



Test Report

Product Name : Wireless outdoor B&W camera
Model No. : TTA-35T
FCC ID. : O6LTTA-35T

Applicant : TRANWO TECHNOLOGY CORP
Address : 6F., No.49, Guangming 6th Rd., JubeiCity, Hsinchu,
Taiwan, R.O.C.

Date of Receipt : 2005/03/09
Issued Date : 2005/06/08
Report No. : 053H030-F-R02-T

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

Test Report Certification

Issued Date : 2005/06/08

Report No. : 053H030-F-R02-T



Product Name : Wireless outdoor B&W camera
 Applicant : TRANWO TECHNOLOGY CORP
 Address : 6F., No.49, Guangming 6th Rd., JubeiCity, Hsinchu, Taiwan,
 R.O.C.
 Manufacturer : TRANWO TECHNOLOGY CORP
 Model No. : TTA-35T
 FCC ID. : O6LTTA-35T
 Rated Voltage : AC 120 V / 60 Hz
 EUT Voltage : DC 9V (Power by adaptor)
 Trade Name : TRANWO
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.249
 Test Result : Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

Documented By : Carol Tsai

(Carol Tsai)

Tested By : Simon Lin

(Louis Hsu)

Approved By : James Chang

(James Chang)

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1. General Information

1.1. EUT Description

Product Name	Wireless outdoor B&W camera
Trade Name	TRANWO
Model No.	TTA-35T
Frequency Range	2434~2472MHz
Type of Modulation	FM
Channel Control	Manual
Antenna Type	Soldered on PCB

Component	
Power Adapter	AC ADAPTOR, HKKD-01498 Cable Out: Non-Shielded, 5m

Working Frequency of Each Channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2434 MHz	002	2453 MHz	003	2473 MHz

Note:

1. This device is a 2.4GHz Wireless outdoor B&W camera included a 2.4GHz transmitting function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249.
3. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 053H030-F-R01-R under Declaration of Conformity.

1.2. Operation Description

The EUT is Wireless outdoor B&W camera. The operation frequency is from 2.434GHz to 2.473GHz with FM modulation. Three manually selectable channels were built in the EUT. The signal will be transmitted through 2.4 GHz FM RF signal from the soldered on PCB antenna from EUT to receiver. DC 9V shall be provided for EUT operation.

1.3. Test Mode

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:

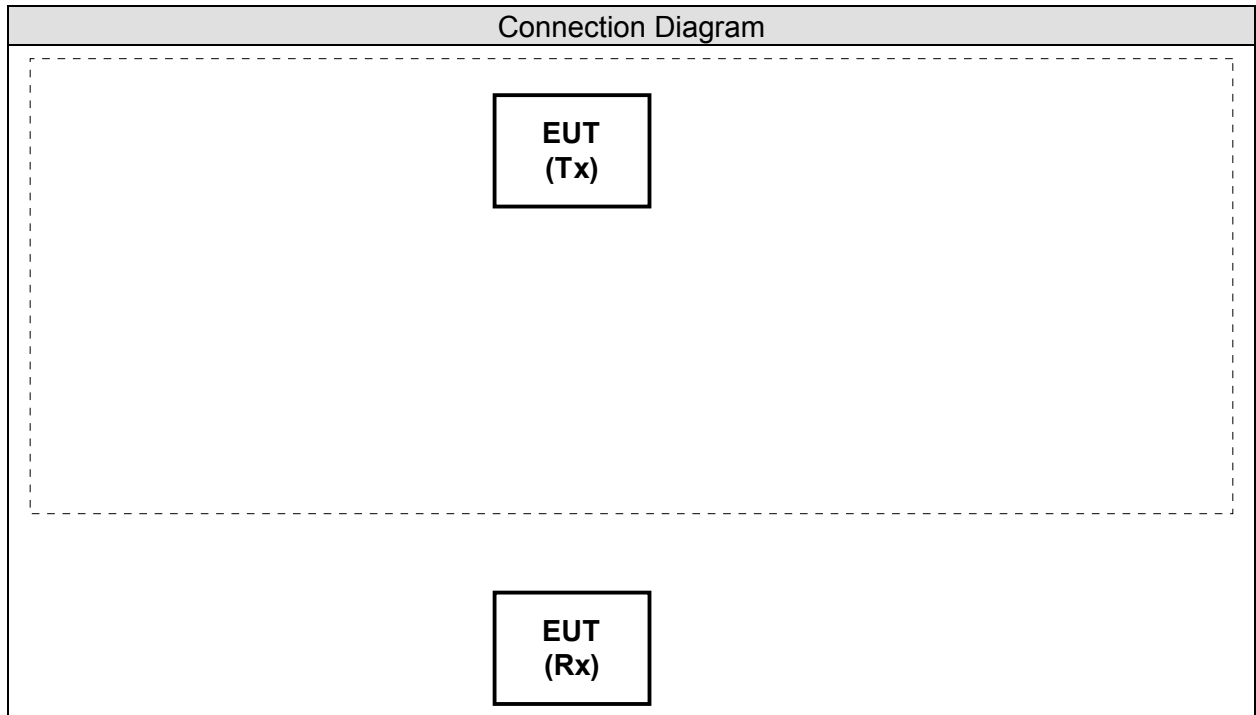
Pre-Test Mode	
EMI	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

