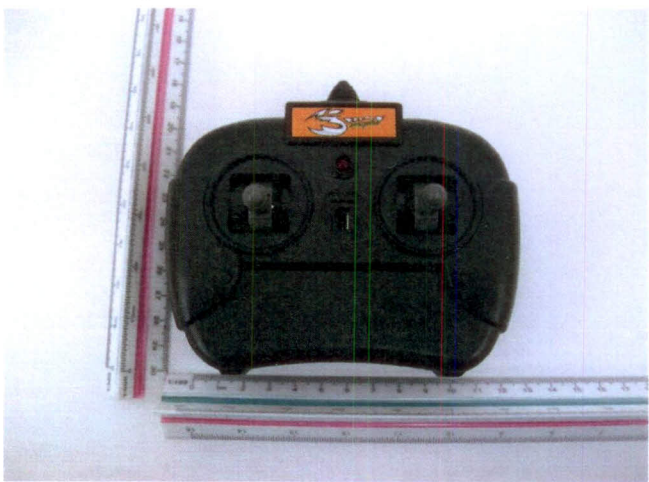

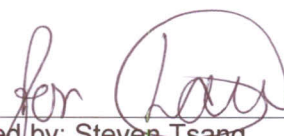


TEST REPORT No: (5213)309-1138

TEST REPORT

To:	GOLDEN BRIGHT MANUFACTUER LTD.	To:	-
Attn:	Eric Fung / Henry Lee / Carman Kwan	Attn:	-
Address:	Room 1008-9, 10/F., Peninsula Centre, 67 Mody Road, Tsim Sha Tsui East, Kowloon, HK	Address:	-
Fax:	27243821	Fax:	-
E-mail:	sales@golden-bright.com / labtest@gb-ts.com / linyuchang@gb-ts.com	E-mail:	-
Folder No.:	--		
Factory name:	--		
Location:	--		
Product:	R/C SPEED BOAT Model No.: 9310		
	Sample No:	(5213)309-1138	
	Test date:	November 14, 2013 to December 2, 2013	
	Test Requested:	FCC Part 15 - 2012	
	Test Method:	ANSI C63.4 - 2009	
	FCC ID:	O2X9310	
<p>The results given in this report are related to the tested specimen of the described electrical apparatus.</p> <p>CONCLUSION: The submitted sample was found to COMPLY with requirement of FCC Part 15 Subpart C.</p>			
Authorized Signature:			
			
Reviewed by: Keith Yeung		Approved by: Steven Tsang	
Date: December 17, 2013		Date: December 17, 2013	



TEST REPORT No: (5213)309-1138
Test Result Summary

EMISSION TEST			
Test requirement: FCC Part 15 - 2012			
Test Condition	Test Method	Test Result	
		Pass	Failed
Radiated Emission Test, 9kHz to 24GHz	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency range of Fundamental Emission	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Duty Cycle Correction During 100msec	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>



TEST REPORT No: (5213)309-1138

Location of the test laboratory

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. 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.	LAST CALIBRATION	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	29-JAN-2013	28-JAN-2014
SPECTRUM ANALYZER	R&S	R3127	111000909	30-JAN-2013	29-JAN-2014
LOOP ANTENNA	ETS LINDGREN	6502	00102266	13-AUG-2013	12-AUG-2014
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	11-SEP-2013	10-SEP-2014
HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D-692	12-SEP-2013	11-SEP-2014
PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	24-JAN-2012	23-JAN-2014
OPEN AREA TEST SITE	BVCPS	N/A	N/A	09-JUL-2013	08-JUL-2014
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	06-FEB-2013	05-FEB-2014
COAXIAL CABLE	SUHNER	N/A	N/A	04-NOV-2013	03-NOV-2014
COAXIAL CABLE	HUBER + SUHNER	RG214	N/A	24-SEP-2013	23-SEP-2014

Remarks:-

N/A : Not Applicable or Not Available

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



TEST REPORT No: (5213)309-1138

Equipment Under Test [EUT]

