




TEST REPORT No: (5216)034-0875(A)

TEST REPORT

| | | | |
|---|---|--|---|
| To: | JAKKS PACIFIC (H.K.) LIMITED | To: | - |
| Attn: | Dick Au | Attn: | - |
| Address: | 12/F, Wharft T&T CTR, 7 Canton Road, Tsim Sha Tsui, Kowloon, Hong Kong | Address: | - |
| Fax: | 23111386 | Fax: | - |
| E-mail: | dicka@jakks.com.hk | E-mail: | - |
| Folder No.: | -- | | |
| Factory name: | -- | | |
| Location: | -- | | |
| Product: | XPV/TMNT RC Skateboarding Mikey Model No.: 97109RX | | |
|  | Sample No: | (5216)034-0875 | |
| | Date of Receipt: | February 03, 2016 | |
| | Test date: | February 15, 2016 | |
| | Test Requested: | FCC Part 15 - 2012 | |
| | Test Method: | ANSI C63.4 – 2009 | |
| | FCC ID: | OTA97109RX | |
| 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: Law Man Kit | |
| Date: February 26, 2016 | | Date: February 26, 2016 | |



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Test Result Summary

| EMISSION TEST | | | |
|--|-------------|-------------------------------------|--------------------------|
| Test requirement: FCC Part 15 - 2012 | | | |
| Test Condition | Test Method | Test Result | |
| | | Pass | Failed |
| Radiated Emission Test, 9kHz to 25GHz | 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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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 | 03-FEB-2016 | 02-FEB-2017 |
| SIGNAL ANALYZER 40GHZ | ROHDE & SCHWARZ | FSV 40 | 100977 | 30-JUN-2015 | 29-JUN-2016 |
| SPECTRUM ANALYZER | R&S | R3127 | 111000909 | 27-APR-2015 | 26-APR-2016 |
| LOOP ANTENNA | ETS LINDGREN | 6502 | 00102266 | 06-NOV-2015 | 05-NOV-2016 |
| BILOG ANTENNA | SCHAFFNER | CBL6112D | 25229 | 02-FEB-2016 | 01-FEB-2017 |
| HORN ANTENNA | SCHWARZBECK | BBHA9120D | 9120D-692 | 26-DEC-2015 | 27-DEC-2016 |
| WIDEBAND HORN ANTENNA 18 TO 40GHZ | STEATITE | QWH-SL-18-40-K-SG | 12688 | 03-SEP-2015 | 02-SEP-2016 |
| PREAMPLIFIER | SCHWARZBECK | BBV9718 | 9718-152 | 13-OCT-2015 | 12-OCT-2016 |
| OPEN AREA TEST SITE | BVCPS | N/A | N/A | 19-JUN-2015 | 18-JUN-2016 |
| ANECHOIC CHAMBER | ALBATROSS | M-CDC | 80374004499B | 12-FEB-2016 | 11-FEB-2017 |
| COAXIAL CABLE | SUHNER | N/A | N/A | 07-JAN-2016 | 06-JAN-2017 |
| HIGH FREQUENCY RF CABLE | ROHDE & SCHWARZ | N/A | N/A | 04-NOV-2015 | 03-NOV-2016 |

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 |

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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Equipment Under Test [EUT]

Description of Sample:

Model Name: XPV/TMNT RC Skateboarding Mikey
Model Number: 97109RX
Additional Model Number: --
Additional Model information: --
Rating: 7.5Vd.c. ("C" size battery x 5)

Description of EUT Operation:

The Equipment Under Test (EUT) is a **JAKKS PACIFIC (H.K.) LIMITED.** of Remote Control Transmitter. It is a 1 switch transceiver and operating at 2408MHz to 2440MHz. The lowest, middle and highest frequencies were tested and the results are shown in the report. The EUT transmit while receive the signal from corresponding remote controller, Modulation by IC, and type is GFSK.

