

FCC Test Report

On Behalf of

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Digital Camera

Model No.: DC100

FCC ID: XJNDC100

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,

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Report Number : ES120718160E

Date of Test : July 18, 2012 to July 30, 2012

Date of Report : July 31, 2012



Report No.: ES120718160E Rev.1.0

TABLE OF CONTENT

Te	est Report Description	Page
1. SI	UMMARY OF TEST RESULT	5
2. G	ENERAL INFORMATION	6
2.1. 2.2. 2.3. 2.4.	DESCRIPTION OF DEVICE (EUT) DESCRIPTION OF SUPPORT DEVICE DESCRIPTION OF TEST FACILITY MEASUREMENT UNCERTAINTY	6 7
3. M	EASURING DEVICE AND TEST EQUIPMENT	8
3.1. 3.2.		
4. PO	OWER LINE CONDUCTED EMISSION MEASUREMENT	9
4.1. 4.2. 4.3. 4.4. 4.5. 4.6. 4.7.	BLOCK DIAGRAM OF TEST SETUP MEASURING STANDARD POWER LINE CONDUCTED EMISSION LIMITS (CLASS B) EUT CONFIGURATION ON MEASUREMENT OPERATING CONDITION OF EUT TEST PROCEDURE MEASURING RESULTS	9 9 9 9
5. R	ADIATED EMISSION MEASUREMENT	13
5.1. 5.2. 5.3. 5.4. 5.5. 5.6. 5.7.	BLOCK DIAGRAM OF TEST SETUP MEASURING STANDARD RADIATED EMISSION LIMITS (CLASS B) EUT CONFIGURATION ON MEASUREMENT OPERATING CONDITION OF EUT TEST PROCEDURE MEASURING RESULTS	
6. Pł	HOTOGRAPHS	24
6.1. 6.2	PHOTOS OF CONDUCTED EMISSION MEASUREMENT	

APPENDIX (Photos of EUT) (4 Pages)



TEST REPORT DESCRIPTION

Applicant

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Manufacturer

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

EUT:

Digital Camera

Model No.

DC100

Power Supply

DC 4.5V (AAA Battery×3) or DC 5V from PC connected to AC 120V/60Hz

Measurement Procedure Used:

FCC Rules and Regulations Part 15: 2011 Subpart B Class B & 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

July 18, 2012 to July 30, 2012

Prepared by

Lesley Zhang/Editor

Reviewer

Frank Liu/Supanyisa

Approved & Authorized Signer:

Lisa Wang/Manager

Report No.: ES120718160E Rev.1.0



Modified History

Rev.	Summary	Date of Rev.	Report No.		
V1.0	Original Report	2012-07-31	ES120718160E		



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 Note	ANSI C63.4: 2009	Pas						



2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Digital Camera

Model Number : DC100

Test Voltage : DC 4.5V (AAA Battery×3) or DC 5V from PC connected to AC 120V/60Hz

Applicant : SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Address : NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan,

Shenzhen, Guangdong, China

Manufacturer : SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Address : NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan,

Shenzhen, Guangdong, China

Date of Received : July 18, 2012

Date of Test : July 18, 2012 to July 30, 2012

2.2. Description of Support Device

PC : Manufacturer: LENOVO

M/N: 9702 S/N: L3C4410 CE, FCC: DOC

LCD Monitor : Manufacturer: LENOVO

M/N: 9227-AE6

S/N:4M0293084302824

CE, FCC: DOC

Keyboard : Manufacturer: LENOVO

M/N: KU-0225 S/N:0585494 CE, FCC: DOC

Mouse : Manufacturer: LENOVO

M/N: MO28UOL S/N:44G7862 068 CE, FCC: DOC

Printer : Manufacturer: HP

M/N: C89520 S/N: CN25S182N6 CE, FCC: DOC



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 (30M~1GHz Polarize: H)

3.2dB (30M~1GHz Polarize: V) 3.7dB (1~18GHz Polarize: H) 3.6dB (1~18GHz Polarize: V)



