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TEST REPORT

Report No.: 17061042HKG-001

Outliving PTY Ltd.

Application For Certification
(Original Grant)

FCC ID: 2AM6XFSR928BT

Transceiver

PREPARED AND CHECKED BY:	APPROVED BY:
Signed On File Yao Xin Lu, Josie Engineer	Digitally signed by Kenneth Wong Location: Intertek Testing Services Hong Kong Ltd. Wong Kwok Yeung, Kenneth Senior Lead Engineer Date: August 03, 2017

TEST REPORT

GENERAL INFORMATION

Grantee:	Outliving PTY Ltd.
Grantee Address:	B1/85 Dunning Ave, Rosebery, NSW 2018, Sydney, Australia.
Contact Person:	Matthieu Gautier
Tel:	612 8755 1523
Fax:	612 9818 3191
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Manufacturer:	Functional B Electronics Co. Ltd.
Manufacturer Address:	Flat 4, 13th Floor, Block B, Fuk Keung Industrial Building, 66 Tong Mi Road, Mong Kok, Kowloon, Hong Kong.
Brand Name:	Beach Sound Speaker Box
Model:	FSR928BT (Items S87SOBBP, S87SOBCH, S87SOBLE, S87SOBXG, S87SOBXO)
Type of EUT:	Transceiver
Description of EUT:	AM/FM Radio With MP3 Bluetooth Speaker
Serial Number:	N/A
FCC ID:	2AM6XFSR928BT
Date of Sample Submitted:	June 15, 2017
Date of Test:	June 15, 2017 to August 03, 2017
Report No.:	17061042HKG-001
Report Date:	August 03, 2017
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, 2015 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 2.4GHz radio with speaker (Bluetooth) operating at the frequency range of 2402-2480MHz with 1 MHz channel spacing.
The EUT is powered by 4*1.5V AA battery or charging by PC. It can be connected to the smartphone via Bluetooth as a play device. The EUT can also support AM or FM radio function.

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.

The receiver for this transceiver is exempted from the Part 15 technical rules per 15.101(b).

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 new 6V battery (4*1.5V AA).

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

1 x 0.6 meter 3.5mm Audio Cable (Provided by Client)

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.

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 728.764 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 10.5 dB

3.4 Conducted Emission Configuration Photograph

The worst case in line-conducted emission was found at 3.3675 MHz

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

3.5 Conducted Emission Data

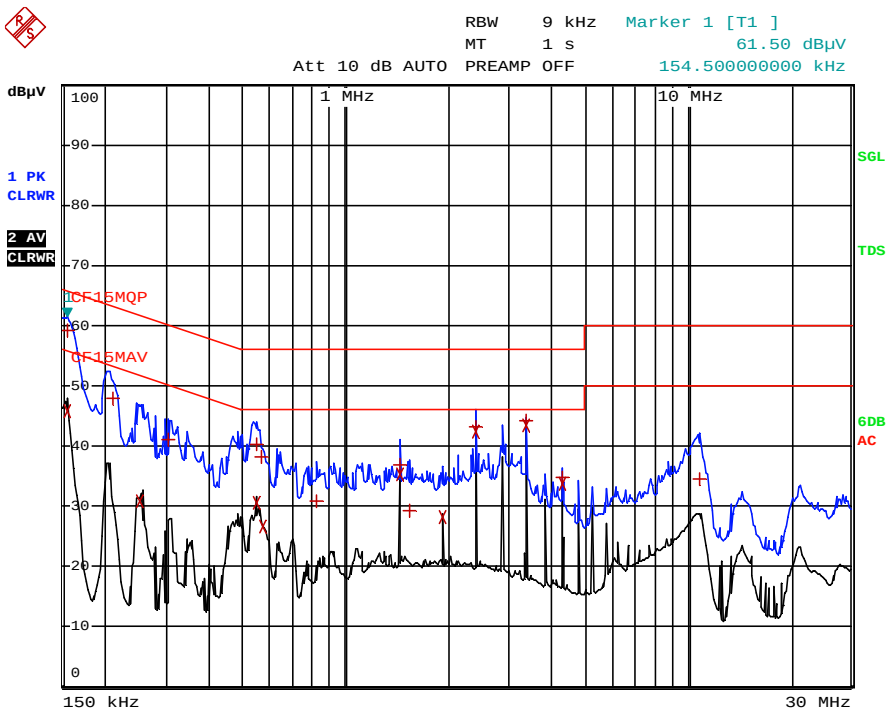
For electronic filing, the graph and data table of conducted emission is saved with filename: conducted.pdf.

