

|  |                         |                             |                         |                         |   |
|--|-------------------------|-----------------------------|-------------------------|-------------------------|---|
|  | Test Report Serial No.: | 041511IPH-T1094-E95U        | Test Report Issue Date: | July 15, 2011           |   |
|  | Measurement Dates:      | May 18, June 01-10 , 2011   | Test Report Revision:   | Rev. 1.0                |   |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B   | Test Site Registration: | FCC Accredited Site     |   |
|  |                         | IC RSS-210 (8), RSS-Gen (3) |                         | IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## DECLARATION OF COMPLIANCE - FCC PART 95(A/B) & IC RSS-210 (Issue 8)

|   |  |   |  |                          |                    |                           |     |
|---|--|---|--|--------------------------|--------------------|---------------------------|-----|
| <b>Test Lab Information</b>   |  | <b>Name</b>   | CELLTECH LABS INCORPORATED                                     |                          |                    |                           |     |
|   |  | <b>Address</b>  | 21-364 Lougheed Road, Kelowna, British Columbia V1X 7R8 Canada |                          |                    |                           |     |
| <b>Test Lab Accreditation(s)</b>  |  | <b>A2LA</b>   | ISO/IEC 17025:2005 (A2LA Test Lab Certificate No. 2470.01)     |                          |                    |                           |     |
| <b>Test Site Registration No.(s)</b>  |  | <b>IC</b>   | 3874A-1  |                          |                    |                           |     |
| <b>Applicant Information</b>  |  | <b>Name</b>   | GARMIN INTERNATIONAL INC.                                      |                          |                    |                           |     |
|   |  | <b>Address</b>  | 1200, East 151 <sup>st</sup> Street, Olathe, KS, 66062 USA     |                          |                    |                           |     |
| <b>Standard(s) &amp; Procedure(s)</b>   |  | <b>FCC</b>  | 47 CFR Part 2  | 47 CFR Part 95 Subpart A |                    | 47 CFR Part 95 Subpart B  |     |
|   |  | <b>IC</b>   | RSS-210 Issue 8  |                          | RSS-Gen Issue 3    |                           |     |
|   |  | <b>ANSI</b>   | TIA/EIA-603-C-2004   |                          | C63.4-2003         |                           |     |
| <b>Device Classification(s)</b>   |  | <b>FCC</b>  | Part 95 Family Radio Face Held Transmitter (FRF) - GMRS        |                          |                    | 47 CFR §95 (Subpart A)    |     |
|   |  | <b>IC</b>   | Part 95 Family Radio Face Held Transmitter (FRF) - FRS         |                          |                    | 47 CFR §95 (Subpart B)    |     |
|   |  | <b>IC</b>   | Low-power Licence-exempt Radiocommunication Device (GMRS/FRS)  |                          |                    | RSS-210 Issue 8           |     |
| <b>Device Category</b>  |  | <b>FCC/IC</b>   | Portable   |                          |                    |                           |     |
| <b>RF Exposure Category</b>   |  | <b>FCC/IC</b>   | General Population / Uncontrolled                              |                          |                    |                           |     |
| <b>Application Type</b>   |  | <b>FCC</b>  | New Certification  | <b>IC:</b>               | New Certification  |                           |     |
| <b>Device Identifier(s)</b>   |  | <b>FCC ID:</b>  | IPH-01767  | <b>IC:</b>               | 1792A-01767        |                           |     |
| <b>Device Under Test (DUT)</b>  |  | Portable FM UHF FRS/GMRS Push-To-Talk (PTT) Radio Transceiver with GPS              |  |                          |                    |                           |     |
| <b>Date of Sample Receipt</b>   |  | April 15, 2011  |  |                          |                    |                           |     |
| <b>Date(s) of Evaluation</b>  |  | May 18, June 1-10, 2011   |  |                          |                    |                           |     |
| <b>Device Model(s)</b>  |  | Rino 650, Rino 655t (with camera)   |  |                          |                    |                           |     |
| <b>Test Sample Serial No.(s)</b>  |  | 1766382247997103 (Identical Prototype) - Rino 655t                                  |  |                          |                    |                           |     |
| <b>Transmit Frequency Ranges</b>  |  | 462.5500 - 462.7250 MHz (GMRS Channels 15-22)                                       |  |                          |                    |                           |     |
|   |  | 462.5625 - 462.7125 MHz (GMRS/FRS Channels 1-7)                                     |  |                          |                    |                           |     |
|   |  | 467.5625 - 467.7125 MHz (FRS Channels 8-14)   |  |                          |                    |                           |     |
| <b>Max. RF Output Power Tested</b>  |  | <b>Mode</b>   | <b>Frequency</b>   | <b>Channel</b>           | <b>dBm</b>         | <b>Watts</b>              |     |
|   |  | GMRS  | 462.5625 MHz   | 1                        | 33.0               | 2.0                       | ERP |
|   |  | FRS   | 467.5625 MHz   | 8                        | 22.0               | 0.160                     | ERP |
| <b>Modulation Type(s)</b>   |  | FM  |  |                          |                    |                           |     |
| <b>Antenna Type(s) Tested</b>   |  | Helix (Non-detachable)  | Gain: -1.8 dBi   |                          | Length : 62.3 mm   | P/N: 700-00040-00         |     |
| <b>Power Source(s) Tested</b>   |  | Lithium-ion Battery   | 7.8 V (Nominal)  |                          | 2300 mAh           | P/N: 011-02526-30         |     |
| <p>This wireless device has demonstrated compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR Rule Part 2, Part 95 Subpart A, Part 95 Subpart B; Industry Canada RSS-210 Issue 8, RSS-Gen Issue 3; ANSI TIA/EIA-603-C-2004 and ANSI C63.4-2003.</p> |  |   |  |                          |                    |                           |     |
| <p>I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.</p>   |  |   |  |                          |                    |                           |     |
| <p>The results and statements contained in this report pertain only to the device(s) evaluated.</p>   |  |   |  |                          |                    |                           |     |
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| <b>Test Report Approved By</b>  |  |  | <b>Sean Johnston</b>   |                          | <b>Lab Manager</b> | <b>Celltech Labs Inc.</b> |     |

|                         |  |                      |                     |            |             |   |
|-------------------------|--|----------------------|---------------------|------------|-------------|---|
| <b>Applicant:</b>       | Garmin International Inc.  | <b>FCC ID:</b>       | IPH-01767           | <b>IC:</b> | 1792A-01767 |  |
| <b>DUT Type:</b>        | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | <b>DUT Model(s):</b> | Rino 650, Rino 655t |            |             |   |
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|  |                         |  |                         |  |  |
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| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

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|                         |   |  |                     |     |             |  |
|-------------------------|---|--|---------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |  |
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| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U        | Test Report Issue Date: | July 15, 2011           | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011   | Test Report Revision:   | Rev. 1.0                |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B   | Test Site Registration: | FCC Accredited Site     |  |
|  |                         | IC RSS-210 (8), RSS-Gen (3) |                         | IC Site File #: 3874A-1 |  |
| Test Lab Certificate No. 2470.01   |                         |                             |                         |                         |  |

## TEST SUMMARY

| Referenced Standard(s): |                                      | FCC CFR Title 47 Parts 2, 95(A/B) |                           |            |          |        |
|-------------------------|--------------------------------------|-----------------------------------|---------------------------|------------|----------|--------|
| Appendix                | Description of Test                  | Procedure Reference               | Limit Reference           | Test Start | Test End | Result |
| A                       | Effective Radiated Power (ERP)       | ANSI/TIA/EIA-603-C                | §95.639                   | May 18     | May 18   | Pass   |
| B                       | Modulation Limiting                  | ANSI/TIA/EIA-603-C                | §2.1047, §95.637          | June 8     | June 10  | Pass   |
| C                       | Audio Frequency Response             | ANSI/TIA/EIA-603-C                | §2.1047                   | June 8     | June 10  | Pass   |
| D                       | Low-Pass Filter Response             | ANSI/TIA/EIA-603-C                | §2.1047, §95.637          | June 8     | June 10  | Pass   |
| E                       | Occupied Bandwidth and Emission Mask | ANSI/TIA/EIA-603-C                | §2.1049, §95.633, §95.635 | June 1     | June 3   | Pass   |
| F                       | Radiated TX Spurious Emissions       | ANSI/TIA/EIA-603-C                | §2.1053, §95.635 (b) (7)  | June 6     | June 7   | Pass   |
| G                       | Radiated RX Spurious Emissions       | n/a                               | n/a                       | June 6     | June 7   | n/a    |
| H                       | Frequency Stability                  | ANSI/TIA/EIA-603-C                | §2.1055, §95.621, §95.627 | June 8     | June 8   | Pass   |

## Referenced Standard(s):

**Industry Canada RSS-210 Issue 8; RSS-Gen Issue 3**

| Appendix | Description of Test                  | Procedure Reference | Limit Reference                             | Test Start | Test End | Result |
|----------|--------------------------------------|---------------------|---|------------|----------|--------|
| A        | Effective Radiated Power (ERP)       | ANSI/TIA/EIA-603-C  | RSS-210 A6.1.4<br>RSS-210 A6.2.4            | May 18     | May 18   | Pass   |
| B        | Modulation Limiting                  | ANSI/TIA/EIA-603-C  | RSS-210 A6.1.2<br>RSS-210 A6.2.2            | June 8     | June 10  | Pass   |
| C        | Audio Frequency Response             | ANSI/TIA/EIA-603-C  | N/A   | June 8     | June 10  | Pass   |
| D        | Low-Pass Filter Response             | ANSI/TIA/EIA-603-C  | RSS-210 A6.2.2                              | June 8     | June 10  | Pass   |
| E        | Occupied Bandwidth and Emission Mask | RSS-Gen 4.6.1       | RSS-210<br>A6.1.3, A6.2.3<br>A6.1.5, A6.2.5 | June 8     | June 10  | Pass   |
| F        | Radiated TX Spurious Emissions       | RSS-Gen 4.9         | RSS-210<br>A6.1.5, A6.2.5                   | June 6     | June 7   | Pass   |
| G        | Radiated RX Spurious Emissions       | RSS-Gen 4.10        | RSS-Gen 6.(a)                               | June 6     | June 7   | Pass   |
| H        | Frequency Stability                  | RSS-Gen 4.7         | RSS-210 A6.1.6<br>RSS-210 A6.2.6            | June 8     | June 8   | Pass   |

|                         |   |  |                    |     |             |  |
|-------------------------|---|--|--------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |  |
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| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

## REVISION LOG

| Revision | Description     | Implemented By | Implementation Date |
|----------|-----------------|----------------|---------------------|
| 1.0      | Initial Release | Jon Hughes     | July 15, 2011       |

| Test Report Prepared By | Date          | QA Review By | Date          |
|-------------------------|---------------|--------------|---------------|
| Sean Johnston           | July 14, 2011 | Jon Hughes   | July 15, 2011 |

|                         |  |               |                     |     |             |  |  |  |  |  |
|-------------------------|--|---------------|---------------------|-----|-------------|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |  |  |  |  |  |
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|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

## 1.0 SCOPE

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Garmin International Inc. Rino 610 Portable GMRS/FRS Push-To-Talk Radio Transceiver (FCC ID: IPH-01767 / IC: 1792A-01767). The measurement results were applied against the applicable EMC requirements and limits outlined in the technical rules and regulations set forth in the Federal Communication's Commission Code of Federal Regulations Title 47 Part 2, Part 95 Subpart A and Subpart B; and Industry Canada Radio Standards Specification RSS-210 Issue 8 and RSS-Gen Issue 3.

