



TEST REPORT

Test Report No. : UL-RPT-RP10690672JD04A V2.0

Manufacturer : 3D Sound Lab
Model No. : 3DSLH01
FCC ID : 2AEBV-3DSLH01
Technology : *Bluetooth – Low Energy*
Test Standard(s) : FCC Parts 15.207, 15.209(a) & 15.247

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 2.0 supersedes all previous versions

Date of Issue:

28 May 2015

Checked by:

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Issued by :

pp

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1. Customer Information

Company Name:	3D Sound Labs
Address:	130 rue de Lourmel 75015 Paris France

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.247
Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Site Registration:	209735
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	03 March 2015 to 26 May 2015

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.207	Transmitter AC Conducted Emissions	✓
Part 15.247(a)(2)	Transmitter Minimum 6 dB Bandwidth	✓
Part 15.247(e)	Transmitter Power Spectral Density	Note 1
Part 15.247(b)(3)	Transmitter Maximum Peak Output Power	✓
Part 15.247(d)/15.209(a)	Transmitter Radiated Emissions	✓
Part 15.247(d)/15.209(a)	Transmitter Band Edge Radiated Emissions	✓
Key to Results		
✓	= Complied	✗ = Did not comply

Note(s):

1. In accordance with FCC KDB 558074 Section 10.1, PSD is not required if the maximum conducted output power is less than the PSD limit of 8 dBm / 3 kHz. The PSD level is therefore deemed to be equal to the measured total output power.

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Wireless Devices
Reference:	KDB 558074 D01 v03r02 June 5, 2014
Title:	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	3D Sound Labs
Model Name or Number:	3DSLH01
Test Sample Serial Number:	P PROD 13 (<i>Radiated sample #1</i>)
Hardware Version Number:	3.4
Software Version Number:	direct_test_mode-0.0.1, firmware-02.01.02
FCC ID:	2AEBV-3DSLH01

Brand Name:	3D Sound Labs
Model Name or Number:	3DSLH01
Test Sample Serial Number:	P PROD 24 (<i>Radiated sample #2</i>)
Hardware Version Number:	3.4
Software Version Number:	direct_test_mode-0.0.2
FCC ID:	2AEBV-3DSLH01

Brand Name:	3D Sound Labs
Model Name or Number:	3DSLH01
Test Sample Serial Number:	P PROD 14 (<i>Conducted sample with RF port</i>)
Hardware Version Number:	3.4
Software Version Number:	direct_test_mode-0.0.2
FCC ID:	2AEBV-3DSLH01

3.2. Description of EUT

The equipment under test was Wireless headphones with a *Bluetooth* Low Energy motion sensor module.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	Bluetooth Low Energy (Digital Transmission System)				
Type of Unit:	Transceiver				
Channel Spacing:	2 MHz				
Modulation:	GFSK				
Data Rate:	1 Mbps				
Power Supply Requirement(s):	Nominal	3.7 VDC			
Maximum Conducted Output Power:	4.7 dBm				
Antenna Gain:	1.7 dBi				
Transmit Frequency Range:	2402 MHz to 2480 MHz				
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)		
	Bottom	0	2402		
	Middle	19	2440		
	Top	39	2480		

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Laptop PC
Brand Name:	Dell
Model Name or Number:	Latitude D260
Serial Number:	00052

Description:	CSR development board
Brand Name:	CSR
Model Name or Number:	N117270
Serial Number:	10089A0018

Description:	USB Micro-B cable
Brand Name:	Not marked or stated
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

Description:	USB mini-B cable
Brand Name:	Not marked or stated
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

Description:	USB serial convertor cables
Brand Name:	Not marked or stated
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

Description:	2m RS232 9 pin female to 9 pin female cable
Brand Name:	Not marked or stated
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Transmitting at maximum power in *Bluetooth LE* mode with modulation, maximum possible data length available and Pseudorandom Bit Sequence 9.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- The EUT was controlled with a test laptop and a third party test software application using commands supplied by the customer. Channels, packet lengths and other settings were then set using this software application as required.
- The EUT was powered by a USB cable which was connected to a laptop PC.
- The EUT conducted sample was used for 6 dB bandwidth and maximum peak output power.
- The EUT radiated sample #1 was used radiated spurious emissions tests below 1 GHz.
- The EUT radiated sample #2 was used for AC Conducted emissions and radiated tests above 1 GHz.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Transmitter AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	David Doyle	Test Date:	21 April 2015
Test Sample Serial Number:	P PROD 24		

