



Test Report

Product Name : Wireless Outdoor Camera

Model No. : TTA-33T

FCC ID.: O6LTTA-33T

Applicant : TRANWO TECHNOLOGY CORP.

Address : 6F, No. 49, Guangmin6th Rd., Jubei City, Hsinchu,
Taiwan 302, R.O.C.

Date of Receipt : Oct. 31, 2001

Date of Test : Mar. 01, 2002

Report No. : 01BH010FI

The test results relate only to the samples tested.

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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Test Date : Mar. 01, 2002

Report No. : 01BH010FI



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200347-0

Product Name : Wireless Outdoor Camera

Applicant : TRANWO TECHNOLOGY CORP.

Address : 6F, No. 49, Guangmin6th Rd., Jubei City, Hsinchu, Taiwan 302, R.O.C.

Manufacturer : TRANWO TECHNOLOGY CORP.

Model No. : TTA-33T

FCC ID. : O6LTTA-33T

Rated Voltage : AC 120V/60Hz

Trade Name : TRANWO

Measurement Standard : FCC Part 15 Subpart C Paragraph 15.249

Measurement Procedure : ANSI C63.4: 1992

Test Result : Complied



NVLAP Lab Code : 200347-0

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	: Wireless Outdoor Camera
Trade Name	: TRANWO
FCC ID.	: O6LTTA-33T
Model No.	: TTA-33T
Frequency Range	: 2411 MHz to 2473MHz
Channel Number	: 4
Frequency of each Channel	: Channel 1: 2436MHz, Channel 2: 2453MHz, Channel 3: 2473MHz, Channel 4: 2411MHz,
Type of Modulation	: FM
Type of Antenna	: Soldered on PCB
Operator Selection of	: Manual Switch
Operating Frequency	
Power Adapter	: HON-KWONG, HKKD-01498 Cable Out: Non-shielded, 1.5m
Power Adapter	: OEM, R410905 Cable Out: Non-shielded, 1.8m

Note:

1. This device is a Wireless Outdoor Camera included a 2.4GHz transmitting function.
2. Regards to the frequency band operation; the lowest 、 middle and highest frequency of channel were selected to perform the test, then shown on this report.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.

1.2. Operation Description

EUT is a wireless outdoor camera with four channels. The device adapts FM modulation. The antenna soldered on PCB provides diversity function to improve the receiving function. Image can be transmitted by the radio signal to the receiver that connect to the TV. The camera and receiver must be set at same channels.

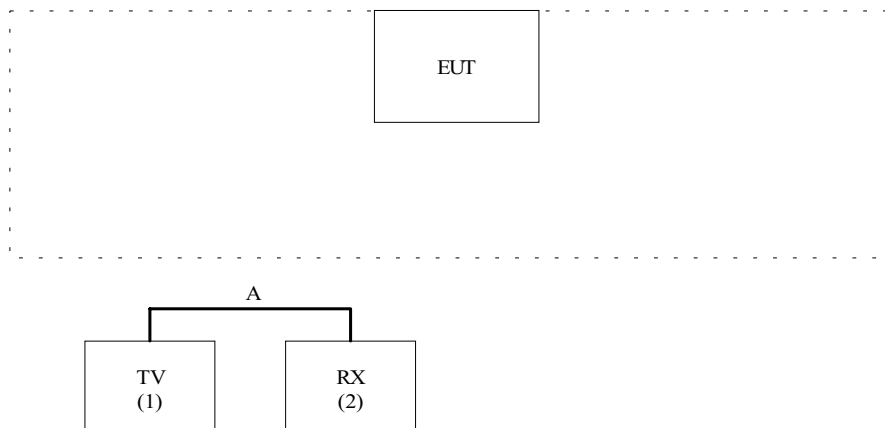
1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	Power Cord	FCC ID
(1)	Television	SONY	PWM-14M2U	2018559	Non-shielded, 1.8m	DoC
(2)	2.4 GHz Wireless A/V Sender (Receiver)	TRANW	GigaAir 10R			DoC

	Signal Cable Type	Signal Cable Description
A.	RCA Cable	Non-shielded, 1.6m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- 1.4.1 Setup the EUT and display as shown on 1.4.
- 1.4.2 Turn on the power of all equipment.
- 1.4.3 The EUT will transmit the radio signal.
- 1.4.4 Verify the operation was the normal
- 1.4.5 Repeat the above procedure 1.4.2 to 1.4.4

