TEST REPORT
For

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Digital Camcorder

Model No.: DV1100SA

FCC ID: XJNDV1100SA

Prepared for	:	SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.
Address	:	NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan, Shenzhen, China
Prepared by	:	SHENZHEN EMTEK CO., LTD.
Address	:	Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
		Tel: (0755) 26954280
		Fax: (0755) 26954282

Report Number	:	ES110901002F
Date of Test	:	September 1, 2011 to September 13, 2011
Date of Report	:	September 14, 2011

TABLE OF CONTENT

TEST REPORT DESCRIPTION

Applicant	:	SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.
Manufacturer	:	SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.
EUT	:	Digital Camcorder
Model No.	:	DV1100SA
FCC ID	:	XJNDV1100SA
Power Supply	:	3*AAA Battery

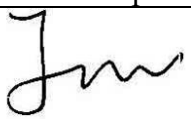
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B October 2009 &
FCC / ANSI C63.4-2009

The device described above is tested by SHENZHEN EMTEK CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and SHENZHEN EMTEK CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of SHENZHEN EMTEK CO., LTD.

Date of Test : September 1, 2011 to September 13, 2011

Prepared by : 
(Engineer)

Reviewer : 
(Quality Manager)

Approved & Authorized Signer : 
(Manager)

1. SUMMARY OF TEST RESULT

EMISSION		
Description of Test Item	Standard & Limits	Results
Conducted Disturbance at Mains Terminals	FCC Part 15, Subpart B, Class B ANSI C63.4: 2009	Pass
Radiated Disturbance	FCC Part 15, Subpart B, Class B ANSI C63.4: 2009	Pass
Note: N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	:	Digital Camcorder
Model Number	:	DV1100SA
Test Voltage	:	3*AAA Battery
Applicant	:	SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.
Address	:	NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan, Shenzhen, China
Manufacturer	:	SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.
Address	:	NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan, Shenzhen, China
Date of Received	:	September 1, 2011
Date of Test	:	September 1, 2011 to September 13, 2011

2.2.Description of Support Device

PC	:	Manufacturer: LENOVO M/N: 9702 S/N: L3C4410 CE, FCC: DOC Power cord : Unshielded, Detachabled, 1.5m
LCD Monitor	:	Manufacturer: LENOVO M/N: 9227-AE6 S/N:4M0293084302824 CE, FCC: DOC Power cord : Unshielded, Detachabled, 1.5m Data Cable: Unshielded, Detachabled, 2.0m
Keyboard	:	Manufacturer: LENOVO M/N: KU-0225 S/N:0585494 CE, FCC: DOC Data Cable: Unshielded, Undetachabled, 2.0m
Mouse	:	Manufacturer: LENOVO M/N: MO28UOL S/N:44G7862 068 CE, FCC: DOC Data Cable: Unshielded, Undetachabled, 2.0m
Printer	:	Manufacturer: HP M/N: C89520 S/N: CN25S182N6 CE, FCC: DOC USB Cable : Unshielded, Detachabled, 1.8m Power cord :Unshielded, Detachabled, 1.8m

2.3. Description of Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2010.10.29
The certificate is valid until 2013.10.28
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)
The Certificate Registration Number is L2291.

Accredited by TUV Rheinland Shenzhen 2010.5.25
The Laboratory has been assessed according to the requirements ISO/IEC 17025.

Accredited by FCC, October 28, 2010
The Certificate Registration Number is 406365.

Accredited by Industry Canada, March 5, 2010
The Certificate Registration Number is 46405-4480.

Name of Firm : SHENZHEN EMTEK CO., LTD.

Site Location : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

2.4. Measurement Uncertainty

Conducted Emission Uncertainty : 2.8dB

Radiated Emission Uncertainty : 3.3dB (3m Chamber)

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1.For Power Line Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	100162	May 29, 2011	1 Year
2.	L.I.S.N.	Rohde & Schwarz	ENV216	3560.6550.12	May 29, 2011	1 Year
3.	50Ω Coaxial Switch	Anritsu	MP59B	6100214550	N/A	N/A
4.	Voltage Probe	Rohde & Schwarz	TK9416	N/A	May 29, 2011	1 Year
5.	I.S.N	Rohde & Schwarz	ENY22	1109.9508.02	May 29, 2011	1 Year

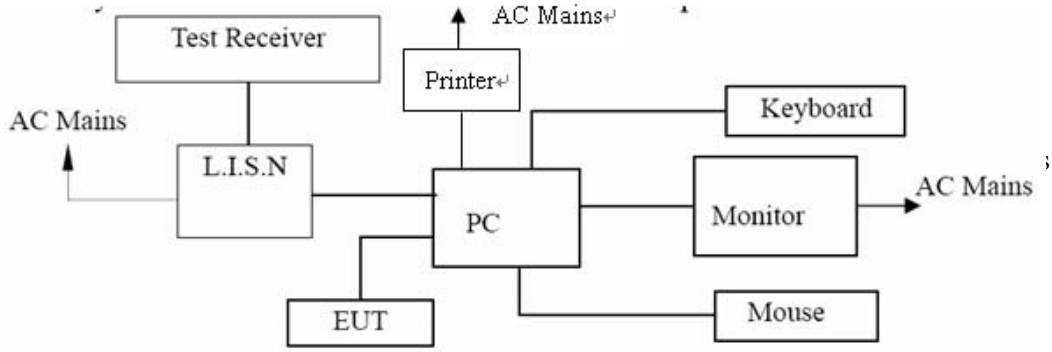
3.2.For Radiated Emission Measurement(3m Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	May 29, 2011	1 Year
2.	Pre-Amplifier	HP	8447D	2944A07999	May 29, 2011	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2011	1 Year
4.	Loop Antenna	ARA	PLA-1030/B	1029	May 29, 2011	1 Year
5.	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 29, 2011	1 Year
6.	Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 29, 2011	1 Year
7.	Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2011	1 Year
8.	Cable	Rosenberger	N/A	FP2RX2	May 29, 2011	1 Year
9.	Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2011	1 Year
10.	Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2011	1 Year

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup

During test, continuous communication was taking place between the EUT and the host computer by a batch file loop that constantly uploads- and deletes a video file of 50MByte from the PC into the EUT without interruption.



