



## Test Report

Product Name : TeddyCam  
Model No. : G3090102-1000  
FCC ID.: MIBRF30901-02

Applicant : RF-LINK SYSTEMS INC.

Address : No.6, Non-Ke 5th Rd., Tainan Science-Based  
Industrial Park, Hsin-Shi, Tainan County Taiwan,  
R.O.C..

Date of Receipt : Aug 01, 2001

Date of Test : Aug 07, 2001

Report No. : 018L002FI

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.

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

# Test Report Certification

Test Date : Aug 07, 2001

Report No. : 018L002FI



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200347-0

Product Name : TeddyCam

Applicant : RF-LINK SYSTEMS INC.

Address : No.6, Non-Ke 5th Rd., Tainan Science-Based  
Industrial Park, Hsin-Shi, Tainan County Taiwan,  
R.O.C..

Manufacturer : RF-LINK SYSTEMS INC.

Model No. : G3090102-1000

FCC ID. : MIBRF30901-02

Rated Voltage : AC 110V/60Hz

Trade Name : TeddyCam

Measurement Standard : FCC Part 15 Subpart C Paragraph 15.249

Measurement Procedure : ANSI C63.4:1992

Classification : Class B

Test Result : Complied



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Documented By : \_\_\_\_\_  
( A m y H u n g )

Tested By : \_\_\_\_\_  
( W a l l a c e P a n )

Approved By : \_\_\_\_\_  
( G e n e C h a n g )

## TABLE OF CONTENTS

Description	Page
<b>1. GENERAL INFORMATION.....</b>	<b>4</b>
1.1. EUT Description.....	4
1.2. Tested System Details.....	5
1.3. Configuration of tested System .....	6
1.4. EUT Exercise Software .....	6
1.5. Test Facility .....	7
<b>2. Conducted Emission.....</b>	<b>8</b>
2.1. Test Equipment List.....	8
2.2. Test Setup .....	8
2.3. Limits.....	8
2.4. Test Procedure .....	9
2.5. Test Result of Conducted Emission.....	10
<b>3. Radiated Emission .....</b>	<b>11</b>
3.1. Test Equipment.....	11
3.2. Test Setup .....	11
3.3. Limits.....	12
3.4. Test Procedure .....	13
3.5. Test Result of Radiated Emission.....	14
<b>4. Bandedge .....</b>	<b>19</b>
4.1. Test Equipment.....	19
4.2. Test Setup .....	19
4.3. Test Condition .....	20
4.4. Standard Requirement .....	20
4.5. Test Result of Bandedge.....	21
<b>5. EMI Reduction Method During Compliance Testing .....</b>	<b>22</b>
<b>6. Attachment.....</b>	<b>23</b>
<b>Attachment 1: EUT Test Photographs</b>	
<b>Attachment 2: EUT Detailed Photographs</b>	

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	: TeddyCam
Trade Name	: TeddyCam
FCC ID.	: MIBRF30901-02
Model No.	: G3090102-1000
Frequency Range	: 2400 MHz to 2483.5MHz
Channel Number	: 4
Frequency of each Channel	: Channel 1: 2434MHz, Channel 2: 2453MHz, Channel 3: 2473MHz, Channel 4: 2411MHz
Type of Modulation	: FM
Operator Selection of	: Manual Switch
Operating Frequency	
RCA Cable	: Non-Shielded, 1.2m
Adapter	: Listed, M/N:AD41-1200200Du Cable Out: Non-Shielded, 1.5m

Note:

1. This device is wireless Audio/Video Sender with 2.4GHz transmitting and receiving 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 for non-spread spectrum devices.
3. This device is a composite device in accordance with Part 15 regulations. The function for the receiver was, measured and made a test report that the report number is 018L002F, certified under verification.

## 1.2. Operation Description

The EUT is wireless audio and video sender. The operation frequency is from 2.4GHz to 2.4835GHz with FM modulation. Four manually selectable channels were built in the EUT. The signal can be capture to EUT through CCD port of transmitter. The signal will be transmitted through FM modulation of 2.4GHz to receiver. Two audio jacks and one video jack are built in receiver and can be connected to monitor. Both of transmitter and receiver are powered by DC 12V for normal operation.