FCC Reference:	Part 15.207
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	31

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.330	Live	34.4	59.5	25.1	Complied
0.483	Live	32.8	56.3	23.5	Complied
1.455	Live	32.0	56.0	24.0	Complied
3.876	Live	34.5	56.0	21.5	Complied
4.520	Live	32.6	56.0	23.4	Complied
11.697	Live	33.7	60.0	26.3	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.362	Live	30.2	48.7	18.5	Complied
0.951	Live	22.7	46.0	23.3	Complied
3.872	Live	27.3	46.0	18.7	Complied
4.659	Live	24.2	46.0	21.8	Complied
11.252	Live	25.8	50.0	24.2	Complied

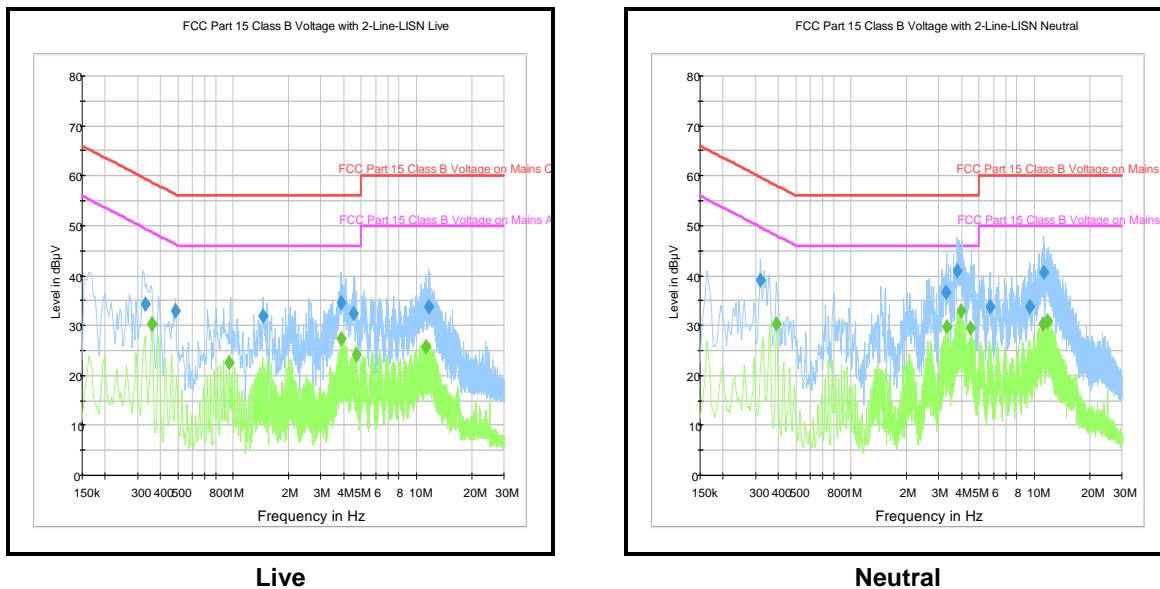
Transmitter AC Conducted Spurious Emissions (continued)**Results: Neutral / Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.321	Neutral	39.2	59.7	20.5	Complied
3.305	Neutral	36.6	56.0	19.4	Complied
3.795	Neutral	40.8	56.0	15.2	Complied
5.735	Neutral	33.6	60.0	26.4	Complied
9.429	Neutral	33.8	60.0	26.2	Complied
11.216	Neutral	40.6	60.0	19.4	Complied

Results: Neutral / Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.393	Neutral	30.3	48.0	17.7	Complied
3.314	Neutral	29.7	46.0	16.3	Complied
3.971	Neutral	33.1	46.0	12.9	Complied
4.461	Neutral	29.4	46.0	16.6	Complied
11.153	Neutral	30.4	50.0	19.6	Complied
11.742	Neutral	30.9	50.0	19.1	Complied

