

22 May, 2001

Michael Long
Premier Wireless, Inc.
22865-F Savi Ranch Parkway
Yorba Linda CA 92887

Dear Mr. Long,

Enclosed is the report for the 10 Channel 5.8 GHz Video Transmitter, model CS-400T. Please check it thoroughly for discrepancies.

This is an official copy of this report complete with the original Acme Testing staff signatures, which should be retained by you as the official record of testing, as it may be required for future verification of compliance. The EMC Directive requires that either the manufacturer or your authorized representative in Europe keep this data for a period of ten (10) years after the equipment was placed on the market. Please be aware that our internal controls require us to keep a historical copy of your report on file for three years only.

Acme Testing is accredited by the American Association for Laboratory Accreditation. There is a current Mutual Recognition Agreement between the United States, Australia, New Zealand, Singapore, and Hong Kong. This means that the data contained in this report is acceptable to the authorities of these countries.

Acme Testing has been nominated by NIST as a Conformity Assessment Body under the US-EU Mutual Recognition Agreement, and we are a registered facility with the Japanese Voluntary Control Council for Interference by Information Technology Equipment (VCCI).

Thank you for your business and we look forward to being of service should you require testing services in the future.

Yours Sincerely,

Steve FitzGerald
President

:hr
Enclosure

REPORT OF MEASUREMENTS
PART 15C - INTENTIONAL RADIATOR

DEVICE: 10 CHANNEL 5.8 GHZ
VIDEO TRANSMITTER

MODEL: CS-400T

MANUFACTURER: PREMIER WIRELESS, INC.

ADDRESS: 22865-F SAVI RANCH PARKWAY
YORBA LINDA CA 92887

THE DATA CONTAINED IN THIS REPORT WAS
COLLECTED ON 16 & 17 SEPTEMBER 1999 AND COMPILED BY:

PAUL G. SLAVENS
CHIEF EMC ENGINEER

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1. General

1.1 Purpose

The purpose of this report is to show compliance to the FCC CFR requirements for an Intentional Radiator under Part 15C.

1.2 Manufacturer

Company Name: Premier Wireless, Inc.
Contact: Michael Long
Street Address: 22865-F Savi Ranch Parkway
City/State/Zip: Yorba Linda CA 92887
Telephone: 714 283-1251
Fax: 714 283-3672

1.3 Test location

Company: Acme Testing Inc.
Street Address: 2002 Valley Highway
Mailing Address: PO Box 3
City/State/Zip: Acme WA 98220-0003
Laboratory: Test Site 2
Telephone: 888 226-3837
Fax: 360 595-2722
E-mail: acmetest@acmetesting.com
Web: www.acmetesting.com
Receipt of EUT: 14 September 1999

1.4 Test Personnel

Paul G. Slavens

2. Test Results Summary

Summary of Test Results
10 Channel 5.8 GHz Video Transmitter, model CS-400T

Test Specification	Test Description	Compliance Criteria	Status
FCC CFR 47, PART 15C, 15.249	Radiated Emissions 30 MHz - 40 GHz	15.249	Pass
FCC CFR 47, PART 15C, 15.207(a)	Conducted Emissions 0.45 MHz - 30 MHz	15.207(a)	Pass

The signed original of this report, supplied to the client, represents the only “official” copy. Retention of any additional copies (electronic or non-electronic media) is at Acme Testing’s discretion to meet internal requirements only. The client has made the determination that EUT Condition, Characterization, and Mode of Operation are representative of production units, and meet the requirements of the specifications referenced herein.

Consistent with Industry practice, measurement and test equipment not directly involved in obtaining measurement results but having an impact on measurements (such as cable loss, antenna factors, etc.) is factored into the “Correction Factor” documented in certain test results. Instrumentation employed for testing meets tolerances consistent with known Industry Standards and Regulations.

The measurements contained in this report were made in accordance with the procedure ANSI C63.4 - 1992 and all applicable Public Notices received prior to the date of testing. All emissions from the device were found to be within the limits outlined in this report. Acme Testing assumes responsibility only for the accuracy and completeness of this data as it pertains to the sample tested.

