

# **TEST REPORT**

To:	SYMA MODEL AIRCRAFT INDUSTRIA	L	To:	-		
Attn:			Attn:	-		
Address:	NO. 2 WEST XINGYE ROAD LAIMEI INDUSTRIAL AREA CHENGHAI SHANTOU GUANGDONG CHINA		Address:	-		
Fax:			Fax:	-		
E-mail:			E-mail:	-		
Folder No.:	BV	CS15A	P009MTHS-B			
Factory name:						
Location:						
Product:			C TOYS el No.: X9			
			Sample No:	HK150331/039		
			Test date:	March 31, 2015		
1 2 9			Test Requested:	FCC Part 15 - 2012		
			Test Method:	ANSI C63.4 - 2009		
A A			FCC ID:	QV7-GC887552-7		
The results	given in this report are related to the tes	ted sp	ecimen of the des	cribed electrical apparatus.		
CONCLUSION:	The submitted sample was found to <u>CC</u>	MPLY	with requirement	of FCC Part 15 Subpart C.		
	Authorized	Signat	ure:			
	Cayh		for k	aus		
Reviewed by: Ke			proved by: Steven Tsang			
Date: May 05, 2015 Date: May 05, 2015						

BUREAU VERITAS HONG KONG LIMITED – Kowloon Bay Office 1/F Pacific Trade Centre, 2 Kai Hing Road, Kowloon Bay, Kowloon,HONG KONG Tel: +852 2331 0888 Fax: +852 2331 0889 www.cps.bureauveritas.com



# TEST REPORT No: (5215)090-0533 Test Result Summary

EMISSION TEST									
Test requirement: FCC Part 15 - 2012									
Test Condition	Test Method	Test	Result						
Test Condition	Test Method	Pass	Failed						
Radiated Emission Test,	ANSI C63.4	$\square$							
9kHz to 40GHz									
Frequency range of Fundamental Emission	ANSI C63.4	$\boxtimes$							
26dB Bandwidth of Fundamental Emission	ANSI C63.4	$\square$							
Duty Cycle Correction During 100msec	ANSI C63.4	$\square$							

**Report Revision & Sample Re-submit History:** 



#### 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	27-MAR-2014	26-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



# Equipment Under Test [EUT]

Description of Sample:	
Model Name:	R/C TOYS
Model Number:	X9
Additional Model Name:	
Additional Model Number:	
Additional Model information:	
Rating:	6Vd.c. ("AA" size battery x 4)

#### **Description of EUT Operation:**

The Equipment Under Test (EUT) is a **SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD.** of Remote Control Transceiver. It is a 1 switch, 2 sticks and 6 buttons transmitter and operating at 2410MHz to 2474MHz. The lowest, middle and highest frequencies were tested and the results are shown in the report. The EUT transmit while buttons are being pressed or sticks are being pushed or pulled, Modulation by IC, and type is GFSK.

ch.no	freq.												
1	2.410	11	2.420	21	2.430	31	2.440	41	2.450	51	2.460	61	2.470
2	2.411	12	2.421	22	2.431	32	2.441	42	2.451	52	2.461	62	2.471
3	2.412	13	2.422	23	2.432	33	2.442	43	2.452	53	2.462	63	2.472
4	2.413	14	2.423	24	2.433	34	2.443	44	2.453	54	2.463	64	2.473
5	2.414	15	2.424	25	2.434	35	2.444	45	2.454	55	2.464	65	2.474
6	2.415	16	2.425	26	2.435	36	2.445	46	2.455	56	2.465		
7	2.416	17	2.426	27	2.436	37	2.446	47	2.456	57	2.466		
8	2.417	18	2.427	28	2.437	38	2.447	48	2.457	58	2.467		
9	2.418	19	2.428	29	2.438	39	2.448	49	2.458	59	2.468		
10	2.419	20	2.429	30	2.439	40	2.449	50	2.459	60	2.469		

There are total 65 channels and below is the frequency list (GHz) :

The transmitter has different control:

- 1. Switch control ON/OFF
- 2. Left stick control the accelerator
- 3. Right stick control the quadcopter rotate
- 4. Left upper button control the speed
- 5. Right upper button 3D eversion
- 6. Left button backward trimmer
- 7. Right button forward trimmer
- 8. Left lower button left fine and sideward fine tuning
- 9. Right lower button switch mode of left find and sideward fine

#### 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.

Photo of Antenna



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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 characteristical quality or 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 Results**

