TEST REPORT

Report No.: 17010646HKG-001

WowWee Group Limited

Application
For
Certification
(Original Grant)
(FCC ID: OKP0868)
(IC: 7091A-0868)

Transceiver

Prepared and Checked by:

Signed On File
Lok Chi Hang, Wil
Assistant Engineer

Approved by:

Digitally signed by
Kenneth Wong
Location: Intertek
Testing Services
Hong Kong Ltd.

Wong Kwok Yeung, Kenneth
Senior Lead Engineer
Date: January 26, 2017

- Intertek's standard Terms and Conditions can be obtained at our website http://www.intertek.com/terms/.
- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- © 2016 Intertek

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-etlsemko.com

GENERAL INFORMATION

Grantee:	WowWee Group Limited
Grantee Address:	Suite 301A-C, Energy Plaza, 92 Granville Road, Tsim Sha Tsui East, Kowloon, Hong Kong.
Contact Person:	Dennis Tsoi
Tel:	852 2739 5288
Fax:	852 2723 3425
e-mail:	dennistsoi@wowwee.com.hk
Manufacturer:	Shao Guan Early Light International Co., Ltd.
Manufacturer Address:	XURI Toy Industry Zone 6km, The Western Suburbs of Shaoguan City, Guangdong, China.
Brand Name:	Minions MiP
Model / HVIN:	0868
PMN:	0868
Type of EUT:	Transmitter
Description of EUT:	Minions MiP - Turbo Dave
Serial Number:	N/A
FCC ID / IC:	OKP0868 / 7091A-0868
Date of Sample Submitted:	January 17, 2017
Date of Test:	January 17, 2017 to January 23, 2017
Report No.:	17010646HKG-001
Report Date:	January 26, 2017
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

SUMMARY OF TEST RESULT

TEST SPECIFICATION	REFERENCE	RESULTS
Radiated Emission Radiated Emission on the Bandedge	15.249, 15.209 / RSS-210 B.10, RSS-210 4.4	Pass
Radiated Emission in Restricted Bands	15.205 / RSS-210 4.1	Pass

The equipment under test is found to be complying with the following standards:
FCC Part 15, October 1, 2015 Edition
RSS-210 Issue 9, August 2016
RSS-Gen Issue 4, November 2014

Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the pervisions of this section.
2. Pursuant to FCC part 15 Section 15.215(c), the 20 dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

Table of Contents

1.0 **General Description** 1
1.1 Product Description 1
1.2 Related Submittal(s) Grants 1
1.3 Test Methodology 1
1.4 Test Facility 1

2.0 **System Test Configuration** 2
2.1 Justification 2
2.2 EUT Exercising Software 2
2.3 Special Accessories 2
2.4 Measurement Uncertainty 2
2.5 Support Equipment List and Description 2

3.0 **Emission Results** 3
3.1 Field Strength Calculation 3
3.2 Radiated Emission Configuration Photograph 4
3.3 Radiated Emission Data 4

4.0 **Equipment Photographs** 9

5.0 **Product Labelling** 9

6.0 **Technical Specifications** 9

7.0 **Instruction Manual** 9

8.0 **Miscellaneous Information** 10
8.1 Radiated Emission on the Bandedge 10
8.2 Discussion of Pulse Desensitization 13
8.3 Calculation of Average Factor 13
8.4 Emissions Test Procedures 15
8.5 Occupied Bandwidth 18

9.0 **Confidentiality Request** 19

10.0 **Equipment List** 19

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a Bluetooth version 4.0 watch for a RC Robot operating from 2402-2480MHz with 2MHz channel spacing. The EUT is powered by 4X1.5V AAA batteries. After switch on the EUT and paired with smart device, the EUT can be controlled to move forward, backward, turn left/right.

Antenna Type: Internal, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a transceiver.

1.3 Test Methodology

Radiated emission measurements was performed according to the procedures in ANSI C63.10 (2013). All radiated measurements were performed in an 3m Chamber. Preliminary scans were performed in the 3m Chamber only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application.

1.4 Test Facility

The 3m Chamber facility used to collect the radiated data is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong. This test facility and site measurement data have been placed on file with the FCC and IC No. 2042V-1.

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The device was powered by new 4x1.5V AAA batteries.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

2.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

2.5 Support Equipment List and Description

N/A.

