FCC Test Report

Compliance with Industry Canada Interference-Causing Equipment Standard ICES-003

Product Name ： Stereo Camera

Model No. ： SC8131

Applicant ： VIVOTEK INC.

Address ： 6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City, 235, Taiwan, R.O.C.

Date of Receipt ： 2015/05/11

Issued Date ： 2015/06/22

Report No. ： 1550268R-ITUSP01V00

Report Version ： V1.0

Testing Laboratory
3023

Test Report

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Applicant	:	VIVOTEK INC.
Address	:	6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City, 235, Taiwan, R.O.C.
Manufacturer	:	VIVOTEK INC.
Model No.	:	SC8131
EUT Rated Voltage	:	By PoE
EUT Test Voltage	:	By PoE
Trade Name	:	VIVOTEK
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart B: 2014, Class B CISPR 22: 2008, ANSI C63.4: 2014 ICES-003 Issue 5: 2012 Class B
Test Result	:	Complied
Performed Location	:	Quietek Corporation (Linkou Laboratory) No. 5-22, Rueishu Keng, Linkou Dist., New Taipei City 24451, Taiwan. R.O.C. TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

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(Engineer / Steven Tsai)

Approved By :
(Director / Vincent Lin)

Laboratory Information

We , **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
USA	**:**	**FCC**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/chinese/about/certificates.aspx?bval=5
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	Stereo Camera
Trade Name	VIVOTEK
Model No.	SC8131

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

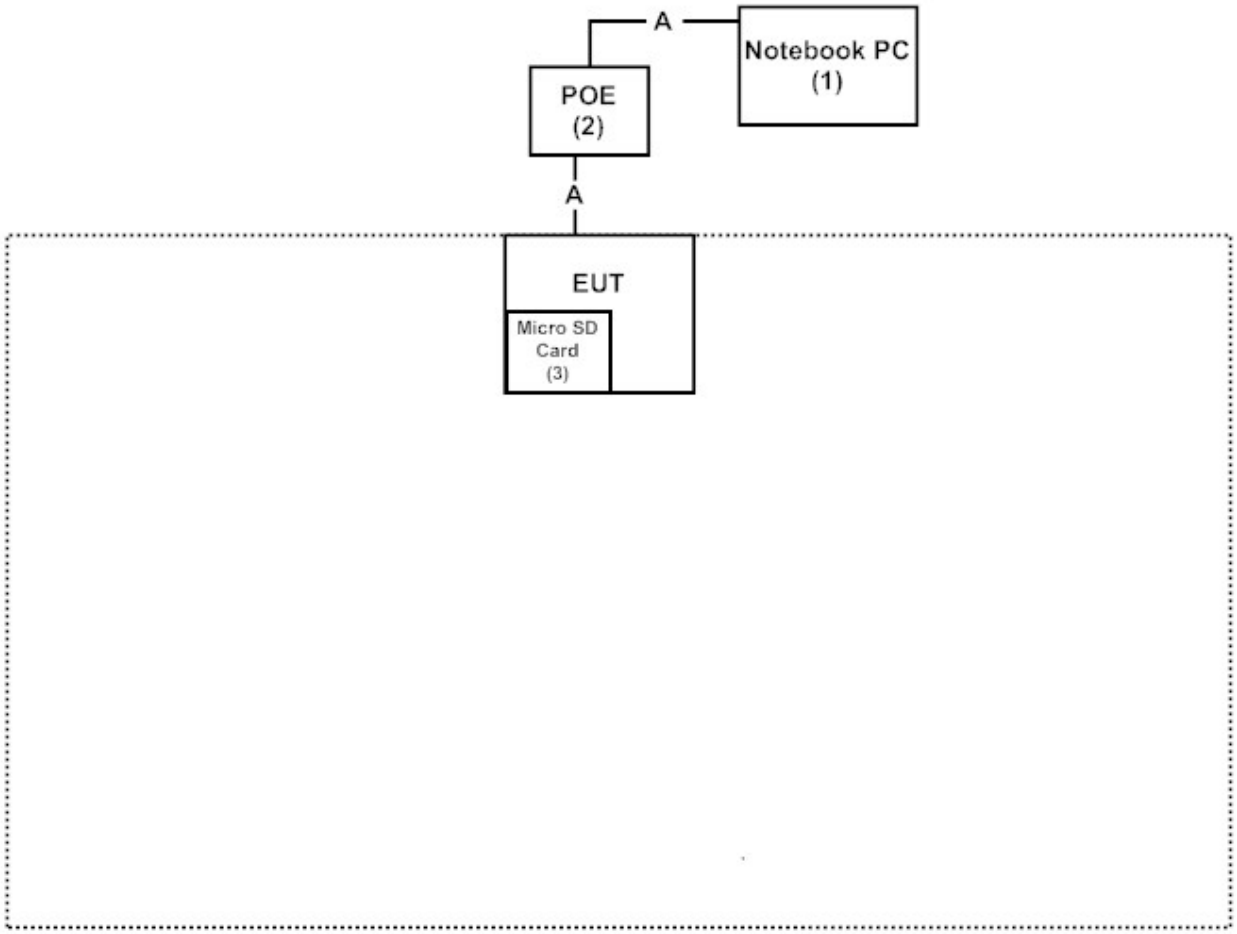
Pre-Test Mode	
Mode 1: POE	
Final Test Mode	
Radiated Emission	Mode 1: POE

