



STC Test Report

Date : 2010-06-07
No. : MH184083

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Applicant (C00001): King Golden Ltd.(Speed passion)
Flat D, 8/F., Wing Hin Factory Bldg., 31-33 Ng Fong Street,
Sam Po Kong. Kowloon, H.K.

Manufacturer: Dong Guan Flysky RC. Model Technology Co., Ltd
West Building 3, Huangjiangyuan Ind Park QiaoLi North
Gate ChangPing Town Dongguan China

Description of Sample(s): Product: 2.4G 2CH Control Radio
Brand Name: Speed passion
Model Number: KG-GT2
FCC ID: YIUSPCARRERA2

Date Sample(s) Received: 2010-05-13

Date Tested: 2010-06-03

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2009 and ANSI C63.4:2003 for FCC Certification.

Conclusion(s): The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remark(s): ----

Dr. LEE Kam Chuen
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.



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List of Measurement Equipment

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Duty Cycle Correction During 100 msec

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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

1.2 Applicant Details

Applicant

King Golden Ltd.(Speed passion)
Flat D, 8/F., Wing Hin Factory Bldg., 31-33 Ng Fong Street, Sam Po Kong. Kowloon, H.K.

Manufacturer

Dong Guan Flysky RC. Model Technology Co., Ltd
West Building 3, Huangjiangyuan Ind Park QiaoLi North Gate ChangPing Town Dongguan
China

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1.3 Equipment Under Test [EUT]

Description of Sample(s)

Product:	2.4G 2CH Control Radio
Manufacturer:	Dong Guan Flysky RC. Model Technology Co., Ltd
Brand Name:	Speed passion
Model Number:	KG-GT2
Input Voltage:	12Vd.c. ("AA" size battery×8)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a King Golden Ltd.(Speed passion), 2.4G 2CH Control Radio. The transmission signal is frequency hopping with channel frequency range 2402.0.-2478.0MHz during normal use. The EUT was set to fixed frequency test mode by application

1.4 Date of Order

2010-05-13

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2010-06-03

1.7 Country of Origin

China

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2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2009 Regulations and ANSI C63.4:2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity			
			Pass	Fail	N/A	
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

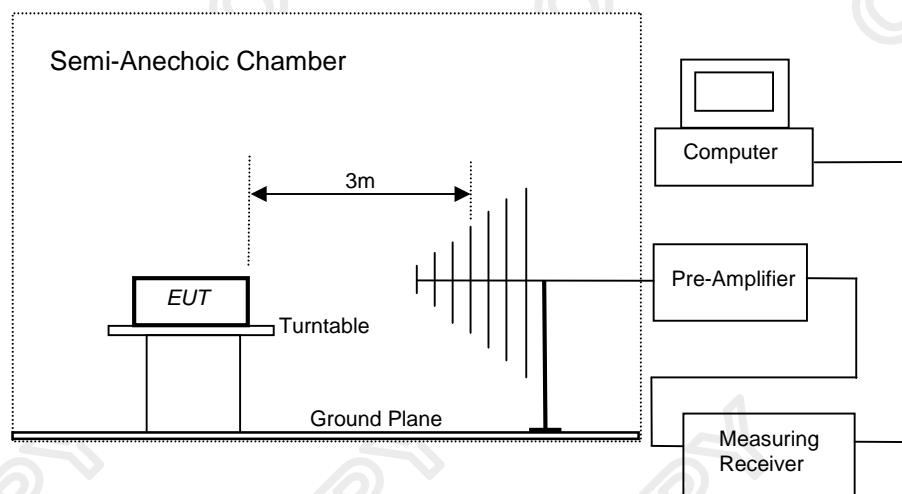
Test Requirement: FCC 47CFR 15.249
Test Method: ANSI C63.4:2003
Test Date: 2010-06-03
Mode of Operation: Tx mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode: Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2402.0	37.4	36.8	74.2	5,128.6	500,000	Vertical
*	4804.0	6.4	41.9	48.3	500	Vertical
	7206.0	1.7	47.8	49.5	500	Vertical
	7206.0				500	Vertical
	9608.0				500	Vertical
*	12010.0				500	Vertical
	14412.0				500	Vertical
	16814.0				500	Vertical
*	19216.0				500	Vertical
	21618.0			No Emission Detected	500	Vertical

