VCCI Test Report (VCCI 32-1)

Report No.:	V181017D24
Test Model:	FD9387-EHTV
Series Model:	FD9387-HV, FD9387-HTV, FD9387-EHV
Received Date:	Oct. 17, 2018
Test Date:	Oct. 19 ~ Nov. 15, 2018
Issued Date:	Nov. 15, 2018
Applicant:	VIVOTEK INC.
VCCI member No.:	2443
Address:	6F, No.192, Lien-Cheng Rd., Chung-Ho , New Taipei City, 235, Taiwan, R.O.C.
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.)

Certificate #4327.01

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
V181017D24	Original release.	Nov. 15, 2018

1 Certificate of Conformity

Product:	Network Camera
Brand:	VIVOTEK
Test Model:	FD9387-EHTV
Series Model:	FD9387-HV, FD9387-HTV, FD9387-EHV
Sample Status:	Engineering sample
Applicant:	VIVOTEK INC.
Test Date:	Oct. 19 ~ Nov. 15, 2018
Standards:	VCCI-CISPR 32:2016, Class B

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 : Albee Chu , **Date:** Nov. 15, 2018

Albee Chu / Specialist

Approved by : Jim Hsiang , **Date:** Nov. 15, 2018

Jim Hsiang / Associate Technical Manager

2 Summary of Test Results

Emission			
Standard	Test Item	Result/Remarks	Verdict
VCCI-CISPR 32:2016	Conducted emission from the AC mains power port	Minimum passing Class B margin is -14.53 dB at 0.35723 MHz	Pass
	Asymmetric mode conducted emission at telecommunication ports	Minimum passing Class B margin is -3.13 dB at 1.50878 MHz	Pass
	Radiated emission 30-1000 MHz	Minimum passing Class B margin is -3.88 dB at 720.00 MHz	Pass
	Radiated emission above 1GHz	Minimum passing Class B margin is -12.31 dB at 2159.85 MHz	Pass
	Disturbance Voltage at the Antenna Terminals Test	Without tuner port of the EUT	N/A

Note:
1. There is no deviation to the applied test methods and requirements covered by the scope of this report.
2. N/A: Not Applicable

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:

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) (±)	Facility No. Registered to VCCI
Conducted disturbance at mains ports	150kHz ~ 30MHz	2.79 dB	C-1312
Asymmetric mode conducted emission at telecommunication ports using AAN	150kHz ~ 30MHz	3.94 dB	T-11587
Radiated emission, 30MHz ~ 1GHz	30MHz ~ 1GHz	3.97 dB	R-237
Radiated emission, 1GHz ~ 6GHz	Above 1GHz	5.08 dB	G-10427

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 Description of EUT

Product	Network Camera
Brand	VIVOTEK
Test Model	FD9387-EHTV
Series Model	FD9387-HV, FD9387-HTV, FD9387-EHV
Model Difference	Refer to below note
Sample Status	ENGINEERING SAMPLE
Operating Software	N/A
Power Supply Rating	Brand: HONOTO Model: ADS-26FSG-12 12018EPCU Input: 100-240Vac, 50/60Hz, 0.7A Output: 12V, 1A Power Cord: AC 2 Pin Non-shielded DC cable (3.0m)
Accessory Device	Adapter
Data Cable Supplied	N/A

Note:
The EUT is a Network Camera, and it has several models, which are identical with each other, except for following difference:

Model	FD9387-HV	FD9387-HTV	FD9387-EHV	FD9387-EHTV
Heater	NO	NO	YES	YES
PoE	AF	AF	AT	AT
Wide-Range Temperature	NO	NO	YES	YES
Zoom Focus	NO	YES	NO	YES

During the test, the **Model: FD9387-EHTV** was selected as the representative one and therefore only its test data was recorded in this report.

3.2 Features of EUT

The tests reported herein were performed according to the method specified by VIVOTEK INC., 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 was pre-tested under operating and standby condition and the worst emission level was found under **operating condition**.
2. The EUT consumes power from Adapter, which designed with AC power supply of rating 100-240Vac, 50/60Hz. For radiated emission evaluation, 230Vac/50Hz (for EN 55032 & AS/NZS CISPR 32), 120Vac/60Hz (for FCC Part 15), 100Vac/50Hz & 100Vac/60Hz (for VCCI) had been covered during the pre-test. The worst radiated emission data was found at **100Vac/60Hz**. EUT has been pre-tested under following test modes, and test **mode 2** was the worst case.

Mode		Test Condition
1	A	LAN 100Mbps + Power from Adapter
	B	LAN 10Mbps + Power from Adapter
2		LAN 100Mbps + Power from PoE Adapter

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

Mode	Test Condition	Input Power
Conducted emission test		
1	Power from Adapter	100Vac/ 50Hz & 100Vac/ 60Hz
Asymmetric Mode Conducted Emission at Telecommunication Ports test		
1	Power from Adapter (LAN Speed: 100Mbps)	100Vac/ 60Hz
2	Power from PoE Adapter (LAN Speed: 100Mbps)	48Vdc
Note: 1. The idle mode of conducted emission test at telecom port was pre-tested based on the worst case of link mode. Due to emissions of idle mode being very low compared to link mode, only the link mode data were presented in the test report. 2. Selected the worst input power from conducted emission test.		
Radiated emission test		
1	Power from Adapter	100Vac/ 60Hz
2	Power from PoE Adapter	48Vdc

3.4 Test Program Used and Operation Descriptions

a. Connected the EUT with Adapter or PoE adapter.

b. Turned on the power of all equipment.

c. EUT captured video / audio signal to notebook (kept in a remote area) via an UTP LAN cable, then it displayed messages on its screen simultaneously. ***<For Power from Adapter>***

d. EUT captured video / audio signal to notebook (kept in a remote area) via PoE adapter with an UTP LAN cable, then it displayed messages on its screen simultaneously. ***<For Power from PoE Adapter>***

e. EUT sent 1kHz audio signal to earphone.

f. EUT Save images to SD card.

g. Steps c-f were repeated.

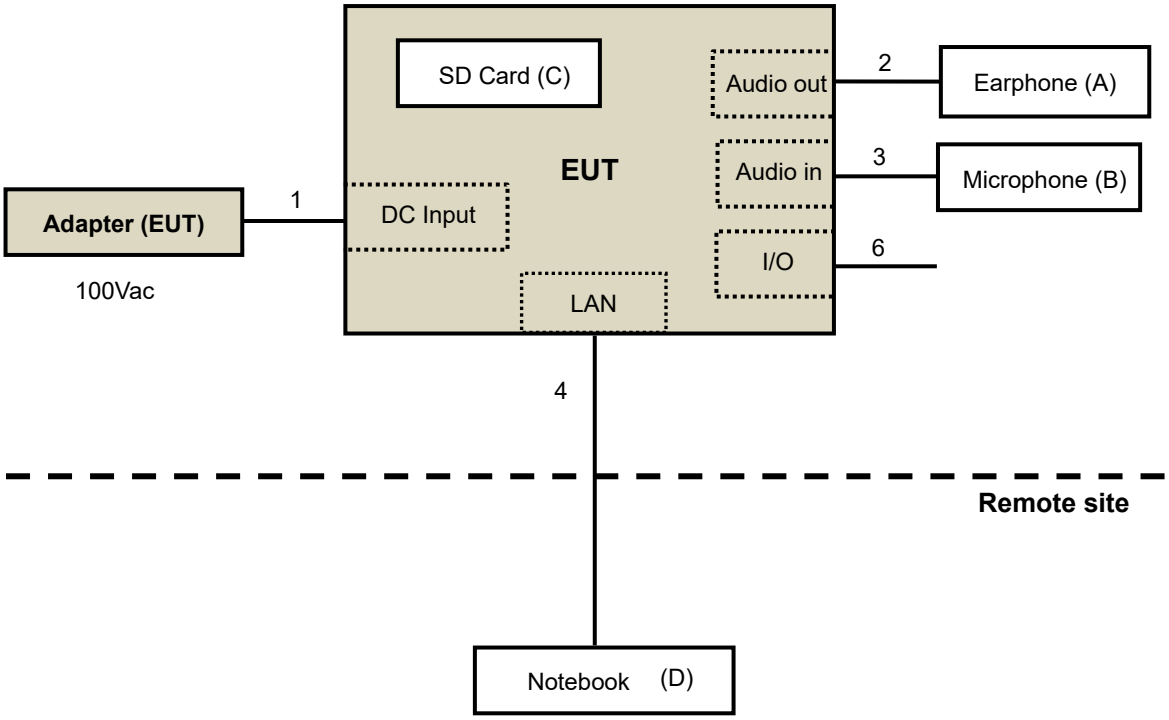
3.5 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 1866MHz, provided by VIVOTEK INC., for detailed internal source, please refer to the manufacturer's specifications.

