BW TECHNOLOGIES TEST REPORT

FOR THE

PERSONNEL ALERT BADGE, PA-BADGE-900

FCC PART 15 SUBPART C SECTION 15.247,
SUBPART B SECTION 15.109, CLASS A AND RSS-210

COMPLIANCE

DATE OF ISSUE: AUGUST 23, 2005

PREPARED FOR:

BW Technologies
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PREPARED BY:

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P.O. No.: 35361
W.O. No.: 83628

Date of test: August 1-22, 2005

Report No.: FC05-054

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	August 1-22, 2005
DATE OF RECEIPT:	August 1, 2005
MANUFACTURER:	BW Technologies 2840 - 2nd Avenue S.E. Calgary, Alberta T2A-7X9 Canada
REPRESENTATIVE:	Jim Turner
TEST LOCATION:	CKC Laboratories, Inc. 5046 Sierra Pines Drive Mariposa, CA 95338
TEST METHOD:	ANSI C63.4 (2003), DA 02-2138 August 30, 2002, DA 00-705 March 30, 2000, KDB Publication No. 558074 and RSS-212
PURPOSE OF TEST:	To demonstrate the compliance of the Personnel Alert Badge, PA-BADGE-900, with the requirements for FCC Part 15 Subpart C Section 15.247 devices.

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 210	5.5	47CFR	15.203	Antenna Connector Requirements
RSS 210	6.2.1	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	6.3	47CFR	15.205	Restricted Bands of Operation
RSS 210	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.5	47CFR	15.35(c)	Pulsed Operation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	6.2.2(o)(a1)	47CFR	15.247(a)(1)	Minimum Channel Bandwidth
RSS 210	6.2.2(o)(a1)	47CFR	15.247(g)	Hopping Sequence
RSS 210	6.2.2(o)(a1)	47CFR	15.247(h)	Incorporation of Intelligence
RSS 210	6.2.2(o)(a2)	47CFR	15.247(a)(1)(i)	Average Time of Occupancy
RSS 210	6.2.2(o)(a2)	47CFR	15.247(b)(2)	RF Power Output
RSS 210	6.2.2(o)(e1)	47CFR	15.247(d)	Spurious Emissions
	IC 3082-D		784962	Site File No.

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply. Conducted emissions not required for this device because the EUT is battery powered.

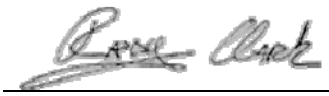
APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Randy Clark, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

FCC 15.31(e) Voltage Variations
A fresh battery was used for each test.

FCC 15.31(m) Number Of Channels
This device operates on a single channel.

FCC 15.33(a) Frequency Ranges Tested
15.109 Radiated Emissions: 30 MHz – 10 GHz
15.247 Radiated Emissions: 1 MHz – 10 GHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	10 GHz	1 MHz

FCC 15.203 Antenna Requirements
The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands
The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

Eut Operating Frequency
The EUT was operating at 902-928 MHz.

EQUIPMENT UNDER TEST

Personnel Alert Badge (Receive) (4 each)

Manuf:	BW Technologies
Model:	PA-BADGE-900
Serial:	05230131, 05230127, 05230130, 05230132
FCC ID:	R90-PASE-10 (pending)

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

DC Power Supply

Manuf:	Topward Electric Instruments Co., Ltd.
Model:	TPS-2000
Serial:	920035
FCC ID:	NA

Personnel Alert Base

Manuf:	BW Technologies
Model:	PA-BASE-900
Serial:	05182196
FCC ID:	R9O-PAHE-10 (pending)

REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the EUT. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix C.

Table 1: FCC 15.109 Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
737.335	32.0	20.7	-27.5	6.9		32.1	46.0	-13.9	V
739.783	32.5	20.8	-27.5	6.9		32.7	46.0	-13.3	V
753.243	32.0	20.9	-27.5	6.9		32.3	46.0	-13.7	V
754.420	32.8	20.9	-27.5	6.9		33.1	46.0	-12.9	V
780.013	31.7	21.2	-27.4	7.0		32.5	46.0	-13.5	V
780.013	31.7	21.2	-27.4	7.0		32.5	46.0	-13.5	V

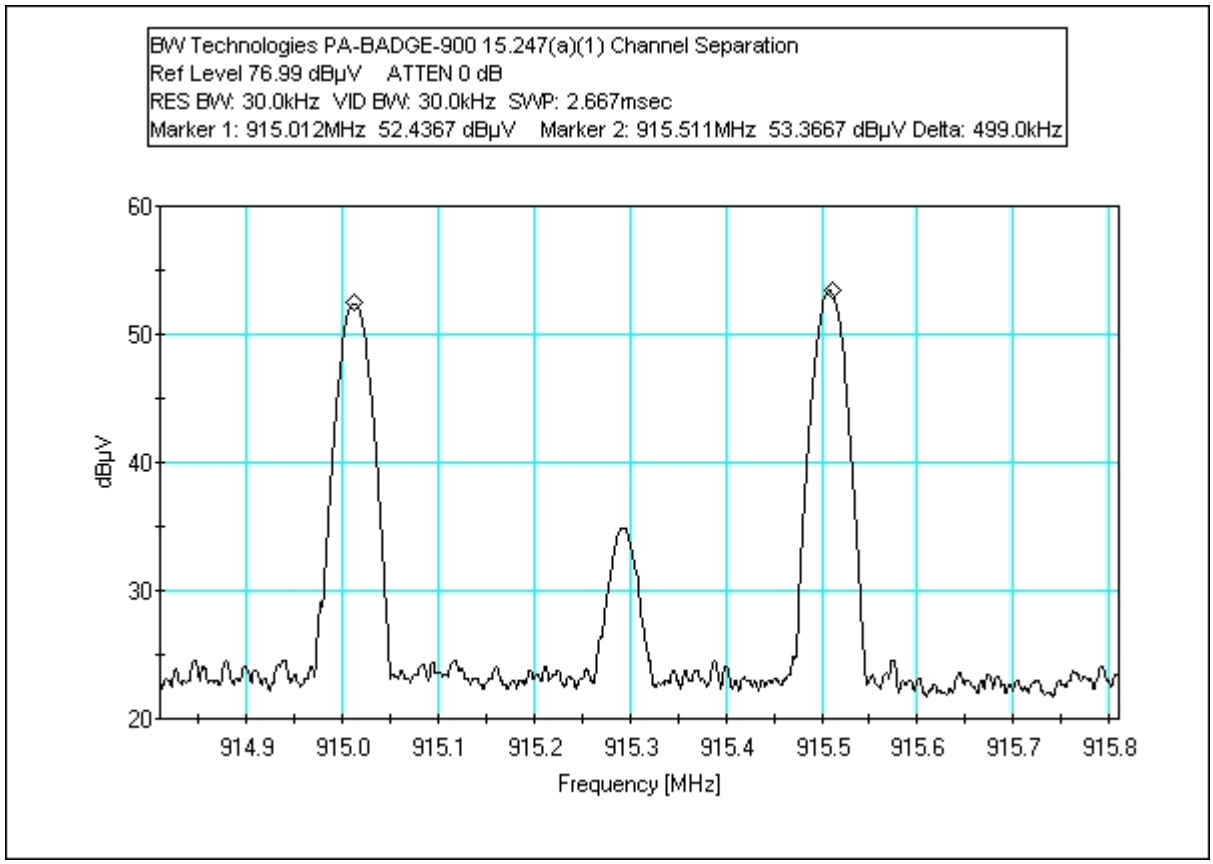
Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart B Section 15.109 Class A
Test Distance: 3 Meters

NOTES: V = Vertical Polarization

COMMENTS: EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous receive mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Receive Mode. Frequency Range Investigated: 30MHz - 10GHz. Temperature: 29ºC, Relative Humidity: 38%. **No EUT emissions detected within 20dB of the limit in the frequency range above 1GHz.**

FCC 15.247(a)(1) CHANNEL SEPARATION

Test Conditions: EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum radio operating continuously with modulation enabled. Equipment is connected directly to the spectrum analyzer through suitable attenuation. Frequency Range Investigated: Carrier. Temperature: 23ºC, Relative Humidity: 38%.



FCC 15.247(a)(1)(i) AVERAGE TIME OF OCCUPANCY

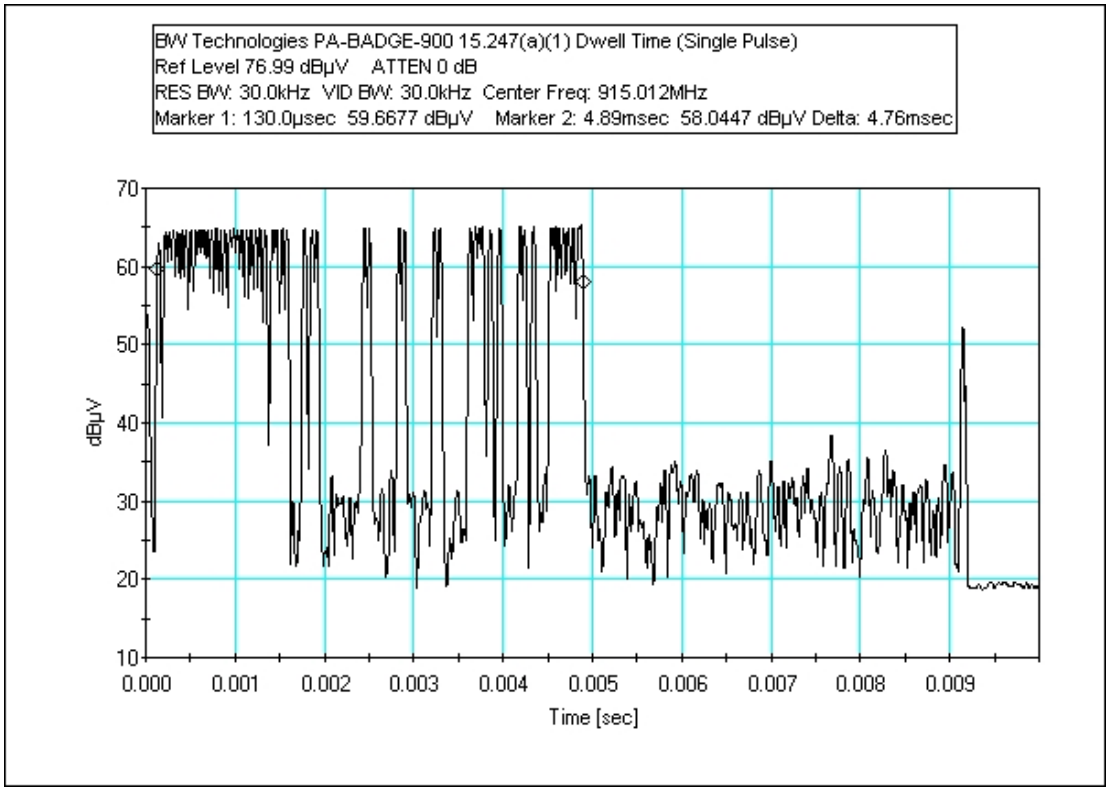
Average Time of Occupancy
In a single pulse, the equipment transmits for 5.06ms. Pulse repetition on a single channel appears at 924ms. Within a ten second window, a single pulse appears eight times. Therefore, 8 * 5.06ms = 40.48ms or 0.04 seconds within a 10 second period.

