

Report on the Radio Testing

For

Widex A/S

on

Evoke EC

Report no. TRA-040332-47-00A

14 June 2018

Report Number: TRA-040332-47-00A
Issue: A

REPORT ON THE RADIO TESTING OF A
Widex A/S
Evoke EC
WITH RESPECT TO SPECIFICATION
FCC 47CFR 15.209 & ISED RSS-210

TEST DATE: 2018-04-09

Tested by:

D Moncayola
Radio Test Engineer

Approved by:

J Charters
Department Manager Radio

Date: 14 June 2018

Disclaimers:

- [1] THIS DOCUMENT MAY BE REPRODUCED ONLY IN ITS ENTIRETY AND WITHOUT CHANGE
- [2] THE RESULTS CONTAINED IN THIS DOCUMENT RELATE ONLY TO THE ITEM(S) TESTED

1 Revision Record

| <i>Issue Number</i> | <i>Issue Date</i> | <i>Revision History</i> |
|---------------------|-------------------|-------------------------|
| A | 14 June 2018 | Original |
| | | |

2 Summary

TEST REPORT NUMBER: TRA-040332-47-00A

WORKS ORDER NUMBER: TRA-040332-01

PURPOSE OF TEST: USA: Testing of radio frequency equipment per the relevant authorization procedure of chapter 47 of CFR (code of federal regulations) Part 2, subpart J.

Canada: Testing of radio apparatus for TAC (technical acceptance certificate) per subsections 4(2) of the Radiocommunication Act and 21(1) of the Radiocommunication Regulations.

TEST SPECIFICATION(S): 47CFR15.209 & RSS-210

EQUIPMENT UNDER TEST (EUT): Evoke EC

FCC IDENTIFIER: TTY-ERE

ISED CERTIFICATION NUMBER: 5676B-ERE

EUT SERIAL NUMBER: 004520

MANUFACTURER/AGENT: Widex A/S

ADDRESS: Nymoellevej 6
3540 Lynge
Denmark

CLIENT CONTACT: Thorvaldur Oli Bodvarsson
☎ (+45) 44355801
✉ thbo@widex.com

ORDER NUMBER: 144331-01

TEST DATE: 2018-04-09

TESTED BY: D Moncayola
Element

2.1 Test Summary

| Test Method and Description | Requirement Clause | | Applicable to this equipment | Result / Note |
|-----------------------------------|--------------------|---------|-------------------------------------|---------------|
| | RSS | 47CFR15 | | |
| Radiated spurious emissions | 210, 4.3 | 15.209 | <input checked="" type="checkbox"/> | Pass |
| AC power line conducted emissions | Gen, 8.8 | 15.207 | <input type="checkbox"/> | Note 1 |
| Occupied bandwidth | Gen, 6.6 | 15.209 | <input checked="" type="checkbox"/> | Note 2 |
| Field strength of fundamental | 210, 4.3 | 15.223 | <input checked="" type="checkbox"/> | Pass |

Notes:

Note 1: No Applicable, fuel cell powered.

Note 2: Only 99 % bandwidth was measured

The results contained in this report relate only to the items tested, in the condition at time of test, and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

The apparatus was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. Any modifications made are identified in Section 8 of this report.

Particular operating modes, apparatus monitoring methods and performance criteria required by the standards tested to have been performed except where identified in Section 5.2 of this test report (Deviations from Test Standards).

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4 Introduction

This report TRA-040332-47-00A presents the results of the Radio testing on a Widex A/S, Evoke EC to specification 47CFR15 Radio Frequency Devices and RSS-210 Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment.

The testing was carried out for Widex A/S by Element, at the address detailed below.

| | | | |
|--------------------------|---|-------------------------------------|--|
| <input type="checkbox"/> | Element Hull Unit E South Orbital Trading Park Hedon Road Hull HU9 1NJ UK | <input checked="" type="checkbox"/> | Element Skelmersdale Unit 1 Pendle Place Skelmersdale West Lancashire WN8 9PN UK |
|--------------------------|---|-------------------------------------|--|

This report details the configuration of the equipment, the test methods used and any relevant modifications where appropriate.

