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576 Castle Peak Road, Kowloon,
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TEST REPORT

Report No.: 18080094HKG-001R1

Mr. Christmas Ltd.

Application For Certification
(Original Grant)

FCC ID: SHV95587

Transceiver

This report supersedes previous report with report number 18080094HKG-001 dated August 16, 2018.
Please refer RS-S18-0013 Letter issued on September 07, 2018 for amendment/ supersede notification.

Prepared and Checked by:	**Approved by:**
Signed On File Tam Chu Kwong, Bismarck Assistant Engineer	Digitally signed by Kenneth Wong Location: Intertek Testing Services Hong Kong Ltd. Wong Kwok Yeung, Kenneth Senior Lead Engineer Date: September 07, 2018

TEST REPORT

GENERAL INFORMATION

Grantee:	Mr. Christmas Ltd.
Grantee Address:	Flat / Room 901-3, 9/F., Railway Plaza, 39 Chatham Road South, Tsim Sha Tsui, Kowloon, Hong Kong.
Contact Person:	Daniel Liao
Tel:	(852) 2369 0082
Fax:	(852) 2369 0136
e-mail:	dliao@mrchristmas.com
Manufacturer:	Dongguan ShiPai Ming Hang Plastic Hardware Factory
Manufacturer Address:	13 Dong Fu Road, Li Wu Cun, Miao Bian Wang, ShiPai Town, Dongguan, Guangdong Province, PRC.
Brand Name:	Outdoor Deluxe Digital Projector
Model:	95587
Type of EUT:	Transceiver
Description of EUT:	Outdoor Deluxe Digital Projector
Serial Number:	N/A
FCC ID:	SHV95587
Date of Sample Submitted:	August 01, 2018
Date of Test:	August 01, 2018 to August 14, 2018
Report No.:	18080094HKG-001R1
Report Date:	September 07, 2018
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

TEST REPORT

SUMMARY OF TEST RESULT

Test Specification	Reference	Results
Transmitter Power Line Conducted Emissions	15.207	Pass
Radiated Emission Radiated Emission on the Bandedge	15.249, 15.209	Pass
Radiated Emission in Restricted Bands	15.205	Pass

The equipment under test is found to be complying with the following standards:
FCC Part 15, October 1, 2017 Edition

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.

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TEST REPORT

1.0 GENERAL DESCRIPTION

1.1 Product Description

The Equipment Under Test (EUT) is a portable Bluetooth projector with Bluetooth 4.2 disable BLE function. The Bluetooth module in the EUT is operating in the frequency range from 2402MHz to 2480MHz (79 channels with 1MHz channel spacing). The EUT can be connected with a Bluetooth speaker or using the internal speaker so than broadcast can be made. The EUT is powered by AC/DC adaptor (Model: Bl36-120300-Adu; Input: 100-240VAC 50/60Hz; Output: 12VDC 3000mA)

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

Both AC mains line-conducted and radiated emission measurements were 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 and conducted measurement 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.

TEST REPORT

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 AC/DC adaptor (Model: Bl36-120300-Adu; Input: 100-240VAC 50/60Hz; Output: 12VDC 3000mA)

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

1) AC/DC Adaptor (Provided by Applicant)
   Model: Bl36-120300-Adu
   Input: 100-240VAC 50/60Hz
   Output: 12VDC 3000mA
2) Earphone of 1.0m long (Provided by Intertek)
3) USB Flash drive of 16GB (Provided by Intertek)

TEST REPORT

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
FS = RR + LF
FS = 18 + 9 = 27 dBµV/m

RR = 18.0 dBµV
LF = 9.0 dB

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

TEST REPORT

3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 4884 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 13.8 dB

3.4 Conducted Emission Configuration Photograph

The worst case in line-conducted emission was found at 150 kHz

For electronic filing, the worst case line-conducted configuration photographs are saved with filename: conducted photo.pdf.

