Report No. 430662-08-R01

# Test Report

| | |
|---|---|
| **Product** | DECT Handset with Bluetooth |
| **Name and address of the applicant** | Ascom Sweden AB<br>Grimbodalen 2 P.O.Box 8783,<br>40276 Göteborg, Sweden |
| **Name and address of the manufacturer** | Ascom Sweden AB<br>Grimbodalen 2 P.O.Box 8783,<br>40276 Göteborg, Sweden |
| **Model** | See Clause 1.1 |
| **Rating** | 3.7$V_{dc}$ (Secondary Battery, Li-Ion) |
| **Trademark** | ASCOM |
| **Serial number** | See clause 1.1 |
| **Additional information** | DECT 6.0, Bluetooth, Bluetooth Low Energy |
| **Tested according to** | **FCC Part 15, subpart B**<br>Other Class B Digital Device<br>**Industry Canada ICES-003, Issue 7**<br>Information Technology Equipment (ITE) |
| **Order number** | 430662 |
| **Tested in period** | 2021-04-09 to 2021-05-28 |
| **Issue date** | 2021-08-03 |
| **Name and address of the testing laboratory** | Nemko<br>Instituttveien 6<br>Kjeller, Norway<br>www.nemko.com<br><br>CAB Number:<br>FCC: NO0001<br>ISED: NO470<br><br>TEL: +47 22 96 03 30<br>FAX: +47 22 96 05 50<br><br>ilac-MRA NORWEGIAN ACCREDITATION TEST 033<br>**An accredited technical test executed under the Norwegian accreditation scheme** |

| Prepared by [Frode Sveinsen] | Approved by [G.Suhanthakumar] |
|---|---|



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## CONTENTS

# 1 INFORMATION

## 1.1 Tested Item

| | |
|---|---|
| **Name** | **ASCOM** |
| **Model name** | **DH8-AAAA**<br>**DH8-ABAA**<br>**DH8-ACAA**<br>**DH8-ABAB**<br>**DH8-ACAB**<br>**DH8-CEAA**<br>**DH8-CEAB**<br>**DH8-DDAA**<br>**DH8-DEAB** |
| **FCC ID** | **BXZDH8** |
| **FCC / IC Class** | **B** |
| **Serial number** | **T26107D2WF** |
| **Hardware identity and/or version** | **PD** |
| **Software identity and/or version** | **1.0.8** |
| **Desktop Charger** | **Ascom DC3-AAD with AC Adaptor DSA-6PFG-05** |
| **Power Supply** | **Secondary Battery (3.7V Li-Ion, 910mAh)** |

### Description of Tested Device(s)

The tested equipment is a DECT Handset with Desktop Charger.

All models listed above have identical RF part and the main PCB and physical properties are identical. See model differences letter for description of differences.

All tests were performed on model DH8-ACAA, this model contains all options.

## 1.2 Test Environment

| | |
|---|---|
| **Temperature:** | **20 – 23 °C** |
| **Relative humidity:** | **30 – 50 %** |
| **Normal test voltage:** | **3.7 $V_{DC}$ (Nominal Battery Voltage)** |

The values are the limit registered during the test period.

## 1.3 Test Engineer(s)

Frode Sveinsen / Daniel Weber

## 1.4 Test Equipment

See list of test equipment in clause 6.

## 1.5 Test Configurations

| | |
|---|---|
| **Test Configuration** | **EUT standby in charger and charging.** |

## 1.6 Other Comments

All tests were performed with the EUT in charger and charging.

# 2 TEST REPORT SUMMARY

## 2.1 General

All measurements are traceable to national standards.

All tests were performed is accordance with ANSI C63.4-2014 where applicable. Radiated emissions are made in a 10m semi-anechoic chamber. A description of the test facility is on file with FCC and Industry Canada.

☒ New Submission ☒ Production Unit

☐ Class II Permissive Change ☐ Pre-production Unit

**JAB** Equipment Code ☐ Family Listing

**THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.**

Deviations from, additions to, or exclusions from the test specifications are described in “Summary of Test Data”.

