

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

## DECLARATION OF COMPLIANCE - FCC PART 95(A/B) & IC RSS-210 (Issue 7)

<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 Site 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>	Certification				
<b>Device Identifier(s)</b>	<b>FCC ID:</b>	AMWUT051				
	<b>IC:</b>	513C-UT051				
<b>Device Under Test (DUT)</b>	Portable FM FRS/GMRS UHF Push-To-Talk (PTT) Radio Transceiver					
<b>Device Model(s)</b>	GMR2838					
<b>Date of Sample Receipt</b>	November 03, 2010					
<b>Date(s) of Evaluation</b>	November 03-04, 2010					
<b>Test Sample Serial No.(s)</b>	None (Conducted Tests) - Identical Prototype			None (Radiated Tests) - Identical Prototype		
<b>Hardware / Firmware Revision No.s</b>	<b>Hardware</b>	EPP Stage		<b>Firmware</b>	EPP Stage	
<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>Frequency</b>	<b>Channel</b>	<b>dBm</b>	<b>Watts</b>	<b>Method</b>
	GMRS	462.5625 MHz	1	28.75	0.75	ERP
	FRS	467.5625 MHz	8	24.31	0.27	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	550 mAh	Model: BP40		
<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>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 1 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

## TABLE OF CONTENTS

1.0 SCOPE.....	4
2.0 REFERENCES .....	4
2.1 Normative References .....	4
3.0 PASS/FAIL CRITERIA.....	4
4.0 FACILITIES AND ACCREDITATIONS .....	5
5.0 GENERAL INFORMATION.....	5
5.1 Applicant Information .....	5
5.2 DUT Description .....	5
5.3 Rule Part(s) & Classification(s) .....	5
5.4 Mode(s) of Operation Tested .....	6
5.5 Modification(s) .....	6
Appendix A RF Output Power Measurement.....	7
Appendix B Modulation Characteristics (Modulation Limiting) .....	10
Appendix C Modulation Characteristics (Audio Frequency Response).....	13
Appendix D Modulation Characteristics (Low-pass Filter Response) .....	15
Appendix E Occupied Bandwidth and Emission Mask.....	17
Appendix F Radiated Spurious Emissions - TX.....	22
Appendix G Radiated Spurious Emissions - RX .....	25
Appendix H Frequency Stability .....	28
END OF DOCUMENT .....	31

## FIGURES

Figure A.5-1 - Setup Drawing – RF Output Power .....	8
Figure B.5-1 - Setup Drawing – Modulation Characteristics.....	10
Figure C.5-1 - Setup Drawing – Audio Frequency Response.....	13
Figure D.5-1 - Setup Drawing – Low-pass Filter Response .....	15
Figure E.5-1 - Setup Drawing – Occupied Bandwidth & Emission Mask .....	17
Figure F.6-1 - Setup Drawing – Radiated TX Spurious Emissions .....	23
Figure G.6-1 - Setup Drawing – Radiated RX Spurious Emissions .....	26
Figure H.5-1 - Setup Drawing – Frequency Stability.....	28

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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	3-Nov-10	3-Nov-10	Pass
B	Modulation Limiting	ANSI/TIA/EIA-603-C	§2.1047, §95.637	4-Nov-10	4-Nov-10	Pass
C	Audio Frequency Response	ANSI/TIA/EIA-603-C	§2.1047	4-Nov-10	4-Nov-10	Pass
D	Low-Pass Filter Response	ANSI/TIA/EIA-603-C	§2.1047, §95.637	4-Nov-10	4-Nov-10	Pass
E	Occupied Bandwidth and Emission Mask	ANSI/TIA/EIA-603-C	§2.1049, §95.633, §95.635	4-Nov-10	4-Nov-10	Pass
F	Radiated TX Spurious Emissions	ANSI/TIA/EIA-603-C	§2.1053, §95.635 (b) (7)	3-Nov-10	3-Nov-10	Pass
G	Radiated RX Spurious Emissions	ANSI C63.4-2003	§15.109	3-Nov-10	3-Nov-10	Pass
H	Frequency Stability	ANSI/TIA/EIA-603-C	§2.1055, §95.621, §95.627	4-Nov-10	4-Nov-10	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	3-Nov-10	3-Nov-10	Pass
B	Modulation Limiting	ANSI/TIA/EIA-603-C	RSS-210 A6.1.2 RSS-210 A6.2.2	4-Nov-10	4-Nov-10	Pass
C	Audio Frequency Response	ANSI/TIA/EIA-603-C	N/A	4-Nov-10	4-Nov-10	Pass
D	Low-Pass Filter Response	ANSI/TIA/EIA-603-C	RSS-210 A6.2.2	4-Nov-10	4-Nov-10	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	4-Nov-10	4-Nov-10	Pass
F	Radiated TX Spurious Emissions	RSS-Gen 4.9	RSS-210 A6.1.5, A6.2.5	3-Nov-10	3-Nov-10	Pass
G	Radiated RX Spurious Emissions	RSS-Gen 4.10	RSS-Gen 6.(a)	3-Nov-10	3-Nov-10	Pass
H	Frequency Stability	RSS-Gen 4.7	RSS-210 A6.1.6 RSS-210 A6.2.6	4-Nov-10	4-Nov-10	Pass

