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NVLAP LAB CODE: 200413-0

August 04, 2005

Test Record

Product Verification
According to FCC Part 15 Subparts C

for

Monster, LLC
MODEL: Radio Play 300

TABLE OF CONTENTS

Revision History

Revision	Date	Description of Changes	Author
0.1	04 August. 2005	Initial document	S. Sohn
		:	

Introduction – Test Plan

Introduction – Test Plan

This report describes the results of all measurements made on portable FM transmitter which falls under the class of intentional radiator by the FCC Part 15 Subpart C Rules and Regulations.

This EUT is designated: **Wireless Audio FM Transmitter for personal use.**

Model : **Radio Play 300**

Description of tests	Reference FCC prt.15	Comments
Radiated Emissions	15.209	Test and limit specified in FCC prt.15, Clause 15.209
Field Strength of Fundamental and Emissions within permitted band	15.239	Limit specified in FCC prt.15, Clause 15.239 Limit:0.25 mV/m @ 3m ;w/average detector
Emission bandwidth; Occupied channel bandwidth	15.239	Limit specified in FCC prt.15, Clause 15.239 Limit:200 kHz

1.0 CERTIFICATION OF TEST DATA

Verification statement.

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the test sample (EUT), and characteristics and measurements obtained as of the dates and the times of the test under the conditions specified and to the methods of FCC Part 15, Subpart C "Intentional Radiators" and Part 2 "Frequency Allocations and radio Treaty Matters; General Rules and regulations"

The test results provided with this report, indicate that the equipment tested:
WIRELESS AUDIO FM TRANSMITTER FOR PERSONAL USE. MODEL RADIO PLAY 300 is compliant with the following Rules and Regulations

A. 47 Code of Federal Regulations, Part 15 Subpart C
B. 47 Code of Federal Regulations, Part 2
C. ANSI C63.4: 2003

Tests performed by:

Sandra Sohn
EMC Test Engineer

Report prepared by:

Sandra Sohn
EMC Test Engineer

Report approved by:

Leon Kogan
Technical Director,

JMR Compliance Engineering, 20400 Plummer Street, Chatsworth CA 91311.
E-mail:emc@jmr.com

2.0 GENERAL INFORMATION

2.1 Client Information

Company Name:	Monster, LLC
Contact:	Irene Baran
Company Address:	7251 West Lake Mead Blvd. Suite 342 Las Vegas, NV 89128
Phone:	(877) 800-8989

2.2 Administrative Data

Device tested:	Audio FM Transmitter for personal use
Model:	Radio Play 300
Equipment category:	Intentional Radiators
Accessories:	N/A
Expository Statement:	This device is intended for vehicular use.
Purpose of test:	Compliance to FCC Rules and Regulations, Part 15, Subpart C
Date of test:	08/01/05 & 08/02/05
Place of the test:	JMR Electronics, Inc. Compliance Engineering Laboratory 20400 Plummer Street Chatsworth, CA 91311 Phone: (818) 993-4801

3.0 Description of Equipment Under Test (EUT)

3.1 Brief Description of the EUT

The EUT is a portable FM Transmitter which is designed to connect to a personal MP3 player and allow reception of the transmitted signal using a standard FM radio. There are six 3 available channels. Pressing switch will increment the frequency to the next channel.
There is no ON/OFF switch for this product. Circuit goes ON when product is plugged to automobile cigarette lighter outlet. Power consumption of FM transmitter IC is 20ma typical at 5v.
Wires connecting to MP3 player are used as the antenna. Alteration of antenna by user is not possible.

The EUT was configured on a table top. device and was tested with standard MP3 player connected. The modulation frequency was provided by external Test Oscillator HP 651B.

Operating frequencies : 88.1-107.9 MHz.
Clock frequencies : 7.6 MHz
Power Supply : External 12VDC battery.

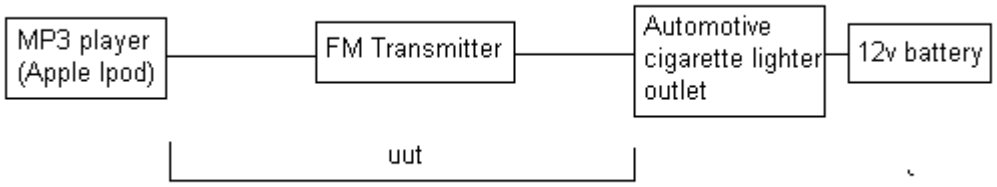
3.2 Test Run

1) The EUT was connected through Stubby cigarette lighter connector to the 12VDC battery. Apple Ipod, as a standard MP3 player, was connected to the appropriate input/output of the EUT;
2) For tests required modulation of EUT fundamental frequency, Test Oscillator HP 651B had been connected directly via clip leads to the input connector of the EUT

For test purposes the following three channels were selected for measurements :
88.1 MHz 98.1 MHz 107.9 MHz

Each channel had generated its frequency continuously for the duration of the testing. The above mentioned set-up allowed the article to perform sufficiently for the test purposes and required time.

3.3 Block Diagram of the Test Setup



3.4 Support Equipment List:

No	Equipment	Model	S/N (last 6)	Notes
1	**HP Test Oscillator**	651B	1230A08435	
2	**MP3 player**	A1112	5F507SL9RS9	Apple Ipod
3	**Standard 12VDC battery**	N/A	N/A	

3.5 Cabling Configuration

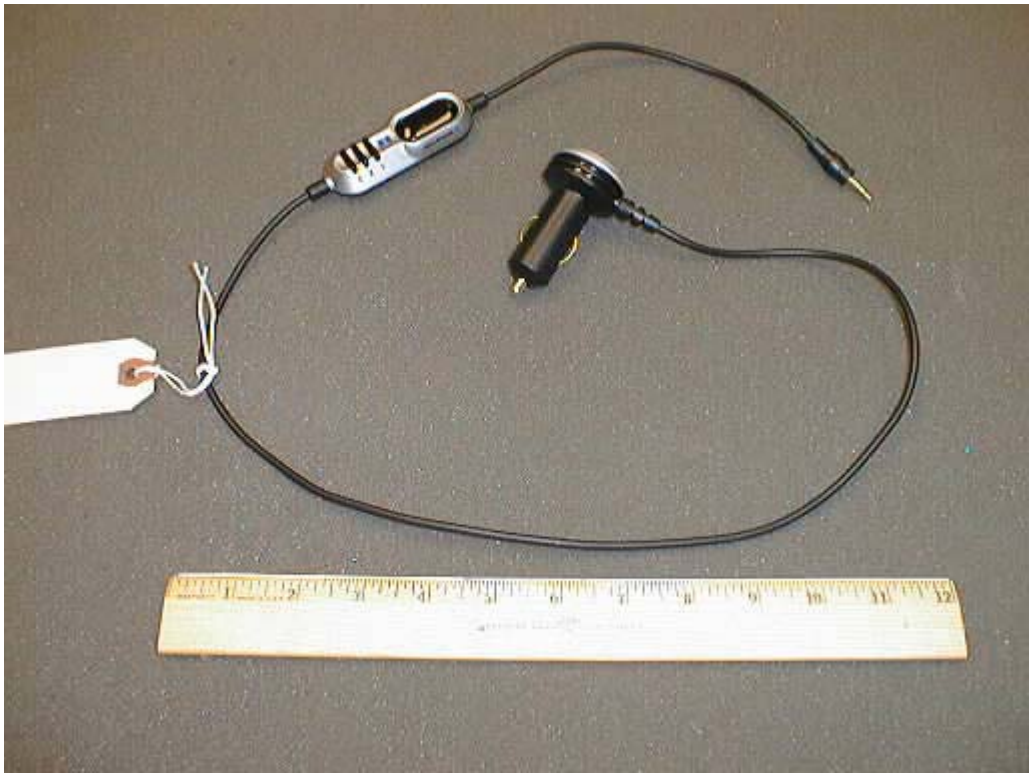
Power Cords:

Unit	HP 651B Test Oscillator
MFG	Standard
Shielded	No
Length	2 m

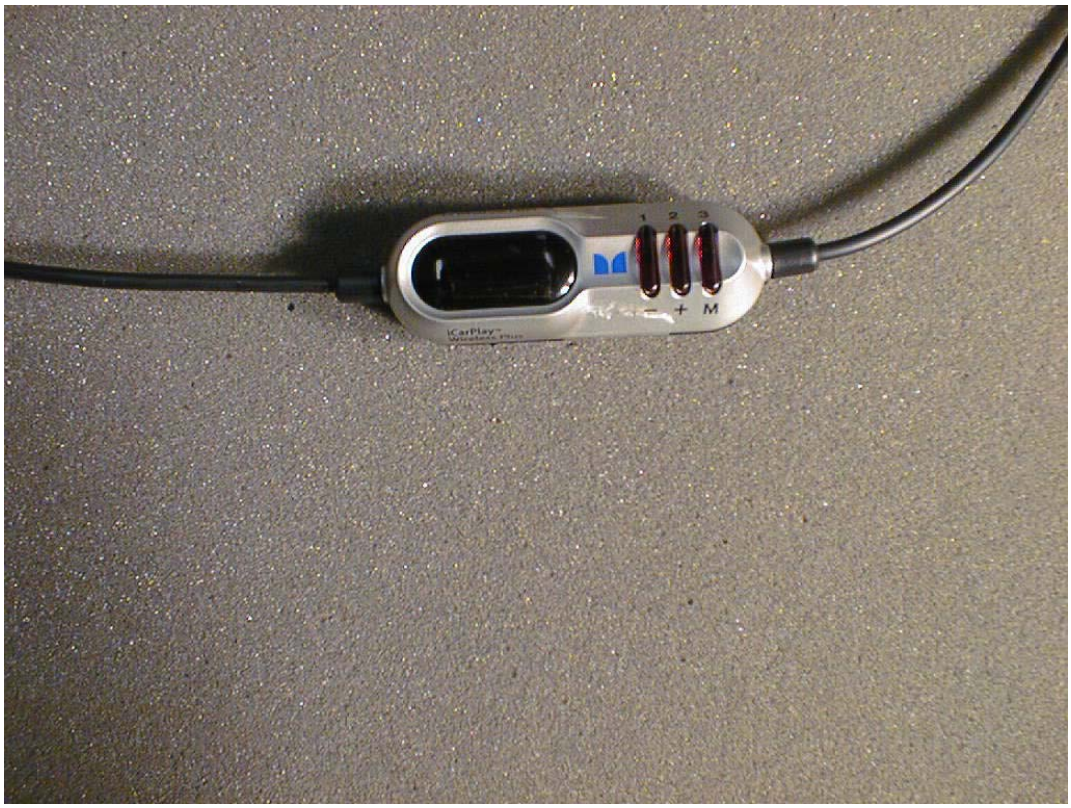
I / O Cables External:

Connection	AUX In of the EUT to Out, 50 Ohm of the HP 651B
Cable	Generic 50 Ohm RF cable
Shielded?	Yes
Connector	BNC, Jack
Length	0.3 m