Transmitter AC Conducted Spurious Emissions (continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002	14 Aug 2015	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	02 Mar 2016	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	14 Oct 2016	12
M1625	Thermohygrometer	JM Handelpunkt	30.5015.06	N/A	07 Jan 2016	12

5.2.2. Transmitter Minimum 6 dB Bandwidth**Test Summary:**

Test Engineer:	David Doyle	Test Date:	16 April 2015
Test Sample Serial Number:	P PROD 14		

FCC Reference:	Part 15.247(a)(2)
Test Method Used:	As detailed in FCC KDB 558074 Section 8.1 Option 1

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	31

Note(s):

1. 6 dB DTS bandwidth tests were performed using a signal analyser in accordance with FCC KDB 558074 Section 8.1 Option 1 measurement procedure.
2. The signal analyser was connected to the RF port on the EUT using suitable attenuation and RF cable.

Results:

Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	706.731	≥500	206.731	Complied
Middle	711.538	≥500	211.538	Complied
Top	711.538	≥500	211.538	Complied

Transmitter Minimum 6 dB Bandwidth (continued)

Results:



Bottom Channel



Top Channel

Middle Channel

Transmitter Minimum 6 dB Bandwidth (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1785	Thermohygrometer	JM Handelpunkt	30.5015.13	Not stated	24 Apr 2015	12
M1630	Signal Analyser	Rohde & Schwarz	ESU40	100233	20 Feb 2016	12
A2526	Attenuator	AtlanTecRF	AN18W5-20	832828#1	Calibrated before use	-
S0557	DC Power Supply	TTI	EL303R	395819	Calibrated before use	-
M1251	Digital Multimeter	Fluke	175	89170179	19 May 2015	12
M260	Signal Generator	Hewlett Packard	SMP02	829076/008	24 Apr 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24

5.2.3. Transmitter Maximum Peak Output Power

Test Summary:

Test Engineer:	David Doyle	Test Date:	16 April 2015
Test Sample Serial Number:	P PROD 14		

FCC Reference:	Part 15.247(b)(3)
Test Method Used:	As detailed in FCC KDB 558074 Section 9.1.1

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	31

Note(s):

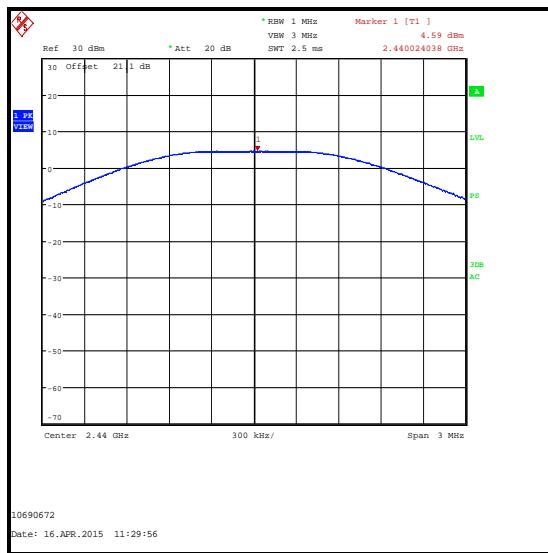
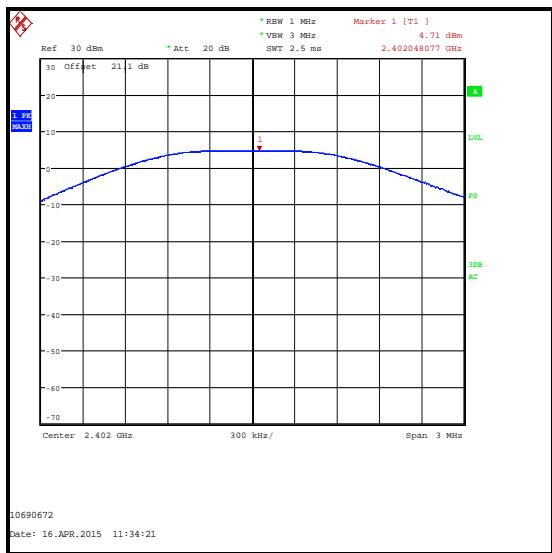
- Conducted power tests were performed using a signal analyser in accordance with FCC KDB 558074 Section 9.1.1 with the *RBW > DTS bandwidth* procedure. A resolution bandwidth of 1 MHz was used and the video bandwidth was set to 3 MHz.
- The signal analyser was connected to the RF port on the EUT using suitable attenuation and RF cable. An RF level offset was entered on the signal analyser to compensate for the loss of the attenuator and RF cable.
- The conducted peak power was added to the declared antenna gain to obtain the EIRP.

