Test Report issued under the responsibility of:

eurofins | Product Service

# EMC TEST REPORT

**FCC 47 CFR Part 15B**
**Industry Canada RSS-Gen**

**Electromagnetic compatibility - Unintentional radiators**

| | |
|---|---|
| **Report Reference No.** ..... : | G0M-1105-1156 – C-1 |
| **Testing Laboratory** ..... : | Eurofins Product Service GmbH |
| Address ..... : | Storkower Str. 38c<br>15526 Reichenwalde<br>Germany |
| Accreditation ..... : | FCC Filed Test Laboratory, Reg.-No.: 96970<br>A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 |
| **Applicant's name** ..... : | Hughes Telematics, Inc. |
| Address ..... : | 2002 Summit Blvd, Suite 1800<br>GA 30319 Atlanta, Georgia<br>USA |
| **Test specification:** | |
| Standard..... : | 47 CFR Part 15 Subpart B<br>RSS-Gen, Issue 3, 2010-12<br>ANSI C63.4:2009 |
| **Equipment under test (EUT):** | |
| Product description | Bluetooth Speakerphone |
| Model No. | AT-650 |
| Hardware version | A00 |
| Firmware / Software version | 2.0.0 |
| | FCC-ID: ZOQAT-650 IC: 9734A-AT650 |
| **Test result** | **Passed** |

| | |
|---|---|
| **Possible test case verdicts:** | |
| - not applicable to test object ..... : | N/A |
| - test object does meet the requirement..... : | P (Pass) |
| - test object does not meet the requirement..... : | F (Fail) |

**Testing:**

| | |
|---|---|
| Date of receipt of test item ..... : | 14.06.2011 |
| Date (s) of performance of tests ..... : | 29.06.2011 |
| Tested by (+ signature)..... : | Marcus Klein |
| Approved by (+ signature) ..... : | Jens Zimmermann |
| Date of issue ..... : | 30.08.2011 |
| Total number of pages ..... : | 20 |

**General remarks:**

**The test results presented in this report relate only to the object tested.**

**The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.**

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

**Additional comments:**

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# 1 Equipment (Test item) Description:

| | |
|---|---|
| **Description** | Bluetooth Speakerphone |
| **Model** | AT-650 |
| **Serial number** | without |
| **Hardware version** | A00 |
| **Software / Firmware version** | 2.0.0 |
| **Power supply** | 5VDC (USB powered) |
| **AC/DC-Adaptor** | None |
| **Highest emission frequency** | Fmax [MHz] = 26 |
| **Device classification** | Class B |
| **Equipment type** | Tabletop |
| **Number of tested samples** | 1 |

### 1.2 Supporting Equipment Used During Testing:

| Product Type* | Device | Manufacturer | Model No. | Comments |
|---|---|---|---|---|
| AE | Mobil | Pantech | C820 | |
| AE | Notebook | Dell | D290 | |

***Note:** Use the following abbreviations:

AE : Auxiliary/Associated Equipment, or

SIM : Simulator (Not Subjected to Test)

CABL : Connecting cables

### 1.3 Operating Modes:

| Mode # | Description |
|---|---|
| 1 | EUT connected to Laptop USB port. Charging mode active. |
| 2 | BT-link to mobile |

## 1.4 Test Equipment Used During Testing

| Radiated emissions | | | | | |
|---|---|---|---|---|---|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| Biconical Antenna | R&S | HK 116 | Inv. No. 0012 | Jan 10 | Jan 13 |
| LPD-Antenne | R&S | HL 223 | Inv. No. 0295 | Feb 11 | Feb 13 |
| LPD-Antenna | R&S | HL 025 | Inv. No. 0512 | Feb 10 | Feb 13 |
| EMI Test Receiver | R&S | ESU8 | Inv. No. 0567 | Dec 10 | Dec 11 |
| EMI Test Receiver | R&S | ESCS30 | Inv. No. 0474 | Jun 11 | Jun 12 |

| Conducted emissions | | | | | |
|---|---|---|---|---|---|
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
| AMN | R&S | ESH2-Z5 | Inv. No. 0288 | Sep 10 | Sep 12 |
| AMN | R&S | ESH3-Z5 | Inv. No. 0040 | Nov 10 | Nov 12 |
| EMI Test Receiver | R&S | ESCS 30 | Inv. No. 0474 | Jun 11 | Jun 12 |