## 2.0 REFERENCES

### 2.1 Normative References

|  |  |
|--|--|
| ANSI/ISO 17025:2005                                | General Requirements for competence of testing and calibration laboratories  |
| IEEE/ANSI C63.4:2003                               | Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz   |
| ANSI/TIA/EIA-603-C:2004                            | Land Mobile FM or PM Communication Equipment Measurement and Performance Standards   |
| CFR Title 47 Part 2                                | Code of Federal Regulations<br>Title 47: Telecommunication<br>Part 2: Frequency Allocations and Radio Treaty Matters;<br>General Rules and Regulations   |
| CFR Title 47 Part 95                               | Code of Federal Regulations<br>Title 47: Telecommunication<br>Part 95: Personal Radio Services<br>Subpart A - General Mobile Radio Service (GMRS)<br>Subpart B - Family Radio Service (FRS)  |
| IC Spectrum Management & Telecommunications Policy | Radio Standards Specification<br>RSS-210 Issue 8 - Low-Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment<br>RSS-Gen Issue 3 - General Requirements and Information for the Certification of Radiocommunication Equipment |

## 3.0 PASS/FAIL CRITERIA

Unless otherwise noted in the Appendices, the pass/fail criteria is the limit set forth in the reference standards. The DUT is considered to have passed the requirements if the data collected during the described measurement procedure is no greater than the specified limits as defined. The pass/fail statements made in this report only apply to the unit tested.

|                         |  |               |                     |     |             |  |  |  |  |  |
|-------------------------|--|---------------|---------------------|-----|-------------|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |  |  |  |  |  |
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|  | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><br>Test Lab Certificate No. 2470.01 |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

#### 4.0 FACILITIES AND ACCREDITATIONS

The facilities used in collecting the test results outlined in this report are located at 21-364 Lougheed Road, Kelowna, British Columbia, Canada V1X 7R8. The radiated emissions site conforms to the requirements set forth in ANSI C63.4 and is filed and listed with Industry Canada under File Number IC 3874A-1. Celltech test site is listed with the FCC as an accredited test facility.

#### 5.0 GENERAL INFORMATION

##### 5.1 Applicant Information

|              |  |
|--------------|--|
| Company Name | GARMIN INTERNATIONAL INC.                                |
| Address      | 1200, East 151 <sup>st</sup> Street,<br>Olathe, KS 66062 |
|              | USA  |
|              |  |

##### 5.2 DUT Description

|                           |   |             |
|---------------------------|---|-------------|
| Device Type               | Portable FRS/GMRS Push-To-Talk Radio Transceiver with GPS |             |
| Device Model(s)           | Rino 650, Rino 655t (with camera)                         |             |
| Test Sample Serial No.(s) | 1766382247997103 (Identical Prototype) - Rino 655t        |             |
| Device Identifier(s)      | FCC ID:   | IPH-01767   |
|                           | IC:   | 1792A-01767 |
| Power Source Tested       | Lithium-ion Battery (7.8V Nominal)                        |             |
| Antenna Type Tested       | Helix (Non-detachable)                                    |             |
| Antenna Gain              | -1.8 dBi  |             |

##### 5.3 Rule Part(s) & Classification(s)

|                          |     |  |
|--------------------------|-----|--|
| Rule Part(s) Applied     | FCC | 47 CFR §2; §95(A), §95(B)  |
|                          | IC  | RSS-210 Issue 8, RSS-Gen Issue 3   |
| Device Classification(s) | FCC | Part 95 Family Radio Face Held Transmitter (FRF) - GMRS (Part 95A)   |
|                          |     | Part 95 Family Radio Face Held Transmitter (FRF) - FRS (Part 95B)  |
|                          | IC  | Low-Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment (RSS-210) - GMRS/FRS |

|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

## 5.4 Mode(s) of Operation Tested

### 5.4.1 FRS/GMRS PTT Radio Transceiver

#### 5.4.1.1 FRS

|                                       |   |                                      |
|---------------------------------------|---|--------------------------------------|
| <b>Transmitter Frequency Range(s)</b> | 462.5625 - 462.7125 MHz (Chan. 1-7)   | 467.5625 - 467.7125 MHz (Chan. 8-14) |
| <b>Transmitter Test Channel(s)</b>    | 467.5625 MHz (Channel 8)  |                                      |
| <b>Transmitter Test Mode(s)</b>       | Enter TX Test Mode (keypad entry) - Select Channel (keypad entry);<br>Continuous Transmit with PTT constantly depressed |                                      |
| <b>Modulation Type(s)</b>             | FM  |                                      |

#### 5.4.1.2 GMRS

|                                       |   |                                       |
|---------------------------------------|---|---------------------------------------|
| <b>Transmitter Frequency Range(s)</b> | 462.5625 - 462.7125 MHz (Chan. 1-7)   | 462.5500 - 462.7250 MHz (Chan. 15-22) |
| <b>Transmitter Test Channel(s)</b>    | 462.5625 MHz (Channel 1)  |                                       |
| <b>Transmitter Test Mode(s)</b>       | Enter TX Test Mode (keypad entry) - Select Channel (keypad entry);<br>Continuous Transmit with PTT constantly depressed |                                       |
| <b>Modulation Type(s)</b>             | FM  |                                       |

## 5.5 Modification(s)

None

## 6.0 ANTENNA REQUIREMENT (FCC §95.647)

The antenna complies with the requirements set forth in FCC Rule Part 95.647.

## 7.0 ANTENNA REQUIREMENT (RSS-210 A6.1.4)

Complies

|                         |   |  |                      |                     |             |  |
|-------------------------|---|--|----------------------|---------------------|-------------|--|
| <b>Applicant:</b>       | Garmin International Inc.                             | <b>FCC ID:</b>   | IPH-01767            | <b>IC:</b>          | 1792A-01767 | <br><b>GARMIN</b> |
| <b>DUT Type:</b>        | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS |  | <b>DUT Model(s):</b> | Rino 650, Rino 655t |             |  |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## Appendix A RF Output Power Measurement

### A.1 REFERENCES

|                              |   |
|------------------------------|---|
| Normative Reference Standard | FCC CFR 47 §2.1046(a), §2.1046(b), 2.1033(c)(6)(7), §95.639; IC RSS-210   |
| Procedure Reference          | The RF output power measurements were performed in accordance with TIA/EIA Standard 603 using the substitution method in an anechoic chamber. |

### A.2 LIMITS

|                       |  |
|-----------------------|--|
| FCC CFR 47<br>§95.639 | Power output shall not exceed 0.50 Watts effective radiated power for the FRS channels. There can be no provisions for increasing the power or varying the power.<br>No GMRS channel, under any condition of modulation, shall exceed:<br>1. 50W Carrier power (average TP during one modulated RF cycle) when transmitting emissions type A1D, F1D, G1D, A3E, F3E, or G3E.<br>2. 50W peak envelope TP when transmitting emission type H1D, J1D, R1D, H3E, J3E or R3E. |
| RSS-210 A6.1.4        | The maximum permissible transmitter output power under any operating conditions is 0.5 W effective radiated power (e.r.p.). The radio shall be equipped with an integral antenna.  |
| RSS-210 A6.2.4        | A GMRS transmitter may transmit with a maximum power of 2 W e.r.p.   |

### A.3 ENVIRONMENTAL CONDITIONS

|                     |               |
|---------------------|---------------|
| Temperature         | 10 °C         |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

| ASSET NUMBER | MANUFACTURER | MODEL     | DESCRIPTION              | CAL DUE   |
|--------------|--------------|-----------|--------------------------|-----------|
| 00015        | HP           | E4408B    | Spectrum Analyzer        | 03-May-12 |
| 00007        | Gigatronics  | 8652A     | Power Meter              | 04-May-12 |
| 00014        | Gigatronics  | 80701A    | Power Sensor             | 04-May-12 |
| 00072        | EMCO         | 2075      | Mini-mast                | cnr       |
| 00073        | EMCO         | 2080      | Turn Table               | cnr       |
| 00071        | EMCO         | 2090      | Multi-Device Controller  | cnr       |
| 00015        | HP           | E4408B    | Spectrum Analyzer        | 03-May-12 |
| 00050        | Chase        | CBL-6111A | Bilog Antenna            | 06-May-13 |
| 00055        | EMCO         | 3121C     | Dipole Antenna           | 27-Aug-12 |
| 00034        | ETS          | 3115      | Double Ridged Guide Horn | 29-May-13 |

cnr = calibration not required

|                         |  |               |                     |     |             |   |  |  |  |  |  |
|-------------------------|--|---------------|---------------------|-----|-------------|---|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br>GARMIN |  |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |   |  |  |  |  |  |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

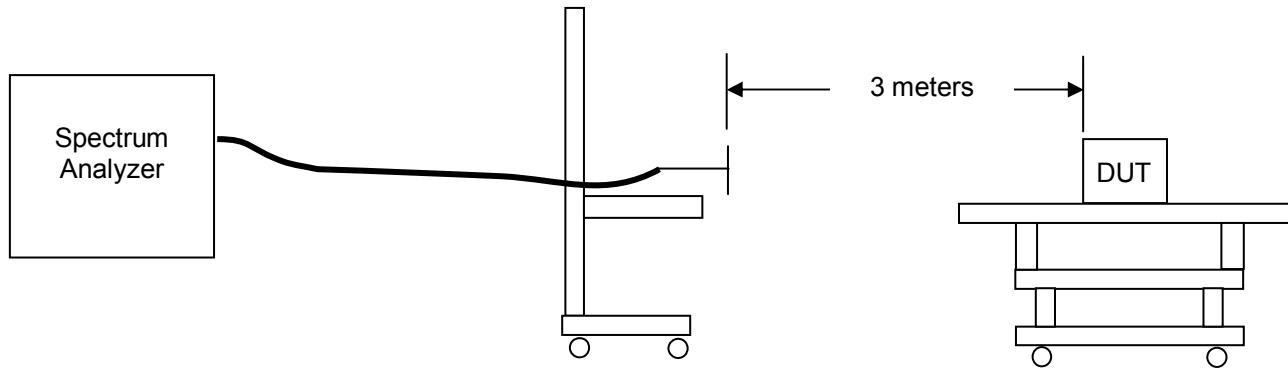
Test Lab Certificate No. 2470.01

#### A.4 MEASUREMENT EQUIPMENT SETUP

|  |   |            |            |
|--|---|------------|------------|
| <b>MEASUREMENT EQUIPMENT CONNECTIONS</b> | For the field strength measurements the measurement equipment was connected as shown in A.6. For the final substitutions the DUT was replaced with a dipole antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated. |            |            |
|  | Frequency Range   | RX Antenna | TX Antenna |
|  | 30 MHz - 1GHz   | Bilog      | Dipole     |
| <b>MEASUREMENT EQUIPMENT SETTINGS</b>    | For measuring the radiated field strength of the fundamental, the spectrum analyzer was set to the following settings:  |            |            |
|  | Mode  | RBW        | VBW        |
|  |   | MHz        | MHz        |
|  | GMRS (Hi Power)   | 1          | 3          |
|  | FRS (Lo Power)  | 1          | 3          |
|  |   |            | Peak       |

#### A.5 SETUP DRAWING

Figure A.5-1 - Setup Drawing – RF Output Power



|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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|  |                         |  |                         |                     |  |
|--|-------------------------|--|-------------------------|---------------------|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011       | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0            |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site |  |

Test Lab Certificate No. 2470.01

## A.6 TEST RESULTS

| Measured Frequency |         | Output Power (ERP) |  |
|--------------------|---------|--------------------|--|
| (MHz)              | (Watts) | (dBm)              |  |
| 462.5625 (GMRS)    | 2.0     | 33.0               |  |
| 467.5625 (FRS)     | 0.16    | 22.0               |  |

Note(s):

1. Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)
2. The DUT was measured in 3 orientations with respect to the receive antenna and the orientation with the highest Radiated Power results is shown (Vertical Polarization).

## FCC Rule Part 2.1033 (C)(8) DC Input into final amplifier

| Frequency       | Voltage | Current |
|-----------------|---------|---------|
| (MHz)           | V       | A       |
| 462.5625 (GMRS) | 7.8     | 1.1     |
| 467.5625 (FRS)  | 7.8     | 0.14    |

## A.7 PASS/FAIL

In reference to the results outlined in A.6, the DUT passes the requirements as stated in the reference standards.

