FCC CERTIFICATION
On Behalf of
Primo International Co., Ltd.

Transmitter
Model No.: DP-189

FCC ID: U5WDP189T

Prepared for	:	Primo International Co., Ltd.
Address	:	Room 2509, Ginza International Building, 7008 Shennan Road, Shenzhen, China
Prepared by	:	ACCURATE TECHNOLOGY CO. LTD
Address	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report Number	:	ATE20071105
Date of Test	:	May 17, 2007
Date of Report	:	May 19, 2007

TABLE OF CONTENTS

Description Page

Test Report Certification

Applicant	:	Primo International Co., Ltd.
Manufacturer	:	Primo International Co., Ltd.
EUT Description	:	Transmitter
		(A) MODEL NO.: DP-189
		(B) SERIAL NO.: N/A
		(C) POWER SUPPLY: DC 3.0V (AAA Battery ×2)

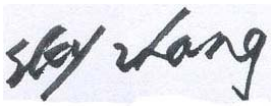
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.239: 2006

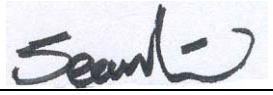
The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section15.239 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : May 17, 2007

Prepared by : 

(Engineer)

Reviewer : 

(Quality Manager)

Approved & Authorized Signer : 

(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Transmitter
Model Number	:	DP-189
Power Supply	:	DC 3.0V (AAA Battery ×2)
Operate Frequency	:	88.2MHz
Channel	:	1
iPod	:	Manufacturer: Apple M/N: A1136 S/N: JQ543GF9SZA
Applicant	:	Primo International Co., Ltd.
Address	:	Room 2509, Ginza International Building, 7008 Shennan Road, Shenzhen, China
Manufacturer	:	Primo International Co., Ltd.
Address	:	Room 2509, Ginza International Building, 7008 Shennan Road, Shenzhen, China
Date of sample received	:	May 14, 2007
Date of Test	:	May 17, 2007

1.2.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen, May 10, 2004 Accredited by FCC, May 10, 2004 Renew by FCC, March 20, 2007 The Certificate Registration Number is 253065 Accredited by Industry Canada, May 18, 2004 Renew by Industry Canada, May 03, 2007 The Certificate Registration Number is IC 5077A-1
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.3.Measurement Uncertainty

Conducted emission expanded uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty	=	4.12dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

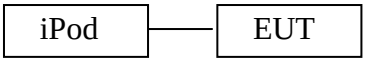
Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	03.31.2007
EMI Test Receiver	Rohde&Schwarz	ESI26	838786/013	01.24.2008
Bilog Antenna	Schwarzbeck	VULB9163	9163-194	03.31.2007
Bilog Antenna	Chase	CBL6112B	2591	03.31.2007
Horn Antenna	Rohde&Schwarz	HF906	100013	01.24.2008
Spectrum Analyzer	Anritsu	MS2651B	6200238856	03.31.2007
Pre-Amplifier	Agilent	8447D	2944A10619	03.31.2007

3. RADIATED EMISSION FOR FCC PART 15 SECTION 15.239(C)

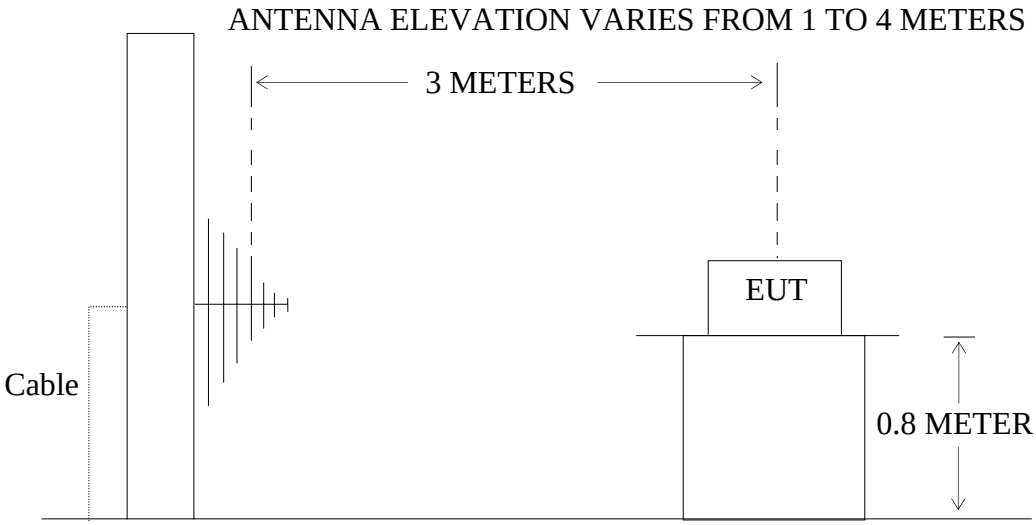
3.1.Block Diagram of Test Setup

3.1.1.Block diagram of connection between the EUT and simulators



(EUT: Transmitter)

