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Ke Mei Ou Lab Corp.
FEDERAL COMMUNICATIONS COMMISSION
Registration Number: 125782
INDUSTRY CANADA
Registration Number: IC4986

FCC TEST REPORT

Under
FCC 15 Subpart C, Paragraph 15.249: 2003

Prepared For :

Shenzhen AEE Technology Co., Ltd.

1st Floor B Building Shenzhen Tsinghua Hi-Tech Park Nanshan Hi-Tech Park North
Shenzhen P.R.C

FCC ID: TW4AT101
EUT: 2.4G Wireless Camera Kit
Model: AT101

January 16, 2006

Report Type: Original Report
Test Engineer: Peter Lin
Test Date: January 4, 2006
Review By:  Apollo Liu / Manager

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1. General Information

1. 1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

1. 2 Testing Laboratory

Ke Mei Ou Laboratory Co., Ltd.
7A, Jiaxiangge, Jiahuixincheng, No.3027, Shennan Rd., Futian, Shenzhen, Guangdong, P.R.China.
Tel: +86 755 83642690 Fax: +86 755 83297077
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Site on File with the Federal Communications Commission – United Sates
Registration Number: 125782
For 3 & 10 meter OATS

Site Listed with Industry Canada of Ottawa, Canada
Registration Number: IC4986
For 3 & 10 meter OATS

1. 3 Details of Applicant

Name : Shenzhen AEE Technology Co., Ltd.
Address : 1st Floor B Building Shenzhen Tsinghua Hi-Tech Park Nanshan Hi-Tech Park North Shenzhen P.R.C
Contact : Mr. Tom Lee / Manager of Test Department
Tel : + 86 755 33306888
Fax : + 86 755 33303881

1. 4 Application Details

Date of Receipt of Application	: December 26, 2005
Date of Receipt of Test Item	: January 4, 2006
Date of Test	: January 4~January 16, 2006

1. 5 Test Item

Manufacturer	: See Applicant
Trade Name	: AEE
Model No.	: A101(Tx:AT101 & Rx:AR101)
Description	: 2.4G Wireless Camera Kit

Additional Information

Frequency	: 2400MHz~2483.5MHz
Maximum Range	: N/A
Number of Channels	: 4
Transmitter Antenna	: N/A
Power Supply	: Tx (DC 7.5V); Rx(DC7.5V)
Current Consumption	: N/A

1. 6 Test Standards

FCC 15 Subpart C, Paragraph 15.249: 2003

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

2. Technical Test

2. 1 Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	PASS	Complies
FCC Part 15, Paragraph 15.207	Conducted Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) and 15.249(b) Limit	Field Strength of Fundamental	PASS	Complies
FCC Part 15, Paragraph 15.209	Radiated Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Measured Band Edges	PASS	Complies.

3. EUT Modifications

No modification by Ke Mei Ou Laboratory Co., Ltd.

4. Conducted Power Line Test

4. 1 Test Equipment

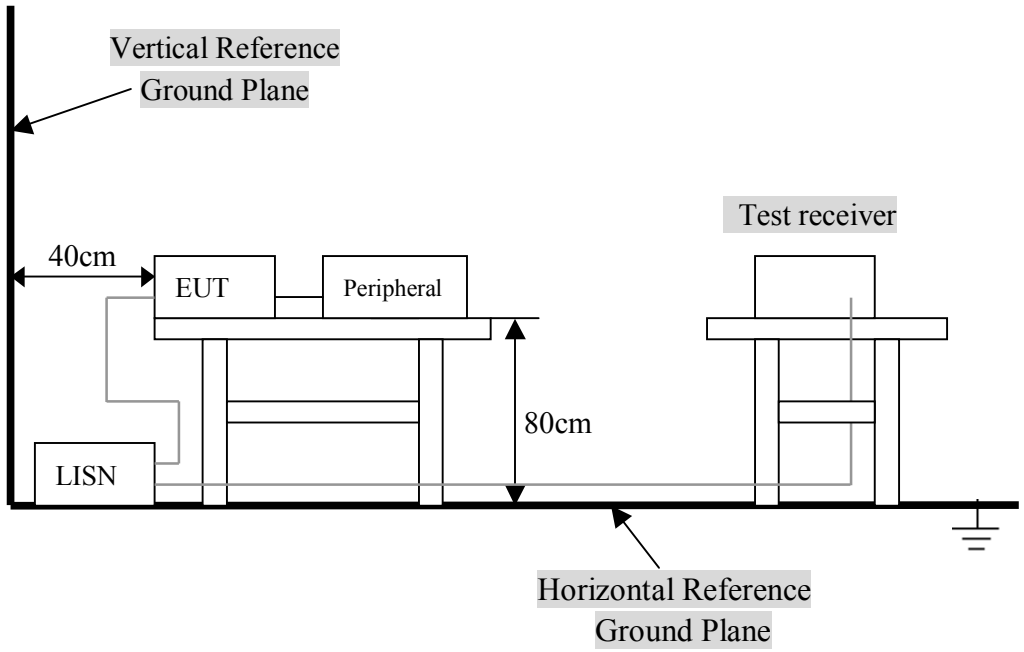
Please refer to Section 10 this report.

4. 2 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.

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.

4. 3 Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing.

4. 4 Configuration of the EUT

The EUT was configured according to ANSI C63.4-2003. EUT was used DC7.5V (Power by Class 2 Adaptor). The operation frequency is from 2414MHz~2468MHz. Enable the signal transmitted from the external antenna from EUT to receiver. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.
Note:

1) Below 1GHz, the channel 1, 2, 3 and 4 were pre-tested, The channel 3, worst case one, was chosen for conducted and radiated emission test.
2) Above 1GHz, the channel 1, 2, 3 and 4 were tested individually.