## A.8 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

May 18, 2011

Date

|                         |   |  |                    |     |             |  |
|-------------------------|---|--|--------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |  |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
|  | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><br>Test Lab Certificate No. 2470.01 |
|  | Measurement Dates:      | May 18, June 01-10, 2011                                 | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

## Appendix B Modulation Characteristics (Modulation Limiting)

### B.1 REFERENCES

|                              |   |
|------------------------------|---|
| Normative Reference Standard | FCC CFR 47 §2.1047, §95.637; IC RSS-210 |
| Procedure Reference          | TIA-603-C                               |

### B.2 LIMITS

|                |  |
|----------------|--|
| §95.637 (a)    | (a) A GMRS transmitter that transmits emission types F1D, G1D, or G3E must not exceed a peak frequency deviation of plus or minus 5 kHz. A GMRS transmitter that transmits emission type F3E must not exceed a peak frequency deviation of plus or minus 5 kHz. A FRS unit that transmits emission type F3E must not exceed a peak frequency deviation of plus or minus 2.5 kHz, and the audio frequency response must not exceed 3.125 kHz.   |
| RSS-210 A6.1.2 | (c) The peak frequency deviation shall not exceed $\pm 2.5$ kHz. The limiter shall be followed by a low-pass filter to remove unwanted harmonics.  |
| RSS-210 A6.2.2 | (b) For emission types F1D, G1D, G3E, F3E or F2D, the peak frequency deviation shall not exceed $\pm 5$ kHz. GMRS transmitters must include an audio frequency low-pass filter, unless they comply with the appropriate emission masks in Section A6.2.5, below. The filter must be between the modulation limiter and the modulated stage of the transmitter. The filter attenuation must be as follows: for $3 \text{ kHz} \leq f \leq 20 \text{ kHz}$ , the attenuation is at least $60 \log_{10}(f, \text{kHz}/3) \text{ dB}$ greater than the attenuation at 1 kHz, and for $f > 20 \text{ kHz}$ , the attenuation is at least 50 dB greater than the attenuation at 1 kHz. |

### B.3 ENVIRONMENTAL CONDITIONS

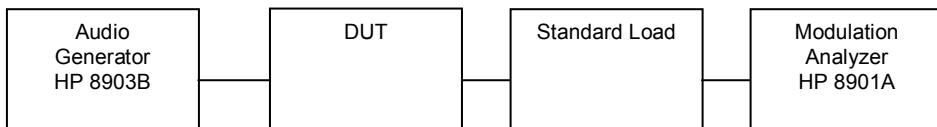
|                     |               |
|---------------------|---------------|
| Temperature         | 25 +/- 5 °C   |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### B.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER | MODEL | DESCRIPTION              | CAL DUE |
|--------------|--------------|-------|--------------------------|---------|
| 00028        | HP           | 8901A | Modulation Analyzer      | 21Jul11 |
| 00027        | HP           | 8903B | Audio Generator/Analyzer | 21Jul11 |

### B.5 SETUP DRAWING

Figure B.5-1 - Setup Drawing – Modulation Characteristics



|                         |  |               |                    |     |             |   |  |  |  |  |
|-------------------------|--|---------------|--------------------|-----|-------------|---|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767          | IC: | 1792A-01767 |  |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655 |     |             |   |  |  |  |  |
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|                         | Page 11 of 39  |               |                    |     |             |   |  |  |  |  |

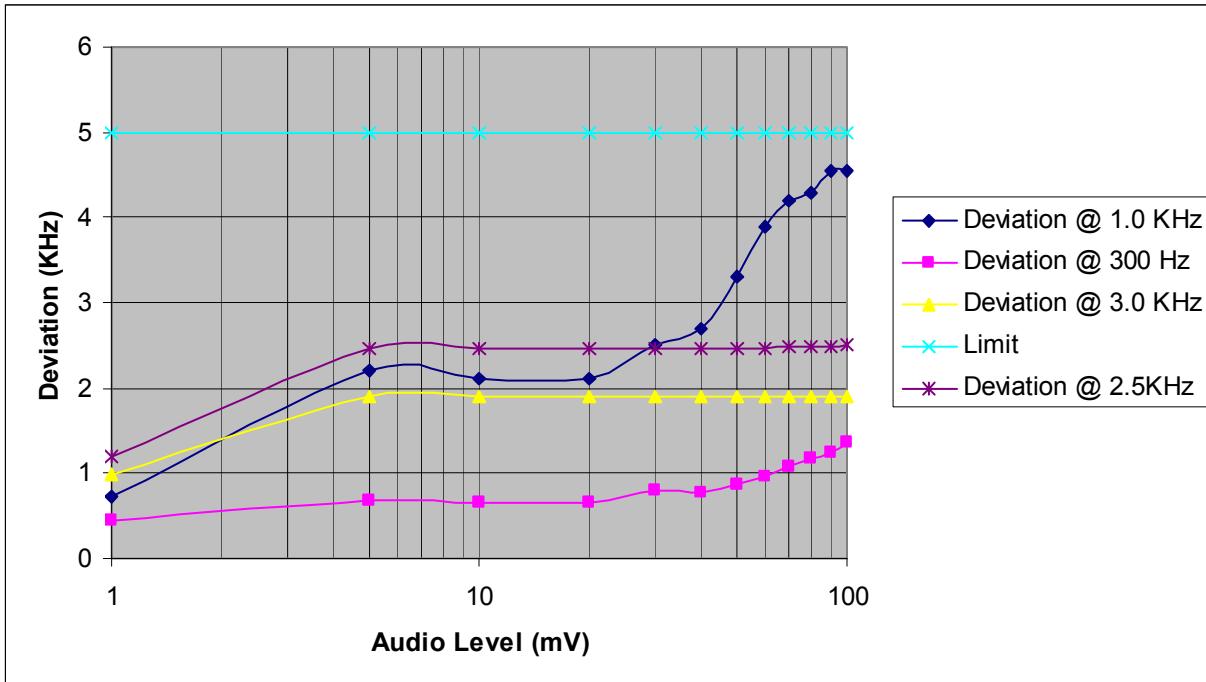
|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## B.6 TEST RESULTS

### B.6.1 GMRS

| Audio Level | Deviation | Deviation | Deviation | Deviation | Limit |
|-------------|-----------|-----------|-----------|-----------|-------|
|             | @ 1.0 KHz | @ 300 Hz  | @ 3.0 KHz | @ 2.5 KHz |       |
| mV          | [KHz]     | [KHz]     | [KHz]     | [KHz]     | [KHz] |
| 1           | 0.73      | 0.45      | 0.98      | 1.19      | 5     |
| 5           | 2.2       | 0.68      | 1.90      | 2.47      | 5     |
| 10          | 2.1       | 0.66      | 1.91      | 2.47      | 5     |
| 20          | 2.1       | 0.65      | 1.91      | 2.47      | 5     |
| 30          | 2.50      | 0.80      | 1.91      | 2.47      | 5     |
| 40          | 2.70      | 0.77      | 1.91      | 2.47      | 5     |
| 50          | 3.30      | 0.86      | 1.91      | 2.47      | 5     |
| 60          | 3.90      | 0.96      | 1.91      | 2.47      | 5     |
| 70          | 4.20      | 1.08      | 1.91      | 2.49      | 5     |
| 80          | 4.30      | 1.17      | 1.91      | 2.49      | 5     |
| 90          | 4.55      | 1.24      | 1.91      | 2.49      | 5     |
| 100         | 4.55      | 1.37      | 1.91      | 2.50      | 5     |



## B.7 PASS/FAIL

In reference to the results outlined in B.6.1 the DUT passes the requirements as stated in the reference standards.

|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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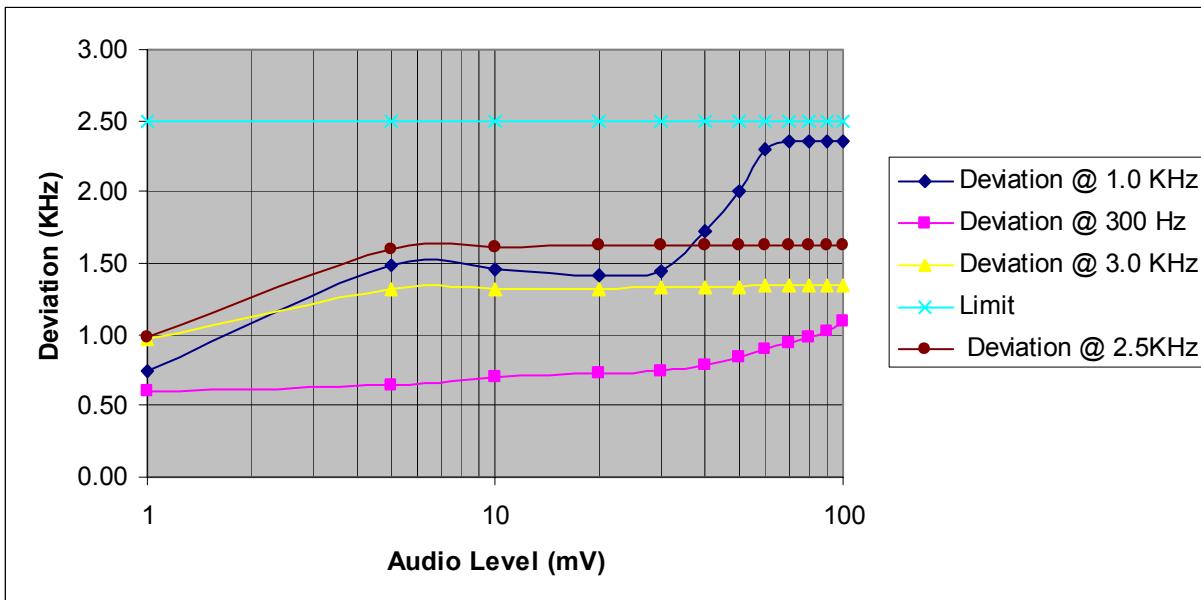
|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10, 2011                                 | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## B.8 TEST RESULTS

### B.8.1 FRS

| Audio Level | Deviation @ 1.0 KHz | Deviation @ 300 Hz | Deviation @ 3.0 KHz | Deviation @ 2.5 KHz | Limit |
|-------------|---------------------|--------------------|---------------------|---------------------|-------|
| mV          | [KHz]               | [KHz]              | [KHz]               | [KHz]               |       |
| 1           | 0.75                | 0.60               | 0.97                | 0.98                | 2.5   |
| 5           | 1.48                | 0.65               | 1.32                | 1.60                | 2.5   |
| 10          | 1.46                | 0.70               | 1.32                | 1.61                | 2.5   |
| 20          | 1.41                | 0.73               | 1.32                | 1.62                | 2.5   |
| 30          | 1.44                | 0.75               | 1.33                | 1.62                | 2.5   |
| 40          | 1.72                | 0.79               | 1.33                | 1.62                | 2.5   |
| 50          | 2.00                | 0.84               | 1.33                | 1.62                | 2.5   |
| 60          | 2.30                | 0.90               | 1.35                | 1.62                | 2.5   |
| 70          | 2.35                | 0.94               | 1.35                | 1.62                | 2.5   |
| 80          | 2.35                | 0.98               | 1.35                | 1.62                | 2.5   |
| 90          | 2.35                | 1.02               | 1.35                | 1.62                | 2.5   |
| 100         | 2.35                | 1.10               | 1.35                | 1.62                | 2.5   |



## B.9 PASS/FAIL

In reference to the results outlined in B.8.1 the DUT passes the requirements as stated in the reference standards.

|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|  |                         |  |                         |  |   |
|--|-------------------------|--|-------------------------|--|---|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>A2LA</b><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

#### B.10 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 8-10 , 2011

Date

|                         |  |               |                     |     |             |  |  |  |  |  |
|-------------------------|--|---------------|---------------------|-----|-------------|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |  |  |  |  |  |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
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|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## Appendix C Modulation Characteristics (Audio Frequency Response)