Results:

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	4.7	30.0	25.3	Complied
Middle	4.6	30.0	25.4	Complied
Top	4.4	30.0	25.6	Complied

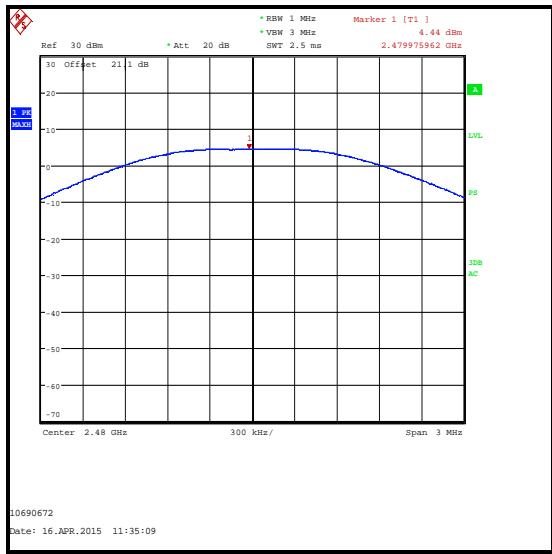
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	4.7	1.7	6.4	36.0	29.6	Complied
Middle	4.6	1.7	6.3	36.0	29.7	Complied
Top	4.4	1.7	6.1	36.0	29.9	Complied

Transmitter Maximum Peak Output Power (continued)



Bottom Channel

Middle Channel



Top Channel

Transmitter Maximum Peak Output Power (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1785	Thermohygrometer	JM Handelpunkt	30.5015.13	Not stated	24 Apr 2015	12
M1630	Signal Analyser	Rohde & Schwarz	ESU40	100233	20 Feb 2016	12
A2526	Attenuator	AtlanTecRF	AN18W5-20	832828#1	Calibrated before use	-
S0557	DC Power Supply	TTI	EL303R	395819	Calibrated before use	-
M1251	Digital Multimeter	Fluke	175	89170179	19 May 2015	12
M260	Signal Generator	Hewlett Packard	SMP02	829076/008	24 Apr 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24

5.2.4. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	Test Date:	03 March 2015
Test Sample Serial Number:	P PROD 13		

FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.5 referencing ANSI C63.4
Frequency Range	30 MHz to 1000 MHz

Environmental Conditions:

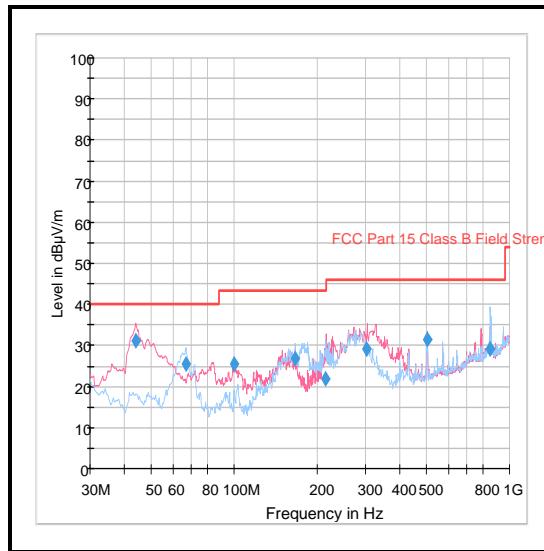
Temperature (°C):	22
Relative Humidity (%):	35