1.4. Tested System Details

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

N/A

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT and display as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT(Tx) will start to operate.
4	The EUT(Tx) will transmit the video signal to EUT(Rx).
5	Monitor will display "video figure" on monitor in the same time.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.249 Band Edge	15 - 35	20
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.249 Radiated Emission	15 - 35	20
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

January 24, 2005 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520



Accredited by CNLA
Accreditation Number: 1313
Effective through: September 27, 2007



1313
ILAC MRA

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2005



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.

TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

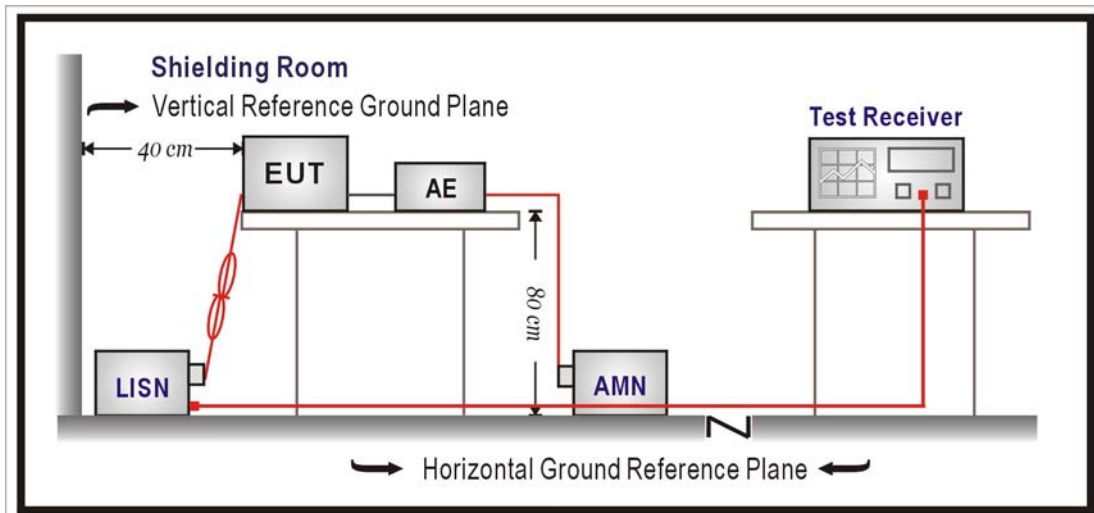
2.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/018	Sep., 2004	
2	Artificial Mains Network	R & S	ENV4200/848411/10	Feb., 2005	Peripheral
3	LISN	R & S	ESH3-Z5/825562/002	Feb., 2005	EUT
4	Pulse Limiter	R & S	ESH3-Z2/357.8810.52	Feb., 2005	
5	No.2 Shielded Room			N/A	

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2003

2.6. Test Result

Product	Wireless outdoor B&W camera		
Test Item	Conducted Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/01	Test Site	No.2 Shielded Room

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Emission Level dBuV	Limits dBuV
=====					
LINE 1					
Quasi-Peak					
* 0.255	0.10	0.10	21.12	21.32	61.58
0.486	0.10	0.10	14.35	14.55	56.24
0.981	0.11	0.10	7.41	7.62	56.00
2.935	0.14	0.16	8.14	8.43	56.00
7.623	0.20	0.34	10.71	11.25	60.00
18.802	0.35	0.78	10.45	11.58	60.00
Average					
* 0.255	0.10	0.10	15.80	16.00	51.59
0.486	0.10	0.10	8.50	8.70	46.24
0.981	0.11	0.10	4.60	4.81	46.00
2.935	0.14	0.16	4.20	4.49	46.00
7.623	0.20	0.34	6.40	6.94	50.00
18.802	0.35	0.78	6.20	7.33	50.00

Note:

1. All Reading Levels are Quasi-Peak and Average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

Product	Wireless outdoor B&W camera		
Test Item	Conducted Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/01	Test Site	No.2 Shielded Room