### C.1 REFERENCES

|                              |                    |
|------------------------------|--------------------|
| Normative Reference Standard | FCC CFR 47 §2.1047 |
| Procedure Reference          | TIA-603-C          |

### C.2 LIMITS

|         |  |
|---------|--|
| §2.1047 | a) <i>Voice modulated communication equipment.</i> A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted. |
|---------|--|

### C.3 ENVIRONMENTAL CONDITIONS

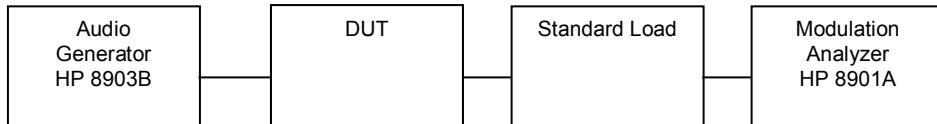
|                     |               |
|---------------------|---------------|
| Temperature         | 25 +/- 5 °C   |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### C.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER | MODEL | DESCRIPTION              | CAL DUE |
|--------------|--------------|-------|--------------------------|---------|
| 00028        | HP           | 8901A | Modulation Analyzer      | 21Jul11 |
| 00027        | HP           | 8903B | Audio Generator/Analyzer | 21Jul11 |

### C.5 SETUP DRAWING

Figure C.5-1 - Setup Drawing – Audio Frequency Response



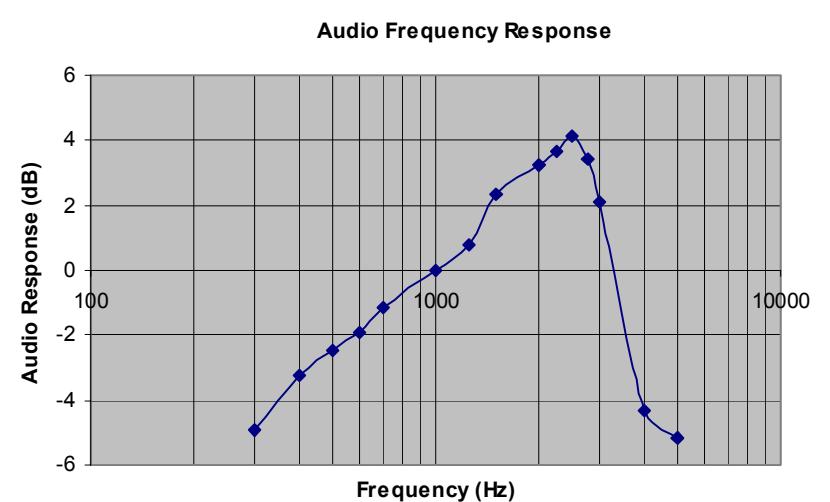
|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA |
|   | Measurement Dates:      | May 18, June 01-10, 2011                                 | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## C.6 TEST RESULTS

| Audio Frequency | Deviation |
|-----------------|-----------|
| [Hz]            | [kHz]     |
| 300             | -4.94     |
| 400             | -3.23     |
| 500             | -2.45     |
| 600             | -1.92     |
| 700             | -1.12     |
| 1000            | 0         |
| 1250            | 0.76      |
| 1500            | 2.32      |
| 2000            | 3.21      |
| 2250            | 3.64      |
| 2500            | 4.12      |
| 2750            | 3.45      |
| 3000            | 2.1       |
| 4000            | -4.32     |
| 5000            | -5.14     |
| 6000            | -5.14     |



## C.7 PASS/FAIL

In reference to the results outlined in C.6 the DUT passes the requirements as stated in the reference standards.

## C.8 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 8-10, 2011

Date

|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|  |                         |  |                         |  |   |
|--|-------------------------|--|-------------------------|--|---|
|  | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>Test Lab Certificate No. 2470.01 |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

## Appendix D Modulation Characteristics (Low-pass Filter Response)

### D.1 REFERENCES

|                              |   |
|------------------------------|---|
| Normative Reference Standard | FCC CFR 47 §2.1047, §95.637; IC RSS-210 |
| Procedure Reference          | TIA-603-C                               |

### D.2 LIMITS

|                                |   |
|--------------------------------|---|
| §95.637<br>&<br>RSS-210 A6.2.2 | (b) Each GMRS transmitter, except a mobile station transmitter with a power output of 2.5 W or less, must automatically prevent a greater than normal audio level from causing overmodulation. The transmitter also must include audio frequency low-pass filtering, unless it complies with the applicable paragraphs of §95.631 (without filtering.) The filter must be between the modulation limiter and the modulated stage of the transmitter. At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least $60 \log_{10}(f/3)$ dB greater than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB greater than the attenuation at 1 kHz. |
|--------------------------------|---|

### D.3 ENVIRONMENTAL CONDITIONS

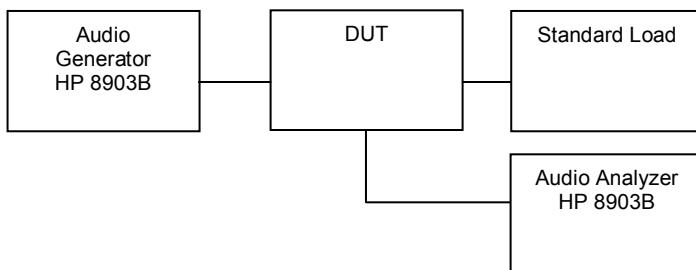
|                     |               |
|---------------------|---------------|
| Temperature         | 25 +/- 5 °C   |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### D.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER | MODEL | DESCRIPTION              | CAL DUE |
|--------------|--------------|-------|--------------------------|---------|
| 00027        | HP           | 8903B | Audio Generator/Analyzer | 21Jul11 |

### D.5 SETUP DRAWING

Figure D.5-1 - Setup Drawing – Low-pass Filter Response



|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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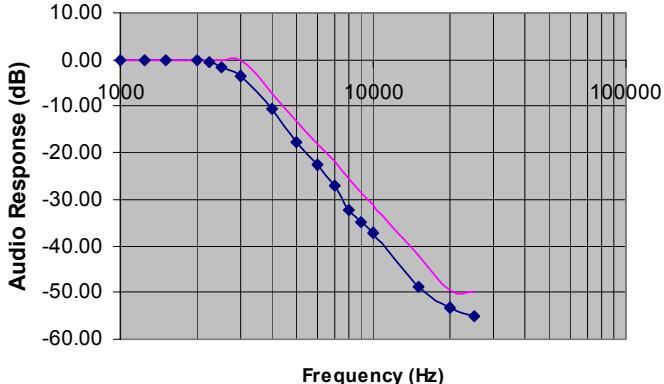
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| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## D.6 TEST RESULTS

| Audio Frequency | Response Attenuation | Limit |
|-----------------|----------------------|-------|
| [Hz]            | [dB]                 | [dB]  |
| 1000            | 0.00                 | 0     |
| 1250            | -0.05                | 0     |
| 1500            | -0.08                | 0     |
| 2000            | -0.20                | 0     |
| 2250            | -0.63                | 0     |
| 2500            | -1.56                | 0     |
| 3000            | -3.50                | 0     |
| 4000            | -10.54               | -7.4  |
| 5000            | -17.56               | -13.3 |
| 6000            | -22.40               | -18   |
| 7000            | -27.20               | -22   |
| 8000            | -32.30               | -25.5 |
| 9000            | -35.10               | -28.6 |
| 10000           | -37.10               | -31.3 |
| 15000           | -48.70               | -41.9 |
| 20000           | -53.20               | -49.4 |
| 25000           | -55.22               | -50   |

Audio Low Pass Filter



## D.7 PASS/FAIL

In reference to the results outlined in D.6, the DUT passes the requirements as stated in the reference standards.

## D.8 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 8-10, 2011

Date

|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

## Appendix E Occupied Bandwidth and Emission Mask

### E.1 REFERENCES

|                                   |  |
|-----------------------------------|--|
| Normative Reference Standard      | FCC CFR 47 §2.1049, §95.633, §95.635; IC RSS-210   |
| Procedure Reference / Description | Occupied bandwidth was performed by connecting the output of the DUT to the input of a spectrum analyzer. The unit was supplied a 2500Hz audio signal and the 20dB bandwidth was measured for both the FRS and GMRS modes. |

### E.2 LIMITS

|   |  |
|---|--|
| §95.633<br>&<br>RSS-210<br>A6.1.3, A6.2.3 | The <i>authorized bandwidth</i> (maximum permissible bandwidth of a transmission) for emission type H1D, J1D, R1D, H3E, J3E or R3E is 4 kHz. The authorized bandwidth for emission type A1D or A3E is 8 kHz. The authorized bandwidth for emission type F1D, G1D, F3E or G3E is 20 kHz.<br><br>The authorized bandwidth for emission type F3E or F2D transmitted by a FRS unit is 12.5 kHz.  |
| §95.635<br>&<br>RSS-210<br>A6.1.5, A6.2.5 | At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.<br><br>At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.<br><br>At least $43 + 10 \log_{10}(T)$ dB on any frequency removed from the center of the authorized bandwidth by more than 250%. |

### E.3 ENVIRONMENTAL CONDITIONS

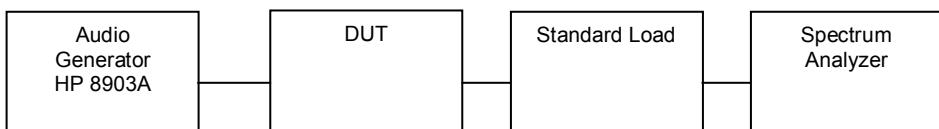
|                     |               |
|---------------------|---------------|
| Temperature         | 10 °C         |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### E.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER | MODEL  | DESCRIPTION                  | CAL DUE   |
|--------------|--------------|--------|------------------------------|-----------|
| 00051        | HP           | 8566B  | Spectrum Analyzer RF Section | 03-May-12 |
| 00047        | HP           | 85685A | RF Preselector               | 05-May-12 |
| 00027        | HP           | 8903B  | Audio Generator/Analyzer     | 21-Jul-11 |

### E.5 SETUP DRAWING

Figure E.5-1 - Setup Drawing – Occupied Bandwidth & Emission Mask



|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

## E.6 EMISSION DESIGNATOR & FREQUENCIES

Emission Types:

GMRS: KF3E & KF2D

FRS: KF3E & KF2D

GMRS Authorized Bandwidth 20.0 kHz

2.1033(c)(5) GMRS Frequency Range (MHz):  
95.621

1. 462.5500 13. 462.7000
2. 462.5625 14. 462.7125
3. 462.5750 15. 462.7250
4. 462.5875
5. 462.6000
6. 462.6125
7. 462.6250
8. 462.6375
9. 462.6500
10. 462.6625
11. 462.6750
12. 462.6875

FRS Authorized Bandwidth 12.5 kHz

2.1033(c)(5) FRS Frequency Range (MHz):  
95.627

1. 462.5625 8. 467.5625
2. 462.5875 9. 467.5875
3. 462.6125 10. 467.6125
4. 462.6375 11. 467.6375
5. 462.6625 12. 467.6625
6. 462.6875 13. 467.6875
7. 462.7125 14. 467.7125

|                         |  |               |                     |     |             |  |  |  |  |  |
|-------------------------|--|---------------|---------------------|-----|-------------|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |  |  |  |  |  |
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|                         | Page 20 of 39  |               |                     |     |             |  |  |  |  |  |