Photos of the EUT

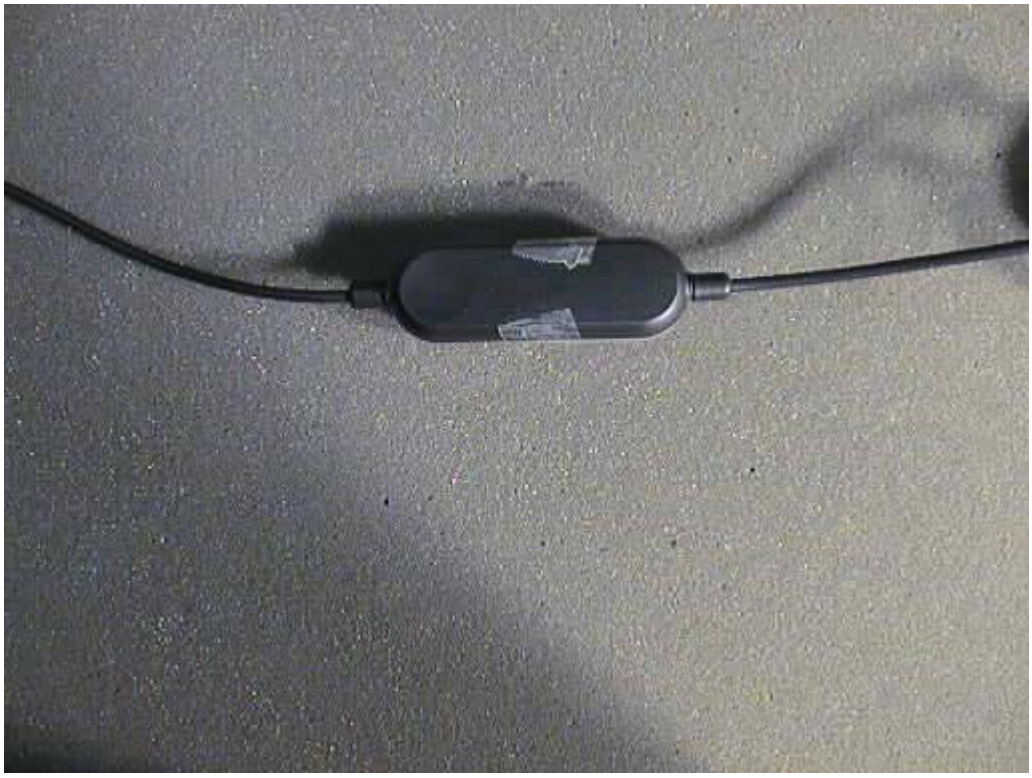


EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300



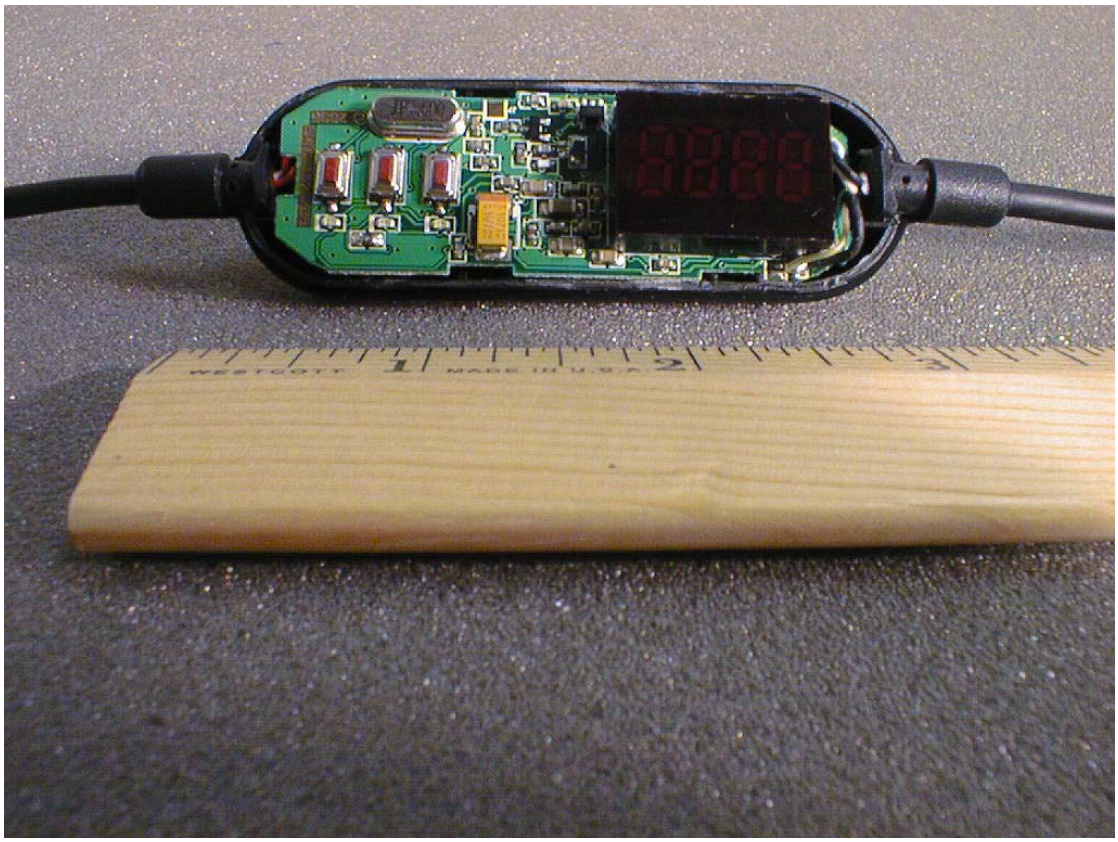
EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Top View



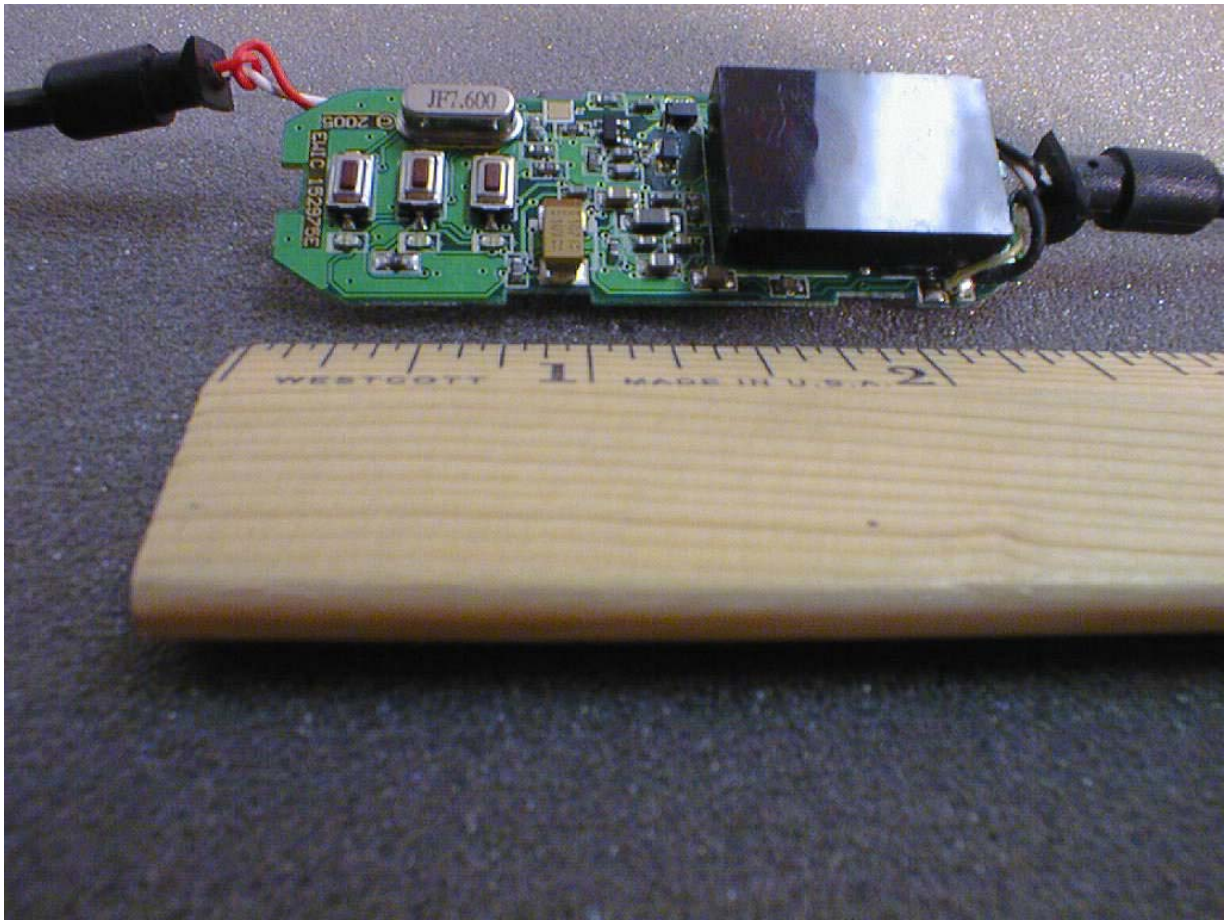
EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Bottom View



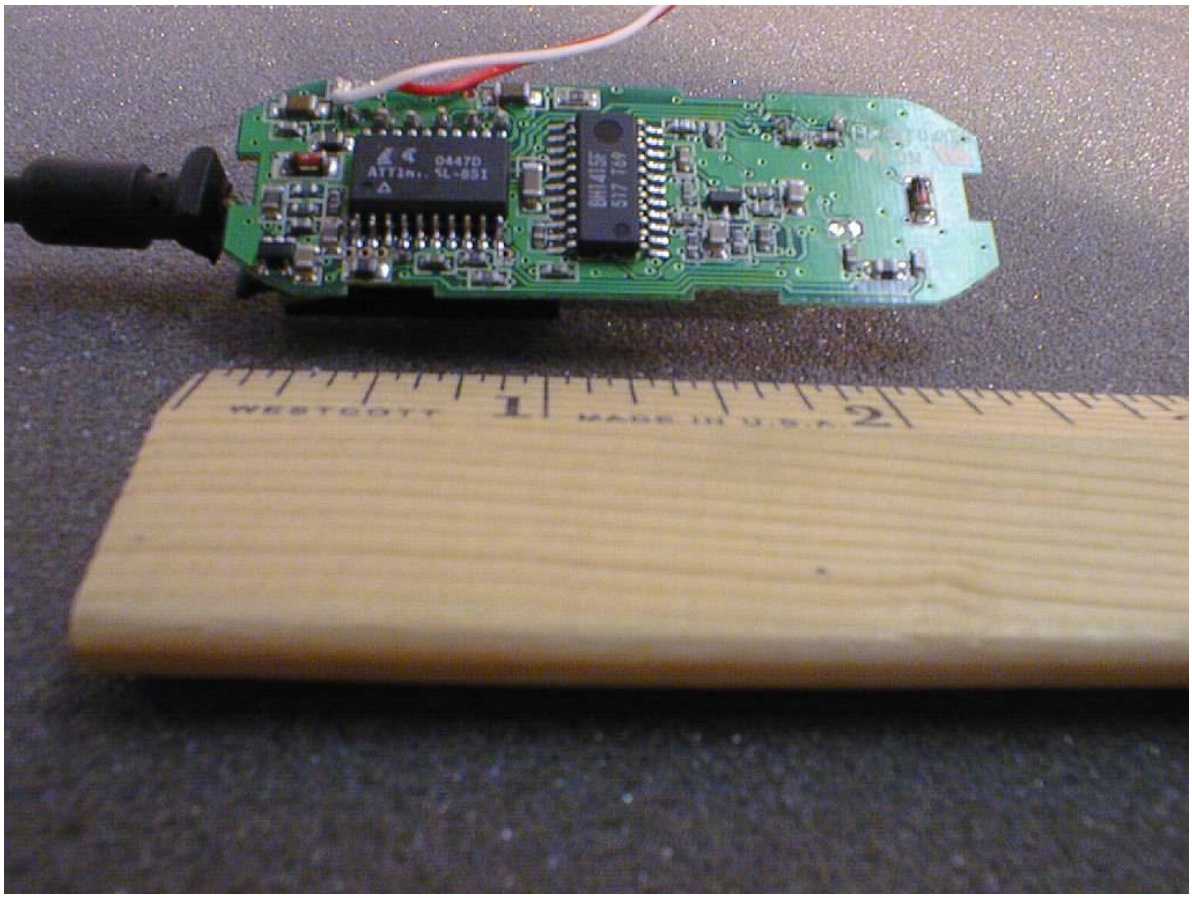
EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Open enclosure



EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

PCB components side

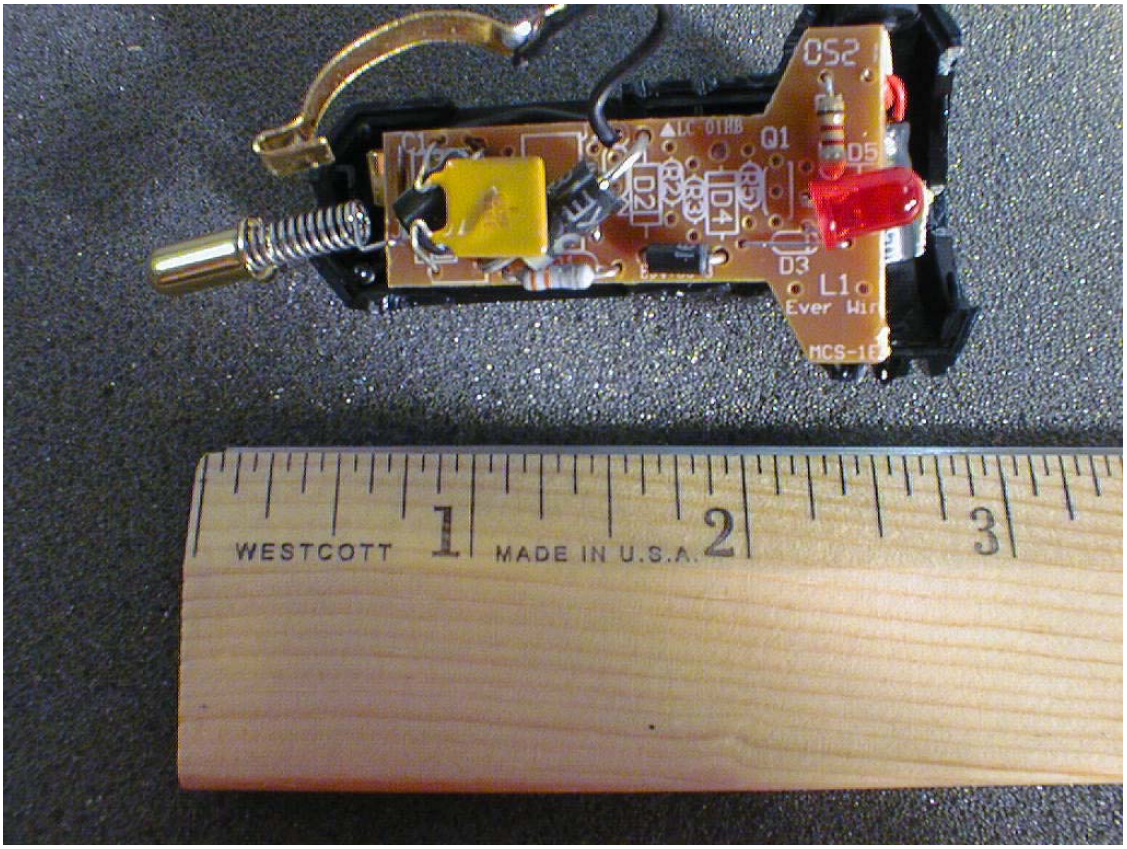


EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

PCB solder side

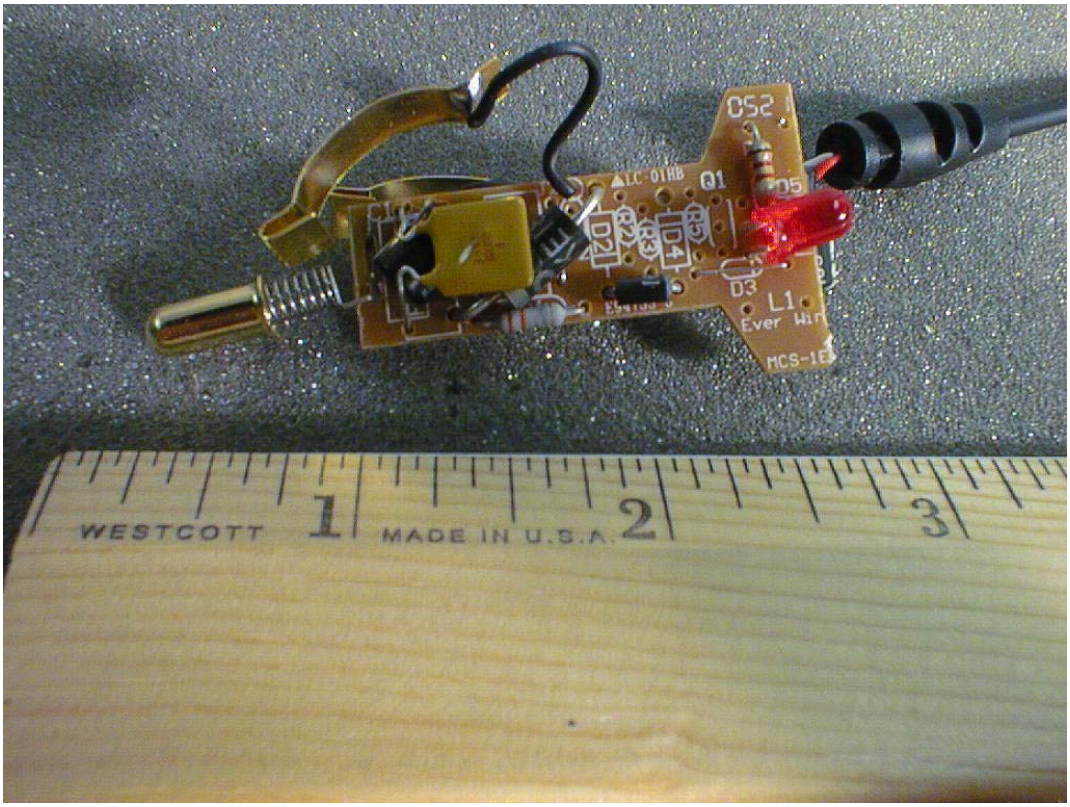
EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Monster Stubby Cigarette Lighter connector



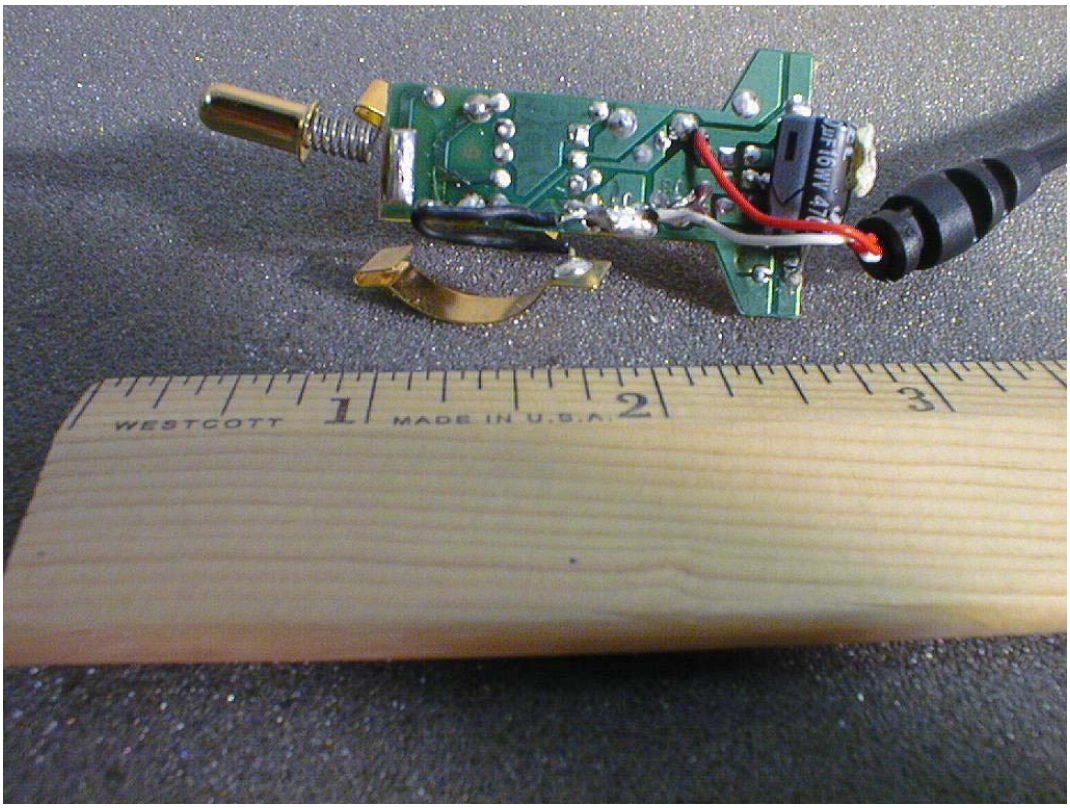
EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Monster Stubby Cigarette Lighter connector
Open covers



EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Monster Stubby Cigarette Lighter connector
PCB components side



EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

Monster Stubby Cigarette Lighter connector
PCB solder side

EUT: AUDIO FM TRANSMITTER.
MODEL : RADIO PLAY 300

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3.7 EUT Modifications

N/A

3.8 Photographs of EUT Modifications

N/A

4.0 Test equipment used

Device	Model No.	Serial No.	Last Cal.	Next Cal
Cable 1	8214	CBL-006	06/21/05	06/21/06
Analyzer	HP85462A	3325A00120	04/11/05	04/11/06
Cable 2	8268	CBL-002	06/21/05	06/21/06
Preselector	HP85460A	3330A00117	04/11/05	04/11/06
Qpeak Adapter	HP85462 Internal	Internal	04/11/05	04/11/06
Pre-Amplifier	None			
Tower 1	EMCO 1050	9310-1786	N/A	N/A
Turntable 1	EMCO 1060	9409-1753	N/A	N/A
Bilog Antenna	CBL6112B	2604	08/08/05	08/08/06
DRG Horn Antenna	SAS-200/571	175	10/18/04	10/18/05
Log-Periodic Antenna	CBL6111	11167	11/01/04	11/01/05
Cable1	RG-214/U	CBL-001	06/21/05	06/21/06
Shielded Semi-Anechoic Chamber	RANTEC	N/A	N/A	N/A
Digital Oscilloscope	DL1520	26WZ0171	12/16/04	12/16/05
Temperature and Humidity Recorder	Dickson TH8-24C	5097755	09/18/03	09/18/05

5.0 Field Strength of Fundamental and Emissions within permitted band.

Test Requirements: FCC Part 15 : Subclause 15.239
Test Method: ANSI C63.4: 2003

Limit : The maximum Field Strength authorized within 200 kHz is 250 uV/m @ 3m
Mode of operation: with and without modulation**.**

The test facility consists of a shielded semi-anechoic chamber with attached shielded control room. The semi-anechoic chamber is approximately 18 feet wide by 28 feet long by 19 feet high. A hybrid absorber combines high performance anechoic polyurethane foam with a ferrite tile base to achieve high levels of absorption and power dissipation capability.

