



FCC PART 90 & RSS-119 TEST REPORT

FCC Part 90 and RSS-119

Report Reference No.: TRE1203004501

FCC ID: X24-MOBILE-V

IC: 10337A-MOBILEV

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Date of issue: May 03, 2012

Testing Laboratory Name: Shenzhen Huatongwei International Inspection Co., Ltd

Address: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

Applicant's name: Quanzhou TYT Electronics Co., Ltd.

Address: Bldg.22, Daxiamei Industrial Area, Nan'an, Quanzhou, Fujian
362300, China

Test specification:

Standard: FCC Part 90/FCC Part 2

RSS-119/RSS-Gen/RSS-102


TRF Originator: Shenzhen Huatongwei International Inspection CO., Ltd

Master TRF: Dated 2006-06

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Test item description: Mobile Radio

Trade Mark: 

Model/Type reference: TH-9000VHF

Listed Models: TH-8900VHF/TH-9800VHF/TH-9900VHF

Ratings: DC 13.60 V

Rated Output Power: 65 Watt(48.13 dBm)/25Watt(43.98 dBm)/10Watt(40.00 dBm)

Modulation: FM

Channel Separation: 12.5KHz only for FCC & both 12.5KHz and 25KHz only for IC

Frequency Range: From 138MHz to 174MHz only for IC

From 136MHz to 174MHz only for FCC

Result: Positive

T E S T R E P O R T

Test Report No. : TRE1203004501	May 03, 2012 Date of issue
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Equipment under Test : Mobile Radio

Model /Type : TH-9000VHF

Listed Models : TH-8900VHF/TH-9800VHF/TH-9900VHF

Applicant : **Quanzhou TYT Electronics Co., Ltd.**

Address : Bldg.22, Daxiamei Industrial
Area,Nan'an,Quanzhou,Fujian 362300,China

Manufacturer : **Quanzhou TYT Electronics Co., Ltd.**

Address : Bldg.22, Daxiamei Industrial
Area,Nan'an,Quanzhou,Fujian 362300,China

Test Result according to the standards on page 4:	Positive
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 90: PRIVATE LAND MOBILE RADIO SERVICES.

TIA/EIA 603: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

FCC Rules Part 15 Subpart B: RADIO FREQUENCY DEVICES-Unintentional Radiators

FCC Part 2: FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

RSS-119 Issue 11 June 2011: Radio Transmitters and Receivers Operating in the Land Mobile and Fixed Services in the Frequency Range 27.41-960 MHz

RSS-Gen Issue 3 December 2010: General Requirements and Information for the Certification of Radio Apparatus

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Mar 05, 2012
Testing commenced on	:	Mar 05, 2012
Testing concluded on	:	May 03, 2012

2.2. Product Description

The **Quanzhou TYT Electronics Co., Ltd.** 's Model: TH-9000VHF/TH-8900VHF/TH-9800VHF/TH-9900VHF or the "EUT" as referred to in this report; more general information as follows:

Name of EUT	Mobile Radio	
Model Number	TH-9000VHF/TH-8900VHF/TH-9800VHF/TH-9900VHF	
Rated Output Power	65 Watt(48.13 dBm)/25Watt(43.98 dBm)/10Watt(40.00 dBm)	
Modulation Type	FM for Analog Voice	
Emission Designator	Analog	16K0F3E for 25KHz Channel Separation
		11K0F3E for 12.5KHz Channel Separation
Channel Separation	Analog Voice	12.5KHz&25KHz only for IC
		12.5KHz only for FCC
Antenna Type	External	
Frequency Range	From 138 MHz to 174 MHz for IC From 136 MHz to 174 MHz for FCC	
Maximum Transmitter Power	Analog/FCC	74.30 W for 12.5 KHz Channel Separation
	Analog/IC	73.45 W for 25 KHz Channel Separation
		74.30 W for 12.5 KHz Channel Separation

2.3. Equipment under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 120V / 60 Hz	<input type="radio"/> 115V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 13.60V

Test frequency list

Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Remark
FM/Analog	12.5KHz	Low	138.5000	Only for IC Review (Not For FCC Review)
		Middle	155.5000	
		High	173.5000	
	25KHz	Low	138.5000	
		Middle	155.5000	
		High	173.5000	
	12.5KHz	Low	138.5000	Only for FCC Review
		Middle	155.5000	
		High	173.5000	

2.4. Short description of the Equipment under Test (EUT)

136-174MHz V frequency band Mobile Radio (TH-9000VHF/TH-8900VHF/TH-9800VHF/TH-9900VHF).

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.5. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.6. EUT operation mode

The EUT has been tested under typical operating condition and The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.7. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

○	Power Cable	Length (m) :	3
		Shield :	Unshield
		Detachable :	Undetachable
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.8. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **X24-MOBILE-V** and IC: **10337A-MOBILEV** filing to comply with FCC Part 90&FCC Part 2&FCC Part 15B Rules and RSS-119&RSS-Gen.

2.9. Modifications

No modifications were implemented to meet testing criteria.

2.10. Note

- The EUT is a 136-174 MHz frequency band Mobile Radio (TH-9000VHF/TH-8900VHF/TH-9800VHF/TH-9900VHF),The functions of the EUT listed as below:

	Test Standards	Reference Report	Remark
Radio	FCC Part 90&RSS-119	TRE1203004501	For both FCC and IC Review
Health	Oet 65&RSS-102	TRE1203004502	
Health	Oet 65	TRE1203004503	Only for FCC Review

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: August 02, 2007. Valid time is until Feb 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time to Sep 30, 2013.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd, EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date July 01, 2009.

IC-Registration No.: 5377

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377 on February 24th, 2011.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd, EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

NEMKO-Aut. No.: ELA125

Shenzhen Huatongwei International Inspection Co., Ltd has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025:2005 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10; the Authorization is valid through July 07, 2013.

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2484. Date of Registration: December 20, 2009. Valid time is until December 19, 2012.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: December 20, 2009. Valid time is until December 19, 2012.

DNV

Shenzhen Huatongwei International Inspection Co Ltd has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025(2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until 24 August, 2013.

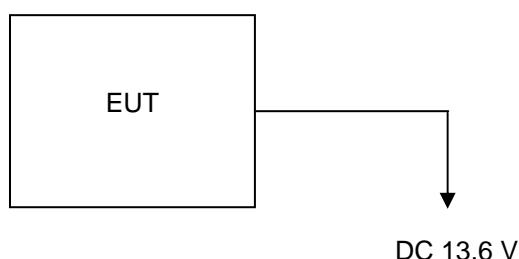
3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



3.5. Discription of Tested Modes

The EUT (Mobile Radio) has been tested under normal operating condition. Three channels (the high, the middle and the low) are chosen for testing at each channel separation (12.5 KHz/ 25KHz).

3.6. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Frequency stability	150 Hz	(1)
Transmitter power conducted	0.30 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Radiated spurious emission 9KHz-12.75 GHz	2.20 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emission 1~18GHz	5.16 dB	(1)
Radiated Emission 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	-----	(1)
Emission Mask	-----	(1)
Modulation Characteristic	-----	(1)
Transmitter Frequency Behavior	-----	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.7. Test Description

FCC Rules	RSS-119	Description of Test	Test Result
§ 15.107	RSS-Gen	Conducted Emission	Complies
§ 15.109	RSS-Gen	Receiver Radiated Spurious Emssion	Complies
§ 15.109	RSS-Gen	Receiver Conducted Spurious Emssion	Complies
§ 90.205	§ 5.4	Maximum Transmitter Power	Complies
§ 90.207	§ 5.13	Modulation Characteristic	Complies
§ 90.209	§ 5.5	Occupied Bandwidth	Complies
§ 90.210	§ 5.8	Emission Mask	Complies
§ 90.213	§ 5.3	Frequency Stability	Complies
§ 90.214	§ 5.9	Transmitter Frequency Behavior	Complies
§ 90.210	§ 5.8	Transmitter Radiated Spurious Emssion	Complies
§ 90.210	§ 5.8	Spurious Emssion On Antenna Port	Complies
§ 2.1091	RSS-102	RF Exposure Evaluation	Complies

3.8. Equipments Used during the Test

DC Power Conducted Emission				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCS 30	100038	10/23/2012
Artificial Mains	Rohde&Schwarz	ESH3-Z6	100210	10/23/2012
Artificial Mains	Rohde&Schwarz	ESH3-Z6	100211	10/23/2012
Pulse Limiter	Rohde&Schwarz	ESHSZ2	100044	10/23/2012
EMI Test Software	Rohde&Schwarz	ES-K1 V1.71	N/A	10/23/2012
RF COMMUNICATION TEST SET	HP	8920A	3813A10206	10/23/2012

Modulation Characteristic				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
RF COMMUNICATION TEST SET	HP	8920A	3813A10206	23/10/2012

Transmitter Radiated Spurious Emssion & Receiver Radiated Spurious Emssion				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Ultra-Broadband Antenna	Rohde&Schwarz	HL562	100015	23/10/2012
EMI Test Receiver	Rohde&Schwarz	ESI 26	100009	23/10/2012
RF Test Panel	Rohde&Schwarz	TS / RSP	335015/ 0017	N/A
HORN ANTENNA	Rohde&Schwarz	HF906	100039	23/10/2012
Turntable	ETS	2088	2149	N/A
Antenna Mast	ETS	2075	2346	N/A
EMI Test Software	Rohde&Schwarz	ES-K1 V1.71	N/A	23/10/2012
RF COMMUNICATION TEST SET	HP	8920A	3813A10206	23/10/2012

Frequency Stability				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Climate Chamber	ESPEC	EL-10KA	05107008	10/23/2012
Receiver	Rohde&Schwarz	ESI 26	100009	10/23/2012

Maximum Transmitter Power & Spurious Emssion On Antenna Port				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Receiver	Rohde&Schwarz	ESI 26	100009	10/23/2012
Attenuator	R&S	ESH3-22	100449	10/23/2012
RF COMMUNICATION TEST SET	HP	8920A	3813A10206	10/23/2012
High-Pass Filter	Anritsu	MP526B	6220875256	10/23/2012
High-Pass Filter	Anritsu	MP526D	6220878392	10/23/2012
Spectrum Analyzer	Aglient	E4407B	MY44210775	23/10/2012
Spectrum Analyzer	Rohde&Schwarz	FSP40	1164.4391.40	23/10/2012

Transient Frequency Behavior				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Storage Oscilloscope	Tektronix	TDS3054B	B033027	10/23/2012
RF COMMUNICATION TEST SET	HP	8920A	3813A10206	10/23/2012

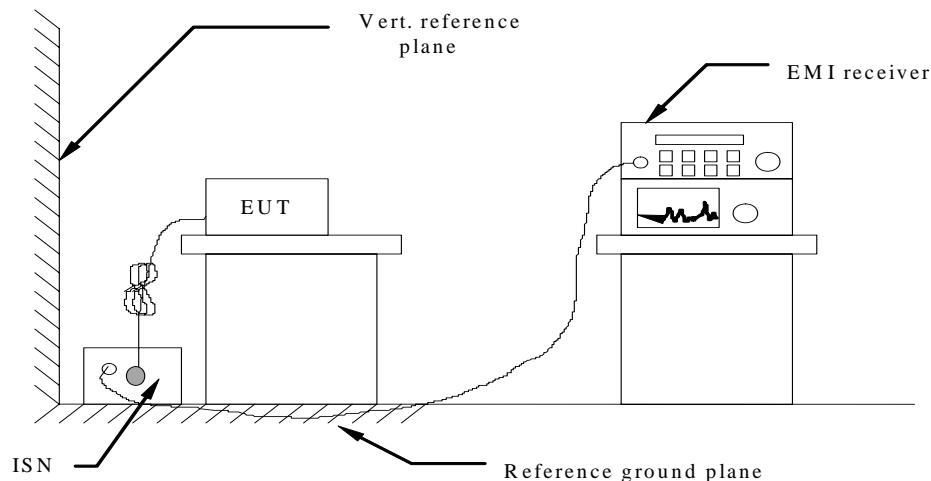
4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions

TEST APPLICABLE

The EUT was tested according to ANSI C63.4 - 2009. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 u Henry as specified by section 5.1 of ANSI C63.4 - 2009. Cables and peripherals were moved to find the maximum emission levels for each frequency.

TEST CONFIGURATION



TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
- 2 Support equipment, if needed, was placed as per ANSI C63.4-2009.
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
- 4 If a EUT received DC power from the adapter, the adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following :

Frequency (MHz)	Maximum RF Line Voltage (dBµV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

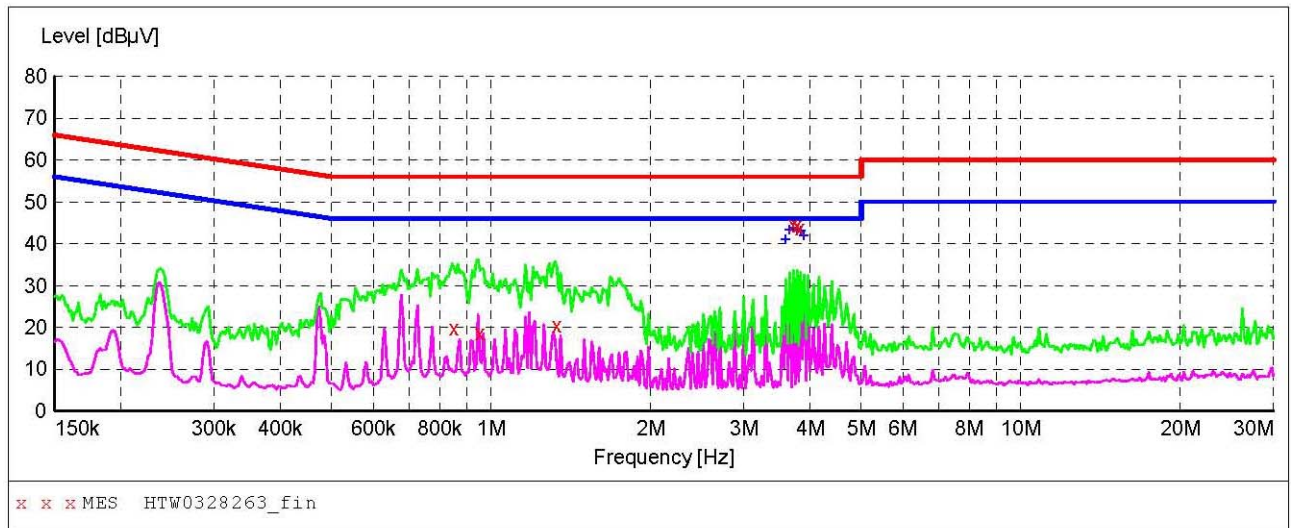
TEST RESULTS

Only for IC Review (Not For FCC Review)

For FM Modulation @ 25 KHz TX Mode

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0328263_fin"

3/28/2012 3:18PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.852090	19.70	10.1	56	36.3	QP	-	GND
0.952650	18.50	10.2	56	37.5	QP	-	GND
1.331298	20.40	10.2	56	35.6	QP	-	GND
3.721213	44.60	10.2	56	11.4	QP	-	GND
3.780998	44.30	10.2	56	11.7	QP	-	GND
3.841730	43.70	10.2	56	12.3	QP	-	GND

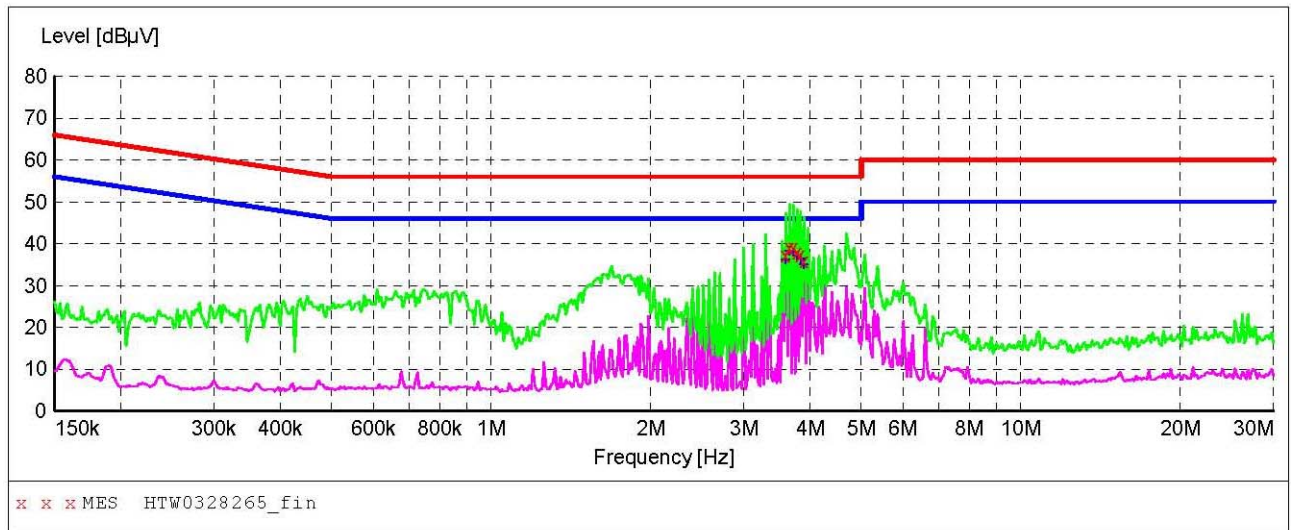
MEASUREMENT RESULT: "HTW0328263_fin2"

3/28/2012 3:18PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
3.604487	41.00	10.2	46	5.0	AV	-	GND
3.662387	43.30	10.2	46	2.7	AV	-	GND
3.721213	43.60	10.2	46	2.4	AV	-	GND
3.780998	43.30	10.2	46	2.7	AV	-	GND
3.841730	43.00	10.2	46	3.0	AV	-	GND
3.903450	41.90	10.2	46	4.1	AV	-	GND

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "HTW0328265_fin"**

3/28/2012 3:33PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
3.604487	37.20	10.2	56	18.8	QP	+	GND
3.662387	39.00	10.2	56	17.0	QP	+	GND
3.721213	39.10	10.2	56	16.9	QP	+	GND
3.780998	38.00	10.2	56	18.0	QP	+	GND
3.841730	37.30	10.2	56	18.7	QP	+	GND
3.903450	35.90	10.2	56	20.1	QP	+	GND

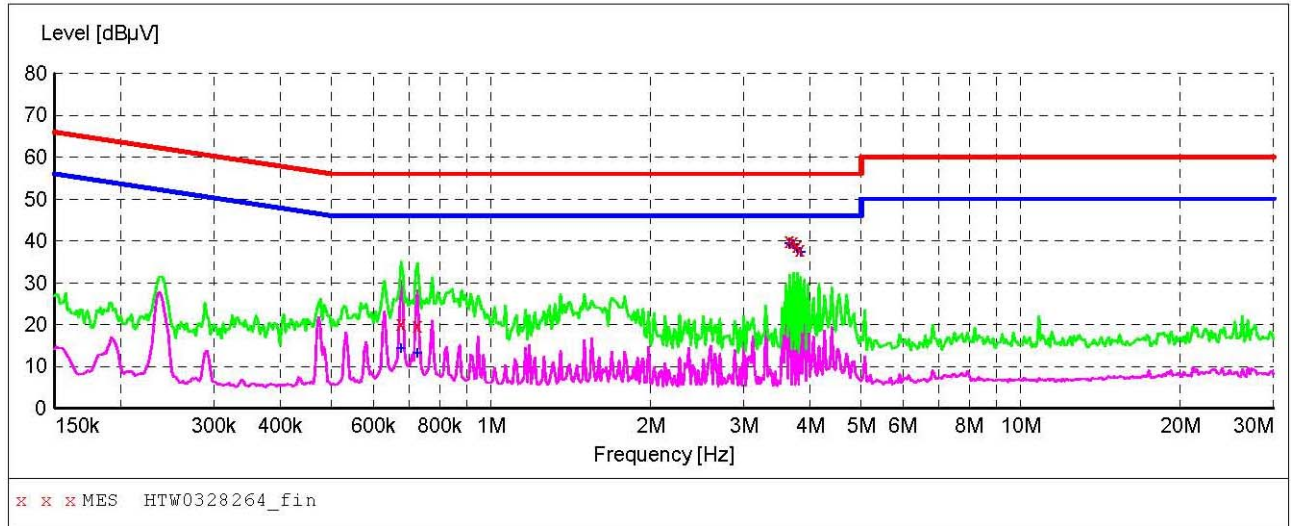
MEASUREMENT RESULT: "HTW0328265_fin2"

3/28/2012 3:33PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
3.604487	36.20	10.2	46	9.8	AV	+	GND
3.662387	38.20	10.2	46	7.8	AV	+	GND
3.721213	38.00	10.2	46	8.0	AV	+	GND
3.780998	37.10	10.2	46	8.9	AV	+	GND
3.841730	36.40	10.2	46	9.6	AV	+	GND
3.903450	34.90	10.2	46	11.1	AV	+	GND

For both FCC and IC ReviewFor FM Modulation @ 12.5 KHz TX Mode**SCAN TABLE: "Voltage (9K-30M)FIN"**

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "HTW0328264_fin"**

3/28/2012 3:25PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.676287	20.20	10.1	56	35.8	QP	-	GND
0.726566	19.80	10.1	56	36.2	QP	-	GND
3.662387	40.00	10.2	56	16.0	QP	-	GND
3.721213	39.80	10.2	56	16.2	QP	-	GND
3.780998	38.80	10.2	56	17.2	QP	-	GND
3.841730	38.00	10.2	56	18.0	QP	-	GND

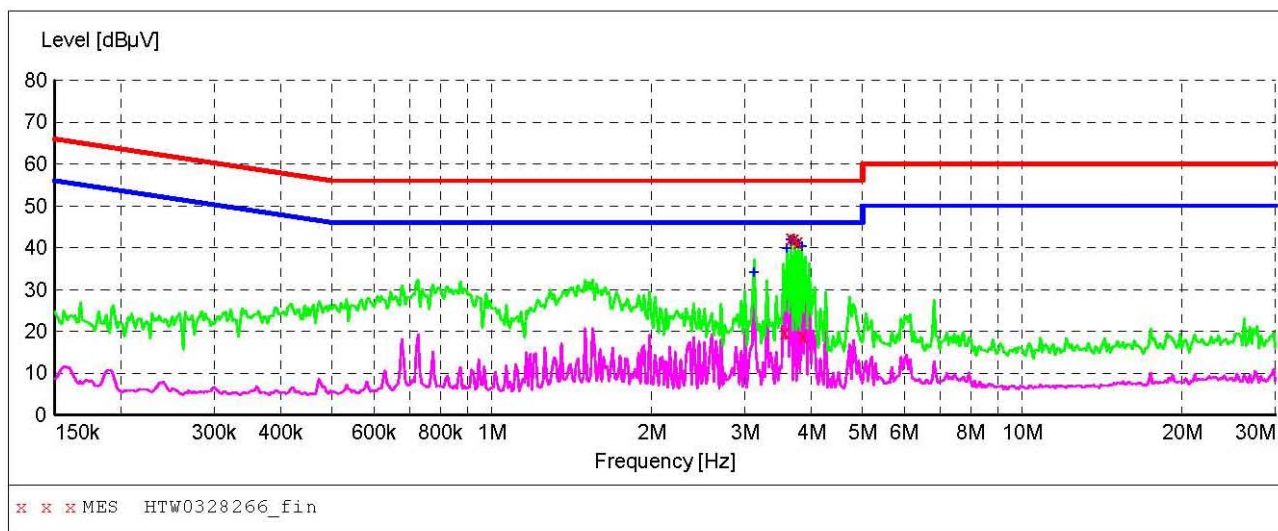
MEASUREMENT RESULT: "HTW0328264_fin2"

3/28/2012 3:25PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.676287	14.30	10.1	46	31.7	AV	-	GND
0.726566	13.00	10.1	46	33.0	AV	-	GND
3.662387	39.30	10.2	46	6.7	AV	-	GND
3.721213	39.10	10.2	46	6.9	AV	-	GND
3.780998	38.10	10.2	46	7.9	AV	-	GND
3.841730	37.30	10.2	46	8.7	AV	-	GND

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "HTW0328266_fin"**

3/28/2012 3:41PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
3.575880	19.80	10.2	56	36.2	QP	+	GND
3.662387	42.20	10.2	56	13.8	QP	+	GND
3.721213	42.10	10.2	56	13.9	QP	+	GND
3.780998	41.40	10.2	56	14.6	QP	+	GND
3.872470	18.80	10.2	56	37.2	QP	+	GND

MEASUREMENT RESULT: "HTW0328266_fin2"

3/28/2012 3:41PM

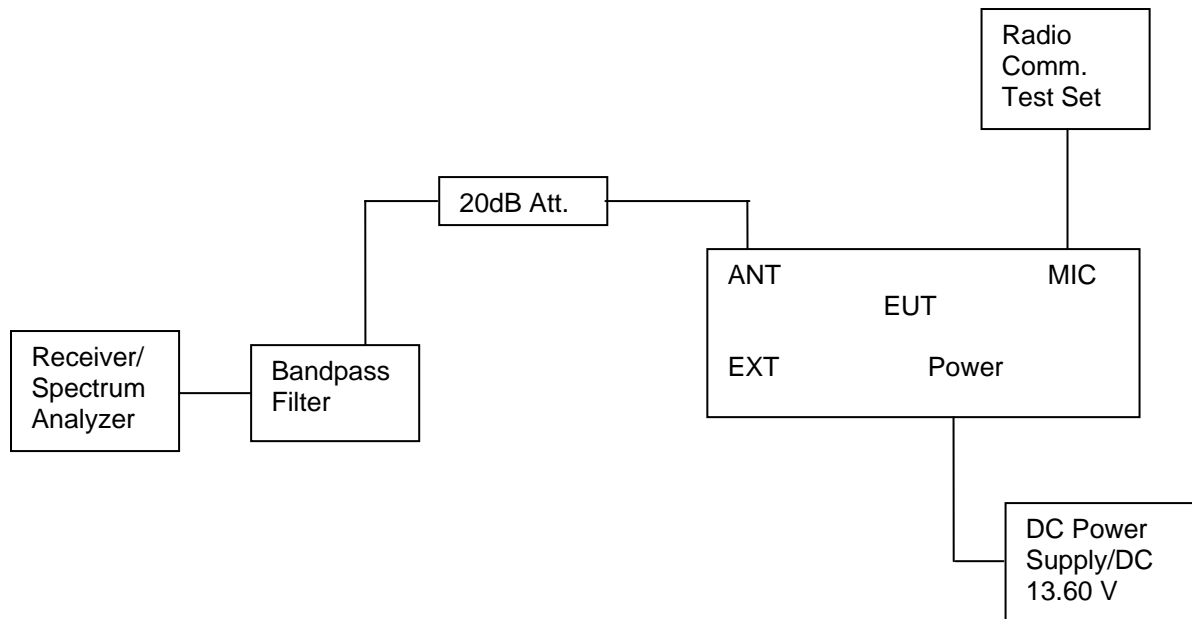
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
3.122865	34.10	10.2	46	11.9	AV	+	GND
3.604487	39.80	10.2	46	6.2	AV	+	GND
3.662387	41.80	10.2	46	4.2	AV	+	GND
3.721213	41.60	10.2	46	4.4	AV	+	GND
3.780998	40.90	10.2	46	5.1	AV	+	GND
3.841730	40.30	10.2	46	5.7	AV	+	GND

4.2. Occupied Bandwidth & Emission Mask

TEST APPLICABLE

- (a). Occupied Bandwidth: The EUT was connected to the audio signal generator and the spectrum analyzer via the main RF connector, and through an appropriate attenuator. The EUT was controlled to transmit its maximum power. Then the bandwidth of 99% power can be measured by the spectrum analyzer.
- (b). Emission Mask B: For transmitters that are equipped with an audio low-pass filter pursuant to §90.211(a) and RSS-119 Section 5.8, the power of any emission must be below the unmodulated carrier power (P) as follows:
- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
 - (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
 - (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log (P)$ dB.
- (c). Emission Mask D, 12.5 kHz channel bandwidth equipment: For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:
- (1) On any frequency from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0 : Zero dB.
 - (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.625 kHz but no more than 12.5 kHz: At least $7.27(f_d - 2.88 \text{ kHz})$ dB.
 - (3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least $50 + 10 \log (P)$ dB or 70 dB, whichever is the lesser attenuation.

TEST CONFIGURATION



TEST PROCEDURE

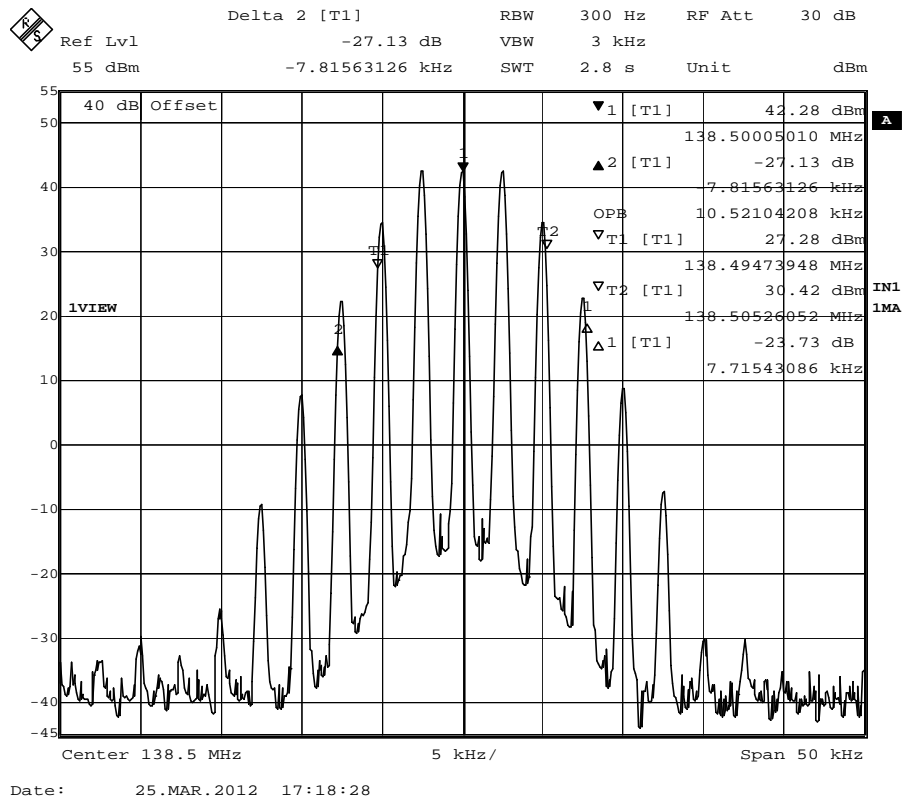
- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
- 2 The EUT was modulated by 2.5 KHz Sine wave audio signal; the level of the audio signal employed is 16 dB greater than that necessary to produce 50% of rated system deviation. Rated system deviation is 2.5 kHz (12.5 kHz channel spacing) and 5 kHz (25 kHz channel spacing).
- 3 Set EUT as normal operation.
- 4 Set SPA Center Frequency = fundamental frequency, RBW=300Hz, VBW= 3 KHz, span =50 KHz.
- 5 Set SPA Max hold. Mark peak, Set 99% Occupied Bandwidth and 26dB Occupied Bandwidth.
- 6 Set SPA Center Frequency=fundamental frequency, RBW=300Hz, VBW=3 KHz span=50 KHz for 25 KHz channel spacing, while RBW=100Hz, VBW=1 KHz, span=50 KHz for 12.5 channel spacing.

TEST RESULTS**4.2.1 Occupied Bandwidth**

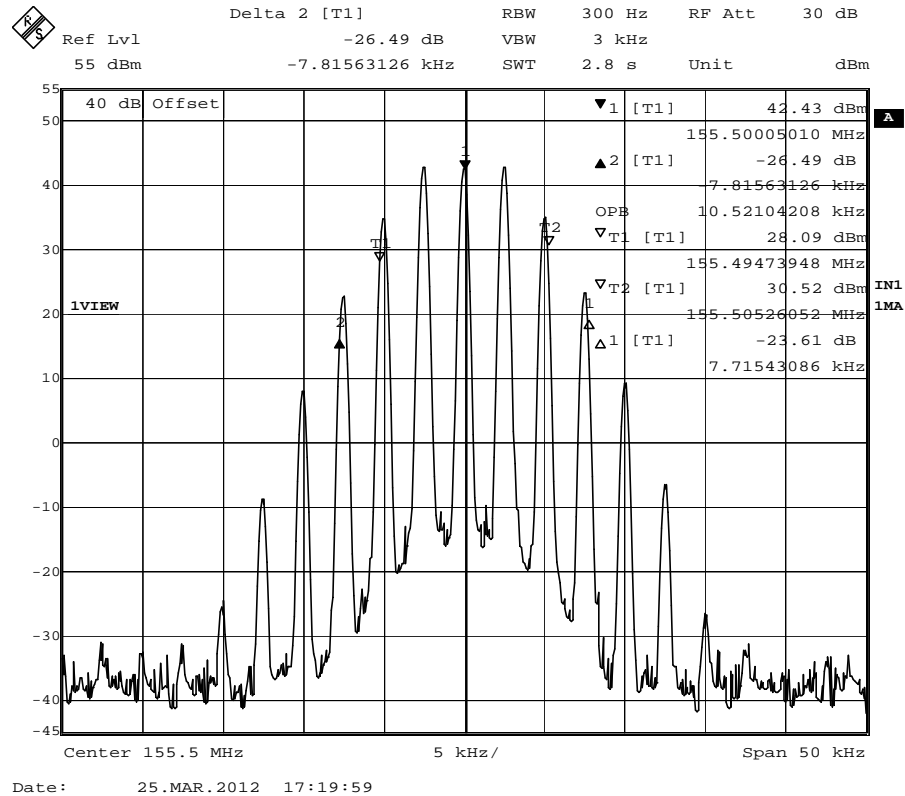
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Occupied Bandwidth (KHz)		Remark
				99%	26dB	
FM/Analog	25KHz	Low	138.5000	10.52	15.52	Only for IC Reviw (Not For FCC Review)
		Middle	155.5000	10.52	15.52	
		High	173.5000	10.52	15.52	
	12.5KHz	Low	138.5000	5.71	10.52	For both FCC and IC Review
		Middle	155.5000	5.71	10.42	
		High	173.5000	5.71	10.42	
Limit		20kHz for 25KHz Channel Separation				
		11.25KHz for 12.5KHz Channel Separation				
Test Results		Compliance				

Plots of 99% and 26dB Bandwidth Measurement**Only for IC Review (Not For FCC Review)**

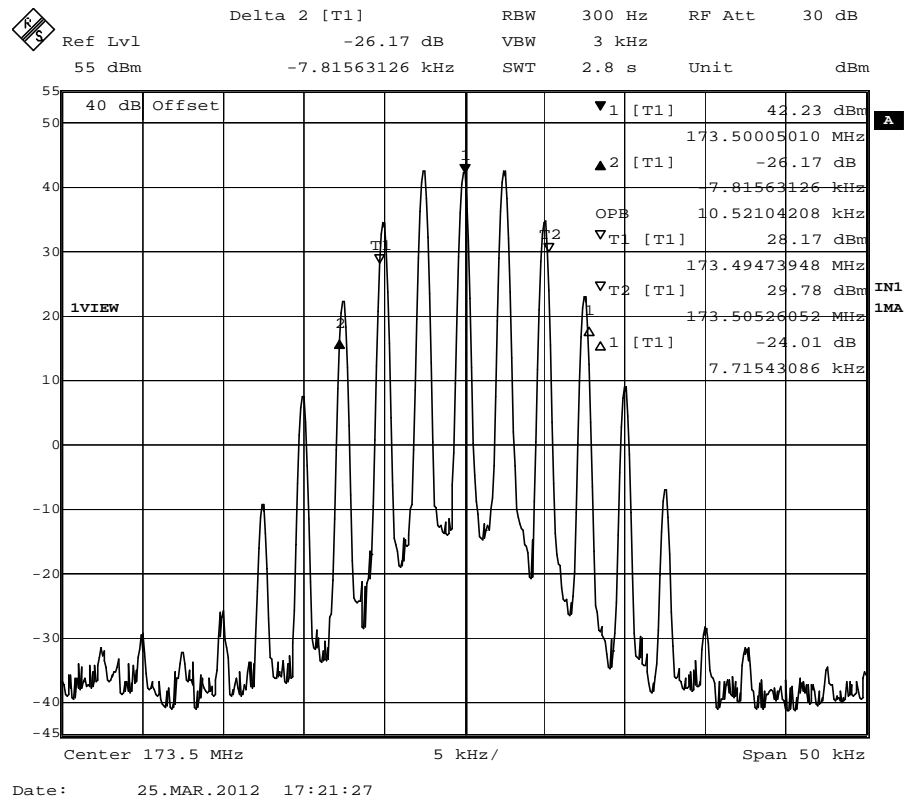
Modulation Type	Channel Separation	Freq.(MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)	IC Limit (KHz)	Results
FM	25 KHz	138.5000	10.52	15.52	20	Compliance



Modulation Type	Channel Separation	Freq.(MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)	IC Limit (KHz)	Results
FM	25 KHz	155.5000	10.52	15.52	20	Compliance