3.1.2.Anechoic Chamber Test Setup Diagram



(EUT: Transmitter)

3.2.The Emission Limit for section 15.239(c)

3.2.1 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 section 15.209

Radiation Emission Measurement Limits According to Section 15.209

Frequency (MHz)	Limit,		
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dBμV/m)	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands
30 - 88	100	40	
88 - 216	150	43.5	

216 - 960	200	46	mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
Above 960	500	54	

3.3. Configuration of EUT on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.3.1. Transmitter (EUT)

Model Number	:	DP-189
Serial Number	:	N/A
Manufacturer	:	Primo International Co., Ltd.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

Let the EUT work in TX modes [Connect EUT audio cable to iPod headphone jack and iPod playing typical audio signal(music song) with maximum audio level] measure it.

Note: The EUT is connected to iPod by the base interface of iPod. The input signal of EUT is controlled by iPod. so the volume control of iPod was set to maximum during the test. It means that the test was performed with the maximum audio input.

3.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver (R&S ESCS30) is set at 120KHz in 30-1000MHz; Set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 1000MHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

3.6. The Field Strength of Radiation Emission Measurement Results

PASS.

The frequency range 30MHz to 1000MHz is investigated.

Date of Test:	May 17, 2007	Temperature:	25°C
EUT:	Transmitter	Humidity:	46%
Model No.:	DP-189	Power Supply:	DC 3.0V (AAA Battery ×2)
Test Mode:	TX	Test Engineer:	Andy

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	176.400	25.8	7.5	33.3	43.5	10.2
Horizontal	*264.700	27.6	10.6	38.2	46.0	7.8
Horizontal	352.806	23.6	13.8	37.4	46.0	8.6
Horizontal	441.036	17.4	15.8	33.2	46.0	12.8
Horizontal	529.219	14.2	17.4	31.6	46.0	14.4
Horizontal	617.506	17.3	18.8	36.1	46.0	9.9
Horizontal	705.702	15.4	19.9	35.3	46.0	10.7
Horizontal	793.900	16.8	21.0	37.8	46.0	8.2
Horizontal	882.003	16.0	21.9	37.9	46.0	8.1
Horizontal	*970.060	12.4	22.7	35.1	54.0	18.9
Vertical	176.350	21.1	8.3	29.4	43.5	14.1
Vertical	*264.620	30.1	9.7	39.8	46.0	6.2
Vertical	352.801	21.9	13.8	35.7	46.0	10.3
Vertical	441.020	18.3	16.2	34.5	46.0	11.5
Vertical	529.207	14.6	18.2	32.8	46.0	13.2
Vertical	617.427	18.1	19.9	38.0	46.0	8.0
Vertical	705.663	15.5	21.3	36.8	46.0	9.2
Vertical	793.881	17.6	22.5	40.1	46.0	5.9
Vertical	882.007	15.1	23.7	38.8	46.0	7.2
Vertical	*970.053	12.6	24.7	37.3	54.0	16.7

Note:

1. The spectral diagrams in appendix 1 display the measurement of peak values with corrected factors counted.
2. *: Denotes restricted band of operation.
3. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

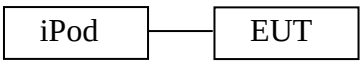
Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