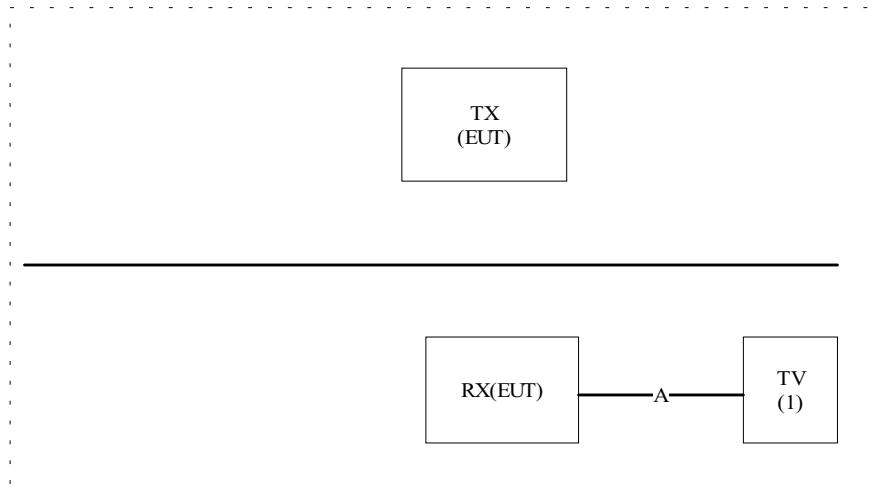
**1.3. Tested System Details**

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.	FCC ID
(1)	SONY TV	SONY	PVM-14M2U	21055939	FCC DoC

	Signal Cable Type	Signal Cable Description
A.	RCA Cable	Non-shielded, 1.2m

**1.4. Configuration of tested System**



**1.5. EUT Exercise Software**

- 1.4.1 Setup the EUT and display as shown on 1.3.
- 1.4.2 Turn on the power of all equipment.
- 1.4.3 TV receiver signal from receiver port of EUT
- 1.4.4 The EUT will transmit the radio signal from transmitter.
- 1.4.5 Repeat the above procedure 1.4.2 to 1.4.3

**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  
 September 30, 1998 Accreditation on NVLAP  
 NVLAP Lab Code: 200347-0



Site Name: Quietek Corporation

Site Address: N0.75-1, Wang-Yeh Valley, Yung-Hsing,  
 Chiung-Lin, Hsin-Chu County,  
 Taiwa, R.O.C.

## 2. Conducted Emission

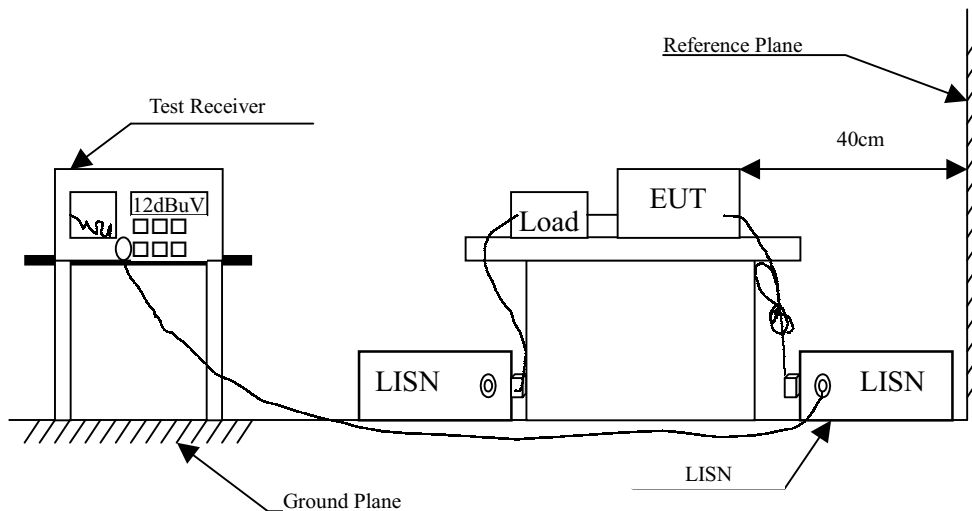
### 2.1. Test Equipment List

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	N0.2 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 investigated over the frequency range from 0.45MHz to 30MHz using a receiver bandwidth of 9kHz.