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	828985/018	May 29, 2012	1 Year
2.	L.I.S.N.	Schwarzbeck	NNLK8129	8129203	May 29, 2012	1 Year
3.	50Ω Coaxial Switch	Anritsu	MP59B	M20531	N/A	N/A
4.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29, 2012	1 Year
5.	Voltage Probe	Rohde & Schwarz	TK9416	N/A	May 29, 2012	1 Year
6.	I.S.N	Teseq GmbH	ISN T800	30327	May 29, 2012	1 Year

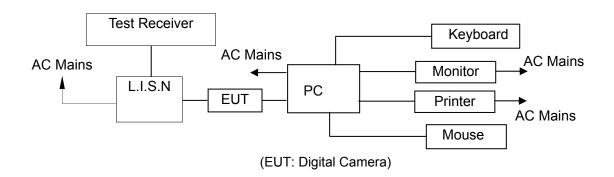
3.2. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
						Interval
1.	EMI Test Receiver	Rohde &	ESU	1302.6005.26	May 29, 2012	1 Year
	Livii Test Receivei	Schwarz				
2.	Pre-Amplifier	HP	8447D	2944A07999	May 29, 2012	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2012	1 Year
4.	Loop Antenna	Schwarzbeck	FMZB 1519	012	May 29, 2012	1 Year
5.	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 29, 2012	1 Year
6.	Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 29, 2012	1 Year
7.	Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2012	1 Year
8.	Cable	Rosenberger	N/A	FP2RX2	May 29, 2012	1 Year
9.	Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2012	1 Year
10.	Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2012	1 Year
11	Pre-Amplifier	A.H.	PAM-0126	1415261	May 29, 2012	1 Year



4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



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 Camera

Model Number : DC100

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(updata)) 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 the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 500hm 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 are attached the following pages.

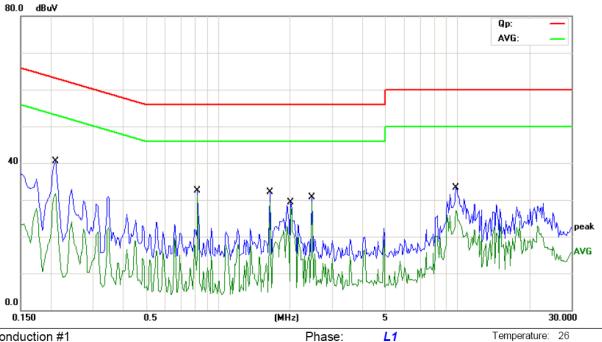
4.7. Measuring Results

PASS.

Please refer to the following pages.



60 %



Power: DC 5V from PC

Site Conduction #1

Limit: (CE)FCC PART 15 class B_QP

Mode: Connect TO PC(updata)

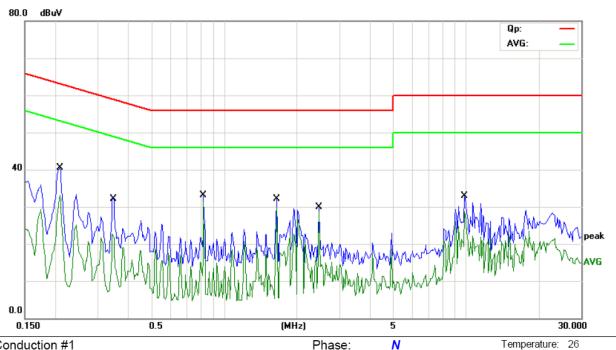
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2100	40.46	0.00	40.46	63.21	-22.75	QP	
2		0.2100	31.72	0.00	31.72	53.21	-21.49	AVG	
3		0.8250	32.48	0.00	32.48	56.00	-23.52	QP	
4	*	0.8250	31.22	0.00	31.22	46.00	-14.78	AVG	
5		1.6500	32.14	0.00	32.14	56.00	-23.86	QP	
6		1.6500	29.39	0.00	29.39	46.00	-16.61	AVG	
7		2.0200	29.34	0.00	29.34	56.00	-26.66	QP	
8		2.0200	27.89	0.00	27.89	46.00	-18.11	AVG	
9		2.4700	30.78	0.00	30.78	56.00	-25.22	QP	
10		2.4700	29.25	0.00	29.25	46.00	-16.75	AVG	
11		9.8800	33.39	0.00	33.39	60.00	-26.61	QP	
12		9.8800	27.19	0.00	27.19	50.00	-22.81	AVG	