3.0 Emission Results

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG - AV

where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RR + LF

where FS = Field Strength in dBµV/m
RR = RA - AG - AV in dBµV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 52.0 dBµV/m
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
AV = 5.0 dB
RR = 18.0 dBµV
LF = 9.0 dB
FS = RR + LF
FS = 18 + 9 = 27 dBµV/m

Level in µV/m = Common Antilogarithm [(27 dBµV/m)/20] = 22.4 µV/m

3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 575.988 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Passed by 13.7 dB

Applicant: WowWee Group Limited Date of Test: January 23, 2017
Model: 0868
Worst-Case Operating Mode: Transmitting (Bluetooth 4.0 BLE)

Table 1
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 / RSS-210 B.10 Requirement

Lowest Channel

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	2402.000	90.4	33	29.4	86.8	49.4	37.4	94.0	-56.6
V	***4804.000***	***47.8***	***33***	***34.9***	***49.7***	***49.4***	***0.3***	***54.0***	***-53.7***
H	7206.000	52.3	33	37.9	57.2	49.4	7.8	54.0	-46.2
H	9608.000	42.6	33	40.4	50.0	49.4	0.6	54.0	-53.4
V	***12010.000***	***43.8***	***33***	***40.5***	***51.3***	***49.4***	***1.9***	***54.0***	***-52.1***
V	14412.000	46.4	33	40.0	53.4	49.4	4.0	54.0	-50.0

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	2402.000	90.4	33	29.4	86.8	114.0	-27.2
V	***4804.000***	***47.8***	***33***	***34.9***	***49.7***	***74.0***	***-24.3***
H	7206.000	52.3	33	37.9	57.2	74.0	-16.8
H	9608.000	42.6	33	40.4	50.0	74.0	-24.0
V	***12010.000***	***43.8***	***33***	***40.5***	***51.3***	***74.0***	***-22.7***
V	14412.000	46.4	33	40.0	53.4	74.0	-20.6

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative sign in the column shows value below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

Applicant: WowWee Group Limited Date of Test: January 23, 2017
Model: 0868
Worst-Case Operating Mode: Transmitting (Bluetooth 4.0 BLE)

Table 2
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 / RSS-210 B.10 Requirement

Middle Channel

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	2440.000	90.0	33	29.4	86.4	49.4	37.0	94.0	-57.0
V	***4880.000***	***47.5***	***33***	***34.9***	***49.4***	***49.4***	***0.0***	***54.0***	***-54.0***
H	***7320.000***	***52.5***	***33***	***37.9***	***57.4***	***49.4***	***8.0***	***54.0***	***-46.0***
H	9760.000	43.0	33	40.4	50.4	49.4	1.0	54.0	-53.0
V	***12200.000***	***44.2***	***33***	***40.5***	***51.7***	***49.4***	***2.3***	***54.0***	***-51.7***
V	14640.000	48.2	33	38.4	53.6	49.4	4.2	54.0	-49.8

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	2440.000	90.0	33	29.4	86.4	114.0	-27.6
V	***4880.000***	***47.5***	***33***	***34.9***	***49.4***	***74.0***	***-24.6***
H	***7320.000***	***52.5***	***33***	***37.9***	***57.4***	***74.0***	***-16.6***
H	9760.000	43.0	33	40.4	50.4	74.0	-23.6
V	***12200.000***	***44.2***	***33***	***40.5***	***51.7***	***74.0***	***-22.3***
V	14640.000	48.2	33	38.4	53.6	74.0	-20.4

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative sign in the column shows value below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

Applicant: WowWee Group Limited Date of Test: January 23, 2017
Model: 0868
Worst-Case Operating Mode: Transmitting (Bluetooth 4.0 BLE)

Table 3
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 / RSS-210 B.10 Requirement

Highest Channel

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	2480.000	89.6	33	29.4	86.0	49.4	36.6	94.0	-57.4
V	***4960.000***	***47.6***	***33***	***34.9***	***49.5***	***49.4***	***0.1***	***54.0***	***-53.9***
H	***7440.000***	***52.9***	***33***	***37.9***	***57.8***	***49.4***	***8.4***	***54.0***	***-45.6***
H	9920.000	43.2	33	40.4	50.6	49.4	1.2	54.0	-52.8
V	***12400.000***	***44.0***	***33***	***40.5***	***51.5***	***49.4***	***2.1***	***54.0***	***-51.9***
V	14880.000	48.3	33	38.4	53.7	49.4	4.3	54.0	-49.7