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description: November 3, 1998 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

August 30, 2001 Accreditation on NVLAP
NVLAP Lab Code: 200347-0



Site Name: Quietek Corporation

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

2. Conducted Emission

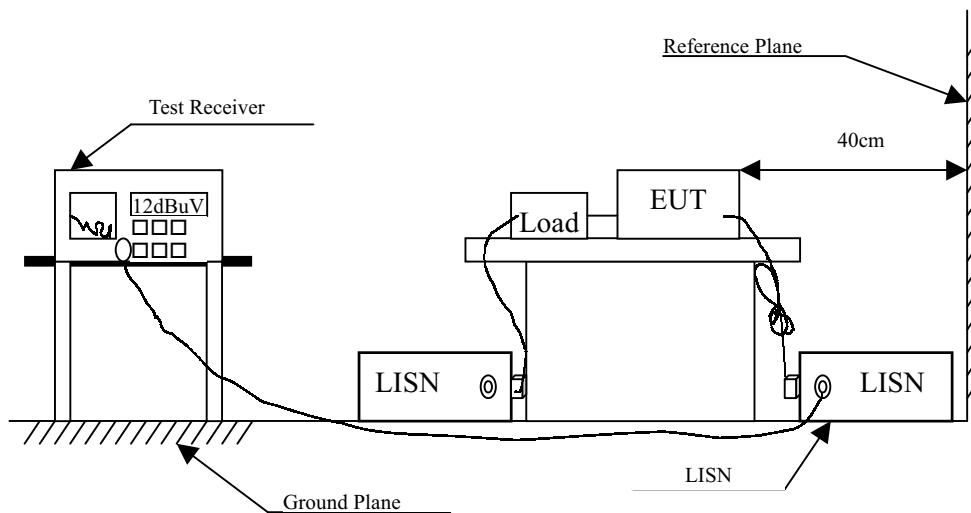
2.1. Test Equipment List

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2001	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2001	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2001	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	N/A	
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 Paragraph 15.207 (dBuV)		
Frequency MHz	Limits	
	uV	dBuV
0.45 - 30	250	48.0

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 C63.4:1992 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.45MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Result of Conducted Emission

Product : Wireless Outdoor Camera
 Test Item : Conducted Emission Test
 Test Mode : Normal Operation (Adapter: HKKD-01498)

Frequency	Cable	LISN	Reading Level	Emission Level	Limits
	Loss	Factor			
MHz	dB	dB	dBuV	dBuV	dBuV

Line 1

Quasi-Peak:

7.584	0.25	0.47	1.56	2.28	48.00
9.536	0.27	0.49	14.07	14.83	48.00
13.787	0.31	0.53	1.38	2.22	48.00
15.977	0.33	0.54	12.26	13.13	48.00
19.068	0.35	0.56	16.17	17.08	48.00
*28.607	0.39	0.60	23.35	24.34	48.00

Line 2

Quasi-Peak:

6.900	0.24	0.46	2.10	2.80	48.00
9.533	0.27	0.49	13.38	14.14	48.00
15.976	0.33	0.54	12.62	13.49	48.00
19.069	0.35	0.56	18.22	19.13	48.00
23.965	0.38	0.58	12.45	13.41	48.00
*28.604	0.39	0.60	22.56	23.55	48.00

Note:

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

Product : Wireless Outdoor Camera
 Test Item : Conducted Emission Test
 Test Mode : Normal Operation (Adapter: R410905)

Frequency	Cable	LISN	Reading Level	Emission Level	Limits
	Loss	Factor			
MHz	dB	dB	dBuV	dBuV	dBuV

Line 1

Quasi-Peak:

*0.515	0.07	0.22	29.50	29.78	48.00
0.579	0.07	0.23	26.21	26.51	48.00
0.844	0.09	0.26	16.65	17.00	48.00
3.362	0.18	0.39	7.72	8.29	48.00
19.068	0.35	0.56	15.10	16.01	48.00
28.606	0.39	0.60	23.99	24.98	48.00

Line 2

Quasi-Peak:

*0.451	0.06	0.20	28.19	28.45	48.00
0.581	0.07	0.23	20.48	20.78	48.00
5.539	0.21	0.44	9.55	10.20	48.00
9.533	0.27	0.49	15.36	16.12	48.00
19.071	0.35	0.56	21.09	22.00	48.00
28.603	0.39	0.60	22.24	23.23	48.00

Note:

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

3. Radiated Emission

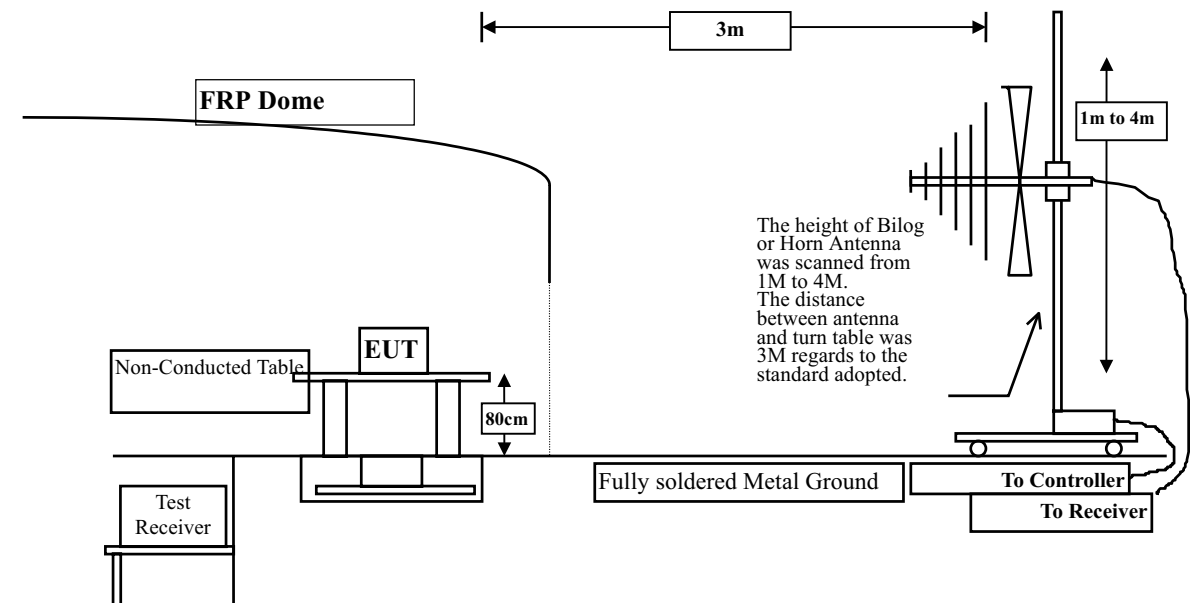
3.1. Test Equipment

The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 1	X	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2001
	X	Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2001
	X	Pre-Amplifier	HP	8447D/3307A01812	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2001
	X	Horn Antenna	EM	EM6917 / 103325	May, 2001
Site # 2		Test Receiver	R & S	ESCS 30 / 825442/17	May, 2001
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2001
		Pre-Amplifier	HP	8447D/3307A01814	May, 2001
		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2001
		Horn Antenna	EM	EM6917 / 103325	May, 2001

- 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



3.3. Limits

➤ Fundamental and Harmonics Emission Limits

Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
2400-2483.5	50	94 (Average)	500	54 (Average)
		114 (Peak)		74 (Peak)

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

Frequency MHz	15.209 Limits (dBuV/m @3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remarks :

1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
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 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 C63.4:1992 on radiated measurement.

Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 3 meters.

The frequency range from 30MHz to 10th harmonics is checked.

3.5. Test Result of Radiated Emission

Product : Wireless Outdoor Camera
 Test Item : Fundamental Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Normal Operation

Freq.	Cable	Probe	PreAMP	Reading	Emission Margin Limit		
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
=====							
Peak Detector (Horizontal)							
Channel 4							
2409.096	3.84	29.26	34.90	80.50	78.70	35.30	114.00
Channel 2							
2454.062	3.89	29.39	34.90	81.57	79.96	34.04	114.00
Channel 3							
2473.851	3.91	29.44	34.90	81.38	79.83	34.17	114.00
Peak Detector (Vertical)							
Channel 4							
2409.296	3.84	29.26	34.90	78.20	76.40	37.60	114.00
Channel 2							
2453.360	3.88	29.35	34.90	77.09	75.41	38.59	114.00
Channel 3							
2471.046	3.91	29.44	34.90	76.52	74.97	39.03	114.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Outdoor Camera
Test Item : Harmonic Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 4