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Emission Level dBuV	Limits dBuV
=====					
LINE 2					
Quasi-Peak					
0.201	0.10	0.10	18.67	18.87	63.58
* 0.431	0.10	0.10	14.55	14.75	57.23
1.111	0.11	0.10	7.50	7.71	56.00
3.310	0.14	0.17	11.87	12.18	56.00
7.896	0.20	0.27	11.00	11.48	60.00
24.201	0.42	0.77	11.18	12.37	60.00
Average					
0.201	0.10	0.10	14.30	14.50	53.57
* 0.431	0.10	0.10	10.20	10.40	47.23
1.111	0.11	0.10	4.50	4.71	46.00
3.310	0.14	0.17	9.80	10.11	46.00
7.896	0.20	0.27	6.40	6.88	50.00
24.201	0.42	0.77	7.20	8.39	50.00

Note:

1. All Reading Levels are Quasi-Peak and Average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable Loss.

3. Radiated Emission

3.1. Test Equipment

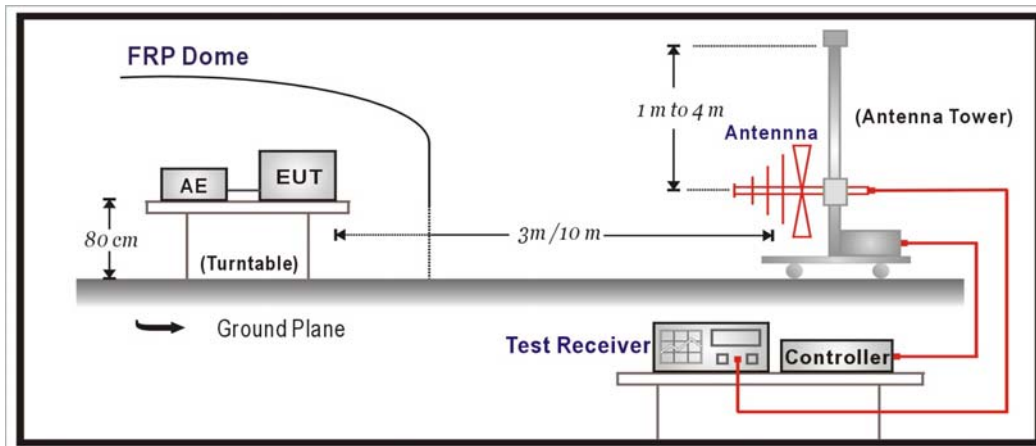
The following test equipment are used during the test:

Item		Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Test Receiver	R & S	ESCS 30 / 825442/017	Jan., 2005
2	X	Spectrum Analyzer	Advantest	R3261C / 81720266	N/A
3	X	Pre-Amplifier	HP	8447D / 2944A09276	N/A
4	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2004
5	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2004
6	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2005
7	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Jul., 2004
8		No.1 OATS			Sep., 2004

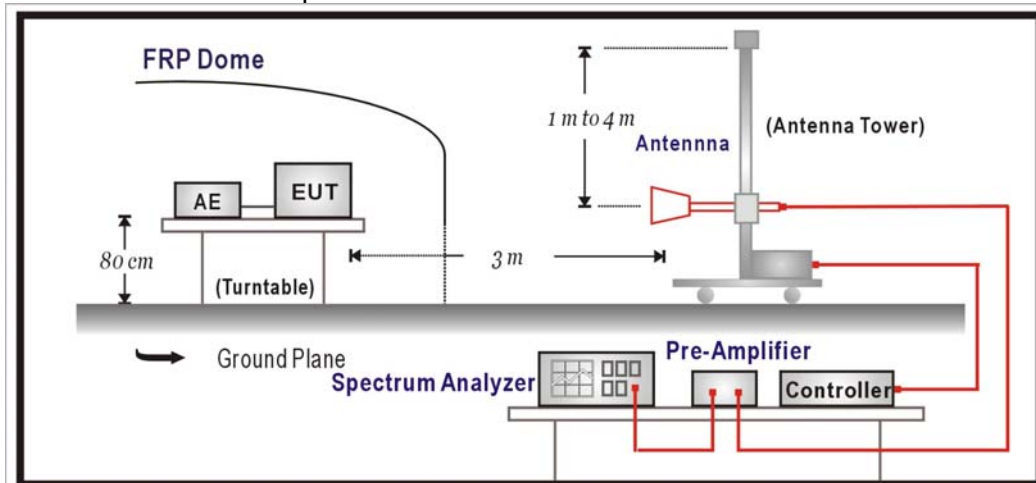
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limits

➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Fundamental Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 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. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

➤ Spurious electric field strength limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. 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. 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 according to ANSI C63.4:2003 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 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. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.209 and Paragraph 15.249: 2003

3.6. Test Result

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission (Fundamental)		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 1

