FCC CERTIFICATION
On Behalf of
Shenzhen Hexing Electronics Factory

FM Wireless Transmitter
Model No.: H102

FCC ID: T83H102FM

Prepared for	:	Shenzhen Hexing Electronics Factory
Address	:	2/F., Building 1, Dongzhijia Industry Area, Lezhujiao, Xixiang, Baoan, 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	:	ATE20072905
Date of Test	:	December 14, 2007
Date of Report	:	December 17, 2007

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Description Page

Test Report Certification

Applicant	:	Shenzhen Hexing Electronics Factory
Manufacturer	:	Shenzhen Hexing Electronics Factory
EUT Description	:	FM Wireless Transmitter
		(A) MODEL NO.:H102
		(B) SERIAL NO.: N/A
		(C) POWER SUPPLY: DC 12V (Power By Car Battery) or DC 3V (Power By AAA Batteries×2)

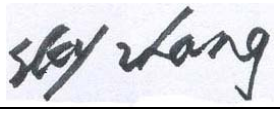
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.239: 2007& ANSI 63.4: 2003

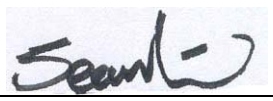
The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section15.239 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY 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 : December 14, 2007

Prepared by : 

(Engineer)

Reviewer : 

(Quality Manager)

Approved & Authorized Signer : 

(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	FM Wireless Transmitter
Model Number	:	H102
Power Supply	:	DC 12V (Power By Car Battery) Or DC 3V (Power By AAA Batteries×2)
Operate Frequency	:	88.1M-107.9MHz
Channel	:	0.1MHz interval
iPod 20G	:	Manufacturer: Apple M/N: A1136 S/N: JQ543GF9SZA
Applicant	:	Shenzhen Hexing Electronics Factory
Address	:	2/F., Building 1, Dongzhijia Industry Area, Lezhujiao, Xixiang, Baoan, Shenzhen, China
Manufacturer	:	Shenzhen Hexing Electronics Factory
Address	:	2/F., Building 1, Dongzhijia Industry Area, Lezhujiao, Xixiang, Baoan, Shenzhen, China
Date of sample received	:	December 04, 2007
Date of Test	:	December 14, 2007

1.2.Description of Test Facility

EMC Lab	:	Listed by FCC The Registration Number is 274801 Listed by Industry Canada The Registration Number is IC4174 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L0579
Name of Firm	:	Shenzhen Academy of Metrology& Quality Inspection
Site Location	:	Bldg. Metrology& Quality Inspection, Longzhu Road, Nanshan, Shenzhen, Guangdong, P.R. China

1.3.Measurement Uncertainty

Conducted emission expanded uncertainty = 3.5dB, k=2

Radiated emission expanded uncertainty = 4.5dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

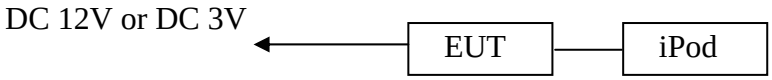
Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	03.31.2008
EMI Test Receiver	Rohde&Schwarz	ESI26	838786/013	01.24.2008
Bilog Antenna	Schwarzbeck	VULB9163	9163-194	03.31.2008
Bilog Antenna	Chase	CBL6112B	2591	03.31.2008
Horn Antenna	Rohde&Schwarz	HF906	100013	01.24.2008
Spectrum Analyzer	Anritsu	MS2651B	6200238856	03.31.2008
Pre-Amplifier	Agilent	8447D	2944A10619	03.31.2008
L.I.S.N.	Rohde&Schwarz	ESH3-Z5	100305	03.31.2008
L.I.S.N.	Rohde&Schwarz	ESH3-Z5	100310	03.31.2008

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

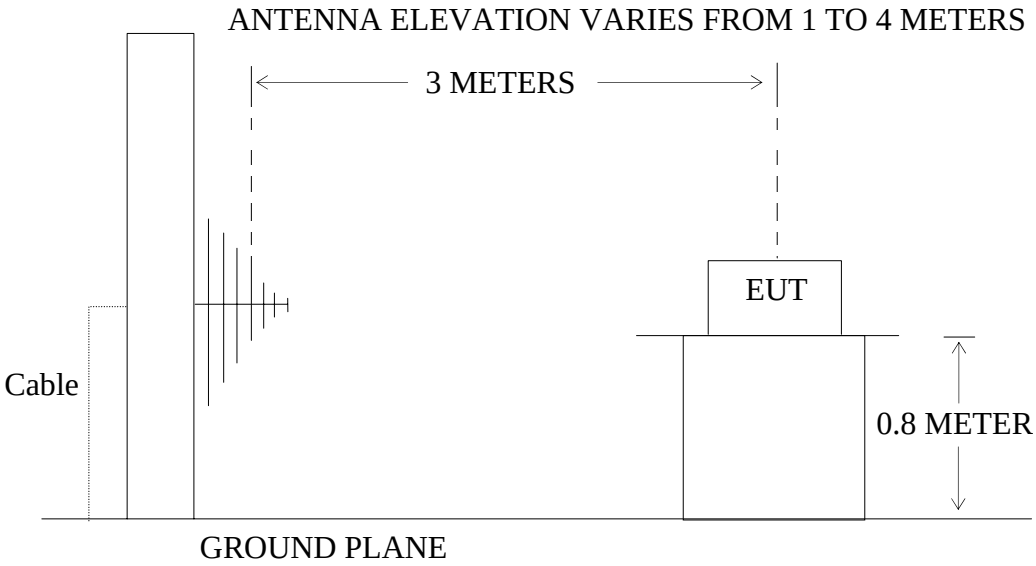
3.1.Block Diagram of Test Setup

3.1.1.Block diagram of connection between the EUT and simulators



(EUT: FM Wireless Transmitter)

3.1.2.Anechoic Chamber Test Setup Diagram



(EUT: FM Wireless 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. FM Wireless Transmitter (EUT)

Model Number : H102
Serial Number : N/A
Manufacturer : Shenzhen Hexing Electronics Factory

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. FM Transmitter power by DC 12V.

3.4.3. Let the EUT work in TX modes [Connect EUT audio input 3.5mm jack to iPod headphone jack and ipod playing typical audio signal('Highway Blues' from sample music of windows XP) with maximum audio level] measure it. The transmit frequency are 88.1-107.9MHz.We are select 88.1M, 98.1M, 107.9MHz TX frequency to transmitted.

3.4.4. Turn on the power of all equipment. FM Transmitter power by DC 3V.

3.4.5. Repeat 3.4.3.

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. The frequency range from 30MHz to 1100MHz is checked. 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 1100MHz is investigated.

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 12V
Model No.:	H102	Power Supply:	(Power By Car Battery)
Test Mode:	TX 88.1MHz	Test Engineer:	Feng

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	176.215	26.2	7.8	34.0	43.5	9.5
Horizontal	264.321	27.3	10.8	38.1	46.0	7.9
Horizontal	352.428	19.1	13.9	33.0	46.0	13.0
Horizontal	440.550	15.5	15.9	31.4	46.0	14.6
Horizontal	528.661	11.0	17.5	28.5	46.0	17.5
Vertical	176.210	22.1	8.4	30.5	43.5	13.0
Vertical	264.304	23.3	10.2	33.5	46.0	12.5
Vertical	352.414	14.5	14.0	28.5	46.0	17.5
Vertical	440.541	15.1	16.4	31.5	46.0	14.5
Vertical	528.650	10.7	18.3	29.0	46.0	17.0

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 12V
Model No.:	H102	Power Supply:	(Power By Car Battery)
Test Mode:	TX 98.1MHz	Test Engineer:	Feng

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	196.210	26.3	9.6	35.9	43.5	7.6
Horizontal	294.302	20.6	12.3	32.9	46.0	13.1
Horizontal	392.408	19.8	14.9	34.7	46.0	11.3
Horizontal	490.515	12.9	16.9	29.8	46.0	16.2
Horizontal	588.622	10.4	18.4	28.8	46.0	17.2
Vertical	196.210	26.4	9.0	35.4	43.5	8.1
Vertical	294.314	19.0	12.1	31.1	46.0	14.9
Vertical	392.408	21.8	15.2	37.0	46.0	9.0
Vertical	490.520	16.3	17.5	33.8	46.0	12.2
Vertical	588.626	11.9	19.4	31.3	46.0	14.7

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 12V
Model No.:	H102	Power Supply:	(Power By Car Battery)
Test Mode:	TX 107.9MHz	Test Engineer:	Feng

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	215.810	28.8	9.7	38.5	43.5	5.0
Horizontal	323.710	22.5	13.1	35.6	46.0	10.4
Horizontal	431.620	19.6	15.6	35.2	46.0	10.8
Horizontal	539.532	15.7	17.6	33.3	46.0	12.7
Horizontal	647.432	10.8	19.2	30.0	46.0	16.0
Vertical	215.810	30.2	8.9	39.1	43.5	4.4
Vertical	323.708	23.2	12.9	36.1	46.0	9.9
Vertical	431.618	18.2	16.0	34.2	46.0	11.8
Vertical	539.530	17.3	18.4	35.7	46.0	10.3
Vertical	647.432	8.0	20.4	28.4	46.0	17.6