Freq.	Cable	Probe	PreAMP	Reading	Emission Margin			Limit
	Loss	Factor		Level	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m	
=====								
Peak Detector (Horizontal)								
4822.002	6.27	33.50	34.77	49.35	54.35	19.65	74.00	
7232.918	8.31	36.22	34.90	50.02	59.65	14.35	74.00	
9643.751	10.17	37.43	35.10	44.84	< 57.33	16.67	74.00	
12055.25	11.91	39.13	34.65	44.19	< 60.58	13.42	74.00	
Average Detector (Horizontal)								
4822.002	6.27	33.50	34.77	42.04	47.04	6.96	54.00	
7232.918	8.31	36.22	34.90	43.00	52.63	1.37	54.00	
9643.751	10.17	37.43	35.10	34.75	< 47.24	6.76	54.00	
12055.25	11.91	39.13	34.65	33.39	< 49.78	4.22	54.00	
Peak Detector (Vertical)								
4820.747	6.27	33.50	34.77	49.61	54.61	19.39	74.00	
7232.500	8.31	36.22	34.90	49.78	59.41	14.59	74.00	
9644.002	10.17	37.43	35.10	44.45	< 56.94	17.06	74.00	
12055.00	11.91	39.13	34.65	43.98	< 60.37	13.63	74.00	
Average Detector (Vertical)								
4822.169	6.27	33.50	34.77	43.79	48.79	5.21	54.00	
7232.751	8.31	36.22	34.90	43.35	52.98	1.02	54.00	
9644.002	10.17	37.43	35.10	33.93	< 46.42	7.58	54.00	
12055.00	11.91	39.13	34.65	32.98	< 49.37	4.63	54.00	

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Outdoor Camera
Test Item : Harmonic Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 2

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

Peak Detector (Horizontal)

4906.125	6.35	33.60	34.74	47.78	53.00	21.00	74.00
7358.790	8.42	36.36	34.90	48.88	58.76	15.24	74.00
9811.874	10.29	37.46	35.10	43.98	< 56.63	17.37	74.00
12264.79	12.04	39.20	34.50	42.98	< 59.72	14.28	74.00

Average Detector (Horizontal)

4906.041	6.35	33.60	34.74	45.49	50.71	3.29	54.00
7358.790	8.42	36.36	34.90	42.00	51.88	2.12	54.00
9811.539	10.29	37.46	35.10	33.07	< 45.72	8.28	54.00
12264.37	12.04	39.20	34.50	32.67	< 49.41	4.59	54.00

Peak Detector (Vertical)

4906.041	6.35	33.60	34.74	50.48	55.70	18.30	74.00
7358.790	8.42	36.36	34.90	49.30	59.18	14.82	74.00
9811.539	10.29	37.46	35.10	43.77	< 56.42	17.58	74.00
12264.37	12.04	39.20	34.50	42.77	< 59.51	14.49	74.00

Average Detector (Vertical)

4906.041	6.35	33.60	34.74	44.52	49.73	-4.27	54.00
7358.790	8.42	36.36	34.90	43.12	53.00	1.00	54.00
9811.874	10.29	37.46	35.10	33.61	< 46.26	7.74	54.00
12264.79	12.04	39.20	34.50	34.67	< 51.41	2.59	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Outdoor Camera
Test Item : Harmonic Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 3

