

FCC PART 15, SUBPART B and C
TEST METHOD: ANSI C63.4-1992
TEST REPORT

for

BLOOD PRESSURE CUFF INFLATOR

Model: TD312

Prepared for

D.E. HOKANSON, INC.
 12840 NE 21ST PLACE
 BELLEVUE, WASHINGTON 98005

COMPATIBLE ELECTRONICS INC.
 114 OLINDA DRIVE
 BREA, CALIFORNIA 92823
 (714) 579-0500

DATE: JANUARY 12, 2001

	REPORT BODY	APPENDICES					TOTAL
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2	Plot Map And Layout of Test Site



GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full without the written permission of Compatible Electronics.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: Blood Pressure Cuff Inflator
Model: TD312
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: D.E. Hankinson, Inc.
12840 NE 21st Place
Bellevue, Washington 98005

Test Date: January 11, 2001

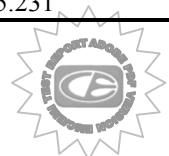
Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B and C, Sections 15.205, 15.209, and 15.231

Test Procedure: ANSI C63.4: 1992

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 450 kHz - 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B
2	Radiated RF Emissions, 10 kHz - 4200 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Blood Pressure Cuff Inflator Model: TD312. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by CFR Title 47, Part 15, Subpart B and C, sections 15.205, 15.209, and 15.231.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

D.E. Hokanson, Inc.

D.E. Hokanson	President
Mark VanSteenkiste	Associate Engineer

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
Scott McCutchan	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on January 11, 2001

2.5 Disposition of the Test Sample

The test sample has not been returned to D.E. Hokanson, Inc. as of January 12, 2001.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network



3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Subpart C	FCC Rules – Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 1992	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz



4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

The Blood Pressure Cuff Inflator Model: TD312 (EUT) was connected to a non-conductive hose that would connect to a pressure cuff for measuring blood pressure. The EUT was tested in 3 orthogonal axis. The EUT was continuously transmitting for testing purposes.

Note: The EUT also has a port where a battery charger can be connected. This port will only be used to charge the batteries and the EUT does not function during this operation. The conducted emissions were operated in this mode of operation. The spurious radiated emissions for this mode of operation were verified that they were not higher than when the EUT operates in normal operation.

Note 2: The EUT, when the store button is hit, the EUT is on for 6 msec to transmit a number (blood pressure reading). To take a blood pressure reading, the user inflates a blood pressure cuff, takes the reading, then slowly releases the pressure. This process takes on average about 1 minute. This means there is at least 10 seconds between transmissions.

Please see Appendix D for the data sheets.



4.1.1 Cable Construction and Termination

Cable 1

This is a 6 foot unshielded cable connecting the EUT to the battery charger. It has a 1/8 inch power connector at the EUT end and is hard wired into the battery charger.

Note: The other cable on the EUT is a non-conductive hose that would normally connect to a pressure cuff for measuring blood pressure.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
BLOOD PRESSURE CUFF INFLATOR (EUT)	D.E. HOKANSON, INC.	TD312	N/A	PFG-TD312
BATTERY CHARGER	D.E. HOKANSON, INC.	TD312	N/A	N/A



5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08768	June 24, 2000	June 24, 2001
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	June 24, 2000	June 24, 2001
Preamplifier	Com Power	PA-102	1017	Jan. 5, 2001	Jan. 5, 2002
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	June 24, 2000	June 24, 2001
Biconical Antenna	Com Power	AB-100	1548	Oct. 16, 2000	Oct. 16, 2001
Log Periodic Antenna	Com Power	AL-100	16101	Oct. 16, 2000	Oct. 16, 2001
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	HP98561A	2522A05178	N/A	N/A
Printer	Hewlett Packard	2225A	2925S33268	N/A	N/A
Plotter	Hewlett Packard	7440A	8726K38417	N/A	N/A
Microwave Preamplifier	Com-Power	PA-122	25195	Jan. 9, 2001	Jan. 9, 2002
Horn Antenna	Com-Power	AH-118	10073	Jan. 5, 2001	Jan. 5, 2002
Loop Antenna	Com-Power	AL-130	25309	May 25, 2000	May 25, 2001



6. TEST SITE DESCRIPTION

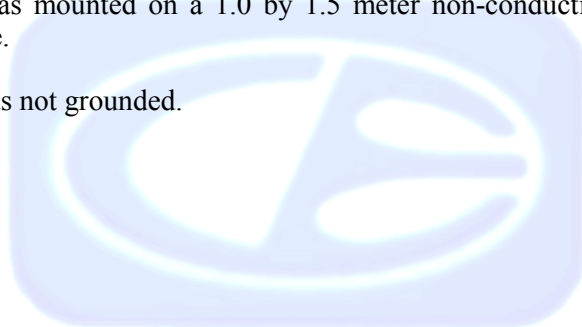
6.1 Test Facility Description

Please refer to section 2.1 and 7.2 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.



7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 1992. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics Conducted Emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix D.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B for conducted emissions.