## 2.2 Test Summary

| Name of test | FCC CFR 47, Paragraph # | ISED RSS-GEN, Issue 5, Paragraph # | ISED ICES-003, Issue 7, Paragraph # | Verdict |
|---|---|---|---|---|
| Power Line Conducted Emission | 15.107(a)<br>15.207(a) | 7.2 | 3.2.1 | Complies |
| Spurious Emissions (Radiated) | 15.109 | 7.3 | 3.2.2 | Complies |

# 3 TEST RESULTS

## 3.1 Power Line Conducted Emissions

**FCC Part 15.107 (a)**

**ISED RSS-Gen Issue 5, Clause 7.2**

**ISED ICES-003 Issue 7, Clause 3.2.1**

**Measurement procedure:** **ANSI C63.4-2014 using 50 µH/50 ohms LISN.**

**Test Results:** **Complies**

**Measurement Data:** **See attached plots.**

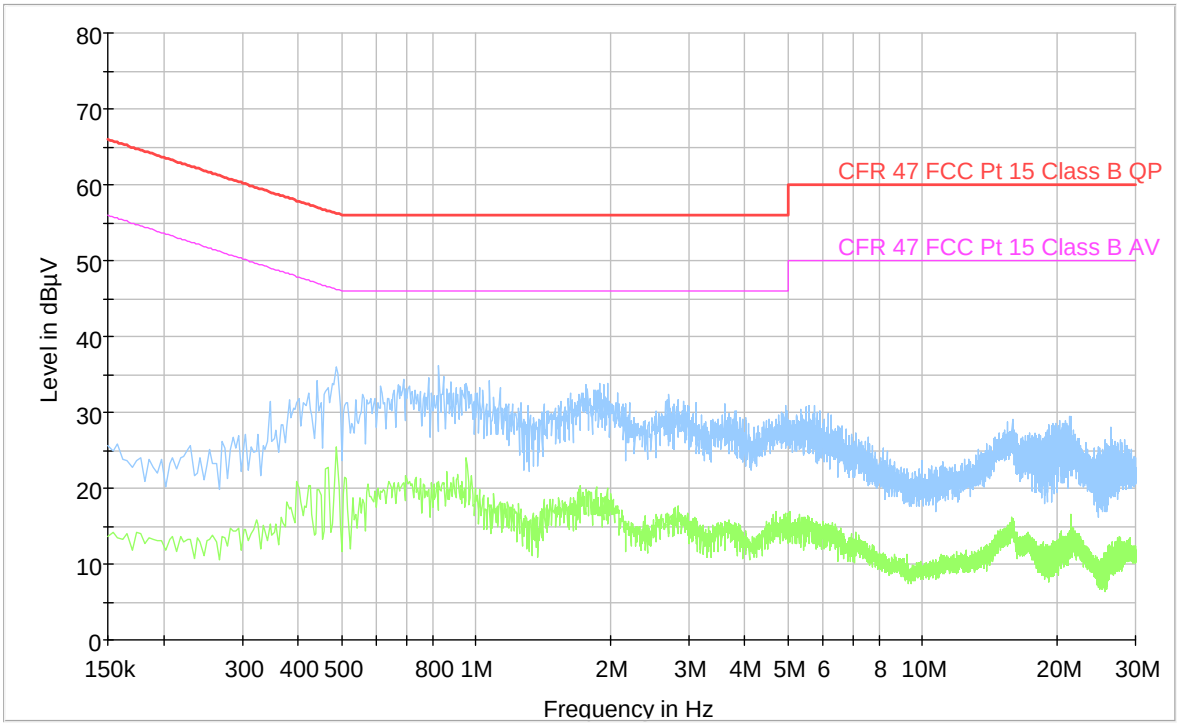
All tests were performed with 120V 60Hz AC

**Highest measured value (L1 and N):**

**Handset Standby in Charger, 120V 60Hz:**

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Filter |
|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | |

Full Spectrum



## 3.2 Spurious Emissions (Radiated)

**FCC Part 15.109**

**ISED RSS-Gen Issue 5, Clause 7.3**

**ISED ICES-003 Issue 7, Clause 3.2.2**

### Test Results:

### Radiated Emissions 30 - 1000 MHz

Detector: Peak (Pre-scan, measurements with QP detector)

Measuring distance 3m

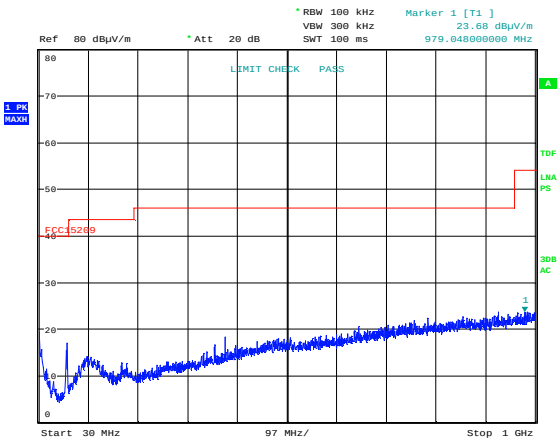
The EUT were rotated 360 degrees and the antenna height varied between 1 and 4 m on all found frequencies.