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	2480.000	89.6	33	29.4	86.0	114.0	-28.0
V	***4960.000***	***47.6***	***33***	***34.9***	***49.5***	***74.0***	***-24.5***
H	***7440.000***	***52.9***	***33***	***37.9***	***57.8***	***74.0***	***-16.2***
H	9920.000	43.2	33	40.4	50.6	74.0	-23.4
V	***12400.000***	***44.0***	***33***	***40.5***	***51.5***	***74.0***	***-22.5***
V	14880.000	48.3	33	38.4	53.7	74.0	-20.3

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative sign in the column shows value below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

Applicant: WowWee Group Limited Date of Test: January 23, 2017
Model: 0868
Worst-Case Operating Mode: Transmitting

Table 4
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 / RSS-210 4.4 Requirement

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	***112.935***	***25.0***	***16***	***14.0***	***23.0***	***43.5***	***-20.5***
V	***131.607***	***24.9***	***16***	***14.0***	***22.9***	***43.5***	***-20.6***
H	191.990	25.2	16	16.0	25.2	43.5	-18.3
V	***276.501***	***20.3***	***16***	***22.0***	***26.3***	***46.0***	***-19.7***
V	479.958	17.8	16	26.0	27.8	46.0	-18.2
H	575.988	20.3	16	28.0	32.3	46.0	-13.7
V	694.692	14.8	16	30.0	28.8	46.0	-17.2

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative sign in the column shows value below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

4.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

5.0 Product Labelling

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

6.0 Technical Specifications

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States and Canada.

8.0 Miscellaneous Information

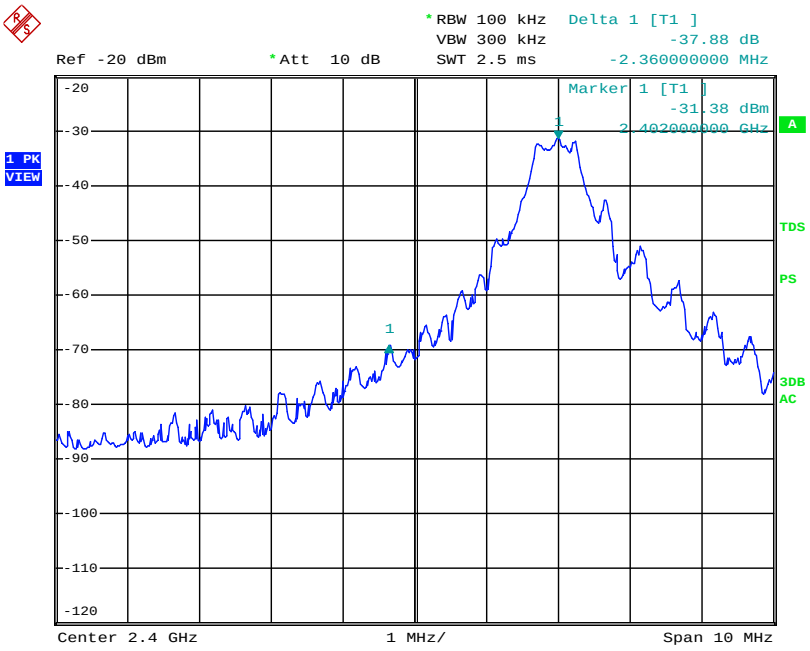
The miscellaneous information includes details of the test procedure and measured bandwidth / calculation of factor such as pulse desensitization and averaging factor (calculation and timing diagram).