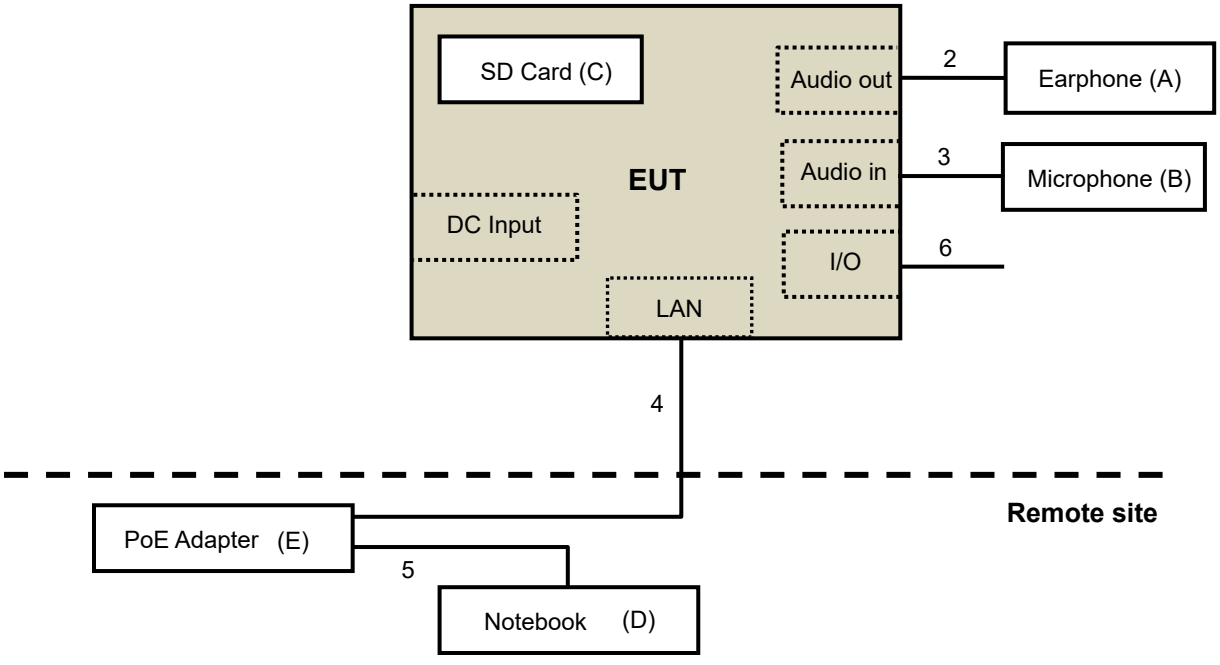
4 Configuration and Connections with EUT

4.1 Connection Diagram of EUT and Peripheral Devices

Power from Adapter



Power from PoE Adapter



4.2 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Earphone	PHILIPS	SBC HL150	H2010149	N/A	Provided by Lab
B.	Microphone	Labtec	mic-333	N/A	N/A	Provided by Lab
C.	SD Card	Apacer	8GN	N/A	N/A	Provided by Lab
D.	Notebook	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab
E.	PoE Adapter	PSE	PSE151	N/A	FCC DoC Approved	Provided by Lab

Note:
1. All power cords of the above support units are non-shielded (1.8m).
2. Items D-E acted as communication partners to transfer data.
3. Rating of item E was listed as below:
   AC I/P: 100-240V, 50/60Hz, 0.4A
   DC O/P: 48V, 16W

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC power cable	1	3.0	N	0	Supplied by client
2.	Audio cable	1	1.2	N	0	Provided by Lab
3.	Audio cable	1	1.8	N	0	Provided by Lab
4.	LAN cable (Cat.5e)	1	10	N	0	Provided by Lab
5.	LAN cable (Cat.5e)	1	1.0	N	0	Provided by Lab
6.	I/O cable	4	1.0	N	0	Supplied by client

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

5 Conducted Emission from the AC Mains Power Port

5.1 Limits

Frequency range (MHz)	Coupling device	Detector type / bandwidth	Class A limits (dBuV)
0.15 - 0.5	AMN	Quasi-peak / 9kHz	79
0.5 - 30.0			73
0.15 - 0.5		Average / 9kHz	66
0.5 - 30.0			60

Frequency range (MHz)	Coupling device	Detector type / bandwidth	Class B limits (dBuV)
0.15 - 0.5	AMN	Quasi-peak / 9kHz	66 - 56
0.5 - 5			56
5 - 30.0			60
0.15 - 0.5		Average / 9kHz	56 - 46
0.5 - 5			46
5 - 30.0			50

5.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESR3	102413	Feb. 8, 2018	Feb. 7, 2019
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	100104	Dec. 6, 2017	Dec. 5, 2018
LISN With Adapter (for EUT)	AD10	C09Ada-001	Dec. 6, 2017	Dec. 5, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	847265/023	Nov. 3, 2017	Nov. 2, 2018
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 3, 2018	May 2, 2019
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK 8121	8121-808	Mar. 5, 2018	Mar. 4, 2019
Software	Cond_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C09.01	Feb. 21, 2018	Feb. 20, 2019
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010789	May 8, 2018	May 7, 2019

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. 9.
3. The VCCI Site Registration No. C-1312.
4. Tested Date: Oct. 20, 2018

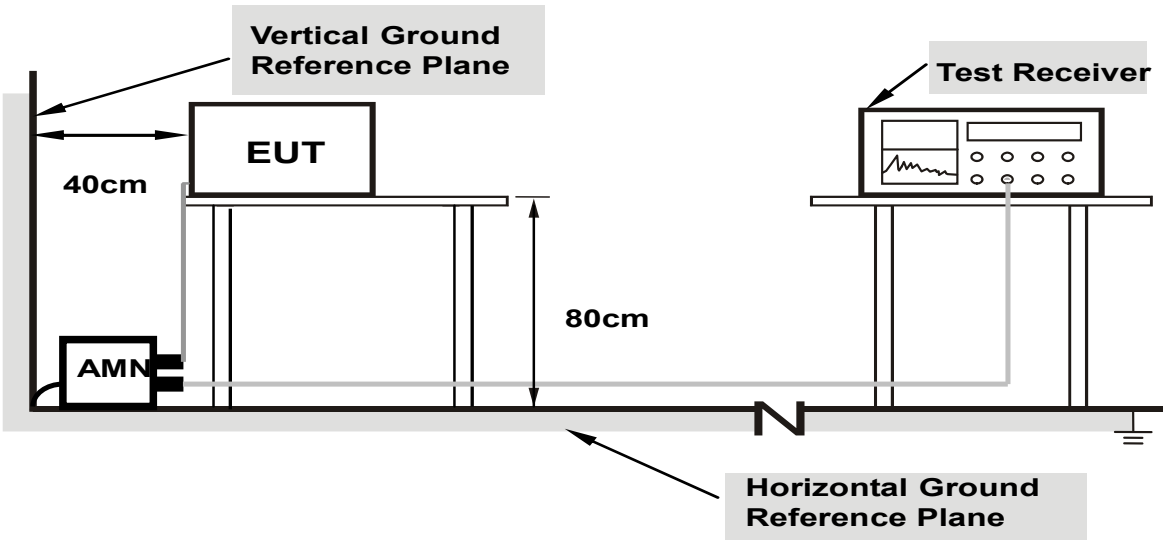
5.3 Test Arrangement

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through an Artificial Mains Network (AMN). Other support units were connected to the power mains through another AMN. The two AMNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. 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 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.



Note: 1. Support units were connected to second AMN.
2. The distance specified between EUT/AE and other metallic objects is ≥ 0.8 m in the measurement arrangement for table-top EUT.
3. Cable on the RGP must to be insulated.