**2.5. Test Result of Conducted Emission**

Product : TeddyCam  
 Test Item : Conducted Emission Test  
 Test Mode : Normal Operation

Frequency MHz	Cable Loss dB	LISN Factor dB	Reading Level dBuV	Measurement Level dBuV	Limits dBuV
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**Line 1**

**Quasi-Peak:**

0.177	0.21	0.10	41.14	41.45	64.61
0.236	0.21	0.10	39.02	39.33	62.24
0.279	0.21	0.10	37.64	37.95	60.85
* 0.416	0.21	0.10	34.48	34.79	57.54
0.486	0.21	0.10	30.96	31.27	56.24
0.712	0.16	0.10	29.22	29.48	56.00

**Line 2**

**Quasi-Peak:**

0.170	0.21	0.10	43.46	43.77	64.98
0.213	0.21	0.10	41.48	41.79	63.11
0.267	0.21	0.10	40.68	40.99	61.20
* 0.310	0.21	0.10	39.90	40.21	59.97
0.392	0.21	0.10	37.76	38.07	58.02
0.478	0.21	0.10	34.10	34.41	56.37

Remarks :

1. “ \* ” means that this data is the worst emission level.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

### 3. Radiated Emission

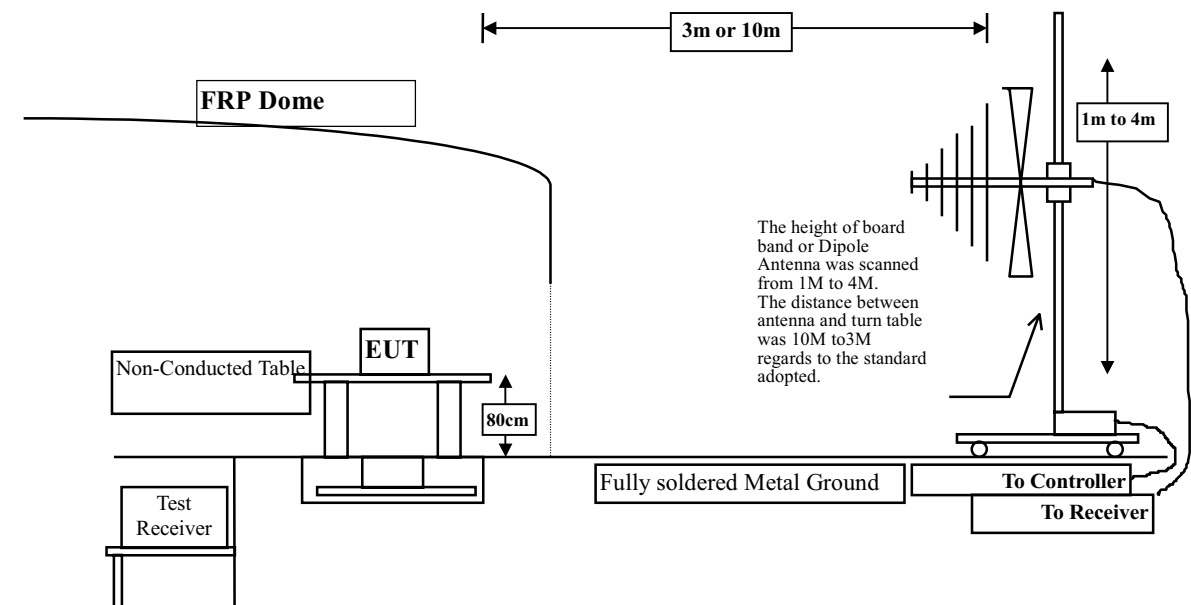
#### 3.1. Test Equipment

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
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2001
		Pre-Amplifier	HP	8447D/3307A01812	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2000
	X	Horn Antenna	EM	EM6917 / 103325	May, 2001
Site # 2	X	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2001
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2001
		Pre-Amplifier	HP	8447D/3307A01814	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2000
	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.