Single Pulse Duration	# pulses in 10 seconds	Total on time	Limit	Pass/Fail
5.06ms	8	0.04 seconds	0.4 seconds	Pass

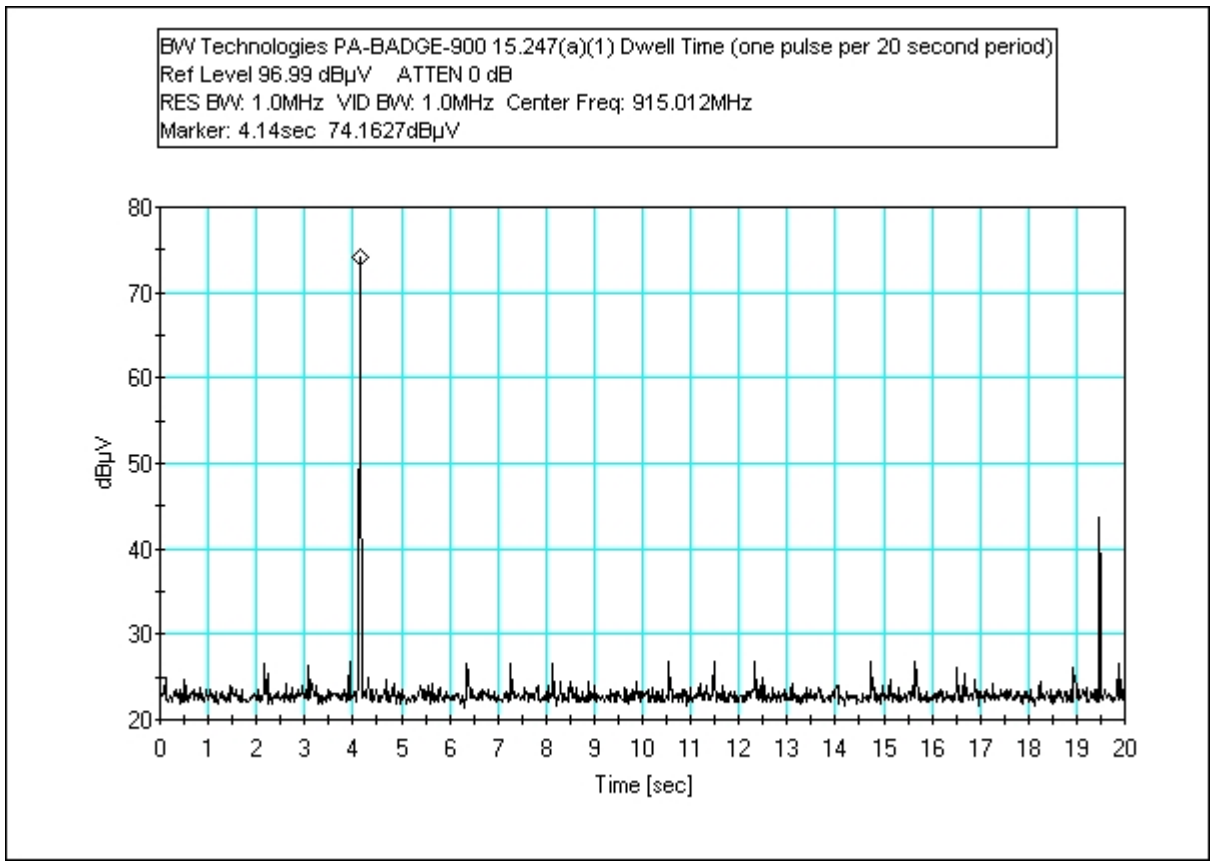
FCC 15.247(a)(1) DWELL TIME 1 (SINGLE)

DA 00-705 Dwell Time Correction Factor
In a single pulse, the equipment transmits for 5.06ms. Pulse repetition on a single channel appears at 924ms. Therefore, the maximum pulse duration within a 100ms is 5.06ms.

$$DTCF = 20LOG\left(\frac{5.06ms}{100ms}\right) = -25.92dB$$



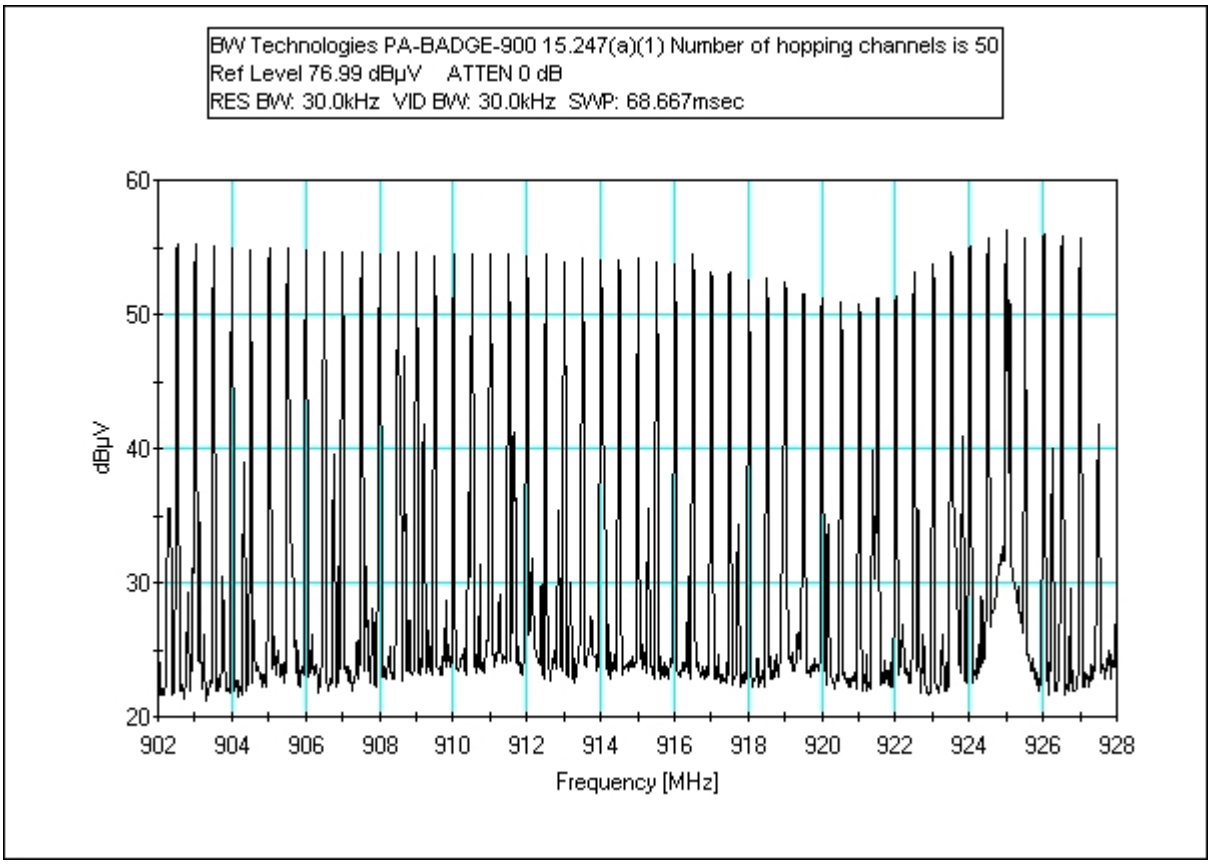
FCC 15.247(a)(1) DWELL TIME 2 (20 SECONDS



FCC 15.247(a)(1) NUMBER OF HOPPING CHANNELS

The equipment incorporates 50 hopping channels. Due to the low resolution bandwidth of the provided plot, the 2-level FSK modulation appears as a double peak. Each set of peaks is a single carrier channel (see occupied bandwidth plot).

OBW	# Channels	Limit Min	Pass/Fail
254.9kHz	50	25	Pass



FCC 15.247(a)(1) OCCUPIED BANDWIDTH

The 20dB bandwidth of the equipment is 246.1kHz.

OBW	Limit Max	Pass / Fail
254.9kHz	500kHz	Pass

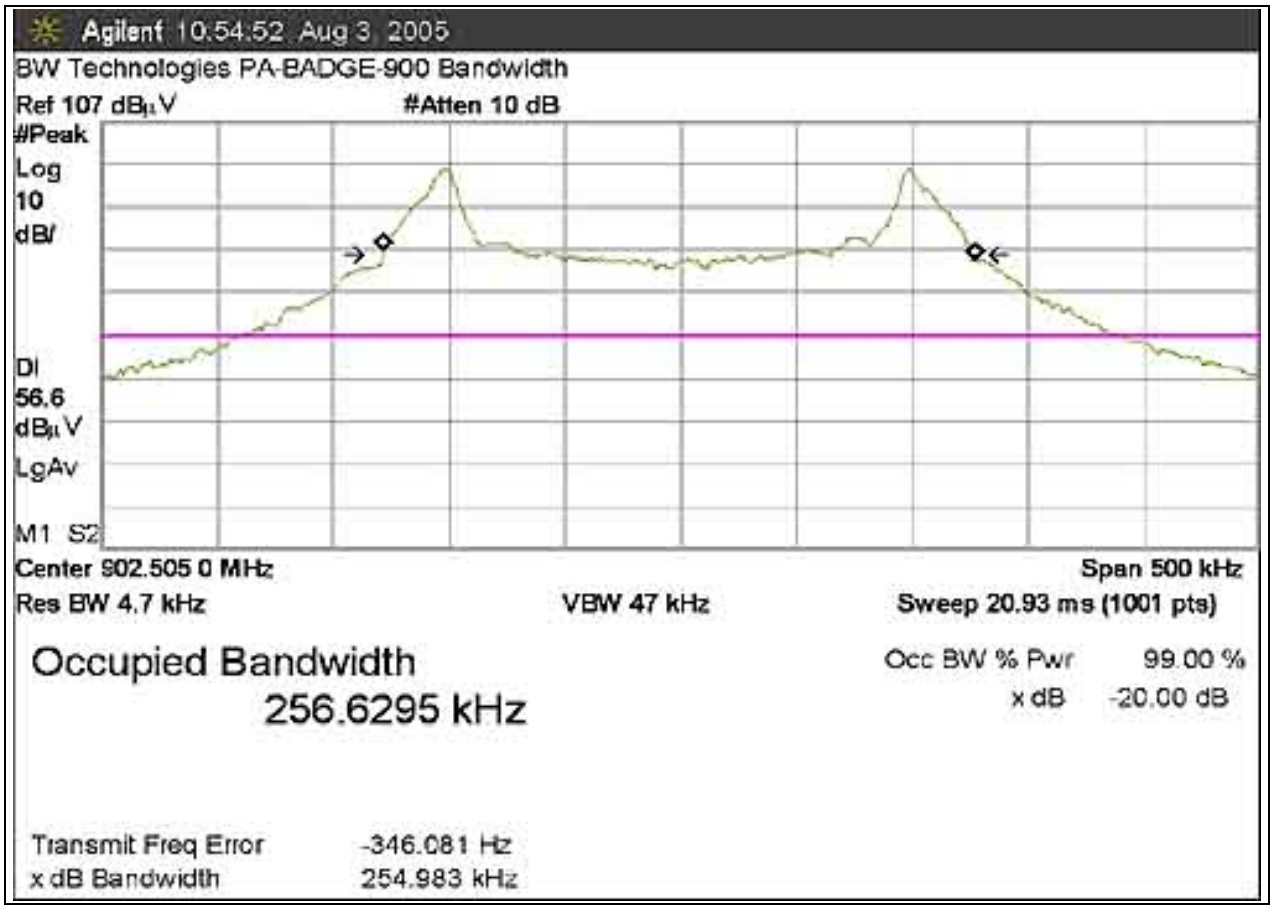


Table 2: FCC 15.247(b)(2) RF Power Output Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
902.590	98.2	22.8	-27.0	8.1	10.0	112.1	137.0	-24.9	H
902.606	98.8	22.8	-27.0	8.1	10.0	112.7	137.0	-24.3	V
902.626	92.6	22.8	-27.0	8.1	10.0	106.5	137.0	-30.5	V
914.890	97.7	23.0	-27.0	8.1	10.0	111.8	137.0	-25.2	V
914.912	96.8	23.0	-27.0	8.2	10.0	111.0	137.0	-26.0	V
926.890	97.9	23.2	-27.0	8.2	10.0	112.3	137.0	-24.7	V

Test Method: ANSI C63.4 (2003), DA 02-2138 August 30, 2002, DA 00-705 March 30, 2000, KDB Publication No. 558074
Spec Limit: FCC Part 15 Subpart C Sections15.247(b)(2)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous transmit mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Low Middle and High Channels. Frequency Range Investigated: Carrier. Temperature: 29ºC, Relative Humidity: 38%. RBW=VBW=1MHz.