### REVISION LOG

Revision	Description	Implemented By	Implementation Date
1.0	Initial Release	Jonathan Hughes	November 09, 2010

Test Report Prepared By	Date	QA Review By	Date
Sean Johnston	November 05, 2010	Jonathan Hughes	November 05, 2010

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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: GMR2838 Portable FM FRS/GMRS Push-To-Talk (PTT) Radio Transceiver (FCC ID: AMWUT051 / IC: 513C-UT051). 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.

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 4 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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)</b>	GMR2838		
<b>Test Sample Serial No.(s)</b>	None (Conducted Tests) - Identical Prototype	None (Radiated Tests) - Identical Prototype	
<b>Device Identifier(s)</b>	<b>FCC ID:</b>	AMWUT051	
	<b>IC:</b>	513C-UT051	
<b>Co-located Transmitter(s)</b>	None		
<b>Power Source Tested</b>	Ni-MH Battery Pack	4.8 V, 550 mAh	Model: BP40
<b>Antenna Type Tested</b>	Fixed External (Non-detachable)		
<b>Antenna Gain Spec.</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)

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

#### 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); 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); Continuous Transmit with PTT constantly depressed	
<b>Modulation Type(s)</b>	FM	

#### 5.5 Modification(s)

None

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 6 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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

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

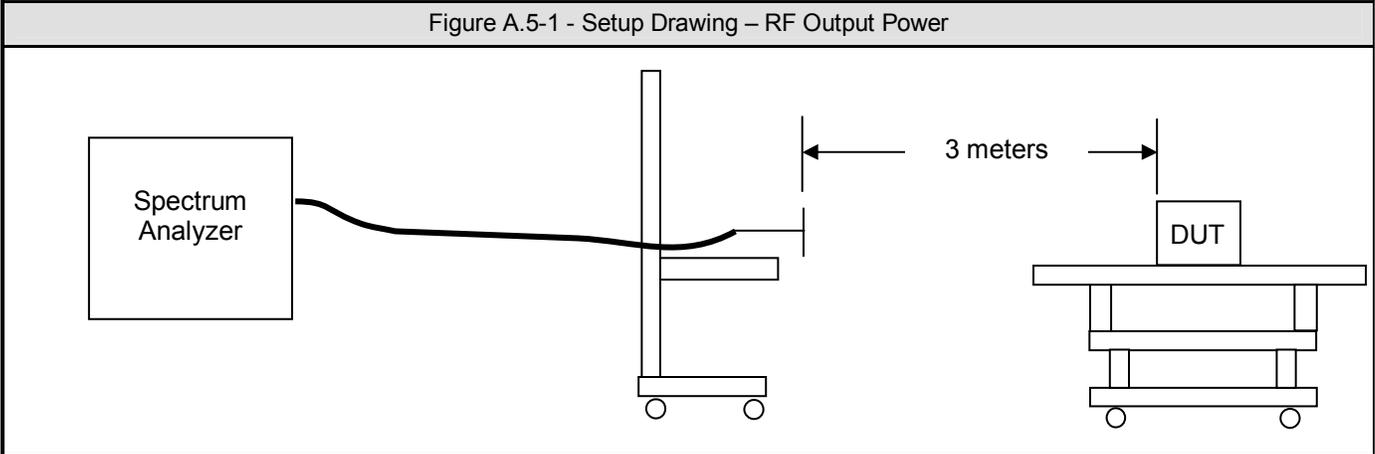
<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 7 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

### 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	Detector
		MHz	MHz	
	GMRS (Hi Power)	1	3	Peak
FRS (Lo Power)	1	3	Peak	

### A.5 SETUP DRAWING



	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

## A.6 TEST RESULTS

Measured Frequency (MHz)	Output Power (ERP) (Watts)
462.5625 (GMRS)	0.75
467.5625 (FRS)	0.27

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).

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

Frequency (MHz)	Voltage V	Current A	Power W
462.5625 (GMRS)	4.8	0.53	2.54
467.5625 (FRS)	4.8	0.31	1.49

## A.7 PASS/FAIL

In reference to the results outlined in A.8, 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.