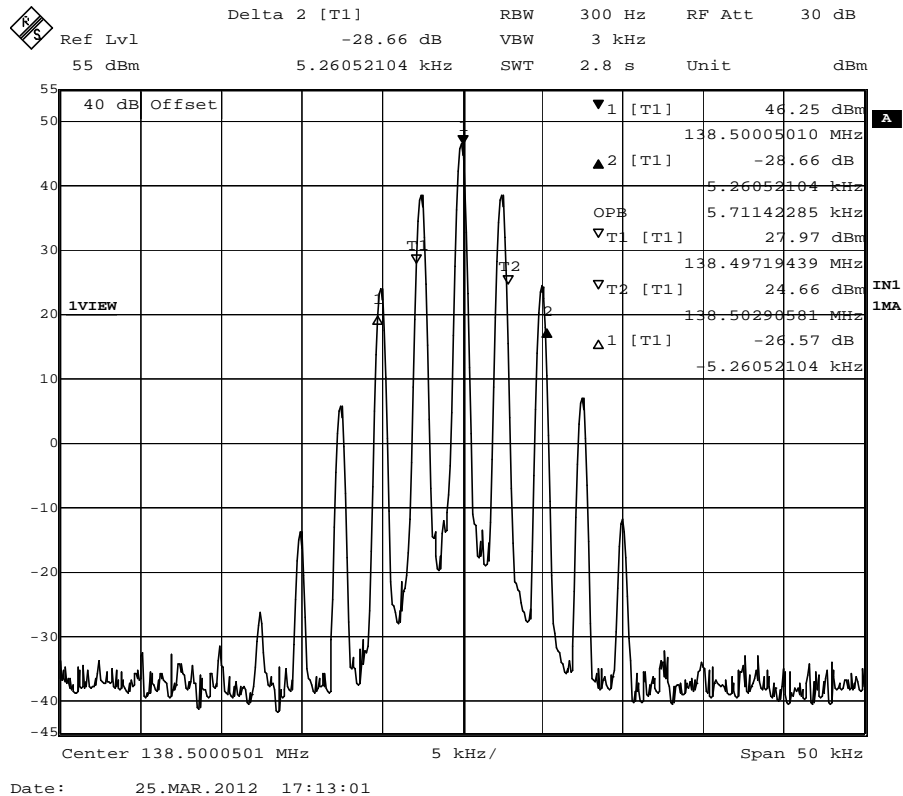


Modulation Type	Channel Separation	Freq.(MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)	IC Limit (KHz)	Results
FM	25 KHz	173.5000	10.52	15.52	20	Compliance

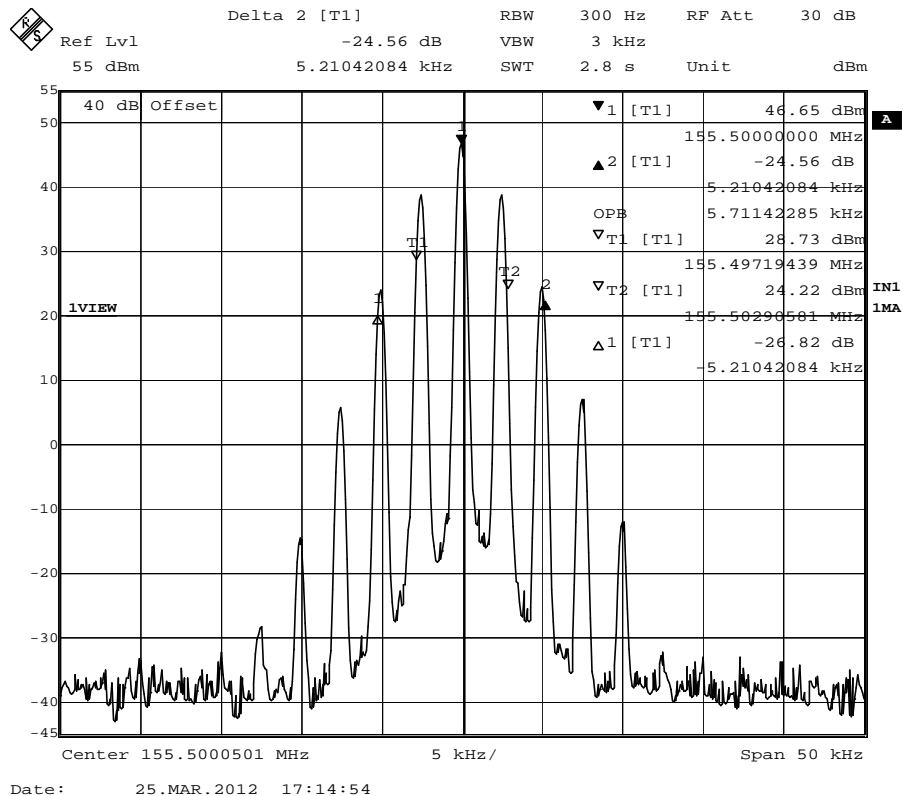


For both FCC and IC Review

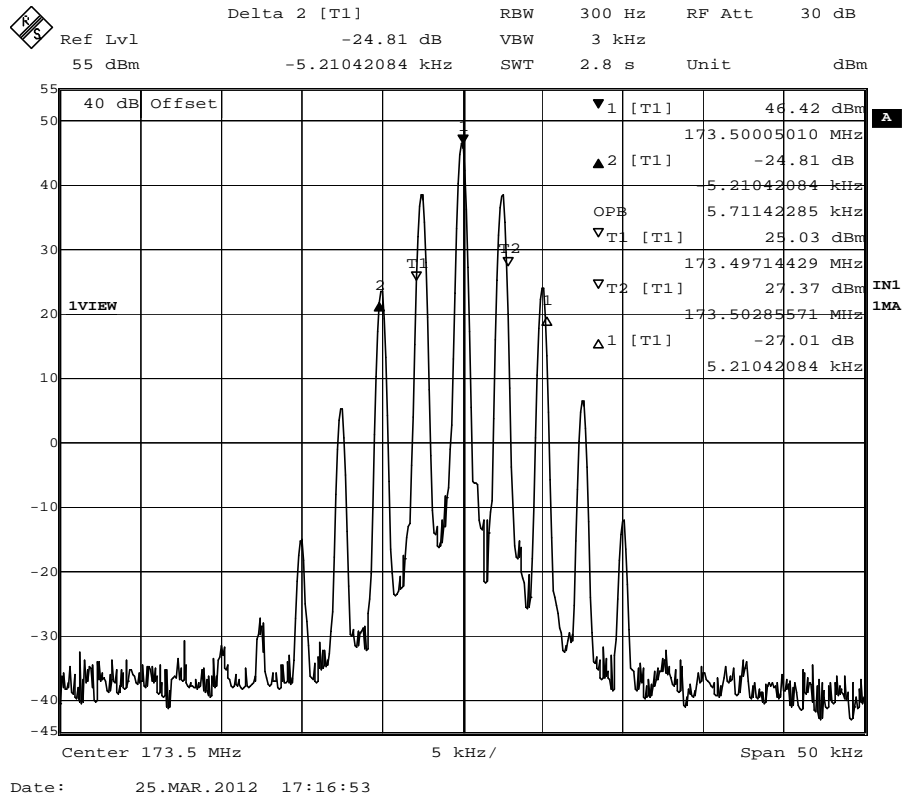
Modulation Type	Channel Separation	Freq.(MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)	FCC Limit (KHz)	Results
FM	12.5 KHz	138.5000	5.71	10.52	11.25	Complicance



Modulation Type	Channel Separation	Freq.(MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)	FCC Limit (KHz)	Results
FM	12.5 KHz	155.5000	5.71	10.42	11.25	Complicance



Modulation Type	Channel Separation	Freq.(MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)	FCC Limit (KHz)	Results
FM	12.5 KHz	173.5000	5.71	10.42	11.25	Compliance



4.2.2 Emission Mask

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	FCC Applicable Mask	RBW (Hz)	Remark
FM/Analog	25KHz	Low	138.5000	B	300	Only for IC Review
		Middle	155.5000	B	300	
		High	173.5000	B	300	
	12.5KHz	Low	138.5000	D	100	For both FCC and IC Review
		Middle	155.5000	D	100	
		High	173.5000	D	100	
Test Results		Compliance				

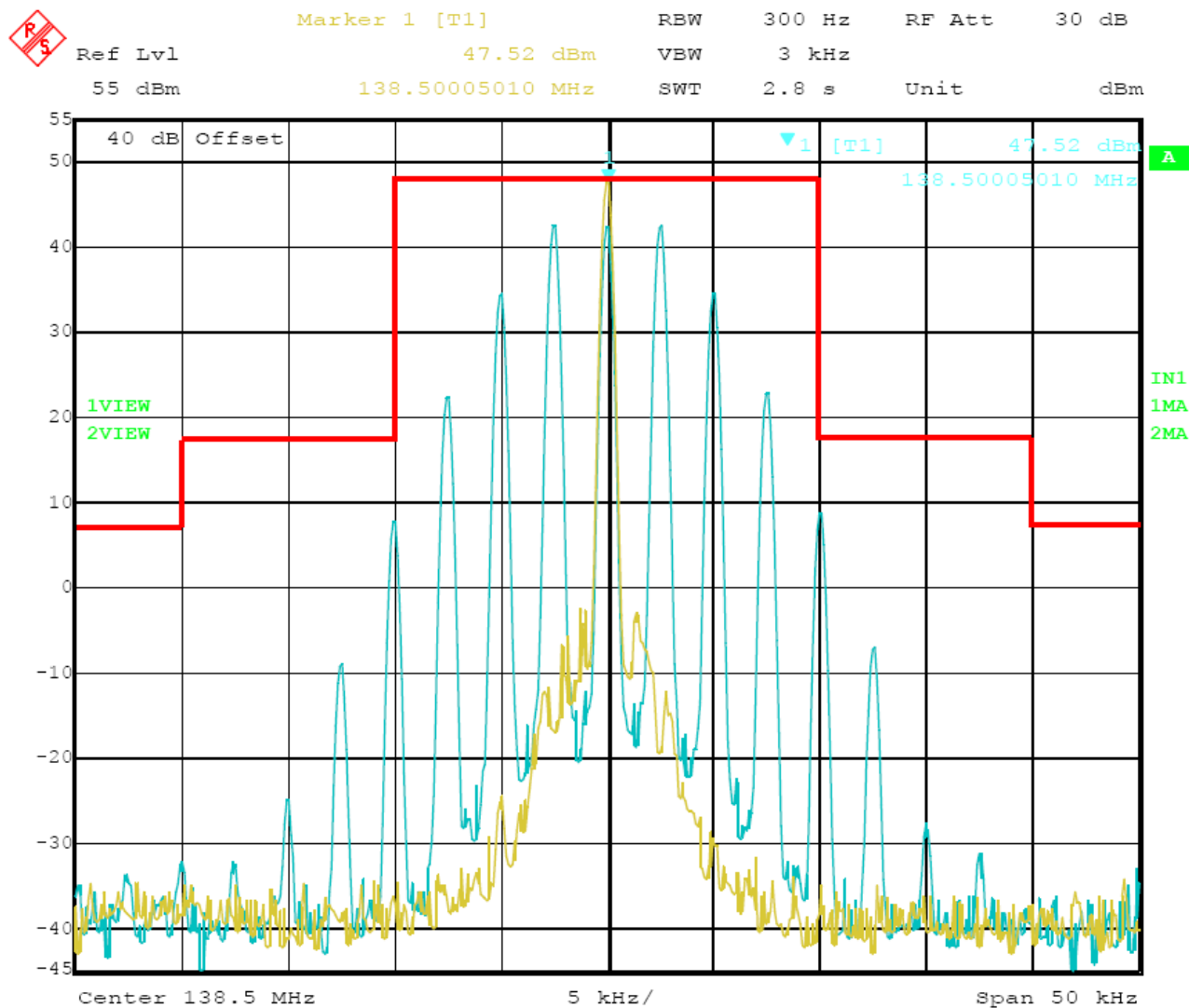
Plots of Emission Mask Measurement

Referred as the attached plot hereinafter

Note: The yellow curve represents unmodulated signal.
The green curve represents modulated signal.

Only for IC Review (Not For FCC Review)

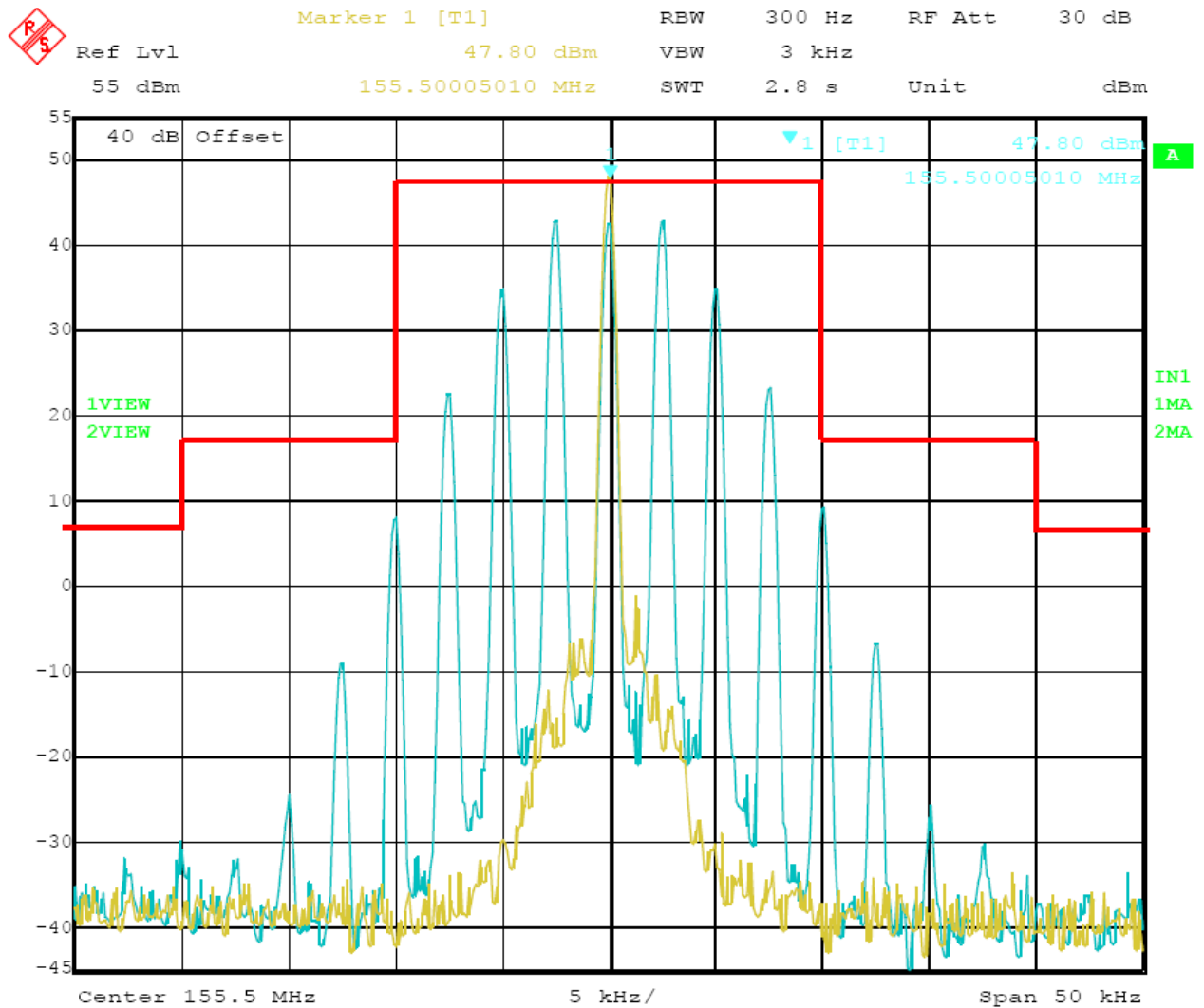
Modulation Type	Channel Separation	Freq.(MHz)	IC Applicable Mask	RBW	Audio Freq. (KHz)	Results
FM	25 KHz	138.5000	B	300Hz	2.5	Compliance



Date: 25.MAR.2012 17:25:54

25 kHz Channel Spacing, 138.5000 MHz, 2500 Hz Audio Modulation Only

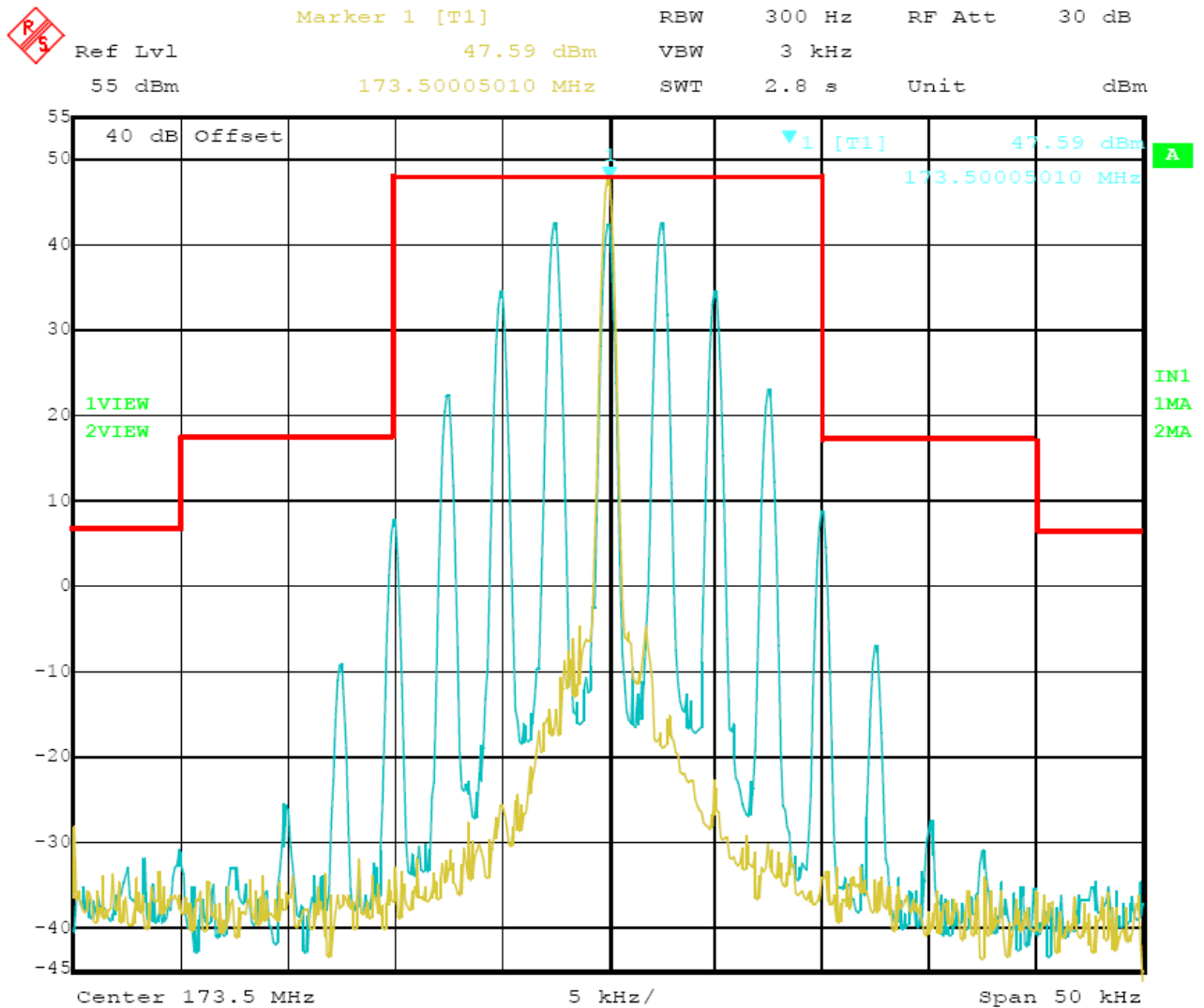
Modulation Type	Channel Separation	Freq.(MHz)	IC Applicable Mask	RBW	Audio Freq. (KHz)	Results
FM	25 KHz	155.5000	B	300Hz	2.5	Compliance



Date: 25.MAR.2012 17:24:15

25 kHz Channel Spacing, 155.5000 MHz, 2500 Hz Audio Modulation Only

Modulation Type	Channel Separation	Freq.(MHz)	IC Applicable Mask	RBW	Audio Freq. (KHz)	Results
FM	25 KHz	173.5000	B	300Hz	2.5	Compliance

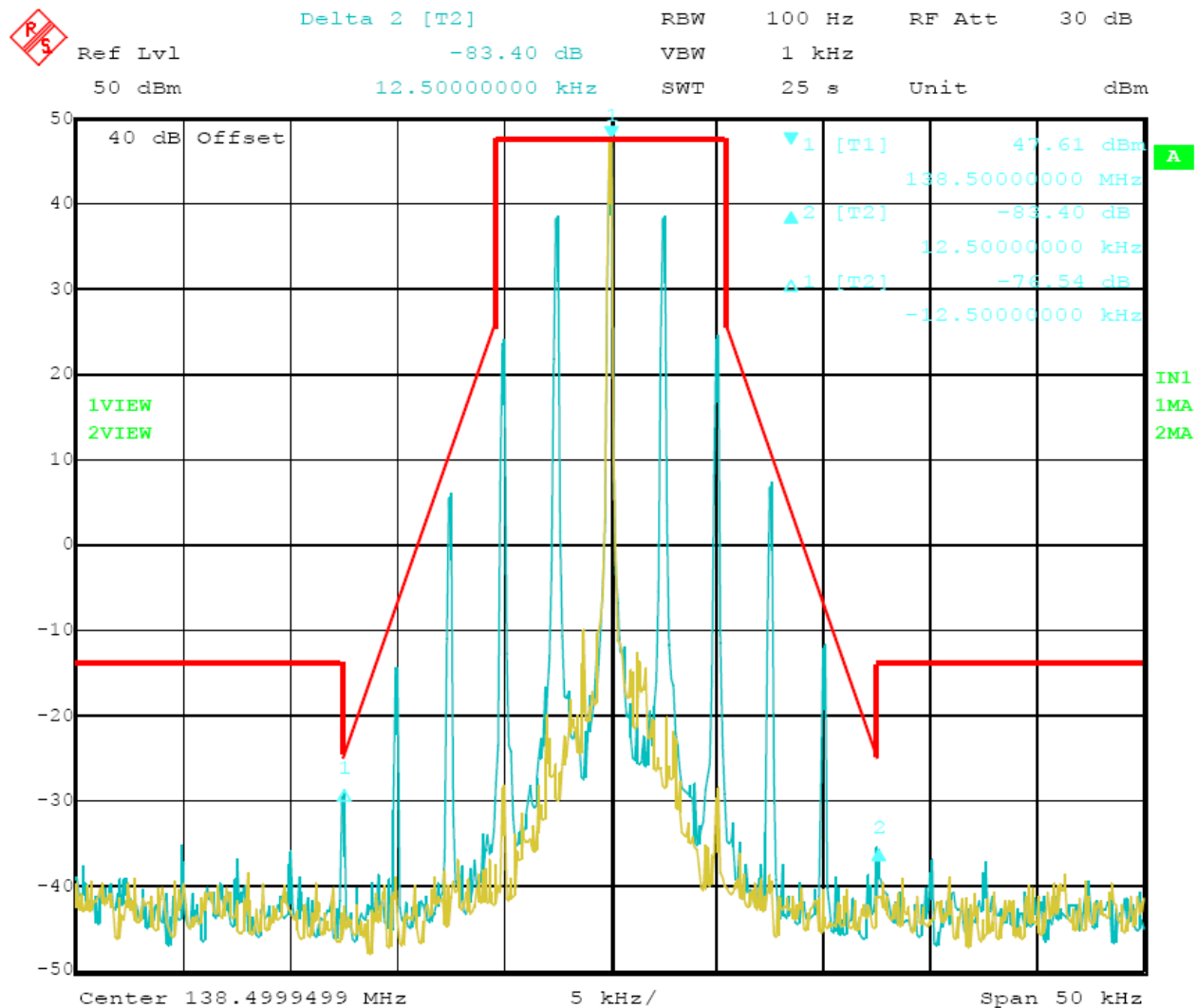


Date: 25.MAR.2012 17:22:45

25 kHz Channel Spacing, 173.5000 MHz, 2500 Hz Audio Modulation Only

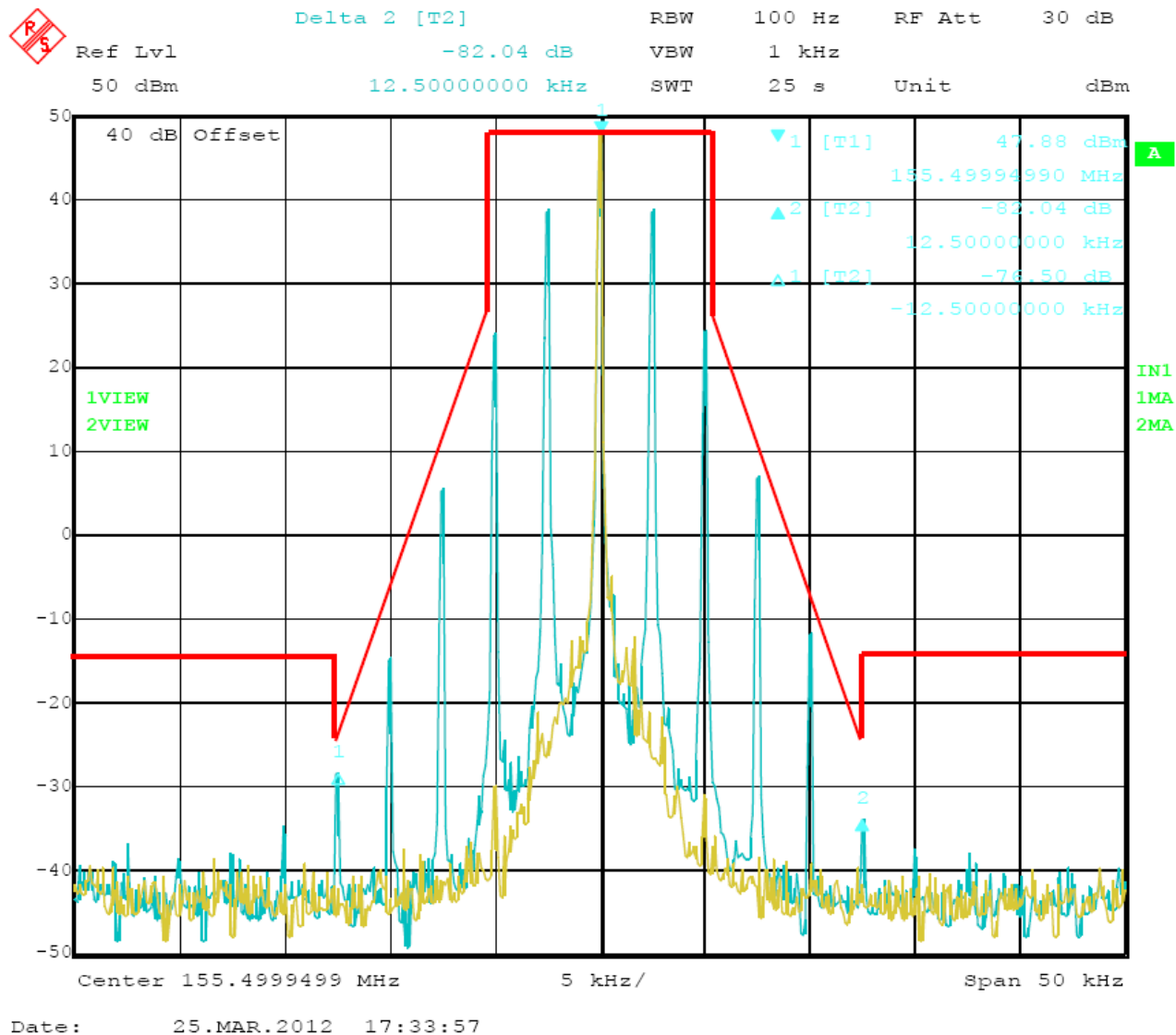
Both for FCC and IC Review

Modulation Type	Channel Separation	Freq.(MHz)	FCC Applicable Mask	RBW	Audio Freq. (KHz)	Results
FM	12.5 KHz	138.5000	D	100Hz	2.5	Compliance



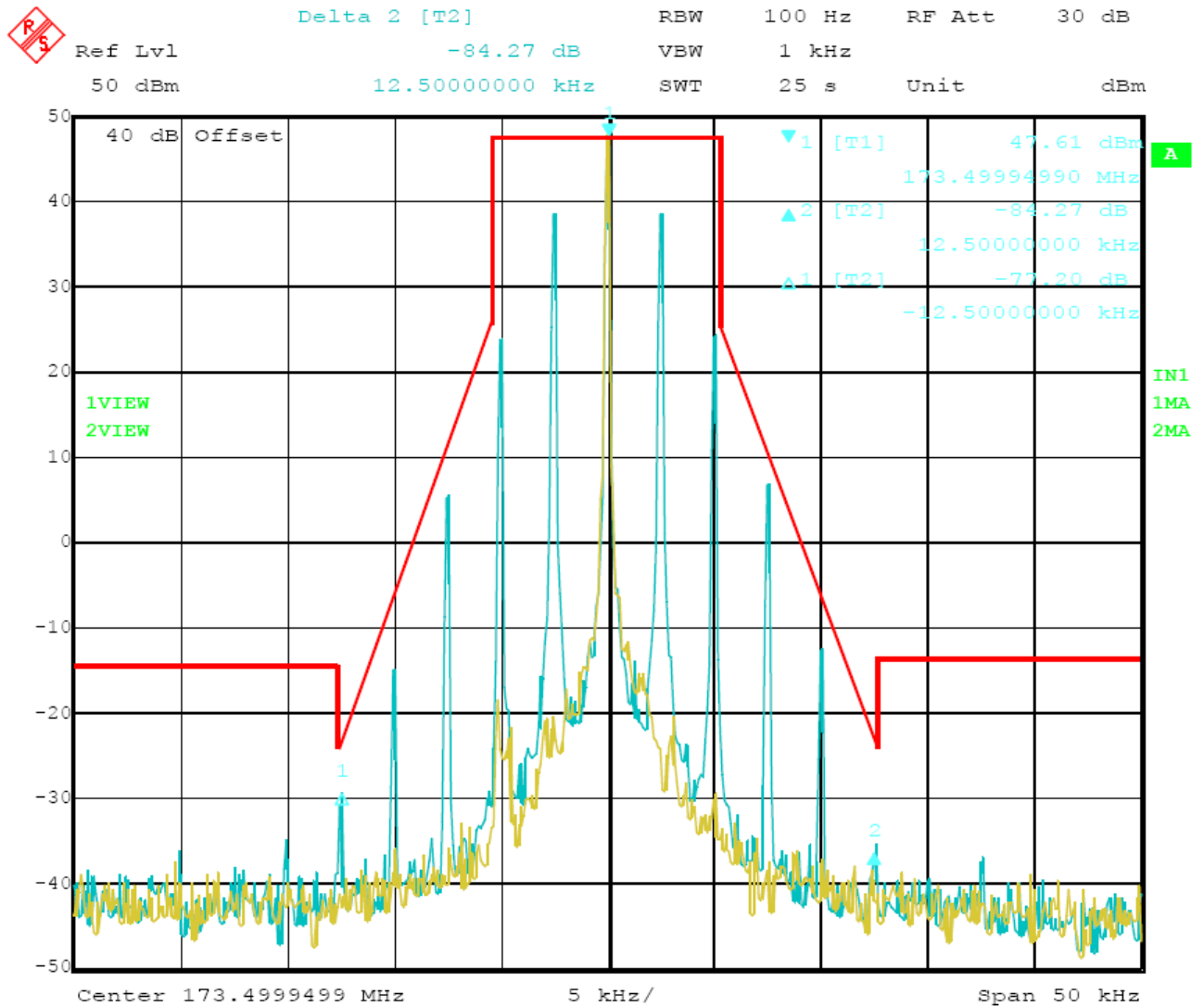
12.5 kHz Channel Spacing, 138.5000 MHz, 2500 Hz Audio Modulation Only

Modulation Type	Channel Separation	Freq.(MHz)	FCC Applicable Mask	RBW	Audio Freq. (KHz)	Results
FM	12.5 KHz	155.5000	D	100Hz	2.5	Complicance



12.5 kHz Channel Spacing, 155.5000 MHz, 2500 Hz Audio Modulation Only

Modulation Type	Channel Separation	Freq.(MHz)	FCC Applicable Mask	RBW	Audio Freq. (KHz)	Results
FM	12.5 KHz	173.5000	D	100Hz	2.5	Compliance



Date: 25.MAR.2012 17:31:44

12.5 kHz Channel Spacing, 173.5000 MHz, 2500 Hz Audio Modulation Only

4.3. Transmitter Radiated Spurious Emission

TEST APPLICABLE

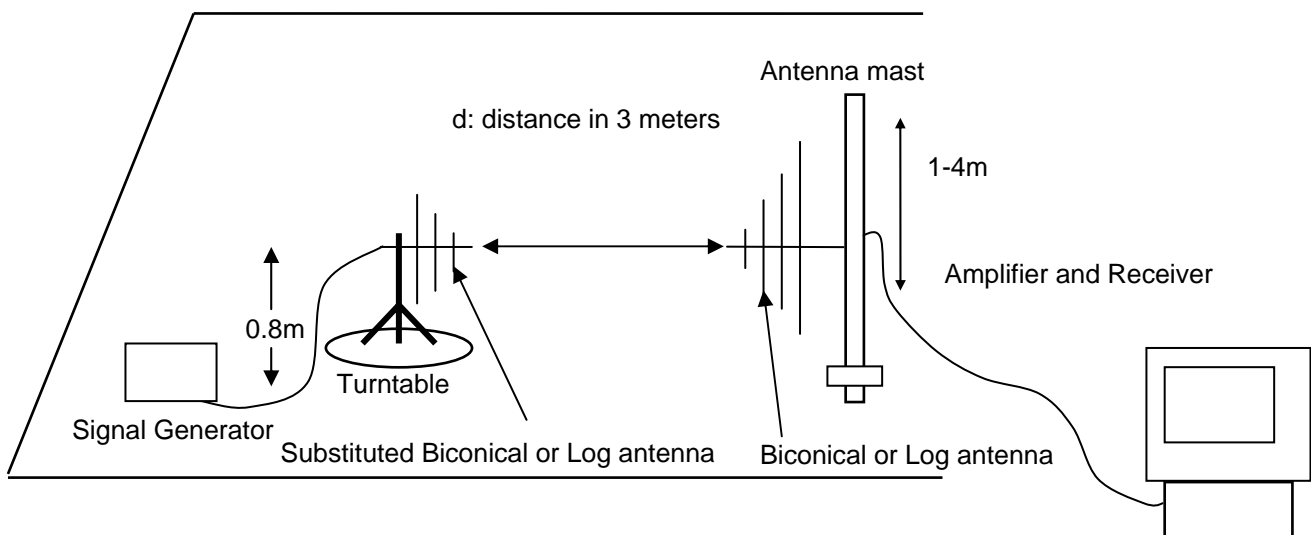
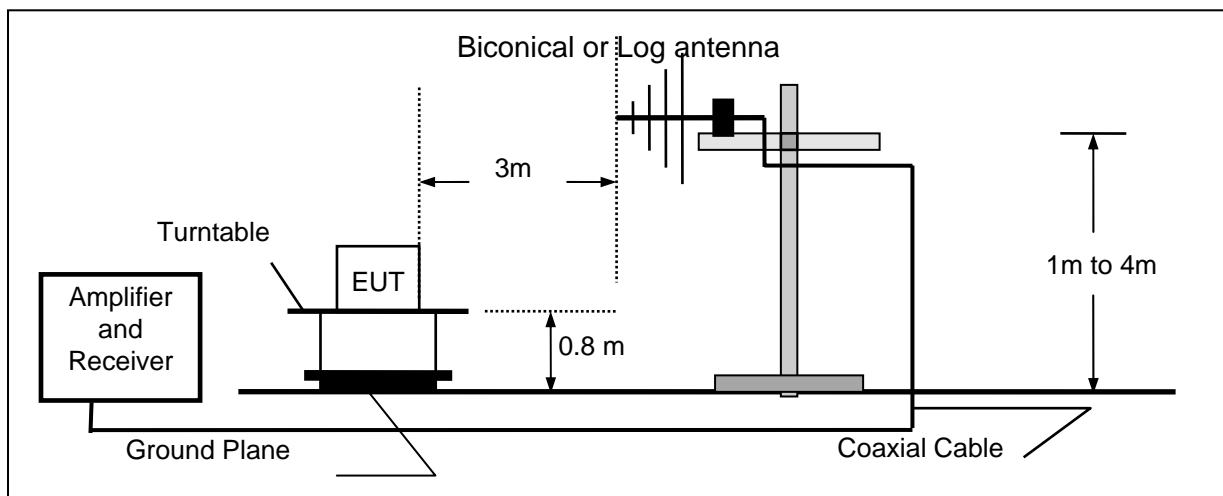
According to the TIA/EIA 603 test method, and according to Section 90.210, the power of each unwanted emission shall be less than Transmitted Power as specified below for transmitters designed to operate with 12.5 KHz channel bandwidth:

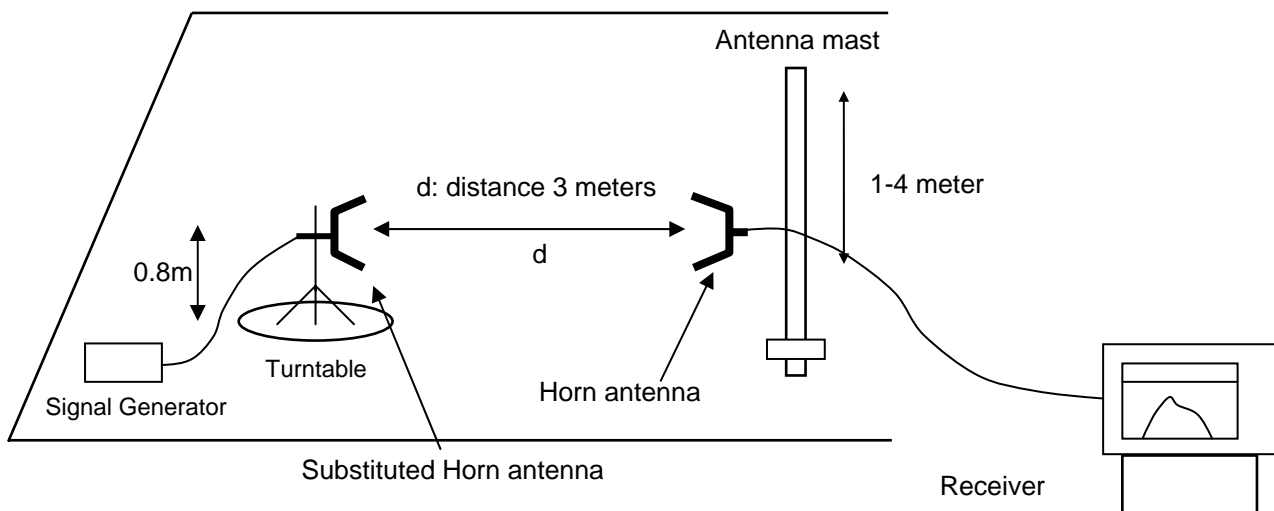
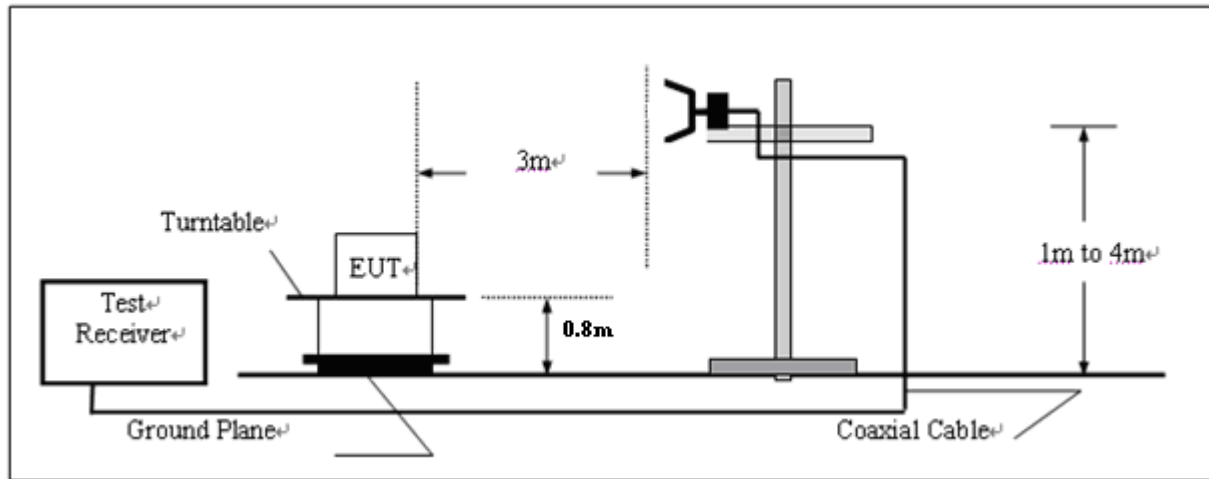
- 1 On any frequency removed from the center of the authorized bandwidth f_0 to 5.625 KHz removed from f_0 : Zero dB
 - 2 On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz) f_0 of more than 5.625 KHz but no more than 12.5 KHz: At least 7.27dB
 - 3 On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz) f_0 of more than 12.5 KHz: At least $50 + 10 \log(P)$ dB or 70 dB, which ever is lesser attenuation.
- For transmitters designed to transmit with 25 KHz channel separation and equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as following:

- 1 On any frequency removed from the assigned frequency by more than 50 percent, but no more than 100 percent of the authorized bandwidth: At least 25 dB.
- 2 On any frequency removed from the assigned frequency by more than 100 percent, but no more than 250 percent of the authorized bandwidth: At least 35 dB.
- 3 On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log(P)$ dB.

