TEST REPORT No: (5211)135-1953(A)

TEST REPORT

To:	**SILVERLIT TOYS MANUFACTORY LIMITED**	To:	-
Attn:	Mr. Edmond Chan	Attn:	-
Address:	17th Floor World Trade Centre, 280 Gloucester Road, Causeway Bay, Hong Kong	Address:	-
Fax:	28348797	Fax:	-
E-mail:	edmond@silverlit.com	E-mail:	-
Folder No.:	ITM-12MA118MTHS-B-A		
Factory name:	--		
Location:	--		
Product:	2.4G Sky Dagger Model No.: 84613		

Sample No:	HK120306/025
Test date:	March 20, 2012 to April 5, 2012
Test Requested:	FCC Part 15 - 2011
Test Method:	ANSI C63.4 - 2009
FCC ID:	OYK-FCC84613

The results given in this report are related to the tested specimen of the described electrical apparatus.

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with requirement of FCC Part 15 Subpart C.

Authorized Signature:

Reviewed by: Keith Yeung	Approved by: Steven Tsang
Date: May 16, 2012	Date: May 16, 2012

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TEST REPORT No: (5211)135-1953(A)

Test Result Summary

EMISSION TEST			
Test requirement: FCC Part 15 - 2011			
Test Condition	Test Method	Test Result	
		Pass	Failed
Radiated Emission Test, 9kHz to 40GHz	ANSI C63.4	☒	☐

Report Revision & Sample Re-submit History:

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TEST REPORT No: (5211)135-1953(A)

DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PC	DELL	DCSM	SC94JBX	CE & FCC DoC Approved
2	LCD MONITOR	DELL	E178WFPC	CN-0G349J64180-88T-5PYL-A00	CE & FCC DoC Approved
3	KEYBOARD	DELL	L100	CN0RH659658084B02NV	CE & FCC DoC Approved
4	MOUSE	DELL	MOA8BO	H0T00H92	CE & FCC DoC Approved
5	PRINTER	EPSON	B163A	ELPK004488	CE & FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB Cable, Shielded, with core, 0.3m
2	VGA Cable, Shielded, with core, 0.8m
3	USB Cable, Shielded, with core, 1.5m
4	USB Cable, Shielded, without core, 1.5m
5	Parallel Cable, Shielded, without core, 1.5m

NOTE: All power cords of the above support units are non-shielded (1.8m).
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Location of the test laboratory

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at :

BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE

No. 2106-2107, 21/F., Westin Centre,
26 Hung To Road,
Kwun Tong, Kowloon,
Hong Kong

List of measuring equipment

Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	05-SEP-2012
LOOP ANTENNA	ETS-LINDGREN	6502	00102266	12-MAY-2012
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	01-AUG-2012
OPEN AREA TEST SITE	BVCPS	N/A	N/A	07-JUL-2012
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	25-OCT-2012
COAXIAL CABLE	SUHNER	N/A	N/A	18-SEP-2012

Conducted Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCS30	830986/030	05-JAN-2013
LISN	R&S	ENV216	100024	12-APR-2012

Remarks:-
N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

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TEST REPORT No: (5211)135-1953(A)

Equipment Under Test [EUT]
Description of Sample:

Model Name:	2.4G Black Hawk
Model Number:	84613
Rating:	Helicopter: 3.7Vd.c. (“rechargeable battery” x 1)

Description of EUT Operation:

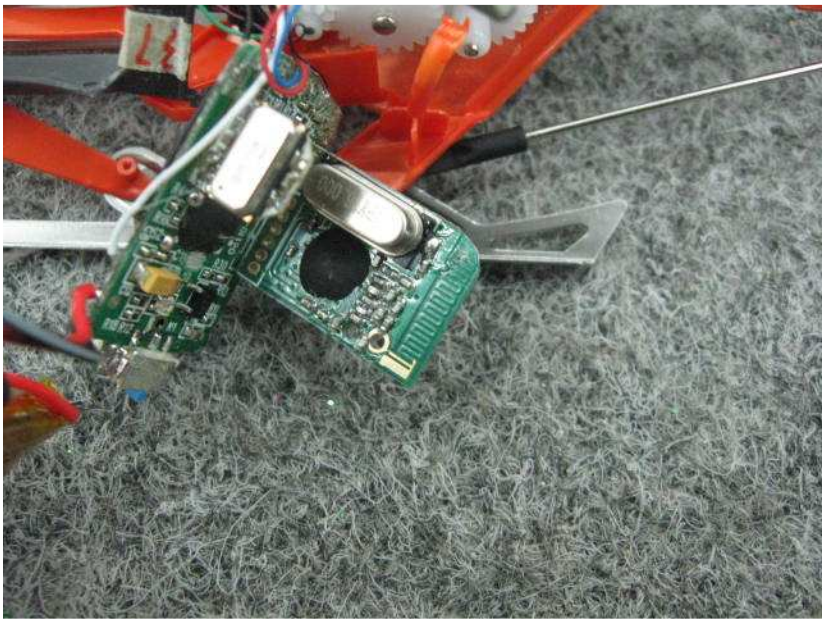
The Equipment Under Test (EUT) is a **SILVERLIT TOYS MANUFACTORY LIMITED** of Remote Control Transceiver. It is a 1 switch transceiver and operating at 2402MHz to 2477.5MHz. The lowest, middle and highest frequencies were tested and the results are shown in the report. The EUT transmit while buttons is being pressed at the remote controller, Modulation by IC, and type is FHSS.