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 3V
Model No.:	H102	Power Supply:	(Power By AAA Batteries×2)
Test Mode:	TX 88.1MHz	Test Engineer:	Feng

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	176.216	25.4	7.8	33.2	43.5	10.3
Horizontal	264.310	20.8	10.8	31.6	46.0	14.4
Horizontal	352.402	14.7	13.9	28.6	46.0	17.4
Horizontal	440.546	14.7	15.9	30.6	46.0	15.4
Horizontal	528.650	8.5	17.5	26.0	46.0	20.0
Vertical	176.216	24.3	8.4	32.7	43.5	10.8
Vertical	264.312	28.9	10.2	39.1	46.0	6.9
Vertical	352.408	18.4	14.0	32.4	46.0	13.6
Vertical	440.544	18.0	16.4	34.4	46.0	11.6
Vertical	528.648	9.3	18.3	27.6	46.0	18.4

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 3V
Model No.:	H102	Power Supply:	(Power By AAA Batteries×2)
Test Mode:	TX 98.1MHz	Test Engineer:	Feng

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	196.208	29.3	9.6	38.9	43.5	4.6
Horizontal	294.310	23.1	12.3	35.4	46.0	10.6
Horizontal	392.412	16.5	14.9	31.4	46.0	14.6
Horizontal	490.526	11.8	16.9	28.7	46.0	17.3
Horizontal	588.630	8.7	18.4	27.1	46.0	18.9
Vertical	196.206	26.4	9.0	35.4	43.5	8.1
Vertical	294.316	20.4	12.1	32.5	46.0	13.5
Vertical	392.418	13.5	15.2	28.7	46.0	17.3
Vertical	490.524	9.4	17.5	26.9	46.0	19.1
Vertical	588.630	9.1	19.4	28.5	46.0	17.5

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 3V
Model No.:	H102	Power Supply:	(Power By AAA Batteries×2)
Test Mode:	TX 107.9MHz	Test Engineer:	Feng

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	215.810	29.1	9.7	38.8	43.5	4.7
Horizontal	323.720	25.6	13.1	38.7	46.0	7.3
Horizontal	431.630	19.8	15.6	35.4	46.0	10.6
Horizontal	539.532	14.6	17.6	32.2	46.0	13.8
Horizontal	647.432	9.8	19.2	29.0	46.0	17.0
Vertical	215.810	24.0	8.9	32.9	43.5	10.6
Vertical	323.718	19.8	12.9	32.7	46.0	13.3
Vertical	431.628	15.4	16.0	31.4	46.0	14.6
Vertical	539.540	16.6	18.4	35.0	46.0	11.0
Vertical	647.432	11.2	20.4	31.6	46.0	14.4

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

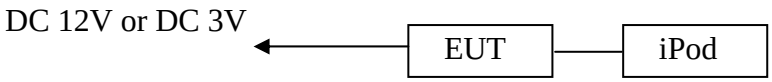
Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

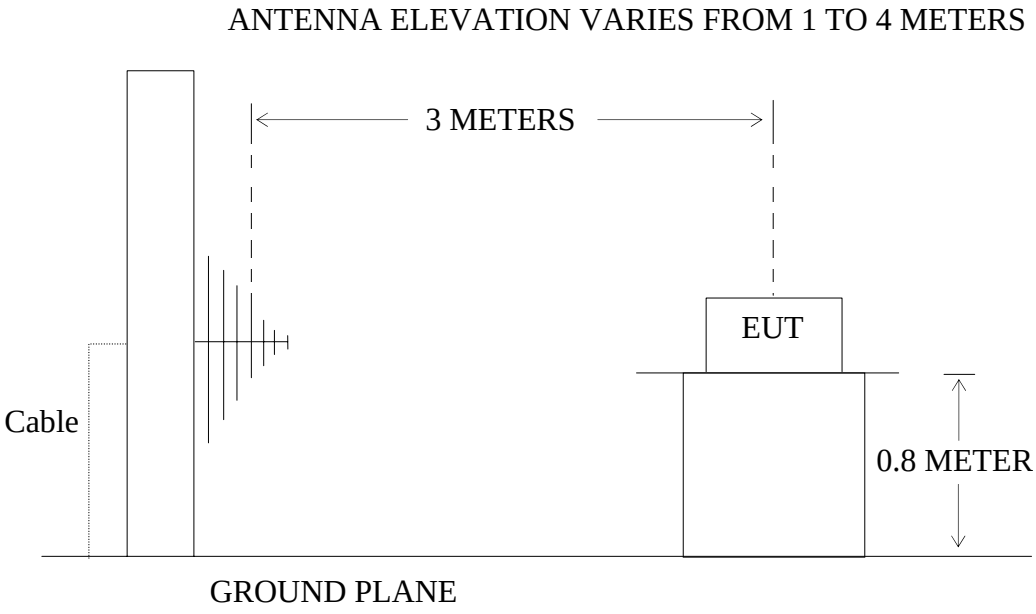
4.1.Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators



(EUT: FM Wireless Transmitter)

4.1.2.Anechoic Chamber Test Setup Diagram



(EUT: FM Wireless 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. FM Wireless Transmitter (EUT)

Model Number	**:**	H102
Serial Number	**:**	N/A
Manufacturer	**:**	Shenzhen Hexing Electronics Factory

4.4.Operating Condition of EUT

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

4.4.2.Turn on the power of all equipment. FM Transmitter power by DC 12V.

4.4.3. Let the EUT work in TX modes [Connect EUT audio input 3.5mm jack to iPod headphone jack and ipod playing typical audio signal('Highway Blues' from sample music of windows XP) with maximum audio level] measure it. The transmit frequency are 88.1-107.9MHz.We are select 88.1M, 98.1M, 107.9MHz TX frequency to transmitted.

4.4.4. Turn on the power of all equipment. FM Transmitter power by DC 3V.

4.4.5. Repeat 4.4.3.

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:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
			DC 12V
Model No.:	H102	Power Supply:	(Power By Car Battery)
Test Mode:	TX 88.1MHz	Test Engineer:	Feng

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	
88.106	26.3	28.9	6.2	32.5	35.1	48	68	15.5	32.9	Vertical
88.106	32.7	35.1	8.7	41.4	43.8	48	68	6.6	24.2	Horizontal

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
Model No.:	H102	Power Supply:	DC 12V (Power By Car Battery)
Test Mode:	TX 98.1MHz	Test Engineer:	Feng

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	
98.106	23.4	26.0	6.6	30.0	32.6	48	68	18.0	35.4	Vertical
98.106	28.4	30.8	7.5	35.9	38.3	48	68	12.1	29.7	Horizontal

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
Model No.:	H102	Power Supply:	DC 12V (Power By Car Battery)
Test Mode:	TX 107.9MHz	Test Engineer:	Feng

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	
107.906	27.6	29.9	6.8	34.4	36.7	48	68	13.6	31.3	Vertical
107.906	32.9	35.1	7.3	40.2	42.4	48	68	7.8	25.6	Horizontal

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
Model No.:	H102	Power Supply:	DC 3V (Power By AAA Batteries×2)
Test Mode:	TX 88.1MHz	Test Engineer:	Feng

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	
88.106	30.5	32.6	6.2	36.7	38.8	48	68	11.3	29.2	Vertical
88.106	34.0	36.2	8.7	42.7	44.9	48	68	5.3	23.1	Horizontal

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
Model No.:	H102	Power Supply:	DC 3V (Power By AAA Batteries×2)
Test Mode:	TX 98.1MHz	Test Engineer:	Feng

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	
98.106	27.2	29.9	6.6	33.8	36.5	48	68	14.2	31.5	Vertical
98.106	32.6	35.1	7.5	40.1	42.6	48	68	7.9	25.4	Horizontal

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Date of Test:	December 14, 2007	Temperature:	25°C
EUT:	FM Wireless Transmitter	Humidity:	48%
Model No.:	H102	Power Supply:	DC 3V (Power By AAA Batteries×2)
Test Mode:	TX 107.9MHz	Test Engineer:	Feng

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	
107.906	23.5	25.6	6.8	30.3	32.4	48	68	17.7	35.6	Vertical
107.906	30.3	32.6	7.3	37.6	39.9	48	68	10.4	28.1	Horizontal

The spectral diagrams in appendix I display the measurement of peak values with corrected factors counted.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable 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. FM Wireless Transmitter (EUT)

Model Number	**:**	H102
Serial Number	**:**	N/A
Manufacturer	**:**	Shenzhen Hexing Electronics Factory

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 [Plug iPod to EUT 30pin Connector and ipod playing typical audio signal('Highway Blues' from sample music of windows XP) with maximum audio level] measure it. The transmit frequency are 88.1-107.9MHz.We are select 88.1M, 98.1M, 107.9MHz TX frequency to transmitted.

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 typical audio signal(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(‘Highway Blues’ from sample music of windows XP)

FM 88.1MHz
-26dB bandwidth = 147.6kHz

FM 98.1 MHz
-26dB bandwidth = 138.6kHz

FM 107.9 MHz
-26dB bandwidth = 155.4kHz

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. FM Wireless Transmitter (EUT)

Model Number	**:**	H102
Serial Number	**:**	N/A
Manufacturer	**:**	Shenzhen Hexing Electronics Factory

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(unmodulated carrier). The transmit frequency are 88.1-107.9MHz.We are select 88.1M, 98.1M, 107.9MHz TX frequency to transmitted.

