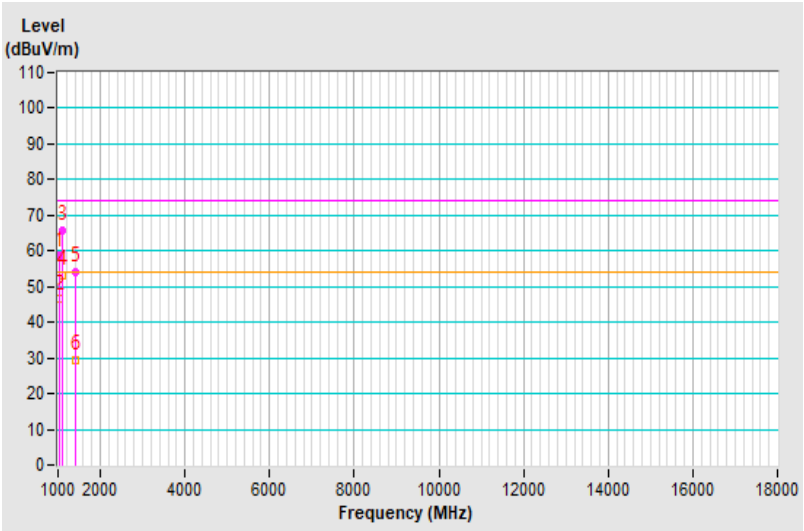


Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	22℃, 78%RH
Tested by	Chenghan Wu		
Test Mode	Mode 1		

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	1038.43	58.55 PK	74.00	-15.45	1.05 V	199	80.00	-21.45
2	1038.43	46.44 AV	54.00	-7.56	1.05 V	199	67.89	-21.45
3	1112.62	65.85 PK	74.00	-8.15	1.00 V	201	86.56	-20.71
4	**1112.62**	**53.24 AV**	**54.00**	**-0.76**	**1.00 V**	**201**	**73.95**	**-20.71**
5	1403.53	53.97 PK	74.00	-20.03	2.24 V	360	73.95	-19.98
6	1403.53	29.35 AV	54.00	-24.65	2.24 V	360	49.33	-19.98

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

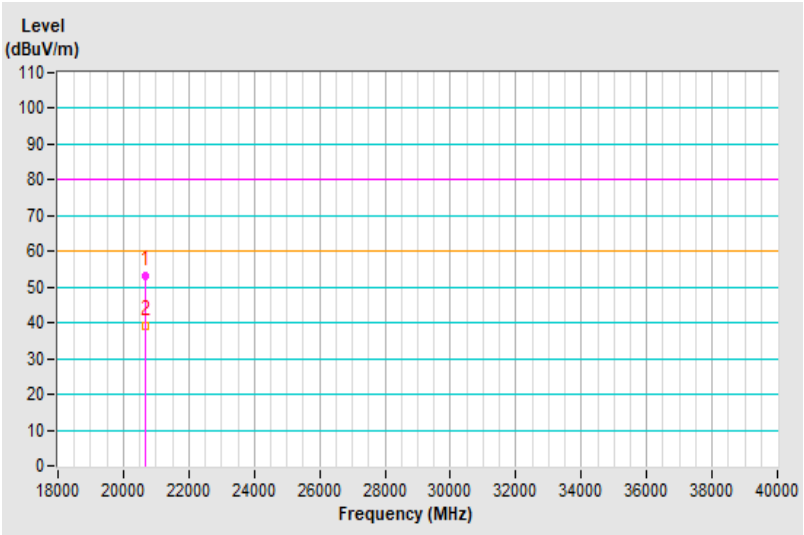


Frequency Range	18GHz ~ 25GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	22℃, 78%RH
Tested by	Chenghan Wu		
Test Mode	Mode 1		

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	20667.37	53.04 PK	80.00	-26.96	1.00 H	165	56.06	-3.02
2	20667.37	39.25 AV	60.00	-20.75	1.00 H	165	42.27	-3.02

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

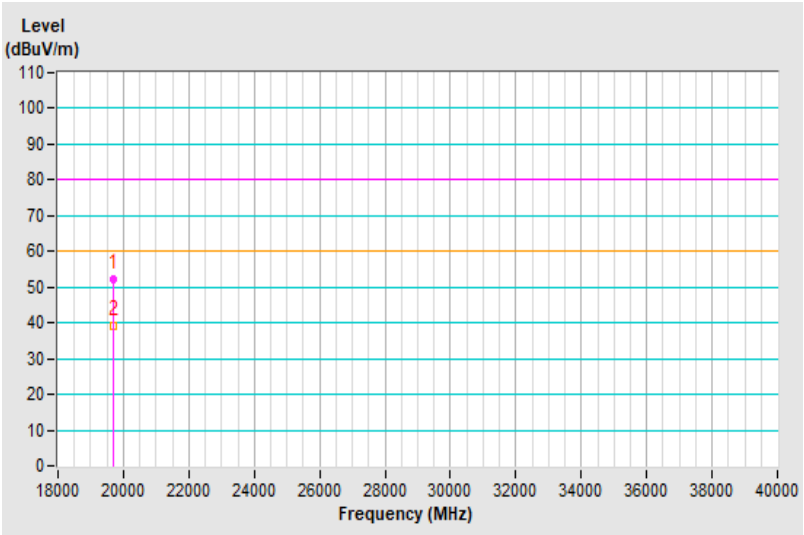


Frequency Range	18GHz ~ 25GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	22℃, 78%RH
Tested by	Chenghan Wu		
Test Mode	Mode 1		

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	19695.60	52.22 PK	80.00	-27.78	2.06 V	216	56.09	-3.87
2	19695.60	39.22 AV	60.00	-20.78	2.06 V	216	43.09	-3.87

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 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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