The transmitter has different control:

1. ON/OFF switch – ON/OFF control

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. It is soldered on the PCB. The antenna is not replaceable or user serviceable. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications.



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TEST REPORT No: (5211)135-1953(A)

Test Results

Conducted Emissions (150kHz to 30MHz)

Test Requirement:	FCC Part 15 Section 15.107
Test Method:	ANSI C63.4
Test Limits:	Class B
Test Date(s):	2012-04-05
Temperature:	25.0 °C
Humidity:	63.0 %
Atmospheric Pressure:	100.3 kPa
Mode of Operation:	Charge mode
Tested Voltage:	117Va.c., 60Hz (computer)

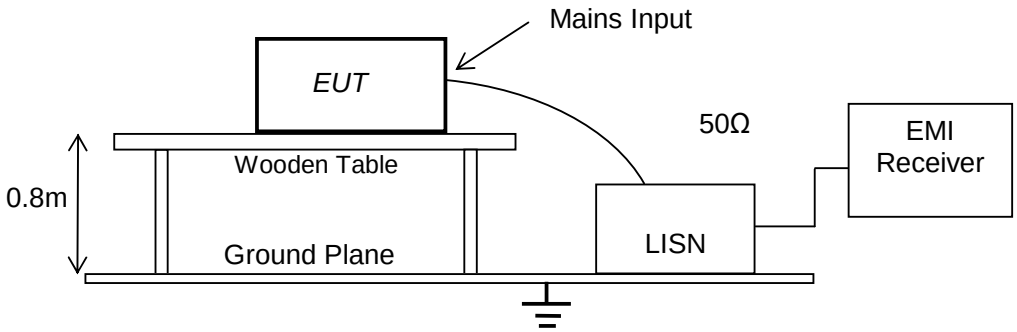
Test Method:

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2009. The EUT was setup as described in the procedures, and both lines were measured.

Initial measurements were performed in peak and average detection modes on the live and neutral line, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Location: No. 603, 6/F., Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup: Shielding Room



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TEST REPORT No: (5211)135-1953(A)

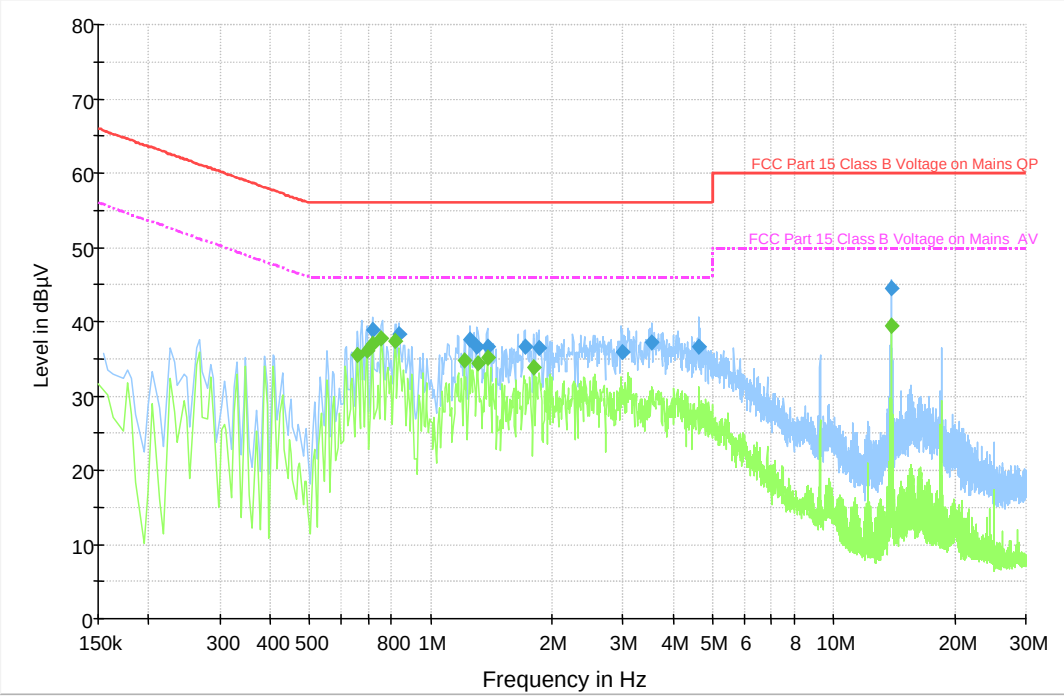
Measurement Data: Live

Test Result of (Charge mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

FCC Part 15 Class B Voltage



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TEST REPORT No: (5211)135-1953(A)
Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following tables.