Nov 3, 2010

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT051	IC:	513C-UT051	
DUT Type:	Portable FRS/GMRS PTT Radio Transceiver	DUT Model(s):	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 9 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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

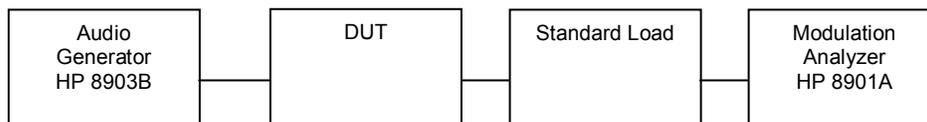
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

### B.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	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

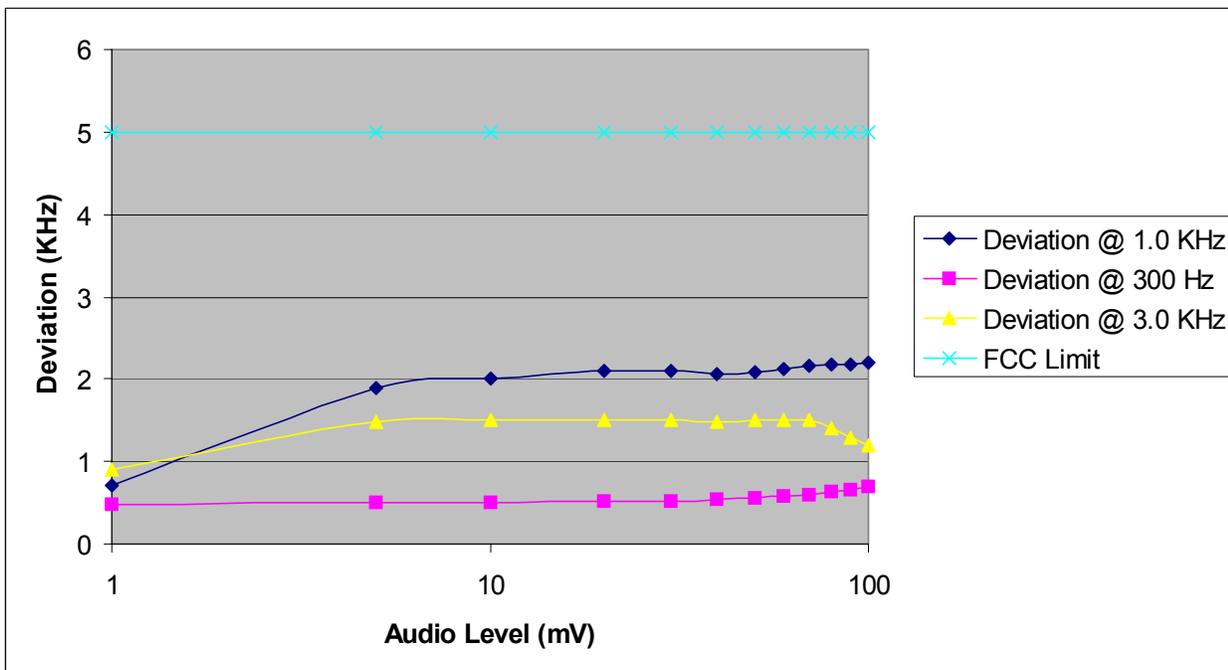


Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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	0.71	0.49	0.90	5
5	1.90	0.50	1.49	5
10	2.00	0.50	1.51	5
20	2.10	0.52	1.50	5
30	2.10	0.53	1.50	5
40	2.06	0.54	1.49	5
50	2.08	0.56	1.50	5
60	2.12	0.58	1.50	5
70	2.16	0.60	1.50	5
80	2.18	0.63	1.40	5
90	2.18	0.66	1.30	5
100	2.20	0.7	1.20	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.

