

Precor, Inc.

FM Stereo Transmitter Module

February 08, 2005

Report No. PRCR0038

Report Prepared By



www.nwemc.com

1-888-EMI-CERT

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EMC Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: February 08, 2005

Precor, Inc.

Model: FM Stereo Transmitter Module

Emissions			
Specification	Test Method	Pass	Fail
FCC 15.207 AC Powerline Conducted Emissions:2004	ANSI C63.4:2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC 15.249:2004	ANSI C63.4:2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Modifications made to the product
See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
14128 339th Avenue SE, Sutan, Washington 98294
Phone: (360) 793-8675
Fax: (360) 793-2536

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Greg Kiemel, Director of Engineering

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested; the specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities, have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.



NVLAP: Northwest EMC, Inc. is recognized under the United States Department of Commerce, National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.



200629-0
200630-0
200676-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.



CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0401C



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Technology International: Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.



Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body. (NVLAP)



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (Registration Nos. - Hillsboro: C-1071 and R-1025, Irvine: C-2094 and R-1943, Newberg: C-1877 and R-1760, Sultan: R-871, C-1784 and R-1761)



BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.



GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/scope.asp>

How important is it to understand performance criteria?

It is the responsibility of the test laboratory to observe the results of the tests that are performed and to accurately report those results. As the responsible party (manufacturer, importer, etc) it is your responsibility to take those results, compare them against the specifications and standards, then, if appropriate make a declaration of conformity. As the responsible party it makes sense that you are fully aware of the requirements, how your device performs when tested to those requirements, and what information is being used to declare conformity.

To better assist you in making those conformity decisions, Northwest EMC has adopted a very simple, yet very clear performance assessment procedure. The following criteria is used when performing immunity or susceptibility tests:

Performance Criteria 1:

- ❑ The EUT exhibited no change in performance when operating as specified by the manufacturer. In this case no changes were observed during the test.
- ❑ In most cases this would be equivalent to Performance Criteria A. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, no changes were observed. Basically nothing happened.

Performance Criteria 2:

- ❑ The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment recovered without any operator intervention, once the test signal was removed. The data sheets will detail the exact phenomena observed.
- ❑ In most cases this would be equivalent to Performance Criteria B. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT was able to recover from those changes without any operator intervention, once the test signal was removed.

Performance Criteria 3:

- ❑ The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment required some operator intervention in order to recover. This intervention may be in the form of changing EUT settings, or even resetting the system. The data sheets will detail the exact phenomena observed.
- ❑ In most cases this would be equivalent to Performance Criteria C. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT required some sort of operator intervention to recover. There was no permanent damage and the EUT appeared to function normally after completion of test.

Performance Criteria 4:

- ❑ The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment was damaged and would not recover. The data sheets will detail the exact phenomena observed.
- ❑ In most cases there is no specific criterion to compare this to, it typically ends the test. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. There was no recovery; the equipment would no longer function as intended.

Each of the standards and specifications has unique performance criteria. In order to make an accurate assessment, one must compare the test results provided with the specific performance criteria. **To ensure that a responsible party is compliant with the specifications, one must read and understand those specifications. Provided below is a sample performance criteria, taken from EN 61000-6-1.**

EN 61000-6-1 Performance Criteria

Performance Criteria A: *The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.*

Performance Criteria B: *The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.*

Performance Criteria C: *Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of controls.*

How should a device perform in order for a declaration of conformity to be made?

As already stated, it is the responsible party that must interpret and understand the results in such a way that a declaration of conformity is made. Having said that, we are often asked to render our opinion as to how a device should perform. Our recommendation simply follows the standards, as can be referenced below. Most of the standards and specifications offer the same performance criterion shown below as their requirements.

Test	Performance Criteria typically specified by the Standard	Equivalent Northwest EMC Performance Criteria
ESD	Performance Criteria B	Performance Criteria 1 or 2
Radiated RF	Performance Criteria A	Performance Criteria 1
EFT/Burst	Performance Criteria B	Performance Criteria 1 or 2
Surge	Performance Criteria B	Performance Criteria 1 or 2
Conducted RF	Performance Criteria A	Performance Criteria 1
Magnetic Field	Performance Criteria A	Performance Criteria 1
Voltage Dips and Variations	Performance Criteria B & C	Performance Criteria 1, 2, or 3

What is measurement uncertainty?

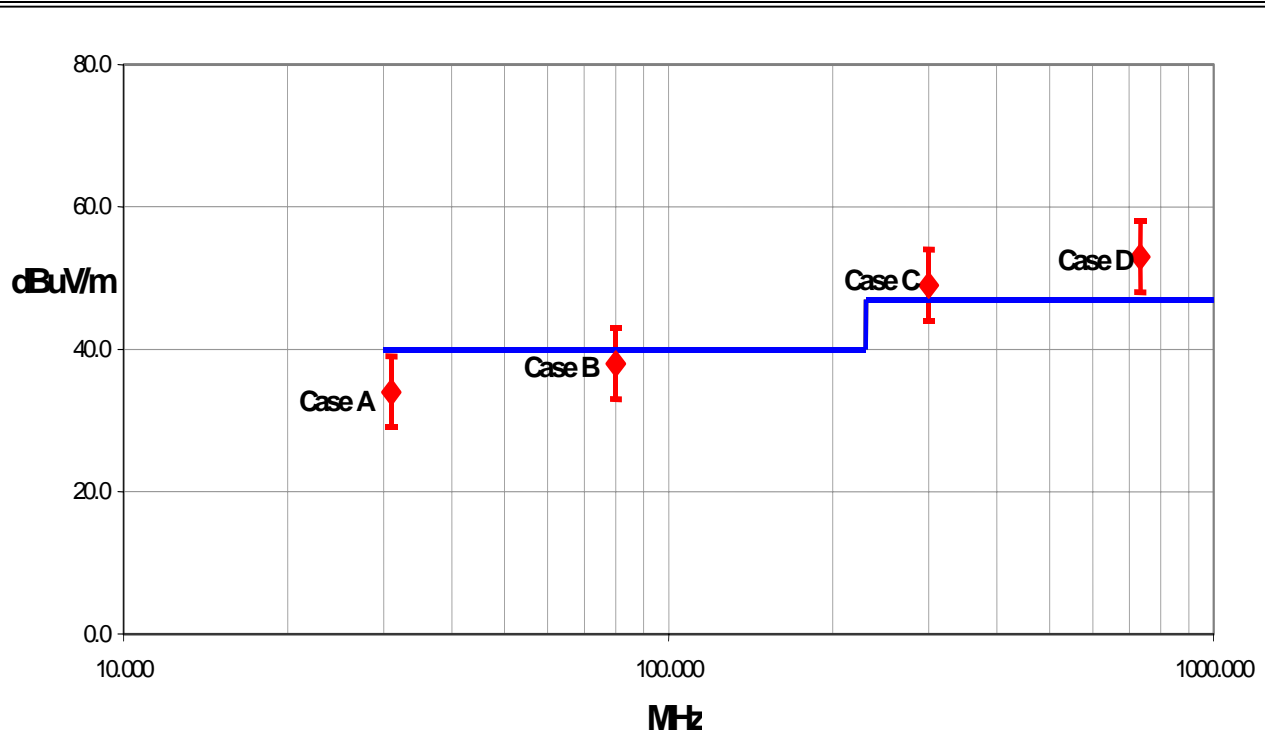
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- "ISO Guide to the Expression of Uncertainty in Measurements", October 1993
- "NIS81: The Treatment of Uncertainty in EMC Measurements", May 1994
- "IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques", December 2000

How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and - measurement uncertainty, then test results can be interpreted from the diagram below.



Test Result Scenarios:

Case A: Product complies.