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dBµV)
0.717000	38.9	9.000	L1	17.1	56.0
0.838500	38.3	9.000	L1	17.7	56.0
1.248000	37.6	9.000	L1	18.4	56.0
1.306500	36.7	9.000	L1	19.3	56.0
1.387500	36.7	9.000	L1	19.3	56.0
1.716000	36.7	9.000	L1	19.3	56.0
1.855500	36.5	9.000	L1	19.5	56.0
2.994000	35.9	9.000	L1	20.1	56.0
3.547500	37.3	9.000	L1	18.7	56.0
4.627500	36.6	9.000	L1	19.4	56.0
13.884000	44.6	9.000	L1	15.4	60.0

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dBµV)
0.658500	35.4	9.000	L1	10.6	46.0
0.694500	36.1	9.000	L1	9.9	46.0
0.717000	36.9	9.000	L1	9.1	46.0
0.757500	37.8	9.000	L1	8.2	46.0
0.816000	37.4	9.000	L1	8.6	46.0
1.212000	34.7	9.000	L1	11.3	46.0
1.311000	34.5	9.000	L1	11.5	46.0
1.387500	35.1	9.000	L1	11.0	46.0

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TEST REPORT No: (5211)135-1953(A)

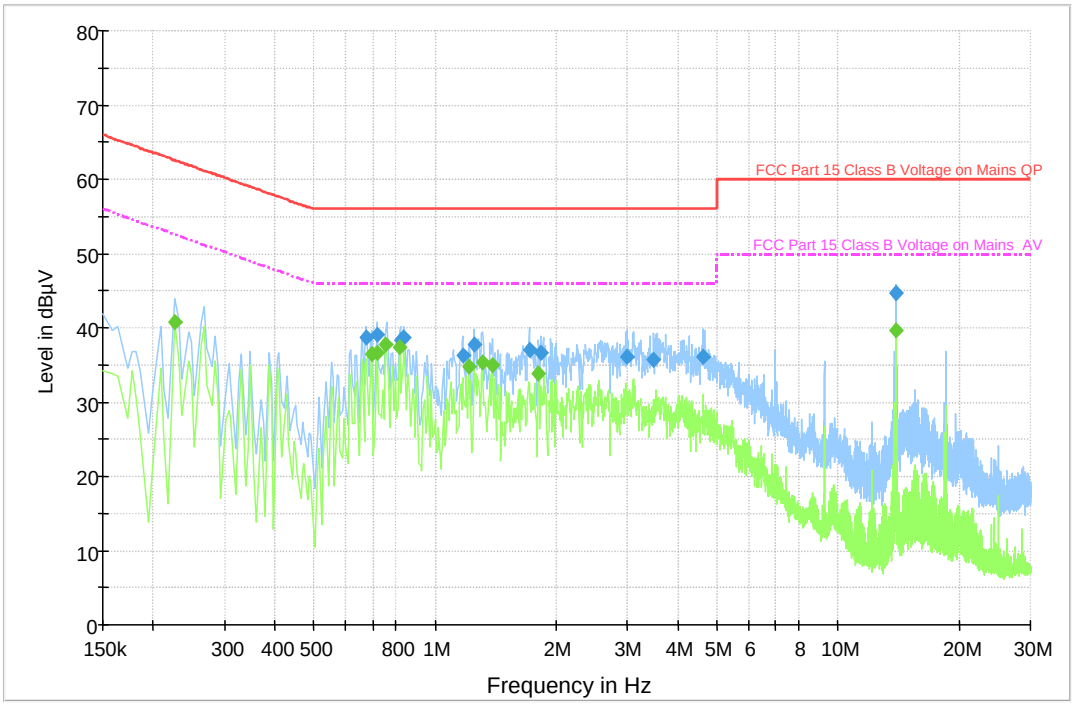
Measurement Data: Neutral

Test Result of (Charge mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

FCC Part 15 Class B Voltage



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TEST REPORT No: (5211)135-1953(A)
Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following tables.