TEST CONFIGURATION

Below 1GHz



Above 1GHz**TEST PROCEDURE**

- 1 Set the EMI Receiver (for measuring E-Field) and Receiver (for measuring EIRP) as follows:
 Center Frequency: equal to the signal source
 Resolution BW: 100 KHz
 Video BW: VBW > RBW
 Detector Mode: positive
 Average: off
 Span: 3 x the signal bandwidth
- 2 Load an appropriate correction factors file in EMI Receiver for correcting the field strength reading level
 Total Correction Factor recorded in the EMI Receiver = Cable Loss + Antenna Factor + Amplifier Gain
 $E \text{ (dBuV/m)} = \text{Reading (dBuV)} + \text{Total Correction Factor (dB)}$
- 3 The transmitter under test was placed at the specified height on a non-conducting turntable (80 cm height)
- 4 Substitute the EUT by a signal generator and one of the following transmitting antenna (substitution antenna):
 DIPOLE antenna for frequency from 30-1000 MHz or
 HORN antenna for frequency above 1 GHz.
- 5 Mount the transmitting antenna at 1.0 meter high from the ground plane.
- 6 Use one of the following antenna as a receiving antenna:
 DIPOLE antenna for frequency from 30-1000 MHz or
 HORN antenna for frequency above 1 GHz.
- 7 If the DIPOLE antenna is used, tune it's elements to the frequency as specified in the calibration manual.
- 8 Adjust both transmitting and receiving antenna in a VERTICAL polarization.
- 9 Tune the EMI Receivers to the test frequency.
- 10 Lower or raise the test antenna from 1 to 4 meters until the maximum signal level was detected.
- 11 The transmitter was rotated through 360° about a vertical axis until a higher maximum signal was received.
- 12 Lower or raise the test antenna from 1 to 4 meters until the maximum signal level was detected.

- 13 Adjust input signal to the substitution antenna until an equal or a known related level to that detected from the transmitter was obtained in the test receiver.
- 14 Record the power level read from the Average Power Meter and calculate the ERP/EIRP as follows:

$$P = P_1 - L_1 = (P_2 + L_2) - L_1 = P_3 + A + L_2 - L_1$$

$$\text{EIRP} = P + G_1 = P_3 + L_2 - L_1 + A + G_1$$

$$\text{ERP} = \text{EIRP} - 2.15 \text{ dB}$$

$$\text{Total Correction factor in EMI Receiver} = L_2 - L_1 + G_1$$

Where:

 - P: Actual RF Power fed into the substitution antenna port after corrected.
 - P₁: Power output from the signal generator
 - P₂: Power measured at attenuator A input
 - P₃: Power reading on the Average Power Meter
 - EIRP: EIRP after correction
 - ERP: ERP after correction
- 15 Adjust both transmitting and receiving antenna in a Horizontal polarization, then repeat step (11) to (14).
- 16 Repeat step (4) to (16) for different test frequency
- 17 Repeat steps (3) to (12) with the substitution antenna oriented in horizontal polarization.
- 18 Actual gain of the EUT's antenna is the difference of the measured EIRP and measured RF power at the RF port. Correct the antenna gain if necessary.

TEST RESULTS

The Transmitter Radiated Spurious Emssion was performed to the Rated high power (65Watt) Rated middle (25Watt) and Rated low power (10Watt) the datum that reported below is the worst case (Rated high power) of the three rated power conditions.

Modulation Type: FM

FCC Part 22.359, 74.462, 80.211 and 90.210 and RSS Gen, RSS 119 Issue 11 (25 kHz bandwidth only):

On any frequency removed from the center of the assigned channel by more than 250 percent at least:

Low: $43 + 10 \log (\text{Pwatts}) = 43 + 10 \log (69.66) = 61.43 \text{ dB}$

High: $43 + 10 \log (\text{Pwatts}) = 43 + 10 \log (73.45) = 61.66 \text{ dB}$

Note: In general, the worse case attenuation requirement shown above was applied.

Calculation: Limit (dBm) = EL-43-10log10 (TP)

Notes: EL is the emission level of the Output Power expressed in dBm,

In this application, the EL is 48.12 dBm.

Limit (dBm) = 48.12-43-10log10 (73.45) = -13 dBm

FCC Part 22.359, 74.462, 80.211 and 90.210 and RSS Gen, RSS 119 Issue 11 (25 kHz bandwidth only): On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f d in kHz) of more than 12.5 kHz at least:

Low: $50 + 10 \log (\text{Pwatts}) = 50 + 10 \log (69.34) = 68.41 \text{ dB}$

High: $50 + 10 \log (\text{Pwatts}) = 50 + 10 \log (74.30) = 68.71 \text{ dB}$

Note: In general, the worse case attenuation requirement shown above was applied.

Calculation: Limit (dBm) = EL-50-10log10 (TP)

Notes: EL is the emission level of the Output Power expressed in dBm,

In this application, the EL is 48.12 dBm.

Limit (dBm) = 48.12-50-10log10 (68.71) = -20 dBm

Note: 1. In general, the worse case attenuation requirement shown above was applied.

2. The measurement frequency range from 30MHz to 2GHz.

3. *** means that the emission level is too low to be measured or at least 20 dB down than the limit.

Only for IC Review (Not For FCC Review)

Modulation		FM		Channel Separation		25KHz		
Test Channel		Low Channel		Test Frequency		138.5000 MHz		
Frequency (MHz)	E-Field Level (dBuv/m)	EMI Detector (Peak/QP)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	ERP measured by Substitution Method (dBm)	Limit (dBm)	Margin (dB)
277.000	72.63	Peak	H	100	145	-17.95	-13	4.95
414.500	70.00	Peak	H	100	40	-19.21	-13	6.21
1246.500	67.56	Peak	H	100	320	-22.66	-13	9.66
...			H					
277.000	73.60	Peak	V	100	69	-16.95	-13	3.95
414.500	72.23	Peak	V	100	188	-18.25	-13	5.25
1246.500	67.92	Peak	V	100	26	-23.66	-13	10.66
...	...		V					

Modulation		FM		Channel Separation		25KHz		
Test Channel		Middle Channel		Test Frequency		155.5000 MHz		
Frequency (MHz)	E-Field Level (dBuv/m)	EMI Detector (Peak/QP)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	ERP measured by Substitution Method (dBm)	Limit (dBm)	Margin (dB)
311.000	72.99	Peak	H	150	55	-17.59	-13	4.59
622.000	69.98	Peak	H	100	95	-19.23	-13	6.23
1399.500	65.97	Peak	H	100	147	-24.25	-13	11.25
...			H					
311.000	73.60	Peak	V	100	89	-16.95	-13	3.95
622.000	70.26	Peak	V	100	236	-20.22	-13	7.22
1399.500	68.00	Peak	V	100	41	-23.58	-13	10.58
...	...		V					

Modulation		FM		Channel Separation		25KHz		
Test Channel		High Channel		Test Frequency		173.5000 MHz		
Frequency (MHz)	E-Field Level (dBuv/m)	EMI Detector (Peak/QP)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	ERP measured by Substitution Method (dBm)	Limit (dBm)	Margin (dB)
347.000	72.73	Peak	H	150	241	-17.85	-13	4.85
694.000	69.69	Peak	H	150	15	-19.52	-13	6.52
1561.500	63.67	Peak	H	100	189	-26.55	-13	13.55
...			H					
347.000	74.08	Peak	V	100	230	-16.47	-13	3.47
694.000	71.96	Peak	V	100	295	-18.52	-13	5.52
1561.500	68.02	Peak	V	100	309	-23.56	-13	10.56
...	...		V					

For both FCC and IC Review

Modulation		FM		Channel Separation		12.5KHz		
Test Channel		Low Channel		Test Frequency		138.5000 MHz		
Frequency (MHz)	E-Field Level (dBuv/m)	EMI Detector (Peak/QP)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	ERP measured by Substitution Method (dBm)	Limit (dBm)	Margin (dB)
277.000	67.33	Peak	H	150	178	-23.25	-20	3.25
414.500	66.52	Peak	H	150	238	-22.69	-20	2.69
1246.500	63.24	Peak	H	150	49	-26.98	-20	6.98
...			H					
277.000	67.27	Peak	V	100	109	-23.28	-20	3.28
414.500	66.16	Peak	V	100	62	-24.32	-20	4.32
1246.500	66.02	Peak	V	100	269	-25.56	-20	5.56
...	...		V					

Modulation		FM		Channel Separation		12.5KHz		
Test Channel		Middle Channel		Test Frequency		155.5000 MHz		
Frequency (MHz)	E-Field Level (dBuv/m)	EMI Detector (Peak/QP)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	ERP measured by Substitution Method (dBm)	Limit (dBm)	Margin (dB)
311.000	67.37	Peak	H	150	189	-23.21	-20	3.21
622.000	64.59	Peak	H	100	96	-24.62	-20	4.62
1399.500	63.70	Peak	H	150	62	-26.52	-20	6.52
...			H					
311.000	68.16	Peak	V	150	175	-22.39	-20	2.39
622.000	64.53	Peak	V	100	320	-25.95	-20	5.95
1399.500	64.04	Peak	V	100	245	-27.54	-20	7.54
...	...		V					

Modulation		FM		Channel Separation		12.5KHz		
Test Channel		High Channel		Test Frequency		173.5000 MHz		
Frequency (MHz)	E-Field Level (dBuv/m)	EMI Detector (Peak/QP)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	ERP measured by Substitution Method (dBm)	Limit (dBm)	Margin (dB)
347.000	67.47	Peak	H	100	230	-23.11	-20	3.11
694.000	65.19	Peak	H	150	218	-24.02	-20	4.02
1561.500	63.64	Peak	H	150	163	-26.58	-20	6.58
...			H					
347.000	67.30	Peak	V	150	178	-23.25	-20	3.25
694.000	64.80	Peak	V	150	351	-25.68	-20	5.68
1561.500	64.48	Peak	V	100	25	-27.10	-20	7.10
...	...		V					

4.4. Spurious Emssion on Antenna Port

TEST APPLICABLE

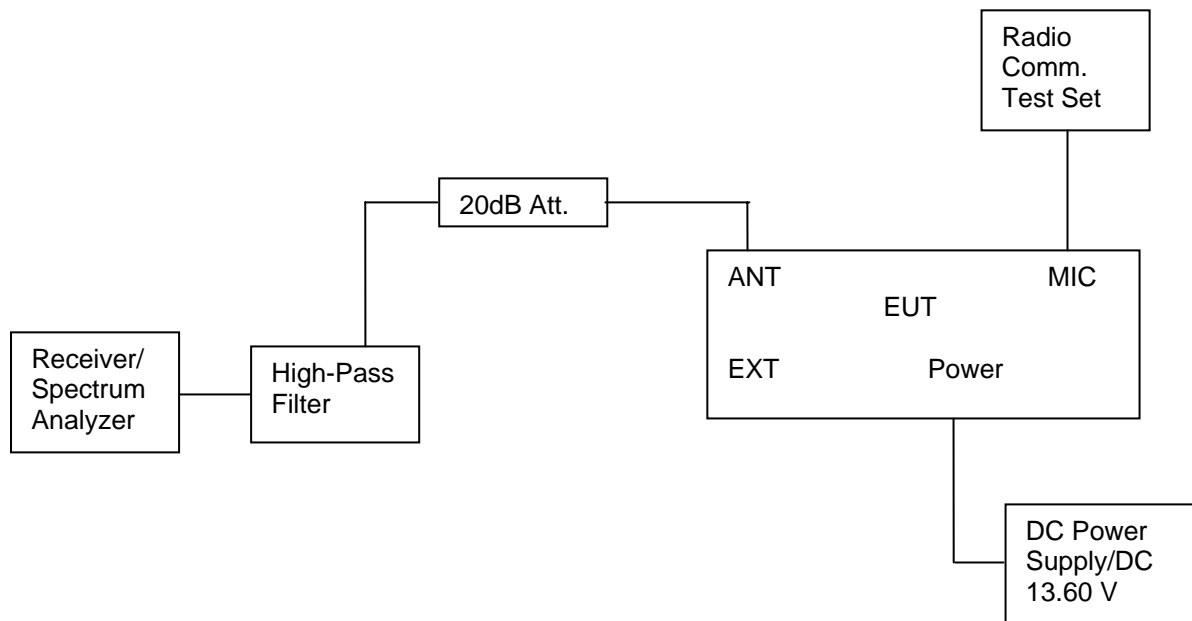
The same as Section 4.3

TEST PROCEDURE

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set to 100 kHz. Sufficient scans were taken to show any out of band emission up to 10th. Harmonic for the lower and the highest frequency range. RBW 100 kHz, VBW 300 kHz,

The audio input was set to 0 to get the unmodulated carrier, the resulting picture is print out for each channel separation.

TEST CONFIGURATION



TEST RESULTS

Modulation Type: FM

FCC Part 22.359, 74.462, 80.211 and 90.210 and RSS Gen, RSS 119 Issue 11 (25 kHz bandwidth only):

On any frequency removed from the center of the assigned channel by more than 250 percent at least:

Low: $43 + 10 \log (P_{\text{watts}}) = 43 + 10 \log (69.66) = 61.43 \text{ dB}$

High: $43 + 10 \log (P_{\text{watts}}) = 43 + 10 \log (73.45) = 61.66 \text{ dB}$

Note: In general, the worse case attenuation requirement shown above was applied.

Calculation: Limit (dBm) = EL - 43 - 10log10 (TP)

Notes: EL is the emission level of the Output Power expressed in dBm,

In this application, the EL is 48.12 dBm.

Limit (dBm) = $48.12 - 43 - 10 \log_{10} (73.45) = -13 \text{ dBm}$

FCC Part 22.359, 74.462, 80.211 and 90.210 and RSS Gen, RSS 119 Issue 11 (25 kHz bandwidth only): On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f d in kHz) of more than 12.5 kHz at least:

Low: $50 + 10 \log (P_{\text{watts}}) = 50 + 10 \log (69.34) = 68.41 \text{ dB}$

High: $50 + 10 \log (P_{\text{watts}}) = 50 + 10 \log (74.30) = 68.71 \text{ dB}$

Note: In general, the worse case attenuation requirement shown above was applied.

Calculation: Limit (dBm) = EL - 50 - 10log10 (TP)

Notes: EL is the emission level of the Output Power expressed in dBm,

In this application, the EL is 48.12 dBm.

Limit (dBm) = $48.12 - 50 - 10 \log_{10} (68.71) = -20 \text{ dBm}$

Note: 1. In general, the worse case attenuation requirement shown above was applied.

2. The measurement frequency range from 30MHz to 2 GHz.

For Rated High Power (65Watt)

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		Remark
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM/Analog	25KHz	Low	138.5000	276.95	-29.91	3228.45	-36.62	Only for IC Review
		Middle	155.5000	310.62	-33.45	4086.17	-36.96	
		High	173.5000	345.89	-35.51	2819.63	-36.75	
	12.5KHz	Low	138.5000	276.95	-29.74	2386.77	-36.34	For both FCC and IC Review
		Middle	155.5000	310.62	-33.43	2370.74	-36.66	
		High	173.5000	345.89	-35.25	4302.60	-36.56	
Limit		-13dBm for 25KHz Channel Separation						
		-20dBm for 12.5KHz Channel Separation						
Test Results		Compliance						

For Rated Middle Power (25Watt)

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		Remark
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM/Analog	25KHz	Low	138.5000	276.95	-30.14	4815.63	-36.06	Only for IC Review
		Middle	155.5000	945.49	-36.68	3789.57	-37.00	
		High	173.5000	951.90	-36.01	1665.33	-36.96	
	12.5KHz	Low	138.5000	514.22	-36.61	2338.67	-36.79	For both FCC and IC Review
		Middle	155.5000	940.68	-37.28	2979.95	-36.42	
		High	173.5000	950.30	-37.14	3877.75	-36.51	
Limit		-13dBm for 25KHz Channel Separation						
		-20dBm for 12.5KHz Channel Separation						
Test Results		Compliance						

For Rated Low Power (10Watt)

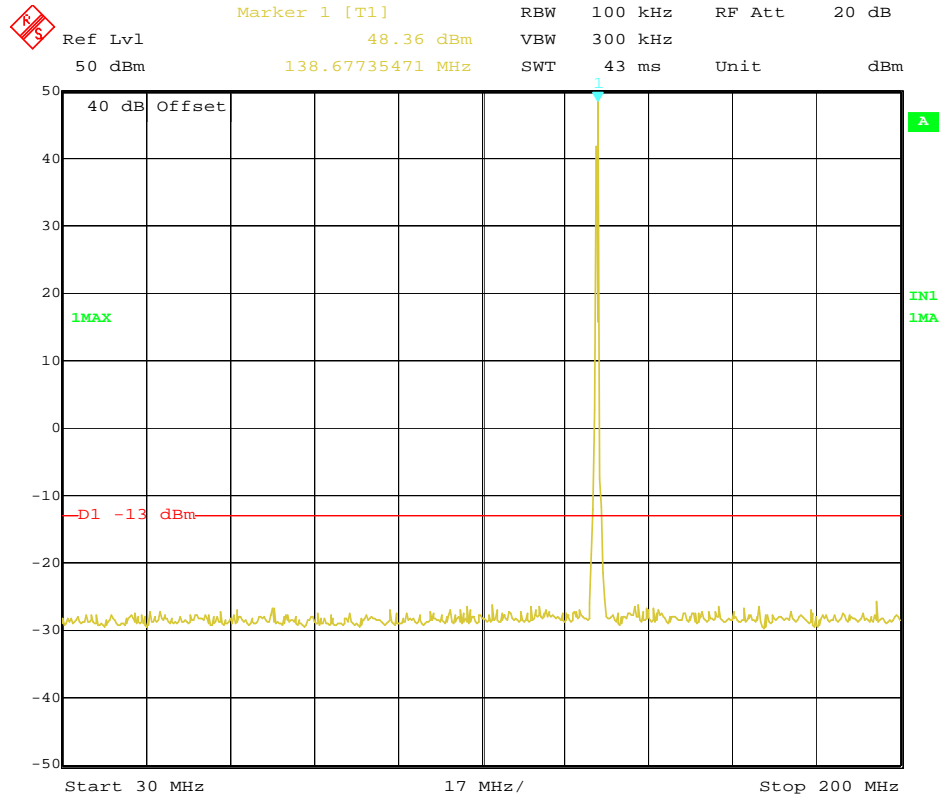
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		Remark
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM/Analog	25KHz	Low	138.5000	284.64	-27.04	4975.95	-36.19	Only for IC Review
		Middle	155.5000	309.91	-23.67	4334.66	-36.46	
		High	173.5000	346.85	-21.07	4815.63	-36.41	
	12.5KHz	Low	138.5000	251.60	-26.83	2923.84	-37.12	For both FCC and IC Review
		Middle	155.5000	309.91	-24.30	2531.06	-37.24	
		High	173.5000	346.85	-21.07	2635.27	-36.19	
Limit		-13dBm for 25KHz Channel Separation						
		-20dBm for 12.5KHz Channel Separation						
Test Results		Compliance						

Plots of Spurious Emission on Antenna Port Measurement

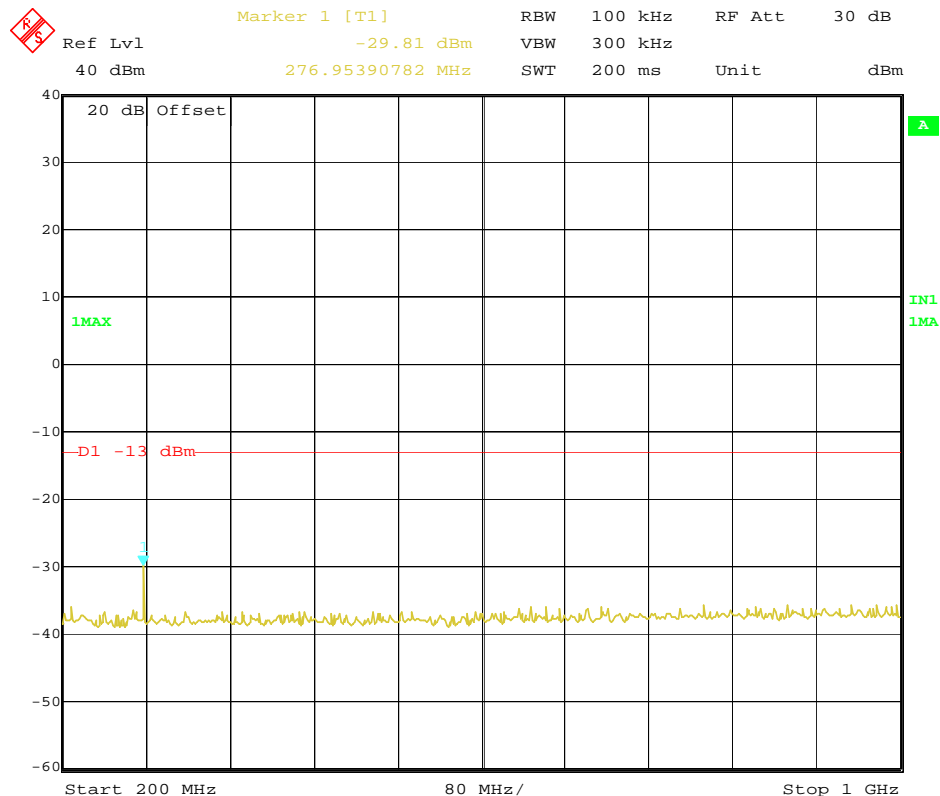
For Rated High Power (65Watt)

Only for IC Review (Not For FCC Review)

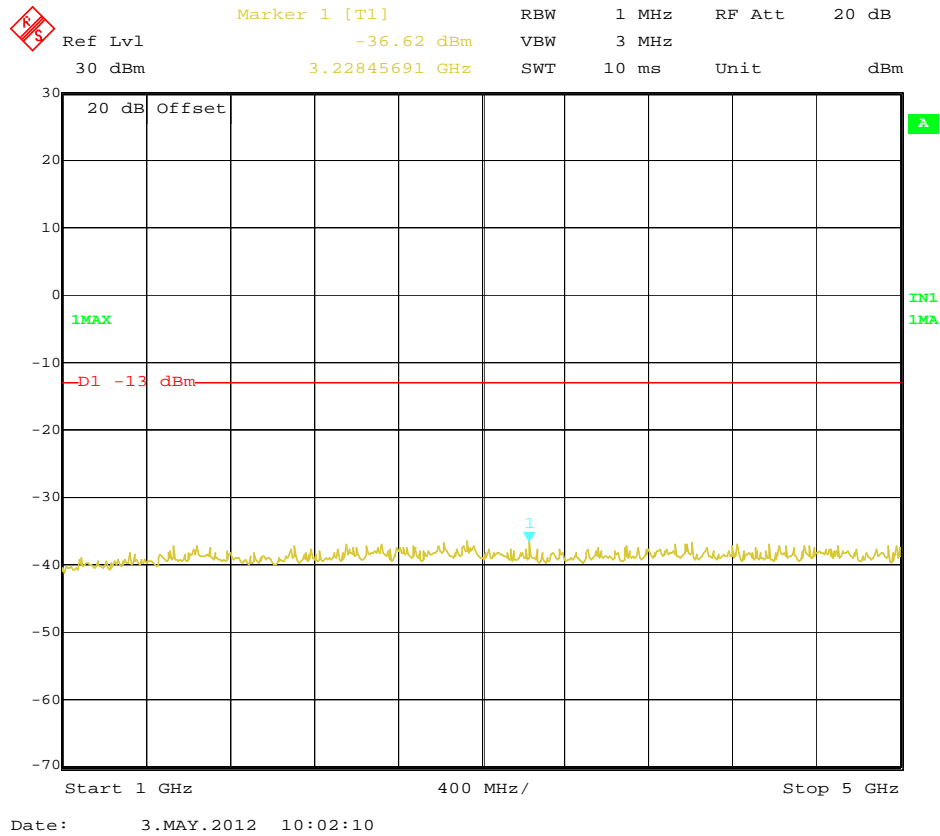
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Low	138.5000	276.95	-29.91	3228.45	-3662	-13dBm
Test Results				Compliance				



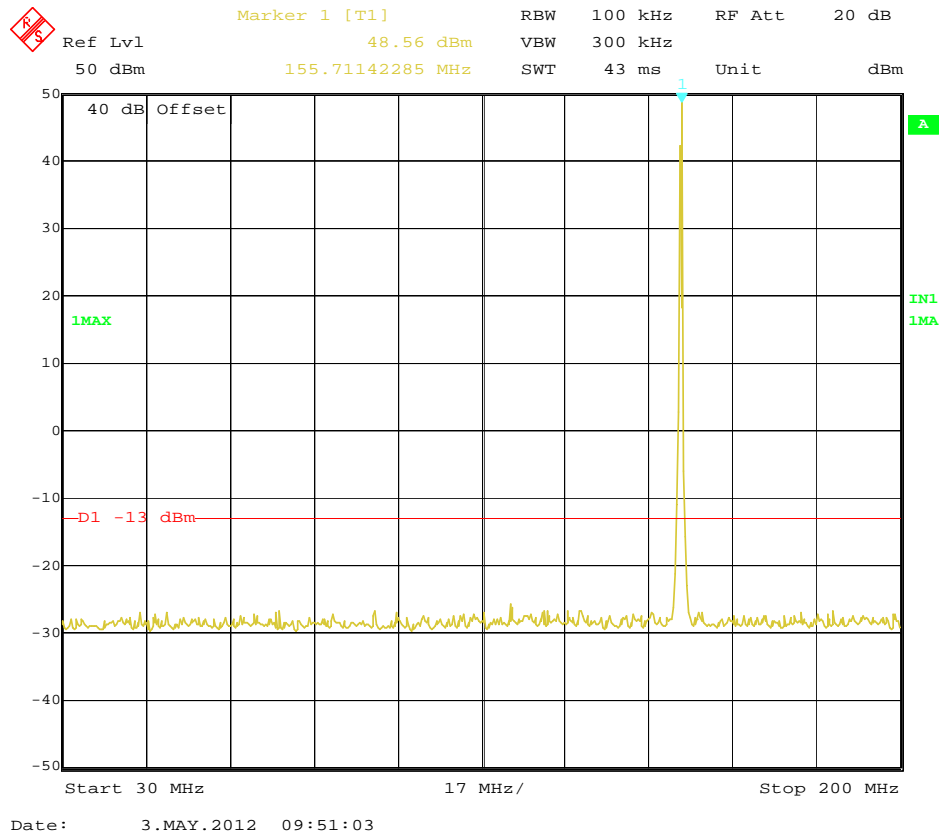
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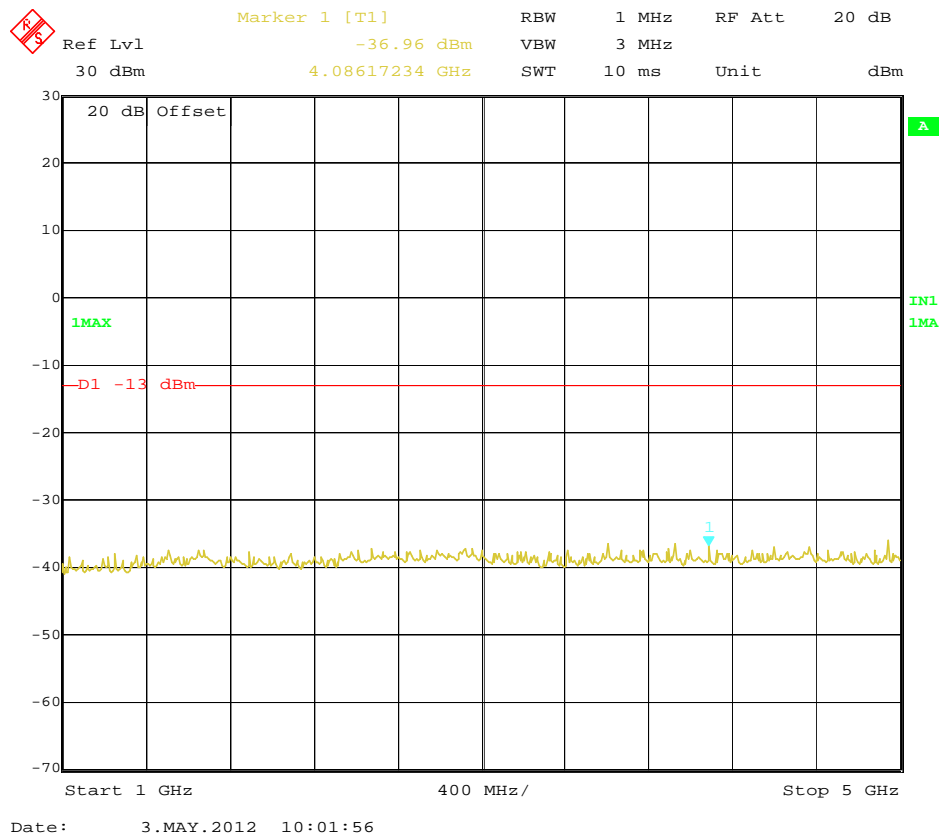
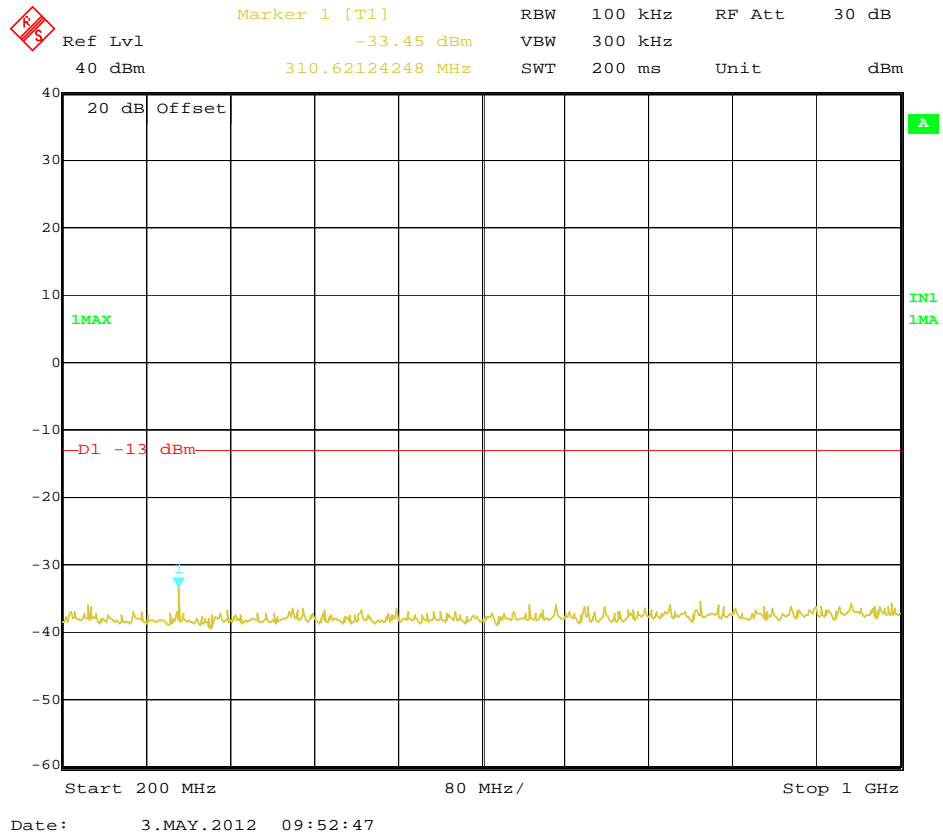


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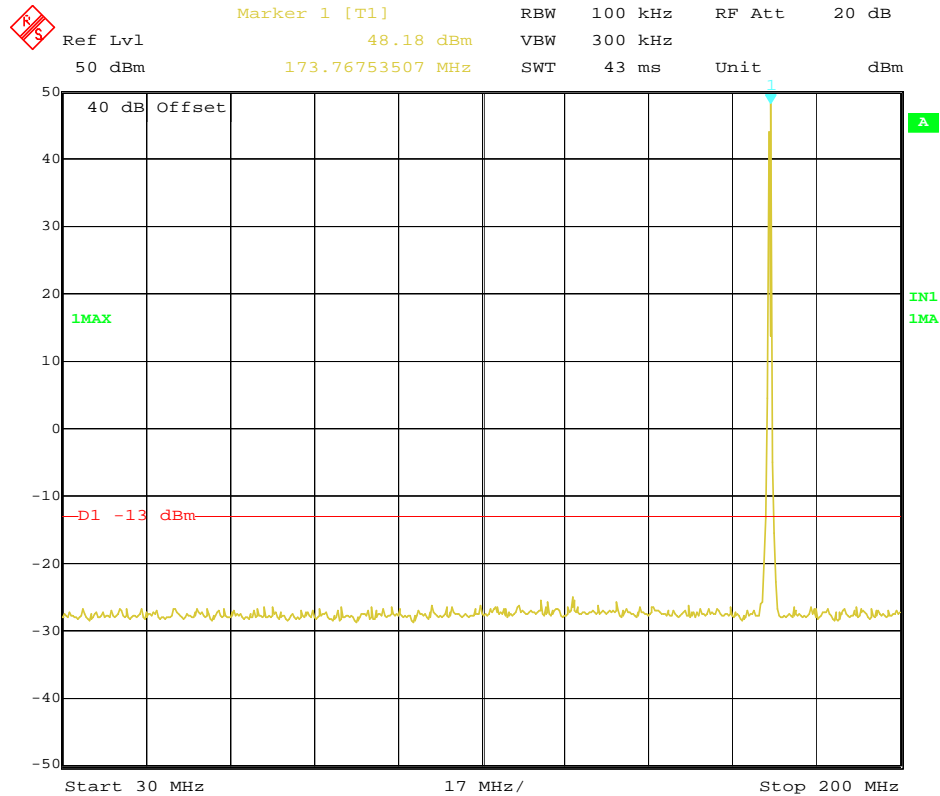


Modulation Type	Channel SpARATION	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Middle	155.5000	310.62	-33.45	4086.17	-36.96	-13dBm
Test Results				Compliance				