Case B: Product conditionally complies. It is not possible to say with 95% confidence that the product complies.

Case C: Product conditionally does not comply. It is not possible to say with 95% confidence that the product does not comply.

Case D: Product does not comply.

Radiated Emissions ≤ 1 GHz

Value (dB)

Test Distance	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
		3m	10m	3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.86	+ 1.82	+ 2.23	+ 1.29	+ 1.31	+ 1.25
		- 1.88	- 1.87	- 1.41	- 1.26	- 1.27	- 1.25
Expanded uncertainty U (level of confidence ≈ 95%)	normal (k=2)	+ 3.72	+ 3.64	+ 4.46	+ 2.59	+ 2.61	+ 2.49
		- 3.77	- 3.73	- 2.81	- 2.52	- 2.55	- 2.49

Radiated Emissions > 1 GHz

Value (dB)

Test Distance	Probability Distribution	Without High Pass Filter		With High Pass Filter	
		3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.29	+ 1.29	+ 1.38	+ 1.38
		- 1.25	- 1.25	- 1.35	- 1.35
Expanded uncertainty U (level of confidence ≈ 95%)	normal (k=2)	+ 2.57	+ 2.57	+ 2.76	+ 2.76
		- 2.51	- 2.51	- 2.70	- 2.70

Conducted Emissions

	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.48
Expanded uncertainty U (level of confidence ≈ 95 %)	normal (k = 2)	2.97

Radiated Immunity

	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence ≈ 95 %)	normal (k = 2)	2.11

Conducted Immunity

	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence ≈ 95 %)	normal (k = 2)	2.10

Legend

$u_c(y)$ = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: k . This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then $k=3$ (CL of 99.7%) can be used. Please note that with a coverage factor of one, $u_c(y)$ yields a confidence level of only 68%.



California

Orange County Facility

Labs OC01 – OC13

41 Tesla Ave.
Irvine, CA 92618
(888) 364-2378
FAX (503) 844-3826



Oregon

Evergreen Facility

Labs EV01 – EV10

22975 NW Evergreen Pkwy.,
Suite 400
Hillsboro, OR 97124
(503) 844-4066
FAX (503) 844-3826



Oregon

Trails End Facility

Labs TE01 – TE03

30475 NE Trails End Lane
Newberg, OR 97132
(503) 844-4066
FAX (503) 537-0735



Washington

Sultan Facility

Labs SU01 – SU07

14128 339th Ave. SE
Sultan, WA 98294
(888) 364-2378
FAX (360) 793-2536

Party Requesting the Test

Company Name:	Precor, Inc.
Address:	PO Box 7202
City, State, Zip:	Woodinville, WA 98072-4002
Test Requested By:	Rodney Bramel
Model:	FM Stereo Transmitter Module
First Date of Test:	02-03-2005
Last Date of Test:	02-03-2005
Receipt Date of Samples:	02-03-2005
Equipment Design Stage:	Pre-Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	4, 7.6, 8 MHz
I/O Ports:	Audio In

Functional Description of the EUT (Equipment Under Test):

Audio wireless entertainment transmitter.

Client Justification for EUT Selection:

The product is an engineering sample, representative of the final product.

Client Justification for Test Selection:

These tests satisfy the requirements for FCC Certification under 47 CFR 15.249.

EUT Photo

Equipment modifications

Item	Test	Date	Modification	Note	Disposition of EUT
1	Field Strength of Spurious Emissions	02/03/2005	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
2	Field Strength of Fundamental	02/03/2005	No EMI suppression devices were added or modified during this test.	Same configuration as in previous test.	EUT remained at Northwest EMC.
3	Conducted Emissions	02/03/2005	No EMI suppression devices were added or modified during this test.	Same configuration as in previous test.	EUT was returned to client following testing.

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

Low

Mid

High

Operating Modes Investigated:

Modulated

Antennas Investigated:

Integral

Data Rates Investigated:

Typical - Audio

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

Exercise software	Standard Production Software	Version	Unknown
Description			
The system was tested using standard operating production software to exercise the functions of the device during the testing.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
EUT-FM Stereo Transmitter Module	Precor, Inc.	FM Stereo Transmitter Module	0407xTV9T1234
CD Player	Magnavox	AZ8050/17D	KT029819655951
AC Adapter for EUT	Precor, Inc.	109033	none

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Audio	No	1.2	No	CD Player	EUT-FM Stereo Transmitter Module
DC Leads	No	2.0	No	AC Adapter for EUT	EUT-FM Stereo Transmitter Module
AC Power	No	2.0	No	CD Player	AC Mains

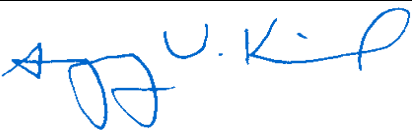
Measurement Equipment						
Description	Manufacturer	Model	Identifier	Last Cal	Interval	
Spectrum Analyzer	Hewlett-Packard	8568B	AAE	12/02/2004	13 mo	
Quasi-Peak Adapter	Hewlett Packard	85650A	AQG	12/02/2004	13 mo	
Antenna, Log Periodic	EMCO	3146	ALH	11/13/2003	16 mo	

Test Description

Requirement: The field strength of the fundamental emission shall comply with the limits, as defined in 47 CFR 15.249. Field strength limits are specified at a distance of 3 meters.

Configuration: The single, integral antenna to be used with the EUT was tested. The EUT was transmitting and/or receiving while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003).

Completed by:



EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 38%	
Cust. Ref. No.:	Barometric Pressure: 30.43	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU02

TEST SPECIFICATIONS		
Specification: FCC 15.249:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

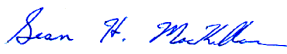
COMMENTS
 CD player connected at audio input of EUT

EUT OPERATING MODES
 Transmitting with modulation

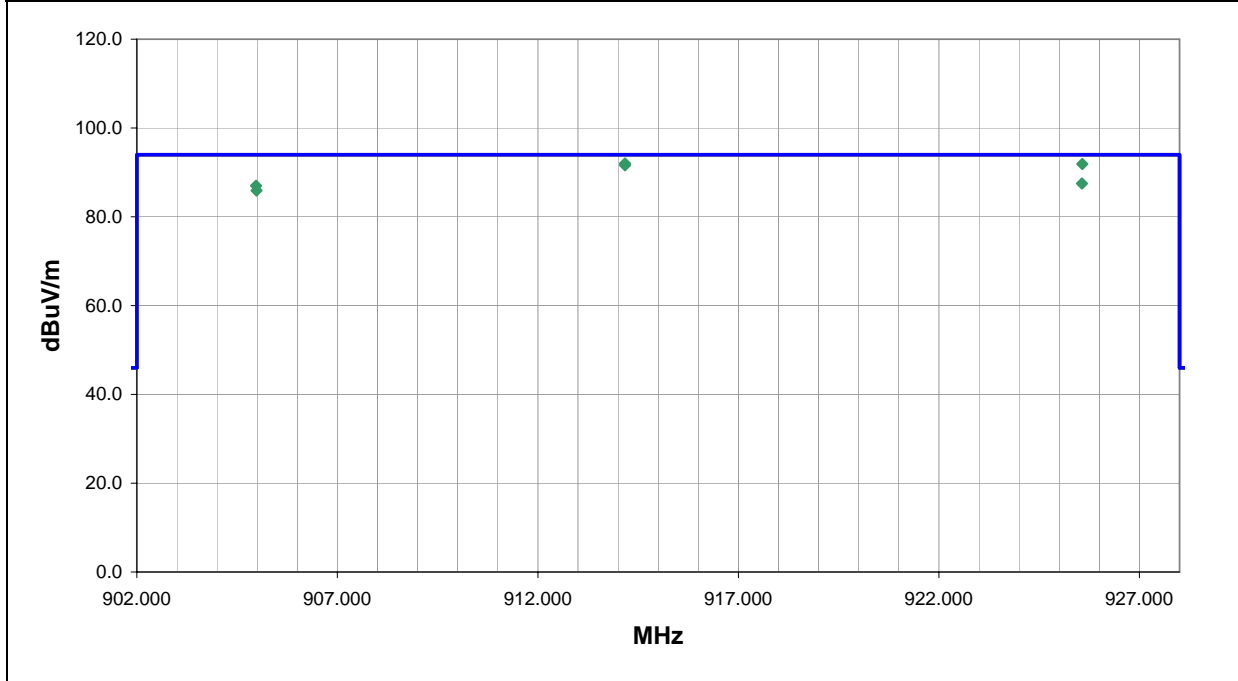
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Run #
Pass	1