The EUT had been placed at the 0.8 m height on the non-conducting table. Transmitter had been turned ON without modulation and worked at the frequencies of the selected channels.
All data was obtained via a HP 85876A EMI measurement software package using an HP 85462A Receiver which is compliant to CISPR 16. The EUT was configured in various geometric patterns to find the geometric configuration and EUT attitude that produced the largest RF power.
After determination of the maximum emissions configuration the distance of the EUT to the scanning antenna was set to 3 meters.

At each of three selected channels 88.1 MHz, 98.1MHz, and 107.9 MHz Field Strength of Emissions had been measured.

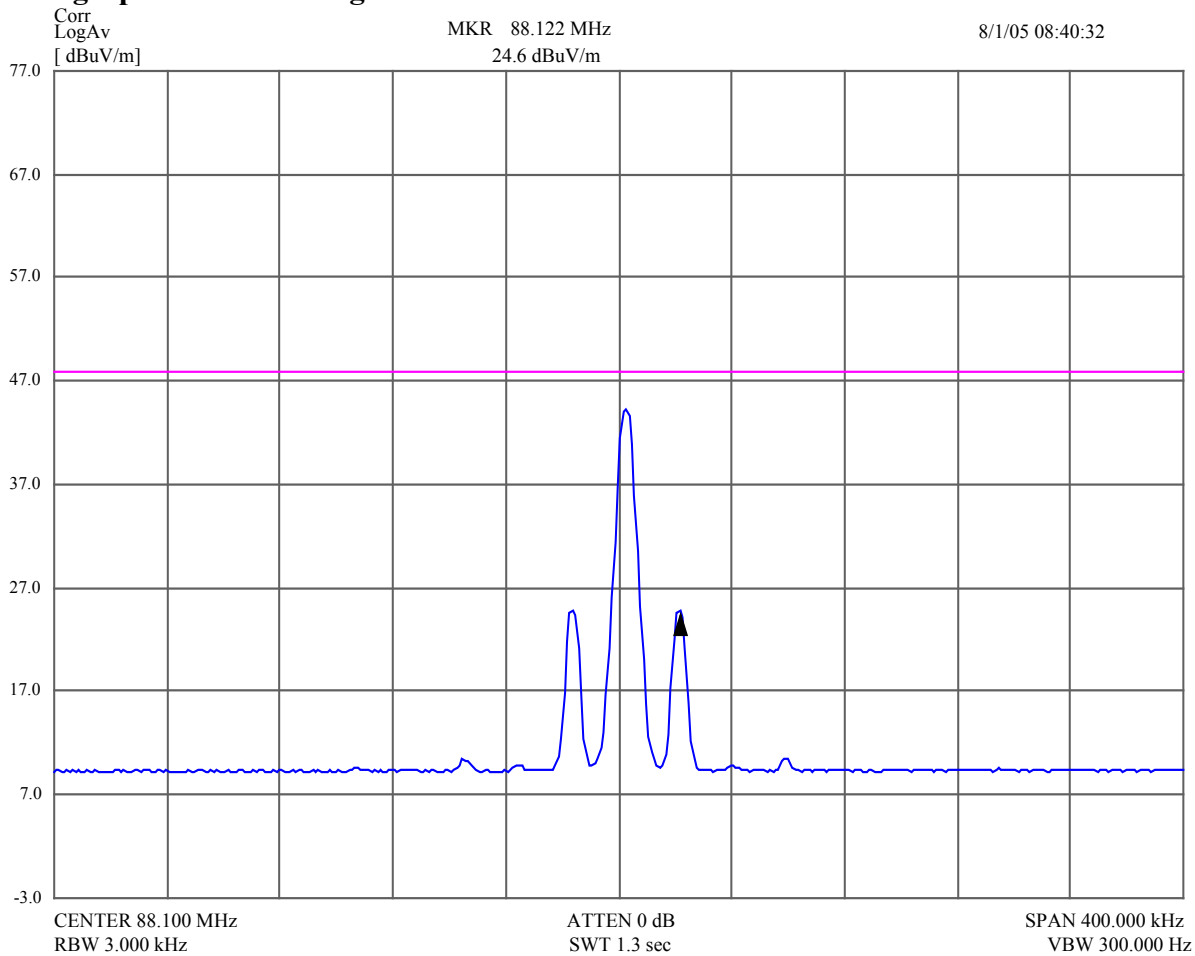
5.1. Channel 88.1 MHz

5.1.1 no modulation

Average value data

Frequency MHz	Avg dBuV/m	Avg Lmt dBuV/m	DelLim-Avg dB	Pol	Hgt cm	Angle deg	Status
88.084000	24.80	48.00	-23.20	Horz	220	235	PASS
88.103000	44.16	48.00	-3.84	Horz	220	235	PASS
88.122000	24.64	48.00	-23.36	Horz	220	235	PASS

Receiver graph of Field Strength of Emissions at 3 m

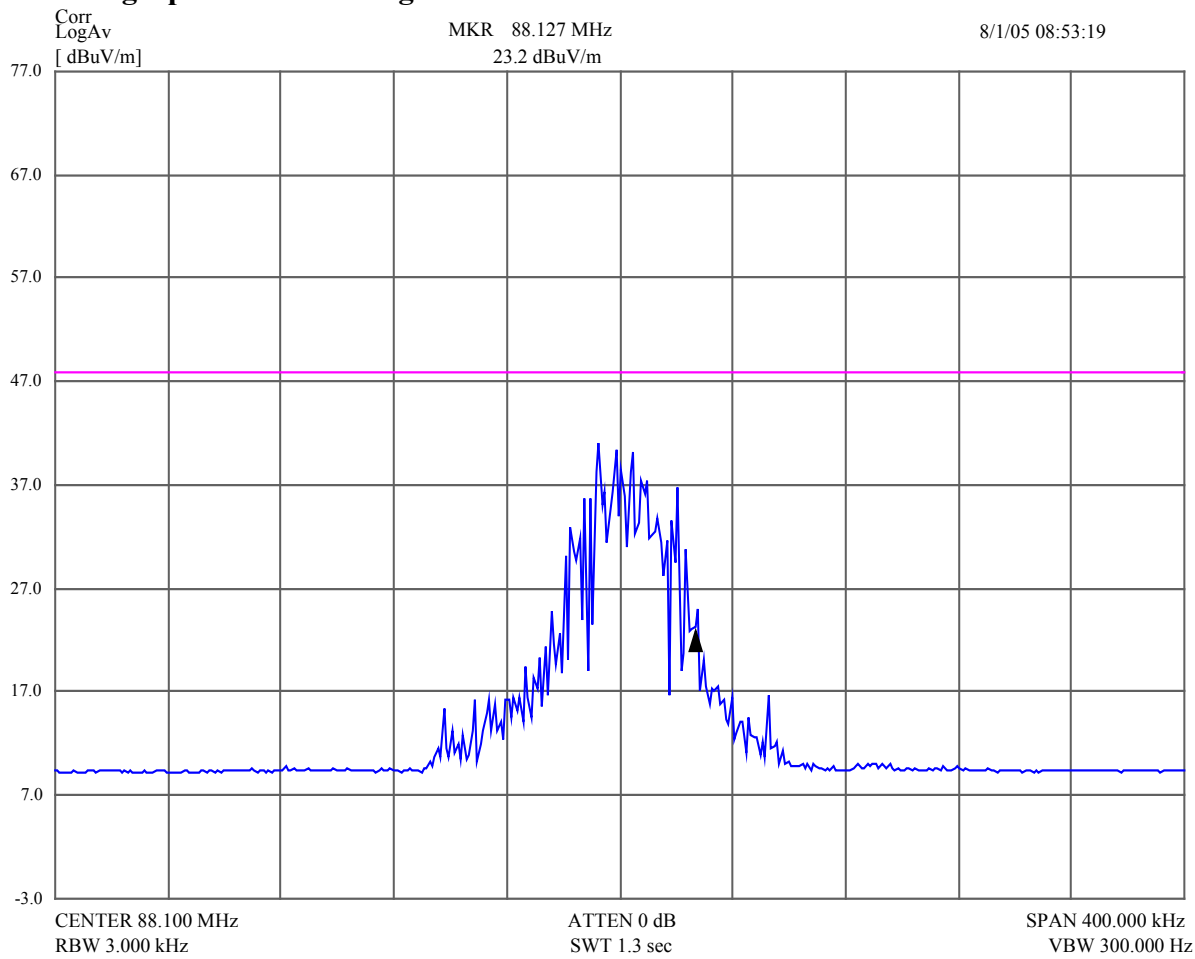


5.1.2 with modulation

Average value data

Frequency MHz	Avg dBuV/m	Avg Lmt dBuV/m	DelLim-Avg dB	Pol	Hgt cm	Angle deg	Status
88.083000	32.77	48.00	-15.23	Horz	220	235	PASS
88.093000	40.90	48.00	-7.10	Horz	220	235	PASS
88.105000	40.15	48.00	-7.85	Horz	220	235	PASS
88.121000	36.58	48.00	-11.42	Horz	220	235	PASS

Receiver graph of Field Strength of Emissions at 3 m



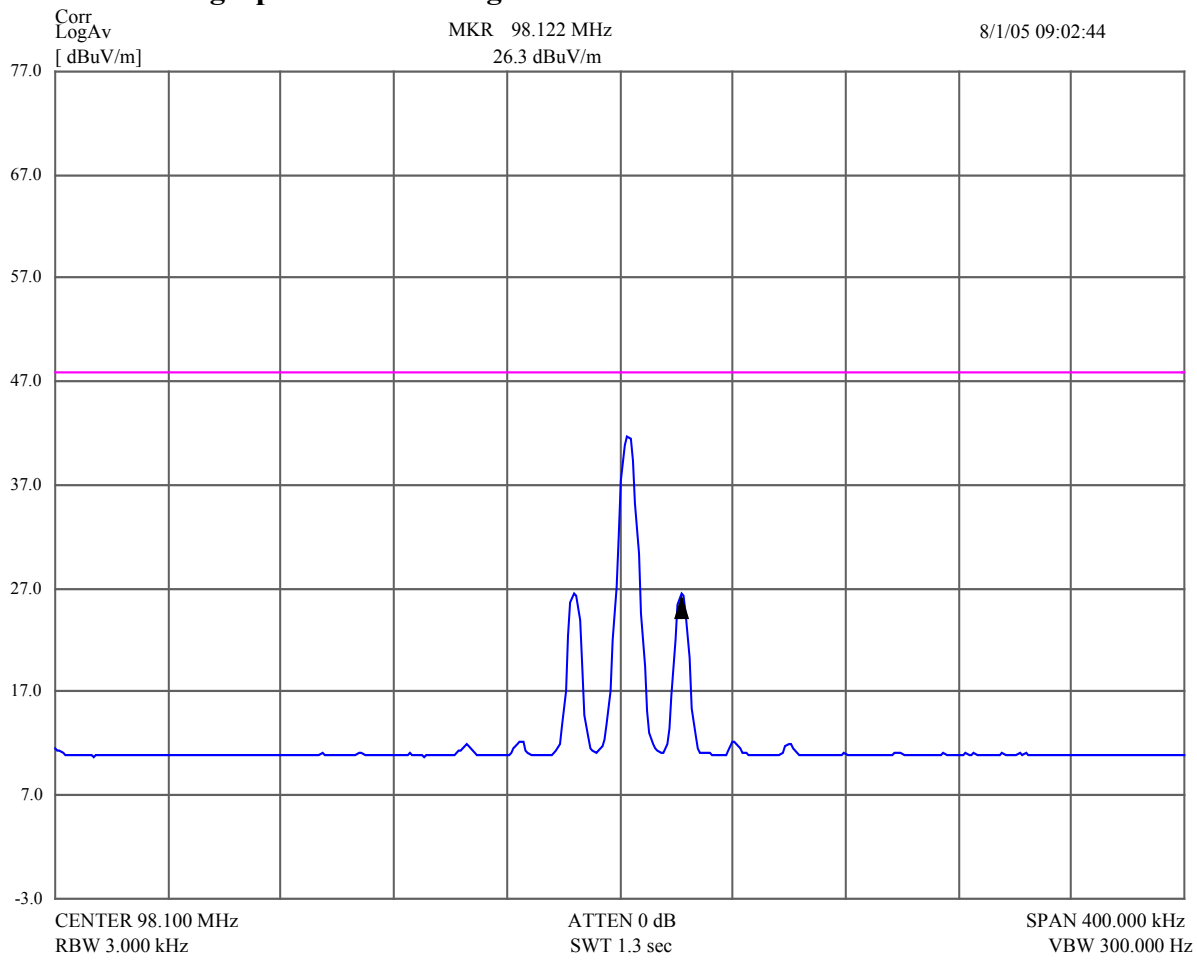
5.2. Channel 98.1 MHz

5.2.1 no modulation

Average value data

Frequency MHz	Avg dBuV/m	Avg Lmt dBuV/m	DelLim-Avg dB	Pol	Hgt cm	Angle deg	Status
98.084000	26.39	48.00	-21.61	Horz	271	251	PASS
98.103000	41.59	48.00	-6.41	Horz	271	251	PASS
98.122000	26.34	48.00	-21.66	Horz	271	251	PASS