Peak measurements are reported in accordance with DA 00-705. RBW=VBW=1MHz. Power is calculated from field strength readings where

$$P = \frac{(E \cdot d)^2}{30 \cdot G}$$

The gain of the transmitting antenna is 2.14dBi.

Frequency (MHz)	*Power Output (dBm)*	*Power Output (Watts)*	*Limit (Watts)*	*Pass/Fail*
902.40	5.3	0.0034	1.0	Pass
915.10	4.4	0.0028	1.0	Pass
926.89	4.9	0.0031	1.0	Pass

Table 3: FCC 15.247(d) Six Highest OATS Spurious Emission Levels - 1-1000 MHz

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
608.142	30.1	19.2	-27.7	6.0		27.6	46.0	-18.4	V
610.615	29.4	19.2	-27.7	6.0		26.9	46.0	-19.1	V
613.032	30.7	19.3	-27.6	6.0		28.4	46.0	-17.6	V
992.924	31.5	24.1	-26.7	0.0		28.9	54.0	-25.1	V
993.544	40.3	24.1	-26.7	0.0		37.7	54.0	-16.3	V
993.748	41.3	24.1	-26.7	0.0		38.7	54.0	-15.3	V

Test Method: ANSI C63.4 (2003), DA 02-2138 August 30, 2002, DA 00-705 March 30, 2000, KDB Publication No. 558074
Spec Limit: FCC Part 15 Subpart C Section15.247(d)
Test Distance: 3 Meters

NOTES: V = Vertical Polarization

COMMENTS: EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous transmit mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Low Middle and High Channels. Frequency Range Investigated: 1-1000MHz. Temperature: 29ºC, Relative Humidity: 38%. Limit applied is 15.209 except for frequencies outside of 15.205 restricted bands where limit applied is -20dBc. **No EUT emissions detected within 20dB of the limit in the frequency range below 30 MHz.**

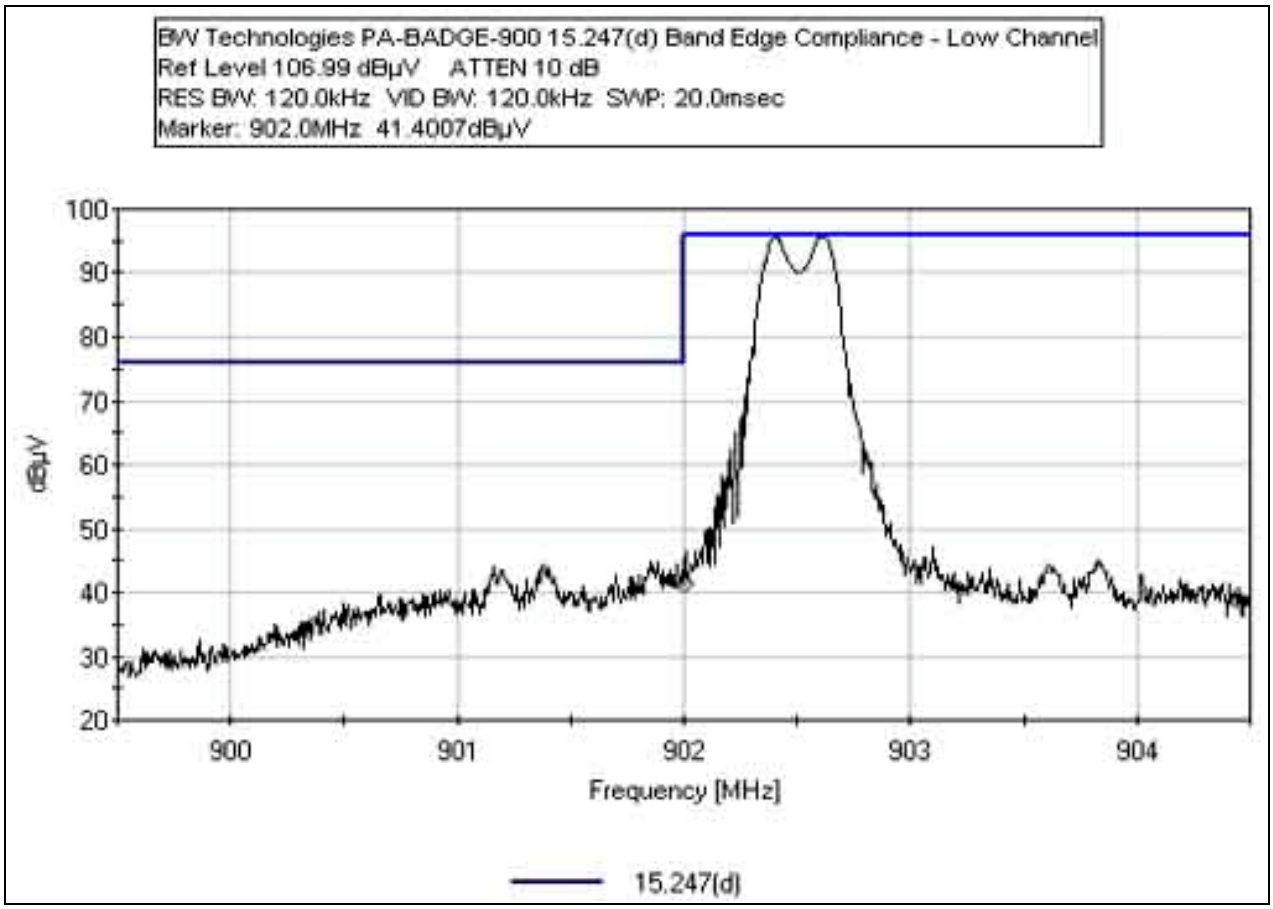
Table 4: FCC 15.247(d) Six Highest OATS Spurious Emission Levels - 1-10 GHz									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dwell dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
2707.200	65.7	30.1	-34.4	8.8	-25.9	44.3	54.0	-9.7	H
2707.800	68.1	30.1	-34.4	8.8	-25.9	46.7	54.0	-7.3	V
2745.280	65.7	30.3	-34.4	8.9	-25.9	44.6	54.0	-9.4	H
2745.380	64.2	30.3	-34.4	8.9	-25.9	43.1	54.0	-10.9	V
2780.720	64.9	30.4	-34.4	9.0	-25.9	44.0	54.0	-10.0	H
2780.750	63.9	30.4	-34.4	9.0	-25.9	43.0	54.0	-11.0	V

Test Method: ANSI C63.4 (2003), DA 02-2138 August 30, 2002, DA 00-705 March 30, 2000, KDB Publication No. 558074
Spec Limit: FCC Part 15 Subpart C Section15.247(d)
Test Distance: 3 Meters

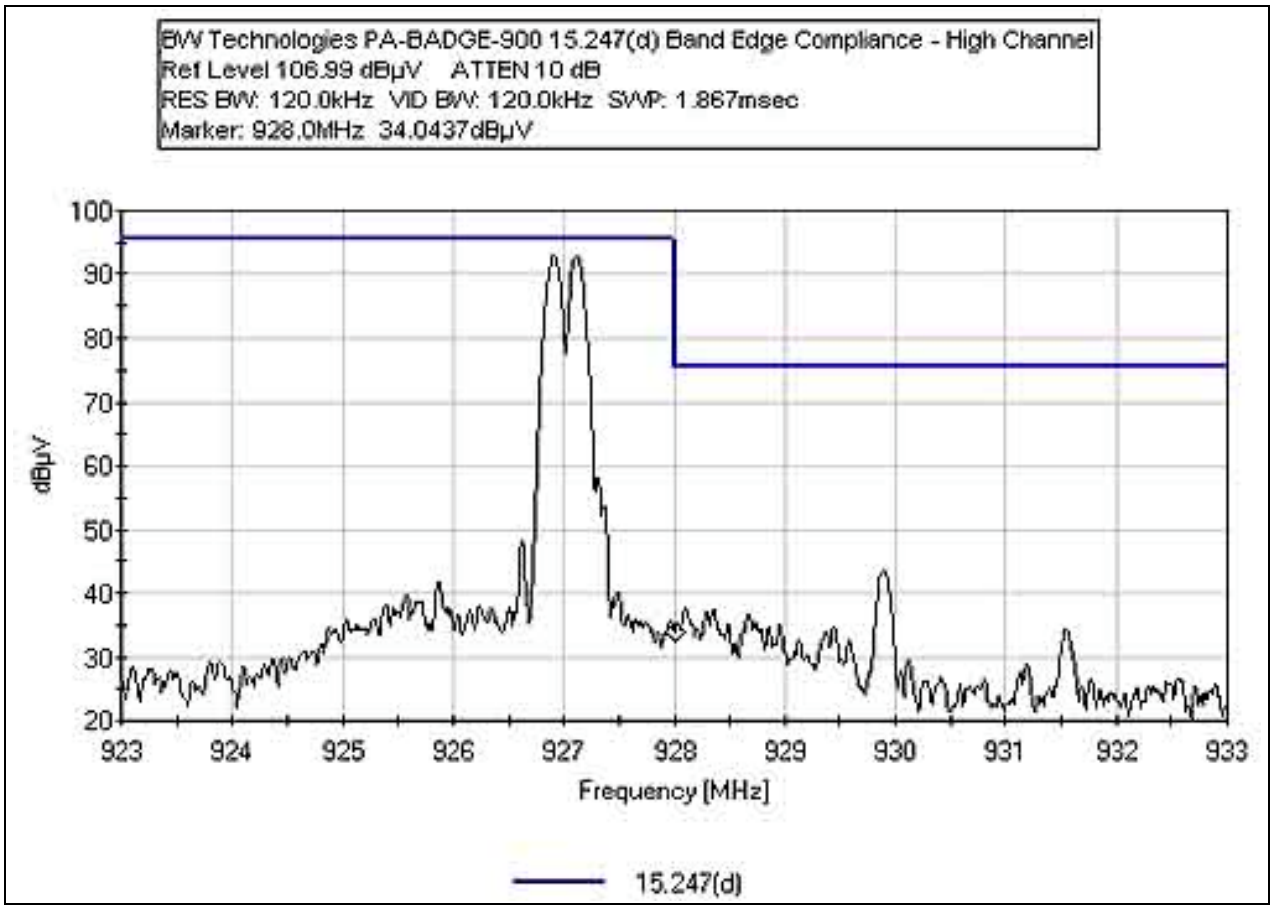
NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous transmit mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Low Middle and High Channels. Frequency Range Investigated: 1-10GHz. Temperature: 29ºC, Relative Humidity: 38%. Limit applied is 15.209 except for frequencies outside of 15.205 restricted bands where limit applied is -20dBc. Dwell time correction factor applied in accordance with DA 00-705. Maximum dwell time per 100ms is 5.06ms therefore DTCF = 20*LOG(5.06/100) = -25.91dB.