Description of Sample:

Model Name: R/C SPEED BOAT (2.4GHz)
Model Number: 9310
Additional Model Name: --
Additional Model Number: 9302 / 9303 / 9304 / 9305 / 9305S / 9306 / 9307 / 9308 / 9309 / 9310 / 9311 / 9321 / 9331 / 9341 / 9351 / 9361 / 9371 / 9381 / 9391 / 9312 / 9322 / 9332 / 9342 / 9352 / 9362 / 9372 / 9382 / 9392 / 9313 / 9323 / 9333 / 9343 / 9353 / 9363 / 9373 / 9383 / 9393 / 9314 / 9324 / 9334 / 9344 / 9354 / 9364 / 9374 / 9384 / 9394 / 9315 / 9325 / 9335 / 9345 / 9355 / 9365 / 9375 / 9385 / 9395 / 9316 / 9326 / 9336 / 9346 / 9356 / 9366 / 9376 / 9386 / 9396 / 9317 / 9327 / 9337 / 9347 / 9357 / 9367 / 9377 / 9387 / 9397 / 9318 / 9328 / 9338 / 9348 / 9358 / 9368 / 9378 / 9388 / 9398 / 9319 / 9329 / 9339 / 9349 / 9359 / 9369 / 9379 / 9389 / 9399 / 9320 / 9330 / 9340 / 9350 / 9360 / 9370 / 9380 / 9390

Additional Model information: Declare the Circuit, PCB layout and Electrical parts of the products are identical to the basic model, except the model number for market purpose

Rating: 3Vd.c. ("AA" size battery x 2)

TEST REPORT No: (5213)309-1138

Description of EUT Operation:

The Equipment Under Test (EUT) is a **GOLDEN BRIGHT MANUFACTUER LTD.** of Remote Control Transmitter. It is a 1 switch and 2 sticks transmitter and operating at 2402MHz to 2480MHz. The lowest, middle and highest frequencies were tested and the results are shown in the report. The EUT transmit while buttons is being pressed or sticks are being pushed or pulled, Modulation by IC, and type is GFSK.

There are total 79 channels and below is the frequency list :

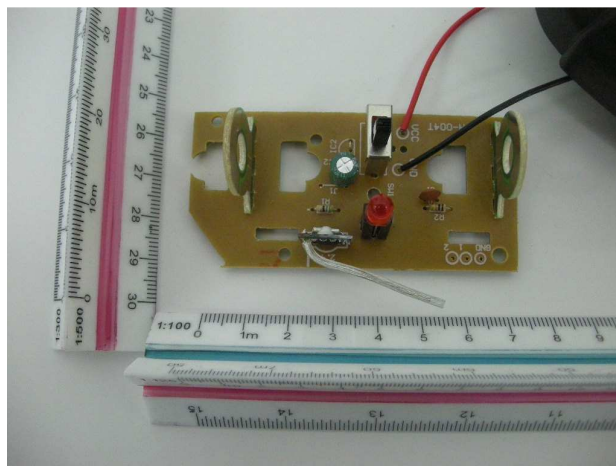
2402	2403	2404	2405	2406	2407	2408	2409	2410	2411
2412	2413	1414	2415	2416	2417	2418	2419	2420	2421
2422	2423	2424	2425	2426	2427	2428	2429	2430	2431
2432	2433	2434	2435	2436	2437	2438	2439	2440	2441
2442	2443	2444	2445	2446	2447	2448	2449	2450	2451
2452	2453	2454	2455	2456	2457	2458	2459	2460	2461
2462	2463	2464	2465	2466	2467	2468	2469	2470	2471
2472	2473	2474	2475	2476	2477	2478	2479	2480	

The transmitter has different control:

1. ON/OFF Switch – power control
2. Left Stick – Left motor control
3. Right Stick – Right motor control

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. It is soldered on the PCB. The antenna consists of 3cm long wire The antenna is not replaceable or user serviceable. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications.