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



60 %



Power: DC 5V from PC

Site Conduction #1

Limit: (CE)FCC PART 15 class B_QP

Mode: Connect TO PC(updata)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2100	40.49	0.00	40.49	63.21	-22.72	QP	
2		0.2100	33.18	0.00	33.18	53.21	-20.03	AVG	
3		0.3500	32.17	0.00	32.17	58.96	-26.79	QP	
4		0.3500	22.69	0.00	22.69	48.96	-26.27	AVG	
5		0.8250	33.06	0.00	33.06	56.00	-22.94	QP	
6	*	0.8250	31.22	0.00	31.22	46.00	-14.78	AVG	
7		1.6500	32.04	0.00	32.04	56.00	-23.96	QP	
8		1.6500	29.86	0.00	29.86	46.00	-16.14	AVG	
9		2.4700	29.91	0.00	29.91	56.00	-26.09	QP	
10		2.4700	28.61	0.00	28.61	46.00	-17.39	AVG	
11		9.8800	32.99	0.00	32.99	60.00	-27.01	QP	
12		9.8800	28.62	0.00	28.62	50.00	-21.38	AVG	

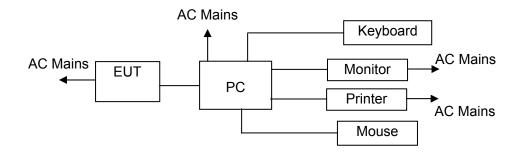
Comment: Factor build in receiver. *:Maximum data x:Over limit !:over margin Operator: GUAN



5. RADIATED EMISSION MEASUREMENT

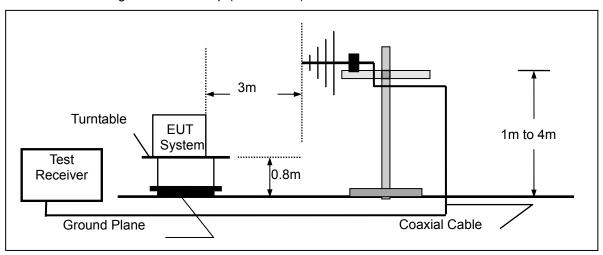
5.1. Block Diagram of Test Setup

5.1.1. Block diagram of EUT System



(EUT: Digital Camera)

5.1.2.Block diagram of test setup (In chamber)



(EUT: Digital Camera)

5.2. Measuring Standard

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



5.3. Radiated Emission Limits (Class B)

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

Remark: (1) Emission level (dB) μ V = 20 log Emission level μ V/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 Camera

Model Number : DC100

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, Playing, Connect to PC(updata)) 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) or horn antenna is 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. All the scanning waveform are attached the following pages.

Shenzhen EMTEK Co., Ltd. Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



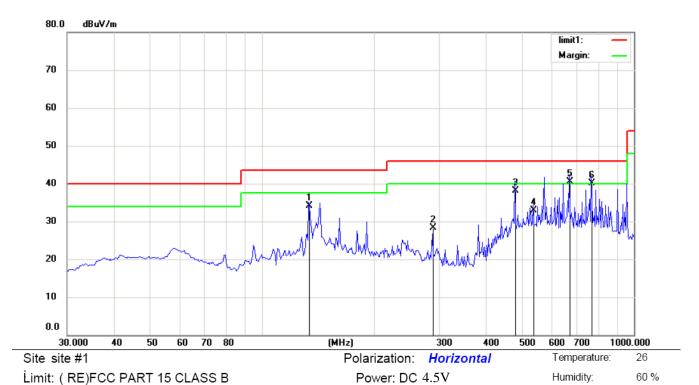
5.7. Measuring Results

PASS.

The frequency range from 30MHz to 6GHz is investigated.

Please refer to the following pages.