Judgment: Pass by 2.61 dB

TEST REPORT

CONDUCTED EMISSION

Model: FSR928BT (Items S87SOBBP, S87SOBCH, S87SOBLE, S87SOBXG, S87SOBXO)
Date of Test: August 03, 2017
Worst-Case Operating Mode: Normal function with PC charging



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1 Quasi Peak	154.5 kHz	59.08	N	-6.67
2 CISPR Average	154.5 kHz	45.82	L1	-9.92
1 Quasi Peak	213 kHz	47.87	L1	-15.21
2 CISPR Average	253.5 kHz	30.72	L1	-20.91
1 Quasi Peak	303 kHz	41.13	N	-19.02
1 Quasi Peak	550.5 kHz	40.18	N	-15.82
2 CISPR Average	550.5 kHz	30.59	N	-15.40
1 Quasi Peak	568.5 kHz	38.30	L1	-17.69
2 CISPR Average	573 kHz	26.63	N	-19.36
1 Quasi Peak	820.5 kHz	30.81	L1	-25.18
1 Quasi Peak	1.4415 MHz	36.99	N	-19.00
2 CISPR Average	1.4415 MHz	35.21	L1	-10.78
1 Quasi Peak	1.536 MHz	29.26	N	-26.73
2 CISPR Average	1.923 MHz	28.21	L1	-17.78
1 Quasi Peak	2.4045 MHz	43.17	N	-12.82
2 CISPR Average	2.4045 MHz	42.39	N	-3.60
1 Quasi Peak	3.3675 MHz	44.30	N	-11.69
2 CISPR Average	3.3675 MHz	43.38	N	-2.61
1 Quasi Peak	4.3305 MHz	34.85	N	-21.14
2 CISPR Average	4.3305 MHz	33.83	N	-12.16

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EDIT PEAK LIST (Final Measurement Results)

Trace1:	CF15MQP
Trace2:	CF15MAV
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	10.833 MHz	34.47 N	-25.52

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

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RADIATED EMISSIONS

Model: FSR928BT (Items S87SOBBP, S87SOBCH, S87SOBLE, S87SOBXG, S87SOBXO)
Date of Test: August 03, 2017
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	91.8	33	29.4	88.2	24	64.2	94.0	-29.8
H	***4804.000***	***58.6***	***33***	***34.9***	***60.5***	***24***	***36.5***	***54.0***	***-17.6***
H	7206.000	47.4	33	37.9	52.3	24	28.3	54.0	-25.7
H	9608.000	43.6	33	40.4	51.0	24	27.0	54.0	-27.0
H	***12010.000***	***43.3***	***33***	***40.5***	***50.8***	***24***	***26.8***	***54.0***	***-27.2***
H	14412.000	44.2	33	40.0	51.2	24	27.2	54.0	-26.8

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)
H	2402.000	91.8	33	29.4	88.2	114.0	-25.8
H	***4804.000***	***58.6***	***33***	***34.9***	***60.5***	***74.0***	***-13.6***
H	7206.000	47.4	33	37.9	52.3	74.0	-21.7
H	9608.000	43.6	33	40.4	51.0	74.0	-23.0
H	***12010.000***	***43.3***	***33***	***40.5***	***50.8***	***74.0***	***-23.2***
H	14412.000	44.2	33	40.0	51.2	74.0	-22.8