TEST REPORT No: (5213)309-1138

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.249
 Test Method: ANSI C63.4
 Test Date(s): 2013-12-02
 Temperature: 17.0 °C
 Humidity: 63.0 %
 Atmospheric Pressure: 100.3 kPa
 Mode of Operation: Transmission mode
 Tested Voltage: Remote: 3Vd.c. ("AA" size battery x 2)

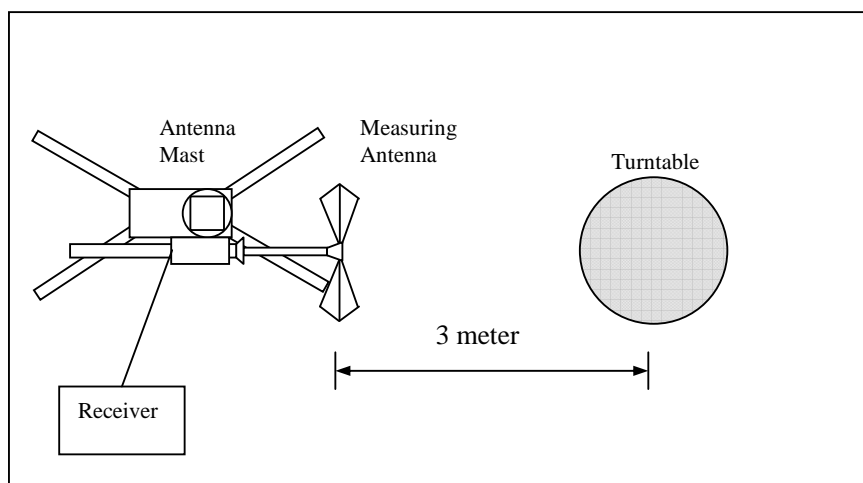
Test Procedure:

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009.

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



TEST REPORT No: (5213)309-1138

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dBμV/m)	Limit at 3m – Peak (dBμV/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dBμV/m)	Limit at 3m – Average (dBμV/m)	Margin - Average (dB)
2402.00	H	-2.7	-20.0	89.4	114.0	-24.6	**69.4	94.0	-24.6
2402.00	V	-2.7	-20.0	85.1	114.0	-28.9	**65.1	94.0	-28.9

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dBμV/m)	Limit at 3m – Peak (dBμV/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dBμV/m)	Limit at 3m – Average (dBμV/m)	Margin - Average (dB)
2440.00	H	-2.7	-20.0	86.5	114.0	-27.5	**66.5	94.0	-27.5
2440.00	V	-2.7	-20.0	82.9	114.0	-31.1	**62.9	94.0	-31.1

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dBμV/m)	Limit at 3m – Peak (dBμV/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dBμV/m)	Limit at 3m – Average (dBμV/m)	Margin - Average (dB)
2480.00	H	-2.7	-20.0	87.4	114.0	-26.6	**67.4	94.0	-26.6
2480.00	H	-2.7	-20.0	83.3	114.0	-30.7	**63.3	94.0	-30.7

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\log(0.065) = -23.7\text{dB}$.

**Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5213)309-1138

Radiated Emissions (Spurious Emission)

Test Requirement: FCC Part 15 Section 15.249
 Test Method: ANSI C63.4
 Test Date(s): 2013-12-02
 Temperature: 17.0 °C
 Humidity: 63.0 %
 Atmospheric Pressure: 100.3 kPa
 Mode of Operation: Transmission mode
 Tested Voltage: 3Vd.c. ("AA" size battery x 2)