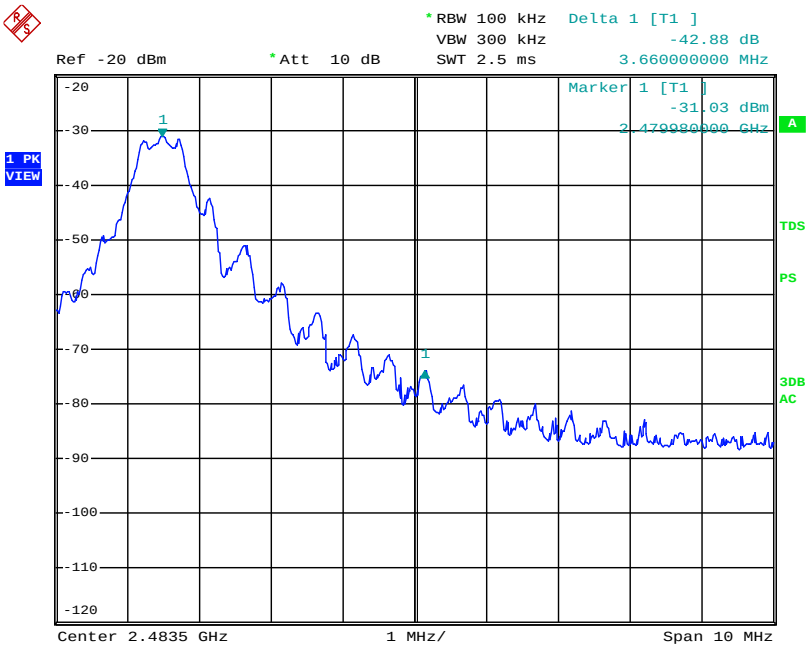
8.1 Radiated Emission on the Bandedge

From the following plots, they show that the fundamental emissions are confined in the specified band (2400MHz to 2483.5MHz). In case of the fundamental emissions are within two standard bandwidths from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.10 (2013) for frequency being measured.

Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50dB below the level of the fundamental or to the general radiated emissions limits in Section 15.209/RSS-210 4.4, whichever is the lesser attenuation, which meet the requirement of Section 15.209/RSS-210 4.4.

Peak Measurement





Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e. (Bandedge Plot).

Lower bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

=86.8 dBµV/m – 37.9 dB
=48.9 dBµV/m

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

=37.4 dBµV/m – 37.9 dB
=-0.5 dBµV/m

Upper bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

=86.0 dBµV/m – 42.9 dB
=43.1 dBµV/m

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

=36.3 dBµV/m – 42.9 dB
=-6.6 dBµV/m

The resultant field strength meets the general radiated emission limit in Section 15.209/RSS-210 4.4, which does not exceed 74 dBµV/m (Peak Limit) and 54 dBµV/m (Average Limit).

8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. The effective period (Teff) is approximately 0.34 ms for a digital “1” bit which illustrated on technical specification, with a resolution bandwidth (3dB) of 1MHz, so the pulse desensitivity factor is 0dB.

8.3 Calculation of Average Factor

The duty cycle is simply the on-time divided by the period:

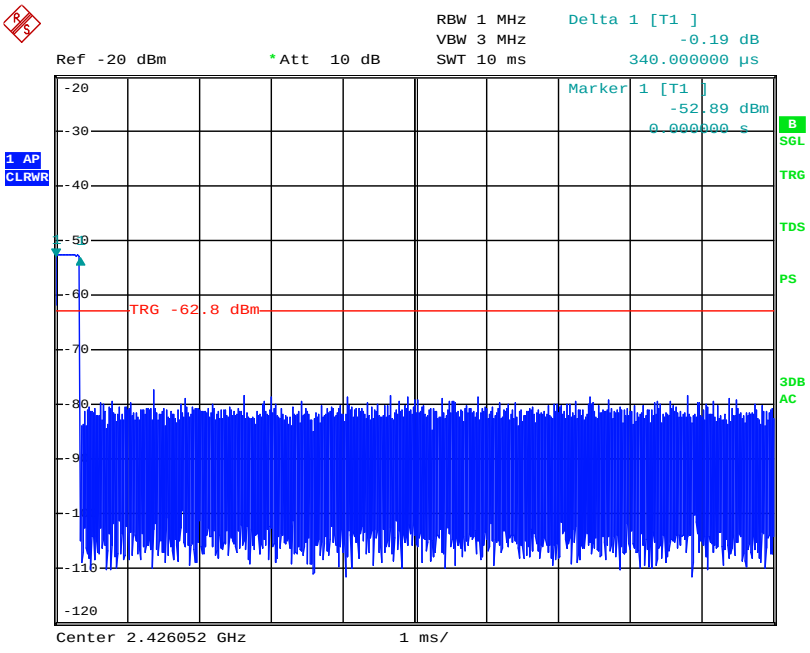
The duration of one cycle = 100ms

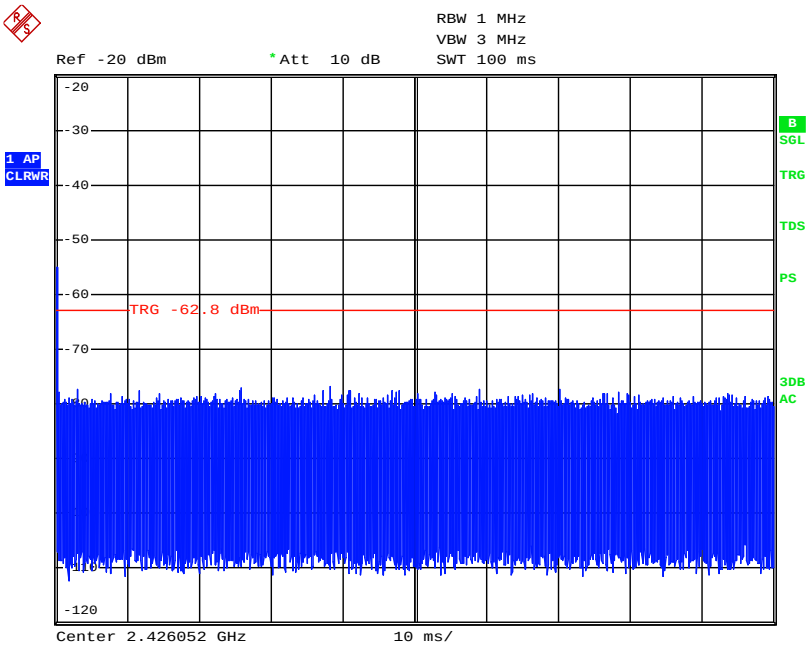
Effective period of the cycle = 0.34x1= 0.34ms

DC = 0.34/100= 0.0034

Therefore, the averaging factor is found by 20log 0.0034 = -49.4dB.

Average Factor





8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of transmitter operating under the Part 15, Subpart C rules.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately 0.8m in height above the ground plane for emission measurement at or below 1GHz and 1.5m in height above the ground plane for emission measurement above 1GHz. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

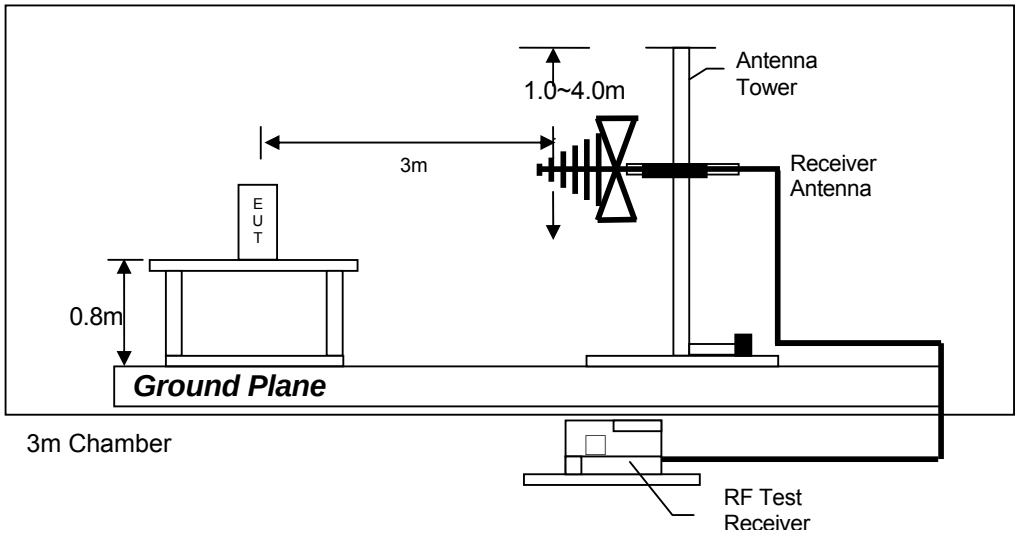
Conducted measurements were made as described in ANSI C63.10 (2013).

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.1). Above 1000 MHz, a resolution bandwidth of 3 MHz is used.