3.5 Conducted Emission Data

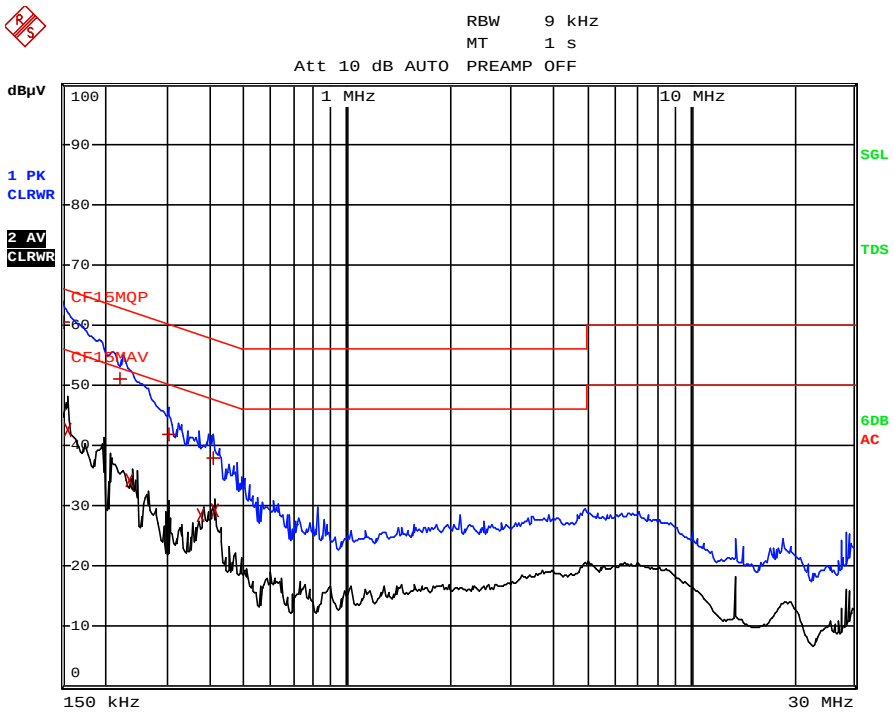
For electronic filing, the graph and data table of conducted emission is saved with filename: conducted.pdf.

Judgment: Pass by 5.55 dB

TEST REPORT

CONDUCTED EMISSION

Model: 95587
Date of Test: August 14, 2018
Worst-Case Operating Mode: Transmitting



EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	150 kHz	60.44	N	-5.55
2	CISPR Average	154.5 kHz	42.62	L1	-13.13
1	Quasi Peak	222 kHz	51.10	L1	-11.63
2	CISPR Average	235.5 kHz	34.34	L1	-17.91
1	Quasi Peak	303 kHz	41.89	L1	-18.26
2	CISPR Average	379.5 kHz	28.38	N	-19.90
1	Quasi Peak	406.5 kHz	37.93	N	-19.78
2	CISPR Average	411 kHz	29.24	L1	-18.38

Note: Measurement Uncertainty is ±4.2dB at a level of confidence of 95%.

TEST REPORT

RADIATED EMISSIONS

Model: 95587
Date of Test: August 14, 2018
Worst-Case Operating Mode: Transmitting

Table 1
Pursuant to FCC Part 15 Section 15.249 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)
H	2402.000	97.1	33	29.4	93.5	24	69.5	94.0	-24.5
V	***4804.000***	***54.5***	***33***	***34.9***	***56.4***	***24***	***32.4***	***54.0***	***-21.6***
H	7206.000	43.7	33	37.9	48.6	24	24.6	54.0	-29.4
H	9608.000	42.4	33	40.4	49.8	24	25.8	54.0	-28.2
H	***12010.000***	***44.6***	***33***	***40.5***	***52.1***	***24***	***28.1***	***54.0***	***-25.9***
V	14412.000	46.3	33	40.0	53.3	24	29.3	54.0	-24.7

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)
H	2402.000	97.1	33	29.4	93.5	114.0	-20.5
V	***4804.000***	***54.5***	***33***	***34.9***	***56.4***	***74.0***	***-17.6***
H	7206.000	43.7	33	37.9	48.6	74.0	-25.4
H	9608.000	42.4	33	40.4	49.8	74.0	-24.2
H	***12010.000***	***44.6***	***33***	***40.5***	***52.1***	***74.0***	***-21.9***
V	14412.000	46.3	33	40.0	53.3	74.0	-20.7

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

TEST REPORT

Model: 95587
Date of Test: August 14, 2018
Worst-Case Operating Mode: Transmitting

