VCCI Test Report (VCCI 32-1)

Report No.: V170410D11

Test Model: IB8360

Received Date: Apr. 10, 2017

Test Date: Apr. 12 ~ 13, 2017

Issued Date: Apr. 25, 2017

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.)

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Release Control Record

Issue No.	Description	Date Issued
V170410D11	Original release.	Apr. 25, 2017

1 Certificate of Conformity

Product:	Network Camera
Brand:	VIVOTEK
Test Model:	IB8360
Sample Status:	Engineering sample
Applicant:	VIVOTEK INC.
Test Date:	Apr. 12 ~ 13, 2017
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 : Annie Chang , **Date:** Apr. 25, 2017

Annie Chang / Senior Specialist

Approved by : Henry Lai , **Date:** Apr. 25, 2017

Henry Lai / Director

2 Summary of Test Results

Emission			
Standard	Test Item	Result/Remarks	Verdict
VCCI-CISPR 32:2016	Conducted emission from the AC mains power port	Without AC power port of the EUT	N/A
VCCI-CISPR 32:2016	Asymmetric mode conducted emission at telecommunication ports	Minimum passing Class B margin is -6.34 dB at 16.22792 MHz	Pass
VCCI-CISPR 32:2016	Radiated emission 30-1000 MHz	Minimum passing Class B margin is -4.72 dB at 63.64 MHz	Pass
VCCI-CISPR 32:2016	Radiated emission above 1GHz	Minimum passing Class B margin is -16.39 dB at 2953.90 MHz	Pass

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
Asymmetric mode conducted emission at telecommunication ports using AAN	150kHz ~ 30MHz	3.94 dB	T-1587
Radiated emission, 30MHz ~ 1GHz	30MHz ~ 1GHz	3.99 dB	R-237
Radiated emission, 1GHz ~ 6GHz	Above 1GHz	4.97 dB	G-10427

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 VIVOTEK INC., for detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.2 General Description of EUT

Product	Network Camera
Brand	VIVOTEK
Test Model	IB8360
Sample Status	Engineering sample
Operating Software	N/A
Power Supply Rating	37~57Vdc from PoE
Accessory Device	N/A
Data Cable Supplied	UTP LAN cable (1.2m)

Note:

The EUT is a Network Camera with the following interfaces:

- ✧ LAN (10/100Mbps)
- ✧ Micro SD

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 has been pre-tested under following LAN speed, and **LAN Speed: 100Mbps** was the worst case.
   - ◆ LAN Speed: 100Mbps
   - ◆ LAN Speed: 10Mbps

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

Mode	Test Condition	Input Power
Asymmetric mode conducted emission at telecommunication ports test		
1	PoE Mode, Ping+TfGen, Micro SD R/W, LAN Speed: 100Mbps	55Vdc
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.		
Radiated emission test		
1	PoE Mode, Micro SD R/W, LAN Speed: 100Mbps	55Vdc

3.4 Test Program Used and Operation Descriptions

a. Turned on the power of all equipment.

b. EUT captured video signal.

c. EUT captured video signal to notebook (kept in a remote area) then it displayed messages on its screen simultaneously.

d. EUT captured video signal and recorded to Micro SD card.