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
914.172	65.0	27.0	300.0	1.2	3.0	0.0	V-LPA	QP	0.0	92.0	94.0	-2.0
925.573	64.7	27.2	60.0	1.0	3.0	0.0	H-LPA	QP	0.0	91.9	94.0	-2.1
914.174	64.6	27.0	30.0	2.5	3.0	0.0	H-LPA	QP	0.0	91.6	94.0	-2.4
925.568	60.3	27.2	300.0	1.2	3.0	0.0	V-LPA	QP	0.0	87.5	94.0	-6.5
904.972	60.1	26.9	30.0	1.8	3.0	0.0	H-LPA	QP	0.0	87.0	94.0	-7.0
904.983	59.0	26.9	300.0	1.2	3.0	0.0	V-LPA	QP	0.0	85.9	94.0	-8.1







Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

Low

Mid

High

Operating Modes Investigated:

Transmitting with modulated carrier – no receive mode capability

Antennas Investigated:

Integral

Data Rates Investigated:

Typical - Audio

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Frequency Range Investigated:

30 MHz to 10 GHz

Software\Firmware Applied During Test

Exercise software	Standard Production Software	Version	Unknown
Description			
The system was tested using standard operating production software to exercise the functions of the device during the testing.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
EUT-FM Stereo Transmitter Module	Precor, Inc.	FM Stereo Transmitter Module	0407xTV9T1234
CD Player	Magnavox	AZ8050/17D	KT029819655951
AC Adapter for EUT	Precor, Inc.	109033	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Audio	No	1.2	No	CD Player	EUT-FM Stereo Transmitter Module
DC Leads	No	2.0	No	AC Adapter for EUT	EUT-FM Stereo Transmitter Module
AC Power	No	2.0	No	CD Player	AC Mains

Measurement Equipment					
Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Hewlett-Packard	8568B	AAE	12/02/2004	13 mo
Quasi-Peak Adapter	Hewlett Packard	85650A	AQG	12/02/2004	13 mo
Antenna, Log Periodic	EMCO	3146	ALH	11/13/2003	16 mo
Pre-Amplifier	Miteq	AM-1402	AOQ	11/18/2003	16 mo
Spectrum Analyzer	Hewlett-Packard	8593EM	AAM	12/02/2004	13 mo
Antenna, Horn	EMCO	3115	AHJ	05/27/2003	24 mo
Pre-Amplifier	Hewlett-Packard	83017A	APL	12/06/2004	13 mo
High Pass Filter	Micro-Tronics	HPM50114	HFN	05/23/2004	13 mo

Test Description

Requirement: The field strength of harmonics and spurious radiated emissions shall comply with the limits as defined in 47 CFR 15.249. Field strength limits are specified at a distance of 3 meters. Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Sec. 15.209, whichever is the lesser attenuation. As shown in Sec. 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified in Sec. 15.249 by more than 20 dB under any condition of modulation.

Configuration: The single, integral antenna to be used with the EUT was tested. The EUT was transmitting while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Bandwidths Used for Measurements			
Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 – 0.15	1.0	0.2	0.2
0.15 – 30.0	10.0	9.0	9.0
30.0 – 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

Completed by:

RADIATED EMISSIONS DATA SHEET

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 38%	
Cust. Ref. No.:	Power: 120VAC/60Hz	Barometric Pressure 30.43
Tested by: Sean MacKellar	Job Site: SU02	

TEST SPECIFICATIONS	
Specification: FCC 15.249:2004	Method: ANSI C63.4:2003

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS
 CD player connected at audio input of EUT

EUT OPERATING MODES
 Transmitting with modulation

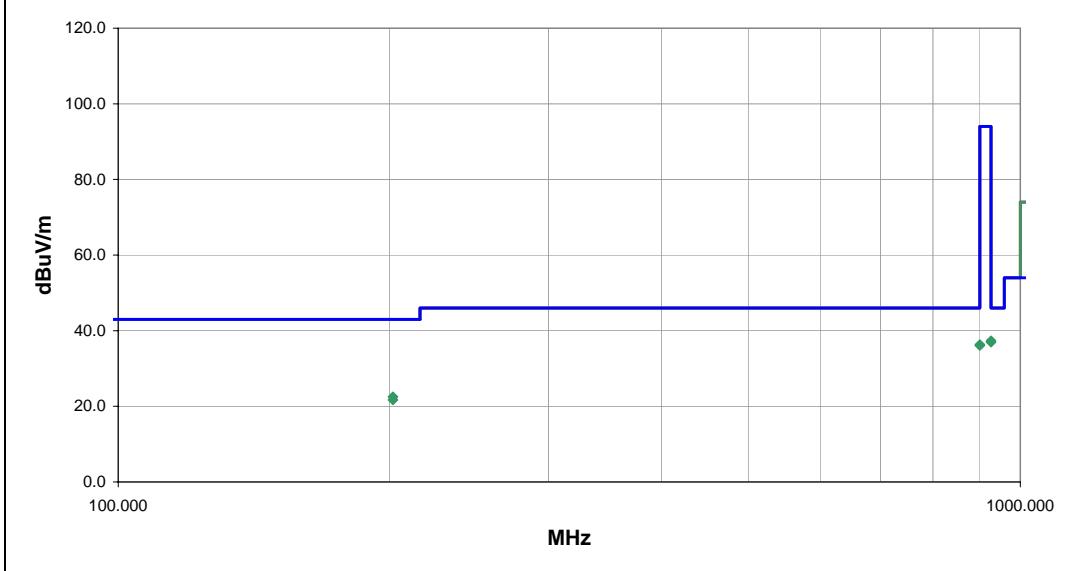
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Run #
Pass	2

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
928.028	18.6	8.7	60.0	1.0	3.0	10.0	H-LPA	QP	0.0	37.3	46.0	-8.7	High Channel
928.001	18.3	8.7	90.0	1.0	3.0	10.0	V-LPA	QP	0.0	37.0	46.0	-9.0	High Channel
902.000	18.2	8.1	90.0	1.0	3.0	10.0	H-LPA	QP	0.0	36.3	46.0	-9.7	Low Channel
902.000	18.0	8.1	70.0	1.6	3.0	10.0	V-LPA	QP	0.0	36.1	46.0	-9.9	Low Channel
201.640	19.0	-6.5	30.0	4.0	3.0	10.0	H-LPA	QP	0.0	22.5	43.0	-20.5	Low Channel
201.640	18.2	-6.5	90.0	1.0	3.0	10.0	V-LPA	QP	0.0	21.7	43.0	-21.3	Low Channel

RADIATED EMISSIONS DATA SHEET

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.43	
Tested by: Greg Kiemel	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS	
Specification: FCC 15.249:2004	Method: ANSI C63.4:2003

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator


COMMENTS
 CD player connected at audio input of EUT.