## 2 Result Summary

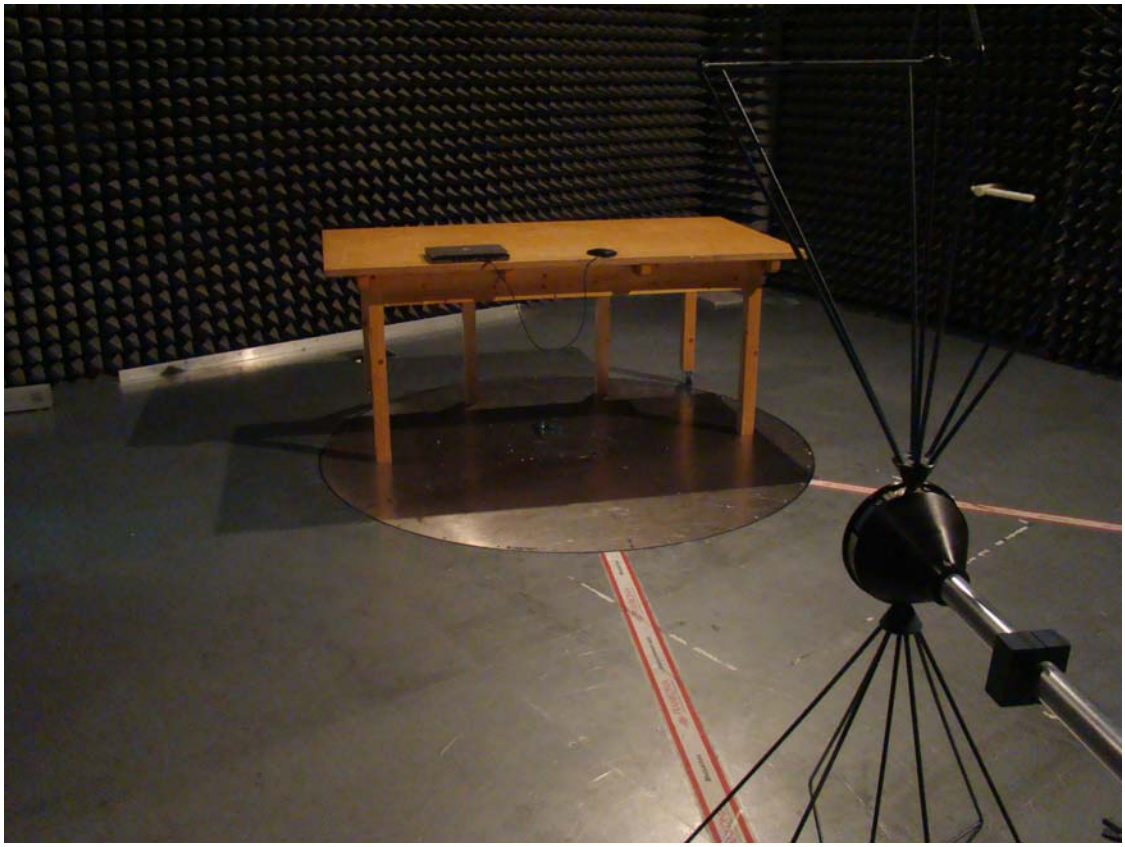
| FCC 47 CFR Part 15B, Industry Canada RSS-Gen | | | | |
|---|---|---|---|---|
| **Product Specific Standard** | **Requirement – Test** | **Reference Method** | **Result** | **Remarks** |
| 47 CFR 15.109<br>RSS-Gen 4.9 & 4.10 | Radiated emissions | ANSI C 63.4 | PASS | |
| 47 CFR 15.107<br>RSS-Gen 7.2.4 | AC power line conducted emissions | ANSI C63.4 | PASS | |
| **Remarks:** | | | | |