4. FUNDAMENTAL RADIATED EMISSION FOR FCC PART 15 SECTION 15.239(B)

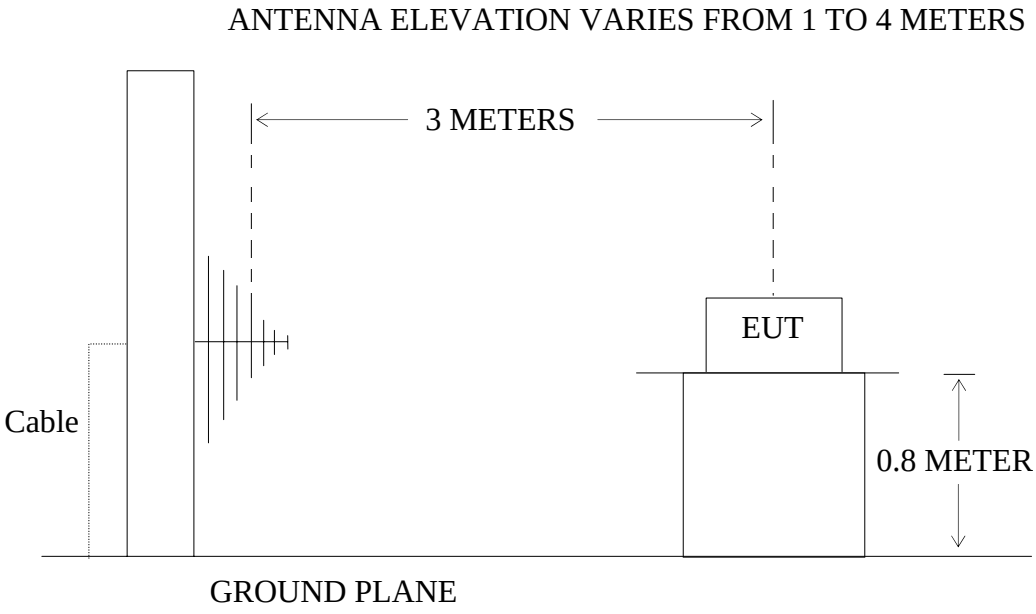
4.1.Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators



(EUT: Transmitter)

4.1.2.Anechoic Chamber Test Setup Diagram



(EUT: Transmitter)

4.2.The Emission Limit For Section 15.239(b)

4.2.1 The field strength of any emission within the permitted 200kHz band shall not exceed 250microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in section 15.35 for limiting peak emissions apply.

4.3.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.3.1.Transmitter (EUT)

Model Number	**:**	DP-189
Serial Number	**:**	N/A
Manufacturer	**:**	Primo International Co., Ltd.

4.4.Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1.

4.4.2.Turn on the power of all equipment.

Let the EUT work in TX modes [Connect EUT audio cable to iPod headphone jack and iPod playing typical audio signal(music song) with maximum audio level] measure it.

Note: The EUT is connected to iPod by the base interface of iPod. The input signal of EUT is controlled by iPod. so the volume control of iPod was set to maximum during the test. It means that the test was performed with the maximum audio input.

4.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

4.6.The Emission Measurement Result

PASS.

Date of Test:	May 17, 2007	Temperature:	25°C
EUT:	Transmitter	Humidity:	46%
Model No.:	DP-189	Power Supply:	DC 3.0V (AAA Battery ×2)
Test Mode:	TX	Test Engineer:	Andy

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
88.2	34.8	38.4	8.7	43.5	47.1	48	68	4.5	20.9	Vertical
88.2	35.0	38.5	6.0	41.0	44.5	48	68	7.0	23.5	Horizontal

The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

5. OCCUPIED BANDWIDTH FOR FCC PART 15 SECTION 15.239(A)

5.1.The Requirement For Section 15.239(a)

5.1.1. Emission from the device shall be confined within a band 200kHz wide centered on the operating frequency. The 200kHz band shall lie wholly within the frequency range of 88-108MHz.

5.2.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.2.1.Transmitter (EUT)

Model Number	**:**	DP-189
Serial Number	**:**	N/A
Manufacturer	**:**	Primo International Co., Ltd.

5.3.Operating Condition of EUT

5.3.1.Setup the EUT and simulator as shown as Section 4.1.

5.3.2.Turn on the power of all equipment.

Let the EUT work in TX modes [Connect EUT audio cable to iPod headphone jack and iPod playing typical audio signal(music song) with maximum audio level] measure it.

Note: The EUT is connected to iPod by the base interface of iPod. The input signal of EUT is controlled by iPod. so the volume control of iPod was set to maximum during the test. It means that the test was performed with the maximum audio input.