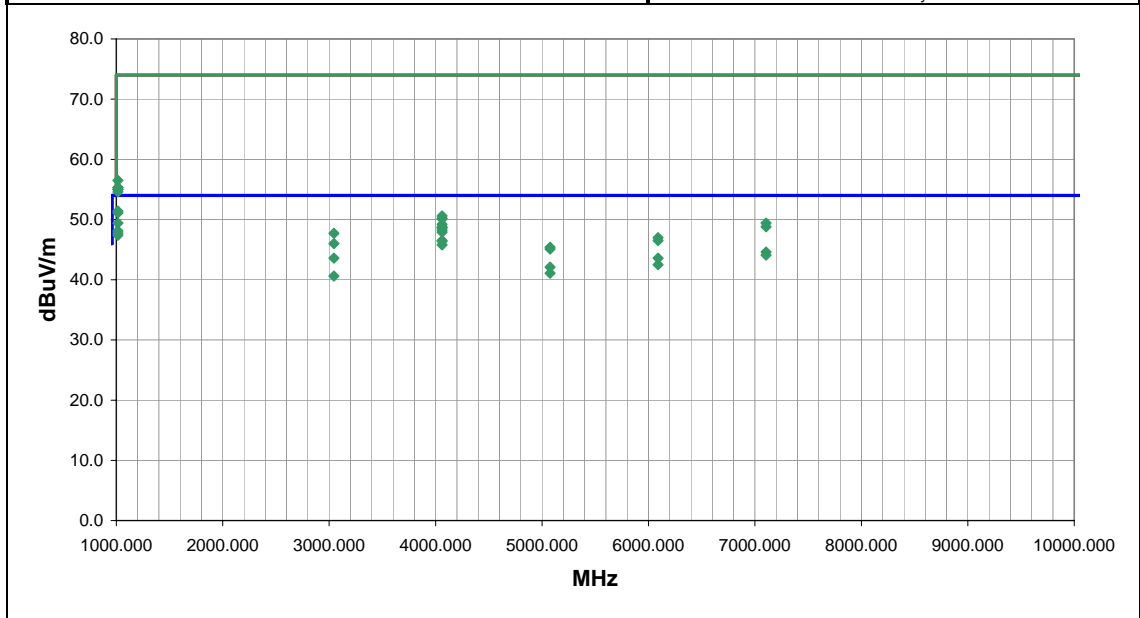
EUT OPERATING MODES
 Transmitting with modulation

DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Run #
Pass	1

Other


 Tested By: _____



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
1015.000	46.7	-15.3	203.0	1.0	3.0	20.0	H-Horn	AV	0.0	51.4	54.0	-2.6	Low Channel
1015.000	46.4	-15.3	163.0	1.0	3.0	20.0	H-Horn	AV	0.0	51.1	54.0	-2.9	Mid Channel
1015.000	44.7	-15.3	161.0	1.0	3.0	20.0	H-Horn	AV	0.0	49.4	54.0	-4.6	High Channel
4060.000	51.5	-2.3	199.0	1.6	3.0	0.0	V-Horn	AV	0.0	49.2	54.0	-4.8	High Channel
4060.000	51.1	-2.3	198.0	1.6	3.0	0.0	V-Horn	AV	0.0	48.8	54.0	-5.2	Mid Channel
4060.000	50.9	-2.3	199.0	1.6	3.0	0.0	V-Horn	AV	0.0	48.6	54.0	-5.4	Low Channel
1015.000	43.4	-15.3	167.0	1.5	3.0	20.0	V-Horn	AV	0.0	48.1	54.0	-5.9	Mid Channel
1015.000	43.0	-15.3	168.0	1.4	3.0	20.0	V-Horn	AV	0.0	47.7	54.0	-6.3	Low Channel
1015.000	42.7	-15.3	169.0	1.6	3.0	20.0	V-Horn	AV	0.0	47.4	54.0	-6.6	High Channel
4060.000	48.8	-2.3	196.0	1.8	3.0	0.0	H-Horn	AV	0.0	46.5	54.0	-7.5	High Channel
4060.000	48.7	-2.3	218.0	2.2	3.0	0.0	H-Horn	AV	0.0	46.4	54.0	-7.6	Mid Channel
3045.000	51.5	-5.5	124.0	2.0	3.0	0.0	V-Horn	AV	0.0	46.0	54.0	-8.0	Low Channel
4060.000	48.1	-2.3	192.0	2.0	3.0	0.0	H-Horn	AV	0.0	45.8	54.0	-8.2	Low Channel
7105.000	40.2	4.4	168.0	1.9	3.0	0.0	V-Horn	AV	0.0	44.6	54.0	-9.4	Low Channel
7105.000	39.7	4.4	125.0	1.7	3.0	0.0	H-Horn	AV	0.0	44.1	54.0	-9.9	Low Channel
6090.000	41.6	2.0	142.0	1.6	3.0	0.0	H-Horn	AV	0.0	43.6	54.0	-10.4	Low Channel
6090.000	40.5	2.0	131.0	1.9	3.0	0.0	V-Horn	AV	0.0	42.5	54.0	-11.5	Low Channel
5075.000	41.7	0.4	226.0	2.0	3.0	0.0	H-Horn	AV	0.0	42.1	54.0	-11.9	Low Channel
5075.000	40.7	0.4	185.0	1.8	3.0	0.0	V-Horn	AV	0.0	41.1	54.0	-12.9	Low Channel
3045.000	46.1	-5.5	270.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	Low Channel
1015.000	51.8	-15.3	203.0	1.0	3.0	20.0	H-Horn	PK	0.0	56.5	74.0	-17.5	Low Channel
1015.000	50.6	-15.3	163.0	1.0	3.0	20.0	H-Horn	PK	0.0	55.3	74.0	-18.7	Mid Channel
1015.000	50.6	-15.3	161.0	1.0	3.0	20.0	H-Horn	PK	0.0	55.3	74.0	-18.7	High Channel
1015.000	50.3	-15.3	169.0	1.6	3.0	20.0	V-Horn	PK	0.0	55.0	74.0	-19.0	High Channel
1015.000	50.3	-15.3	167.0	1.5	3.0	20.0	V-Horn	PK	0.0	55.0	74.0	-19.0	Mid Channel
1015.000	49.9	-15.3	168.0	1.4	3.0	20.0	V-Horn	PK	0.0	54.6	74.0	-19.4	Low Channel
4060.000	52.9	-2.3	199.0	1.6	3.0	0.0	V-Horn	PK	0.0	50.6	74.0	-23.4	High Channel
4060.000	52.5	-2.3	198.0	1.6	3.0	0.0	V-Horn	PK	0.0	50.2	74.0	-23.8	Mid Channel
4060.000	52.4	-2.3	199.0	1.6	3.0	0.0	V-Horn	PK	0.0	50.1	74.0	-23.9	Low Channel
7105.000	45.0	4.4	168.0	1.9	3.0	0.0	V-Horn	PK	0.0	49.4	74.0	-24.6	Low Channel

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
7105.000	44.4	4.4	125.0	1.7	3.0	0.0	H-Horn	PK	0.0	48.8	74.0	-25.2	Low Channel
4060.000	50.9	-2.3	218.0	2.2	3.0	0.0	H-Horn	PK	0.0	48.6	74.0	-25.4	Mid Channel
4060.000	50.5	-2.3	196.0	1.8	3.0	0.0	H-Horn	PK	0.0	48.2	74.0	-25.8	High Channel
4060.000	50.2	-2.3	192.0	2.0	3.0	0.0	H-Horn	PK	0.0	47.9	74.0	-26.1	Low Channel
3045.000	53.2	-5.5	124.0	2.0	3.0	0.0	V-Horn	PK	0.0	47.7	74.0	-26.3	Low Channel
6090.000	45.0	2.0	142.0	1.6	3.0	0.0	H-Horn	PK	0.0	47.0	74.0	-27.0	Low Channel
6090.000	44.5	2.0	131.0	1.9	3.0	0.0	V-Horn	PK	0.0	46.5	74.0	-27.5	Low Channel
5075.000	45.0	0.4	226.0	2.0	3.0	0.0	H-Horn	PK	0.0	45.4	74.0	-28.6	Low Channel
5075.000	44.7	0.4	185.0	1.8	3.0	0.0	V-Horn	PK	0.0	45.1	74.0	-28.9	Low Channel
3045.000	49.1	-5.5	270.0	1.0	3.0	0.0	H-Horn	PK	0.0	43.6	74.0	-30.4	Low Channel







Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

Low
Mid
High

Operating Modes Investigated:

Modulated

Data Rates Investigated:

Typical - Audio

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

Exercise software	Standard Production Software	Version	Unknown
Description			
The system was tested using standard operating production software to exercise the functions of the device during the testing.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
EUT-FM Stereo Transmitter Module	Precor, Inc.	FM Stereo Transmitter Module	0407xTV9T1234
CD Player	Magnavox	AZ8050/17D	KT029819655951
AC Adapter for EUT	Precor, Inc.	109033	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Audio	No	1.2	No	CD Player	EUT-FM Stereo Transmitter Module
DC Leads	No	2.0	No	AC Adapter for EUT	EUT-FM Stereo Transmitter Module
AC Power	No	2.0	No	CD Player	AC Mains

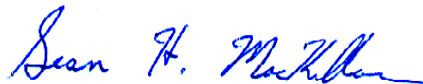
Measurement Equipment					
Description	Manufacturer	Model	Identifier	Last Cal	Interval
LISN	Solar	9252-50-R-24-BNC	LIM	11/16/2004	13 mo
LISN	Solar	9252-50-R	LID	11/16/2004	13 mo
Spectrum Analyzer	Hewlett-Packard	8593EM	AAM	12/02/2004	13 mo

Test Description

Requirement: Per 47 15.207(c), devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

Configuration: The EUT will be powered from an AC adapter that will be connected to the AC power line. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-2003.

Completed by:



CONDUCTED EMISSIONS DATA SHEET

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.2	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS		
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

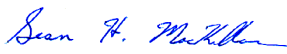
COMMENTS
 CD player connected at audio input of EUT. Low channel.

EUT OPERATING MODES
 Transmitting with modulation

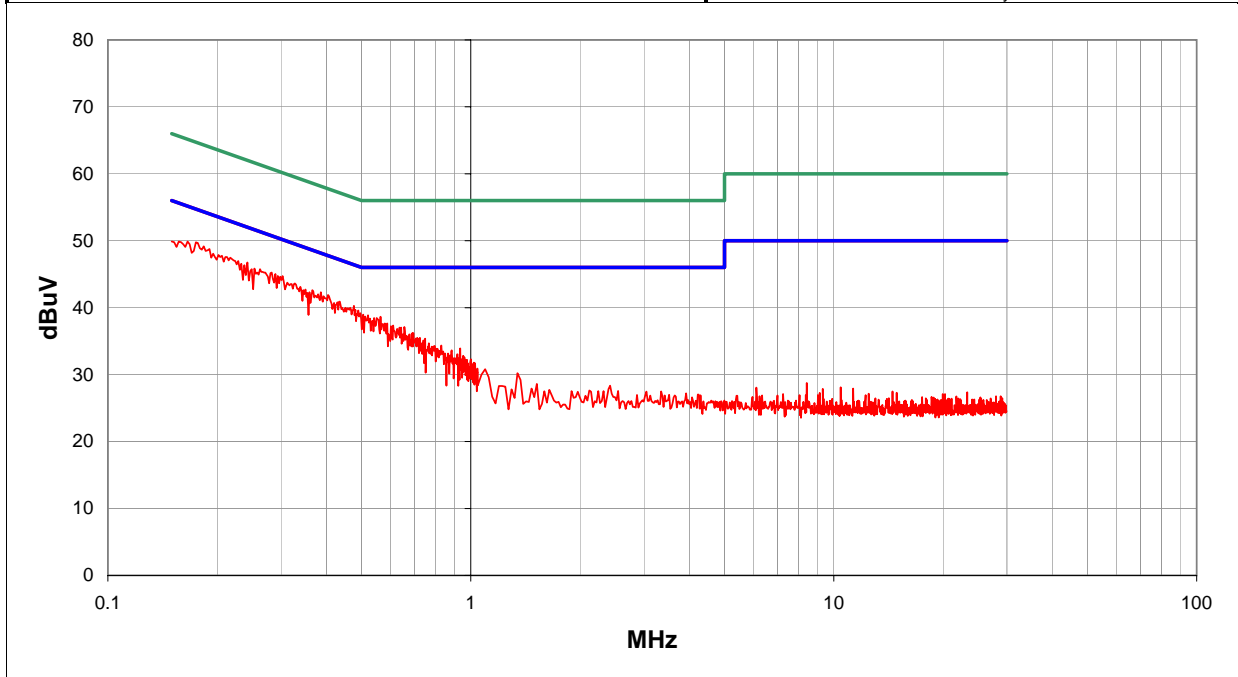
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Line	Run #
Pass	L1	1

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Transducer (dB)	Cable (dB)	External Attenuation (dB)	Detector (blank equal peaks [PK] from scan)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.242	26.2	0.0	0.6	20.0		46.8	52.0	-5.3
0.254	25.3	0.0	0.5	20.0		45.8	51.6	-5.8
0.366	22.1	0.0	0.5	20.0		42.6	48.6	-6.0
0.150	29.3	0.0	0.6	20.0		49.9	56.0	-6.1
0.505	18.5	0.0	0.5	20.0		39.0	46.0	-7.0
0.521	18.4	0.0	0.5	20.0		38.9	46.0	-7.1
0.564	18.2	0.0	0.4	20.0		38.6	46.0	-7.4
0.611	16.9	0.0	0.4	20.0		37.3	46.0	-8.7
0.602	16.8	0.0	0.4	20.0		37.2	46.0	-8.8
0.656	16.7	0.0	0.4	20.0		37.1	46.0	-8.9
0.690	15.8	0.0	0.4	20.0		36.2	46.0	-9.8
0.724	15.1	0.0	0.4	20.0		35.5	46.0	-10.5
0.749	15.0	0.0	0.4	20.0		35.4	46.0	-10.6
0.767	14.3	0.0	0.4	20.0		34.7	46.0	-11.3
0.830	14.0	0.0	0.4	20.0		34.4	46.0	-11.6
0.935	13.6	0.0	0.3	20.0		33.9	46.0	-12.1
0.886	13.3	0.0	0.3	20.0		33.6	46.0	-12.4
0.866	12.8	0.0	0.3	20.0		33.1	46.0	-12.9
0.917	12.7	0.0	0.3	20.0		33.0	46.0	-13.0

CONDUCTED EMISSIONS DATA SHEET

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.2	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS		
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS
 CD player connected at audio input of EUT. Low channel.