# 3 Test Conditions and Results

## 3.1 Test Conditions and Results – Radiated emissions

| **Radiated emissions acc. FCC 47 CFR 15.109 / IC RSS-Gen** | | **Verdict: PASS** |
|---|---|---|
| Laboratory Parameters: | Required prior to the test | During the test |
| Ambient Temperature | 15 to 35°C | 24°C |
| Relative Humidity | 30 to 60% | 41% |
| Test according referenced standards | Reference Method | |
| | ANSI C63.4 | |
| Sample is tested with respect to the requirements of the equipment class | Equipment class | |
| | Class B | |
| Test frequency range determined from highest emission frequency | Highest emission frequency | |
| | Fmax [MHz] = 26 | |
| Fully configured sample scanned over the following frequency range | Frequency range | |
| | | |

| **Limits and results Class B** | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Quasi-Peak [dBµV/m] | Result | Average [dBµV/m] | Result |
| 30 – 88 | 40 | PASS | - | - |
| 88 – 216 | 43.5 | PASS | - | - |
| 216 – 960 | 46 | PASS | - | - |
| 960 – 1000 | 54 | PASS | - | - |
| > 1000 | - | - | 54 | PASS |
| Comments: | | | | |

| Test setup |
| --- |
|  |

**Spurious emissions under normal conditions according to FCC Part 15b**

Order number: G0M-1105-1156

| | |
|---|---|
| Manufacturer: | Hughes Telematics, Inc. |
| EUT Name: | Bluetooth Speakerphone |
| Model: | AT-650 |
| Test Site: | Eurofins Product Service GmbH |
| Operator: | Mr. Klein |
| Test Conditions: | Tnom: 23°C, Unom: 5VDC (USB via Notebook) |
| Antenna: | Rohde & Schwarz HK 116, Horizontal |
| Measurement distance: | 3m |
| Mode: | charging + BT link |
| Test Date: | 29.06.2011 |
| Note: | |

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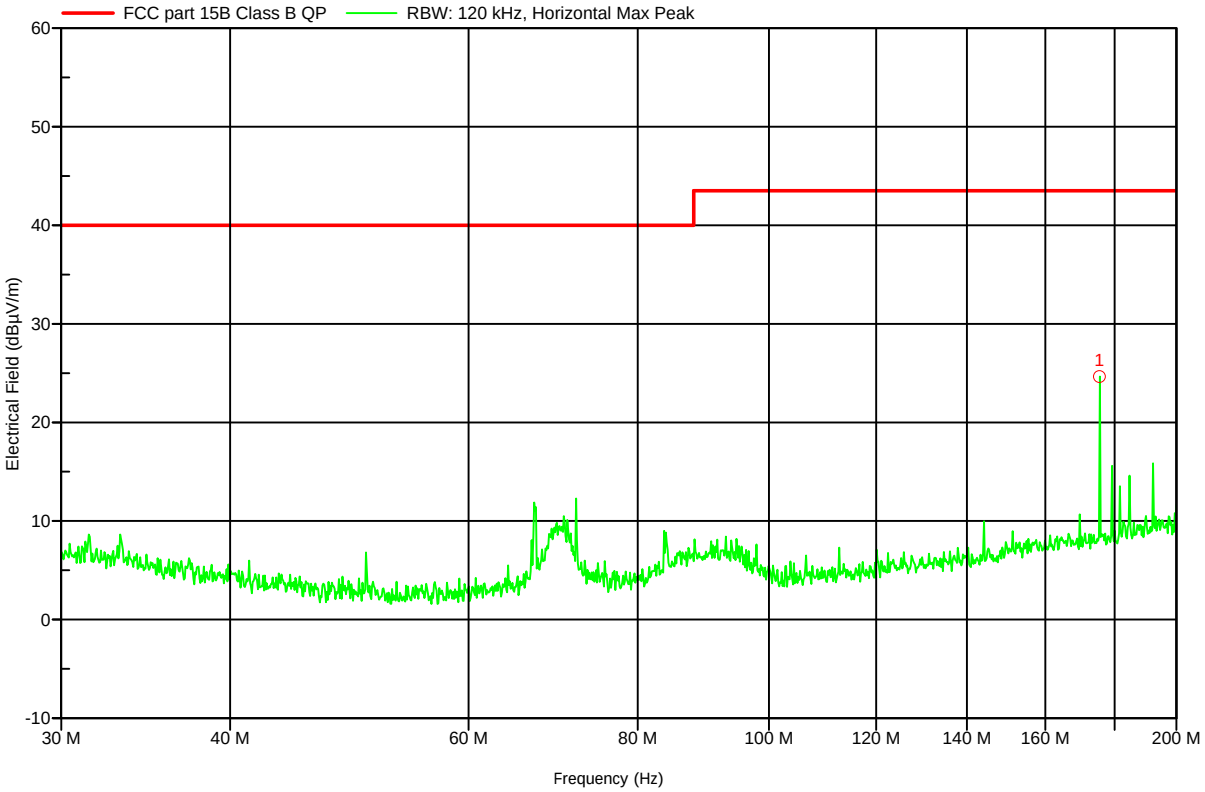