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. The preliminary scans showed similar emission levels below 1 GHz for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the middle channel only.
3. All other emissions shown on the pre-scans were investigated and found to be ambient, or > 20 dB below the appropriate limit or below the noise floor of the measurement system.
4. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Results: Middle Channel

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
166.028	Horizontal	26.9	43.5	16.6	Complied

Transmitter Radiated Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1624	Thermohygrometer	JM Handelpunkt	30.5015.10	None stated	07 Jan 2016	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	26 Mar 2015	12
G054	Amplifier	Sonoma	310N	230801	04 Mar 2015	3
M1124	Test Receiver	Rohde & Schwarz	ESIB26	100046K	06 Oct 2015	12
A490	Antenna	Chase	CBL6111A	1590	29 Apr 2015	12
A1834	Attenuator	Hewlett Packard	8491B	10444	05 Mar 2016	12

Transmitter Radiated Emissions (continued)**Test Summary:**

Test Engineer:	David Doyle	Test Dates:	17 April 2015 & 20 April 2015
Test Sample Serial Number:	P PROD 24		

FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	As detailed in FCC KDB 558074 Sections 11 & 12 referencing ANSI C63.10 Sections 6.3 and 6.6 and ANSI C63.4
Frequency Range	1 GHz to 25 GHz

Environmental Conditions:

Temperature (°C):	23 to 24
Relative Humidity (%):	26 to 31

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. The emission shown on the 1 GHz to 4 GHz plot is the EUT fundamental.
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
5. Pre-scans were performed and a marker placed on the highest measured level of the appropriate plot. The test receiver resolution bandwidth was set to 1 MHz and video bandwidth 3 MHz. The sweep time was set to auto.
6. *Emissions in restricted bands: In accordance with ANSI C63.10 Section 6.6.4.2 Note 1, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
7. Emissions in non-restricted bands: The reference level for the emission in the non-restricted band was established by following KDB 558074 Section 11.2 procedure.

Transmitter Radiated Emissions (continued)**Results: Peak / Bottom Channel**

Frequency (MHz)	Antenna Polarity	Peak Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
4804.064	Vertical	45.0	54.0*	9.0	Complied

Results: Peak / Middle Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2499.439	Vertical	58.9	74.0	15.1	Complied
4880.657	Vertical	46.6	54.0*	7.4	Complied
7319.415	Vertical	51.1	54.0*	2.9	Complied

Results: Average / Middle Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2499.487	Vertical	52.5	54.0	1.5	Complied

Results: Peak / Top Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2499.327	Vertical	55.1	74.0	18.9	Complied
4960.064	Vertical	36.6	54.0*	17.4	Complied
7440.042	Vertical	51.2	54.0*	2.8	Complied

Results: Average / Top Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2499.327	Vertical	53.9	54.0	0.1	Complied