There are total 4 channels and below is the frequency list :

| | | | |
|------|------|------|------|
| 2408 | 2418 | 2428 | 2448 |
|------|------|------|------|

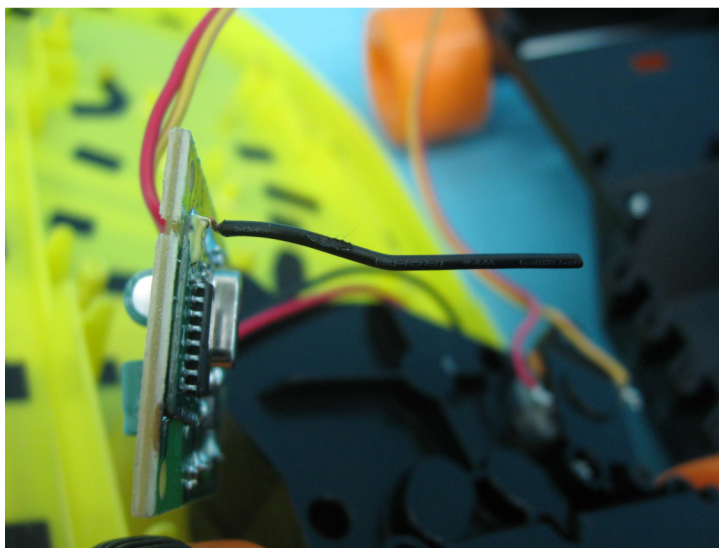
The transmitter has different control:

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 3.0cm 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: (5216)034-0875(A)

Test Results

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.249
 Test Method: ANSI C63.4
 Test Date(s): 2016-02-15
 Temperature: 19.0 °C
 Humidity: 70.0 %
 Atmospheric Pressure: 100.6 kPa
 Mode of Operation: Transmission mode
 Tested Voltage: 7.5Vd.c. ("C" size battery x 5)

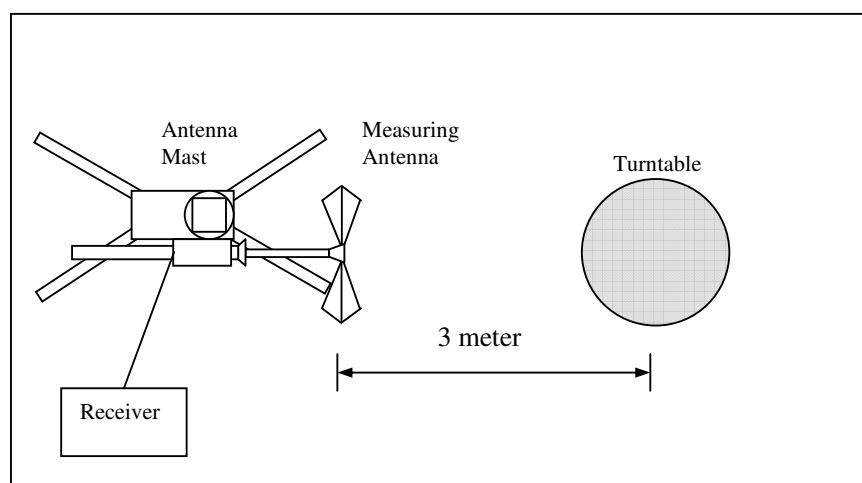
Test Procedure:

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]:

| 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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 2408.20 | H | -3.7 | -26.3 | 93.3 | 114.0 | -20.7 | **67.0 | 94.0 | -27.0 |
| 2408.20 | V | -3.7 | -26.3 | 90.3 | 114.0 | -23.7 | **64.0 | 94.0 | -30.0 |

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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 2428.20 | H | -3.7 | -26.3 | 93.2 | 114.0 | -20.8 | **66.9 | 94.0 | -27.1 |
| 2428.20 | V | -3.7 | -26.3 | 91.2 | 114.0 | -22.8 | **64.9 | 94.0 | -29.1 |

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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 2448.20 | H | -3.7 | -26.3 | 91.8 | 114.0 | -22.2 | **65.5 | 94.0 | -28.5 |
| 2448.20 | V | -3.7 | -26.3 | 90.8 | 114.0 | -23.2 | **64.5 | 94.0 | -29.5 |

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

**Duty Cycle Correction = $20\log(0.048) = -26.3\text{dB}$.

Note: Field Strength includes Gain of pre-amplifier, Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5216)034-0875(A)