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Fundamental Radiated Emission

Horizontal

Peak

2433.060	2.87	27.33	0.00	59.82	90.02	23.98	114.00
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Note:

1. All Readings Levels are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Probe Factor + Cable Loss.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission (Fundamental)		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 1

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Fundamental Radiated Emission

Vertical

Peak

2434.140	2.87	27.33	0.00	60.48	90.68	23.32	114.00
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Note:

1. All Readings Levels are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Probe Factor + Cable Loss.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission (Fundamental)		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 2

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Fundamental Radiated Emission

Horizontal

Peak

2452.020	2.88	27.38	0.00	58.99	89.25	24.75	114.00
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Note:

1. All Readings Levels are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Probe Factor + Cable Loss.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission (Fundamental)		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 2

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Fundamental Radiated Emission

Vertical

Peak

2453.140	2.88	27.38	0.00	61.52	91.78	22.22	114.00
----------	------	-------	------	-------	-------	-------	--------

Note:

1. All Readings Levels are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Probe Factor + Cable Loss.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission (Fundamental)		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 3

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Fundamental Radiated Emission

Horizontal

Peak

2471.800	2.90	27.50	0.00	58.01	88.41	25.59	114.00
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Note:

1. All Readings Levels are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Probe Factor + Cable Loss.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission (Fundamental)		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 3

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Fundamental Radiated Emission

Vertical

Peak

2472.100	2.90	27.50	0.00	60.96	91.36	22.64	114.00
----------	------	-------	------	-------	-------	-------	--------

Note:

1. All Readings Levels are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Probe Factor + Cable Loss.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 1

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBUV	Emission Level dBUV/m	Margin dB	Limit dBUV/m
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=====

Horizontal
Peak

4867.460	4.26	31.28	31.95	51.80	55.40	18.60	74.00
7302.420	5.67	36.09	32.60	44.14	53.29	20.71	74.00
9737.020	7.06	38.07	31.70	38.87	52.30	21.70	74.00
12171.30	8.46	38.52	31.23	41.60	57.35	16.65	74.00

Average

4868.180	4.26	31.28	31.95	47.40	51.00	3.00	54.00
12170.70	8.46	38.52	31.23	34.32	50.07	3.93	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 1

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
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=====

Vertical
Peak

4868.980	4.26	31.28	31.95	51.13	54.73	19.27	74.00
7302.260	5.67	36.09	32.60	43.74	52.89	21.11	74.00
9731.620	7.06	38.07	31.70	40.50	53.93	20.07	74.00
12164.30	8.45	38.53	31.24	40.31	56.04	17.96	74.00

Average

4868.180	4.26	31.28	31.95	46.27	49.87	4.13	54.00
12170.66	8.46	38.52	31.23	32.45	48.20	5.80	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 2

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Horizontal
Peak

4903.740	4.28	31.35	31.95	51.38	55.06	18.94	74.00
7359.420	5.70	36.19	32.55	42.90	52.24	21.76	74.00
9812.500	7.10	38.08	31.55	41.28	54.91	19.09	74.00
12263.58	8.51	38.45	31.14	39.99	55.82	18.18	74.00

Average

4906.180	4.29	31.38	31.95	46.94	50.66	3.34	54.00
9812.420	7.10	38.08	31.55	33.45	47.08	6.92	54.00
12265.54	8.51	38.45	31.14	31.43	47.26	6.74	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 2

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
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=====

Vertical
Peak

4906.220	4.29	31.38	31.95	50.97	54.69	19.31	74.00
7360.260	5.70	36.19	32.55	44.35	53.69	20.31	74.00
9813.180	7.10	38.08	31.55	42.51	56.14	17.86	74.00
12265.34	8.51	38.45	31.14	40.56	56.39	17.61	74.00

Average

4906.140	4.29	31.38	31.95	46.81	50.53	3.47	54.00
9812.540	7.10	38.08	31.55	34.23	47.86	6.14	54.00
12265.58	8.51	38.45	31.14	32.58	48.41	5.59	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 3

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Horizontal
Peak

4944.600	4.31	31.44	31.96	52.23	56.03	17.97	74.00
7419.500	5.74	36.33	32.48	47.07	56.66	17.34	74.00
9892.200	7.15	38.10	31.37	39.77	53.65	20.35	74.00
12365.90	8.56	38.39	31.06	39.62	55.52	18.48	74.00

Average

4946.200	4.31	31.44	31.96	47.01	50.81	3.19	54.00
7419.400	5.74	36.33	32.48	40.13	49.72	4.28	54.00
12365.70	8.56	38.39	31.06	30.32	46.22	7.78	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