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	E5530	24QPXW1	Non-Shielded, 0.8m
2	POE	N/A	N/A	N/A	Non-Shielded, 1.8m
3	Micro SD Card (1GB)	SanDisk	N/A	0801002841D1B	N/A

1.4. Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 7.0m, two PCS.

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT will start to operate and display the video figure from the signal source.
4	The EUT will display “video figure” on monitor.
5	SD card works while the EUT is recording.
6	Repeat the above procedure (3) to (5).

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart B: 2014 Class B ANSI C63.4: 2014	No	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2014 Class B ANSI C63.4: 2014	Yes	No

2.2. List of Test Equipment

Radiated Emission / Site 7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2930	2015/06/12
EMI Test Receiver	R&S	ESCI	100649	2015/04/22
Coaxial Cable	QTK(Arnist)	RG 214	LC007-RG	2014/06/22
Site7 NSA	QTK	N/A	N/A	2014/06/22
Pre-Amplifier	QTK	AP/0100A	CHM/1009094	2014/06/22

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESU26	100433	2014/07/31
Horn Antenna	ETS-Lindgren	3117	00135205	2015/04/01
Horn Antenna	SCHWARZBECK	9120D	576	2014/11/21
Pre-Amplifier	COM-POWER	PAM-118	443019	2014/07/09
CB7 VSWR	QTK	N/A	N/A	2014/07/05

2.3. Measurement Uncertainty

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

2.4. Test Environment

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	15-35	21.8
	Humidity (%RH)	25-75	60
	Barometric pressure (mbar)	860-1060	950-1000