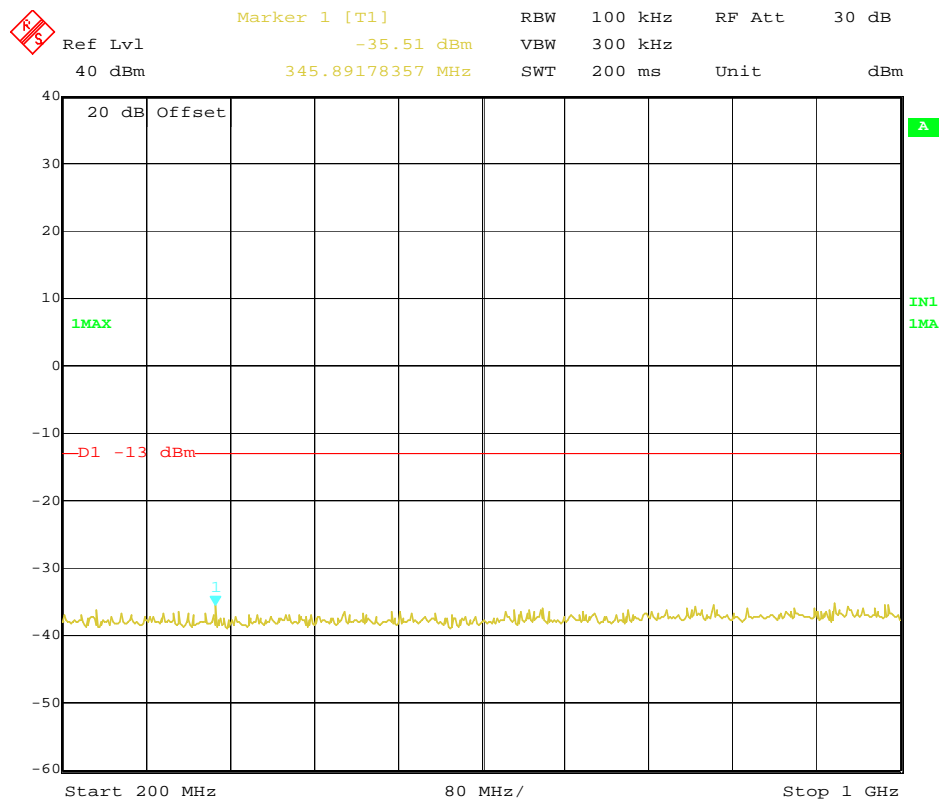




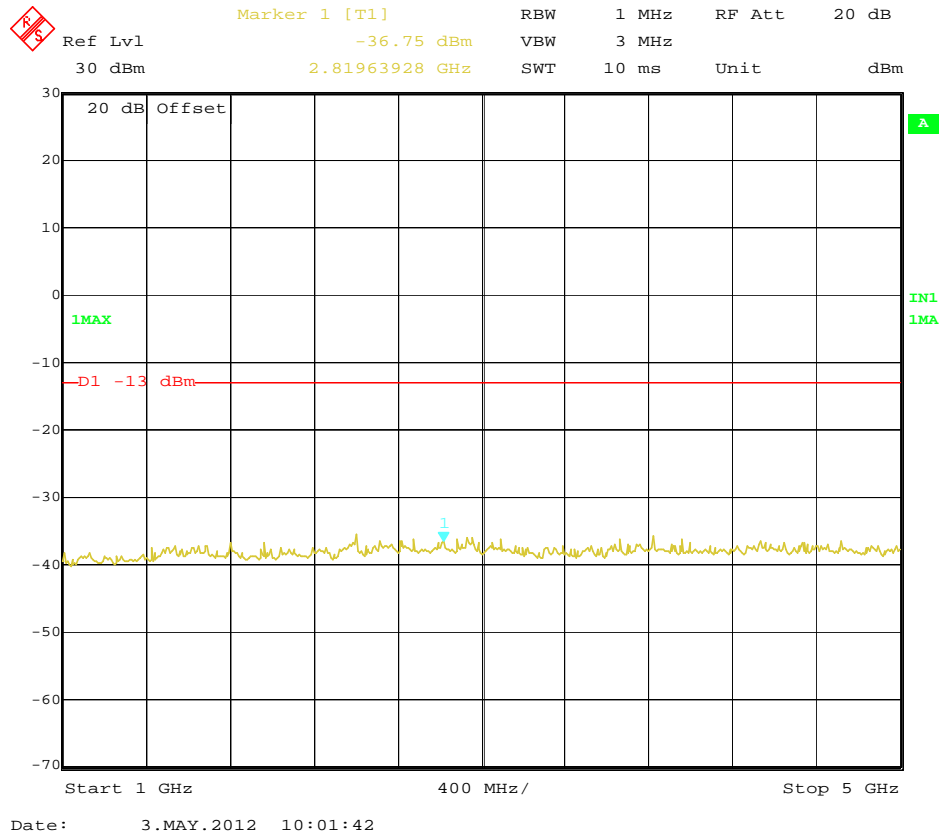
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	High	173.5000	345.89	-35.51	2819.63	-36.75	-13dBm
Test Results				Compliance				



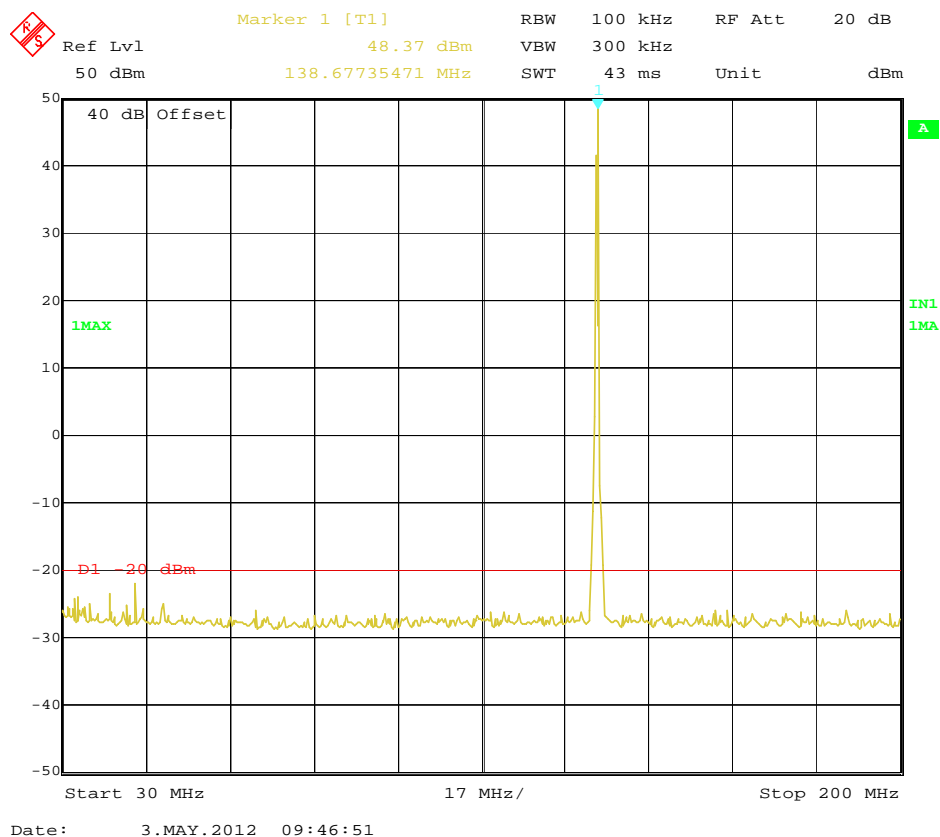
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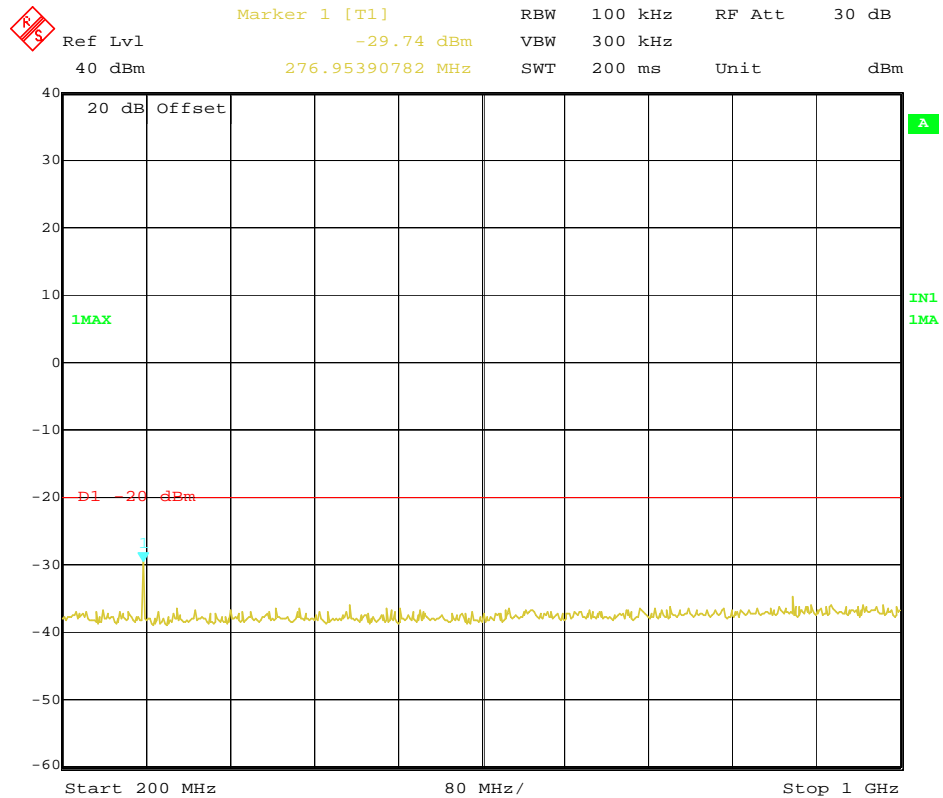


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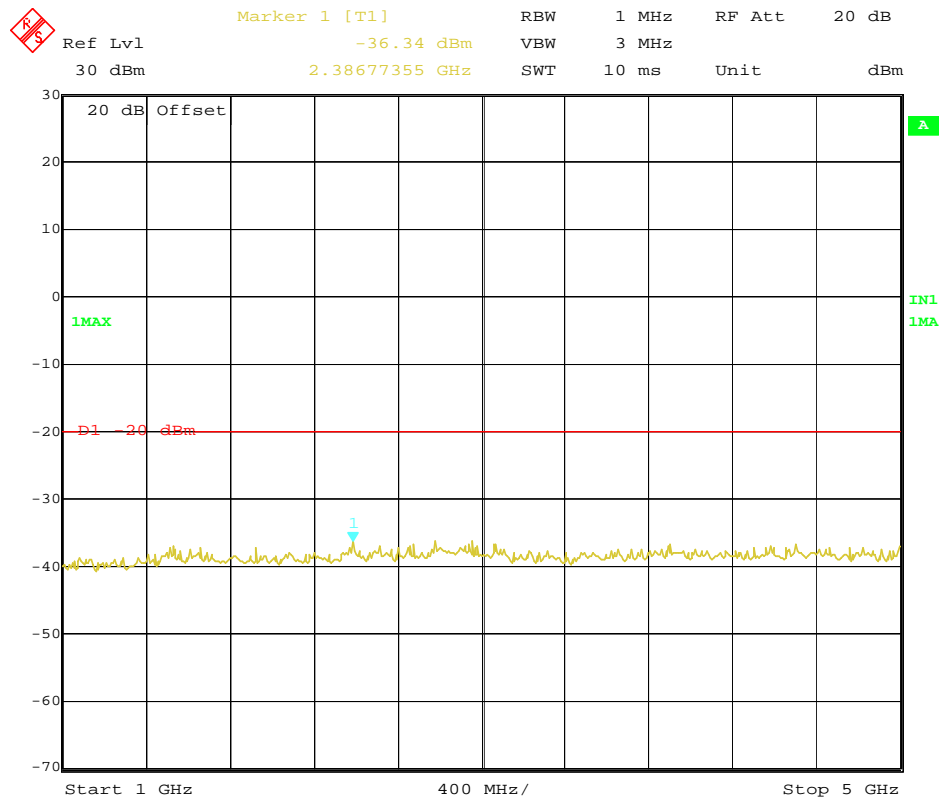
**For both FCC and IC Review**

Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Low	138.5000	276.95	-29.74	2386.77	-36.34	-20dBm
Test Results				Compliance				



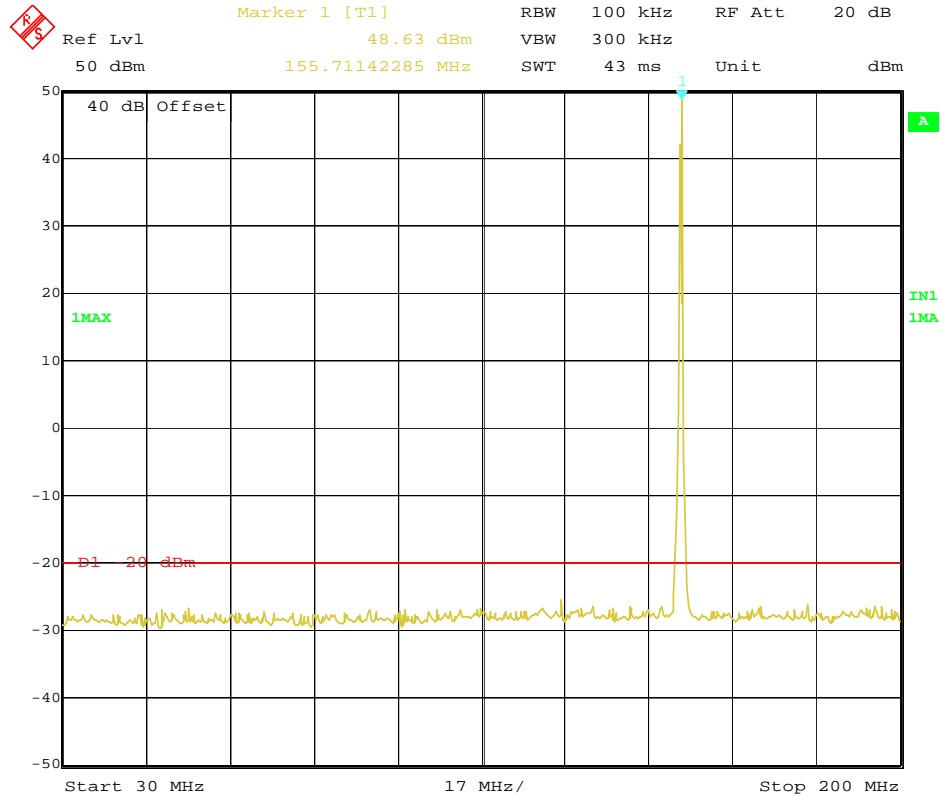


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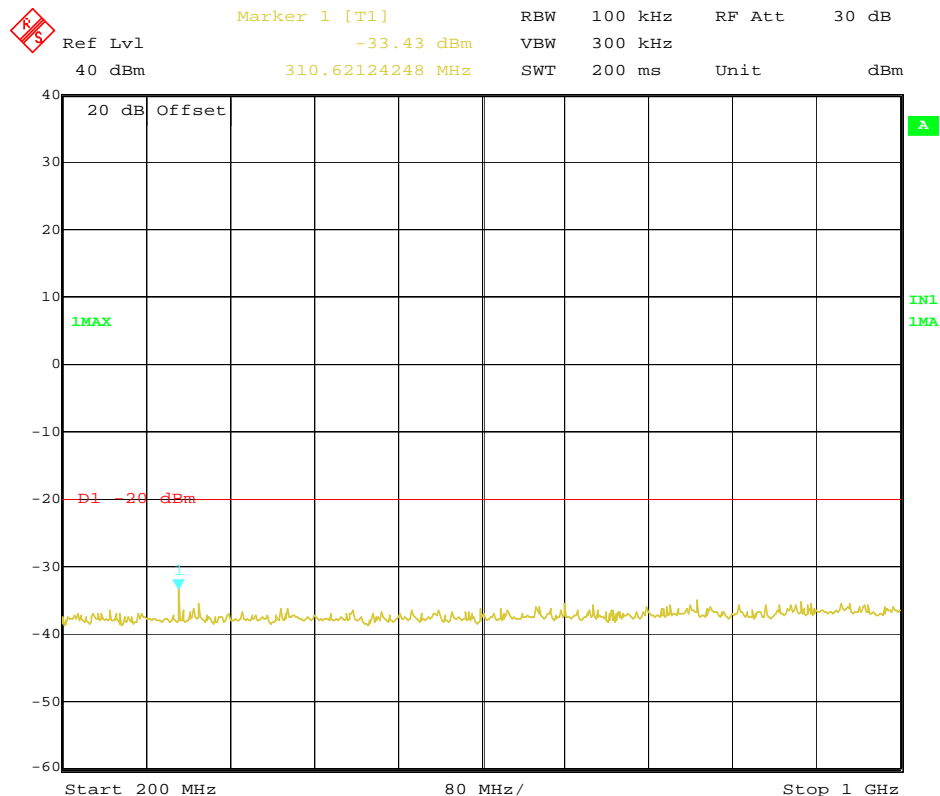


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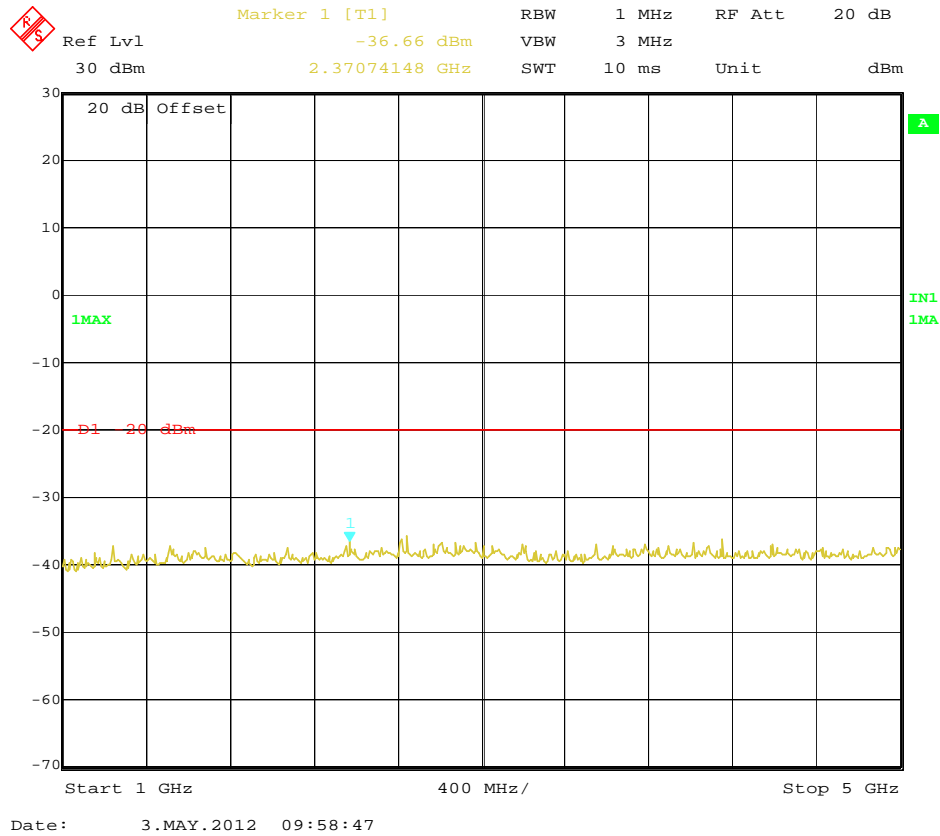
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Middle	155.5000	310.62	-33.43	2370.74	-36.66	-20dBm
Test Results				Compliance				



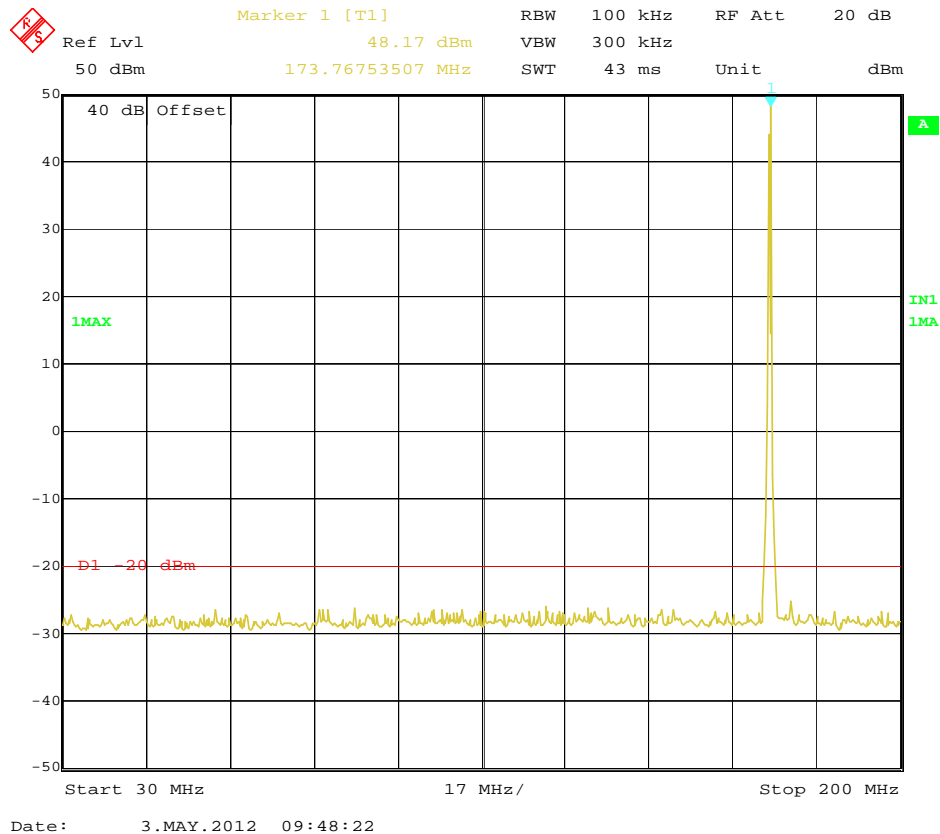
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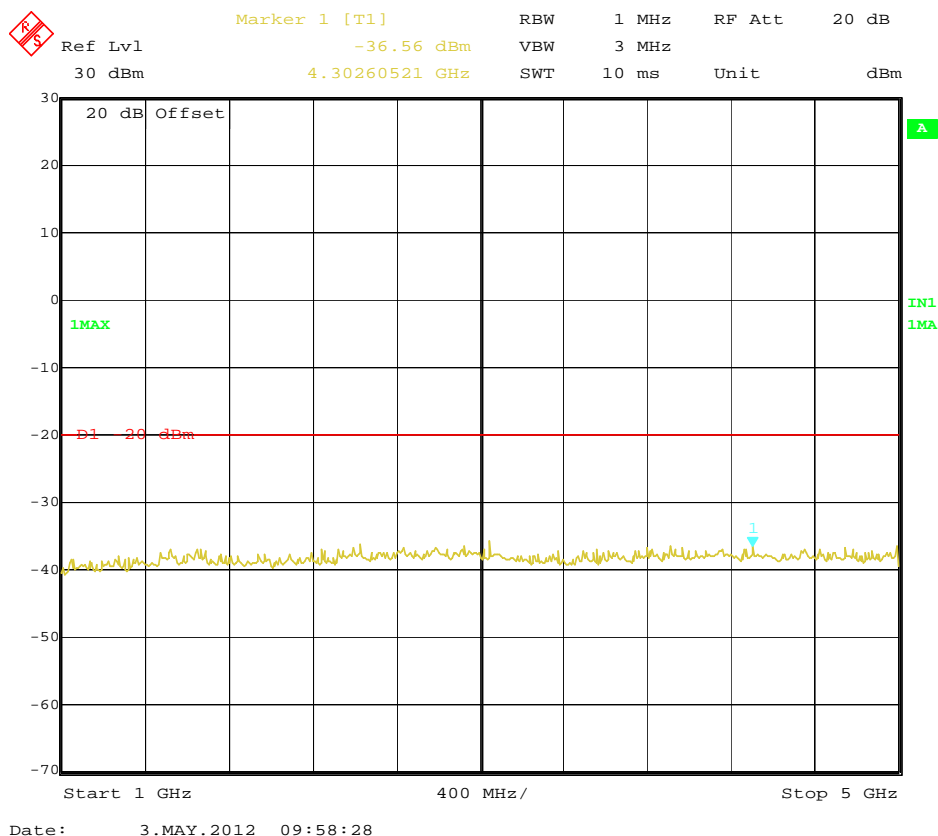
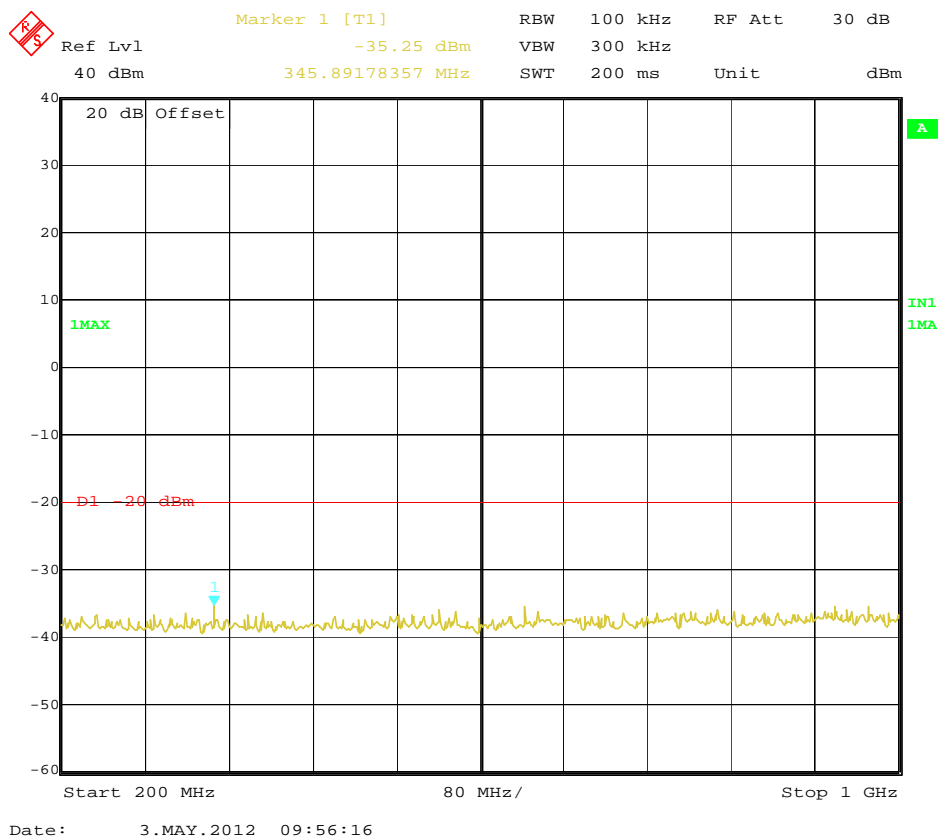


Date: 3.MAY.2012 09:55:15



Modulation Type	Channel SpARATION	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	High	173.5000	345.89	-35.25	4302.60	-36.56	-20dBm
Test Results				Compliance				

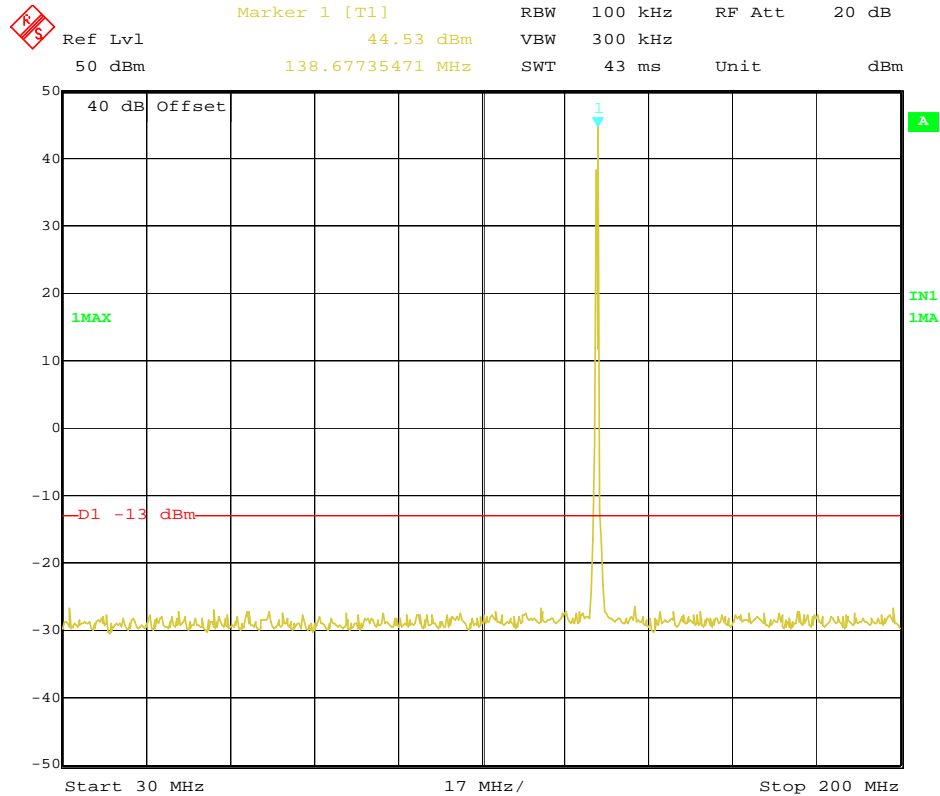




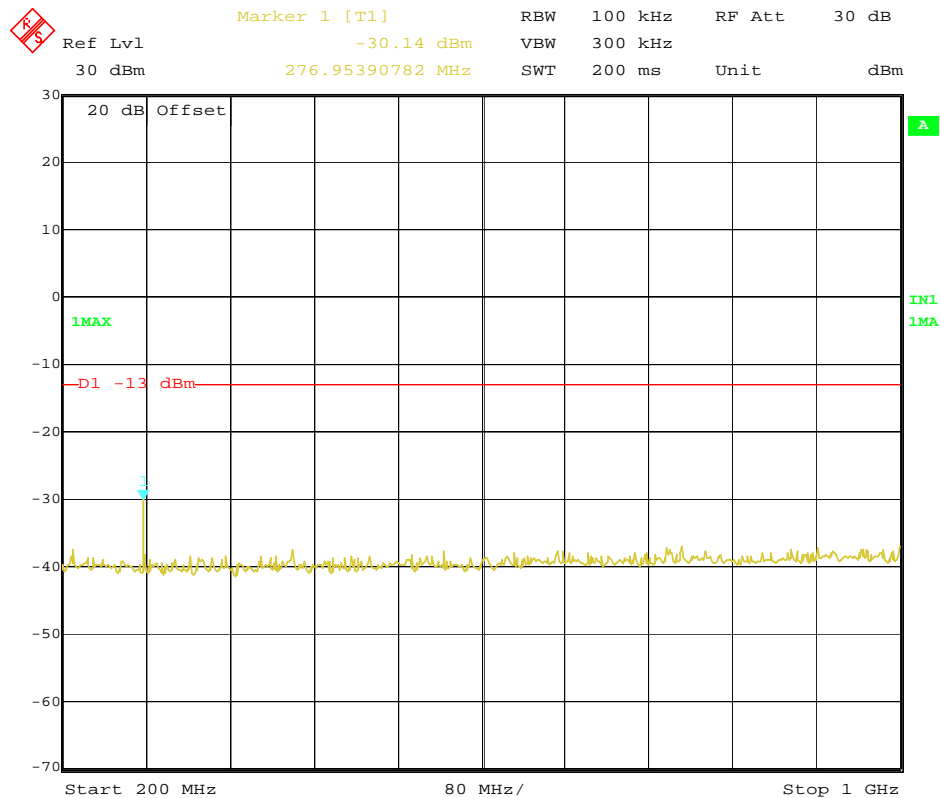
For Rated Middle Power (25Watt)

Only for IC Review (Not For FCC Review)

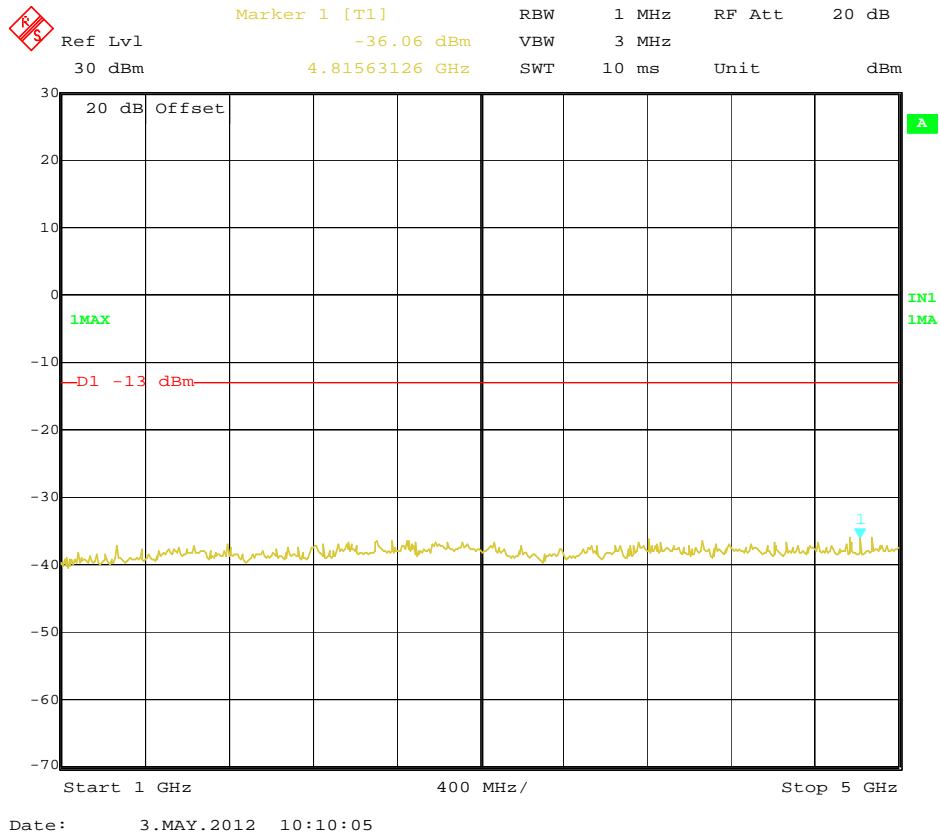
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Low	138.5000	276.95	-30.14	4815.63	-36.06	-13dBm
Test Results				Compliance				



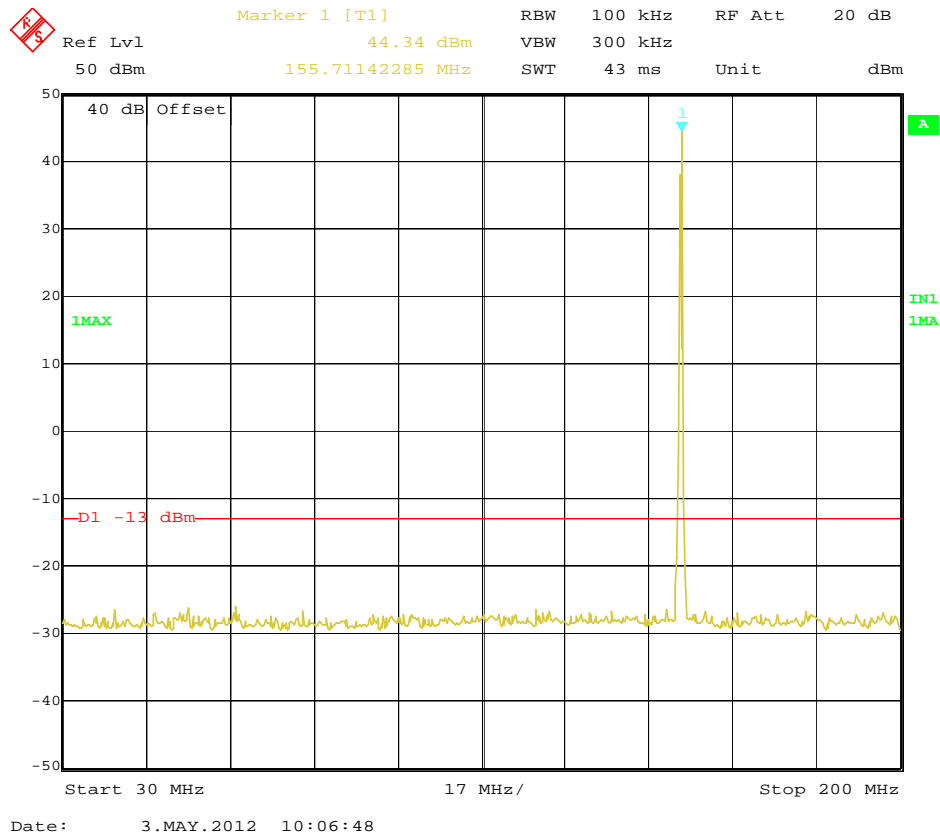
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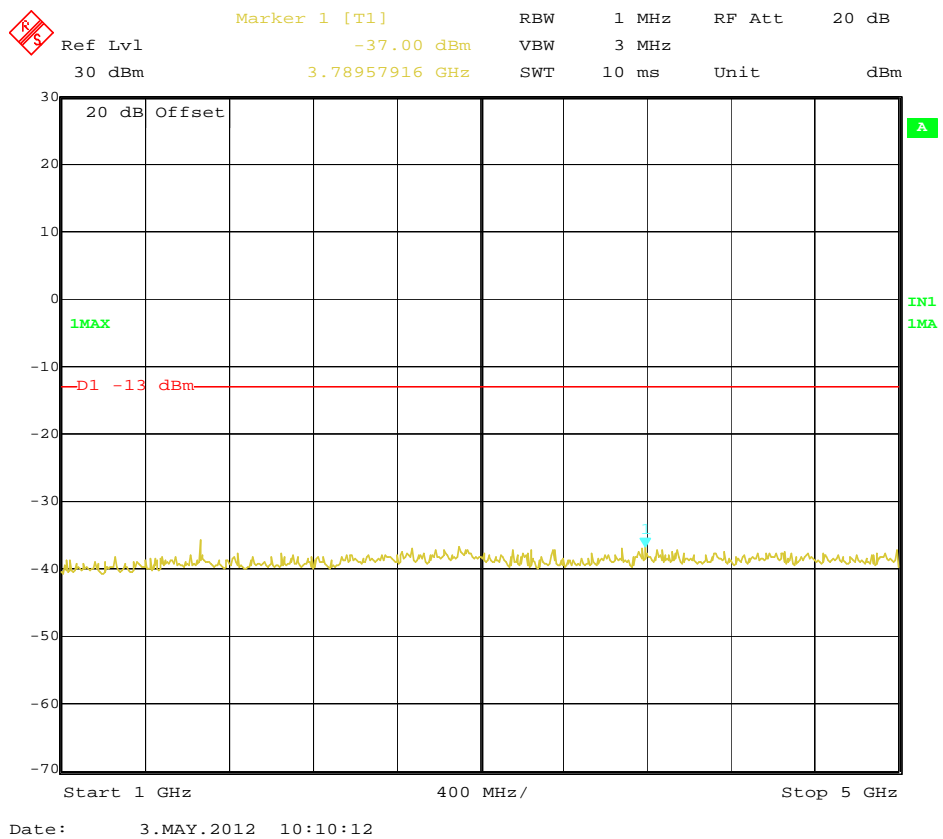
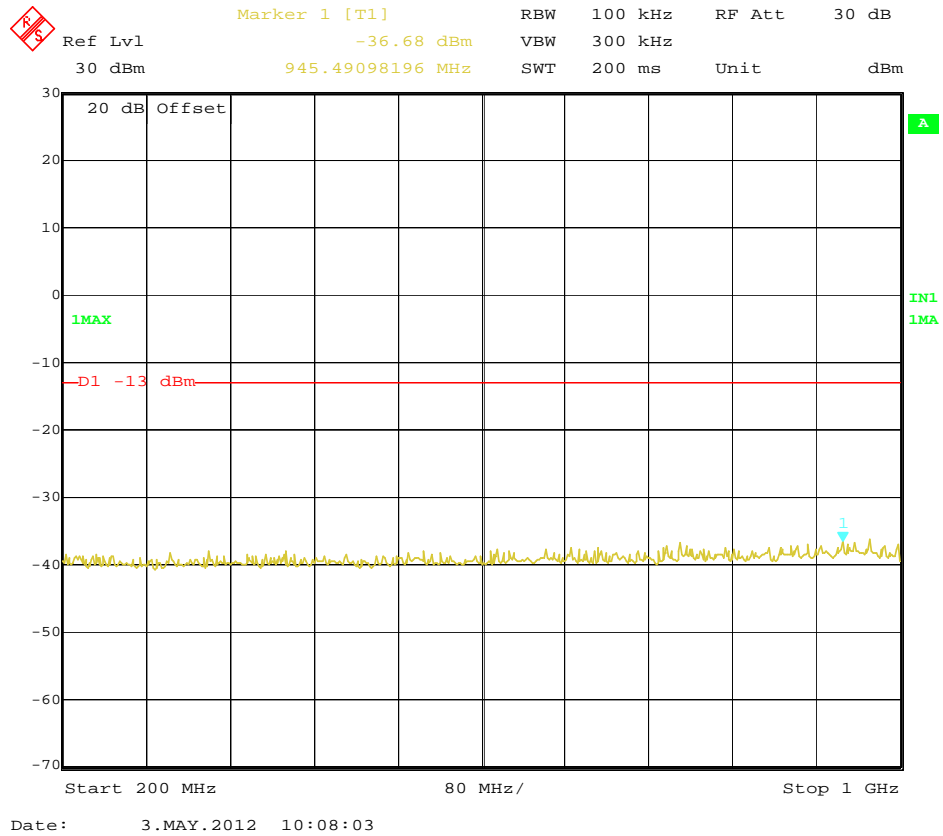