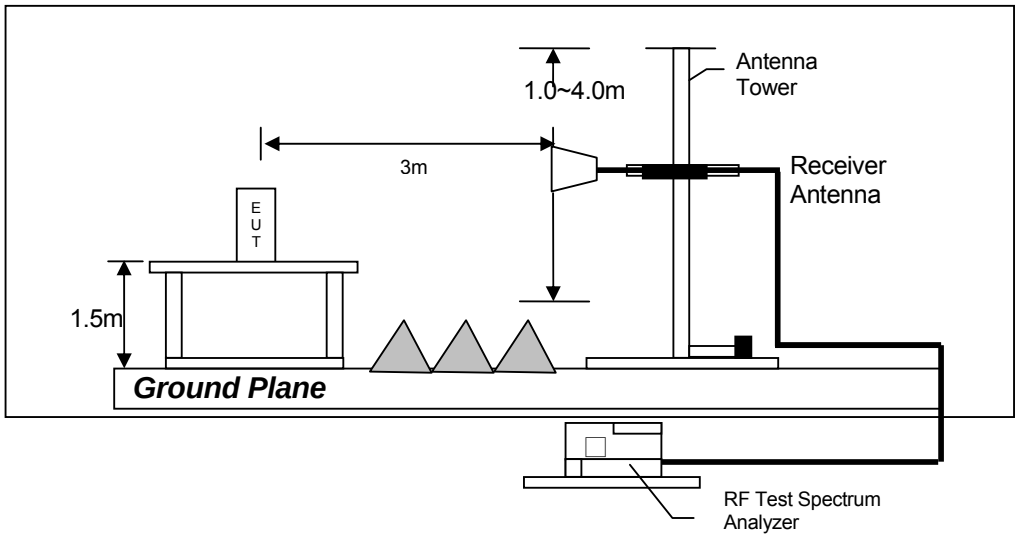
Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the forbidden bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

8.4.1 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 1GHz



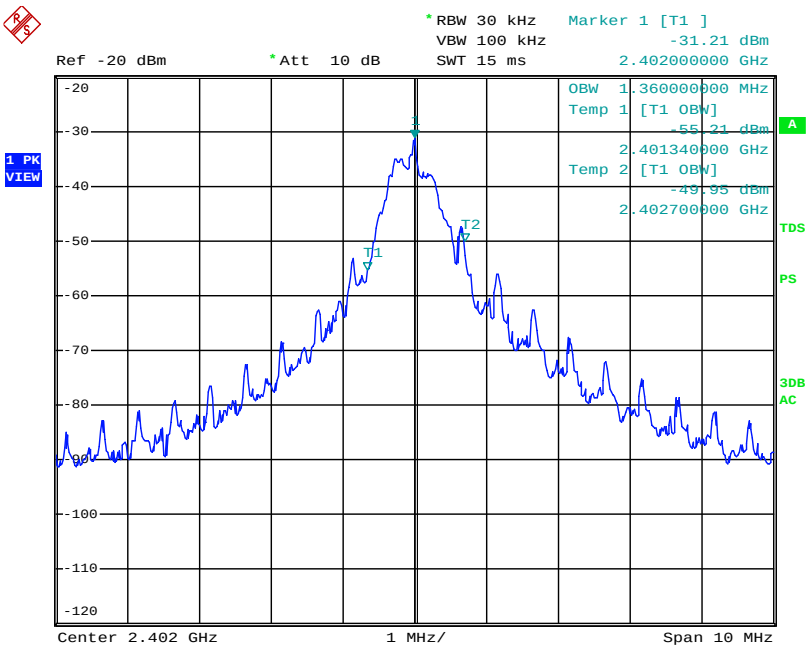
Test setup of radiated emissions above 1GHz

8.5 Occupied Bandwidth

Occupied Bandwidth Results:

Bluetooth (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2402	1.360
Middle Channel: 2440	1.320
High Channel: 2480	1.280

The worst case is shown as below



9.0 Confidentiality Request

For electronic filing, a preliminary copy of the confidentiality request is saved with filename: request.pdf.

10.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer
Registration No.	EW-2666	EW-2188
Manufacturer	R&S	AGILENTTECH
Model No.	ESCI7	E4407B
Calibration Date	Jun. 17, 2016	Apr. 25, 2016
Calibration Due Date	Jun. 17, 2017	Apr. 25, 2017

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0571	EW-0446	EW-1133
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	May 18, 2016	Jul. 15, 2016	Nov. 05, 2015
Calibration Due Date	Nov. 18, 2017	Jan. 15, 2018	May 05, 2017

2) Average Factor, Occupied Bandwidth & Bandedge Measurement

Equipment	Spectrum Analyzer
Registration No.	EW-2329
Manufacturer	R&S
Model No.	FSP3
Calibration Date	Aug. 26, 2016
Calibration Due Date	Aug. 26, 2017

END OF TEST REPORT