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: FSR928BT (Items S87SOBBP, S87SOBCH, S87SOBLE, S87SOBXG, S87SOBXO)
Date of Test: August 03, 2017
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	2441.000	90.1	33	29.4	86.5	24	62.5	94.0	-31.5
H	***4882.000***	***53.6***	***33***	***34.9***	***55.5***	***24***	***31.5***	***54.0***	***-22.5***
H	***7323.000***	***45.1***	***33***	***37.9***	***50.0***	***24***	***26.0***	***54.0***	***-28.0***
H	9764.000	43.8	33	40.4	51.2	24	27.2	54.0	-26.8
H	***12205.000***	***42.9***	***33***	***40.5***	***50.4***	***24***	***26.4***	***54.0***	***-27.6***
H	14646.000	45.4	33	38.4	50.8	24	26.8	54.0	-27.2

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	2441.000	90.1	33	29.4	86.5	114.0	-27.5
H	***4882.000***	***53.6***	***33***	***34.9***	***55.5***	***74.0***	***-18.5***
H	***7323.000***	***45.1***	***33***	***37.9***	***50.0***	***74.0***	***-24.0***
H	9764.000	43.8	33	40.4	51.2	74.0	-22.8
H	***12205.000***	***42.9***	***33***	***40.5***	***50.4***	***74.0***	***-23.6***
H	14646.000	45.4	33	38.4	50.8	74.0	-23.2

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

Model: FSR928BT (Items S87SOBBP, S87SOBCH, S87SOBLE, S87SOBXG, S87SOBXO)
Date of Test: August 03, 2017
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	88.0	33	29.4	84.4	24	60.4	94.0	-33.6
H	***4960.000***	***52.0***	***33***	***34.9***	***53.9***	***24***	***29.9***	***54.0***	***-24.1***
H	***7440.000***	***45.7***	***33***	***37.9***	***50.6***	***24***	***26.6***	***54.0***	***-27.4***
H	9920.000	43.4	33	40.4	50.8	24	26.8	54.0	-27.2
H	***12400.000***	***43.8***	***33***	***40.5***	***51.3***	***24***	***27.3***	***54.0***	***-26.7***
H	14800.000	45.5	33	38.4	50.9	24	26.9	54.0	-27.1

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	88.0	33	29.4	84.4	114.0	-29.6
H	***4960.000***	***52.0***	***33***	***34.9***	***53.9***	***74.0***	***-20.1***
H	***7440.000***	***45.7***	***33***	***37.9***	***50.6***	***74.0***	***-23.4***
H	9920.000	43.4	33	40.4	50.8	74.0	-23.2
H	***12400.000***	***43.8***	***33***	***40.5***	***51.3***	***74.0***	***-22.7***
H	14800.000	45.5	33	38.4	50.9	74.0	-23.1

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: FSR928BT (Items S87SOBBP, S87SOBCH, S87SOBLE, S87SOBXG, S87SOBXO)
Date of Test: August 03, 2017
Worst-Case Operating Mode: Normal function with battery operating

Table 4
Pursuant to FCC Part 15 Section 15.209 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	34.486	23.6	16	10.0	17.6	40.0	-22.5
V	***112.814***	***25.8***	***16***	***14.0***	***23.8***	***43.5***	***-19.7***
V	***119.119***	***25.8***	***16***	***14.0***	***23.8***	***43.5***	***-19.7***
V	***131.850***	***23.0***	***16***	***14.0***	***21.0***	***43.5***	***-22.5***
V	157.070	17.5	16	16.0	17.5	43.5	-26.0
V	181.684	15.0	16	20.0	19.0	43.5	-24.5
V	***256.010***	***15.2***	***16***	***21.0***	***20.2***	***46.0***	***-25.9***
H	476.079	16.9	16	26.0	26.9	46.0	-19.1
H	703.665	19.7	16	30.0	33.7	46.0	-12.4
H	728.764	21.5	16	30.0	35.5	46.0	-10.5

