



EMC TEST REPORT

Report No. : EME-010138

Model No. : PC-7205

Issued Date : Mar. 28, 2001

Applicant : Procarc International Co.
11F-6, No. 410, Sec. 5, Chung Hsiao East Rd.,
Taipei, Taiwan, R.O.C.

Test By : Intertek Testing Services Taiwan Ltd.
No. 11, Ko-Tze-Nan Chia-Tung Li, Shiang-Shan District,
Hsinchu, Taiwan, R.O.C.

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Test Engineer

Elton Chen

Approved By

J. T. CHEN
MANAGER (EMC LABORATORY)
ETL SEMKO DIVISION



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Intertek Testing Services

ETL SEMKO

FCC ID. : POSPC-7205

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1. Summary of Tests

FM Stereo Transmitter -Model: PC-7205

FCC ID: POSPC-7205

Test	Reference	Results
Radiated Measurements	15.33(a)(1)	Complies
Radiated Emission	15.239(b), 15.209	Complies
Bandwidth and Band-edge test	15.239(a)	Complies



1.1 General Information

1.2 Identification of the EUT

Manufacturer	: Procure International Co.
Product	: FM Stereo Transmitter
Model No.	: PC-7205
FCC ID.	: POSPC-7205
Operation Frequency	: 88.3-90.3 MHz
Type of Modulation	: FM
Power Supply	: 1.5Vdc Battery
Power Cord	: N/A
Sample Received	: Feb. 22, 2001
Test Date(s)	: April 09, 2001

The attached antenna on antenna port is a fixed internal antenna.
(Please refer to the photo attached as an appendix.)

1.3 Test Standard

The equipment under test (EUT) is a FM stereo transmitter, it could transfer audio signal to a radio receiver via space. This product converts MD/CD in a wireless format. The transmitter portion is subject to the FCC Part 15 Subpart C Section 15.239 evaluation. Test date is included in this report.

For more detail features, please refer to user's Manual.

1.4 Support equipment

1. Compact Disc Player

Product No.	: XP-K7
Serial No.	: S04LJ91G0919
Manufacturer	: AIWA Co., Ltd.
2. Adapter

Product No.	: AC-A56HE
Serial No.	: N/A
Manufacturer	: N/A



2. Test Condition

2.1 Test Standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Section 15.239.

Due to battery operate the AC power conducted emissions wasn't performed.

Radiated emissions were invested over the frequency range from 30 MHz to 1000 MHz using a receiver bandwidth of 120kHz.

Radiated emission testing was performed at a 3m open field test site.

The EUT setup configuration describes as follows:

A fully charged battery powered the EUT.

The signal was generated from CD Player and was transmitted to transmitter

2.2 Modifications Required for Compliance

No modification were installed during test performance to bring the product into compliance (Please note that this list does not include changes made specifically by Procare International Co., Prior to compliance testing.)



2.3 Test Equipment

Radiated Emission

Equipment	Brand	Model No.	Series No.
EMI Receiver	Rohde & Schwarz	ESCS 30	825788/014
EMI Spectrum	Rohde & Schwarz	ESMI	825428/005
EMI Spectrum	Advantest	R3132	101003445
Pre-Amplifier	Advantest	BB525C	83120047
Horn Antenna	EMCO	3115	9908-5890
Turn Table	Electro-Metrics	EM4710	350101
Bilog Antenna	Electro-Metrics	EM-6917-1	N/A
Antenna Tower	Electro-Metrics	EM-4720	410109

Note:

1. The calibration interval of the above instruments is 12 months.

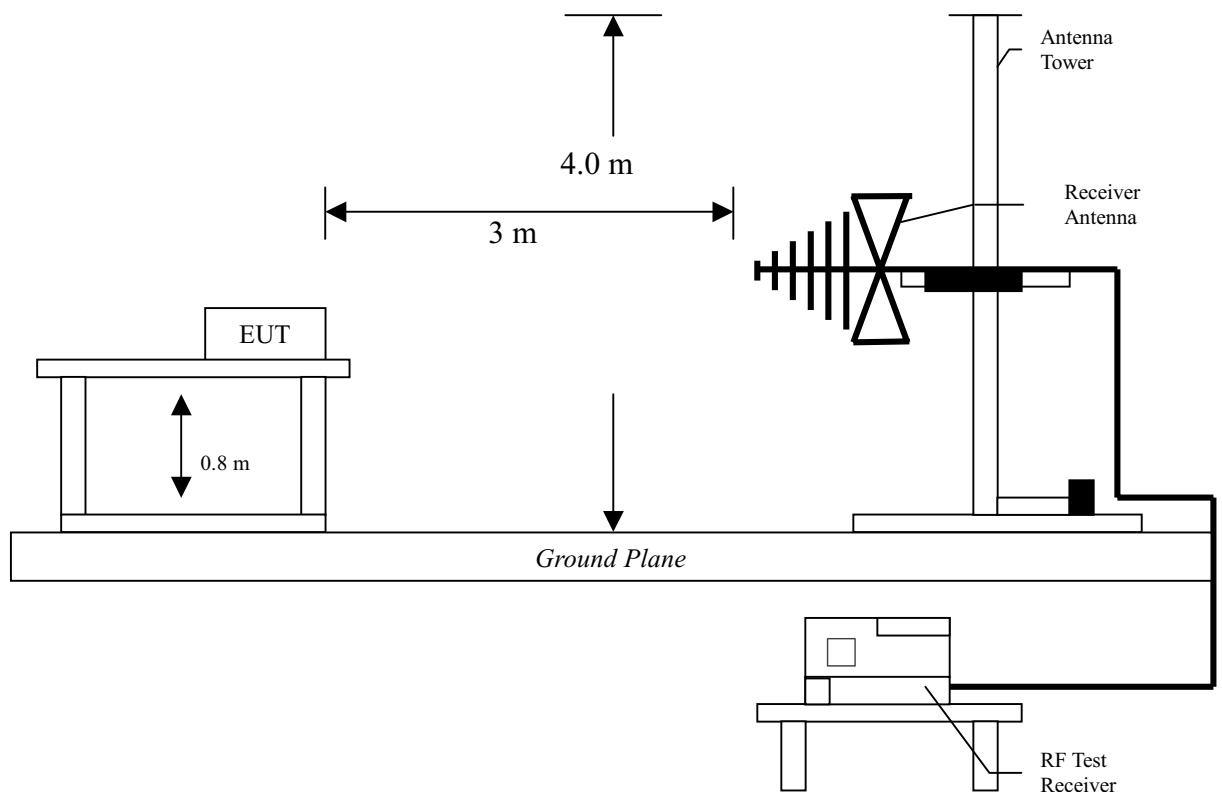
3. Radiated Emission Test (15.239)

3.1 Operating Environment

Temperature: 20 °C
Relative Humidity: 68 %

3.2 Test Setup & procedure

The Diagram below shows the test setup, which is utilized to make these measurements.



The signal is maximized through rotation and placement in the three orthogonal axes. Radiated emission measurement were performed from 30MHz to tenth harmonics. The EUT and its simulators are placed on a turntable which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4/1992 on radiated measurement. The bandwidth below 1GHz setting on the field strength meter (R&S Receiver ESCS 30) is 120kHz and above 1GHz is 1MHz.



3.3 Radiated Emission Limit

3.3.1 Fundamental Emission Limits

According to CFR 47 FCC Part 15 subpart C 15.239 (b), the field strength of any emissions within the permitted 200kHz band shall not exceed 250 microvolts/meter at 3 m. The emission limit is based on measurement instrumentation employing an average detector.

Frequency range (MHz)	Limit	
	μ V/m@3m	(dB μ V/m@3m)
88~108	250	(47.9)

3.3.2 Harmonic Emission Limits

According to CFR 47 FCC Part 15 subpart C 15.239 (c), the field strength of any emissions radiated on any frequency outside of the specified 200kHz band shall not exceed the general radiated emission limits in 15.209.

Frequency MHz	FCC 15.209 Limits	
	μ V/m@3m	(dB μ V/m@3m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system



3.4 Radiated Emission Test Data

Worst Case Radiated Emission at Horizontal Polarization,

Condition: Higher Frequency 360. 01MHz,

Margin: -2.34 dB

3.4.1 Fundamental Radiated Emission Data

EUT : PC-7205
Testing Mode : Transmitting
Condition : Lower Frequency

Freq. (MHz)	Spec. Analyzer Detector	Ant. Polariz.	Reading Level (dB μ V)	Correction Factor (dB)	Calculated Level (dBu/m)	Limit (dBuV/m)	Margin (dB)
88.346	AV	H	32.13	8.61	40.74	47.9	-7.16
88.346	AV	V	36.35	8.61	44.96	47.9	-2.94

EUT : PC-7205
Testing Mode : Transmitting
Condition : Higher Frequency

Freq. (MHz)	Spec. Analyzer Detector	Ant. Polariz.	Reading Level (dB μ V)	Correction Factor (dB)	Calculated Level (dBu/m)	Limit (dBuV/m)	Margin (dB)
90.025	AV	H	28.88	8.61	37.49	47.9	-10.41
90.025	AV	V	37.75	8.61	39.36	47.9	-8.54

Remark:

1. Calculated Level = Reading Level + Correction Factor
2. Uncertainty was calculated in accordance with NAMAS NIS 81. In the General Radiated Emission Test, the uncertainty is within ± 2.5 dB
3. All the Harmonics don't show on the above table were undetectable.