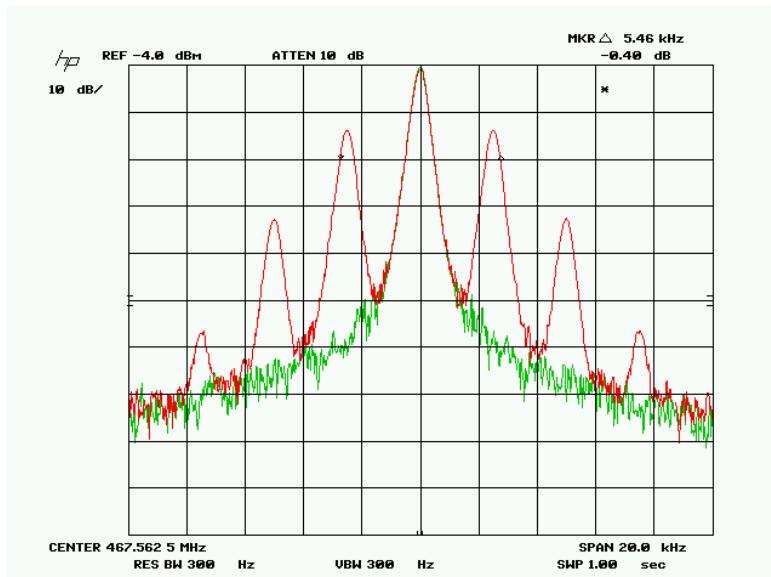
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|   | Measurement Dates:      | May 18, June 01-10, 2011                                 | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

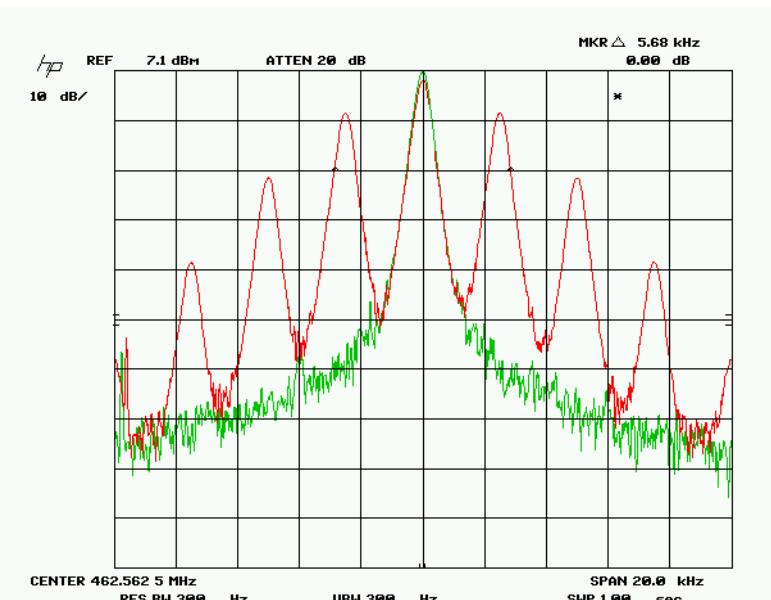
## E.7 TEST RESULTS

### E.7.1 Occupied Bandwidth

#### E.7.1.1 FRS



#### E.7.1.2 GMRS

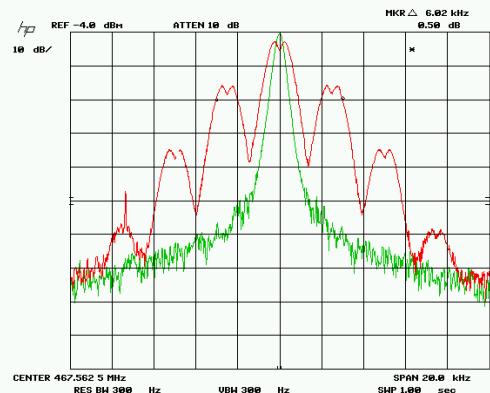
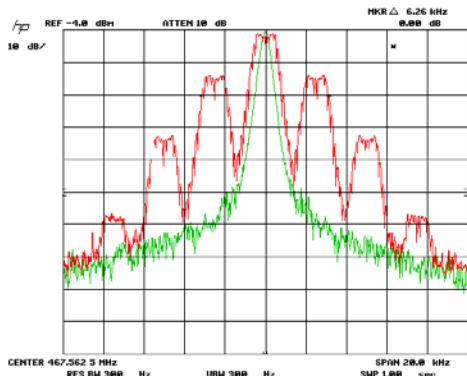


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|-------------------------|--|---------------|--------------------|-----|-------------|---|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655 |     |             |   |  |
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|                         | Page 21 of 39  |               |                    |     |             |   |  |

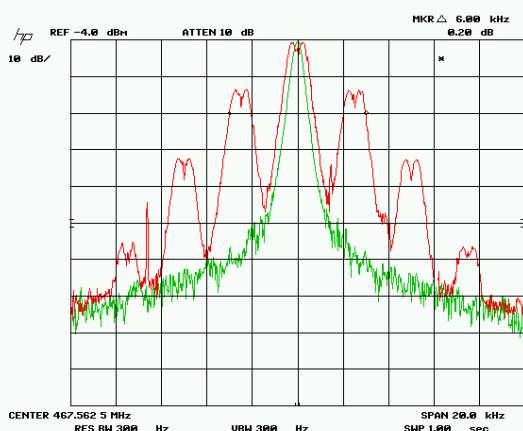
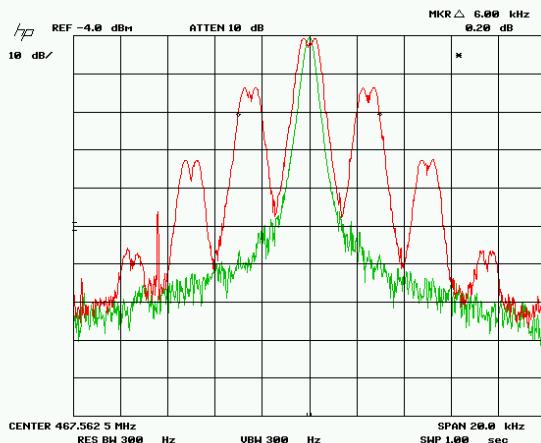
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| <br><b>Celltech</b><br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

### E.7.1.3 FRS CTCSS [1 & 38]



### E.7.1.4 FRS DCS [1 & 83]

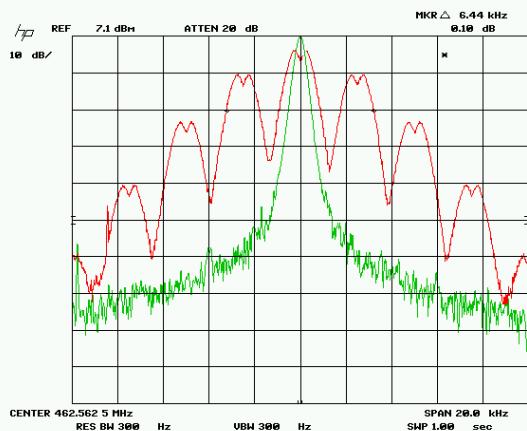
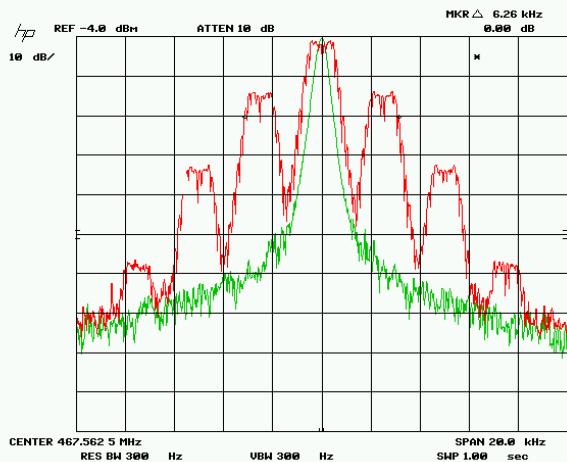


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|-------------------------|--|---------------|--------------------|-----|-------------|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767          | IC: | 1792A-01767 | <br><b>GARMIN</b> |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655 |     |             |  |  |  |  |  |
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|                         | Page 22 of 39  |               |                    |     |             |  |  |  |  |  |

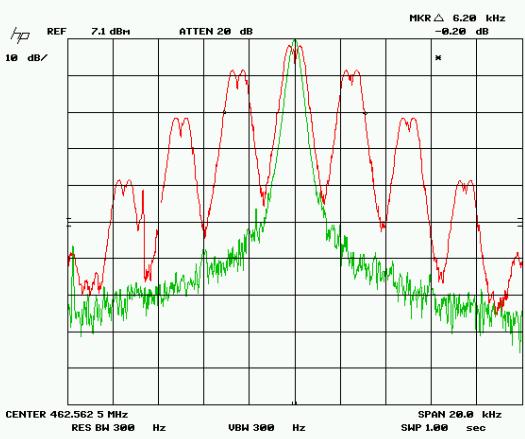
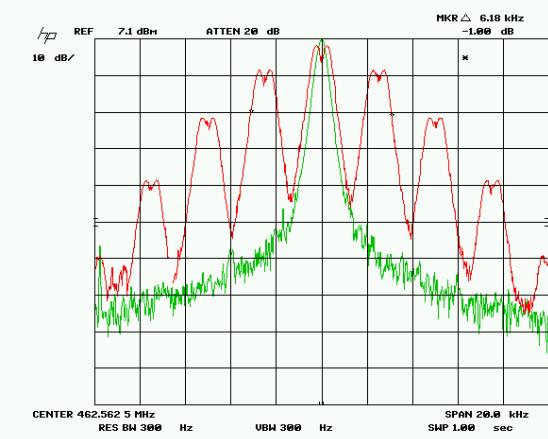
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| <br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

#### E.7.1.5 GMRS CTCSS [1 & 38]



#### E.7.1.6 GMRS DCS [1 & 83]

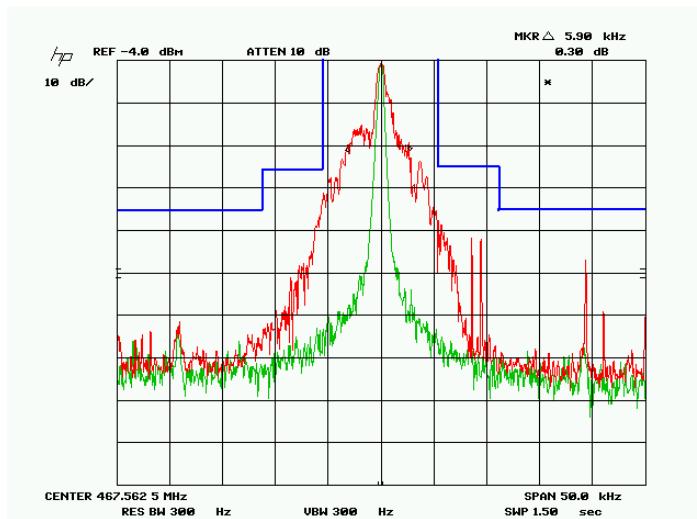


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|-------------------------|--|---------------|--------------------|-----|-------------|---|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767          | IC: | 1792A-01767 |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655 |     |             |   |  |
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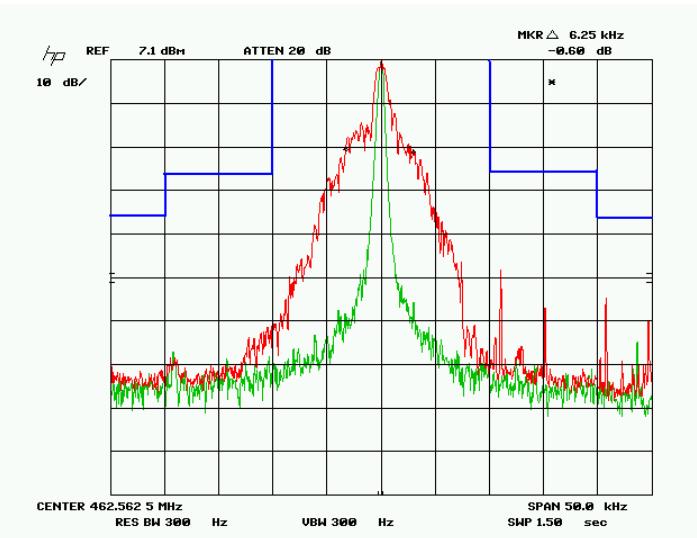
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| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