# **Radiated Emissions (Fundamental)**

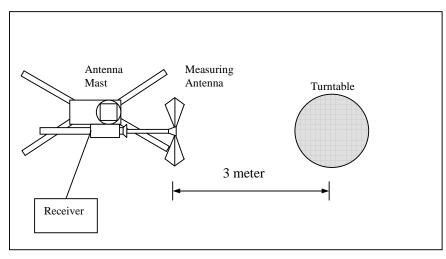
Test Requirement:	FCC Part 15 Section 15.249
Test Method:	ANSI C63.4
Test Date(s):	2015-03-31
Temperature:	26.0 °C
Humidity:	78.0 %
Atmospheric Pressure:	101.3 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	6Vd.c. ("AA" size battery x 4)

# **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

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

ĺ	Frequency Range of	Field Strength of	- Field Strength of
	Fundamental	Fundamental Emission	Harmonics Emission
		(Average)	(Average)
	[MHz]	[mV/m]	[µV/m]
Ī	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)
2410.00	Н	0.0	-20.0	89.6	114.0	-24.4	**69.6	94.0	-24.4
2410.00	V	0.0	-20.0	90.5	114.0	-23.5	**70.5	94.0	-23.5

### 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)
2442.00	Н	0.0	-20.0	89.7	114.0	-24.3	**69.7	94.0	-24.3
2442.00	V	0.0	-20.0	93.0	114.0	-21.0	**73.0	94.0	-21.0

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

				, U					
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)
2474.00	Н	0.0	-20.0	90.0	114.0	-24.0	**70.0	94.0	-24.0
2474.00	V	0.0	-20.0	90.5	114.0	-23.5	**70.5	94.0	-23.5

# 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(0.036) = -28.8dB.

\*\*Therefore, -20dB is taken.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz VBW = 1MHz



### **Radiated Emissions (Spurious Emission)**

Test Requirement:	FCC Part 15 Section 15.249
Test Method:	ANSI C63.4
Test Date(s):	2015-03-31
Temperature:	26.0 °C
Humidity:	78.0 %
Atmospheric Pressure:	101.3 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	6Vd.c. ("AA" size battery x 4)

#### **Measurement Data**

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)
4820.00	Н	5.9	-20.0	57.4	74.0	-16.6	**37.4	54.0	-16.6
7230.00	Н	12.7	-20.0	49.9	74.0	-24.1	**29.9	54.0	-24.1
9640.00	Н	16.4	-20.0	51.2	74.0	-22.8	**31.2	54.0	-22.8
12050.00	Н	18.4	-20.0	52.9	74.0	-21.1	**32.9	54.0	-21.1
14460.00	Н	23.2	-20.0	62.1	74.0	-11.9	**42.1	54.0	-11.9
16870.00	Н	22.0	-20.0	61.0	74.0	-13.0	**41.0	54.0	-13.0
19280.00	Н	46.3	-20.0	63.7	74.0	-10.3	**43.7	54.0	-10.3
21690.00	Н	47.1	-20.0	61.8	74.0	-12.2	**41.8	54.0	-12.2
24100.00	н	47.5	-20.0	61.5	74.0	-12.5	**41.5	54.0	-12.5
26510.00	Н	48.5	-20.0	62.7	74.0	-11.3	**42.7	54.0	-11.3

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

# 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(0.036) = -28.8dB.

\*\*Therefore, -20dB is taken.

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

VBW = 1MHz



### **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)
4820.00	V	5.9	-20.0	58.1	74.0	-15.9	**38.1	54.0	-15.9
7230.00	V	12.7	-20.0	52.6	74.0	-21.4	**32.6	54.0	-21.4
9640.00	V	16.4	-20.0	52.0	74.0	-22.0	**32.0	54.0	-22.0
12050.00	V	18.4	-20.0	54.7	74.0	-19.3	**34.7	54.0	-19.3
14460.00	V	23.2	-20.0	61.3	74.0	-12.7	**41.3	54.0	-12.7
16870.00	V	22.0	-20.0	62.5	74.0	-11.5	**42.5	54.0	-11.5
19280.00	V	46.3	-20.0	63.2	74.0	-10.8	**43.2	54.0	-10.8
21690.00	V	47.1	-20.0	62.6	74.0	-11.4	**42.6	54.0	-11.4
24100.00	V	47.5	-20.0	62.2	74.0	-11.8	**42.2	54.0	-11.8
26510.00	V	48.5	-20.0	63.2	74.0	-10.8	**43.2	54.0	-10.8

# 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(0.036) = -28.8dB.

\*\*Therefore, -20dB is taken.