FCC 15.247(d) BANDEDGE - LOW CHANNEL



FCC 15.247(d) BANDEDGE - HIGH CHANNEL



TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS

	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the EUT. For radiated measurements from 1 MHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 1 MHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	PA_000.013
CRT was displaying:	N/A
Power Supply Manufacturer:	N/A
Power Supply Part Number:	N/A
AC Line Filter Manufacturer:	N/A
AC Line Filter Part Number:	N/A
Line voltage used during testing:	Battery Operated Equipment (Badge) DC Power 24 V (Base)

I/O PORTS	
Type	#
DC and Signal Port	1

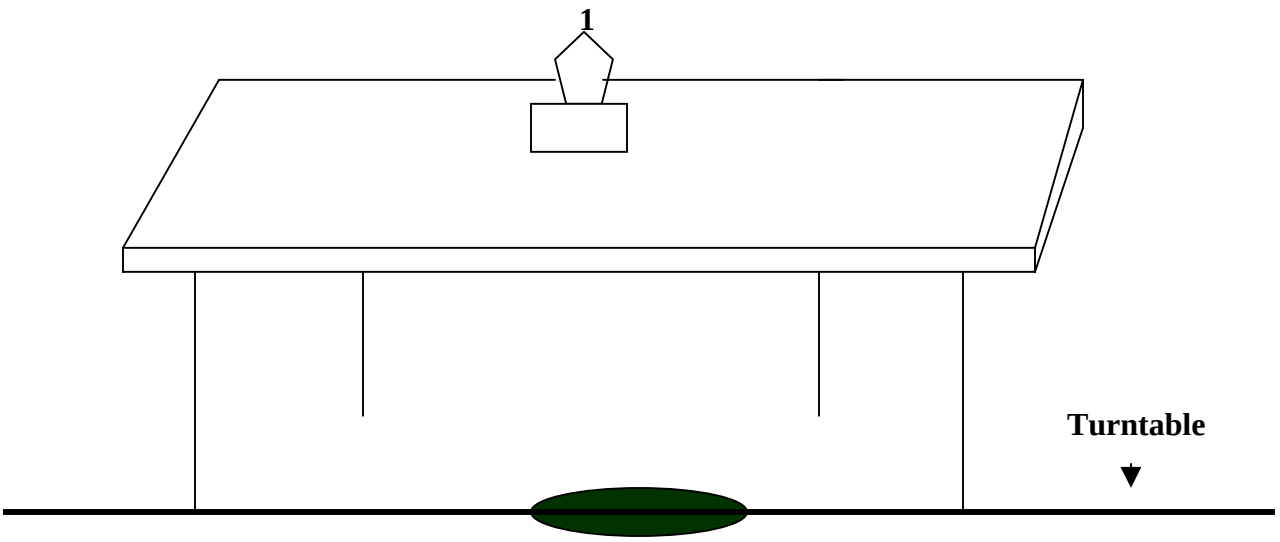
CRYSTAL OSCILLATORS	
Type	Freq In MHz
SMT (Badge)	10
SMT (Base)	4 and 5
SMT	0.040
SMT	39.0

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Base-Main PCB	PAHE-20 Rev C	4.0	4	Interface PCB, Base Unit CPU clock , component designation is Y1
Base-RF PCB	PAHE-10 Rev E	5.0	4	RF PCB, Base Unit, CPU Clock, component designation is Y1
Badge-RF PCB	PAHE-10 Rev E	39.0	4	RF PCB, Base Unit, RF Controller Clock, component designation is Y2
Badge-Main PCB	PASE-10, Rev B	10.0	4	Main PCB, Badge Unit, CPU Clock, component designation is Y1
Badge-Main PCB	PASE-10, Rev B	39.0	4	Main PCB, Badge Unit, RF Controller Clock, component designation is Y2
Badge- Main PCB	PASE-10, Rev B	0.040	4	Main PCB, Badge Unit, Data Clock, component designation is Y3

CABLE INFORMATION

Cable #:	N/A	Cable(s) of this type:	None
Cable Type:		Shield Type:	
Construction:		Length In Meters:	
Connected To End (1):		Connected To End (2):	
Connector At End (1):		Connector At End (2):	
Shield Grounded At (1):		Shield Grounded At (2):	
Part Number:		Number of Conductors:	
Notes and/or description:	EUT is portable, no cables.		

EMC/RF Configuration – Personnel Alert (Badge)



Equipment Legend

1. Personnel Alert Badge (EUT)

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

APPENDIX B

TEST EQUIPMENT LIST

15.109

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
EMCO 3115 Horn Antenna	9307-4085	04/29/2005	04/29/2007	00656
Chase CBL6111C Bilog	2456	06/07/2005	06/07/2007	01991
HP 8449B Preamp	3008A00301	12/14/2004	12/14/2006	2010
HP 8447D Preamp	1937A02604	03/11/2005	03/11/2007	00099
Cable, Pasternack 36"	NA	02/08/2005	02/08/2007	P05202
Cable, Andrews Hardline	NA	05/27/2005	05/27/2007	P01012

15.247 (a)(1)

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
Cable, Pasternack 36"	NA	02/08/2005	02/08/2007	P05202
Weinchel 10dB attenuator	C8596	10/01/2004	10/01/2006	P02138
Weinchel 10dB attenuator	C8597	10/01/2004	10/01/2006	P02139

15.247(b)(2)

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
Chase CBL6111C Bilog	2456	06/07/2005	06/07/2007	01991
HP 8447D Preamp	1937A02604	03/11/2005	03/11/2007	00099

15.247(d) <1 GHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
Chase CBL6111C Bilog	2456	06/07/2005	06/07/2007	01991
HP 8447D Preamp	1937A02604	03/11/2005	03/11/2007	00099
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

15.247(d) >1 GHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
EMCO 3115 Horn Antenna	9307-4085	04/29/2005	04/29/2007	00656
HP 8449B Preamp	3008A00301	12/14/2004	12/14/2006	2010
Cable, Pasternack 36"	NA	02/08/2005	02/08/2007	P05202
Cable, Andrews Hardline	NA	05/27/2005	05/27/2007	P01012

APPENDIX C

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **BW Technologies**
Specification: **15.109 CLASS B**
Work Order #: **83628** Date: 8/4/2005
Test Type: **Maximized Emissions** Time: 10:07:31
Equipment: **Personnel Alert Badge** Sequence#: 23
Manufacturer: BW Technologies Tested By: Randal Clark
Model: PA-BADGE-900
S/N:

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Personnel Alert Badge (Receive)	BW Technologies	PA-BADGE-900	05230131

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920035
Personnel Alert Base	BW Technologies	PA-BASE-900	05182196

Test Conditions / Notes:

EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous receive mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Receive Mode. Frequency Range Investigated: 30MHz - 10GHz. Temperature: 29ºC, Relative Humidity: 38%. **No EUT emissions detected within 20dB of the limit in the frequency range above 1GHz.**

Transducer Legend:

T1=Amp - S/N 604	T2=Bilog Site D
T3=Cable - 10 Meter	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	754.420M	32.8	-27.5	+20.9	+6.9		+0.0	33.1	46.0	-12.9	Verti 135
2	739.783M	32.5	-27.5	+20.8	+6.9		+0.0	32.7	46.0	-13.3	Verti 135
3	780.013M	31.7	-27.4	+21.2	+7.0		+0.0	32.5	46.0	-13.5	Verti 128
4	780.013M	31.7	-27.4	+21.2	+7.0		+0.0	32.5	46.0	-13.5	Verti 135
5	753.243M	32.0	-27.5	+20.9	+6.9		+0.0	32.3	46.0	-13.7	Verti 135
6	737.335M	32.0	-27.5	+20.7	+6.9		+0.0	32.1	46.0	-13.9	Verti 135

7	776.334M	31.3	-27.4	+21.2	+7.0	+0.0	32.1	46.0	-13.9	Verti 135
8	751.983M	31.7	-27.5	+20.9	+6.9	+0.0	32.0	46.0	-14.0	Verti 135
9	756.869M	31.6	-27.5	+20.9	+6.9	+0.0	31.9	46.0	-14.1	Verti 135
10	749.533M	31.6	-27.5	+20.9	+6.9	+0.0	31.9	46.0	-14.1	Verti 135
11	744.659M	31.7	-27.5	+20.8	+6.9	+0.0	31.9	46.0	-14.1	Verti 135
12	755.608M	31.3	-27.5	+20.9	+6.9	+0.0	31.6	46.0	-14.4	Verti 135
13	747.096M	31.4	-27.5	+20.8	+6.9	+0.0	31.6	46.0	-14.4	Verti 135
14	742.211M	31.4	-27.5	+20.8	+6.9	+0.0	31.6	46.0	-14.4	Verti 135
15	771.469M	30.9	-27.4	+21.1	+6.9	+0.0	31.5	46.0	-14.5	Verti 135
16	759.286M	31.0	-27.5	+21.0	+6.9	+0.0	31.4	46.0	-14.6	Verti 135
17	732.477M	31.1	-27.6	+20.7	+6.9	+0.0	31.1	46.0	-14.9	Verti 135
18	781.224M	30.3	-27.4	+21.2	+7.0	+0.0	31.1	46.0	-14.9	Verti 128
19	769.059M	30.5	-27.4	+21.1	+6.9	+0.0	31.1	46.0	-14.9	Verti 135
20	725.148M	31.1	-27.6	+20.6	+6.9	+0.0	31.0	46.0	-15.0	Verti 135
21	778.793M	30.2	-27.4	+21.2	+7.0	+0.0	31.0	46.0	-15.0	Verti 135
22	777.562M	30.2	-27.4	+21.2	+7.0	+0.0	31.0	46.0	-15.0	Verti 135
23	734.915M	30.9	-27.6	+20.7	+6.9	+0.0	30.9	46.0	-15.1	Verti 135
24	761.725M	30.5	-27.5	+21.0	+6.9	+0.0	30.9	46.0	-15.1	Verti 135
25	758.091M	30.4	-27.5	+21.0	+6.9	+0.0	30.8	46.0	-15.2	Verti 135
26	748.315M	30.6	-27.5	+20.8	+6.9	+0.0	30.8	46.0	-15.2	Verti 135
27	730.016M	30.8	-27.6	+20.6	+6.9	+0.0	30.7	46.0	-15.3	Verti 135
28	766.595M	30.2	-27.4	+21.0	+6.9	+0.0	30.7	46.0	-15.3	Verti 135
29	764.163M	30.0	-27.4	+21.0	+6.9	+0.0	30.5	46.0	-15.5	Verti 135
30	743.444M	30.3	-27.5	+20.8	+6.9	+0.0	30.5	46.0	-15.5	Verti 135
31	740.972M	30.3	-27.5	+20.8	+6.9	+0.0	30.5	46.0	-15.5	Verti 106