Freq.	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
=====							
Peak Detector (Horizontal)							
4946.041	6.38	33.64	34.72	48.70	54.00	20.00	74.00
7418.874	8.47	36.42	34.90	46.05	56.05	17.95	74.00
9891.707	10.36	37.48	35.10	43.24	< 55.97	18.03	74.00
12365.12	12.11	39.24	34.41	44.47	< 61.41	12.59	74.00
Average Detector (Horizontal)							
4946.041	6.38	33.64	34.72	42.12	47.42	6.58	54.00
7418.874	8.47	36.42	34.90	34.89	44.89	9.11	54.00
9891.707	10.36	37.48	35.10	33.00	< 45.73	8.27	54.00
12365.12	12.11	39.24	34.41	35.66	< 52.60	1.40	54.00
Peak Detector (Vertical)							
4945.790	6.38	33.64	34.72	48.86	54.16	19.84	74.00
7418.958	8.47	36.42	34.90	47.72	57.72	16.28	74.00
9891.707	10.36	37.48	35.10	44.08	< 56.81	17.19	74.00
12364.79	12.11	39.24	34.41	44.88	< 61.82	12.18	74.00
Average Detector (Vertical)							
4945.790	6.38	33.64	34.72	43.29	48.59	5.41	54.00
7418.958	8.47	36.42	34.90	41.90	51.90	2.10	54.00
9891.707	10.36	37.48	35.10	32.48	< 45.21	8.79	54.00
12364.79	12.11	39.24	34.41	35.93	< 52.87	1.13	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Outdoor Camera
Test Item : General Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 4 (Adapter: HKKD-01498)

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

Horizontal:

151.250	1.52	16.74	26.89	41.80	33.16	10.34	43.50
248.250	1.91	17.85	26.93	42.40	35.23	10.77	46.00
*256.010	1.94	18.63	26.93	44.60	38.24	7.76	46.00
283.170	2.06	18.30	26.94	42.80	36.22	9.78	46.00
294.810	2.10	18.46	26.95	44.60	38.21	7.79	46.00
426.730	2.64	20.05	26.75	39.40	35.34	10.66	46.00

Vertical:

150.280	1.51	16.86	26.89	45.40	36.88	6.62	43.50
256.010	1.94	18.63	26.93	44.80	38.44	7.56	46.00
285.110	2.06	18.32	26.94	45.00	38.44	7.56	46.00
*294.810	2.10	18.46	26.95	50.20	43.81	2.19	46.00
321.000	2.21	19.35	26.92	42.20	36.84	9.16	46.00
330.700	2.25	19.66	26.90	45.20	40.21	5.79	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : Wireless Outdoor Camera
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 4 (Adapter: R410905)

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

Horizontal:

284.140	2.06	18.22	26.94	44.40	37.74	8.26	46.00
*293.840	2.10	18.46	26.95	48.60	42.21	3.79	46.00
312.270	2.18	19.05	26.93	42.20	36.49	9.51	46.00
427.700	2.65	20.05	26.75	41.40	37.35	8.65	46.00
453.890	2.76	20.18	26.71	37.40	33.62	12.38	46.00
463.590	2.80	20.39	26.69	40.60	37.10	8.90	46.00

Vertical:

199.750	1.71	15.24	26.91	44.00	34.04	9.46	43.50
257.950	1.95	18.85	26.93	39.80	33.67	12.33	46.00
294.810	2.10	18.46	26.95	42.80	36.41	9.59	46.00
330.700	2.25	19.66	26.90	41.60	36.61	9.39	46.00
*425.760	2.64	20.02	26.75	43.80	39.71	6.29	46.00
436.430	2.68	19.96	26.74	41.40	37.31	8.69	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : Wireless Outdoor Camera
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 2 (Adapter: HKKD-01498)

Freq.	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
=====							
Horizontal:							
237.580	1.87	16.97	26.93	44.00	35.91	10.09	46.00
*256.980	1.95	18.85	26.93	45.20	39.07	6.93	46.00
293.840	2.10	18.46	26.95	39.20	32.81	13.19	46.00
330.700	2.25	19.66	26.90	38.00	33.01	12.99	46.00
427.700	2.65	20.05	26.75	40.60	36.55	9.45	46.00
465.530	2.80	20.52	26.69	37.40	34.03	11.97	46.00
Vertical:							
150.280	1.51	16.86	26.89	43.60	35.08	8.42	43.50
238.550	1.87	17.07	26.93	44.00	36.01	9.99	46.00
*255.040	1.94	18.53	26.93	46.40	39.94	6.06	46.00
294.810	2.10	18.46	26.95	45.60	39.21	6.79	46.00
330.700	2.25	19.66	26.90	43.00	38.01	7.99	46.00
426.730	2.64	20.05	26.75	40.00	35.94	10.06	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probea Factor + Cable loss- Pre Amp.