All test and measurement equipment under the control of the laboratory and requiring calibration is subject to an established programme and procedures to control and maintain measurement standards. The quality management system meets the principles of ISO 9001, and has quality control procedures for monitoring the validity of tests undertaken. Records and sufficient detail are retained to establish an audit trail of calibration records relating to its test results for a defined period. Under control of the established calibration programme, key quantities or values of the test & measurement instrumentation are within specification and comply with the relevant traceable internationally recognised and appropriate standard specifications, which are UKAS calibrated as such where these properties have a significant effect on results. Participation in inter-laboratory comparisons and proficiency testing ensures satisfactory correlation of results conform to Elements own procedures, as well as statistical techniques for analysis of test data providing the appropriate confidence in measurements.

FCC Site Listing:

Element is accredited for the above sites under the US-EU MRA, Designation number UK0009.

ISED Registration Number(s):

| | |
|----------------------|-------|
| Element Skelmersdale | 3930B |
| Element Hull | 3483A |

The test site requirements of ANSI C63.4-2014 are met up to 1 GHz.

The test site SVSWR requirements of CISPR 16-1-4:2010 are met over the frequency range 1 GHz to 18 GHz.

5 Test Specifications

5.1 Normative References

- FCC 47 CFR Ch. I – Part 15 – Radio Frequency Devices.
- ANSI C63.10-2013 – American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- ANSI C63.4-2014 – 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.
- Industry Canada RSS-210, Issue 9, August 2016 – Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
- Industry Canada RSS-Gen, Issue 4, November 2014 – General Requirements for Compliance of Radio Apparatus

5.2 Deviations from Test Standards

There were no deviations from the test standard.

6 Glossary of Terms

| | |
|---------------|--|
| § | denotes a section reference from the standard, not this document |
| AC | Alternating Current |
| ANSI | American National Standards Institute |
| BW | bandwidth |
| C | Celsius |
| CFR | Code of Federal Regulations |
| CW | Continuous Wave |
| dB | decibel |
| dBm | dB relative to 1 milliwatt |
| DC | Direct Current |
| DSSS | Direct Sequence Spread Spectrum |
| EIRP | Equivalent Isotropically Radiated Power |
| ERP | Effective Radiated Power |
| EUT | Equipment Under Test |
| FCC | Federal Communications Commission |
| FHSS | Frequency Hopping Spread Spectrum |
| Hz | hertz |
| IC | Industry Canada (now ISED) |
| ISED | Innovation, Science and Economic Development Canada |
| ITU | International Telecommunication Union |
| LBT | Listen Before Talk |
| m | metre |
| max | maximum |
| MIMO | Multiple Input and Multiple Output |
| min | minimum |
| MRA | Mutual Recognition Agreement |
| N/A | Not Applicable |
| PCB | Printed Circuit Board |
| PDF | Portable Document Format |
| Pt-mpt | Point-to-multipoint |
| Pt-pt | Point-to-point |
| RF | Radio Frequency |
| RH | Relative Humidity |
| RMS | Root Mean Square |
| Rx | receiver |
| s | second |
| SVSWR | Site Voltage Standing Wave Ratio |
| Tx | transmitter |
| UKAS | United Kingdom Accreditation Service |
| V | volt |
| W | watt |
| Ω | ohm |

7 Equipment Under Test

7.1 EUT Identification

- Name: Evoke EC
- Serial Number: 004520
- Model Number: E-EC
- Software Revision: Production
- Build Level / Revision Number: Production

7.2 System Equipment

Equipment listed below forms part of the overall test setup and is required for equipment functionality and/or monitoring during testing. The compliance levels achieved in this report relate only to the EUT and not items given in the following list.

Not Applicable – No support/monitoring equipment required.

7.3 EUT Mode of Operation

7.3.1 Transmission

The mode of operation for tests was as follows:

The unit was transmitting permanently at full power modulated carrier at 10.6 MHz.

7.4 EUT Radio Parameters

7.4.1 General

| | |
|---------------------------------------|--------------------------------|
| Frequency of operation: | 10.6 MHz |
| Modulation type(s): | FSK |
| Occupied channel bandwidth(s): | 600 kHz |
| Channel spacing: | Not applicable, single channel |
| ITU emission designator(s): | 600KF1XT |
| Nominal Supply Voltage: | 1.2 Vdc |

7.5 EUT Description

The EUT is a hearing aid with a very low power transceiver at 10.6 MHz.

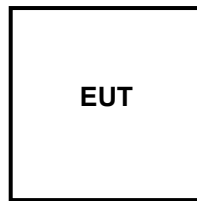
8 Modifications

No modifications were performed during this assessment.

9 EUT Test Setup

9.1 *Block Diagram*

The following diagram shows basic EUT interconnections:
EUT is a standalone battery powered device.