A. EUT

Device	Manufacturer	Model #	FCC ID
2.4G Wireless Camera Kit	Shenzhen AEE Technology Co., Ltd.	AT101	TW4AT101

B. Internal Devices

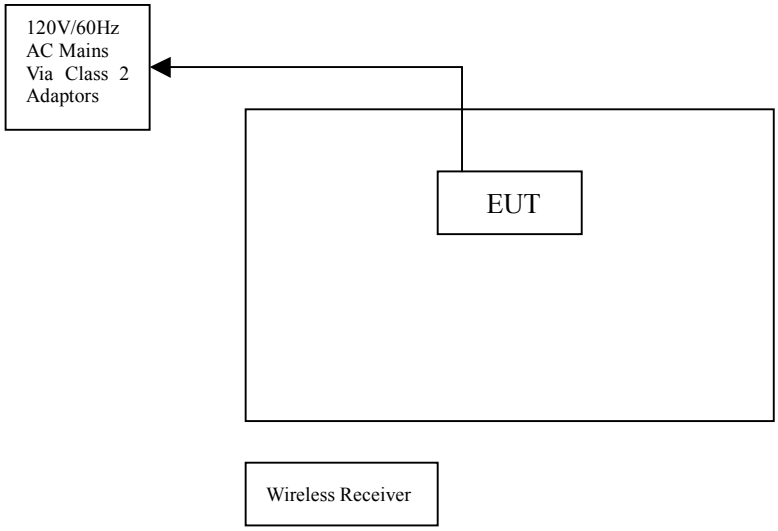
Device	Manufacturer	Model #	FCC ID
N/A			

C. Peripherals

Device	Manufacturer	Model # Serial #	FCC ID/ DoC	Cable
N/A				

4. 5 EUT Operating Condition

Operating condition is according to ANSI C63.4 - 2003.
A. Setup the EUT and simulators as shown on follow.
B. Enable RF signal and confirm EUT active.
C. Modulate output capacity of EUT up to specification.



4. 6 Conducted Power Line Emission Limits

FCC Part 15 Paragraph 15.207 (dBuV)		
Frequency Range (MHz)	**Class A QP/AV**	**Class B QP/AV**
0.15 – 0.5	79/66	66-56/56-46
0.5 – 5.0	73/60	56/46
5.0 - 30	73/60	60/50

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

4. 7 Conducted Power Line Test Result

Product	: 2.4G Wireless Camera Kit	Test Mode	: CH3
Test Item	: Conducted Emission Data	Temperature	: 25 ℃
Test Voltage	: DC 7.5V (Power by Class 2 Adaptor)	Humidity	: 56%RH
Test Result	: **PASS**		

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are quasi -peak values with a resolution bandwidth of 9 KHz.

- Temperature ： 26 ℃
- Humidity ： 53 % RH

CH4: 2468MHz

FCC Part 15 Paragraph 15.207							
Frequency (MHz)	**Emission (dBuV)**		**LINE/ NEUTRAL**	**Limit (dBuV)**		**Margin (dB)**	
	QP	**AV**		**QP**	**AV**	**QP**	**AV**
0.234	25.61	20.16	LINE	62.31	52.31	-36.70	-32.15
0.226	26.04	20.13	NEUTRAL	62.60	52.60	-36.56	-32.47
0.494	28.86	26.43	LINE	56.10	46.10	-27.24	-19.67
0.358	24.97	19.02	NEUTRAL	58.77	48.77	-33.80	-29.75
17.734	25.81	24.34	LINE	60.00	50.00	-34.19	-25.66
17.734	24.25	13.70	NEUTRAL	60.00	50.00	-35.75	-36.30

Note: NF = No Significant Peak was Found.

Note:

1.Uncertainty in conducted emission measured is <+/ -2dB.
2.The emission levels of other frequencies were very low against the limit.
3.All Reading Levels are Quasi-Peak and Average value.
4.Emission = Meter Reading + Factor; Factor = Insertion Loss + Cable Loss.
5.Margin Value = Emission Level - Limit Value.

Conducted Emission

EN55022

EUT: 2.4G Wireless Camera Kit, M/N: AT101

Manufacturer: Shenzhen AEE Technology Co., Ltd.