5.4.Test Procedure

5.4.1. The EUT was placed on a turn table which is 0.8m above ground plane.
5.4.2. Set EUT as normal operation. Playing MP3.(the volume control of iPod was set to maximum.)
5.4.3. Set EMI test receiver Center Frequency = fundamental frequency, RBW=3kHz, VBW= 10kHz, Span=300kHz.
5.4.4. Set EMI test receiver Max hold. Mark peak, -26dB.

5.5.Test Result

The EUT does meet the FCC requirement.

Input signal : play typical audio signal(music song)
FM 88.2MHz
-26dB bandwidth = 130.2kHz

6. TUNING RANGE

6.1. The Requirement For Section 15.239

88-108MHz

6.2. EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.2.1. Transmitter (EUT)

Model Number	:	DP-189
Serial Number	:	N/A
Manufacturer	:	Primo International Co., Ltd.

6.3. Operating Condition of EUT

6.3.1. Setup the EUT and simulator as shown as Section 4.1.

6.3.2. Turn on the power of all equipment.

Let the EUT work in TX modes

6.4. Test Procedure

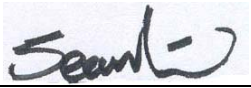
6.4.1. The EUT was placed on a turn table which is 0.8m above ground plane.
6.4.2. Set the EUT working on the working frequency.
6.4.3. Set EMI test receiver center frequency = working frequency, RBW=3kHz, VBW= 10kHz, Span=300kHz.
6.4.4. Measuring the working frequency.
6.4.5. The working frequency should be inside 88-108MHz.

6.5. Test Result

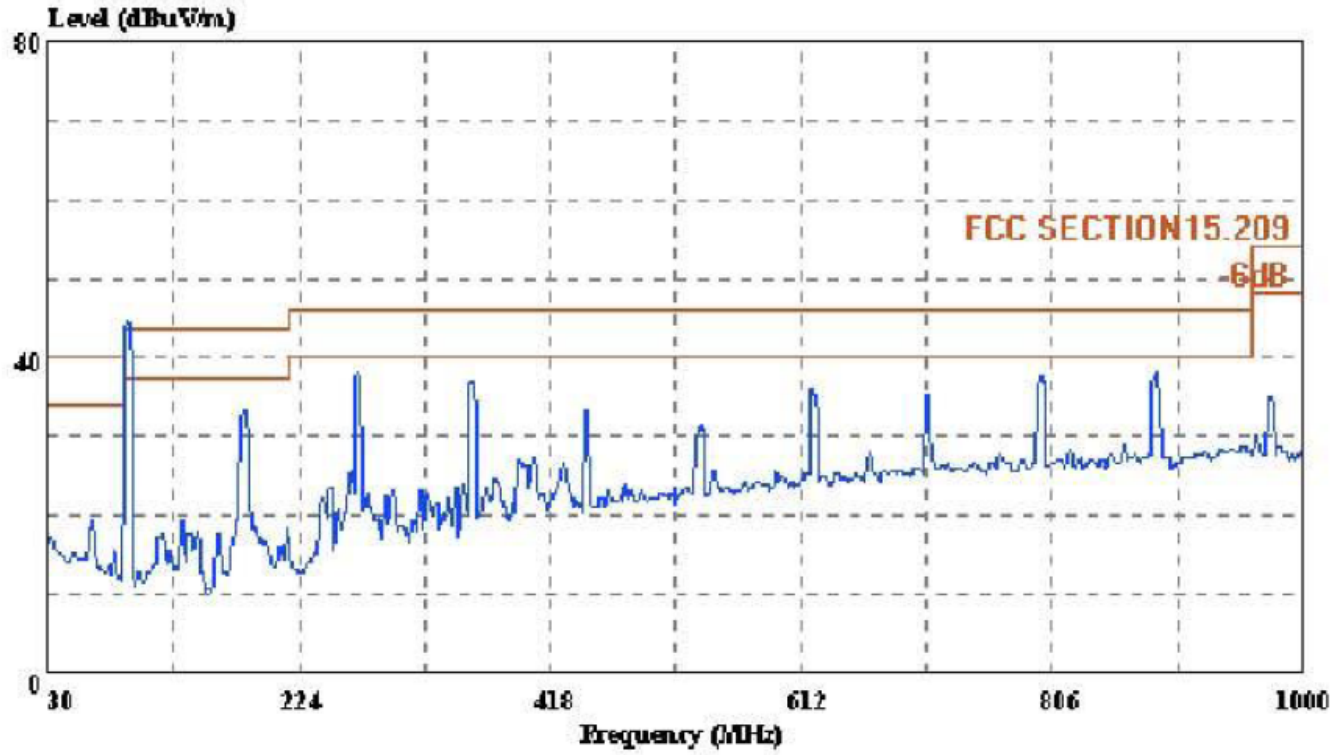
The EUT does meet the FCC requirement.