Product : Wireless Outdoor Camera
Test Item : General Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 2 (Adapter: R410905)

Freq.	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal:							
199.750	1.71	15.24	26.91	44.40	34.44	9.06	43.50
285.110	2.06	18.32	26.94	40.20	33.64	12.36	46.00
293.840	2.10	18.46	26.95	40.60	34.21	11.79	46.00
331.670	2.26	18.66	26.90	42.60	36.62	9.38	46.00
426.730	2.64	20.05	26.75	39.60	35.54	10.46	46.00
*465.530	2.80	20.52	26.69	42.00	38.63	7.37	46.00
Vertical:							
199.750	1.71	15.24	26.91	43.80	33.84	9.66	43.50
257.950	1.95	18.85	26.93	41.00	34.87	11.13	46.00
312.270	2.18	19.05	26.93	40.20	34.49	11.51	46.00
330.700	2.25	19.66	26.90	44.00	39.01	6.99	46.00
*427.700	2.65	20.05	26.75	43.20	39.15	6.85	46.00
465.530	2.80	20.52	26.69	40.20	36.83	9.17	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probea Factor + Cable loss- Pre Amp.

Product : Wireless Outdoor Camera
Test Item : General Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 3 (Adapter: HKKD-01498)

Freq.	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
=====							
Horizontal:							
238.550	1.87	17.07	26.93	43.40	35.41	10.59	46.00
*256.010	1.94	18.63	26.93	45.00	38.64	7.36	46.00
294.810	2.10	18.46	26.95	42.40	36.01	9.99	46.00
330.700	2.25	19.66	26.90	38.40	33.41	12.59	46.00
426.730	2.64	20.05	26.75	40.00	35.94	10.06	46.00
465.530	2.80	20.52	26.69	37.60	34.23	11.77	46.00
Vertical:							
151.250	1.52	16.74	26.89	44.60	35.96	7.54	43.50
255.040	1.94	18.53	26.93	46.00	39.54	6.46	46.00
*294.810	2.10	18.46	26.95	48.80	42.41	3.59	46.00
321.000	2.21	19.35	26.92	41.60	36.24	9.76	46.00
330.700	2.25	19.66	26.90	44.60	39.61	6.39	46.00
426.730	2.64	20.05	26.75	39.60	35.54	10.46	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : Wireless Outdoor Camera
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 3 (Adapter: R410905)

Freq.	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
	Loss	Factor		Level	Level		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
=====							
Horizontal:							
199.750	1.71	15.24	26.91	45.00	35.04	8.46	43.50
284.140	2.06	18.22	26.94	43.00	36.34	9.66	46.00
293.840	2.10	18.46	26.95	45.60	39.21	6.79	46.00
*312.270	2.18	19.05	26.93	45.60	39.89	6.11	46.00
426.730	2.64	20.05	26.75	41.40	37.34	8.66	46.00
465.530	2.80	20.52	26.69	41.60	38.23	7.77	46.00
Vertical:							
199.750	1.71	15.24	26.91	45.60	35.64	7.86	43.50
274.440	2.02	18.13	26.94	42.00	35.21	10.79	46.00
294.810	2.10	18.46	26.95	42.40	36.01	9.99	46.00
330.700	2.25	19.66	26.90	42.40	37.41	8.59	46.00
*427.700	2.65	20.05	26.75	45.40	41.35	4.65	46.00
463.590	2.80	20.39	26.69	38.40	34.90	11.10	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

4. Band Edge

4.1. Test Equipment

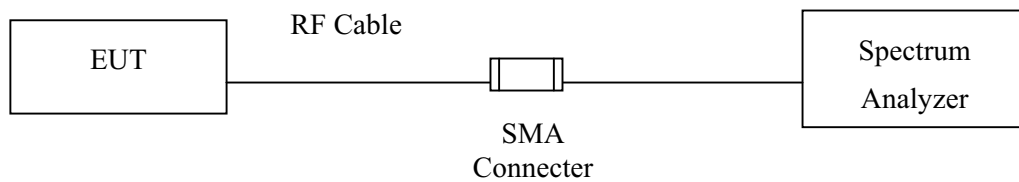
The following test equipments are used during the band edge tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Spectrum Analyzer	Advantest	R3272 / 72421194	May, 2001
X Test Receiver	R & S	ESCS 30 / 825442/14	May, 2001
X Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2001
X Pre-Amplifier	HP	8447D/3307A01812	May, 2001
X Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2001
X Horn Antenna	EM	EM6917 / 103325	May, 2001