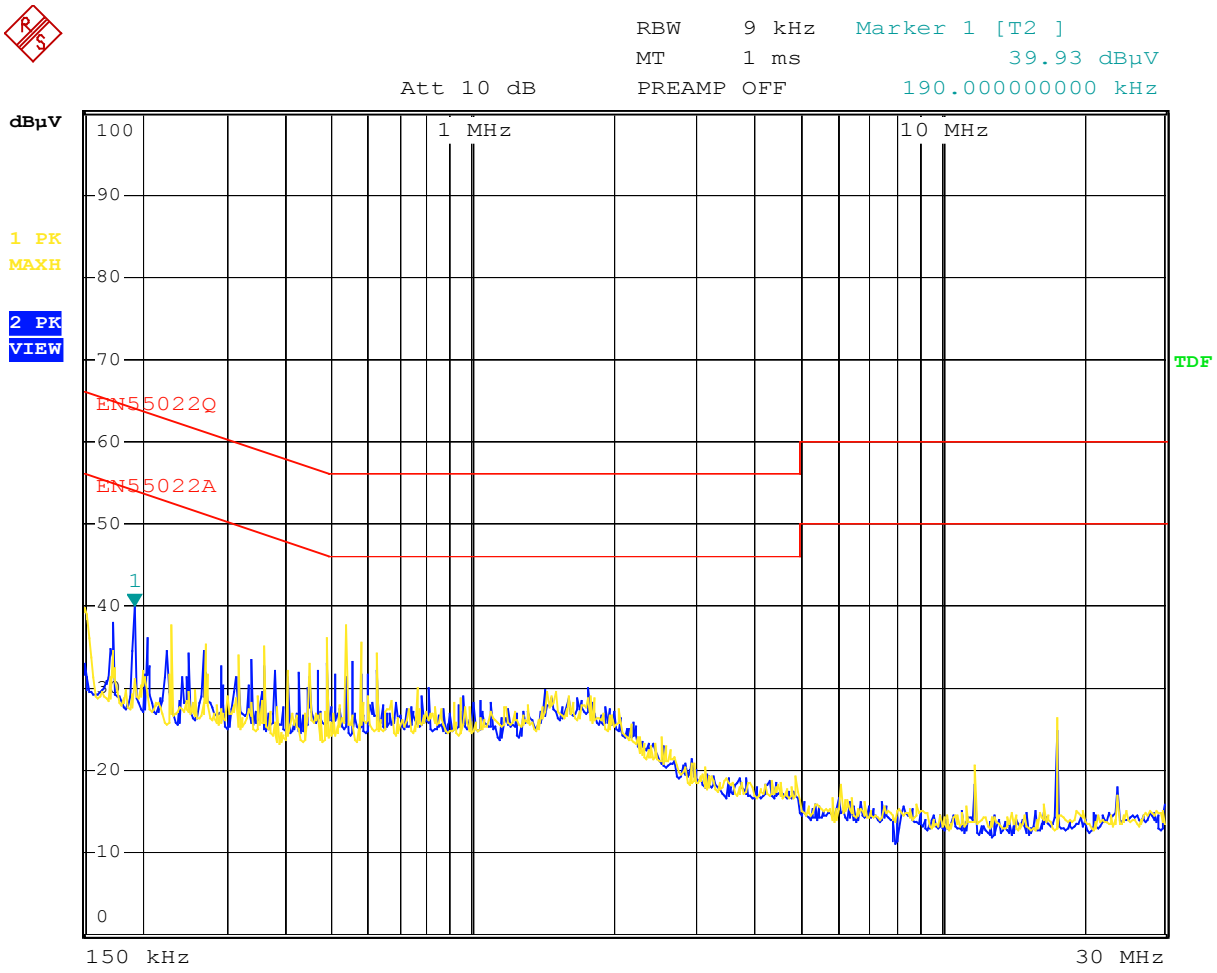
Operating Condition: Transmitter

Test Site: Ke Mei Ou Laboratory

Operator: Peter Lin

Test Specification: LINE&NEUTRAL

Comment:



Date: 4.JAN.2006 10:40:41

5. Radiated Emission Test

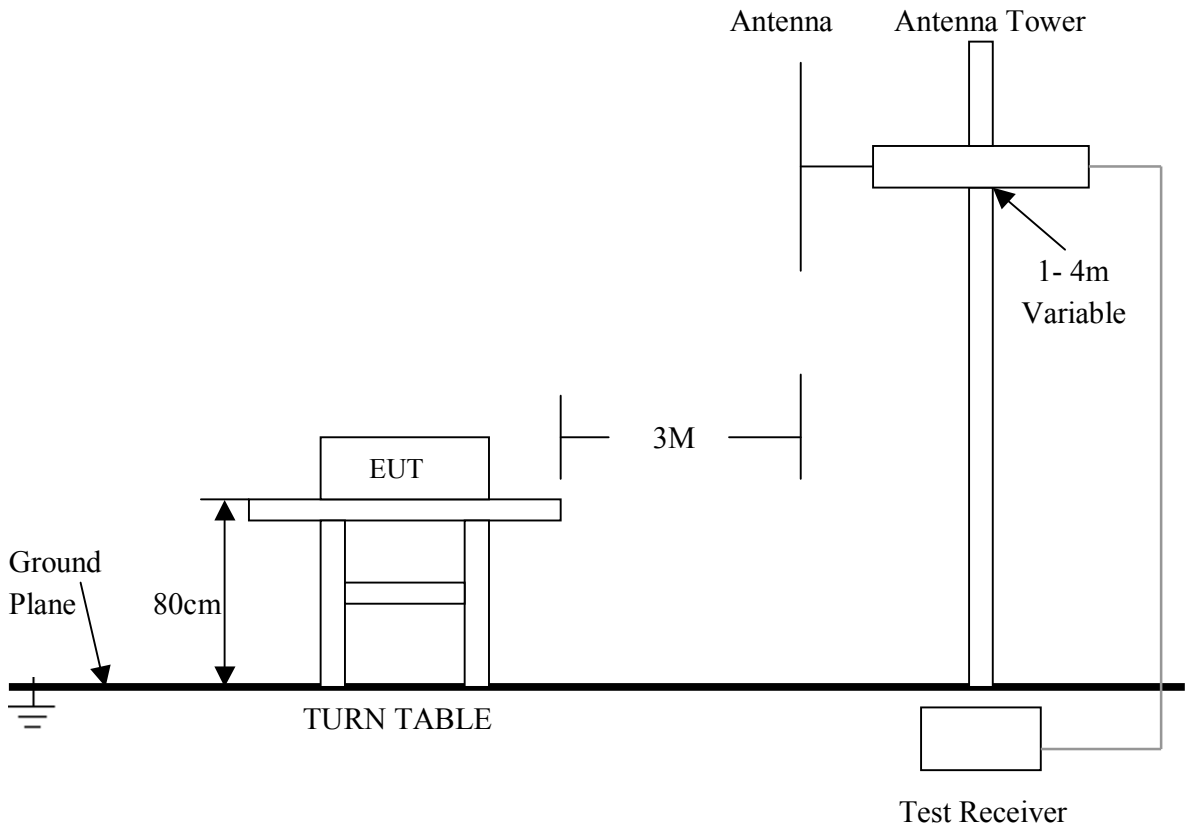
5. 1 Test Equipment

Please refer to Section 10 this report.

5. 2 Test Procedure

1. The EUT was tested according to ANSI C63.4 - 2003. The radiated test was performed at Ke Mei Ou Laboratory .This site is on file with the FCC laboratory division, Registration No. 125782.
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
3. The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz , peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4. The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
5. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.
6. The antenna polarization: Vertical polarization and Horizontal polarization.

5. 3 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing.