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dBµV)
0.676500	38.7	9.000	N	17.3	56.0
0.717000	39.0	9.000	N	17.0	56.0
0.820500	38.3	9.000	N	17.7	56.0
0.838500	38.8	9.000	N	17.2	56.0
1.171500	36.3	9.000	N	19.7	56.0
1.248000	37.7	9.000	N	18.3	56.0
1.716000	37.0	9.000	N	19.0	56.0
1.837500	36.7	9.000	N	19.3	56.0
2.998500	36.0	9.000	N	20.0	56.0
3.475500	35.7	9.000	N	20.3	56.0
4.632000	36.0	9.000	N	20.0	56.0
13.884000	44.7	9.000	N	15.3	60.0

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dBµV)
0.226500	40.7	9.000	N	11.9	52.6
0.694500	36.5	9.000	N	9.5	46.0
0.717000	36.7	9.000	N	9.3	46.0
0.757500	37.8	9.000	N	8.2	46.0
0.816000	37.4	9.000	N	8.6	46.0
1.212000	34.8	9.000	N	11.2	46.0
1.311000	35.3	9.000	N	10.7	46.0
1.387500	35.0	9.000	N	11.0	46.0

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TEST REPORT No: (5211)135-1953(A)

Radiated Emissions (Fundamental)

Test Requirement:	FCC Part 15 Section 15.249
Test Method:	ANSI C63.4
Test Date(s):	2012-03-30
Temperature:	22.0 °C
Humidity:	65.0 %
Atmospheric Pressure:	100.7 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	Helicopter: 3.7Vd.c. (“rechargeable battery” x 1)

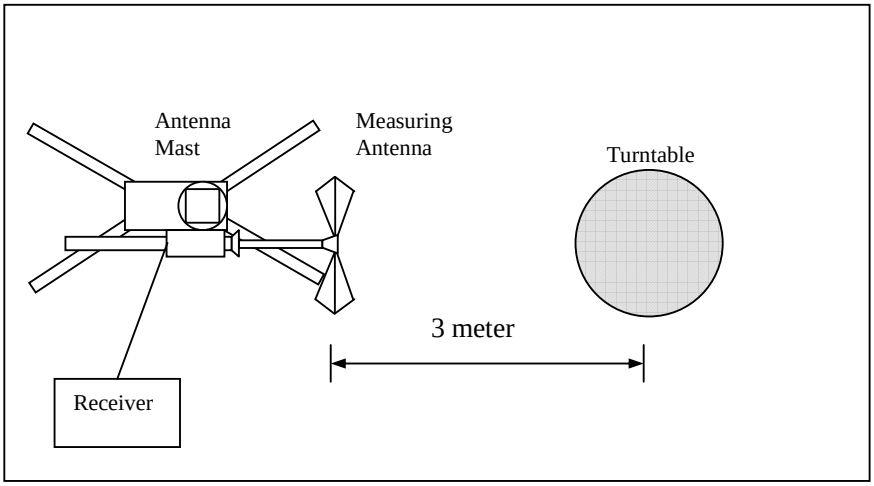
Test Procedure:

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. 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, For battery operated equipment, the equipment tests shall be perform using new battery. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup: Open Area Test Site



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

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission (Average) [mV/m]	Field Strength of Harmonics Emission (Average) [µV/m]
2400-2483.5	50	500

Measurement Data

Test Result of (Transmission mode, Lowest frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
2402.00	H	-5.2	53.5	114.0	-60.5
2402.00	V	-5.2	71.9	114.0	-42.1

Detection mode: # Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
2402.00	H	-5.2	**37.0	94.0	-57.0
2402.00	V	-5.2	**55.4	94.0	-38.6

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
**Duty Cycle Correction = 20Log(0.15) = -16.5dB.

Note: Field Strength includes Antenna Factor and Cable Loss.
Receiver setting: RBW = 1MHz
VBW = 1MHz

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TEST REPORT No: (5211)135-1953(A)

Measurement Data

Test Result of (Transmission mode, Middle frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
2440.00	H	-4.6	63.8	114.0	-50.2
2440.00	V	-4.6	70.0	114.0	-44.0

Detection mode: # Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
2440.00	H	-4.6	**47.3	94.0	-46.7
2440.00	V	-4.6	**53.5	94.0	-40.5

Test Result of (Transmission mode, Highest frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
2477.50	H	-4.3	60.0	114.0	-54.0
2477.50	V	-4.3	66.9	114.0	-47.1

Detection mode: # Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
2477.50	H	-4.3	**43.5	94.0	-50.5
2477.50	V	-4.3	**50.4	94.0	-43.6

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
**Duty Cycle Correction = 20Log(0.15) = -16.5dB.

Note: Field Strength includes Antenna Factor and Cable Loss.
Receiver setting: RBW = 1MHz
VBW = 1MHz

TEST REPORT No: (5211)135-1953(A)

Radiated Emissions (Spurious Emission)

Test Requirement:	FCC Part 15 Section 15.249
Test Method:	ANSI C63.4
Test Date(s):	2012-03-20
Temperature:	22.0 °C
Humidity:	65.0 %
Atmospheric Pressure:	100.7 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	Helicopter: 3.7Vd.c. (“rechargeable battery” x 1)

Measurement Data

Test Result of (Transmission mode, Lowest frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4804.00	H	5.5	58.6	74.0	-15.4
7206.00	H	12.4	51.9	74.0	-22.1
9608.00	H	15.1	53.6	74.0	-20.4
12010.00	H	17.5	52.2	74.0	-21.8
14412.00	H	22.1	51.6	74.0	-22.4
16814.00	H	30.8	55.5	74.0	-18.5
19216.00	H	31.8	58.9	74.0	-15.1
21618.00	H	32.3	53.1	74.0	-20.9
24020.00	H	33.7	53.0	74.0	-21.0
26422.00	H	34.6	56.3	74.0	-17.7