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

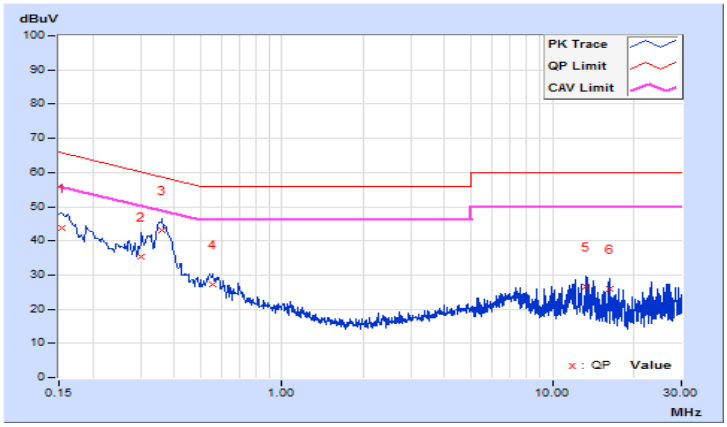
5.4 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	100Vac, 50Hz	Environmental Conditions	24℃, 72%RH, 1010mbar
Tested by	Adam Chen		
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	0.15391	10.14	33.76	17.31	43.90	27.45	65.79	55.79	-21.89	-28.34
2	0.30249	10.20	25.12	15.62	35.32	25.82	60.17	50.17	-24.85	-24.35
3	0.36048	10.21	32.98	23.59	43.19	33.80	58.72	48.72	-15.53	-14.92
4	0.55474	10.25	16.93	10.92	27.18	21.17	56.00	46.00	-28.82	-24.83
5	13.35567	11.06	15.54	14.51	26.60	25.57	60.00	50.00	-33.40	-24.43
6	16.22561	11.21	14.65	14.11	25.86	25.32	60.00	50.00	-34.14	-24.68

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

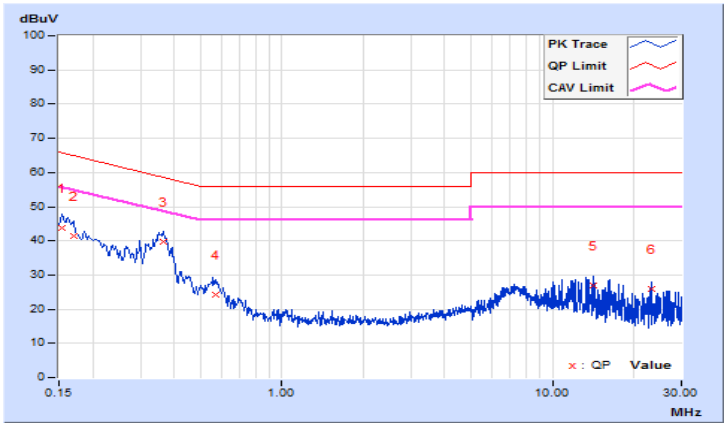


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	100Vac, 50Hz	**Environmental Conditions**	24℃, 72%RH, 1010mbar
Tested by	Adam Chen		
Test Mode	Mode 1		

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	0.15391	10.14	33.63	17.83	43.77	27.97	65.79	55.79	-22.02	-27.82
2	0.16955	10.16	31.26	15.53	41.42	25.69	64.98	54.98	-23.56	-29.29
3	0.36429	10.20	29.56	22.66	39.76	32.86	58.63	48.63	-18.87	-15.77
4	0.56647	10.25	13.90	9.15	24.15	19.40	56.00	46.00	-31.85	-26.60
5	14.21196	11.02	15.87	15.13	26.89	26.15	60.00	50.00	-33.11	-23.85
6	23.12676	11.12	14.92	14.88	26.04	26.00	60.00	50.00	-33.96	-24.00

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

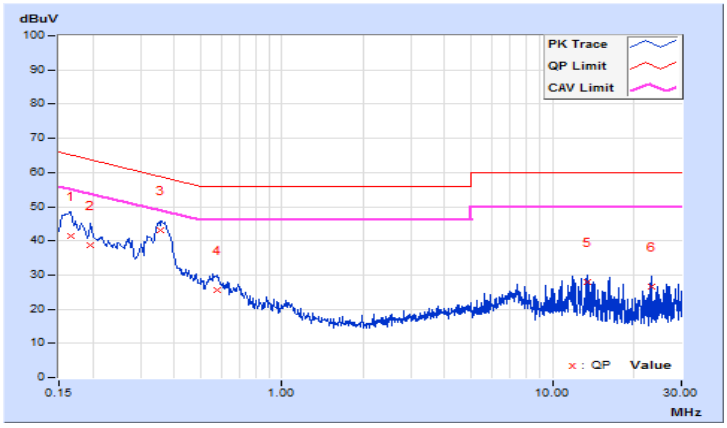


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	100Vac, 60Hz	**Environmental Conditions**	24℃, 72%RH, 1010mbar
Tested by	Adam Chen		
Test Mode	Mode 1		

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	0.16526	10.15	31.13	15.18	41.28	25.33	65.20	55.20	-23.92	-29.87
2	0.19692	10.18	28.56	15.16	38.74	25.34	63.74	53.74	-25.00	-28.40
3	**0.35723**	**10.21**	**32.96**	**24.05**	**43.17**	**34.26**	**58.79**	**48.79**	**-15.62**	**-14.53**
4	0.57429	10.26	15.23	9.71	25.49	19.97	56.00	46.00	-30.51	-26.03
5	13.41823	11.07	16.95	16.01	28.02	27.08	60.00	50.00	-31.98	-22.92
6	23.12676	11.44	15.29	15.17	26.73	26.61	60.00	50.00	-33.27	-23.39

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

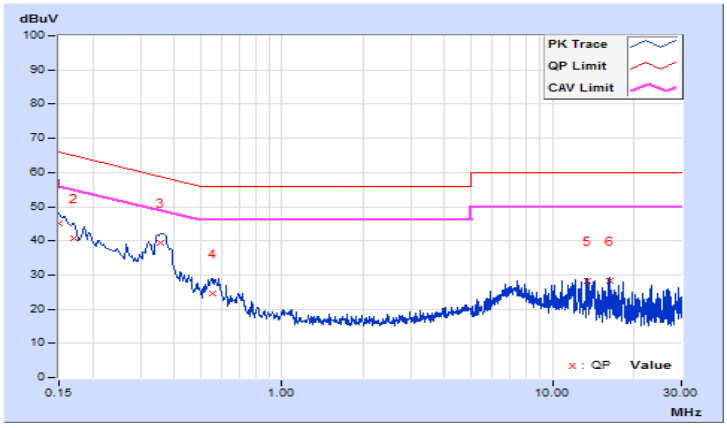


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	100Vac, 60Hz	**Environmental Conditions**	24℃, 72%RH, 1010mbar
Tested by	Adam Chen		
Test Mode	Mode 1		

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	0.15000	10.14	35.05	17.16	45.19	27.30	66.00	56.00	-20.81	-28.70
2	0.16955	10.16	30.47	15.30	40.63	25.46	64.98	54.98	-24.35	-29.52
3	0.35389	10.20	29.30	18.23	39.50	28.43	58.87	48.87	-19.37	-20.44
4	0.55474	10.25	14.38	9.80	24.63	20.05	56.00	46.00	-31.37	-25.95
5	13.41823	11.00	17.36	16.48	28.36	27.48	60.00	50.00	-31.64	-22.52
6	16.22821	11.09	17.21	16.70	28.30	27.79	60.00	50.00	-31.70	-22.21

Remarks:

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



6 Asymmetric Mode Conducted Emission at Telecommunication Ports

6.1 Limits

For Class A Equipment

Frequency range (MHz)	Coupling device	Detector type / bandwidth	Voltage limits (dBuV)	Current limits (dBuA)
0.15 - 0.5	AAN	Quasi-peak / 9kHz	97 – 87	N/A
0.5 - 30.0			87	
0.15 - 0.5	AAN	Average / 9kHz	84-74	
0.5 - 30.0			74	
0.15 - 0.5	CVP and current probe	Quasi-peak / 9kHz	97 – 87	53 – 43
0.5 - 30.0			87	43
0.15 - 0.5	CVP and current probe	Average / 9kHz	84-74	40 – 30
0.5 - 30.0			74	30
0.15 - 0.5	Current Probe	Quasi-peak / 9kHz	N/A	53 – 43
0.5 - 30.0				43
0.15 - 0.5	Current Probe	Average / 9kHz		40 – 30
0.5 - 30.0				30

For Class B Equipment

Frequency range (MHz)	Coupling device	Detector type / bandwidth	Voltage limits (dBuV)	Current limits (dBuA)
0.15 - 0.5	AAN	Quasi-peak / 9kHz	84 – 74	N/A
0.5 - 30.0			74	
0.15 - 0.5	AAN	Average / 9kHz	74-64	
0.5 - 30.0			64	
0.15 - 0.5	CVP and current probe	Quasi-peak / 9kHz	84 – 74	40 – 30
0.5 - 30.0			74	30
0.15 - 0.5	CVP and current probe	Average / 9kHz	74-64	30 – 20
0.5 - 30.0			64	20
0.15 - 0.5	Current Probe	Quasi-peak / 9kHz	N/A	40 – 30
0.5 - 30.0				30
0.15 - 0.5	Current Probe	Average / 9kHz		30 – 20
0.5 - 30.0				20