7.1 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps. The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets. The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 4.2 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 1992. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data.



7.2 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the Blood Pressure Cuff Inflator. A plot of the -20 dB bandwidth is in Appendix D.



8. CONCLUSIONS

The Blood Pressure Cuff Inflator Model: TD312 meets all of the specification limits defined in CFR Title 47, Part 15, Subpart B and C, sections 15.205, 15.209, and 15.231.



APPENDIX A

MODIFICATIONS TO THE EUT



MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.231 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

Modifications:

No modifications were made to the EUT.



APPENDIX B

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***



ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Blood Pressure Cuff Inflator
Model: TD312
S/N: N/A

There were no additional models covered under this report.



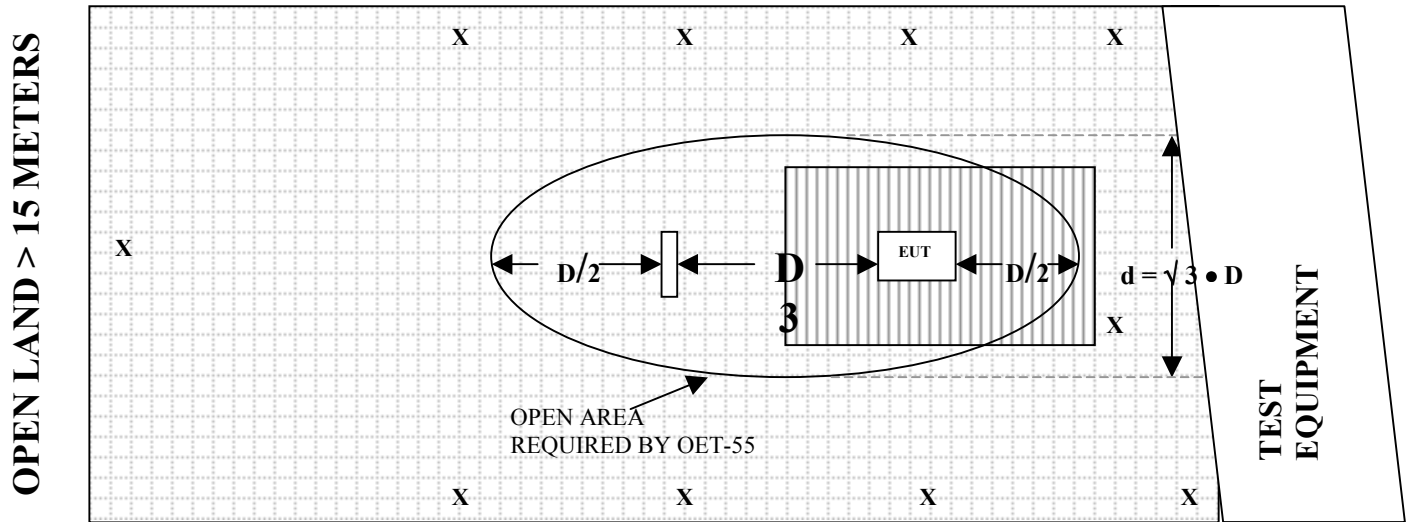
APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

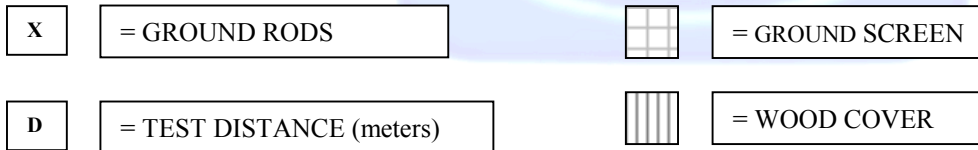


FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS





FRONT VIEW

D.E. HOKANSON, INC.
BLOOD PRESSURE CUFF INFLATOR
MODEL: TD312
FCC SUBPART C - RADIATED EMISSIONS – 01-11-01

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

D.E. HOKANSON, INC.
BLOOD PRESSURE CUFF INFLATOR
MODEL: TD312
FCC SUBPART C - RADIATED EMISSIONS – 01-11-01

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





FRONT VIEW

D.E. HOKANSON, INC.
BLOOD PRESSURE CUFF INFLATOR
MODEL: TD312
FCC SUBPART B - CONDUCTED EMISSIONS – 01-11-01

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

D.E. HOKANSON, INC.
BLOOD PRESSURE CUFF INFLATOR
MODEL: TD312
FCC SUBPART B - CONDUCTED EMISSIONS – 01-11-01

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



COM-POWER AB-100
BICONICAL ANTENNA

S/N: 01548

CALIBRATION DATE: OCTOBER 16, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	14.01	120	10.33
35	13.63	125	11.61
40	13.26	140	12.70
45	11.62	150	12.95
50	11.03	160	13.58
60	8.52	175	14.82
70	8.94	180	14.84
80	8.17	200	14.80
90	8.08	250	16.42
100	8.64	300	20.26