(EUT: Digital Camcorder)

4.2. Measuring Standard

FCC Part 15, Subpart B, Class BANSI C63.4: 2009

4.3. Power Line Conducted Emission Limits (Class B)

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0
NOTE1-The lower limit shall apply at the transition frequencies. NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

4.4. EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet FCC requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

EUT : Digital Camcorder
Model Number : DV1100SA

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown on Section 4.1.

4.5.2. Turn on the power of all equipments.

4.5.3. Let the EUT work in measuring mode (Connect to PC) and measure it.

4.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to PC, and then PC connect to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the FCC regulations during conducted emission measurement.
The bandwidth of the field strength meter (R&S Test Receiver ESCS30) is set at 9kHz in 150kHz~30MHz and 200Hz in 9kHz~150kHz.
The frequency range from 150kHz to 30MHz is investigated.
All the scanning waveform is put in Appendix I.

4.7. Measuring Results

PASS.

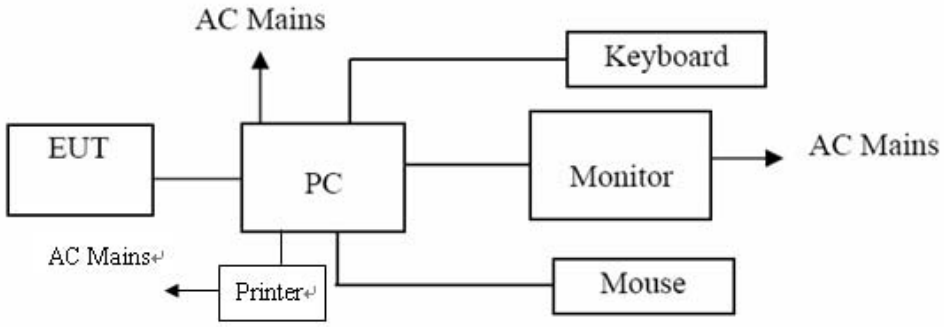
Please refer to Appendix I.

5. RADIATED EMISSION MEASUREMENT

5.1.Block Diagram of Test Setup

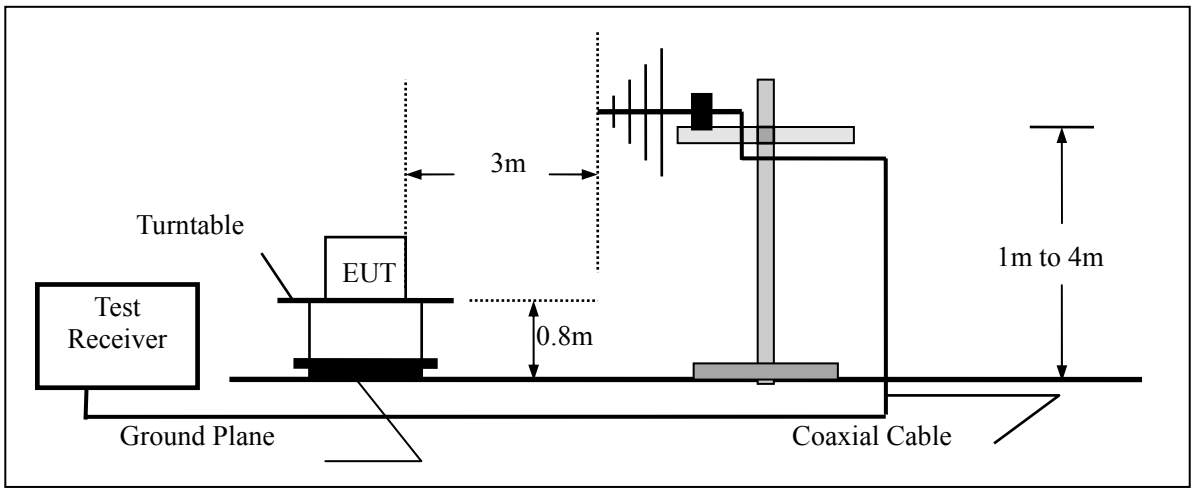
5.1.1. Block diagram of connection between the EUT and simulators

During test, continuous communication was taking place between the EUT and the host computer by a batch file loop that constantly uploads- and deletes a video file of 50MByte from the PC into the EUT without interruption.



(EUT: Digital Camcorder)

5.1.2.Block diagram of test setup (In chamber)



(EUT: Digital Camcorder)

5.2.Measuring Standard

FCC Part 15, Subpart B, Class B ANSI C63.4: 2009

5.3.Radiated Emission Limits (Class B)

Frequency MHz	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Frequency (GHz)	Distance (Meters)	Field Strengths Limit	
		Average (dBμV/m)	Peak (dBμV/m)
1~6	3	54	74

Remark： (1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

5.4.EUT Configuration on Measurement

The FCC Class B regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT : Digital Camcorder
Model Number : DV1100SA

5.5.Operating Condition of EUT

5.5.1.Setup the EUT as shown on Section 5.1.

5.5.2.Turn on the power of all equipments.

5.5.3.Let the EUT work in measuring mode (Camera Recording, Connect to PC) and measure it.

5.6.Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) and horn antenna are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the Receiver (ESU26) is set at 120kHz.
The worst scanning curves are attached in Appendix II.