Receiver graph of Field Strength of Emission at 3 m

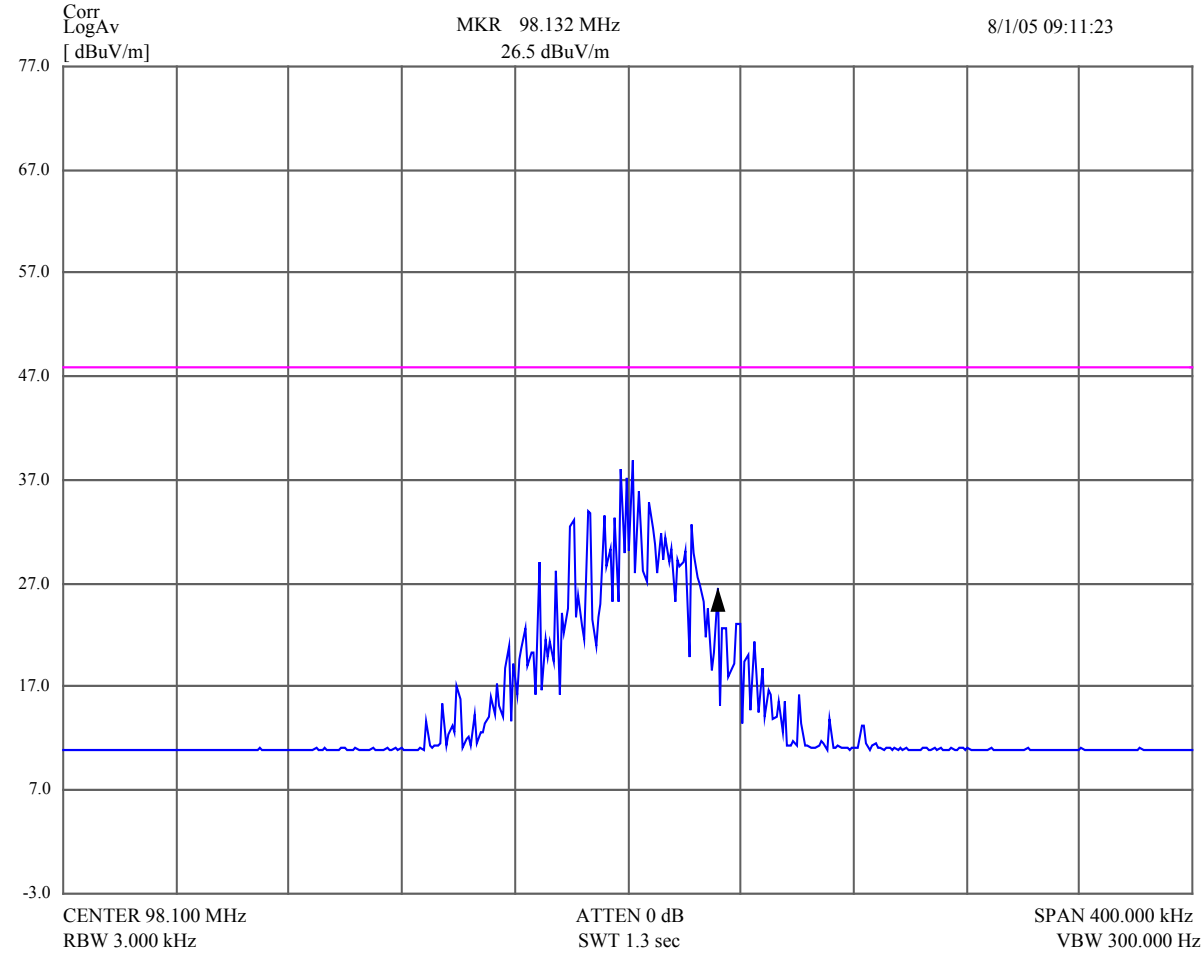


5.2.2 with modulation

Average value data

Frequency MHz	Avg dBuV/m	Avg Lmt dBuV/m	DelLim-Avg dB	Pol	Hgt cm	Angle deg	Status
98.069000	28.97	48.00	-19.03	Horz	271	251	PASS
98.080000	32.50	48.00	-15.50	Horz	271	251	PASS
98.092000	33.51	48.00	-14.49	Horz	271	251	PASS
98.102000	38.79	48.00	-9.21	Horz	271	251	PASS
98.123000	32.56	48.00	-15.44	Horz	271	251	PASS
98.132000	26.49	48.00	-21.51	Horz	271	251	PASS

Receiver graph of Field Strength of Emissions at 3 m



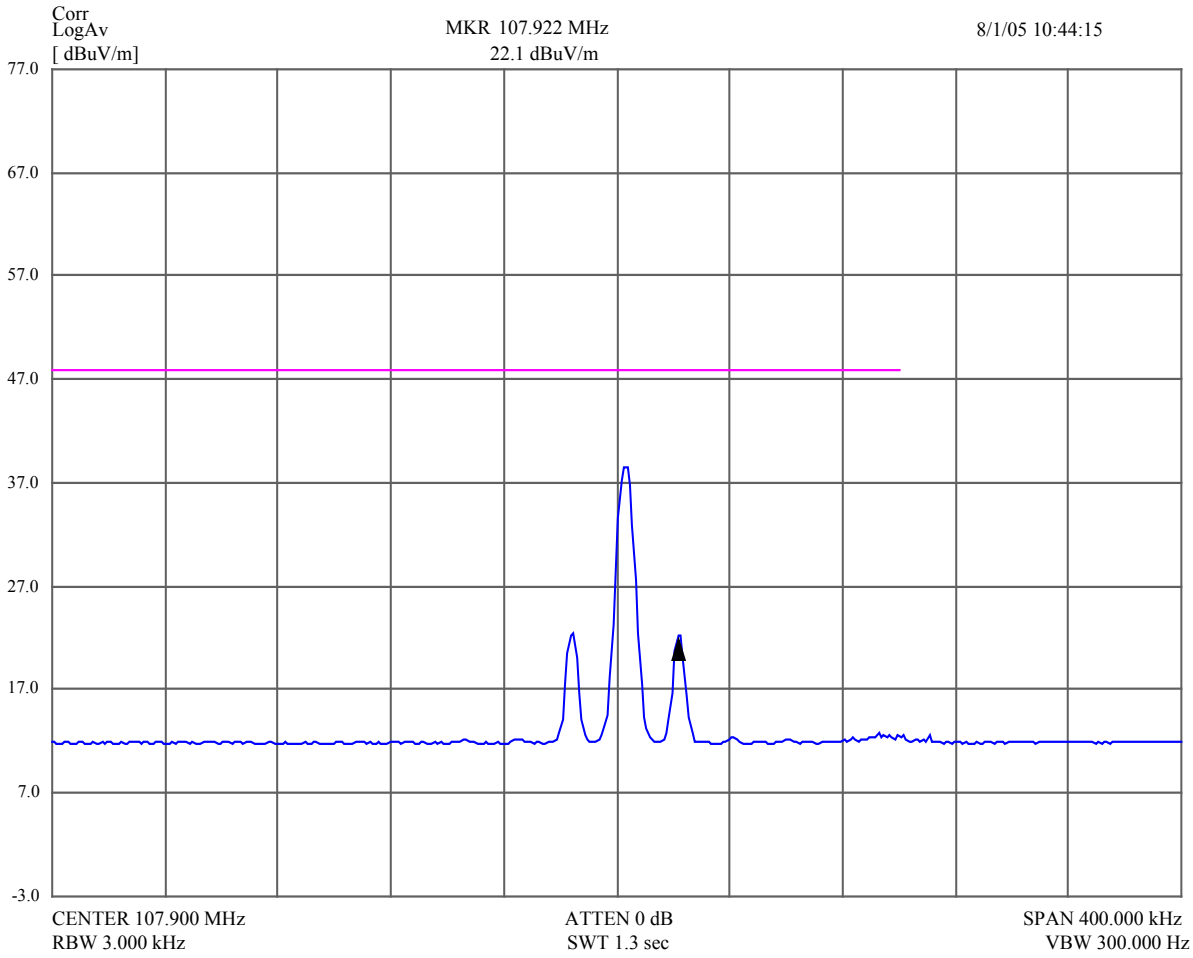
5.3. Channel 107.9 MHz

5.3.1 no modulation

Average value data

Frequency MHz	Avg dBuV/m	Avg Lmt dBuV/m	DelLim-Avg dB	Pol	Hgt cm	Angle deg	Status
107.884000	22.14	48.00	-25.86	Horz	290	234	PASS
107.903000	38.48	48.00	-9.52	Horz	290	234	PASS
107.922000	22.13	48.00	-25.87	Horz	290	234	PASS