Frequency
175.44 MHz

**Spurious emissions under normal conditions according to FCC Part 15b**

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|---|---|
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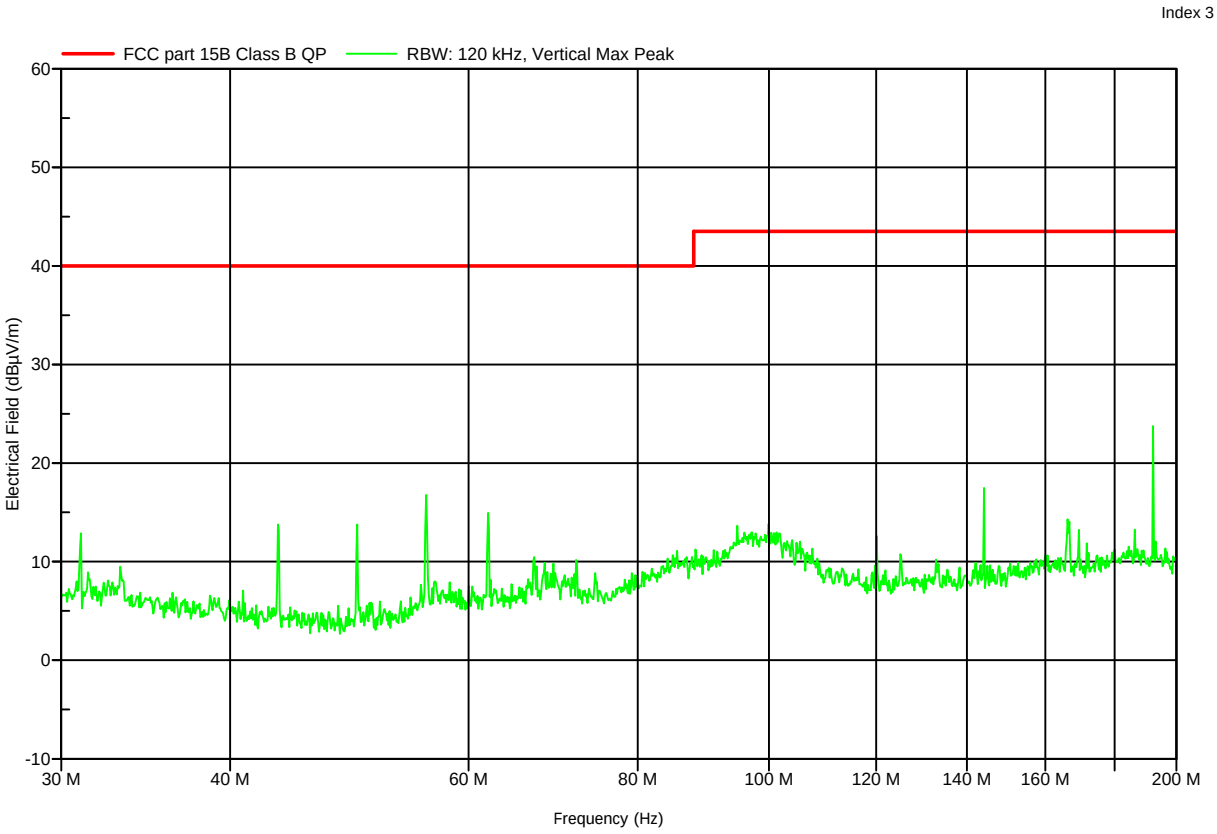
| EUT Name: | Bluetooth Speakerphone |
| Model: | AT-650 |
| Test Site: | Eurofins Product Service GmbH |
| Operator: | Mr. Klein |
| Test Conditions: | Tnom: 23°C, Unom: 5VDC (USB via Notebook) |
| Antenna: | Rohde & Schwarz HK 116, Vertical |
| Measurement distance: | 3m |
| Mode: | charging + BT link |
| Test Date: | 29.06.2011 |
| Note: | |



