FCC TEST REPORT for Shenzhen Eastech Co., Ltd.

2.4GHz Wireless Keyboard Model No.: S-1000K, EK-814W, EK-815W, EK-830W, EK-838W, EK-839W

Prepared for : Shenzhen Eastech Co., Ltd.

Address : Block A, Baizhushan Industrial Park, Shajing Street, Bao' an

District, Shenzhen City, Guangdong Province, China

Tel: (86) 755-27487645 Fax: (86) 755-27487699

Prepared By : Anbotek Compliance Laboratory Limited

Address : 1/F, 1 /Building, SEC Industrial Park, No. 4 Qianhai Road,

Nanshan District, Shenzhen, 518054, China

Tel: (86) 755-26014771 Fax: (86) 755-26014772

Report Number : 201205793F

Date of Test : May 22~29, 2012 Date of Report : May 30, 2012

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APPENDIX I (Photos of EUT) (3 Pages)

TEST REPORT

Applicant : Shenzhen Eastech Co., Ltd.

Manufacturer : Shenzhen Eastech Co., Ltd.

EUT : 2.4GHz Wireless Keyboard

Model No. : S-1000K, EK-814W, EK-815W, EK-830W, EK-838W, EK-839W

Serial No. : N/A
Rating : DC 5V
Trade Mark : N/A

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

The device described above is tested by Anbotek Compliance Laboratory Limited 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 Anbotek Compliance Laboratory Limited 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 Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Anbotek Compliance Laboratory Limited

Date of Test:	May 22~29, 2012						
Prepared by :	Andy chen						
-	(Engineer / Andy Chen)						
Reviewer :	Jery Du						
iceviewei .	(Project Manager / Jerry Du)						
	70 m. Chen						
Approved & Authorized Signer:							
	(Manager /Tom Chen)						

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : 2.4GHz Wireless Keyboard

Model Number : S-1000K, EK-814W, EK-815W, EK-830W, EK-838W, EK-839W

(Note: All samples are the same except the model number & Output

of appliances, so we prepare "S-1000K" for EMC test only.)

Test Power Supply: DC 5V

Frequency : 2408~2474MHz

Channel 67 Channels, 1MHz Spacing

Antenna : Printed Antenna:1dBi

Specification

Applicant : Shenzhen Eastech Co., Ltd.

Address : Block A, Baizhushan Industrial Park, Shajing Street, Bao' an

District, Shenzhen City, Guangdong Province, China

Manufacturer : Shenzhen Eastech Co., Ltd.

Address : Block A, Baizhushan Industrial Park, Shajing Street, Bao' an

District, Shenzhen City, Guangdong Province, China

Date of receiver : May 22, 2012 Date of Test : May 22~29, 2012

1.2. Auxiliary Equipment Used during Test

PC : Manufacturer: DELL

M/N: OPTIPLEX 380

S/N: 1J63X2X CE , FCC: DOC

MONITOR : Manufacturer: DELL

M/N: E170Sc

S/N: CN-00V539-64180-055-0UPS

CE, FCC: DOC

MOUSE : Manufacturer: DELL

M/N: M-UARDEL7

S/N: N/A

CE, FCC: DOC

Cable: 1m, unshielded

Printer : Manufacturer:Brother

M/N: MFC-3360C

S/N: N/A

CE, FCC:DOC

Power Line : Non-Shielded, 1.5m

VGA Cable : Non-Shielded, 1.5m

USB Cable : Non-Shielded, 0.5m

1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS - LAB Code: L3503

Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021

Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, August 20, 2010.

IC-Registration No.: 8058A-1

Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, August 30, 2010.

Test Location

All Emissions tests were performed at

Anbotek Compliance Laboratory Limited. at 1/F, 1 /Building, SEC Industrial Park, No. 4 Qianhai Road, Nanshan District, Shenzhen, 518054, China