Radiated Emissions (Spurious Emission)

Test Requirement: FCC Part 15 Section 15.249
 Test Method: ANSI C63.4
 Test Date(s): 2016-02-15
 Temperature: 19.0 °C
 Humidity: 70.0 %
 Atmospheric Pressure: 100.6 kPa
 Mode of Operation: Transmission mode
 Tested Voltage: 7.5Vd.c. ("C" size battery x 5)

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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 4816.40 | H | 4.3 | -26.3 | 63.5 | 74.0 | -10.5 | **37.2 | 54.0 | -16.8 |
| 7224.60 | H | 11.8 | -26.3 | 50.2 | 74.0 | -23.8 | **23.9 | 54.0 | -30.1 |
| 9632.80 | H | 15.8 | -26.3 | 50.9 | 74.0 | -23.1 | **24.6 | 54.0 | -29.4 |
| 12041.00 | H | 19.1 | -26.3 | 52.6 | 74.0 | -21.4 | **26.3 | 54.0 | -27.7 |
| 14449.20 | H | 21.5 | -26.3 | 57.6 | 74.0 | -16.4 | **31.3 | 54.0 | -22.7 |
| 16857.40 | H | 24.7 | -26.3 | 62.2 | 74.0 | -11.8 | **35.9 | 54.0 | -18.1 |
| 19265.60 | H | 46.5 | -26.3 | 62.3 | 74.0 | -11.7 | **36.0 | 54.0 | -18.0 |
| 21673.80 | H | 46.8 | -26.3 | 63.6 | 74.0 | -10.4 | **37.3 | 54.0 | -16.7 |
| 24082.00 | H | 47.6 | -26.3 | 63.8 | 74.0 | -10.2 | **37.5 | 54.0 | -16.5 |
| 26490.20 | H | 48.6 | -26.3 | 65.5 | 74.0 | -8.5 | **39.2 | 54.0 | -14.8 |

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

**Duty Cycle Correction = $20\log(0.048) = -26.3\text{dB}$.

Note: Field Strength includes Gain of pre-amplifier, Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5216)034-0875(A)

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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 4816.40 | V | 4.3 | -26.3 | 62.9 | 74.0 | -11.1 | **36.6 | 54.0 | -17.4 |
| 7224.60 | V | 11.8 | -26.3 | 50.9 | 74.0 | -23.1 | **24.6 | 54.0 | -29.4 |
| 9632.80 | V | 15.8 | -26.3 | 50.6 | 74.0 | -23.4 | **24.3 | 54.0 | -29.7 |
| 12041.00 | V | 19.1 | -26.3 | 52.8 | 74.0 | -21.2 | **26.5 | 54.0 | -27.5 |
| 14449.20 | V | 21.5 | -26.3 | 56.9 | 74.0 | -17.1 | **30.6 | 54.0 | -23.4 |
| 16857.40 | V | 24.7 | -26.3 | 62.7 | 74.0 | -11.3 | **36.4 | 54.0 | -17.6 |
| 19265.60 | V | 46.5 | -26.3 | 63.8 | 74.0 | -10.2 | **37.5 | 54.0 | -16.5 |
| 21673.80 | V | 46.8 | -26.3 | 62.2 | 74.0 | -11.8 | **35.9 | 54.0 | -18.1 |
| 24082.00 | V | 47.6 | -26.3 | 62.5 | 74.0 | -11.5 | **36.2 | 54.0 | -17.8 |
| 26490.20 | V | 48.6 | -26.3 | 64.2 | 74.0 | -9.8 | **37.9 | 54.0 | -16.1 |

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

**Duty Cycle Correction = $20\log(0.048) = -26.3\text{dB}$.

Note: Field Strength includes Gain of pre-amplifier, Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz

VBW = 1MHz



TEST REPORT No: (5216)034-0875(A)