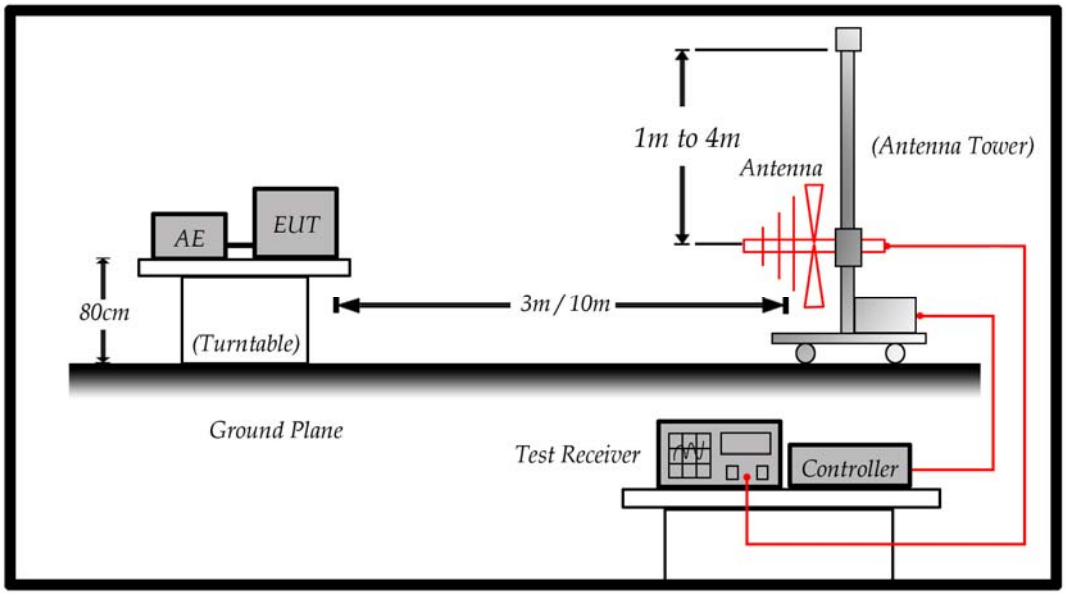
3. Radiated Emission

3.1. Test Specification

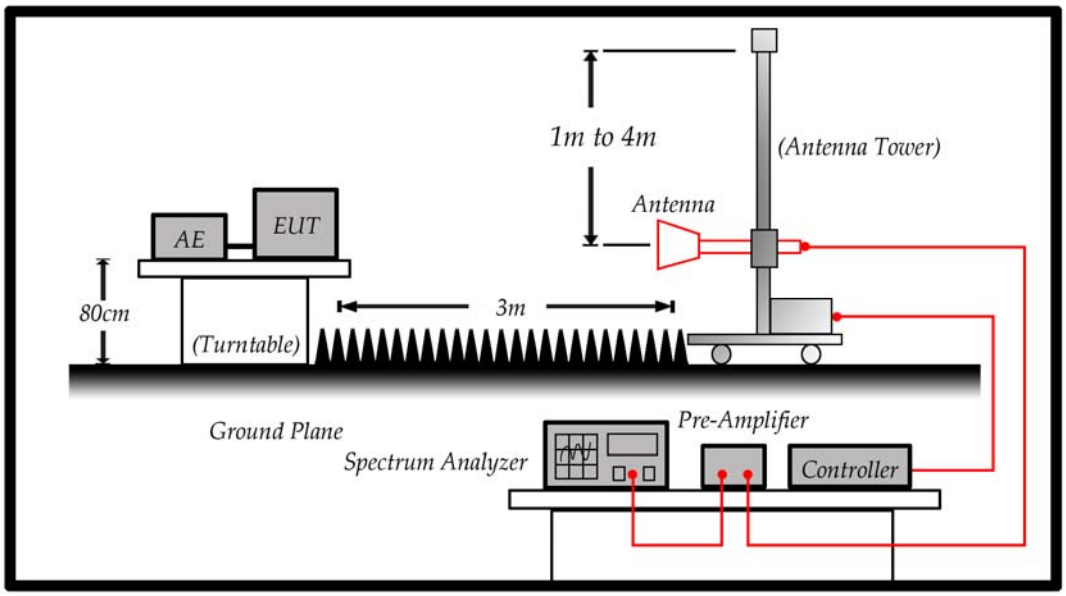
According to EMC Standard : FCC Part 15 Subpart B, ANSI C63.4

3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limit

Under 1GHz test shall not exceed the following value:

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)		
Frequency (MHz)	Distance (m)	dBuV/m
30-88	3	40
88-216	3	43.5
216-960	3	46
Above 960	3	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.