Working Frequency= 88.2090MHz

The working frequency can not to be displayed and adjusted on EUT.
The EUT just one working frequency.

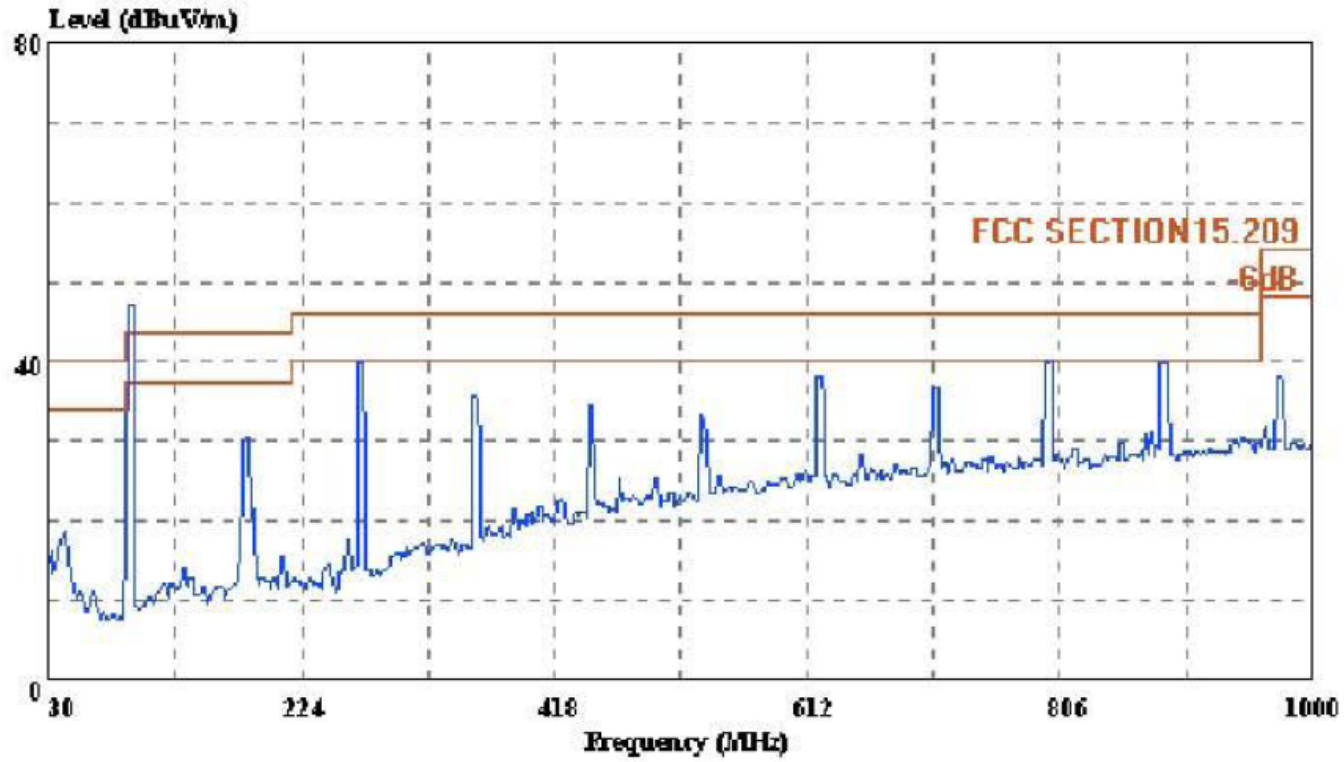
Reviewer **:** 

APPENDIX I
(Test Curves)