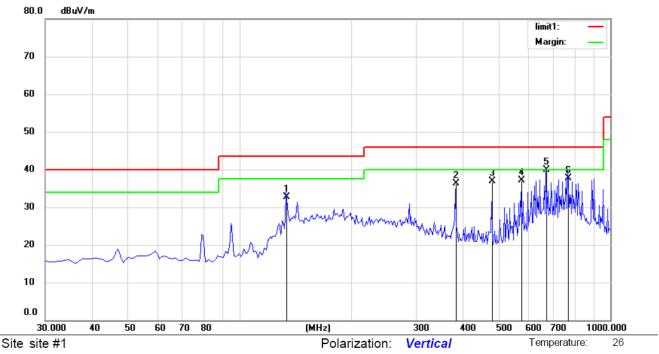
Mode:Camera Recording

Note:

No.	Mł	c. 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		134.1502	24.47	9.65	34.12	43.50	-9.38	QP			
2		288.0448	14.70	13.60	28.30	46.00	-17.70	QP			
3		479.2466	19.76	18.43	38.19	46.00	-7.81	QP			
4		536.7626	13.13	19.77	32.90	46.00	-13.10	QP			
5	*	672.0031	17.51	23.02	40.53	46.00	-5.47	QP			
6	İ	768.3812	17.88	22.27	40.15	46.00	-5.85	QP			



60 %



Power: DC 4.5V

Limit: (RE)FCC PART 15 CLASS B

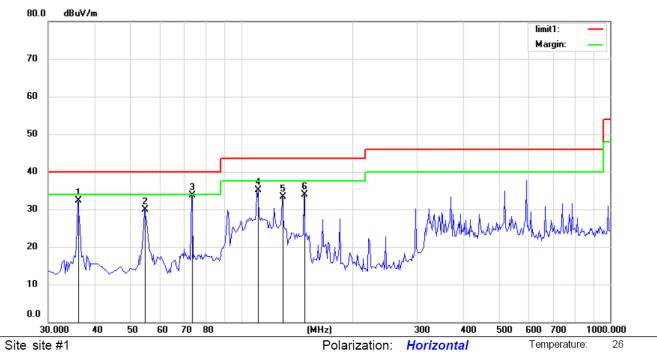
Mode: Camera Recording

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		134.1506	23.05	9.65	32.70	43.50	-10.80	QP			
2		384.4230	19.70	16.67	36.37	46.00	-9.63	QP			
3		479.2467	18.56	18.43	36.99	46.00	-9.01	QP			
4		575.6250	17.28	19.83	37.11	46.00	-8.89	QP			
5	*	672.0032	16.82	23.02	39.84	46.00	-6.16	QP			
6		768.3814	15.50	22.27	37.77	46.00	-8.23	QP			



60 %



Power: DC 4.5V

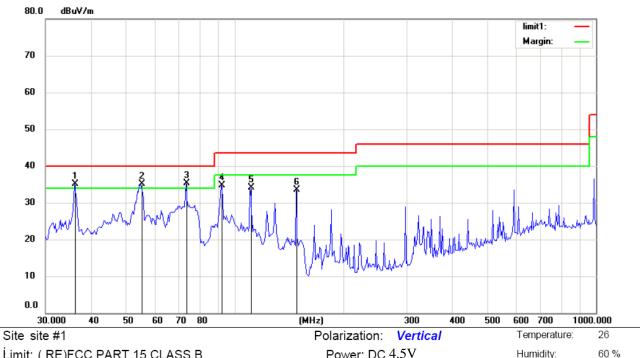
Limit: (RE)FCC PART 15 CLASS B

Mode:PLAYING

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		36.2180	18.01	14.22	32.23	40.00	-7.77	QP			
2		54.8718	16.47	13.45	29.92	40.00	-10.08	QP			
3	*	73.5256	24.52	9.16	33.68	40.00	-6.32	QP			
4	1	110.8333	22.46	12.71	35.17	43.50	-8.33	QP			
5	1	129.4871	22.87	10.35	33.22	43.50	-10.28	QP			
6	1	148.1410	24.94	8.99	33.93	43.50	-9.57	QP			