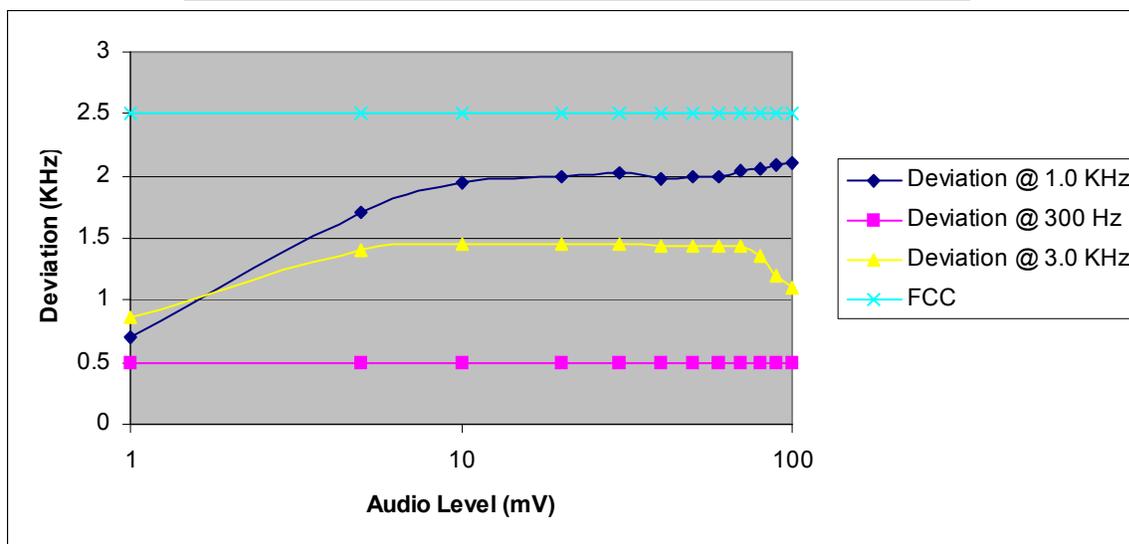


Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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	0.7	0.49	0.86	2.5
5	1.7	0.49	1.4	2.5
10	1.95	0.49	1.45	2.5
20	2	0.49	1.45	2.5
30	2.03	0.50	1.45	2.5
40	1.98	0.50	1.43	2.5
50	2	0.50	1.43	2.5
60	2	0.49	1.44	2.5
70	2.05	0.50	1.44	2.5
80	2.06	0.49	1.35	2.5
90	2.09	0.49	1.2	2.5
100	2.1	0.5	1.1	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.

### 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.

Nov 4, 2010

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT051	IC:	513C-UT051	
DUT Type:	Portable FRS/GMRS PTT Radio Transceiver	DUT Model(s):	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 12 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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

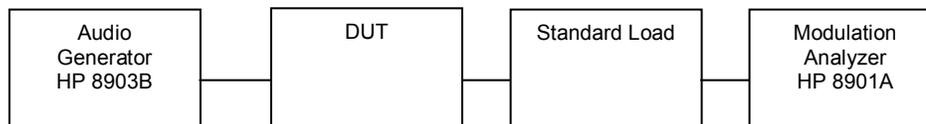
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

#### C.4 EQUIPMENT LIST

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

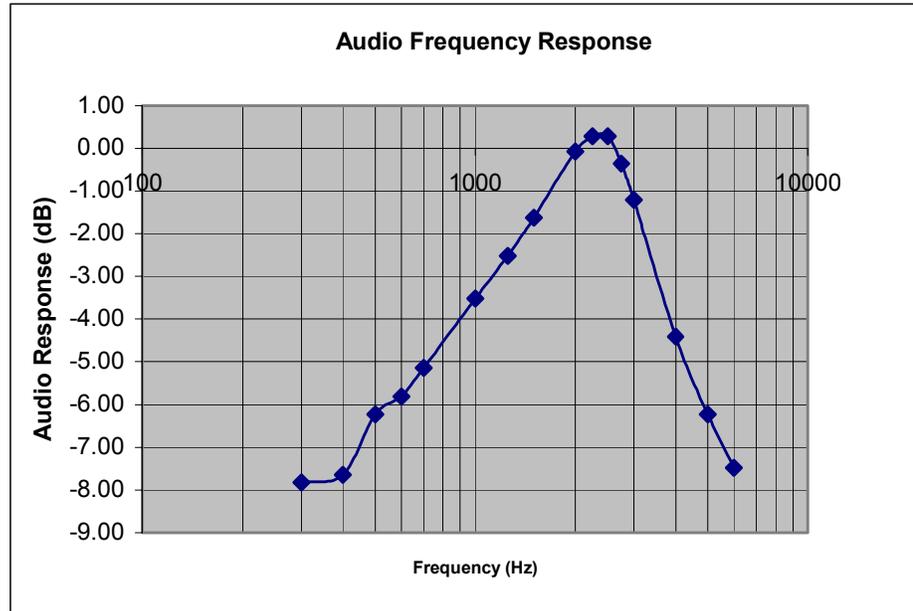
#### C.5 SETUP DRAWING

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



### C.6 TEST RESULTS

Audio Frequency	Deviation
[Hz]	[dB]
300	-7.82
400	-7.65
500	-6.24
600	-5.81
700	-5.15
1000	-3.52
1250	-2.52
1500	-1.63
2000	-0.07
2250	0.28
2500	0.28
2750	-0.36
3000	-1.21
4000	-4.41
5000	-6.24
6000	-7.48



### 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.

Nov 4, 2010

Date

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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

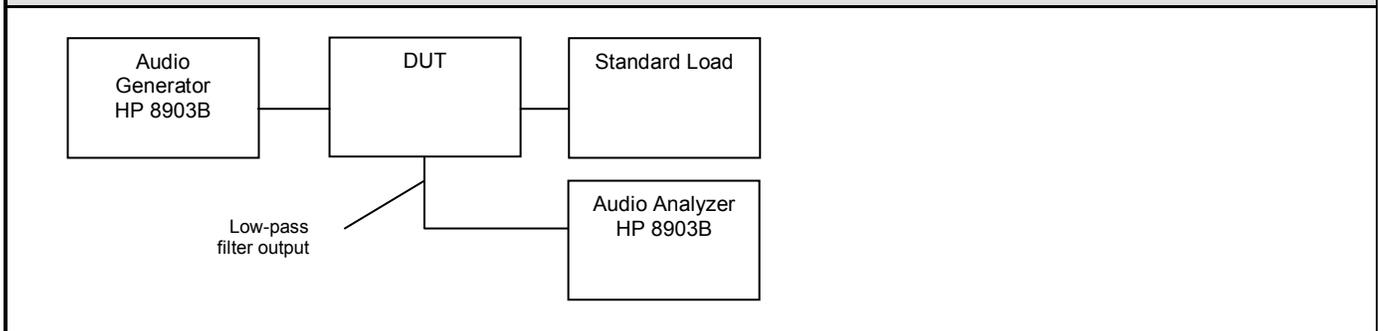
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