#### 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	50dB below of the fundamental (dBuV/m @3m)	15.209 Limits (dBuV/m @3m)	General Radiated Limits (dBuV/m @3m)
30-88	40	40	40
88-216	43.5	43.5	43.5
216-960	44	46	46
Above 960	44	54	54

- Remarks :
1. RF Line Voltage (dBuV) = 20 log RF Line 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 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.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GH is 120 kHz, above 1GHz are 1 MHz.

The frequency range from **30MHz to 10th harmonics** was investigated.

**3.5. Test Result of Radiated Emission**

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

Freq.	Cable Loss	Probe Factor	PreAMP	Reading Level	Measurement	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
<b>Peak Detector (Horizontal)</b>							
2432.000	4.10	28.66	18.20	55.07	69.63	44.37	114.00
<b>Peak Detector (Vertical)</b>							
2433.300	4.11	28.66	18.21	47.65	62.22	51.78	114.00
<b>Peak Detector (Horizontal)</b>							
2472.490	4.16	28.76	18.21	54.92	69.62	44.38	114.00
<b>Peak Detector (Vertical)</b>							
2472.860	4.16	28.76	18.21	47.31	62.01	51.99	114.00
<b>Peak Detector (Horizontal)</b>							
2410.740	4.07	28.63	18.20	55.70	70.20	43.80	1144.00
<b>Peak Detector (Vertical)</b>							
2411.340	4.07	28.63	18.20	47.64	62.14	51.86	114.00

Note:

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

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

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

**Peak Detector (Horizontal)**

4867.940	6.72	33.80	18.55	34.40	56.37	17.63	74.00
7301.300	8.80	36.87	18.90	34.00	60.77	13.23	74.00

**Average Detector (Horizontal)**

--

**Peak Detector (Vertical)**

4867.700	6.72	33.80	18.55	34.45	56.42	17.58	74.00
7296.000	8.80	36.87	18.90	33.32	60.09	13.91	74.00

**Average Detector (Vertical)**

--

Note:

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

Product : TeddyCam  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.2 OATS  
 Test Mode : Channel 3

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

**Peak Detector (Horizontal)**

4946.000	6.77	34.04	18.56	30.90	53.14	20.86	74.00
7417.980	8.93	37.13	18.92	32.39	59.53	14.47	74.00

**Average Detector (Horizontal)**

--

**Peak Detector (Vertical)**

4945.700	6.77	34.04	18.56	32.00	54.24	19.76	74.00
7419.000	8.93	37.13	18.92	33.36	60.50	13.50	74.00

**Average Detector (Vertical)**

--

Note:

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



Product : TeddyCam  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.2 OATS  
 Test Mode : Channel 4

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

**Peak Detector (Horizontal)**

4822.200	6.70	33.70	18.55	31.20	53.05	20.95	74.00
7233.000	8.74	36.72	18.89	32.14	58.71	15.29	74.00

**Average Detector (Horizontal)**

--

**Peak Detector (Vertical)**

4822.000	6.70	33.70	18.55	32.29	54.14	19.86	74.00
7233.000	8.74	36.72	18.89	33.06	59.63	14.37	74.00

**Average Detector (Vertical)**

--

Note:

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

Product : TeddyCam  
 Test Item : General Radiated Emission Data  
 Test Site : No.2 OATS  
 Test Mode : Channel 1

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

**Horizontal:**

237.255	3.41	11.45	0.00	13.68	28.54	17.46	46.00
262.198	3.61	13.54	0.00	8.76	25.91	20.09	46.00
319.600	4.01	13.14	0.00	6.40	23.55	22.45	46.00
559.216	5.48	18.80	0.00	8.02	32.31	13.69	46.00
615.700	5.89	19.37	0.00	6.44	31.70	14.30	46.00
* 639.061	5.98	19.45	0.00	7.26	32.69	13.31	46.00