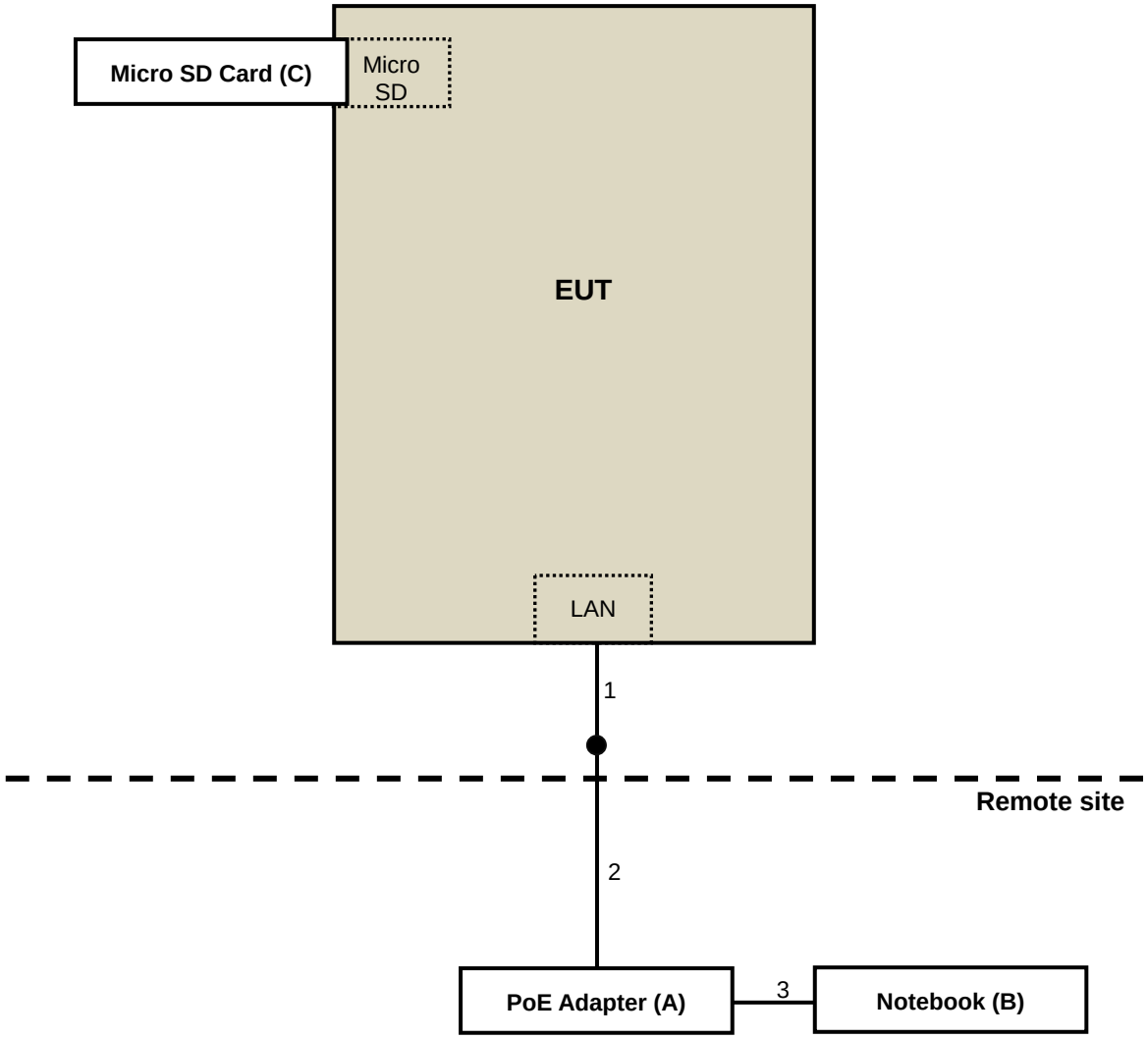
e. Steps c-d were repeated.

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 800MHz, 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



4.2 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	PoE Adapter	SONICWALL	PD-9001GR/AC	N/A	N/A	Provided by Lab
B.	Notebook PC	DELL	P41G	HT4W952	FCC DoC Approved	Provided by Lab
C.	Micro SD Card	Kingston	32GB SDHC	N/A	N/A	Provided by Lab

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	1.2	N	0	Supplied by client
2.	LAN cable	1	10	N	0	Provided by Lab
3.	LAN cable	1	1	N	0	Provided by Lab

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

5 Asymmetric Mode Conducted Emission at Telecommunication Ports

5.1 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

5.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100290	Dec. 26, 2016	Dec. 25, 2017
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	100104	Dec. 01, 2016	Nov. 30, 2017
LISN With Adapter (for EUT)	AD10	C09Ada-001	Dec. 01, 2016	Nov. 30, 2017
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	847265/023	Oct. 27, 2016	Oct. 26, 2017
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, 2017	Feb. 20, 2018
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010789	May 12, 2016	May 11, 2017
FCC ISN	F-071115-1057-1	20651	Feb. 13, 2017	Feb. 12, 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 Shielded Room No. 9.
3. The VCCI Site Registration No. T-1587
4. Tested Date: Apr. 12, 2017

5.3 Test Arrangement

Method of Using AANs:

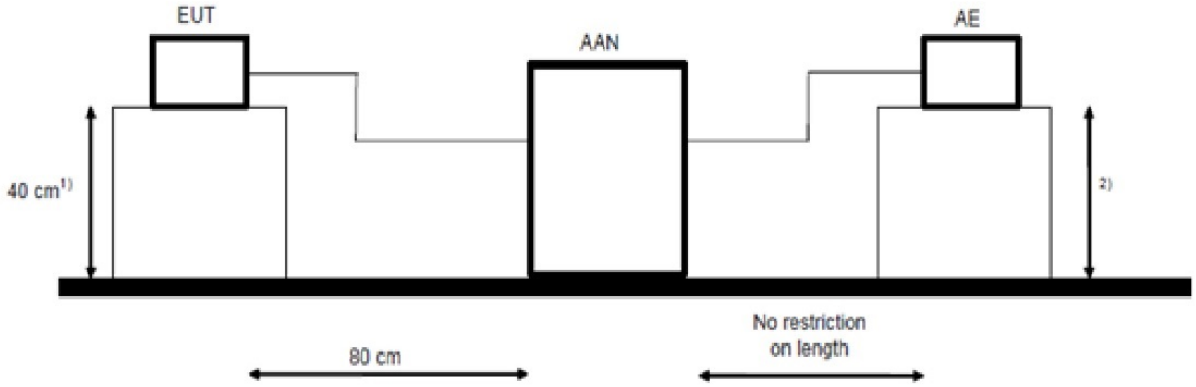
a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AAN directly to reference ground plane.