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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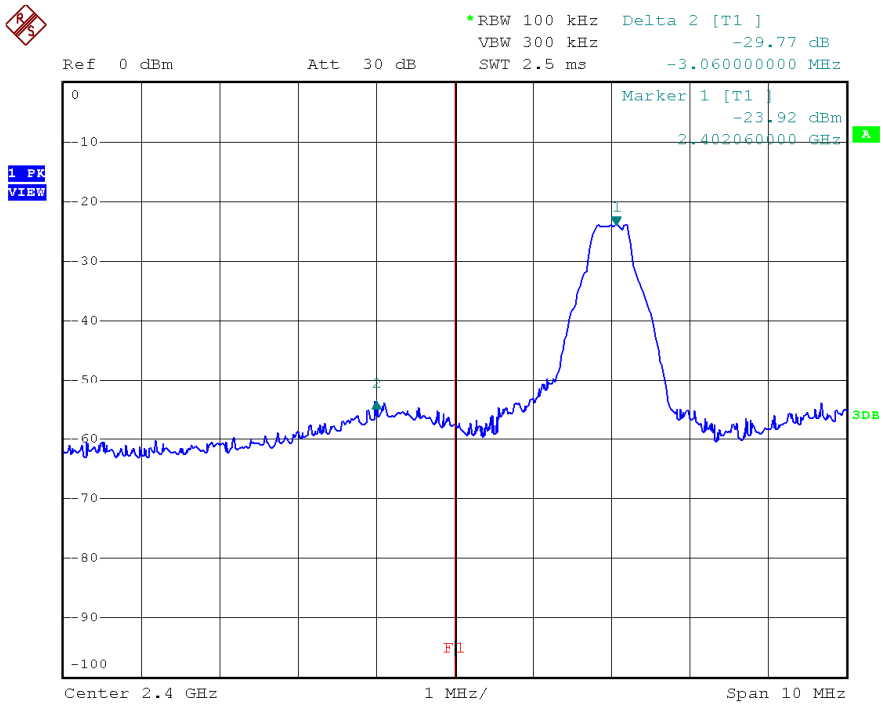
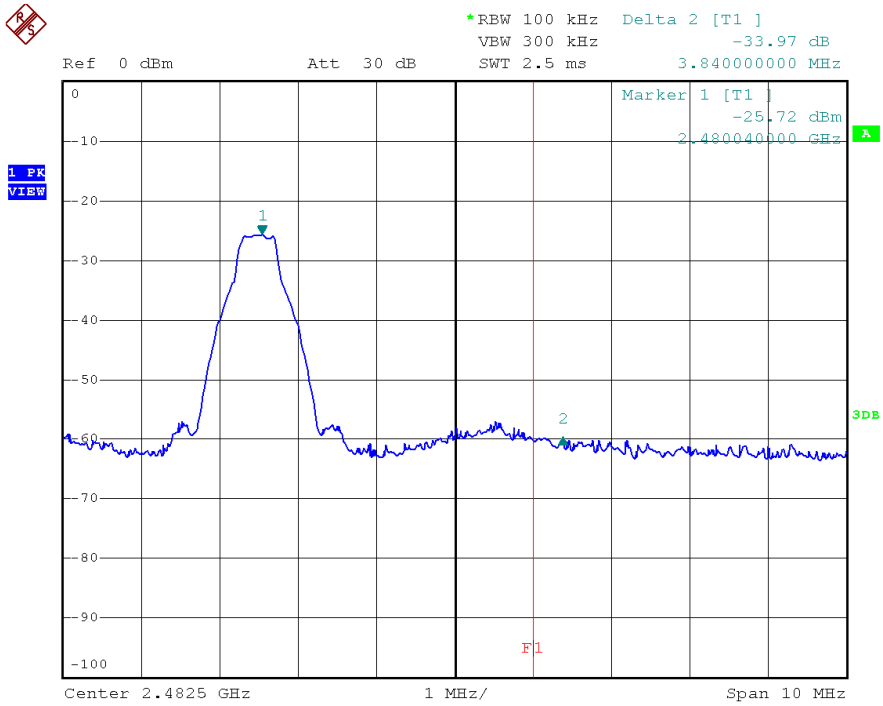
Peak Measurement