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.

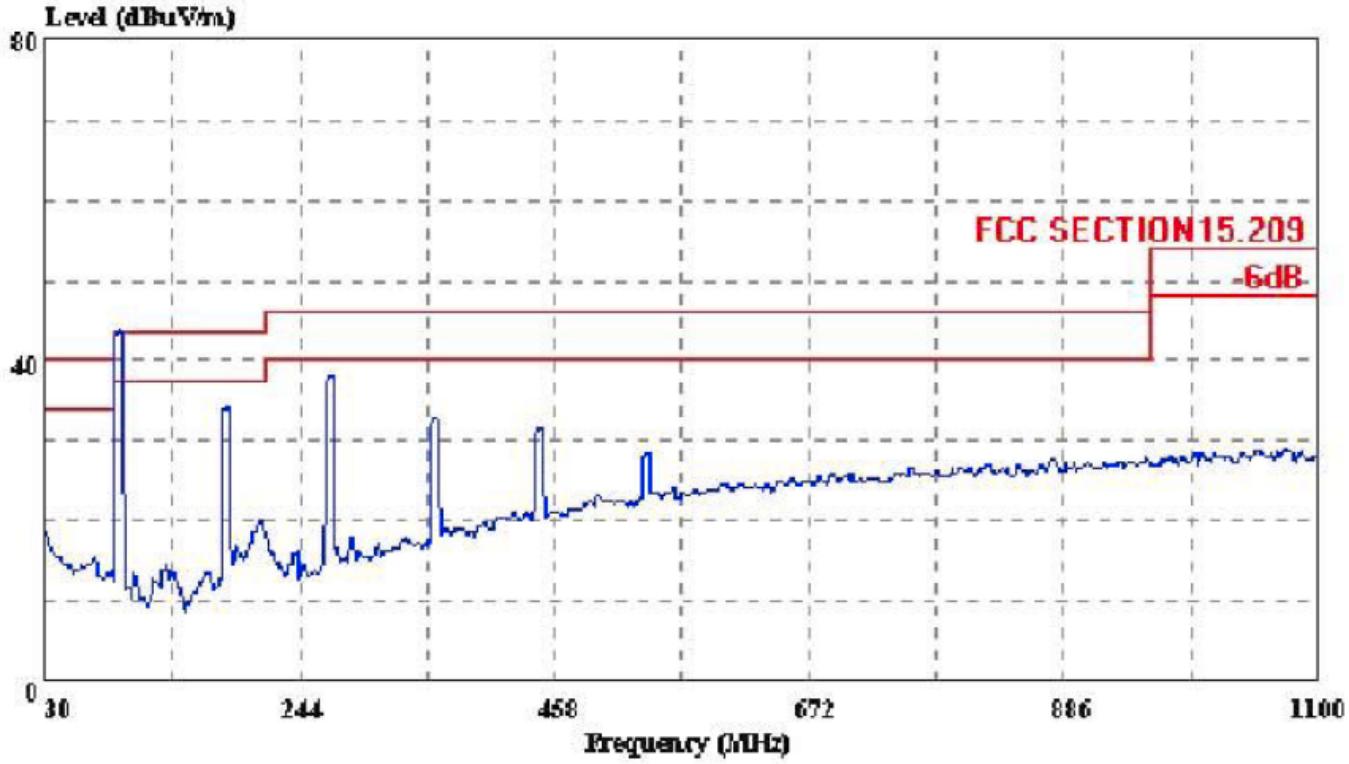
6.5.Test Result

The EUT does meet the FCC requirement.

Low Frequency= 88.1060MHz	EUT screen display 88.1MHz
Mid Frequency= 98.1066MHz	EUT screen display 98.1MHz
High Frequency=107.9060MHz	EUT screen display 107.9MHz

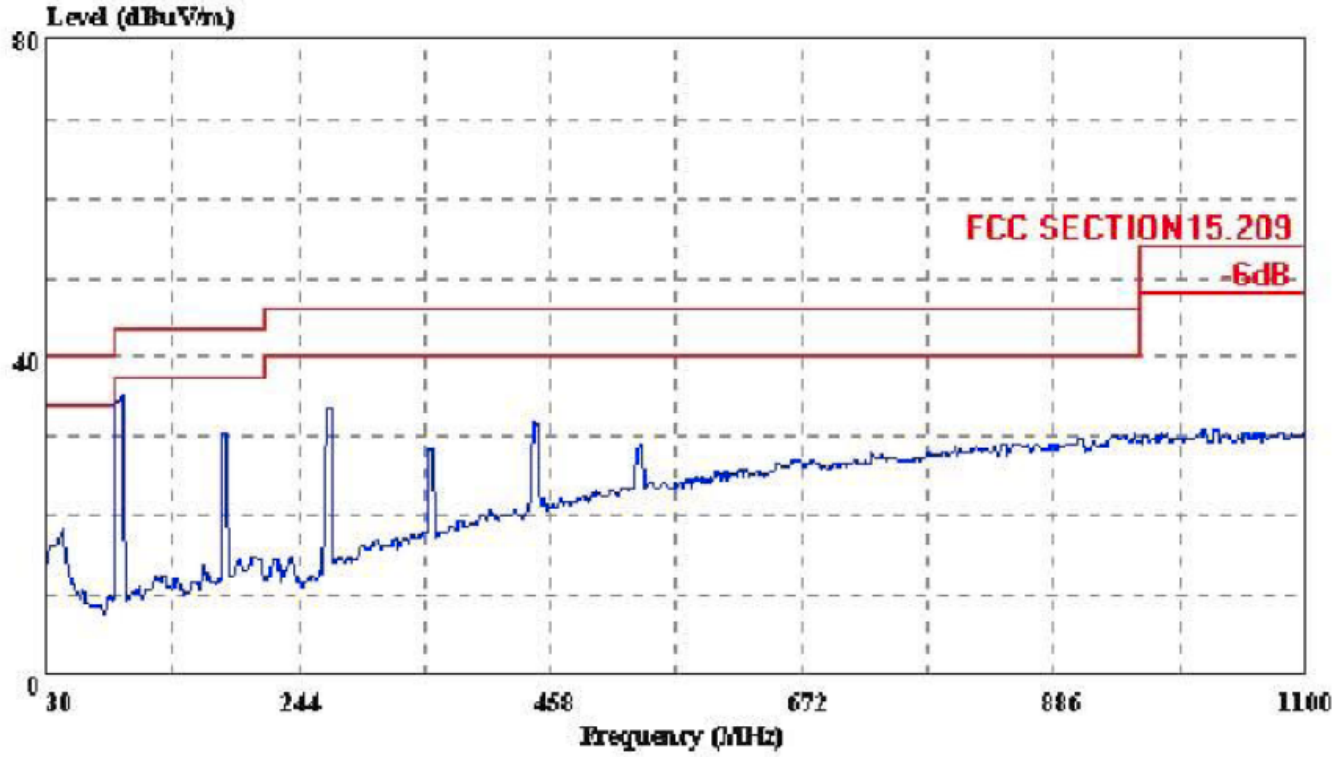
The working frequency rang is from 88.1 to 107.9MHz.

APPENDIX I
(Test Curves)



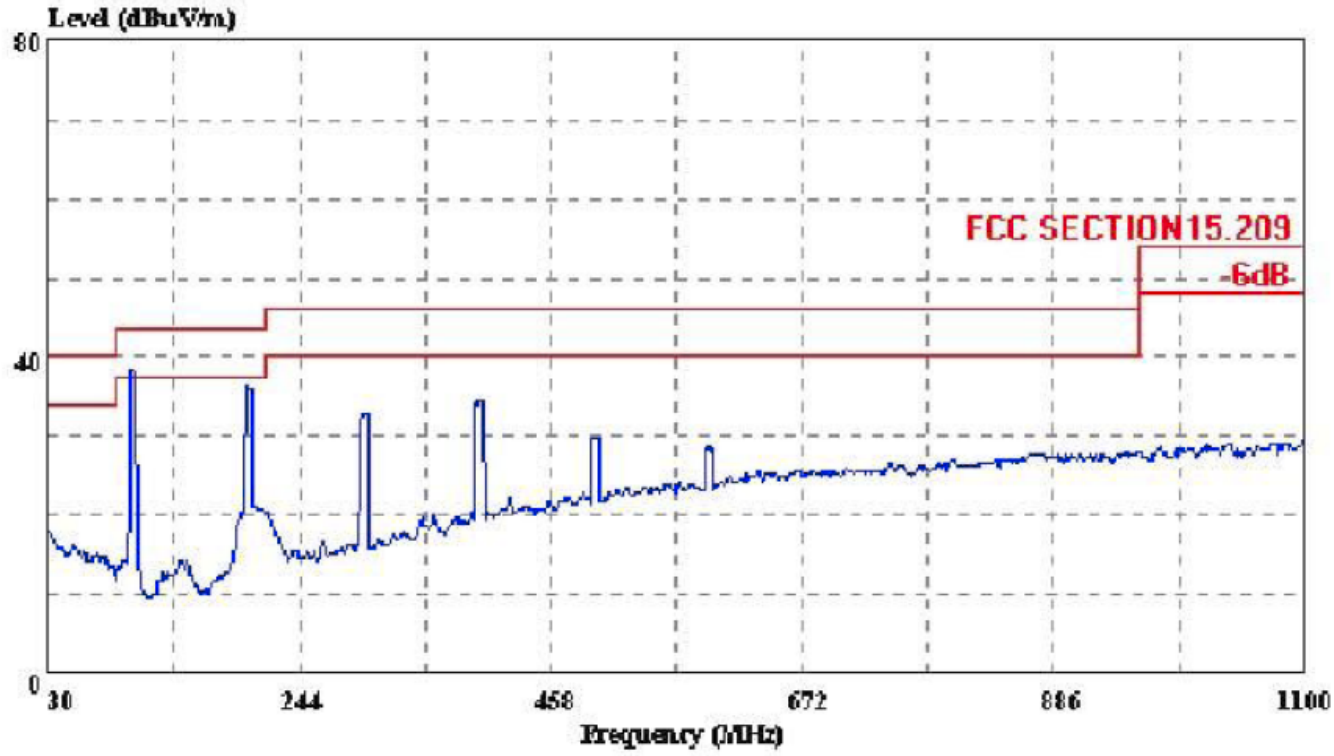
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 12V
memo : TX 88.1MHz
manuf : HEXING
sample No.: 075358