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

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)
4884.00	Н	5.9	-20.0	53.9	74.0	-20.1	**33.9	54.0	-20.1
7326.00	Н	12.7	-20.0	49.4	74.0	-24.6	**29.4	54.0	-24.6
9768.00	Н	16.4	-20.0	51.9	74.0	-22.1	**31.9	54.0	-22.1
12210.00	Н	18.6	-20.0	54.3	74.0	-19.7	**34.3	54.0	-19.7
14652.00	Н	25.0	-20.0	60.4	74.0	-13.6	**40.4	54.0	-13.6
17094.00	Н	27.2	-20.0	62.5	74.0	-11.5	**42.5	54.0	-11.5
19536.00	Н	46.5	-20.0	62.2	74.0	-11.8	**42.2	54.0	-11.8
21978.00	Н	46.9	-20.0	61.7	74.0	-12.3	**41.7	54.0	-12.3
24420.00	Н	48.0	-20.0	61.5	74.0	-12.5	**41.5	54.0	-12.5
26862.00	Н	48.3	-20.0	62.3	74.0	-11.7	**42.3	54.0	-11.7

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)
4884.00	V	5.9	-20.0	53.8	74.0	-20.2	**33.8	54.0	-20.2
7326.00	V	12.7	-20.0	51.3	74.0	-22.7	**31.3	54.0	-22.7
9768.00	V	16.4	-20.0	51.8	74.0	-22.2	**31.8	54.0	-22.2
12210.00	V	18.6	-20.0	55.0	74.0	-19.0	**35.0	54.0	-19.0
14652.00	V	25.0	-20.0	61.3	74.0	-12.7	**41.3	54.0	-12.7
17094.00	V	27.2	-20.0	61.9	74.0	-12.1	**41.9	54.0	-12.1
19536.00	V	46.5	-20.0	63.1	74.0	-10.9	**43.1	54.0	-10.9
21978.00	V	46.9	-20.0	62.4	74.0	-11.6	**42.4	54.0	-11.6
24420.00	V	48.0	-20.0	62.2	74.0	-11.8	**42.2	54.0	-11.8
26862.00	V	48.3	-20.0	63.3	74.0	-10.7	**43.3	54.0	-10.7

# 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(0.036) = -28.8dB.

\*\*Therefore, -20dB is taken.

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

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)
4948.00	Н	5.9	-20.0	54.0	74.0	-20.0	**34.0	54.0	-20.0
7422.00	Н	13.3	-20.0	47.7	74.0	-26.3	**27.7	54.0	-26.3
9896.00	Н	16.4	-20.0	51.6	74.0	-22.4	**31.6	54.0	-22.4
12370.00	Н	18.6	-20.0	53.5	74.0	-20.5	**33.5	54.0	-20.5
14844.00	Н	25.0	-20.0	61.4	74.0	-12.6	**41.4	54.0	-12.6
17318.00	Н	27.2	-20.0	62.5	74.0	-11.5	**42.5	54.0	-11.5
19792.00	Н	46.6	-20.0	63.8	74.0	-10.2	**43.8	54.0	-10.2
22266.00	Н	47.0	-20.0	60.8	74.0	-13.2	**40.8	54.0	-13.2
24740.00	Н	48.1	-20.0	61.8	74.0	-12.2	**41.8	54.0	-12.2
27214.00	Н	48.5	-20.0	62.4	74.0	-11.6	**42.4	54.0	-11.6

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)
4948.00	V	5.9	-20.0	54.2	74.0	-19.8	**34.2	54.0	-19.8
7422.00	V	13.3	-20.0	49.2	74.0	-24.8	**29.2	54.0	-24.8
9896.00	V	16.4	-20.0	52.5	74.0	-21.5	**32.5	54.0	-21.5
12370.00	V	18.6	-20.0	53.8	74.0	-20.2	**33.8	54.0	-20.2
14844.00	V	25.0	-20.0	61.8	74.0	-12.2	**41.8	54.0	-12.2
17318.00	V	27.2	-20.0	63.8	74.0	-10.2	**43.8	54.0	-10.2
19792.00	V	46.6	-20.0	64.1	74.0	-9.9	**44.1	54.0	-9.9
22266.00	V	47.0	-20.0	60.5	74.0	-13.5	**40.5	54.0	-13.5
24740.00	V	48.1	-20.0	63.0	74.0	-11.0	**43.0	54.0	-11.0
27214.00	V	48.5	-20.0	63.4	74.0	-10.6	**43.4	54.0	-10.6

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

as pulse desensitisation. \*\*Duty Cycle Correction = 20Log(0.036) = -28.8dB.

\*\*Therefore, -20dB is taken.