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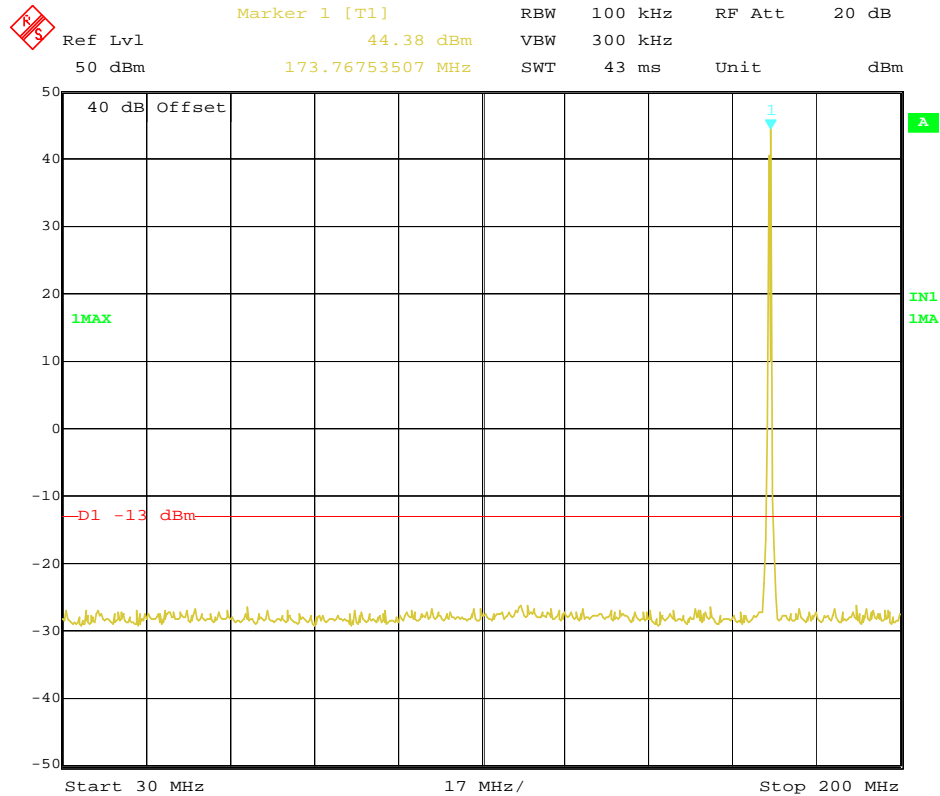


Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Middle	155.5000	945.49	-36.68	3789.57	-37.00	-13dBm
Test Results				Compliance				

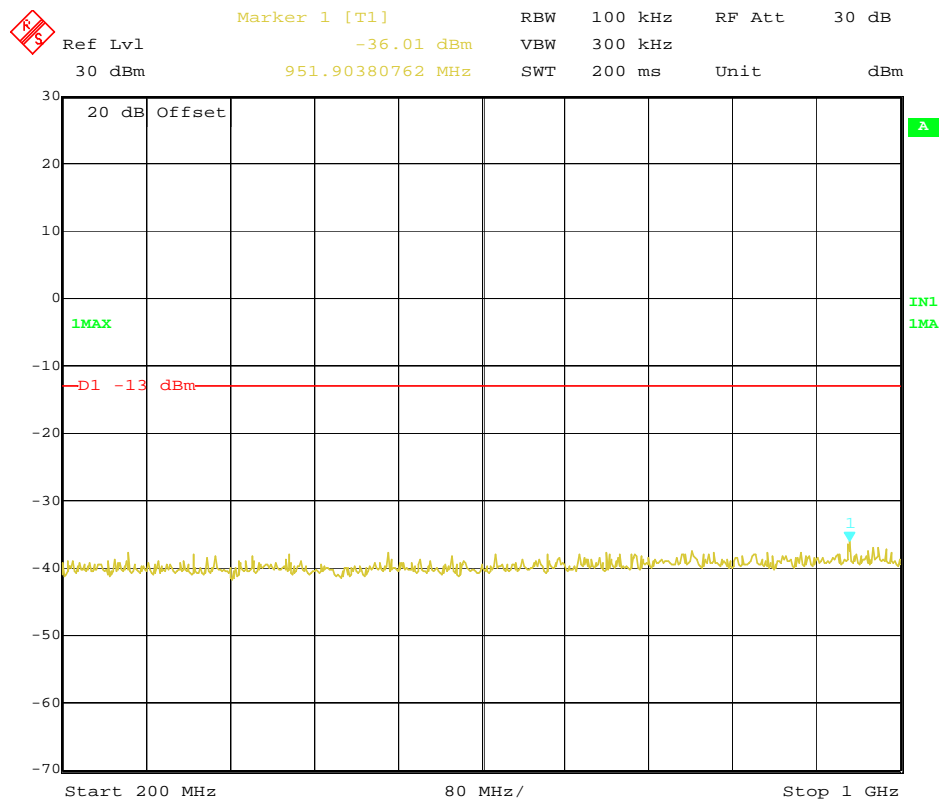




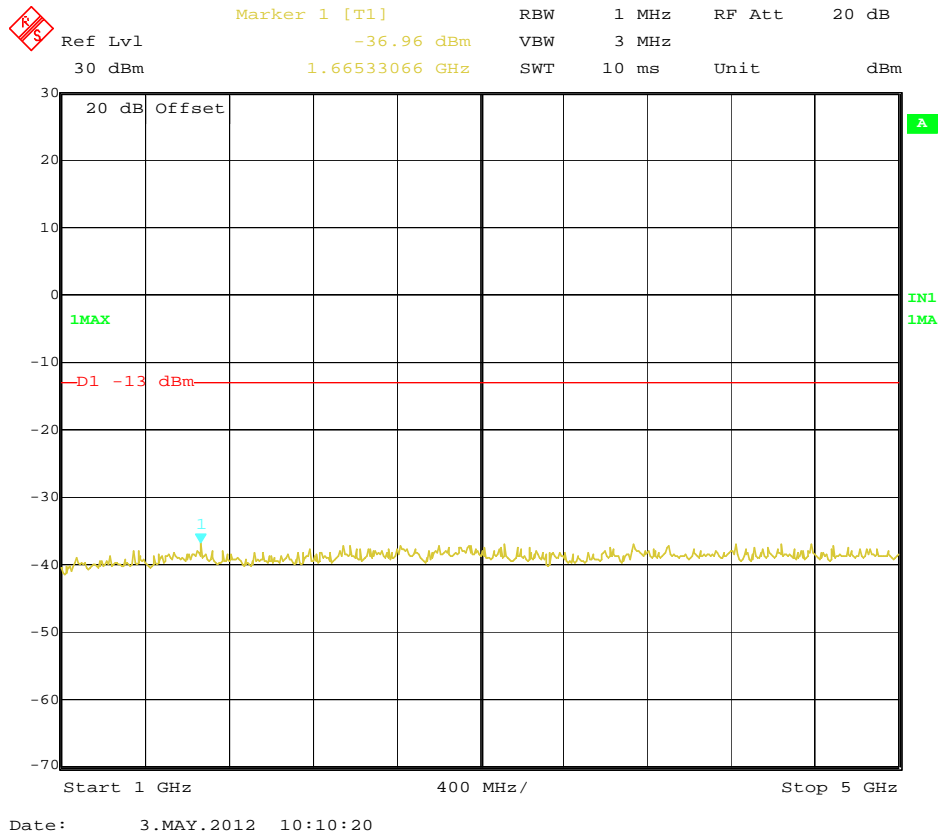
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	High	173.5000	951.90	-36.01	1665.33	-36.96	-13dBm
Test Results				Compliance				



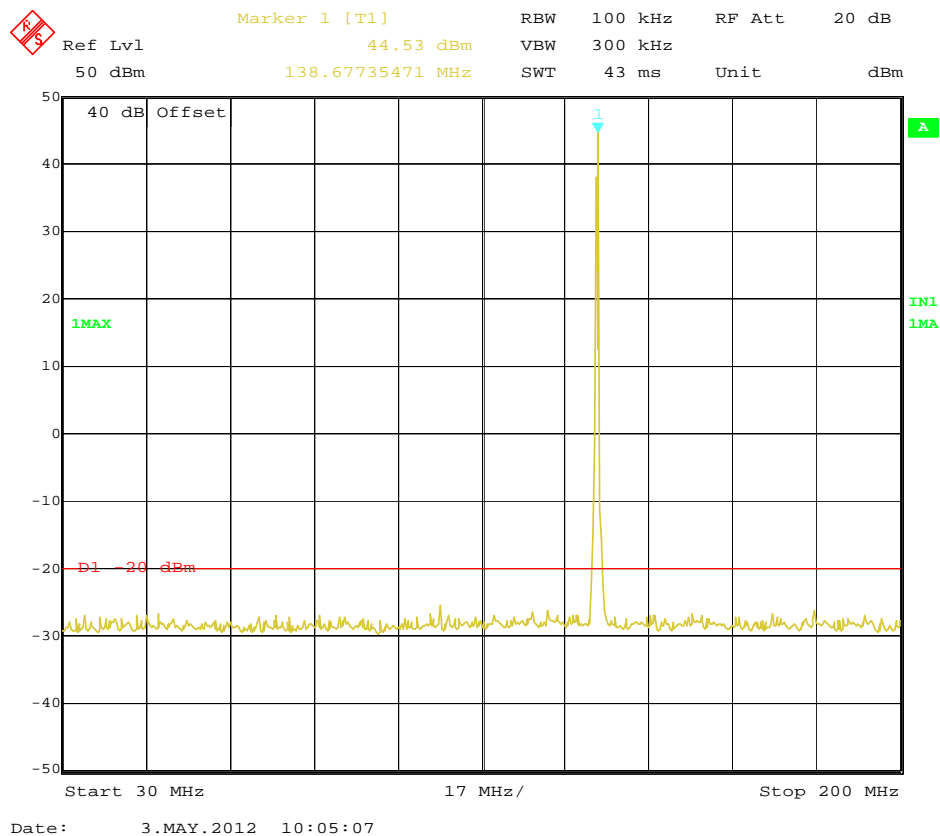
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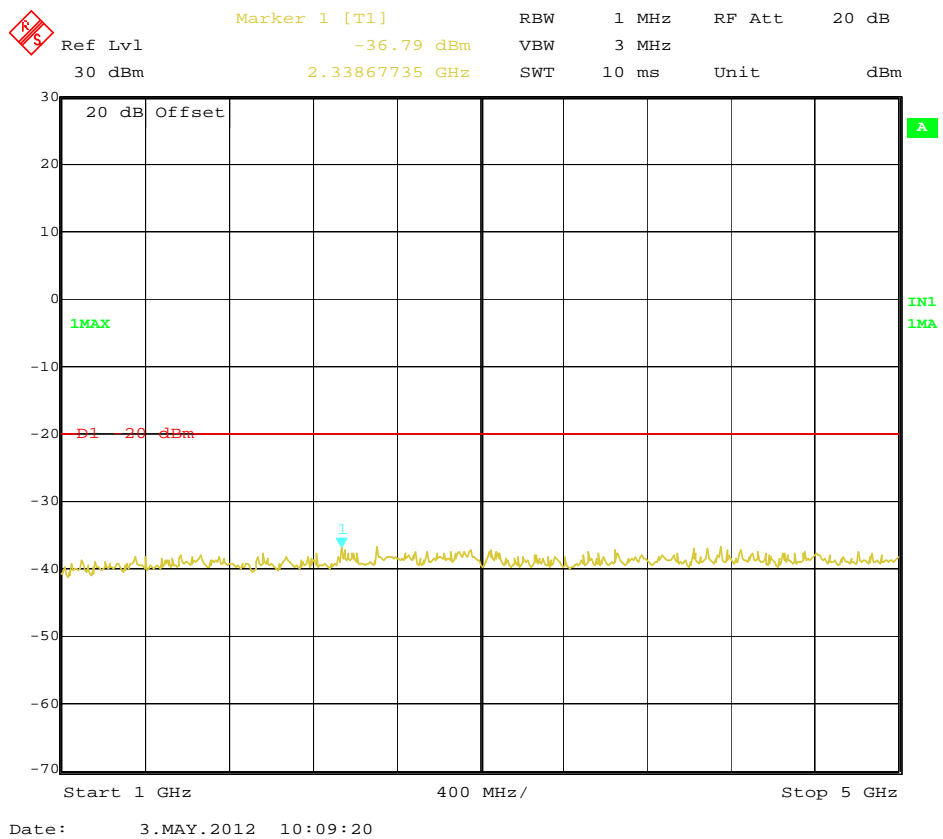
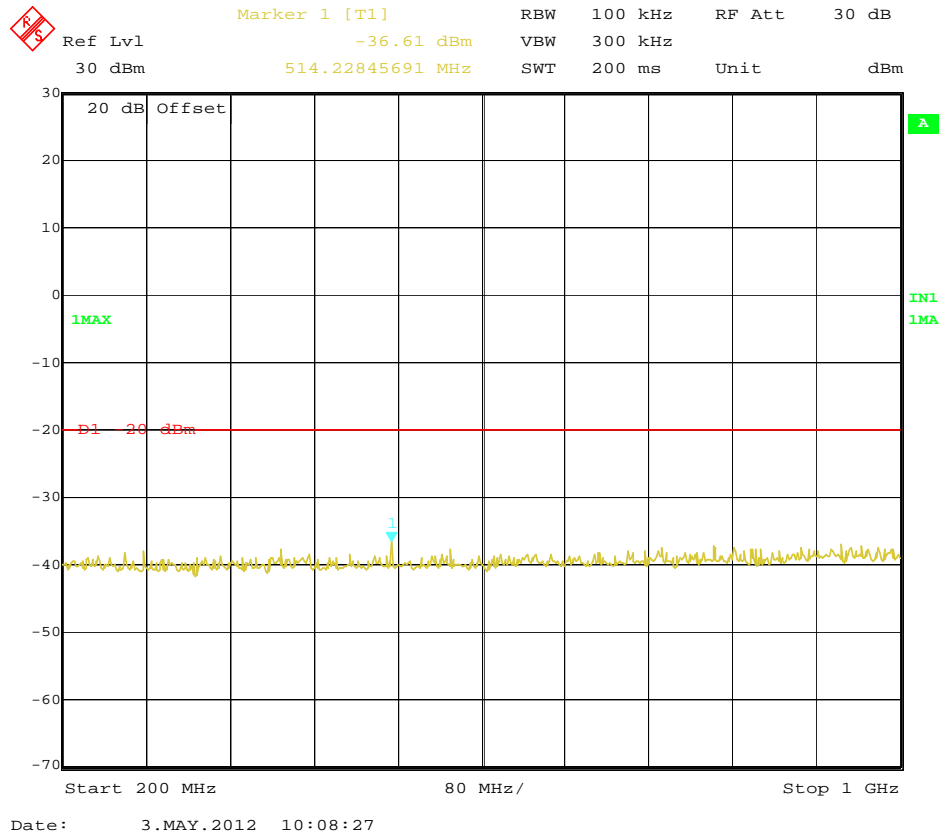


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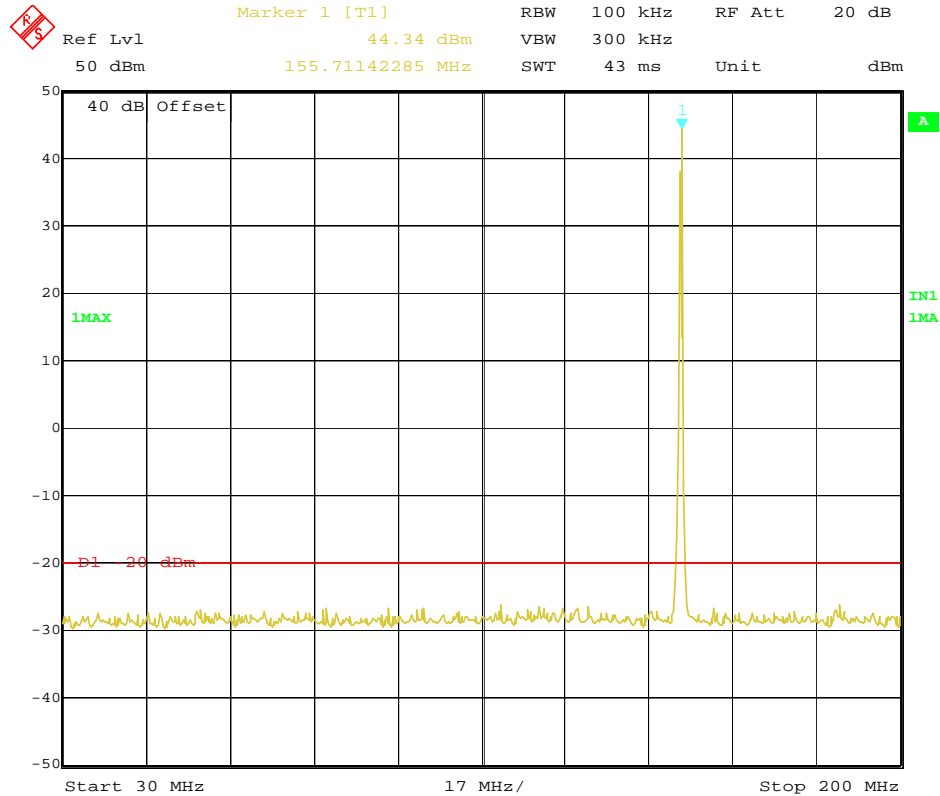
**For both FCC and IC Review**

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Low	138.5000	514.22	-36.61	2338.67	-36.79	-20dBm
Test Results				Compliance				

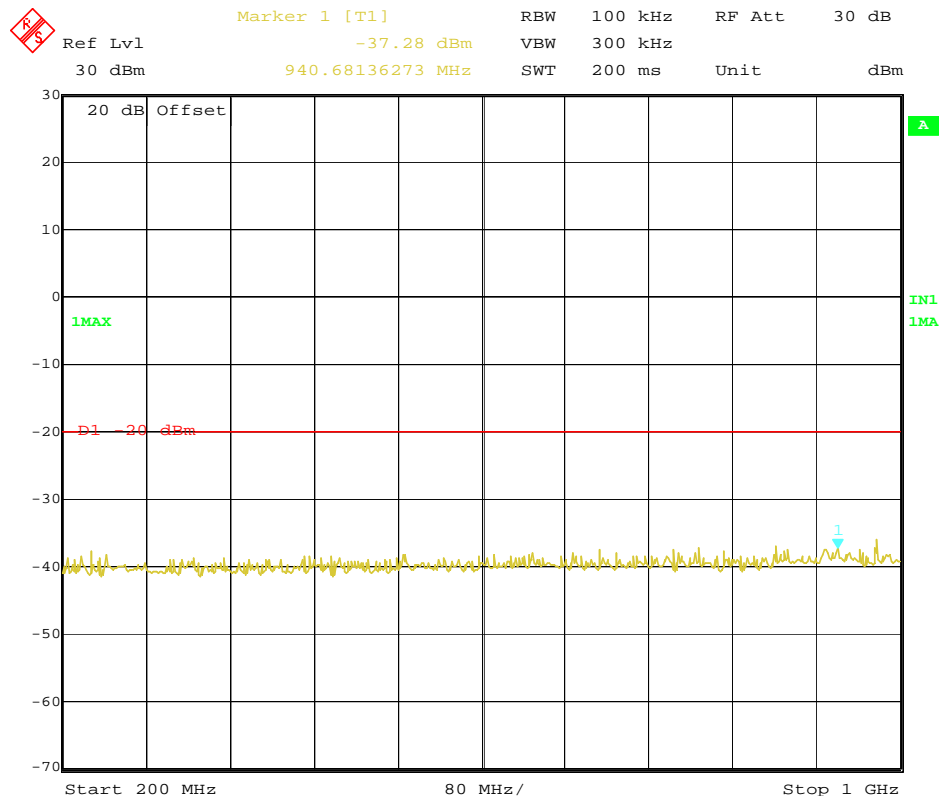




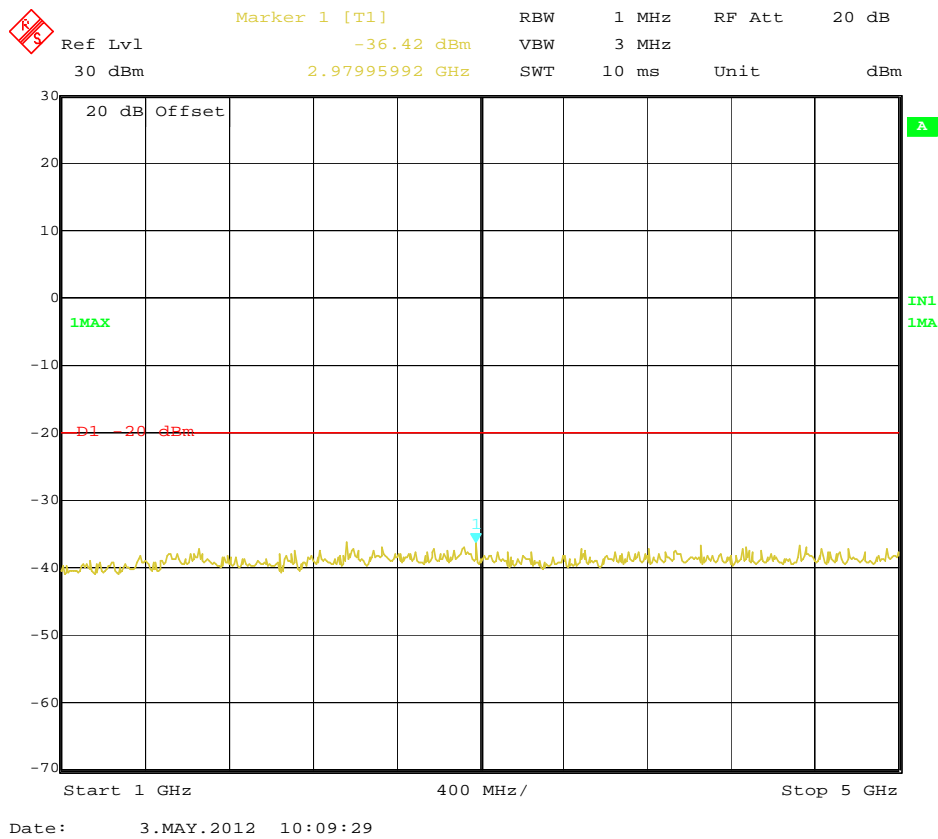
Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Middle	155.5000	940.68	-37.28	2979.95	-36.42	-20dBm
Test Results				Compliance				



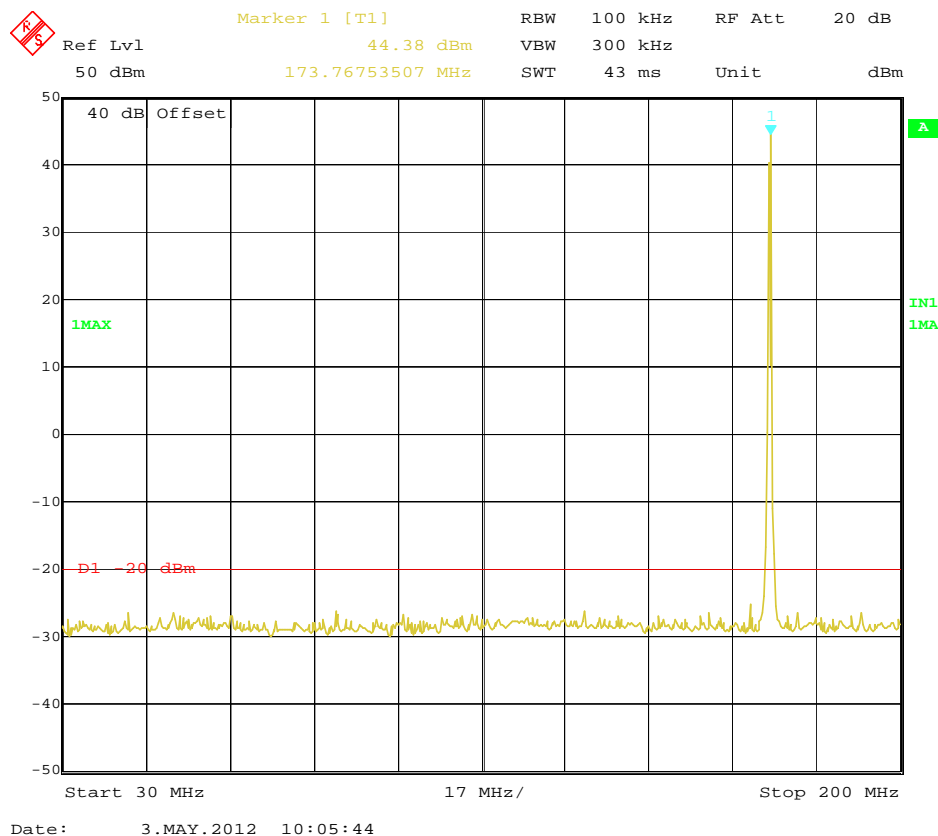
Date: 3.MAY.2012 10:05:27

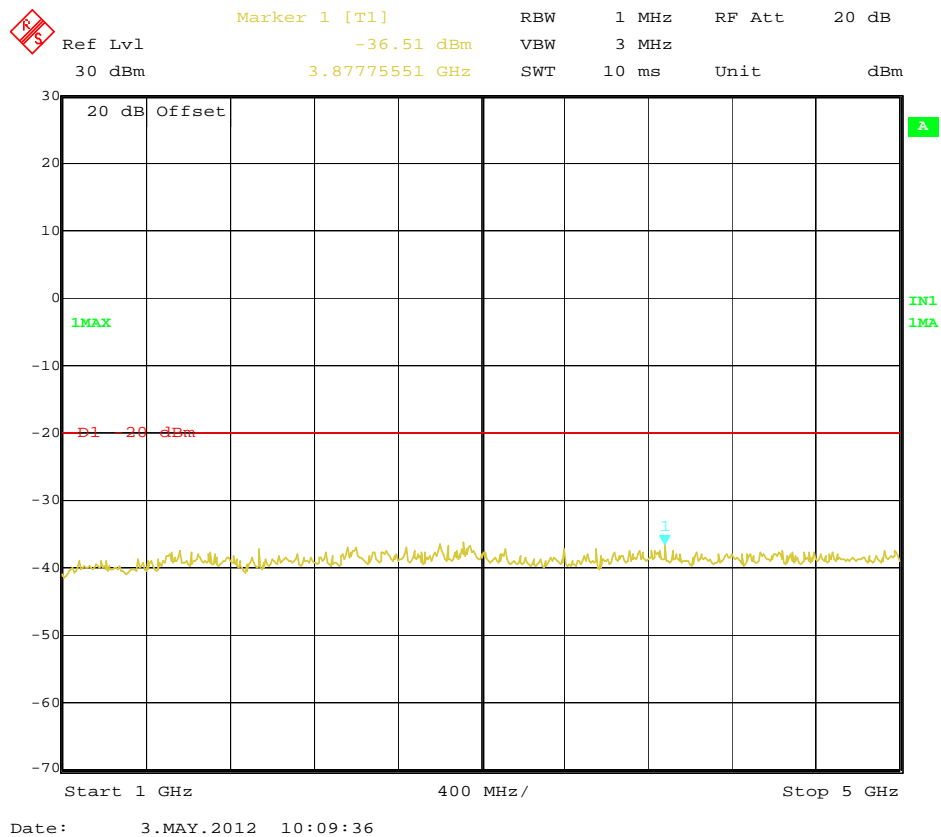
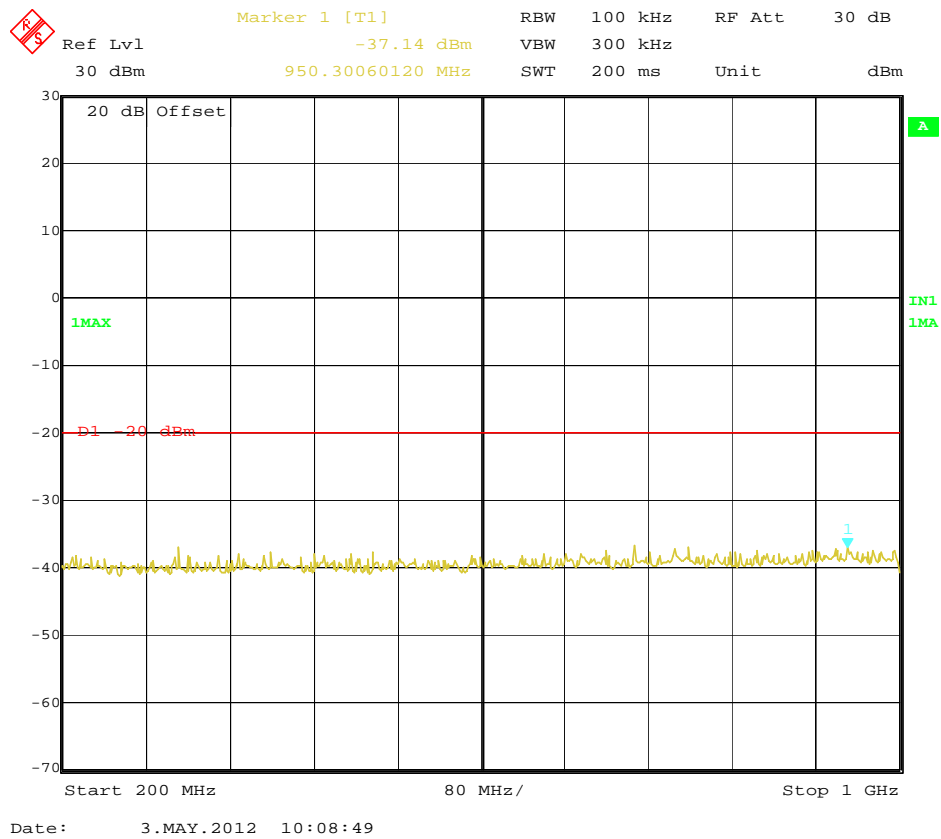


Date: 3.MAY.2012 10:08:41



Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	High	173.5000	950.30	-37.14	3877.75	-36.51	-20dBm
Test Results				Compliance				

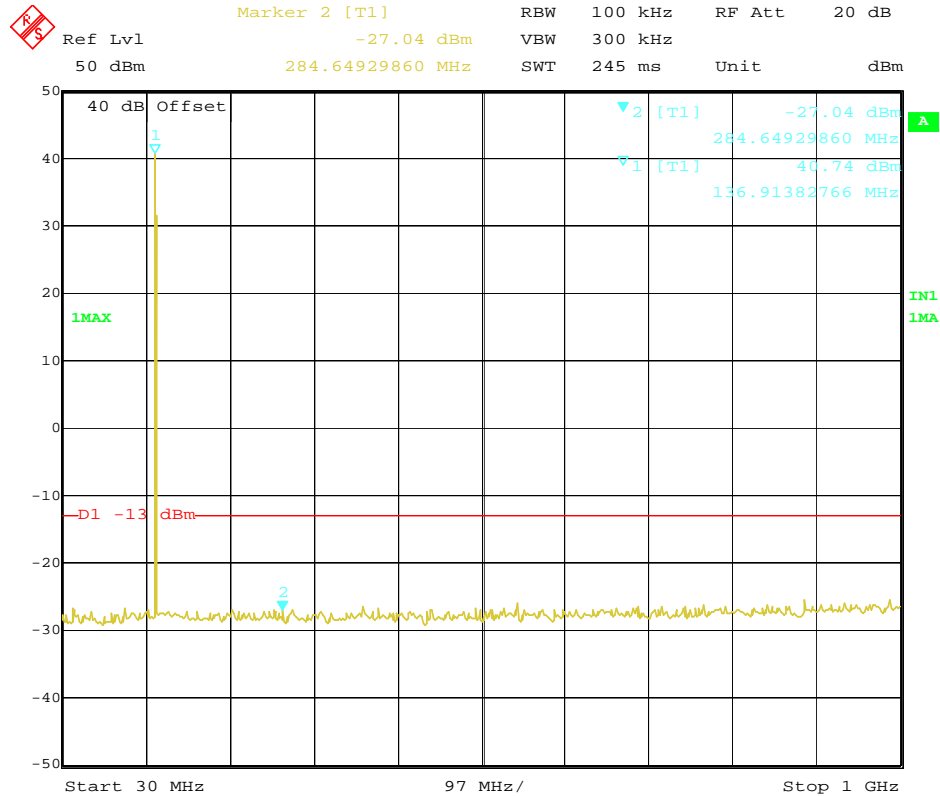




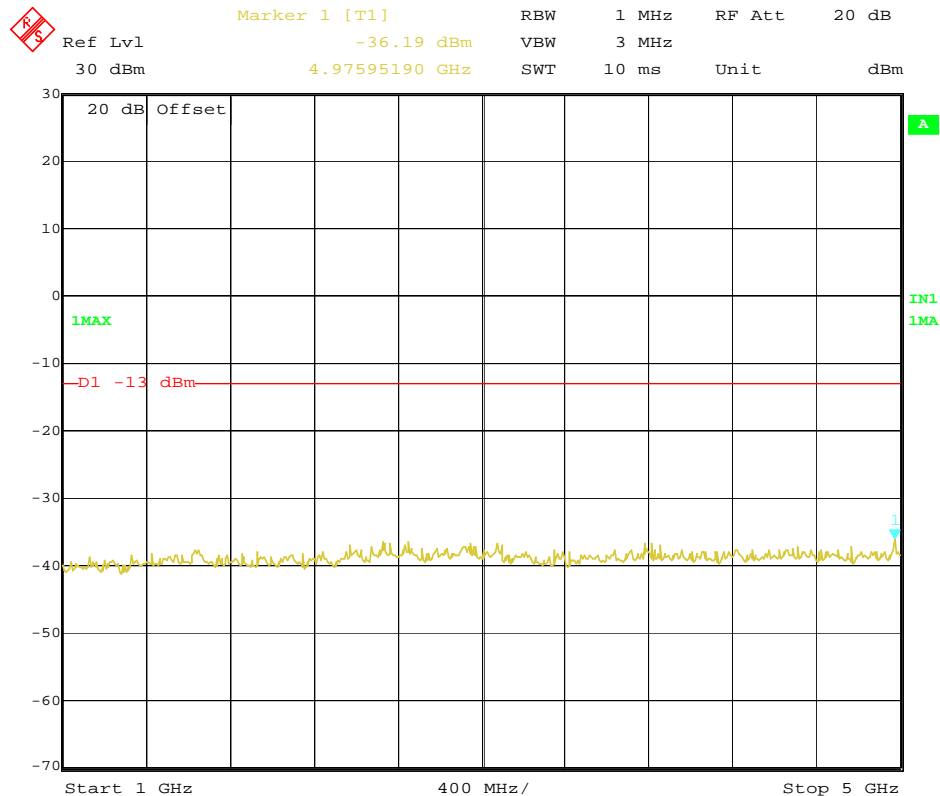
For Rated Low Power (10Watt)

Only for IC Review (Not For FCC Review)

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Low	138.5000	284.64	-27.04	4975.95	-36.19	-13dBm
Test Results				Compliance				