#### E.7.1.7 FRS Digital



#### E.7.1.8 GMRS Digital



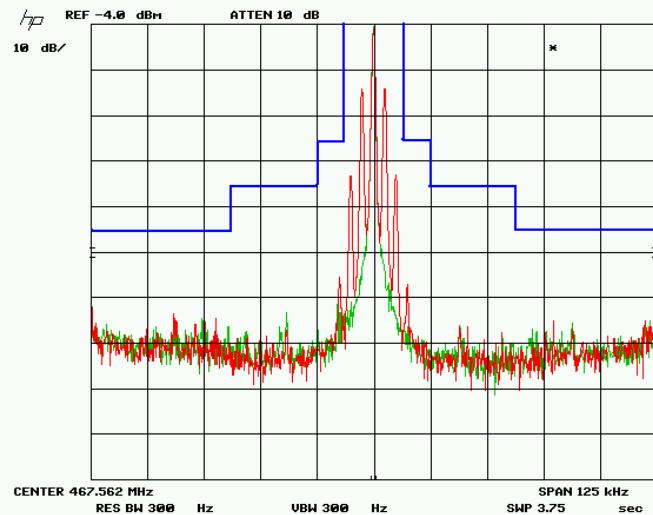
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| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |  |  |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10, 2011                                 | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

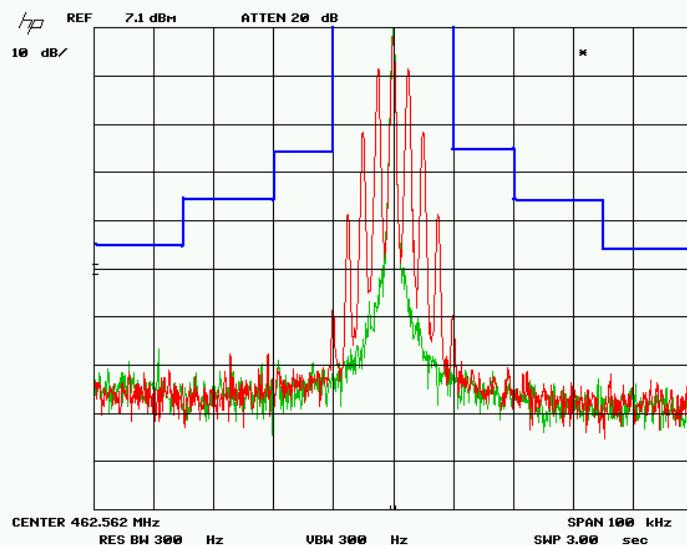
Test Lab Certificate No. 2470.01

## E.7.2 Emission Mask

### E.7.2.1 FRS



### E.7.2.2 GMRS



## E.8 PASS/FAIL

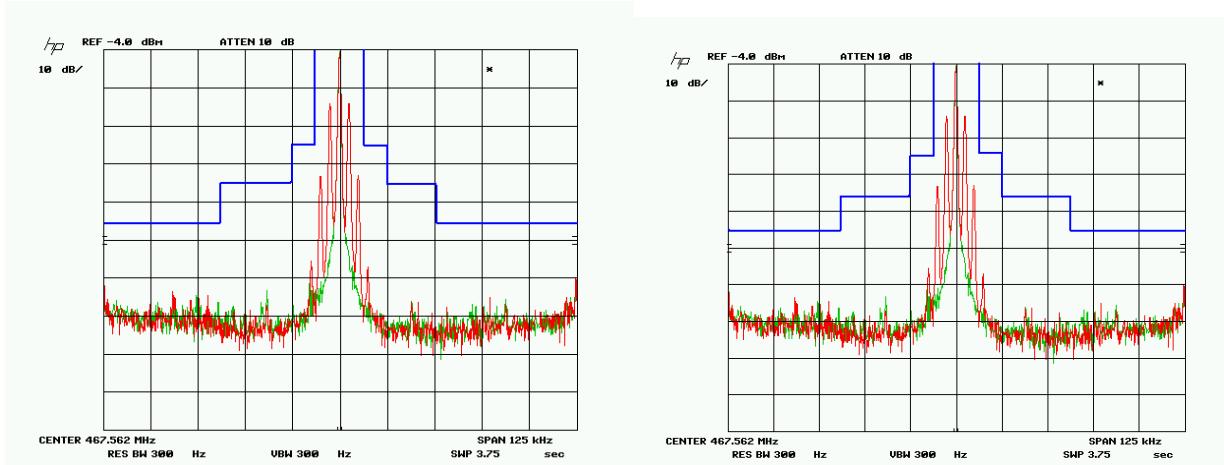
In reference to the results outlined in E.7, the DUT passes the requirements as stated in the reference standards.

|                         |  |               |                    |     |             |   |  |
|-------------------------|--|---------------|--------------------|-----|-------------|---|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655 |     |             |   |  |
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|                         | Page 25 of 39  |               |                    |     |             |   |  |

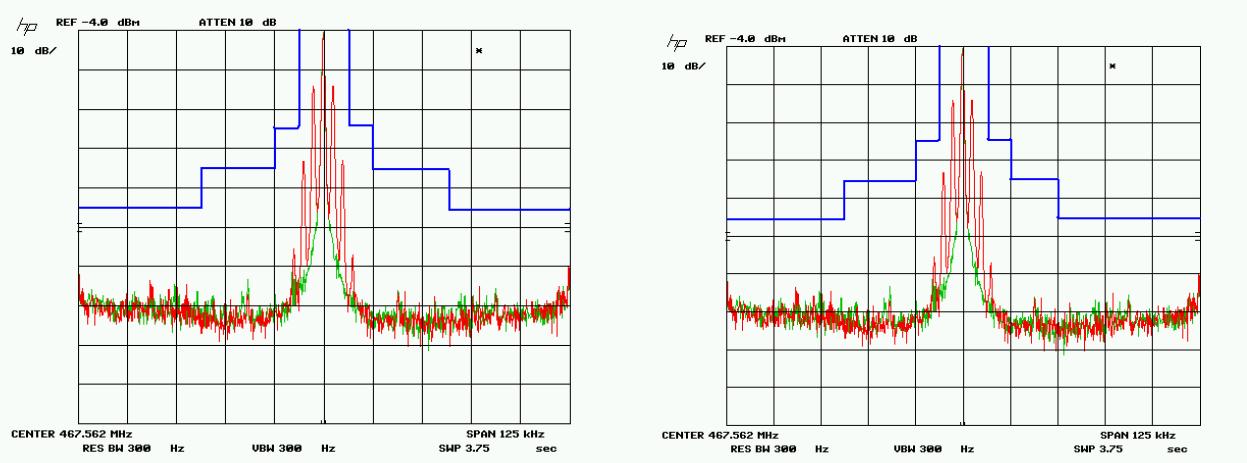
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| <br>Testing and Engineering Services Ltd | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ACCREDITED |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

### E.8.1.1 FRS CTCSS 1 & 38



### E.8.1.2 FRS DCS 1 & 83

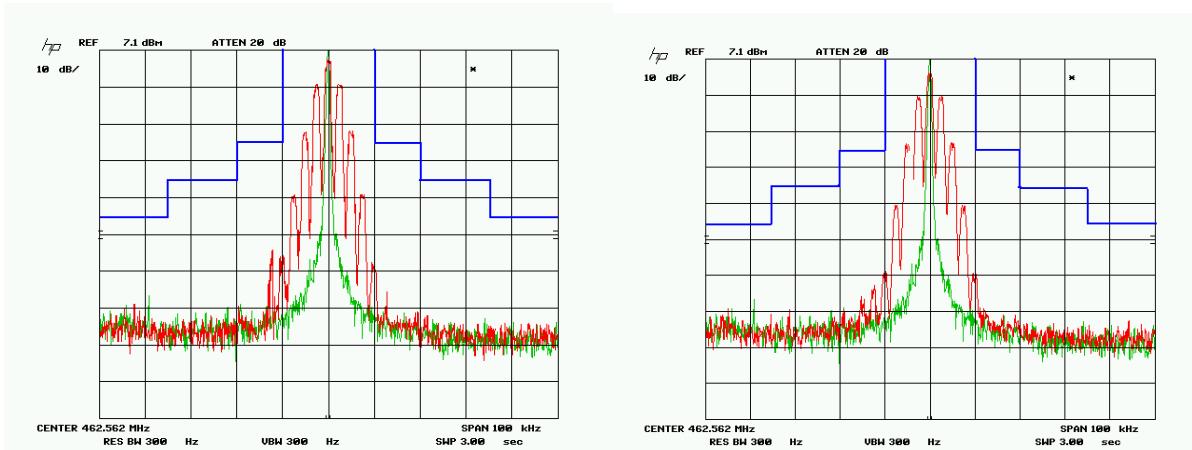


|                         |  |               |                     |     |             |   |  |  |  |  |
|-------------------------|--|---------------|---------------------|-----|-------------|---|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 |  |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |   |  |  |  |  |
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|                         | Page 26 of 39  |               |                     |     |             |   |  |  |  |  |

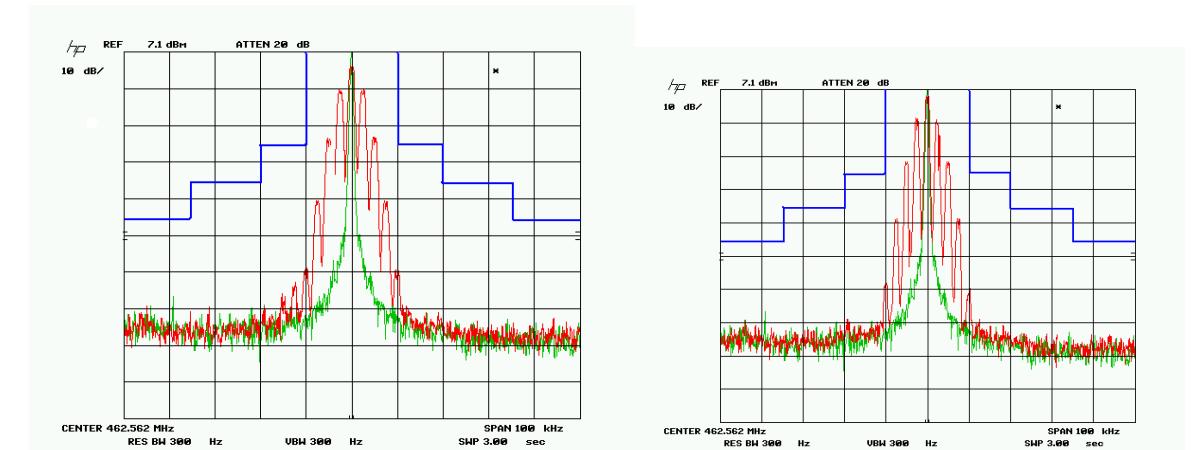
|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

#### E.8.1.3 GMRS CTCSS 1 & 38



#### E.8.1.4 GMRS DCS 1 & 83



|                         |  |               |                     |     |             |   |  |
|-------------------------|--|---------------|---------------------|-----|-------------|---|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767           | IC: | 1792A-01767 | <br>GARMIN |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655t |     |             |   |  |
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|                         | Page 27 of 39  |               |                     |     |             |   |  |

|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

### E.9 PASS/FAIL

In reference to the results outlined in E.7 & E.8, the DUT passes the requirements as stated in the reference standards.