Measurement Data

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dB μ V/m)	Limit at 3m – Peak (dB μ V/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dB μ V/m)	Limit at 3m – Average (dB μ V/m)	Margin - Average (dB)
2400.00	H	-2.7	-20.0	70.0	74.0	-4.0	**50.0	54.0	-4.0
4804.00	H	6.3	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
7206.00	H	13.5	-20.0	61.4	74.0	-12.6	**41.4	54.0	-12.6
9608.00	H	13.2	-20.0	61.2	74.0	-12.8	**41.2	54.0	-12.8
12010.00	H	18.5	-20.0	60.5	74.0	-13.5	**40.5	54.0	-13.5
14412.00	H	19.2	-20.0	60.3	74.0	-13.7	**40.3	54.0	-13.7
16814.00	H	25.4	-20.0	60.7	74.0	-13.3	**40.7	54.0	-13.3
19216.00	H	27.3	-20.0	60.1	74.0	-13.9	**40.1	54.0	-13.9
21618.00	H	29.3	-20.0	61.5	74.0	-12.5	**41.5	54.0	-12.5
24020.00	H	32.1	-20.0	60.8	74.0	-13.2	**40.8	54.0	-13.2
26422.00	H	33.9	-20.0	61.3	74.0	-12.7	**41.3	54.0	-12.7

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\text{Log}(0.065) = -23.7\text{dB}$.

**Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5213)309-1138

Measurement Data

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dB μ V/m)	Limit at 3m – Peak (dB μ V/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dB μ V/m)	Limit at 3m – Average (dB μ V/m)	Margin - Average (dB)
2400.00	V	-2.7	-20.0	65.5	74.0	-8.5	**45.5	54.0	-8.5
4804.00	V	6.3	-20.0	61.2	74.0	-12.8	**41.2	54.0	-12.8
7206.00	V	13.5	-20.0	61.0	74.0	-13.0	**41.0	54.0	-13.0
9608.00	V	13.2	-20.0	60.7	74.0	-13.3	**40.7	54.0	-13.3
12010.00	V	18.5	-20.0	59.1	74.0	-14.9	**39.1	54.0	-14.9
14412.00	V	19.2	-20.0	59.7	74.0	-14.3	**39.7	54.0	-14.3
16814.00	V	25.4	-20.0	59.9	74.0	-14.1	**39.9	54.0	-14.1
19216.00	V	27.3	-20.0	62.3	74.0	-11.7	**42.3	54.0	-11.7
21618.00	V	29.3	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
24020.00	V	32.1	-20.0	60.7	74.0	-13.3	**40.7	54.0	-13.3
26422.00	V	33.9	-20.0	61.0	74.0	-13.0	**41.0	54.0	-13.0

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\text{Log}(0.065) = -23.7\text{dB}$.

**Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz

VBW = 1MHz



**BUREAU
VERITAS**

TEST REPORT No: (5213)309-1138

Measurement Data

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dBμV/m)	Limit at 3m – Peak (dBμV/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dBμV/m)	Limit at 3m – Average (dBμV/m)	Margin - Average (dB)
4880.00	H	6.3	-20.0	63.4	74.0	-10.6	**43.4	54.0	-10.6
7320.00	H	13.5	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
9760.00	H	13.2	-20.0	61.2	74.0	-12.8	**41.2	54.0	-12.8
12200.00	H	18.5	-20.0	59.4	74.0	-14.6	**39.4	54.0	-14.6
14640.00	H	19.2	-20.0	61.0	74.0	-13.0	**41.0	54.0	-13.0
17080.00	H	25.4	-20.0	61.8	74.0	-12.2	**41.8	54.0	-12.2
19520.00	H	27.3	-20.0	62.6	74.0	-11.4	**42.6	54.0	-11.4
21960.00	H	29.3	-20.0	62.7	74.0	-11.3	**42.7	54.0	-11.3
24400.00	H	32.1	-20.0	62.0	74.0	-12.0	**42.0	54.0	-12.0
26840.00	H	33.9	-20.0	61.9	74.0	-12.1	**41.9	54.0	-12.1