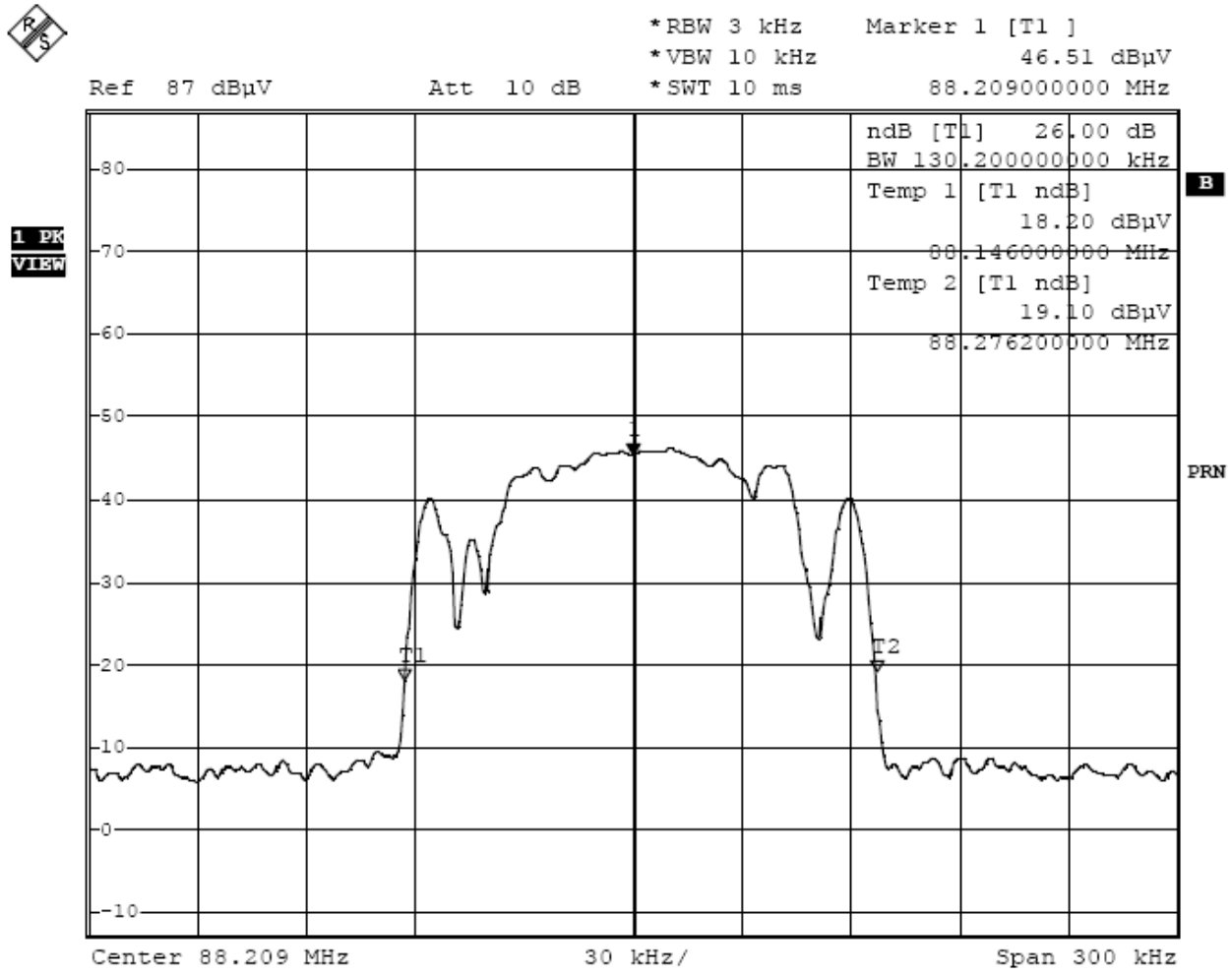
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : Transmitter m/n:DP-189
power : DC 3.0V
memo : TX
manuf : PRIMO
sample no.: 071944



Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : Transmitter m/n:DP-189
power : DC 3.0V
memo : TX
manuf : PRIMO
sample no.: 071944


*RBW 3 kHz
*VBW 10 kHz
*SWT 10 ms
Marker 1 [T1]
46.51 dBµV
88.209000000 MHz
Ref 87 dBµV
Att 10 dB
ndB [T1] 26.00 dB
BW 130.200000000 kHz
Temp 1 [T1 ndB]
18.20 dBµV
88.146000000 MHz
Temp 2 [T1 ndB]
19.10 dBµV
88.276200000 MHz
1 PK
VIEW
B
PRN
80
70
60
50
40
30
20
10
0
-10
T1
T2
Center 88.209 MHz
30 kHz/
Span 300 kHz