Table 2
Pursuant to FCC Part 15 Section 15.249 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)
H	2442.000	98.0	33	29.4	94.4	24	70.4	94.0	-23.6
V	***4884.000***	***58.3***	***33***	***34.9***	***60.2***	***24***	***36.2***	***54.0***	***-17.8***
H	***7326.000***	***43.2***	***33***	***37.9***	***48.1***	***24***	***24.1***	***54.0***	***-29.9***
H	9768.000	42.1	33	40.4	49.5	24	25.5	54.0	-28.5
H	***12210.000***	***45.2***	***33***	***40.5***	***52.7***	***24***	***28.7***	***54.0***	***-25.3***
H	14652.000	48.2	33	38.4	53.6	24	29.6	54.0	-24.4

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)
H	2442.000	98.0	33	29.4	94.4	114.0	-19.6
V	***4884.000***	***58.3***	***33***	***34.9***	***60.2***	***74.0***	***-13.8***
H	***7326.000***	***43.2***	***33***	***37.9***	***48.1***	***74.0***	***-25.9***
H	9768.000	42.1	33	40.4	49.5	74.0	-24.5
H	***12210.000***	***45.2***	***33***	***40.5***	***52.7***	***74.0***	***-21.3***
H	14652.000	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.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

TEST REPORT

Model: 95587
Date of Test: August 14, 2018
Worst-Case Operating Mode: Transmitting

Table 3
Pursuant to FCC Part 15 Section 15.249 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)
H	2480.000	98.8	33	29.4	95.2	24	71.2	94.0	-22.8
H	***4960.000***	***57.1***	***33***	***34.9***	***59.0***	***24***	***35.0***	***54.0***	***-19.0***
H	***7440.000***	***43.4***	***33***	***37.9***	***48.3***	***24***	***24.3***	***54.0***	***-29.7***
H	9920.000	42.0	33	40.4	49.4	24	25.4	54.0	-28.6
V	***12400.000***	***44.7***	***33***	***40.5***	***52.2***	***24***	***28.2***	***54.0***	***-25.8***
H	14880.000	48.4	33	38.4	53.8	24	29.8	54.0	-24.2

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)
H	2480.000	98.8	33	29.4	95.2	114.0	-18.8
H	***4960.000***	***57.1***	***33***	***34.9***	***59.0***	***74.0***	***-15.0***
H	***7440.000***	***43.4***	***33***	***37.9***	***48.3***	***74.0***	***-25.7***
H	9920.000	42.0	33	40.4	49.4	74.0	-24.6
V	***12400.000***	***44.7***	***33***	***40.5***	***52.2***	***74.0***	***-21.8***
H	14880.000	48.4	33	38.4	53.8	74.0	-20.2

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

TEST REPORT

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.

TEST REPORT

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 , whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