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dBμV/m)	Limit at 3m – Peak (dBμV/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dBμV/m)	Limit at 3m – Average (dBμV/m)	Margin - Average (dB)
4880.00	V	6.3	-20.0	60.4	74.0	-13.6	**40.4	54.0	-13.6
7320.00	V	13.5	-20.0	61.6	74.0	-12.4	**41.6	54.0	-12.4
9760.00	V	13.2	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
12200.00	V	18.5	-20.0	59.7	74.0	-14.3	**39.7	54.0	-14.3
14640.00	V	19.2	-20.0	60.7	74.0	-13.3	**40.7	54.0	-13.3
17080.00	V	25.4	-20.0	61.5	74.0	-12.5	**41.5	54.0	-12.5
19520.00	V	27.3	-20.0	62.6	74.0	-11.4	**42.6	54.0	-11.4
21960.00	V	29.3	-20.0	61.9	74.0	-12.1	**41.9	54.0	-12.1
24400.00	V	32.1	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
26840.00	V	33.9	-20.0	62.7	74.0	-11.3	**42.7	54.0	-11.3

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\text{Log}(0.065) = -23.7\text{dB}$.

**Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz

VBW = 1MHz

**BUREAU VERITAS HONG KONG LIMITED –
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This report is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. Our report is limited to the test samples identified herein. The results set forth in this report are not necessarily indicative or representative of the statistical quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof. You shall have thirty days from receipt of this report to request additional testing of the samples or to notify us of any errors or omissions relating to our report, provided, however, such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



TEST REPORT No: (5213)309-1138

Measurement Data

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dB μ V/m)	Limit at 3m – Peak (dB μ V/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dB μ V/m)	Limit at 3m – Average (dB μ V/m)	Margin - Average (dB)
2483.50	H	-2.7	-20.0	61.0	74.0	-13.0	**41.0	54.0	-13.0
4960.00	H	6.3	-20.0	68.1	74.0	-5.9	**48.1	54.0	-5.9
7440.00	H	13.5	-20.0	60.3	74.0	-13.7	**40.3	54.0	-13.7
9920.00	H	13.2	-20.0	60.6	74.0	-13.4	**40.6	54.0	-13.4
12400.00	H	18.5	-20.0	60.5	74.0	-13.5	**40.5	54.0	-13.5
14880.00	H	19.2	-20.0	61.3	74.0	-12.7	**41.3	54.0	-12.7
17360.00	H	26.2	-20.0	62.1	74.0	-11.9	**42.1	54.0	-11.9
19840.00	H	27.3	-20.0	61.3	74.0	-12.7	**41.3	54.0	-12.7
22320.00	H	29.3	-20.0	62.4	74.0	-11.6	**42.4	54.0	-11.6
24800.00	H	32.1	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
27280.00	H	33.9	-20.0	62.7	74.0	-11.3	**42.7	54.0	-11.3

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\text{Log}(0.065) = -23.7\text{dB}$.

**Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5213)309-1138

Measurement Data

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

Frequency (MHz)	Polarity (H/V)	Antenna Factor & Cable Loss (dB/m)	Duty-cycle correction (dB)	Field Strength at 3m – Peak (dB μ V/m)	Limit at 3m – Peak (dB μ V/m)	Margin - Peak (dB)	Field Strength at 3m – Average (dB μ V/m)	Limit at 3m – Average (dB μ V/m)	Margin - Average (dB)
2483.50	V	-2.7	-20.0	57.6	74.0	-16.4	**37.6	54.0	-16.4
4960.00	V	6.3	-20.0	67.3	74.0	-6.7	**47.3	54.0	-6.7
7440.00	V	13.5	-20.0	61.0	74.0	-13.0	**41.0	54.0	-13.0
9920.00	V	13.2	-20.0	60.1	74.0	-13.9	**40.1	54.0	-13.9
12400.00	V	18.5	-20.0	60.7	74.0	-13.3	**40.7	54.0	-13.3
14880.00	V	19.2	-20.0	61.2	74.0	-12.8	**41.2	54.0	-12.8
17360.00	V	26.2	-20.0	62.2	74.0	-11.8	**42.2	54.0	-11.8
19840.00	V	27.3	-20.0	62.1	74.0	-11.9	**42.1	54.0	-11.9
22320.00	V	29.3	-20.0	61.3	74.0	-12.7	**41.3	54.0	-12.7
24800.00	V	32.1	-20.0	61.5	74.0	-12.5	**41.5	54.0	-12.5
27280.00	V	33.9	-20.0	61.9	74.0	-12.1	**41.9	54.0	-12.1

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\log(0.065) = -23.7\text{dB}$.

**Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5213)309-1138

Radiated Emissions (30MHz – 2.4GHz)

Test Requirement: FCC Part 15 Section 15.209
 Test Method: ANSI C63.4
 Test Date(s): 2013-11-14
 Temperature: 23.0 °C
 Humidity: 75.0 %
 Atmospheric Pressure: 100.6 kPa
 Mode of Operation: On mode
 Tested Voltage: 3Vd.c. ("AA" size battery x 2)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]	Measurement Distance m
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above960	500	3

Measurement Data

Test Result of (On mode): PASS

Detection mode: Quasi-Peak

Frequency	Polarity (H/V)	Field Strength	Limit	Margin (dB)
Emissions detected are more than 20 dB below the limit line(s) in 9kHz to 30MHz				

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 200Hz
 VBW = 200Hz



TEST REPORT No: (5213)309-1138

Measurement Data

Test Result of (On mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
42.08	H	25.6	40.0	-14.4
112.64	H	21.2	43.5	-22.3
211.44	H	20.7	43.5	-22.8
278.52	H	22.8	46.0	-23.2
385.72	H	26.1	46.0	-19.9
467.28	H	27.9	46.0	-18.1

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
42.08	V	24.9	40.0	-15.1
112.64	V	22.0	43.5	-21.5
211.44	V	21.7	43.5	-21.8
278.52	V	22.6	46.0	-23.4
385.72	V	26.3	46.0	-19.7
467.28	V	27.5	46.0	-18.5

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
 VBW = 120KHz



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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): 2013-11-14
Temperature: 23.0 °C
Humidity: 75.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode
Tested Voltage: 3Vd.c. ("AA" size battery x 2)

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:

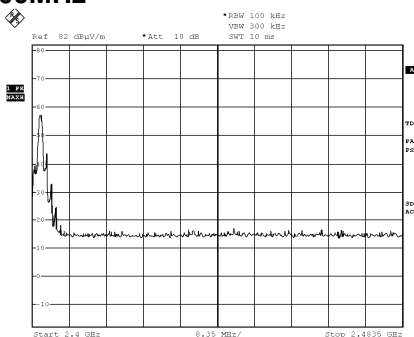
Frequency [MHz]	FCC Limits [MHz]
2402.00 – 2480.00	2400 – 2483.5

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Measurement Data :

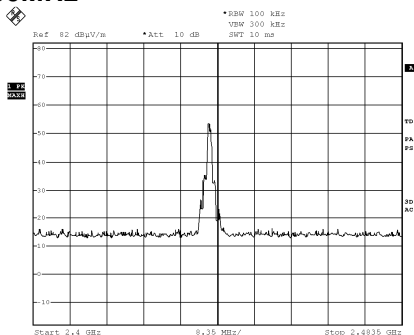
Test Result of Frequency Range of Fundamental Emission: PASS