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
+	2402.0	29.1	36.8	65.9	1,972.4	50,000

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

+: Adjusted by Duty Cycle = -8.3dB

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode: Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2441.8	35.7	36.9	72.6	4,265.8	500,000	Vertical
*	4883.6	6.7	41.8	48.5	500	Vertical
	7325.4	1.3	48.0	49.3	500	Vertical
	9767.2				500	Vertical
*	12209.0				500	Vertical
	14650.8				500	Vertical
	17092.6				500	Vertical
*	19534.4				500	Vertical
	21976.2				500	Vertical
	24418.0			No Emission Detected	500	Vertical

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
+	2441.8	27.4	36.9	64.3	1,640.6	50,000

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

+: Adjusted by Duty Cycle = -8.3dB

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode: Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2478.0	36.9	37.2	74.1	5,069.9	500,000	Vertical
*	4856.0	5.9	41.8	47.7	500	Vertical
	7434.0	1.5	48.2	49.7	500	Vertical
	9912.0				500	Vertical
*	12390.0				500	Vertical
	14868.0				500	Vertical
	17346.0				500	Vertical
*	19824.0				500	Vertical
	22302.0				500	Vertical
	24780.0			No Emission Detected	500	Vertical

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
+	2478.0	28.6	37.2	65.8	1,949.8	50,000

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

+: Adjusted by Duty Cycle = -8.3dB

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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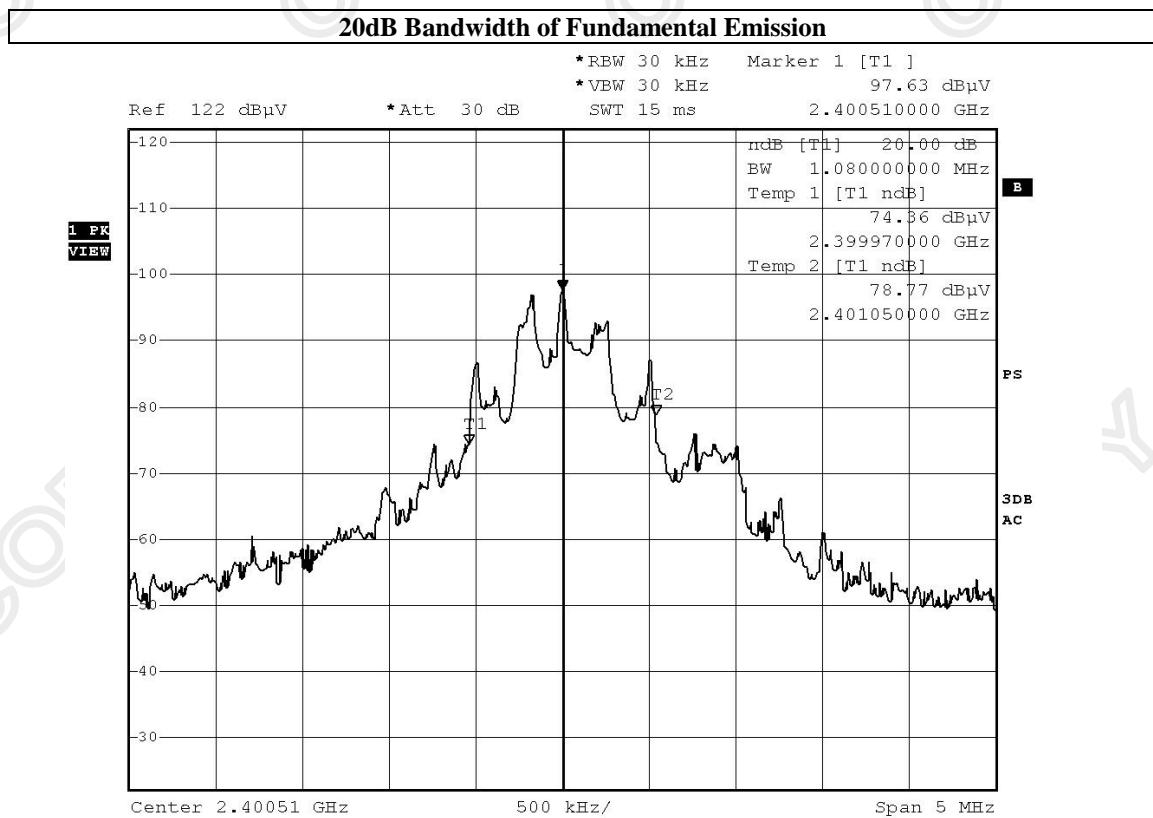
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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2400	1.08



