

	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

<b>EMC MEASUREMENT REPORT (FCC/IC)</b>			
<b>FCC PART 95 SUBPART A/B &amp; IC RSS-210 ISSUE 7</b>			
<b>MANUFACTURER / APPLICANT</b>	<b>UNIDEN AMERICA CORPORATION</b>		
<b>DEVICE UNDER TEST (DUT)</b>	<b>PORTABLE HANDHELD FRS/GMRS PTT RADIO TRANSCEIVER</b>		
<b>DEVICE MODEL(S)</b>	<b>GMR2875, GMR2872</b>		
<b>DEVICE IDENTIFIER(S)</b>	<b>FCC ID:</b>	<b>AMWUT042</b>	<b>IC:</b> <b>513C-UT042</b>
<b>DUT FREQUENCY RANGE(S)</b>	<b>462.5500 - 462.7250 MHz</b>		<b>GMRS Channels 15-22</b>
	<b>462.5625 - 462.7125 MHz</b>		<b>GMRS/FRS Channels 1-7</b>
	<b>467.5625 - 467.7125 MHz</b>		<b>FRS Channels 8-14</b>
<b>MAX. RF OUTPUT POWER TESTED</b>	<b>1.45 Watts ERP (GMRS Boost)</b>		<b>0.45 Watts ERP (FRS)</b>
<b>APPLICATION TYPE</b>	<b>FCC/IC Certification</b>		
<b>STANDARD(S) &amp; PROCEDURE(S)</b>	<b>FCC 47 CFR</b>	<b>Part 2</b>	
		<b>Part 95 Subpart A</b>	
		<b>Part 95 Subpart B</b>	
	<b>Industry Canada</b>	<b>RSS-210 Issue 7</b>	
		<b>RSS-Gen Issue 2</b>	
	<b>ANSI</b>	<b>TIA/EIA-603-C-2004</b>	
	<b>C63.4-2003</b>		
<b>FCC DEVICE CLASSIFICATION</b>	<b>Part 95 Family Face Held Transmitter (FRF)</b>		<b>47 CFR §95A/B</b>
<b>IC DEVICE CLASSIFICATION</b>	<b>Low-Power Licence-exempt Radiocomm. Device</b>		<b>RSS-210 Issue 7</b>
<b>DATE(S) OF EVALUATION(S)</b>	<b>July 10, 13, 30, 2009</b>		
<b>TEST REPORT SERIAL NO.</b>	<b>071009AMW-T974-E95F</b>		
<b>TEST REPORT REVISION NO.</b>	<b>Revision 1.0</b>	<b>Initial Release</b>	<b>August 12, 2009</b>
<b>TEST REPORT SIGNATORIES</b>	<b>Jon Hughes</b>	<b>Test Report Writer</b>	<b>Celltech Labs Inc.</b>
	<b>Sean Johnston</b>	<b>Lab Manager</b>	<b>Celltech Labs Inc.</b>
<b>TEST LAB AND LOCATION</b>	<b>Celltech Compliance Testing and Engineering Lab</b>		
	<b>21-364 Loughheed Road, Kelowna, B.C. V1X 7R8 Canada</b>		
<b>TEST LAB CONTACT INFO.</b>	<b>Tel.: 250-765-7650</b>		<b>Fax: 250-765-7645</b>
	<b>info@celltechlabs.com</b>		<b>www.celltechlabs.com</b>

<b>Applicant:</b>	<b>Uniden America Corporation</b>	<b>FCC ID:</b>	<b>AMWUT042</b>	<b>IC:</b>	<b>513C-UT042</b>	
<b>DUT Model(s):</b>	<b>GMR2875, GMR2872</b>	<b>Portable FRS/GMRS PTT Radio Transceiver</b>		<b>462.5500 - 467.7125 MHz</b>		
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## DECLARATION OF COMPLIANCE ELECTROMAGNETIC COMPATIBILITY

<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 Registration No.(s)</b>	<b>FCC</b>	714830	<b>IC</b>	3874A-1			
<b>Applicant Information</b>	<b>Name</b>	UNIDEN AMERICA CORPORATION					
	<b>Address</b>	4700 Amon Carter Boulevard, Fort Worth, Texas 76155 United States					
<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 7		RSS-Gen Issue 2			
	<b>ANSI</b>	TIA/EIA-603-C-2004		C63.4-2003			
<b>Device Classification(s)</b>	<b>FCC</b>	Part 95 Family Face Held Transmitter (FRF)			47 CFR §95 (Subpart A/B)		
	<b>IC</b>	Low-power Licence-exempt Radiocommunication Device			RSS-210 Issue 7		
<b>Device Category</b>	<b>FCC/IC</b>	Portable	<b>RF Exposure Category</b>	General Population / Uncontrolled			
<b>Application Type</b>	<b>FCC/IC</b>	New Certification					
<b>Device Identifier(s)</b>	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042			
<b>Device Under Test (DUT)</b>	Portable FRS/GMRS Push-To-Talk (PTT) Radio Transceiver						
<b>Device Model(s) Tested</b>	GMR2875						
<b>Additional Device Model(s)</b>	GMR2872 (Note: The only difference between models is enclosure color and vibrate alert function on GMR2875)						
<b>Test Sample Serial No.(s)</b>	3 (Conducted Tests) - Identical Prototype			1 (Radiated Tests) - Identical Prototype			
<b>Number of Channels</b>	22						
<b>Transmit Frequency Range(s)</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>Power Setting</b>	<b>Frequency</b>	<b>Channel</b>	<b>dBm</b>	<b>Watts</b>	<b>Method</b>
	GMRS	Boost	462.5625 MHz	1	31.61	1.45	ERP
		Normal	462.5625 MHz	1	29.14	0.82	ERP
FRS	Normal	467.5625 MHz	8	26.53	0.45	ERP	
<b>Modulation Type(s)</b>	FM						
<b>Emission Designator(s)</b>	11K0F3E						
<b>Antenna Type(s) Tested</b>	External Non-detachable						
<b>Antenna Gain Specification</b>	0.5 dBi						
<b>Power Source(s) Tested</b>	NiMH Battery Pack	4.8 V	700 mAh	Model: BP38			
<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 7, RSS-Gen Issue 2; 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> <p>This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc.</p>							
<b>Test Report Approved By</b>			<b>Sean Johnston</b>	<b>Lab Manager</b>	<b>Celltech Labs Inc.</b>		