Channel 3

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Vertical
Peak

4944.200	4.31	31.44	31.96	54.48	58.28	15.72	74.00
7418.000	5.74	36.33	32.48	44.08	53.67	20.33	74.00
9892.200	7.15	38.10	31.37	42.52	56.40	17.60	74.00
12360.70	8.56	38.39	31.06	39.97	55.87	18.13	74.00

Average

4946.200	4.31	31.44	31.96	48.51	52.31	1.69	54.00
9892.400	7.15	38.10	31.37	34.35	48.23	5.77	54.00
12365.60	8.56	38.39	31.06	29.49	45.39	8.61	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/07	Test Site	No.1 OATS

Channel 1

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
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Horizontal

Quasi-Peak

48.010	0.36	13.57	22.60	29.06	20.39	19.61	40.00
300.210	0.73	17.31	22.60	28.32	23.76	22.24	46.00
462.340	0.97	20.19	22.60	27.75	26.32	19.68	46.00
610.610	1.19	23.15	22.60	26.19	27.93	18.07	46.00
* 818.470	1.50	24.75	22.60	28.08	31.73	14.27	46.00
970.900	1.73	25.72	22.60	29.56	34.40	19.60	54.00

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. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/07	Test Site	No.1 OATS

Channel 1

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

=====

Vertical

Quasi-Peak

*	48.010	0.36	17.93	22.60	40.12	35.80	4.20	40.00
	200.440	0.58	13.96	22.60	31.90	23.85	19.65	43.50
	397.210	0.88	17.80	22.60	31.16	27.23	18.77	46.00
	612.000	1.19	21.35	22.60	27.30	27.25	18.75	46.00
	756.110	1.41	21.61	22.60	32.38	32.80	13.20	46.00
	970.900	1.73	24.61	22.60	28.31	32.05	21.95	54.00

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. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/07	Test Site	No.1 OATS

Channel 2

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
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Horizontal
Quasi-Peak

48.010	0.36	13.57	22.60	29.26	20.59	19.41	40.00
250.330	0.66	11.87	22.60	29.75	19.68	26.32	46.00
458.190	0.96	20.10	22.60	28.05	26.51	19.49	46.00
613.390	1.20	23.19	22.60	26.11	27.89	18.11	46.00
* 829.560	1.52	24.82	22.60	28.10	31.83	14.17	46.00
969.510	1.73	25.71	22.60	29.96	34.80	19.20	54.00

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. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/07	Test Site	No.1 OATS

Channel 2

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
=====							

Vertical

Quasi-Peak

*	48.010	0.36	17.93	22.60	39.92	35.60	4.40	40.00
	196.290	0.58	14.13	22.60	32.20	24.31	19.19	43.50
	418.000	0.91	18.70	22.60	28.50	25.51	20.49	46.00
	599.530	1.17	21.49	22.60	26.69	26.76	19.24	46.00
	772.740	1.43	22.07	22.60	31.56	32.47	13.53	46.00
	943.190	1.68	23.95	22.60	28.99	32.03	13.97	46.00

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. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/07	Test Site	No.1 OATS

Channel 3

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
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Horizontal

Quasi-Peak

48.010	0.36	13.57	22.60	29.66	20.99	19.01	40.00
298.830	0.73	17.14	22.60	25.24	20.50	25.50	46.00
467.890	0.98	20.29	22.60	28.01	26.68	19.32	46.00
612.000	1.19	23.17	22.60	26.96	28.72	17.28	46.00
* 819.860	1.50	24.76	22.60	27.42	31.08	14.92	46.00
970.900	1.73	25.72	22.60	30.36	35.20	18.80	54.00

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. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.

Product	Wireless outdoor B&W camera		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/07	Test Site	No.1 OATS

Channel 3

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
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Vertical
Quasi-Peak

*	48.010	0.36	17.93	22.60	40.12	35.80	4.20	40.00
	196.290	0.58	14.13	22.60	33.20	25.31	18.19	43.50
	372.270	0.84	17.58	22.60	26.59	22.40	23.60	46.00
	592.600	1.16	21.57	22.60	25.71	25.84	20.16	46.00
	739.490	1.38	21.55	22.60	32.09	32.42	13.58	46.00
	939.030	1.68	23.86	22.60	29.71	32.65	13.35	46.00

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. Emission Level = Reading Level + Probe Factor + Cable Loss – PreAMP.

