

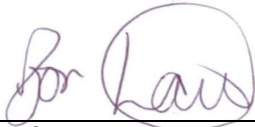




**BUREAU
VERITAS**

TEST REPORT No: (5215)127-1793

TEST REPORT

To:	NEW BRIGHT INDUSTRIAL CO., LTD.	To:	-
Attn:	Eric Kwok	Attn:	-
Address:	9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, HONG KONG.	Address:	-
Fax:	852 2795 3665	Fax:	-
E-mail:	ypeng01@newbright.com / chkwok01@newbright.com	E-mail:	-
Folder No.:	NBT-15MY005MTHS-B-C		
Factory name:	NEW BRIGHT INDUSTRIAL CO., LTD.		
Location:	9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, HONG KONG.		
Product:	TOY Transmitter & Receiver Model No.: GF64UMA		
	Sample No:	HK150430/016	
	Test date:	May 06, 2015	
	Test Requested:	FCC Part 15 - 2012	
	Test Method:	ANSI C63.4 – 2009	
	FCC ID:	G6DGF64UMA	
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 21, 2015		Date: May 21, 2015	

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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: (5215)127-1793
Test Result Summary

EMISSION TEST			
Test requirement: FCC Part 15 - 2012			
Test Condition	Test Method	Test Result	
		Pass	Failed
Radiated Emission Test, 9kHz to 40GHz	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"/>
26dB Bandwidth 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"/>

Report Revision & Sample Re-submit History:

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TEST REPORT No: (5215)127-1793

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	21-JAN-2015	20-JAN-2016
SPECTRUM ANALYZER	R&S	R3127	111000909	26-MAR-2015	25-MAR-2016
LOOP ANTENNA	ETS LINDGREN	6502	00102266	28-SEP-2014	27-SEP-2015
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	02-JAN-2015	02-JAN-2016
HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D-692	27-DEC-2014	26-DEC-2015
OPEN AREA TEST SITE	BVCPS	N/A	N/A	07-JUL-2014	06-JUL-2015
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	05-FEB-2014	03-FEB-2016
COAXIAL CABLE	HUBER + SUHNER	RG223	N/A	23-DEC-2014	22-DEC-2015
COAXIAL CABLE	HUBER + SUHNER	RG214	N/A	23-DEC-2014	22-DEC-2015
Signal Analyzer 40GHz	Rohde & Schwarz	FSV 40	100977	13-MAY-2014	12-MAY-2015
Wideband Horn Antenna 18 to 40GHz	STEATITE	QWH-SL-18-40-K-SG	12688	02-SEP-2014	01-SEP-2015
High frequency RF cable	Rohde & Schwarz	N/A	N/A	15-SEP-2014	14-SEP-2015

Remarks:-

N/A : Not Applicable or Not Available

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

Measurement Uncertainty

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	9kHz to 30MHz	4.2dB
	30MHz to 1GHz	5.0dB
	1GHz to 18GHz	4.9dB
	18GHz to 40GHz	4.8dB

TEST REPORT No: (5215)127-1793

Equipment Under Test [EUT]

Description of Sample:

Model Name: TOY Transmitter & Receiver
 Model Number: GF64UMA
 Additional Model Name: --
 Additional Model Number: --
 Additional Model information: --
 Rating: 6.4Vd.c. ("Internal rechargeable battery" x 1)

Description of EUT Operation:

The Equipment Under Test (EUT) is a **NEW BRIGHT INDUSTRIAL CO., LTD.** of Remote Control Transceiver. It is a 1 switch transceiver and operating at 2410MHz to 2473MHz. The lowest, middle and highest frequencies were tested and the results are shown in the report. The EUT transmit while corresponding remote controller sticks are being pushed or pulled, Modulation by IC, and type is GFSK.

There are total 74 channels and below is the frequency list (MHz) :

ch.no	freq.	ch.no	freq.	ch.no	freq.	ch.no	freq.	ch.no	freq.	ch.no	freq.	ch.no	freq.
1	2410	13	2412	25	2424	37	2436	49	2448	61	2460	73	2472
2	2411	14	2413	26	2425	38	2437	50	2449	62	2461	74	2473
3	2412	15	2414	27	2426	39	2438	51	2450	63	2462		
4	2413	16	2415	28	2427	40	2439	52	2451	64	2463		
5	2414	17	2416	29	2428	41	2440	53	2452	65	2464		
6	2415	18	2417	30	2429	42	2441	54	2453	66	2465		
7	2416	19	2418	31	2430	43	2442	55	2454	67	2466		
8	2417	20	2419	32	2431	44	2443	56	2455	68	2467		
9	2418	21	2420	33	2432	45	2444	57	2456	69	2468		
10	2419	22	2421	34	2433	46	2445	58	2457	70	2469		
11	2410	23	2422	35	2434	47	2446	59	2458	71	2470		
12	2411	24	2423	36	2435	48	2447	60	2459	72	2471		