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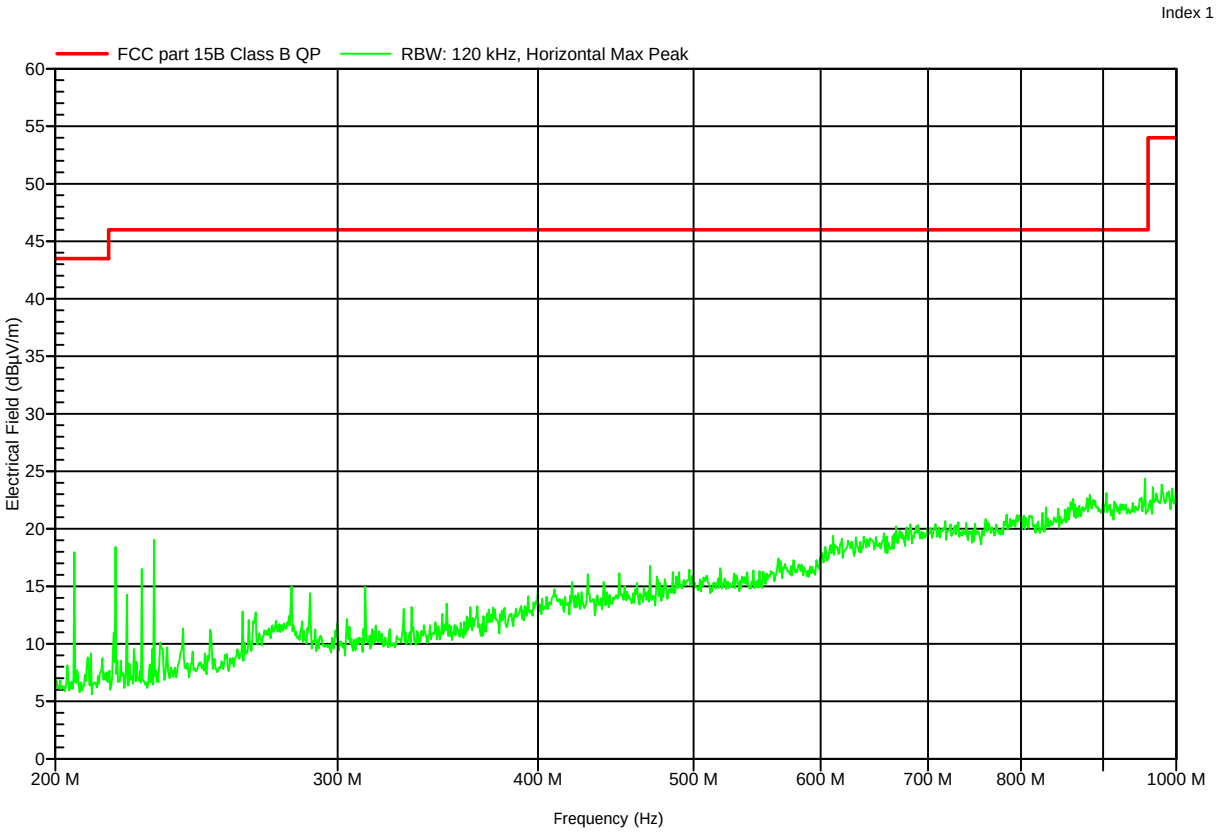
| Manufacturer: | Hughes Telematics, Inc. |
| EUT Name: | Bluetooth Speakerphone |
| Model: | AT-650 |
| Test Site: | Eurofins Product Service GmbH |
| Operator: | Mr. Klein |
| Test Conditions: | Tnom: 23°C, Unom: 5VDC (USB via Notebook) |
| Antenna: | Rohde & Schwarz HL 223, Horizontal |
| Measurement distance: | 3m |
| Mode: | charging + BT link |
| Test Date: | 29.06.2011 |
| Note: | |