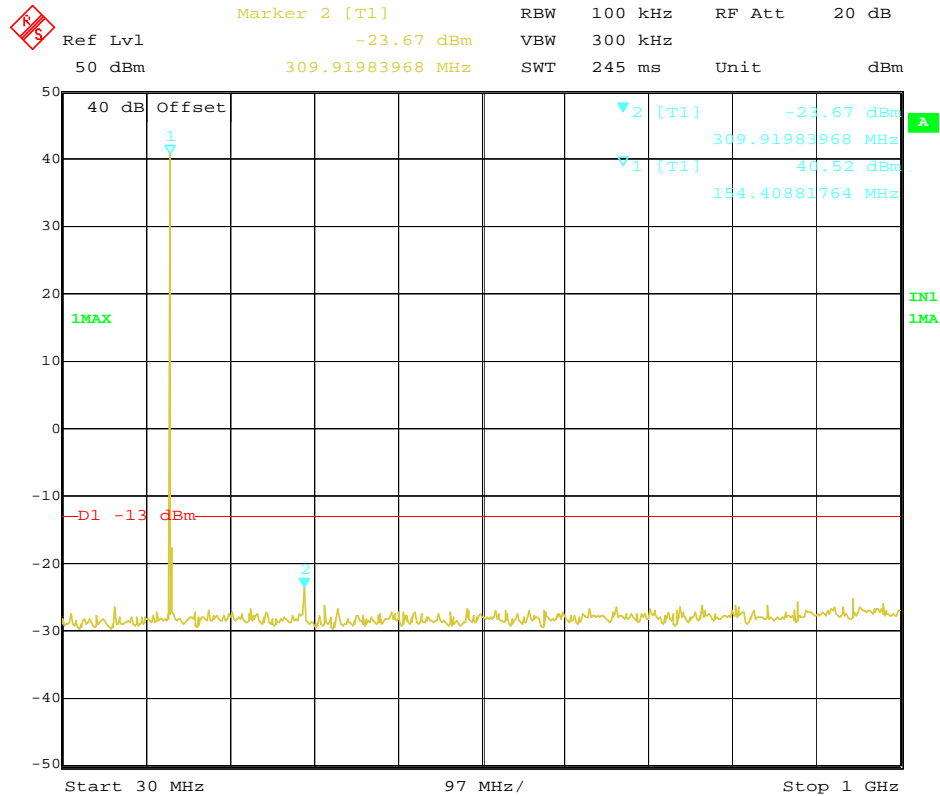


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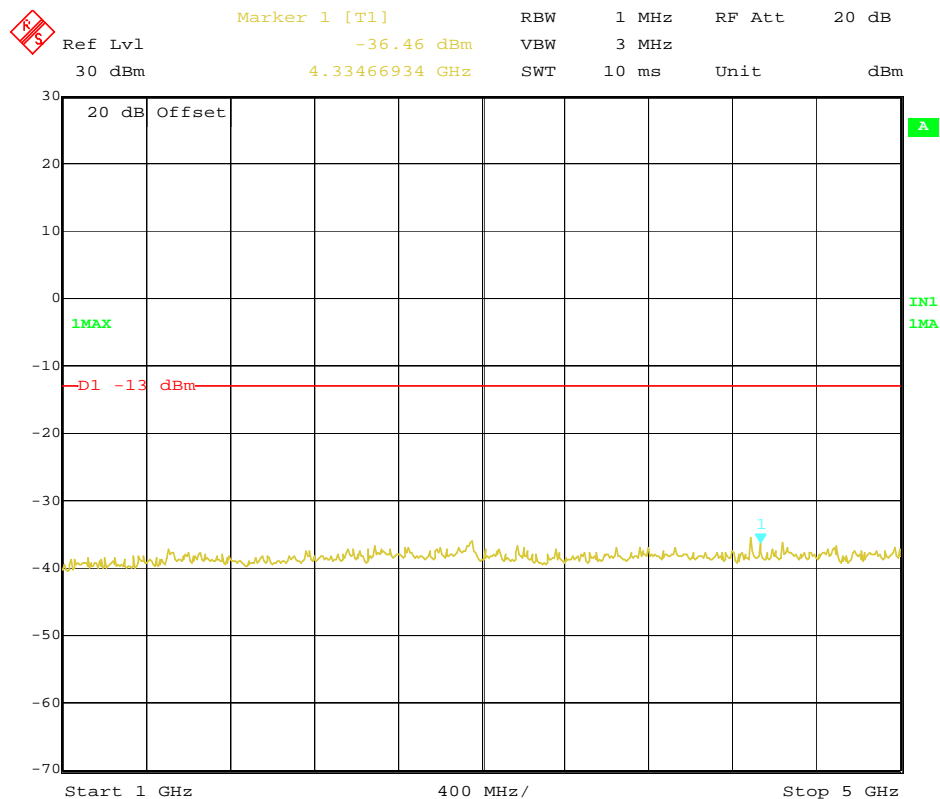


Date: 3.MAY.2012 10:11:05

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Middle	155.5000	309.91	-23.67	4334.66	-36.46	-13dBm
Test Results				Compliance				

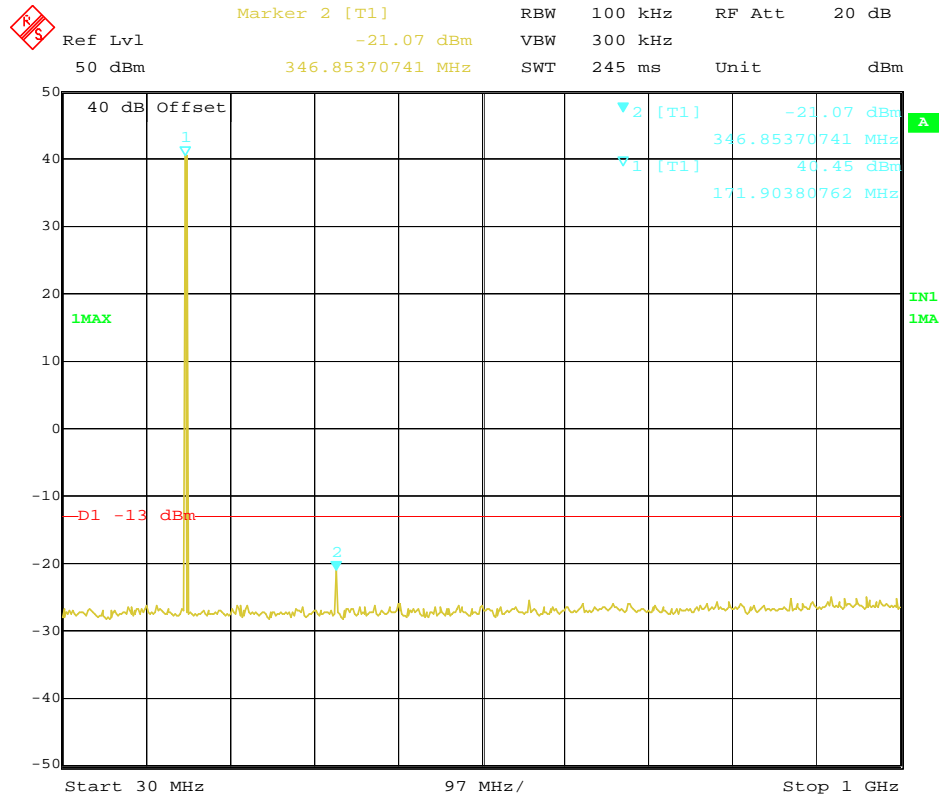


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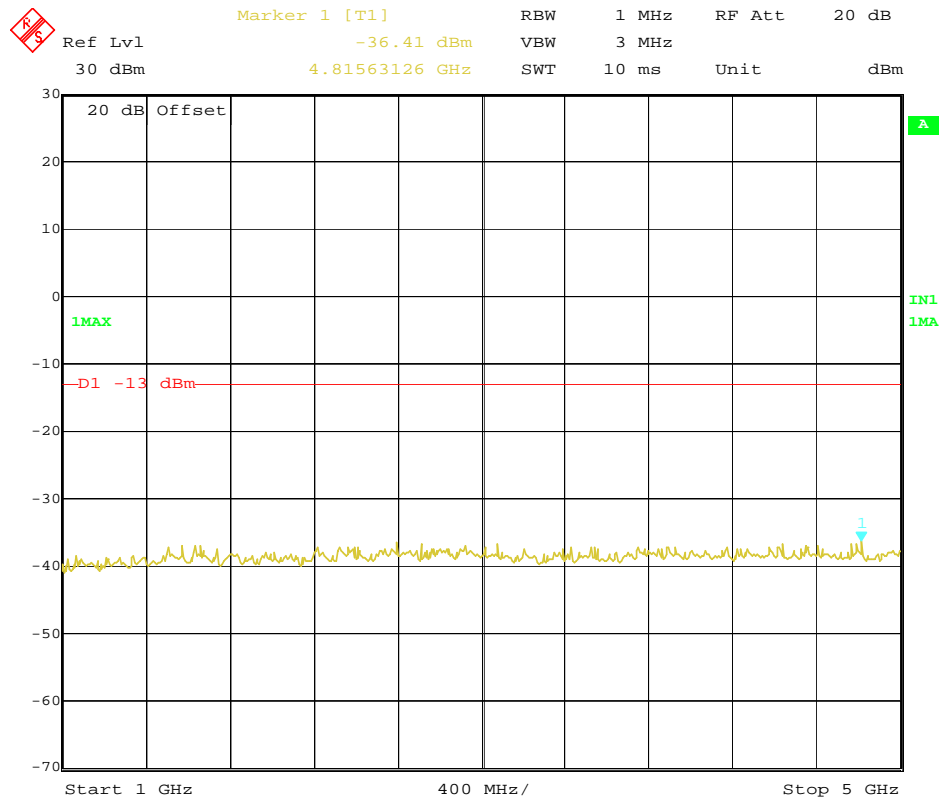


Date: 3.MAY.2012 10:11:19

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	High	173.5000	346.85	-21.07	4815.63	-36.41	-13dBm
Test Results				Compliance				



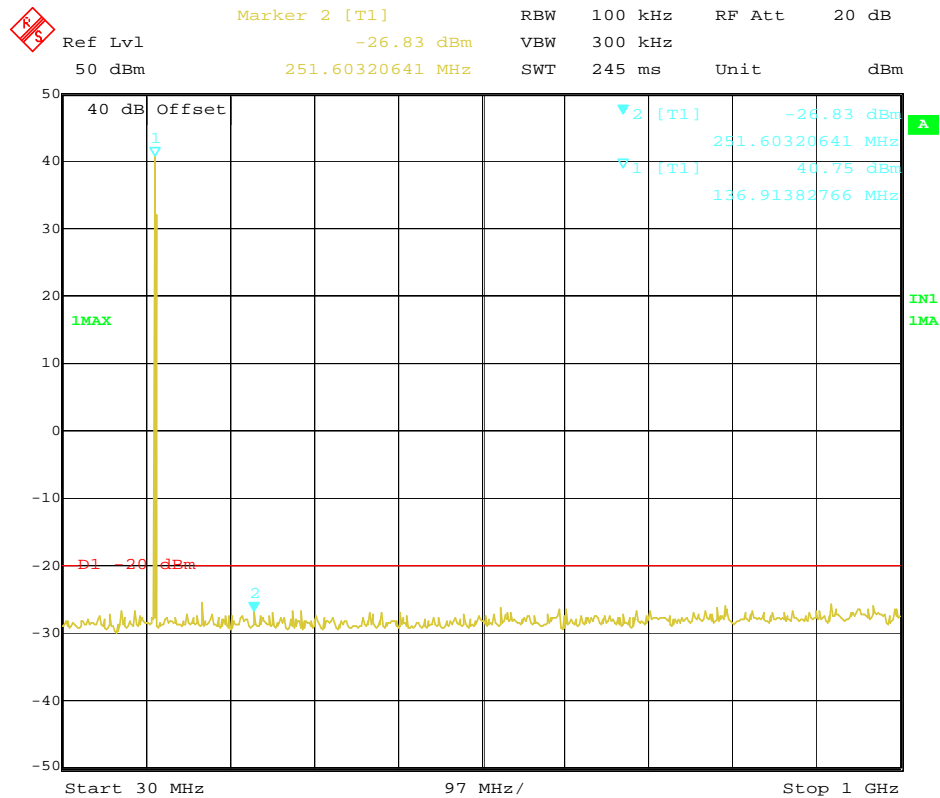
Date: 3.MAY.2012 10:19:05



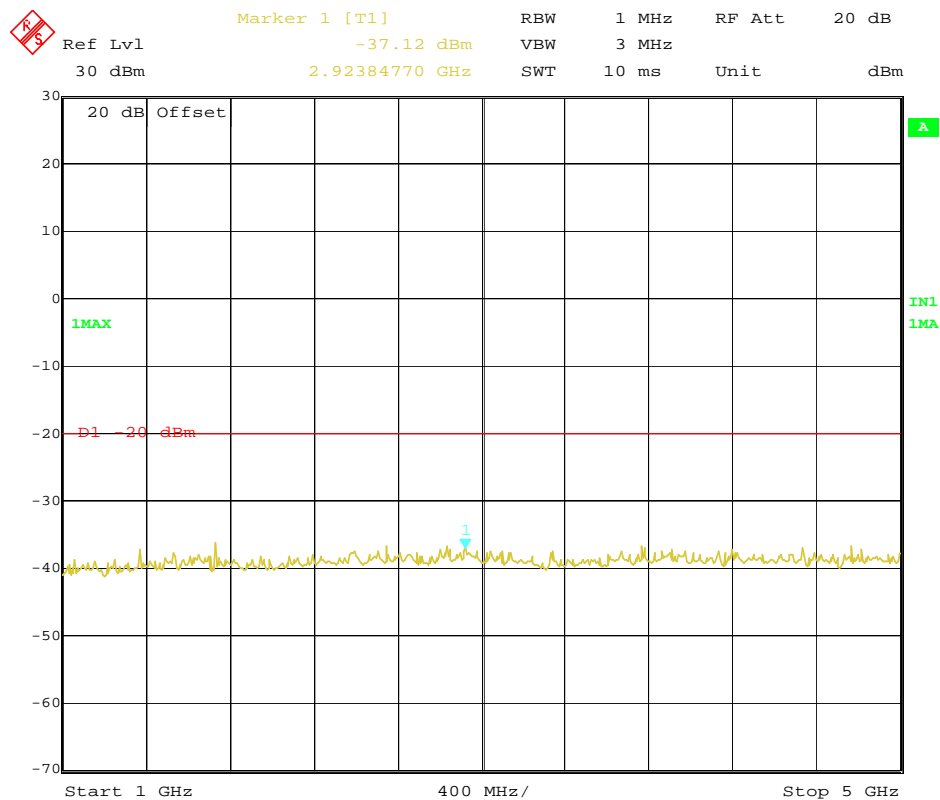
Date: 3.MAY.2012 10:11:32

For both FCC and IC Review

Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Low	138.5000	251.60	-26.83	2923.84	-37.12	-20dBm
Test Results				Compliance				

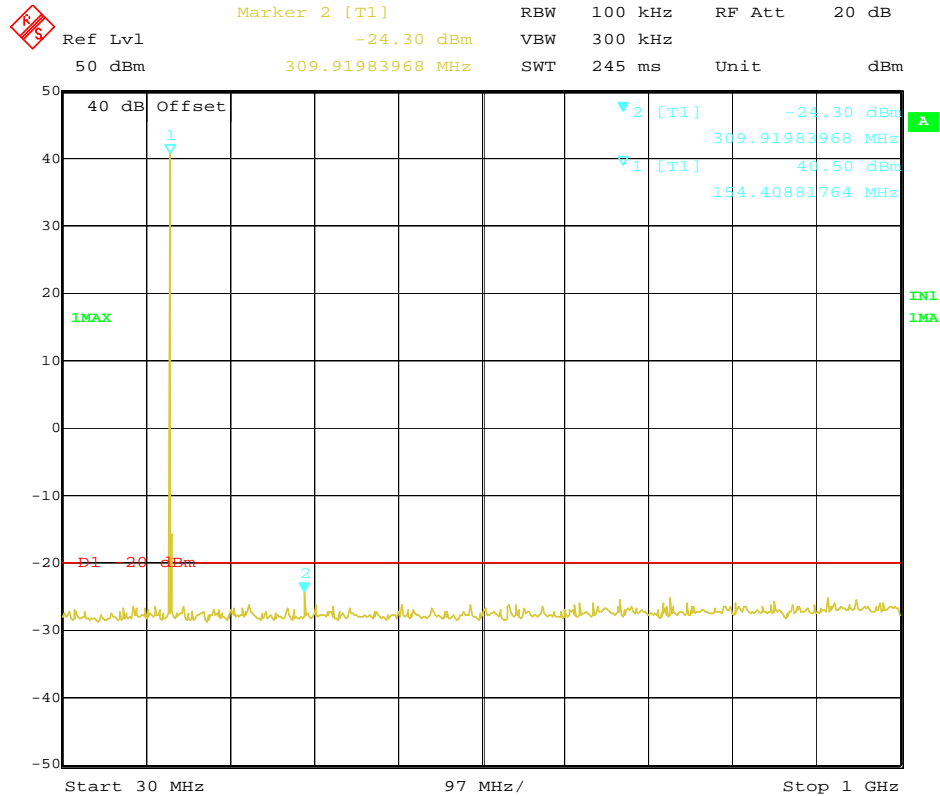


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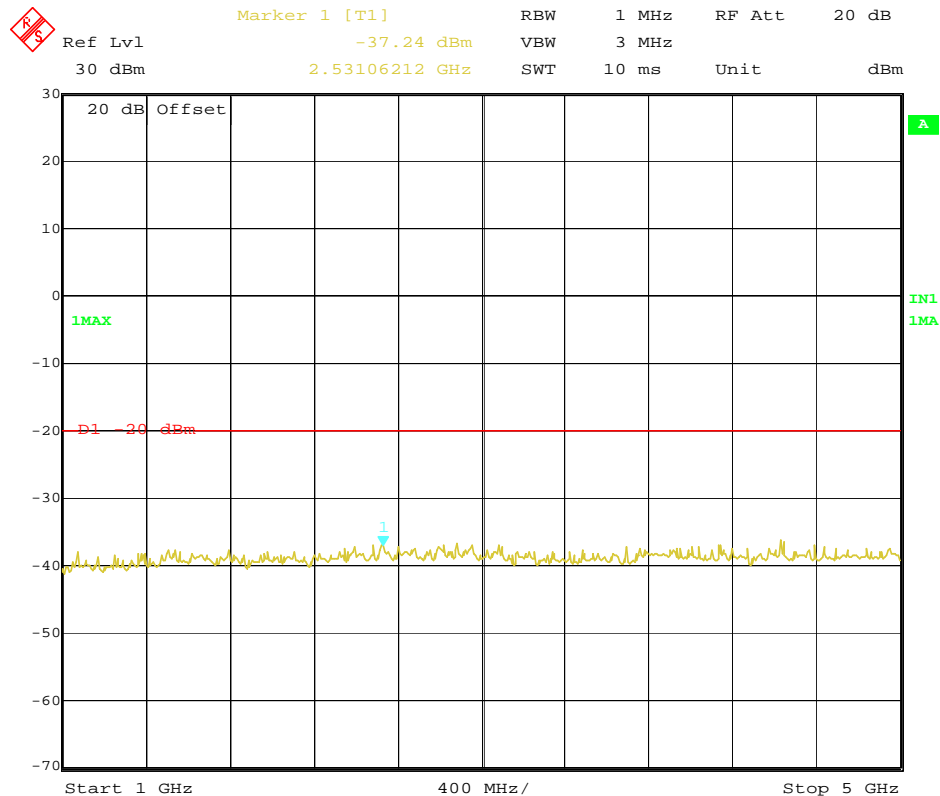


Date: 3.MAY.2012 10:12:35

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Middle	155.5000	309.91	-24.30	2531.06	-37.24	-20dBm
Test Results				Compliance				

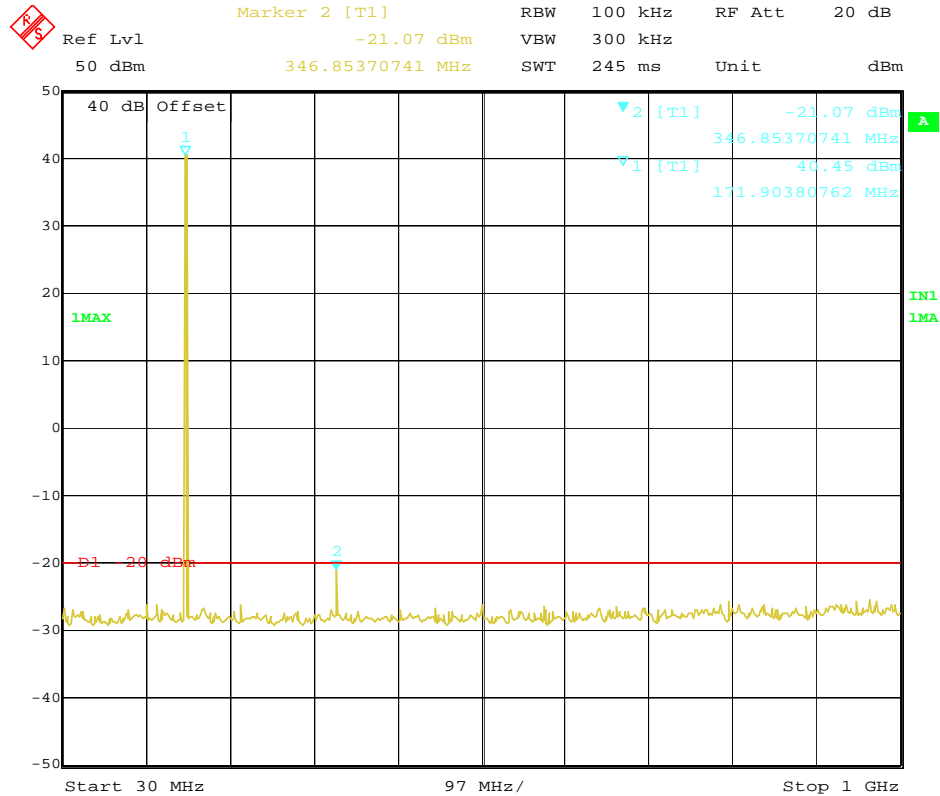


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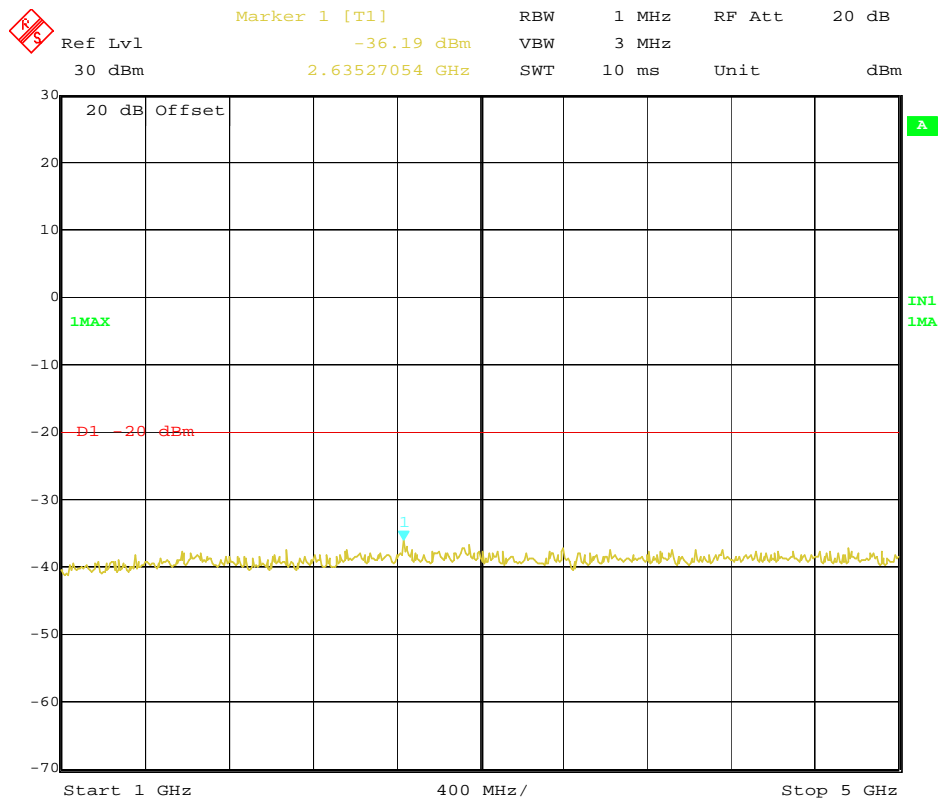


Date: 3.MAY.2012 10:12:41

Modulation Type	Channel SpARATION	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	High	173.5000	346.85	-21.07	2635.27	-36.19	-20dBm
Test Results				Compliance				



Date: 3.MAY.2012 10:18:01



Date: 3.MAY.2012 10:12:46

4.5. Modulation Characteristics

TEST APPLICABLE

According to CFR 47 section 2.1047(a), for Voice Modulation Communication Equipment, the frequency response of the audio modulation circuit over a range of 100 to 5000 Hz shall be measured.

TEST PROCEDURE

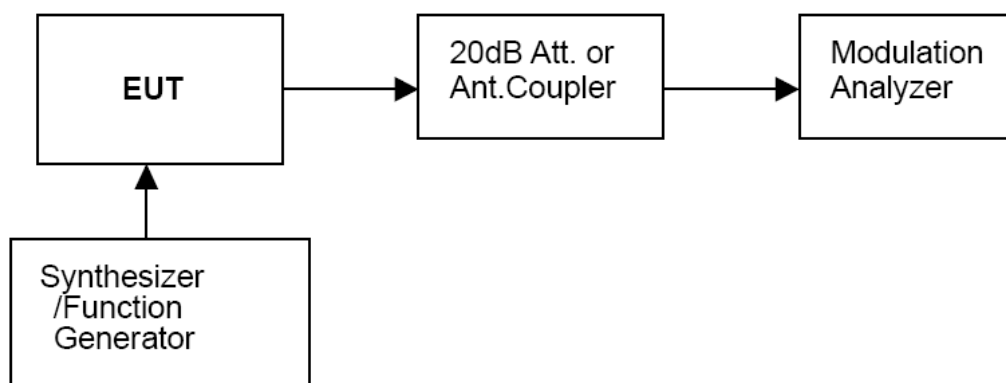
Modulation Limit

- 1 Configure the EUT as shown in figure 1, adjust the audio input for 60% of rated system deviation at 1 KHz using this level as a reference (0dB) and vary the input level from -20 to +20 dB. Record the frequency deviation obtained as a function of the input level.
- 2 Repeat step 1 with input frequency changing to 300, 1004, and 2500 Hz in sequence.

Audio Frequency Response

- 1 Configure the EUT as shown in figure 1.
- 2 Adjust the audio input for 20% of rated system deviation at 1 KHz using this level as a reference (0dB).
- 3 Vary the Audio frequency from 100 Hz to 10 KHz and record the frequency deviation.
- 4 Audio Frequency Response = $20 \log_{10} (\text{Deviation of test frequency} / \text{Deviation of 1 KHz reference})$.

TEST CONFIGURATION

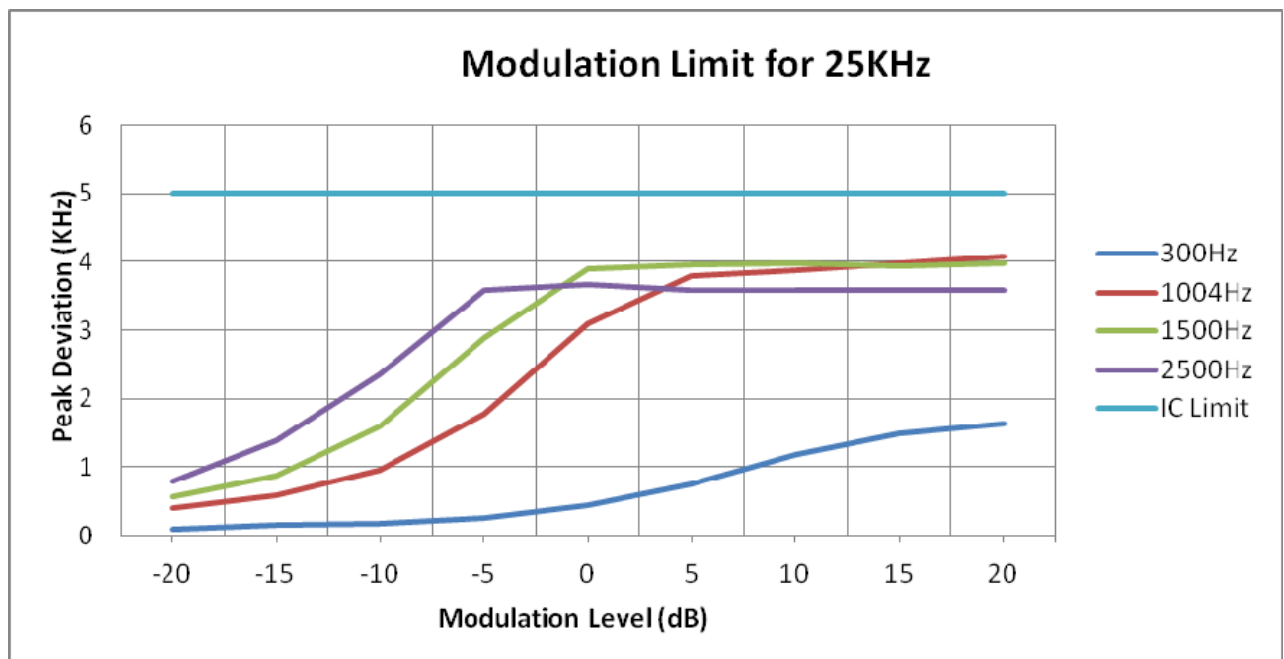


TEST RESULTS

Only for IC Review (Not For FCC Review)

25 KHz Channel Separation

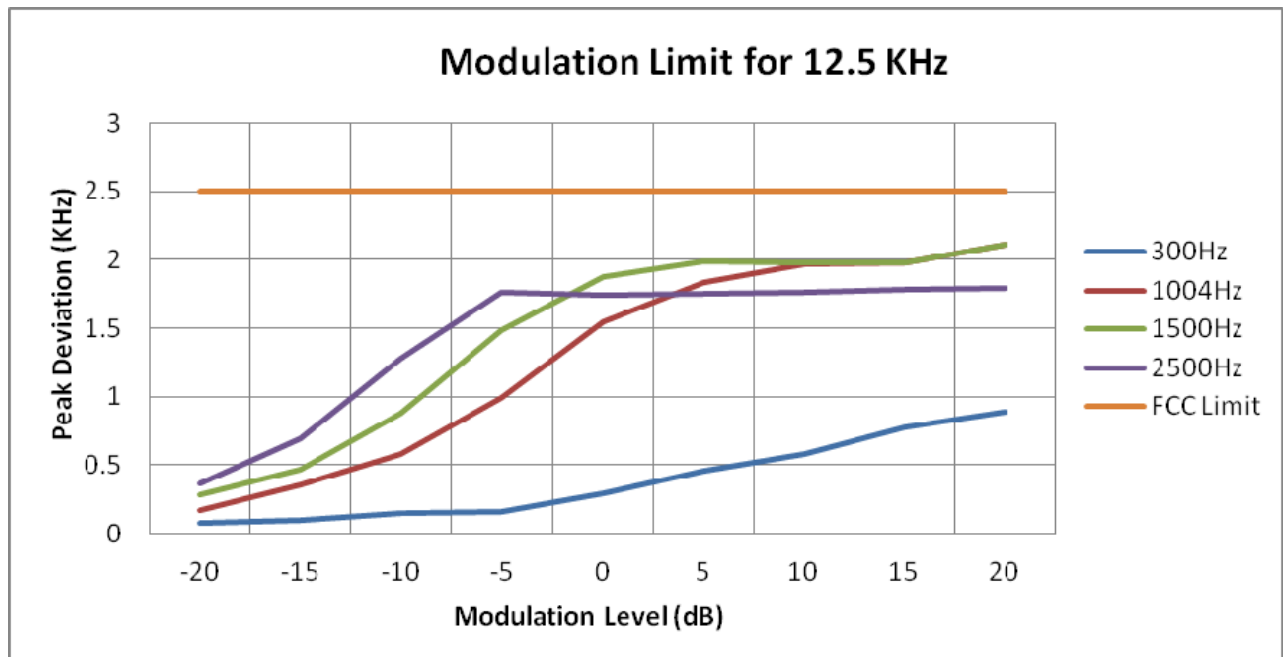
Modulation Level(dB)	Peak Freq. Deviation At 300 Hz(KHz)	Peak Freq. Deviation At 1004 Hz(KHz)	Peak Freq. Deviation At 500 Hz(KHz)	Peak Freq. Deviation At 2500 Hz(KHz)
-20	0.09	0.39	0.57	0.79
-15	0.15	0.58	0.88	1.38
-10	0.18	0.95	1.59	2.35
-5	0.25	1.78	2.88	3.59
0	0.44	3.09	3.89	3.68
+5	0.75	3.79	3.95	3.59
+10	1.19	3.88	3.98	3.58
+15	1.48	3.98	3.94	3.59
+20	1.64	4.09	3.98	3.58



For both for FCC and IC Review

12.5 KHz Channel Separation

Modulation Level(dB)	Peak Freq. Deviation At 300 Hz(KHz)	Peak Freq. Deviation At 1004 H(KHz)	Peak Freq. Deviation At 1500 Hz(KHz)	Peak Freq. Deviation At 2500 Hz(KHz)
-20	0.08	0.165	0.28	0.36
-15	0.10	0.35	0.47	0.69
-10	0.15	0.58	0.88	1.28
-5	0.16	0.99	1.49	1.76
0	0.29	1.55	1.88	1.74
+5	0.46	1.84	1.99	1.75
+10	0.58	1.97	1.98	1.76
+15	0.78	1.98	1.98	1.78
+20	0.89	2.11	2.11	1.79



b). Audio Frequency Response:

Rule Part No.: Part 2.1407(a) (b)

Method of Measurement:

The audio frequency response was measured in accordance with TIA/EIA Specification 603 with no exception. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 300-3000Hz shall be submitted and Audio Post Limiter Low Pass Filter Response from 3.0 KHz to 50KHz. However, the audio frequency response should test from 100Hz to 5.0 KHz according to FCC Part 90.

Modulation Type: FM

The audio frequency response curve is show below.and

Test Audio Level (1 KHz and 20% maximum deviation) for 25 KHz channel separation is 4.50mv and 4.40mv for 12.5 KHz channel separation.