6.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESR3	102413	Feb. 08, 2018	Feb. 07, 2019
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	100104	Dec. 06, 2017	Dec. 05, 2018
LISN With Adapter (for EUT)	AD10	C09Ada-001	Dec. 06, 2017	Dec. 05, 2018
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	847265/023	Nov. 03, 2017	Nov. 02, 2018
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 3, 2018	May 2, 2019
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK 8121	8121-808	Mar. 5, 2018	Mar. 4, 2019
Software	Cond_V7.3.7.4	NA	NA	NA
Software	ISN_V7.3.7.4	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C09.01	Feb. 21, 2018	Feb. 20, 2019
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010789	May 8, 2018	May 7, 2019
FCC ISN	F-071115-1057-1	20651	Feb. 12, 2018	Feb. 11, 2019

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. 9.
3. The VCCI Site Registration No. T-11587
4. Tested Date: Oct. 20, 2018

6.3 Test Arrangement

Method of Using AANs:

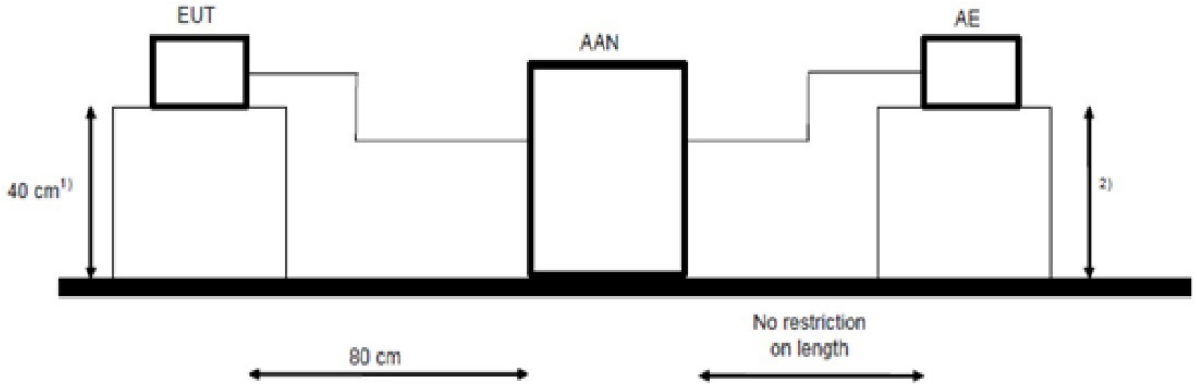
a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AAN directly to reference ground plane.

b. If voltage measurement is used, measure voltage at the measurement port of the AAN, correct the reading by adding the AAN voltage division factor, and compare to the voltage limit.

c. It is not necessary to apply the voltage and the current limit if a AAN is used.

d. The test results of disturbance at telecommunication 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 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.



1) Distance to the reference groundplane (vertical or horizontal).
2) Distance to the reference groundplane is not critical.

Note: Cable on the RGP must to be insulated.

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

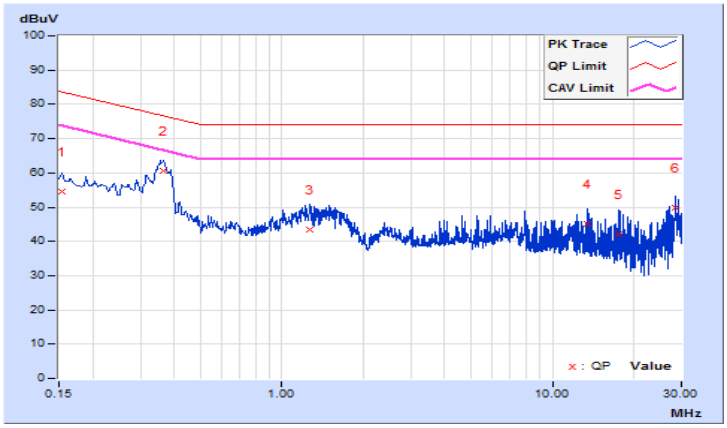
6.4 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	100Vac, 50Hz	Environmental Conditions	24℃, 72%RH, 1010mbar
Tested by	Adam Chen		
Test Mode	Mode 1 RJ45 TELECOM PORT (100Mbps, TFGEN + PING)		

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	0.15391	9.78	44.80	32.04	54.58	41.82	83.79	73.79	-29.21	-31.97
2	0.36505	9.56	51.13	45.05	60.69	54.61	76.61	66.61	-15.92	-12.00
3	1.26636	9.39	34.03	28.57	43.42	37.96	74.00	64.00	-30.58	-26.04
4	13.55508	9.60	35.48	18.16	45.08	27.76	74.00	64.00	-28.92	-36.24
5	17.69186	9.79	32.28	29.06	42.07	38.85	74.00	64.00	-31.93	-25.15
6	28.68287	10.40	39.54	39.52	49.94	49.92	74.00	64.00	-24.06	-14.08

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

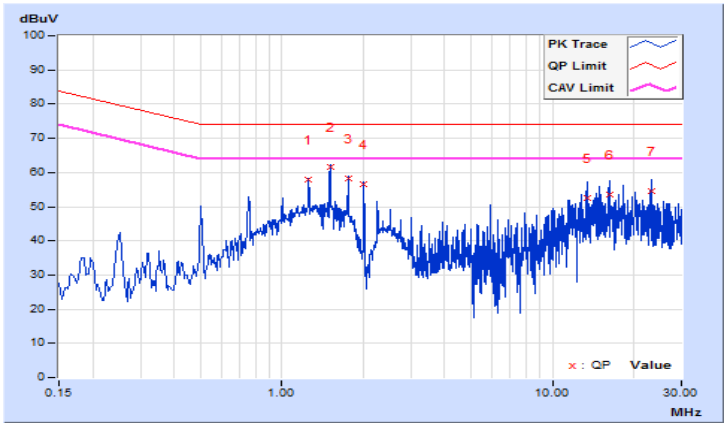


Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	48Vdc	**Environmental Conditions**	24℃, 72%RH, 1010mbar
Tested by	Adam Chen		
Test Mode	Mode 2 RJ45 TELECOM PORT (100Mbps, TFGEN + PING)		

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	1.25683	9.39	48.55	48.09	57.94	57.48	74.00	64.00	-16.06	-6.52
2	**1.50878**	**9.37**	**52.13**	**51.50**	**61.50**	**60.87**	**74.00**	**64.00**	**-12.50**	**-3.13**
3	1.75902	9.36	48.80	45.82	58.16	55.18	74.00	64.00	-15.84	-8.82
4	2.00926	9.34	47.14	45.67	56.48	55.01	74.00	64.00	-17.52	-8.99
5	13.41823	9.59	42.95	42.84	52.54	52.43	74.00	64.00	-21.46	-11.57
6	16.22561	9.72	43.70	43.57	53.42	53.29	74.00	64.00	-20.58	-10.71
7	23.12676	10.08	44.51	44.14	54.59	54.22	74.00	64.00	-19.41	-9.78

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



7 Radiated Emission at Frequencies up to 1GHz

7.1 Limits

For Class A Equipment

Frequency range (MHz)	Distance (m)	Limits (dBuV/m)
30 - 230	10	40
230 - 1000		47
30 - 230	3	50
230 - 1000		57

For Class B Equipment

Frequency range (MHz)	Distance (m)	Limits (dBuV/m)
30 - 230	10	30
230 - 1000		37
30 - 230	3	40
230 - 1000		47

7.2 Test Instruments

Mode 1

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100027	Dec. 4, 2017	Dec. 3, 2018
Schwarzbeck Bilog Antenna	VULB9168	9168-303	Nov. 29, 2017	Nov. 28, 2018
Agilent Preamplifier	8447D	2944A08119	Feb. 21, 2018	Feb. 20, 2019
ADT. Turn Table	TT100	0205	NA	NA
ADT. Tower	AT100	0205	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
ADT RF Switches BOX	EMH-011	1001	Oct. 25, 2018	Oct. 24, 2019
Pacific RF cable With 5dB PAD	8D	CABLE-ST2-01	Oct. 25, 2018	Oct. 24, 2019

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 Open Site No. 2.
3. The VCCI Site Registration No. R-237.
4. Tested Date: Nov. 15, 2018