* Emission within the restricted band meets the requirement of part 15.205.
The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000MHz.



3.4.2 Harmonic Radiated Emission Data

EUT : PC-7205
Testing Mode : Transmitting
Condition : Lower Frequency

Freq. (MHz)	Spec. Analyzer Detector	Ant. Polariz.	Reading Level (dB μ V)	Correction Factor (dB)	Calculated Level (dBu/m)	Limit (dBuV/m)	Margin (dB)
176.692	AV	H	14.38	10.97	25.35	43.5	-18.15
*265.038	AV	H	20.5	14.86	35.36	46	-10.64
353.384	AV	H	24.63	18.53	43.16	46	-2.84
441.73	AV	H	2.13	21.11	23.24	46	-22.76
530.076	AV	H	-5.88	22.91	17.03	46	-28.97

EUT : PC-7205
Testing Mode : Transmitting
Condition : Lower Frequency

Freq. (MHz)	Spec. Analyzer Detector	Ant. Polariz.	Reading Level (dB μ V)	Correction Factor (dB)	Calculated Level (dBu/m)	Limit (dBuV/m)	Margin (dB)
176.692	AV	V	15.63	10.97	26.6	43.5	-16.9
*265.038	AV	V	13.88	14.86	28.74	46	-17.26
353.384	AV	V	14.63	18.53	33.16	46	-12.84
441.73	AV	V	-2.25	21.11	18.86	46	-27.14
530.076	AV	V	-3.78	22.91	19.13	46	-26.87

Remark:

1. Calculated Level = Reading Level + Correction Factor
2. Uncertainty was calculated in accordance with NAMAS NIS 81. In the General Radiated Emission Test, the uncertainty is within ± 2.5 dB
3. All the Harmonics don't show on the above table were undetectable.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000MHz.



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EUT : PC-7205
Testing Mode : Transmitting
Condition : Higher Frequency

Freq. (MHz)	Spec. Analyzer Detector	Ant. Polariz.	Reading Level (dB μ V)	Correction Factor (dB)	Calculated Level (dBu/m)	Limit (dBuV/m)	Margin (dB)
179.96	AV	H	19.63	11.14	30.77	43.5	-12.73
*269.98	AV	H	22.63	14.86	37.49	46	-8.51
360.01	AV	H	24.13	19.53	43.66	46	-2.34
449.96	AV	H	1.38	21.11	22.49	46	-23.51
539.98	AV	H	6.63	22.91	29.54	46	-16.46

EUT : PC-7205
Testing Mode : Transmitting
Condition : Higher Frequency

Freq. (MHz)	Spec. Analyzer Detector	Ant. Polariz.	Reading Level (dB μ V)	Correction Factor (dB)	Calculated Level (dBu/m)	Limit (dBuV/m)	Margin (dB)
179.96	AV	V	16.13	11.14	27.27	43.5	-16.23
*269.98	AV	V	14.38	14.86	29.24	46	-16.76
359.95	AV	V	14.5	19.53	34.03	46	-11.97
449.96	AV	V	1.58	21.11	22.69	46	-23.31
539.98	AV	V	2.46	22.91	25.37	46	-20.63

Remark:

1. Calculated Level = Reading Level + Correction Factor
2. Uncertainty was calculated in accordance with NAMAS NIS 81. In the General Radiated Emission Test, the uncertainty is within ± 2.5 dB
3. All the Harmonics don't show on the above table were undetectable.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000MHz.



3.5 Radiated Emission Configuration Photograph

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: **Opensite-setup.pdf**



4. Bandwidth and Band-edge test

According to CFR 47 FCC Part 15 subpart C 15.239 (a), emission from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly with the frequency range 88-108 MHz.

Test Result:

Bandwidth: 171kHz (<200kHz) please refer to filename: **bandwidth.pdf**

Band-edge test result please refers to filename: **bd-lower freq.pdf**,
bd-higher freq.pdf