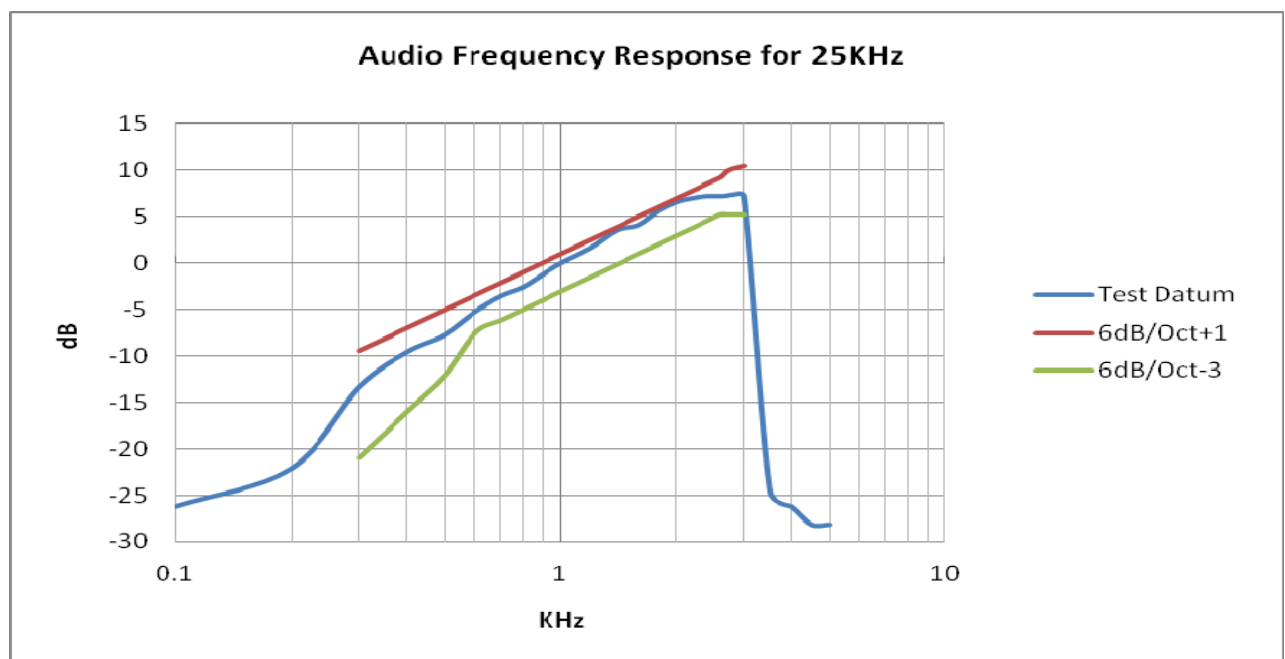
Note:

- 1 Not applicable to new standard. However, tests are conducted under FCC's recommendation.
- 2 The Audio Frequency Response is identical for 12.5 KHz and 25 KHz channel separation

Only for IC Review (Not For FCC Review)

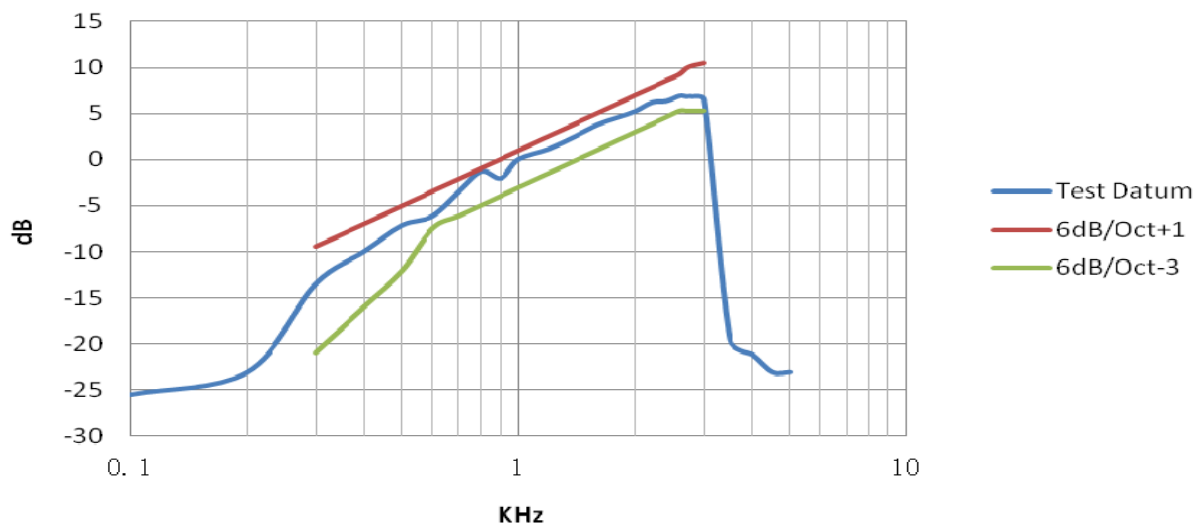
For 25 KHz

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.05	1.02	-26.19
0.2	0.08	1.02	-22.11
0.3	0.22	1.02	-13.32
0.4	0.34	1.02	-9.54
0.5	0.42	1.02	-7.71
0.6	0.56	1.02	-5.21
0.7	0.68	1.02	-3.52
0.8	0.76	1.02	-2.56
0.9	0.89	1.02	-1.18
1.0	1.02	1.02	0.00
1.2	1.24	1.02	1.70
1.4	1.54	1.02	3.58
1.6	1.64	1.02	4.12
1.8	1.96	1.02	5.67
2.0	2.18	1.02	6.60
2.2	2.29	1.02	7.02
2.4	2.35	1.02	7.25
2.6	2.35	1.02	7.25
2.7	2.36	1.02	7.29
2.8	2.39	1.02	7.40
3.0	2.35	1.02	7.25
3.5	0.06	1.02	-24.61
4.0	0.05	1.02	-26.19
4.5	0.04	1.02	-28.13
5.0	0.04	1.02	-28.13



For both FCC and IC Review**For 12.5 KHz**

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Refenerce Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.03	0.57	-25.58
0.2	0.04	0.57	-23.08
0.3	0.12	0.57	-13.53
0.4	0.18	0.57	-10.01
0.5	0.25	0.57	-7.16
0.6	0.28	0.57	-6.17
0.7	0.38	0.57	-3.52
0.8	0.49	0.57	-1.31
0.9	0.45	0.57	-2.05
1.0	0.57	0.57	0.00
1.2	0.65	0.57	1.14
1.4	0.76	0.57	2.50
1.6	0.88	0.57	3.77
1.8	0.96	0.57	4.53
2.0	1.04	0.57	5.22
2.2	1.16	0.57	6.17
2.4	1.18	0.57	6.32
2.6	1.26	0.57	6.89
2.7	1.25	0.57	6.82
2.8	1.25	0.57	6.82
3.0	1.20	0.57	6.47
3.5	0.06	0.57	-19.55
4.0	0.05	0.57	-21.14
4.5	0.04	0.57	-23.08
5.0	0.04	0.57	-23.08

Audio Frequency Response for 12.5KHz

4.6. Frequency Stability

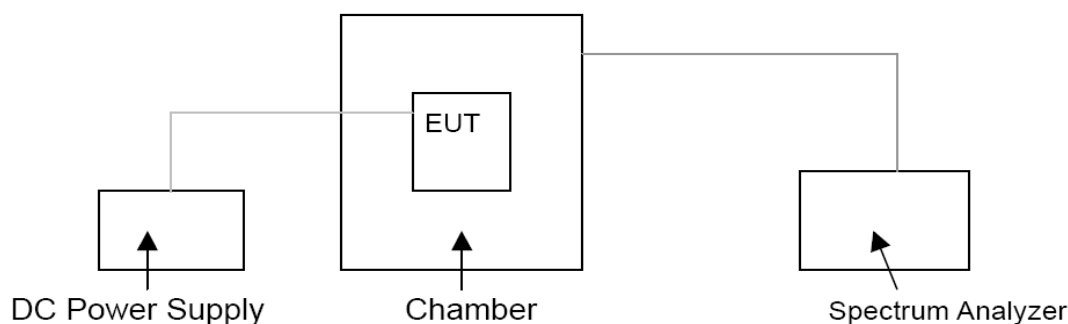
TEST APPLICABLE

- 1 According to FCC Part 2 Section 2.1055 (a) (1) and RSS-119 Section 5.3, the frequency stability shall be measured with variation of ambient temperature from -30°C to +60°C centigrade.
- 2 According to FCC Part 2 Section 2.1055 (a) (2) and RSS-119 Section 5.3, for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
- 3 Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- 4 According to §90.213 and RSS-119 Section 5.3, the frequency stability limit is 2.5 ppm for 12.5KHz channel separation and 5 ppm for 25KHz channel separation.

TEST PROCEDURE

The EUT was set in the climate chamber and connected to an external DC power supply. The RF output was directly connected to Spectrum Analyzer ESI 26. The coupling loss of the additional cables was recorded and taken in account for all the measurements. After temperature stabilization (approx. 20 min for each stage), the frequency for the lower, the middle and the highest frequency range was recorded. For Frequency stability Vs. Voltage the EUT was connected to a DC power supply and the voltage was adjusted in the required ranges. The result was recorded.

TEST CONFIGURATION



TEST LIMITS

According to 90.213, Transmitters used must have minimum frequency stability as specified in the following table.

Frequency Range (MHz)	Channel Bandwidth (KHz)	Frequency Tolerance (ppm)		
		Fixed and Base Stations	Mobile Stations	
			> 2 W	≤ 2 W
150-174 MHz	6.25	1.0	2.0	2.0
	12.5	2.5	5.0	5.0
	25	5.0	5.0	50.0*
421-512 MHz	6.25	0.5	1.0	1.0
	12.5	1.5	2.5	2.5
	25	2.5	5.0	5.0

- Stations operating in the 154.45 to 154.49 MHz or the 173.2 to 173.4 MHz bands must have a frequency stability of 5 ppm.
- Paging transmitters operating on paging-only frequencies must operate with frequency stability of 5 ppm in the 150-174 MHz band and 2.5 ppm in the 421-512 MHz band.

TEST RESULTS**Only for IC Review (Not For FCC Review)**

Modulation Type	Channel Separation	Test conditions		Frequency error (ppm)		
		Voltage(V)	Temp(℃)	Low Channel	Middle Channel	High Channel
Analog/FM	25KHz	13.60	-30	-1.82	-1.96	-1.97
			-20	-1.75	-1.79	-1.88
			-10	-1.66	-1.58	-1.79
			0	-1.49	-1.47	-1.54
			10	-1.38	-1.38	-1.45
			20	-1.04	-1.09	-1.16
			30	-1.05	-1.07	-1.18
			40	-1.48	-1.38	-1.48
			50	-1.76	-1.74	-1.79
		11.56 (85% Rated)	20	-1.27	-1.28	-1.37
		15.64 (115% Rated)	20	-1.27	-1.29	-1.37
Limit			5.0 ppm			
Conclusion			Complies			

For both FCC and IC Review

Modulation Type	Channel Separation	Test conditions		Frequency error (ppm)		
		Voltage(V)	Temp(℃)	Low Channel	Middle Channel	High Channel
Analog/FM	12.5KHz	13.60	-30	-1.82	-1.89	-1.94
			-20	-1.75	-1.65	-1.85
			-10	-1.68	-1.58	-1.78
			0	-1.46	-1.45	-1.54
			10	-1.34	-1.37	-1.41
			20	-1.28	-1.25	-1.35
			30	-1.24	-1.39	-1.38
			40	-1.41	-1.38	-1.49
			50	-1.62	-1.75	-1.85
		11.56 (85% Rated)	20	-1.23	-1.04	-1.32
		15.64 (115% Rated)	20	-1.25	-1.23	-1.34
Limit			2.5 ppm			
Conclusion			Complies			

4.7. Maximum Transmitter Power

TEST APPLICABLE

Per FCC «2.1046 and «90.205 and RSS-119 Section 5.4: Maximum ERP is dependent upon the station's antenna HAAT and required service area.

Per RSS-119 Section 5.4 and 5.4.1: The output power shall be within ± 1.0 dB of the manufacturer's rated power. Typical transmitter output powers are 110 watts for base and/or fixed stations (paging transmitters excepted), and 30 watts for mobile stations. Higher powers may be certified, but it should be noted that mobile stations are normally only licensed up to 30 watts. See the SRSP relevant to the operating frequency for equipment power limits.

TEST PROCEDURE

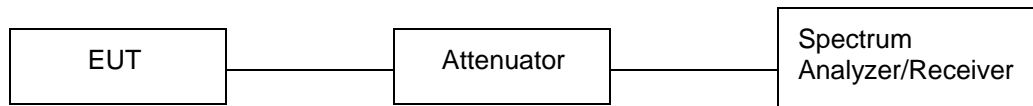
Measurements shall be made to establish the radio frequency power delivered by the transmitter the standard output termination. The power output shall be monitored and recorded and no adjustment shall be made to the transmitter after the test has begun, except as noted below:

If the power output is adjustable, measurements shall be made for the highest and lowest power levels.

The EUT connect to the Receiver through 40 dB attenuator.

Measurement with Spectrum Analyzer ESI 26 conducted, external power supply with 13.60V stabilized supply voltage.

TEST CONFIGURATION



The EUT was directly connected to a RF Communication
Test set by a 40 dB attenuator

TEST RESULTS

Only for FCC Review

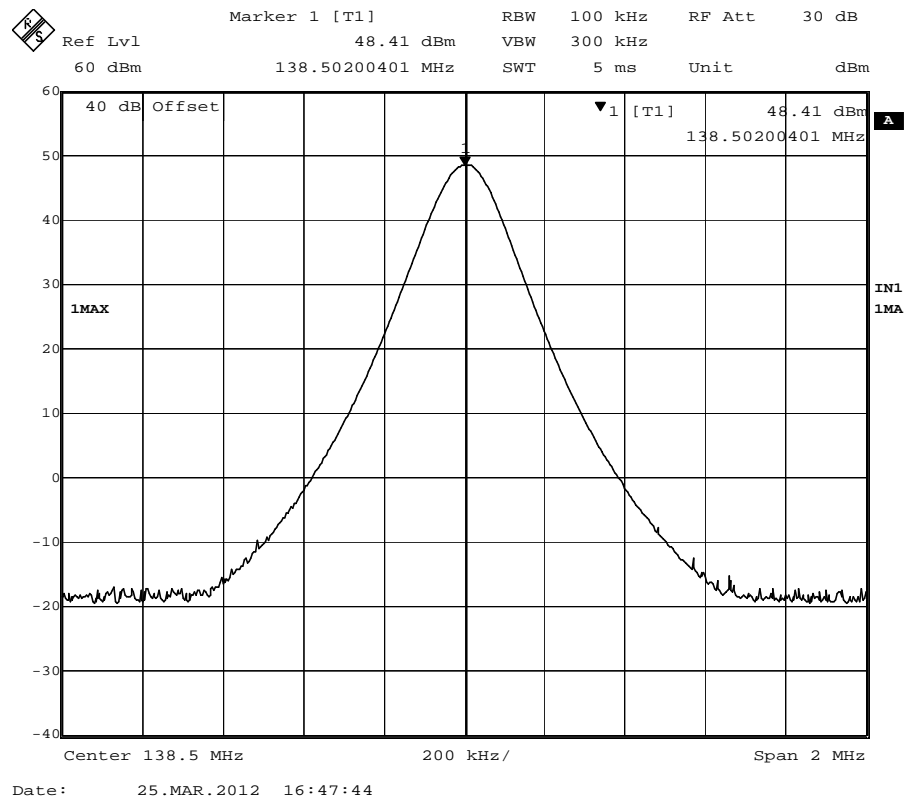
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Transmitter Power (dBm)		
				High Power Level	Middle Power Level	Low Power Level
Analog/FM	12.5KHz	Low	138.5000	48.41	44.72	40.99
		Middle	155.5000	48.71	44.54	40.74
		High	173.5000	48.46	44.58	40.71
Limit		The limit is dependent upon the station's antenna HAAT and required service area.				
Test Results		Compliance				

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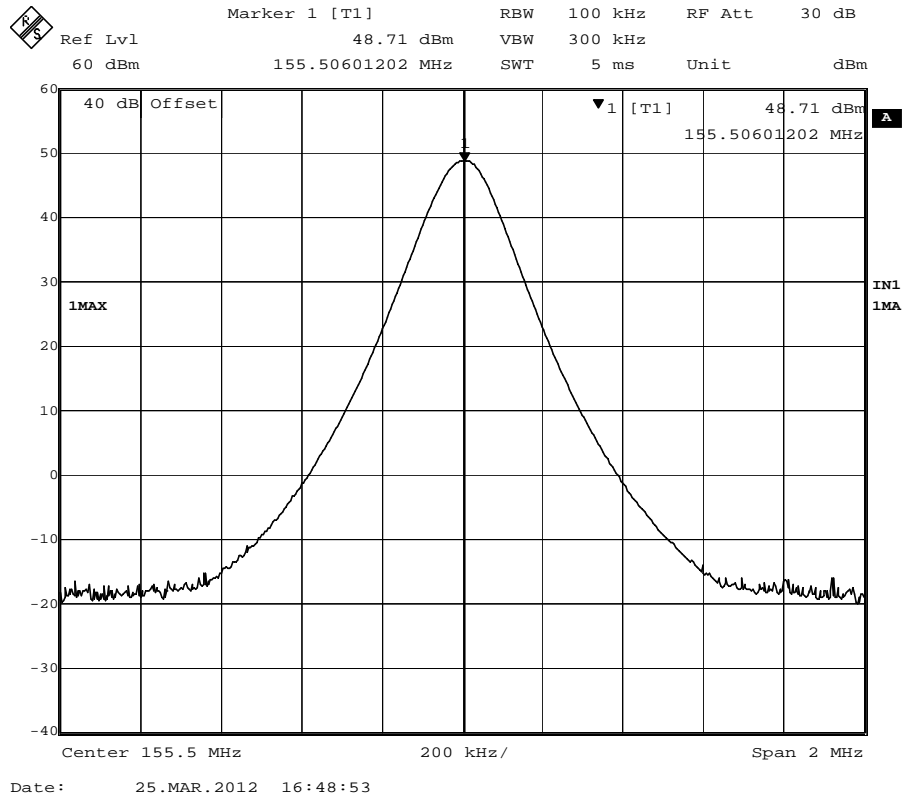
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Transmitter Power (dBm)		
				High Power Level	Middle Power Level	Low Power Level
Analog/FM	25KHz	Low	138.5000	48.43	44.71	40.96
		Middle	155.5000	48.66	44.53	40.73
		High	173.5000	48.46	44.57	40.69
	12.5KHz	Low	138.5000	48.41	44.72	40.99
		Middle	155.5000	48.71	44.54	40.74
		High	173.5000	48.46	44.58	40.71
Limit		The output power shall be within ± 1.0 dB of the manufacturer's rated power.				
Test Results		Complicance				

Plots of Maximum Transmitter Power Measurement**Only for FCC Review**

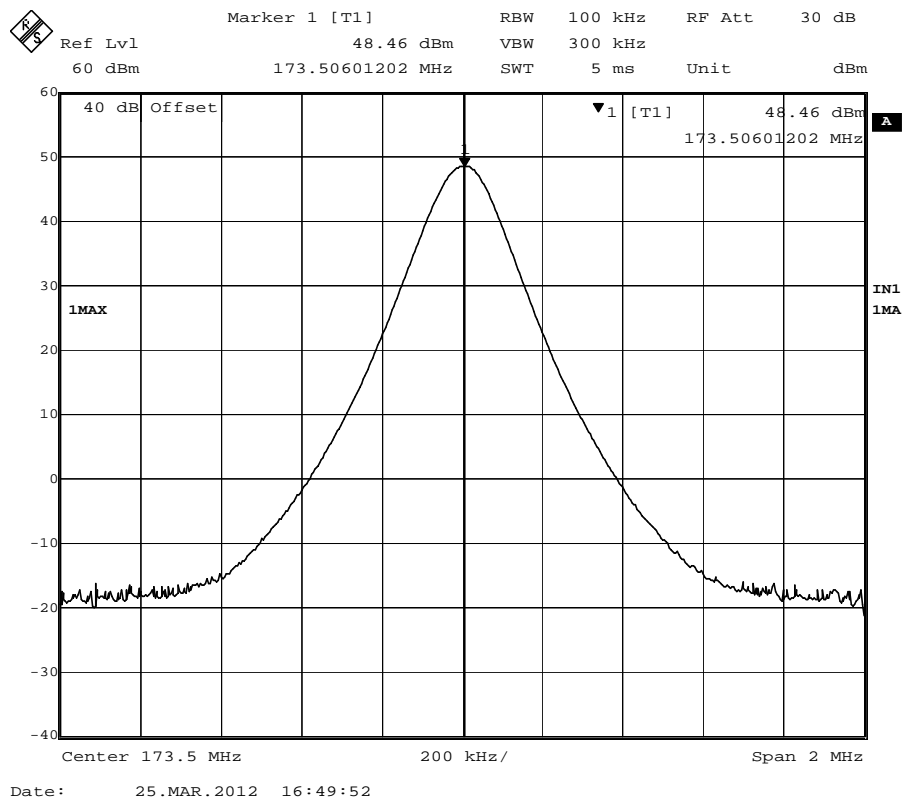
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	138.5000	65	48.41	Varies	Compliance



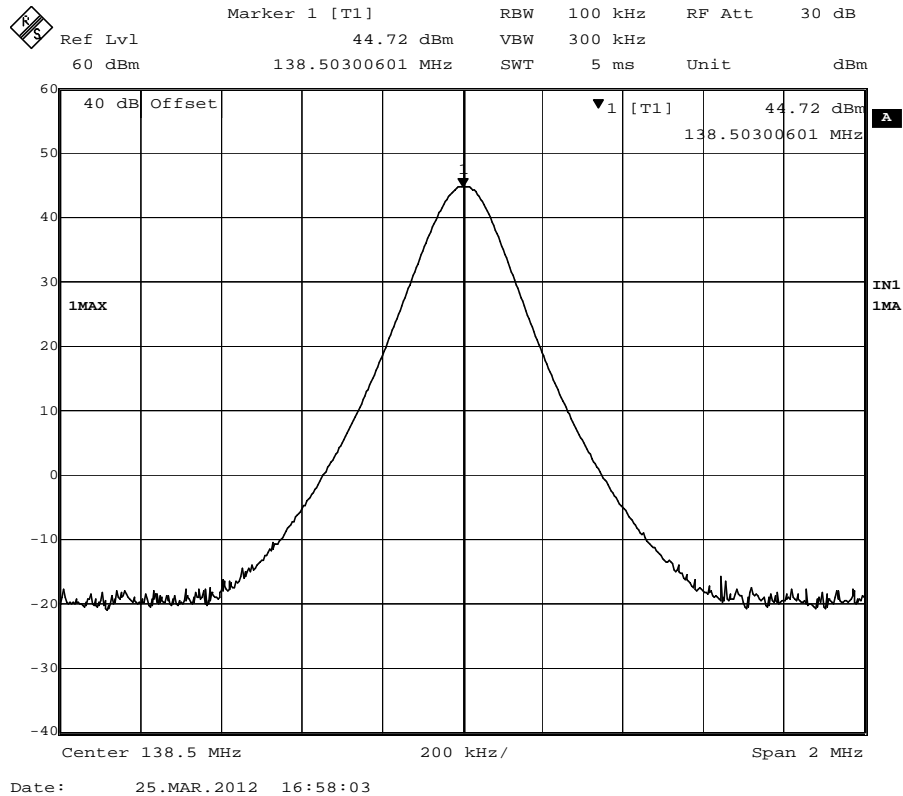
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	155.5000	65	48.71	Varies	Complicance



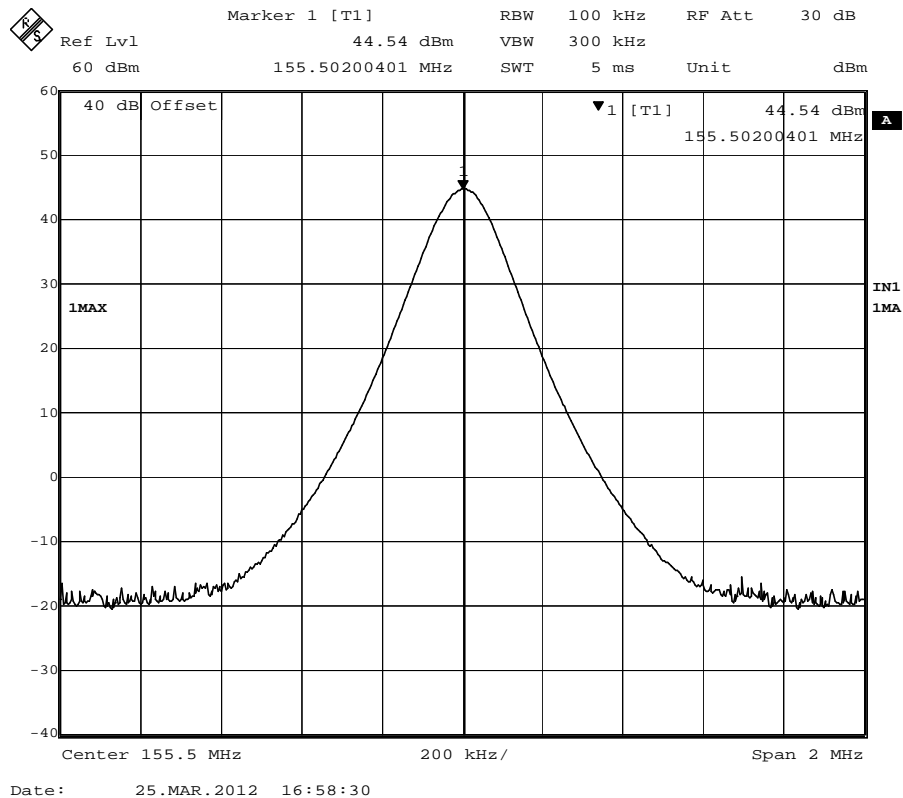
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	173.5000	65	48.46	Varies	Complicance



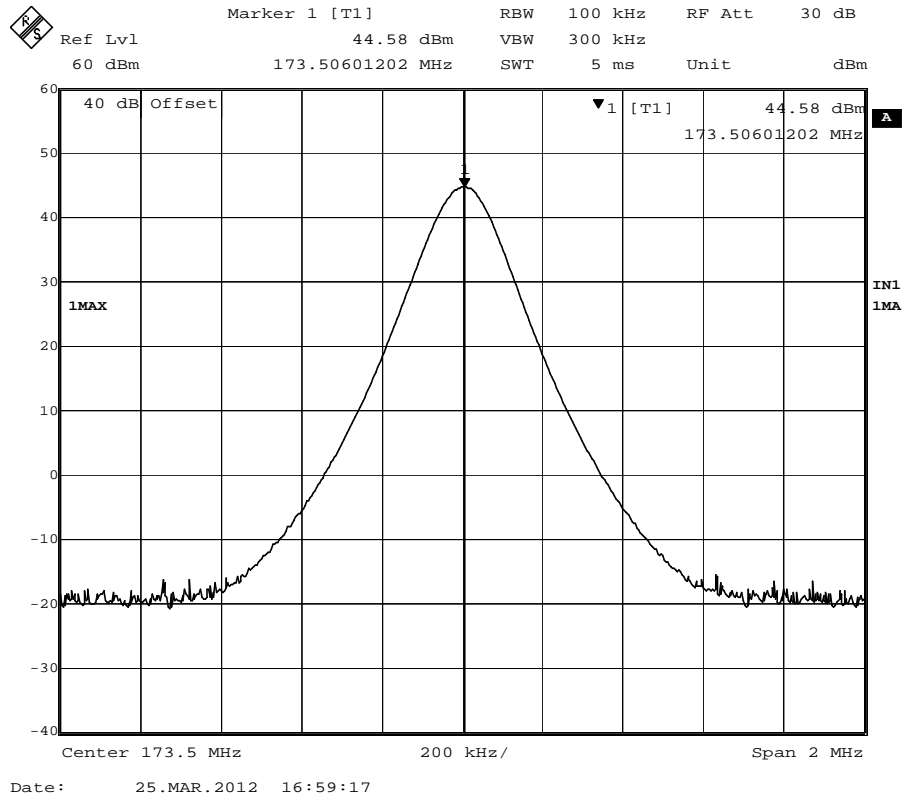
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	138.5000	25	44.72	Varies	Complicance



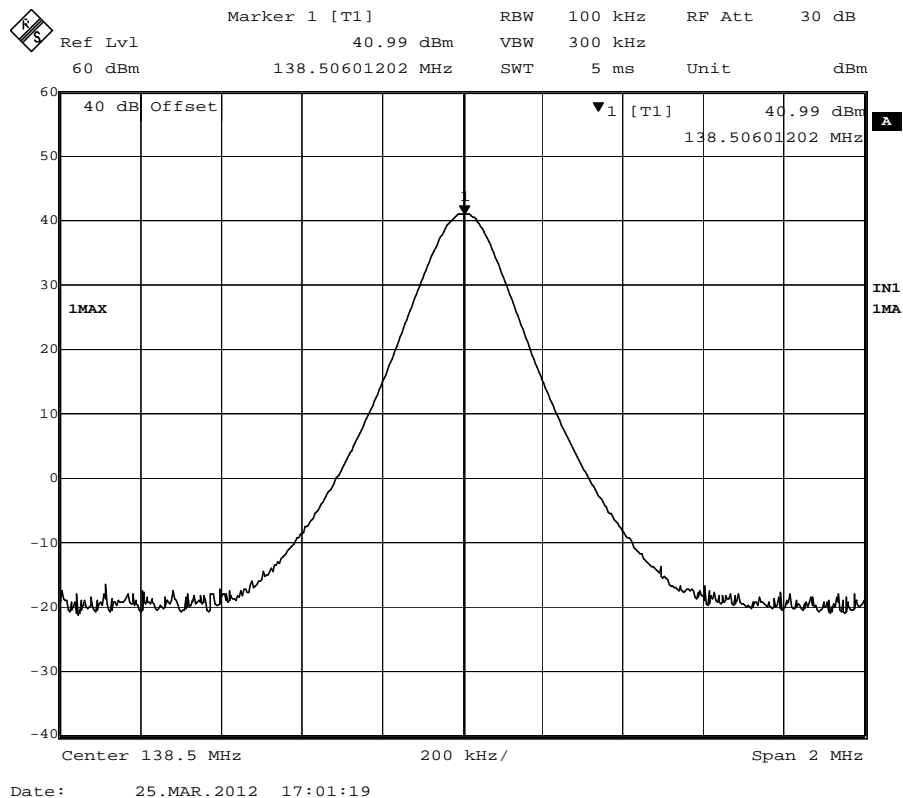
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	155.5000	25	44.54	Varies	Complicance



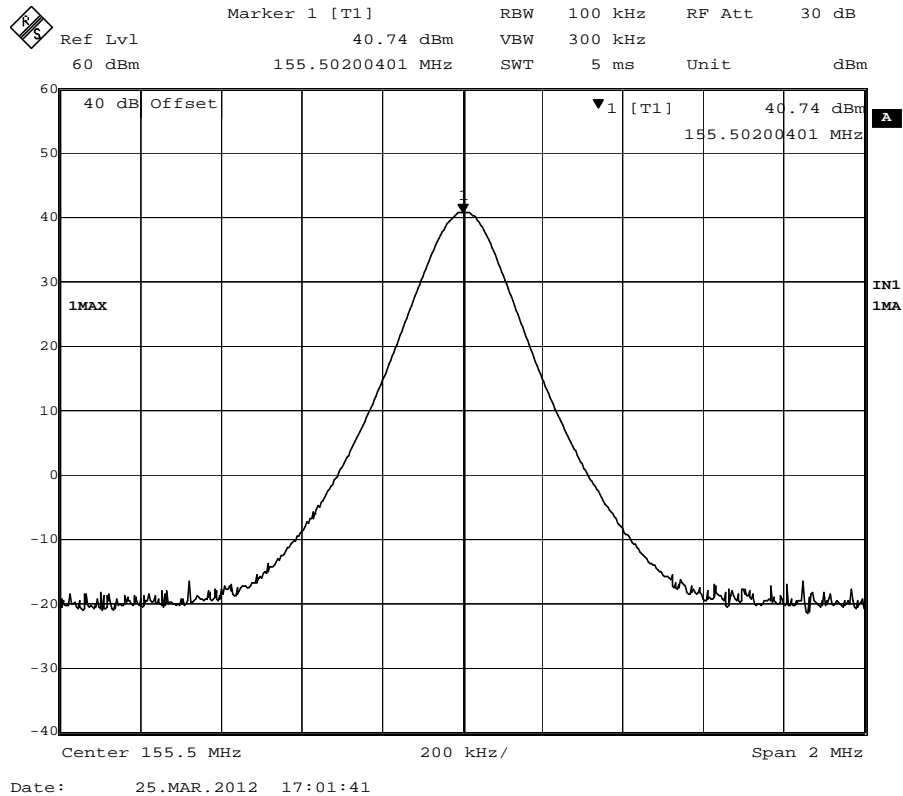
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	173.5000	25	44.58	Varies	Compliance



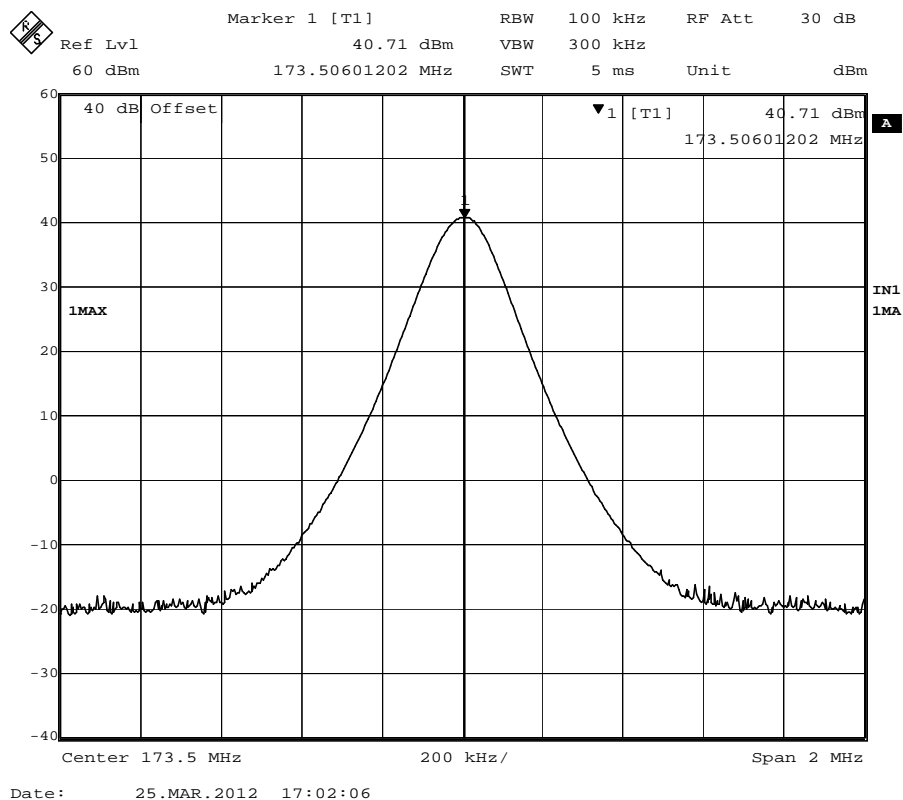
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	138.5000	10	40.99	Varies	Compliance



Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	155.5000	10	40.74	Varies	Complicance

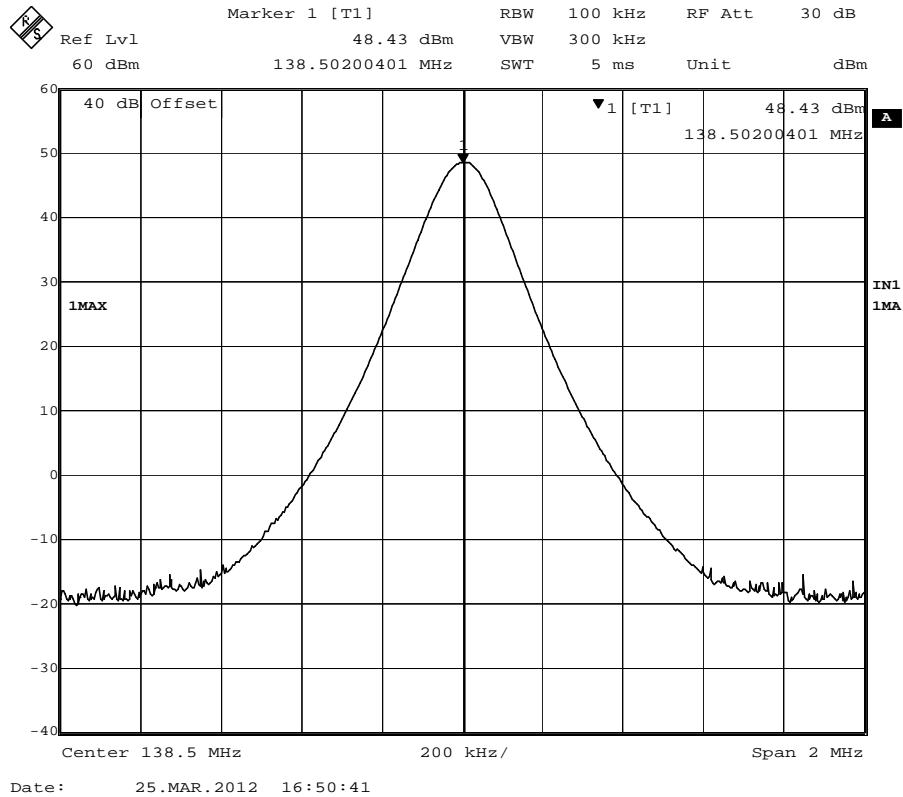


Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	FCC Limit	Results
FM	12.5 KHz	173.5000	10	40.71	Varies	Complicance

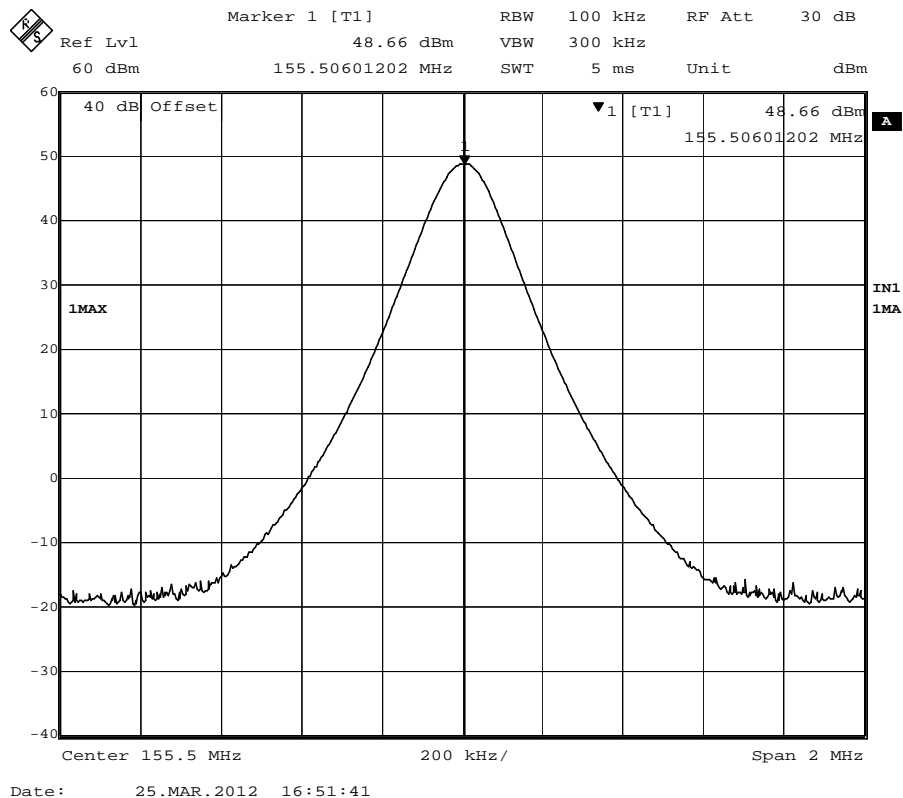


Only for IC Review (Not For FCC Review)

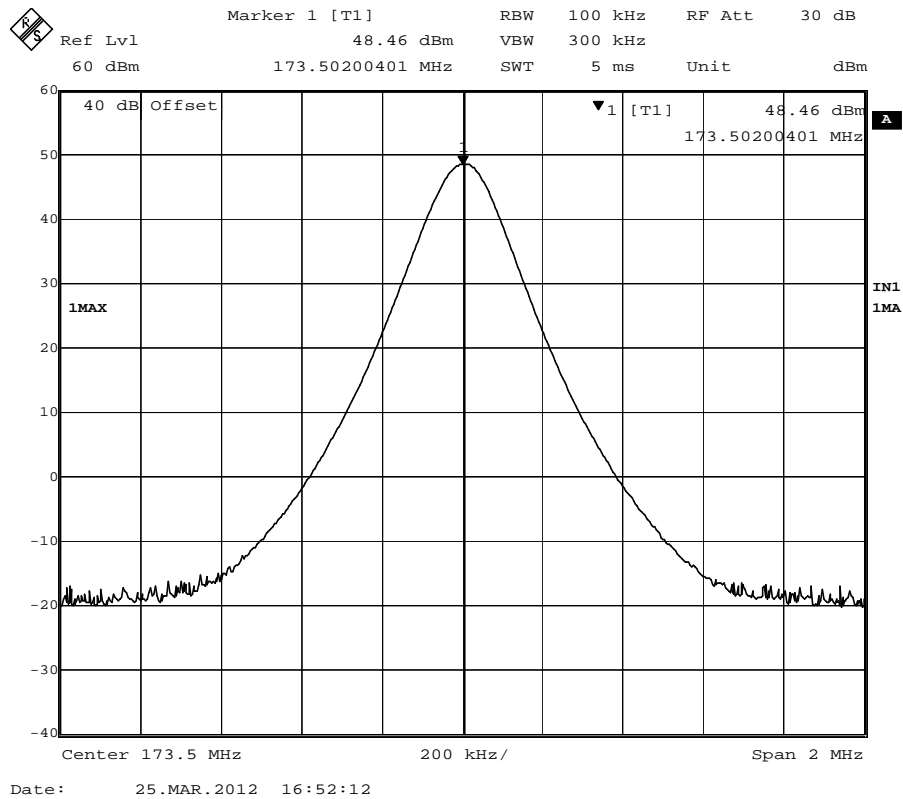
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	138.5000	65	48.43	48.13±1	Complicance