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.

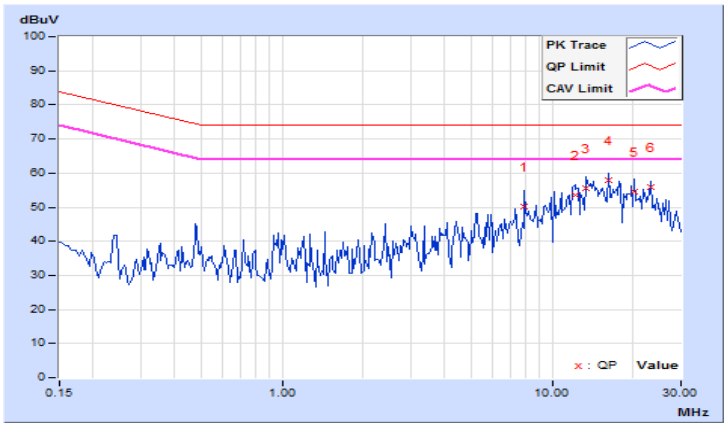
5.4 Test Results

Frequency Range	150kHz ~ 30MHz	**Detector Function & Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	55Vdc (From PoE)	**Environmental Conditions**	23℃, 81%RH, 1006mbar
Tested by	Jary Huang		
Test Mode	Mode 1 RJ45 TELECOM PORT (100Mbps)		

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	7.92188	9.41	40.79	40.66	50.20	50.07	74.00	64.00	-23.80	-13.93
2	12.13672	9.59	43.78	43.09	53.37	52.68	74.00	64.00	-20.63	-11.32
3	13.41797	9.65	45.96	45.88	55.61	55.53	74.00	64.00	-18.39	-8.47
4	**16.22792**	**9.79**	**47.97**	**47.87**	**57.76**	**57.66**	**74.00**	**64.00**	**-16.24**	**-6.34**
5	20.25781	9.97	44.68	44.46	54.65	54.43	74.00	64.00	-19.35	-9.57
6	23.12755	10.14	45.88	45.30	56.02	55.44	74.00	64.00	-17.98	-8.56

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 Emission at Frequencies up to 1GHz

6.1 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

6.2 Test Instruments

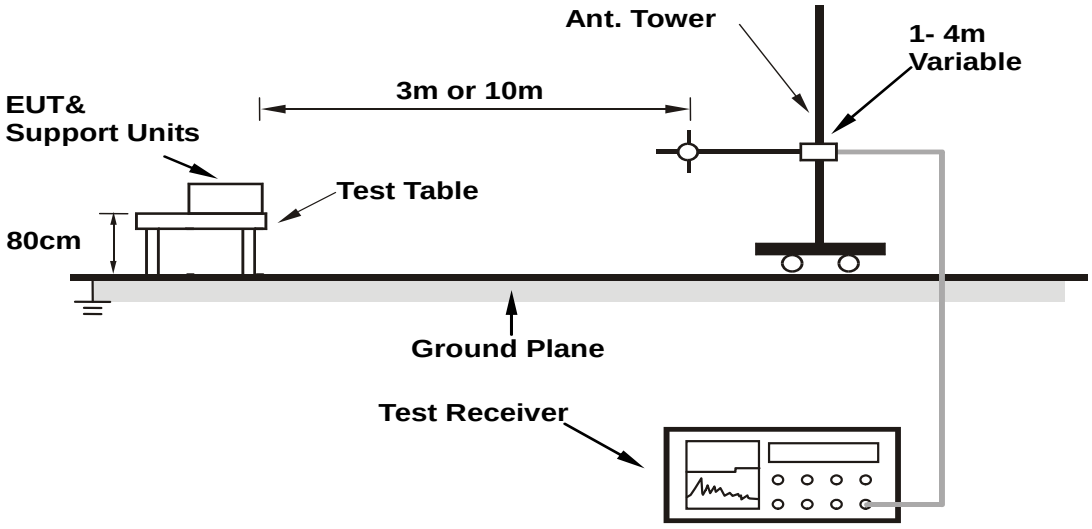
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	845552/004	Sep. 19, 2016	Sep. 18, 2017
Schaffner Bilog Antenna	CBL6111D	22262	Dec. 28, 2016	Dec. 27, 2017
Agilent Preamplifier	8447D	2944A08119	Feb. 21, 2017	Feb. 20, 2018
ADT. Turn Table	TT100	0205	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. 28, 2016	Oct. 27, 2017
Pacific RF cable With 5dB PAD	8D	CABLE-ST2-01	Oct. 28, 2016	Oct. 27, 2017

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Open Site No. 2.
3. The VCCI Site Registration No. R-237.
4. The FCC Site Registration No. 90424.
5. Tested Date: Apr. 12, 2017

6.3 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.