The turn table can rotate 360 degrees to determine the position of the maximum emission level and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the folowing table:

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

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

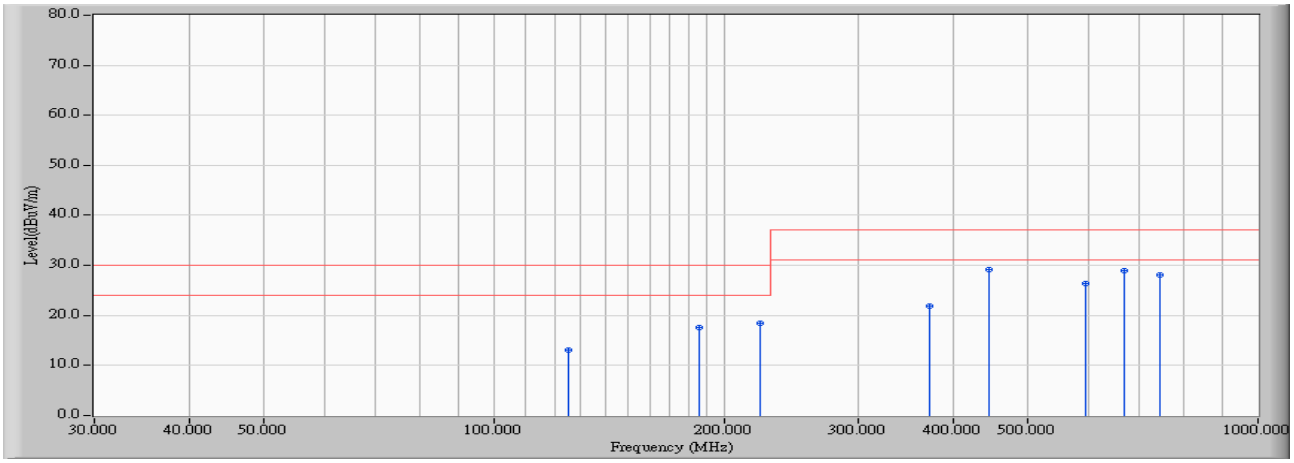
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

3.5. Test Result

Site : Site7	**Time : 2015/06/11 - 15:51**
Limit : CISPR_B_10M_QP	**Margin : 6**
EUT : Stereo Camera	**Probe : Site7_CBL6112_10M_1406 - HORIZONTAL**
Power : BY POE	**Note : Mode 1**