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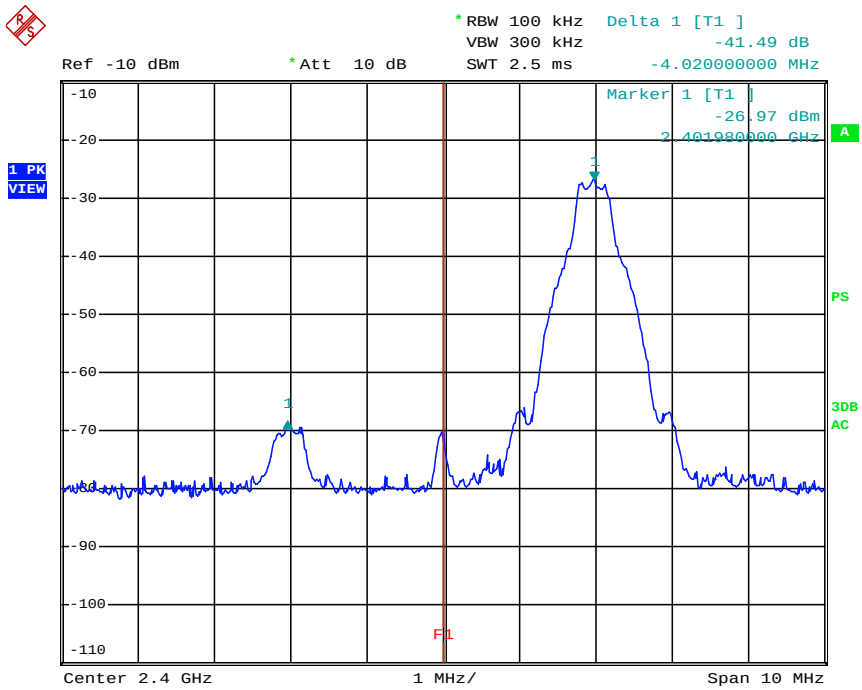
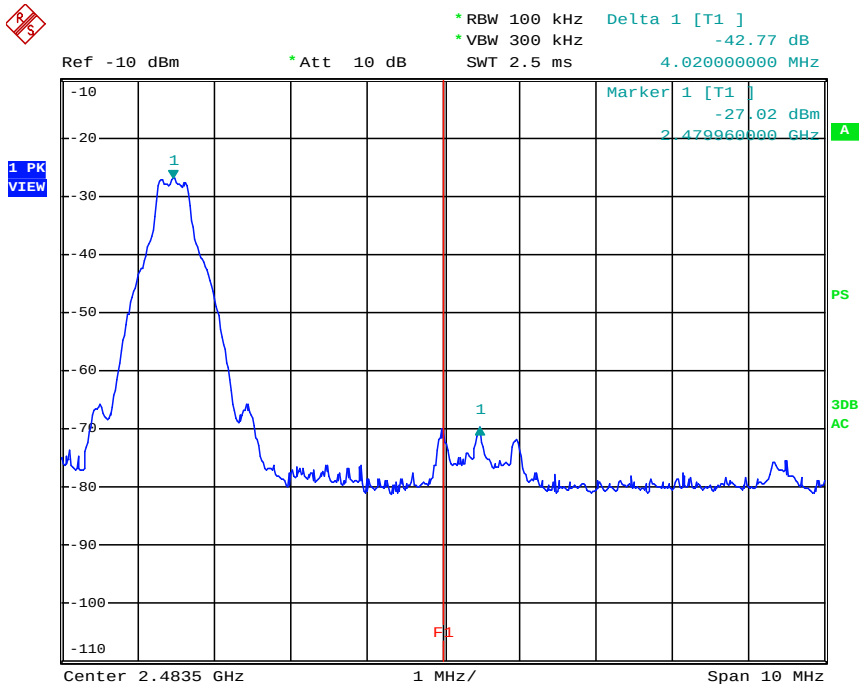
PEAK MEASUREMENT





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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

=93.5 dBµV/m – 41.5 dB
=52.0 dBµV/m

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

=69.5 dBµV/m – 41.5 dB
=28.0 dBµV/m

Upper bandedge

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

=95.2 dBµV/m – 42.8 dB
=52.4 dBµV/m

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

=71.2 dBµV/m – 42.8 dB
=28.4 dBµV/m

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

TEST REPORT

8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. The effective period (Teff) is approximately 0.625ms 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

Based on the Bluetooth Specification Version 3.0 + EDR, the transmitter ON time for each timeslot of Bluetooth is 625µs. DH5 has the maximum duty cycle, which consists of 5 continuous Tx slots and 1 Rx slot. Therefore one hopset take (5+1) x 625µs = 3.75ms. For one period for a pseudo-random hopping through at least 20 RF channels in adaptive mode (worse case), it take: 20 x 3.75ms = 75ms.

The dwell time for DH5 is 5 x 625µs = 3.125ms.

For the worst case calculation, there are two transmissions might occur in 100ms. Therefore,

Duty Cycle (DC) = Maximum On time in 100ms/100ms
= 3.125ms x 2/100ms
= 0.0625

Average Factor (AF) of Bluetooth in dB = $20 \log_{10} (0.0625)$
= -24 dB

TEST REPORT

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.

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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).