1.4. Measurement Uncertainty

Radiation Uncertainty : Ur = 4.3 dB

Conduction Uncertainty : Uc = 3.4dB

2. MEASURING DEVICE AND TEST EQUIPMENT

	G DE VICE III	12 1201	2622111		
Equipment	Manufacturer	Model #	Serial #	Data of Cal.	Due Data
EMI Test Receiver	Rohde & Schwarz	ESCI	100119	Apr. 25, 2012	Apr. 25, 2013
EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	Apr. 25, 2012	Apr. 25, 2013
EMI Test Software	SHURPLE	ESK1	N/A	N/A	N/A
Spectrum Analyzer	Agilent	E7405A	MY45114970	Apr. 25, 2012	Apr. 25, 2013
Signal Generator	Rohde & Schwarz	SMR27	100124	Apr. 25, 2012	Apr. 25, 2013
Signal Generator	Rohde & Schwarz	SML03	102319	Apr. 25, 2012	Apr. 25, 2013
AC Power Source	Sepcial power system	YF650	N/A	N/A	N/A
Absorbing Clamp	Rohde & Schwarz	MDS21	100218	Apr. 25, 2012	Apr. 25, 2013
Power Meter	Rohde & Schwarz	NRVD	101287	Apr. 25, 2012	Apr. 25, 2013
Coaxial Cable	N/A	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013
Coaxial Cable	N/A	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013
Coaxial Cable	N/A	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013
Universal radio Communication tester	Rohde & Schwarz	CMU200	101724	Apr. 25, 2012	Apr. 25, 2013
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
BiConilog Antenna	ETS-LINDGREN	3142C	00042670	Apr. 25, 2012	Apr. 25, 2013
BiConilog Antenna	ETS-LINDGREN	3142C	00042673	Apr. 25, 2012	Apr. 25, 2013
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00035926	Apr. 25, 2012	Apr. 25, 2013
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00041545	Apr. 25, 2012	Apr. 25, 2013
Pre-amplifier	CD	PAM0203	804203	Apr. 25, 2012	Apr. 25, 2013
RF Switch	CD	RSU-M3	706543	Apr. 25, 2012	Apr. 25, 2013
Thermo-/Hygrometer	N/A	TH01	N/A	Apr. 25, 2012	Apr. 25, 2013
Shielding Room	Zhong Yu Electronic	N/A	N/A	N/A	N/A
3m Semi-Anechoic Chamber	Zhong Yu Electronic	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013

3. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

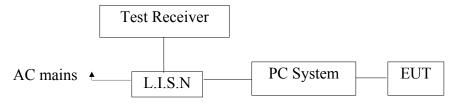
Example:

ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

4. Conducted Limits

4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



(EUT: 2.4GHz Wireless Keyboard)

4.2. Power Line Conducted Emission Measurement Limits (15.207)

Frequency	Limits $dB(\mu V)$				
MHz	Quasi-peak Level	Average Level			
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*			
0.50 ~ 5.00	56	46			
5.00 ~ 30.00	60	50			

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

4.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

EUT : 2.4GHz Wireless Keyboard

Model Number : S-1000K

Applicant : Shenzhen Eastech Co., Ltd.

4.4. Operating Condition of EUT

4.4.1. Setup the EUT and simulator as shown as Section 4.1.

4.4.2. Turn on the power of all equipment.

4.4.3. Let the EUT work and measure it.

4.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2003 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test results are reported on Section 4.6.

4.6. Power Line Conducted Emission Measurement Results **PASS.**

The frequency range from 150KHz to 30 MHz is investigated.

Please refer the following pages.

FCC ID: ZPFS-1000K

CONDUCTED EMISSION TEST DATA

EUT: 2.4GHz Wireless Keyboard M/N: S-1000K

Operating Condition: ON

Test Site: 1# Shielded Room

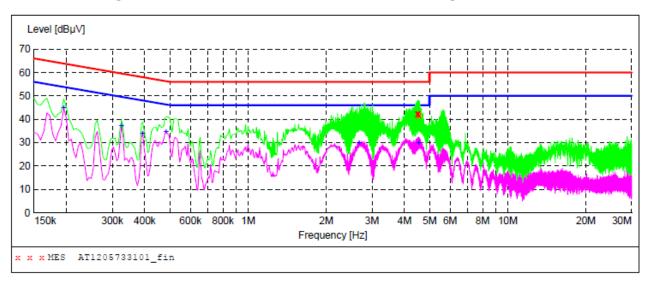
Operator: Andy Chen

AC 120V/60Hz for PC Test Specification:

Comment: Live Line

Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"
Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1205733101 fin"