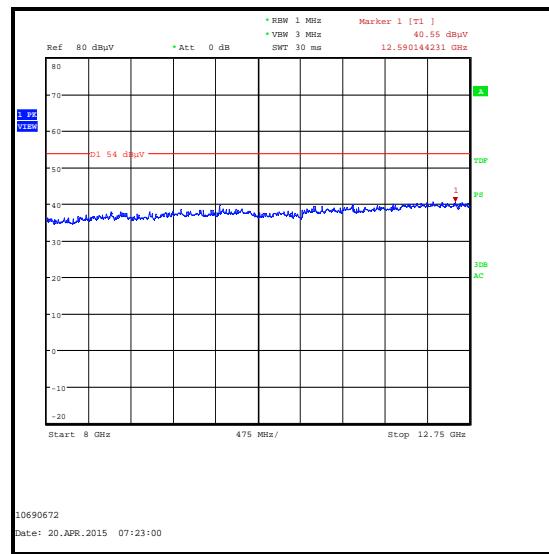
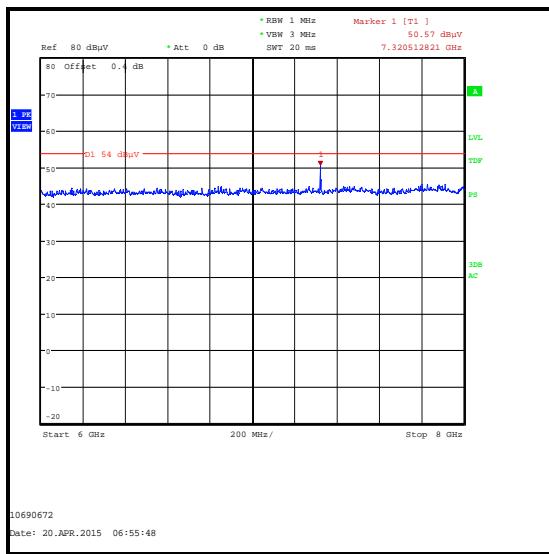
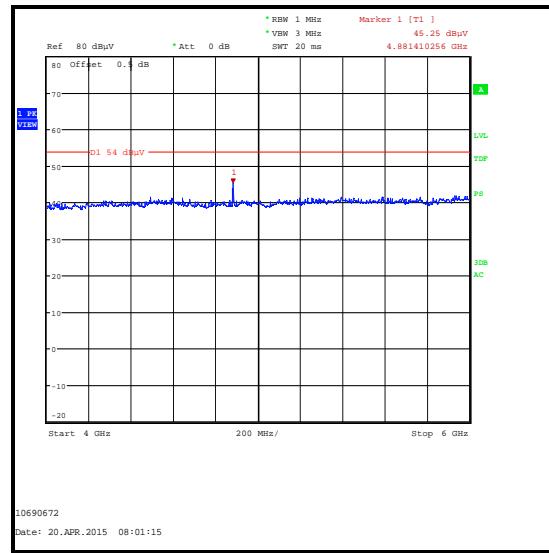
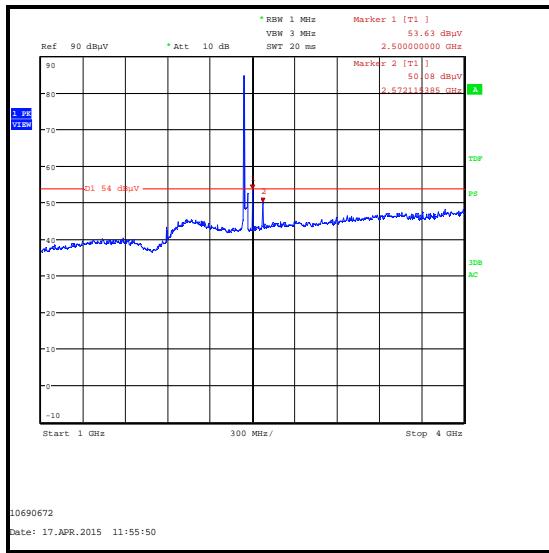
Results: Non-restricted Band / Bottom Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	-20 dBc Limit (dB μ V/m)	Margin (dB)	Result
7206.111	Vertical	51.0	59.1	8.1	Complied