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

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TEST REPORT No: (5211)135-1953(A)

Measurement Data

Test Result of (Transmission mode, Lowest frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4804.00	V	5.5	60.4	74.0	-13.6
7206.00	V	12.4	54.6	74.0	-19.4
9608.00	V	15.1	53.7	74.0	-20.3
12010.00	V	17.5	53.2	74.0	-20.8
14412.00	V	22.1	52.3	74.0	-21.7
16814.00	V	30.8	57.5	74.0	-16.5
19216.00	V	31.8	58.4	74.0	-15.6
21618.00	V	32.3	53.2	74.0	-20.8
24020.00	V	33.7	54.5	74.0	-19.5
26422.00	V	34.6	57.1	74.0	-16.9

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

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Measurement Data

Test Result of (Transmission mode, Lowest frequency): PASS

Detection mode: #Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4804.00	H	5.5	**42.1	54.0	-11.9
7206.00	H	12.4	**35.4	54.0	-18.6
9608.00	H	15.1	**37.1	54.0	-16.9
12010.00	H	17.5	**35.7	54.0	-18.3
14412.00	H	22.1	**35.1	54.0	-18.9
16814.00	H	30.8	**39.0	54.0	-15.0
19216.00	H	31.8	**42.4	54.0	-11.6
21618.00	H	32.3	**36.6	54.0	-17.4
24020.00	H	33.7	**36.5	54.0	-17.5
26422.00	H	34.6	**39.8	54.0	-14.2

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4804.00	V	5.5	**43.9	54.0	-10.1
7206.00	V	12.4	**38.1	54.0	-15.9
9608.00	V	15.1	**37.2	54.0	-16.8
12010.00	V	17.5	**36.7	54.0	-17.3
14412.00	V	22.1	**35.8	54.0	-18.2
16814.00	V	30.8	**41.0	54.0	-13.0
19216.00	V	31.8	**41.9	54.0	-12.1
21618.00	V	32.3	**36.7	54.0	-17.3
24020.00	V	33.7	**38.0	54.0	-16.0
26422.00	V	34.6	**40.6	54.0	-13.4

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
**Duty Cycle Correction = 20Log(0.15) = -16.5dB.

Note: Field Strength includes Antenna Factor and Cable Loss.
Receiver setting: RBW = 1MHz
VBW = 1MHz

Measurement Data

Test Result of (Transmission mode, Middle frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4880.00	H	5.7	54.3	74.0	-19.7
7320.00	H	13.9	55.3	74.0	-18.7
9760.00	H	14.0	53.4	74.0	-20.6
12200.00	H	18.6	52.6	74.0	-21.4
14640.00	H	23.2	53.0	74.0	-21.0
17080.00	H	31.2	58.5	74.0	-15.5
19520.00	H	32.0	57.6	74.0	-16.4
21960.00	H	33.5	53.7	74.0	-20.3
24400.00	H	34.1	55.0	74.0	-19.0
26840.00	H	35.2	56.4	74.0	-17.6

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB□V/m)	Limit at 3m (dB□V/m)	Margin (dB)
4880.00	V	5.7	53.0	74.0	-21.0
7320.00	V	13.9	55.5	74.0	-18.5
9760.00	V	14.0	53.4	74.0	-20.6
12200.00	V	18.6	53.8	74.0	-20.2
14640.00	V	23.2	52.5	74.0	-21.5
17080.00	V	31.2	57.9	74.0	-16.1
19520.00	V	32.0	58.6	74.0	-15.4
21960.00	V	33.5	54.3	74.0	-19.7
24400.00	V	34.1	55.0	74.0	-19.0
26840.00	V	35.2	57.4	74.0	-16.6

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

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TEST REPORT No: (5211)135-1953(A)

Measurement Data

Test Result of (Transmission mode, Middle frequency): PASS

Detection mode: #Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4880.00	H	5.7	**37.8	54.0	-16.2
7320.00	H	13.9	**38.8	54.0	-15.2
9760.00	H	14.0	**36.9	54.0	-17.1
12200.00	H	18.6	**36.1	54.0	-17.9
14640.00	H	23.2	**36.5	54.0	-17.5
17080.00	H	31.2	**42.0	54.0	-12.0
19520.00	H	32.0	**41.1	54.0	-12.9
21960.00	H	33.5	**37.2	54.0	-16.8
24400.00	H	34.1	**38.5	54.0	-15.5
26840.00	H	35.2	**39.9	54.0	-14.1

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4880.00	V	5.7	**36.5	54.0	-17.5
7320.00	V	13.9	**39.0	54.0	-15.0
9760.00	V	14.0	**36.9	54.0	-17.1
12200.00	V	18.6	**37.3	54.0	-16.7
14640.00	V	23.2	**36.0	54.0	-18.0
17080.00	V	31.2	**41.4	54.0	-12.6
19520.00	V	32.0	**42.1	54.0	-11.9
21960.00	V	33.5	**37.8	54.0	-16.2
24400.00	V	34.1	**38.5	54.0	-15.5
26840.00	V	35.2	**40.9	54.0	-13.1

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
** Duty Cycle Correction = 20Log(0.15) = -16.5dB.