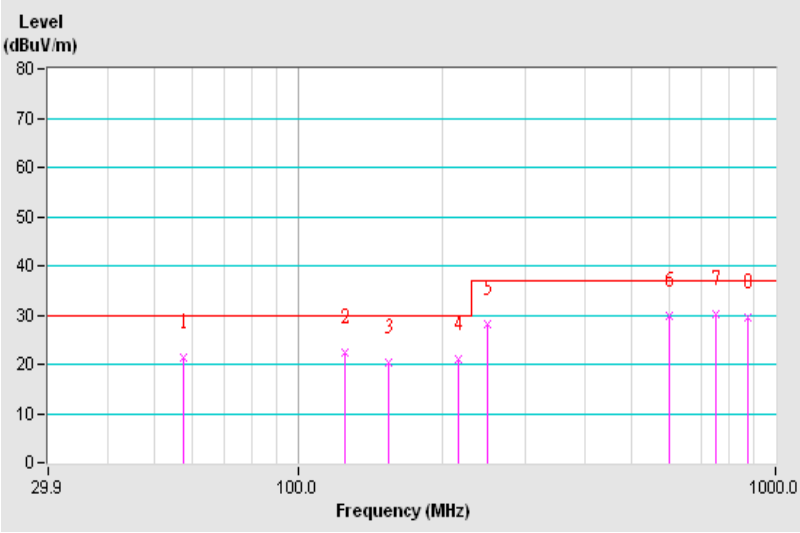
6.4 Test Results

Frequency Range	30MHz ~ 1GHz	**Detector Function & Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	55Vdc (From PoE)	**Environmental Conditions**	24℃, 76%RH, 1006mbar
Tested by	ED. Lin		
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	57.55	21.34 QP	30.00	-8.66	3.99 H	94	39.35	-18.01
2	125.22	22.41 QP	30.00	-7.59	3.99 H	242	34.17	-11.76
3	154.12	20.18 QP	30.00	-9.82	3.99 H	2	32.49	-12.31
4	215.97	20.99 QP	30.00	-9.01	3.12 H	320	34.31	-13.32
5	249.12	27.98 QP	37.00	-9.02	2.58 H	20	37.81	-9.83
6	599.50	29.75 QP	37.00	-7.25	1.87 H	269	31.93	-2.18
7	750.01	30.04 QP	37.00	-6.96	1.14 H	111	28.46	1.58
8	875.00	29.44 QP	37.00	-7.56	1.14 H	344	26.48	2.96

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

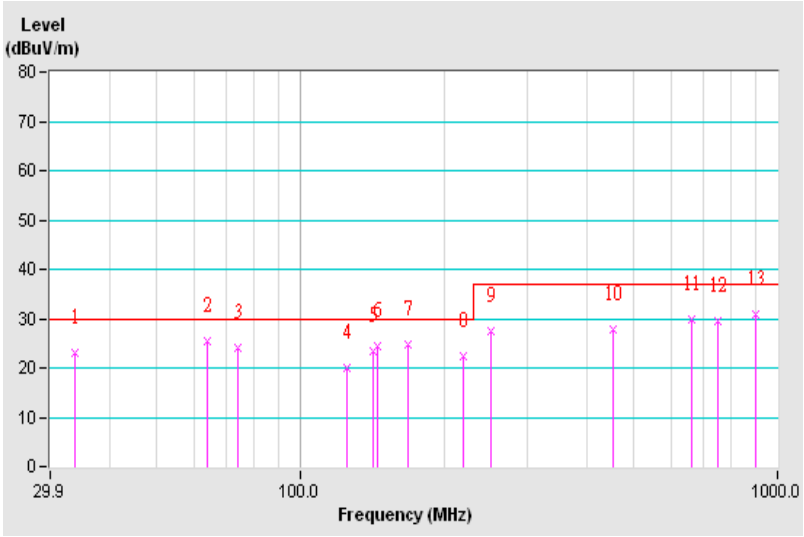


Frequency Range	30MHz ~ 1GHz	**Detector Function & Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	55Vdc (From PoE)	**Environmental Conditions**	24℃, 76%RH, 1006mbar
Tested by	ED. Lin		
Test Mode	Mode 1		