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

TEST SUMMARY						
Referenced Standard(s):		FCC CFR Title 47 Parts 2, 95				
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	10-Jul-09	10-Jul-09	Pass
B	Modulation Limiting	ANSI/TIA/EIA-603-C	§2.1047, §95.637	30-Jul-09	30-Jul-09	Pass
C	Audio Frequency Response	ANSI/TIA/EIA-603-C	§2.1047	30-Jul-09	30-Jul-09	Pass
D	Low-Pass Filter Response	ANSI/TIA/EIA-603-C	§2.1047, §95.637	30-Jul-09	30-Jul-09	Pass
E	Occupied Bandwidth and Emission Mask	ANSI/TIA/EIA-603-C	§2.1049, §95.633, §95.635	30-Jul-09	30-Jul-09	Pass
F	Radiated TX Spurious Emissions	ANSI/TIA/EIA-603-C	§2.1053, §95.635 (b) (7)	30-Jul-09	30-Jul-09	Pass
G	Radiated RX Spurious Emissions	ANSI C63.4-2003	§15.109	30-Jul-09	30-Jul-09	Pass
H	Frequency Stability	ANSI/TIA/EIA-603-C	§2.1055, §95.621, §95.627	13-Jul-09	13-Jul-09	Pass
Referenced Standard(s):		Industry Canada RSS-210 Issue 7				
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 RSS-210 A6.2.4	10-Jul-09	10-Jul-09	Pass
B	Modulation Limiting	ANSI/TIA/EIA-603-C	RSS-210 A6.1.2 RSS-210 A6.2.2	30-Jul-09	30-Jul-09	Pass
C	Audio Frequency Response	ANSI/TIA/EIA-603-C	N/A	30-Jul-09	30-Jul-09	Pass
D	Low-Pass Filter Response	ANSI/TIA/EIA-603-C	RSS-210 A6.2.2	30-Jul-09	30-Jul-09	Pass
E	Occupied Bandwidth and Emission Mask	RSS-Gen 4.6.1	RSS-210 A6.1.3, A6.2.3 A6.1.5, A6.2.5	30-Jul-09	30-Jul-09	Pass
F	Radiated TX Spurious Emissions	RSS-Gen 4.9	RSS-210 A6.1.5, A6.2.5	30-Jul-09	30-Jul-09	Pass
G	Radiated RX Spurious Emissions	RSS-Gen 4.10	RSS-Gen 6.(a)	30-Jul-09	30-Jul-09	Pass
H	Frequency Stability	RSS-Gen 4.7	RSS-210 A6.1.6 RSS-210 A6.2.6	13-Jul-09	13-Jul-09	Pass

### REVISION LOG

Revision	Description	Implemented By	Implementation Date
1.0	Initial Release	Jonathan Hughes	August 12, 2009

### SIGNATORIES

Prepared By			August 12, 2009
Name/Title	Jon Hughes / Report Writer	Sean Johnston / Lab Manager	Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver	462.5500 - 467.7125 MHz			
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## 1.0 SCOPE

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Uniden America Corporation Model: GMR2875 Portable FM FRS/GMRS Push-To-Talk (PTT) Radio Transceiver. 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 7 and RSS-Gen Issue 2.

## 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 Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR Title 47 Part 95	Code of Federal Regulations Title 47: Telecommunication Part 95: Personal Radio Services Subpart A - General Mobile Radio Service (GMRS) Subpart B - Family Radio Service (FRS)
IC Spectrum Management & Telecommunications Policy	Radio Standards Specification RSS-210 Issue 7 - Low-Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment RSS-Gen Issue 2 - 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:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 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 the FCC under Registration Number 714830 and Industry Canada under File Number IC 3874A-1.

#### 5.0 GENERAL INFORMATION

##### 5.1 Applicant Information

<b>Company Name</b>	<b>UNIDEN AMERICA CORPORATION</b>
<b>Address</b>	4700 Amon Carter Boulevard
	Fort Worth, Texas 76155
	United States

##### 5.2 DUT Description

<b>Device Type</b>	Portable FM FRS/GMRS Push-To-Talk Radio Transceiver		
<b>Device Model(s) Tested</b>	GMR2875		
<b>Additional Device Model(s)</b>	GMR2872 (Note: The only difference between the models is enclosure color and vibrate alert function on GMR2875)		
<b>Test Sample Serial No.(s)</b>	3 (Conducted Tests) - Identical Prototype	1 (Radiated Tests) - Identical Prototype	
<b>Device Identifier(s)</b>	<b>FCC ID:</b>	AMWUT042	
	<b>IC:</b>	513C-UT042	
<b>Co-located Transmitter(s)</b>	None		
<b>Power Source Tested</b>	Ni-MH Battery Pack	4.8 V, 700 mAh	Model: BP38
<b>Antenna Type Tested</b>	Fixed External (Non-detachable)		
<b>Antenna Gain Specification</b>	0.5 dBi		

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

<b>Rule Part(s) Applied</b>	<b>FCC</b>	47 CFR §2; §95(A), §95(B)
	<b>IC</b>	RSS-210 Issue 7, RSS-Gen Issue 2
<b>Device Classification(s)</b>	<b>FCC</b>	Part 95 Family Face Held Transmitter (FRF)
	<b>IC</b>	Low-Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment (RSS-210)

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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## 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)	467.6375 MHz (Channel 11)
<b>Transmitter Test Mode(s)</b>	Enter TX Test Mode (keypad entry) - Select Channel (keypad entry); Continuous Transmit with PTT constantly depressed (Normal power mode)	
<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)	462.6375 MHz (Channel 4)
<b>Transmitter Test Mode(s)</b>	Enter TX Test Mode (keypad entry) - Select Channel (keypad entry); Continuous Transmit with PTT constantly depressed - Select Boost power mode Continuous Transmit with PTT constantly depressed - Select Normal power mode	
<b>Modulation Type(s)</b>	FM	

## 5.5 Modification(s)

None

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### Appendix A RF Output Power Measurement

#### A.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1046(a), §2.1046(b), 2.1033(c)(6)(7), §95.639; IC RSS-210
<b>Procedure Reference</b>	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 §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. No GMRS channel, under any condition of modulation, shall exceed: 1. 50W Carrier power (average TP during one modulated RF cycle) when transmitting emissions type A1D, F1D, G1D, A3E, F3E, or G3E. 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

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

#### A.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr10
00007	Gigatronics	8652A	Power Meter	23Apr08	23Apr10
00014	Gigatronics	80701A	Power Sensor	23Apr08	23Apr10
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr10
00050	Chase	CBL-6111A	Bilog Antenna	15Mar07	15Mar10
00055	EMCO	3121C	Dipole Antenna	04Apr07	04Apr10
00034	ETS	3115	Double Ridged Guide Horn	03Apr06	03Apr10