| Frequency MHz | Dist. corr. Factor dB | Field strength @3m QP Det., dBµV/m | Limit dBµV/m | Margin dB |
|---|---|---|---|---|
| **30 – 88** | **0** | **< 32** | **40.0** | **> 8** |
| **88 - 216** | **0** | **< 30** | **43.5** | **> 13.5** |
| **216 – 960** | **0** | **< 30** | **46.0** | **> 16** |
| **960 - 1000** | **0** | **< 30** | **54.0** | **> 24** |

### Requirements/Limit

| **FCC** | Part 15.209 @ frequencies defined in §15.205 | |
|---|---|---|
| **ISED** | RSS-GEN Issue 4, Clause 8.9 @ frequencies defined in clause 8.10 | |
| | **Radiated emission limit @3 meters** | |
| **Frequency (MHz)** | **Quasi Peak (µV/m)** | **Quasi Peak (dBµV/m)** |
| **30 – 88** | 100 | 40.0 |
| **88 – 216** | 150 | 43.5 |
| **216 – 960** | 200 | 46.0 |
| **Above 960** | 500 | 54.0 |

[1] The limit above 1000 MHz is specified for Average Detector, when the measurement is performed with a Peak Detector a Duty-Cycle Correction Factor has to be calculated to find the corresponding Average Detector value.

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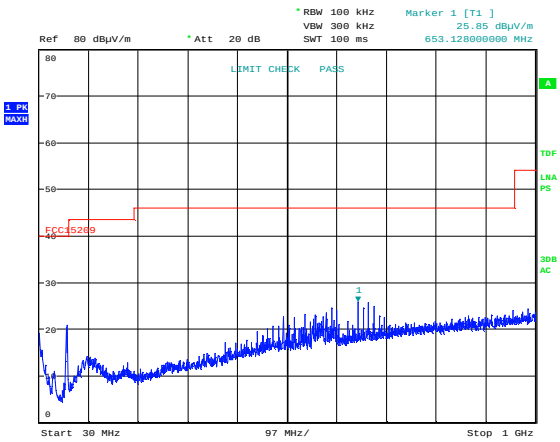
**Radiated Emissions 30 - 1000 MHz, HP**

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**Radiated Emissions 30 - 1000 MHz, VP**