5. 4 Configuration of the EUT

Same as section 4.4 of this report

5. 5 EUT Operating Condition

Same as section 4.5 of this report.

5. 6 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below ：

A. FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency (MHz)	Field Strength of Fundamental (3m)			Field Strength of Harmonics (3m)		
	mV/m	dBuV/m		uV/m	dBuV/m	
902~928	50	94(Average)	114(Peak)	500	54(Average)	74(Peak)
2400~2483.5	50	94(Average)	114(Peak)	500	54(Average)	74(Peak)

Note:
(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. Measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency (MHz)	Distance (m)	Field Strength (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
ABOVE 960	3	54.0

Note:
(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.

5. 7 Radiated Emission Test Result

A. Fundamental Radiated Emission Data

Product	: 2.4G Wireless Camera Kit	Test Mode	: CH1~CH4
Test Item	: Fundamental Radiated Emission Data	Temperature	: 25 ℃
Test Voltage	: DC 7.5V (Power by Class 2 Adaptor)	Humidity	: 56%RH
Test Result	: PASS		

CH1

Freq. (GHz)	Emission (dBuV/m) Peak / Average	HORIZ /VERT	Limits (dBuV/m) Peak / Average	Margin (dB) Peak / Average
2414.00	92.40 / 86.40	HORIZ	114 / 94	-21.60 / -7.60
2414.00	93.14 / 91.03	VERT	114 / 94	-20.86 / -2.97

CH2

Freq. (GHz)	Emission (dBuV/m) Peak / Average	HORIZ /VERT	Limits (dBuV/m) Peak / Average	Margin (dB) Peak / Average
2432.00	94.06 / 92.89	HORIZ	114 / 94	- 19.94 / -1.11
2432.00	95.29 / 93.00	VERT	114 / 94	-18.71 / -1.00

CH3

Freq. (GHz)	Emission (dBuV/m) Peak / Average	HORIZ /VERT	Limits (dBuV/m) Peak / Average	Margin (dB) Peak / Average
2450.00	94.90 / 92.86	HORIZ	114 / 94	-19.10 / -1.14
2450.00	96.67 / 92.80	VERT	114 / 94	-17.33 / -1.20

CH4

Freq. (GHz)	Emission (dBuV/m) Peak / Average	HORIZ /VERT	Limits (dBuV/m) Peak / Average	Margin (dB) Peak / Average
2468.00	96.61 / 88.90	HORIZ	114 / 94	-17.39 / -5.10
2468.00	92.33 / 89.00	VERT	114 / 94	-21.67 / -5.00

Note:
(1) All Readings below 1GHz are Quasi-Peak, above 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.

B. Harmonics Radiated Emission Data

Product	: 2.4G Wireless Camera Kit	Test Mode	: CH1~CH4
Test Item	: Harmonics Radiated Emission Data	Temperature	: 25 ℃
Test Voltage	: DC 7.5V (Power by Class 2 Adaptor)	Humidity	: 56%RH
Test Result	: PASS		

CH1: 2414MHz

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4828.00	49.32	HORZ	74.0 / 54.0	-24.68
4828.00	51.68	VERT	74.0 / 54.0	-22.32
7242.00	50.50	HORZ	74.0 / 54.0	-23.50
7242.00	50.10	VERT	74.0 / 54.0	-23.90

CH2: 2432MHz

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4864.00	50.30	HORZ	74.0 / 54.0	-23.70
4864.00	51.52	VERT	74.0 / 54.0	-22.48
7296.00	49.10	HORZ	74.0 / 54.0	-24.90
7296.00	52.26	VERT	74.0 / 54.0	-21.74

CH3: 2450MHz

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4900.00	50.82	HORZ	74.0 / 54.0	-23.18
4900.00	51.36	VERT	74.0 / 54.0	-22.64
7350.00	49.25	HORZ	74.0 / 54.0	-24.75
7350.00	51.60	VERT	74.0 / 54.0	-22.40

CH4: 2468MHz

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4936.00	49.30	HORZ	74.0 / 54.0	-24.70
4936.00	51.90	VERT	74.0 / 54.0	-22.10
7404.00	50.50	HORZ	74.0 / 54.0	-23.50
7404.00	51.41	VERT	74.0 / 54.0	-22.59

Note:
(1) All Reading Levels below 1GHz are Quasi-Peak, above are peak and average value.
(2) Emission Level = Reading Level + Probe Factor + Cable Loss.
(3) Receiver setting (Peak Detector) : RBW=1MHz; VBW=1MHz; Span=100MHz
(4) Receiver setting (AVG Detector): RBW=1MHz; VBW=30Hz; Span=20MHz
(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.

C. General Radiated Emission Data

Product	: 2.4G Wireless Camera Kit	Test Mode	: CH3
Test Item	: General Radiated Emission Data	Temperature	: 25 ℃
Test Voltage	: DC 7.5V (Power by Class 2 Adaptor)	Humidity	: 56%RH
Test Result	: **PASS**		

CH1: 2450MHz

Freq. (MHz)	Emission (dBuV/m) QP Detector	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
32.760	31.78	HORZ	40.0	-8.22
39.160	28.02	VERT	40.0	-11.98
46.040	23.79	HORZ	40.0	-16.21
47.280	37.00	VERT	40.0	-3.00
117.880	23.08	HORZ	43.5	-20.42
53.200	32.29	VERT	40.0	-7.71

Note:
(1) All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
(2) Emission Level = Reading Level + Probe Factor + Cable Loss.