5.7.Measuring Results

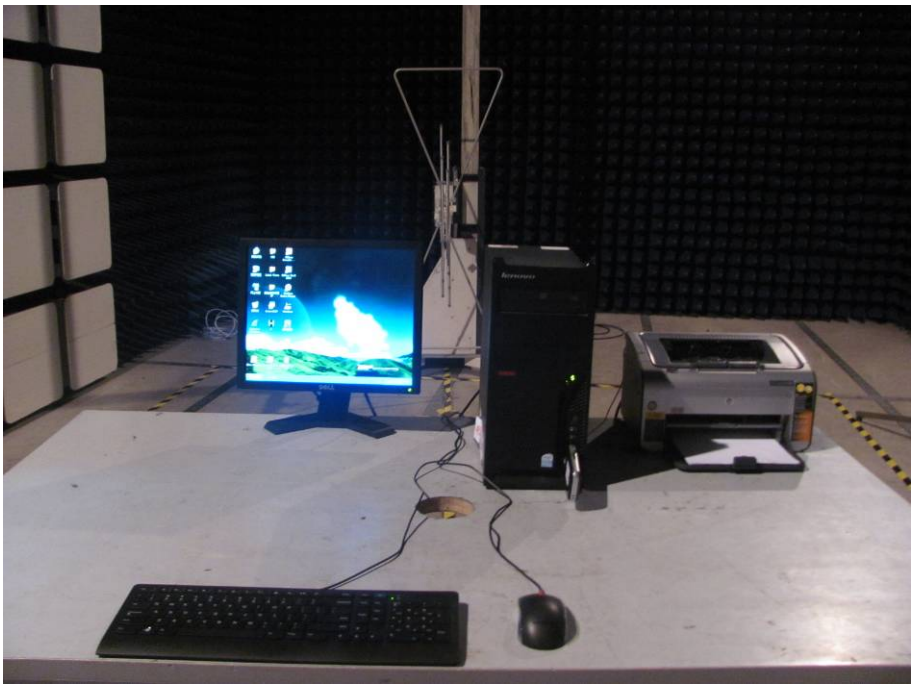
PASS.

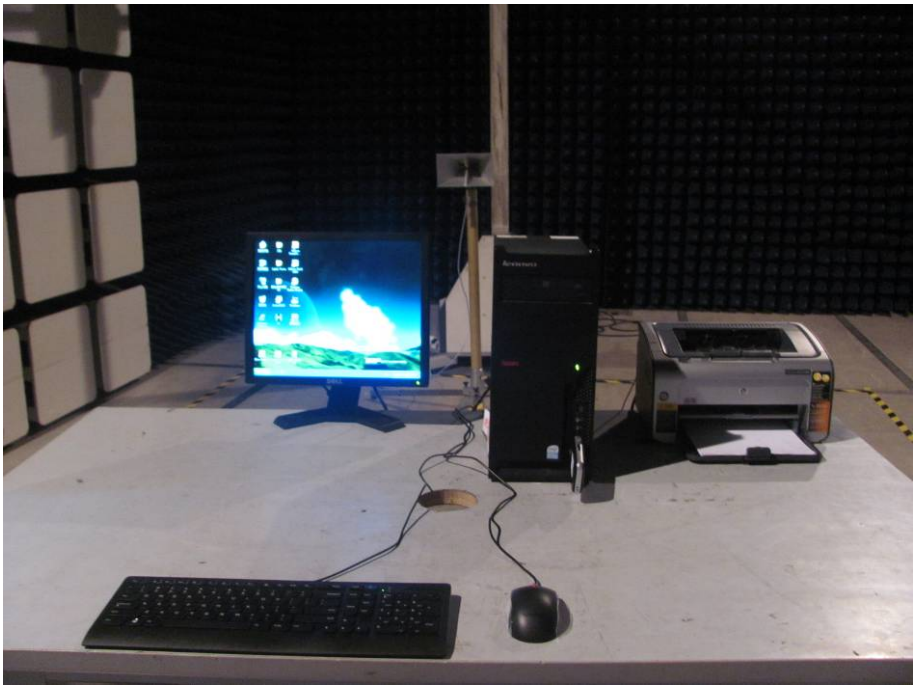
The frequency range from 30MHz to 6GHz is investigated.
Please refer to Appendix II.