32	832.402M	28.3	-27.3	+21.9	+7.5	+0.0	30.4	46.0	-15.6	Verti 128
33	750.766M	30.1	-27.5	+20.9	+6.9	+0.0	30.4	46.0	-15.6	Verti 135
34	727.584M	30.4	-27.6	+20.6	+6.9	+0.0	30.3	46.0	-15.7	Verti 135
35	775.138M	29.6	-27.4	+21.1	+7.0	+0.0	30.3	46.0	-15.7	Verti 135
36	736.153M	30.2	-27.6	+20.7	+6.9	+0.0	30.2	46.0	-15.8	Verti 135
37	767.797M	29.6	-27.4	+21.1	+6.9	+0.0	30.2	46.0	-15.8	Verti 135
38	760.511M	29.8	-27.5	+21.0	+6.9	+0.0	30.2	46.0	-15.8	Verti 135
39	833.618M	28.0	-27.3	+21.9	+7.5	+0.0	30.1	46.0	-15.9	Verti 128
40	773.914M	29.5	-27.4	+21.1	+6.9	+0.0	30.1	46.0	-15.9	Verti 135
41	762.950M	29.6	-27.4	+21.0	+6.9	+0.0	30.1	46.0	-15.9	Verti 135
42	788.540M	29.0	-27.3	+21.3	+7.0	+0.0	30.0	46.0	-16.0	Verti 128
43	765.382M	29.5	-27.4	+21.0	+6.9	+0.0	30.0	46.0	-16.0	Verti 135
44	790.957M	28.9	-27.3	+21.3	+7.0	+0.0	29.9	46.0	-16.1	Verti 128
45	770.280M	29.3	-27.4	+21.1	+6.9	+0.0	29.9	46.0	-16.1	Verti 135
46	731.282M	29.8	-27.6	+20.7	+6.9	+0.0	29.8	46.0	-16.2	Verti 135
47	733.720M	29.8	-27.6	+20.7	+6.9	+0.0	29.8	46.0	-16.2	Verti 135
48	784.869M	28.9	-27.4	+21.2	+7.0	+0.0	29.7	46.0	-16.3	Verti 128
49	783.654M	28.9	-27.4	+21.2	+7.0	+0.0	29.7	46.0	-16.3	Verti 128
50	738.574M	29.5	-27.5	+20.7	+6.9	+0.0	29.6	46.0	-16.4	Verti 128
51	805.598M	28.3	-27.3	+21.5	+7.1	+0.0	29.6	46.0	-16.4	Verti 128
52	782.458M	28.8	-27.4	+21.2	+7.0	+0.0	29.6	46.0	-16.4	Verti 128
53	772.692M	29.0	-27.4	+21.1	+6.9	+0.0	29.6	46.0	-16.4	Verti 135
54	787.332M	28.5	-27.3	+21.3	+7.0	+0.0	29.5	46.0	-16.5	Verti 128
55	786.115M	28.6	-27.4	+21.3	+7.0	+0.0	29.5	46.0	-16.5	Verti 128
56	715.419M	29.7	-27.6	+20.5	+6.8	+0.0	29.4	46.0	-16.6	Verti 135

57	717.861M	29.7	-27.6	+20.5	+6.8	+0.0	29.4	46.0	-16.6	Verti 135
58	719.083M	29.7	-27.6	+20.5	+6.8	+0.0	29.4	46.0	-16.6	Verti 135
59	810.501M	27.9	-27.3	+21.6	+7.2	+0.0	29.4	46.0	-16.6	Verti 128
60	756.843M	29.0	-27.5	+20.9	+6.9	+0.0	29.3	46.0	-16.7	Horiz 100
61	728.820M	29.4	-27.6	+20.6	+6.9	+0.0	29.3	46.0	-16.7	Verti 135
62	819.015M	27.6	-27.3	+21.7	+7.3	+0.0	29.3	46.0	-16.7	Verti 128
63	811.707M	27.8	-27.3	+21.6	+7.2	+0.0	29.3	46.0	-16.7	Verti 128
64	809.229M	28.0	-27.3	+21.5	+7.1	+0.0	29.3	46.0	-16.7	Verti 128
65	681.281M	30.0	-27.6	+20.1	+6.7	+0.0	29.2	46.0	-16.8	Verti 135
66	814.104M	27.7	-27.3	+21.6	+7.2	+0.0	29.2	46.0	-16.8	Verti 128
67	793.395M	28.2	-27.3	+21.3	+7.0	+0.0	29.2	46.0	-16.8	Verti 128
68	792.219M	28.2	-27.3	+21.3	+7.0	+0.0	29.2	46.0	-16.8	Verti 128
69	710.560M	29.6	-27.7	+20.4	+6.8	+0.0	29.1	46.0	-16.9	Verti 135
70	726.389M	29.2	-27.6	+20.6	+6.9	+0.0	29.1	46.0	-16.9	Verti 135
71	720.289M	29.3	-27.6	+20.5	+6.8	+0.0	29.0	46.0	-17.0	Verti 135
72	812.941M	27.5	-27.3	+21.6	+7.2	+0.0	29.0	46.0	-17.0	Verti 128
73	806.834M	27.7	-27.3	+21.5	+7.1	+0.0	29.0	46.0	-17.0	Verti 128
74	804.390M	27.7	-27.3	+21.5	+7.1	+0.0	29.0	46.0	-17.0	Verti 128
75	803.196M	27.9	-27.3	+21.4	+7.0	+0.0	29.0	46.0	-17.0	Verti 128
76	831.208M	26.9	-27.3	+21.9	+7.4	+0.0	28.9	46.0	-17.1	Verti 128
77	799.482M	27.8	-27.3	+21.4	+7.0	+0.0	28.9	46.0	-17.1	Verti 128
78	794.651M	27.9	-27.3	+21.3	+7.0	+0.0	28.9	46.0	-17.1	Verti 128
79	745.879M	28.7	-27.5	+20.8	+6.9	+0.0	28.9	46.0	-17.1	Verti 135
80	716.628M	29.1	-27.6	+20.5	+6.8	+0.0	28.8	46.0	-17.2	Verti 135
81	815.317M	27.2	-27.3	+21.6	+7.2	+0.0	28.7	46.0	-17.3	Verti 128

82	800.721M	27.6	-27.3	+21.4	+7.0	+0.0	28.7	46.0	-17.3	Verti 128
83	789.776M	27.7	-27.3	+21.3	+7.0	+0.0	28.7	46.0	-17.3	Verti 128
84	700.793M	29.1	-27.7	+20.3	+6.8	+0.0	28.5	46.0	-17.5	Verti 135
85	798.288M	27.4	-27.3	+21.4	+7.0	+0.0	28.5	46.0	-17.5	Verti 128
86	708.070M	28.9	-27.7	+20.4	+6.8	+0.0	28.4	46.0	-17.6	Verti 135
87	712.991M	28.7	-27.6	+20.5	+6.8	+0.0	28.4	46.0	-17.6	Verti 135
88	721.498M	28.7	-27.6	+20.5	+6.8	+0.0	28.4	46.0	-17.6	Verti 135
89	801.945M	27.3	-27.3	+21.4	+7.0	+0.0	28.4	46.0	-17.6	Verti 128
90	776.349M	27.5	-27.4	+21.2	+7.0	+0.0	28.3	46.0	-17.7	Horiz 100
91	723.934M	28.5	-27.6	+20.6	+6.8	+0.0	28.3	46.0	-17.7	Verti 135
92	808.050M	27.0	-27.3	+21.5	+7.1	+0.0	28.3	46.0	-17.7	Verti 128
93	795.879M	27.2	-27.3	+21.4	+7.0	+0.0	28.3	46.0	-17.7	Verti 128
94	780.028M	27.4	-27.4	+21.2	+7.0	+0.0	28.2	46.0	-17.8	Horiz 100
95	775.133M	27.5	-27.4	+21.1	+7.0	+0.0	28.2	46.0	-17.8	Horiz 100
96	686.151M	29.0	-27.6	+20.1	+6.7	+0.0	28.2	46.0	-17.8	Verti 135
97	797.096M	27.1	-27.3	+21.4	+7.0	+0.0	28.2	46.0	-17.8	Verti 128
98	767.831M	27.5	-27.4	+21.1	+6.9	+0.0	28.1	46.0	-17.9	Horiz 100
99	693.483M	28.9	-27.7	+20.2	+6.7	+0.0	28.1	46.0	-17.9	Verti 135
100	714.193M	28.4	-27.6	+20.5	+6.8	+0.0	28.1	46.0	-17.9	Verti 135
101	758.068M	27.6	-27.5	+21.0	+6.9	+0.0	28.0	46.0	-18.0	Horiz 100
102	661.790M	29.1	-27.5	+19.9	+6.5	+0.0	28.0	46.0	-18.0	Verti 135
103	686.166M	28.8	-27.6	+20.1	+6.7	+0.0	28.0	46.0	-18.0	Verti 135
104	769.052M	27.3	-27.4	+21.1	+6.9	+0.0	27.9	46.0	-18.1	Horiz 100
105	764.156M	27.4	-27.4	+21.0	+6.9	+0.0	27.9	46.0	-18.1	Horiz 100
106	751.978M	27.6	-27.5	+20.9	+6.9	+0.0	27.9	46.0	-18.1	Horiz 100

107	688.600M	28.7	-27.7	+20.2	+6.7	+0.0	27.9	46.0	-18.1	Verti 135
108	773.937M	27.2	-27.4	+21.1	+6.9	+0.0	27.8	46.0	-18.2	Horiz 100
109	695.902M	28.4	-27.7	+20.3	+6.8	+0.0	27.8	46.0	-18.2	Verti 135
110	699.579M	28.4	-27.7	+20.3	+6.8	+0.0	27.8	46.0	-18.2	Verti 135
111	778.759M	26.9	-27.4	+21.2	+7.0	+0.0	27.7	46.0	-18.3	Horiz 100
112	772.703M	27.1	-27.4	+21.1	+6.9	+0.0	27.7	46.0	-18.3	Horiz 100
113	765.386M	27.2	-27.4	+21.0	+6.9	+0.0	27.7	46.0	-18.3	Horiz 100
114	760.513M	27.2	-27.5	+21.0	+6.9	+0.0	27.6	46.0	-18.4	Horiz 100
115	704.448M	28.1	-27.7	+20.4	+6.8	+0.0	27.6	46.0	-18.4	Verti 135
116	705.661M	28.1	-27.7	+20.4	+6.8	+0.0	27.6	46.0	-18.4	Verti 135
117	678.833M	28.4	-27.6	+20.1	+6.6	+0.0	27.5	46.0	-18.5	Verti 135
118	683.702M	28.3	-27.6	+20.1	+6.7	+0.0	27.5	46.0	-18.5	Verti 135
119	703.220M	28.1	-27.7	+20.3	+6.8	+0.0	27.5	46.0	-18.5	Verti 135
120	706.880M	28.0	-27.7	+20.4	+6.8	+0.0	27.5	46.0	-18.5	Verti 135
121	781.248M	26.6	-27.4	+21.2	+7.0	+0.0	27.4	46.0	-18.6	Horiz 100
122	770.225M	26.8	-27.4	+21.1	+6.9	+0.0	27.4	46.0	-18.6	Horiz 100
123	761.748M	27.0	-27.5	+21.0	+6.9	+0.0	27.4	46.0	-18.6	Horiz 100
124	694.700M	28.1	-27.7	+20.2	+6.8	+0.0	27.4	46.0	-18.6	Verti 135
125	698.352M	28.0	-27.7	+20.3	+6.8	+0.0	27.4	46.0	-18.6	Verti 135
126	771.473M	26.7	-27.4	+21.1	+6.9	+0.0	27.3	46.0	-18.7	Horiz 100
127	644.719M	28.7	-27.5	+19.7	+6.3	+0.0	27.2	46.0	-18.8	Verti 135
128	711.742M	27.7	-27.7	+20.4	+6.8	+0.0	27.2	46.0	-18.8	Verti 135
129	722.714M	27.3	-27.6	+20.6	+6.8	+0.0	27.1	46.0	-18.9	Verti 135
130	762.935M	26.5	-27.4	+21.0	+6.9	+0.0	27.0	46.0	-19.0	Horiz 100
131	766.606M	26.4	-27.4	+21.0	+6.9	+0.0	26.9	46.0	-19.1	Horiz 100

132	639.847M	28.5	-27.5	+19.6	+6.3	+0.0	26.9	46.0	-19.1	Verti 148
133	642.279M	28.5	-27.5	+19.6	+6.3	+0.0	26.9	46.0	-19.1	Verti 148
134	647.159M	28.2	-27.5	+19.7	+6.4	+0.0	26.8	46.0	-19.2	Verti 135
135	647.158M	28.1	-27.5	+19.7	+6.4	+0.0	26.7	46.0	-19.3	Verti 135
136	666.658M	27.9	-27.6	+19.9	+6.5	+0.0	26.7	46.0	-19.3	Verti 135
137	671.527M	27.7	-27.6	+20.0	+6.6	+0.0	26.7	46.0	-19.3	Verti 135
138	709.312M	27.2	-27.7	+20.4	+6.8	+0.0	26.7	46.0	-19.3	Verti 135
139	699.559M	27.2	-27.7	+20.3	+6.8	+0.0	26.6	46.0	-19.4	Verti 135
140	691.041M	27.2	-27.7	+20.2	+6.7	+0.0	26.4	46.0	-19.6	Verti 135
141	656.925M	27.5	-27.5	+19.8	+6.5	+0.0	26.3	46.0	-19.7	Verti 135
142	692.268M	27.1	-27.7	+20.2	+6.7	+0.0	26.3	46.0	-19.7	Verti 135
143	649.592M	27.5	-27.5	+19.7	+6.4	+0.0	26.1	46.0	-19.9	Verti 135
144	673.988M	27.1	-27.6	+20.0	+6.6	+0.0	26.1	46.0	-19.9	Verti 135
145	654.476M	27.3	-27.5	+19.8	+6.4	+0.0	26.0	46.0	-20.0	Verti 135
146	759.288M	25.2	-27.5	+21.0	+6.9	+0.0	25.6	46.0	-20.4	Horiz 100
147	777.569M	24.6	-27.4	+21.2	+7.0	+0.0	25.4	46.0	-20.6	Horiz 100
148	617.903M	27.4	-27.6	+19.3	+6.1	+0.0	25.2	46.0	-20.8	Verti 100
149	632.546M	27.1	-27.6	+19.5	+6.2	+0.0	25.2	46.0	-20.8	Verti 148
150	634.969M	27.0	-27.6	+19.5	+6.3	+0.0	25.2	46.0	-20.8	Verti 148
151	652.035M	26.6	-27.5	+19.7	+6.4	+0.0	25.2	46.0	-20.8	Verti 135
152	637.411M	26.3	-27.5	+19.6	+6.3	+0.0	24.7	46.0	-21.3	Verti 148
153	622.785M	26.7	-27.6	+19.4	+6.1	+0.0	24.6	46.0	-21.4	Verti 100
154	689.821M	25.4	-27.7	+20.2	+6.7	+0.0	24.6	46.0	-21.4	Verti 135

155	630.109M	26.0	-27.6	+19.5	+6.2	+0.0	24.1	46.0	-21.9	Verti 148
156	625.229M	26.0	-27.6	+19.4	+6.2	+0.0	24.0	46.0	-22.0	Verti 148
157	615.480M	25.1	-27.6	+19.3	+6.1	+0.0	22.9	46.0	-23.1	Verti 100
158	620.345M	24.9	-27.6	+19.4	+6.1	+0.0	22.8	46.0	-23.2	Verti 100

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **BW Technologies**
Specification: **15.247(b)(2)**
Work Order #: **83628** Date: 8/3/2005
Test Type: **Maximized Emissions** Time: 10:24:15
Equipment: **Personnel Alert Badge** Sequence#: 20
Manufacturer: BW Technologies Tested By: Randal Clark
Model: PA-BADGE-900
S/N:

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Personnel Alert Badge (902 CW)	BW Technologies	PA-BADGE-900	05230127
Personnel Alert Badge (915 CW)	BW Technologies	PA-BADGE-900	05230130
Personnel Alert Badge (928 CW)	BW Technologies	PA-BADGE-900	05230132

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920035
Personnel Alert Base	BW Technologies	PA-BASE-900	05182196

Test Conditions / Notes:

EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous transmit mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Low Middle and High Channels. Frequency Range Investigated: Carrier. Temperature: 29ºC, Relative Humidity: 38%. RBW=VBW=1MHz.

Transducer Legend:

T1=Amp - S/N 604	T2=Bilog Site D
T3=Cable - 10 Meter	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	902.606M	98.8	-27.0	+22.8	+8.1		+10.0	112.7	137.0	-24.3	Verti 122
2	926.890M	97.9	-27.0	+23.2	+8.2		+10.0	112.3	137.0	-24.7	Verti 133
3	902.590M	98.2	-27.0	+22.8	+8.1		+10.0	112.1	137.0	-24.9	Horiz 100
4	914.890M	97.7	-27.0	+23.0	+8.1		+10.0	111.8	137.0	-25.2	Verti 116
5	914.912M	96.8	-27.0	+23.0	+8.2		+10.0	111.0	137.0	-26.0	Verti 126
6	902.626M	92.6	-27.0	+22.8	+8.1		+10.0	106.5	137.0	-30.5	Verti 141

7	914.950M	92.2	-27.0	+23.0	+8.2	+10.0	106.4	137.0	-30.6	Verti 100
8	914.950M	92.2	-27.0	+23.0	+8.2	+10.0	106.4	137.0	-30.6	Horiz 146
9	926.912M	91.8	-27.0	+23.2	+8.2	+10.0	106.2	137.0	-30.8	Horiz 142
10	926.906M	90.5	-27.0	+23.2	+8.2	+10.0	104.9	137.0	-32.1	Verti 148
11	926.906M	89.0	-27.0	+23.2	+8.2	+10.0	103.4	137.0	-33.6	Verti 148
12	902.606M	89.5	-27.0	+22.8	+8.1	+10.0	103.4	137.0	-33.6	Horiz 116
13	902.592M	89.1	-27.0	+22.8	+8.1	+10.0	103.0	137.0	-34.0	Verti 100
14	914.926M	88.4	-27.0	+23.0	+8.2	+10.0	102.6	137.0	-34.4	Horiz 205
15	926.912M	83.6	-27.0	+23.2	+8.2	+10.0	98.0	137.0	-39.0	Horiz 133

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **BW Technologies**
Specification: **15.247(d)**
Work Order #: **83628** Date: 8/3/2005
Test Type: **Maximized Emissions** Time: 10:40:08
Equipment: **Personnel Alert Badge** Sequence#: 21
Manufacturer: BW Technologies Tested By: Randal Clark
Model: PA-BADGE-900
S/N:

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Personnel Alert Badge (902 CW)	BW Technologies	PA-BADGE-900	05230127
Personnel Alert Badge (915 CW)	BW Technologies	PA-BADGE-900	05230130
Personnel Alert Badge (928 CW)	BW Technologies	PA-BADGE-900	05230132

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920035
Personnel Alert Base	BW Technologies	PA-BASE-900	05182196

Test Conditions / Notes:

EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous transmit mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Low Middle and High Channels. Frequency Range Investigated: 1-1000MHz. Temperature: 29ºC, Relative Humidity: 38%. Limit applied is 15.209 except for frequencies outside of 15.205 restricted bands where limit applied is -20dBc.

Transducer Legend:

T1=Amp - S/N 604 T2=Bilog Site D
T3=Cable - 10 Meter

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	993.748M	41.3	-26.7	+24.1	+0.0		+0.0	38.7	54.0	-15.3	Verti 100
2	993.544M	40.3	-26.7	+24.1	+0.0		+0.0	37.7	54.0	-16.3	Verti 100
3	613.032M	30.7	-27.6	+19.3	+6.0		+0.0	28.4	46.0	-17.6	Verti 100
4	608.142M	30.1	-27.7	+19.2	+6.0		+0.0	27.6	46.0	-18.4	Verti 100
5	610.615M	29.4	-27.7	+19.2	+6.0		+0.0	26.9	46.0	-19.1	Verti 100
6	992.924M	31.5	-26.7	+24.1	+0.0		+0.0	28.9	54.0	-25.1	Verti 107

7	993.120M	30.7	-26.7	+24.1	+0.0	+0.0	28.1	54.0	-25.9	Verti 107
8	897.014M	46.3	-27.0	+22.8	+8.1	+0.0	50.2	80.0	-29.8	Verti 100
9	811.462M	41.0	-27.3	+21.6	+7.2	+0.0	42.5	80.0	-37.5	Verti 100
10	811.270M	40.8	-27.3	+21.6	+7.2	+0.0	42.3	80.0	-37.7	Verti 100
11	897.003M	32.6	-27.0	+22.8	+8.1	+0.0	36.5	80.0	-43.5	Verti 100
12	953.919M	30.4	-27.0	+23.6	+7.8	+0.0	34.8	80.0	-45.2	Verti 107
13	835.777M	32.6	-27.3	+21.9	+7.5	+0.0	34.7	80.0	-45.3	Verti 148
14	835.979M	32.4	-27.3	+21.9	+7.5	+0.0	34.5	80.0	-45.5	Verti 148
15	954.122M	30.0	-27.0	+23.6	+7.8	+0.0	34.4	80.0	-45.6	Verti 107
16	876.099M	30.4	-27.1	+22.5	+7.9	+0.0	33.7	80.0	-46.3	Verti 107
17	753.243M	33.1	-27.5	+20.9	+6.9	+0.0	33.4	80.0	-46.6	Verti 173
18	935.991M	27.5	-27.0	+23.3	+8.1	+0.0	31.9	80.0	-48.1	Verti 100
19	759.309M	30.6	-27.5	+21.0	+6.9	+0.0	31.0	80.0	-49.0	Verti 107
20	756.855M	30.6	-27.5	+20.9	+6.9	+0.0	30.9	80.0	-49.1	Verti 173
21	836.913M	28.5	-27.3	+21.9	+7.5	+0.0	30.6	80.0	-49.4	Verti 107
22	754.415M	30.3	-27.5	+20.9	+6.9	+0.0	30.6	80.0	-49.4	Verti 173
23	744.654M	30.4	-27.5	+20.8	+6.9	+0.0	30.6	80.0	-49.4	Verti 173
24	749.528M	30.1	-27.5	+20.9	+6.9	+0.0	30.4	80.0	-49.6	Verti 173
25	764.165M	29.9	-27.4	+21.0	+6.9	+0.0	30.4	80.0	-49.6	Verti 173
26	759.301M	29.9	-27.5	+21.0	+6.9	+0.0	30.3	80.0	-49.7	Verti 173
27	780.003M	29.4	-27.4	+21.2	+7.0	+0.0	30.2	80.0	-49.8	Verti 173
28	739.780M	30.0	-27.5	+20.8	+6.9	+0.0	30.2	80.0	-49.8	Verti 173
29	737.363M	30.0	-27.5	+20.7	+6.9	+0.0	30.1	80.0	-49.9	Verti 173
30	637.403M	31.6	-27.5	+19.6	+6.3	+0.0	30.0	80.0	-50.0	Verti 100
31	747.117M	29.8	-27.5	+20.8	+6.9	+0.0	30.0	80.0	-50.0	Verti 173

32	736.128M	30.0	-27.6	+20.7	+6.9	+0.0	30.0	80.0	-50.0	Verti 173
33	725.157M	30.1	-27.6	+20.6	+6.9	+0.0	30.0	80.0	-50.0	Verti 173
34	762.945M	29.5	-27.4	+21.0	+6.9	+0.0	30.0	80.0	-50.0	Verti 173
35	751.982M	29.7	-27.5	+20.9	+6.9	+0.0	30.0	80.0	-50.0	Verti 173
36	771.480M	29.3	-27.4	+21.1	+6.9	+0.0	29.9	80.0	-50.1	Verti 173
37	656.912M	31.1	-27.5	+19.8	+6.5	+0.0	29.9	80.0	-50.1	Verti 100
38	804.366M	28.6	-27.3	+21.5	+7.1	+0.0	29.9	80.0	-50.1	Verti 173
39	787.328M	28.9	-27.3	+21.3	+7.0	+0.0	29.9	80.0	-50.1	Verti 173
40	727.591M	30.0	-27.6	+20.6	+6.9	+0.0	29.9	80.0	-50.1	Verti 173
41	647.175M	31.3	-27.5	+19.7	+6.4	+0.0	29.9	80.0	-50.1	Verti 100
42	742.218M	29.7	-27.5	+20.8	+6.9	+0.0	29.9	80.0	-50.1	Verti 173
43	639.860M	31.4	-27.5	+19.6	+6.3	+0.0	29.8	80.0	-50.2	Verti 100
44	654.479M	31.1	-27.5	+19.8	+6.4	+0.0	29.8	80.0	-50.2	Verti 100
45	652.063M	31.2	-27.5	+19.7	+6.4	+0.0	29.8	80.0	-50.2	Verti 100
46	783.666M	28.9	-27.4	+21.2	+7.0	+0.0	29.7	80.0	-50.3	Verti 173
47	745.910M	29.5	-27.5	+20.8	+6.9	+0.0	29.7	80.0	-50.3	Verti 173
48	769.062M	29.1	-27.4	+21.1	+6.9	+0.0	29.7	80.0	-50.3	Verti 173
49	659.344M	30.8	-27.5	+19.8	+6.5	+0.0	29.6	80.0	-50.4	Verti 100
50	786.116M	28.7	-27.4	+21.3	+7.0	+0.0	29.6	80.0	-50.4	Verti 173
51	649.614M	31.0	-27.5	+19.7	+6.4	+0.0	29.6	80.0	-50.4	Verti 100
52	759.111M	29.2	-27.5	+21.0	+6.9	+0.0	29.6	80.0	-50.4	Verti 107
53	773.925M	28.9	-27.4	+21.1	+6.9	+0.0	29.5	80.0	-50.5	Verti 173
54	733.702M	29.5	-27.6	+20.7	+6.9	+0.0	29.5	80.0	-50.5	Verti 173
55	681.283M	30.3	-27.6	+20.1	+6.7	+0.0	29.5	80.0	-50.5	Verti 173
56	730.038M	29.6	-27.6	+20.6	+6.9	+0.0	29.5	80.0	-50.5	Verti 173

57	738.584M	29.4	-27.5	+20.7	+6.9	+0.0	29.5	80.0	-50.5	Verti 173
58	720.107M	29.8	-27.6	+20.5	+6.8	+0.0	29.5	80.0	-50.5	Verti 107
59	795.872M	28.3	-27.3	+21.4	+7.0	+0.0	29.4	80.0	-50.6	Verti 173
60	789.752M	28.4	-27.3	+21.3	+7.0	+0.0	29.4	80.0	-50.6	Verti 173
61	734.909M	29.4	-27.6	+20.7	+6.9	+0.0	29.4	80.0	-50.6	Verti 173
62	784.898M	28.6	-27.4	+21.2	+7.0	+0.0	29.4	80.0	-50.6	Verti 173
63	661.776M	30.5	-27.5	+19.9	+6.5	+0.0	29.4	80.0	-50.6	Verti 100
64	748.328M	29.1	-27.5	+20.8	+6.9	+0.0	29.3	80.0	-50.7	Verti 173
65	719.910M	29.6	-27.6	+20.5	+6.8	+0.0	29.3	80.0	-50.7	Verti 107
66	705.672M	29.8	-27.7	+20.4	+6.8	+0.0	29.3	80.0	-50.7	Verti 173
67	676.429M	30.3	-27.6	+20.0	+6.6	+0.0	29.3	80.0	-50.7	Verti 173
68	772.697M	28.6	-27.4	+21.1	+6.9	+0.0	29.2	80.0	-50.8	Verti 173
69	775.122M	28.5	-27.4	+21.1	+7.0	+0.0	29.2	80.0	-50.8	Verti 173
70	770.268M	28.6	-27.4	+21.1	+6.9	+0.0	29.2	80.0	-50.8	Verti 173
71	780.024M	28.3	-27.4	+21.2	+7.0	+0.0	29.1	80.0	-50.9	Verti 100
72	758.905M	28.7	-27.5	+21.0	+6.9	+0.0	29.1	80.0	-50.9	Verti 107
73	761.735M	28.7	-27.5	+21.0	+6.9	+0.0	29.1	80.0	-50.9	Verti 173
74	720.292M	29.4	-27.6	+20.5	+6.8	+0.0	29.1	80.0	-50.9	Verti 173
75	760.526M	28.6	-27.5	+21.0	+6.9	+0.0	29.0	80.0	-51.0	Verti 173
76	642.274M	30.6	-27.5	+19.6	+6.3	+0.0	29.0	80.0	-51.0	Verti 100
77	708.091M	29.5	-27.7	+20.4	+6.8	+0.0	29.0	80.0	-51.0	Verti 173
78	794.639M	28.0	-27.3	+21.3	+7.0	+0.0	29.0	80.0	-51.0	Verti 173
79	776.364M	28.2	-27.4	+21.2	+7.0	+0.0	29.0	80.0	-51.0	Verti 173
80	637.398M	30.6	-27.5	+19.6	+6.3	+0.0	29.0	80.0	-51.0	Verti 100
81	627.670M	30.9	-27.6	+19.5	+6.2	+0.0	29.0	80.0	-51.0	Verti 100

82	750.755M	28.7	-27.5	+20.9	+6.9	+0.0	29.0	80.0	-51.0	Verti 173
83	765.385M	28.5	-27.4	+21.0	+6.9	+0.0	29.0	80.0	-51.0	Verti 173
84	642.298M	30.6	-27.5	+19.6	+6.3	+0.0	29.0	80.0	-51.0	Verti 107
85	669.102M	30.0	-27.6	+19.9	+6.6	+0.0	28.9	80.0	-51.1	Verti 100
86	743.443M	28.7	-27.5	+20.8	+6.9	+0.0	28.9	80.0	-51.1	Verti 173
87	766.615M	28.4	-27.4	+21.0	+6.9	+0.0	28.9	80.0	-51.1	Verti 173
88	781.223M	28.1	-27.4	+21.2	+7.0	+0.0	28.9	80.0	-51.1	Verti 173
89	732.482M	28.8	-27.6	+20.7	+6.9	+0.0	28.8	80.0	-51.2	Verti 173
90	837.114M	26.7	-27.3	+21.9	+7.5	+0.0	28.8	80.0	-51.2	Verti 107
91	698.354M	29.4	-27.7	+20.3	+6.8	+0.0	28.8	80.0	-51.2	Verti 173
92	767.826M	28.2	-27.4	+21.1	+6.9	+0.0	28.8	80.0	-51.2	Verti 173
93	630.118M	30.7	-27.6	+19.5	+6.2	+0.0	28.8	80.0	-51.2	Verti 100
94	681.267M	29.6	-27.6	+20.1	+6.7	+0.0	28.8	80.0	-51.2	Verti 107
95	778.775M	28.0	-27.4	+21.2	+7.0	+0.0	28.8	80.0	-51.2	Verti 173
96	664.234M	30.0	-27.6	+19.9	+6.5	+0.0	28.8	80.0	-51.2	Verti 100
97	632.545M	30.7	-27.6	+19.5	+6.2	+0.0	28.8	80.0	-51.2	Verti 100
98	644.726M	30.2	-27.5	+19.7	+6.3	+0.0	28.7	80.0	-51.3	Verti 100
99	678.838M	29.6	-27.6	+20.1	+6.6	+0.0	28.7	80.0	-51.3	Verti 173
100	755.635M	28.4	-27.5	+20.9	+6.9	+0.0	28.7	80.0	-51.3	Verti 173
101	634.991M	30.5	-27.6	+19.5	+6.3	+0.0	28.7	80.0	-51.3	Verti 100
102	792.208M	27.7	-27.3	+21.3	+7.0	+0.0	28.7	80.0	-51.3	Verti 173
103	671.524M	29.7	-27.6	+20.0	+6.6	+0.0	28.7	80.0	-51.3	Verti 100
104	793.428M	27.6	-27.3	+21.3	+7.0	+0.0	28.6	80.0	-51.4	Verti 173
105	695.908M	29.2	-27.7	+20.3	+6.8	+0.0	28.6	80.0	-51.4	Verti 173
106	722.726M	28.8	-27.6	+20.6	+6.8	+0.0	28.6	80.0	-51.4	Verti 173

107	667.882M	29.7	-27.6	+19.9	+6.5	+0.0	28.5	80.0	-51.5	Verti 100
108	703.235M	29.1	-27.7	+20.3	+6.8	+0.0	28.5	80.0	-51.5	Verti 173
109	782.443M	27.7	-27.4	+21.2	+7.0	+0.0	28.5	80.0	-51.5	Verti 173
110	666.666M	29.7	-27.6	+19.9	+6.5	+0.0	28.5	80.0	-51.5	Verti 100
111	788.588M	27.4	-27.3	+21.3	+7.0	+0.0	28.4	80.0	-51.6	Verti 173
112	712.986M	28.7	-27.6	+20.5	+6.8	+0.0	28.4	80.0	-51.6	Verti 173
113	710.557M	28.9	-27.7	+20.4	+6.8	+0.0	28.4	80.0	-51.6	Verti 173
114	721.514M	28.6	-27.6	+20.5	+6.8	+0.0	28.3	80.0	-51.7	Verti 173
115	777.573M	27.5	-27.4	+21.2	+7.0	+0.0	28.3	80.0	-51.7	Verti 173
116	715.412M	28.5	-27.6	+20.5	+6.8	+0.0	28.2	80.0	-51.8	Verti 173
117	790.983M	27.2	-27.3	+21.3	+7.0	+0.0	28.2	80.0	-51.8	Verti 173
118	758.075M	27.7	-27.5	+21.0	+6.9	+0.0	28.1	80.0	-51.9	Verti 173
119	671.545M	29.0	-27.6	+20.0	+6.6	+0.0	28.0	80.0	-52.0	Verti 100
120	622.784M	30.1	-27.6	+19.4	+6.1	+0.0	28.0	80.0	-52.0	Verti 100
121	648.373M	29.4	-27.5	+19.7	+6.4	+0.0	28.0	80.0	-52.0	Verti 100
122	731.264M	28.0	-27.6	+20.7	+6.9	+0.0	28.0	80.0	-52.0	Verti 173
123	700.831M	28.5	-27.7	+20.3	+6.8	+0.0	27.9	80.0	-52.1	Verti 173
124	660.544M	29.1	-27.5	+19.8	+6.5	+0.0	27.9	80.0	-52.1	Verti 100
125	726.387M	28.0	-27.6	+20.6	+6.9	+0.0	27.9	80.0	-52.1	Verti 173
126	620.341M	30.0	-27.6	+19.4	+6.1	+0.0	27.9	80.0	-52.1	Verti 100
127	673.984M	28.8	-27.6	+20.0	+6.6	+0.0	27.8	80.0	-52.2	Verti 100
128	617.915M	29.9	-27.6	+19.3	+6.1	+0.0	27.7	80.0	-52.3	Verti 100
129	670.307M	28.7	-27.6	+20.0	+6.6	+0.0	27.7	80.0	-52.3	Verti 100
130	650.812M	29.1	-27.5	+19.7	+6.4	+0.0	27.7	80.0	-52.3	Verti 100
131	720.295M	28.0	-27.6	+20.5	+6.8	+0.0	27.7	80.0	-52.3	Verti 107