Paul G. Slavens
Chief EMC Engineer

Date of Issuance

3. Description of Equipment and Peripherals

3.1 Equipment Under Test (EUT)

Device: 10 Channel 5.8 Video Transmitter
Model Number: CS-400T
Serial Number: 400T9935-00002
FCC ID: LRS-MRE300TX
Power: 120 V/60 Hz
Grounding: Local

3.2 EUT Peripherals

<u>Device</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>FCC ID</u>	<u>Serial Number</u>
Video Camcorder	Canon	ES-80	None	047103268

3.3 Description of Interface Cables

EUT (Video)/Camcorder

Shielded	Unshielded	Flat	Round	Length	Ferrite
Yes	No	No	Yes	1 m	No

EUT (Audio)/Camcorder

Shielded	Unshielded	Flat	Round	Length	Ferrite
Yes	No	No	Yes	1 m	No

ARRANGEMENT OF INTERFACE CABLES: All interface cables were positioned for worst case maximum emissions within the manner assumed to be a typical operation condition (please reference photographs).

3.4 Mode of Operation During Testing

The EUT was exercised by constantly transmitting. The EUT was modulated with input from the camcorder. The EUT was also tested with the camcorder off.

3.5 Modifications Required for Compliance

1. None.

4. Antenna requirement

4.1 Regulation

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of Part 15C. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

The EUT uses a unique coupling device for the antenna. The EUT's antenna is a reverse-threaded SMA connector specifically designed for FCC compliance

5. Radiated Emissions Tests

Test Requirement: FCC CFR47, Part 15C, 15.249

Test Procedure: ANSI C63.4:1992

5.1 Purpose

The purpose of this test is to evaluate the radiated electromagnetic interference characteristics of the EUT.

5.2 Test Procedures

For tabletop equipment, the EUT is placed on a 1 meter by 1.5 meters wide and 0.8 meter high nonconductive table that sits on a flush mounted metal turntable. Floor standing equipment is placed directly on the flush mounted metal turntable. The EUT is connected to its associated peripherals with any excess I/O cabling bundled to approximately 1 meter.

Preview tests are performed to determine the “worst case” mode of operation. With the EUT operating in “worst case” mode, emissions from the unit are maximized by adjusting the polarization and height of the receive antenna and rotating the EUT on the turntable. Manipulating the system cables also maximizes EUT emissions.

Radiated Emissions Test Characteristics

Frequency range	30 MHz – 40 GHz
Test distance	3 meters (30 MHz – 10 GHz) 1 meter (10 GHz – 40 GHz)
Test instrumentation resolution bandwidth	120 kHz (30 MHz – 1 GHz) 1 MHz (1 GHz – 40 GHz)
Receive antenna scan height	1 m - 4 m
Receive antenna polarization	Vertical/Horizontal

5.3 Test Equipment

Spectrum Analyzer: Hewlett-Packard 8567A, Serial Number 2602A-00165, Calibrated: 12 March 1999, Calibration due Date: 12 March 2000

RF Preselector: Hewlett-Packard 85685A, Serial Number 2648A-00392, Calibrated: 12 March 1999, Calibration due Date: 12 March 2000

Quasi Peak Adapter: Hewlett-Packard 85650A, Serial Number 2521A-00689, Calibrated: 12 March 1999, Calibration due Date: 12 March 2000

Line Impedance Stabilization Network: Rhode & Schwarz ESH2-Z5, Serial Number ACMERS1, Calibrated: 28 September 1999, Calibration due Date: 28 September 2000

Broadband Biconical Antenna (20 MHz to 200 MHz): EMCO 3110, Serial Number 1115, Calibrated: 29 June 1999, Calibration due Date: 29 June 2000

Broadband Log Periodic Antenna (200 MHz to 1000 MHz): EMCO 3146, Serial Number 2853, Calibrated: 29 June 1999, Calibration due Date: 29 June 2000

EUT Turntable Position Controller: EMCO 1061-3M 9003-1441, No Calibration Required

Antenna Mast: EMCO 1051 9002-1457, No Calibration Required

2 GHz to 10 GHz Low Noise Preamplifier: Milliwave 593-2898, Serial Number 2494, Calibrated: 31 December 1998, Calibration due Date: 31 December 1999