9.2 General Set-up Photograph

The following photograph shows basic EUT set-up:



10 General Technical Parameters

10.1 Normal Conditions

The E U T was tested under the normal environmental conditions of the test laboratory, except where otherwise stated. The normal power source applied was 1.2 V dc from the power cell.

11 Radiated spurious emissions

11.1 Definitions

Out-of-band emissions

Emissions on a frequency or frequencies immediately outside the necessary bandwidth which result from the modulation process, but exclude spurious emissions.

Spurious emissions

Emissions on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Restricted bands

A frequency band in which intentional radiators are permitted to radiate only spurious emissions but not fundamental signals.

11.2 Test Parameters

| | |
|---------------------------|------------------------------|
| Test Location: | Element Skelmersdale |
| Test Chamber: | Radio Chamber |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 6.5 |
| EUT Frequency Measured: | 10.6 MHz |
| EUT Channel Bandwidths: | 600 kHz |
| Deviations From Standard: | None |
| Measurement BW: | 30 MHz to 300 MHz: 120 kHz |
| Measurement Detector: | Quasi-peak |

Environmental Conditions (Normal Environment)

| | |
|--------------------|----------------------------------|
| Temperature: 22 °C | +15 °C to +35 °C (as declared) |
| Humidity: 40 % RH | 20 % RH to 75 % RH (as declared) |
| Supply: 1.2 V dc | 1.2 V dc (as declared) |

11.3 Test Limit

Emissions from license-exempt transmitters shall comply with the field strength limits shown in the table below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

General Field Strength Limits for License-Exempt Transmitters at Frequencies above 30 MHz

| <i>Frequency (MHz)</i> | <i>Field Strength (μV/m at 3 m)</i> |
|----------------------------|--|
| 30 to 88 | 100 |
| 88 to 216 | 150 |
| 216 to 960 | 200 |
| Above 960 | 500 |

11.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure ii, the emissions from the EUT were measured on a spectrum analyzer / EMI receiver.

Radiated electromagnetic emissions from the EUT are checked first by preview scans. Preview scans for all spectrum and modulation characteristics are checked, using a peak detector and where applicable worst-case determined for function, operation, orientation, etc. for both vertical and horizontal polarisations. Pre-scan plots are shown with a peak detector and 100 kHz RBW.

If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in ANSI C63.10 are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed, (see EUT setup photographs for more detail).

Emissions between 30 MHz and 1 GHz are measured using calibrated broadband antennas. Emissions above 1 GHz are characterized using standard gain horn antennas. Pre-amplifiers and filters are used where required. Care is taken to ensure that test receiver resolution bandwidth, video bandwidth and detector type(s) meet the regulatory requirements.

For both horizontal and vertical polarizations, the EUT is then rotated through 360 degrees in azimuth until the highest emission is detected. At the previously determined azimuth the test antenna is raised and lowered from 1 to 4 m in height until a maximum emission level is detected, this maximum value is recorded.

Power values measured on the test receiver / analyzer are converted to field strength, FS, in dB μ V/m at the regulatory distance, using:

$$FS = PR + CL + AF - PA + DC - CF$$

Where,

PR is the power recorded on the receiver / spectrum analyzer in dB μ V;

CL is the cable loss in dB;

AF is the test antenna factor in dB/m;

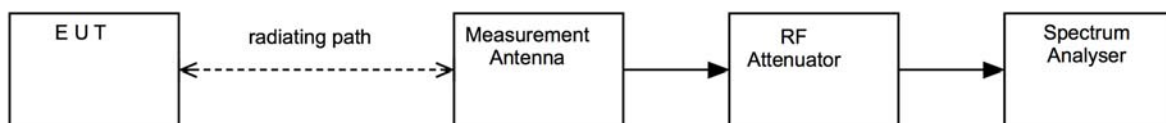
PA is the pre-amplifier gain in dB (where used);

DC is the duty correction factor in dB (where used, e.g. harmonics of pulsed fundamental);

CF is the distance factor in dB (where measurement distance is different to limit distance);

This field strength value is then compared with the regulatory limit.