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| EUT Name: | Bluetooth Speakerphone |
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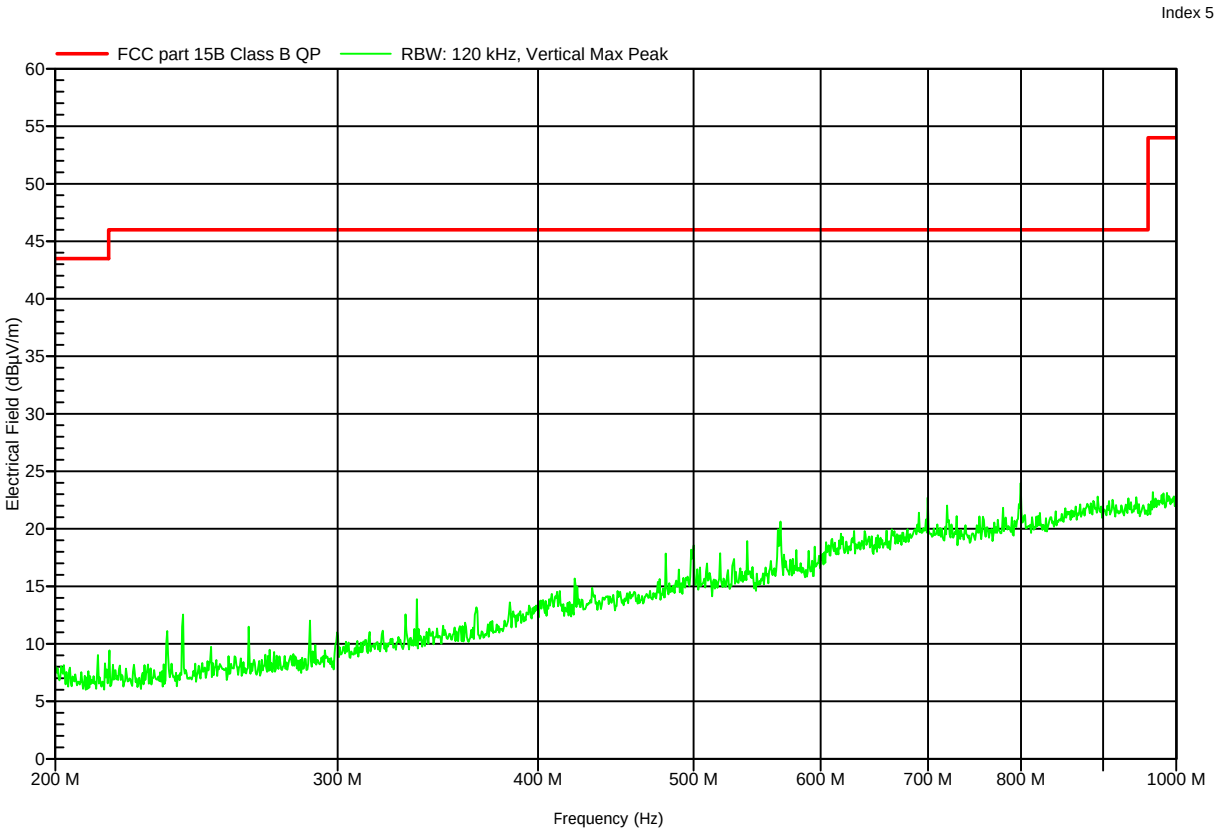
| Antenna: | Rohde & Schwarz HL 223, Vertical |
| Measurement distance: | 3m |
| Mode: | charging + BT link |
| Test Date: | 29.06.2011 |
| Note: | |



### 3.2 Test Conditions and Results – AC power line conducted emissions

| **Conducted emissions acc. FCC 47 CFR 15.107 / IC RSS-Gen** | | **Verdict: PASS** |
|---|---|---|
| Laboratory Parameters: | Required prior to the test | During the test |
| Ambient Temperature | 15 to 35°C | 24°C |
| Relative Humidity | 30 to 60% | 41% |
| Test according referenced standards | Reference Method | |
| | ANSI C63.4 | |
| Fully configured sample scanned over the following frequency range | Frequency range | |
| | 0.15MHz to 30MHz | |
| Sample is tested with respect to the requirements of the equipment class | Equipment class | |
| | Class B | |
| Points of Application | Application Interface | |
| AC Mains | LISN | |

**Limits and results Class B**

| Frequency [MHz] | Quasi-Peak [dBµV] | Result | Average [dBµV] | Result |
|---|---|---|---|---|
| 0.15 to 5 | 66 to 56* | PASS | 56 to 46* | PASS |
| 0.5 to 5 | 56 | PASS | 46 | PASS |
| 5 to 30 | 60 | PASS | 50 | PASS |

Comments:
* Limit decreases linearly with the logarithm of the frequency.