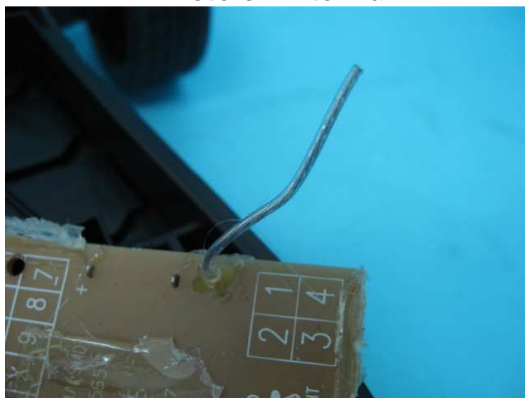
The transmitter has different control:

1. ON/OFF Switch – power control

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. It is soldered on the PCB. The antenna consists of 3.5cm 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.

Photo of Antenna



TEST REPORT No: (5215)127-1793

Test Results

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.249
 Test Method: ANSI C63.4
 Test Date(s): 2015-05-06
 Temperature: 25.0 °C
 Humidity: 79.0 %
 Atmospheric Pressure: 100.6 kPa
 Mode of Operation: Transmission mode
 Tested Voltage: 6.4Vd.c. ("Internal rechargeable battery" x 1)

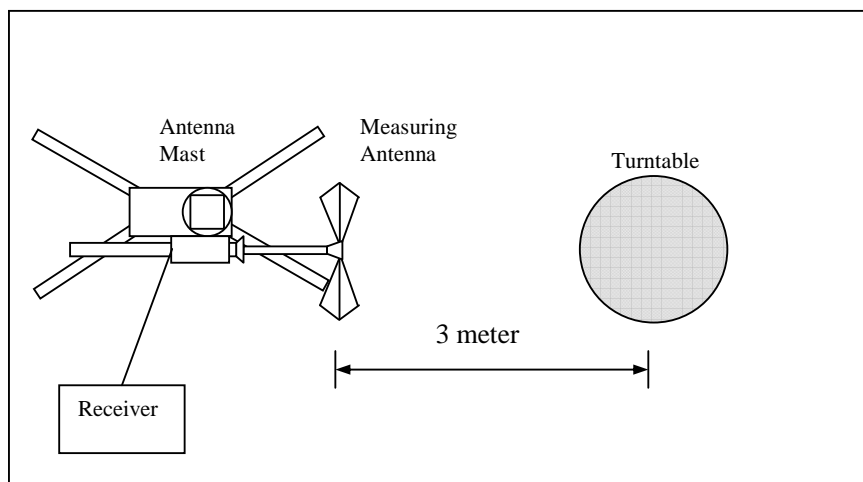
Test Procedure:

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: (5215)127-1793

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)
2410.15	H	0.0	-16.8	68.4	114.0	-45.6	**51.6	94.0	-42.4
2410.15	V	0.0	-16.8	71.3	114.0	-42.7	**54.5	94.0	-39.5

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)
2442.15	H	0.0	-16.8	68.4	114.0	-45.6	**51.6	94.0	-42.4
2442.15	V	0.0	-16.8	72.6	114.0	-41.4	**55.8	94.0	-38.2

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)
2473.15	H	0.0	-16.8	69.1	114.0	-44.9	**52.3	94.0	-41.7
2473.15	V	0.0	-16.8	72.9	114.0	-41.1	**56.1	94.0	-37.9

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

**Duty Cycle Correction = $20\text{Log}(0.144) = -16.8\text{dB}$.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5215)127-1793

Radiated Emissions (Spurious Emission)

Test Requirement: FCC Part 15 Section 15.249
 Test Method: ANSI C63.4
 Test Date(s): 2015-05-06
 Temperature: 25.0 °C
 Humidity: 79.0 %
 Atmospheric Pressure: 100.6 kPa
 Mode of Operation: Transmission mode
 Tested Voltage: 6.4Vd.c. ("Internal rechargeable battery" x 1)