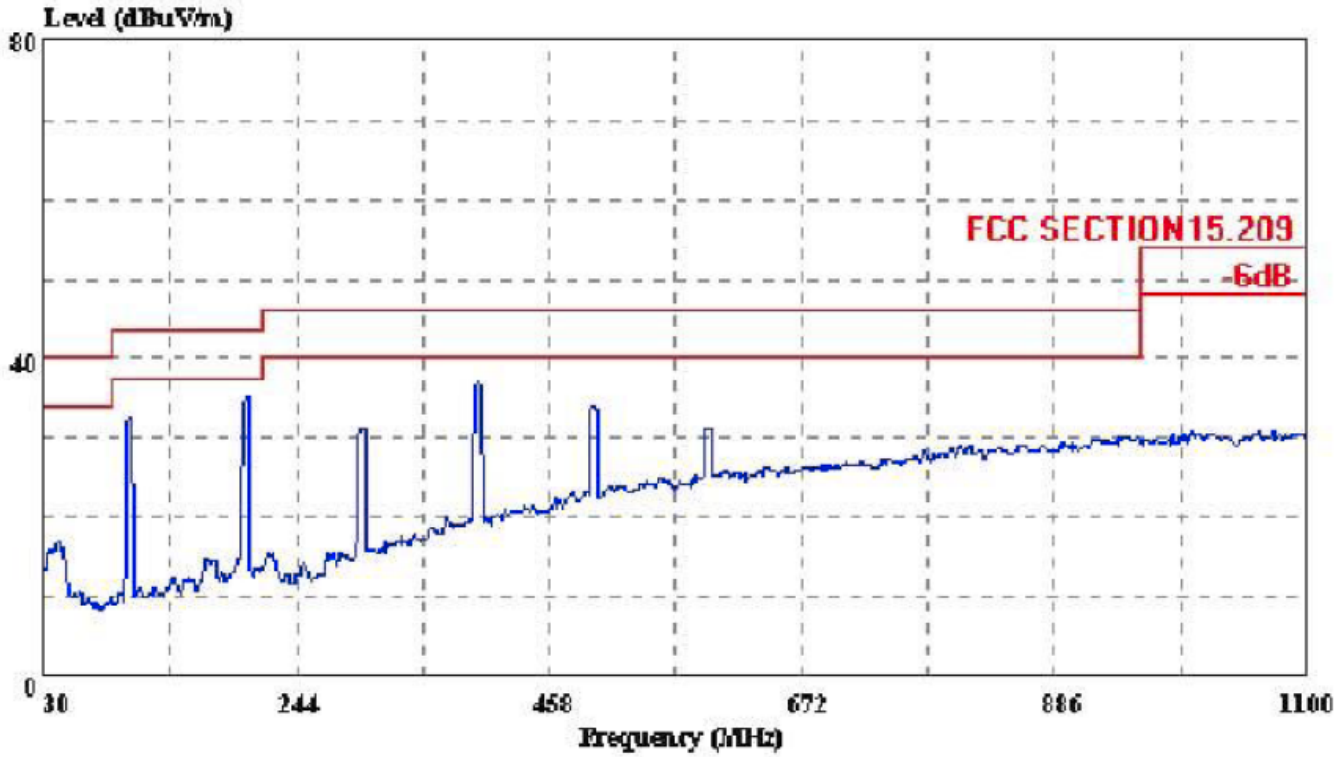
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 12V
memo : TX 88.1MHz
manuf : HEXING
sample No.: 075358



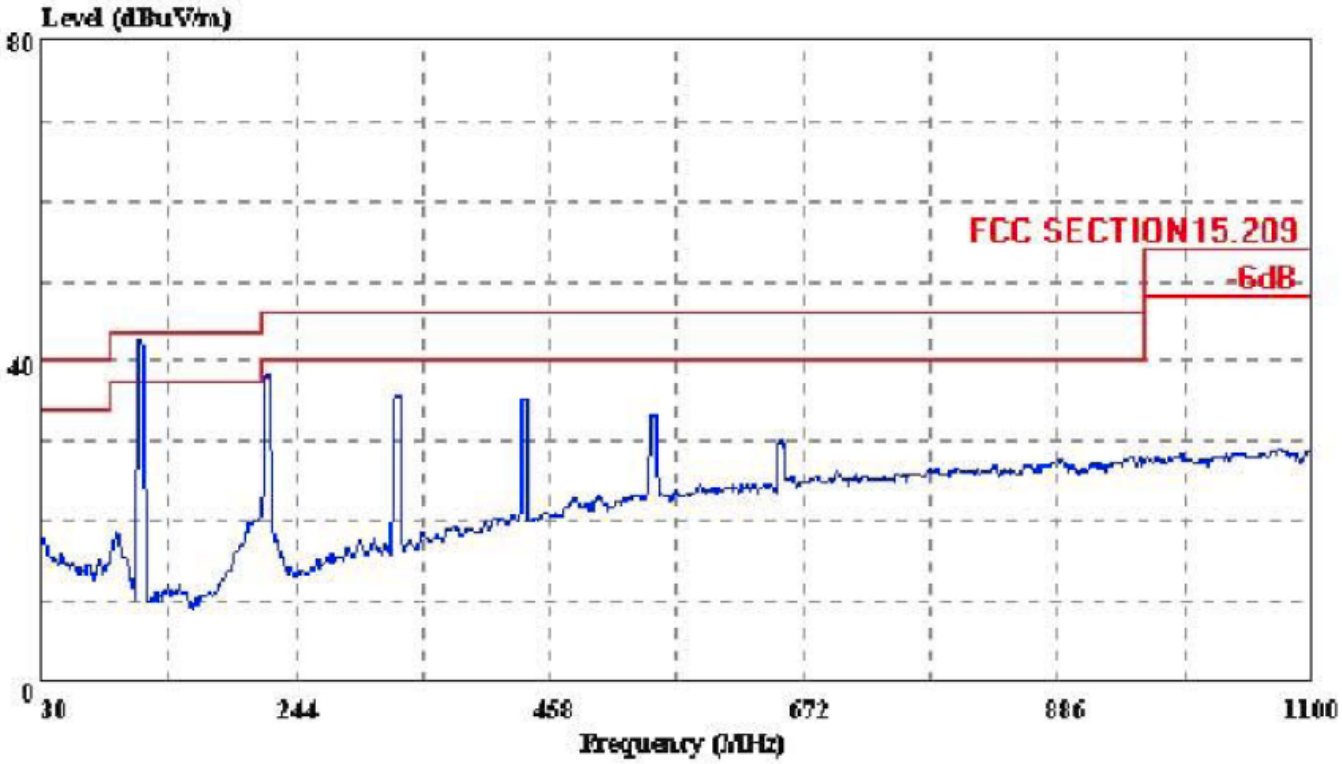
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 12V
memo : TX 98.1MHz
manuf : HEXING
sample No.: 075358