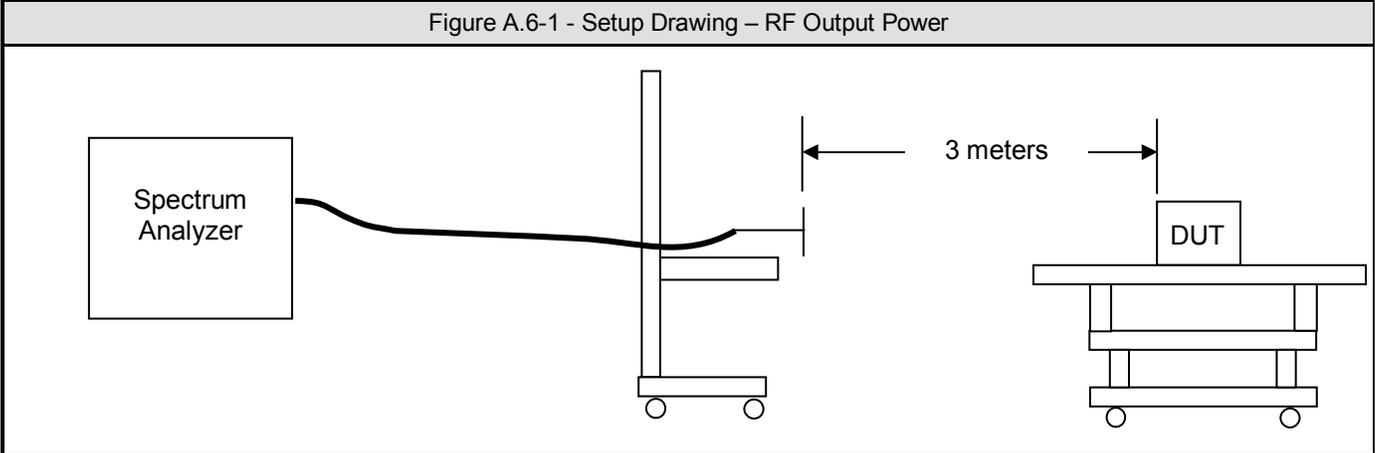
<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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### A.5 MEASUREMENT EQUIPMENT SETUP

<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	Dipole	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	Detector
		MHz	MHz	
	GMRS Boost	1	3	Peak
	GMRS Normal	1	3	Peak
FRS	1	3	Peak	

### A.6 SETUP DRAWING



	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## A.7 TEST RESULTS

Measured Frequency (MHz)	Output Power (ERP) (Watts)
462.5625 (GMRS Boost)	1.45
462.5625 (GMRS Normal)	0.82
467.5625 (FRS)	0.45

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 (MHz)	Voltage V	Current A	Power W
462.5625 (Boost)	4.8	0.71	3.41
462.5625 (PTT)	4.8	0.52	2.50
467.5625 (PTT)	4.8	0.33	1.58

## A.8 PASS/FAIL

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

## A.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.

July 10, 2009

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## Appendix B Modulation Characteristics (Modulation Limiting)

### B.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1047, §95.637; IC RSS-210
<b>Procedure Reference</b>	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 kHz $\leq f \leq 20$ kHz, the attenuation is at least $60 \log_{10}(f, \text{kHz}/3)$ dB greater than the attenuation at 1 kHz, and for $f > 20$ kHz, the attenuation is at least 50 dB greater than the attenuation at 1 kHz.

### B.3 ENVIRONMENTAL CONDITIONS

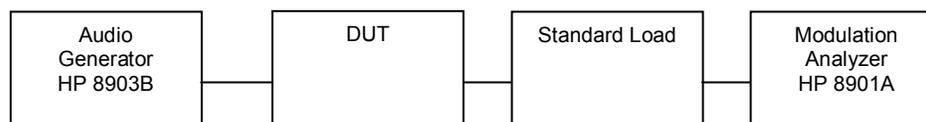
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

### B.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00028	HP	8901A	Modulation Analyzer	21Jul09	21Jul11
00027	HP	8903B	Audio Generator/Analyzer	21Jul09	21Jul11

### B.5 SETUP DRAWING

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

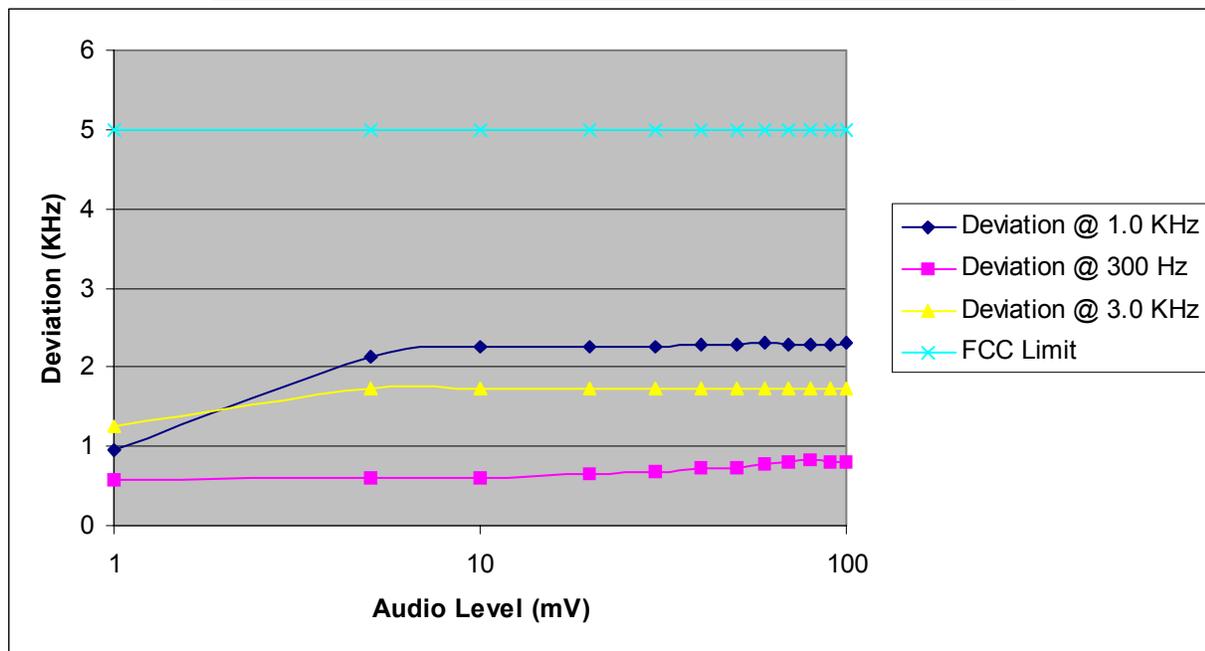


Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### B.6 TEST RESULTS

#### B.6.1 GMRS

Audio Level	Deviation @ 1.0 KHz	Deviation @ 300 Hz	Deviation @ 3.0 KHz	FCC Limit
mV	[KHz]	[KHz]	[KHz]	[KHz]
1	0.96	0.58	1.25	5
5	2.13	0.60	1.72	5
10	2.25	0.60	1.72	5
20	2.26	0.66	1.73	5
30	2.27	0.68	1.74	5
40	2.29	0.72	1.72	5
50	2.29	0.74	1.72	5
60	2.3	0.77	1.73	5
70	2.28	0.80	1.73	5
80	2.28	0.82	1.73	5
90	2.29	0.80	1.72	5
100	2.3	0.8	1.72	5