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	33.77	23.09 QP	30.00	-6.91	1.00 V	115	30.46	-7.37
2	**63.64**	**25.28 QP**	**30.00**	**-4.72**	**1.62 V**	**80**	**43.30**	**-18.02**
3	73.94	24.05 QP	30.00	-5.95	1.49 V	171	41.03	-16.98
4	125.00	20.03 QP	30.00	-9.97	1.00 V	288	31.78	-11.75
5	141.91	23.46 QP	30.00	-6.54	1.00 V	286	35.23	-11.77
6	144.65	24.56 QP	30.00	-5.44	1.00 V	156	36.43	-11.87
7	167.75	24.74 QP	30.00	-5.26	1.00 V	2	37.92	-13.18
8	219.05	22.38 QP	30.00	-7.62	1.00 V	22	35.43	-13.05
9	250.40	27.36 QP	37.00	-9.64	1.00 V	2	37.02	-9.66
10	451.75	27.73 QP	37.00	-9.27	2.91 V	291	32.76	-5.03
11	660.25	29.67 QP	37.00	-7.33	4.00 V	167	30.92	-1.25
12	750.25	29.50 QP	37.00	-7.50	2.89 V	24	27.92	1.58
13	897.25	30.90 QP	37.00	-6.10	3.51 V	186	27.33	3.57

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 Emission at Frequencies above 1GHz

7.1 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.

7.2 Test Instruments

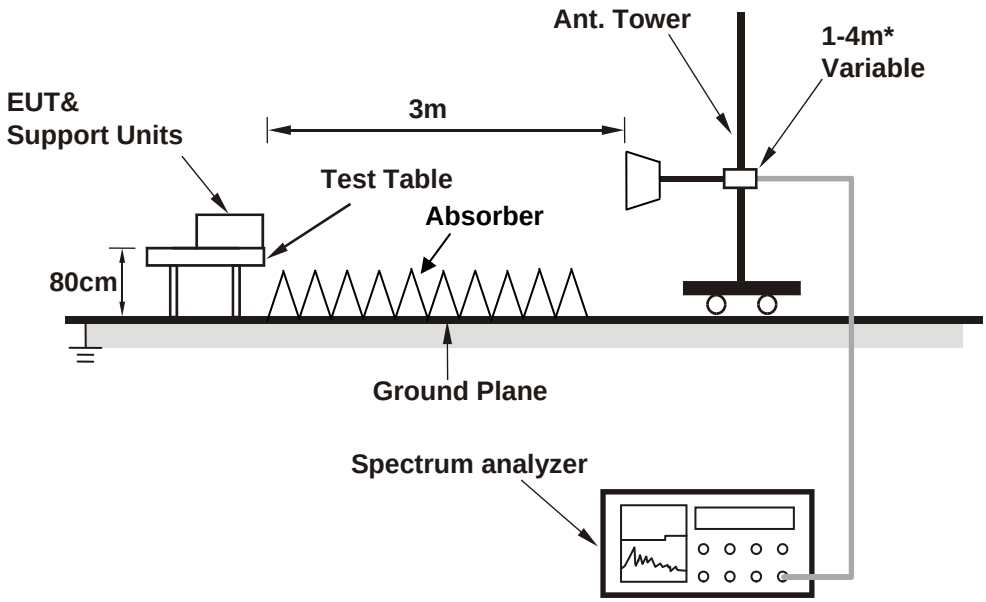
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Spectrum	E4446A	MY51100009	May 30, 2016	May 29, 2017
Agilent Test Receiver	N9038A	MY51210137	Jul. 27, 2016	Jul. 26, 2017
Agilent Preamplifier	8449B	3008A01292	Feb. 22, 2017	Feb. 21, 2018
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2017	Feb. 20, 2018
EMCI Preamplifier	EMC184045B	980235	Feb. 22, 2017	Feb. 21, 2018
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 30, 2016	Dec. 29, 2017
EMCO Horn Antenna	3115	6714	Dec. 29, 2016	Dec. 28, 2017
Max Full. Turn Table	MF7802	MF780208216	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
SUHNER RF cable With 3dB PAD	SF102	Cable-CH10-3.6m	Aug. 15, 2016	Aug. 14, 2017

Notes:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The 3dB beamwidth of the horn antenna is minimum 30 degree (or w = 1.6m 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. The FCC Site Registration No. 367016
7. Tested Date: Apr. 13, 2017

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 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.