Receiver graph of Field Strength of Emissions at 3 m

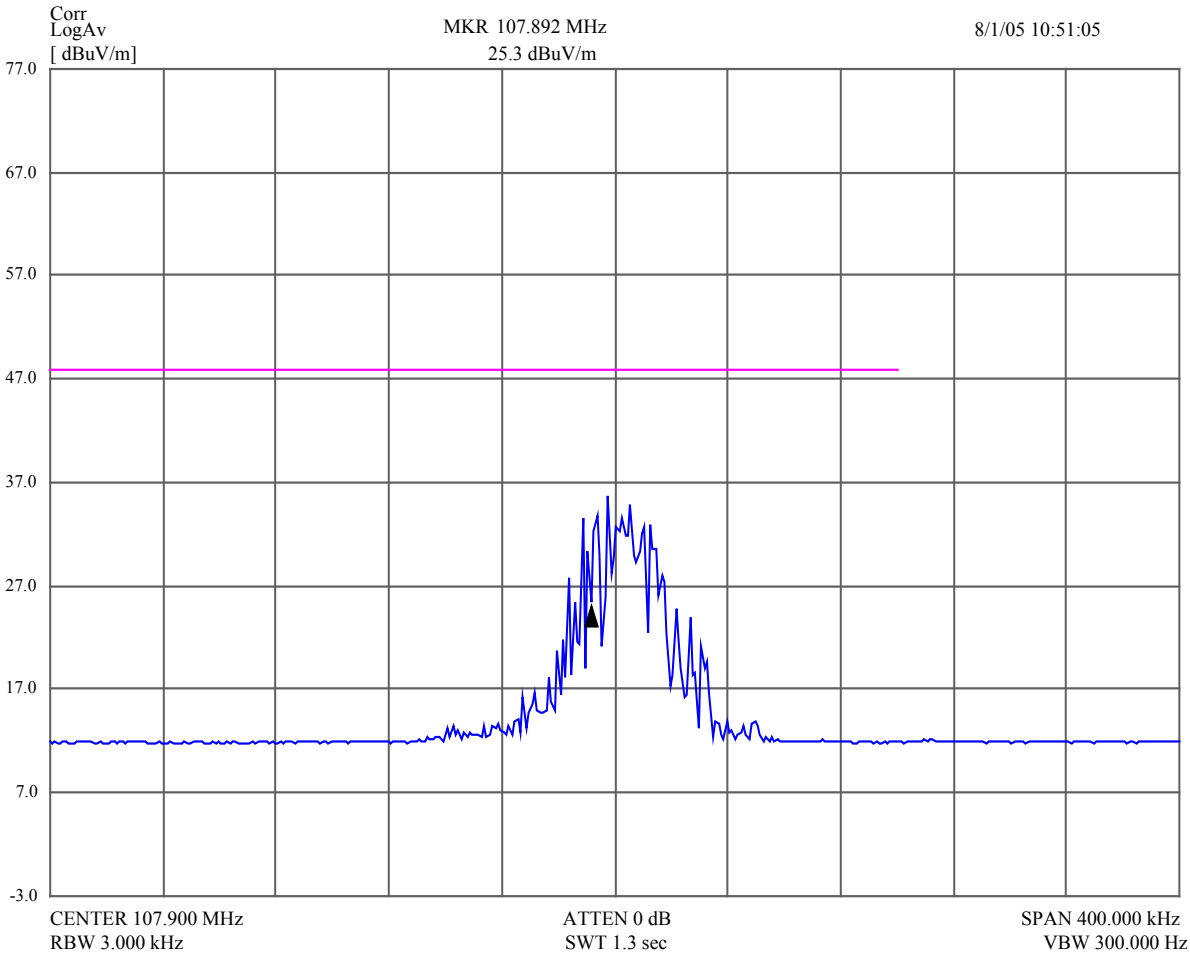


5.3.2 with modulation

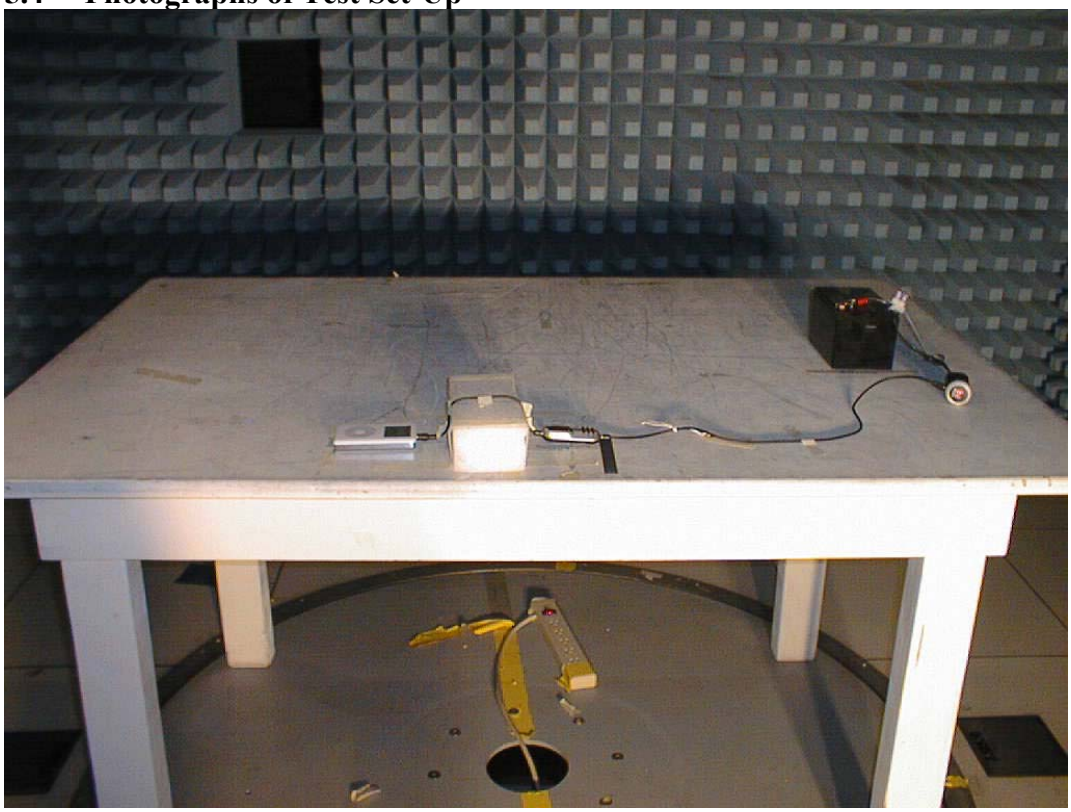
Average value data

Frequency MHz	Avg dBuV/m	Avg Lmt dBuV/m	DelLim-Avg dB	Pol	Hgt cm	Angle deg	Status
107.889000	33.53	48.00	-14.47	Horz	290	234	PASS
107.898000	35.70	48.00	-12.30	Horz	290	234	PASS
107.906000	34.77	48.00	-13.23	Horz	290	234	PASS
107.917000	27.86	48.00	-20.14	Horz	290	234	PASS
107.927000	23.85	48.00	-24.15	Horz	290	234	PASS

Receiver graph of Field Strength of Emissions at 3 m



5.4 Photographs of Test Set-Up



6.0 Radiated Emissions.

Test Requirements:	FCC Part 15 : Subclause 15.209
Test Method:	ANSI C63.4: 2003
Limit :	FCC Part 15 : Subclause 15.209
Mode of operation:	normal

The test facility consists of a shielded semi-anechoic chamber with attached shielded control room. The semi-anechoic chamber is approximately 18 feet wide by 28 feet long by 19 feet high. A hybrid absorber combines high performance anechoic polyurethane foam with a ferrite tile base to achieve high levels of absorption and power dissipation capability.

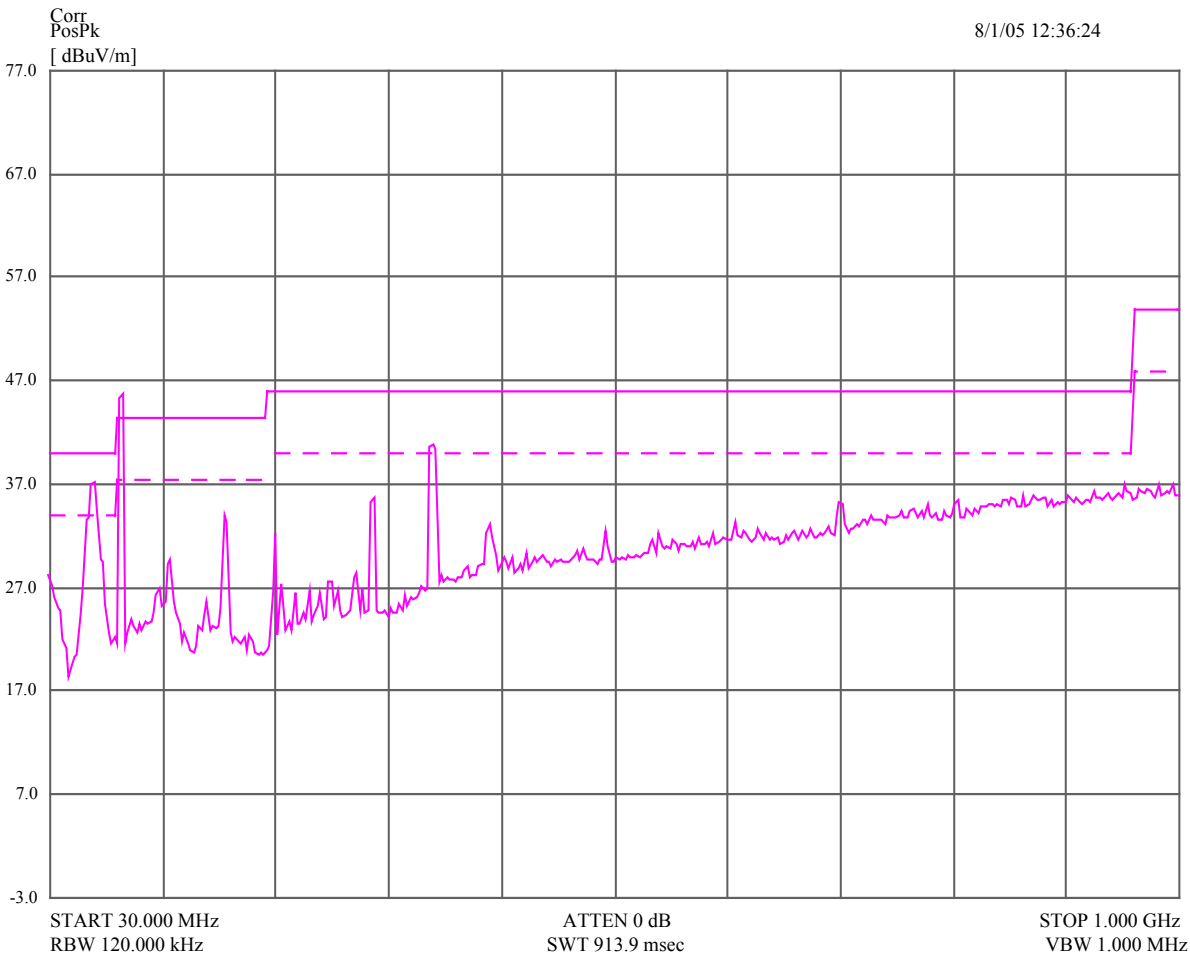
The EUT had been placed at the 0.8 m height on the non-conducting table. Transmitter had been turned ON without modulation and worked at the frequencies of the selected channels.
All data was obtained via a HP 85876A EMI measurement software package using an HP 85462A Receiver which is compliant to CISPR 16. The EUT was configured in various geometric patterns to find the geometric configuration and EUT attitude that produced the largest RF power.
After determination of the maximum emissions configuration the distance of the EUT to the scanning antenna was set to 3 meters.

At each of three selected channels 88.1 MHz, 98.1MHz, and 107.9 MHz Radiated Emissions had been measured.