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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

=88.2 dBµV/m – 29.8 dB
=58.4 dBµV/m

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

=64.2 dBµV/m – 29.8 dB
=34.4 dBµV/m

Upper bandedge

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

=84.4 dBµV/m – 34.0 dB
=50.4 dBµV/m

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

=60.4 dBµV/m – 34.0 dB
=26.4dBµV/m

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. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

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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).

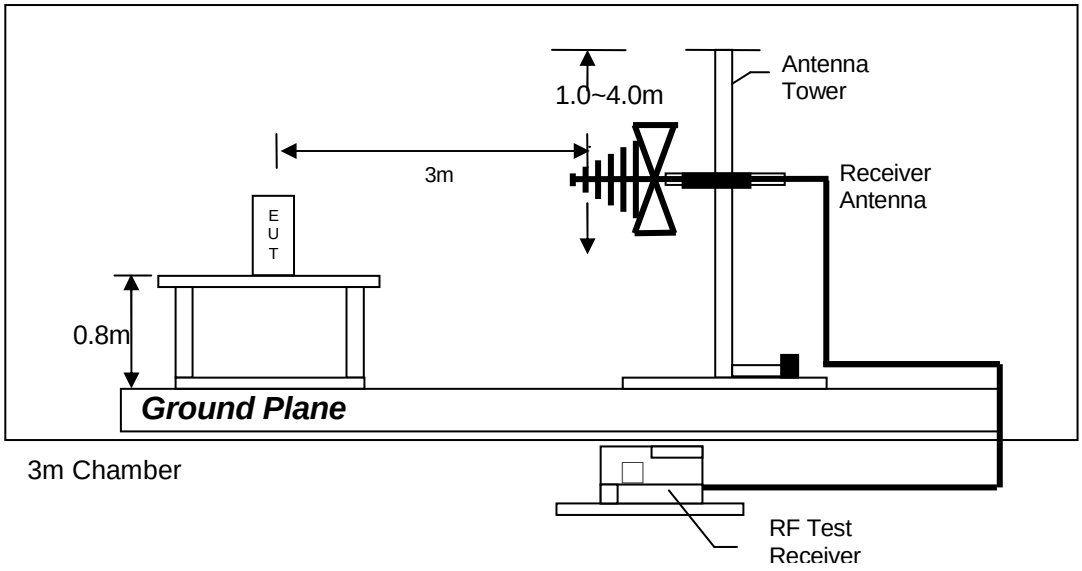
The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion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