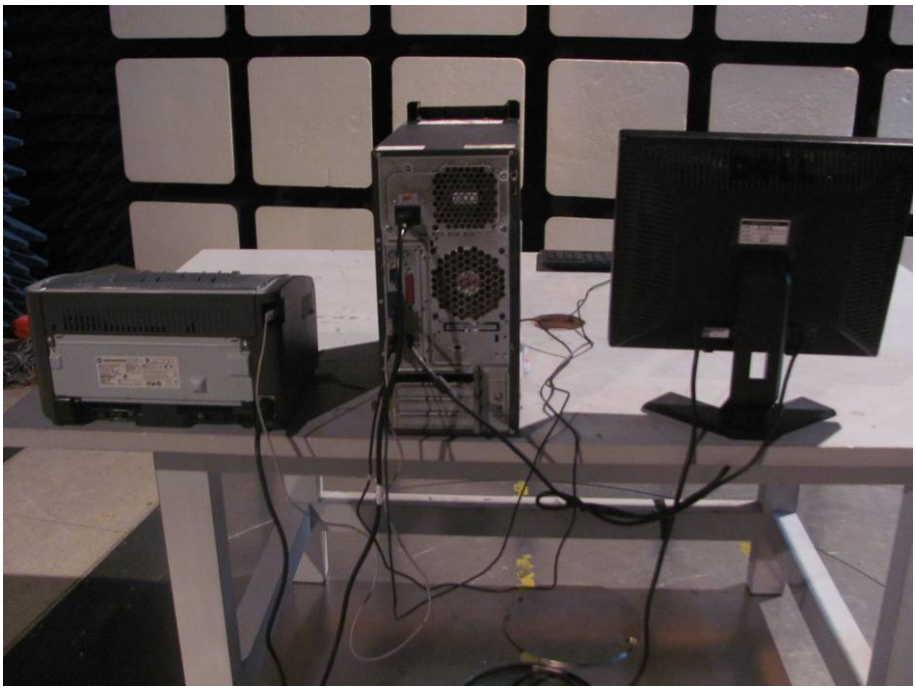
6. PHOTOGRAPHS

6.1.Photos of Conducted Emission Measurement

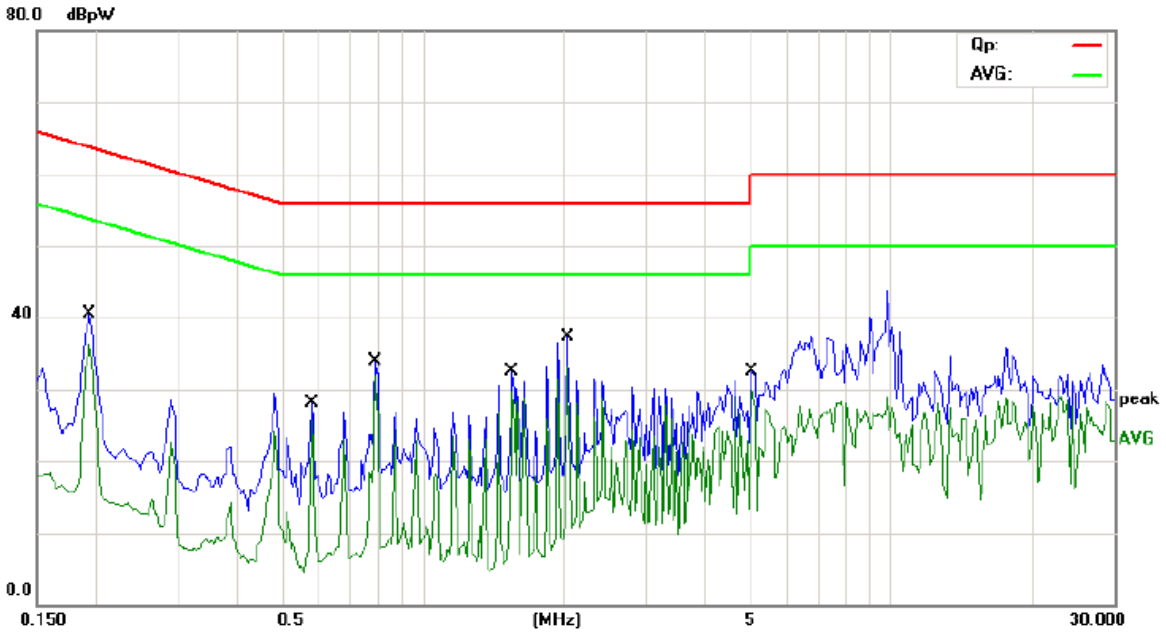
6.2.Photos of Radiation Emission Measurement







APPENDIX I



Site Conduction #1 Phase: N Temperature: 26

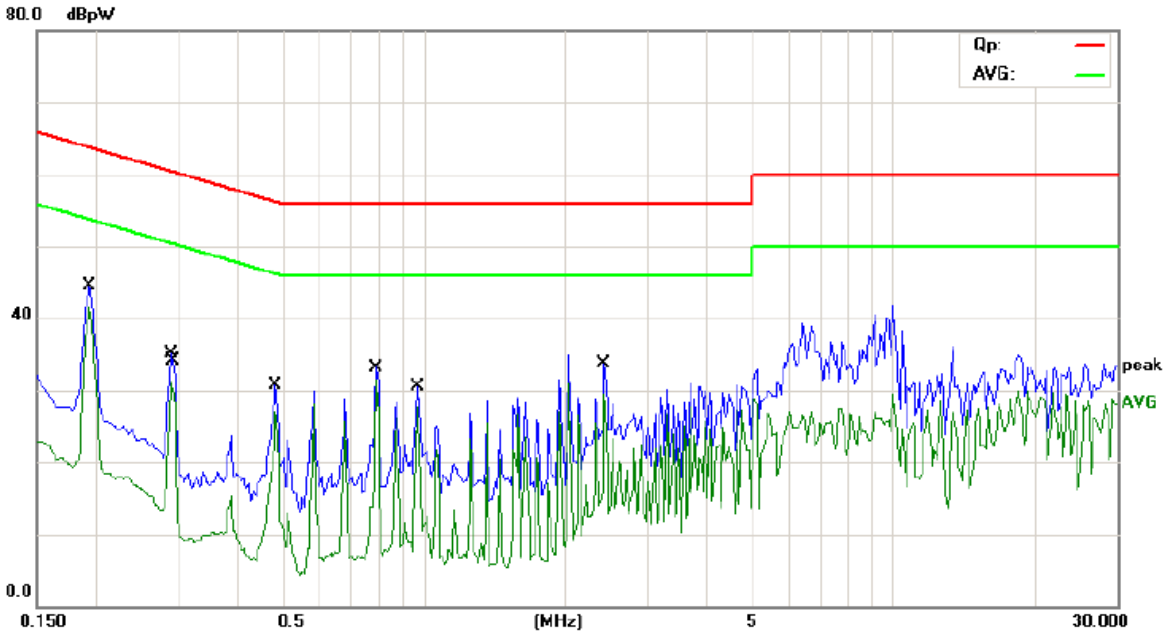
Limit: (CE)EN55022 class B_QP Power: DC 4.5V Humidity: 60 %