### E.10 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 1-3, 2011

Date

|                         |   |  |                     |     |             |  |
|-------------------------|---|--|---------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |  |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## Appendix F Radiated Spurious Emissions - TX

### F.1 REFERENCES

|                              |   |
|------------------------------|---|
| Normative Reference Standard | FCC CFR 47 §2.1053, §95.635 (b) (7); IC RSS-210   |
| Procedure Reference          | The transmitter spurious emissions were measured in accordance with TIA/EIA Standard 603 using the substitution method on a 3-meter open area test site (OATS). |

### F.2 LIMITS

|  |  |
|--|--|
| §95.635<br>& RSS-210<br>A6.1.5, A6.2.5 | (7) At least $43 + 10 \log_{10}(T)$ dB on any frequency removed from the center of the authorized bandwidth by more than 250%. |
|--|--|

### F.3 ENVIRONMENTAL CONDITIONS

|                     |               |
|---------------------|---------------|
| Temperature         | 10 °C         |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### F.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER       | MODEL     | DESCRIPTION                         | CAL DUE   |
|--------------|--------------------|-----------|-------------------------------------|-----------|
| 00072        | EMCO               | 2075      | Mini-mast                           | cnr       |
| 00073        | EMCO               | 2080      | Turn Table                          | cnr       |
| 00071        | EMCO               | 2090      | Multi-Device Controller             | cnr       |
| 00015        | HP                 | E4408B    | Spectrum Analyzer                   | 03-May-12 |
| 00050        | Chase              | CBL-6111A | Bilog Antenna                       | 03-May-13 |
| 00055        | EMCO               | 3121C     | Dipole Antenna                      | 27-Aug-12 |
| 00034        | ETS                | 3115      | Double Ridged Guide Horn            | 29-May-12 |
| 00035        | ETS                | 3115      | Double Ridged Guide Horn            | 29-May-12 |
| 00051        | HP                 | 8566B     | Spectrum Analyzer RF Section        | 03-May-12 |
| 00049        | HP                 | 85650A    | Quasi-peak Adapter                  | 06-May-12 |
| 00047        | HP                 | 85685A    | RF Preselector                      | 05-May-12 |
| 00006        | R & S              | SMR 20    | Signal Generator (10MHz-40GHz)      | 30-Apr-12 |
| 00114        | Amplifier Research | DC7154    | Directional Coupler (0.8-4.2 GHz)   | cnr       |
| 00078        | Pasternack         | PE2214-20 | Directional Coupler (1-18 GHz)      | cnr       |
| 00106        | Amplifier Research | 5S1G4     | Power Amplifier (5W, 800MHz-4.2GHz) | cnr       |
| 00041        | Amplifier Research | 10W1000C  | Power Amplifier (0.5 - 1 GHz)       | cnr       |
| 00007        | Gigatronics        | 8652A     | Power Meter                         | 04-May-12 |
| 00014        | Gigatronics        | 80701A    | Power Sensor                        | 04-May-12 |

cnr = calibration not required

|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

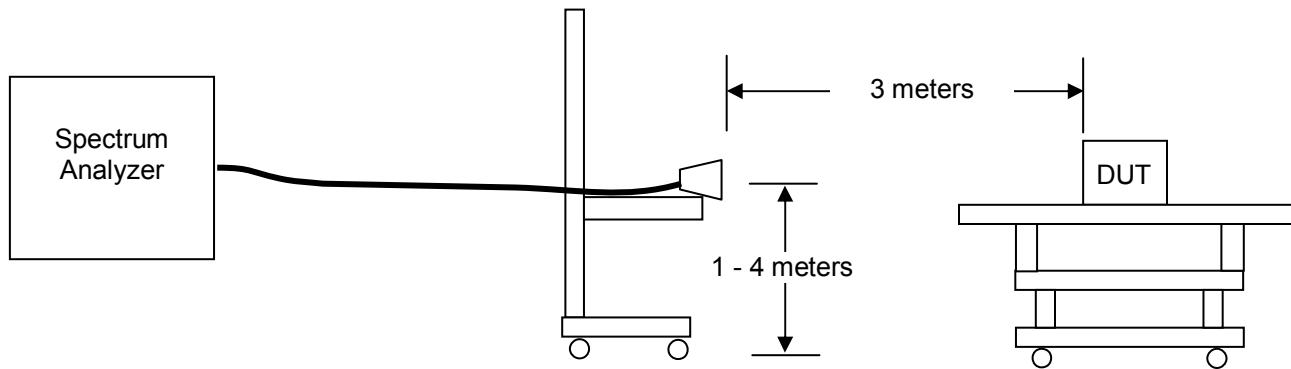
Test Lab Certificate No. 2470.01

## F.5 MEASUREMENT EQUIPMENT SETUP

|  |   |               |               |
|--|---|---------------|---------------|
| <b>MEASUREMENT EQUIPMENT CONNECTIONS</b> | For the field strength measurements, the measurement equipment was connected as shown in F.6. A number of antennas were used to cover the applicable frequency range tested. The ranges in which each antenna was used are as follows. For the final substitutions, the DUT was replaced with the appropriate antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated. |               |               |
|  | Frequency Range   | RX Antenna    | TX Antenna    |
|  | 30 MHz - 1GHz   | Bilog         | Dipole        |
| <b>MEASUREMENT EQUIPMENT SETTINGS</b>    | 1 GHz - 18 GHz  | ETS 3115 Horn | ETS 3115 Horn |
|  | For measuring the radiated field strength of the fundamental, the spectrum analyzer was set to the following settings:  |               |               |
|  | Mode  | RBW           | VBW           |
|  |   | MHz           | MHz           |
|  | GMRS (Hi Power)   | 1             | 3             |
|  | FRS (Lo Power)  | 1             | 3             |
|  |   |               | Peak          |
|  |   |               | Peak          |

## F.6 SETUP DRAWING

Figure F.6-1 - Setup Drawing – Radiated TX Spurious Emissions



|                         |   |  |                     |     |             |   |
|-------------------------|---|--|---------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |   |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

## F.7 TEST RESULTS

**GMRS TX: 462.5625 MHz**

**Measured Output Power: 2.0 W, Limit: 43+10Log(W)= 46.0dBc**

| Emissions | Attenuation | Limit | Margin |
|-----------|-------------|-------|--------|
| (MHz)     | (dBc)       | (dBc) | (dB)   |
| 462.5625  | -           | -     | -      |
| 925.125   | 53.2        | 46    | 7.2    |
| 1387.6875 | 65.3        | 46    | 19.3   |

**FRS TX: 467.5625 MHz**

**Measured Output Power: 0.16 W, Limit: 43+10Log(W)= 35.0dBc**

| Emissions | Attenuation | Limit | Margin |
|-----------|-------------|-------|--------|
| (MHz)     | (dBc)       | (dBc) | (dB)   |
| 467.5625  | -           | -     | -      |
| 935.125   | 66.0        | 35.0  | 31     |

Note(s):

1. Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)
2. The DUT was measured in 3 orientations with respect to the receive antenna and the orientation with the highest Radiated Power results is shown (Vertical Polarization).
3. The emissions reported above represent the highest emissions within the frequency band of 30MHz and the 10<sup>th</sup> harmonic of the carrier. All other emissions were at the noise floor.
4. The DUT was measured with and without the optional speaker-microphone audio accessory connected to the audio jack of the DUT, and the worst-case configuration is reported (without the speaker-microphone audio accessory).

## F.8 PASS/FAIL

In reference to the results outlined in F.7 the DUT passes the requirements as stated in the reference standards.

## F.9 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 6-7, 2011

Date

|                         |   |  |                     |     |             |  |
|-------------------------|---|--|---------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |  |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

## F.10 TEST SETUP PHOTOGRAPH



|                         |   |  |                     |     |             |  |
|-------------------------|---|--|---------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |  |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## Appendix G Radiated Spurious Emissions - RX

### G.1 REFERENCES

|                              |  |
|------------------------------|--|
| Normative Reference Standard | IC RSS-210   |
| Procedure Reference(s)       | The procedure used was ANSI C63.4-2003. The frequency was scanned from 30 MHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes. |
|                              | RSS-Gen 4.10   |

### G.2 LIMITS

| RSS-Gen 6.(a) | Frequency (MHz) | Limits                         |  |
|---------------|-----------------|--------------------------------|--|
|               | 30-88           | 40.0 dBv/m measured @ 3 meters |  |
|               | 80-216          | 43.5 dBv/m measured @ 3 meters |  |
|               | 216-960         | 46.0 dBv/m measured @ 3 meters |  |
|               | Above 960       | 54.0 dBv/m measured @ 3 meters |  |

### G.3 ENVIRONMENTAL CONDITIONS

|                     |               |
|---------------------|---------------|
| Temperature         | 10 °C         |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### G.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER | MODEL     | DESCRIPTION                    | CAL DUE   |
|--------------|--------------|-----------|--------------------------------|-----------|
| 00072        | EMCO         | 2075      | Mini-mast                      | cnr       |
| 00073        | EMCO         | 2080      | Turn Table                     | cnr       |
| 00071        | EMCO         | 2090      | Multi-Device Controller        | cnr       |
| 00015        | HP           | E4408B    | Spectrum Analyzer              | 03-May-12 |
| 00050        | Chase        | CBL-6111A | Bilog Antenna                  | 03-May-13 |
| 00051        | HP           | 8566B     | Spectrum Analyzer RF Section   | 03-May-12 |
| 00049        | HP           | 85650A    | Quasi-peak Adapter             | 06-May-12 |
| 00047        | HP           | 85685A    | RF Preselector                 | 05-May-12 |
| 00006        | R & S        | SMR 20    | Signal Generator (10MHz-40GHz) | 30-Apr-12 |

cnr = calibration not required

|                         |  |               |                    |     |             |   |  |  |  |  |  |
|-------------------------|--|---------------|--------------------|-----|-------------|---|--|--|--|--|--|
| Applicant:              | Garmin International Inc.  | FCC ID:       | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |  |  |  |  |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS  | DUT Model(s): | Rino 650, Rino 655 |     |             |   |  |  |  |  |  |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

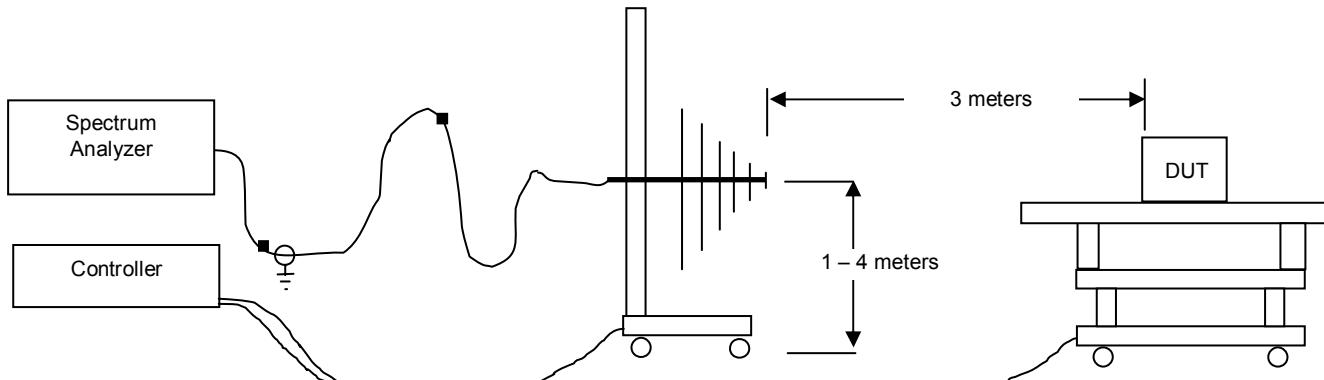
## G.5 MEASUREMENT EQUIPMENT SETUP

|                                   |  |      |               |            |
|-----------------------------------|--|------|---------------|------------|
| MEASUREMENT EQUIPMENT CONNECTIONS | For the field strength measurements, the measurement equipment was connected as shown in G.6. Various antenna types may be required to cover the applicable frequency range tested. The ranges in which each antenna was used are shown below. |      |               |            |
|                                   | Frequency Range  |      | RX Antenna    | TX Antenna |
|                                   | 30 MHz - 1GHz  |      | Bilog         | N/a        |
|                                   | 1 GHz - 18 GHz   |      | ETS 3115 Horn | N/a        |
| MEASUREMENT EQUIPMENT SETTINGS    | For the spurious out-of-band emissions, the spectrum analyzer was set to the following settings:   |      |               |            |
|                                   | Measurement  | RBW  | VBW           | Detector   |
|                                   |  | kHz  | kHz           |            |
|                                   | < 1 GHz  | 100  | 300           | Peak*      |
|                                   | > 1 GHz  | 1000 | 3000          | Peak*      |

\* As a worst-case measurement, the QP limit was applied to measurements made with a peak detector.