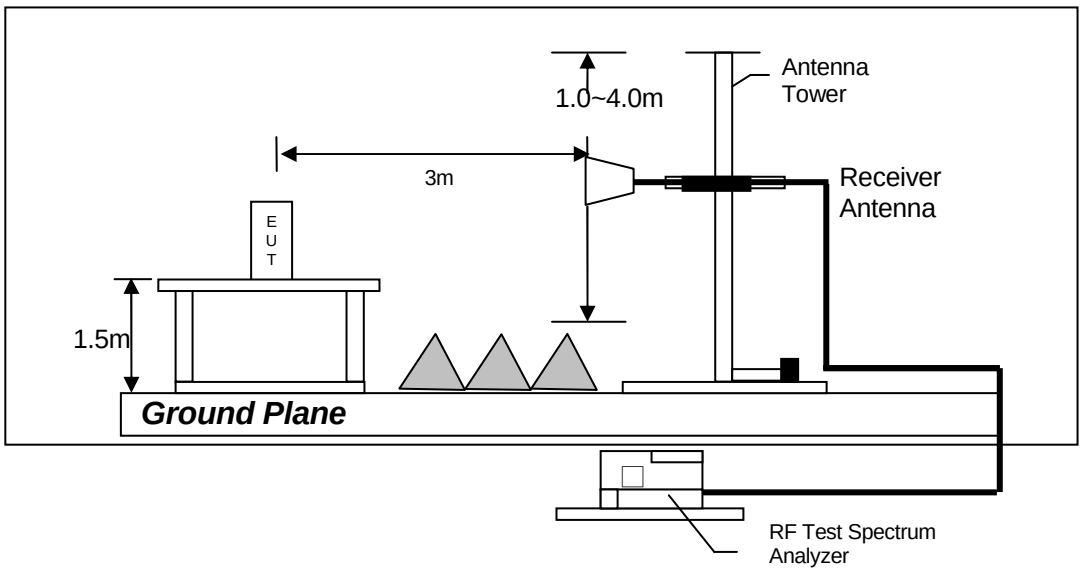
TEST REPORT

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

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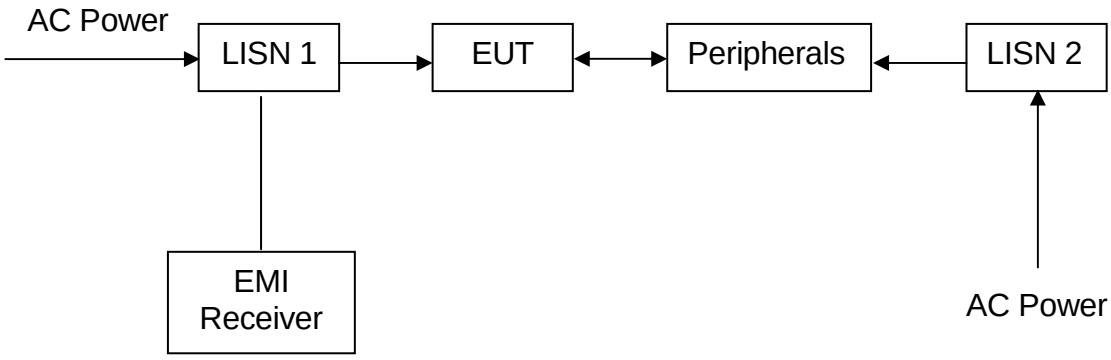
8.4.2 Conducted Emission Test Procedures

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



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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	BICONICAL ANTENNA	LOG PERIODIC ANTENNA
Registration No.	EW-3156	EW-0571	EW-0447
Manufacturer	R&S	EMCO	EMCO
Model No.	ESR26	3104C	3146
Calibration Date	Dec. 06, 2016	May. 18, 2016	May. 18, 2016
Calibration Due Date	Dec. 06, 2017	Nov. 18, 2017	Nov. 18, 2017

EQUIPMENT	DOUBLE RIDGED GUIDE ANTENNA
Registration No.	EW-0194
Manufacturer	EMCO
Model No.	3115
Calibration Date	Aug. 10, 2016
Calibration Due Date	Feb. 10, 2018

2) Conducted Emissions Test

EQUIPMENT	EMI TEST RECEIVER	LISN
Registration No.	EW-2251	EW-2874
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Mar. 03, 2017	Mar. 16, 2017
Calibration Due Date	Mar. 03, 2018	Mar. 16, 2018

3) Bandedge Measurement

EQUIPMENT	SPECTRUM ANALYZER
Registration No.	EW-2249
Manufacturer	R&S
Model No.	FSP30
Calibration Date	Dec. 23, 2016
Calibration Due Date	Nov. 27, 2017

END OF TEST REPORT