EUT OPERATING MODES
 Transmitting with modulation

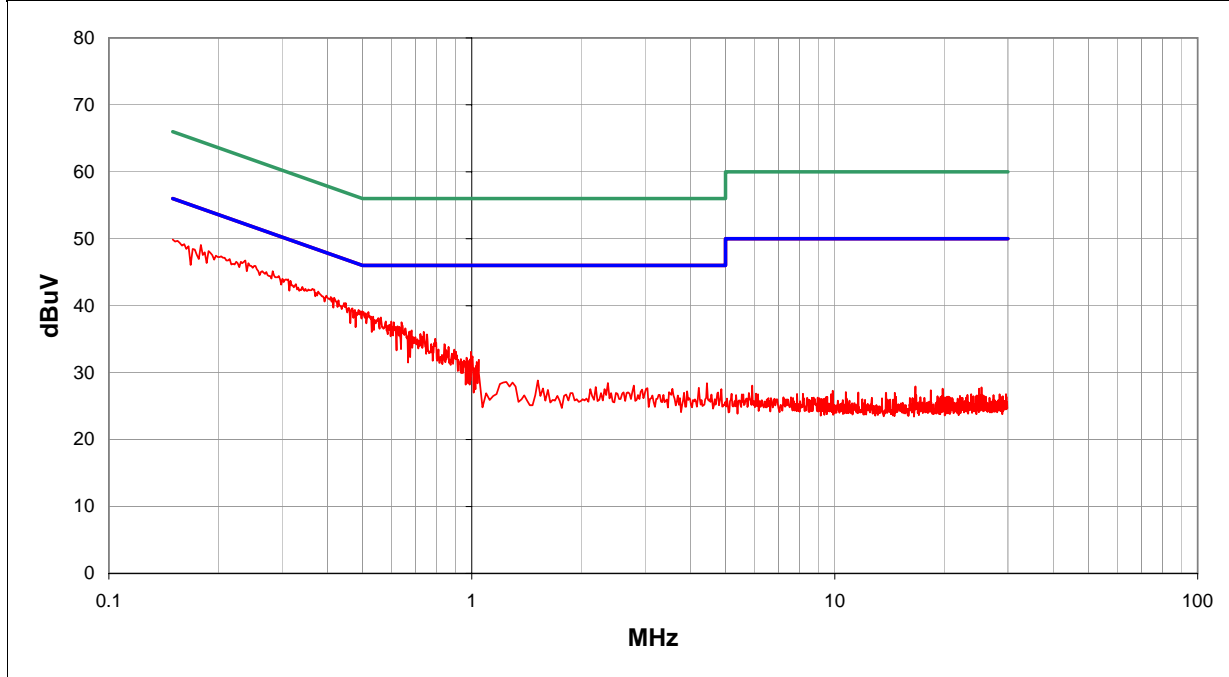
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Line	Run #
Pass	N	2

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Transducer (dB)	Cable (dB)	External Attenuation (dB)	Detector (blank equal peaks [PK] from scan)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.179	28.5	0.0	0.6	20.0		49.1	54.5	-5.4
0.150	29.3	0.0	0.6	20.0		49.9	56.0	-6.1
0.487	18.9	0.0	0.5	20.0		39.4	46.2	-6.8
0.467	19.1	0.0	0.5	20.0		39.6	46.6	-7.0
0.535	17.9	0.0	0.5	20.0		38.4	46.0	-7.6
0.600	17.2	0.0	0.4	20.0		37.6	46.0	-8.4
0.640	17.1	0.0	0.4	20.0		37.5	46.0	-8.5
0.625	16.5	0.0	0.4	20.0		36.9	46.0	-9.1
0.683	15.9	0.0	0.4	20.0		36.3	46.0	-9.7
0.672	15.7	0.0	0.4	20.0		36.1	46.0	-9.9
0.737	15.7	0.0	0.4	20.0		36.1	46.0	-9.9
0.722	15.4	0.0	0.4	20.0		35.8	46.0	-10.2
0.751	15.3	0.0	0.4	20.0		35.7	46.0	-10.3
0.794	14.7	0.0	0.4	20.0		35.1	46.0	-10.9
0.841	13.9	0.0	0.4	20.0		34.3	46.0	-11.7
0.863	13.5	0.0	0.3	20.0		33.8	46.0	-12.2
0.895	13.1	0.0	0.3	20.0		33.4	46.0	-12.6
0.995	12.8	0.0	0.3	20.0		33.1	46.0	-12.9
1.005	12.1	0.0	0.3	20.0		32.4	46.0	-13.6

CONDUCTED EMISSIONS DATA SHEET

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.2	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS		
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

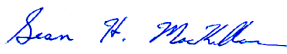
COMMENTS
 CD player connected at audio input of EUT. Mid channel.

EUT OPERATING MODES
 Transmitting with modulation

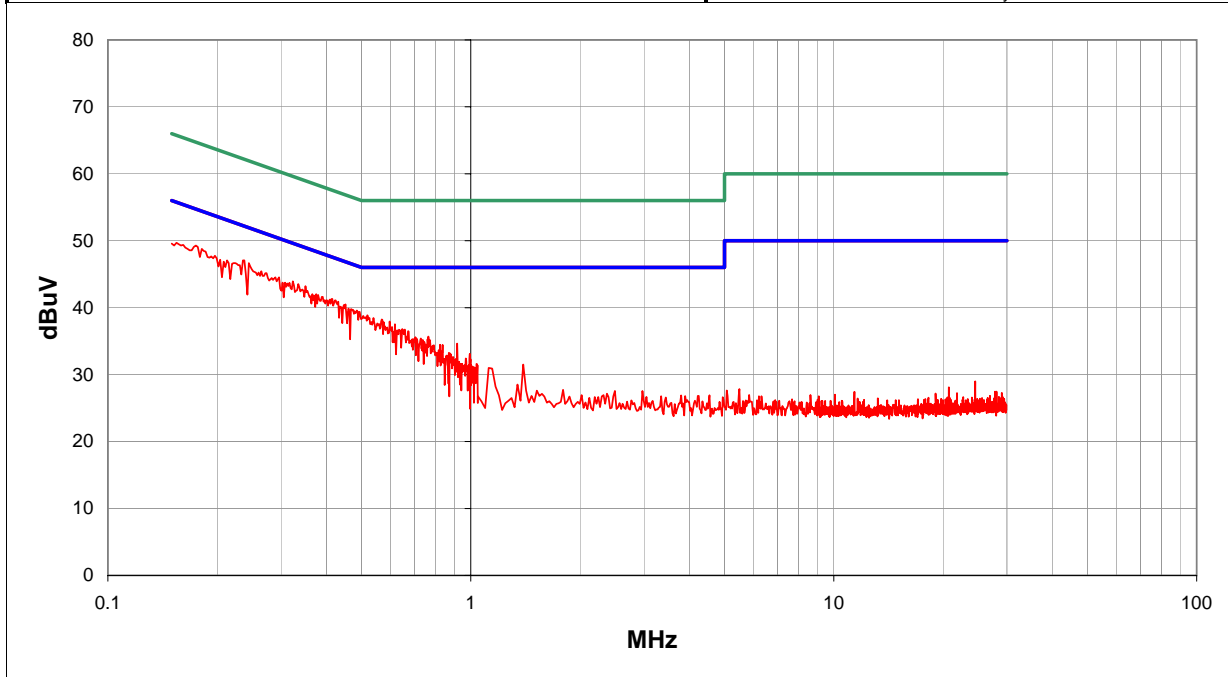
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Line	Run #
Pass	N	3

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Transducer (dB)	Cable (dB)	External Attenuation (dB)	Detector (blank equal peaks [PK] from scan)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.236	26.5	0.0	0.6	20.0		47.1	52.3	-5.2
0.245	26.1	0.0	0.6	20.0		46.7	51.9	-5.3
0.323	23.4	0.0	0.5	20.0		43.9	49.6	-5.7
0.213	26.5	0.0	0.6	20.0		47.1	53.1	-6.0
0.155	29.1	0.0	0.6	20.0		49.7	55.8	-6.1
0.451	20.0	0.0	0.5	20.0		40.5	46.8	-6.4
0.467	19.3	0.0	0.5	20.0		39.8	46.6	-6.8
0.460	19.4	0.0	0.5	20.0		39.9	46.7	-6.8
0.618	17.1	0.0	0.4	20.0		37.5	46.0	-8.5
0.647	16.4	0.0	0.4	20.0		36.8	46.0	-9.2
0.634	16.3	0.0	0.4	20.0		36.7	46.0	-9.3
0.764	15.3	0.0	0.4	20.0		35.7	46.0	-10.3
0.708	15.0	0.0	0.4	20.0		35.4	46.0	-10.6
0.728	15.0	0.0	0.4	20.0		35.4	46.0	-10.6
0.744	14.5	0.0	0.4	20.0		34.9	46.0	-11.1
0.917	14.3	0.0	0.3	20.0		34.6	46.0	-11.4
0.823	14.1	0.0	0.4	20.0		34.5	46.0	-11.5
0.836	14.1	0.0	0.4	20.0		34.5	46.0	-11.5
0.870	12.9	0.0	0.3	20.0		33.2	46.0	-12.8

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.2	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS		
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

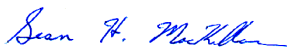
COMMENTS
 CD player connected at audio input of EUT. Mid channel.