6.1. Channel 88.1 MHz

Frequency MHz	QP dBuV/m	QP Lmt dBuV/m	DelLim-QP dB	Pol	Hgt cm	Angle deg	Status
64.014248	34.82	40.00	-5.18	Horz	404	217	PASS
176.196256	33.09	43.50	-10.41	Horz	217	169	PASS
215.982496	29.00	43.50	-14.50	Horz	193	328	PASS
264.286256	24.74	46.00	-21.26	Horz	135	343	PASS
300.691264	28.08	46.00	-17.92	Horz	95	18	PASS
352.407488	39.01	46.00	-6.99	Horz	95	166	PASS

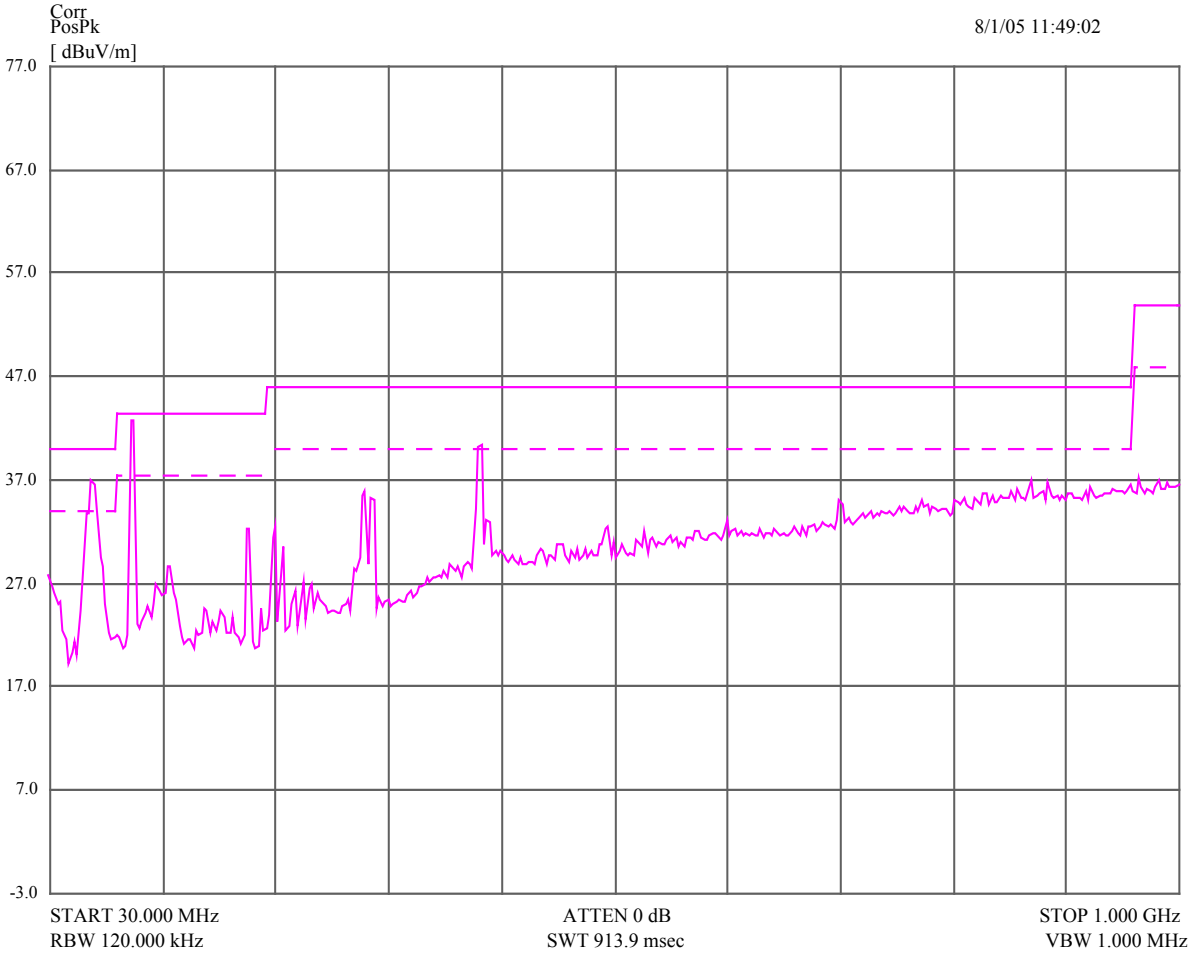
Receiver graph of Radiated Emissions at 3 m



6.2. Channel 98.1 MHz

Frequency MHz	QP dBuV/m	QP Lmt dBuV/m	DelLim-QP dB	Pol	Hgt cm	Angle deg	Status
64.035500	34.93	40.00	-5.07	Horz	404	213	PASS
196.190000	31.09	43.50	-12.41	Horz	205	194	PASS
216.000752	30.45	46.00	-15.55	Horz	163	313	PASS
294.316256	34.29	46.00	-11.71	Horz	94	135	PASS
300.708736	28.01	46.00	-17.99	Horz	187	304	PASS
392.401248	38.50	46.00	-7.50	Horz	95	167	PASS

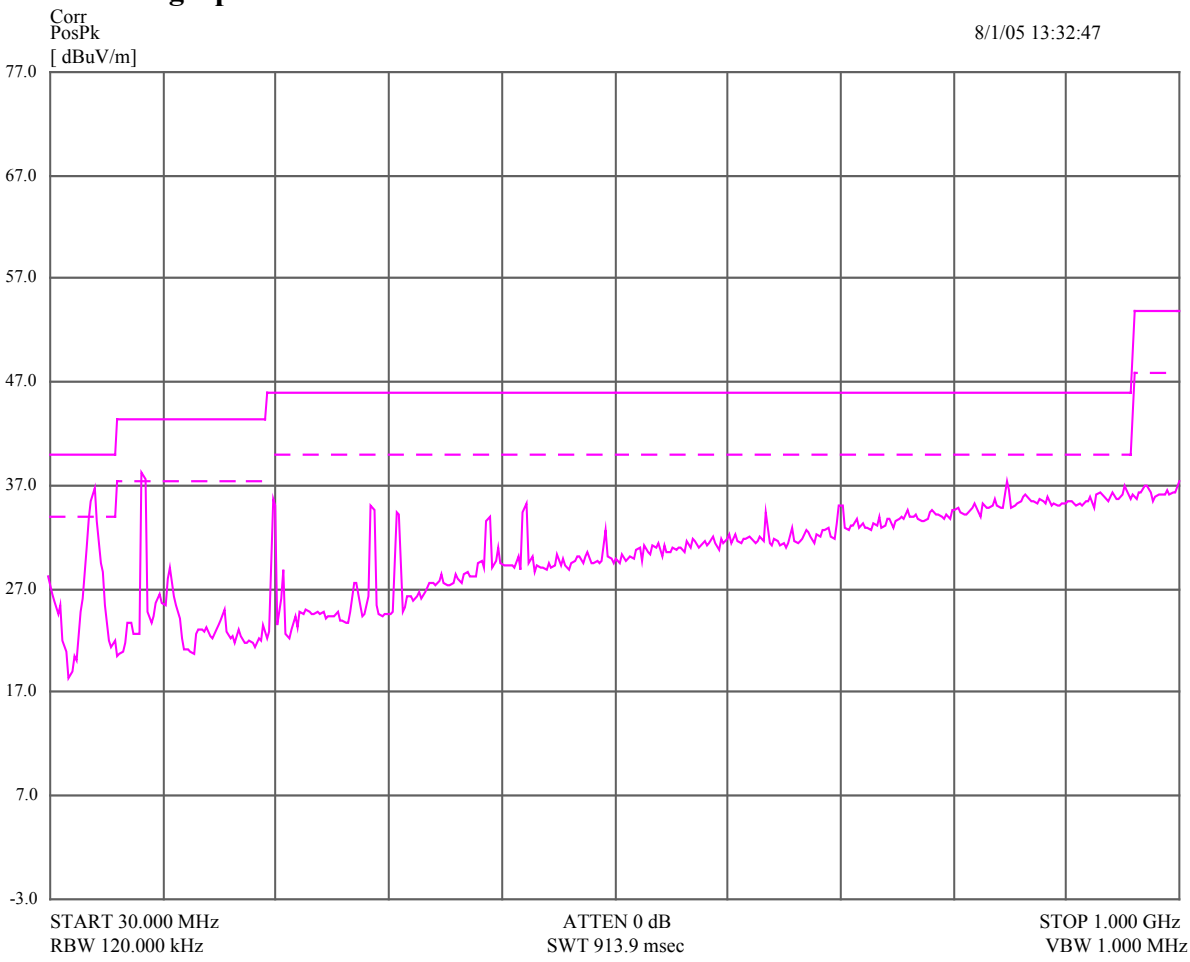
Receiver graph of Radiated Emissions at 3 m



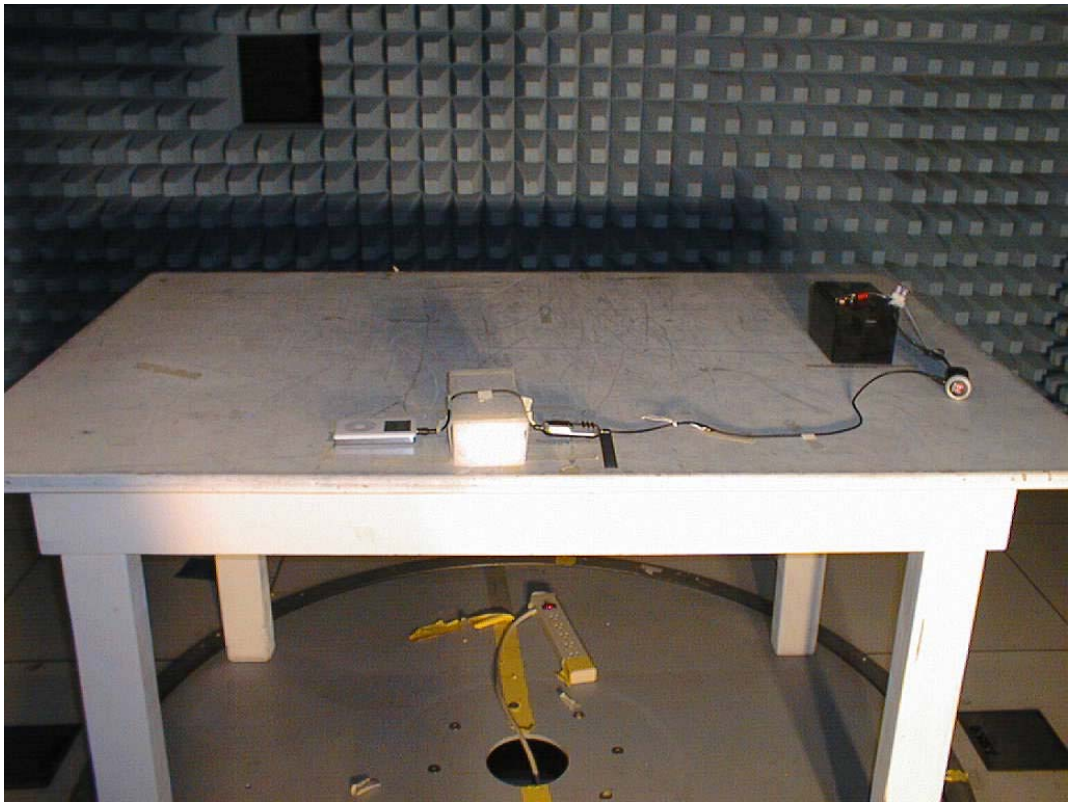
6.3. Channel 107.9 MHz

Frequency MHz	QP dBuV/m	QP Lmt dBuV/m	DelLim-QP dB	Pol	Hgt cm	Angle deg	Status
64.030500	34.64	40.00	-5.36	Horz	352	203	PASS
215.808752	34.62	43.50	-8.88	Horz	152	324	PASS
300.697504	32.00	46.00	-14.00	Horz	404	18	PASS
323.698752	33.27	46.00	-12.73	Horz	95	144	PASS
400.926752	28.11	46.00	-17.89	Horz	95	343	PASS
431.584992	33.77	46.00	-12.23	Horz	96	70	PASS