## G.6 SETUP DRAWING

Figure G.6-1 - Setup Drawing – Radiated RX Spurious Emissions



|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|   |                         |  |                         |  |   |
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| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## G.7 TEST RESULTS

| Tuned Frequency | Emission Frequency | Receiver | DUT | Ant Pol | Cable Loss | Correction Factor | Field Strength | Limit | Margin |
|-----------------|--------------------|----------|-----|---------|------------|-------------------|----------------|-------|--------|
|                 |                    |          |     |         | MHz        | MHz               | dBuv           | dB    | dB     |
| Ch1             | 440.6              | 10.5     | V   | V       | 1.8        | 16.7              | 29             | 46    | 17     |
|                 | 440.6              | 13.3     | V   | H       | 1.8        | 17.1              | 32.2           | 46    | 13.8   |
|                 | 881.2              | 12.2     | V   | V       | 2          | 23.2              | 37.4           | 46    | 8.6    |
|                 | 881.2              | 10.3     | V   | H       | 2          | 23.2              | 35.5           | 46    | 10.5   |
| CH8             | 446.2              | 9.4      | V   | V       | 1.8        | 16.9              | 28.1           | 46    | 17.9   |
|                 | 446.2              | 11.8     | V   | H       | 1.8        | 17.1              | 30.7           | 46    | 15.3   |
|                 | 892.4              | 12.2     | V   | V       | 2          | 23.2              | 37.4           | 46    | 8.6    |
|                 | 892.4              | 11.2     | V   | H       | 2          | 23.2              | 36.4           | 46    | 9.6    |

Note: The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10<sup>th</sup> harmonic of the carrier. All other emissions were at the noise floor.

### Formulae:

Total CF = Antenna Factor + Cable Factor + Other Factor (Amplifier Gain, filter loss, etc)

Field Strength = SA Reading + Total CF

The frequency points reported describe the highest emission measured in each of the ranges tested and are used to describe the measured spectrum as a whole. It is shown that the highest emissions measured within the spectrum pass the appropriate limits; therefore all emissions within the bands would also meet the requirements.

## G.8 PASS/FAIL

In reference to the results outlined in G.7 the DUT passes the requirements as stated in the reference standard.

## G.9 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 6-7, 2011

Date

|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 | <br>GARMIN |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|--|-------------------------|--|-------------------------|--|---|
|  | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>Test Lab Certificate No. 2470.01 |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |   |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

## Appendix H Frequency Stability

### H.1 REFERENCES

|                                   |  |
|-----------------------------------|--|
| Normative Reference Standard      | FCC CFR 47 §2.1055, §95.621, §95.627; IC RSS-210   |
| Procedure Reference / Description | <p>§95.621 (a) The frequency stability shall be measured with variation of ambient temperature as follows:</p> <p>(1) From -30° to +50° centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.</p> <p>(2) From -20° to +50° Family Radio Service under part 95 of this chapter.</p> |

### H.2 LIMITS

|                |   |
|----------------|---|
| §95.621        | (b) Each GMRS transmitter for mobile station, small base station and control station operation must be maintained within a frequency tolerance of 0.0005%. Each GMRS transmitter for base station (except small base), mobile relay station or fixed station operation must be maintained within a frequency tolerance of 0.00025%. |
| §95.627        | (b) Each FRS unit must be maintained within a frequency tolerance of 0.00025%.  |
| RSS-210 A6.1.6 | FRS Devices: Carrier frequency tolerance shall be better than $\pm 5$ ppm   |
| RSS-210 A6.2.6 | GMRS Devices: Carrier frequency tolerance shall be better than $\pm 5$ ppm  |

### H.3 ENVIRONMENTAL CONDITIONS

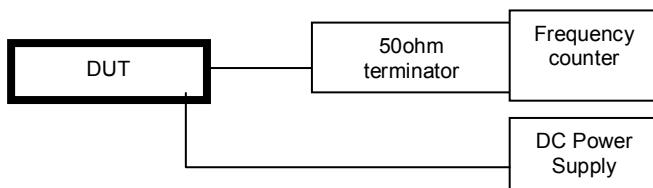
|                     |               |
|---------------------|---------------|
| Temperature         | 25 +/- 5 °C   |
| Humidity            | 40 +/- 10 %   |
| Barometric Pressure | 101 +/- 3 kPa |

### H.4 EQUIPMENT LIST

| ASSET NUMBER | MANUFACTURER | MODEL  | DESCRIPTION                  | CAL DUE   |
|--------------|--------------|--------|------------------------------|-----------|
| na           | ESPEC        | ECT-2  | Heater/Refrigerator          | na        |
| 0003         | HP           | 53181A | Frequency Counter            | 09-Apr-12 |
| na           | HP           | E3611A | DC Power Supply              | Na        |
| 00207        | VWR          | na     | Temperature Humidity Monitor | 09-Apr-12 |

### H.5 SETUP DRAWING

Figure H.5-1 - Setup Drawing – Frequency Stability



|                         |   |  |                    |     |             |   |
|-------------------------|---|--|--------------------|-----|-------------|---|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767          | IC: | 1792A-01767 |  |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655 |     |             |   |
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|   |                         |  |                         |  |   |
|---|-------------------------|--|-------------------------|--|---|
| <br>Celltech<br>Testing and Engineering Services Ltd. | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br>ILAC-MRA<br>ACCREDITED |
|   | Measurement Dates:      | May 18, June 01-10, 2011                                 | Test Report Revision:   | Rev. 1.0                                       |   |
|   | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

## H.6 TEST RESULTS

### Channel: 1

GMRS

| Temperature (degrees C) | Assigned Frequency (MHz) | Measured Frequency (MHz) | Deviation (%) | Frequency tolerance with reference to value @ 20 °C (ppm) |
|-------------------------|--------------------------|--------------------------|---------------|---|
| -30                     | 462.56250                | 462.5626154              | 0.000025%     | 0.149817577   |
| -20                     | 462.56250                | 462.5625275              | 0.000006%     | -0.040210778  |
| -10                     | 462.56250                | 462.5625573              | 0.000012%     | 0.024212942   |
| 0                       | 462.56250                | 462.5626027              | 0.000022%     | 0.122361831   |
| 10                      | 462.56250                | 462.5626111              | 0.000024%     | 0.140521537   |
| 20                      | 462.56250                | 462.5625461              | 0.000010%     | 0   |
| 30                      | 462.56250                | 462.5625103              | 0.000002%     | -0.077394939  |
| 40                      | 462.56250                | 462.5624725              | -0.000006%    | -0.159113617  |
| 50                      | 462.56250                | 462.5623803              | -0.000026%    | -0.358438013  |

### Channel: 8

FRS

| Temperature (degrees C) | Assigned Frequency (MHz) | Measured Frequency (MHz) | Deviation (%) | Frequency tolerance with reference to value @ 20 °C (ppm) |
|-------------------------|--------------------------|--------------------------|---------------|---|
| -30                     | 467.56250                | 467.5625474              | 0.000010%     | 0.101376821   |
| -20                     | 467.56250                | 467.5625299              | 0.000006%     | 0.06394867  |
| -10                     | 467.56250                | 467.5625633              | 0.000014%     | 0.13538297  |
| 0                       | 467.56250                | 467.5626028              | 0.000022%     | 0.219863655   |
| 10                      | 467.56250                | 467.5626160              | 0.000025%     | 0.248095174   |
| 20                      | 467.56250                | 467.5625000              | 0.000000%     | 0   |
| 30                      | 467.56250                | 467.5625108              | 0.000002%     | 0.023098516   |
| 40                      | 467.56250                | 467.5624234              | -0.000016%    | -0.163828365  |
| 50                      | 467.56250                | 467.5623853              | -0.000025%    | -0.245314797  |

|                            |                 |                            |                  |
|----------------------------|-----------------|----------------------------|------------------|
| Channel Frequency<br>1     | 462.5625000     | Channel Frequency<br>8     | 467.5625000      |
| Channel Frequency Assigned | 462.5625000     | Channel Frequency Assigned | 467.5625000      |
| Reference Frequency (20 C) | 462.5625461     | Reference Frequency (20 C) | 467.5625000      |
| Voltage (V)                | Frequency (MHz) | %Deviation                 | PPM to assigned  |
| 6.63                       | 462.5626098     | 0.000024%                  | 0.2374           |
| 8.97                       | 462.5626048     | 0.000023%                  | 0.2266           |
|                            | Frequency (MHz) | %Deviation                 | PPM to reference |
| 6.63                       | 462.5628094     | 0.000057%                  | 0.5692           |
| 8.97                       | 462.5628018     | 0.000055%                  | 0.5528           |
| Voltage (V)                | Frequency (MHz) | %Deviation                 | PPM to assigned  |
|                            |                 |                            |                  |
|                            |                 |                            |                  |

|  |   |               |                    |     |             |   |
|--|---|---------------|--------------------|-----|-------------|---|
| Applicant:   | Garmin International Inc.                             | FCC ID:       | IPH-01767          | IC: | 1792A-01767 |  |
| DUT Type:  | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s): | Rino 650, Rino 655 |     |             |   |
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|  |                         |  |                         |  |  |
|--|-------------------------|--|-------------------------|--|--|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011                                  | <br><b>ILAC-MRA</b><br><br><b>ACCREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                                       |  |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site<br>IC Site File #: 3874A-1 |  |

Test Lab Certificate No. 2470.01

## H.7 PASS/FAIL

In reference to the results outlined in H.6 the DUT passes the requirements as stated in the reference standards.

## H.8 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.



Sean Johnston  
Lab Manager  
Celltech Labs Inc.

June 8, 2011

Date

|                         |   |  |                     |     |             |  |
|-------------------------|---|--|---------------------|-----|-------------|--|
| Applicant:              | Garmin International Inc.                             | FCC ID:  | IPH-01767           | IC: | 1792A-01767 | <br><b>GARMIN</b> |
| DUT Type:               | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS | DUT Model(s):  | Rino 650, Rino 655t |     |             |  |
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|  |                         |  |                         |                         |   |
|--|-------------------------|--|-------------------------|-------------------------|---|
| <br><b>Celltech</b><br><small>Testing and Engineering Services Ltd</small> | Test Report Serial No.: | 041511IPH-T1094-E95U                                     | Test Report Issue Date: | July 15, 2011           | <br><b>ILAC-MRA</b><br><br><b>ACREDITED</b> |
|  | Measurement Dates:      | May 18, June 01-10 , 2011                                | Test Report Revision:   | Rev. 1.0                |   |
|  | Rule Part(s) Applied:   | FCC 47 CFR §2, §95A, §95B<br>IC RSS-210 (8), RSS-Gen (3) | Test Site Registration: | FCC Accredited Site     |   |
|  |                         |  |                         | IC Site File #: 3874A-1 |   |

Test Lab Certificate No. 2470.01

**END OF DOCUMENT**

|                         |   |  |                      |                     |             |  |
|-------------------------|---|--|----------------------|---------------------|-------------|--|
| <b>Applicant:</b>       | Garmin International Inc.                             | <b>FCC ID:</b>   | IPH-01767            | <b>IC:</b>          | 1792A-01767 | <br><b>GARMIN</b> |
| <b>DUT Type:</b>        | Portable 5W UHF FRS/GMRS PTT Radio Transceiver w/ GPS |  | <b>DUT Model(s):</b> | Rino 650, Rino 655t |             |  |
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