6. Band Edge

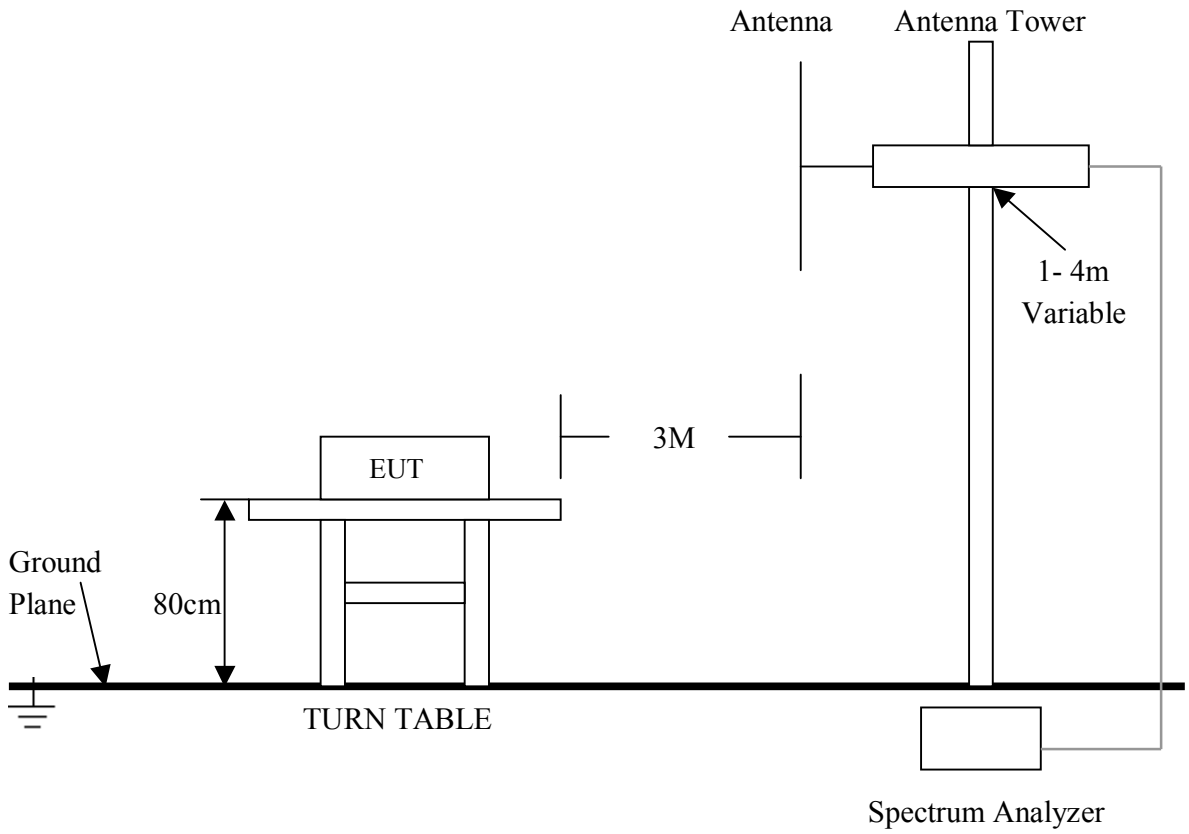
6. 1 Test Equipment

Please refer to Section 10 this report.

6. 2 Test Procedure

1. The EUT was tested according to ANSI C63.4 - 2003. The radiated test was performed at Ke Mei Ou Laboratory. This site is on file with the FCC laboratory division, Registration No. 125782.
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.

6. 3 Radiated Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing

6. 4 Configuration of The EUT

Same as section 4 . 4 of this report

6. 5 EUT Operating Condition

Same as section 4 . 5 of this report.

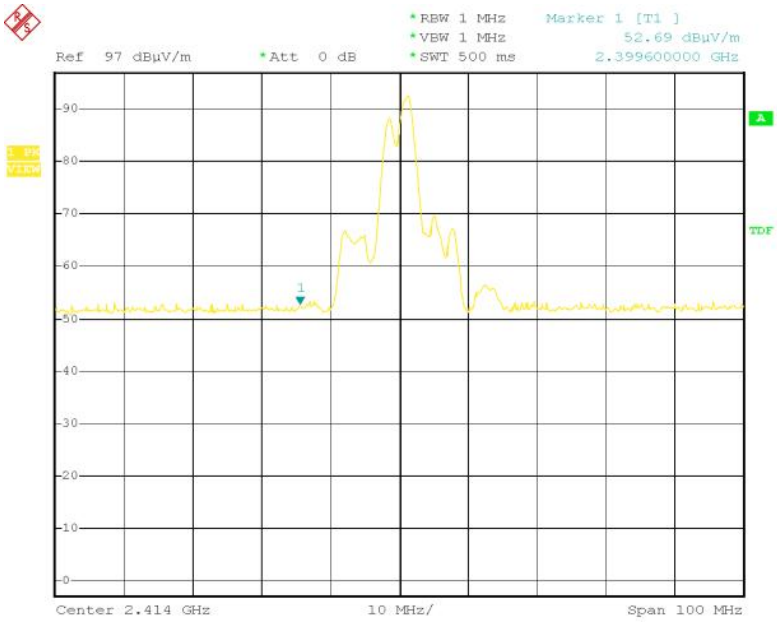
6. 6 Band Edge FCC 15.249(d) Limit

In any 100kHz 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 50dB below that in the 100kHz 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)).