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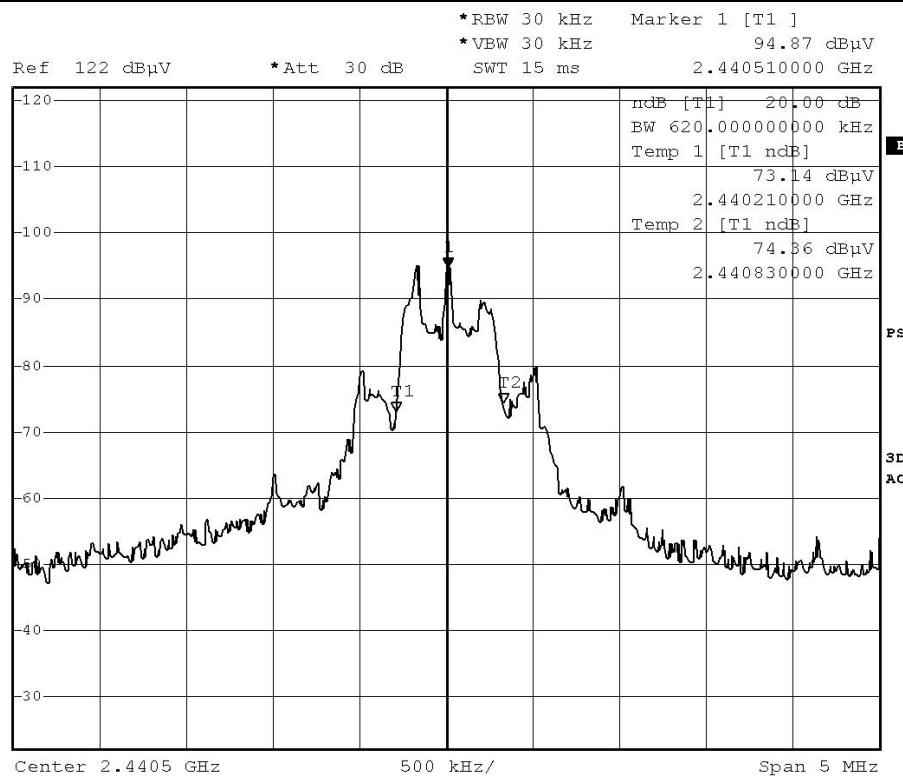
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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2440	0.62