Receiver graph of Radiated Emissions at 3 m



6.4 Photographs of Test Set-Up



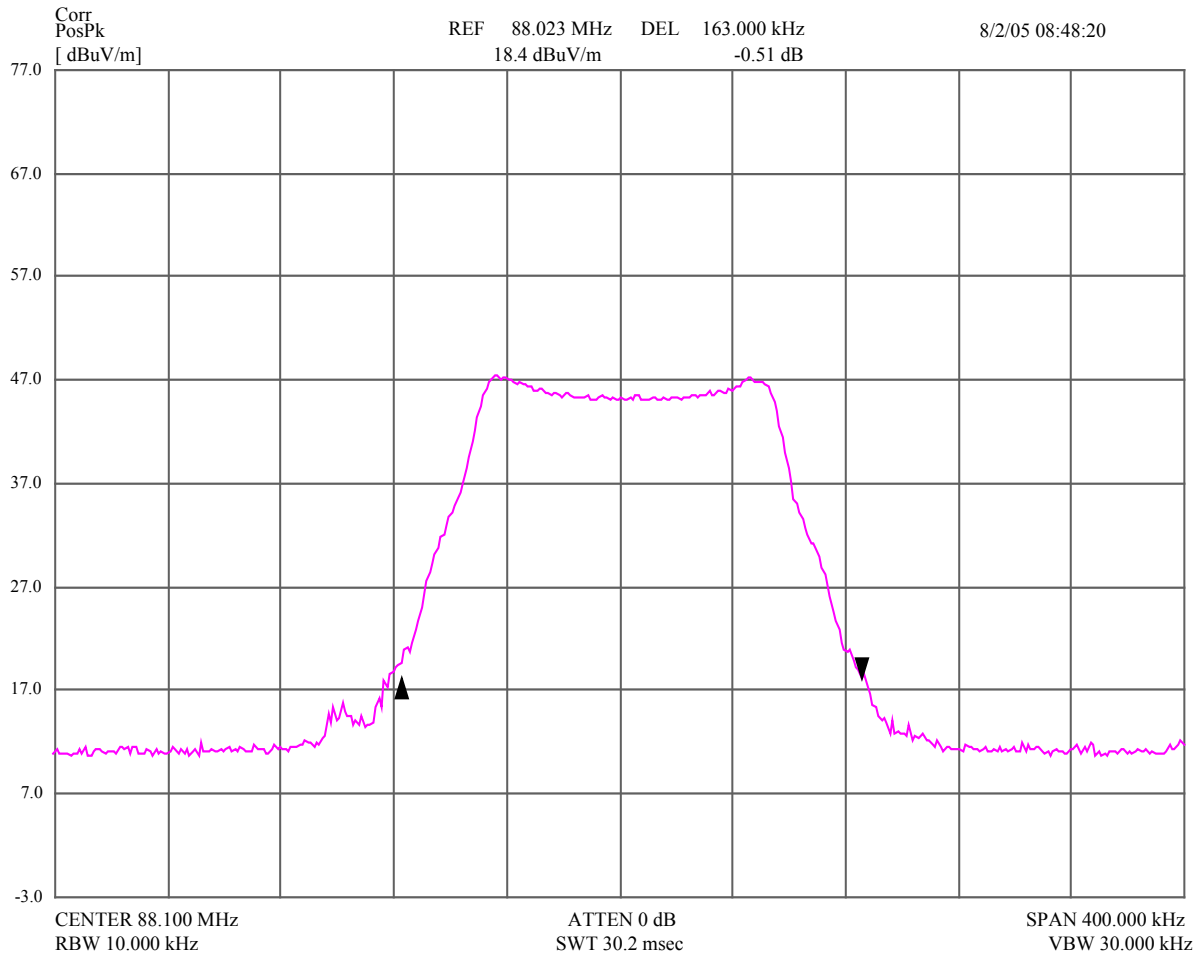
7.0 Occupied channel bandwidth

Test Requirements:	FCC Part 15 : Subclause 15.239
Test Method:	ANSI C63.4: 2003
	FCC Part 2 : Subclause 2.1049 © (1)
Limit :	200 kHz

The channel Bandwidth (BW) is defined as the minimum declared bandwidth within which the transmitter's necessary bandwidth can be contained.

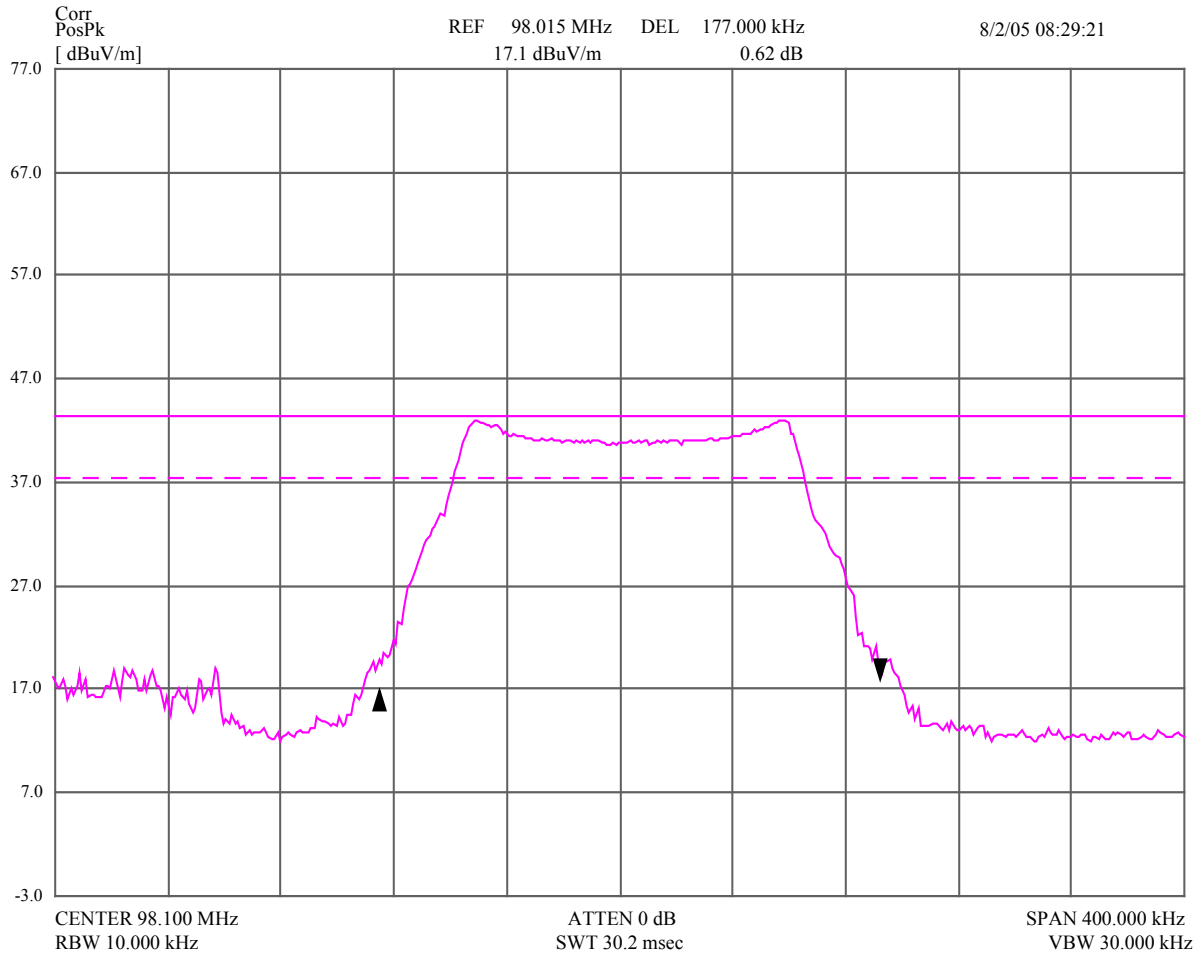
1. The Transmitter was adjusted to work at the selected channels –88.1 MHz, 98.1 MHz and 107.9 MHz. All measurements were conducted by the HP 85462A Spectrum Analyzer;
2. The test Signal generator HP651B was connected to the audio input of the EUT. The fundamental frequency is modulated by 1.13 kHz sinewave with input level equals to the limiting threshold 552mV p-p.
3. The Channel BW was measured at an amplitude level reduced from the reference level by the 26 dB. :

7.1. Channel 88.1 MHz



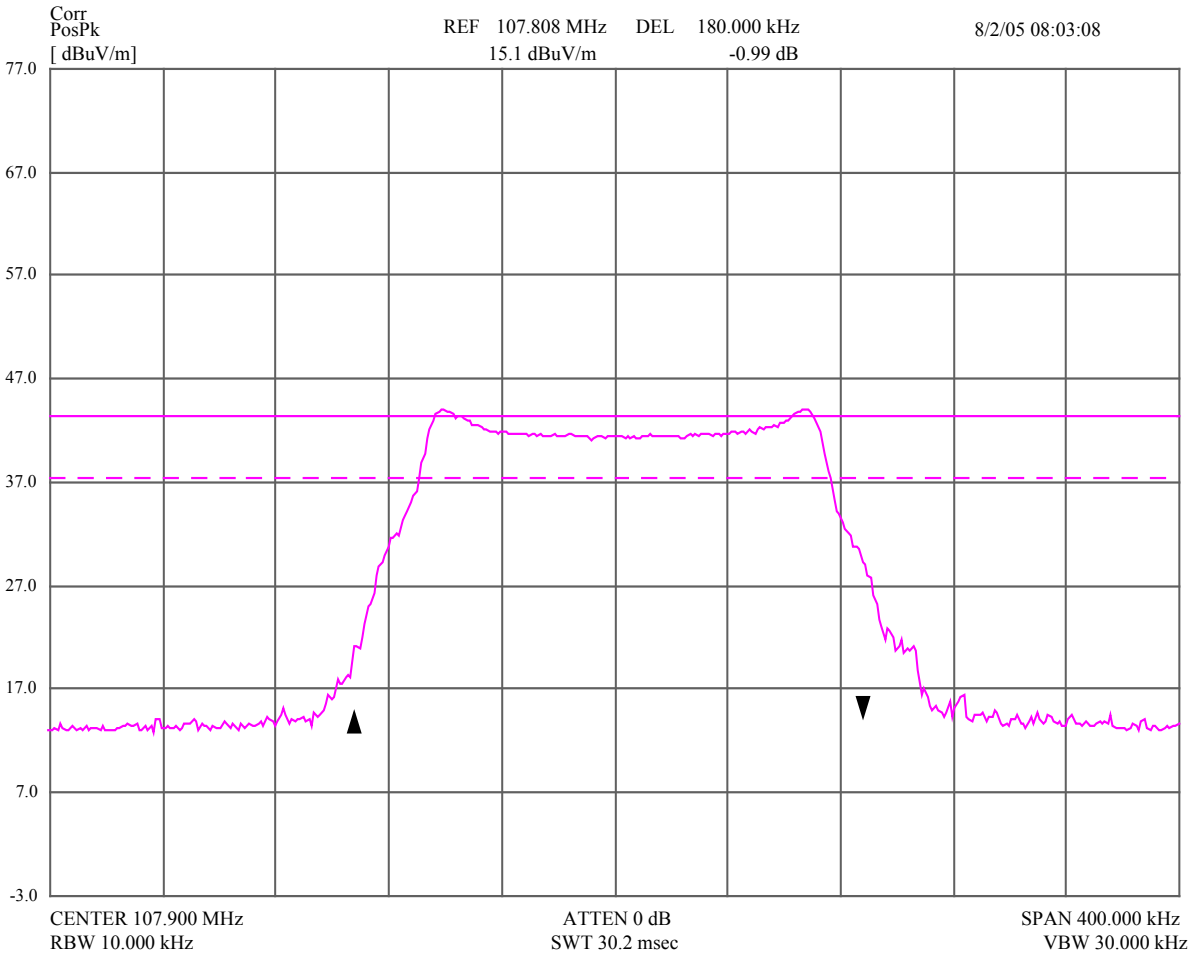
The plot shows the 26 dB bandwidth equals 163 kHz

7.2. Channel 98.1 MHz



The plot shows the 26 dB bandwidth equals 177 kHz

7.3. Channel 107.9 MHz



The plot shows the 26 dB bandwidth equals 180 kHz

7.4 Photographs of Test Set-Up