**Vertical:**

237.049	3.39	10.88	0.00	5.74	20.01	25.99	46.00
272.162	3.64	12.37	0.00	1.68	17.69	28.31	46.00
314.983	3.97	13.72	0.00	9.31	27.00	19.00	46.00
343.610	4.16	14.77	0.00	8.81	27.73	18.27	46.00
567.960	5.63	17.75	0.00	1.10	24.48	21.52	46.00
* 668.210	6.36	19.26	0.00	2.87	28.49	17.51	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-PreAMP + Cable loss

## 4. Bandedge

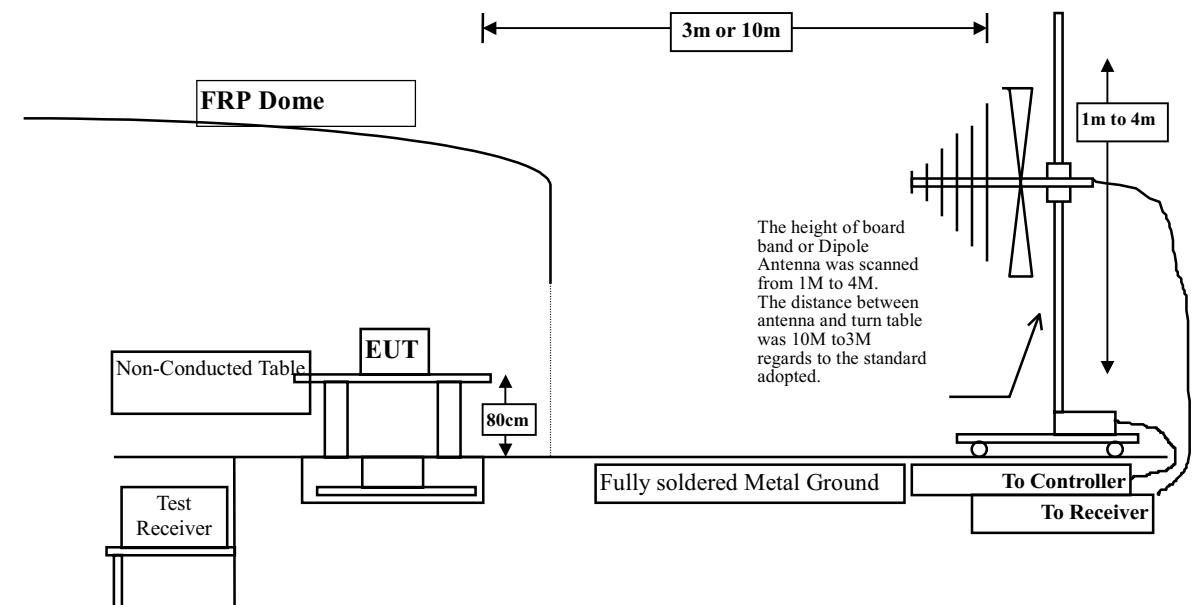
### 4.1. Test Equipment

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
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2001
		Pre-Amplifier	HP	8447D/3307A01812	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2000
	X	Horn Antenna	EM	EM6917 / 103325	May, 2001
Site # 2	X	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2001
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2001
		Pre-Amplifier	HP	8447D/3307A01814	May, 2001
	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2000
	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