Limit: (RE)FCC PART 15 CLASS B

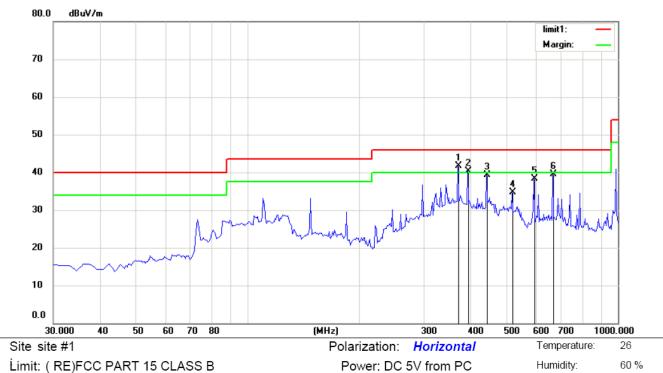
Mode:PLAYING

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	İ	36.2180	20.79	14.22	35.01	40.00	-4.99	QP			
2	İ	55.0423	21.73	13.44	35.17	40.00	-4.83	QP			
3	*	73.5256	26.16	9.16	35.32	40.00	-4.68	QP			
4		92.1795	22.00	12.74	34.74	43.50	-8.76	QP			
5		110.8333	21.30	12.71	34.01	43.50	-9.49	QP			
6		148.1410	24.54	8.99	33.53	43.50	-9.97	QP			

Power: DC 4.5V





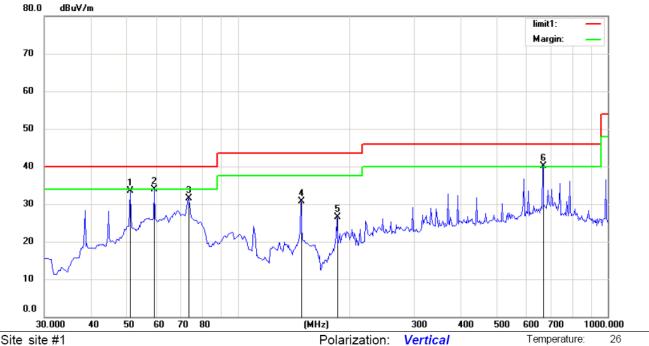
Limit: (RE)FCC PART 15 CLASS B

Mode:Connect to PC(updata)

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	*	370.4327	25.75	16.05	41.80	46.00	-4.20	QP			
2	İ	395.3045	23.27	16.94	40.21	46.00	-5.79	QP			
3		445.0481	21.09	18.18	39.27	46.00	-6.73	QP			
4		519.6635	15.31	19.31	34.62	46.00	-11.38	QP			
5		594.2788	17.88	20.34	38.22	46.00	-7.78	QP			
6		668.8942	16.68	22.92	39.60	46.00	-6.40	QP			





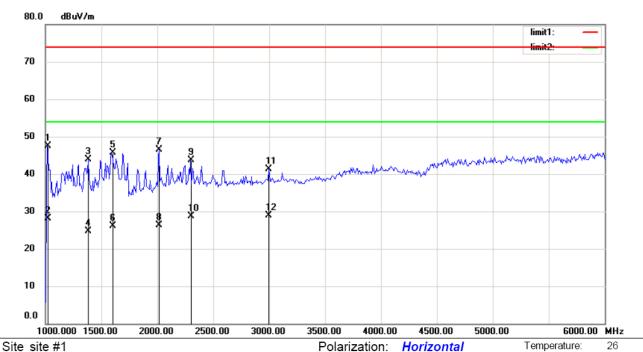
Limit: (RE)FCC PART 15 CLASS B Power: DC 5V from PC Humidity: 60 %

Mode:Camera Recording Note: Connect to PC(updata)

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		51.1646	19.87	13.65	33.52	40.00	-6.48	QP			
2		59.5475	20.82	13.18	34.00	40.00	-6.00	QP			
3		73.5256	22.40	9.16	31.56	40.00	-8.44	QP			
4		148.1410	21.63	8.99	30.62	43.50	-12.88	QP			
5		185.4487	14.57	11.91	26.48	43.50	-17.02	QP			
6	*	668.8942	17.18	22.92	40.10	46.00	-5.90	QP			