5/22/2012 7:0)4PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
4.478500	42.20	10.5	56	13.8	QP	L1	GND
4.492000	42.10	10.5	56	13.9	QP	L1	GND
4.505500	42.30	10.5	56	13.7	QP	L1	GND
4.519000	42.40	10.5	56	13.6	QP	L1	GND
4.541500	42.30	10.5	56	13.7	QP	L1	GND
4.568500	41.60	10.5	56	14.4	QP	L1	GND

MEASUREMENT RESULT: "AT1205733101_fin2"

5/22/2012 Freque	-	evel Trans dBµV di		Margin dB	Detector	Line	PE
0.195	5000 44	4.80 10.	1 54	9.0	AV	L1	GND
0.325	5500 37	7.20 10.	1 50	12.4	AV	L1	GND
0.393	3000 33	3.90 10.	1 48	14.1	AV	L1	GND
0.483	3000 34	4.50 10.	1 46	11.8	AV	L1	GND
2.674	1000 29	9.70 10.	4 46	16.3	AV	L1	GND
4.541	1500 29	9.90 10.	5 46	16.1	AV	L1	GND

FCC ID: ZPFS-1000K

CONDUCTED EMISSION TEST DATA

EUT: 2.4GHz Wireless Keyboard M/N: S-1000K

Operating Condition: ON

Test Site: 1# Shielded Room

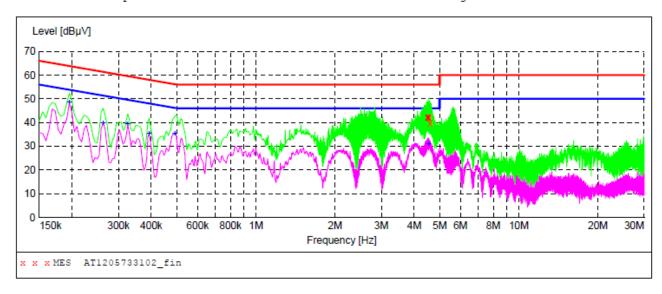
Operator: Andy Chen

Test Specification: AC 120V/60Hz for PC

Comment: Neutral Line

Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"
Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1205733102 fin"

5/22/2012 7:	07PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
4.487500	42.20	10.5	56	13.8	QP	N	GND
4.501000	42.40	10.5	56	13.6	QP	N	GND
4.537000	42.30	10.5	56	13.7	QP	N	GND
4.550500	42.30	10.5	56	13.7	QP	N	GND
4.564000	42.00	10.5	56	14.0	QP	N	GND
4.613500	39.90	10.5	56	16.1	QP	N	GND

MEASUREMENT RESULT: "AT1205733102_fin2"

5/22/2012 7: Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	48.60	10.1	54	5.2	AV	N	GND
0.262500	39.80	10.1	51	11.6	AV	N	GND
0.325500	39.20	10.1	50	10.4	AV	N	GND
0.393000	35.40	10.1	48	12.6	AV	N	GND
0.492000	35.20	10.1	46	10.9	AV	N	GND
4.537000	30.80	10.5	46	15.2	AV	N	GND

5. Radiation Interference

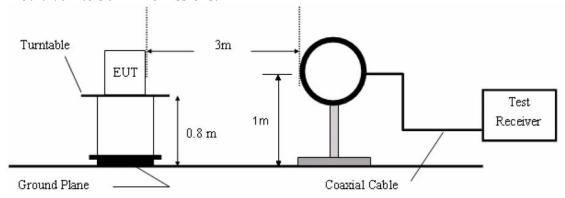
5.1. Requirements (15.249, 15.209):

FIELD STRENGTH	FIELD STRENGTH	S15.209	
of Fundamental:	of Harmonics	30 - 88 MHz	40 dBuV/m @3M
902-928 MHZ		88 - 216 MHz	43.5
2.4-2.4835 GHz		216 - 960 MHz	46
94 dBμV/m @3m	54 dBμV/m @3m	ABOVE 960 MHz	54dBuV/m

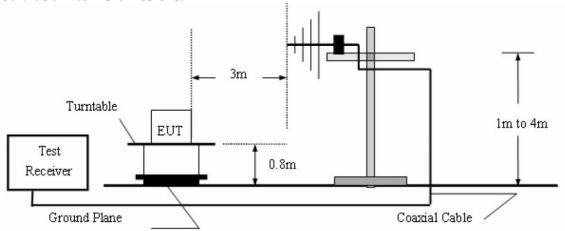
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