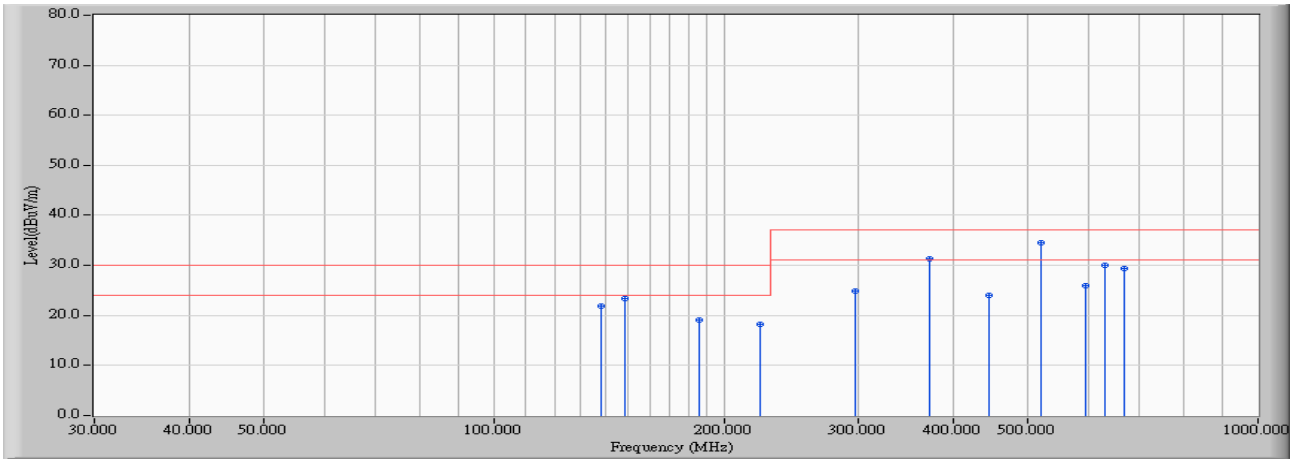


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	-18.188	31.200	13.012	-16.988	30.000	QUASIPEAK
2		185.620	-20.419	38.000	17.581	-12.419	30.000	QUASIPEAK
3		222.740	-19.497	37.900	18.403	-11.597	30.000	QUASIPEAK
4		371.230	-12.370	34.200	21.829	-15.171	37.000	QUASIPEAK
5	*	445.490	-9.910	39.000	29.090	-7.910	37.000	QUASIPEAK
6		594.000	-6.864	33.200	26.336	-10.664	37.000	QUASIPEAK
7		668.220	-6.160	35.200	29.040	-7.960	37.000	QUASIPEAK
8		742.480	-4.805	32.900	28.095	-8.905	37.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site7	**Time : 2015/06/11 - 16:14**
Limit : CISPR_B_10M_QP	**Margin : 6**
EUT : Stereo Camera	**Probe : Site7_CBL6112_10M_1406 - VERTICAL**
Power : BY POE	**Note : Mode 1**