COM-POWER AL-100
LOG PERIODIC ANTENNA

S/N: 16101

CALIBRATION DATE: OCTOBER 16, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.96	700	19.24
400	16.92	800	21.37
500	16.73	900	22.13
600	16.32	1000	22.19



COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 5, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	39.0	300	38.9
40	39.2	350	38.9
50	39.2	400	38.6
60	39.2	450	38.5
70	38.8	500	38.7
80	38.6	550	38.4
90	38.5	600	38.8
100	38.7	650	38.5
125	39.2	700	38.6
150	38.8	750	38.1
175	38.8	800	37.9
200	39.0	850	38.0
225	38.8	900	37.8
250	38.8	950	36.9
275	39.0	1000	38.2



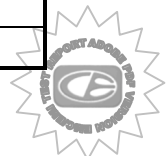
COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: JANUARY 9, 2001

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	33.1	9.5	30.7
1.1	33.0	10.0	31.6
1.2	33.2	11.0	30.6
1.3	33.0	12.0	28.5
1.4	32.4	13.0	31.5
1.5	32.3	14.0	33.2
1.6	32.1	15.0	31.5
1.7	32.0	16.0	30.2
1.8	31.8	17.0	31.6
1.9	32.2	18.0	31.7
2.0	32.6		
2.5	31.9		
3.0	31.7		
3.5	31.7		
4.0	32.3		
4.5	31.5		
5.0	32.3		
5.5	34.2		
6.0	30.9		
6.5	32.0		
7.0	32.1		
7.5	33.0		
8.0	31.9		
8.5	31.9		
9.0	31.3		



COM-POWER AH-118

HORN ANTENNA

S/N: 10073

CALIBRATION DATE: JANUARY 5, 2001

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	26.1	9.5	41.6
1.5	29.1	10.0	42.2
2.0	32.8	10.5	40.6
2.5	32.6	11.0	40.4
3.0	31.5	11.5	42.0
3.5	31.9	12.0	43.9
4.0	33.2	12.5	44.6
4.5	34.0	13.0	43.5
5.0	35.7	13.5	43.0
5.5	35.6	14.0	43.6
6.0	36.4	14.5	45.2
6.5	37.1	15.0	44.3
7.0	40.1	15.5	44.3
7.5	41.0	16.0	44.9
8.0	40.8	16.5	43.8
8.5	39.5	17.0	44.5
9.0	40.0	17.5	47.1
		18.0	48.5

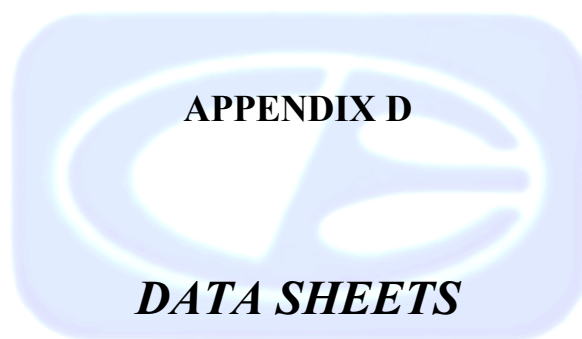


Com-Power Corporation

(949) 587-9800

Antenna Calibration

Antenna Type:		Loop Antenna
Model:		AL-130
Serial Number:		25309
Calibration Date:		05/25/00
Frequency MHz	Magnetic (dB/m)	Electric dB/m
0.009	-41.0	10.5
0.01	-41.0	10.5
0.02	-41.9	9.6
0.05	-41.9	9.6
0.075	-41.8	9.7
0.1	-42.2	9.3
0.15	-42.2	9.3
0.25	-40.7	10.8
0.5	-42.1	9.4
0.75	-40.9	10.6
1	-41.3	10.2
2	-40.8	10.7
3	-41.1	10.4
4	-41.2	10.3
5	-40.7	10.8
10	-40.6	10.9
15	-42.0	9.5
20	-42.0	9.5
25	-42.9	8.6
30	-42.3	9.2
Trans. Antenna Height		2 meter
Receiving Antenna Height		2 meter



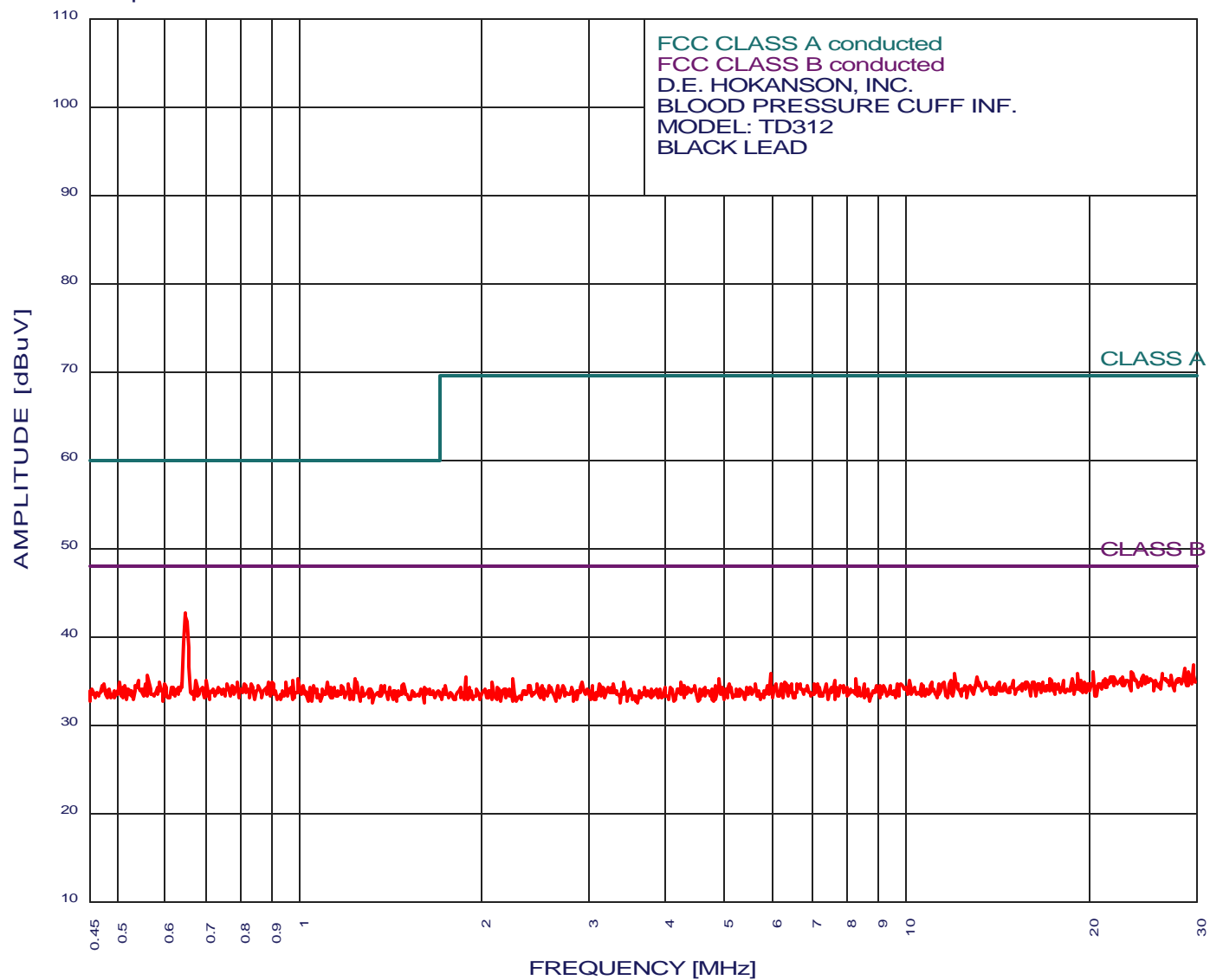
CONDUCTED EMISSIONS

DATA SHEETS



EMISSION LEVEL [dBuV] PEAK
Graph for **Peak**

1/11/2001 13:32:09



COMPATIBLE
ELECTRONICS



**COMPATIBLE
ELECTRONICS**

1/11/2001 13:32:09

D.E. HOKANSON, INC.
BLOOD PRESSURE CUFF INF.
MODEL: TD312
FCC B - BLACK LEAD
TEST ENGINEER : KYLE FUJIMOTO

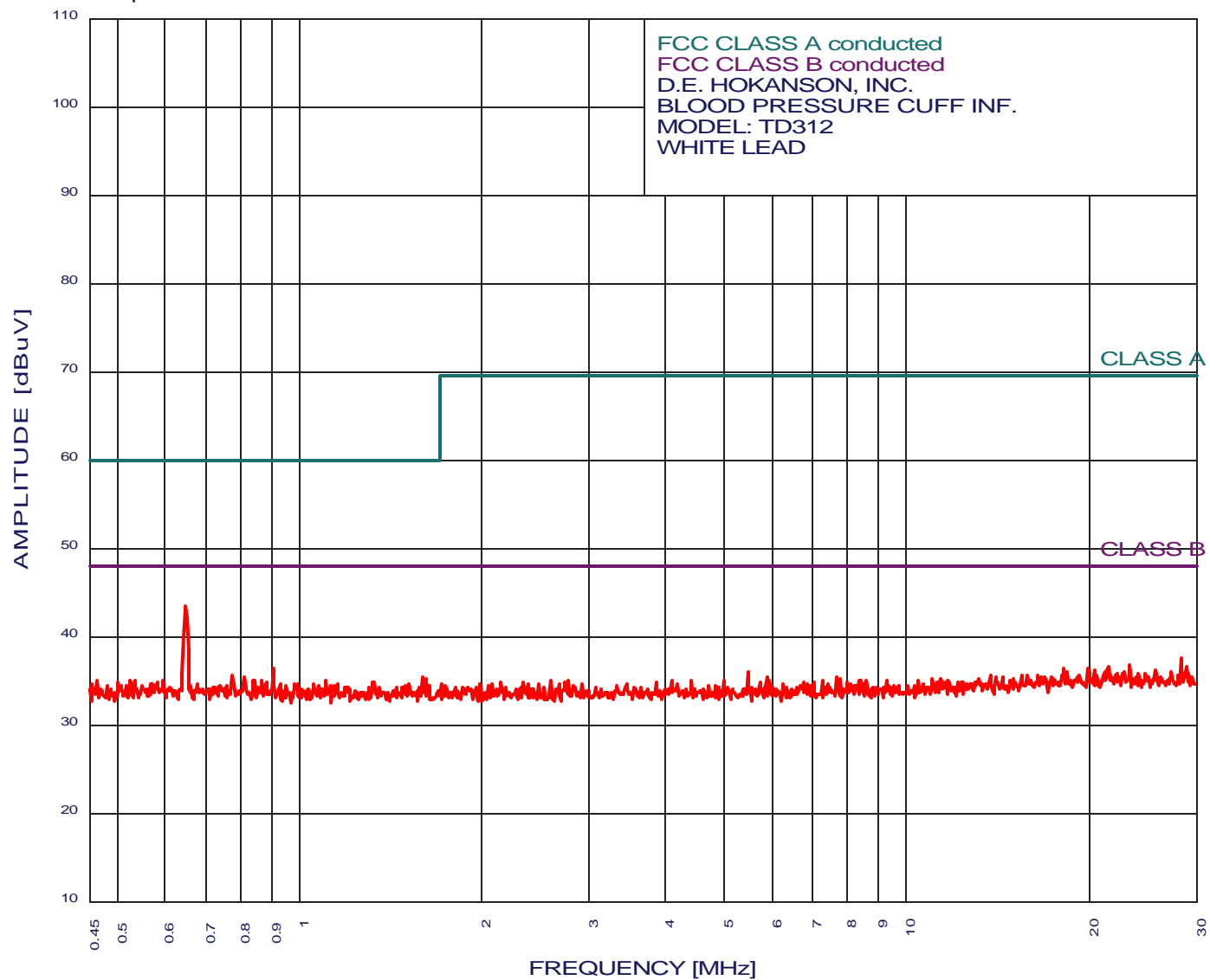
30 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.646	42.59	48.00	-5.41
2	29.637	36.81	48.00	-11.19
3	28.671	36.37	48.00	-11.63
4	29.154	35.99	48.00	-12.01
5	20.317	35.92	48.00	-12.08
6	23.522	35.90	48.00	-12.10
7	19.156	35.76	48.00	-12.24
8	12.013	35.71	48.00	-12.29
9	5.959	35.71	48.00	-12.29
10	26.361	35.69	48.00	-12.31
11	24.544	35.63	48.00	-12.37
12	27.361	35.53	48.00	-12.47
13	0.563	35.49	48.00	-12.51
14	13.066	35.46	48.00	-12.54
15	22.003	35.44	48.00	-12.56
16	1.876	35.31	48.00	-12.69
17	17.248	35.27	48.00	-12.73
18	18.759	35.24	48.00	-12.76
19	0.996	35.20	48.00	-12.80
20	4.914	35.16	48.00	-12.84
21	8.270	35.12	48.00	-12.88
22	2.249	35.11	48.00	-12.89
23	1.233	35.10	48.00	-12.90
24	0.703	35.09	48.00	-12.91
25	0.674	35.09	48.00	-12.91
26	0.542	35.09	48.00	-12.91
27	7.604	35.09	48.00	-12.91
28	10.111	35.01	48.00	-12.99
29	11.813	35.00	48.00	-13.00
30	0.975	35.00	48.00	-13.00

EMISSION LEVEL [dBuV] PEAK
Graph for **Peak**

1/11/2001 13:33:56



COMPATIBLE
ELECTRONICS



**COMPATIBLE
ELECTRONICS**

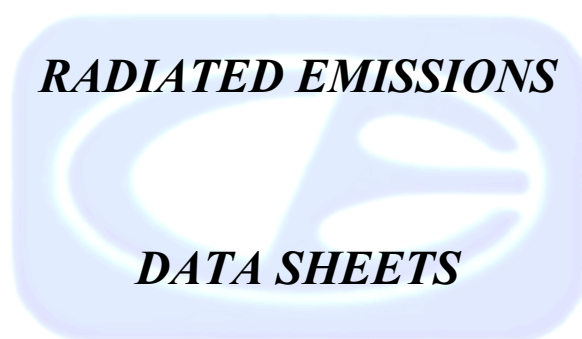
1/11/2001 13:33:56

D.E. HOKANSON, INC.
BLOOD PRESSURE CUFF INF.
MODEL: TD312
FCC B - WHITE LEAD
TEST ENGINEER : KYLE FUJIMOTO

30 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.649	43.39	48.00	-4.61
2	28.308	37.50	48.00	-10.50
3	23.318	36.69	48.00	-11.31
4	21.533	36.65	48.00	-11.35
5	28.912	36.63	48.00	-11.37
6	18.203	36.30	48.00	-11.70
7	0.904	36.30	48.00	-11.70
8	19.885	36.29	48.00	-11.71
9	20.403	36.18	48.00	-11.82
10	25.694	36.09	48.00	-11.91
11	27.361	36.06	48.00	-11.94
12	5.479	36.03	48.00	-11.97
13	18.362	36.02	48.00	-11.98
14	22.848	35.97	48.00	-12.03
15	24.748	35.85	48.00	-12.15
16	29.154	35.84	48.00	-12.16
17	22.191	35.84	48.00	-12.16
18	24.135	35.82	48.00	-12.18
19	19.236	35.63	48.00	-12.37
20	16.462	35.60	48.00	-12.40
21	15.456	35.59	48.00	-12.41
22	20.576	35.54	48.00	-12.46
23	15.791	35.53	48.00	-12.47
24	0.774	35.49	48.00	-12.51
25	13.747	35.49	48.00	-12.51
26	14.396	35.47	48.00	-12.53
27	29.517	35.46	48.00	-12.54
28	23.931	35.42	48.00	-12.58
29	1.593	35.40	48.00	-12.60
30	5.886	35.35	48.00	-12.65



RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
418.0000	71.2	51.2 A	H	1.0	90	X	LOW	16.9	3.3	0.0	71.3	-1.0	72.3	
418.0000	58.0	38.0 A	H	1.0	180	Y	LOW	16.9	3.3	0.0	58.1	-14.2	72.3	
418.0000	62.0	42.0 A	H	1.0	90	Z	LOW	16.9	3.3	0.0	62.1	-10.2	72.3	
418.0000	58.3	68.3 A	V	1.0	90	X	LOW	16.9	3.3	0.0	88.4	16.1	72.3	
418.0000	68.0	48.0 A	V	1.0	0	Y	LOW	16.9	3.3	0.0	68.1	-4.2	72.3	
418.0000	65.5	45.5 A	V	1.0	90	Z	LOW	16.9	3.3	0.0	65.6	-6.7	72.3	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
836.0000	72.2	52.2 A	H	1.0	90	X	LOW	21.6	4.8	38.0	40.6	-11.7	52.3	
836.0000	56.3	36.3 A	H	1.0	90	Y	LOW	21.6	4.8	38.0	24.7	-27.6	52.3	
836.0000	69.2	49.2 A	H	1.0	90	Z	LOW	21.6	4.8	38.0	37.6	-14.7	52.3	
836.0000	54.2	49.2 A	V	1.0	90	X	LOW	21.6	4.8	38.0	37.6	-14.7	52.3	
836.0000	70.4	50.4 A	V	1.0	90	Y	LOW	21.6	4.8	38.0	38.8	-13.5	52.3	
836.0000	55.6	35.6 A	V	1.0	90	Z	LOW	21.6	4.8	38.0	24.0	-28.3	52.3	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1254.0000	46.2	26.2 A	H	1.5	0	X	LOW	27.9	2.6	33.0	23.7	-28.6	52.3	
1254.0000	47.6	27.6 A	H	1.5	90	Y	LOW	27.9	2.6	33.0	25.1	-27.2	52.3	
1254.0000	41.7	21.7 A	H	1.0	180	Z	LOW	27.9	2.6	33.0	19.2	-33.1	52.3	
1254.0000	46.5	26.5 A	V	2.0	90	X	LOW	27.9	2.6	33.0	24.0	-28.3	52.3	
1254.0000	43.5	23.5 A	V	2.0	0	Y	LOW	27.9	2.6	33.0	21.0	-31.3	52.3	
1254.0000	46.5	26.5 A	V	1.5	270	Z	LOW	27.9	2.6	33.0	24.0	-28.3	52.3	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1672.0000	41.7	21.7 A	H	1.0	90	X	LOW	30.6	3.3	32.0	23.6	-30.4	54.0	
1672.0000	46.7	26.7 A	H	1.5	180	Y	LOW	30.6	3.3	32.0	28.6	-25.4	54.0	
1672.0000	41.9	21.9 A	H	1.0	0	Z	LOW	30.6	3.3	32.0	23.8	-30.2	54.0	
1672.0000	45.2	25.2 A	V	2.0	90	X	LOW	30.6	3.3	32.0	27.1	-26.9	54.0	
1672.0000	43.7	23.7 A	V	1.0	90	Y	LOW	30.6	3.3	32.0	25.6	-28.4	54.0	
1672.0000	42.5	22.5 A	V	1.5	90	Z	LOW	30.6	3.3	32.0	24.4	-29.6	54.0	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2090.0000	45.6	25.6 A	H	1.5	90	X	LOW	32.8	3.5	32.6	29.3	-23.0	52.3	
2090.0000	47.2	27.2 A	H	1.0	180	Y	LOW	32.8	3.5	32.6	30.9	-21.4	52.3	
2090.0000	46.3	26.3 A	H	1.6	270	Z	LOW	32.8	3.5	32.6	30.0	-22.3	52.3	
2090.0000	45.8	25.8 A	V	1.0	0	X	LOW	32.8	3.5	32.6	29.5	-22.8	52.3	
2090.0000	46.7	26.7 A	V	1.5	90	Y	LOW	32.8	3.5	32.6	30.4	-21.9	52.3	
2090.0000	50.1	30.1 A	V	1.0	0	Z	LOW	32.8	3.5	32.6	33.8	-18.5	52.3	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
** DELTA = SPEC LIMIT - CORRECTED READING

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2508.0000	38.5	18.5 A	H	1.5	90	X	LOW	32.6	3.5	31.9	22.7	-29.6	52.3	
2508.0000	40.1	20.1 A	H	1.0	180	Y	LOW	32.6	3.5	31.9	24.3	-28.0	52.3	
2508.0000	37.3	17.3 A	H	2.0	90	Z	LOW	32.6	3.5	31.9	21.5	-30.8	52.3	
2508.0000	39.9	19.9 A	V	1.5	0	X	LOW	32.6	3.5	31.9	24.1	-28.2	52.3	
2508.0000	38.4	18.4 A	V	1.0	180	Y	LOW	32.6	3.5	31.9	22.6	-29.7	52.3	
2508.0000	39.9	19.9 A	V	1.5	270	Z	LOW	32.6	3.5	31.9	24.1	-28.2	52.3	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	D.E. HOKANSON, INC.	DATE	1/11/01
EUT	BLOOD PRESSURE CUFF INFALTOR	DUTY CYCLE	10.00 %
MODEL	TD312	PEAK TO AVG	-20.00 dB
S/N	5020009	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2926.0000	39.0	19.0 A	H	1.0	90	X	LOW	31.5	5.2	31.7	24.0	-28.3	52.3	No Harmonics nor
2926.0000	38.0	18.0 A	H	1.0	0	Y	LOW	31.5	5.2	31.7	23.0	-29.3	52.3	Emissions
2926.0000	39.5	19.5 A	H	1.5	90	Z	LOW	31.5	5.2	31.7	24.5	-27.8	52.3	Found after this (7th)
2926.0000	38.9	18.9 A	V	1.0	90	X	LOW	31.5	5.2	31.7	23.9	-28.4	52.3	harmonic
2926.0000	38.8	18.8 A	V	1.0	90	Y	LOW	31.5	5.2	31.7	23.8	-28.5	52.3	
2926.0000	39.3	19.3 A	V	1.0	0	Z	LOW	31.5	5.2	31.7	24.3	-28.0	52.3	

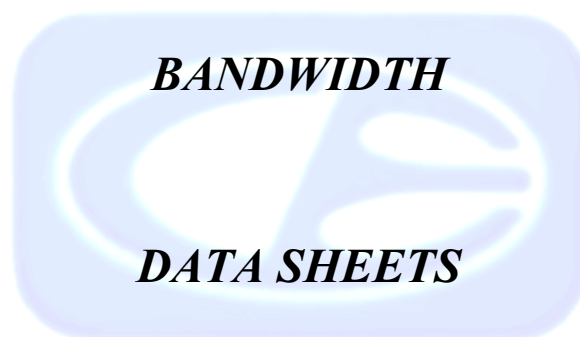
* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

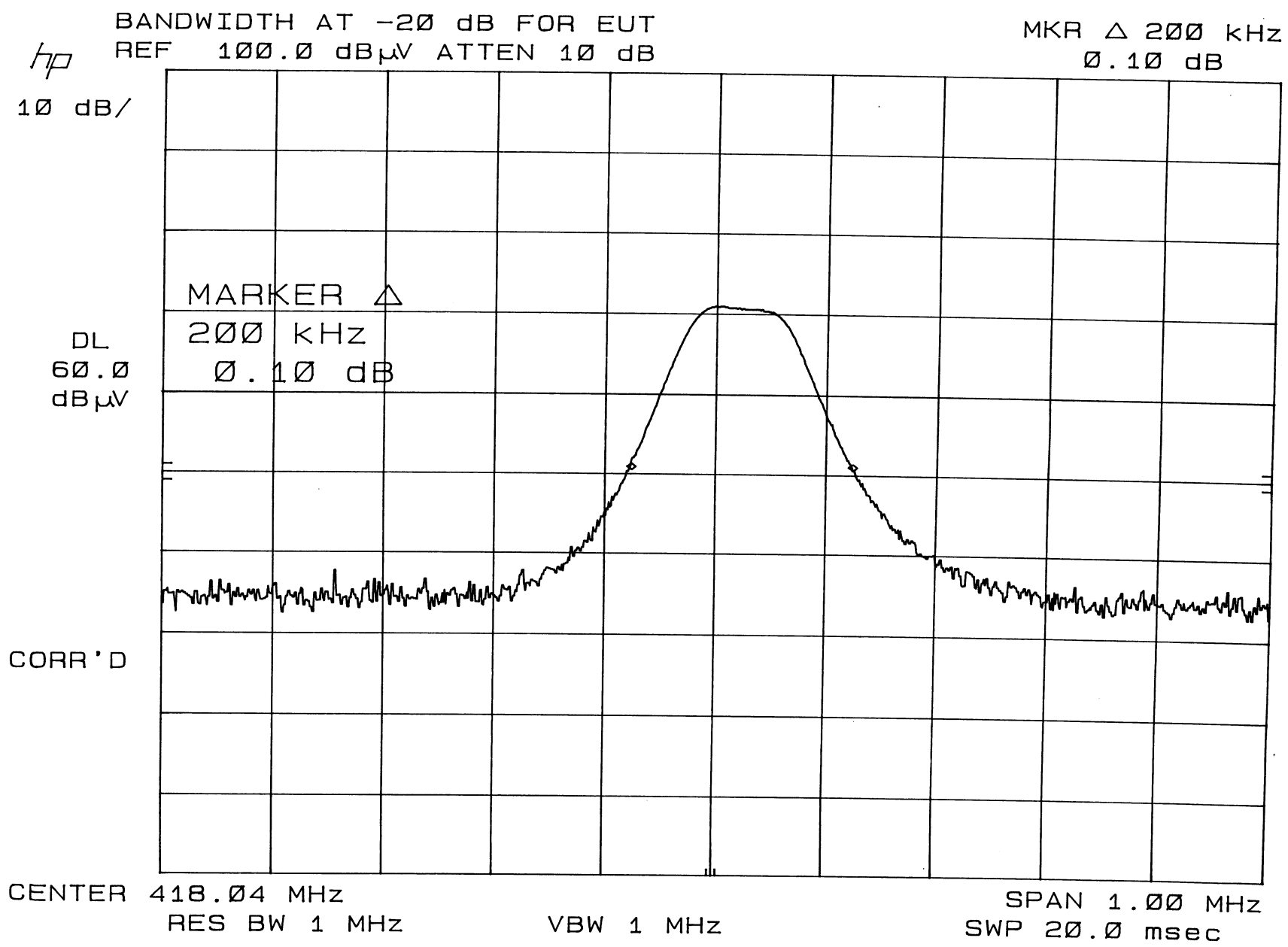
Test location: Compatible Electronics
 Customer : D.E. HOKANSON, INC. Date : 1/11/2001
 Manufacturer : D.E. HOKANSON, INC. Time : 13.08
 EUT name : BLOOD PRESSURE CUFF INFLATOR Model: TD312
 Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
 Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$) : 0.00
 Test Mode : SPURIOUS EMISSIONS 30 MHz TO 1000 MHz
 VERTICAL AND HORIZONTAL POLARIZATION
 TEMPERATURE 58 DEGREES F.
 RELATIVE HUMIDITY 85%
 TESTED BY: KYLE FUJIMOTO

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	limit = L dBuV/m	Delta R-L dB
1V	54.01	36.50	1.14	10.02	39.20	8.46	40.00	-31.54
2V	60.01	32.70	1.20	8.52	39.20	3.22	40.00	-36.78
3V	68.01	33.80	1.28	8.86	38.88	5.06	40.00	-34.94
4V	68.01	33.80	1.28	8.86	38.88	5.06	40.00	-34.94
5V	302.01	34.70	2.81	13.04	38.90	11.65	46.00	-34.35
6V	306.01	31.10	2.82	13.20	38.90	8.22	46.00	-37.78
7H	310.01	35.40	2.84	13.36	38.90	12.70	46.00	-33.30
8H	320.01	34.80	2.88	13.75	38.90	12.53	46.00	-33.47
9H	340.01	35.60	2.96	14.54	38.90	14.20	46.00	-31.80
10H	360.01	35.20	3.06	15.33	38.84	14.75	46.00	-31.25
11H	380.01	35.90	3.18	16.12	38.72	16.48	46.00	-29.52
12H	400.01	33.20	3.30	16.91	38.60	14.81	46.00	-31.19

Test location: Compatible Electronics
Customer : D.E. HOKANSON, INC. Date : 1/11/2001
Manufacturer : D.E. HOKANSON, INC. Time : 13.18
EUT name : BLOOD PRESSURE CUFF INFLATOR Model: TD312
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$) : 0.00
Test Mode : SPURIOUS EMISSIONS 10 kHz to 30 MHz
VERTICAL AND HORIZONTAL POLARIZATION
TEMPERATURE 58 DEGREES F.
RELATIVE HUMIDITY 85%
TESTED BY: KYLE FUJIMOTO

NO EMISSIONS FOUND FROM 10 kHz TO 30 MHz IN EITHER POLARIZATION
FOR THE EUT





APPENDIX E

LABORATORY RECOGNITIONS



LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200063-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

Technology International (Europe) Ltd.