Note: Field Strength includes Antenna Factor and Cable Loss.
Receiver setting: RBW = 1MHz
VBW = 1MHz

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TEST REPORT No: (5211)135-1953(A)

Measurement Data

Test Result of (Transmission mode, Highest frequency): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4955.00	H	5.7	48.8	74.0	-25.2
7432.50	H	14.7	57.9	74.0	-16.1
9910.00	H	12.9	51.7	74.0	-22.3
12387.50	H	19.5	53.4	74.0	-20.6
14865.00	H	25.1	56.3	74.0	-17.7
17342.50	H	33.4	58.8	74.0	-15.2
19820.00	H	34.7	60.6	74.0	-13.4
22297.50	H	35.6	54.6	74.0	-19.4
24775.00	H	36.8	57.7	74.0	-16.3
27252.50	H	37.5	59.0	74.0	-15.0

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4955.00	V	5.7	49.4	74.0	-24.6
7432.50	V	14.7	58.5	74.0	-15.5
9910.00	V	12.9	52.5	74.0	-21.5
12387.50	V	19.5	55.4	74.0	-18.6
14865.00	V	25.1	56.9	74.0	-17.1
17342.50	V	33.4	59.4	74.0	-14.6
19820.00	V	34.7	62.0	74.0	-12.0
22297.50	V	35.6	56.2	74.0	-17.8
24775.00	V	36.8	58.5	74.0	-15.5
27252.50	V	37.5	60.8	74.0	-13.2

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

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Measurement Data

Test Result of (Transmission mode, Highest frequency): PASS

Detection mode: #Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4955.00	H	5.7	**32.3	54.0	-21.7
7432.50	H	14.7	**41.4	54.0	-12.6
9910.00	H	12.9	**35.2	54.0	-18.8
12387.50	H	19.5	**36.9	54.0	-17.1
14865.00	H	25.1	**39.8	54.0	-14.2
17342.50	H	33.4	**42.3	54.0	-11.7
19820.00	H	34.7	**44.1	54.0	-9.9
22297.50	H	35.6	**38.1	54.0	-15.9
24775.00	H	36.8	**41.2	54.0	-12.8
27252.50	H	37.5	**42.5	54.0	-11.5

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
4955.00	V	5.7	**32.9	54.0	-21.1
7432.50	V	14.7	**42.0	54.0	-12.0
9910.00	V	12.9	**36.0	54.0	-18.0
12387.50	V	19.5	**38.9	54.0	-15.1
14865.00	V	25.1	**40.4	54.0	-13.6
17342.50	V	33.4	**42.9	54.0	-11.1
19820.00	V	34.7	**45.5	54.0	-8.5
22297.50	V	35.6	**39.7	54.0	-14.3
24775.00	V	36.8	**42.0	54.0	-12.0
27252.50	V	37.5	**44.3	54.0	-9.7

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
**Duty Cycle Correction = 20Log(0.15) = -16.5dB.

Note: Field Strength includes Antenna Factor and Cable Loss.
Receiver setting: RBW = 1MHz
VBW = 1MHz

TEST REPORT No: (5211)135-1953(A)

Radiated Emissions (30MHz – 1GHz)

Test Requirement:	FCC Part 15 Section 15.209
Test Method:	ANSI C63.4
Test Date(s):	2012-04-03
Temperature:	22.0 °C
Humidity:	62.0 %
Atmospheric Pressure:	100.9 kPa
Mode of Operation:	On mode and Charge mode
Tested Voltage:	Helicopter: 3.7Vd.c. ("rechargeable battery" x 1) / 117Va.c, 60Hz (computer)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500

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TEST REPORT No: (5211)135-1953(A)

Measurement Data

Test Result of (On mode, battery operated): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
49.72	H	29.2	40.0	-10.8
72.48	H	25.4	40.0	-14.6
160.00	H	23.7	43.5	-19.8
225.04	H	21.6	46.0	-24.4
398.28	H	29.1	46.0	-16.9
531.80	H	28.6	46.0	-17.4

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
39.96	V	29.6	40.0	-10.4
62.36	V	26.4	40.0	-13.6
219.88	V	20.2	46.0	-25.8
324.76	V	24.5	46.0	-21.5
392.36	V	25.7	46.0	-20.3
492.72	V	28.6	46.0	-17.4

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz

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TEST REPORT No: (5211)135-1953(A)

Measurement Data

Test Result of (Charge mode, battery operated): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
45.08	H	29.2	40.0	-10.8
122.80	H	21.3	43.5	-22.2
176.00	H	22.5	43.5	-21.0
240.04	H	22.3	46.0	-23.7
332.68	H	24.5	46.0	-21.5
410.32	H	26.7	46.0	-19.3

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
63.48	V	26.7	40.0	-13.3
131.52	V	20.3	43.5	-23.2
162.32	V	21.2	43.5	-22.3
204.36	V	20.9	43.5	-22.6
270.88	V	22.8	46.0	-23.2
.375.75	V	25.6	46.0	-20.4

Note: Field Strength includes Antenna Factor and Cable Loss.