Lowest Frequency – 2402.00MHz



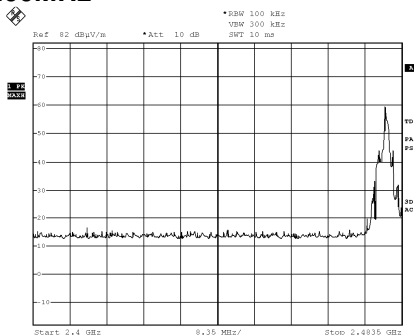
Date: 14.NOV.2013 07:58:20

Middle Frequency – 2440.00MHz



Date: 14.NOV.2013 08:02:42

Highest Frequency – 2480.00MHz

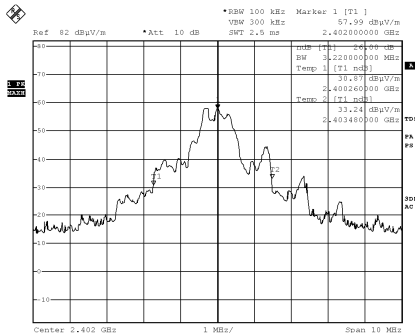


Date: 14.NOV.2013 08:07:36

TEST REPORT No: (5213)309-1138
Measurement Data :

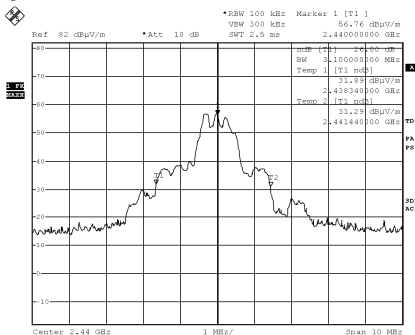
Test Result of 26dB Bandwidth of Fundamental Emission: PASS

Lowest Frequency – 2402.00MHz



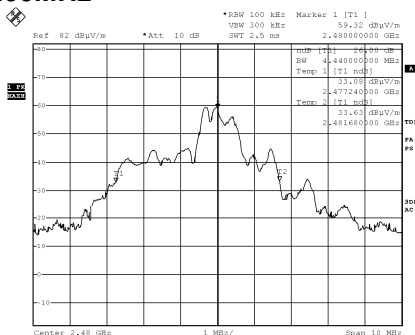
Date: 14.NOV.2013 08:09:48

Middle Frequency – 2440.00MHz



Date: 14.NOV.2013 08:11:52

Highest Frequency – 2480.00MHz



Date: 14.NOV.2013 08:07:13



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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 (0.26msec) pulses. Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $25 \times (0.26\text{msec})$ per 100msec = 6.5% duty cycle. Figure A to B show the characteristics of the pulse train for one of these functions

Remarks:

Duty Cycle Correction = $20\text{Log}(0.065) = -23.7\text{dB}$
Therefore, -20dB is taken