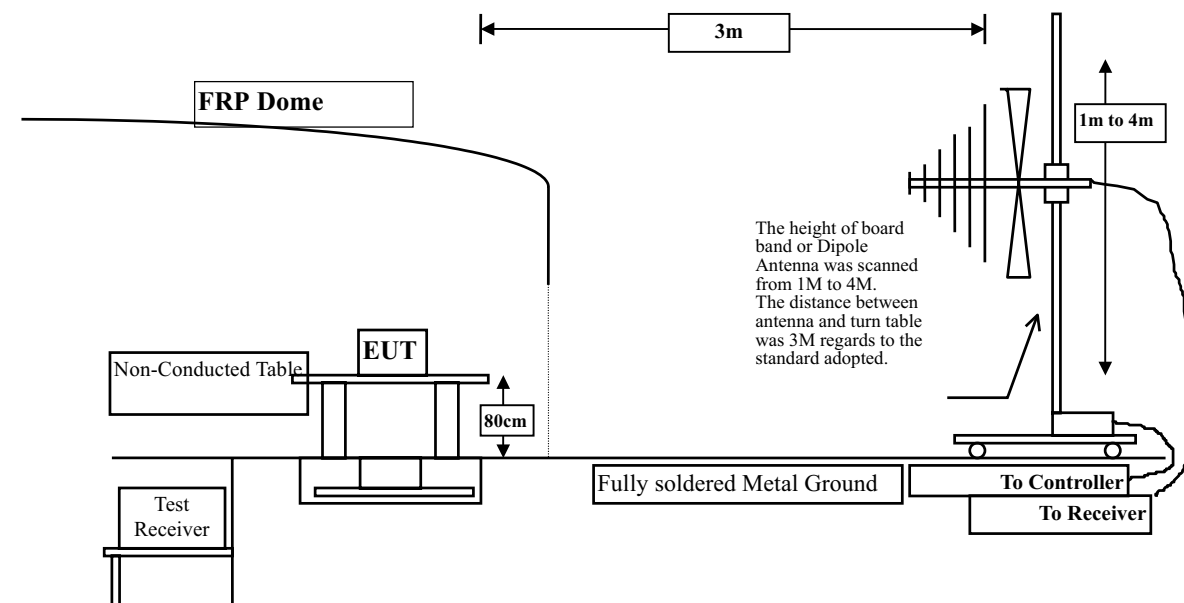
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark "X" test instruments are used to measure the final test results.

4.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



4.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

4.4. Standard Requirement

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)).

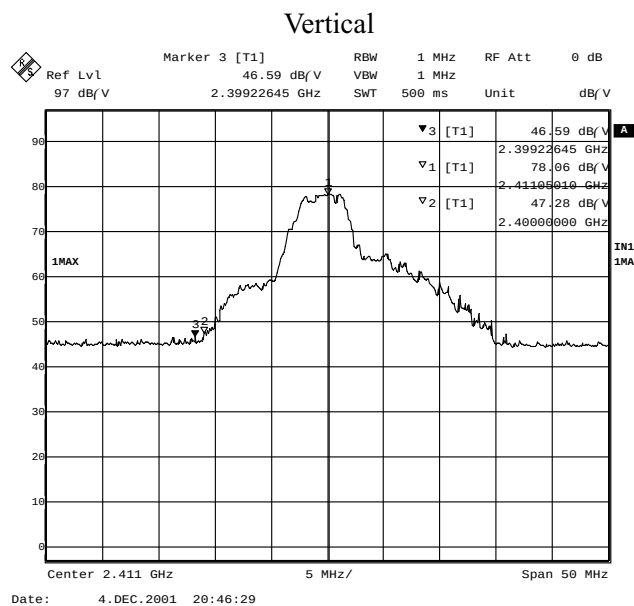
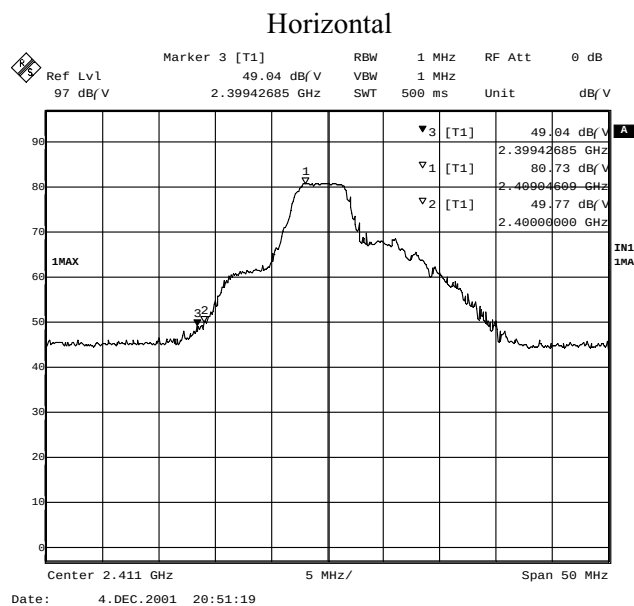
4.5. Test Result of Band Edge