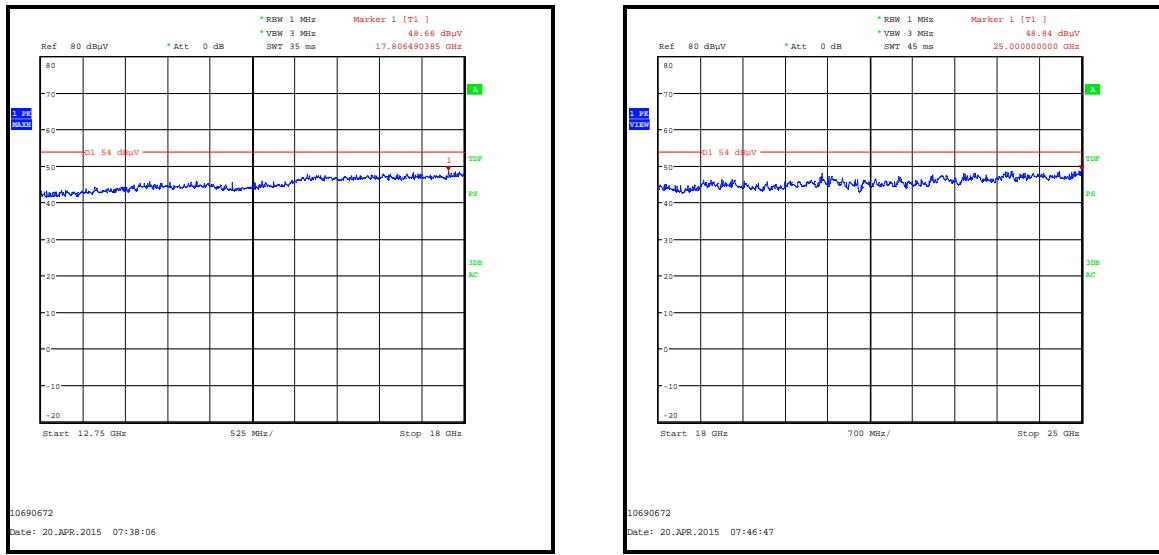
Results: Non-restricted Band / Middle Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	-20 dBc Limit (dB μ V/m)	Margin (dB)	Result
2570.770	Vertical	44.4	65.5	21.1	Complied

Transmitter Radiated Emissions (continued)



Transmitter Radiated Emissions (continued)



Note: The above plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1782	Thermohygrometer	JM Handelpunkt	30.5015.10	Not stated	24 Apr 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	30 Apr 2015	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 May 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	21 Dec 2015	12
A1818	Antenna	EMCO	3115	00075692	20 Dec 2015	12
A253	Antenna	Flann Microwave	12240-20	128	20 Dec 2014	12
A254	Antenna	Flann Microwave	14240-20	139	20 Dec 2014	12
A255	Antenna	Flann Microwave	16240-20	519	20 Dec 2014	12
A256	Antenna	Flann Microwave	18240-20	400	20 Dec 2014	12
A436	Antenna	Flann Microwave	20240-20	330	21 Dec 2014	12
A1975	High Pass Filter	AtlanTecRF	AFH-0300	09042410	Calibrated before use	-
M260	Signal Generator	Hewlett Packard	SMP02	829076/008	24 Apr 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24

5.2.5. Transmitter Band Edge Radiated Emissions**Test Summary:**

Test Engineer:	David Doyle	Test Date:	26 May 2015
Test Sample Serial Number:	P PROD 13		

FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.2 & KDB 558074 Section 11

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	37

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. The maximum peak conducted output power was previously measured. In accordance with FCC KDB 558074 Section 11.1(a), the lower band edge measurement was performed with a peak detector and the -20 dBc limit applied.
3. There is a restricted band 10 MHz below the lower band edge. The test receiver was set up as follows: the RBW set to 1 MHz, the VBW set to 3 MHz, with the sweep time set to auto couple. Peak and average measurements were performed with their respective detectors. Markers were placed on the highest point on each trace.
4. * -20 dBc limit.

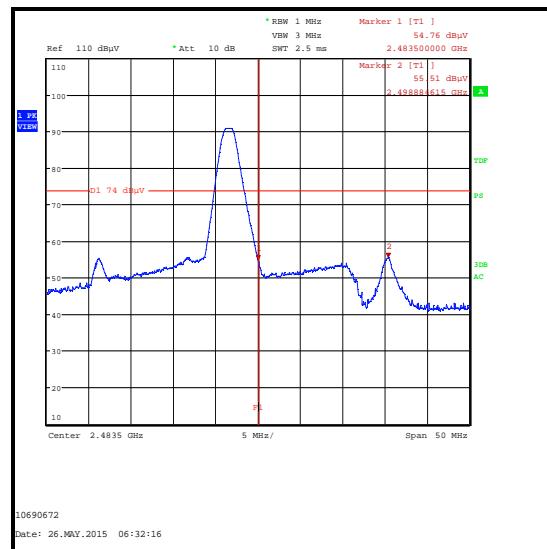
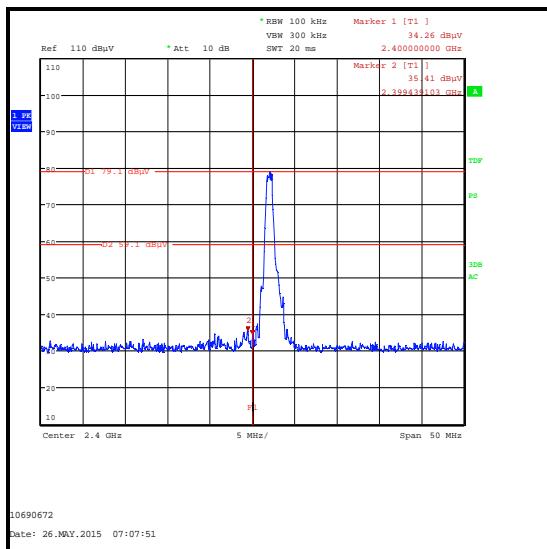
Results: Peak