Mode 2

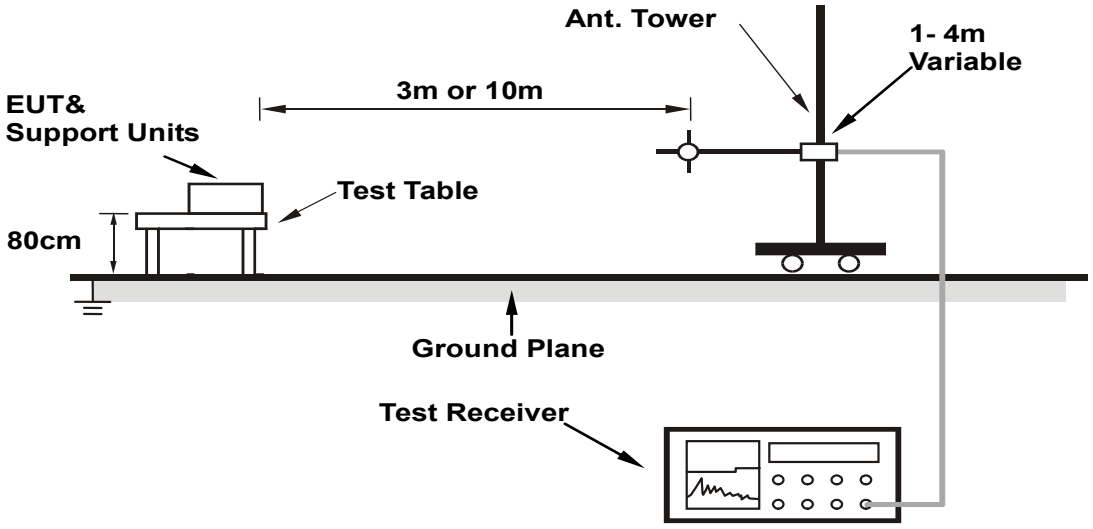
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100027	Dec. 4, 2017	Dec. 3, 2018
Schwarzbeck Bilog Antenna	VULB9168	9168-303	Nov. 29, 2017	Nov. 28, 2018
Agilent Preamplifier	8447D	2944A08119	Feb. 21, 2018	Feb. 20, 2019
ADT. Turn Table	TT100	0205	NA	NA
ADT. Tower	AT100	0205	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
ADT RF Switches BOX	EMH-011	1001	Oct. 26, 2017	Oct. 25, 2018
Pacific RF cable With 5dB PAD	8D	CABLE-ST2-01	Oct. 26, 2017	Oct. 25, 2018

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 Open Site No. 2.
3. The VCCI Site Registration No. R-237.
4. Tested Date: Oct. 19, 2018

7.3 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 10 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:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency up to 1GHz.
2. The measurement distance is the shortest horizontal distance between an imaginary circular periphery just encompassing this arrangement and the calibration point of the antenna.



Note: Cable on the RGP must to be insulated.

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

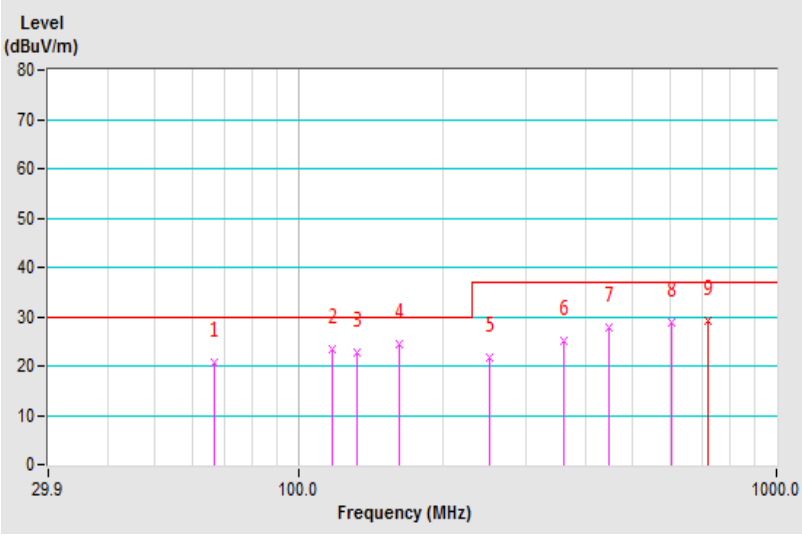
7.4 Test Results

Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Test Mode	Mode 1	Environmental Conditions	24℃, 74%RH, 1009mbar
Tested by	Vincent Lin		

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	66.37	20.70 QP	30.00	-9.30	4.00 H	347	30.83	-10.13
2	117.87	23.41 QP	30.00	-6.59	4.00 H	136	34.73	-11.32
3	132.66	22.78 QP	30.00	-7.22	4.00 H	120	32.65	-9.87
4	162.75	24.42 QP	30.00	-5.58	4.00 H	289	33.32	-8.90
5	249.98	21.80 QP	37.00	-15.20	4.00 H	351	32.11	-10.31
6	359.98	25.04 QP	37.00	-11.96	3.38 H	143	31.87	-6.83
7	447.25	27.70 QP	37.00	-9.30	2.76 H	214	32.27	-4.57
8	604.75	28.81 QP	37.00	-8.19	1.89 H	114	29.52	-0.71
9	720.01	29.22 QP	37.00	-7.78	1.00 H	25	28.57	0.65

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

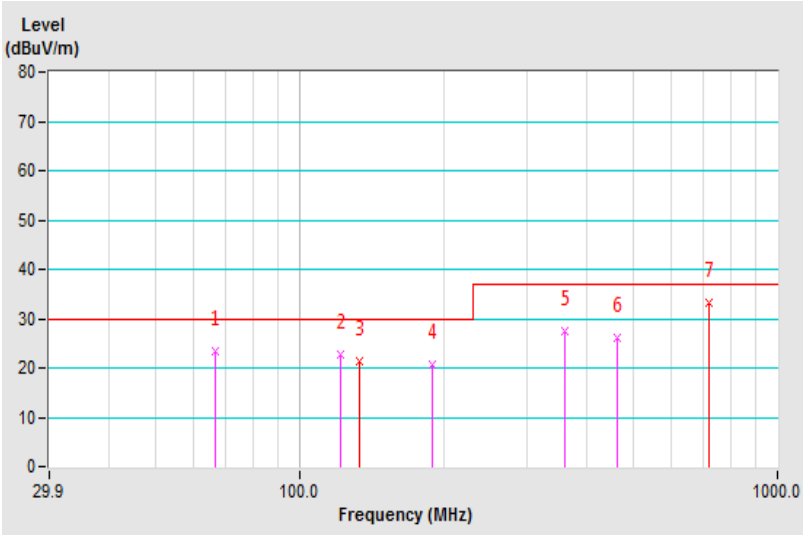


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Test Mode	Mode 1	Environmental Conditions	24℃, 74%RH, 1009mbar
Tested by	Vincent Lin		

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	66.44	23.31 QP	30.00	-6.69	1.00 V	124	33.44	-10.13
2	121.95	22.87 QP	30.00	-7.13	1.00 V	135	33.64	-10.77
3	133.16	21.23 QP	30.00	-8.77	1.00 V	203	31.06	-9.83
4	189.53	20.54 QP	30.00	-9.46	1.00 V	146	32.07	-11.53
5	360.05	27.57 QP	37.00	-9.43	1.12 V	333	34.40	-6.83
6	461.50	26.19 QP	37.00	-10.81	3.06 V	342	30.55	-4.36
7	**720.00**	**33.12 QP**	**37.00**	**-3.88**	**2.71 V**	**342**	**32.47**	**0.65**

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

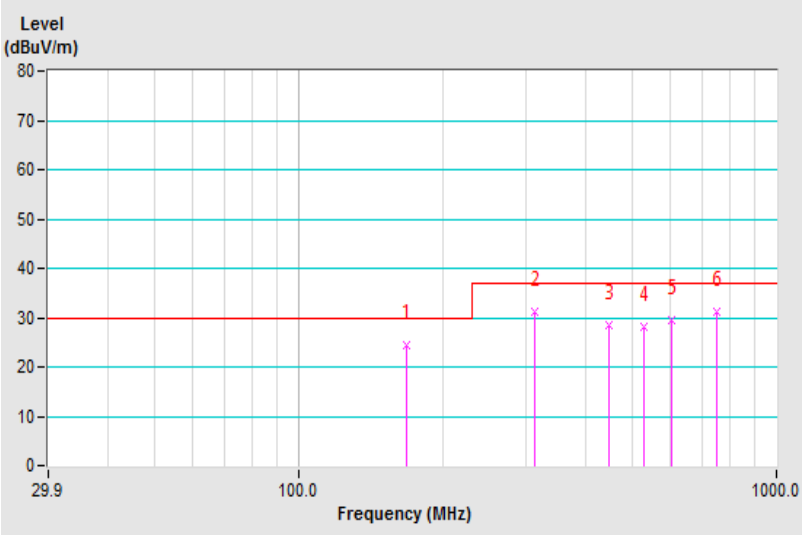


Frequency Range	30MHz ~ 1GHz	**Detector Function & Bandwidth**	Quasi-Peak (QP), 120kHz
Test Mode	Mode 2	**Environmental Conditions**	22℃, 78%RH, 1010mbar
Tested by	Vic Lin		