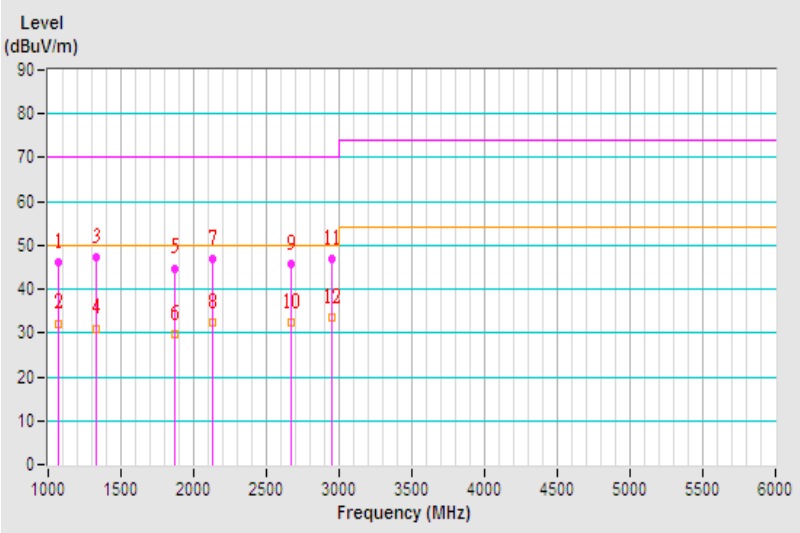
7.4 Test Results

Frequency Range	1GHz ~ 5GHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	55Vdc (From PoE)	Environmental Conditions	18℃, 65%RH, 1008mbar
Tested by	Justin Liu		
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	1066.32	46.22 PK	70.00	-23.78	1.55 H	216	50.67	-4.45
2	1066.32	32.19 AV	50.00	-17.81	1.55 H	216	36.64	-4.45
3	1334.23	47.41 PK	70.00	-22.59	1.30 H	118	51.17	-3.76
4	1334.23	31.06 AV	50.00	-18.94	1.30 H	118	34.82	-3.76
5	1865.80	44.80 PK	70.00	-25.20	2.58 H	124	46.61	-1.81
6	1865.80	29.88 AV	50.00	-20.12	2.58 H	124	31.69	-1.81
7	2133.53	46.81 PK	70.00	-23.19	1.15 H	185	47.45	-0.64
8	2133.53	32.35 AV	50.00	-17.65	1.15 H	185	32.99	-0.64
9	2672.45	45.77 PK	70.00	-24.23	2.40 H	287	44.58	1.19
10	2672.45	32.30 AV	50.00	-17.70	2.40 H	287	31.11	1.19
11	2953.90	47.02 PK	70.00	-22.98	1.00 H	25	44.46	2.56
12	**2953.90**	**33.61 AV**	**50.00**	**-16.39**	**1.00 H**	**25**	**31.05**	**2.56**

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

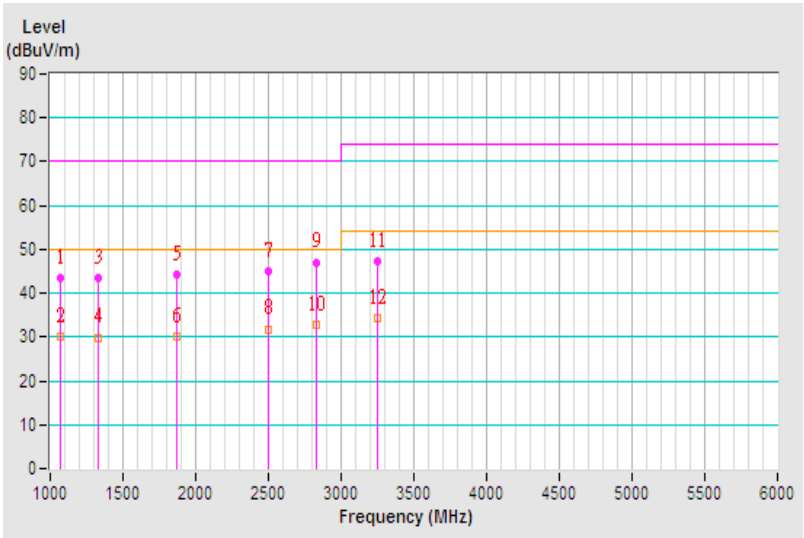


Frequency Range	1GHz ~ 5GHz	**Detector Function & Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	55Vdc (From PoE)	**Environmental Conditions**	18℃, 65%RH, 1008mbar
Tested by	Justin Liu		
Test Mode	Mode 1		

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	1067.01	43.52 PK	70.00	-26.48	2.23 V	351	47.97	-4.45
2	1067.01	30.17 AV	50.00	-19.83	2.23 V	351	34.62	-4.45
3	1333.53	43.49 PK	70.00	-26.51	1.68 V	174	47.25	-3.76
4	1333.53	29.90 AV	50.00	-20.10	1.68 V	174	33.66	-3.76
5	1866.63	44.18 PK	70.00	-25.82	2.04 V	17	45.99	-1.81
6	1866.63	30.07 AV	50.00	-19.93	2.04 V	17	31.88	-1.81
7	2498.90	45.13 PK	70.00	-24.87	2.37 V	142	44.65	0.48
8	2498.90	31.82 AV	50.00	-18.18	2.37 V	142	31.34	0.48
9	2833.65	47.06 PK	70.00	-22.94	1.50 V	31	45.03	2.03
10	2833.65	32.94 AV	50.00	-17.06	1.50 V	31	30.91	2.03
11	3254.85	47.17 PK	74.00	-26.83	2.55 V	283	44.03	3.14
12	3254.85	34.21 AV	54.00	-19.79	2.55 V	283	31.07	3.14