Mode: Connect to PC

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector	Comment
1		0.1950	40.46	0.00	40.46	63.82	-23.36	QP	
2		0.1950	36.21	0.00	36.21	53.82	-17.61	AVG	
3		0.5800	28.13	0.00	28.13	56.00	-27.87	QP	
4		0.5800	25.65	0.00	25.65	46.00	-20.35	AVG	
5		0.7950	33.96	0.00	33.96	56.00	-22.04	QP	
6		0.7950	31.89	0.00	31.89	46.00	-14.11	AVG	
7		1.5550	32.43	0.00	32.43	56.00	-23.57	QP	
8		1.5550	29.63	0.00	29.63	46.00	-16.37	AVG	
9		2.0400	37.27	0.00	37.27	56.00	-18.73	QP	
10	*	2.0400	33.17	0.00	33.17	46.00	-12.83	AVG	
11		5.0500	32.57	0.00	32.57	60.00	-27.43	QP	
12		5.0500	29.80	0.00	29.80	50.00	-20.20	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: WHT



Site Conduction #1 Phase: L1 Temperature: 26

Limit: (CE)EN55022 class B_QP Power: DC 4.5V Humidity: 60 %

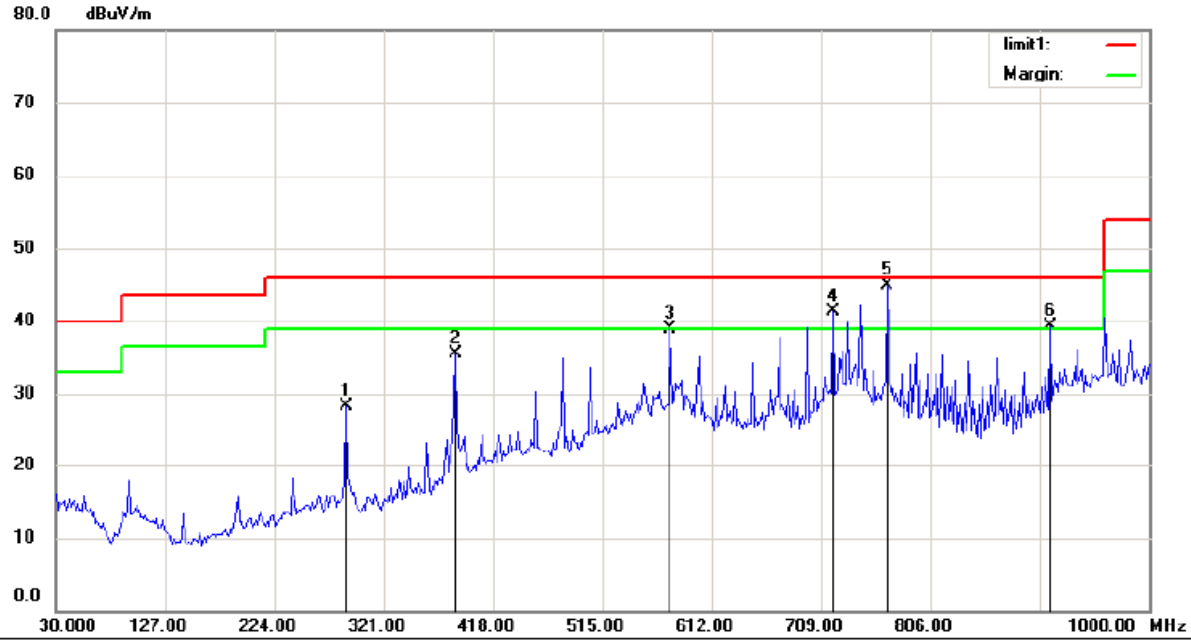
Mode: Connect to PC

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector	Comment
1		0.1950	44.59	0.00	44.59	63.82	-19.23	QP	
2	*	0.1950	41.55	0.00	41.55	53.82	-12.27	AVG	
3		0.2900	35.02	0.00	35.02	60.52	-25.50	QP	
4		0.2950	29.23	0.00	29.23	50.38	-21.15	AVG	
5		0.4850	30.66	0.00	30.66	56.25	-25.59	QP	
6		0.4850	27.13	0.00	27.13	46.25	-19.12	AVG	
7		0.7950	33.20	0.00	33.20	56.00	-22.80	QP	
8		0.7950	31.57	0.00	31.57	46.00	-14.43	AVG	
9		0.9700	30.41	0.00	30.41	56.00	-25.59	QP	
10		0.9700	27.74	0.00	27.74	46.00	-18.26	AVG	
11		2.4300	33.76	0.00	33.76	56.00	-22.24	QP	
12		2.4300	29.43	0.00	29.43	46.00	-16.57	AVG	

*:Maximum data x:Over limit I:over margin Comment: Factor build in receiver. Operator: WHT