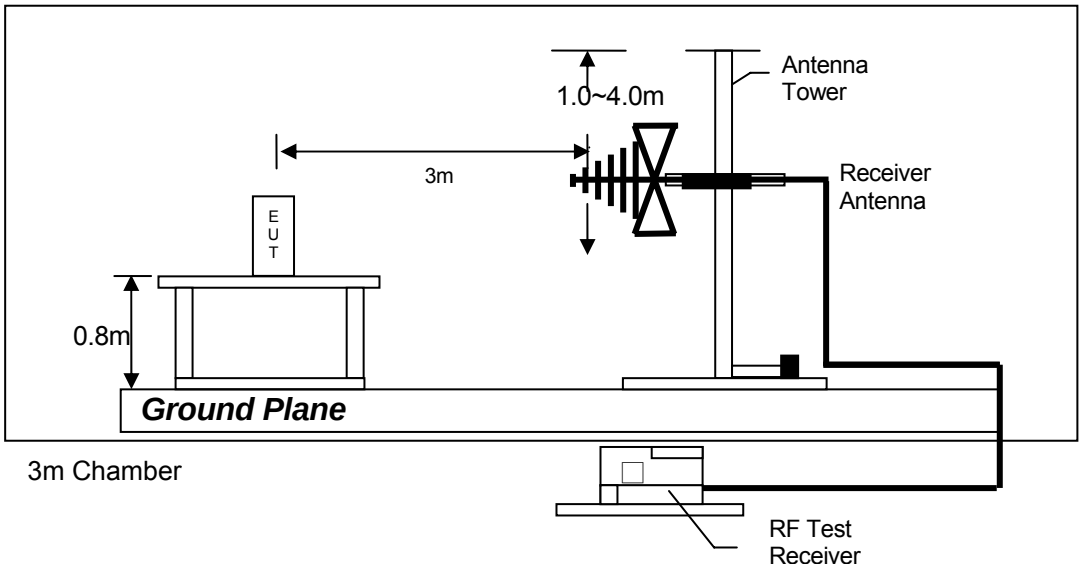
The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion 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.