#### D.4 EQUIPMENT LIST

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

#### D.5 SETUP DRAWING

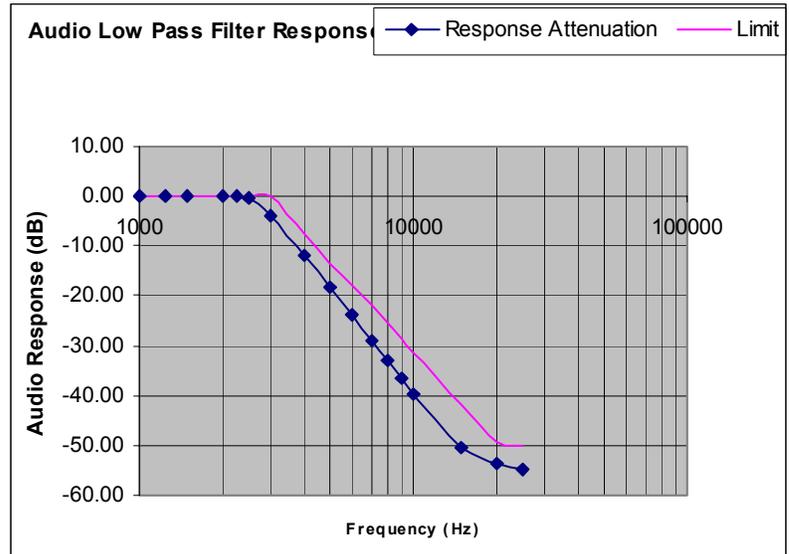
Figure D.5-1 - Setup Drawing – Low-pass Filter Response



	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

### D.6 TEST RESULTS

Audio Frequency	Response Attenuation	Limit
[Hz]	[dB]	[dB]
1000	0.00	0
1250	0.00	0
1500	0.00	0
2000	0.00	0
2250	0.00	0
2500	-0.50	0
3000	-3.86	0
4000	-11.90	-7.4
5000	-18.40	-13.3
6000	-24.00	-18
7000	-28.80	-22
8000	-33.00	-25.5
9000	-36.60	-28.6
10000	-39.90	-31.3
15000	-50.60	-41.9
20000	-53.60	-49.4
25000	-55.00	-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.

Nov 4, 2010

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT051	IC:	513C-UT051	
DUT Type:	Portable FRS/GMRS PTT Radio Transceiver	DUT Model(s):	GMR2838			
2010 Celltech Labs Inc.		This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.				Page 16 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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

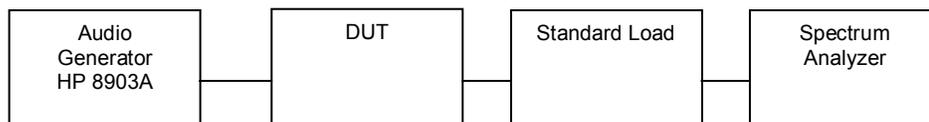
<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

### E.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	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



<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 17 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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 (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