5.2. Test Configuration:

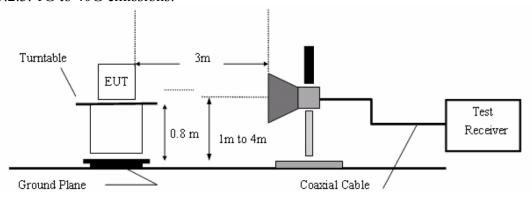
5.2.1. 9k to 30MHz emissions:



5.2.2. 30M to 1G emissions:



5.2.3. 1G to 40G emissions:



5.3 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. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9*6*6 Chamber.

The test results are listed in Section 5.3.

5.4 Test Results

PASS.

Please refer the following pages.

Data:

Horizontal CH Low(2408MHz)

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m$	$dB\mu V/m$	dB	
312.28	1.6	13.30	41.40	57.03	30.53	46.00	-15.47	QP
2408.00	3.11	31.24	35.30	83.31	82.36	94.0	-11.64	Peak
4816.00	3.11	31.62	34.71	32.47	32.49	54.0	-21.51	Peak
7224.00	3.12	32.15	35.15	30.07	30.19	54.0	-23.81	Peak
9632.00								
12040.00								
14448.00								
16856.00								
19264.00								
21672.00								
24080.00								

Remark: There is no emissions were detected below 30MHz

CH Middle(2440MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBµV	Level dBµV/m	Limit dBμV/m	Over Limit dB	Remark
324.90	1.65	13.41	41.45	56.15	29.76	46.00	-16.24	QP
2440.00	3.11	31.25	35.90	83.62	82.08	94.0	-11.92	Peak
4880.00	3.11	31.61	34.73	33.40	33.39	54.0	-20.61	Peak
7320.00	3.12	32.16	35.17	32.10	32.21	54.0	-21.79	Peak
9760.00								
12200.00								
14640.00								
17080.00								
19520.00								
21960.00								
24410.00								

Remark: There is no emissions were detected below 30MHz

FCC ID: ZPFS-1000K

14448.00 16856.00 19264.00 21672.00 24080.00

CH High(2474MHz)

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	$dB\mu V/m$	$dB\mu V/m$	dB	
312.28	1.6	13.30	41.40	58.00	31.50	46.00	-14.50	QP
2474.00	3.11	31.32	36.00	83.23	81.66	94.0	-12.34	Peak
4948.00	3.11	31.63	34.80	33.36	33.30	54.0	-20.70	Peak
7422.00	3.12	32.16	35.20	32.71	32.79	54.0	-21.21	Peak
9896.00								
12370.00								
14844.00								
17318.00								
19792.00								
22266.00								
24740.00								

Remark: There is no emissions were detected below 30MHz

Vertical CH Low((2408MHz	z)						
Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m \\$	$dB\mu V/m \\$	dB	
375.94	1.75	14.82	41.80	52.00	26.77	46.00	-19.23	QP
2408.00	3.11	31.24	36.00	84.22	82.57	94.0	-11.43	Peak
4816.00	3.11	31.60	34.70	33.90	33.91	54.0	-20.09	Peak
7224.00	3.12	32.16	35.17	32.72	32.83	54.0	-21.17	Peak
9632.00								
12040.00								

Remark: There is no emissions were detected below 30MHz

FCC ID: ZPFS-1000K

CH Middle(2440MHz)

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	$dB\mu V/m$	$dB\mu V/m$	dB	
420.58	1.84	15.47	41.70	53.41	29.02	46.00	-16.98	QP
2440.00	3.11	31.25	35.90	81.06	79.52	94.0	-13.78	Peak
4880.00	3.11	31.61	34.72	34.92	34.92	54.0	-19.08	Peak
7320.00	3.12	32.16	35.17	31.00	31.11	54.0	-22.89	Peak
9760.00								
12200.00								
14640.00								
17080.00								
19520.00								
21960.00								
24410.00								