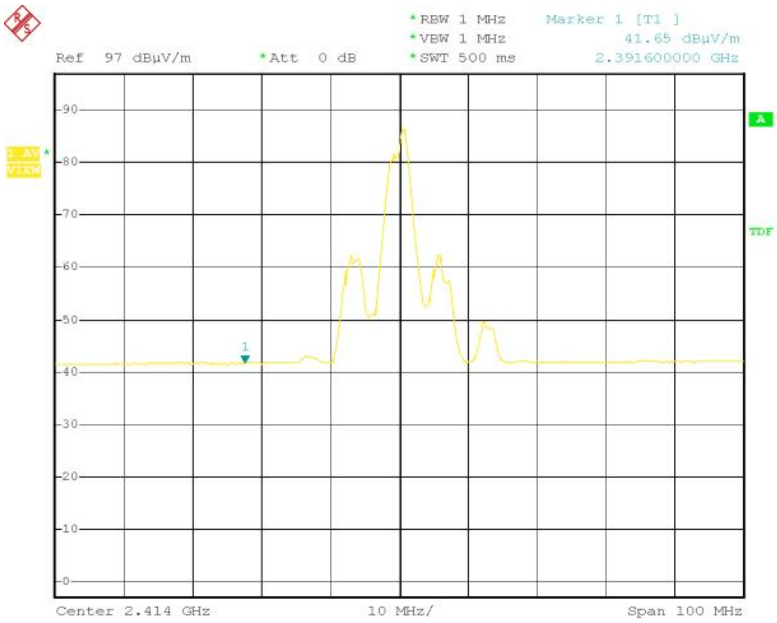
6. 7 Band Edge Test Result

Product	: 2.4G Wireless Camera Kit	Test Mode	: CH1, CH4
Test Item	: Band Edge Data	Temperature	: 25 ℃
Test Voltage	: DC 7.5V (Power by Class 2 Adaptor)	Humidity	: 56%RH
Test Result	: **PASS**		

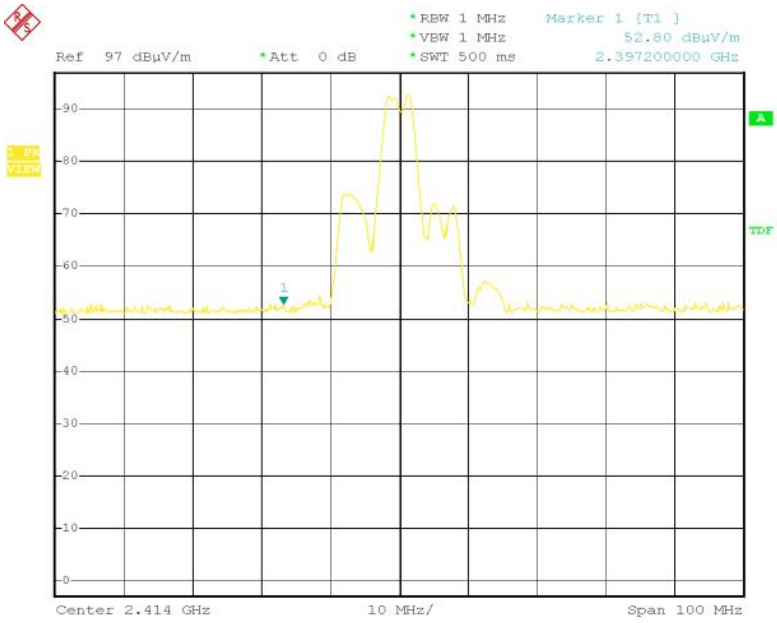
CH1
Horizontal (Peak)



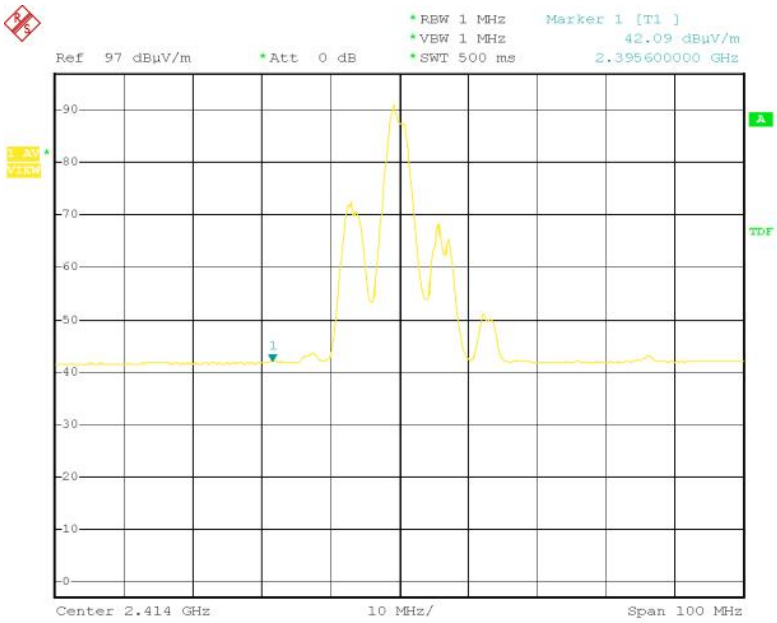
Horizontal (Average)



Vertical (Peak)



Vertical (Average)