4. Band Edge

4.1. Test Equipment

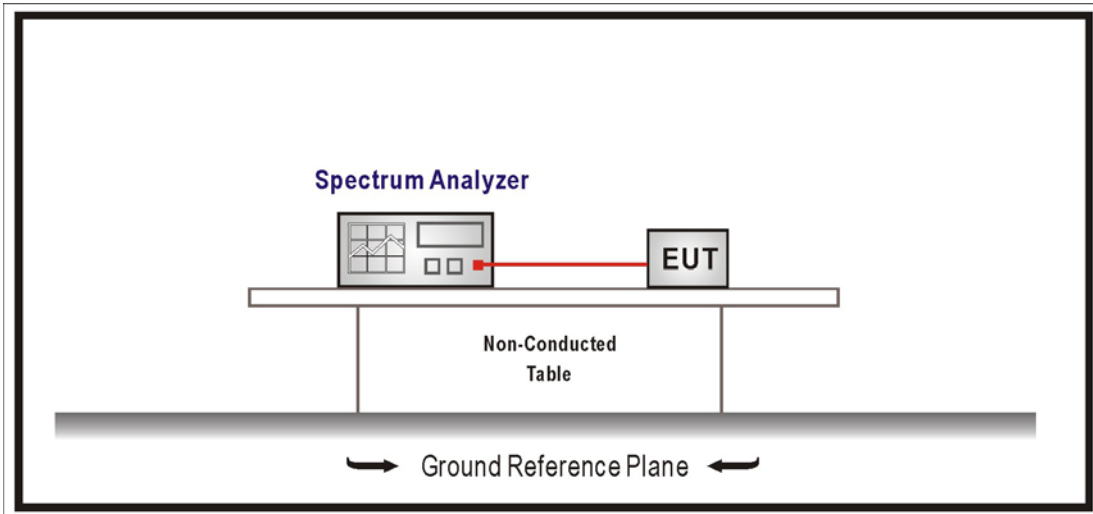
The following test equipment are used during the test:

RF Conducted Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2005
2	No.1 OATS			Sep., 2004
RF Radiated Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	X Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2004
2	X Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2005
3	Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2004
4	BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2004
5	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2004
6	X Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2004
7	No.1 OATS			Sep., 2004

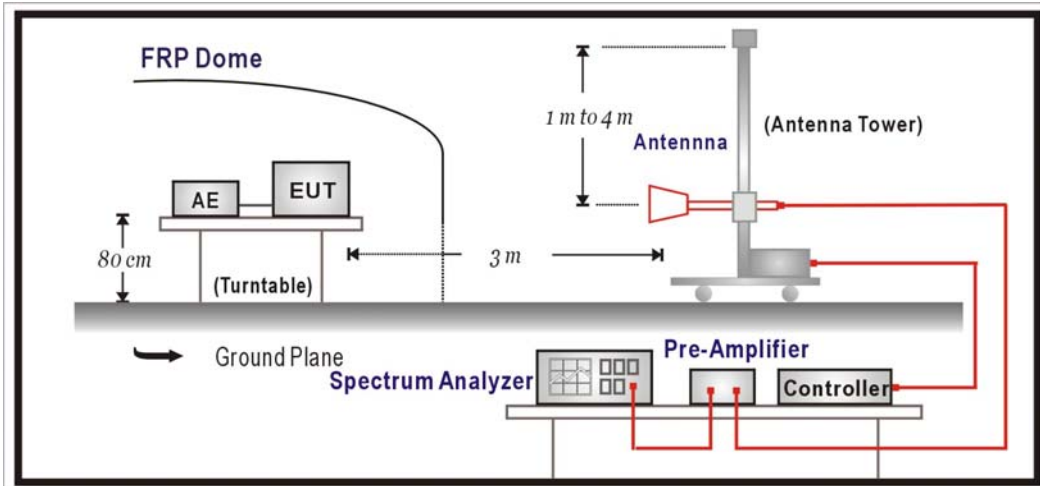
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

4.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



4.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

4.4. 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. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

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 according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.249: 2003

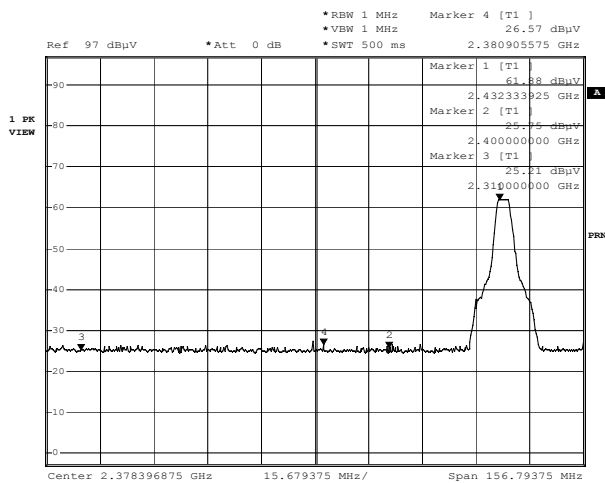
4.6. Test Result

Product	Wireless outdoor B&W camera		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