60 %



Power: DC 5V from PC

Limit: (RE)FCC PART 15 CLASS B

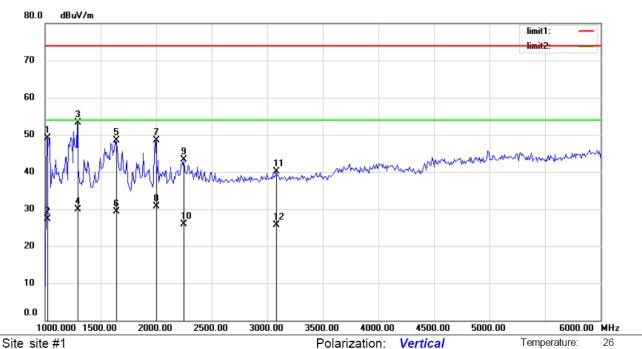
Mode:Connect to pc (updata)

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	1	016.026	61.13	-13.58	47.55	74.00	-26.45	peak			
2	1	016.026	41.60	-13.58	28.02	54.00	-25.98	AVG			
3	1	384.615	55.98	-12.14	43.84	74.00	-30.16	peak			
4	1	384.615	36.80	-12.14	24.66	54.00	-29.34	AVG			
5	1	592.949	57.88	-12.23	45.65	74.00	-28.35	peak			
6	1	592.949	38.40	-12.23	26.17	54.00	-27.83	AVG			
7	2	017.628	57.00	-10.53	46.47	74.00	-27.53	peak			
8	2	017.628	36.90	-10.53	26.37	54.00	-27.63	AVG			
9	2	298.077	52.28	-8.58	43.70	74.00	-30.30	peak			
10	2	298.077	37.20	-8.58	28.62	54.00	-25.38	AVG			
11	2	995.192	48.88	-7.59	41.29	74.00	-32.71	peak			
12	* 2	995.192	36.50	-7.59	28.91	54.00	-25.09	AVG			



60 %



Power: DC 5V from PC

Limit: (RE)FCC PART 15 CLASS B

Mode:Connect to pc (updata)

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		1016.026	62.71	-13.58	49.13	74.00	-24.87	peak			
2		1016.026	40.90	-13.58	27.32	54.00	-26.68	AVG			
3	*	1288.462	65.64	-12.37	53.27	74.00	-20.73	peak			
4		1288.462	42.30	-12.37	29.93	54.00	-24.07	AVG			
5		1633.013	60.69	-12.26	48.43	74.00	-25.57	peak			
6		1633.013	41.60	-12.26	29.34	54.00	-24.66	AVG			
7		1993.590	59.39	-10.81	48.58	74.00	-25.42	peak			
8		1993.590	41.50	-10.81	30.69	54.00	-23.31	AVG			
9		2250.000	51.92	-8.60	43.32	74.00	-30.68	peak			
10		2250.000	34.50	-8.60	25.90	54.00	-28.10	AVG			
11		3075.321	47.60	-7.45	40.15	74.00	-33.85	peak			
12		3075.321	33.20	-7.45	25.75	54.00	-28.25	AVG			



6. PHOTOGRAPHS

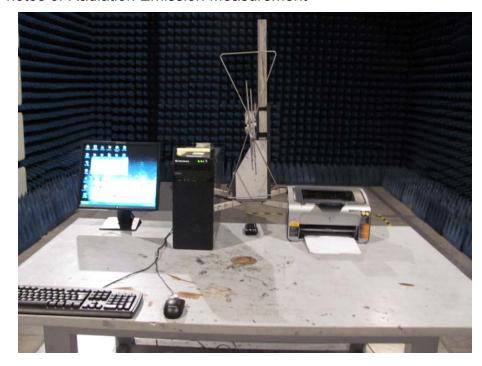
6.1. Photos of Conducted Emission Measurement





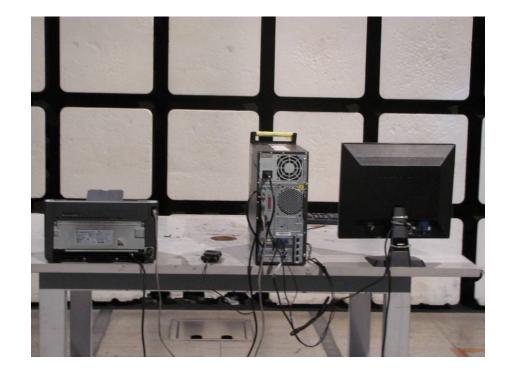


6.2. Photos of Radiation Emission Measurement











APPENDIX (Photos of EUT)