EUT OPERATING MODES
 Transmitting with modulation

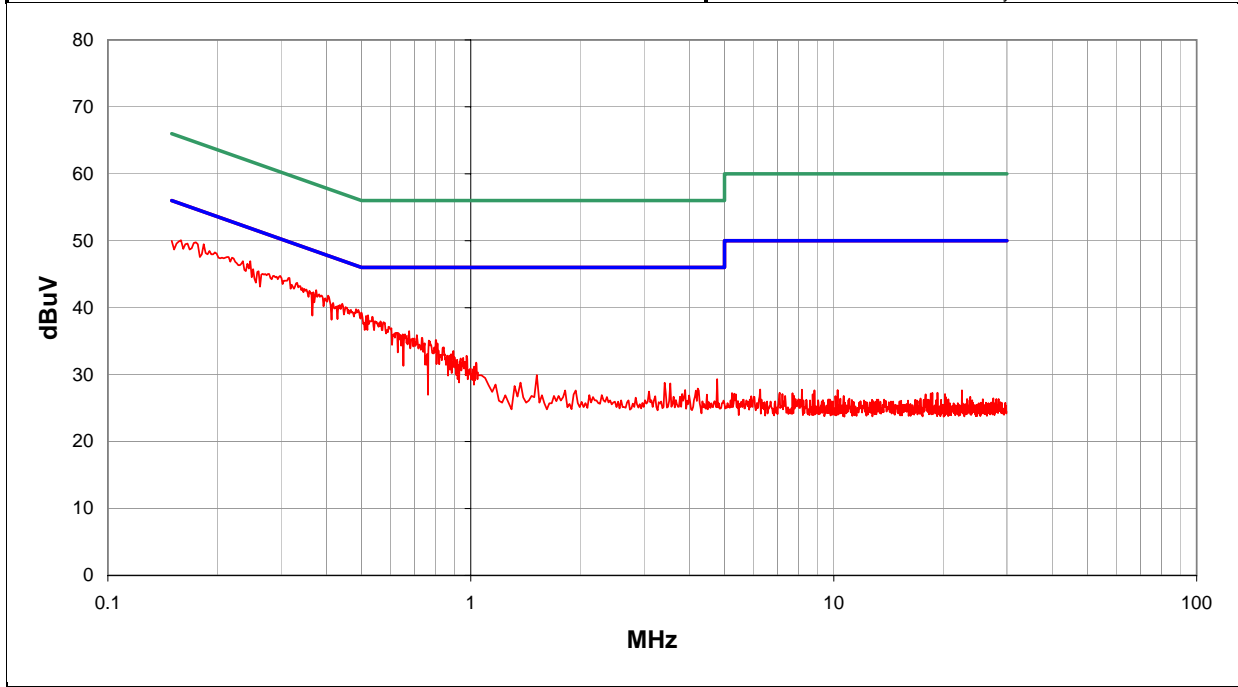
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Line	Run #
Pass	L1	4

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Transducer (dB)	Cable (dB)	External Attenuation (dB)	Detector (blank equal peaks [PK] from scan)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.159	29.5	0.0	0.6	20.0		50.1	55.5	-5.4
0.375	22.1	0.0	0.5	20.0		42.6	48.4	-5.8
0.442	20.1	0.0	0.5	20.0		40.6	47.0	-6.4
0.418	20.2	0.0	0.5	20.0		40.7	47.5	-6.8
0.521	18.4	0.0	0.5	20.0		38.9	46.0	-7.1
0.514	18.3	0.0	0.5	20.0		38.8	46.0	-7.2
0.676	16.1	0.0	0.4	20.0		36.5	46.0	-9.5
0.631	15.8	0.0	0.4	20.0		36.2	46.0	-9.8
0.800	14.8	0.0	0.4	20.0		35.2	46.0	-10.8
0.809	14.3	0.0	0.4	20.0		34.7	46.0	-11.3
0.839	13.7	0.0	0.4	20.0		34.1	46.0	-11.9
0.895	13.2	0.0	0.3	20.0		33.5	46.0	-12.5
0.881	12.7	0.0	0.3	20.0		33.0	46.0	-13.0
0.872	12.5	0.0	0.3	20.0		32.8	46.0	-13.2
0.974	12.5	0.0	0.3	20.0		32.8	46.0	-13.2
0.953	12.2	0.0	0.3	20.0		32.5	46.0	-13.5
0.917	11.9	0.0	0.3	20.0		32.2	46.0	-13.8
1.034	11.5	0.0	0.3	20.0		31.8	46.0	-14.2
0.926	11.1	0.0	0.3	20.0		31.4	46.0	-14.6

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.2	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS		
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS
 CD player connected at audio input of EUT. High channel.

EUT OPERATING MODES
 Transmitting with modulation

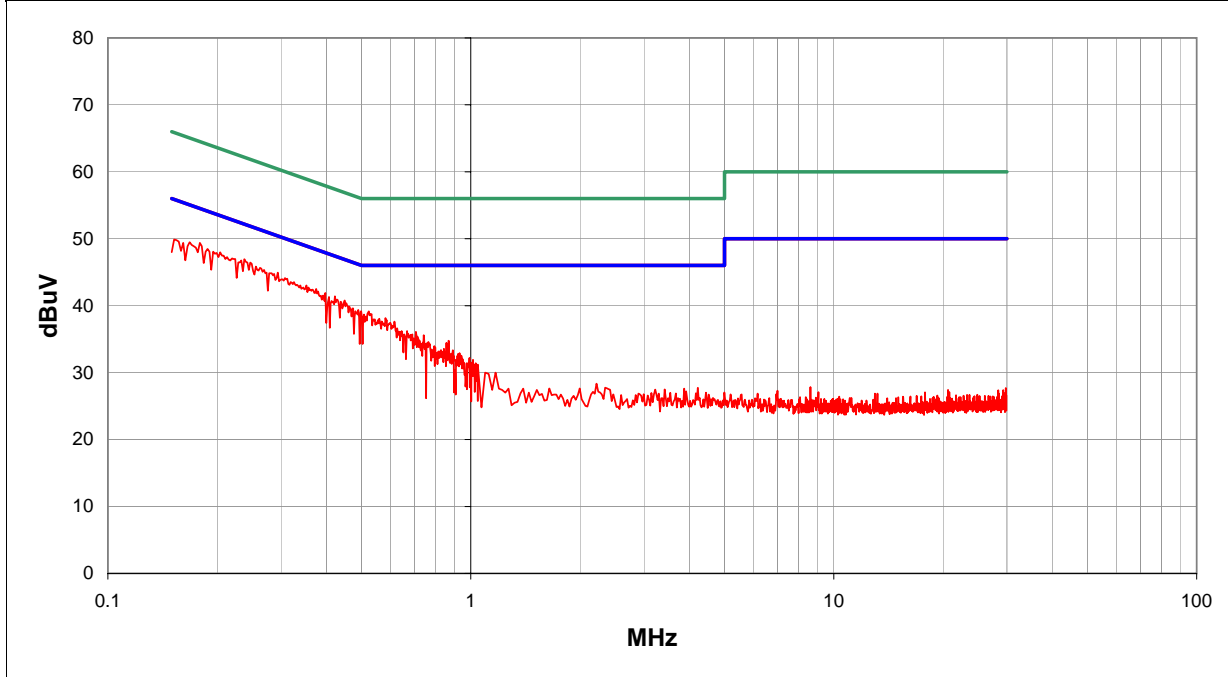
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Line	Run #
Pass	L1	5