| Test setup |
| --- |
|  |

**EMI voltage test in the ac-mains according to FCC Part 15b**

Order number: G0M-1105-1156

| | |
|---|---|
| Manufacturer: | Hughes Telematics, Inc. |
| EUT Name: | Bluetooth Speakerphone |
| Model: | AT-650 |
| Test Site: | Eurofins Product Service GmbH |
| Operator: | Mr. Klein |
| Test Conditions: | Tnom: 23°C, Unom: 5VDC (USB via Notebook powered with 120VAC) |
| LISN: | ESH2-Z5 N |
| Mode: | charging + BT link |
| Test Date: | 29.06.2011 |
| Note: | |

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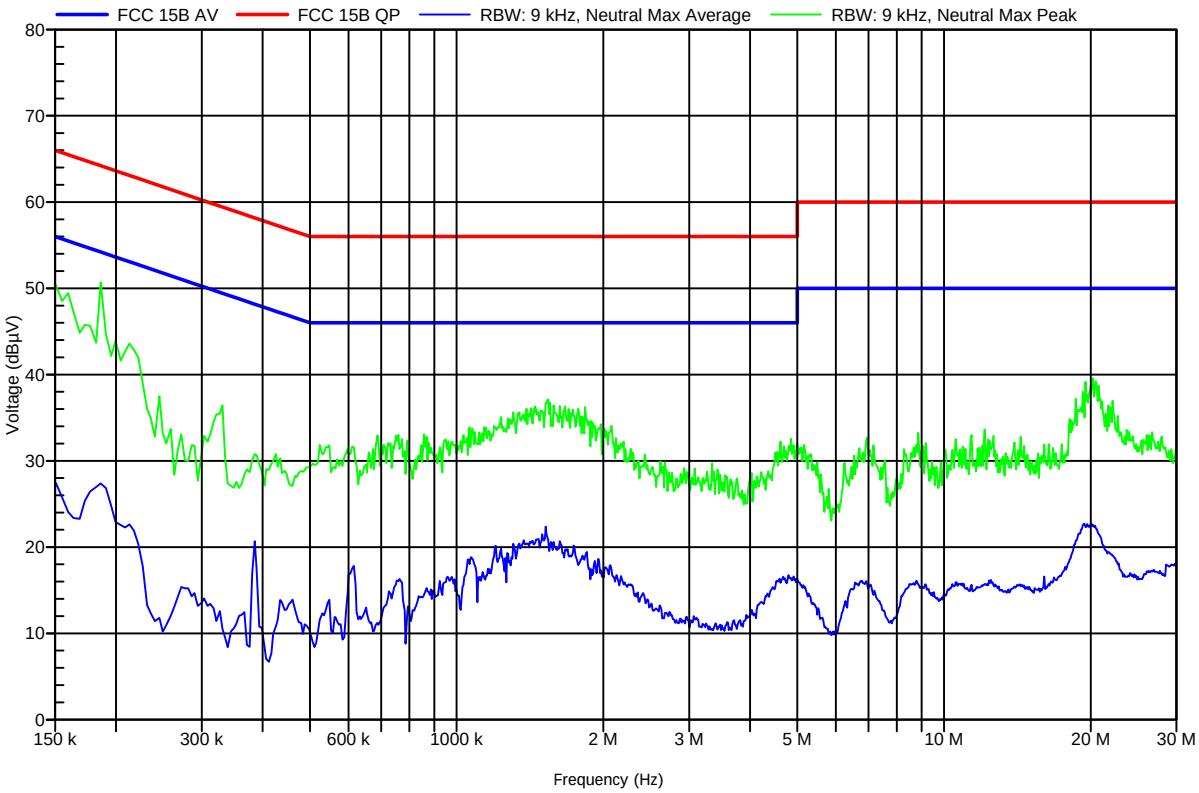

**EMI voltage test in the ac-mains according to FCC Part 15b**

Order number: G0M-1105-1156

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|---|---|
| Manufacturer: | Hughes Telematics, Inc. |
| EUT Name: | Bluetooth Speakerphone |
| Model: | AT-650 |
| Test Site: | Eurofins Product Service GmbH |
| Operator: | Mr. Klein |
| Test Conditions: | Tnom: 23°C, Unom: 5VDC (USB via Notebook powered with 120VAC) |
| LISN: | ESH2-Z5 L |
| Mode: | charging + BT link |
| Test Date: | 29.06.2011 |
| Note: | |