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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 4856.40 | H | 4.3 | -26.3 | 63.5 | 74.0 | -10.5 | **37.2 | 54.0 | -16.8 |
| 7284.60 | H | 11.8 | -26.3 | 49.4 | 74.0 | -24.6 | **23.1 | 54.0 | -30.9 |
| 9712.80 | H | 15.8 | -26.3 | 49.5 | 74.0 | -24.5 | **23.2 | 54.0 | -30.8 |
| 12141.00 | H | 19.1 | -26.3 | 53.4 | 74.0 | -20.6 | **27.1 | 54.0 | -26.9 |
| 14569.20 | H | 22.5 | -26.3 | 57.7 | 74.0 | -16.3 | **31.4 | 54.0 | -22.6 |
| 16997.40 | H | 28.7 | -26.3 | 62.4 | 74.0 | -11.6 | **36.1 | 54.0 | -17.9 |
| 19425.60 | H | 46.5 | -26.3 | 62.9 | 74.0 | -11.1 | **36.6 | 54.0 | -17.4 |
| 21853.80 | H | 47.1 | -26.3 | 63.8 | 74.0 | -10.2 | **37.5 | 54.0 | -16.5 |
| 24282.00 | H | 47.8 | -26.3 | 65.0 | 74.0 | -9.0 | **38.7 | 54.0 | -15.3 |
| 26710.20 | H | 48.6 | -26.3 | 63.6 | 74.0 | -10.4 | **37.3 | 54.0 | -16.7 |

| 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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 4856.40 | V | 4.3 | -26.3 | 60.1 | 74.0 | -13.9 | **33.8 | 54.0 | -20.2 |
| 7284.60 | V | 11.8 | -26.3 | 50.8 | 74.0 | -23.2 | **24.5 | 54.0 | -29.5 |
| 9712.80 | V | 15.8 | -26.3 | 51.0 | 74.0 | -23.0 | **24.7 | 54.0 | -29.3 |
| 12141.00 | V | 19.1 | -26.3 | 52.5 | 74.0 | -21.5 | **26.2 | 54.0 | -27.8 |
| 14569.20 | V | 22.5 | -26.3 | 58.6 | 74.0 | -15.4 | **32.3 | 54.0 | -21.7 |
| 16997.40 | V | 28.7 | -26.3 | 63.3 | 74.0 | -10.7 | **37.0 | 54.0 | -17.0 |
| 19425.60 | V | 46.5 | -26.3 | 63.0 | 74.0 | -11.0 | **36.7 | 54.0 | -17.3 |
| 21853.80 | V | 47.1 | -26.3 | 62.2 | 74.0 | -11.8 | **35.9 | 54.0 | -18.1 |
| 24282.00 | V | 47.8 | -26.3 | 63.9 | 74.0 | -10.1 | **37.6 | 54.0 | -16.4 |
| 26710.20 | V | 48.6 | -26.3 | 64.0 | 74.0 | -10.0 | **37.7 | 54.0 | -16.3 |

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

**Duty Cycle Correction = $20\log(0.048)$ = -26.3dB.

Note: Field Strength includes Gain of pre-amplifier, Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

TEST REPORT No: (5216)034-0875(A)

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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 4896.40 | H | 4.3 | -26.3 | 62.8 | 74.0 | -11.2 | **36.5 | 54.0 | -17.5 |
| 7344.60 | H | 11.8 | -26.3 | 50.8 | 74.0 | -23.2 | **24.5 | 54.0 | -29.5 |
| 9792.80 | H | 15.8 | -26.3 | 50.6 | 74.0 | -23.4 | **24.3 | 54.0 | -29.7 |
| 12241.00 | H | 19.1 | -26.3 | 54.0 | 74.0 | -20.0 | **27.7 | 54.0 | -26.3 |
| 14689.20 | H | 23.2 | -26.3 | 57.9 | 74.0 | -16.1 | **31.6 | 54.0 | -22.4 |
| 17137.40 | H | 28.7 | -26.3 | 62.7 | 74.0 | -11.3 | **36.4 | 54.0 | -17.6 |
| 19585.60 | H | 46.6 | -26.3 | 65.5 | 74.0 | -8.5 | **39.2 | 54.0 | -14.8 |
| 22033.80 | H | 47.1 | -26.3 | 62.7 | 74.0 | -11.3 | **36.4 | 54.0 | -17.6 |
| 24482.00 | H | 47.8 | -26.3 | 63.5 | 74.0 | -10.5 | **37.2 | 54.0 | -16.8 |
| 26930.20 | H | 48.6 | -26.3 | 63.7 | 74.0 | -10.3 | **37.4 | 54.0 | -16.6 |