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 18 of 31

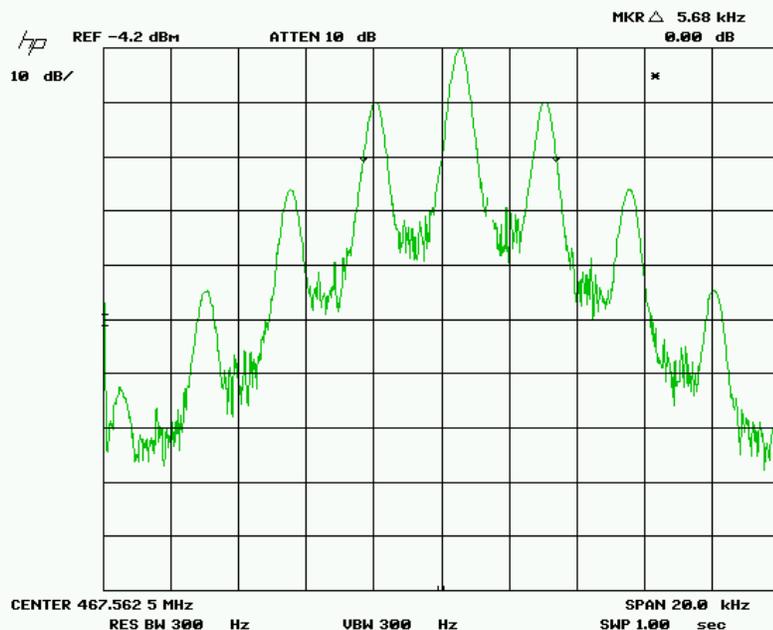


Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

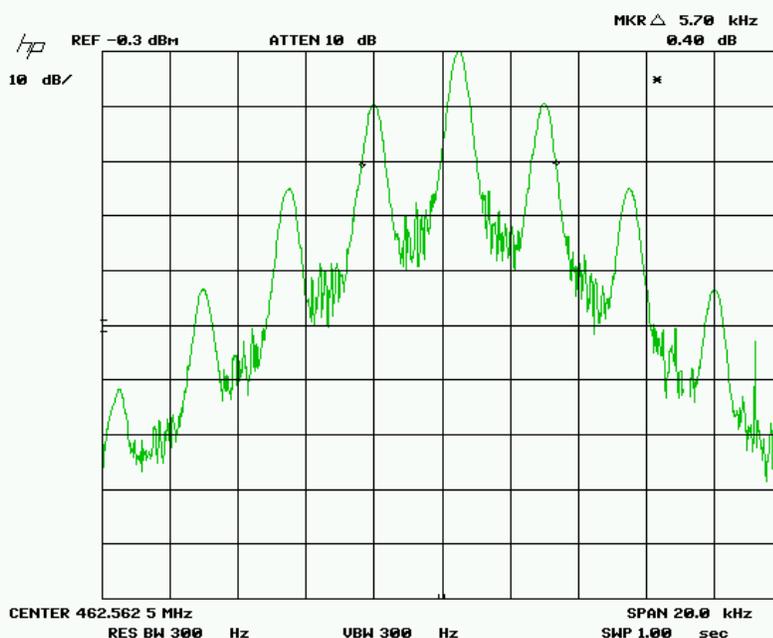
## E.7 TEST RESULTS

### E.7.1 Occupied Bandwidth

#### E.7.1.1 FRS



#### E.7.1.2 GMRS

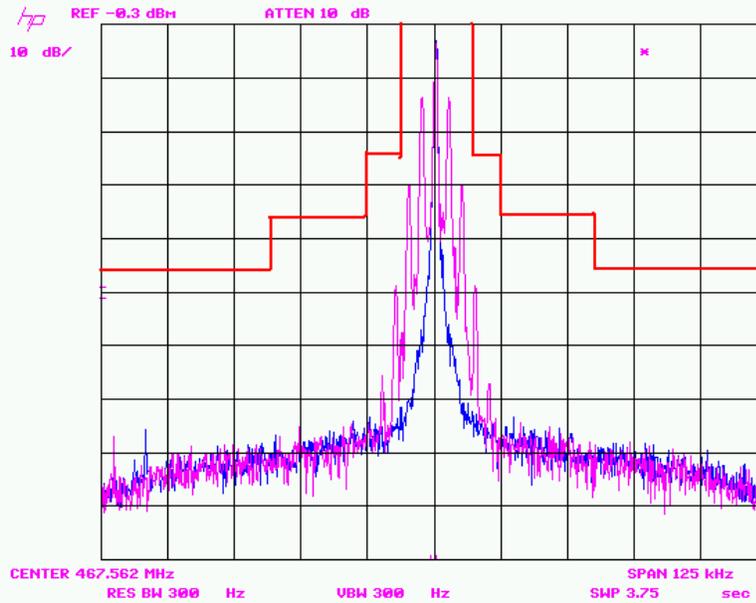


Applicant:	Uniden America Corporation	FCC ID:	AMWUT051	IC:	513C-UT051	
DUT Type:	Portable FRS/GMRS PTT Radio Transceiver	DUT Model(s):	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 19 of 31

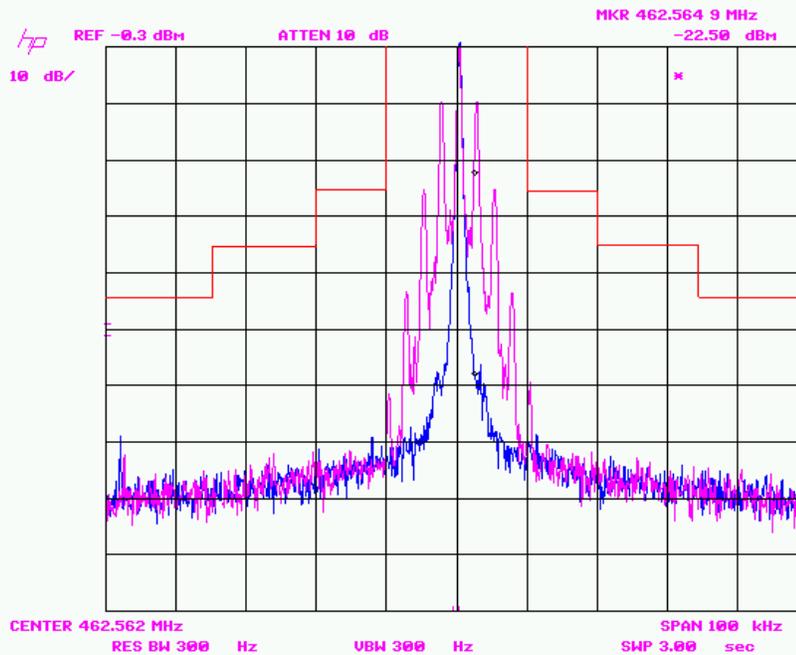
Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

### E.7.2 Emission Mask

#### E.7.2.1 FRS



#### E.7.2.2 GMRS



	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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.