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2373.333	47.9	74.0	26.1	Complied
2399.439	35.4	59.1*	23.7	Complied
2400	34.3	59.1*	24.8	Complied
2483.5	54.8	74.0	19.2	Complied
2498.885	55.5	74.0	18.5	Complied

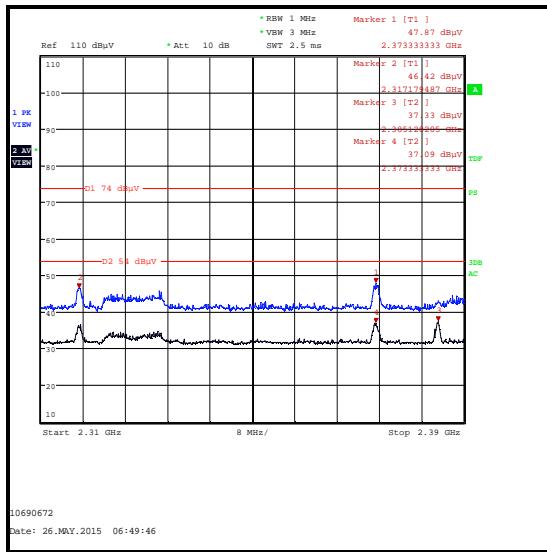
Results: Average

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2385.128	37.3	54.0	16.7	Complied
2483.5	40.7	54.0	13.3	Complied

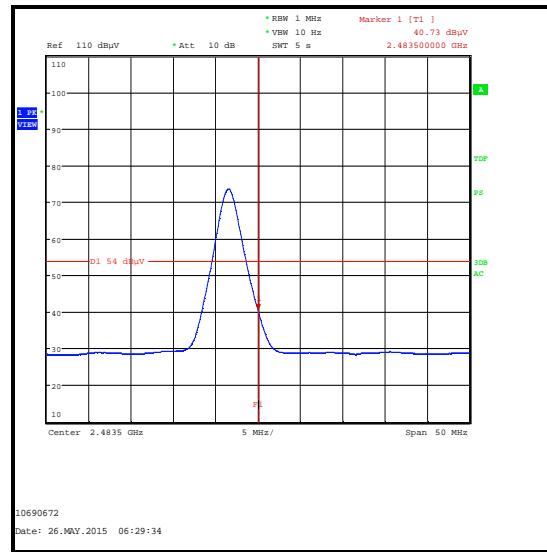
Transmitter Band Edge Radiated Emissions (continued)



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



2310 MHz to 2390 MHz Restricted Band Plot

Upper Band Edge Average Measurement

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	None stated	23 Apr 2016	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 May 2016	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 Jun 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	21 Dec 2015	12
A1818	Antenna	EMCO	3115	00075692	20 Dec 2015	12

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value measured (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±4.69 dB
Conducted Maximum Peak Output Power	2.4 GHz to 2.4835 GHz	95%	±1.13 dB
Minimum 6 dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±3.92 %
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±5.65 dB
Radiated Spurious Emissions	1 GHz to 26.5 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	-	-	Model number updated

--- END OF REPORT ---