#### **4.3. Test Condition**

Standard Temperature and Humidity, Standard Test Voltage

#### **4.4. Standard Requirement**

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

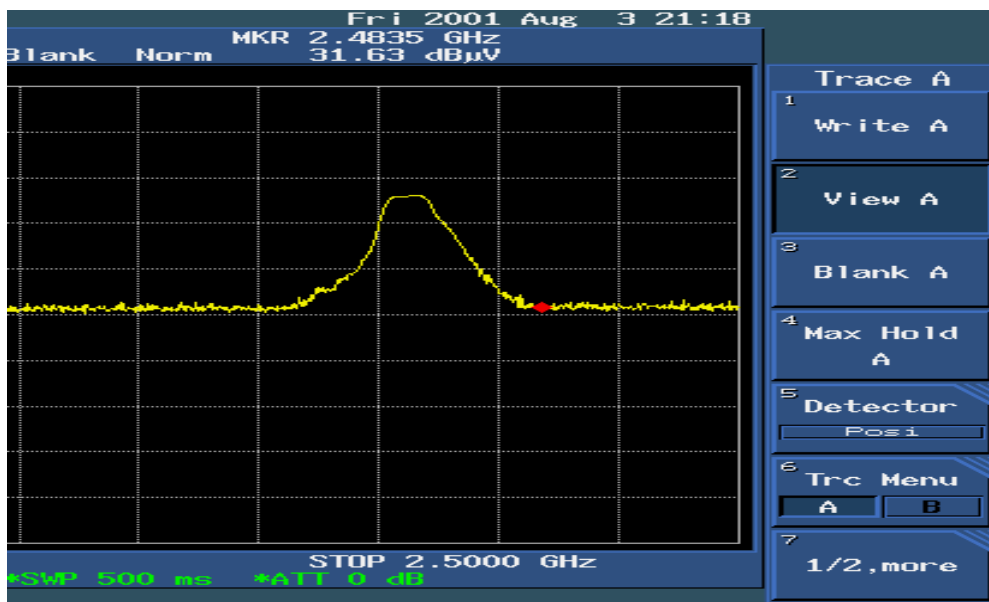
4.5. Test Result of Bandedge

Product : TeddyCam  
 Test Item : Bandedge data  
 Test Site : No.2 OATS  
 Test Mode : Normal Operation

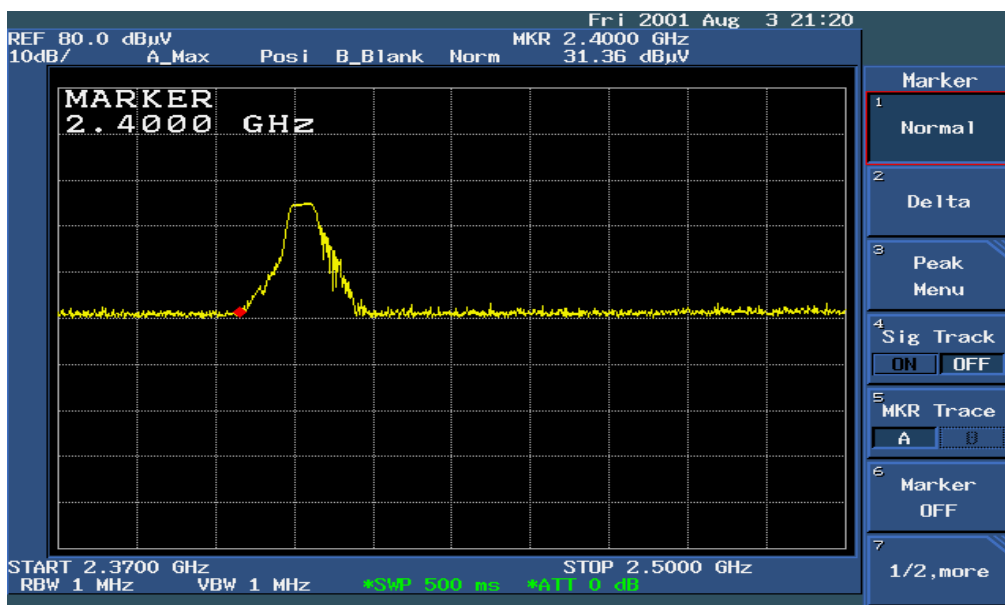
Channel No.	Frequency (MHz)	Reading (dBuV)	Measurement Level (dBuV/m)	Limit	Result
3 (Horizontal)	2483.5	31.63	42.18	54	Pass
4 (Horizontal)	2400.0	31.36	41.78	54	Pass

Figure Channel 4:

Channel 3: Horizontal



Channel 4: Horizontal



## 5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

## 6. Attachment

Attachment 1: EUT Test Photographs                      Number of Pages :    3

Attachment 2: EUT Detail Photographs                      Number of Pages :    9

Attachment 1 : EUT Test Photographs



## Attachment 2 : EUT Detailed Photographs