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

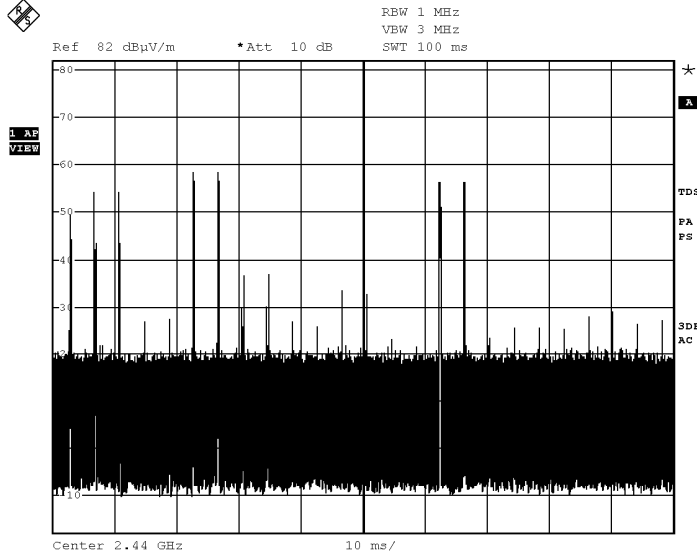


BUREAU VERITAS

TEST REPORT No: (5213)309-1138

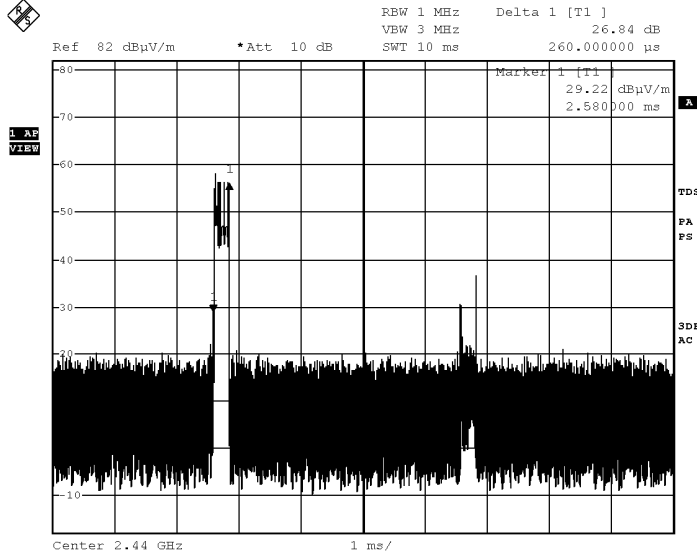
Measurement Data :

Figure A [Pulse Train]



Date: 14.NOV.2013 08:28:12

Figure B [Single Pulse]



Date: 14.NOV.2013 08:29:59

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Photographs of EUT

Front View of the product



Rear View of the product



Top View of the product



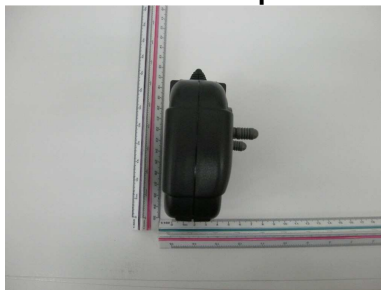
Bottom view of the product



Side View of the product



Side View of the product



Battery Compartment



Battery Cover



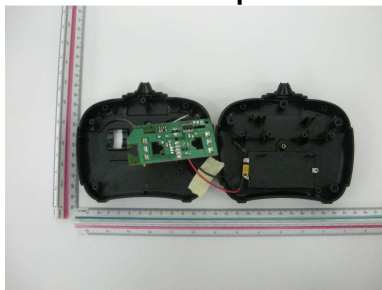
TEST REPORT No: (5213)309-1138

Photographs of EUT

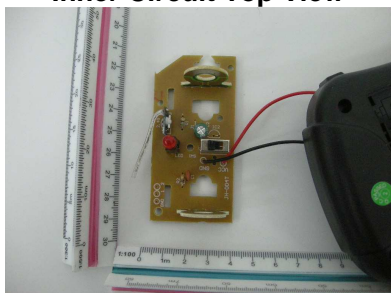
Inner view of product



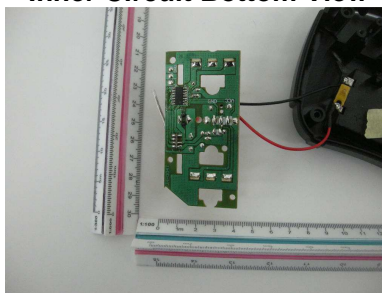
Inner view of product



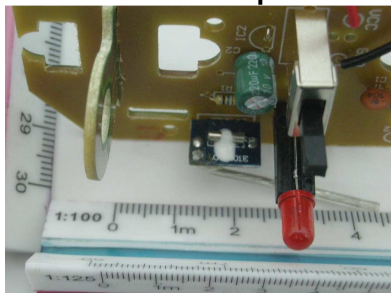
Inner Circuit Top View



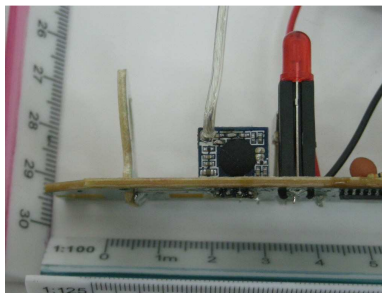
Inner Circuit Bottom View



Inner Circuit Top View



Inner Circuit Bottom View



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Measurement of Radiated Emission Test Set Up



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