APPENDIX II



Site site #1 Polarization: *Vertical* Temperature: 26

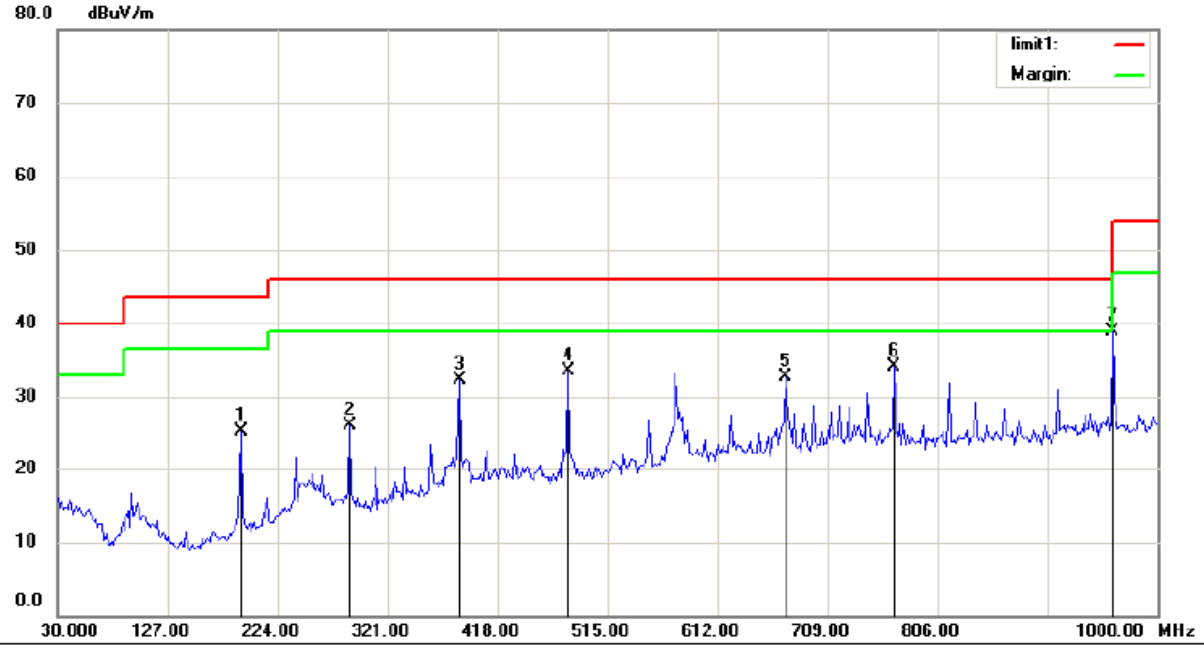
Limit: (RE)FCC PART 15 CLASS B Power: DC 4.5V Humidity: 60 %

Mode:Camera Recording

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		288.0448	14.36	14.03	28.39	46.00	-17.61	QP			
2		384.4230	18.17	17.43	35.60	46.00	-10.40	QP			
3		575.6250	19.11	19.83	38.94	46.00	-7.06	QP			
4	!	720.1923	18.33	22.88	41.21	46.00	-4.79	QP			
5	*	768.3812	21.78	23.05	44.83	46.00	-1.17	QP			
6	!	912.9487	15.32	23.96	39.28	46.00	-6.72	QP			

*:Maximum data x:Over limit !:over margin Operator: rjb



Site site #1 Polarization: *Horizontal* Temperature: 26

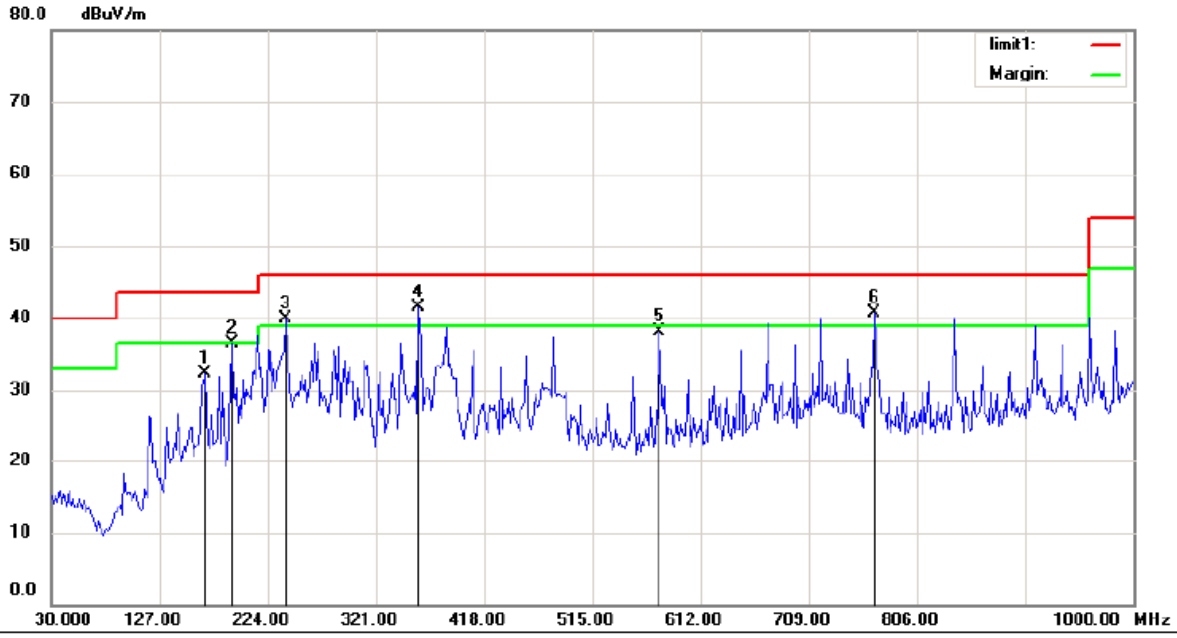
Limit: (RE)FCC PART 15 CLASS B Power: DC 4.5V Humidity: 60 %

Mode:Camera Recording

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		191.6666	14.24	10.98	25.22	43.50	-18.28	QP			
2		288.0448	12.13	14.03	26.16	46.00	-19.84	QP			
3		384.4230	14.91	17.43	32.34	46.00	-13.66	QP			
4		480.8012	15.06	18.45	33.51	46.00	-12.49	QP			
5		672.0032	10.85	21.92	32.77	46.00	-13.23	QP			
6	*	768.3814	10.99	23.05	34.04	46.00	-11.96	QP			
7		961.1378	14.29	24.64	38.93	54.00	-15.07	QP			