132	723.953M	27.9	-27.6	+20.6	+6.8	+0.0	27.7	80.0	-52.3	Verti 173
133	693.477M	28.4	-27.7	+20.2	+6.7	+0.0	27.6	80.0	-52.4	Verti 173
134	728.840M	27.7	-27.6	+20.6	+6.9	+0.0	27.6	80.0	-52.4	Verti 173
135	721.540M	27.9	-27.6	+20.5	+6.8	+0.0	27.6	80.0	-52.4	Verti 173
136	665.473M	28.7	-27.6	+19.9	+6.5	+0.0	27.5	80.0	-52.5	Verti 100
137	719.039M	27.7	-27.6	+20.5	+6.8	+0.0	27.4	80.0	-52.6	Verti 173
138	675.197M	28.3	-27.6	+20.0	+6.6	+0.0	27.3	80.0	-52.7	Verti 159
139	655.704M	28.5	-27.5	+19.8	+6.4	+0.0	27.2	80.0	-52.8	Verti 100
140	653.254M	28.5	-27.5	+19.8	+6.4	+0.0	27.2	80.0	-52.8	Verti 100
141	662.985M	28.3	-27.6	+19.9	+6.5	+0.0	27.1	80.0	-52.9	Verti 100
142	645.946M	28.3	-27.5	+19.7	+6.4	+0.0	26.9	80.0	-53.1	Verti 100
143	691.043M	27.6	-27.7	+20.2	+6.7	+0.0	26.8	80.0	-53.2	Verti 173
144	741.000M	26.6	-27.5	+20.8	+6.9	+0.0	26.8	80.0	-53.2	Verti 100
145	658.158M	28.0	-27.5	+19.8	+6.5	+0.0	26.8	80.0	-53.2	Verti 100
146	686.163M	27.6	-27.6	+20.1	+6.7	+0.0	26.8	80.0	-53.2	Verti 173
147	624.028M	28.8	-27.6	+19.4	+6.1	+0.0	26.7	80.0	-53.3	Verti 100
148	683.723M	27.4	-27.6	+20.1	+6.7	+0.0	26.6	80.0	-53.4	Verti 173
149	605.740M	29.1	-27.7	+19.2	+6.0	+0.0	26.6	80.0	-53.4	Verti 100
150	525.226M	30.2	-27.4	+17.9	+5.8	+0.0	26.5	80.0	-53.5	Verti 107
151	681.113M	27.2	-27.6	+20.1	+6.7	+0.0	26.4	80.0	-53.6	Verti 107
152	672.748M	27.4	-27.6	+20.0	+6.6	+0.0	26.4	80.0	-53.6	Verti 100
153	591.109M	29.0	-27.7	+19.0	+5.9	+0.0	26.2	80.0	-53.8	Verti 100
154	615.475M	28.3	-27.6	+19.3	+6.1	+0.0	26.1	80.0	-53.9	Verti 100
155	600.866M	28.7	-27.7	+19.1	+5.9	+0.0	26.0	80.0	-54.0	Verti 100
156	680.911M	26.8	-27.6	+20.1	+6.7	+0.0	26.0	80.0	-54.0	Verti 107

157	702.000M	26.5	-27.7	+20.3	+6.8	+0.0	25.9	80.0	-54.1	Verti 100
158	643.506M	27.3	-27.5	+19.6	+6.3	+0.0	25.7	80.0	-54.3	Verti 100
159	688.603M	26.4	-27.7	+20.2	+6.7	+0.0	25.6	80.0	-54.4	Verti 173
160	588.671M	28.4	-27.7	+18.9	+5.9	+0.0	25.5	80.0	-54.5	Verti 100
161	636.195M	27.1	-27.6	+19.6	+6.3	+0.0	25.4	80.0	-54.6	Verti 100
162	603.319M	28.1	-27.7	+19.1	+5.9	+0.0	25.4	80.0	-54.6	Verti 107
163	598.424M	28.0	-27.7	+19.1	+5.9	+0.0	25.3	80.0	-54.7	Verti 100
164	525.002M	29.0	-27.4	+17.9	+5.8	+0.0	25.3	80.0	-54.7	Verti 107
165	603.309M	27.8	-27.7	+19.1	+5.9	+0.0	25.1	80.0	-54.9	Verti 100
166	595.963M	27.6	-27.7	+19.0	+5.9	+0.0	24.8	80.0	-55.2	Verti 100
167	624.031M	26.3	-27.6	+19.4	+6.1	+0.0	24.2	80.0	-55.8	Verti 100

Test Location:	CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)		
Customer:	**BW Technologies**		
Specification:	**FCC 15.247 (d) / 15.209 / 15.205**		
Work Order #:	**83628**	Date:	8/3/2005
Test Type:	**Maximized Emissions**	Time:	14:15:45
Equipment:	**Personnel Alert Badge**	Sequence#:	22
Manufacturer:	BW Technologies	Tested By:	Randal Clark
Model:	PA-BADGE-900		
S/N:			

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Personnel Alert Badge (902 CW)	BW Technologies	PA-BADGE-900	05230127
Personnel Alert Badge (915 CW)	BW Technologies	PA-BADGE-900	05230130
Personnel Alert Badge (928 CW)	BW Technologies	PA-BADGE-900	05230132

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920035
Personnel Alert Base	BW Technologies	PA-BASE-900	05182196

Test Conditions / Notes:

EUT is a gas detection system operating in the 902-928MHz frequency band. Equipment is a frequency hopping spread spectrum portable radio operating in continuous transmit mode. EUT is tested in three orthogonal orientations to determine worst case emissions. EUT is battery powered - a fresh battery is used for testing. The Personal Alert Base station is used to initiate transmission with the Personal Alert Badge. Personnel Alert Base is mounted on test wall as per configuration typically seen in field installations and is located outside of the testing area. DC power to support equipment is routed from support power supply. The operation of the RF deck is verified by confirming duplex traffic with the base prior to the emissions test commencing. Operating Frequency: Low Middle and High Channels. Frequency Range Investigated: 1-10GHz. Temperature: 29ºC, Relative Humidity: 38%. Limit applied is 15.209 except for frequencies outside of 15.205 restricted bands where limit applied is -20dBc. Dwell time correction factor applied in accordance with DA 00-705. Maximum dwell time per 100ms is 5.06ms therefore DTCF = 20*LOG(5.06/100) = -25.91dB.

Transducer Legend:

T1=Amp - S/N 301	T2=Horn AN 00656 1-18 GHz (Mariposa)
T3=Cable P01012	T4=Cable 40 GHz 36"
T5=Cable - 3 Meter to bulkhead	T6=DTCF - 5.06ms Dwell Time

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2707.800M	68.1	-34.4 +5.2	+30.1 -25.9	+2.5	+1.1	+0.0	46.7	54.0	-7.3	Verti 116
2	2745.280M	65.7	-34.4 +5.3	+30.3 -25.9	+2.5	+1.1	+0.0	44.6	54.0	-9.4	Horiz 140
3	2707.200M	65.7	-34.4 +5.2	+30.1 -25.9	+2.5	+1.1	+0.0	44.3	54.0	-9.7	Horiz 139
4	2780.720M	64.9	-34.4 +5.3	+30.4 -25.9	+2.6	+1.1	+0.0	44.0	54.0	-10.0	Horiz 121
5	2745.380M	64.2	-34.4 +5.3	+30.3 -25.9	+2.5	+1.1	+0.0	43.1	54.0	-10.9	Verti 107

6	2780.750M	63.9	-34.4 +5.3	+30.4 -25.9	+2.6	+1.1	+0.0	43.0	54.0	-11.0	Verti 123
7	3707.660M	57.3	-34.5 +6.3	+32.8 -25.9	+3.3	+1.3	+0.0	40.6	54.0	-13.4	Verti 123
8	3708.470M	56.8	-34.5 +6.3	+32.8 -25.9	+3.3	+1.3	+0.0	40.1	54.0	-13.9	Horiz 134
9	1805.170M	66.5	-35.1 +4.2	+27.4 -25.9	+2.0	+0.9	+0.0	40.0	54.0	-14.0	Verti 116
10	1830.240M	65.4	-35.1 +4.2	+27.5 -25.9	+2.0	+0.9	+0.0	39.0	54.0	-15.0	Verti 116
11	4634.640M	53.1	-34.4 +7.2	+33.8 -25.9	+3.3	+1.4	+0.0	38.5	54.0	-15.5	Verti 106
12	4635.610M	52.3	-34.4 +7.2	+33.8 -25.9	+3.3	+1.4	+0.0	37.7	54.0	-16.3	Horiz 134
13	1853.840M	63.4	-35.1 +4.2	+27.6 -25.9	+2.0	+0.9	+0.0	37.1	54.0	-16.9	Verti 100
14	4511.970M	52.0	-34.5 +7.1	+33.7 -25.9	+3.3	+1.4	+0.0	37.1	54.0	-16.9	Horiz 139
15	3660.400M	53.9	-34.5 +6.2	+32.6 -25.9	+3.3	+1.3	+0.0	36.9	54.0	-17.1	Verti 107
16	1854.180M	63.1	-35.1 +4.2	+27.6 -25.9	+2.0	+0.9	+0.0	36.8	54.0	-17.2	Horiz 121
17	3610.330M	53.7	-34.6 +6.2	+32.5 -25.9	+3.3	+1.3	+0.0	36.5	54.0	-17.5	Verti 116
18	4575.660M	51.1	-34.5 +7.1	+33.8 -25.9	+3.3	+1.4	+0.0	36.3	54.0	-17.7	Horiz 119
19	3610.350M	53.2	-34.6 +6.2	+32.5 -25.9	+3.3	+1.3	+0.0	36.0	54.0	-18.0	Horiz 139
20	5415.660M	46.8	-34.5 +7.7	+35.8 -25.9	+3.3	+1.6	+0.0	34.8	54.0	-19.2	Verti 116
21	3659.610M	51.2	-34.5 +6.2	+32.6 -25.9	+3.3	+1.3	+0.0	34.2	54.0	-19.8	Horiz 119
22	4575.510M	49.0	-34.5 +7.1	+33.8 -25.9	+3.3	+1.4	+0.0	34.2	54.0	-19.8	Verti 107
23	5490.710M	45.6	-34.5 +7.8	+36.1 -25.9	+3.3	+1.6	+0.0	34.0	54.0	-20.0	Horiz 119
24	5490.530M	45.1	-34.5 +7.8	+36.1 -25.9	+3.3	+1.6	+0.0	33.5	54.0	-20.5	Verti 107
25	1804.800M	59.5	-35.1 +4.2	+27.4 -25.9	+2.0	+0.9	+0.0	33.0	54.0	-21.0	Horiz 118
26	1830.240M	59.0	-35.1 +4.2	+27.5 -25.9	+2.0	+0.9	+0.0	32.6	54.0	-21.4	Horiz 140
27	1830.240M	59.0	-35.1 +4.2	+27.5 -25.9	+2.0	+0.9	+0.0	32.6	54.0	-21.4	Horiz 140
28	4511.910M	45.4	-34.5 +7.1	+33.7 -25.9	+3.3	+1.4	+0.0	30.5	54.0	-23.5	Verti 116
29	5562.770M	41.8	-34.5 +7.9	+36.0 -25.9	+3.3	+1.6	+0.0	30.2	54.0	-23.8	Verti 106
30	5414.370M	42.0	-34.5 +7.7	+35.8 -25.9	+3.3	+1.6	+0.0	30.0	54.0	-24.0	Horiz 117