RF Radiated Measurement: (Peak Detector)

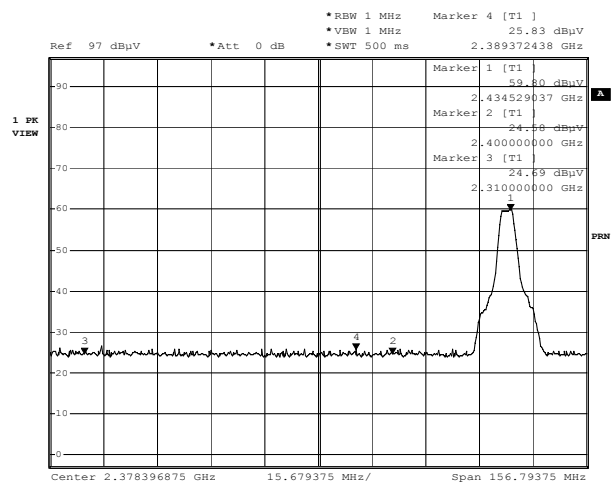
Channel No.	Frequency (MHz)	Reading Level (dBuV)	Probe Factor (dB/m)	Cable Loss (dB)	PreAMP (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
1(Horizontal)	2380.910	26.57	27.15	2.84	0.00	56.56	74.00	Pass
1(Vertical)	2389.370	25.83	27.21	2.85	0.00	55.89	74.00	Pass

Horizontal



Date: 6.JUN.2005 23:05:26

Vertical



Date: 6.JUN.2005 22:58:00

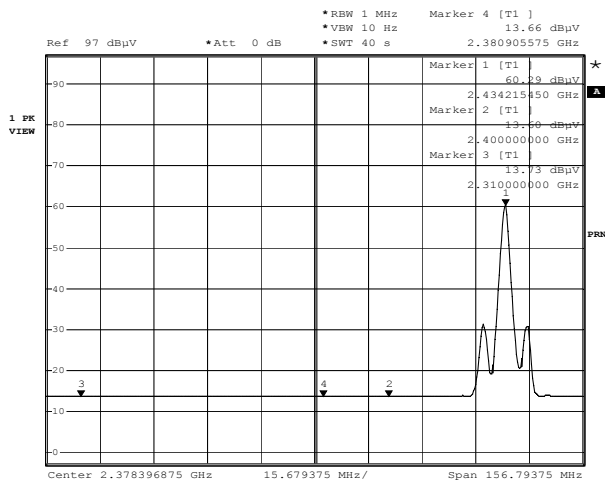
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

RF Radiated Measurement: (Average Detector)

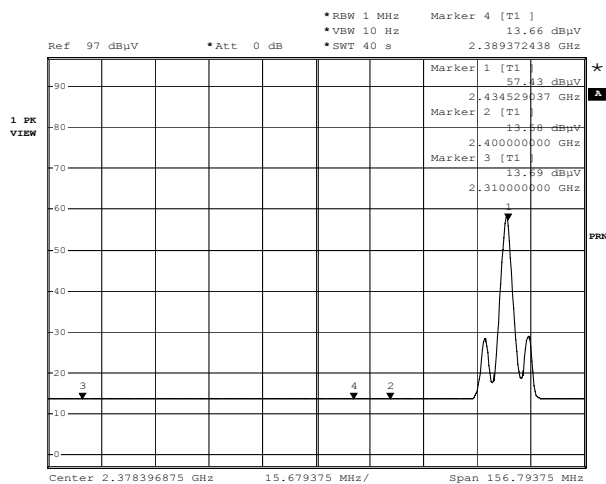
Channel No.	Frequency (MHz)	Reading Level (dBuV)	Probe Factor (dB/m)	Cable Loss (dB)	PreAMP (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
1(Horizontal)	2380.910	13.66	27.15	2.84	0.00	43.65	54.00	Pass
1(Vertical)	2389.370	13.66	27.21	2.85	0.00	43.72	54.00	Pass

Horizontal



Date: 6.JUN.2005 23:06:44

Vertical



Date: 6.JUN.2005 22:59:53

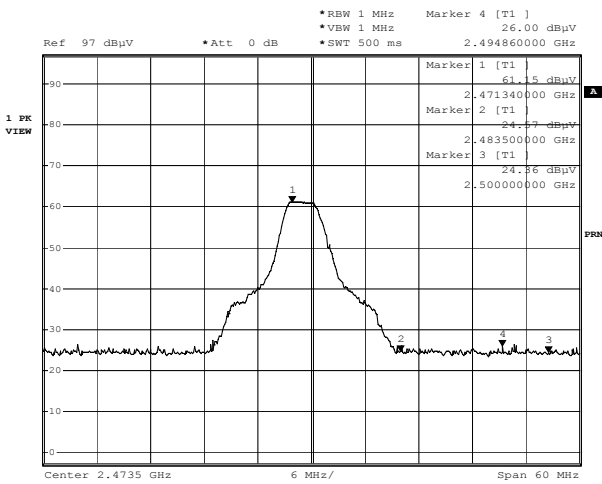
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