### B.7 PASS/FAIL

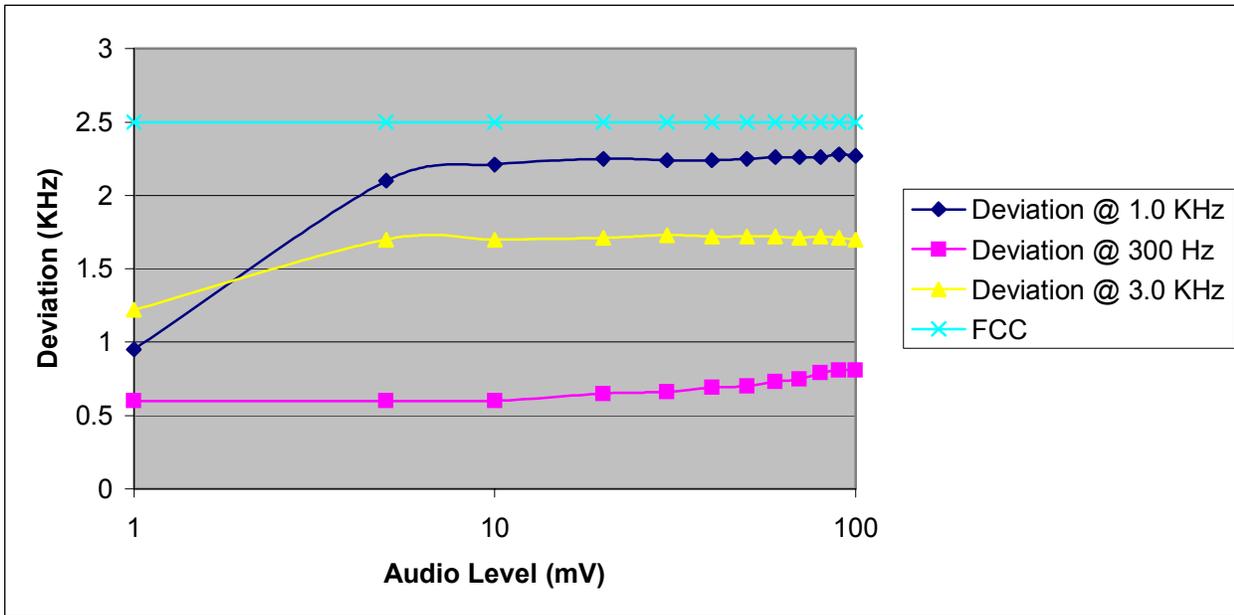
In reference to the results outlined in B.6.1 the DUT passes the requirements as stated in the reference standards.

Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### B.8 TEST RESULTS

#### B.8.1 FRS

Audio Level [mV]	Deviation @ 1.0 KHz [KHz]	Deviation @ 300 Hz [KHz]	Deviation @ 3.0 KHz [KHz]	FCC Limit [KHz]
1	0.95	0.60	1.22	2.5
5	2.1	0.60	1.7	2.5
10	2.21	0.60	1.7	2.5
20	2.25	0.65	1.71	2.5
30	2.24	0.66	1.73	2.5
40	2.24	0.69	1.72	2.5
50	2.25	0.70	1.72	2.5
60	2.26	0.73	1.72	2.5
70	2.26	0.75	1.71	2.5
80	2.26	0.79	1.72	2.5
90	2.28	0.81	1.71	2.5
100	2.27	0.8	1.7	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.

	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 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.

July 30, 2009

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver	462.5500 - 467.7125 MHz			
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	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### Appendix C Modulation Characteristics (Audio Frequency Response)

#### C.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1047
<b>Procedure Reference</b>	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

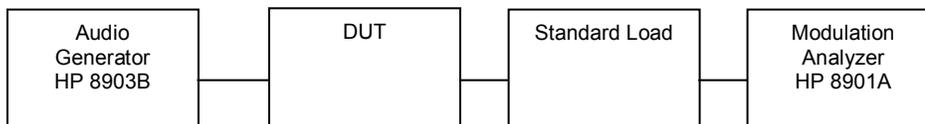
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

#### C.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00028	HP	8901A	Modulation Analyzer	21Jul09	21Jul11
00027	HP	8903B	Audio Generator/Analyzer	21Jul09	21Jul11

#### C.5 SETUP DRAWING

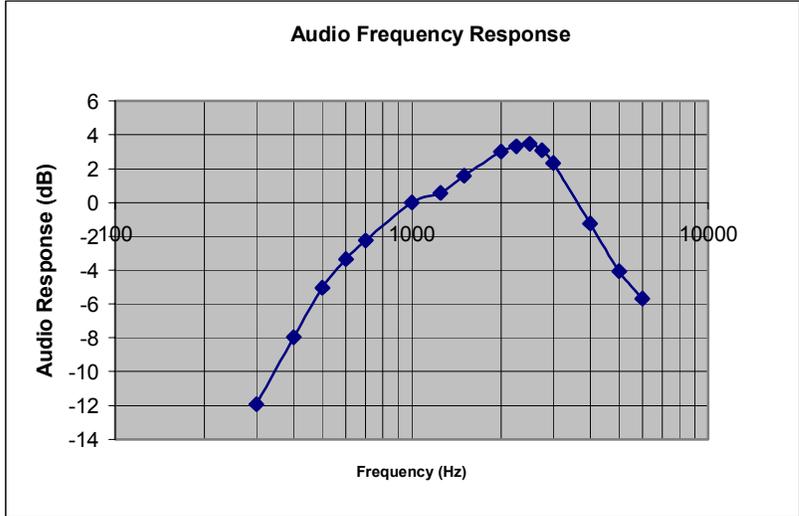
Figure C.5-1 - Setup Drawing – Audio Frequency Response



	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

**C.6 TEST RESULTS**

Audio Frequency	Deviation
[Hz]	[kHz]
300	-11.93
400	-7.96
500	-5.04
600	-3.35
700	-2.23
1000	0.00
1250	0.56
1500	1.58
2000	3.00
2250	3.33
2500	3.48
2750	3.09
3000	2.32
4000	-1.24
5000	-4.06
6000	-5.68