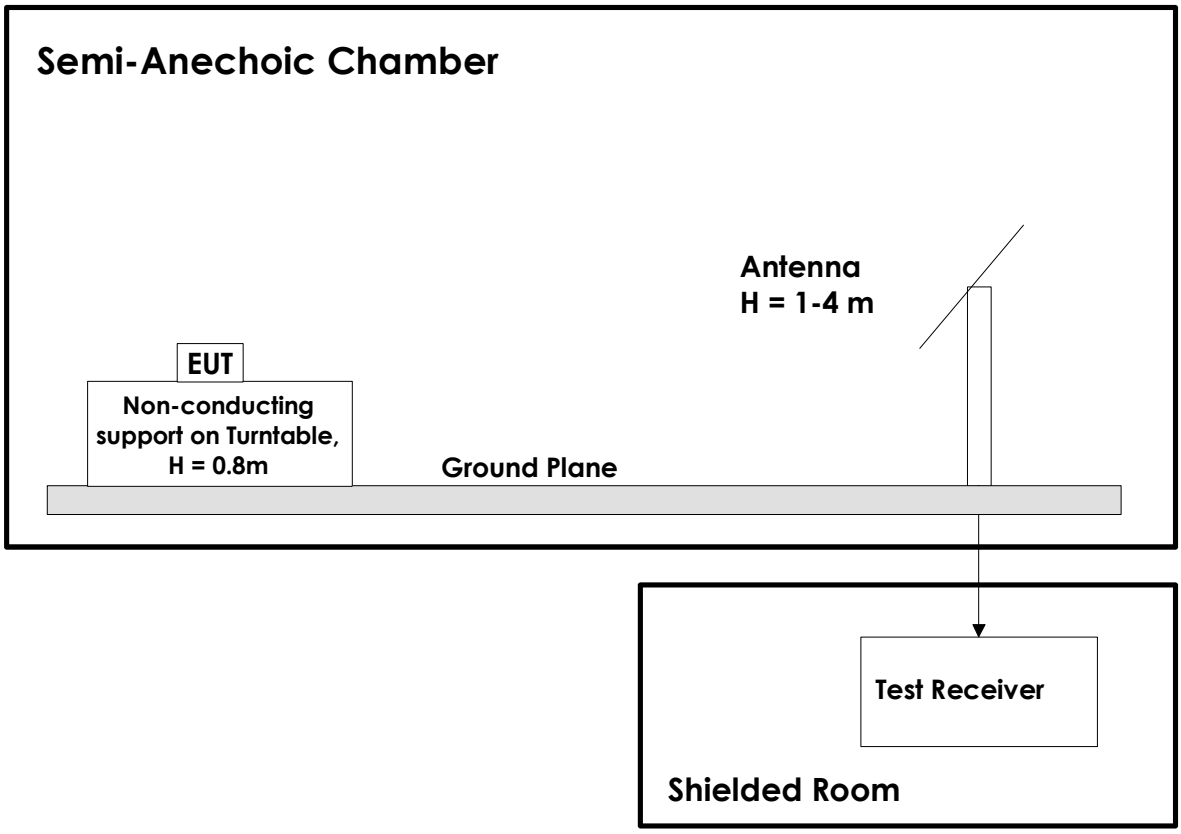
# 4 Measurement Uncertainty

| Measurement Uncertainty Values | | |
|---|---|---|
| **Test Item** | | **Uncertainty** |
| **Spurious Emissions, Radiated** | **< 1 GHz** | ±2.5 dB |
| | **> 1 GHz** | ±2.2 dB |
| **Power Line Conducted Emissions** | | +2.9 / -4.1 dB |
| **Temperature Uncertainty** | | ±1 °C |

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

# 5 Test Setups

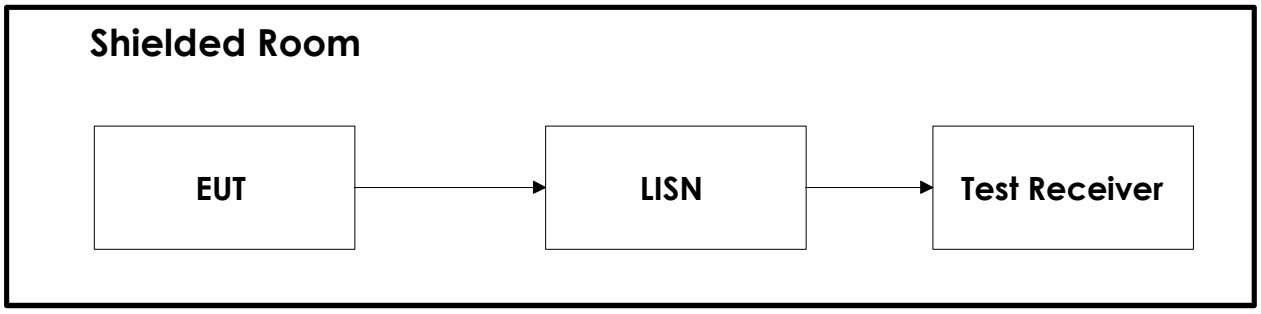
## 5.1 Radiated Emissions Test




**Test Set-Up 1**

This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance is 10m, for all other frequencies it is 3m or 1m. Emissions above 1 GHz are measured with a Spectrum Analyzer and Horn Antenna. For measurements above 18 GHz the test receiver is moved inside the anechoic chamber and located next to the antenna to minimize the cable loss. All measurements at 1GHz and above were performed with turntable height 1.5m and with the ground plane covered by absorbers. A pre-amplifier is used for all measurements above 30 MHz.

## 5.2 Power Line Conducted Emissions Test




**Test Set-Up 2**

# 6 Test Equipment Used

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Testhouse.

| No. | Model number | Description | Manufacturer | Ref. no. | Cal. date | Cal. Due |
|---|---|---|---|---|---|---|
| 1 | ESU40 | Measuring Receiver | Rohde & Schwarz | LR 1639 | 2021-02 | 2022-02 |
| 2 | NO324415 | Band Reject Filter | Microwave Circuits | LR 1760 | 2020-08 | 2021-08 |
| 3 | JB3 | BiLog Antenna | Sunol | N-4525 | 2020-03 | 2023-03 |
| 4 | 317 | Preamplifier | Sonoma Inst. | LR 1687 | 2020-08 | 2021-08 |
| 5 | 6812B | AC Power Source | Agilent | LR 1515 | 2020-04 | 2022-04 |
| 6 | ESCI3 | Measuring Receiver | Rohde & Schwarz | N-4259 | 2019.10 | 2021.10 |
| 7 | ENV216 | Two Line V-Network | Rohde & Schwarz | LR 1665 | 2019-11 | 2021-11 |
| 8 | ST18/SMA/N/36 | RF Cable | Suhner | LR 1627 | COU | |

COU = Calibrate on Use

The software listed below has been used for one or more tests.

| No. | Manufacturer | Name | Version | Comment |
|---|---|---|---|---|
| 1 | Rohde & Schwarz | EMC32 | 10.50.10 | Power Line Conducted test software |
| 2 | Nemko AS | RSPlot | 1.0.8.0 | Screenshots from R&S Spectrum Analyzers |
| | | | | |

## Revision history

| Revision | Date | Comment | Sign |
|---|---|---|---|
| 00 | 2021-06-22 | First edition | FS |
| 01 | 2021-08-03 | Updated Modelnumbers | FS |
| | | | |