Figure ii Test Setup



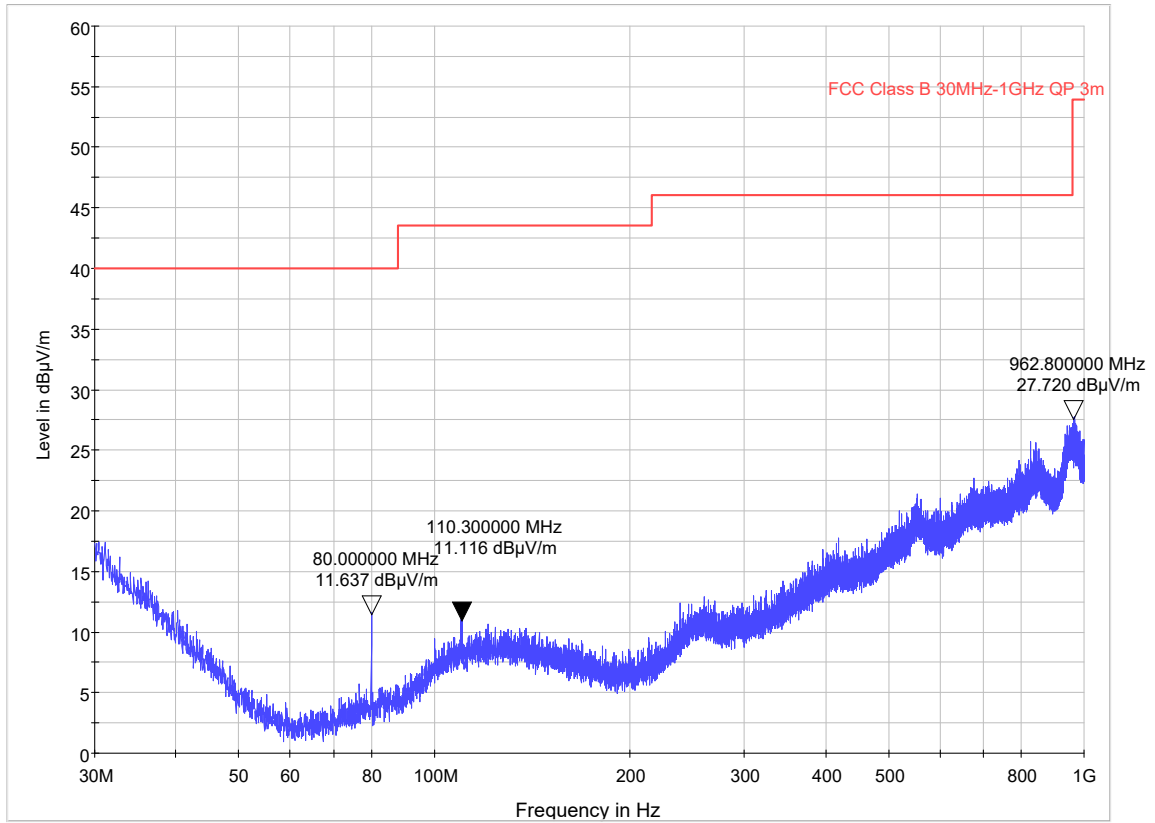
11.5 Test Set-up Photograph



11.6 Test Equipment

| Equipment Type | Manufacturer | Equipment Description | Element No | Due For Calibration |
|----------------|-----------------|-----------------------|------------|---------------------|
| CBL611/A | Chase | Bilog | U573 | 2019-08-02 |
| ESVS10 | R&S | Receiver | U004 | 2018-06-02 |
| 6201-69 | Watkins Johnson | Pre Amp | U372 | 2019-02-21 |

11.7 Test Results



| High Power; Frequency 10.6 MHz | | | | | | | | | | |
|--|-------------|------------------------|-----------------|-----------------------|-------------------|------------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBµV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Duty Cycle Corr'n (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBµV/m) | Field Strength (µV/m) | Limit (µV/m) |
| No emissions within 20 dB to the limit | | | | | | | | | | |

12 Radiated spurious emissions, below 30 MHz

12.1 Definitions

Out-of-band emissions

Emissions on a frequency or frequencies immediately outside the necessary bandwidth which result from the modulation process, but exclude spurious emissions.

Spurious emissions

Emissions on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Restricted bands

A frequency band in which intentional radiators are permitted to radiate only spurious emissions but not fundamental signals.