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Transducer (dB)	Cable (dB)	External Attenuation (dB)	Detector (blank equal peaks [PK] from scan)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.238	26.4	0.0	0.6	20.0		47.0	52.2	-5.2
0.294	24.4	0.0	0.5	20.0		44.9	50.4	-5.5
0.168	28.9	0.0	0.6	20.0		49.5	55.1	-5.6
0.188	27.9	0.0	0.6	20.0		48.5	54.1	-5.6
0.195	27.5	0.0	0.6	20.0		48.1	53.8	-5.8
0.152	29.3	0.0	0.6	20.0		49.9	55.9	-6.0
0.422	20.9	0.0	0.5	20.0		41.4	47.4	-6.0
0.449	20.3	0.0	0.5	20.0		40.8	46.9	-6.1
0.406	20.8	0.0	0.5	20.0		41.3	47.7	-6.4
0.490	18.9	0.0	0.5	20.0		39.4	46.2	-6.8
0.523	18.7	0.0	0.5	20.0		39.2	46.0	-6.8
0.499	18.7	0.0	0.5	20.0		39.2	46.0	-6.9
0.667	15.8	0.0	0.4	20.0		36.2	46.0	-9.8
0.706	15.7	0.0	0.4	20.0		36.1	46.0	-9.9
0.656	15.3	0.0	0.4	20.0		35.7	46.0	-10.3
0.742	15.2	0.0	0.4	20.0		35.6	46.0	-10.4
0.868	14.4	0.0	0.3	20.0		34.7	46.0	-11.3
0.764	14.2	0.0	0.4	20.0		34.6	46.0	-11.4
0.857	14.1	0.0	0.3	20.0		34.4	46.0	-11.6

EUT: FM Stereo Transmitter Module		Work Order: PRCR0038
Serial Number: 0407xTV9T1234	Date: 02/03/05	
Customer: Precor, Inc.	Temperature: 22	
Attendees: Rodney Bramel	Humidity: 32%	
Cust. Ref. No.:	Barometric Pressure: 30.2	
Tested by: Sean MacKellar	Power: 120VAC/60Hz	Job Site: SU07

TEST SPECIFICATIONS		
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004	Method: ANSI C63.4:2003	

SAMPLE CALCULATIONS
 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS
 CD player connected at audio input of EUT. High channel.

EUT OPERATING MODES
 Transmitting with modulation

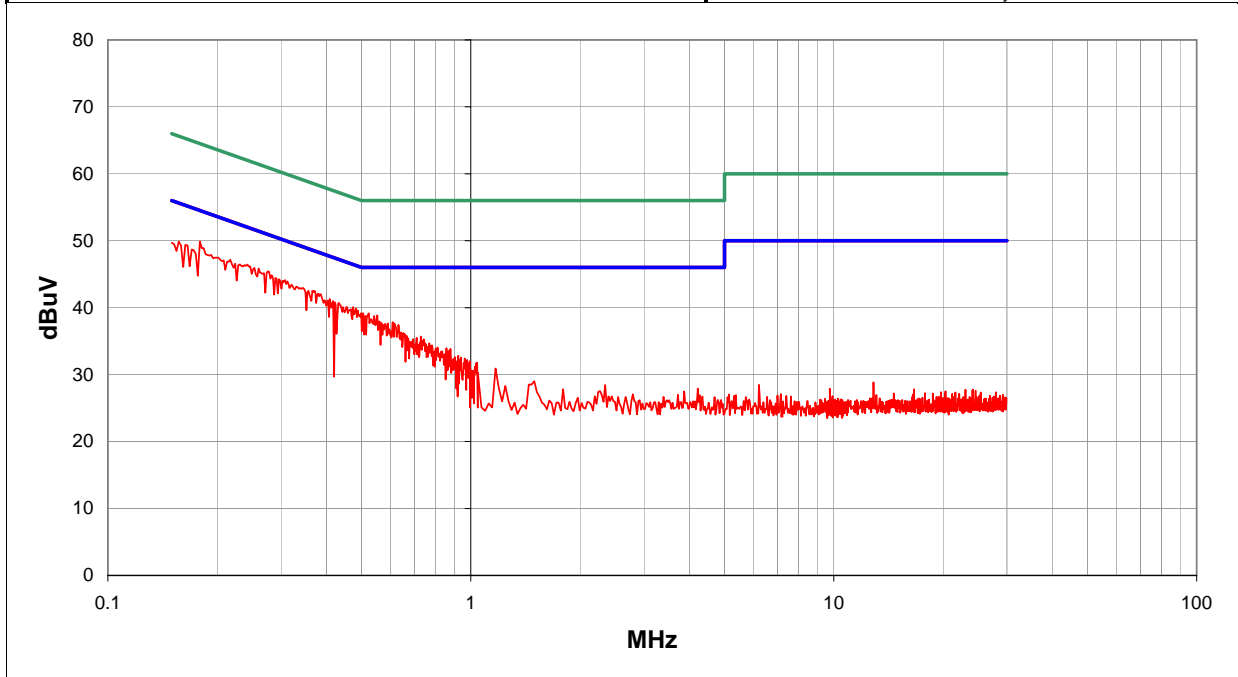
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Line	Run #
Pass	N	6

Other



 Tested By:



Freq (MHz)	Amplitude (dBuV)	Transducer (dB)	Cable (dB)	External Attenuation (dB)	Detector (blank equal peaks [PK] from scan)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.179	29.3	0.0	0.6	20.0		49.9	54.5	-4.6
0.276	24.9	0.0	0.5	20.0		45.4	50.9	-5.5
0.157	29.3	0.0	0.6	20.0		49.9	55.6	-5.8
0.164	28.8	0.0	0.6	20.0		49.4	55.3	-5.9
0.231	25.9	0.0	0.6	20.0		46.5	52.4	-6.0
0.289	23.9	0.0	0.5	20.0		44.4	50.5	-6.1
0.296	23.7	0.0	0.5	20.0		44.2	50.3	-6.1
0.170	28.1	0.0	0.6	20.0		48.7	54.9	-6.3
0.357	22.0	0.0	0.5	20.0		42.5	48.8	-6.3
0.409	20.8	0.0	0.5	20.0		41.3	47.7	-6.4
0.431	20.2	0.0	0.5	20.0		40.7	47.2	-6.5
0.422	20.3	0.0	0.5	20.0		40.8	47.4	-6.6
0.505	18.7	0.0	0.5	20.0		39.2	46.0	-6.8
0.523	18.7	0.0	0.5	20.0		39.2	46.0	-6.8
0.512	18.3	0.0	0.5	20.0		38.8	46.0	-7.2
0.609	17.4	0.0	0.4	20.0		37.8	46.0	-8.2
0.566	17.3	0.0	0.4	20.0		37.7	46.0	-8.3
0.652	15.8	0.0	0.4	20.0		36.2	46.0	-9.8
0.665	15.4	0.0	0.4	20.0		35.8	46.0	-10.2