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	168.22	24.50 QP	30.00	-5.50	4.00 H	80	33.66	-9.16
2	311.30	31.15 QP	37.00	-5.85	2.86 H	164	39.30	-8.15
3	447.10	28.38 QP	37.00	-8.62	2.00 H	250	33.20	-4.82
4	529.55	28.25 QP	37.00	-8.75	1.00 H	315	31.32	-3.07
5	604.73	29.49 QP	37.00	-7.51	2.01 H	21	30.91	-1.42
6	747.80	31.09 QP	37.00	-5.91	1.99 H	142	30.56	0.53

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

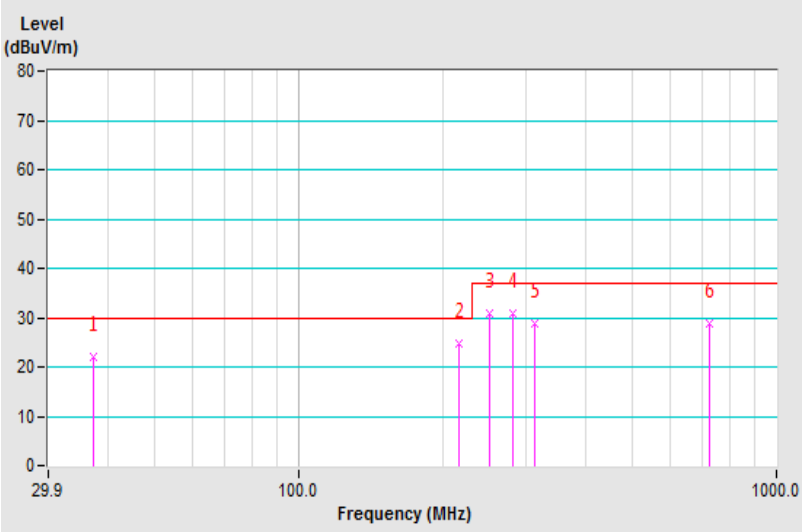


Frequency Range	30MHz ~ 1GHz	Detector Function & Bandwidth	Quasi-Peak (QP), 120kHz
Test Mode	Mode 2	Environmental Conditions	22℃, 78%RH, 1010mbar
Tested by	Vic Lin		

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	37.27	21.88 QP	30.00	-8.12	1.00 V	301	31.53	-9.65
2	216.72	24.83 QP	30.00	-5.17	1.00 V	221	36.91	-12.08
3	250.68	30.69 QP	37.00	-6.31	1.00 V	77	41.05	-10.36
4	279.77	30.87 QP	37.00	-6.13	1.00 V	133	39.83	-8.96
5	311.30	28.74 QP	37.00	-8.26	1.00 V	93	36.89	-8.15
6	725.98	28.91 QP	37.00	-8.09	2.02 V	14	28.89	0.02

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



8 Radiated Emission at Frequencies above 1GHz

8.1 Limits

For Class A Equipment

Frequency range (MHz)	Distance (m)	Detector type	Limits (dBuV/m)
1000 - 3000	3	Average	56
3000 - 6000			60
1000 - 3000		Peak	76
3000 - 6000			80

For Class B Equipment

Frequency range (MHz)	Distance (m)	Detector type	Limits (dBuV/m)
1000 - 3000	3	Average	50
3000 - 6000			54
1000 - 3000		Peak	70
3000 - 6000			74

Required highest frequency for radiated measurement

Highest internal frequency (F_x)	Highest measured frequency
$F_x \leqq$ 108 MHz	1 GHz
108 MHz $< F_x \leqq$ 500 MHz	2 GHz
500 MHz $< F_x \leqq$ 1 GHz	5 GHz
$F_x >$ 1 GHz	5 x F_x up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies. NOTE 2 F_x is highest fundamental frequency generated or used within the EUT or highest frequency at which it operates.	

Where F_x is unknown, the radiated emission measurements shall be performed up to 6 GHz.

8.2 Test Instruments

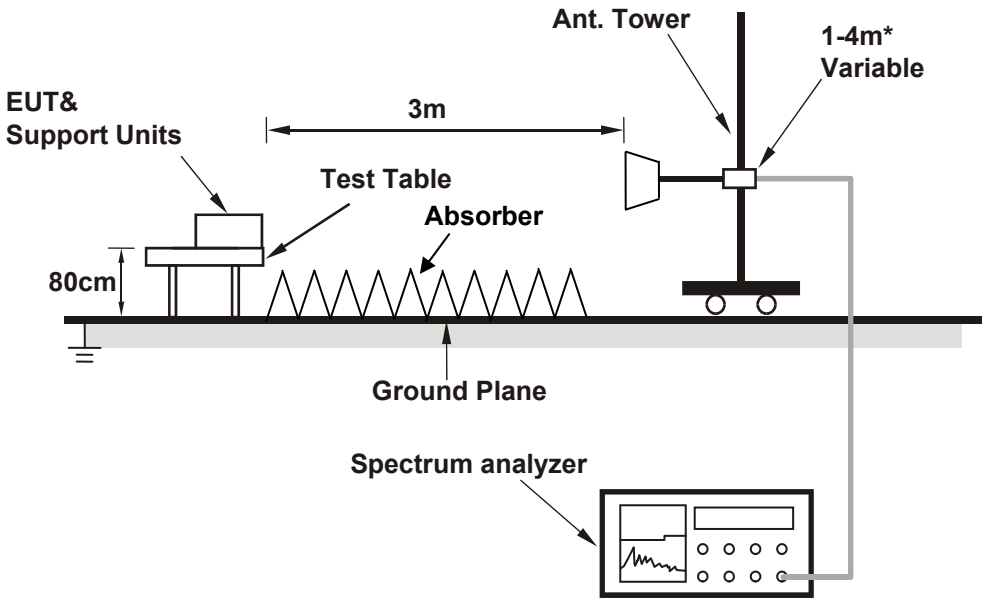
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Spectrum	E4446A	MY51100009	Jun. 4, 2018	Jun. 3, 2019
Agilent Test Receiver	N9038A	MY51210137	Jun. 19, 2018	Jun. 18, 2019
Agilent Preamplifier	8449B	3008A01292	Feb. 22, 2018	Feb. 21, 2019
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2018	Feb. 20, 2019
EMCI Preamplifier	EMC184045B	980235	Feb. 22, 2018	Feb. 21, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 1, 2017	Nov. 30, 2018
EMCO Horn Antenna	3115	6714	Dec. 12, 2017	Dec. 11, 2018
Max Full. Turn Table	MF7802	MF780208216	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
SUHNER RF cable With 3/4dB PAD	SF102	Cable-CH10-3.6m	Aug. 13, 2018	Aug. 12, 2019
MICRO-TRONICS Notch filter	BRC50703-01	010	May 31, 2018	May 30, 2019
MICRO-TRONICS Band Pass Filter	BRM17690	005	May 31, 2018	May 30, 2019

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 3dB beamwidth of the horn antenna is minimum 41degree (or w = 2.24m at 3m distance) for 1~6 GHz.
3. The test was performed in Chamber No. 10.
4. The Industry Canada Reference No. IC 7450E-11.
5. The VCCI Site Registration No. G-10427
6. Tested Date: Oct. 20 ~ Nov. 15, 2018

8.3 Test Arrangement

a. 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.
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 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. The measurement distance is the shortest horizontal distance between an imaginary circular periphery just encompassing this arrangement and the calibration point of the antenna.



Note: Cable on the RGP must to be insulated.

* :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.