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Measurement Data

Test Result of (Charge mode, computer operated): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
50.96	H	24.5	40.0	-15.5
128.80	H	26.2	43.5	-17.3
141.28	H	27.0	43.5	-16.5
164.08	H	28.9	43.5	-14.6
177.36	H	29.6	43.5	-13.9
212.92	H	28.3	43.5	-15.2

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
44.60	V	26.1	40.0	-13.9
83.28	V	23.2	40.0	-16.8
146.04	V	24.7	43.5	-18.8
157.96	V	26.5	43.5	-17.0
175.84	V	25.8	43.5	-17.7
180.52	V	26.2	43.5	-17.3

Note: Field Strength includes Antenna Factor and Cable Loss.

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Frequency range of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.249
Test Method:	ANSI C63.4:2009 (Section 13.1.7)
Test Date(s):	2012-03-20
Temperature:	28.0 °C
Humidity:	71.0 %
Atmospheric Pressure:	100.5 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	Helicopter: 3.7Vd.c. (“rechargeable battery” x 1)

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Limits for Frequency range of Fundamental Emission:

Frequency [MHz]	FCC Limits [MHz]
2402.00 – 2477.50	2400 – 2483.5

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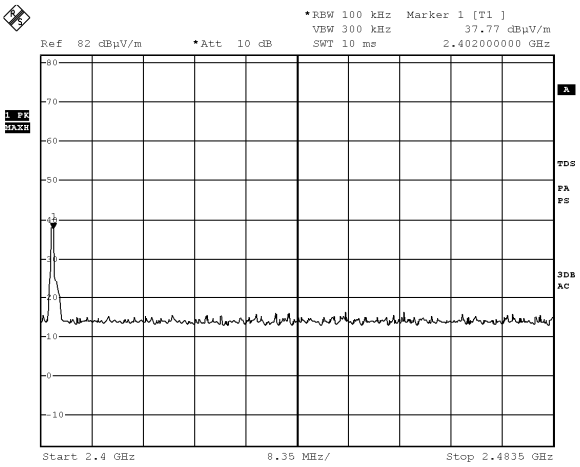
TEST REPORT No: (5211)135-1953(A)

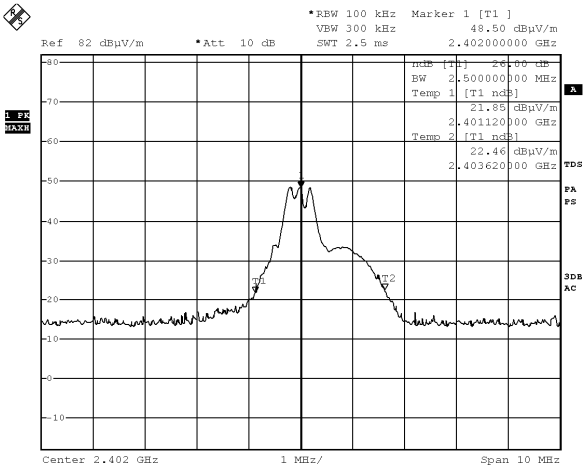
Measurement Data :

Test Result of Frequency Range of Fundamental Emission: PASS
Lowest Frequency – 2402.00MHz



Date: 20.MAR.2012 14:25:55

Test Result of 26dB Bandwidth of Fundamental Emission: PASS
Lowest Frequency – 2402.00MHz



Date: 20.MAR.2012 14:47:31

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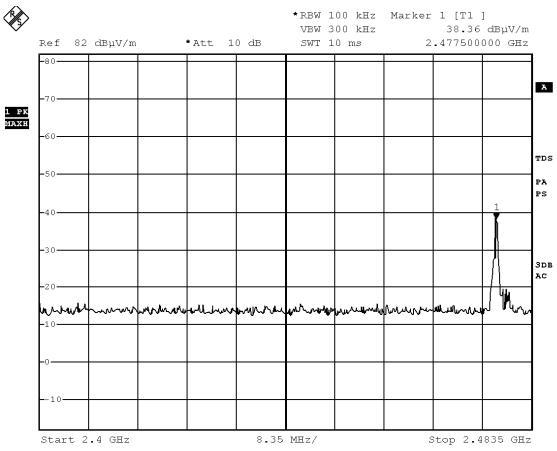
TEST REPORT No: (5211)135-1953(A)