RF Radiated Measurement: (Peak Detector)

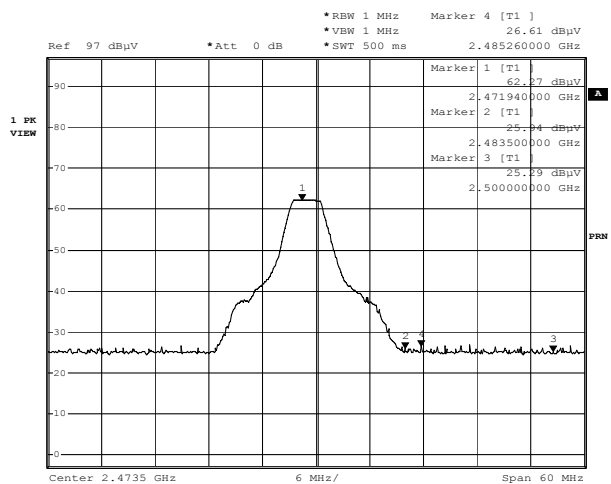
Channel No.	Frequency (MHz)	Reading Level (dBuV)	Probe Factor (dB/m)	Cable Loss (dB)	PreAMP (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
3(Horizontal)	2494.860	26.00	27.58	2.91	0.00	56.49	74.00	Pass
3(Vertical)	2485.260	26.61	27.50	2.90	0.00	57.01	74.00	Pass

Horizontal



Date: 6.JUN.2005 23:15:56

Vertical



Date: 6.JUN.2005 23:23:06

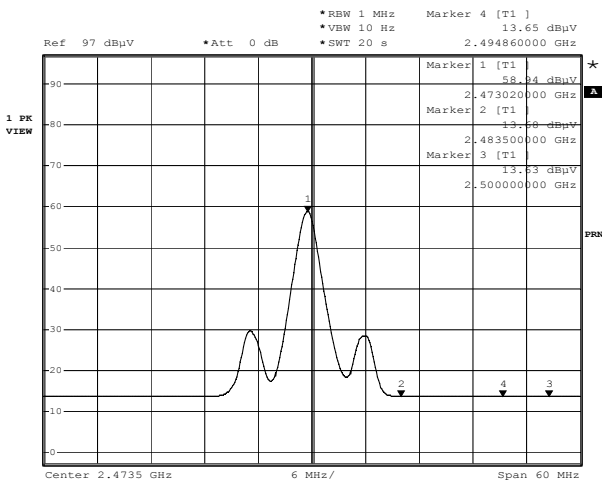
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Wireless outdoor B&W camera		
Test Item	Band Edge		
Test Mode	Mode 1: Transmit		
Date of Test	2005/06/06	Test Site	No.1 OATS

RF Radiated Measurement: (Average Detector)

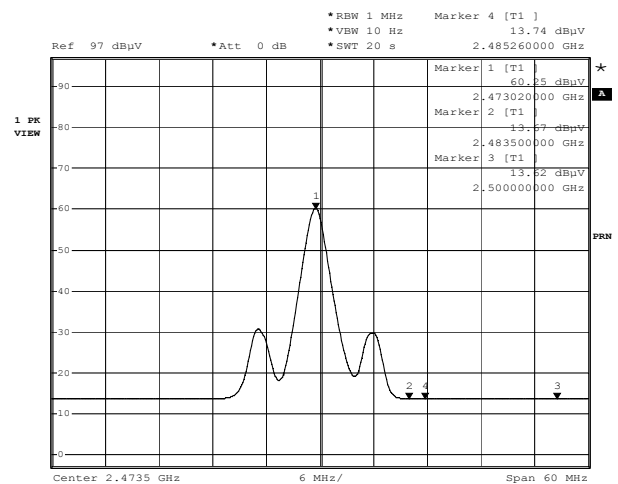
Channel No.	Frequency (MHz)	Reading Level (dBuV)	Probe Factor (dB/m)	Cable Loss (dB)	PreAMP (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
3(Horizontal)	2494.860	13.65	27.58	2.91	0.00	44.14	54.00	Pass
3(Vertical)	2485.260	13.74	27.50	2.90	0.00	44.14	54.00	Pass

Horizontal



Date: 6.JUN.2005 23:18:53

Vertical



Date: 6.JUN.2005 23:24:11

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.