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)
4820.30	H	5.9	-16.8	48.5	74.0	-25.5	**31.7	54.0	-22.3
7230.45	H	12.7	-16.8	49.7	74.0	-24.3	**32.9	54.0	-21.1
9640.60	H	16.4	-16.8	51.9	74.0	-22.1	**35.1	54.0	-18.9
12050.75	H	18.4	-16.8	55.3	74.0	-18.7	**38.5	54.0	-15.5
14460.90	H	23.2	-16.8	61.1	74.0	-12.9	**44.3	54.0	-9.7
16871.05	H	22.0	-16.8	61.3	74.0	-12.7	**44.5	54.0	-9.5
19281.20	H	46.3	-16.8	64.9	74.0	-9.1	**48.1	54.0	-5.9
21691.35	H	47.1	-16.8	62.3	74.0	-11.7	**45.5	54.0	-8.5
24101.50	H	47.5	-16.8	62.2	74.0	-11.8	**45.4	54.0	-8.6
26511.65	H	48.5	-16.8	63.1	74.0	-10.9	**46.3	54.0	-7.7

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

**Duty Cycle Correction = $20\text{Log}(0.144) = -16.8\text{dB}$.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5215)127-1793

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)
4820.30	V	5.9	-16.8	48.6	74.0	-25.4	**31.8	54.0	-22.2
7230.45	V	12.7	-16.8	49.6	74.0	-24.4	**32.8	54.0	-21.2
9640.60	V	16.4	-16.8	50.7	74.0	-23.3	**33.9	54.0	-20.1
12050.75	V	18.4	-16.8	53.6	74.0	-20.4	**36.8	54.0	-17.2
14460.90	V	23.2	-16.8	61.7	74.0	-12.3	**44.9	54.0	-9.1
16871.05	V	22.0	-16.8	62.0	74.0	-12.0	**45.2	54.0	-8.8
19281.20	V	46.3	-16.8	62.7	74.0	-11.3	**45.9	54.0	-8.1
21691.35	V	47.1	-16.8	61.5	74.0	-12.5	**44.7	54.0	-9.3
24101.50	V	47.5	-16.8	62.8	74.0	-11.2	**46.0	54.0	-8.0
26511.65	V	48.5	-16.8	62.2	74.0	-11.8	**45.4	54.0	-8.6

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

**Duty Cycle Correction = $20\text{Log}(0.144) = -16.8\text{dB}$.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



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TEST REPORT No: (5215)127-1793

Measurement Data

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

Table with 10 columns: 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). Rows include frequencies from 4884.30 to 26863.65 MHz.

Table with 10 columns: 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). Rows include frequencies from 4884.30 to 26863.65 MHz.

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(0.144) = -16.8dB.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz, VBW = 1MHz



BUREAU VERITAS

TEST REPORT No: (5215)127-1793

Measurement Data

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

Table with 10 columns: 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). Rows include frequencies from 4946.30 to 27204.65 MHz.

Table with 10 columns: 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). Rows include frequencies from 4946.30 to 27204.65 MHz.

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(0.144) = -16.8dB.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5215)127-1793

Radiated Emissions (9kHz – 40GHz)

Test Requirement: FCC Part 15 Section 15.209
 Test Method: ANSI C63.4
 Test Date(s): 2015-05-06
 Temperature: 25.0 °C
 Humidity: 79.0 %
 Atmospheric Pressure: 100.6 kPa
 Mode of Operation: On mode
 Tested Voltage: 6.4Vd.c. ("Internal rechargeable battery" x 1)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V}/\text{m}$]	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: (5215)127-1793

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)
32.48	H	29.2	40.0	-10.8
128.68	H	24.5	43.5	-19.0
171.04	H	22.3	43.5	-21.2
266.04	H	25.3	46.0	-20.7
332.60	H	27.6	46.0	-18.4
519.84	H	32.1	46.0	-13.9

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
32.48	V	31.7	40.0	-8.3
128.68	V	24.6	43.5	-18.9
171.04	V	21.9	43.5	-21.6
266.04	V	25.8	46.0	-20.2
332.60	V	27.4	46.0	-18.6
519.84	V	32.0	46.0	-14.0

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
 VBW = 120KHz



TEST REPORT No: (5215)127-1793

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): 2015-05-06
Temperature: 25.0 °C
Humidity: 79.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode
Tested Voltage: 6.4Vd.c. ("Internal 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:

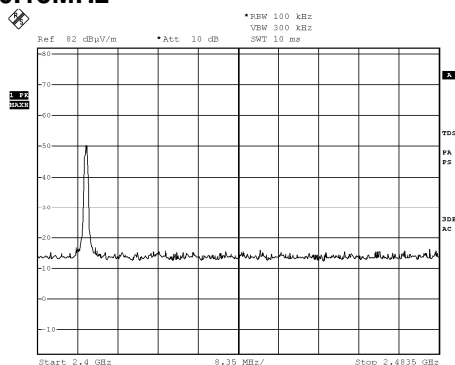
Frequency [MHz]	FCC Limits [MHz]
2409.490 – 2473.850	2400.00 – 2483.50

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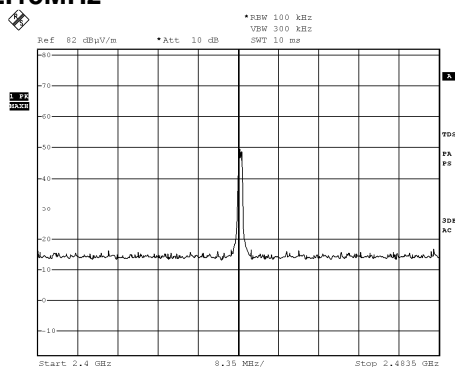
Measurement Data :

Test Result of Frequency Range of Fundamental Emission: PASS

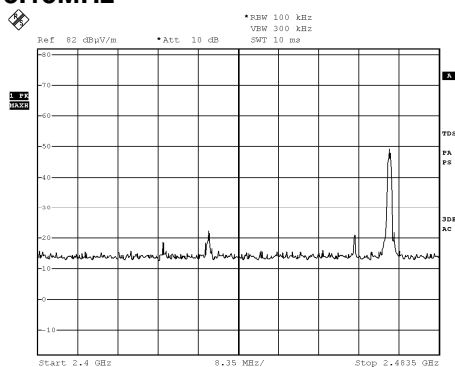
Lowest Frequency – 2410.15MHz



Middle Frequency – 2442.15MHz



Highest Frequency – 2473.15MHz





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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 36 pulses (0.4msec). Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered 36×0.4 per 100msec = 14.4% duty cycle.

Remarks:

Duty Cycle Correction = $20\text{Log}(0.144) = -16.8\text{dB}$

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

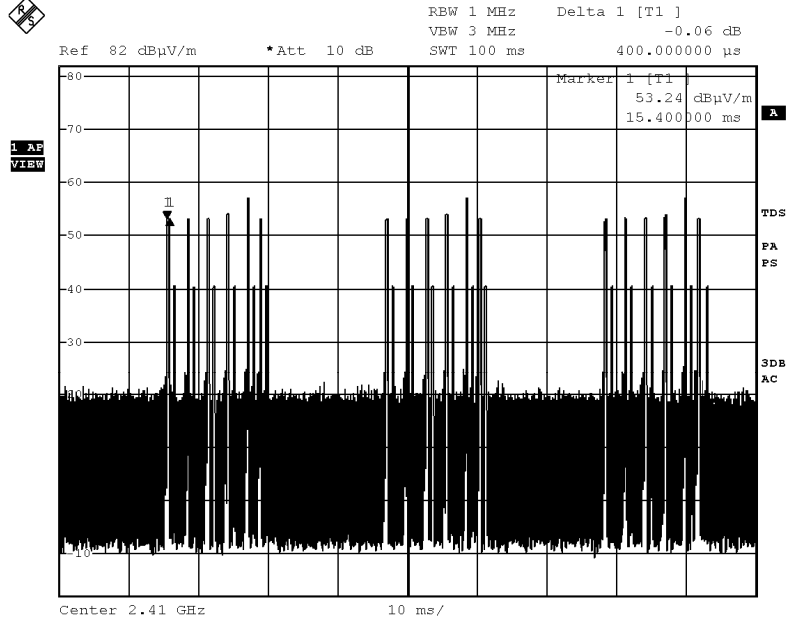


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Measurement Data :

Figure A [Pulse Train]





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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



Internal Rechargeable Battery



USB Cable



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Photographs of EUT

Internal View of the product



Internal View of the product



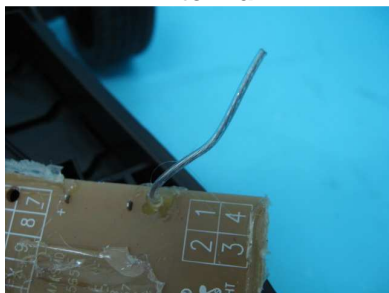
Inner Circuit Top View



Inner Circuit Bottom View



Antenna



TEST REPORT No: (5215)127-1793

Measurement of Radiated Emission Test Set Up



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