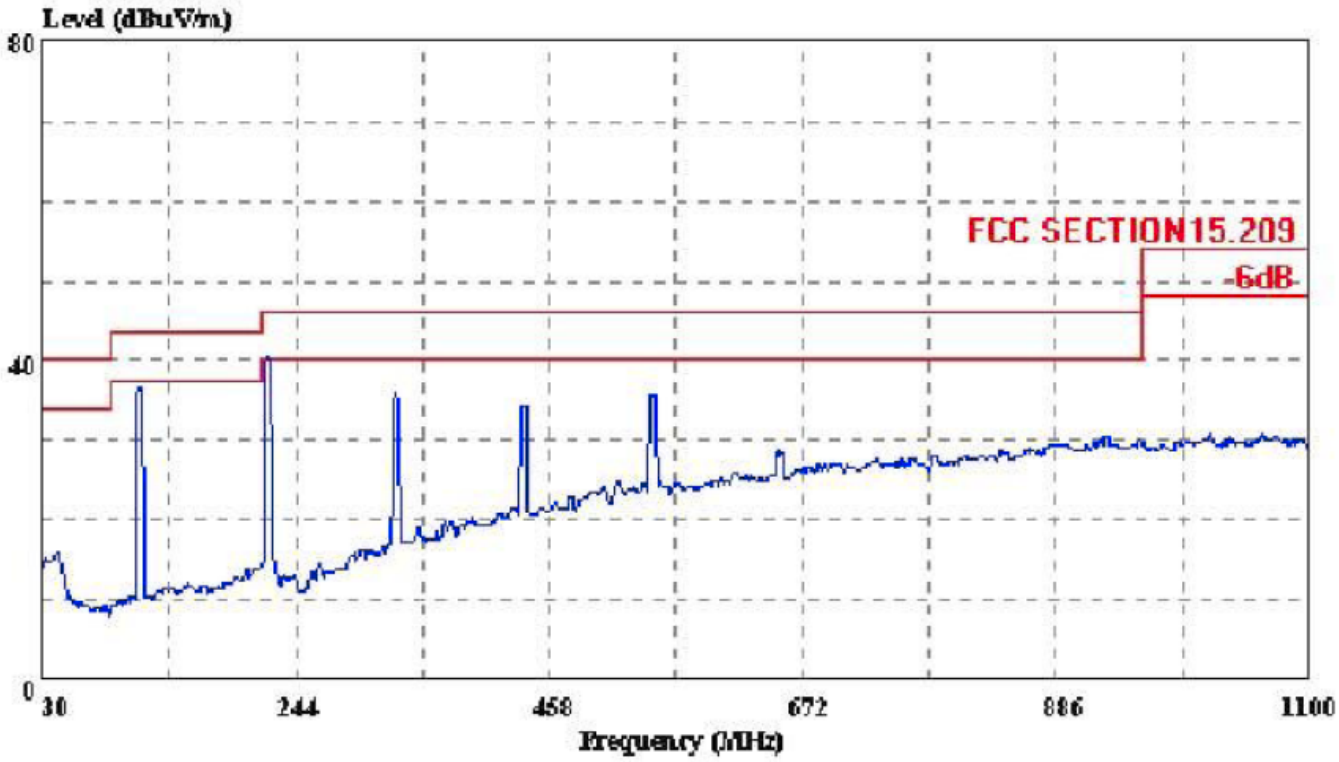
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 12V
memo : TX 98.1MHz
manuf : HEXING
sample No.: 075358



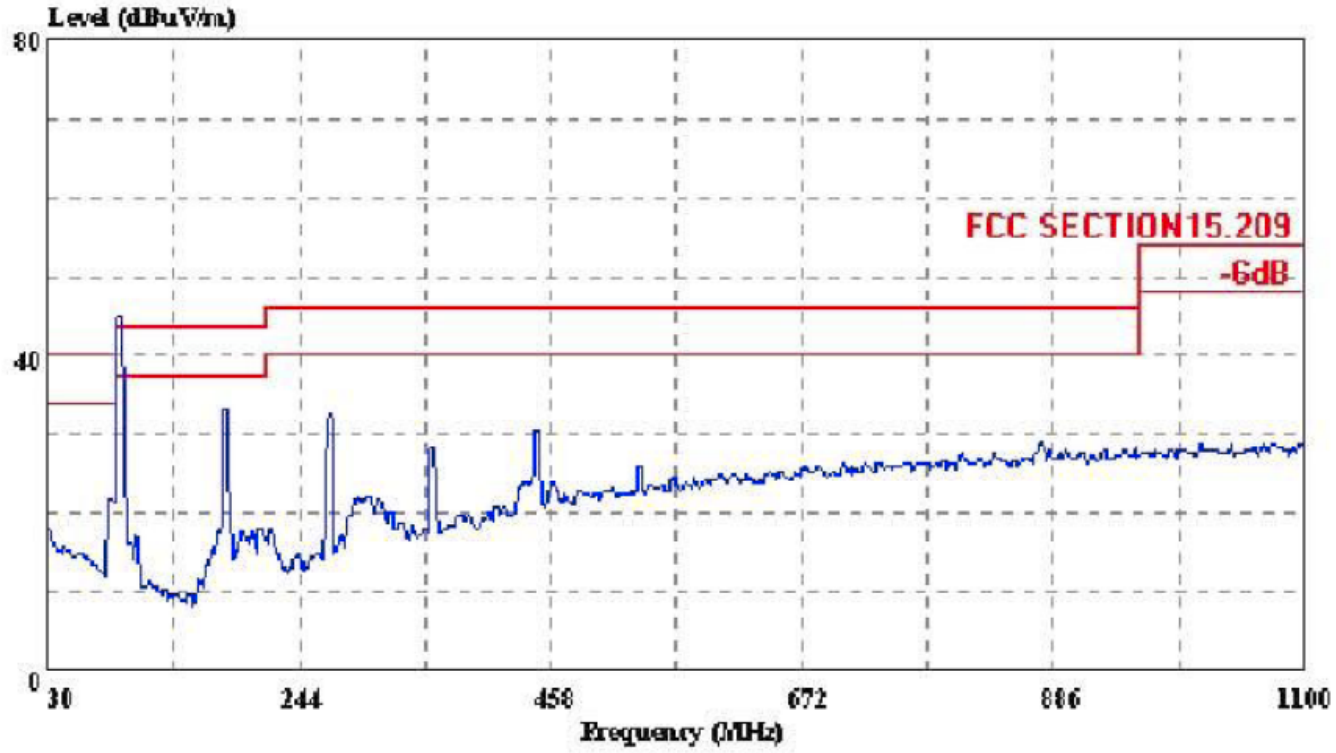
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 12V
memo : TX 107.9MHz
manuf : HEXING
sample No.: 075358



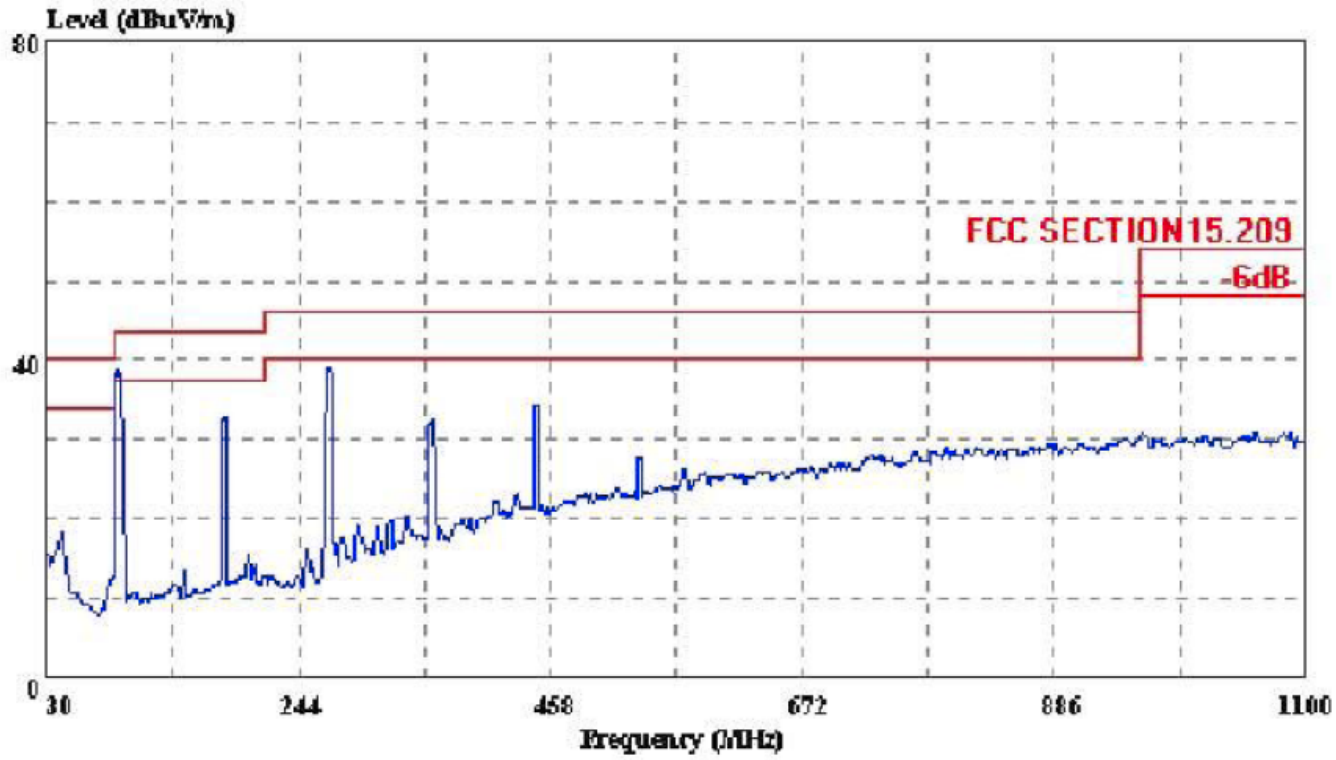
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 12V
memo : TX 107.9MHz
manuf : HEXING
sample No.: 075358