Remark: There is no emissions were detected below 30MHz

CH High(2474MHz)								
Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m \\$	$dB\mu V/m$	dB	
020.02	2.0	21.21	20.44	44.00	20.57	46.00	15 42	OD
938.83	3.0	21.21	38.44	44.80	30.57	46.00	-15.43	QP
2474.00	3.11	31.32	36.00	83.81	82.24	94.0	-11.76	Peak
4948.00	3.11	31.63	34.80	34.00	33.94	54.0	-20.06	Peak
7422.00	3.12	32.16	35.20	32.90	32.98	54.0	-21.02	Peak
9896.00								
12370.00								
14844.00								
17318.00								
19792.00								
22266.00								
24740.00								

Remark: There is no emissions were detected below 30MHz

NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

6. Occupied Bandwidth

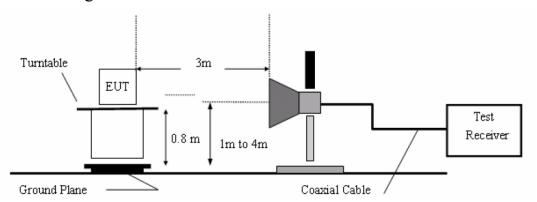
6.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

6.2. 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. Both horizontal and vertical polarization of the antenna are set on test.

6.3. Test Configuration:



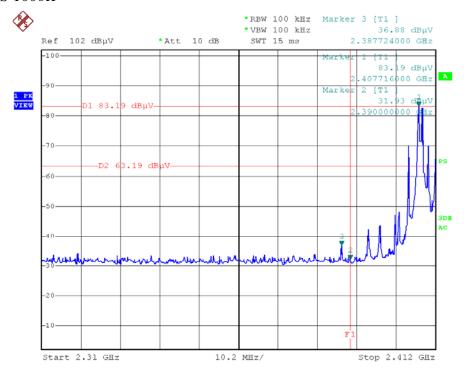
6.4. Test Results

Pass.

Please refer the following plot.

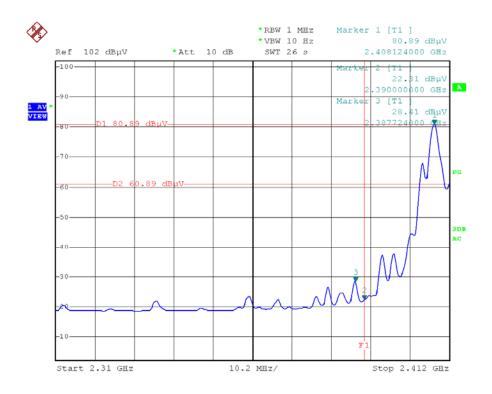
(Note: Marker 3 means the highest value in 2.31GHz~2.39GHz or 2.4835~2.5GHz)

FCC ID: ZPFS-1000K



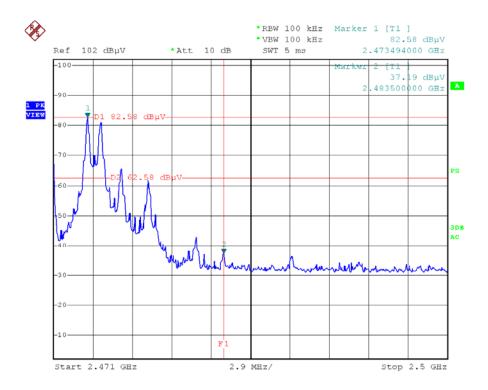
fΗ

Date: 28.MAY.2012 10:47:20



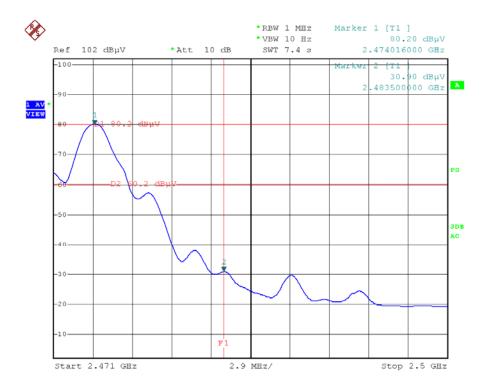
fL-AV

Date: 28.MAY.2012 10:50:03



fH-

Date: 28.MAY.2012 10:54:01



fH-AV

Date: 28.MAY.2012 10:51:49