**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.

July 30, 2008  
 \_\_\_\_\_  
 Date

	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

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

### D.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1047, §95.637; IC RSS-210
<b>Procedure Reference</b>	TIA-603-C

### D.2 LIMITS

§95.637 & 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

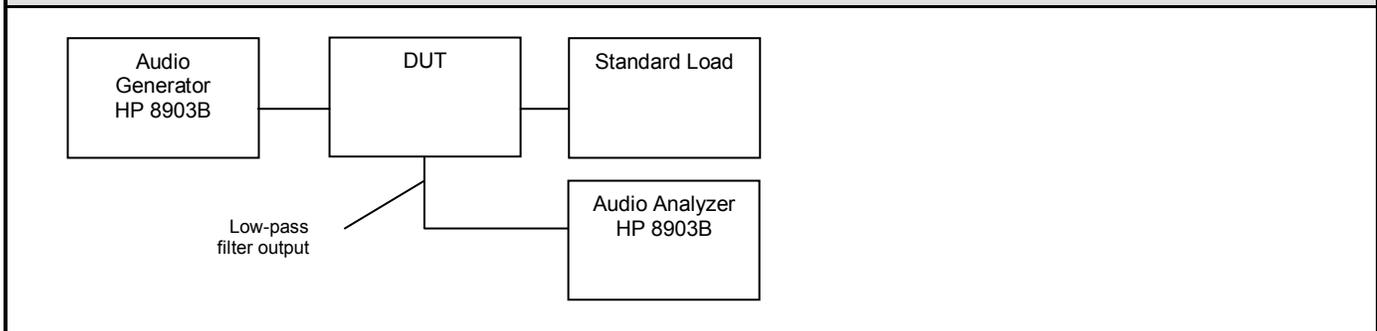
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

### D.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00027	HP	8903B	Audio Generator/Analyzer	21Jul09	21Jul11

### D.5 SETUP DRAWING

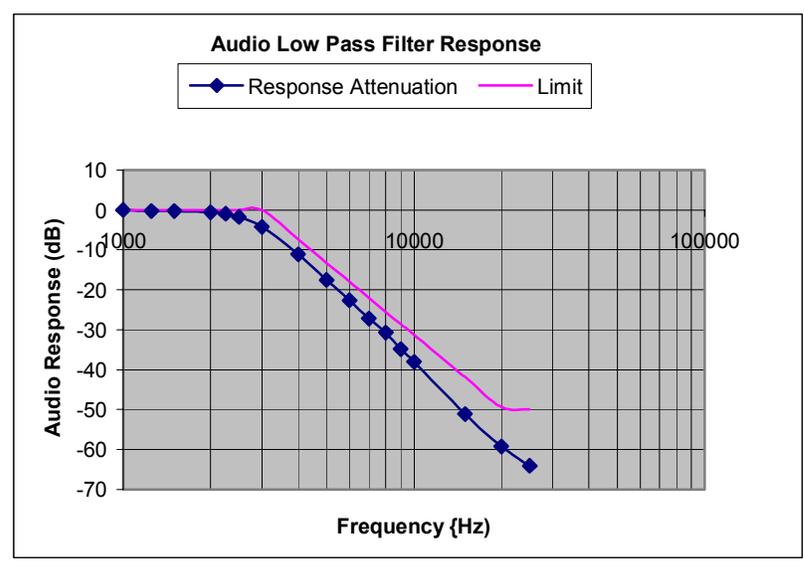
Figure D.5-1 - Setup Drawing – Low-pass Filter Response



	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

**D.6 TEST RESULTS**

Audio Frequency	Response Attenuation	Limit
[Hz]	[dB]	[dB]
1000	0.00	0
1250	-0.24	0
1500	-0.31	0
2000	-0.56	0
2250	-1.02	0
2500	-1.80	0
3000	-4.28	0
4000	-11.13	-7.4
5000	-17.59	-13.3
6000	-22.66	-18
7000	-27.18	-22
8000	-30.70	-25.5
9000	-34.87	-28.6
10000	-38.06	-31.3
15000	-51.13	-41.9
20000	-59.25	-49.4
25000	-64.08	-50



**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.  
  
 July 30, 2009  
 \_\_\_\_\_  
 Date

	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### Appendix E Occupied Bandwidth and Emission Mask

#### E.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1049, §95.633, §95.635; IC RSS-210
<b>Procedure Reference / Description</b>	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 & RSS-210 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.  The authorized bandwidth for emission type F3E or F2D transmitted by a FRS unit is 12.5 kHz.
§95.635 & RSS-210 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.  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.  At least 43 + 10 log <sub>10</sub> (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

#### E.3 ENVIRONMENTAL CONDITIONS

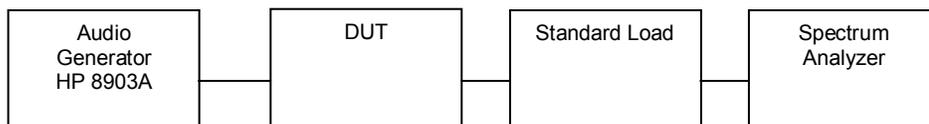
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

#### E.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00051	HP	8566B	Spectrum Analyzer RF Section	09Apr08	09Apr10
00047	HP	85685A	RF Preselector	09Apr08	09Apr10
00027	HP	8903B	Audio Generator/Analyzer	21Jul09	21Jul11

#### E.5 SETUP DRAWING

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



<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## E.6 EMISSION DESIGNATOR & FREQUENCIES

2.1033(c) (4) Type of Emission: 11K0F3E

95.631

$B_n = 2M + 2DK$

$M = 3000$

$D = 2.5K$

$B_n = 2(3000) + 2(2500) = 11K$

GMRS Authorized Bandwidth 20.0 kHz

2.1033(c)(5) GMRS Frequency Range:

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:

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 MHz

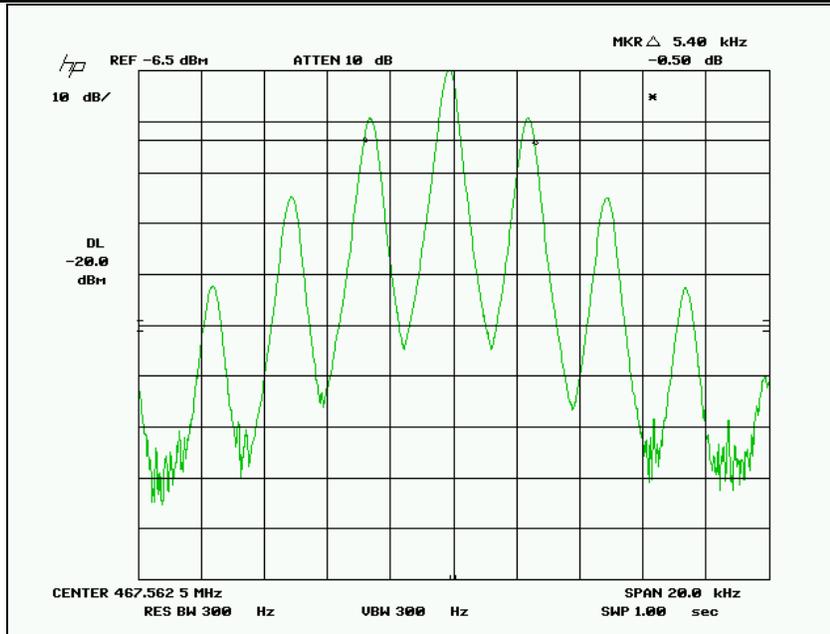
Applicant:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