12.2 Test Parameters

| | |
|---------------------------------|---|
| Test Location: | Element Skelmersdale |
| Test Chamber: | Radio Chamber |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 6.4 |
| EUT Frequency Measured: | 10.6 MHz |
| EUT Channel Bandwidths: | 600 kHz |
| Deviations From Standard: | None |
| Measurement Distance and Site | 1 m, Semi-anechoic chamber. |
| EUT Height: | 1 m |
| Measurement Antenna and Height: | 60 cm shielded loop; 1 m |
| Measurement BW: | 9 kHz to 150 kHz: 200 Hz; 150 kHz to 30 MHz: 9 kHz |
| Measurement Detector: | 9 kHz to 90 kHz and 110 kHz to 490 kHz: Average, RMS Other frequencies below 30 MHz: Quasi-peak. |

Environmental Conditions (Normal Environment)

| | |
|--------------------|----------------------------------|
| Temperature: 22 °C | +15 °C to +35 °C (as declared) |
| Humidity: 40 % RH | 20 % RH to 75 % RH (as declared) |
| Supply: 1.2 V dc | 1.2 V dc (as declared) |

12.3 Test Limit

Emissions from license-exempt transmitters shall comply with the field strength limits shown in the table below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

General Field Strength Limits for License-Exempt Transmitters at Frequencies Below 30 MHz

| <i>Frequency, f (kHz)</i> | <i>Field Strength</i> | <i>Measurement Distance (m)</i> |
|-------------------------------|--|---|
| 9 to 490 | 2,400 / 377.f (μA/m) 2,400 / f (μV/m) | 300 |
| 490 to 1,750 | 24,000 / 377.f (μA/m) 24,000 / f (μV/m) | 30 |
| 1,750 to 30,000 | 30 (μV/m) | 30 |

12.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure i, the EUT fundamental frequency was maximised by rotating the EUT through 360°, in three orthogonal planes, and adjusting the measurement antenna azimuth.

Radiated electromagnetic emissions from the EUT are checked first by preview scans. Preview scans for all spectrum and modulation characteristics are checked, using a peak detector and where applicable worst-case determined for function, operation, orientation, etc. for both vertical and horizontal polarisations. Pre-scan plots are shown with a peak detector and 9 kHz RBW.

If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in ANSI C63.10 are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed, (see EUT setup photographs for more detail).

Emissions between 9 kHz and 30 MHz are measured using a calibrated 60cm active loop antenna. Pre-amplifiers and filters are used where required. Care is taken to ensure that test receiver resolution bandwidth, video bandwidth and detector type(s) meet the regulatory requirements.

Power values measured on the test receiver / analyzer are converted to field strength, FS, in μV/m at the regulatory distance, using:

$$FS = 10^{(PR - CF) / 20}$$

Where,

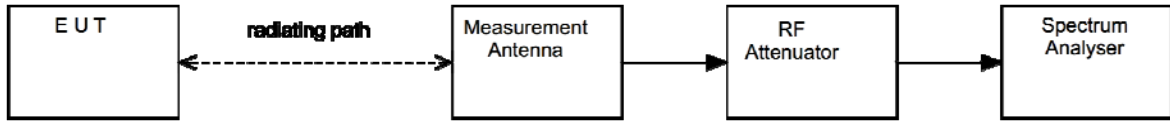
PR is the power recorded on the receiver / spectrum analyzer in dBμV and includes any cable loss, antenna factor and pre-amplifier gain;

CF is the distance extrapolation factor in dB (where measurement distance different to limit distance);

Per FCC 47CFR15.31(f)(2) / RSS-Gen 6.4, an extrapolation factor of 59.08 dB per decade was used for measurements at distances closer than specified.

This field strength value is then compared with the regulatory limit.