Remarks:

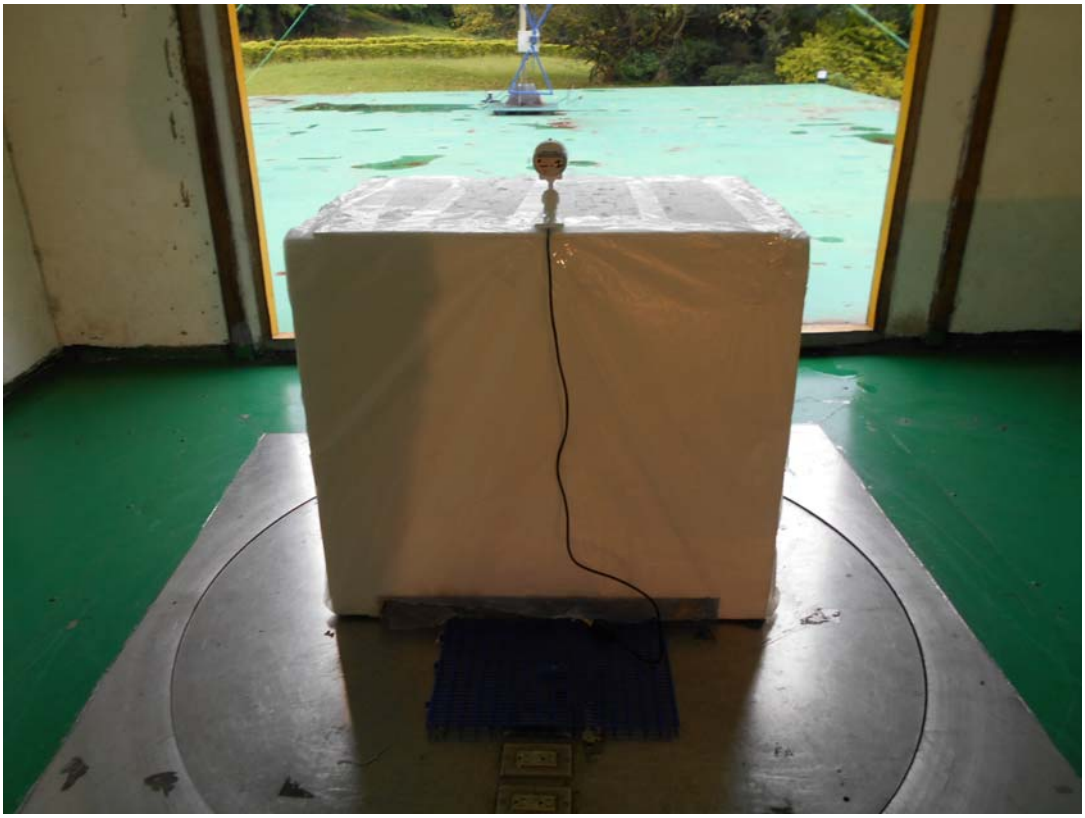
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