26.5 – 40 GHz Mixer: Hewlett Packard 11970A, Serial Number 73675, Calibrated 25 June 1999
Calibration due Date: 25 June 2001

18 – 26.5 GHz Mixer: Hewlett Packard 11970K, Serial Number 3003A02976, Calibrated 14 September 1999, Calibration due Date 14 March 2001

Amplifier: Hewlett Packard 11975A, Serial Number 2517A00713, Calibrated 14 September 1999, Calibration due Date: 14 September 2000

Double Ridge Guide Horn Antenna: EMCO 3115, Serial Number 5534, Calibrated: 28 December 1998, Calibration due Date: 28 December 1999

0.1 – 12 GHz Preamplifier: Miteq AFS3-35ULN, Serial Number 540684, Calibrated: 30 January 1999, Calibration due Date: 30 January 2000

Pyramidal Horn Antenna: EMCO 3160-10, Serial Number 9708-1055, No calibration required.

Pyramidal Horn Antenna: EMCO 3160-09, Serial Number 9701-1071, No calibration required.

5.4 Test Results

For detailed plots and listings of all emissions from 30 MHz - 40 GHz, please refer to the accompanying data in the list of attachments.

FUNDAMENTAL AVERAGE DETECTION PRODUCT EMISSIONS

No	Emission Frequency MHz	Spec Limit dBuV/m	Measurements			POL	Site HGT Cm	AZM deg	Correction Factor dB	Comments
			ABS	dLim	Mode					
1	5733.74	94.0	85.1	-8.9	AVG	V	132	99	10.6	CH 1 FUND AVG
2	5792.74	94.0	85.5	-8.5	AVG	V	128	76	10.7	CH 5 FUND AVG
3	5866.46	94.0	86.9	-7.1	AVG	V	100	330	10.9	CH 10 FUND AVG

FUNDAMENTAL PEAK DETECTION PRODUCT EMISSIONS

No	Emission Frequency MHz	Spec Limit dBuV/m	Measurements			POL	Site HGT Cm	AZM deg	Correction Factor dB	Comments
			ABS	dLim	Mode					
1	5733.4	114	87.4	-26.6	PK	V	132	99	10.6	CH 1 FUND PK
2	5791.7	114	86.7	-27.3	PK	V	128	76	10.7	CH 5 FUND PK
3	5865.38	114	90.0	-24.0	PK	V	100	330	10.9	CH 10 FUND PK

FUNDAMENTAL DETECTION WITH NO VIDEO INPUT PRODUCT EMISSIONS

No	Emission Frequency MHz	Spec Limit dBuV/m	Measurements			POL	Site HGT Cm	AZM deg	Correction Factor dB	Comments
			ABS	dLim	Mode					
1	5733.70	94.0	81.5	-12.5	PK	V	128	76	10.6	1 FUND NO VID PK
2	5792.75	94.0	82.5	-11.5	PK	V	128	76	10.7	5 FUND NO VID PK
3	5866.48	94.0	82.5	-11.5	PK	V	103	68	10.9	10 FUN NO VID PK

SPURIOUS AVERAGE DETECTION
PRODUCT EMISSIONS

No	Emission Frequency MHz	Spec Limit dBuV/m	Measurements			POL	Site HGT Cm	AZM deg	Correction Factor dB	Comments
			ABS	dLim	Mode					
1	2459.04	54.0	44.0	-10.1	AVG	H	111	285	1.7	CH 1 SPUR AVG
2	2488.59	54.0	42.9	-11.2	AVG	H	109	293	1.8	CH 5 SPUR AVG
3	2525.50	54.0	45.1	-8.9	AVG	H	108	284	1.9	CH 10 SPUR AVG
4	4918.24	54.0	48.1	-5.9	AVG	V	106	148	8.1	CH 1 SPUR AVG
5	4977.23	54.0	48.0	-6.0	AVG	V	103	336	8.4	CH 5 SPUR AVG
6	5050.99	54.0	48.3	-5.8	AVG	V	103	68	8.7	CH 10 SPUR AVG
7	7377.45	54.0	48.8	-5.2	AVG	V	101	344	12.8	CH 1 SPUR AVG
8	7465.83	54.0	48.1	-5.9	AVG	V	107	38	12.9	CH 5 SPUR AVG
9	7576.48	54.0	50.7	-3.3	AVG	V	145	8	13.0	CH 10 SPUR AVG