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

VBW = 1MHz

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### Radiated Emissions (9kHz - 40GHz)

Test Requirement:	FCC Part 15 Section 15.209
Test Method:	ANSI C63.4
Test Date(s):	2015-03-31
Temperature:	26.0 °C
Humidity:	78.0 %
Atmospheric Pressure:	101.3 kPa
Mode of Operation:	On mode
Tested Voltage:	6Vd.c. ("AA" size battery x 4)

#### Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range	Quasi-Peak Limits	Measurement Distance
[MHz]	[µV/m]	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 n	nore than 20 d	B below the lin	nit line(s) in
		9kHz to 30MH	Z	

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 200Hz VBW = 200Hz

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### **Measurement Data**

### Test Result of (On mode): PASS

### **Detection mode: Quasi-Peak**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
39.08	Н	28.9	40.0	-11.1
58.68	Н	21.2	40.0	-18.8
133.80	Н	23.5	43.5	-20.0
235.04	Н	22.7	46.0	-23.3
374.96	Н	26.1	46.0	-19.9
502.08	Н	29.8	46.0	-16.2

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
39.08	V	28.3	40.0	-11.7
58.68	V	21.3	40.0	-18.7
133.80	V	23.6	43.5	-19.9
235.04	V	22.3	46.0	-23.7
374.96	V	26.5	46.0	-19.5
502.08	V	29.6	46.0	-16.4

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):	2015-03-31
Temperature:	26.0 °C
Humidity:	78.0 %
Atmospheric Pressure:	101.3 kPa
Mode of Operation:	Transmission mode
Tested Voltage:	6Vd.c.("AA" size battery x 4)

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:

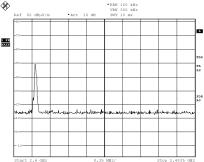
Frequency	FCC Limits
[MHz]	[MHz]
2409.270 - 2474.720	2400.00 - 2483.50



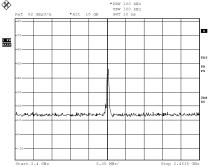
**Measurement Data :** 

Test Result of Frequency Range of Fundamental Emission: PASS

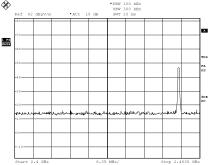
Lowest Frequency – 2410.00MHz



Middle Frequency – 2442.00MHz



Highest Frequency – 2474.00MHz



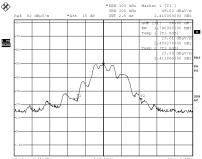
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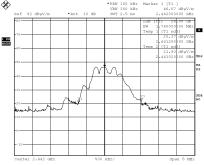
#### TEST REPORT No: (5215)090-0533 Measurement Data :

Test Result of 26dB Bandwidth of Fundamental Emission: PASS

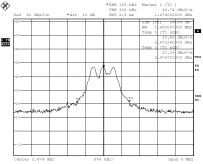
Lowest Frequency – 2410.00MHz



Middle Frequency – 2442.00MHz



Highest Frequency – 2474.00MHz



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#### **Duty Cycle Correction During 100msec:**

Each function key sends a different series of characters, but each packet period (<u>100</u>msec) never exceeds a series of 6 pulses (<u>0.6</u> msec). Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered <u>0.6\*6</u> per <u>100</u>msec = <u>3.6</u>% duty cycle.

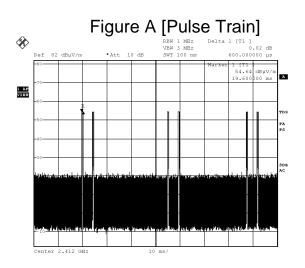
Remarks:

Duty Cycle Correction = 20Log(0.036) = -28.8dB Therefore, -20dB is taken

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



### **Measurement Data :**



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### Photographs of EUT

Front View of the product



Top View of the product



Side View of the product



**Battery compartment** 



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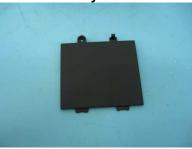
Bottom View of the product



# Side View of the product



**Battery Cover** 





### Photographs of EUT

### Internal View of the product



Inner Circuit Top View



Inner Circuit Top View



### **Inner Circuit Top View**

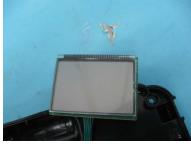


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### Internal View of the product



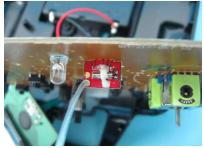
### Inner Circuit Bottom View



### Inner Circuit Bottom View

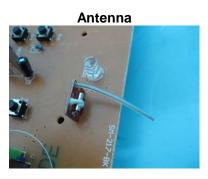


#### **Inner Circuit Bottom View**





TEST REPORT No: (5215)090-0533 Photographs of EUT







### Measurement of Radiated Emission Test Set Up

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

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