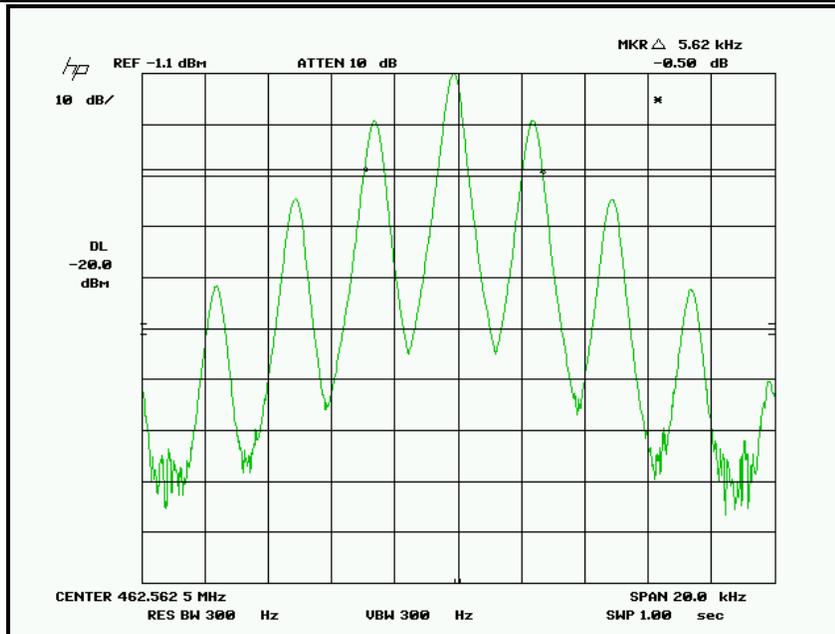
## E.7 TEST RESULTS

### E.7.1 Occupied Bandwidth

#### E.7.1.1 FRS



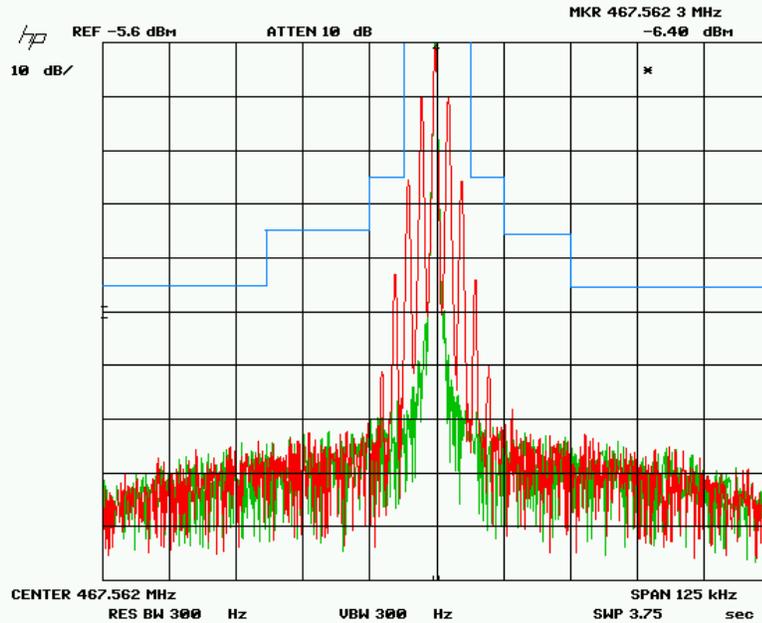
#### E.7.1.2 GMRS (Boost)



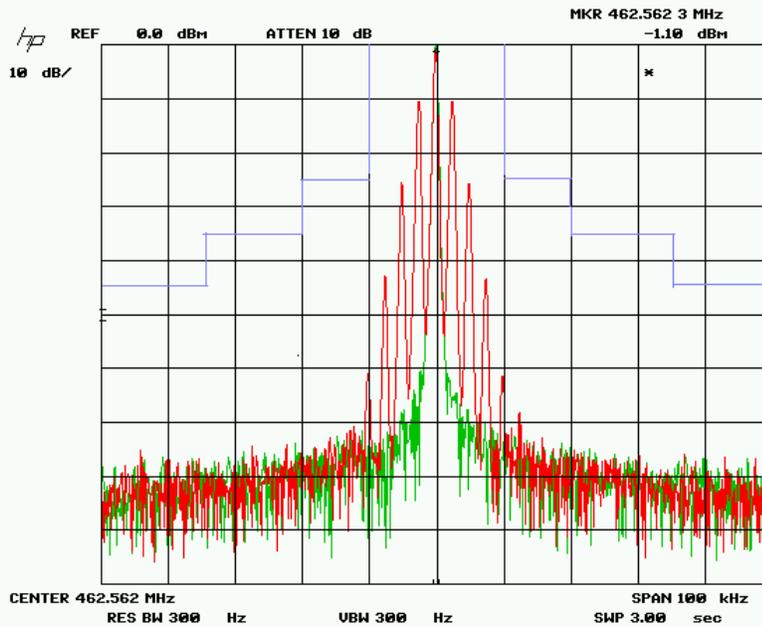
Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## E.7.2 Emission Mask

### E.7.2.1 FRS



### E.7.2.2 GMRS Boost



	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### E.8 PASS/FAIL

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

### E.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.

July 30, 2009

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## Appendix F Radiated Spurious Emissions - TX

### F.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1053, §95.635 (b) (7); IC RSS-210
<b>Procedure Reference</b>	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 & RSS-210 A6.1.5, A6.2.5	(7) At least 43 + 10 log <sub>10</sub> (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.
----------------------------------	---