| 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) |
|-----------------|----------------|------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------|---|--------------------------------|-----------------------|
| 4896.40 | V | 4.3 | -26.3 | 58.8 | 74.0 | -15.2 | **32.5 | 54.0 | -21.5 |
| 7344.60 | V | 11.8 | -26.3 | 48.6 | 74.0 | -25.4 | **22.3 | 54.0 | -31.7 |
| 9792.80 | V | 15.8 | -26.3 | 50.1 | 74.0 | -23.9 | **23.8 | 54.0 | -30.2 |
| 12241.00 | V | 19.1 | -26.3 | 54.8 | 74.0 | -19.2 | **28.5 | 54.0 | -25.5 |
| 14689.20 | V | 23.2 | -26.3 | 58.4 | 74.0 | -15.6 | **32.1 | 54.0 | -21.9 |
| 17137.40 | V | 28.7 | -26.3 | 62.9 | 74.0 | -11.1 | **36.6 | 54.0 | -17.4 |
| 19585.60 | V | 46.6 | -26.3 | 65.4 | 74.0 | -8.6 | **39.1 | 54.0 | -14.9 |
| 22033.80 | V | 47.1 | -26.3 | 62.2 | 74.0 | -11.8 | **35.9 | 54.0 | -18.1 |
| 24482.00 | V | 47.8 | -26.3 | 62.4 | 74.0 | -11.6 | **36.1 | 54.0 | -17.9 |
| 26930.20 | V | 48.6 | -26.3 | 63.6 | 74.0 | -10.4 | **37.3 | 54.0 | -16.7 |

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

**Duty Cycle Correction = $20\log(0.048) = -26.3\text{dB}$.

Note: Field Strength includes Gain of pre-amplifier, Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz



TEST REPORT No: (5216)034-0875(A)

Radiated Emissions (30MHz – 2.4GHz)

Test Requirement: FCC Part 15 Section 15.209
Test Method: ANSI C63.4
Test Date(s): 2016-02-15
Temperature: 19.0 °C
Humidity: 70.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: On mode
Tested Voltage: 7.5Vd.c. ("C" size battery x 5)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

| Frequency Range [MHz] | Quasi-Peak Limits [μV/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 |
| Above 960 | 500 | 3 |

Measurement Data

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

Detection mode: **Quasi-Peak**

| Frequency (MHz) | Polarity (H/V) | Field Strength (dBμV/m) | Limit (dBμV/m) | 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: (5216)034-0875(A)
Measurement Data

Test Result of (On mode): PASS

Detection mode: Quasi-Peak

| Frequency (MHz) | Polarity (H/V) | Field Strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|----------------|-------------------------|----------------|-------------|
| 61.20 | H | 20.2 | 40.0 | -19.8 |
| 135.28 | H | 23.8 | 43.5 | -19.7 |
| 267.40 | H | 24.1 | 46.0 | -21.9 |
| 347.76 | H | 24.7 | 46.0 | -21.3 |
| 471.64 | H | 28.2 | 46.0 | -17.8 |
| 516.28 | H | 29.3 | 46.0 | -16.7 |

| Frequency (MHz) | Polarity (H/V) | Field Strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|----------------|-------------------------|----------------|-------------|
| 61.20 | V | 20.4 | 40.0 | -19.6 |
| 135.28 | V | 24.0 | 43.5 | -19.5 |
| 267.40 | V | 23.5 | 46.0 | -22.5 |
| 347.76 | V | 24.9 | 46.0 | -21.1 |
| 471.64 | V | 28.1 | 46.0 | -17.9 |
| 516.28 | V | 29.2 | 46.0 | -16.8 |

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): 2016-02-15
Temperature: 19.0 °C
Humidity: 70.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode
Tested Voltage: 7.5Vd.c. ("C" size battery x 5)

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:

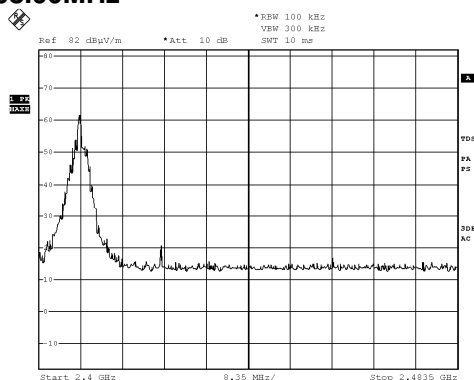
| Frequency [MHz] | FCC Limits [MHz] |
|--------------------|---------------------|
| 2405.54 – 2450.30 | 2400 – 2483.5 |

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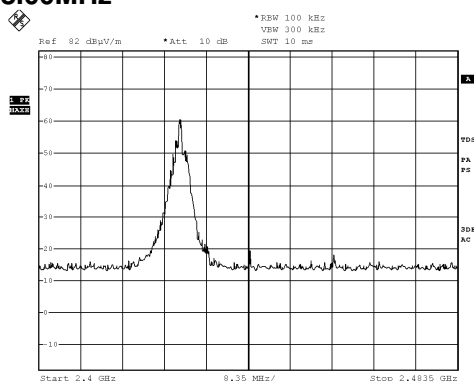
Measurement Data :

Test Result of Frequency Range of Fundamental Emission: PASS

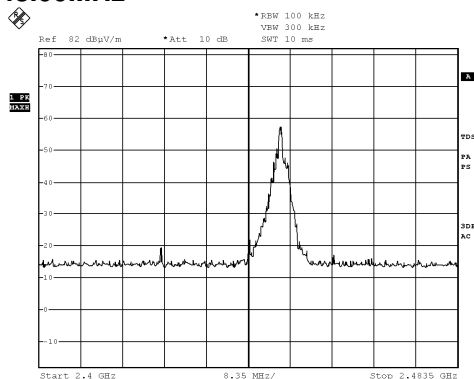
Lowest Frequency – 2408.00MHz



Middle Frequency – 2428.00MHz



Highest Frequency – 2448.00MHz

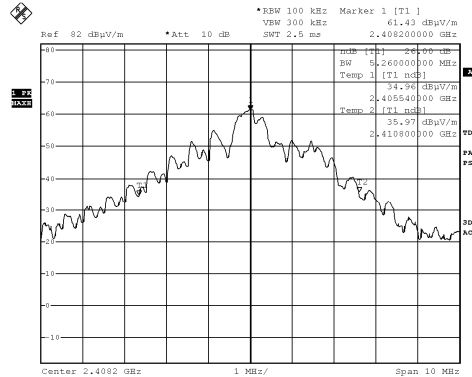




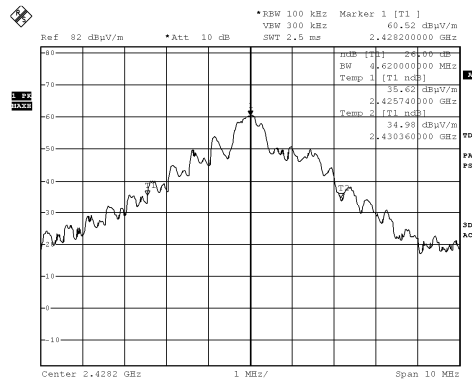
TEST REPORT No: (5216)034-0875(A)
Measurement Data :

Test Result of 26dB Bandwidth of Fundamental Emission: PASS

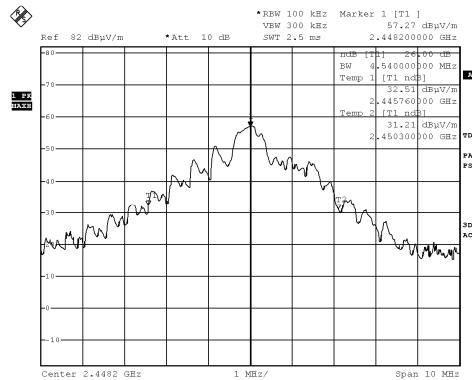
Lowest Frequency – 2408.00MHz



Middle Frequency – 2428.00MHz



Highest Frequency – 2448.00MHz





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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 12 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 12×0.4 per 100msec = 4.8% duty cycle.