20dB Bandwidth of Fundamental Emission



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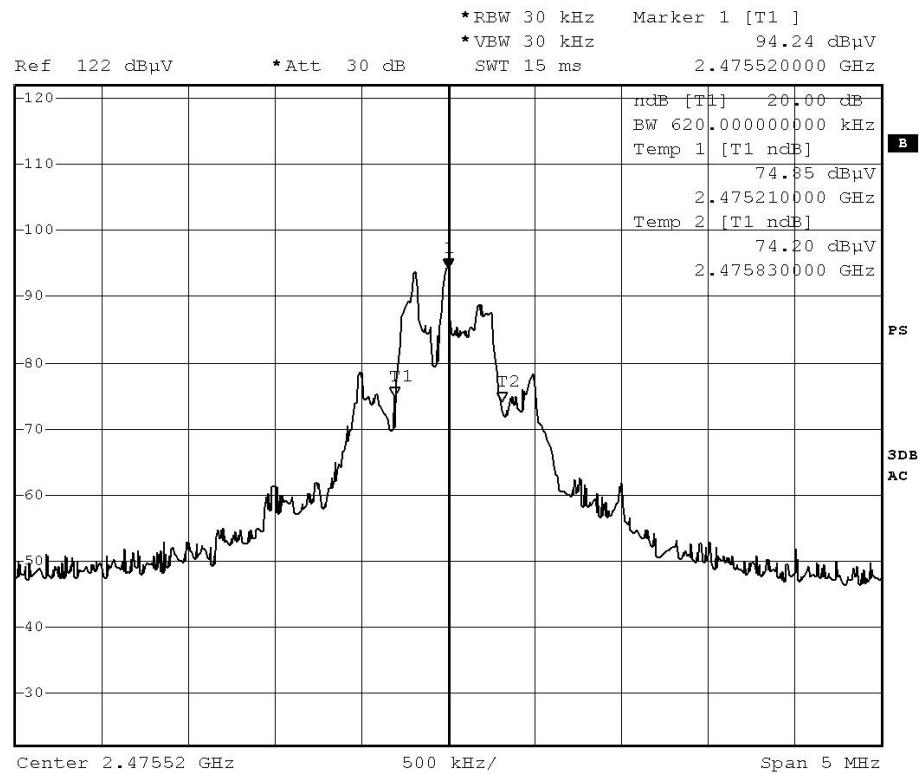
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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2475	0.62

20dB Bandwidth of Fundamental Emission



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Tx mode: PASS

Emissions detected are more than 20 dB below the FCC Limits

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty	:	30MHz to 1GHz	5.2dB
		1GHz to 18GHz	5.1dB

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Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM062	HORN ANTENNA	EMCO	3117	0075933	2008/11/06	2010/11/06
EM215	MULTIDEVICE CONTROLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2009/05/02	2012/05/02
EM174	BICONILOG ANTENNA	EMCO	3142B	00029071	2010/01/24	2012/01/24
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2009/09/27	2010/09/27
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2009/07/26	2011/07/26

Remarks:-

CM Corrective Maintenance

N/A Not Applicable

TBD To Be Determined

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Appendix B

Duty Cycle Correction During 100msec

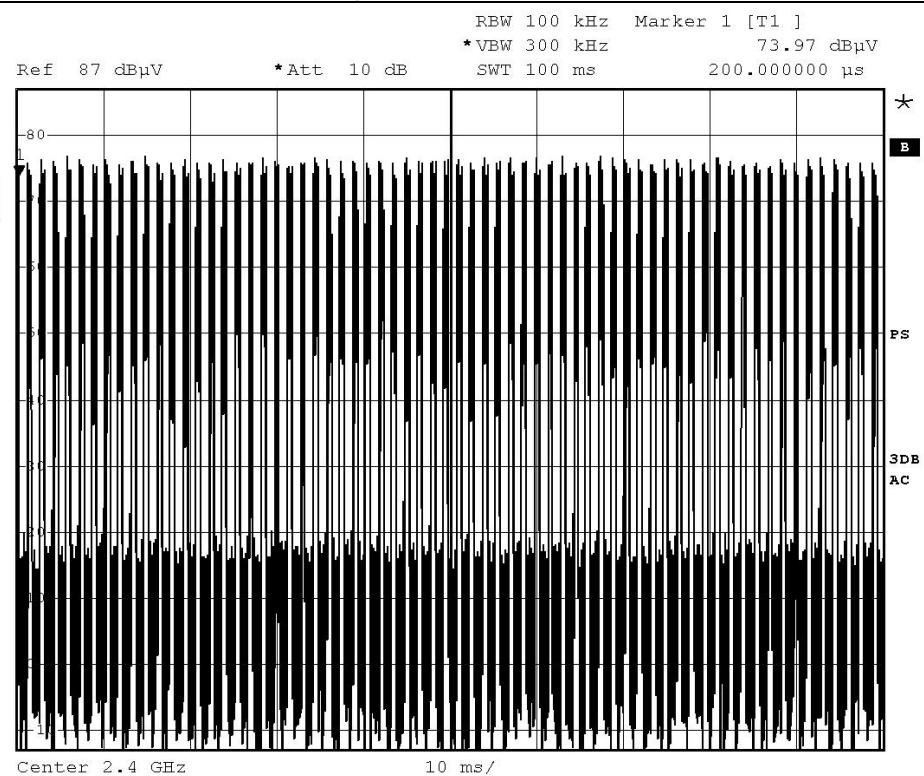
Each sample unit sends a different series of characters, but each pulse period (100msec) never exceeds a series of 67 sole (0.576msec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $67 \times 0.576\text{msec}$ per $100\text{msec} = 38.6\%$ duty cycle. Figure A through B show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = $20\log(0.386) = -8.3\text{dB}$