### F.3 ENVIRONMENTAL CONDITIONS

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

### F.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr10
00050	Chase	CBL-6111A	Bilog Antenna	15Mar07	15Mar10
00055	EMCO	3121C	Dipole Antenna	04Apr07	04Apr10
00034	ETS	3115	Double Ridged Guide Horn	03Apr07	03Apr10
00035	ETS	3115	Double Ridged Guide Horn	03Aug06	03Aug09
00051	HP	8566B	Spectrum Analyzer RF Section	09Apr08	09Apr10
00049	HP	85650A	Quasi-peak Adapter	09Apr08	09Apr10
00047	HP	85685A	RF Preselector	09Apr08	09Apr10
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	06Apr08	06Apr10
00114	Amplifier Research	DC7154	Directional Coupler (0.8-4.2 GHz)	n/a	n/a
00078	Pasternack	PE2214-20	Directional Coupler (1-18 GHz)	n/a	n/a
00106	Amplifier Research	5S1G4	Power Amplifier (5W, 800MHz-4.2GHz)	n/a	n/a
00041	Amplifier Research	10W1000C	Power Amplifier (0.5 - 1 GHz)	n/a	n/a
00007	Gigatronics	8652A	Power Meter	23Apr08	23Apr10
00014	Gigatronics	80701A	Power Sensor	23Apr08	23Apr10

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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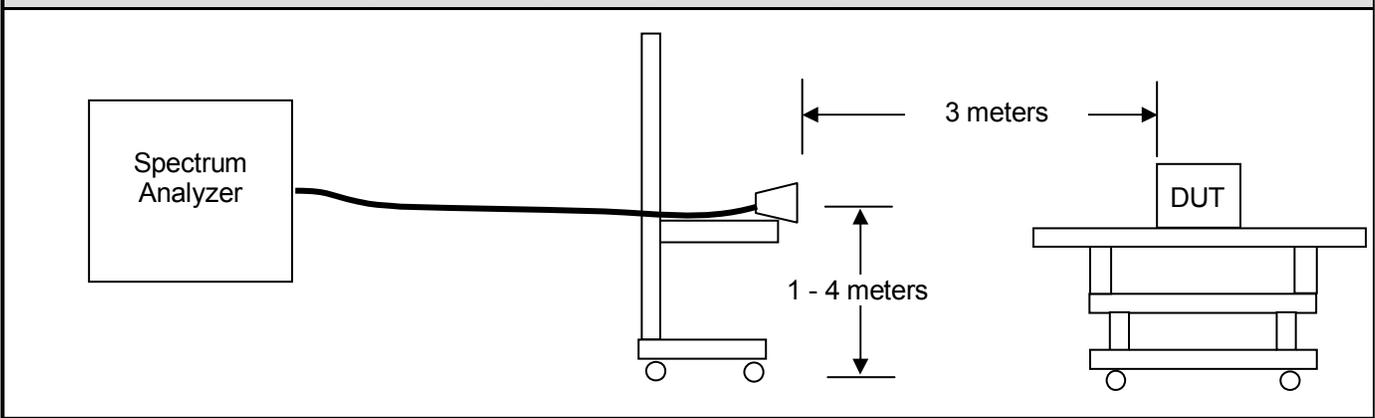
	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### 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	
	1 GHz - 18 GHz	ETS 3115 Horn	ETS 3115 Horn	
<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	Detector
		MHz	MHz	
	GMRS Boost	1	3	Peak
	GMRS Normal	1	3	Peak
FRS	1	3	Peak	

### F.6 SETUP DRAWING

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



	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### F.7 TEST RESULTS

**GMRS (Boost) TX: 462.5625 MHz**  
**Measured Output Power: 1.45 W, Limit: 43+10Log(W)= 44.6dBc**

Emissions (MHz)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
462.5625	-	-	-
925.12500	46.2	44.6	1.6
1387.6875	48.0	44.6	3.4
1850.2500	60.0	44.6	15.4

**GMRS (Normal) TX: 462.5625 MHz**  
**Measured Output Power: 0.82 W, Limit: 43+10Log(W)= 42.1dBc**

Emissions (MHz)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
462.5625	-	-	-
925.125	45.6	42.15	3.45
1387.6875	49.0	42.15	6.85
1850.25	61.0	42.15	18.85

**FRS (Normal) TX: 467.5625 MHz**  
**Measured Output Power: 0.45 W, Limit: 43+10Log(W)= 39.4dBc**

Emissions (MHz)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
467.5625	-	-	-
935.125	45.3	39.35	5.95
1402.6875	48.0	39.35	8.65
1870.25	58.5	39.35	19.15

Note(s):

- Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)
- 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).

### 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.  
  
 July 30, 2009  
 \_\_\_\_\_  
 Date

	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### Appendix G Radiated Spurious Emissions - RX

G.1 REFERENCES	
<b>Normative Reference Standard</b>	FCC CFR 47 §15.109; IC RSS-210
<b>Procedure Reference(s)</b>	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											
§15.109 RSS-Gen 6.(a)	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 50%;">Frequency (MHz)</th> <th style="width: 50%;">Limits</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">30-88</td> <td style="text-align: center;">40.0 dBuV/m measured @ 3 meters</td> </tr> <tr> <td style="text-align: center;">80-216</td> <td style="text-align: center;">43.5 dBuV/m measured @ 3 meters</td> </tr> <tr> <td style="text-align: center;">216-960</td> <td style="text-align: center;">46.0 dBuV/m measured @ 3 meters</td> </tr> <tr> <td style="text-align: center;">Above 960</td> <td style="text-align: center;">54.0 dBuV/m measured @ 3 meters</td> </tr> </tbody> </table>	Frequency (MHz)	Limits	30-88	40.0 dBuV/m measured @ 3 meters	80-216	43.5 dBuV/m measured @ 3 meters	216-960	46.0 dBuV/m measured @ 3 meters	Above 960	54.0 dBuV/m measured @ 3 meters
	Frequency (MHz)	Limits									
	30-88	40.0 dBuV/m measured @ 3 meters									
	80-216	43.5 dBuV/m measured @ 3 meters									
	216-960	46.0 dBuV/m measured @ 3 meters									
Above 960	54.0 dBuV/m measured @ 3 meters										

G.3 ENVIRONMENTAL CONDITIONS	
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

G.4 EQUIPMENT LIST					
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr10
00050	Chase	CBL-6111A	Bilog Antenna	15Mar07	15Mar10
00051	HP	8566B	Spectrum Analyzer RF Section	09Apr08	09Apr10
00049	HP	85650A	Quasi-peak Adapter	09Apr08	09Apr10
00047	HP	85685A	RF Preselector	09Apr08	09Apr10
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	06Apr08	06Apr10