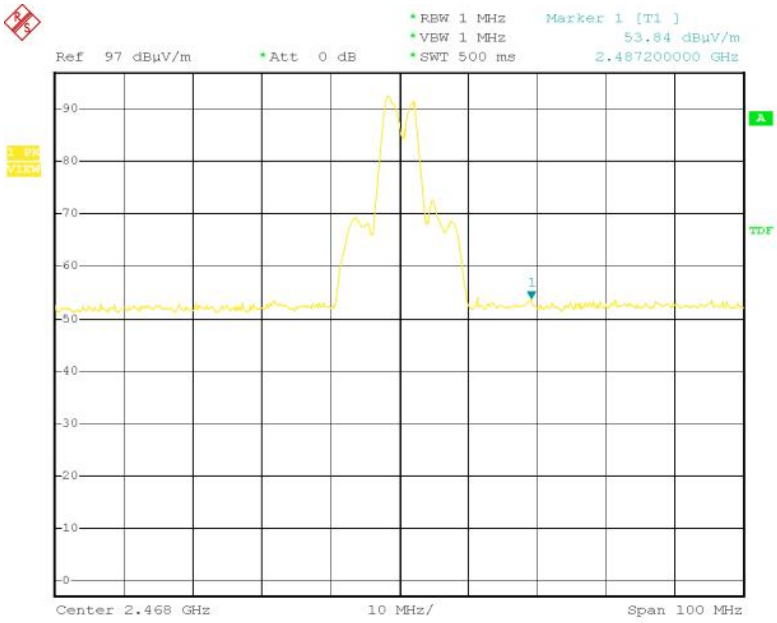


Note: (1) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

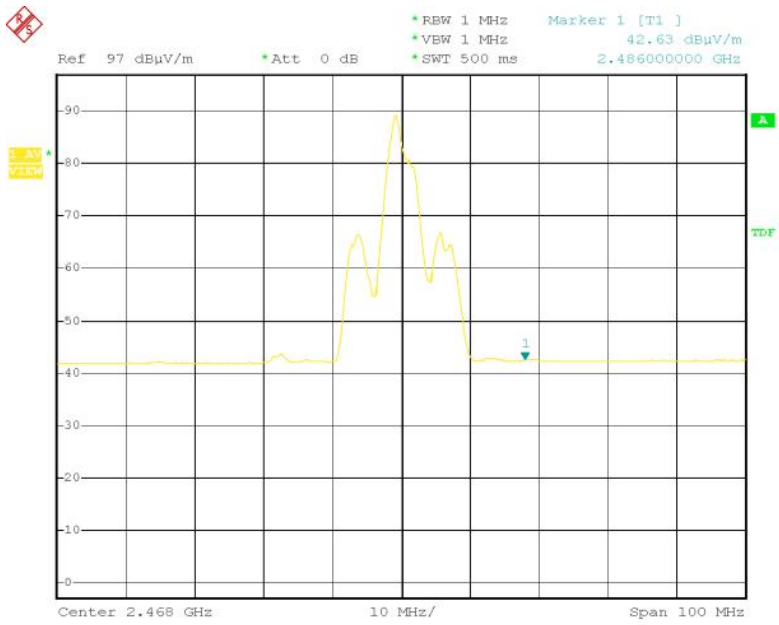
(2) The average measurement was not performed when the peak measured data under the limit of average detection.

CH4

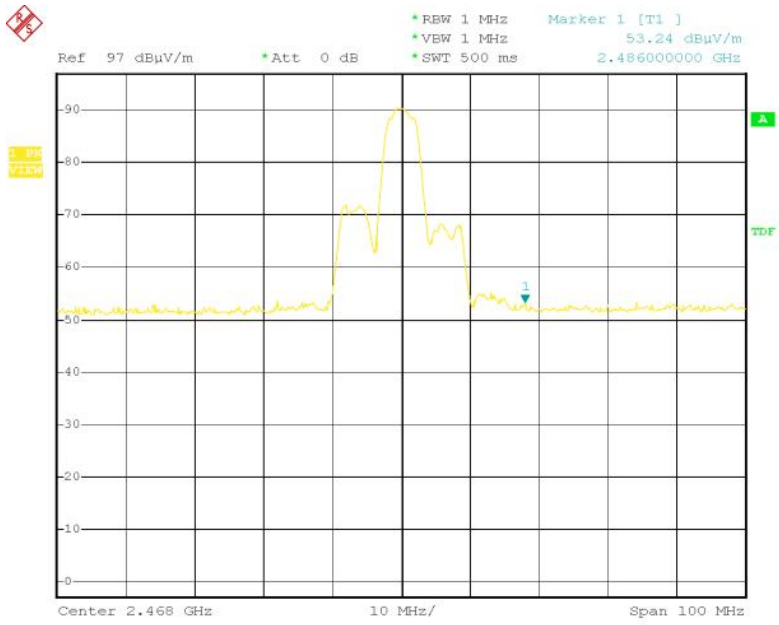
Horizontal (Peak)



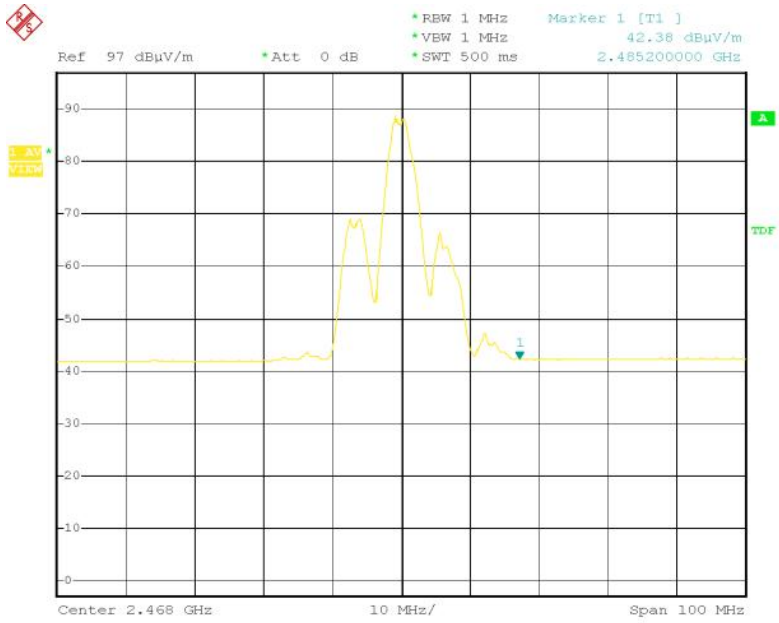
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



Note: (1) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.
(2) The average measurement was not performed when the peak measured data under the limit of average detection.

7. Antenna Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

The EUT has a built in antenna which is a short wire solder on the PCB, this is permanently attached antenna and meets the requirements of this section.