SPURIOUS PEAK DETECTION
PRODUCT EMISSIONS

No	Emission Frequency MHz	Spec Limit dBuV/m	Measurements			POL	Site HGT Cm	AZM deg	Correction Factor dB	Comments
			ABS	dLim	Mode					
1	2459.1	74	46.8	-27.2	PK	H	111	285	1.7	CH 1 SPUR PK
2	2488.6	74	46.3	-27.7	PK	H	109	293	1.8	CH 5 SPUR PK
3	2525.55	74	47.5	-26.5	PK	H	108	284	1.9	CH 10 SPUR PK
4	4918.2	74	50.5	-23.5	PK	V	106	148	8.1	CH 1 SPUR PK
5	4977.23	74	51.1	-22.9	PK	V	103	336	8.4	CH 5 SPUR PK
6	5051.0	74	51.8	-22.2	PK	V	103	68	8.7	CH 10 SPUR PK
7	7377.41	74	55.0	-19.0	PK	V	101	344	12.8	CH 1 SPUR PK
8	7465.92	74	53.5	-20.5	PK	V	107	38	12.9	CH 5 SPUR PK
9	7576.51	74	55.6	-18.4	PK	V	145	8	13	CH 10 SPUR PK

6. Conducted Emissions Tests

Test Requirement: FCC CFR47, Part 15C

Test Procedure: ANSI C63.4:1992

6.1 Test Equipment

Spectrum Analyzer: Hewlett-Packard 8567A, Serial Number 2602A-00165, Calibrated:
12 March 1999, Calibration due Date: 12 March 2000

RF Preselector: Hewlett-Packard 85685A, Serial Number 2648A-00392, Calibrated:
12 March 1999, Calibration due Date: 12 March 2000

Quasi Peak Adapter: Hewlett-Packard 85650A, Serial Number 2521A-00689, Calibrated:
12 March 1999, Calibration due Date: 12 March 2000

Line Impedance Stabilization Network: Rhode & Schwarz ESH2-Z5, Serial Number ACMERS1,
Calibrated: 28 September 1999, Calibration due Date: 28 September 2000

6.2 Purpose

The purpose of this test is to evaluate the level of conducted noise the EUT imposes on the AC mains.

6.3 Test Procedures

For tabletop equipment, the EUT is placed on a 1 meter by 1.5 meters wide and 0.8 meter high nonconductive table that is placed above the groundplane. Floor standing equipment is placed directly on the groundplane. Any supplemental grounding mechanisms are connected, if appropriate. The EUT is connected to its associated peripherals, with any excess I/O cabling bundled to approximately 1 meter. The EUT is connected to a dedicated LISN and all peripherals are connected to a second separate LISN circuit. The LISNs are bonded to the groundplane.

Preview tests are performed to determine the “worst case” mode of operation. With the EUT operating in “worst case” mode, final conducted measurements are taken. Conducted measurements are made on each current carrying conductor with respect to ground.

Conducted Emissions Test Characteristics

Frequency range	0.15 MHz - 30.0 MHz
Test instrumentation resolution bandwidth	9 kHz
Lines Tested	Line 1/Line 2

6.4 Test Results

A summary of the highest amplitude emissions is listed below. For detailed plots of all emissions from 0.15 MHz - 30 MHz, please refer to the accompanying data in the list of attachments.

LINE 1

PEAK #	FREQ. (MHz)	AMPL (dBuV)
1	16.96	36.7
2	17.1	36.7
3	17.91	40.0
4	18.06	40.0
5	18.75	37.6
6	18.91	37.3

LINE 2

PEAK #	FREQ. (MHz)	AMPL (dBuV)
1	1.345	29.7
2	2.677	29.4
3	2.803	29.8
4	18.13	31.9
5	18.36	31.5
6	19.15	30.2

7. Miscellaneous Comments and Notes

1. None.

8. List of Attachments

1. Plots of all band edge. (4)
2. Plots of all conducted emissions. (2)
3. Photographs of test set-ups. (1)