Nov 4, 2010

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT051	IC:	513C-UT051	
DUT Type:	Portable FRS/GMRS PTT Radio Transceiver	DUT Model(s):	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 21 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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	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

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 22 of 31

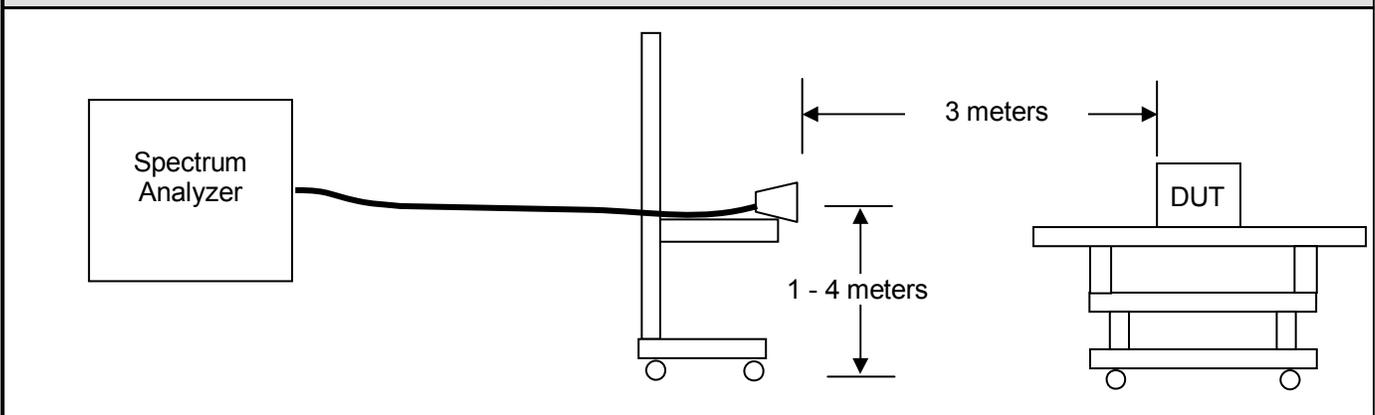
	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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 (Hi Power)	1	3	Peak
FRS (Lo Power)	1	3	Peak	

### F.6 SETUP DRAWING

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



	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

### F.7 TEST RESULTS

#### GMRS (Hi Power) TX: 462.5625 MHz

Measured Output Power: 0.75 W, Limit:  $43+10\log(W)$ = 41.8 dBc

Emissions (MHz)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
462.5625	-	-	-
925.125	55.04	41.8	13.24
1387.6875	56.13	41.8	14.33
1850.25	58.24	41.8	16.44

#### FRS (Lo Power) TX: 467.5625 MHz

Measured Output Power: 0.27 W, Limit:  $43+10\log(W)$ = 37.3 dBc

Emissions (MHz)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
467.5625	-	-	-
935.125	53.64	37.3	16.34
1402.6875	53.73	37.3	16.43
1870.25	55.64	37.3	18.34

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).

### 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.

Nov 3, 2010

Date

Applicant:	Uniden America Corporation	FCC ID:	AMWUT051	IC:	513C-UT051	
DUT Type:	Portable FRS/GMRS PTT Radio Transceiver	DUT Model(s):	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 24 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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="background-color: #e0e0e0;">Frequency (MHz)</th> <th style="background-color: #e0e0e0;">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	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

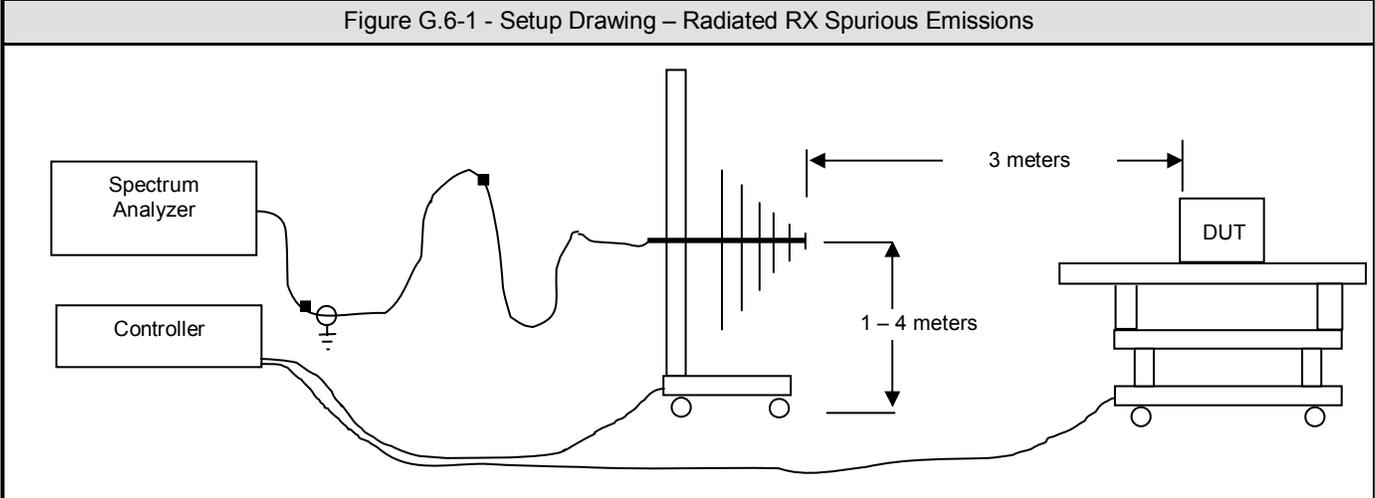
<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.		This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.				Page 25 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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