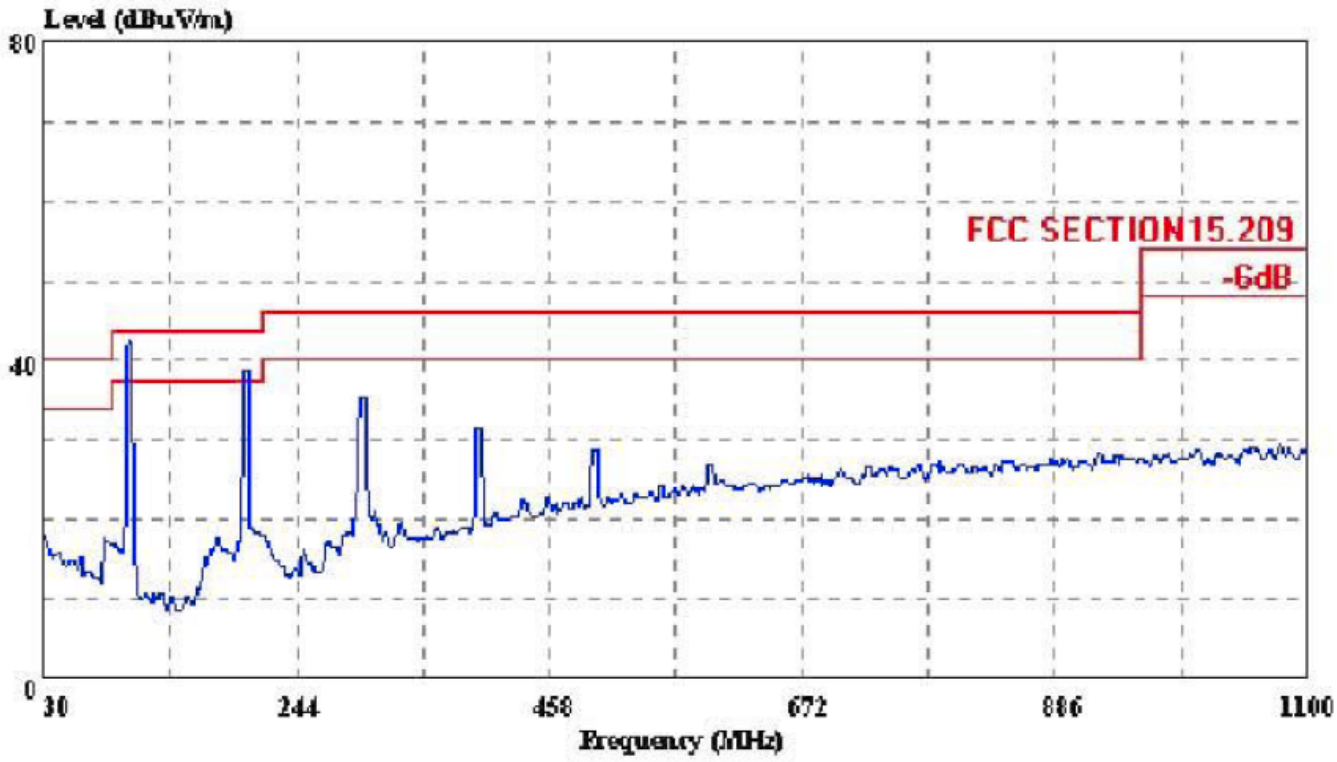
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 3V
memo : TX 88.1MHz
manuf : HEXING
sample No.: 075358



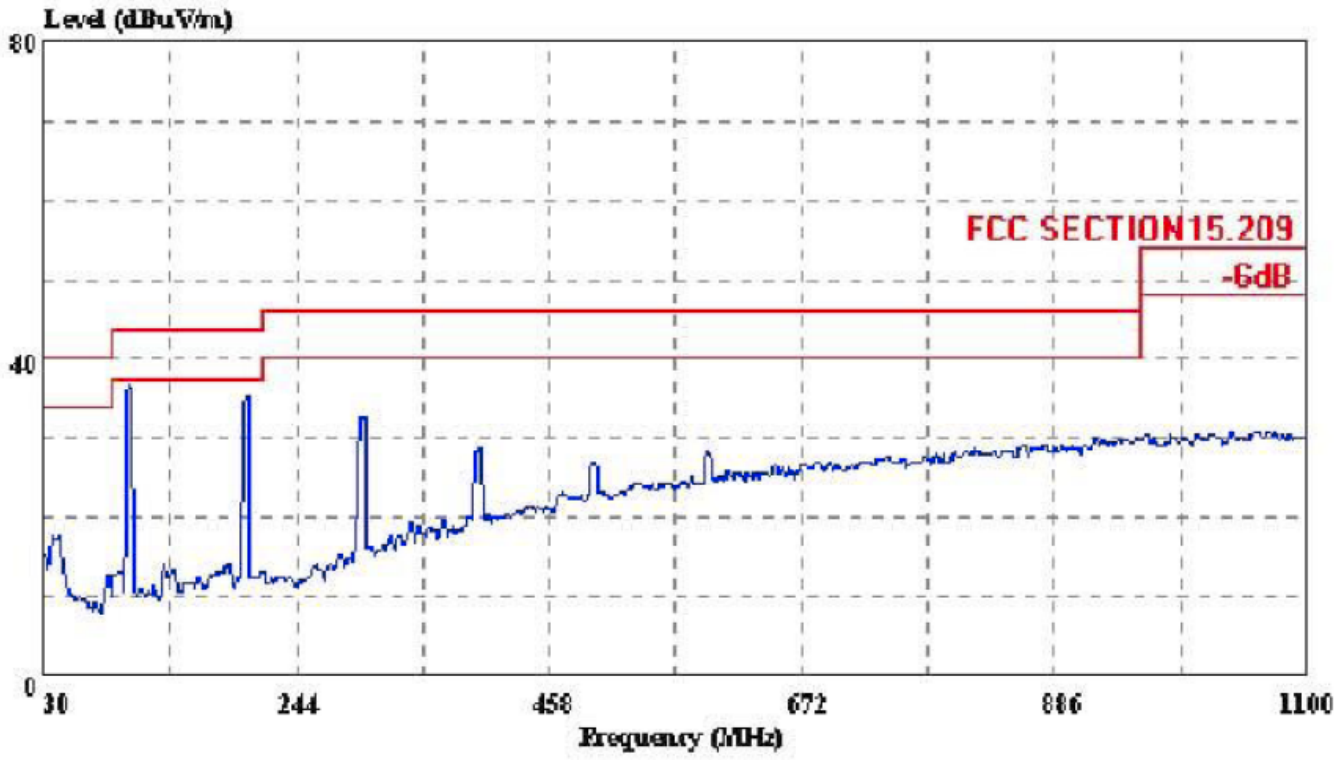
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 3V
memo : TX 88.1MHz
manuf : HEXING
sample No.: 075358



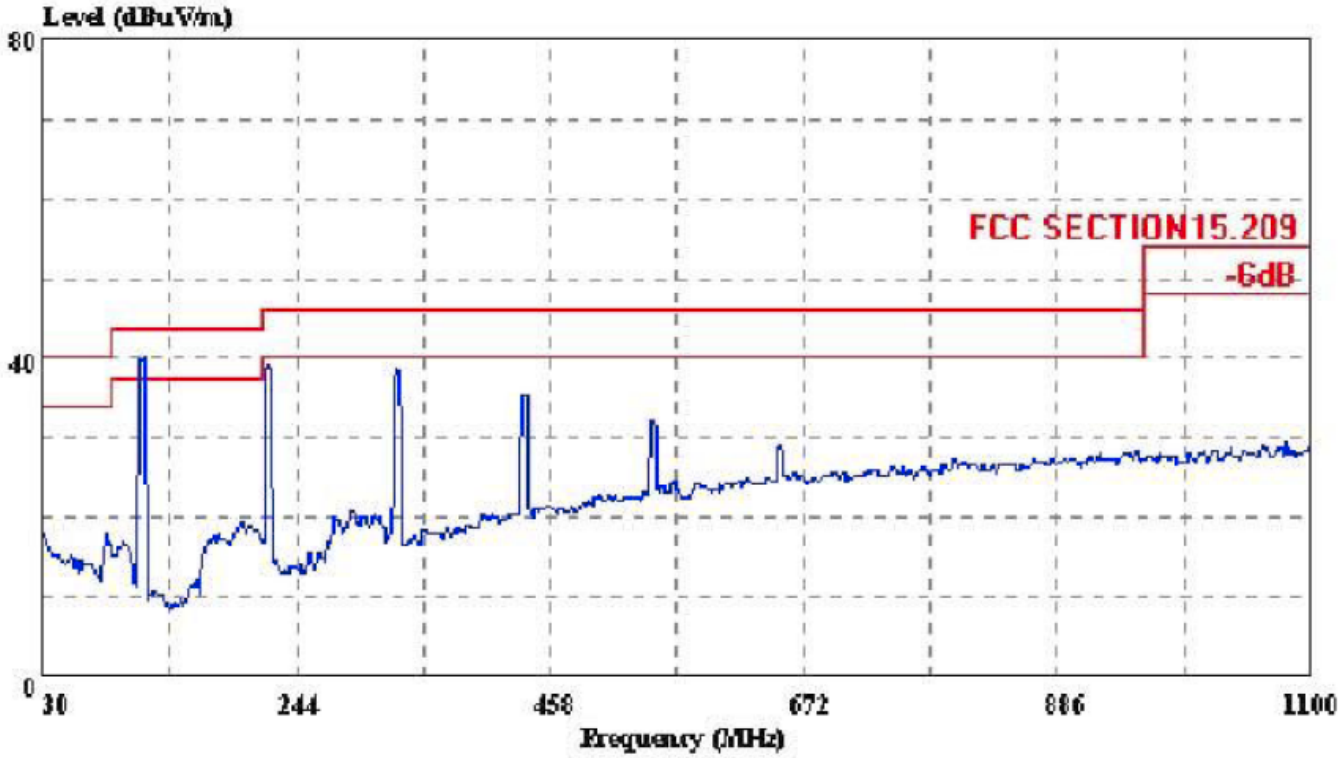
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 3V
memo : TX 98.1MHz
manuf : HEXING
sample No.: 075358