Figure i Test Setup



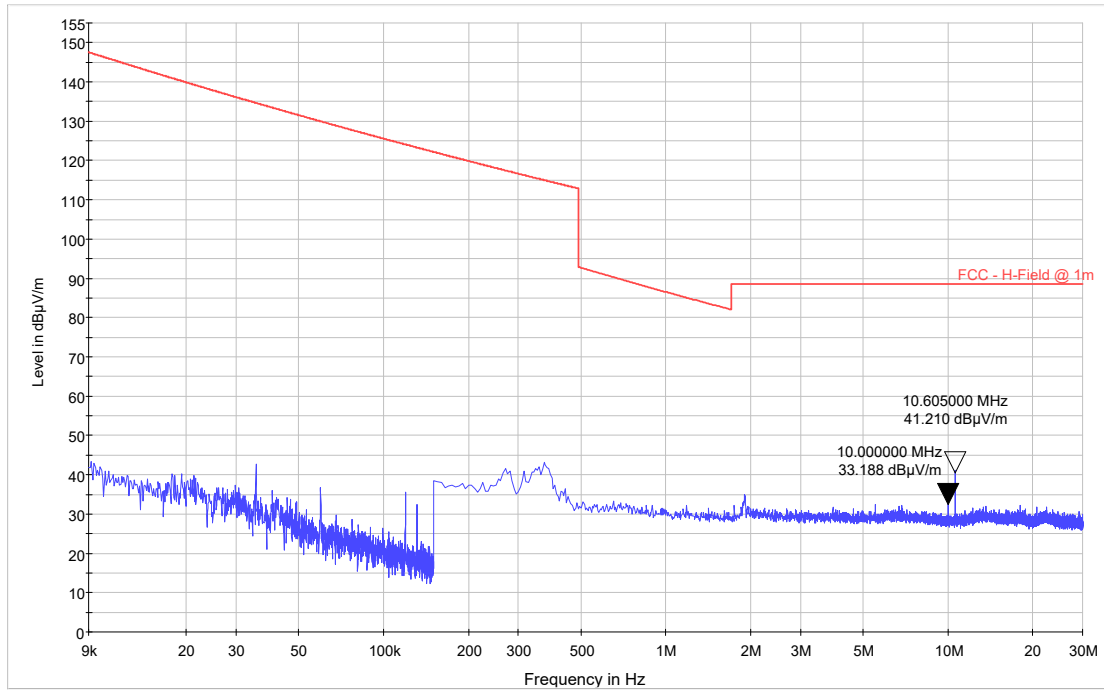
12.5 Test Set-up Photograph



12.6 Test Equipment

| Equipment Type | Manufacturer | Equipment Description | Element No | Due For Calibration |
|----------------|--------------|-----------------------|------------|---------------------|
| hfh2 | R&S | Loop Antenna | L007 | 2018-04-12 |
| ESHS10 | R&S | Receiver | U003 | 2018-08-29 |

12.7 Test Results



| Modulation: FSK; Frequency: 10.6 MHz | | | | | | |
|---|--------------------------------|---------------------------------|---------------------------|----------------------------------|------------------------------|---------------|
| Emission Frequency (MHz) | Receiver Level (dBµV/m) | Measurement Distance (m) | Limit Distance (m) | Extrapolation Factor (dB) | Field Strength (µV/m) | Result |
| No emissions within 20 dB to the limit | | | | | | PASS |

13 Transmitter output power (fundamental radiated emission)

13.1 Definition

The RF power dissipated in the standard output termination when operating under the rated duty cycle selected by the applicant for approval.

13.2 Test Parameters

| | |
|---|------------------------------------|
| Test Location: | Element Skelmersdale |
| Test Chamber: | Radio Chamber |
| Test Antenna: | Active 60cm loop |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 6.3 / 6.4 |
| EUT Frequency Measured: | 10.6 MHz |
| EUT Channel Bandwidths: | 600 kHz |
| Deviations From Standard: | None |
| Measurement BW: | 9 kHz |
| Measurement Detector: | Quasi-peak |
| Voltage Extreme Environment Test Range: | Fully charged power cell. |

Environmental Conditions (Normal Environment)

| | |
|--------------------|----------------------------------|
| Temperature: 22 °C | +15 °C to +35 °C (as declared) |
| Humidity: 40 % RH | 20 % RH to 75 % RH (as declared) |

13.3 Test Limit

The field strength measured at 30 m shall not exceed the limits in the following table:

General Field Strength Limits for License-Exempt Transmitters at Frequencies Below 30 MHz

| <i>Frequency, f (kHz)</i> | <i>Field Strength</i> | <i>Measurement Distance (m)</i> |
|-------------------------------|--|---|
| 9 to 490 | 2,400 / 377.f (μA/m) 2,400 / f (μV/m) | 300 |
| 490 to 1,750 | 24,000 / 377.f (μA/m) 24,000 / f (μV/m) | 30 |
| 1,750 to 30,000 | 30 (μV/m) | 30 |

13.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure v, the resolution bandwidth of the spectrum analyser was increased above the EUT occupied bandwidth and the peak emission data noted.

The measurements were performed with EUT set at its maximum duty. All modulation schemes, data rates and power settings were used to observe the worst-case configuration in each bandwidth.