The following figures [Figure A to Figure B] showed the characteristics of the pulse train for one of these functions.

Figure A [Pulse Train]



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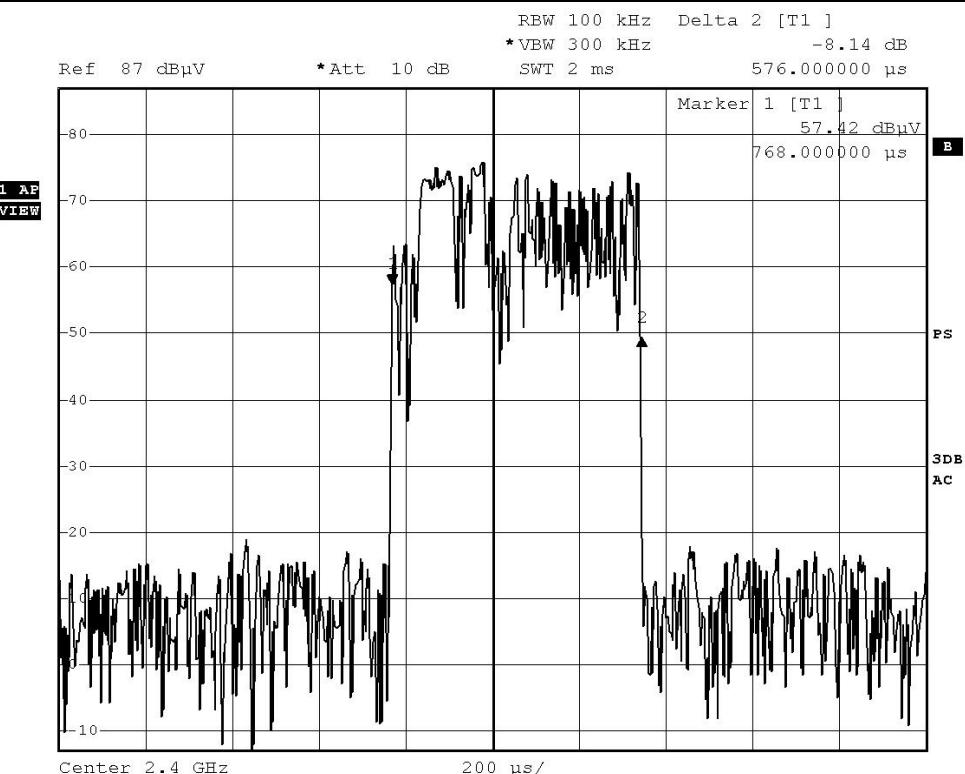
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Figure B [Sole Pulse]