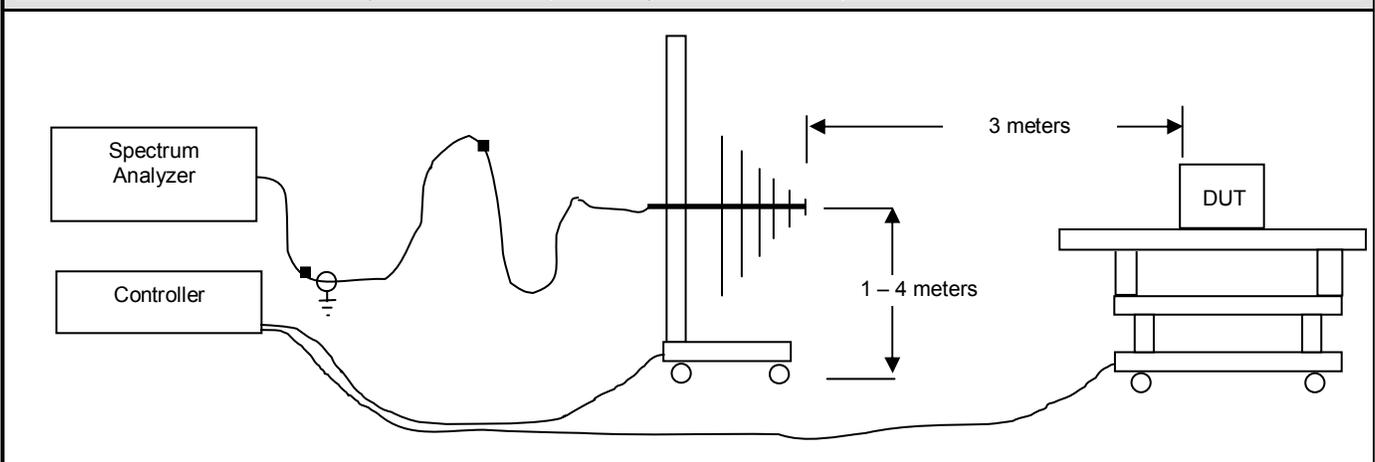
	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### G.5 MEASUREMENT EQUIPMENT SETUP

<b>MEASUREMENT EQUIPMENT CONNECTIONS</b>	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		
<b>MEASUREMENT EQUIPMENT SETTINGS</b>	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



	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### 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	dBuv/m	dBuv/m	dB
462.7125	441.03	16.9	V	V	1.8	16.7	35.4	46	10.6
462.7125	441.03	13.2	V	H	1.8	17.1	32.1	46	13.9
462.7125	882.03	14.3	V	V	2.4	23.1	39.8	46	6.2
462.7125	882.03	12.1	V	H	2.4	23.1	37.6	46	8.4
467.7125	446.00	11.7	V	H	1.8	17.1	30.6	46	15.4
467.7125	446.00	17.6	V	V	1.8	16.9	36.3	46	9.7
467.7125	892.00	13.2	V	V	2.4	23.2	38.8	46	7.2
467.7125	892.00	6.6	V	H	2.4	23.2	32.2	46	13.8

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 standards.

### 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.

July 30, 2009

Date

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## Appendix H Frequency Stability

### H.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1055, §95.621, §95.627; IC RSS-210
<b>Procedure Reference / Description</b>	<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

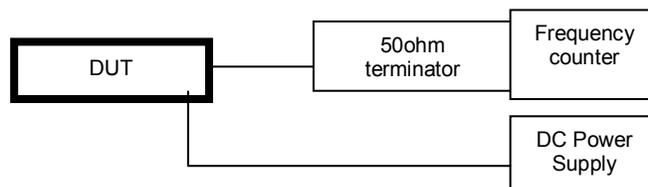
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

### H.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
na	ESPEC	ECT-2	Heater/Refrigerator	na	na
0003	HP	53181A	Frequency Counter	04/09/2007	04/09/2010
na	HP	E3611A	DC Power Supply	na	na
00174	Circuit-test	DMR-1800	Multi-Meter	04/09/2007	04/09/2010
00207	VWR	na	Temperature Humidity Monitor	04/09/2007	04/09/2010

### H.5 SETUP DRAWING

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



<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT042	<b>IC:</b>	513C-UT042	
<b>DUT Model(s):</b>	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Report Serial No.:	071009AMW-T974-E95F	Test Report Issue Date:	August 12, 2009
	Measurement Date(s):	July 10, 13, 30, 2009	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210, RSS -Gen	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## H.6 TEST RESULTS

Channel: 11

FRS

Temperature (degrees C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	Frequency tolerance with reference to value @ 20 °C (ppm)
-20	467.63750	467.63800	0.000107	0.788430987
-10	467.63750	467.63837	0.000186	1.581566471
0	467.63750	467.63838	0.000189	1.607013524
10	467.63750	467.63823	0.000156	1.279409437
20	467.63750	467.63763	0.000028	0
30	467.63750	467.63758	0.000018	-0.106706553
40	467.63750	467.63755	0.000010	-0.180695466
50	467.63750	467.63764	0.000030	0.02159792

Remark: Pass/fail criteria for frequency tolerance is 0.00025%

Channel: 4

GMRS

Temperature (degrees C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	Frequency tolerance with reference to value @ 20 °C (ppm)
-30	462.63750	462.63712	-0.000081	-1.154251047
-20	462.63750	462.63780	0.000064	0.300667267
-10	462.63750	462.63832	0.000177	1.426386265
0	462.63750	462.63836	0.000185	1.513279322
10	462.63750	462.63821	0.000153	1.190564563
20	462.63750	462.63766	0.000034	0
30	462.63750	462.63757	0.000015	-0.188916744
40	462.63750	462.63779	0.000062	0.284239724
50	462.63750	462.63765	0.000033	-0.00799762

Remark: Pass/fail criteria for frequency tolerance is 0.0005%

Voltage (V)	Frequency (MHz)	% Deviation	PPM to reference
4.25 (Battery end-point)	462.6376555	0.000034	-0.0035
5.52	462.6376457	0.000031	-0.0246

Voltage (V)	Frequency (MHz)	% Deviation	PPM to reference
4.25 (Battery end-point)	467.6376412	0.000030	0.0186
5.52	467.6376322	0.000028	-0.0006

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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### 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.

July 13, 2009

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT042	IC:	513C-UT042	
DUT Model(s):	GMR2875, GMR2872	Portable FRS/GMRS PTT Radio Transceiver		462.5500 - 467.7125 MHz		
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

END OF DOCUMENT

<b>Applicant:</b>	<b>Uniden America Corporation</b>	<b>FCC ID:</b>	<b>AMWUT042</b>	<b>IC:</b>	<b>513C-UT042</b>	
<b>DUT Model(s):</b>	<b>GMR2875, GMR2872</b>	<b>Portable FRS/GMRS PTT Radio Transceiver</b>		<b>462.5500 - 467.7125 MHz</b>		
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