*:Maximum data x:Over limit !:over margin Operator: rjb



Site site #1 Polarization: *Horizontal* Temperature: 26

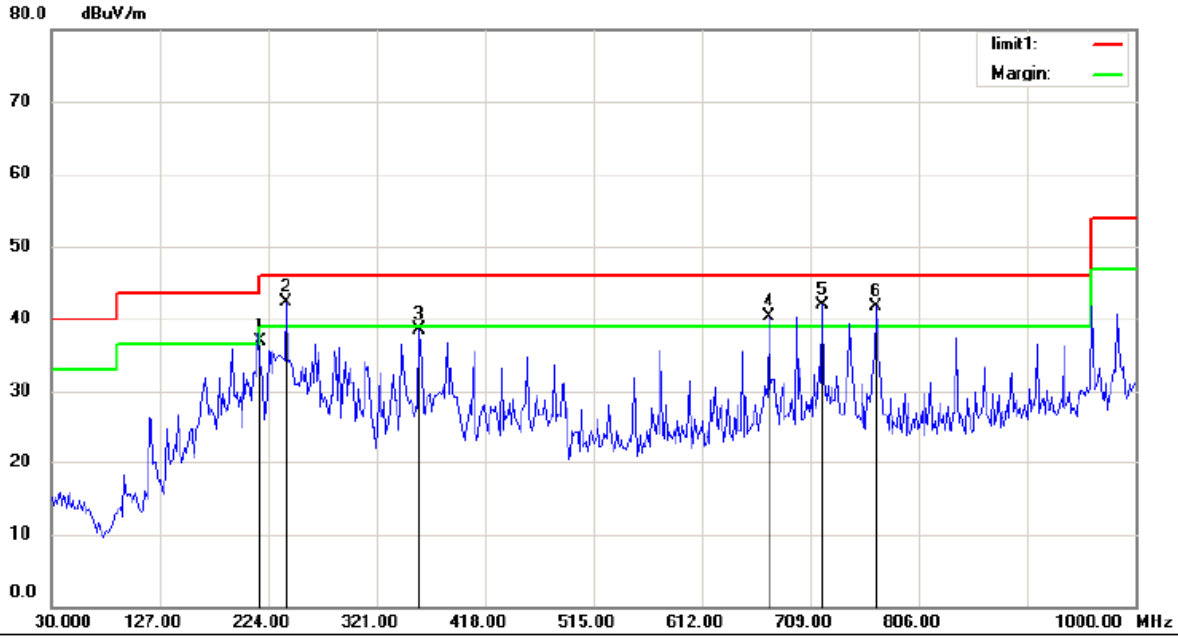
Limit: (RE)FCC PART 15 CLASS B Power: DC 4.5V Humidity: 60 %

Mode:CONNECT TO PC (UP Data)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		168.3493	22.64	9.70	32.34	43.50	-11.16	QP			
2		191.6666	25.44	10.98	36.42	43.50	-7.08	QP			
3	!	239.8557	26.74	13.15	39.89	46.00	-6.11	QP			
4	*	359.5512	25.71	15.76	41.47	46.00	-4.53	QP			
5		575.6250	18.27	19.83	38.10	46.00	-7.90	QP			
6	!	768.3814	17.68	23.05	40.73	46.00	-5.27	QP			

*:Maximum data x:Over limit !:over margin Operator: rjb



Site site #1 Polarization: *Vertical* Temperature: 26

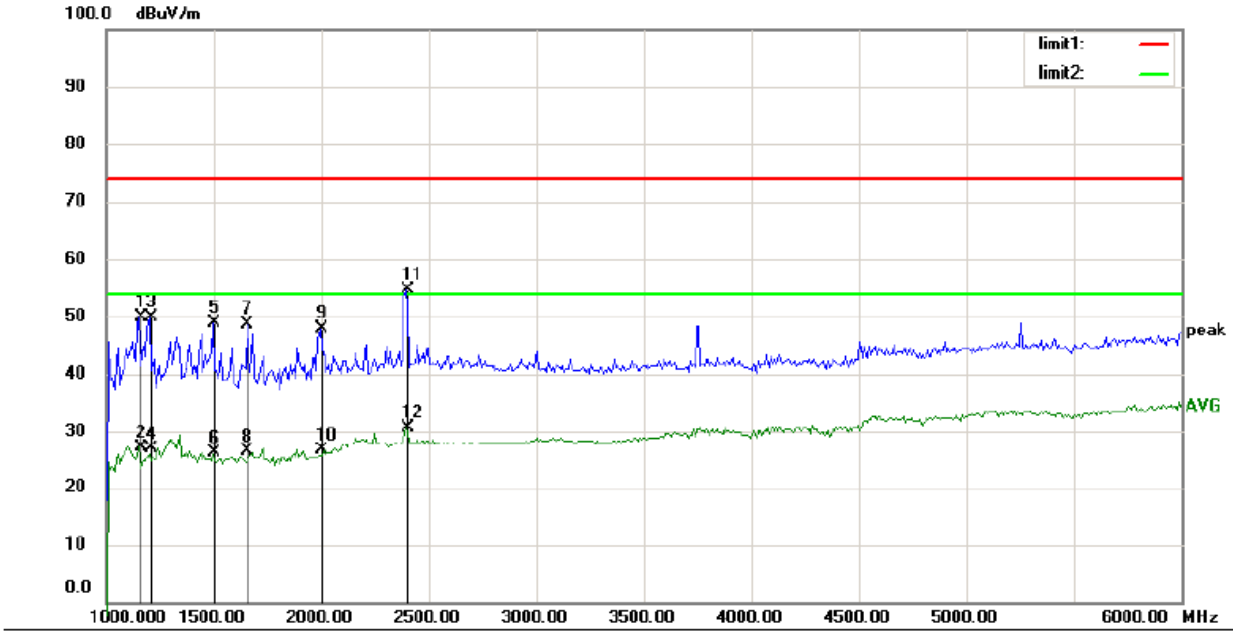
Limit: (RE)FCC PART 15 CLASS B Power: DC 4.5V Humidity: 60 %