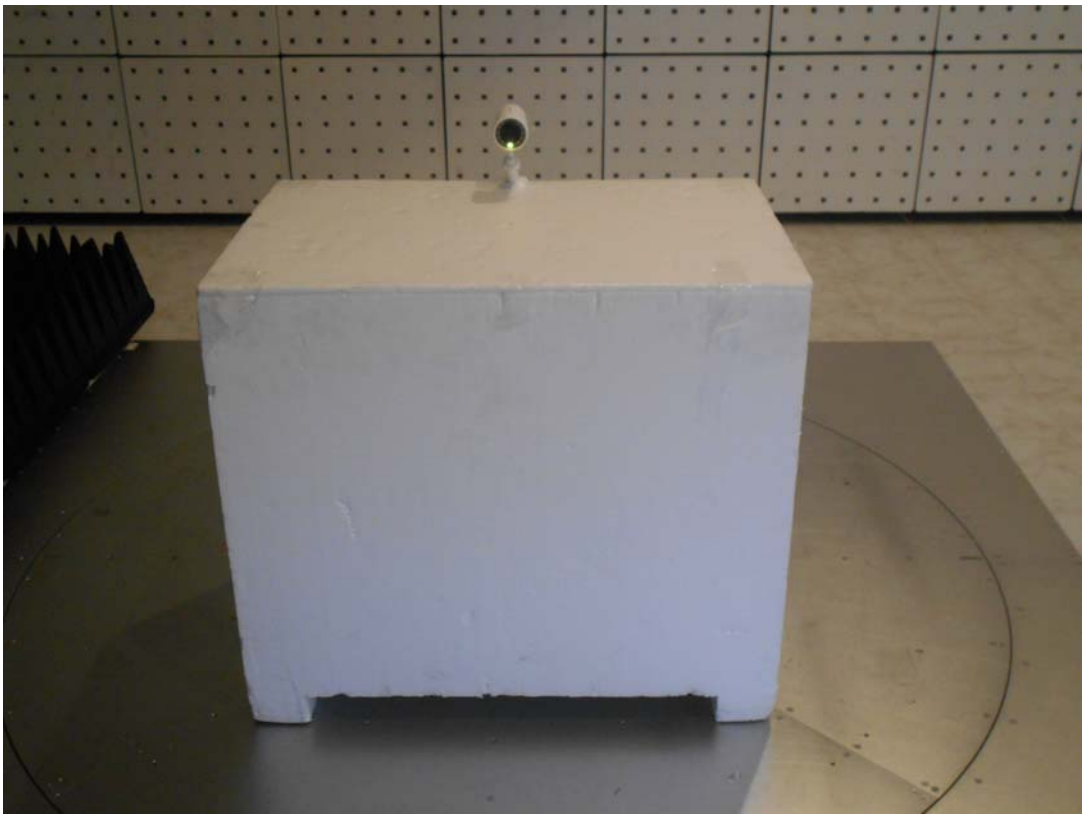
8 Pictures of Test Arrangements

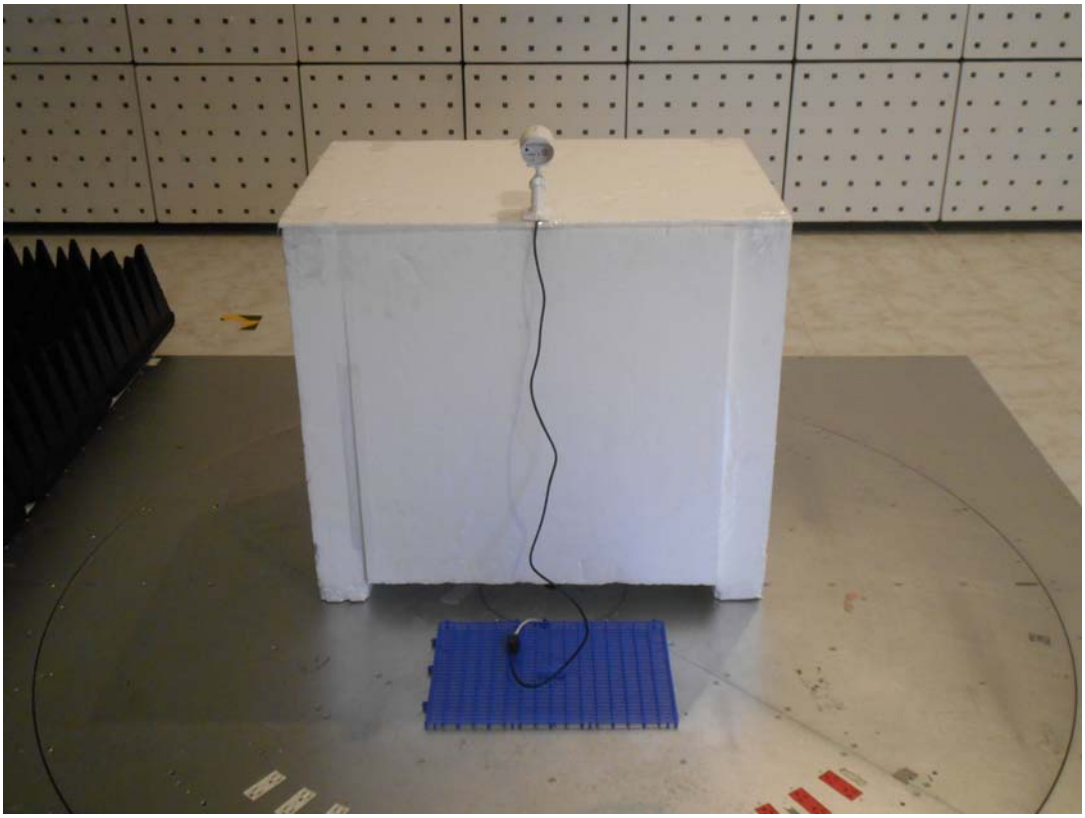
8.1 Asymmetric Mode Conducted Emission at Telecommunication Ports

8.2 Radiated Emission at Frequencies up to 1GHz



8.3 Radiated Emission at Frequencies above 1GHz





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.

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