8. Photos of Testing

8. 1 EUT Test Photographs

Conducted emission test view

Radiated emission test view

8. 2 EUT Detailed Photographs

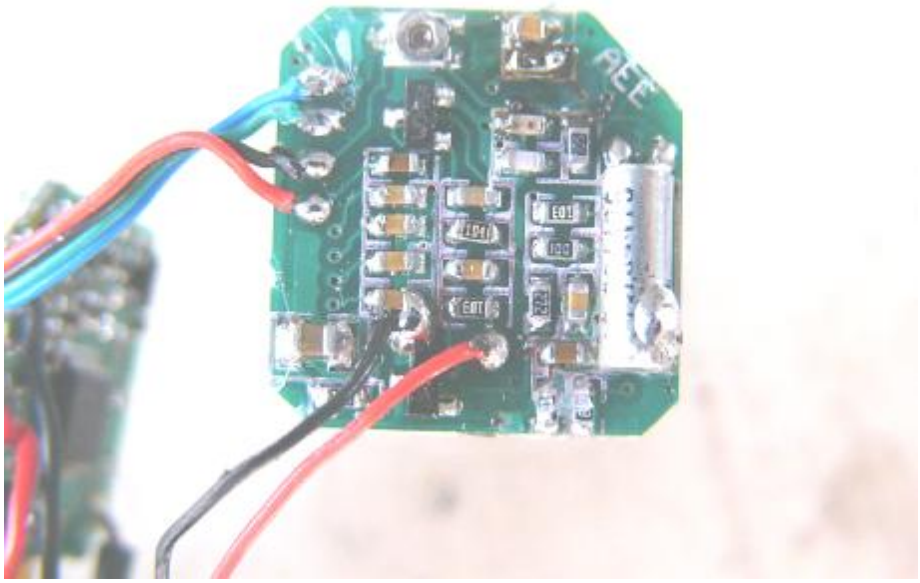
EUT top view

EUT bottom view

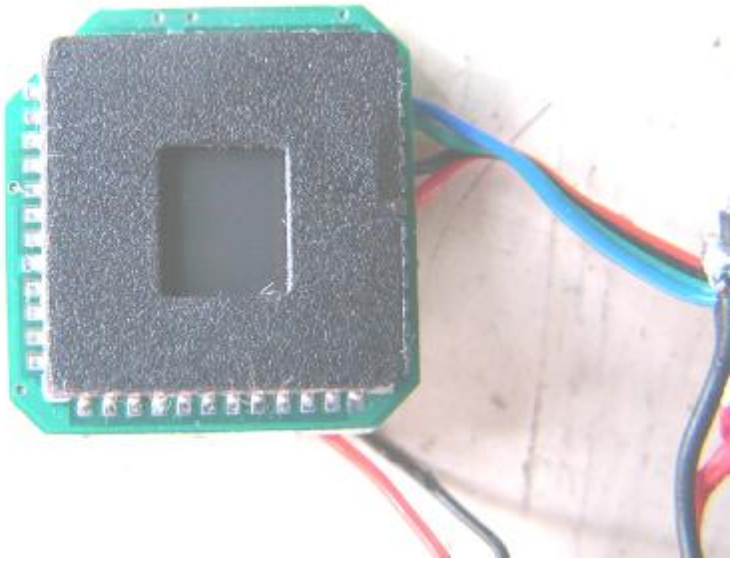
EUT inside whole view

Main & RF board component side


EM78P153SN


AEE

Main & RF board solder side



9. FCC ID Label

FCC ID: TW4AT101

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper label. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Bottom View/Proposed FCC ID Label Location

10. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

Equipment/ Facilities	Manufacturer	Model #	Serial No.	Date of Cal.	Due Date
Turntable	KMO	KSZ001T	200306	NCR	NCR
Antenna Tower	KMO	KSZ002AT	200307	NCR	NCR
OATS	KMO	KSZSITE001	N/A	July 06, 2005	July 06, 2006
EMI Test Receiver	Rohde & Schwarz	ESPI3	100180	Oct.18, 2005	Oct.18, 2006
Signal Generator	Rohde & Schwarz	SMT03	100059	Feb.01, 2005	Feb.01, 2006
Signal Generator	FLUKE	PM5418+Y/C	LO747012	Feb 01, 2005	Feb 01, 2006
Signal Generator	FLUKE	PM5418TX	LO738007	Feb 01, 2005	Feb 01, 2006
Biconical Antenna	Rohde & Schwarz	HK116	EMC0502	Dec. 14,2005	Dec. 14,2006
Bilog Antenna	Chase	CBL6111C	2576	Feb.01, 2005	Feb.01, 2006
Ultra Broadband Antenna	Rohde & Schwarz	HL 562	100110	June.05, 2005	June.05, 2006
AMN	Rohde & Schwarz	ESH3-Z5	100196	Oct. 23,2005	Oct. 23, 2006
AMN	Rohde & Schwarz	ESH3-Z5	100197	Oct. 23,2005	Oct. 23, 2006
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
Absorbing Clamp	Rohde & Schwarz	MDS-21	N/A	Oct. 29,2005	Oct. 29,2006
KMO Shielded Room	KMO	KMO-001	N/A	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESCS30	100003	Feb. 27, 2005	Feb.27, 2006
AMN	Rohde & Schwarz	ESH3-Z5	100002	Feb. 01, 2005	Feb.01, 2006
LISN	Kyoritsu	KNW-407	8-1441-8	Feb. 23, 2005	Feb.23, 2006
EMI Test Receiver	Rohde & Schwarz	ESI26	838786/013	Feb. 01, 2005	Feb.01, 2006
Bilog Antenna	Chase	CBL6112B	2591	Feb. 01, 2005	Feb.01, 2006
Horn Antenna	Rohde & Schwarz	HF906	100014	Feb. 01, 2005	Feb.01, 2006
Power Meter	Rohde & Schwarz	NRVD	100041	Feb. 01, 2005	Feb.01, 2006
Radio Communication Test Set	Rohde & Schwarz	CMS 54	846621/024	Feb 01, 2005	Feb 01, 2006
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb 01, 2005	Feb 01, 2006
SOHO Telephone Switching System	IKE	2000-108C	N/A	Feb 26, 2005	Feb 26, 2006
Temperature Chamber	TABAI	PSL-4GTW	N/A	Feb 06,2005	Feb 06, 2006
3m Semi-Anechoic Chamber	Albatross Projects	9mX6mX6m	N/A	Feb. 01, 2005	Feb.01, 2006