



TEST REPORT

Test Report No. : UL-RPT-RP10036315JD01C

Manufacturer : Alcohol Monitoring Systems Inc
Model No. : 19669
FCC ID : P8M-AMSCGJMW1
IC Certification No. : 8549A-AMSSCGJMW1
Technology : GSM 850/PCS 1900
Test Standard(s) : FCC Parts 22.913(a) & 24.232;
Industry Canada RSS-132 Section 5.4 & RSS-133 Section 6.4

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 1.0.

Date of Issue: 04 April 2014

Checked by:

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This laboratory is accredited by UKAS.
The tests reported herein have been
performed in accordance with its' terms
of accreditation.

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1. Customer Information

Company Name:	Alcohol Monitoring Systems Inc
Address:	1241 West Mineral Avenue, Littleton, Colorado 80120 United States

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 24 Subpart E (Personal Communication Services)
Specification Reference:	RSS-132 Issue 3, January 2013
Specification Title:	Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz
Specification Reference:	RSS-133 Issue 6, January 2013
Specification Title:	2 GHz Personal Communications Services
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Date:	25 September 2013

Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
FCC Part 22 & Industry Canada RSS-132			
Part 22.913(a)	RSS-132 5.4	Transmitter Output Power (ERP)	
FCC Part 24 & Industry Canada RSS-133			
Part 24.232	RSS-133 6.4	Transmitter Output Power (EIRP)	
Key to Results			
 = Complied  = Did not comply			

2.2. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	FCC KDB 971168 D01 v02r01, 7 June 2013
Title:	Measurements Guidance for certification of Licenced Digital Transmitter

2.3. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Scram Remote Breath
Model Name or Number:	19669
IMEI:	359999040419608
Hardware Version Number:	A
Firmware Version Number:	1V
FCC ID:	P8M-AMSCGJMW1

3.2. Description of EUT

The Equipment Under Test was a GSM and UMTS module contained within a portable breath alcohol monitor. The unit contains a Li-ion battery.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Type of Radio Device:	Transceiver		
Mode:	GPRS / EGPRS		
Modulation Type:	GMSK / 8PSK		
Channel Spacing:	200 kHz		
Power Supply Requirement(s):	Nominal	10 VDC	
Technology Tested:	GSM850		
Maximum Output Power (ERP):	GPRS	31.4 dBm	
	EGPRS	30.4 dBm	
Transmit Frequency Range:	824 to 849 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	824.2
	Middle	190	836.6
	Top	251	848.8
Technology Tested:	PCS1900		
Maximum Output Power (EIRP):	GPRS	32.2 dBm	
	EGPRS	30.7 dBm	
Transmit Frequency Range:	1850 to 1910 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Laptop PC
Brand Name:	Lenovo
Model Name or Number:	0670
Serial Number:	CBL3805393

Description:	USB to serial bridge cable
Brand Name:	Not marked or stated
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Constantly transmitting at full power on bottom, middle and top channels as required.
- ERP/EIRP tests were performed with the EUT in GPRS or EGPRS Multislot Class 12 with the EUT transmitting on one timeslot in the uplink. The EUT output was initially checked when transmitting at maximum power on one, two, three and four timeslots. The same output power was observed when transmitting on either one, two, three or four timeslots
- EGPRS test were performed with the EUT using MCS5 (8PSK modulation).

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Connected to a Rohde & Schwarz CMU200 GSM/GPRS/EGPRS system simulator over a radio link. The system simulator controlled the EUT power, frequency and operating mode.
- A UL laptop PC was connected to the EUT via a USB to serial cable. This was used to control the GPRS module using the Hyperterminal application.
- The battery was fully charged before tests were performed.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6 Measurement Uncertainty* for details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

Only GPRS and EGPRS results are shown in this test report. UMTS was not tested as the nominal rated power (24 dBm) is 9 dB and 6 dB below the corresponding the rated nominal powers for GPRS operation) for the 850 and 1900 MHz bands (33.0 dBm and 30.0 dBm respectively).

5.2. Test Results**FCC Part 22 & Industry Canada RSS-132****5.2.1. Transmitter Output Power (ERP)****Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	25 September 2013
Test Sample IMEI:	359999040419608		

FCC Reference:	22.913(a)
Test Method Used:	KDB 971168 D01 Sections 5.1.1 and 5.8. ANSI TIA-603-C-2004 Section 2.2.17.2 and ANSI C63.4 Sections 5.4 and 6

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	49

Note(s):

1. Industry Canada RSS-132 Section 5.4 states an E.I.R.P. limit of 11.5 Watts. This is equivalent to 38.45 dBm E.R.P.

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	31.4	38.45	7.05	Complied
Middle	836.6	Vertical	31.4	38.45	7.05	Complied
Top	848.8	Horizontal	31.4	38.45	7.05	Complied

Results: EGPRS / MCS5

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Horizontal	30.4	38.45	8.05	Complied
Middle	836.6	Horizontal	30.2	38.45	8.25	Complied
Top	848.8	Horizontal	29.9	38.45	8.55	Complied

Transmitter Output Power (ERP) (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A288	Antenna	Chase	CBL6111A	1589	20 Aug 2014	12
A2000	Attenuator	Huber & Suhner	6830.17.B	301623	05 Apr 2014	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	24 Oct 2013	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	19 Dec 2013	12
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	Not Stated	24 May 2014	12
A1936	Biconical Antenna	Schwarzbeck	UBAA 9114	9114-223	05 Apr 2014	12
A2147	Attenuator	AtlanTecRF	AN18-06	09020206-06	10 May 2014	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	15 May 2014	12
M1021	Signal Generator	Rohde & Schwarz	SMP02	833286/004	05 Feb 2014	12
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	14 May 2014	12

FCC Part 24 & Industry Canada RSS-133**5.2.2. Transmitter Output Power (EIRP)****Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	25 September 2013
Test Sample IMEI:	359999040419608		

FCC Reference:	24.232
Test Method Used:	KDB 971168 D01 Section 5.1.1 and 5.8. ANSI TIA-603-C-2004 Section 2.2.17.2 and ANSI C63.4 Sections 5.5 and 6

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	47

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	31.7	33.0	1.3	Complied
Middle	1879.8	Horizontal	31.8	33.0	1.2	Complied
Top	1909.8	Horizontal	32.2	33.0	0.8	Complied

Results: EGPRS / MCS5

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	30.7	33.0	2.3	Complied
Middle	1879.8	Horizontal	30.3	33.0	2.7	Complied
Top	1909.8	Vertical	29.7	33.0	3.3	Complied

Transmitter Output Power (EIRP) (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	04 Nov 2013	12
A1818	Antenna	EMCO	3115	00075692	04 Nov 2013	12
A2000	Attenuator	Huber & Suhner	6830.17.B	301623	05 Apr 2014	12
L1028	Signal Analyser	Rohde & Schwarz	FSV 30	100854	23 May 2014	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	04 Nov 2013	12
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	Not Stated	24 May 2014	12
A032	Antenna	EMCO	3115	2874	12 Mar 2016	36
A2147	Attenuator	AtlanTecRF	AN18-06	09020206-06	10 May 2014	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	15 May 2014	12
M1021	Signal Generator	Rohde & Schwarz	SMP02	833286/004	05 Feb 2014	12
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	14 May 2014	12

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Effective Radiated Power (ERP)	824 to 849 MHz	95%	±5.65 dB
Effective Isotropic Radiated Power (EIRP)	1850 to 1910 MHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version