Product : Wireless Outdoor Camera
 Test Item : Band Edge Data
 Test Site : No.1 OATS
 Test Mode : Channel 4

RF Radiated Measurement:

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Measurement Level (dBuV/m)	Limit	Result
4 (Horizontal)	2399.426	49.04	47.18	54	Pass
4 (Vertical)	2399.226	46.59	44.73	54	Pass

Figure Channel 4:

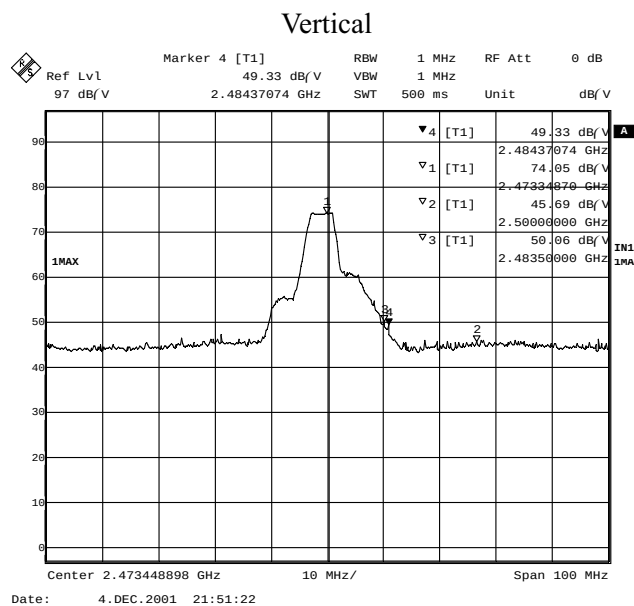
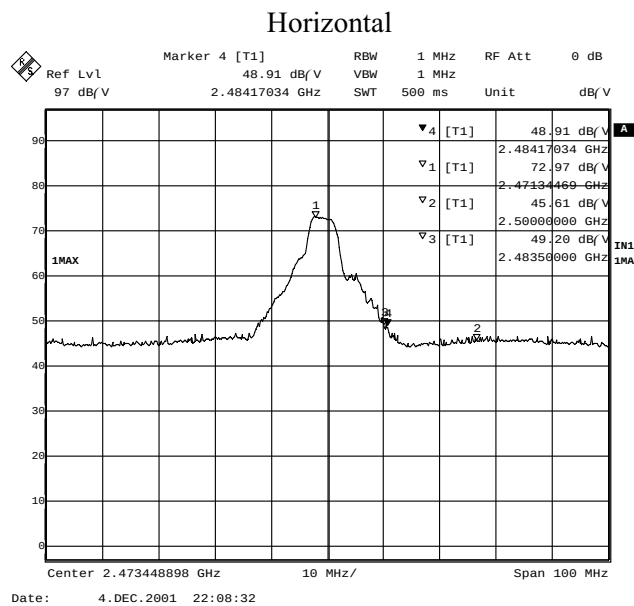


Product : Wireless Outdoor Camera
 Test Item : Band Edge Data
 Test Site : No.1 OATS
 Test Mode : Channel 3

RF Radiated Measurement:

Channel No.	Frequency (MHz)	Reading (dBuV)	Measurement Level (dBuV/m)	Limit	Result
3 (Horizontal)	2484.17	48.91	47.36	54	Pass
3 (Vertical)	2484.37	49.33	47.78	54	Pass

Figure Channel 0:



5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs