FCC PART 15, SUBPART B AND C
TEST REPORT

for

CONTROLLER

Model: WC20

Prepared for

BARTON INSTRUMENT SYSTEMS, LLC
900 SOUTH TURNBULL CANYON ROAD
CITY OF INDUSTRY, CALIFORNIA 91749-1882

Prepared by: _____

KYLE FUJIMOTO

Approved by: _____

SCOTT McCUTCHAN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
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DATE: JULY 31, 2000

	REPORT BODY	APPENDICES					TOTAL
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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 with 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:	Controller Model: WC20 S/N: N/A
Product Description:	See Expository Statement.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Barton Instrument Systems, LLC 900 South Turnbull Canyon Road City of Industry, California 91749-1882
Test Dates:	July 20 and 26, 2000
Test Specifications:	EMI requirements CFR Title 47, Part 15, Subpart B CFR Title 47, Part 15 Subpart C, Sections 15.205, 15.207, 15.209, and 15.249
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, and the limits of **CFR** Title 47, Part 15, Subpart C, sections 15.207
2	Radiated RF Emissions for the EUT in transmit mode, 10 kHz - 9300 MHz	Complies with the limits of **CFR** Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249
3	Radiated RF Emissions for the EUT in receive and communications mode, 30 MHz – 5000 MHz	Complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Controller Model: WC20. 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 C, sections 15.205, 15.207, 15.209, and 15.249.

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

Barton Instrument Systems, LLC

Tanh T. Ngo	Sr. Electronic Engineer
Brian Dearden	Staff 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 July 19, 2000.

2.5 Disposition of the Test Sample

The test sample was returned to Barton Instrument Systems, LLC on July 26, 2000.

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
TDR	Time Domain Reflectometer

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 – 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.

Specifics of the EUT and Peripherals Tested

The EUT was tested in 2 different configurations:

Configuration #1: The Controller Model: WC20 (EUT) was connected to the antenna, computer, phone, line simulator, and AC Adapter via its antenna, RS-232, phone, line, and power ports, respectively. The computer was also connected to the monitor, printer, keyboard, and mouse via its video, parallel, keyboard, and mouse ports, respectively. The line simulator was also connected to a laptop via its line port. The line simulator and laptop were placed 50 feet away from the test site. The antenna was directly connected to the EUT's antenna port. The connector for the antenna is a reverse polarity and reverse thread TNC.

Configuration #2: This configuration is the same as configuration #1, except the antenna was connected to the EUT's antenna port via a 10 foot coax cable.

The EUT was tested in 2 different modes:

1. Receive mode – The EUT was sending data to the computer and laptop on a continuous basis. The EUT was also receiving on a continuous basis.

2. Transmit mode – The EUT was continuously transmitting.

Note: only one of these modes can be active at a given time. The Receive mode was tested to the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B. The Transmit mode was tested to the specification limits defined by CFR Title 47, Part 15, Subpart C, sections 15.205, 15.207, and 15.249.

The final radiated data was taken in all of the configurations and modes above. The final conducted data was taken in Configuration #1, Mode #1, which was found to be the worst case during the preliminary investigation. Please see Appendix D for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 This is a 1 meter braid and foil shielded cable connecting the computer to the monitor. It has a high density D-15 pin metallic connector at the computer end and is hard wired into the monitor. The shield of the cable was grounded to the chassis via the connectors.

Cable 2 This is a 5 foot braid and foil shielded cable connecting the computer to the printer. It has a D-25 pin metallic connector at the computer end and a Centronics metallic type connector at the printer end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.

Cable 3

This is a 4 foot foil shielded cable connecting the computer to the keyboard. It has a 6 pin metallic mini DIN connector at the computer end and is hard wired into the keyboard. The shield of the cable was grounded to the chassis via the connector.

Cable 4

This is a 6 foot foil shielded cable connecting the computer to the mouse. It has a 6 pin metallic mini DIN connector at the computer end and is hard wired into the mouse. The shield of the cable was grounded to the chassis via the connector.

Cable 5

This is a 6 foot unshielded cable connecting the EUT to the phone. It has an RJ-11 connector at each end.

Cable 6

This is a 2 meter braid and foil shielded cable connecting the EUT to the computer. It has a D-9 pin metallic connector at each end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connector.

Cable 7

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

Cable 8

This is a 50 foot unshielded cable connecting the EUT to the line simulator. It has an RJ-11 connector at each end.

Cable 9

This is a 2 meter unshielded cable connecting the line simulator to the laptop. It has an RJ-11 connector at the line simulator end and a PCMCIA modem connector at the laptop end.

Cable 10 (For Configuration #2 only)
This is a 10 foot braid shielded cable connecting the EUT to the antenna. It has a metallic TNC connector at the EUT end and is hard wired into the antenna. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connector.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
CONTROLLER (EUT)	BARTON INSTRUMENT SYSTEMS, LLC	WC20	N/A	**OKZ-WC20**
PHONE	NORTHERN TELECOM	N/A	N/A	**N/A**
COMPUTER	DELL	MCM	CLFHF	**DoC**
KEYBOARD	DELL	SK-1000RE	M950938846	**GYUR10SK**
MOUSE	HEWLETT PACKARD	MU07	09C09002	**DoC**
MONITOR	SUPERTRON	SV1486	S9020607812	**HOISV1486**
TEST LINE SIMULATOR	TELTONE	TLS 3	N/A	**N/A**
PRINTER	CITIZEN	LSP-10	1262247-73	**DLK66TLSP-10**
LAPTOP	TOSHIBA	PA1215UXCD	12520656	**CJ6UK410**
AC ADAPTER	N/A	WP410507G	N/A	**N/A**

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	3701A22262	June 24, 2000	June 24, 2001
Preamplifier	Com Power	PA-102	1017	Jan. 11, 2000	Jan. 11, 2001
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	June 24, 2000	June 24, 2001
RF Attenuator	Sertek	412-10	N/A	Nov. 22, 1999	Nov. 22, 2000
LISN	Com Power	LI-215	12075	Nov. 13, 1999	Nov. 13, 2000
LISN	Com Power	LI-215	12078	Nov. 13, 1999	Nov. 13, 2000
Biconical Antenna	Com Power	AB-100	1548	Oct. 14, 1999	Oct. 14, 2000
Log Periodic Antenna	Com Power	AL-100	16039	Oct. 14, 1999	Oct. 14, 2000
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	D5251A 888	US74458128	N/A	N/A
Microwave Preamplifier	Com-Power	PA-122	25195	Jan. 13, 2000	Jan. 13, 2001
Horn Antenna	Antenna Research	DRG-118/A	1053	Dec. 8, 1995	N/A
Loop Antenna	Com-Power	AL-130	25309	May 25, 2001	May 25, 2001

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

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 RF Emissions

7.1.1 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 E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B and the limits of CFR Title 47, Part 15, Subpart C, section 15.207 for conducted emissions.

7.1.2 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 Microwave Preamplifier 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.

For the peak readings below 1000 MHz that were within 3 dB of the spec limit or higher, the quasi-peak adapter was used.

For the peak readings above 1000 MHz that were within 3dB of the spec limit or higher, the readings were averaged manually by narrowing the video filter down to 10 Hz and slowing the sweep time to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 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 9.3 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.

Radiated Emissions (Spurious and Harmonics) Test (con't)

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. The final qualification data sheets are located in Appendix D.

7.2 Band Edge Plots of the Low and High Channels

A spectral plot was taken of the EUT to show that the emissions at the band edges were attenuated by at least 50 dB below the level of the fundamental or to the general radiated emissions limits in FCC Title 47, Subpart C, section 15.209, whichever is the lesser attenuation. Please see Appendix D for the spectral plot.

The spectral plot was taken at a distance of 3 meters.

8. CONCLUSIONS

The Controller Model: WC20 meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B, and the specification limits defined in CFR Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.249.

APPENDIX A

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and C 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.

No modifications were made to the EUT during the testing.

APPENDIX B

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Controller Model: WC20 S/N: N/A

There were no additional models covered under this report.

APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

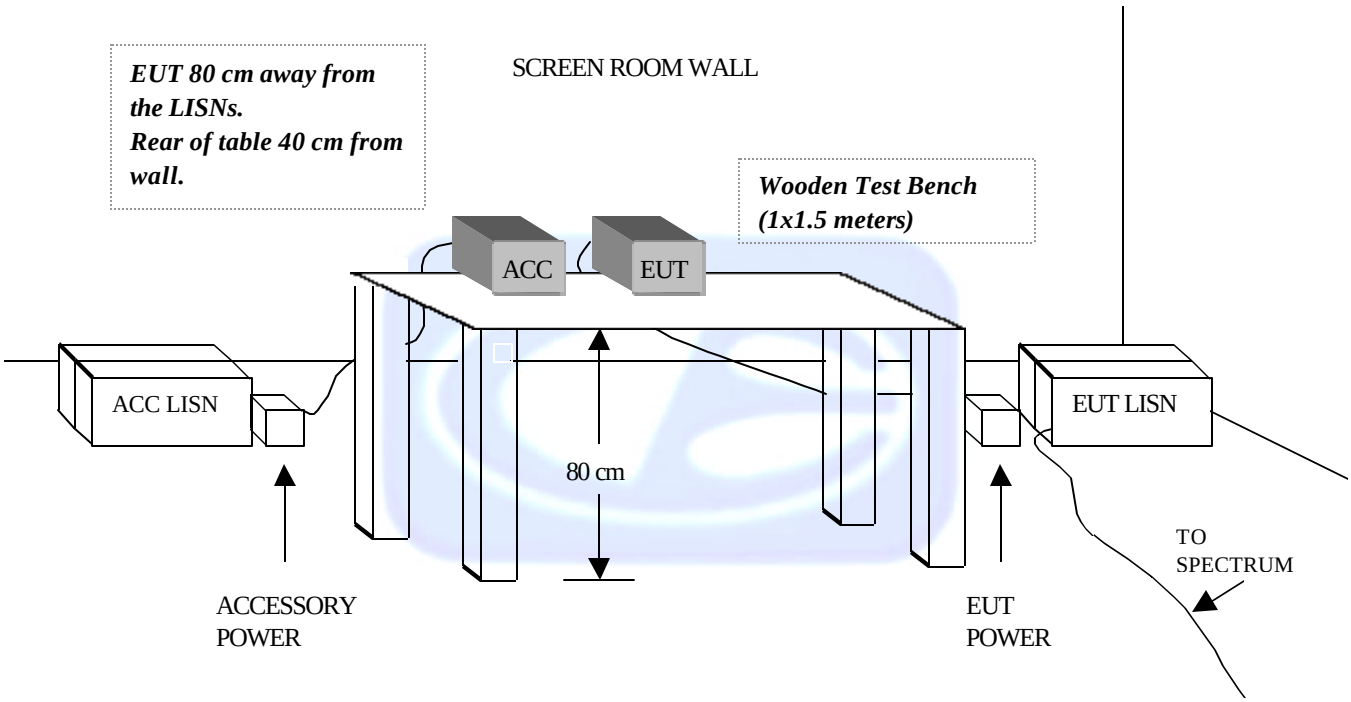
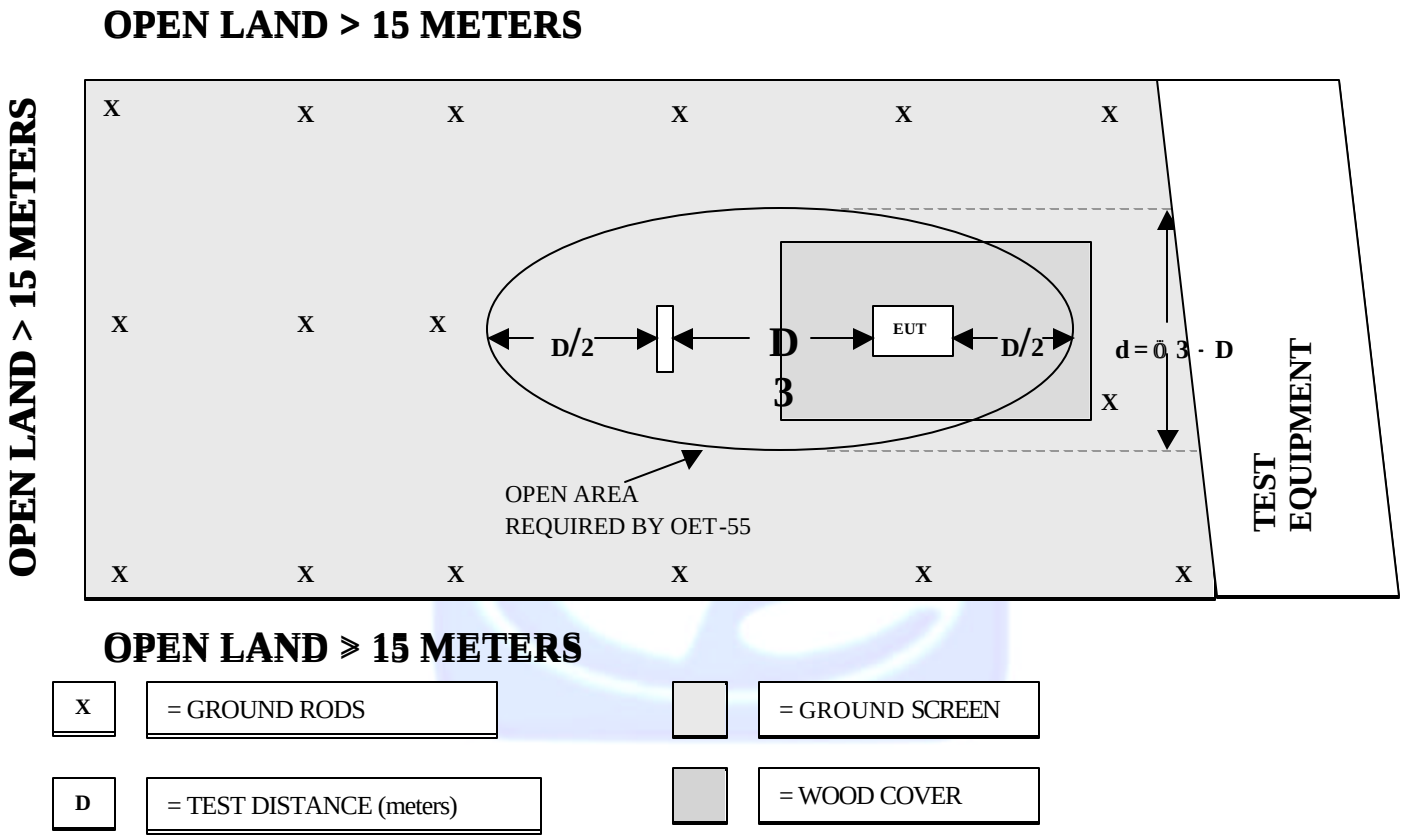


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE



FRONT VIEW

BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #1
MODEL: WC20
FCC SUBPART C - RADIATED EMISSIONS – 7-20-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #1
MODEL: WC20
FCC SUBPART C - RADIATED EMISSIONS – 7-20-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #2
MODEL: WC20
FCC SUBPART C - RADIATED EMISSIONS – 7-26-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

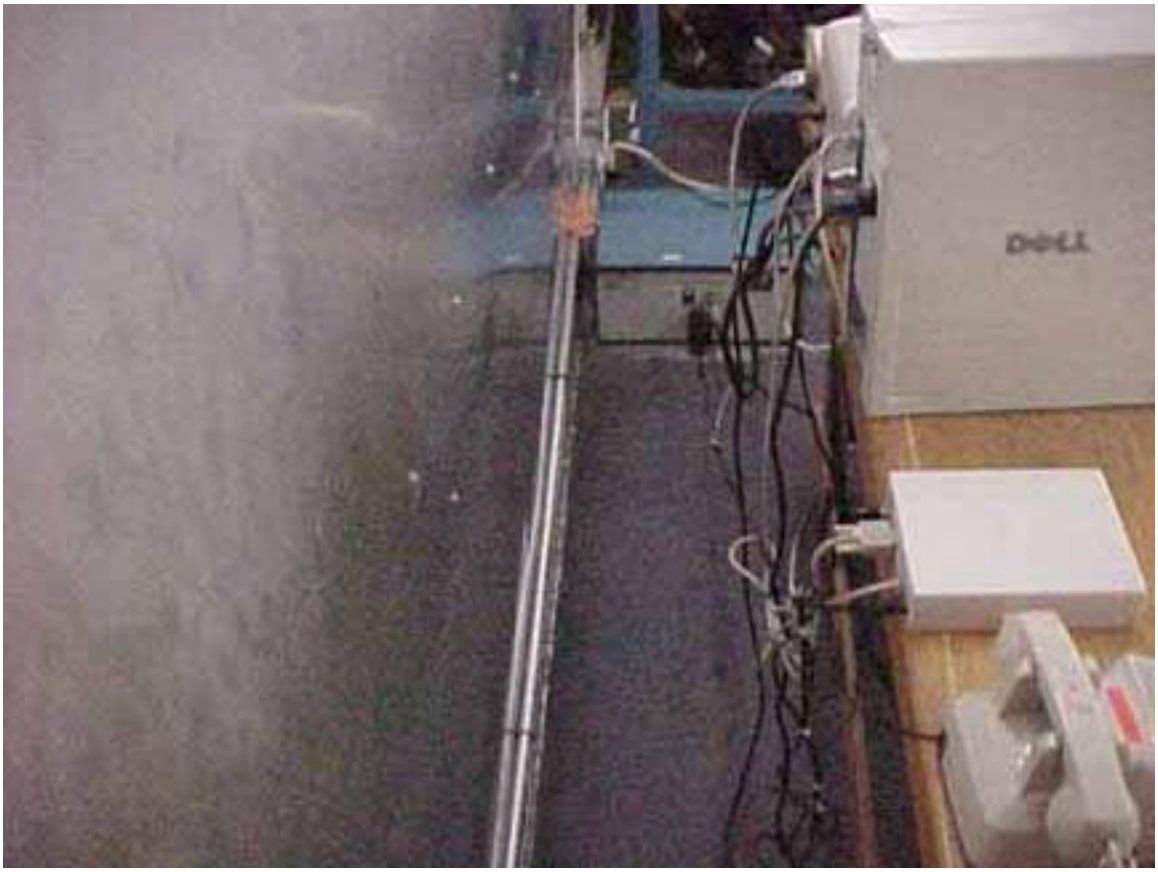
BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #2
MODEL: WC20
FCC SUBPART C - RADIATED EMISSIONS – 7-26-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #1
MODEL: WC20
FCC SUBPART C - CONDUCTED EMISSIONS – 7-20-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

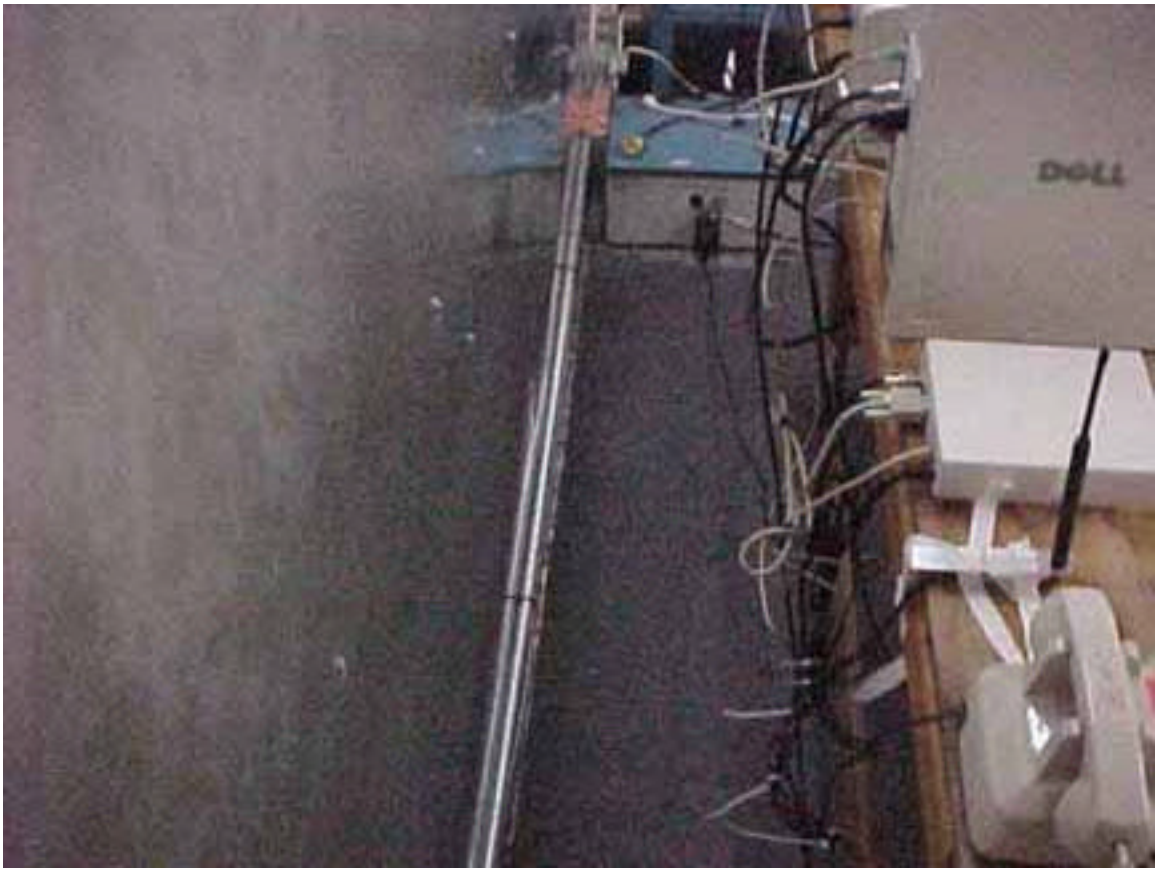
BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #1
MODEL: WC20
FCC SUBPART C - CONDUCTED EMISSIONS – 7-20-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #2
MODEL: WC20
FCC SUBPART C - CONDUCTED EMISSIONS – 7-26-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

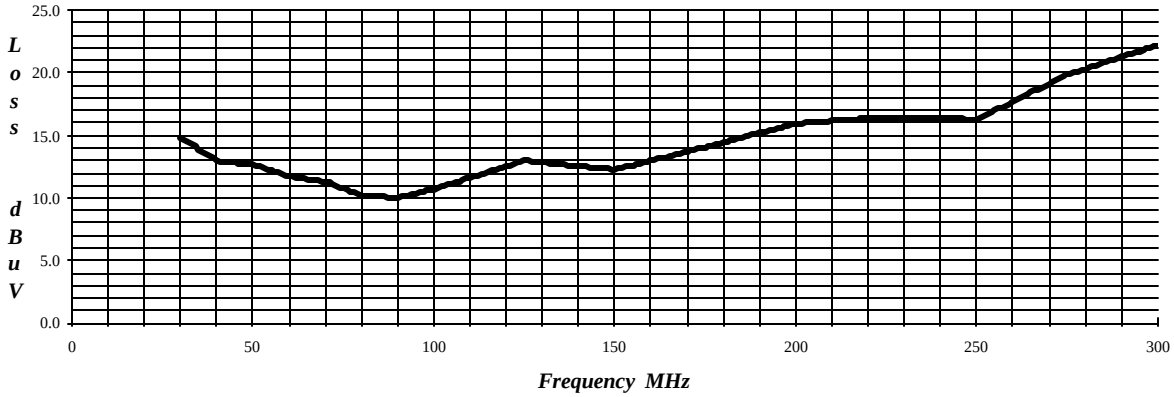


REAR VIEW

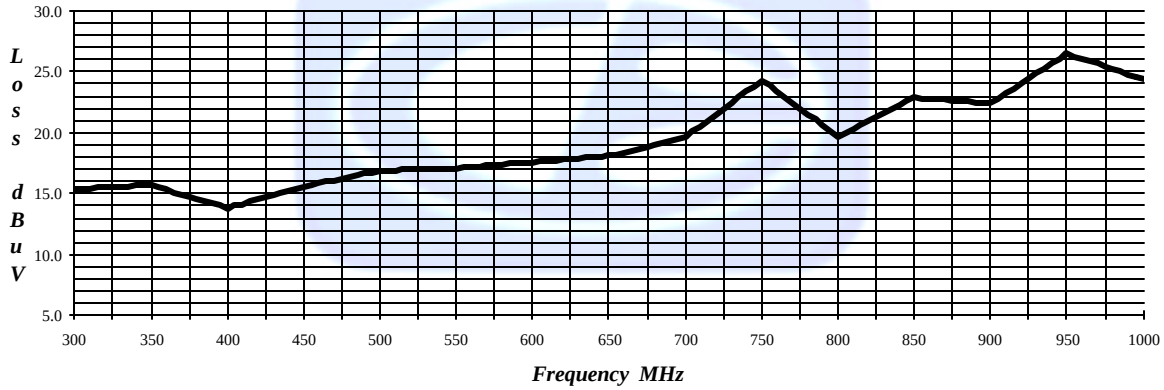
BARTON INSTRUMENT SYSTEMS, LLC
CONTROLLER – CONFIGURATION #2
MODEL: WC20
FCC SUBPART C - CONDUCTED EMISSIONS – 7-26-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

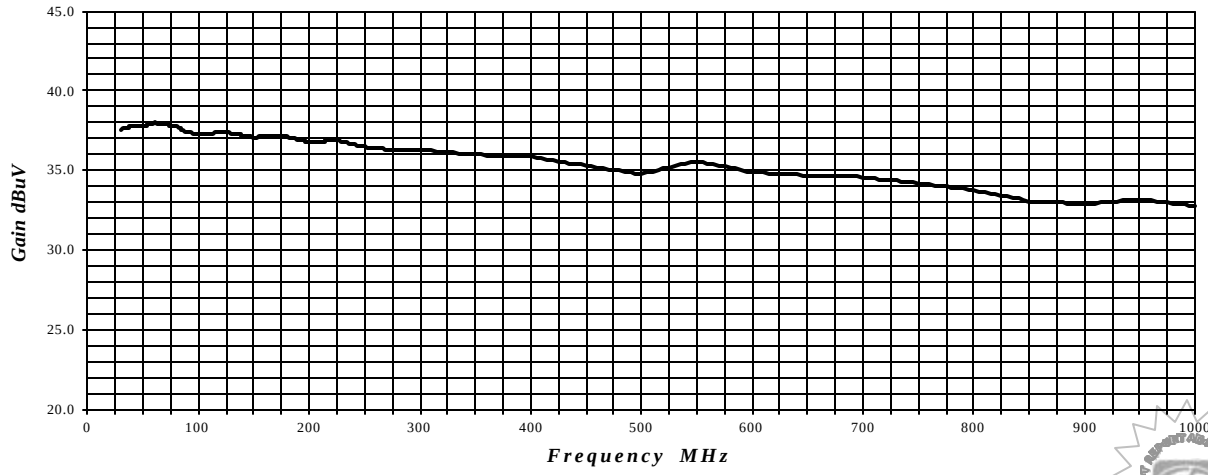
LAB "D" BICONICAL ANTENNA AB-100 S/N 01548 Cal: 10-14-99



LAB "D" LOG PERIODIC ANTENNA AL-100 S/N 16039 Cal: 10-14-99



PREAMPLIFIER EFFECTIVE GAIN AT 3 METERS PA-102 S/N: 1017 Effective 1-13-00



COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: JANUARY 13, 2000

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	34.4	9.0	30.7
1.1	34.1	9.5	31.5
1.2	34.2	10.0	31.0
1.3	34.1	10.5	31.4
1.4	33.9	11.0	30.7
1.5	33.8	11.5	29.5
1.6	33.0	12.0	27.8
1.7	33.3	12.5	31.4
1.8	33.3	13.0	31.0
1.9	31.9	13.5	31.0
2.0	32.7	14.0	31.5
2.5	31.8	14.5	30.2
3.0	31.7	15.0	29.2
3.5	31.9	15.5	30.1
4.0	31.0	16.0	29.0
4.5	31.4	16.5	27.8
5.0	31.1	17.0	30.8
5.5	31.0	17.5	31.5
6.0	32.0	18.0	30.8
6.5	31.6		
7.0	32.3		
7.5	32.9		
8.0	32.1		
8.5	31.6		

ANTENNA RESEARCH ASSOCIATES, INC.
11317 Frederick Avenue, Beltsville, MD 20705

E-FIELD ANTENNA FACTOR CALIBRATION

E(dB V/m) = Vo(dB V) + AFE(dB/m)

Model number : DRG-118/A

Frequency GHz	AFE dB/m	Gain dBi
1	22.3	8.0
2	26.7	9.5
3	29.7	10.1
4	29.5	12.8
5	32.3	12.0
6	32.4	13.4
7	36.1	11.0
8	37.4	10.9
9	36.8	12.5
10	39.5	10.7
11	39.6	11.5
12	39.8	12.0
13	39.7	12.8
14	41.8	11.3
15	41.9	11.9
16	38.1	16.3
17	41.0	13.9
18	46.5	8.9

Serial number : 1053
Job number : 96-092
Remarks : 3 meter calibration
Standards : LPD-118/A, TE-1000

Temperature : 72° F
Humidity : 56 %
Traceability : A01887
Date : December 08, 1995

Calibrated By

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

APPENDIX D

DATA SHEETS

TRANSMITTER MODE – CONFIGURATION #1

DATA SHEETS

RP-1

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
915.0000	54.9	54.8 QP	H	1.0	180			23.7	4.6	0.0	**83.1**	**-10.9**	**94.0**	
915.0000	64.5	64.4 QP	V	1.0	180			23.7	4.6	0.0	**92.7**	**-1.3**	**94.0**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

COMPATIBLE ELECTRONICS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
1830.0000	39.5	A	H	1.0	90			24.5	3.5	33.3	34.2	-19.8	54.0	
1830.0000	50.4	48.7 A	V	1.5	180			24.5	3.5	33.3	43.4	-10.6	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

COMPATIBLE ELECTRONICS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
2745.0000	39.9	A	H	1.5	180			28.2	4.5	31.8	40.8	-13.2	54.0	
2745.0000	36.8	A	V	1.0	180			28.2	4.5	31.8	37.7	-16.3	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
3660.0000	40.0	A	H	1.0	180			29.6	5.0	31.9	42.7	-11.3	54.0	
3660.0000	37.3	A	V	1.0	180			29.6	5.0	31.9	40.0	-14.0	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

COMPATIBLE ELECTRONICS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
4575.0000	41.7	A	H	1.0	90			30.9	5.6	31.4	46.8	-7.2	54.0	
4575.0000	38.7	A	V	1.0	90			30.9	5.6	31.4	43.8	-10.2	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
5490.0000	36.8	A	H	1.0	180			32.4	6.0	31.0	44.2	-9.8	54.0	
5490.0000	35.5	A	V	1.0	90			32.4	6.0	31.0	42.9	-11.1	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
6405.0000	37.1	A	H	1.0	270			34.3	6.9	31.6	46.7	-7.3	54.0	
6405.0000	39.8	A	V	1.0	90			34.3	6.9	31.6	49.4	-4.6	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

COMPATIBLE ELECTRONICS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
7320.0000	30.2	A	H	1.0	180			36.8	9.1	32.9	43.2	-10.8	54.0	
7320.0000	30.0	A	V	1.0	180			36.8	9.1	32.9	43.0	-11.0	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
8235.0000	29.4	A	H	1.0	90			34.5	8.1	32.1	39.9	-14.1	54.0	
8235.0000	29.3	A	V	1.0	90			34.5	8.1	32.1	39.8	-14.2	54.0	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/20/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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)	*Correcte Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m	Comments
9150.0000	29.5	A	H	1.0	0			34.4	9.4	30.7	42.6	-11.4	54.0	
9150.0000	29.6	A	V	1.0	0			34.4	9.4	30.7	42.7	-11.3	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

COMPATIBLE ELECTRONICS

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/20/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 16.59
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
TRANSMIT MODE - 10 kHz TO 9300 MHz VERT. AND HORIZ. POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
KYLE FUJIMOTO

NO SPURIOUS EMISSIONS FOUND FROM 10 kHz TO 9300 MHz
IN EITHER POLARIZATION FOR THE EUT

TRANSMITTER MODE – CONFIGURATION #2

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
915.0000	54.7	54.6 QP	H	1.0	90			23.7	4.6	0.0	**82.9**	**-11.1**	**94.0**	
915.0000	62.6	62.5 QP	V	1.0	180			23.7	4.6	0.0	**90.8**	**-3.2**	**94.0**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
1830.0000	43.2	A	H	1.5	90			24.5	3.5	33.3	37.9	-16.1	54.0	
1830.0000	45.5	A	V	1.0	180			24.5	3.5	33.3	40.2	-13.8	54.0	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
2745.0000	43.0	A	H	1.5	180			28.2	4.5	31.8	43.9	-10.1	54.0	
2745.0000	43.9	A	V	1.0	0			28.2	4.5	31.8	44.8	-9.2	54.0	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
3660.0000	41.4	A	H	1.0	90			29.6	5.0	31.9	44.1	-9.9	54.0	
3660.0000	41.1	A	V	1.0	0			29.6	5.0	31.9	43.8	-10.2	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
4575.0000	41.4	A	H	1.5	270			30.9	5.6	31.4	46.5	-7.5	54.0	
4575.0000	40.3	A	V	1.0	0			30.9	5.6	31.4	45.4	-8.6	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
5490.0000	41.5	A	H	1.0	180			32.4	6.0	31.0	48.9	-5.1	54.0	
5490.0000	42.1	A	V	1.0	0			32.4	6.0	31.0	49.5	-4.5	54.0	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
6405.0000	36.5	A	H	1.0	180			34.3	6.9	31.6	46.1	-7.9	54.0	
6405.0000	38.5	A	V	1.0	S			34.3	6.9	31.6	48.1	-5.9	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
7320.0000	29.9	A	H	1.0	180			36.8	9.1	32.9	42.9	-11.1	54.0	
7320.0000	39.0	30.5 A	V	1.0	180			36.8	9.1	32.9	43.5	-10.5	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
8235.0000	29.9	A	H	1.0	90			34.5	8.1	32.1	**40.4**	**-13.6**	**54.0**	
8235.0000	40.0	29.8 A	V	1.0	90			34.5	8.1	32.1	**40.3**	**-13.7**	**54.0**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	BARTON INSTRUMENT SYSTEMS, LLC	DATE	7/26/00
EUT	CONTROLLER	DUTY CYCLE	0.00 %
MODEL	WC20	PEAK TO AVG	0 dB
S/N	N/A	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
9150.0000	31.0	A	H	1.0	0			34.4	9.4	30.7	44.1	-9.9	54.0	
9150.0000	40.6	31.1 A	V	1.0	0			34.4	9.4	30.7	44.2	-9.8	54.0	

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

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/26/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 16.53
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
TRANSMIT MODE - 10 kHz TO 9300 MHz HORIZ. AND VERT. POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
KYLE FUJIMOTO

NO EMISSIONS FOUND FROM 10 kHz to 9300 MHz
IN EITHER POLARIZATION FOR THE EUT

RECEIVE MODE – CONFIGURATION #1

DATA SHEETS

COMPATIBLE ELECTRONICS

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/20/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 8.56
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 30 TO 300 MHz VERTICAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
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	36.91	43.70	0.77	13.55	38.51	19.51	40.00	-20.49
2V	48.09	63.70	0.88	12.73	38.68	38.63	40.00	-1.37
3V	48.09	63.45	0.88	12.73	38.68	38.38Qp	40.00	-1.62
4V	59.03	61.70	0.81	11.81	38.79	35.53	40.00	-4.47
5V	73.78	54.50	1.00	10.92	38.86	27.55	40.00	-12.45
6V	110.68	61.60	1.34	11.71	38.69	35.97	43.50	-7.53
7V	112.05	55.00	1.35	11.83	38.70	29.49	43.50	-14.01
8V	118.05	61.50	1.37	12.38	38.74	36.51	43.50	-6.99
9V	120.05	59.10	1.38	12.56	38.76	34.28	43.50	-9.22
10V	144.06	51.70	1.55	12.43	38.72	26.96	43.50	-16.54
11V	151.23	43.10	1.60	12.34	38.70	18.33	43.50	-25.17
12V	162.29	42.00	1.60	13.14	38.75	18.00	43.50	-25.50
13V	168.06	51.00	1.60	13.56	38.77	27.39	43.50	-16.11
14V	176.06	47.20	1.61	14.15	38.79	24.17	43.50	-19.33
15V	180.47	57.60	1.64	14.48	38.76	34.97	43.50	-8.53
16V	184.06	53.90	1.67	14.75	38.73	31.60	43.50	-11.90
17V	192.06	51.40	1.74	15.35	38.66	29.83	43.50	-13.67
18V	200.07	48.70	1.80	15.95	38.60	27.85	43.50	-15.65
19V	216.07	49.60	1.86	16.26	38.73	29.00	46.00	-17.00
20V	221.24	51.40	1.88	16.37	38.77	30.88	46.00	-15.12
21V	232.66	45.10	1.96	16.39	38.74	24.71	46.00	-21.29
22V	240.07	51.10	2.02	16.34	38.68	30.78	46.00	-15.22
23V	243.36	49.20	2.05	16.32	38.65	28.91	46.00	-17.09
24V	288.10	48.80	2.25	21.08	38.55	33.58	46.00	-12.42
25V	294.97	43.70	2.28	21.73	38.58	29.13	46.00	-16.87

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/20/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 9.46
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 30 TO 300 MHz HORIZONTAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
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
1H	48.05	54.30	0.88	12.73	38.68	29.23	40.00	-10.77
2H	48.07	52.50	0.88	12.73	38.68	27.43	40.00	-12.57
3H	64.07	46.10	0.88	11.57	38.84	19.71	40.00	-20.29
4H	80.07	54.90	1.00	10.22	38.80	27.32	40.00	-12.68
5H	84.74	52.00	1.09	10.13	38.71	24.52	40.00	-15.48
6H	110.63	53.20	1.34	11.71	38.69	27.56	43.50	-15.94
7H	112.08	49.80	1.35	11.84	38.70	24.29	43.50	-19.21
8H	118.00	57.40	1.37	12.37	38.74	32.40	43.50	-11.10
9H	125.38	49.00	1.40	13.00	38.80	24.60	43.50	-18.90
10H	132.76	53.60	1.46	12.77	38.77	29.07	43.50	-14.43
11H	144.08	50.00	1.55	12.43	38.72	25.26	43.50	-18.24
12H	144.09	48.80	1.55	12.43	38.72	24.06	43.50	-19.44
13H	147.51	51.10	1.58	12.33	38.71	26.30	43.50	-17.20
14H	160.09	43.60	1.60	12.98	38.74	19.44	43.50	-24.06
15H	162.25	48.00	1.60	13.14	38.75	23.99	43.50	-19.51
16H	177.00	51.10	1.62	14.22	38.78	28.15	43.50	-15.35
17H	192.09	50.50	1.74	15.36	38.66	28.93	43.50	-14.57
18H	195.52	51.90	1.76	15.61	38.64	30.64	43.50	-12.86
19H	208.10	44.90	1.83	16.11	38.66	24.18	43.50	-19.32
20H	213.87	39.90	1.86	16.22	38.71	19.27	43.50	-24.23
21H	221.25	53.80	1.88	16.37	38.77	33.28	46.00	-12.72
22H	228.62	47.30	1.93	16.42	38.77	26.87	46.00	-19.13
23H	230.58	52.20	1.94	16.40	38.76	31.79	46.00	-14.21
24H	235.99	47.80	1.99	16.37	38.71	27.44	46.00	-18.56
25H	240.10	49.60	2.02	16.34	38.68	29.28	46.00	-16.72
26H	250.79	51.70	2.10	16.38	38.60	31.59	46.00	-14.41
27H	260.64	61.60	2.14	17.79	38.56	42.97	46.00	-3.03
28H	272.11	51.50	2.19	19.42	38.51	34.60	46.00	-11.40
29H	280.22	42.80	2.22	20.33	38.52	26.83	46.00	-19.17
30H	288.11	51.30	2.25	21.08	38.55	36.08	46.00	-9.92

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/20/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 13.57
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 300 TO 5000 MHz VERTICAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
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	304.07	51.60	2.32	15.43	38.60	30.76	46.00	-15.24
2V	309.77	49.50	2.36	15.46	38.60	28.72	46.00	-17.28
3V	312.08	49.60	2.37	15.48	38.60	28.85	46.00	-17.15
4V	336.10	55.00	2.52	15.60	38.60	34.52	46.00	-11.48
5V	342.95	41.80	2.56	15.64	38.60	21.40	46.00	-24.60
6V	352.10	54.30	2.60	15.60	38.60	33.90	46.00	-12.10
7V	400.11	55.20	2.70	13.76	38.60	33.07	46.00	-12.93
8V	416.11	55.10	2.73	14.35	38.44	33.75	46.00	-12.25
9V	432.12	52.80	2.76	14.94	38.28	32.23	46.00	-13.77
10V	442.48	44.30	2.78	15.32	38.18	24.23	46.00	-21.77
11V	448.12	57.20	2.80	15.53	38.12	37.41	46.00	-8.59
12V	464.12	56.90	2.88	15.96	38.04	37.70	46.00	-8.30
13V	480.11	55.00	2.98	16.37	37.98	36.37	46.00	-9.63
14V	496.11	56.00	3.08	16.78	37.92	37.94	46.00	-8.06
15V	504.11	55.00	3.14	16.90	38.01	37.03	46.00	-8.97
16V	512.11	56.90	3.22	16.93	38.21	38.84	46.00	-7.16
17V	528.11	56.20	3.38	17.00	38.63	37.95	46.00	-8.05
18V	584.12	48.50	3.46	17.45	38.59	30.83	46.00	-15.17
19V	870.06	54.50	4.48	22.70	37.50	44.18	46.00	-1.82
20V	870.06	54.46	4.48	22.70	37.50	44.14Qp	46.00	-1.86
21V	1740.00	43.20	3.20	24.50	33.30	37.60	54.00	-16.40
22V	2610.00	41.10	4.50	28.20	31.80	42.00	54.00	-12.00

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/20/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 15.56
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 300 TO 5000 MHz HORIZONTAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
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
1H	302.33	58.30	2.31	15.42	38.60	37.44	46.00	-8.56
2H	304.09	58.10	2.32	15.43	38.60	37.26	46.00	-8.74
3H	308.09	49.60	2.35	15.45	38.60	28.80	46.00	-17.20
4H	309.76	51.40	2.36	15.46	38.60	30.62	46.00	-15.38
5H	312.09	57.30	2.37	15.48	38.60	36.55	46.00	-9.45
6H	320.09	56.90	2.42	15.52	38.60	36.24	46.00	-9.76
7H	328.06	55.90	2.47	15.56	38.60	35.33	46.00	-10.67
8H	336.12	58.90	2.52	15.61	38.60	38.42	46.00	-7.58
9H	344.12	48.90	2.56	15.65	38.60	28.51	46.00	-17.49
10H	352.12	56.10	2.60	15.60	38.60	35.70	46.00	-10.30
11H	368.12	53.60	2.64	14.98	38.60	32.62	46.00	-13.38
12H	384.12	52.30	2.67	14.37	38.60	30.74	46.00	-15.26
13H	400.11	57.30	2.70	13.76	38.60	35.17	46.00	-10.83
14H	408.11	52.10	2.72	14.06	38.52	30.36	46.00	-15.64
15H	416.08	57.80	2.73	14.35	38.44	36.44	46.00	-9.56
16H	424.09	49.80	2.75	14.65	38.36	28.84	46.00	-17.16
17H	464.10	48.00	2.88	15.96	38.04	28.80	46.00	-17.20
18H	480.09	53.20	2.98	16.37	37.98	34.57	46.00	-11.43
19H	496.10	55.20	3.08	16.78	37.92	37.14	46.00	-8.86
20H	501.26	46.20	3.11	16.89	37.93	28.27	46.00	-17.73
21H	504.10	50.70	3.14	16.90	38.01	32.73	46.00	-13.27
22H	512.06	53.90	3.22	16.93	38.21	35.84	46.00	-10.16
23H	520.07	50.50	3.30	16.96	38.42	32.34	46.00	-13.66
24H	520.08	52.30	3.30	16.96	38.42	34.14	46.00	-11.86
25H	520.10	51.40	3.30	16.96	38.42	33.24	46.00	-12.76
26H	528.12	54.50	3.38	17.00	38.63	36.25	46.00	-9.75
27H	536.12	50.40	3.46	17.03	38.84	32.05	46.00	-13.95
28H	560.13	51.00	3.56	17.20	39.02	32.74	46.00	-13.26
29H	568.11	48.10	3.53	17.28	38.87	30.04	46.00	-15.96
30H	584.11	49.80	3.46	17.45	38.59	32.13	46.00	-13.87

RECEIVE MODE – CONFIGURATION #2

DATA SHEETS

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/26/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 14.45
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 30 TO 300 MHz VERTICAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
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	48.05	64.40	0.88	12.73	38.68	39.33	40.00	-0.67
2V	48.05	64.06	0.88	12.73	38.68	38.99Qp	40.00	-1.01
3V	59.03	57.20	0.81	11.81	38.79	31.03	40.00	-8.97
4V	64.04	56.30	0.88	11.57	38.84	29.91	40.00	-10.09
5V	69.90	52.00	1.00	11.34	38.90	25.44	40.00	-14.56
6V	73.83	55.00	1.00	10.91	38.86	28.05	40.00	-11.95
7V	80.13	53.20	1.00	10.22	38.80	25.62	40.00	-14.38
8V	110.28	61.50	1.34	11.67	38.68	35.83	43.50	-7.67
9V	112.53	52.40	1.35	11.88	38.70	26.93	43.50	-16.57
10V	118.05	63.40	1.37	12.38	38.74	38.41	43.50	-5.09
11V	120.32	63.40	1.38	12.59	38.76	38.60	43.50	-4.90
12V	136.44	48.60	1.49	12.66	38.75	24.00	43.50	-19.50
13V	144.10	50.20	1.55	12.43	38.72	25.46	43.50	-18.04
14V	150.43	58.70	1.60	12.28	38.70	33.88	43.50	-9.62
15V	151.06	53.30	1.60	12.33	38.70	28.52	43.50	-14.98
16V	162.25	51.40	1.60	13.14	38.75	27.39	43.50	-16.11
17V	165.45	57.90	1.60	13.37	38.76	34.11	43.50	-9.39
18V	168.02	48.50	1.60	13.56	38.77	24.89	43.50	-18.61
19V	176.02	40.20	1.61	14.15	38.79	17.16	43.50	-26.34
20V	180.43	57.30	1.64	14.48	38.76	34.67	43.50	-8.83
21V	184.08	49.90	1.67	14.75	38.73	27.60	43.50	-15.90
22V	192.08	51.40	1.74	15.35	38.66	29.83	43.50	-13.67
23V	200.09	51.80	1.80	15.95	38.60	30.95	43.50	-12.55
24V	200.47	57.10	1.80	15.96	38.60	36.26	43.50	-7.24
25V	271.35	40.30	2.19	19.31	38.51	23.28	46.00	-22.72

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/20/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 15.09
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 30 TO 300 MHz HORIZONTAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
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
1H	41.56	54.20	0.82	12.92	38.62	29.32	40.00	-10.68
2H	48.11	55.60	0.88	12.73	38.68	30.53	40.00	-9.47
3H	84.73	51.70	1.09	10.13	38.71	24.22	40.00	-15.78
4H	110.34	48.70	1.34	11.68	38.68	23.04	43.50	-20.46
5H	118.06	56.70	1.37	12.38	38.74	31.71	43.50	-11.79
6H	125.37	43.60	1.40	13.00	38.80	19.20	43.50	-24.30
7H	132.75	52.90	1.46	12.77	38.77	28.37	43.50	-15.13
8H	136.46	48.40	1.49	12.66	38.75	23.80	43.50	-19.70
9H	144.07	54.30	1.55	12.43	38.72	29.56	43.50	-13.94
10H	147.56	53.30	1.58	12.32	38.71	28.49	43.50	-15.01
11H	162.33	47.70	1.60	13.15	38.75	23.70	43.50	-19.80
12H	180.52	43.00	1.64	14.49	38.76	20.37	43.50	-23.13
13H	192.11	53.80	1.74	15.36	38.66	32.23	43.50	-11.27
14H	195.54	53.50	1.76	15.61	38.64	32.24	43.50	-11.26
15H	208.04	48.80	1.83	16.11	38.66	28.08	43.50	-15.42
16H	212.81	38.10	1.85	16.20	38.70	17.45	43.50	-26.05
17H	213.85	48.20	1.86	16.22	38.71	27.57	43.50	-15.93
18H	221.25	54.80	1.88	16.37	38.77	34.28	46.00	-11.72
19H	228.62	49.20	1.93	16.42	38.77	28.77	46.00	-17.23
20H	230.58	40.50	1.94	16.40	38.76	20.09	46.00	-25.91
21H	240.07	47.70	2.02	16.34	38.68	27.38	46.00	-18.62
22H	243.36	38.70	2.05	16.32	38.65	18.41	46.00	-27.59
23H	264.06	39.50	2.16	18.27	38.54	21.38	46.00	-24.62
24H	272.12	45.00	2.19	19.42	38.51	28.10	46.00	-17.90
25H	280.23	38.30	2.22	20.33	38.52	22.33	46.00	-23.67
26H	288.12	42.80	2.25	21.08	38.55	27.58	46.00	-18.42

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/26/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 16.16
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 300 TO 1000 MHz VERTICAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
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	302.32	47.50	2.31	15.42	38.60	26.64	46.00	-19.36
2V	312.09	45.10	2.37	15.48	38.60	24.35	46.00	-21.65
3V	320.11	51.70	2.42	15.52	38.60	31.04	46.00	-14.96
4V	326.31	41.60	2.46	15.55	38.60	21.01	46.00	-24.99
5V	336.08	54.50	2.52	15.60	38.60	34.02	46.00	-11.98
6V	372.32	44.60	2.64	14.82	38.60	23.47	46.00	-22.53
7V	384.11	55.30	2.67	14.37	38.60	33.74	46.00	-12.26
8V	400.11	54.80	2.70	13.76	38.60	32.67	46.00	-13.33
9V	441.07	46.90	2.78	15.27	38.19	26.76	46.00	-19.24
10V	456.07	51.10	2.84	15.76	38.08	31.62	46.00	-14.38
11V	464.11	59.80	2.88	15.96	38.04	40.60	46.00	-5.40
12V	472.15	49.10	2.93	16.17	38.01	30.19	46.00	-15.81
13V	496.07	57.00	3.08	16.78	37.92	38.94	46.00	-7.06
14V	504.07	50.20	3.14	16.90	38.01	32.23	46.00	-13.77
15V	512.07	53.40	3.22	16.93	38.21	35.34	46.00	-10.66
16V	520.07	52.90	3.30	16.96	38.42	34.74	46.00	-11.26
17V	536.06	55.60	3.46	17.03	38.84	37.25	46.00	-8.75
18V	544.07	57.40	3.54	17.07	39.05	38.96	46.00	-7.04
19V	552.07	54.30	3.59	17.11	39.16	35.84	46.00	-10.16
20V	560.07	53.20	3.56	17.20	39.02	34.94	46.00	-11.06
21V	568.07	52.40	3.53	17.28	38.87	34.33	46.00	-11.67
22V	584.07	56.50	3.46	17.45	38.59	38.83	46.00	-7.17
23V	600.07	50.40	3.40	17.62	38.30	33.12	46.00	-12.88
24V	624.07	43.00	3.54	17.87	38.35	26.07	46.00	-19.93
25V	712.05	43.50	3.77	19.84	38.28	28.84	46.00	-17.16
26V	870.11	53.10	4.48	22.70	37.50	42.78	46.00	-3.22
27V	1740.18	45.20	3.20	24.50	33.30	37.60	54.00	-16.40
28V	2610.24	41.10	4.50	28.20	31.80	42.00	54.00	-12.00

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/26/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 15.55
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 300 TO 1000 MHz HORIZONTAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
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
1H	302.34	47.20	2.31	15.42	38.60	26.34	46.00	-19.66
2H	304.11	54.10	2.32	15.43	38.60	33.26	46.00	-12.74
3H	308.07	48.10	2.35	15.45	38.60	27.30	46.00	-18.70
4H	309.72	50.70	2.36	15.46	38.60	29.92	46.00	-16.08
5H	312.05	50.30	2.37	15.48	38.60	29.55	46.00	-16.45
6H	320.10	51.50	2.42	15.52	38.60	30.84	46.00	-15.16
7H	328.07	47.10	2.47	15.56	38.60	26.53	46.00	-19.47
8H	336.13	49.90	2.52	15.61	38.60	29.42	46.00	-16.58
9H	344.13	48.80	2.56	15.65	38.60	28.41	46.00	-17.59
10H	352.13	46.20	2.60	15.60	38.60	25.80	46.00	-20.20
11H	368.11	50.60	2.64	14.98	38.60	29.62	46.00	-16.38
12H	384.11	52.10	2.67	14.37	38.60	30.54	46.00	-15.46
13H	400.10	50.50	2.70	13.76	38.60	28.36	46.00	-17.64
14H	408.10	51.00	2.72	14.06	38.52	29.26	46.00	-16.74
15H	416.10	53.70	2.73	14.35	38.44	32.35	46.00	-13.65
16H	424.11	45.90	2.75	14.65	38.36	24.94	46.00	-21.06
17H	464.11	50.80	2.88	15.96	38.04	31.60	46.00	-14.40
18H	480.11	55.30	2.98	16.37	37.98	36.67	46.00	-9.33
19H	496.12	57.00	3.08	16.78	37.92	38.94	46.00	-7.06
20H	501.28	36.60	3.11	16.89	37.93	18.66	46.00	-27.34
21H	504.12	51.40	3.14	16.90	38.01	33.43	46.00	-12.57
22H	512.06	59.10	3.22	16.93	38.21	41.04	46.00	-4.96
23H	520.12	56.40	3.30	16.96	38.42	38.24	46.00	-7.76
24H	528.12	60.80	3.38	17.00	38.63	42.55	46.00	-3.45
25H	536.05	55.90	3.46	17.03	38.84	37.55	46.00	-8.45
26H	544.10	58.60	3.54	17.07	39.05	40.16	46.00	-5.84
27H	552.10	56.00	3.59	17.11	39.16	37.54	46.00	-8.46
28H	560.10	52.10	3.56	17.20	39.02	33.84	46.00	-12.16
29H	568.05	55.50	3.53	17.28	38.88	37.43	46.00	-8.57
30H	584.05	52.60	3.46	17.45	38.59	34.93	46.00	-11.07

Test location: Compatible Electronics
Customer : BARTON INSTRUMENT SYSTEMS, LLC Date : 7/26/2000
Manufacturer : BARTON INSTRUMENT SYSTEMS, LLC Time : 15.55
EUT name : CONTROLLER Model: WC20
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
RECEIVING MODE - 300 TO 1000 MHz HORIZONTAL POLARIZATION
TEMPERATURE 89 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
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
31H	600.05	53.20	3.40	17.62	38.30	35.92	46.00	-10.08
32H	616.05	50.80	3.50	17.79	38.33	33.75	46.00	-12.25
33H	624.10	44.60	3.54	17.87	38.35	27.67	46.00	-18.33
34H	680.10	46.00	3.70	19.04	38.34	30.40	46.00	-15.60
35H	688.12	42.00	3.70	19.28	38.32	26.66	46.00	-19.34
36H	776.12	38.90	3.95	20.06	37.94	24.97	46.00	-21.03
37H	824.14	40.70	4.14	21.22	37.60	28.46	46.00	-17.54
38H	840.14	36.90	4.30	22.25	37.54	25.91	46.00	-20.09
39H	870.05	52.80	4.48	22.70	37.50	42.48	46.00	-3.52
40H	1740.00	43.40	3.20	24.50	33.30	37.80	54.00	-16.20
41H	2610.00	41.10	4.50	28.20	31.80	42.00	54.00	-12.00

CONDUCTED EMISSIONS

DATA SHEETS

COMPATIBLE ELECTRONICS

7/20/2000 15:22:13

BARTON INSTR. SYSTEMS, LLC
CONTROLLER
MODEL: WC20
FCC C - BLACK LEAD
TEST ENGINEER : Kyle Fujimoto
KYLE FUJIMOTO

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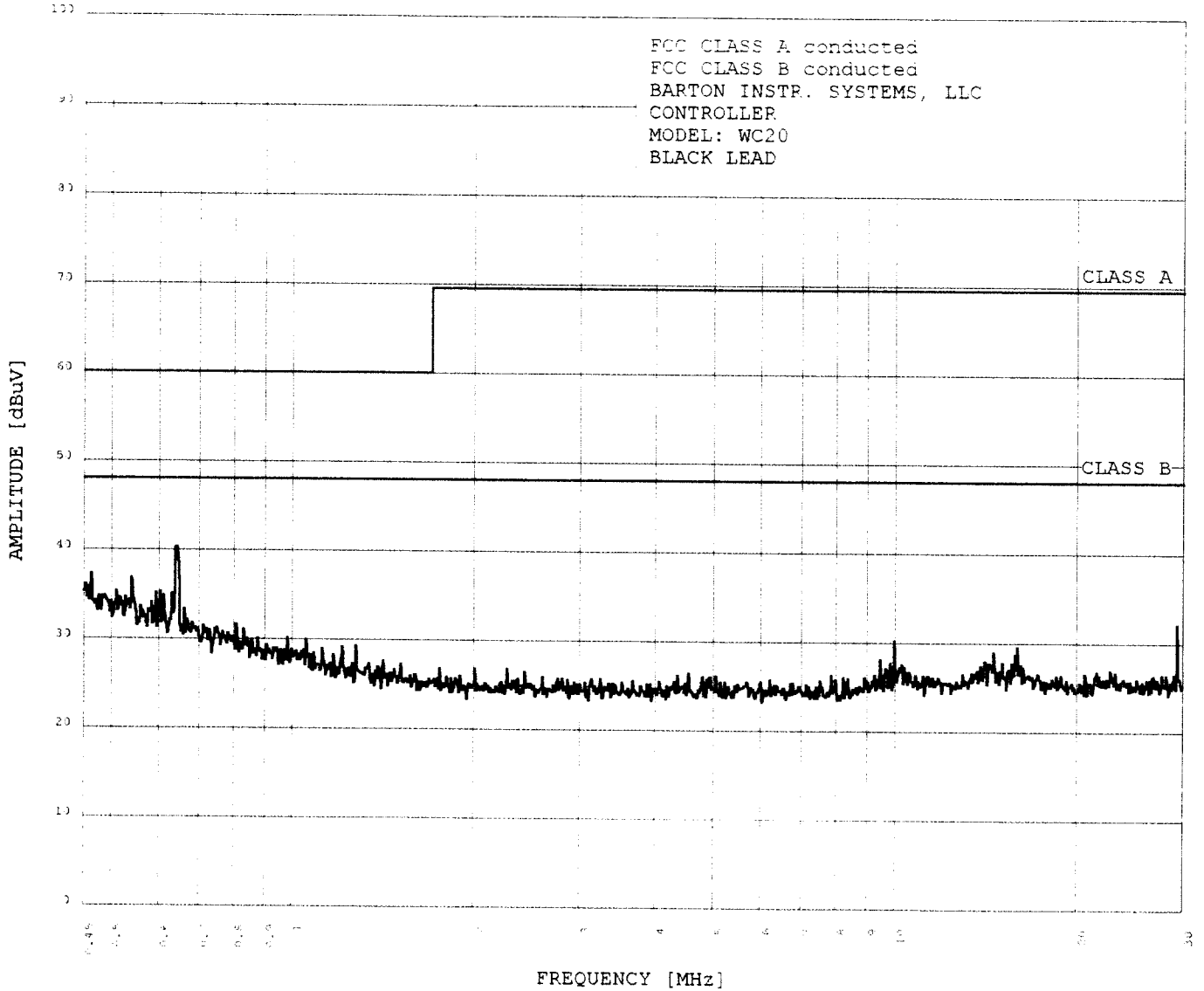
25 highest peaks above -50.00 dB of CLASS B limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.643	40.30	48.00	-7.70
2	0.464	37.20	48.00	-10.80
3	0.542	36.80	48.00	-11.20
4	0.458	35.80	48.00	-12.20
5	0.511	35.30	48.00	-12.70
6	0.604	35.20	48.00	-12.80
7	0.594	35.10	48.00	-12.90
8	0.632	35.00	48.00	-13.00
9	0.487	34.80	48.00	-13.20
10	0.612	34.80	48.00	-13.20
11	0.478	34.70	48.00	-13.30
12	0.528	34.60	48.00	-13.40
13	0.517	34.50	48.00	-13.50
14	0.500	34.10	48.00	-13.90
15	0.584	34.00	48.00	-14.00
16	0.560	33.60	48.00	-14.40
17	0.663	33.30	48.00	-14.70
18	0.668	32.10	48.00	-15.90
19	29.396	32.00	48.00	-16.00
20	0.682	31.70	48.00	-16.30
21	0.810	31.60	48.00	-16.40
22	0.712	31.40	48.00	-16.60
23	0.751	31.20	48.00	-16.80
24	0.831	31.00	48.00	-17.00
25	0.730	30.90	48.00	-17.10

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

7/20/2000 15:22:13



COMPATIBLE ELECTRONICS

COMPATIBLE ELECTRONICS

7/20/2000 15:30:41

BARTON INSTR. SYSTEMS, LLC
CONTROLLER
MODEL: WC20
FCC C - WHITE LEAD
TEST ENGINEER : KYLE FUJIMOTO

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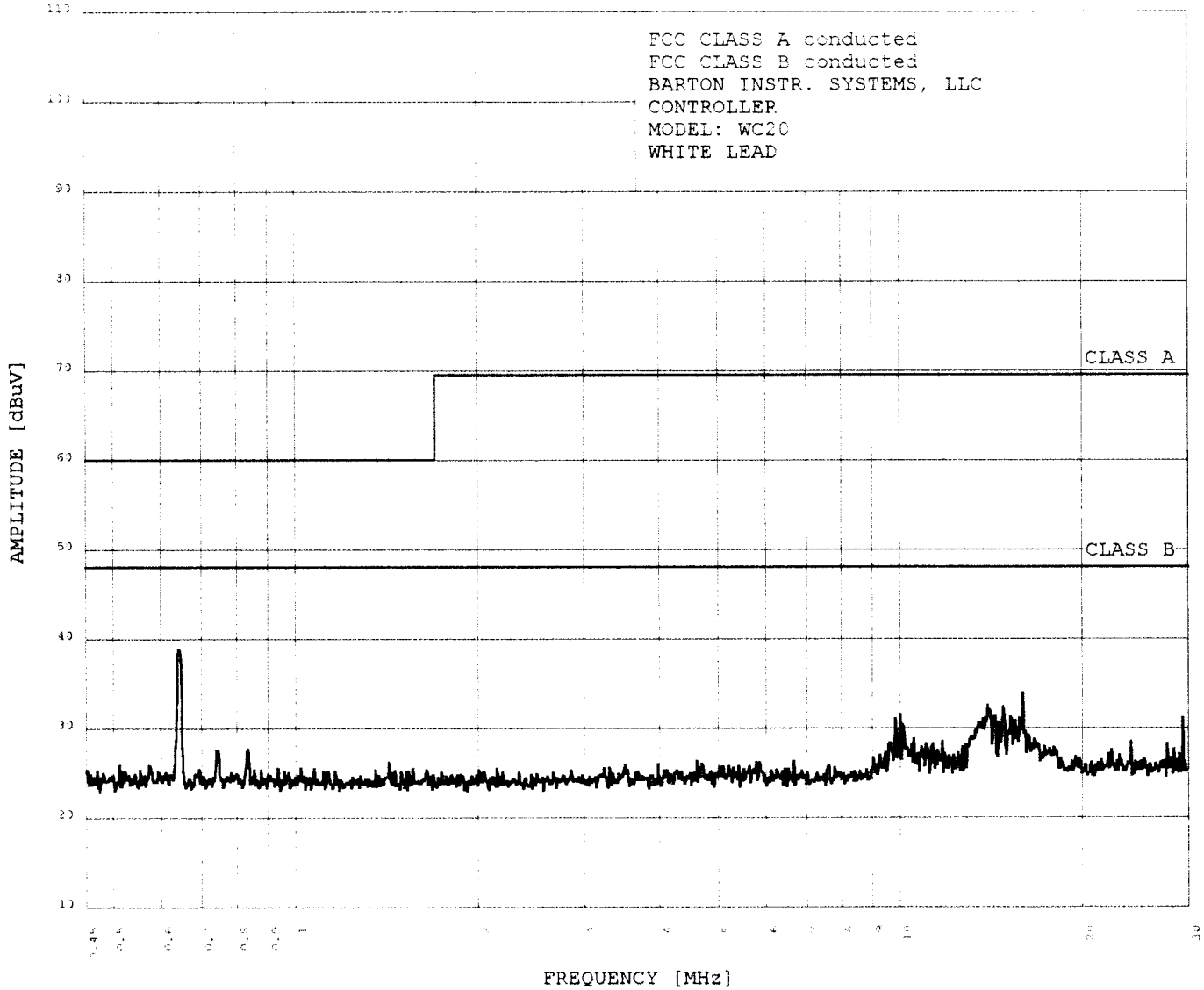
25 highest peaks above -50.00 dB of CLASS B limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.643	38.77	48.00	-9.23
2	15.993	33.83	48.00	-14.17
3	13.973	32.48	48.00	-15.52
4	14.828	32.34	48.00	-15.66
5	10.027	31.39	48.00	-16.61
6	14.396	31.21	48.00	-16.79
7	15.260	31.17	48.00	-16.83
8	29.396	31.06	48.00	-16.94
9	15.791	31.01	48.00	-16.99
10	9.824	30.97	48.00	-17.03
11	13.747	30.96	48.00	-17.04
12	15.523	30.69	48.00	-17.31
13	14.581	30.52	48.00	-17.48
14	10.111	30.29	48.00	-17.71
15	16.328	29.15	48.00	-18.85
16	10.552	28.72	48.00	-19.28
17	16.664	28.68	48.00	-19.32
18	11.765	28.41	48.00	-19.59
19	24.135	28.41	48.00	-19.59
20	9.621	28.26	48.00	-19.74
21	11.333	28.18	48.00	-19.82
22	27.704	28.18	48.00	-19.82
23	11.045	28.16	48.00	-19.84
24	12.848	28.09	48.00	-19.91
25	10.464	28.02	48.00	-19.98

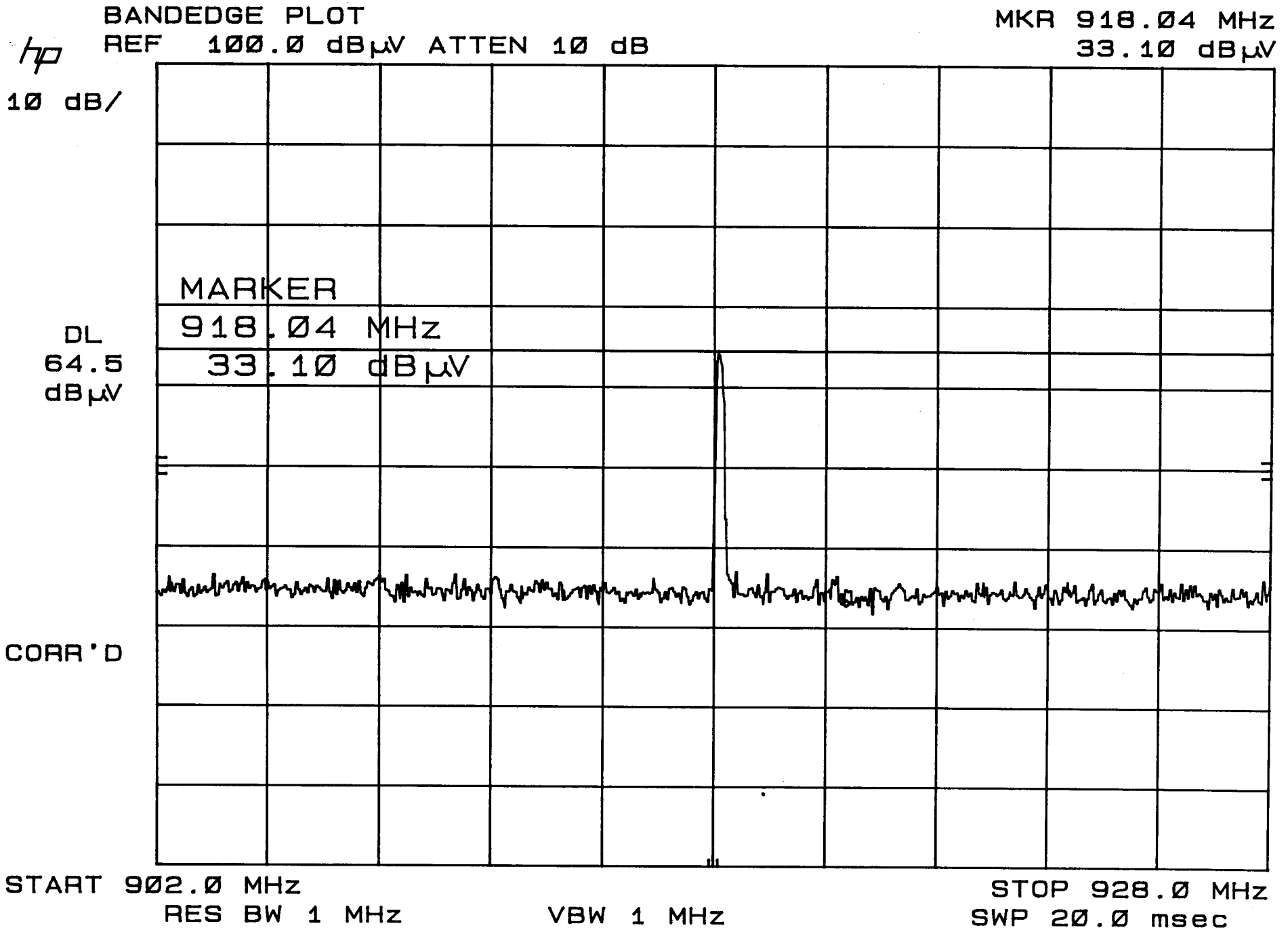
EMISSION LEVEL [dBuV] PEAK
Graph for Peak

7/20/2000 15:30:41



BAND EDGE

DATA SHEETS


BANDEDGE PLOT
REF 100.0 dBµV ATTEN 10 dB
MKR 918.04 MHz
33.10 dBµV
10 dB/
MARKER
918.04 MHz
33.10 dBµV
DL
64.5
dBµV
CORR'D
START 902.0 MHz
RES BW 1 MHz
VBW 1 MHz
STOP 928.0 MHz
SWP 20.0 msec

APPENDIX E

LAB RECOGNITIONS

LAB 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.