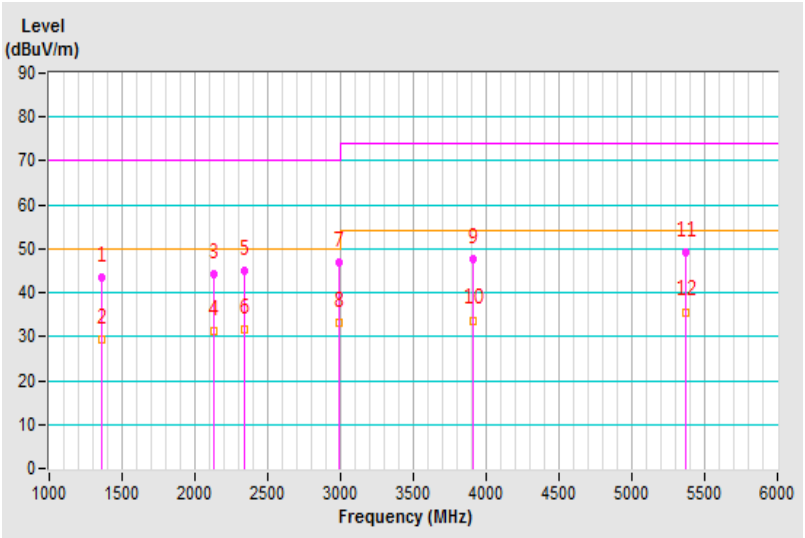
8.4 Test Results

Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Test Mode	Mode 1	Environmental Conditions	19℃, 70%RH, 1009mbar
Tested by	Chin-wen Wang		

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	1362.00	43.33 PK	70.00	-26.67	1.04 H	96	46.56	-3.23
2	1362.00	29.28 AV	50.00	-20.72	1.04 H	96	32.51	-3.23
3	2127.12	44.26 PK	70.00	-25.74	2.56 H	67	45.02	-0.76
4	2127.12	31.26 AV	50.00	-18.74	2.56 H	67	32.02	-0.76
5	2341.75	44.95 PK	70.00	-25.05	1.05 H	251	44.90	0.05
6	2341.75	31.57 AV	50.00	-18.43	1.05 H	251	31.52	0.05
7	2988.12	46.73 PK	70.00	-23.27	1.59 H	212	44.82	1.91
8	2988.12	33.30 AV	50.00	-16.70	1.59 H	212	31.39	1.91
9	3913.12	47.75 PK	74.00	-26.25	1.42 H	256	42.25	5.50
10	3913.12	33.72 AV	54.00	-20.28	1.42 H	256	28.22	5.50
11	5367.00	49.28 PK	74.00	-24.72	1.00 H	274	41.94	7.34
12	5367.00	35.62 AV	54.00	-18.38	1.00 H	274	28.28	7.34

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

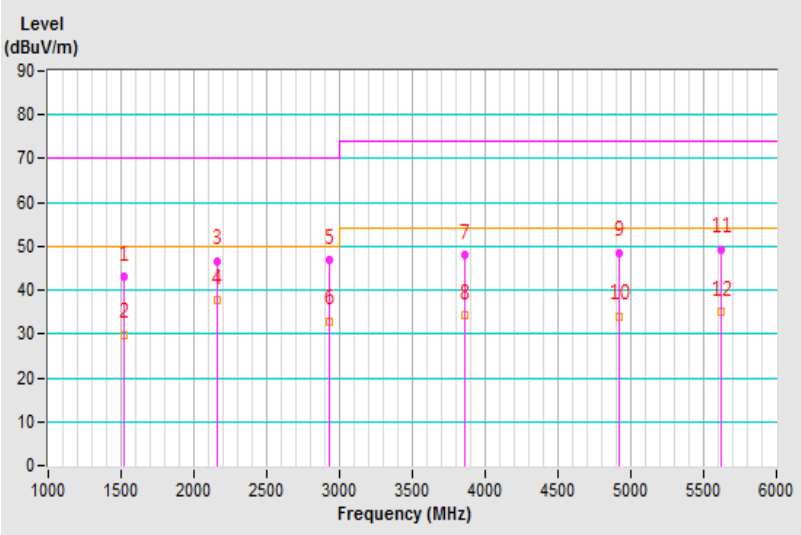


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Test Mode	Mode 1	Environmental Conditions	19℃, 70%RH, 1009mbar
Tested by	Chin-wen Wang		

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	1520.87	43.23 PK	70.00	-26.77	1.02 V	139	46.42	-3.19
2	1520.87	29.91 AV	50.00	-20.09	1.02 V	139	33.10	-3.19
3	2159.85	46.70 PK	70.00	-23.30	1.28 V	213	47.52	-0.82
4	**2159.85**	**37.69 AV**	**50.00**	**-12.31**	**1.28 V**	**213**	**38.51**	**-0.82**
5	2928.25	46.78 PK	70.00	-23.22	1.45 V	174	45.38	1.40
6	2928.25	32.97 AV	50.00	-17.03	1.45 V	174	31.57	1.40
7	3860.12	48.10 PK	74.00	-25.90	1.66 V	145	42.63	5.47
8	3860.12	34.25 AV	54.00	-19.75	1.66 V	145	28.78	5.47
9	4918.87	48.62 PK	74.00	-25.38	2.65 V	360	42.34	6.28
10	4918.87	34.12 AV	54.00	-19.88	2.65 V	360	27.84	6.28
11	5619.37	49.38 PK	74.00	-24.62	1.85 V	274	41.99	7.39
12	5619.37	35.08 AV	54.00	-18.92	1.85 V	274	27.69	7.39

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

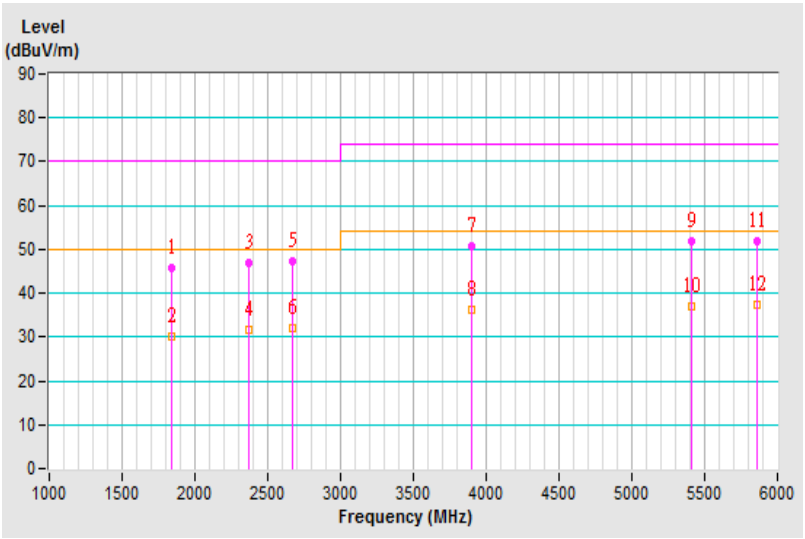


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Test Mode	Mode 2	Environmental Conditions	23℃, 77%RH, 1010mbar
Tested by	Vincent Chen		

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	1839.34	45.60 PK	70.00	-24.40	2.04 H	265	47.13	-1.53
2	1839.34	30.26 AV	50.00	-19.74	2.04 H	265	31.79	-1.53
3	2372.24	46.78 PK	70.00	-23.22	1.36 H	283	46.68	0.10
4	2372.24	31.66 AV	50.00	-18.34	1.36 H	283	31.56	0.10
5	2672.57	47.31 PK	70.00	-22.69	1.47 H	333	46.56	0.75
6	2672.57	31.98 AV	50.00	-18.02	1.47 H	333	31.23	0.75
7	3895.25	50.62 PK	74.00	-23.38	1.52 H	159	45.03	5.59
8	3895.25	36.14 AV	54.00	-17.86	1.52 H	159	30.55	5.59
9	5411.55	51.97 PK	74.00	-22.03	1.06 H	62	44.58	7.39
10	5411.55	37.05 AV	54.00	-16.95	1.06 H	62	29.66	7.39
11	5863.26	51.92 PK	74.00	-22.08	1.18 H	199	44.46	7.46
12	5863.26	37.29 AV	54.00	-16.71	1.18 H	199	29.83	7.46