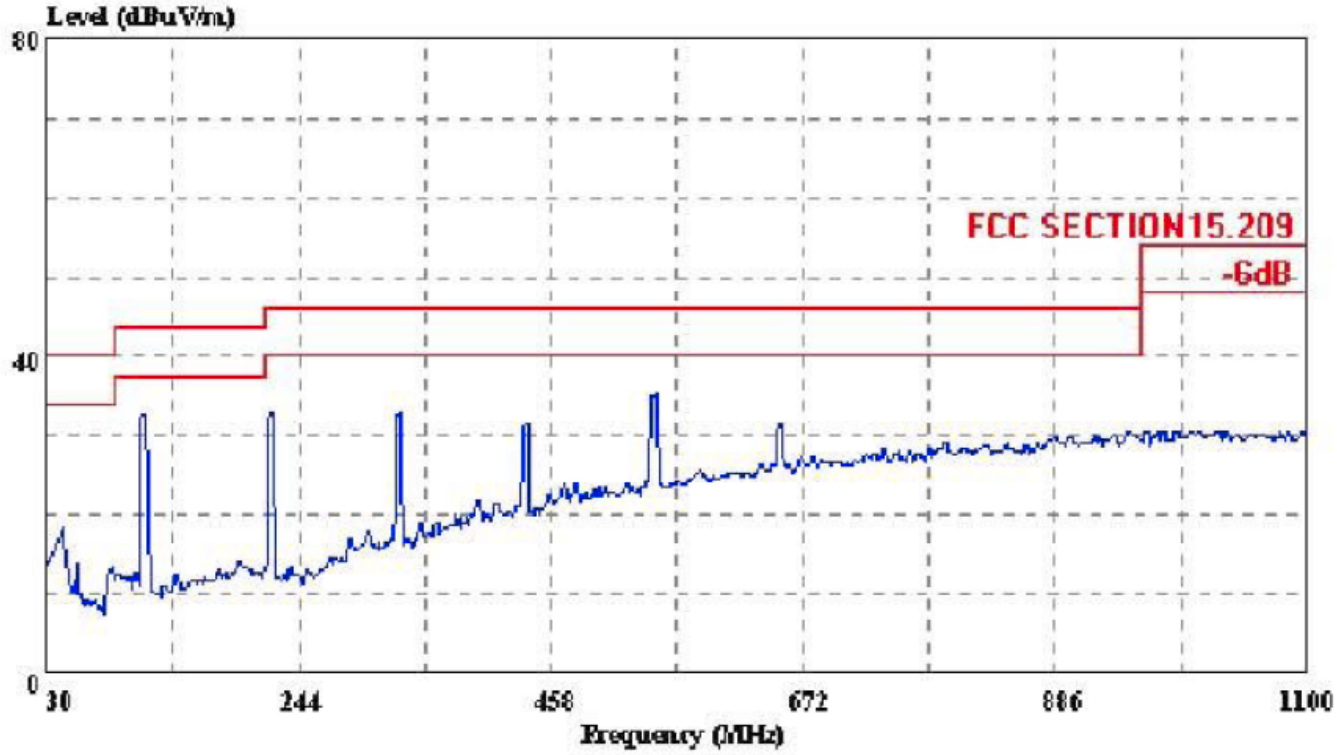
Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 3V
memo : TX 98.1MHz
manuf : HEXING
sample No.: 075358



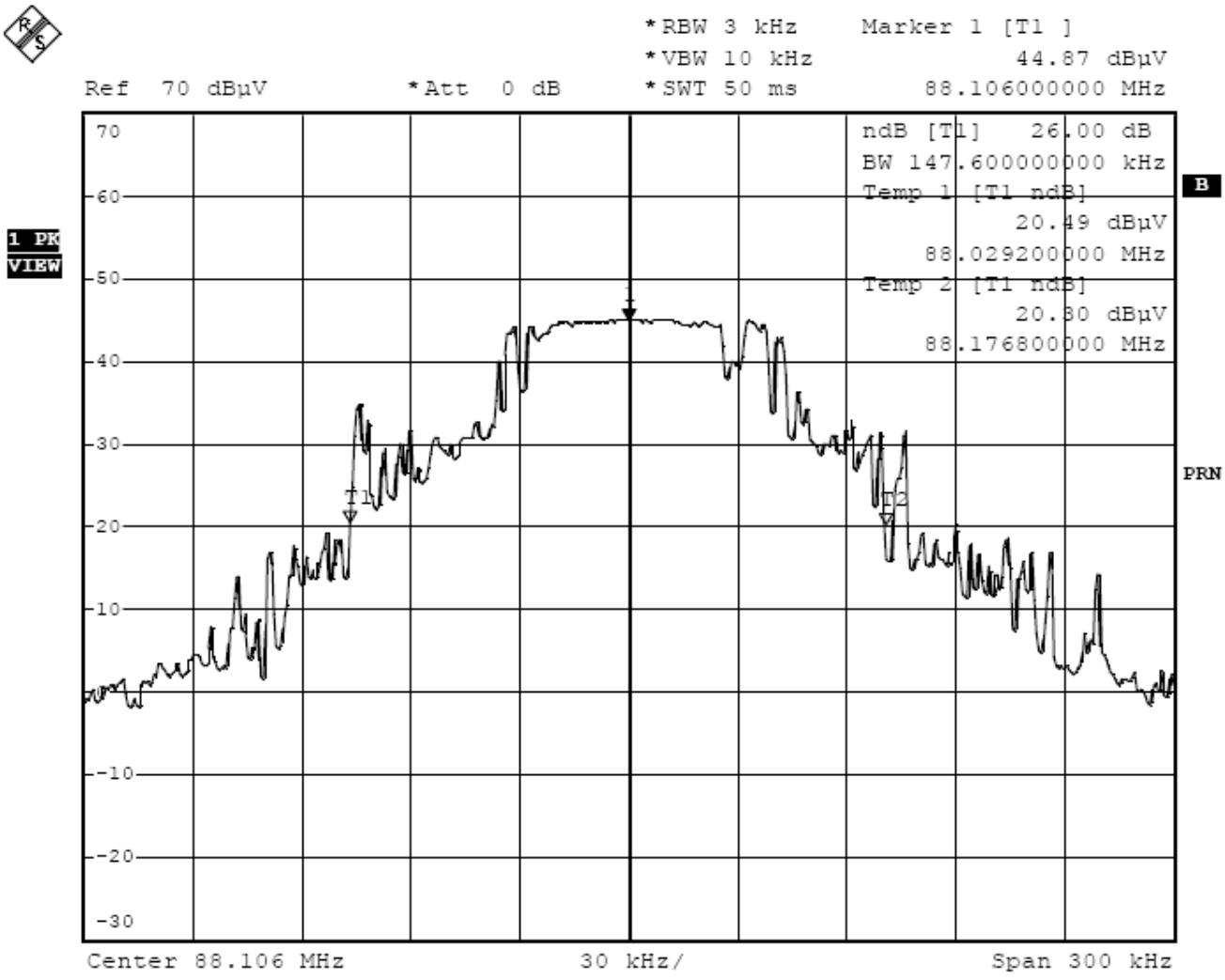
Trace: Ref Trace:

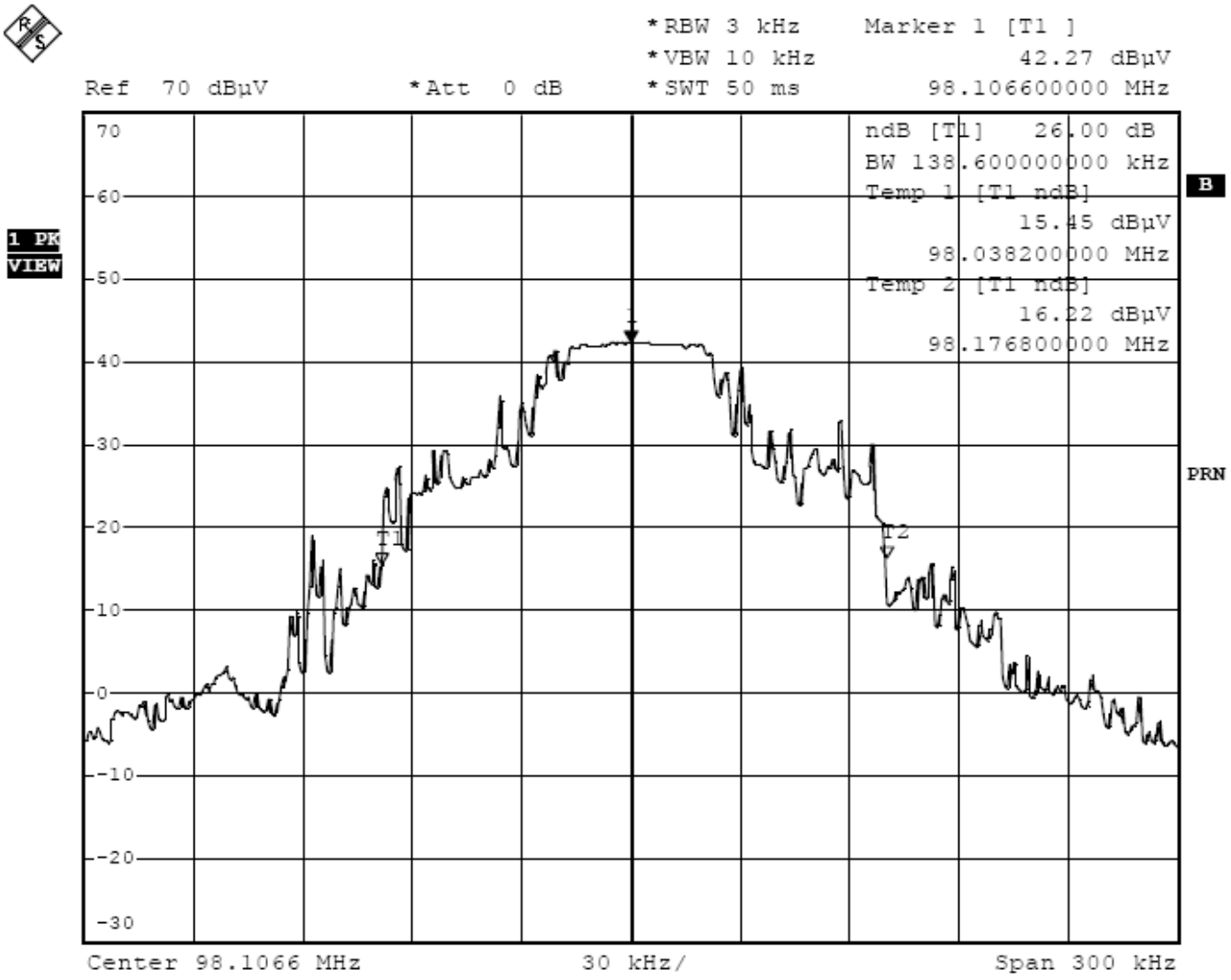
Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA HORIZONTAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 3V
memo : TX 107.9MHz
manuf : HEXING
sample No.: 075358

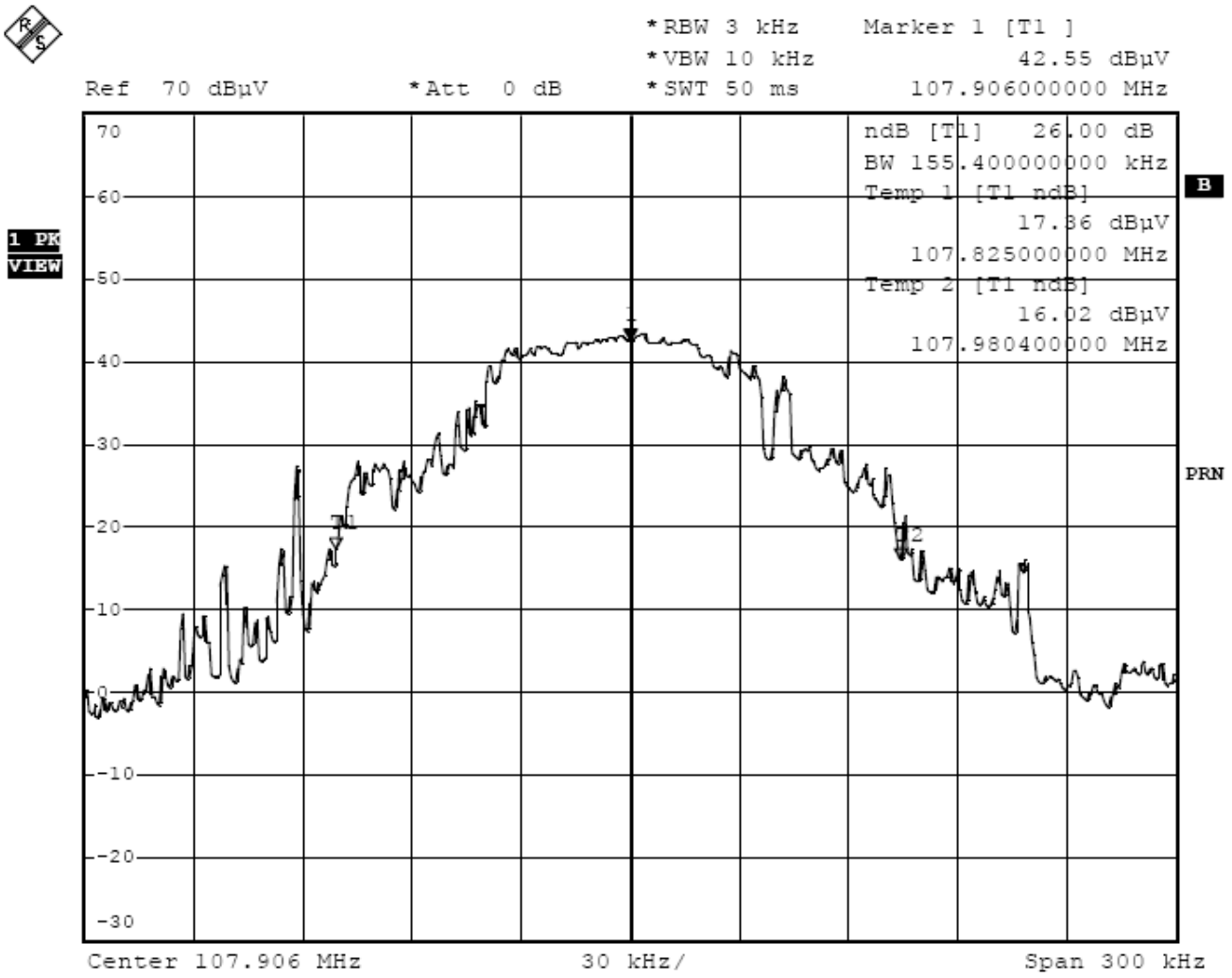


Trace: Ref Trace:

Condition: FCC SECTION15.209 3m ATC FCC15C ANTENNA VERTICAL
eut : FM WIRELESS TRANSMITTER M/N:H102
power : DC 3V
memo : TX 107.9MHz
manuf : HEXING
sample No.: 075358


*RBW 3 kHz
*VBW 10 kHz
*SWT 50 ms
Marker 1 [T1]
44.87 dBµV
88.106000000 MHz
Ref 70 dBµV
*Att 0 dB
ndB [T1] 26.00 dB
BW 147.600000000 kHz
Temp 1 [T1 ndB]
20.49 dBµV
88.029200000 MHz
Temp 2 [T1 ndB]
20.30 dBµV
88.176800000 MHz
1 PK
VIEW
B
PRN
70
60
50
40
30
20
10
-10
-20
-30
T1
T2
Center 88.106 MHz
30 kHz/
Span 300 kHz


*RBW 3 kHz
*VBW 10 kHz
*SWT 50 ms
Marker 1 [T1]
42.27 dBµV
98.106600000 MHz
Ref 70 dBµV
*Att 0 dB
ndB [T1] 26.00 dB
BW 138.600000000 kHz
Temp 1 [T1 ndB]
15.45 dBµV
98.038200000 MHz
Temp 2 [T1 ndB]
16.22 dBµV
98.176800000 MHz
1 PK
VIEW
B
PRN
70
60
50
40
30
20
10
0
-10
-20
-30
T1
T2
Center 98.1066 MHz
30 kHz/
Span 300 kHz


*RBW 3 kHz
*VBW 10 kHz
*SWT 50 ms
Marker 1 [T1]
42.55 dBµV
107.906000000 MHz
Ref 70 dBµV
*Att 0 dB
ndB [T1] 26.00 dB
BW 155.400000000 kHz
Temp 1 [T1 ndB]
17.86 dBµV
107.825000000 MHz
Temp 2 [T1 ndB]
16.02 dBµV
107.980400000 MHz
1 PK
VIEW
B
PRN
70
60
50
40
30
20
10
0
-10
-20
-30
Center 107.906 MHz
30 kHz/
Span 300 kHz