CKC LABORATORIES, INC. Testing the Future

ADDENDUM TO MEDICAL DATA ELECTRONICS TEST REPORT

FOR THE

WIRELESS MEDICAL TELEMETRY SERVICE (WMTS), 20701

FCC PART 95 SUBPART H

COMPLIANCE

DATE OF ISSUE: DECEMBER 1, 2004

PREPARED FOR:

Medical Data Electronics
12723 Wentworth Street
Arleta, CA 91331

P.O. No.: PA42803
W.O. No.: 82330

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: October 19 – November 30, 2004

Report No.: FC04-078A

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	October 19 – November 30, 2004
DATE OF RECEIPT:	October 19, 2004
PURPOSE OF TEST:	To demonstrate the compliance of the Wireless Medical Telemetry Service (WMTS), 20701 with the requirements for FCC Part 95 Subpart H devices. **Addendum A** is to revise the frequency range and put the maximum allowable field strength in mV/m on page 6, replace the plots on pages 10 and 12, and show the calculations on pages 7 and 13.
TEST METHOD:	FCC Part 95
FREQUENCY RANGE TESTED:	9 kHz-6.14 GHz
MANUFACTURER:	Medical Data Electronics 12723 Wentworth Street Arleta, CA 91331
REPRESENTATIVE:	Bill Costello
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92621

SUMMARY OF RESULTS

As received, the Medical Data Electronics Wireless Medical Telemetry Service (WMTS), 20701 was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 95 Subpart H

CONDITIONS FOR COMPLIANCE

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

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:	TEST PERSONNEL:
	
Joyce Walker, Quality Assurance Administrative Manager	Eddie Wong, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer states that the EUT tested by CKC Laboratories was a production unit.

EQUIPMENT UNDER TEST

Wireless Medical Telemetry Device
Manuf: Medical Data Electronics
Model: 20701
Serial: NA
FCC ID: Pending

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

TEMPERATURE AND HUMIDITY DURING TESTING
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

FCC 2.1033(c)(3) USER'S MANUAL
The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS
The emissions designator is 13K4F1D.

FCC 2.1033 (c)(5) FREQUENCY RANGE
The EUT operates in the 608.033-613.98 MHz frequency range.

FCC 2.1033 (c)(6) OPERATING POWER
EUT maximum measured EIRP = 0.006 watts.

FCC 2.1033 (c)(7) MAXIMUM POWER RATING
200mV/m

FCC 2.1033 (c)(8) DC VOLTAGES
The necessary information is contained in a separate document.

FCC 2.1033 (c)(9) TUNE-UP PROCEDURE
The necessary information is contained in a separate document.

FCC 2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION
The necessary information is contained in a separate document.

FCC 2.1033(c)(11) LABEL AND PLACEMENT
The necessary information is contained in a separate document.

FCC 2.1033(c)(12) SUBMITTAL PHOTOS
The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION
FSK

FCC 2.1033(c)(14)/2.1046/95.1115(a)(1) - RF POWER OUTPUT

See Appendix A for Test Setup Photos and Diagram
See Appendix B for Test Equipment

Max fundamental is 103 dBuV/m @3 meters; EIRP = 0.006 watts.

Power density formula:

$E = \sqrt{Pd \times 377}$

Pd	=	$E^2/377$	(a) P=I/R, R of free space = 377
Pt	=	Pd x 4 x 3.1416* r^2	(b) Power Density

103 dBuV	=	20 Log V/10e-6
103/20	=	Log V / 10e-6
5.15	=	log V/ 10e-6
antilog 5.15	=	V/10e-6
141253.7545	=	V/10e-6
V	=	141253.7545 x 10 e-6
V	=	0.1413V

From (a)

Pd	=	E^2 / 377
Pd	=	$0.14132V^2$ / 377
	=	5.9245e-5

From (b)
Using dist = r = 3 meter,

Pt	=	Pd x 4 x 3.146 * r^2
	=	5.9245e-5 x 4 x 3.1416 x 3^2
	=	6 e-3
	=	0.0006 Watt

Test Location:	CKC Laboratories, Inc. •110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112		
Customer:	**Medical Data Electronics**		
Specification:	**95.1115(a)(1) Fundamental Frequency Field Strength**		
Work Order #:	**82330**	Date:	10/19/2004
Test Type:	**Maximized emission**	Time:	09:55:02
Equipment:	**Wireless Medical Telemetry Device**	Sequence#:	1
Manufacturer:	Medical Data Electronics	Tested By:	Eddie Wong
Model:	20701		
S/N:	NA		

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

Function	Manufacturer	Model #	S/N
Wireless Medical Telemetry Device*	Medical Data Electronics	20701	NA

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The body worn, battery powered EUT is placed on the wooden table, set up to simulate normal operating condition. The 5 patient leads (antenna) are raised in a vertical manner terminated to a dedicated load. The SPO2 lead in placed flat on the wooden table. Freq: 608 MHz, 611MHz, 614 MHz. Frequency range of measurement = 9 kHz-6.14 GHz. 9 kHz -150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz-6140 GHz; RBW=1 MHz, VBW=1 MHz. SPO2 used: Ipod, Xpod, 3Vdc, 20ºC, 68% relative humidity.

Transducer Legend:

T1=Biconalog, SN 2451 040806	T2=Cable #10 051305
T3=Cable# 15 123004	T4=Preamp 8447D 071406

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	611.061M	104.8	+19.9	+0.5	+4.9	-27.1	+0.0	103.0	106.0 ipod	-3.0	Horiz
2	611.061M	104.5	+19.9	+0.5	+4.9	-27.1	+0.0	102.7	106.0 xpod	-3.3	Horiz
3	614.043M	103.1	+19.9	+0.5	+4.9	-27.1	+0.0	101.3	106.0 xpod	-4.7	Horiz
4	608.071M	102.3	+19.8	+0.5	+4.9	-27.1	+0.0	100.4	106.0 ipod	-5.6	Horiz
5	614.000M	102.2	+19.9	+0.5	+4.9	-27.1	+0.0	100.4	106.0 ipod	-5.6	Horiz
6	614.043M	100.4	+19.9	+0.5	+4.9	-27.1	+0.0	98.6	106.0 ipod	-7.4	Vert
7	608.071M	100.4	+19.8	+0.5	+4.9	-27.1	+0.0	98.5	106.0 xpod	-7.5	Horiz
8	611.061M	100.1	+19.9	+0.5	+4.9	-27.1	+0.0	98.3	106.0 ipod	-7.7	Vert
9	611.061M	99.5	+19.9	+0.5	+4.9	-27.1	+0.0	97.7	106.0 xpod	-8.3	Vert
10	608.071M	98.9	+19.8	+0.5	+4.9	-27.1	+0.0	97.0	106.0 xpod	-9.0	Vert

11	614.043M	97.4	+19.9	+0.5	+4.9	-27.1	+0.0	95.6	106.0 xpod	-10.4	Vert
12	608.065M	95.3	+19.8	+0.5	+4.9	-27.1	+0.0	93.4	106.0 ipod	-12.6	Vert

FCC 2.1033(c)(14)/2.1047(a) - MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

Not applicable to this unit.

FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS– MODULATION LIMITING RESPONSE

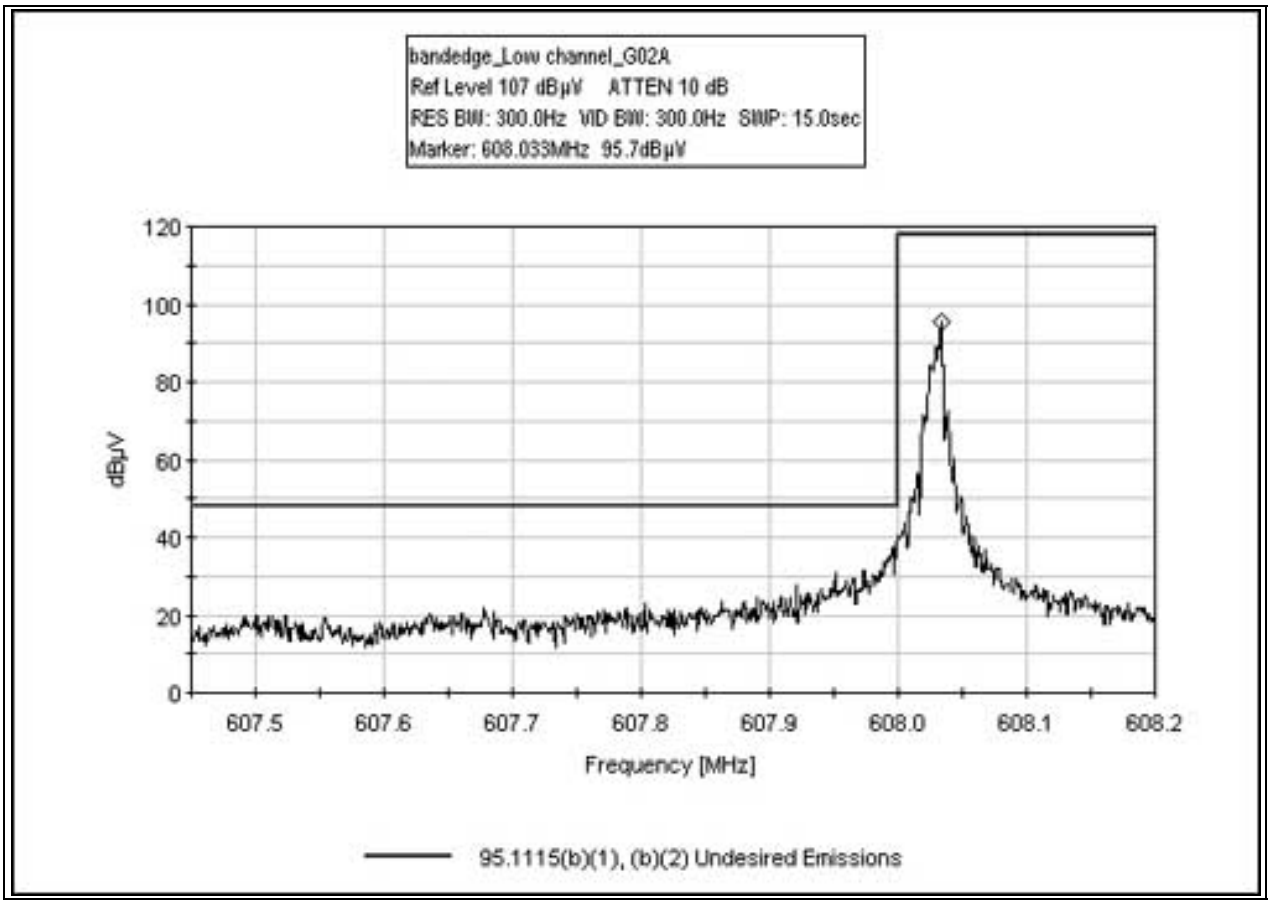
Not applicable to this unit.

FCC 2.1033(c)(14)/2.1049(i)- OCCUPIED BANDWIDTH

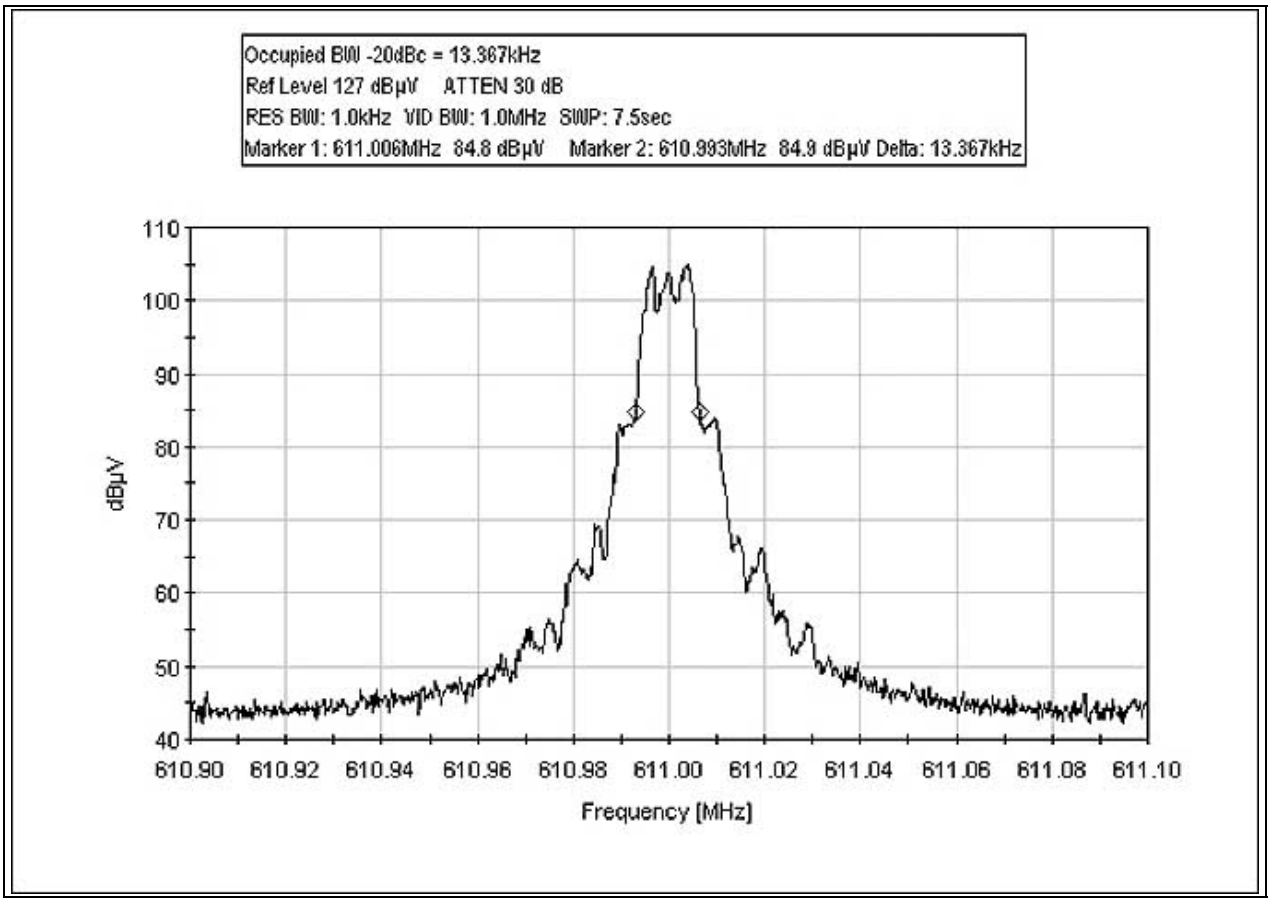
See Appendix A for Test Setup Photos and Diagram
See Appendix B for Test Equipment
Test Conditions:

The body worn, battery powered EUT is placed on the wooden table, set up to simulate normal operating condition. The 5 patient leads (antenna) are raised in a vertical manner terminated to a dedicated load. The SPO2 lead in placed flat on the wooden table.

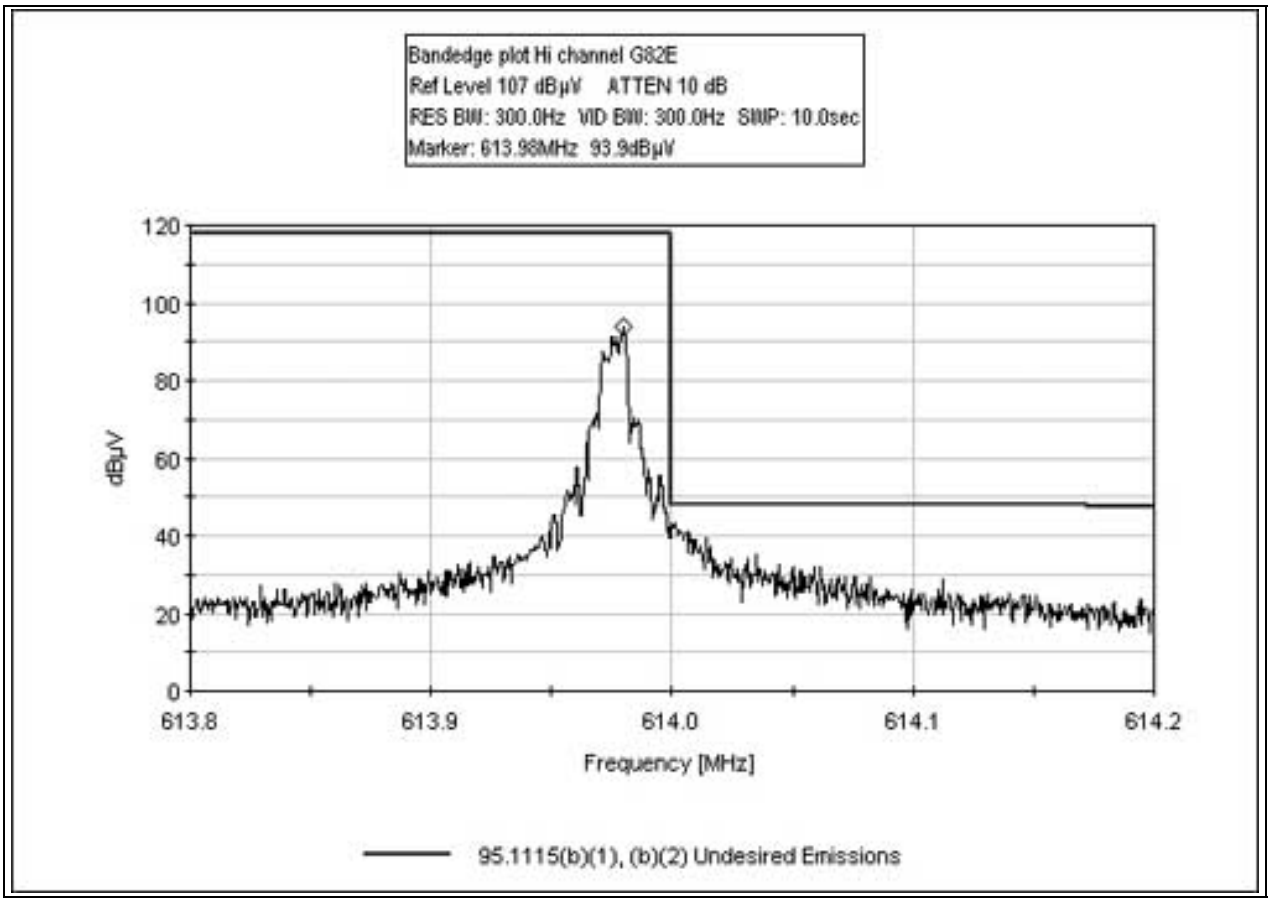
OCCUPIED BANDWIDTH (608.033 MHz)



OCCUPIED BANDWIDTH (611 MHz)



OCCUPIED BANDWIDTH (613.98 MHz)



FCC 2.1033(c)(14)/2.1051 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Not applicable to this unit.

FCC 2.1033(c)(14)/2.1053/95.1115(a)(1) - FIELD STRENGTH OF SPURIOUS RADIATION

See Appendix A for Test Setup Photos and Diagram
See Appendix B for Test Equipment

ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	6.14GHz	1 MHz

Test Conditions:

The body worn, battery powered EUT is placed on the wooden table, set up to simulate normal operating condition. The 5 patient leads (antenna) are raised in a vertical manner terminated to a dedicated load. The SPO2 lead in placed flat on the wooden table. Frequencies: 608.0125 MHz, 611 MHz & 613.9875 MHz. Frequency range of measurement = 9 kHz- 6.14 GHz. SPO2 used : Ipod. 3Vdc, 20ºC, 68% relative humidity.

The calculations used for the conversion are as follows:

7.78dBm	=	10 Log (X (w) / 1 e-03)
7.78 dBm/10	=	Log (X (w) / 1 e-3)
0.78	=	Log (X (w) / 1 e-3)
antilog 0.778	=	(X (w) / 1 e-3)
5.9979 (1 e-3)	=	X (w)
5.9979 10e-3	=	X (w)
Therefore X (w)	=	5.9979 10e-3
	=	0.00599791 Watt
	=	0.006 Watt

Operating Frequency: 608MHz - 614 MHz
Channels: Low, Mid and High
Highest Measured Output Power: 7.78 ERP(dBm)= 0.006 EIRP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 20.78 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
120.75	-26.1	Vert	33.88
139.75	-16	Vert	23.78
139.75	-22	Vert	29.78
148.80	-14.6	Vert	22.38
148.82	-19.5	Vert	27.28
160.04	-24	Vert	31.78
184.83	-30.8	Vert	38.58
192.82	-30.2	Vert	37.98
232.25	-28.9	Vert	36.68
240.05	-28.1	Vert	35.88
258.71	-29.4	Vert	37.18
261.15	-25.6	Vert	33.38
266.66	-24.3	Vert	32.08
300.04	-24.6	Vert	32.38
320.04	-33.1	Vert	40.88

	336.08	-27.8	Vert	35.58
	350.06	-31.5	Vert	39.28
	384.08	-31.5	Vert	39.28
	400.01	-30.6	Vert	38.38
	416.09	-30	Vert	37.78
	420.11	-29.9	Vert	37.68
	480.09	-29.9	Vert	37.68
	513.76	-31.7	Vert	39.48
	528.09	-29.1	Vert	36.88
	548.33	-30.4	Vert	38.18
	550.01	-26.9	Vert	34.68
	552.80	-27.5	Vert	35.28
	588.05	-28.3	Vert	36.08
	628.04	-25.7	Vert	33.48
	638.34	-26.4	Vert	34.18
	640.07	-20.7	Vert	28.48
	800.07	-23.7	Vert	31.48
	832.10	-26.9	Vert	34.68
	848.08	-25.3	Vert	33.08
	912.09	-19.8	Vert	27.58
	952.70	-21.7	Vert	29.48
	976.07	-27.1	Vert	34.88
	73.76	-35.9	Horiz	43.68
	114.95	-24.2	Horiz	31.98
	123.18	-25.8	Horiz	33.58
	130.79	-26.3	Horiz	34.08
	135.23	-29.1	Horiz	36.88
	150.99	-18.7	Horiz	26.48
	155.61	-22.6	Horiz	30.38
	162.48	-26.6	Horiz	34.38
	176.04	-27.6	Horiz	35.38
	179.80	-24.8	Horiz	32.58
	194.61	-30.2	Horiz	37.98
	197.15	-22.8	Horiz	30.58
	200.01	-25.3	Horiz	33.08
	206.25	-20	Horiz	27.78
	217.97	-21.2	Horiz	28.98
	228.54	-20.1	Horiz	27.88
	240.05	-24.1	Horiz	31.88
	253.55	-18.4	Horiz	26.18
	258.54	-17.6	Horiz	25.38
	279.38	-21.1	Horiz	28.88
	297.40	-24	Horiz	31.78
	336.08	-26.7	Horiz	34.48
	350.05	-28.3	Horiz	36.08

	400.06	-26.5	Horiz	34.28
	422.23	-28.8	Horiz	36.58
	432.08	-29.1	Horiz	36.88
	450.03	-31.9	Horiz	39.68
	480.09	-24	Horiz	31.78
	512.09	-24.2	Horiz	31.98
	528.07	-28	Horiz	35.78
	531.31	-28.7	Horiz	36.48
	544.06	-24	Horiz	31.78
	560.06	-28.9	Horiz	36.68
	576.08	-22.8	Horiz	30.58
	588.06	-26.5	Horiz	34.28
	592.06	-29.2	Horiz	36.98
	628.05	-27.1	Horiz	34.88
	640.06	-21	Horiz	28.78
	672.07	-22.3	Horiz	30.08
	752.08	-23.2	Horiz	30.98
	800.08	-21.6	Horiz	29.38
	840.09	-26.2	Horiz	33.98
	896.06	-24.3	Horiz	32.08
	944.08	-23.2	Horiz	30.98
	960.10	-30.3	Horiz	38.08
	992.10	-30.7	Horiz	38.48
	1,824.05	-31.9	Horiz	39.68
	3,648.05	-28.7	Horiz	36.48
	3,648.05	-29.1	Vert	36.88
	1,824.05	-32.8	Vert	40.58
	144.19	-19.2	Horiz	26.98
	144.19	-13.3	Horiz	21.08
	136.32	-20.2	Vert	27.98
	136.32	-13.2	Vert	20.98
	114.95	-20.3	Vert	28.08
	148.61	-20.8	Vert	28.58
	148.61	-16.5	Vert	24.28
	137.44	-21.2	Horiz	28.98

	257.95	-21.7	Horiz	29.48
	257.95	-14.6	Horiz	22.38
	130.69	-21.7	Vert	29.48
	130.69	-14.5	Vert	22.28
	186.10	-21.9	Horiz	29.68
	220.76	-22.2	Horiz	29.98
	220.76	-15.3	Horiz	23.08
	299.71	-22.3	Horiz	30.08
	67.81	-22.4	Vert	30.18
	121.75	-22.5	Vert	30.28
	1,221.95	-23.7	Vert	31.48
	213.88	-23.7	Horiz	31.48
	200.04	-24.1	Horiz	31.88
	912.11	-24.2	Vert	31.98
	480.09	-24.9	Horiz	32.68
	123.84	-24.9	Horiz	32.68
	135.21	-25	Horiz	32.78
	904.79	-25.1	Vert	32.88
	512.04	-25.3	Vert	33.08
	448.08	-25.5	Horiz	33.28
	336.08	-25.9	Horiz	33.68
	265.70	-26.1	Vert	33.88
	288.05	-26.7	Vert	34.48
	56.82	-26.9	Vert	34.68
	256.05	-27	Vert	34.78
	3,666.05	-27.2	Horiz	34.98
	275.51	-27.6	Vert	35.38
	400.07	-27.8	Horiz	35.58
	848.07	-28.3	Vert	36.08
	176.05	-29.1	Horiz	36.88
	300.04	-29.8	Vert	37.58
	214.76	-30	Vert	37.78
	72.06	-30.2	Vert	37.98
	560.08	-30.3	Vert	38.08
	448.08	-30.5	Vert	38.28

	400.07	-31	Vert	38.78
	194.02	-31.3	Vert	39.08
	1,833.05	-34	Vert	41.78
	172.08	-34.8	Vert	42.58
	263.86	-17.3	Horiz	25.08
	153.33	-17.7	Vert	25.48
	240.07	-18.6	Horiz	26.38
	130.90	-18.9	Vert	26.68
	137.56	-19	Vert	26.78
	864.12	-19.2	Horiz	26.98
	151.10	-19.8	Horiz	27.58
	151.10	-14.6	Horiz	22.38
	142.13	-19.8	Vert	27.58
	142.13	-16.1	Vert	23.88
	152.12	-20	Vert	27.78
	143.21	-20.1	Horiz	27.88
	800.07	-20.5	Horiz	28.28
	944.06	-20.5	Vert	28.28
	123.85	-20.6	Horiz	28.38
	640.07	-20.7	Vert	28.48
	912.12	-20.8	Vert	28.58
	146.58	-21	Vert	28.78
	146.58	-16.6	Vert	24.38
	143.22	-22.4	Horiz	30.18
	123.04	-22.6	Vert	30.38
	266.64	-22.7	Vert	30.48
	1,228.25	-22.9	Horiz	30.68
	148.74	-23.3	Horiz	31.08
	225.51	-23.4	Horiz	31.18
	512.08	-23.8	Horiz	31.58
	119.49	-23.9	Horiz	31.68
	928.09	-23.9	Vert	31.68
	800.09	-24.2	Vert	31.98
	912.11	-24.7	Horiz	32.48
	768.06	-24.8	Vert	32.58
	288.05	-25.1	Vert	32.88
	832.07	-25.4	Vert	33.18
	193.91	-25.5	Horiz	33.28
	480.08	-25.7	Horiz	33.48
	848.08	-25.9	Vert	33.68

	185.06	-26	Horiz	33.78
	904.79	-26.2	Vert	33.98
	673.78	-26.2	Vert	33.98
	3,684.25	-26.8	Horiz	34.58
	400.02	-26.9	Horiz	34.68
	207.38	-27.1	Horiz	34.88
	656.09	-27.1	Vert	34.88
	550.05	-27.4	Horiz	35.18
	736.09	-27.4	Vert	35.18
	525.02	-27.5	Horiz	35.28
	960.12	-27.8	Horiz	35.58
	176.05	-27.8	Horiz	35.58
	432.08	-27.9	Vert	35.68
	240.06	-27.9	Vert	35.68
	480.10	-28.1	Vert	35.88
	976.08	-28.2	Horiz	35.98
	425.04	-28.2	Horiz	35.98
	976.11	-28.2	Vert	35.98
	560.04	-28.3	Horiz	36.08
	444.51	-28.3	Horiz	36.08
	400.04	-28.7	Vert	36.48
	422.22	-29	Horiz	36.78
	1,841.80	-29.2	Vert	36.98
	208.03	-29.4	Vert	37.18
	208.03	-29.5	Horiz	37.28
	528.12	-29.6	Vert	37.38
	992.07	-29.9	Horiz	37.68
	1,842.25	-30	Horiz	37.78
	372.07	-30	Horiz	37.78
	72.05	-30.8	Vert	38.58
	468.05	-31	Vert	38.78
	64.05	-31.2	Vert	38.98
	176.05	-31.3	Vert	39.08
	420.05	-31.4	Vert	39.18
	384.07	-31.6	Vert	39.38
	456.08	-31.7	Horiz	39.48

Test Conditions:

The body worn, battery powered EUT is placed on the wooden table, set up to simulate normal operating condition. The 5 patient leads (antenna) are raised in a vertical manner terminated to a dedicated load. The SPO2 lead in placed flat on the wooden table. Frequencies: 608.0125 MHz, 611 MHz & 613.9875 MHz. Frequency range of measurement = 9 kHz- 6.14 GHz. SPO2 used : Xpod. 3Vdc, 20ºC, 68% relative humidity.

Operating Frequency: 608MHz - 614 MHz
Channels: Low, Mid and High
Highest Measured Output Power: 7.78 ERP(dBm)= 0.006 EIRP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 20.78 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
228.54	-15	Horiz	22.78
253.55	-17.7	Vert	25.48
217.70	-17.8	Horiz	25.58
258.54	-18	Vert	25.78
206.25	-18.1	Horiz	25.88
206.25	-14.3	Horiz	22.08
217.99	-18.1	Vert	25.88
151.00	-18.2	Vert	25.98
253.54	-18.4	Horiz	26.18
206.25	-19.2	Vert	26.98
228.54	-20.1	Vert	27.88
228.54	-14.8	Vert	22.58
148.80	-21	Vert	28.78
258.51	-21.6	Horiz	29.38
258.53	-14.6	Horiz	22.38

	800.07	-21.7	Horiz	29.48
	640.04	-21.9	Horiz	29.68
	279.31	-22.5	Horiz	30.28
	800.08	-22.9	Vert	30.68
	139.70	-23.6	Vert	31.38
	279.37	-23.8	Vert	31.58
	640.08	-23.9	Vert	31.68
	952.70	-24.6	Vert	32.38
	912.00	-27.9	Vert	35.68
	114.95	-13.8	Vert	21.58
	257.95	-17.7	Horiz	25.48
	121.76	-17.7	Vert	25.48
	186.10	-19	Horiz	26.78
	220.76	-20	Horiz	27.78
	220.76	-14.2	Horiz	21.98
	136.32	-20	Vert	27.78
	130.69	-20.7	Vert	28.48
	299.71	-21.2	Horiz	28.98
	67.80	-23.5	Vert	31.28
	137.44	-23.6	Horiz	31.38
	144.19	-25.9	Horiz	33.68
	143.21	-18	Horiz	25.78
	240.19	-18	Horiz	25.78
	142.13	-19.1	Vert	26.88
	263.86	-19.5	Horiz	27.28
	137.56	-19.7	Vert	27.48
	130.90	-19.7	Vert	27.48
	130.90	-16.5	Vert	24.28
	146.58	-19.8	Vert	27.58
	143.22	-20.2	Horiz	27.98
	123.00	-21	Vert	28.78
	123.00	-17.8	Vert	25.58
	151.10	-21.1	Horiz	28.88
	151.10	-14.4	Horiz	22.18
	944.06	-21.6	Vert	29.38
	864.11	-22.3	Horiz	30.08
	152.12	-23	Vert	30.78
	153.33	-24.6	Vert	32.38
	912.12	-25	Vert	32.78
	800.00	-26.2	Horiz	33.98
	123.85	-27.6	Horiz	35.38
	640.00	-28.9	Vert	36.68
	266.63	-32.7	Vert	40.48

FCC 2.1033(c)(14)/2.1055/95.1115(e)- FREQUENCY STABILITY

See Appendix A for Test Setup Photos and Diagram
See Appendix B for Test Equipment
Test Conditions:

The EUT is placed in the temperature chamber. RF signal is monitored from the antenna port. A spectrum analyzer is employed to measure the frequency stability of the EUT.

Customer:	Medical Data Electronics
WO#:	82330
Date:	19-Jul-79
Test Engineer:	E. wong
Device Model #:	20701
Operating Voltage:	3 **VDC**
Frequency Limit:	0 **MHz from 608 - 614 MHz**

Temperature Variations

		Channel 1 (MHz)	Dev. (MHz)	Channel 480 (MHz)	Dev. (MHz)
Channel Frequency:		**608.000000**		**614.000000**	
Temp (C)	Voltage				
-30	3	608.003450	0.00345	613.983500	-0.01650
-20	3	608.001950	0.00195	613.987700	-0.01230
-10	3	608.005250	0.00525	613.989650	-0.01035
0	3	608.004950	0.00495	613.989850	-0.01015
10	3	608.006600	0.00660	613.999300	-0.00070
20	3	608.007100	0.00710	613.991250	-0.00875
30	3	608.006400	0.00640	613.991400	-0.00860
40	3	608.005550	0.00555	613.990700	-0.00930
50	3	608.006000	0.00600	613.990400	-0.00960

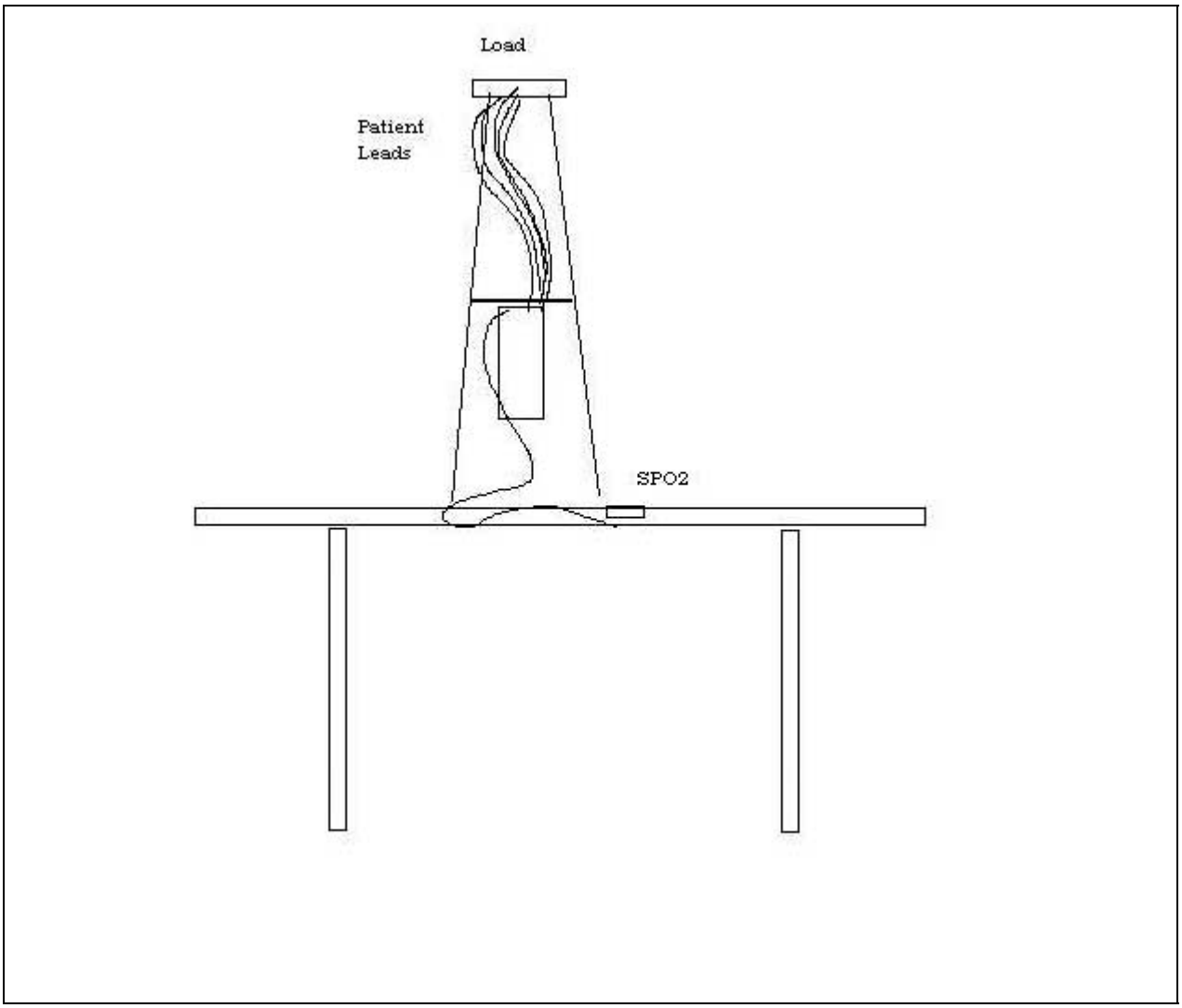
Voltage Variations (±15%)

Temp (C)	Voltage	Channel 1 (MHz)	Dev. (MHz)	Channel 2 (MHz)	Dev. (MHz)
20	2.3	608.006750	0.00675	613.991200	-0.00880
20	3.0	608.007100	0.00710	613.991250	-0.00875
Max Deviation (MHz)			**0.00710**		**-0.00070**
			PASS		**PASS**

APPENDIX A

TEST SETUP DIAGRAM AND PHOTOGRAPHS

EQUIPMENT TEST SETUP DIAGRAM



PHOTOGRAPH SHOWING RADIATED EMISSIONS & OCCUPIED BANDWIDTH

Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View

PHOTOGRAPH SHOWING TEMPERATURE TESTING

APPENDIX B

TEST EQUIPMENT LIST – EMISSIONS

OBW Testing
95.1115(a)(1)
95.1115(b)(1) & (2)

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105
30-1000MHz						
Biconilog Antenna	01995	Chase	CBL6111C	2451	040804	040806
Pre-amp	00309	HP	8447D	1937A02548	071404	071406
Antenna cable	NA	NA	RG214	Cable#15	123003	123004
Pre-amp to SA cable	NA	Pasternack	RG223/U	Cable#10	051304	051305
1000-6140MHz						
Horn Antenna	0849	EMCO	3115	6246	072204	072206
Microwave Pre-amp	00786	HP	83017A	3123A00281	081204	081206
Heliax Antenna cable	NA	Andrew	LDF1-50	Cable#20	091604	091605
24” SMA Cable	2604	Argosy	UFA147A	0-0360-200200	012304	012305
1.5 GHz HPF	02116	HP	84300-80037	3643A00027	060603	060605
9kHz-30MHz						
Loop Antenna	00314	EMCO	6502	2014	062804	062806

95.1115(e) Frequency Stability

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806
Temp chamber	01878	Thermaltron	S1.2	NA	070904	070906
Data Logger	02549	Agilent	34970A	US37031892	050404	050405