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

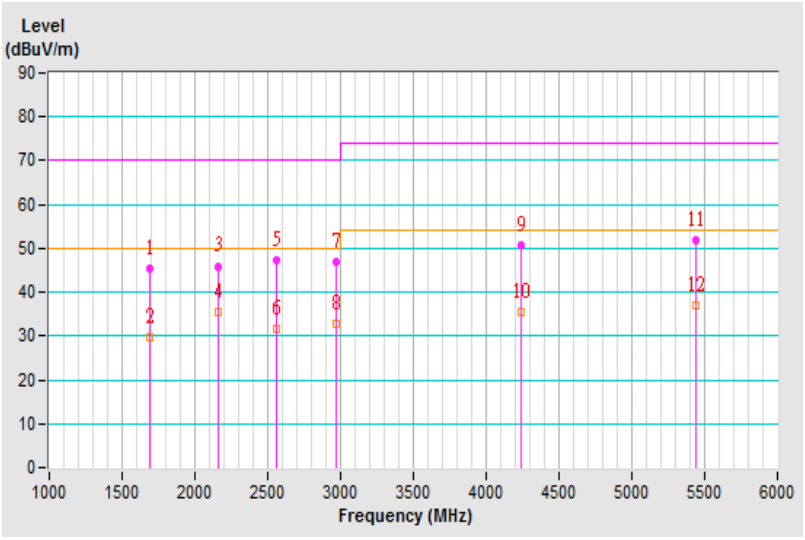


Frequency Range	1GHz ~ 6GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Test Mode	Mode 2	Environmental Conditions	23℃, 77%RH, 1010mbar
Tested by	Vincent Chen		

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	1692.22	45.25 PK	70.00	-24.75	1.43 V	300	47.43	-2.18
2	1692.22	29.83 AV	50.00	-20.17	1.43 V	300	32.01	-2.18
3	2160.00	45.92 PK	70.00	-24.08	2.03 V	147	46.74	-0.82
4	2160.00	35.47 AV	50.00	-14.53	2.03 V	147	36.29	-0.82
5	2560.25	47.17 PK	70.00	-22.83	1.07 V	0	46.90	0.27
6	2560.25	31.59 AV	50.00	-18.41	1.07 V	0	31.32	0.27
7	2971.68	46.99 PK	70.00	-23.01	1.56 V	360	45.25	1.74
8	2971.68	32.70 AV	50.00	-17.30	1.56 V	360	30.96	1.74
9	4240.75	50.61 PK	74.00	-23.39	2.03 V	281	45.62	4.99
10	4240.75	35.35 AV	54.00	-18.65	2.03 V	281	30.36	4.99
11	5439.02	51.91 PK	74.00	-22.09	1.14 V	358	44.43	7.48
12	5439.02	37.12 AV	54.00	-16.88	1.14 V	358	29.64	7.48

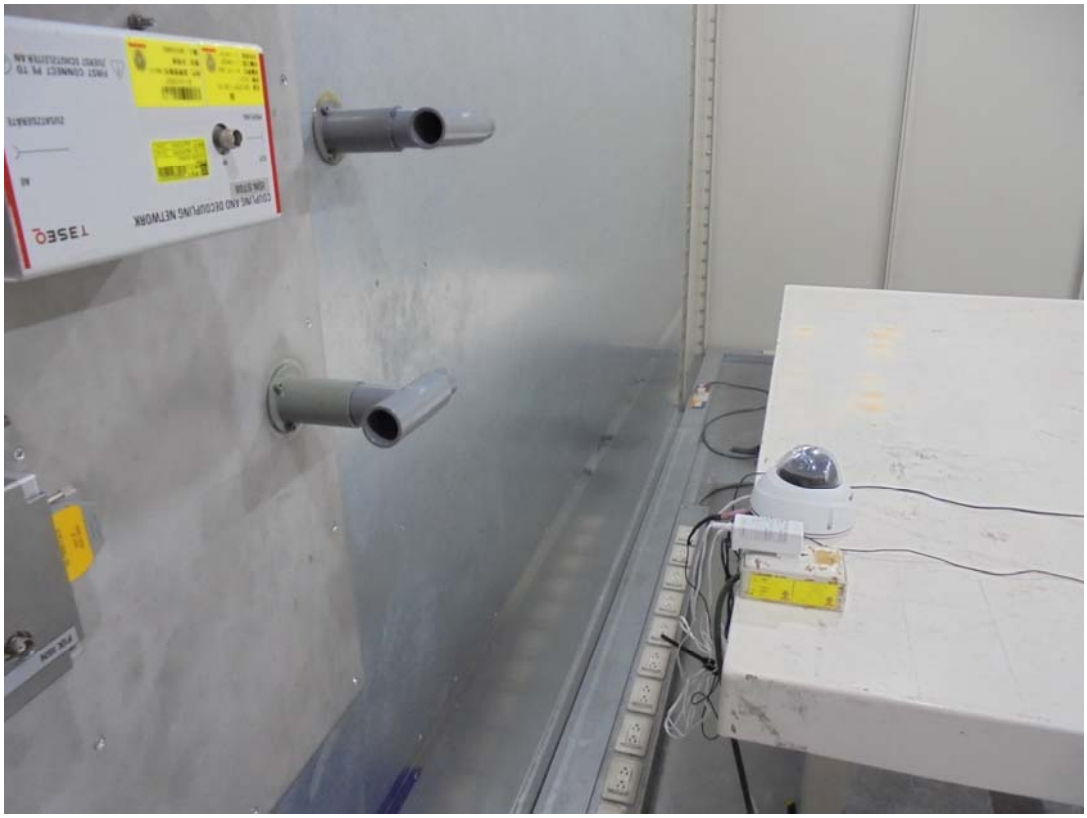
Remarks:

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



9 Pictures of Test Arrangements

9.1 Conducted Emission from the AC Mains Power Port



9.2 Asymmetric Mode Conducted Emission at Telecommunication Ports

Mode 1

Mode 2

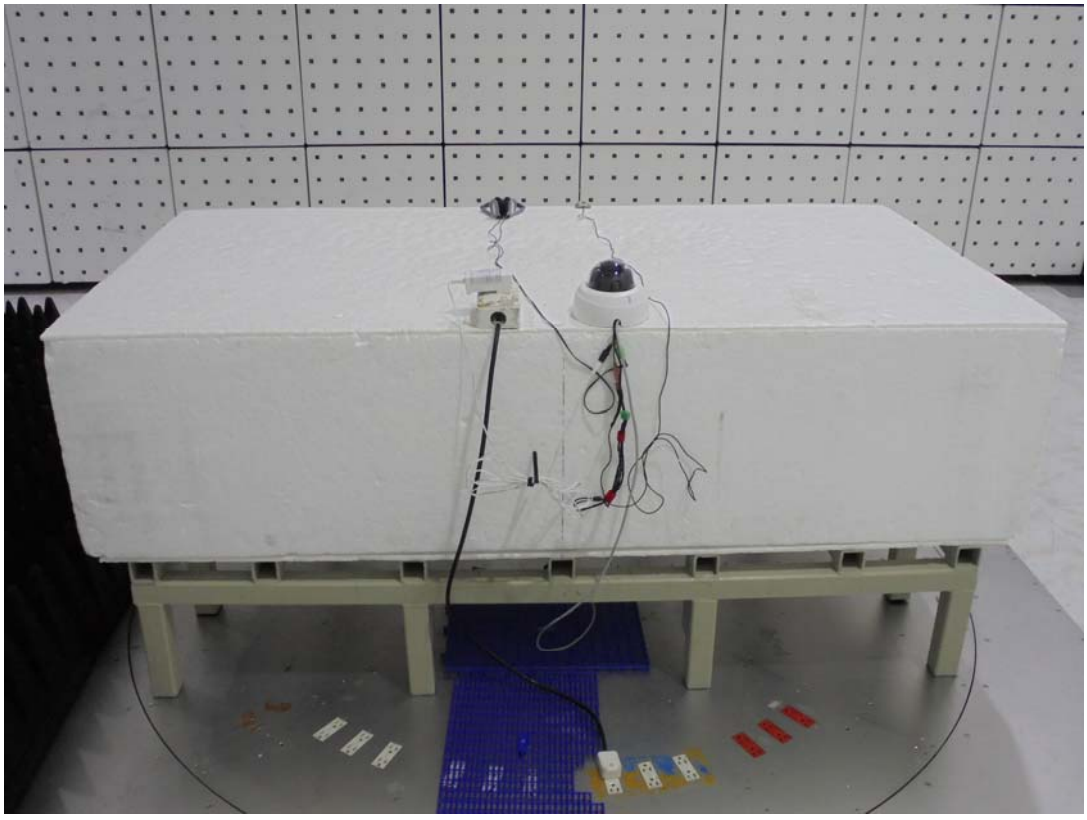
9.3 Radiated Emission at Frequencies up to 1GHz

Mode 1

Mode 2

9.4 Radiated Emission at Frequencies above 1GHz

Mode 1



Mode 2

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
Web Site: www.bureauVeritas-adt.com

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

--- END ---