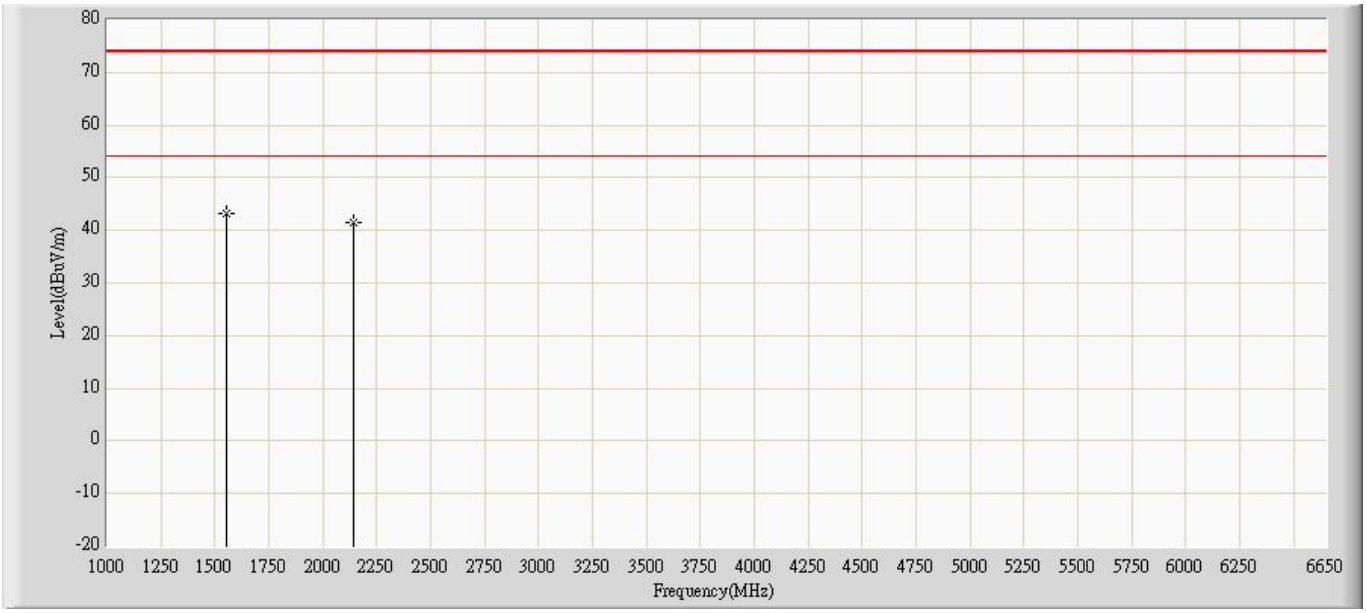


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		137.900	-18.654	40.500	21.846	-8.154	30.000	QUASIPEAK
2		148.490	-19.328	42.800	23.472	-6.528	30.000	QUASIPEAK
3		185.620	-20.419	39.600	19.181	-10.819	30.000	QUASIPEAK
4		222.745	-19.497	37.800	18.304	-11.696	30.000	QUASIPEAK
5		297.000	-15.104	40.000	24.895	-12.105	37.000	QUASIPEAK
6		371.240	-12.370	43.700	31.330	-5.670	37.000	QUASIPEAK
7		445.480	-9.910	34.000	24.090	-12.910	37.000	QUASIPEAK
8	*	519.740	-7.804	42.300	34.495	-2.505	37.000	QUASIPEAK
9		593.990	-6.864	32.900	26.036	-10.964	37.000	QUASIPEAK
10		631.110	-6.466	36.400	29.934	-7.066	37.000	QUASIPEAK
11		668.220	-6.160	35.600	29.440	-7.560	37.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site: CB7	Time: 2015/06/13 - 03:12
Limit: FCC_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_9120D_1411	Polarity: Horizontal
EUT: Stereo Camera	Power: BY POE
Note: Mode 1	