Mode:CONNECT TO PC (UP Data)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	!	214.9840	25.20	11.75	36.95	43.50	-6.55	QP			
2	*	239.8557	29.24	13.15	42.39	46.00	-3.61	QP			
3		359.5512	22.71	15.76	38.47	46.00	-7.53	QP			
4	!	672.0032	18.45	21.92	40.37	46.00	-5.63	QP			
5	!	720.1923	18.95	22.88	41.83	46.00	-4.17	QP			
6	!	768.3814	18.68	23.05	41.73	46.00	-4.27	QP			

*:Maximum data x:Over limit !:over margin Operator: rjb



Site site #1 Polarization: *Horizontal* Temperature: 26

Limit: (RE)FCC PART 15 CLASS B Power: DC 4.5V Humidity: 60 %

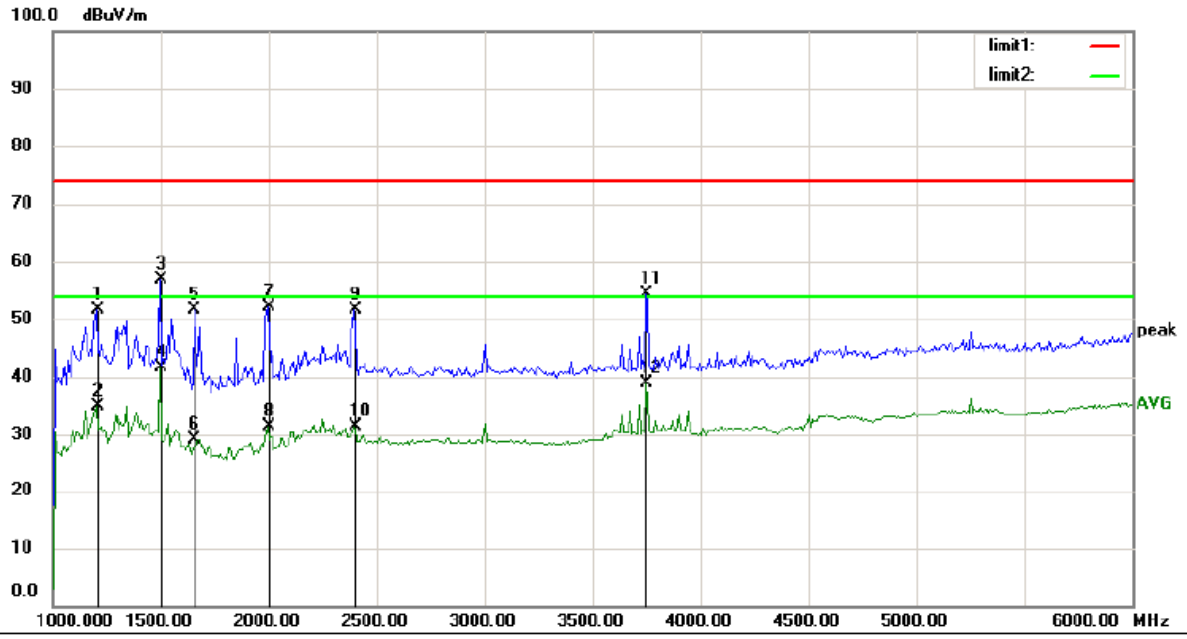
EUT: Digital Video Camera

Mode:CONNECT TO PC (UP Data)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1152.244	63.04	-13.23	49.81	74.00	-24.19	peak			
2		1152.244	40.42	-13.23	27.19	54.00	-26.81	AVG			
3		1200.321	62.80	-13.02	49.78	74.00	-24.22	peak			
4		1200.321	39.93	-13.02	26.91	54.00	-27.09	AVG			
5		1496.795	61.03	-12.27	48.76	74.00	-25.24	peak			
6		1496.795	38.32	-12.27	26.05	54.00	-27.95	AVG			
7		1657.051	60.90	-12.28	48.62	74.00	-25.38	peak			
8		1657.051	38.76	-12.28	26.48	54.00	-27.52	AVG			
9		1993.590	58.81	-10.81	48.00	74.00	-26.00	peak			
10		1993.590	37.42	-10.81	26.61	54.00	-27.39	AVG			
11	*	2394.231	63.29	-8.66	54.63	74.00	-19.37	peak			
12		2394.231	39.38	-8.66	30.72	54.00	-23.28	AVG			

*:Maximum data x:Over limit !:over margin Operator: rjb



Site site #1 Polarization: *Vertical* Temperature: 26

Limit: (RE)FCC PART 15 CLASS B Power: DC 4.5V Humidity: 60 %

Mode:CONNECT TO PC (UP Data)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1200.321	64.65	-13.02	51.63	74.00	-22.37	peak			
2		1200.321	47.91	-13.02	34.89	54.00	-19.11	AVG			
3		1496.795	69.19	-12.27	56.92	74.00	-17.08	peak			
4	*	1496.795	53.79	-12.27	41.52	54.00	-12.48	AVG			
5		1657.051	63.84	-12.28	51.56	74.00	-22.44	peak			
6		1657.051	41.47	-12.28	29.19	54.00	-24.81	AVG			
7		1993.590	62.84	-10.81	52.03	74.00	-21.97	peak			
8		1993.590	42.12	-10.81	31.31	54.00	-22.69	AVG			
9		2394.231	60.22	-8.66	51.56	74.00	-22.44	peak			
10		2394.231	40.00	-8.66	31.34	54.00	-22.66	AVG			
11		3748.397	61.08	-6.72	54.36	74.00	-19.64	peak			
12		3748.397	45.70	-6.72	38.98	54.00	-15.02	AVG			

*:Maximum data x:Over limit !:over margin Operator: rjb

APPENDIX III
(Photos of EUT)


MODE
SET


MODE
SET