Power values measured on the test receiver / analyzer are converted to field strength, FS, in $\mu\text{V/m}$ at the regulatory distance, using:

$$FS = 10^{(PR - CF) / 20}$$

Where,

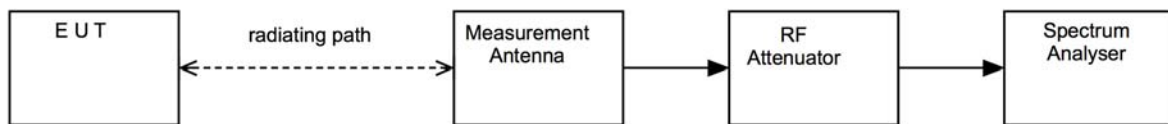
PR is the power recorded on the receiver / spectrum analyzer in $\text{dB}\mu\text{V}$ and includes any cable loss, antenna factor and pre-amplifier gain;

CF is the distance extrapolation factor in dB (where measurement distance different to limit distance);

Per FCC 47CFR15.31(f)(2) / RSS-Gen 6.4, an extrapolation factor of 59.08 dB per decade was used for measurements at distances closer than specified.

This field strength value is then compared with the regulatory limit.

Figure v Test Setup



13.5 Test Equipment

| Equipment Type | Manufacturer | Equipment Description | Element No | Due For Calibration |
|----------------|--------------|-----------------------|------------|---------------------|
| hfh2 | R&S | Loop Antenna | L007 | 2018-04-12 |
| ESHS10 | R&S | Receiver | U003 | 2018-08-29 |

13.6 Test Results

| <i>Modulation: FSK; High Power setting</i> | | | | | | | |
|--|--|---------------------------------|---------------------------|----------------------------------|--|---|---------------|
| <i>Channel Frequency (MHz)</i> | <i>Receiver Level (dB$\mu\text{V/m}$)</i> | <i>Measurement Distance (m)</i> | <i>Limit Distance (m)</i> | <i>Extrapolation Factor (dB)</i> | <i>Field Strength ($\mu\text{V/m}$)</i> | <i>Limit ($\mu\text{V/m}$)</i> | <i>Result</i> |
| 10.6 | 40.40 | 1 | 30 | 59.08 | 0.116 | 30 | PASS |

14 Occupied Bandwidth

14.1 Definition

Occupied bandwidth

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5 % of the emitted power. This is also known as the 99 % *emission bandwidth*. For transmitters in which there are multiple carriers, contiguous or non-contiguous in frequency, the occupied bandwidth is to be the sum of the occupied bandwidths of the individual carriers.

14.2 Test Parameters

| | |
|--|------------------------------|
| Test Location: | Element Skelmersdale |
| Test Chamber: | Radio Chamber |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 6.9 |
| EUT Channels / Frequencies Measured: | 10.6 MHz |
| EUT Channel Bandwidths: | 600 kHz |
| EUT Test Modulations: | FSK |
| Deviations From Standard: | None |
| Measurement BW: (requirement: 1% to 5% OBW) | 10 kHz |
| Spectrum Analyzer Video BW: (requirement at least 3x RBW) | 30 kHz |
| Measurement Span: (requirement 2 to 5 times OBW) | 2 MHz |
| Measurement Detector: | Peak |

Environmental Conditions (Normal Environment)

| | |
|--------------------|----------------------------------|
| Temperature: 22 °C | +15 °C to +35 °C (as declared) |
| Humidity: 40 % RH | 20 % RH to 75 % RH (as declared) |
| Supply: 1.2 V dc | 1.2 V dc (as declared) |

14.3 Test Limit

Industry Canada:

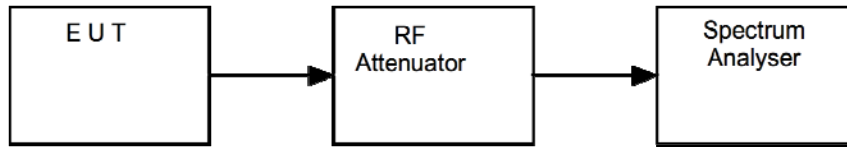
When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99 % emission bandwidth, as calculated or measured.

14.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure iv, the bandwidth of the EUT was measured on a spectrum analyser.

The measurements were performed with EUT set at its maximum duty. All modulation schemes, data rates and power settings were used to observe the worst-case configuration in each bandwidth.