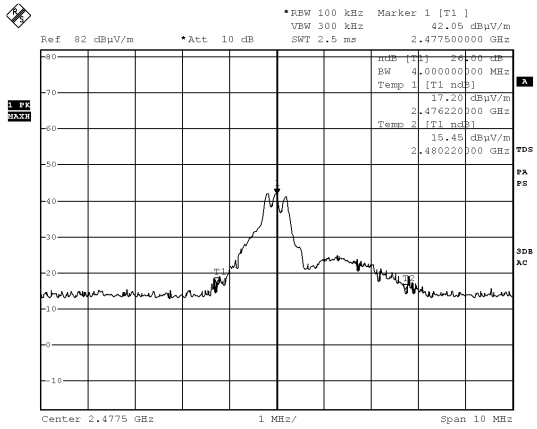
Measurement Data :

Test Result of Frequency Range of Fundamental Emission: PASS
Highest Frequency – 2477.50MHz



Date: 20.MAR.2012 14:40:50

Test Result of 26dB Bandwidth of Fundamental Emission: PASS
Highest Frequency – 2477.50MHz



Date: 20.MAR.2012 14:43:12

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Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (100msec) never exceeds a series of 25 pulses (0.6msec). Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered (25*0.6) per 100msec = 15% duty cycle.

Remarks:

Duty Cycle Correction = 20Log(0.15) = -16.5dB

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

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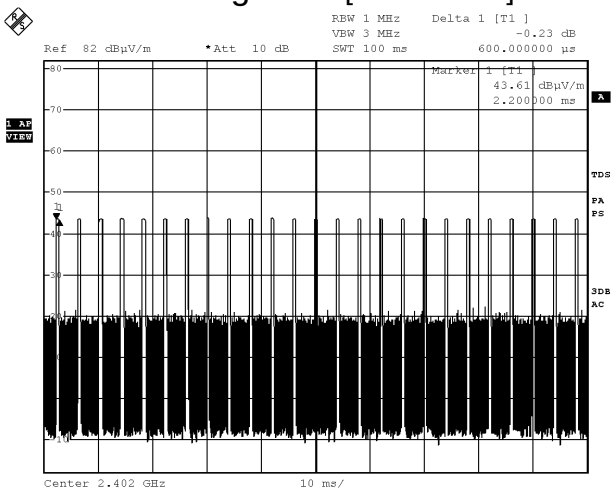
Measurement Data :

Figure A [Pulse Train]



Date: 20.MAR.2012 14:29:36

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Photographs of EUT

Front View of the product

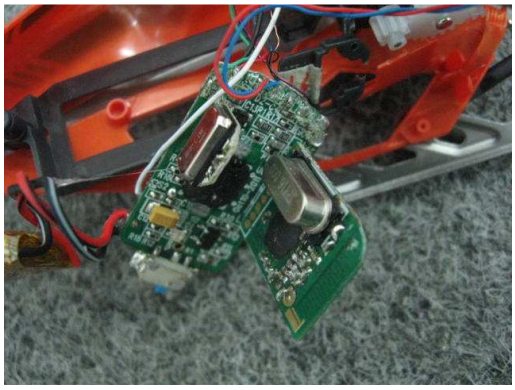
Rear View of the product

Side View of the product

Side View of the product

Inner Circuit Top View

Inner Circuit Bottom View



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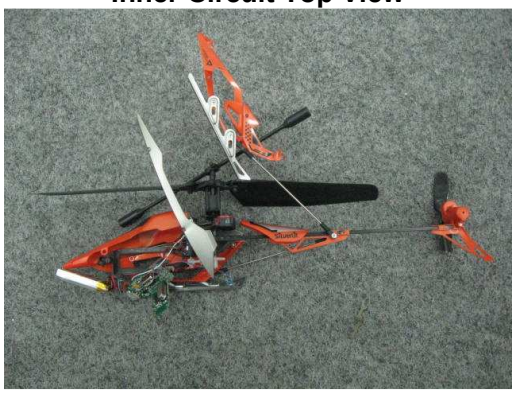
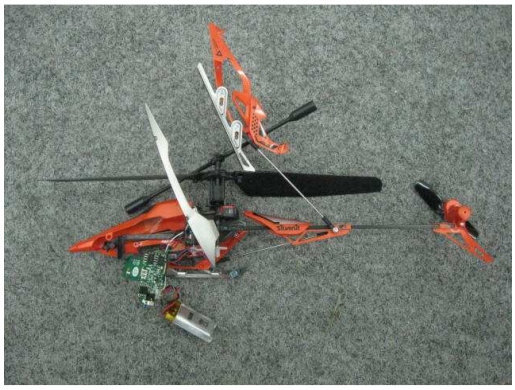
Inner Circuit Top View



Inner Circuit Bottom View



USB

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Measurement of Radiated Emission Test Set Up

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