Remarks:

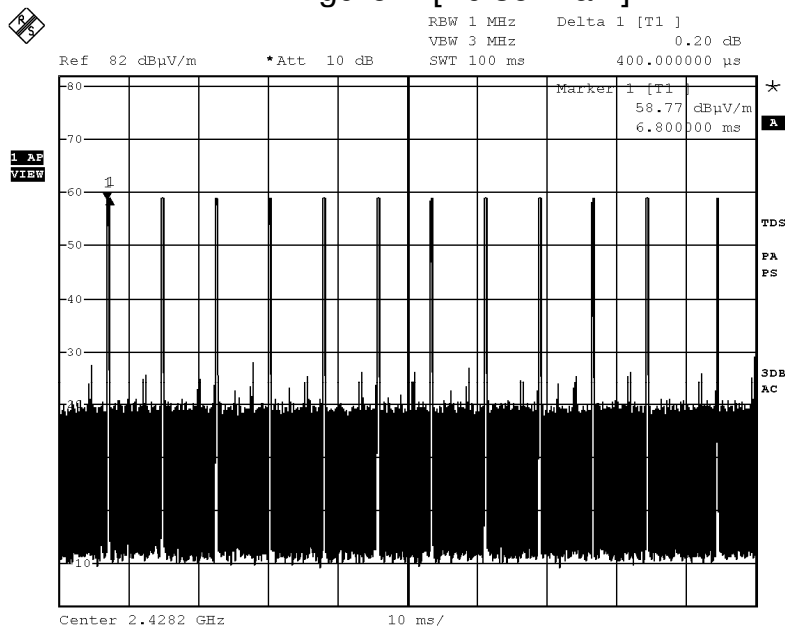
Duty Cycle Correction = $20\text{Log}(0.048) = -26.3\text{dB}$

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



Battery compartment



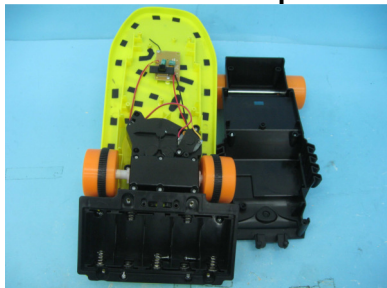
Battery Cover



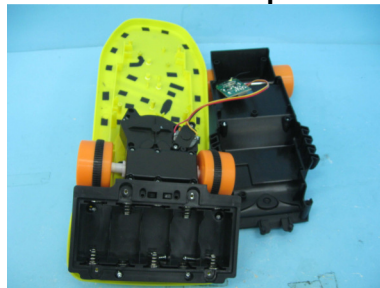
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Photographs of EUT

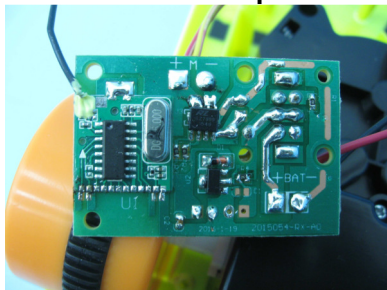
Internal View of the product



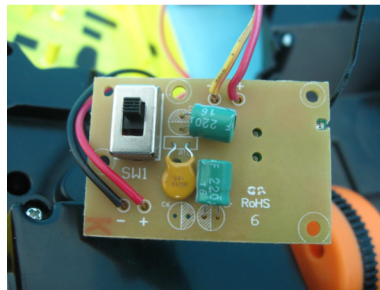
Internal View of the product



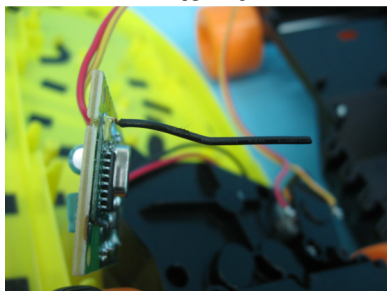
Inner Circuit Top View



Inner Circuit Bottom View



Antenna



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Measurement of Radiated Emission Test Set Up



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