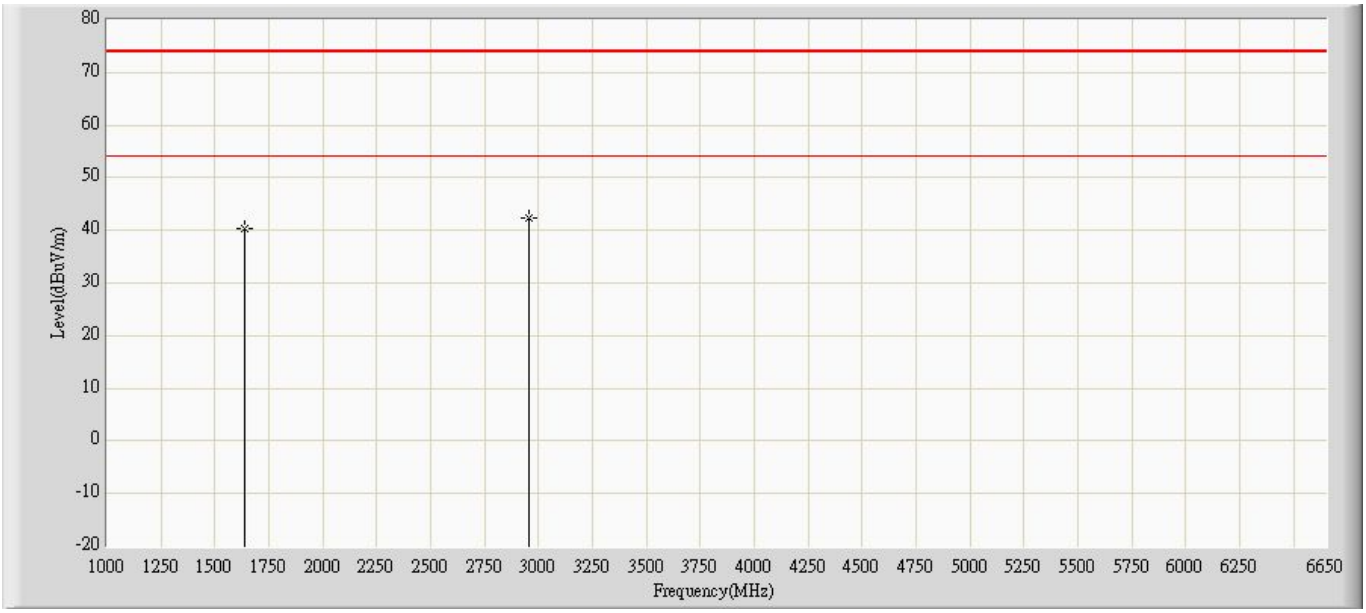


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	1555.000	43.262	40.880	-30.738	74.000	2.381	PK
2			2145.000	41.478	36.880	-32.522	74.000	4.599	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2015/06/13 - 03:12
Limit: FCC_B_(Above_1G)	Margin: 0
Probe: CB7_Horn_9120D_1411	Polarity: Vertical
EUT: Stereo Camera	Power: BY POE
Note: Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1640.000	40.315	37.680	-33.685	74.000	2.635	PK
2		*	2955.000	42.415	35.600	-31.585	74.000	6.815	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

3.6. Test Photograph

Test Mode : Mode 1: POE

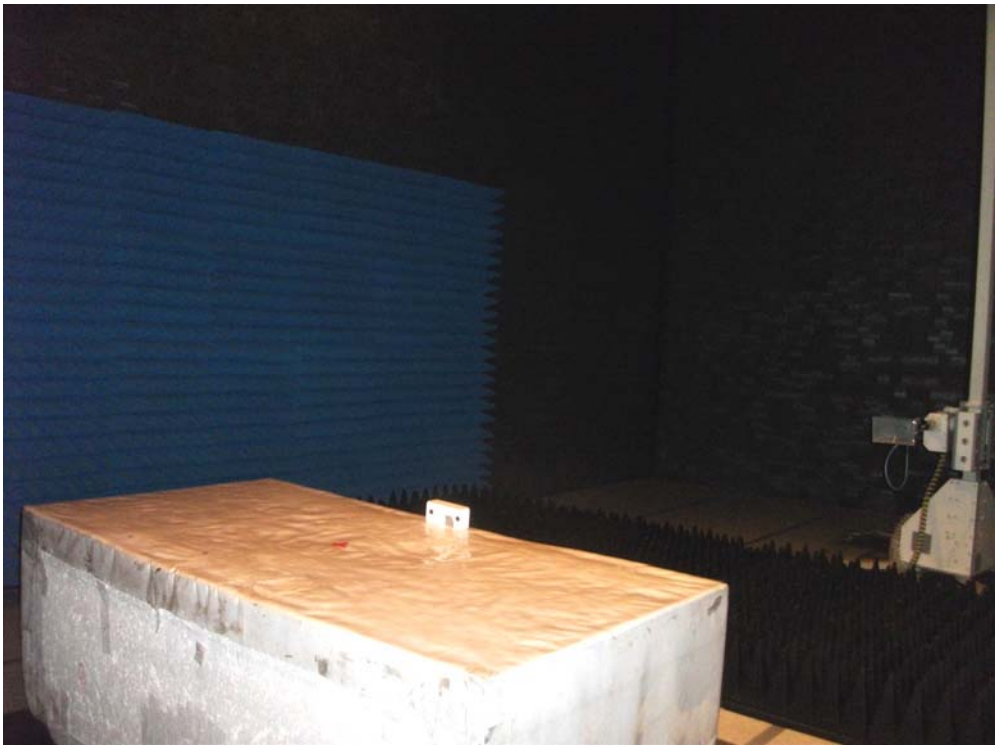
Description : Front View of Radiated Test

Test Mode : Mode 1: POE

Description : Back View of Radiated Test

Test Mode : Mode 1: POE

Description : Front View of High Frequency Radiated Test



4. Attachment

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo

(3) EUT Photo

(4) EUT Photo