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Appendix C

Photographs of EUT

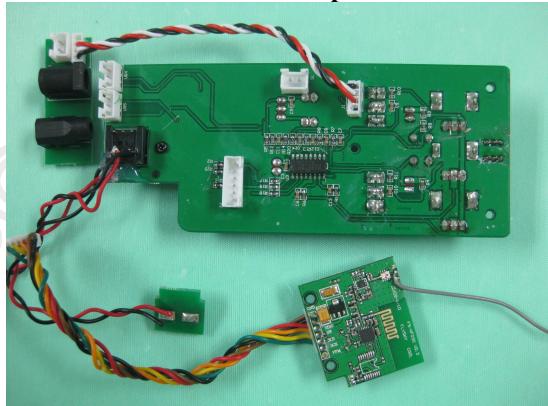
Front View of the product



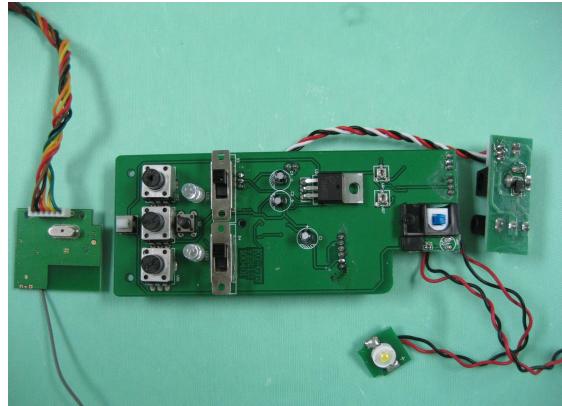
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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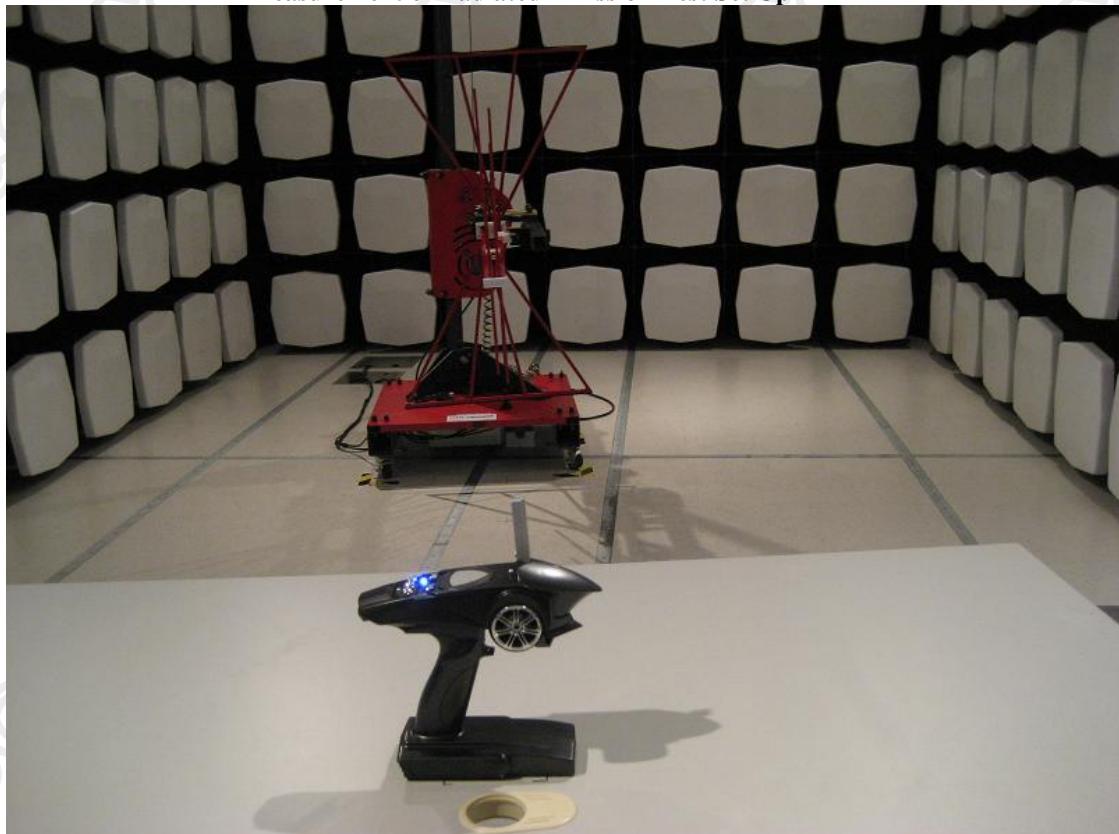
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



***** End of Test Report *****

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