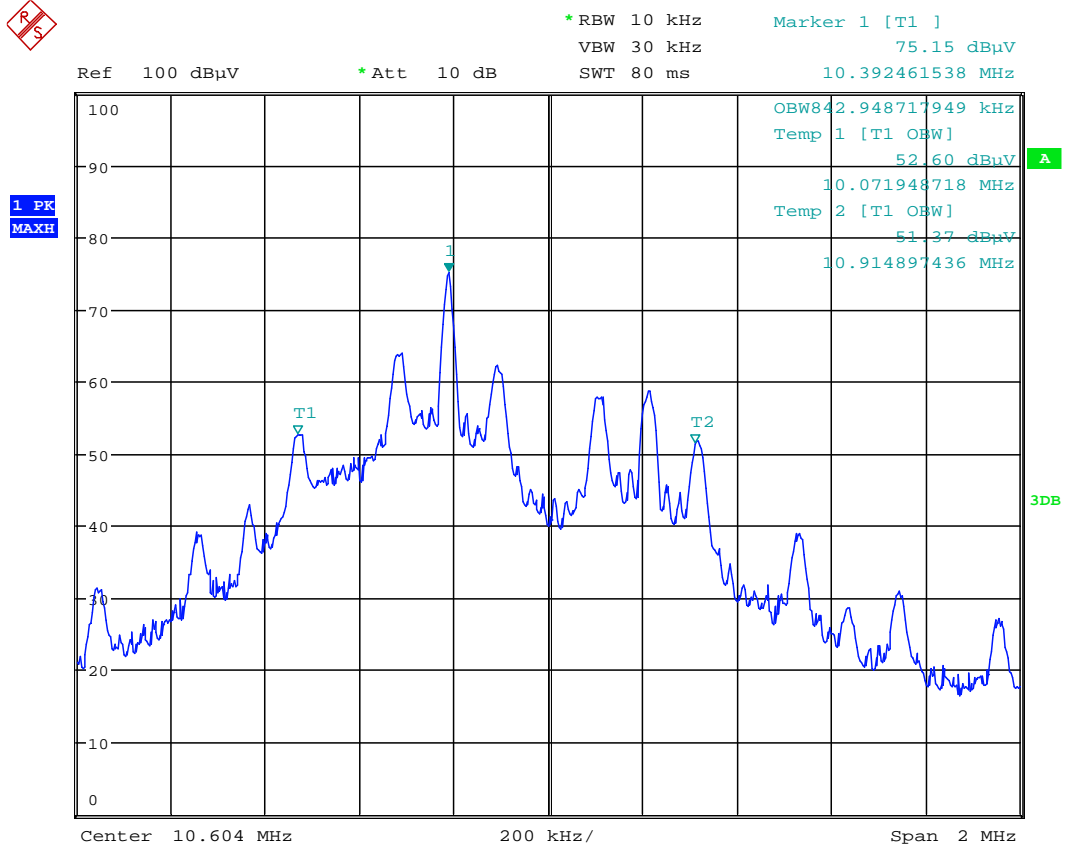
Figure iv Test Setup



14.5 Test Equipment

| Equipment Type | Manufacturer | Equipment Description | Element No | Due For Calibration |
|----------------|--------------|-----------------------|------------|---------------------|
| FSU26 | R&S | Spectrum Analyser | U405 | 2018-06-06 |

14.6 Test Results



Date: 11.APR.2018 11:23:12

| RSS-210. Modulation: FSK; Frequency: 10.6 MHz | | | |
|--|----------------------------|----------------------------|-----------------------------|
| Channel Frequency (MHz) | F_L (MHz) | F_H (MHz) | 99 % Bandwidth (kHz) |
| 10.604 | 10.07195 | 10.91490 | 842.95 |

15 Measurement Uncertainty

Calculated Measurement Uncertainties

All statements of uncertainty are expanded standard uncertainty using a coverage factor of 1.96 to give a 95 % confidence:

[1] Radiated emissions below 30 MHz

Uncertainty in test result (9 kHz to 30 MHz) = **2.3 dB**

[2] Spurious emissions

Uncertainty in test result (30 MHz to 1 GHz) = **4.6 dB**

Uncertainty in test result (1 GHz to 18 GHz) = **4.7 dB**

[3] AC power line conducted emissions

Uncertainty in test result = **3.4 dB**

[4] Occupied bandwidth

Uncertainty in test result = **15.5 %**

[5] Maximum frequency error

Uncertainty in test result (Power Meter) = **0.113 ppm**

Uncertainty in test result (Spectrum Analyser) = **0.265 ppm**