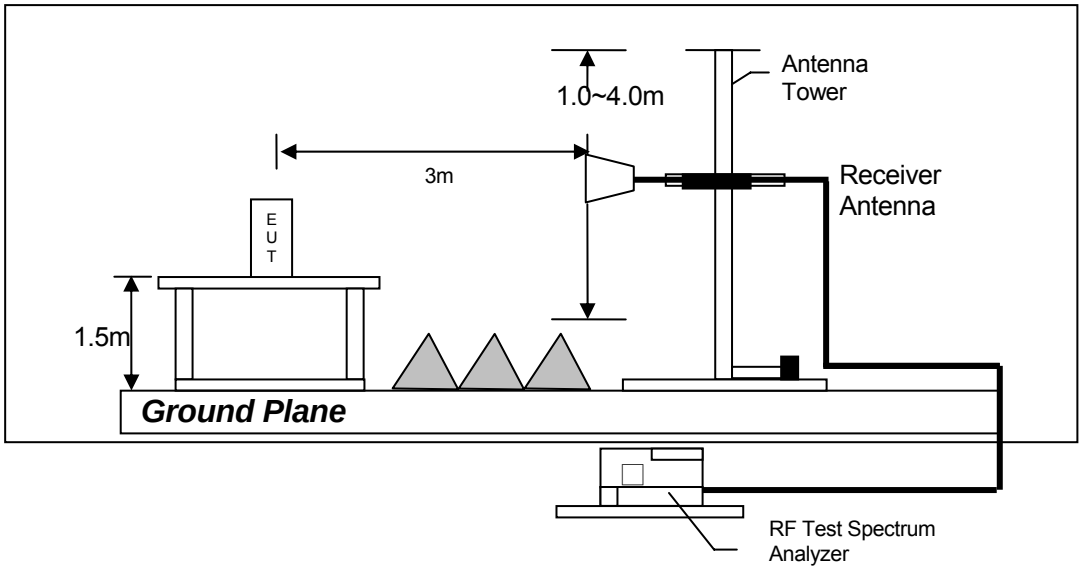
TEST REPORT

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

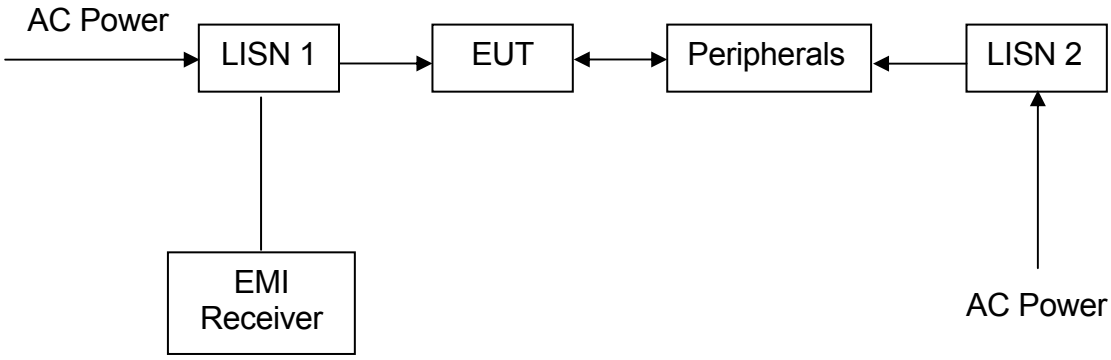
TEST REPORT

8.4.2 Conducted Emission Test Procedures

For tabletop equipment, the EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table. For floor-standing equipment, the EUT and all cables were insulated, if required, from the ground plane by up to 12 mm of insulating material. The EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were moved to find the maximum emission.

8.4.3 Conducted Emission Test Setup



TEST REPORT

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	Spectrum Analyzer	EMI Test Receiver	Pyramidal Horn Antenna
Registration No.	EW-3281	EW-3156	EW-0905
Manufacturer	ROHDESCHWARZ	R&S	EMCO
Model No.	FSV40	ESR26	3160-09
Calibration Date	January 02, 2018	November 10, 2017	May 05, 2017
Calibration Due Date	January 02, 2019	November 10, 2018	November 24, 2018

Equipment	Log Periodic Antenna	Double Ridged Guide Antenna	RF Cable 14m (1GHz to 26.5GHz)
Registration No.	EW-1042	EW-1133	EW-2781
Manufacturer	EMCO	EMCO	GREATBILLION
Model No.	3148	3115	SMA m/SHF5MPU /SMA m ra14m,26G
Calibration Date	June 19, 2017	May 24, 2017	September 25, 2017
Calibration Due Date	December 19, 2018	November 24, 2018	September 25, 2018

Equipment	RF Pre-amplifier 3 pcs (9kHz to 40GHz)	12m Double Shield RF Cable	Biconical Antenna
Registration No.	EW-3006	EW-1852	EW-3235
Manufacturer	SCHWARZBECK	RADIALL	EMCO
Model No.	BBV 9718 BBV9744 BBV 9721	N(m)-RG142 - N(m)	SBA9113-503
Calibration Date	January 30, 2018	January 19, 2018	September 29, 2016
Calibration Due Date	January 30, 2019	January 19, 2019	September 29, 2018

Equipment	High Pass Filter 3GHz to 12GHz (2 Pieces)	14m Double Shield RF Cable (20MHz - 6GHz)	Notch Filter (cutoff frequency 2.4GHz to 2.5GHz) 2 pieces
Registration No.	EW-1835	EW-2505	EW-2213
Manufacturer	KLMICROWAVE	RADIALL	MICROTRONICS
Model No.	11SH10-3000/T12000-0/OP	nm / br5d / sma 14m	BRM50701-02
Calibration Date	May 11, 2018	October 30, 2017	May 11, 2018
Calibration Due Date	May 11, 2019	October 30, 2018	May 11, 2019

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Equipment	Loop Antenna (1000Hz to 30MHz)
Registration No.	EW-3318
Manufacturer	EMCO
Model No.	6905
Calibration Date	August 31, 2017
Calibration Due Date	August 31, 2018

2) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN	Pulse Limiter
Registration No.	EW-2501	EW-0192	EW-3248
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	February 14, 2018	October 27, 2017	November 03, 2017
Calibration Due Date	February 14, 2019	August 25, 2018	October 12, 2018

3) Bandedge Measurement

Equipment	RF Cable 30cm (1-26)GHz	Spectrum Analyzer
Registration No.	EW-2268	EW-2329
Manufacturer	RADIALL	R&S
Model No.	SMA(M)/SHF5M/SMA(M) 30cm	FSP3
Calibration Date	August 23, 2017	September 28, 2017
Calibration Due Date	August 23, 2018	September 28, 2018

END OF TEST REPORT