	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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	18	V	V	3	16.7	37.7	46	8.3
462.7125	441.03	20.1	V	H	3	17.1	40.2	46	5.8
467.7125	446	15.8	V	V	3	17.1	35.9	46	10.1
467.7125	446	18.8	V	H	3	16.9	38.7	46	7.3

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.

Nov 3, 2010

Date

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 27 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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

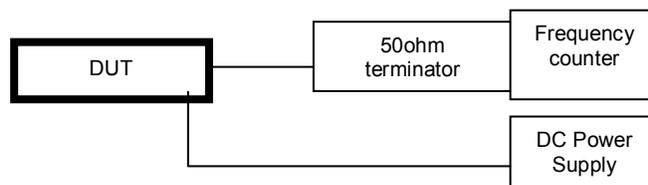
### H.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	CAL DUE
na	ESPEC	ECT-2	Heater/Refrigerator	cnr
0003	HP	53181A	Frequency Counter	09-Apr-11
na	HP	E3611A	DC Power Supply	cnr
00207	VWR	na	Temperature Humidity Monitor	09-Apr-11

cnr = calibration not required

### H.5 SETUP DRAWING

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



<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 28 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

## 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	462.561640	-0.000186%	-2.36
-20	462.56250	462.562789	0.000062%	0.13
-10	462.56250	462.563212	0.000154%	1.04
0	462.56250	462.563045	0.000118%	0.68
10	462.56250	462.562931	0.000093%	0.43
20	462.56250	462.562730	0.000050%	0.00
30	462.56250	462.562858	0.000077%	0.28
40	462.56250	462.562113	-0.000084%	-1.33
50	462.56250	462.561930	-0.000123%	-1.73

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

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	467.561640	-0.000184%	-2.08
-20	467.56250	467.562789	0.000062%	0.38
-10	467.56250	467.563028	0.000113%	0.89
0	467.56250	467.562928	0.000092%	0.67
10	467.56250	467.562894	0.000084%	0.60
20	467.56250	467.562613	0.000024%	0.00
30	467.56250	467.562838	0.000072%	0.48
40	467.56250	467.562090	-0.000088%	-1.12
50	467.56250	467.561918	-0.000124%	-1.49

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

GMRS

Voltage (V)	Frequency (MHz)	% Deviation	PPM to reference
4.25 (Battery end-point)	462.562735	0.000051%	0.51
5.52	462.562713	0.000046%	0.46

FRS

Voltage (V)	Frequency (MHz)	% Deviation	PPM to reference
4.25 (Battery end-point)	467.562613	0.000024%	0.24
5.52	467.562722	0.000048%	0.48

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site 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.

Nov 4, 2010

Date

<b>Applicant:</b>	Uniden America Corporation	<b>FCC ID:</b>	AMWUT051	<b>IC:</b>	513C-UT051	
<b>DUT Type:</b>	Portable FRS/GMRS PTT Radio Transceiver	<b>DUT Model(s):</b>	GMR2838			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 30 of 31

	Test Report Serial No.:	110310AMW-T1060-E95U	Test Report Issue Date:	November 9, 2010
	Measurement Date(s):	November 03-04, 2010	Test Report Revision No.:	Revision 1.0
	Rule Part(s) Applied:	FCC 47 CFR §2, §95A, §95B	Industry Canada RSS-210 (I7), RSS-Gen (I2)	
	Test Site Registration(s):	FCC Site Registration #: 714830	Industry Canada Site File #: IC 3874A-1	

END OF DOCUMENT

<b>Applicant:</b>	<b>Uniden America Corporation</b>	<b>FCC ID:</b>	<b>AMWUT051</b>	<b>IC:</b>	<b>513C-UT051</b>	
<b>DUT Type:</b>	<b>Portable FRS/GMRS PTT Radio Transceiver</b>	<b>DUT Model(s):</b>	<b>GMR2838</b>			
2010 Celltech Labs Inc.	This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.					Page 31 of 31