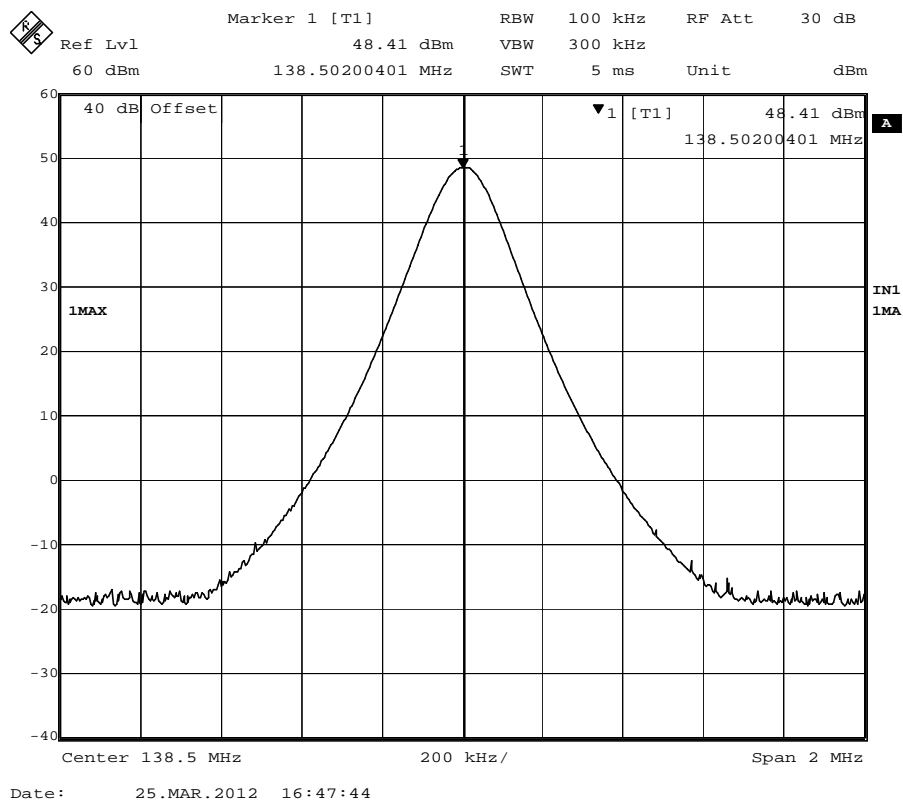
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	155.5000	65	48.66	48.13±1	Complicance



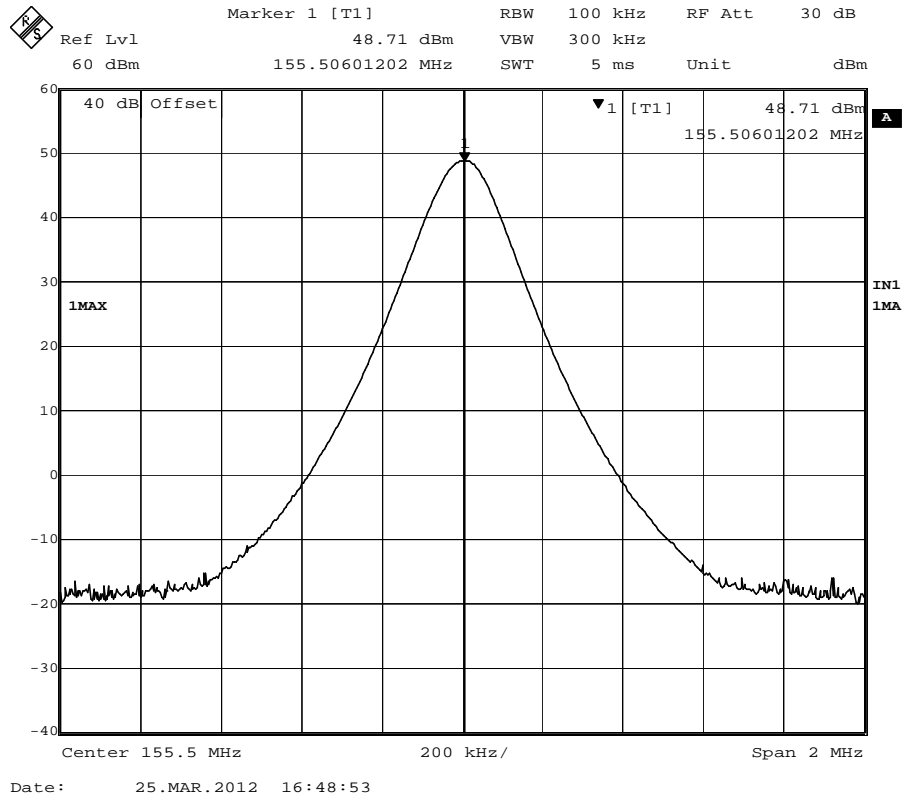
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	173.5000	65	48.46	48.13±1	Compliance



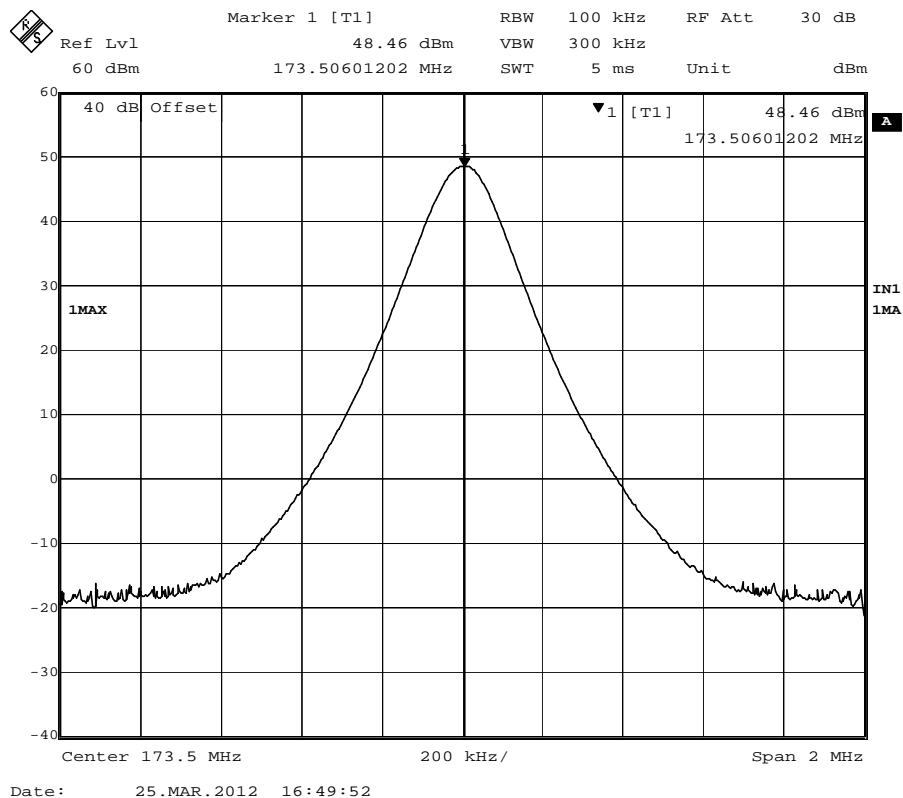
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	138.5000	65	48.41	48.13±1	Compliance



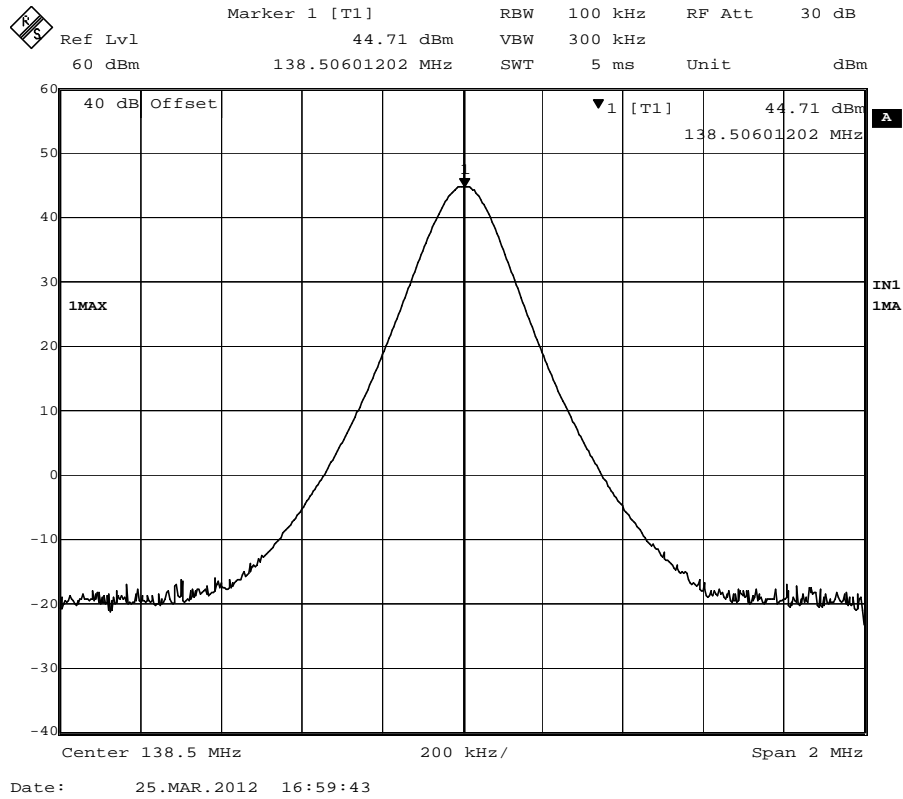
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	155.5000	65	48.71	48.13±1	Complicance



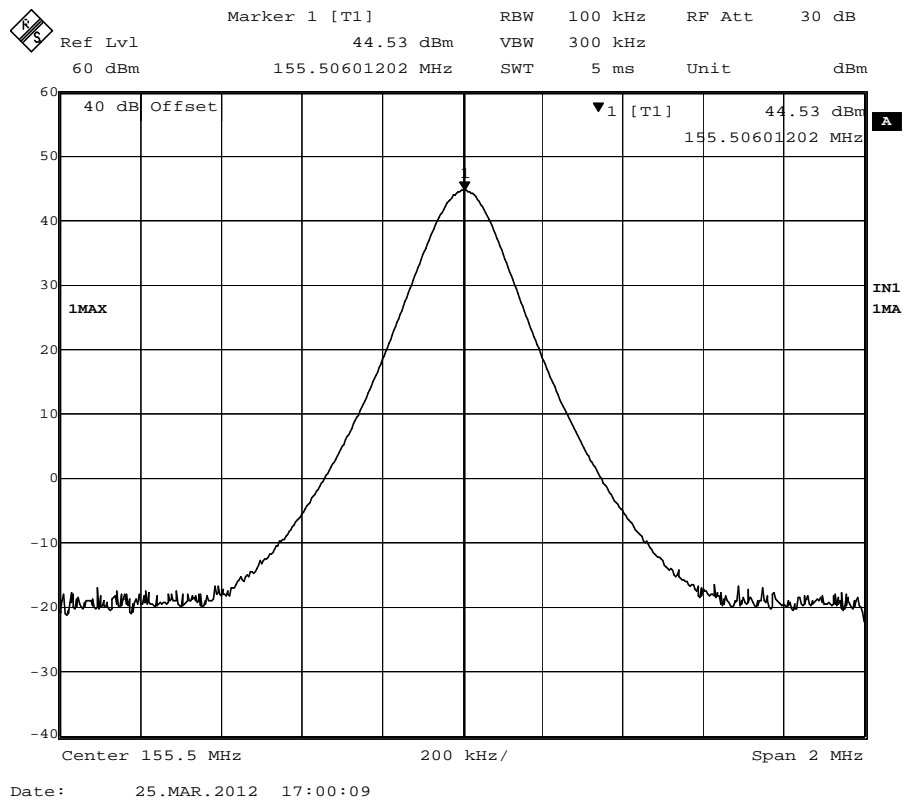
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	173.5000	65	48.46	48.13±1	Complicance



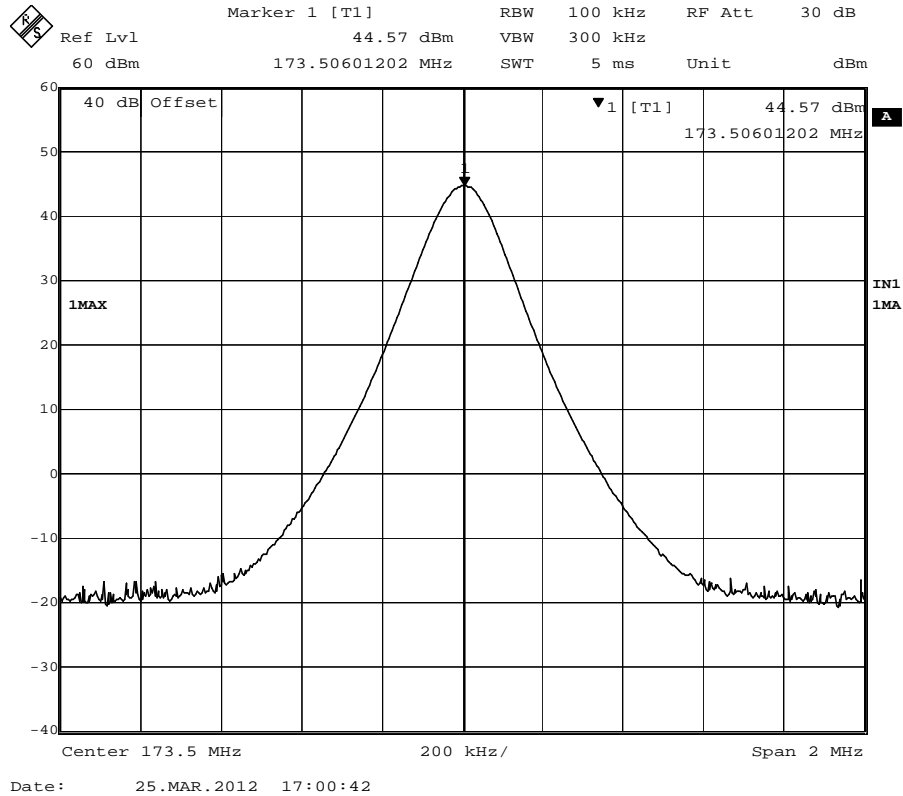
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	138.5000	25	44.71	43.98±1	Complicance



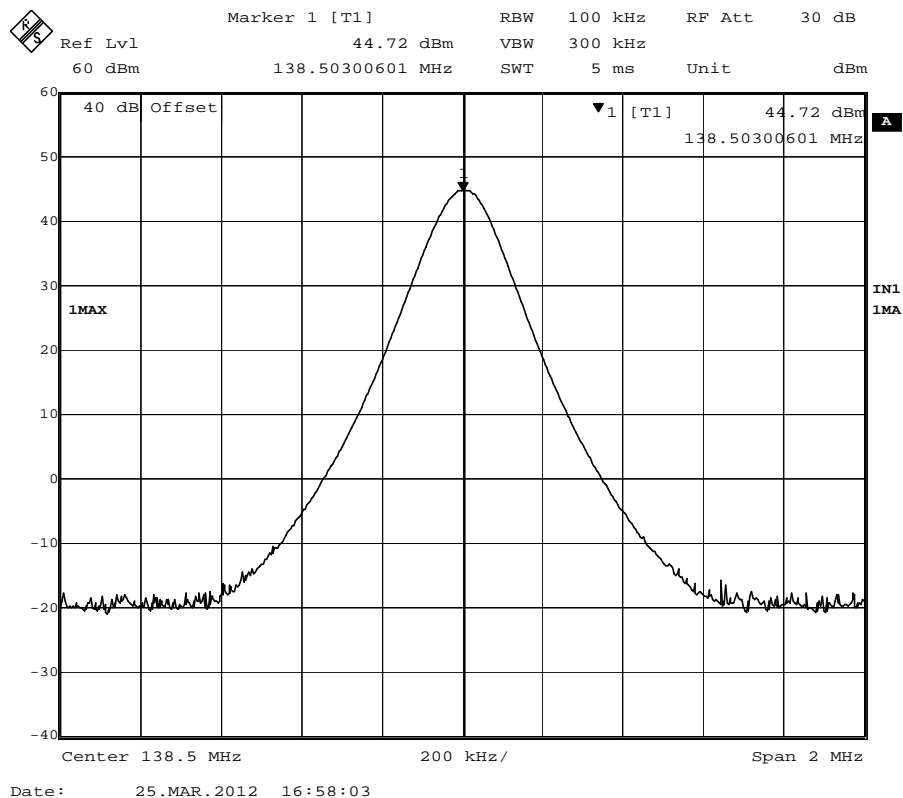
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	155.5000	25	44.53	43.98±1	Complicance



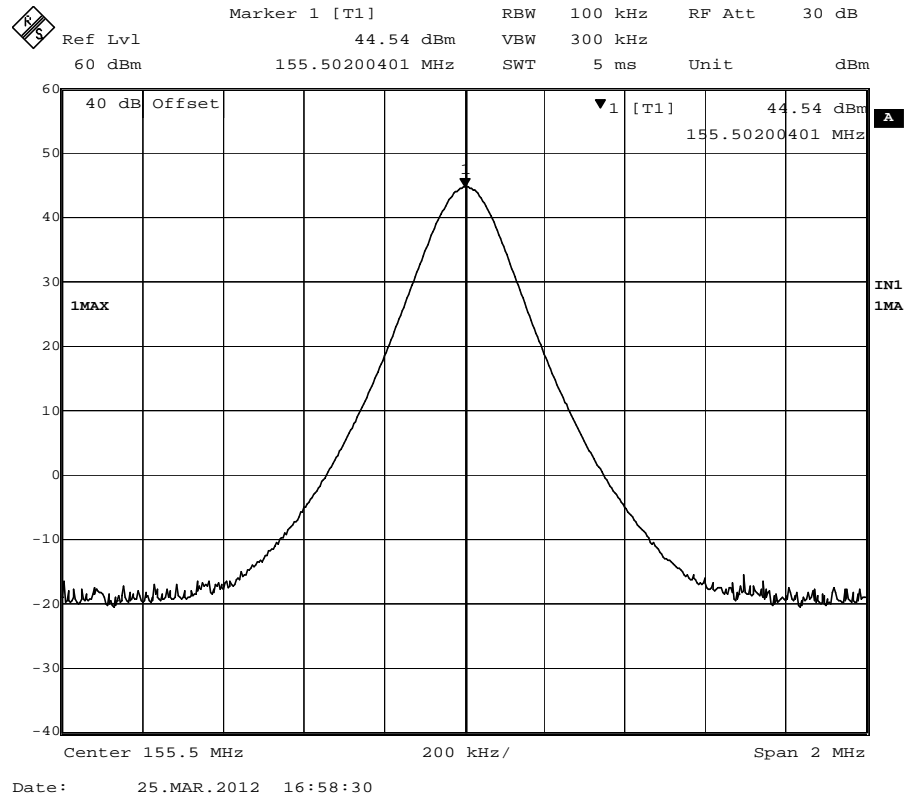
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	173.5000	25	44.57	43.98±1	Complicance



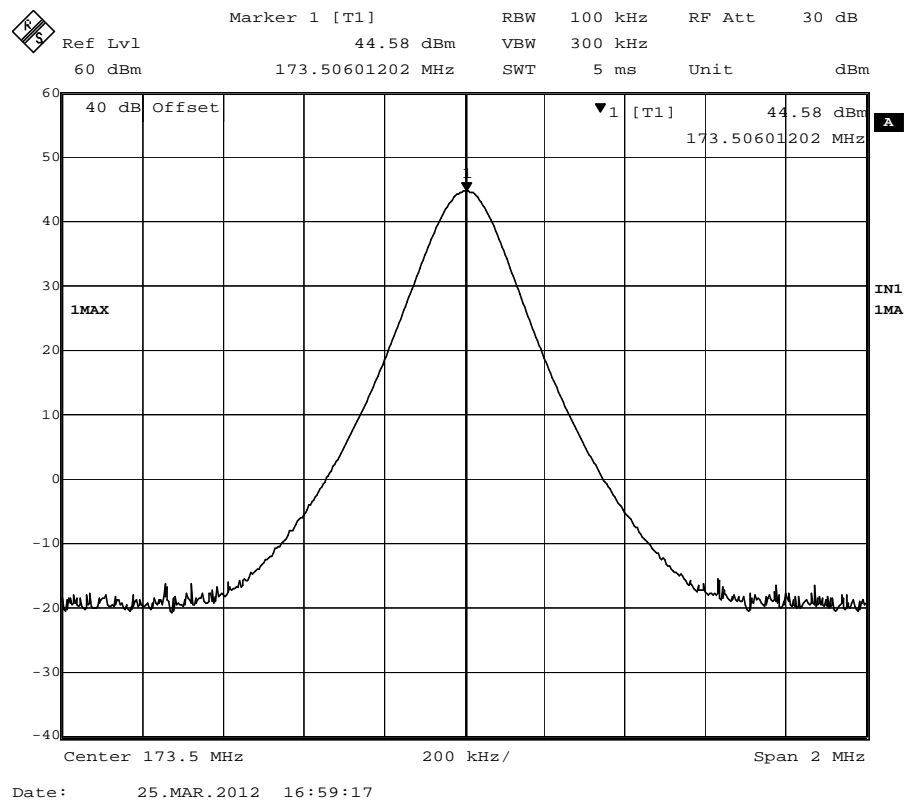
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	138.5000	25	44.72	43.98±1	Complicance



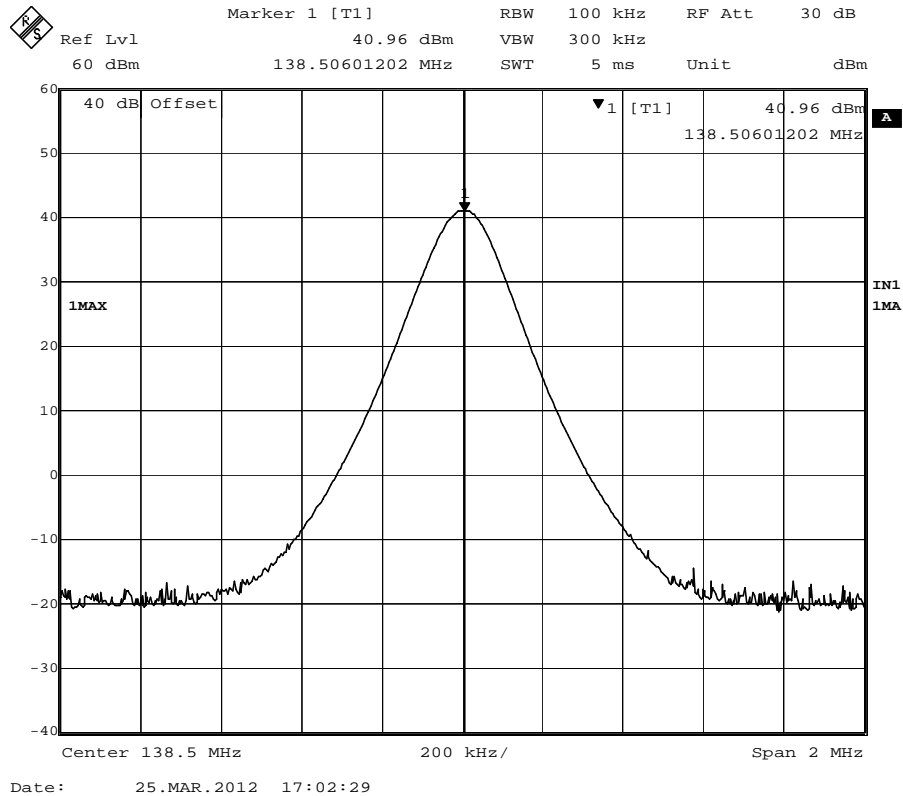
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	155.5000	25	44.54	43.98±1	Complicance



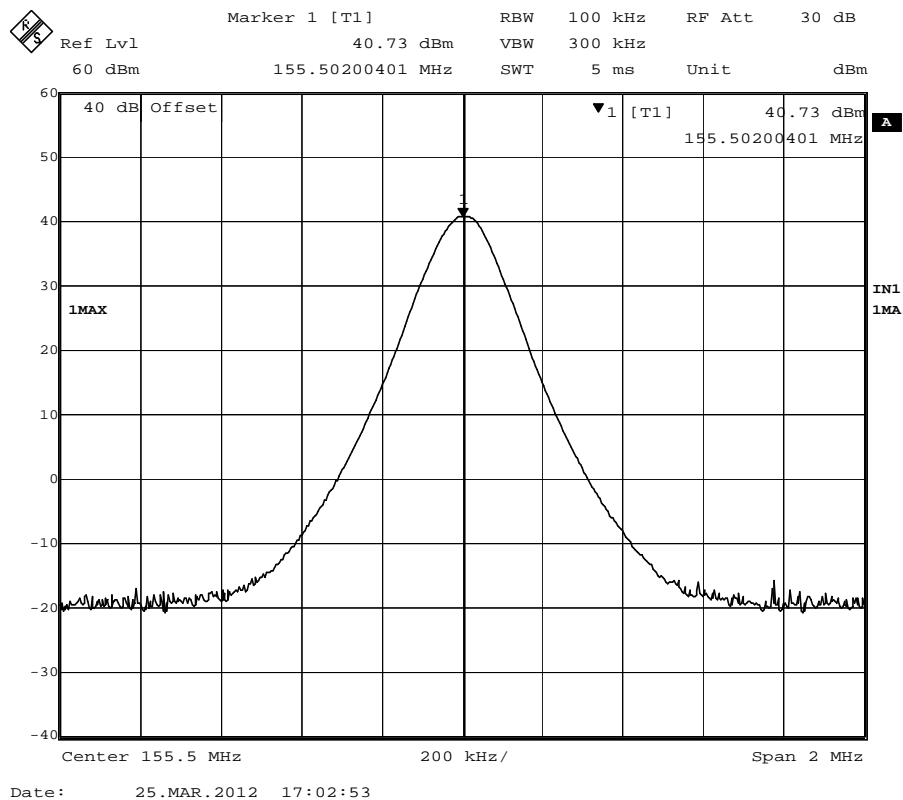
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	173.5000	25	44.58	43.98±1	Complicance



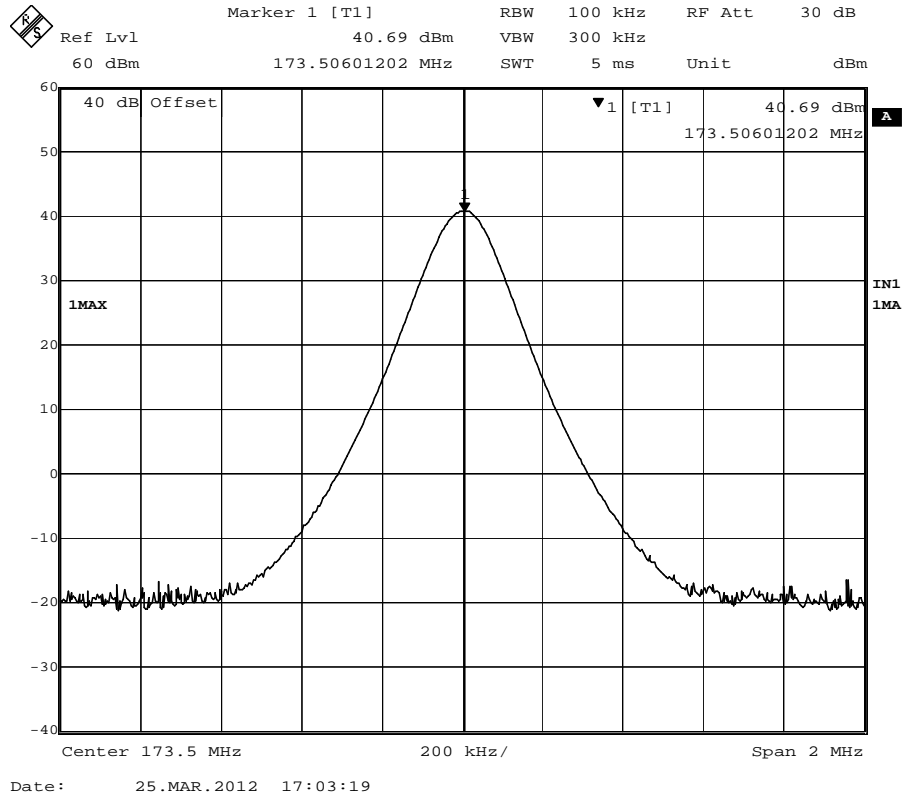
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	138.5000	10	40.96	40.00±1	Complicance



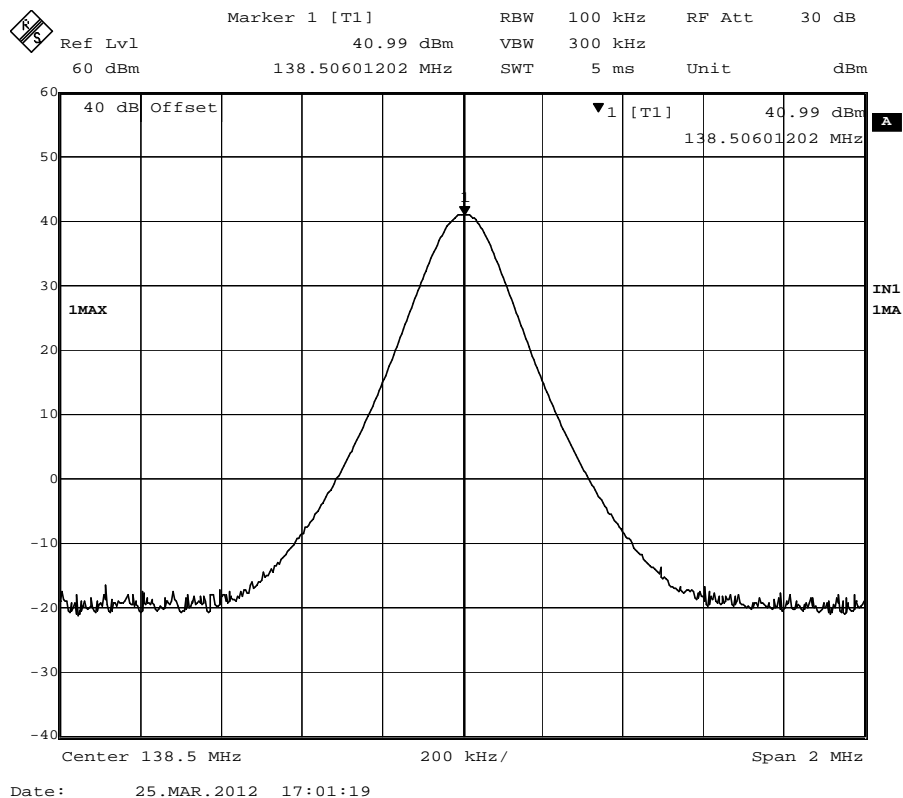
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	155.5000	10	40.73	40.00±1	Complicance



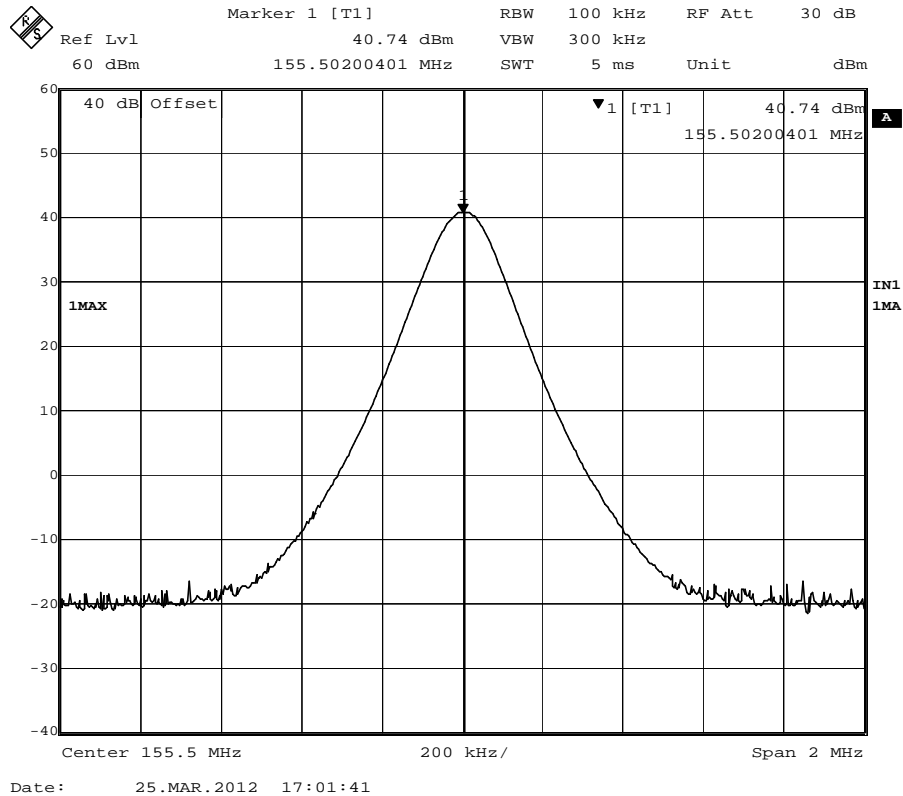
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	25 KHz	173.5000	10	40.69	40.00±1	Complicance



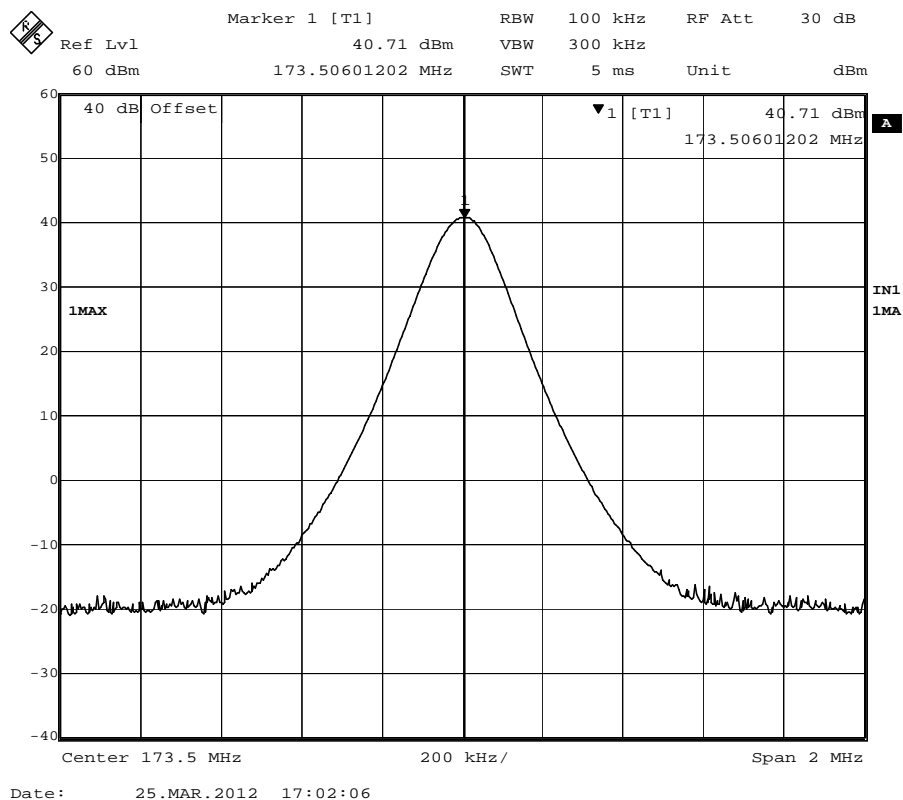
Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	138.5000	10	40.99	40.00±1	Complicance



Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	155.5000	10	40.74	40.00±1	Complicance



Modulation Type	Channel Separation	Freq.(MHz)	Rated Power (Watt)	Measurement (dBm)	IC Limit (dBm)	Results
FM	12.5 KHz	173.5000	10	40.71	40.00±1	Complicance



4.8. Transmitter Frequency Behavior

TEST APPLICABLE

Section 90.214 and ESS-119 Section 5.9

Transient frequencies must be within the maximum frequency difference limits during the time intervals indicated:

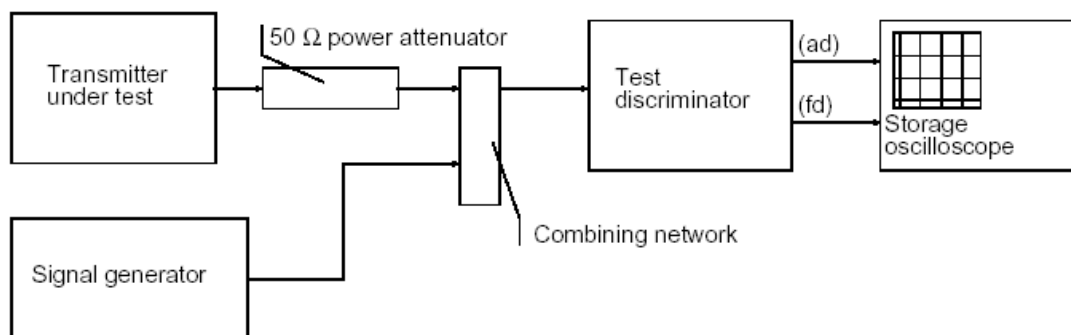
Time intervals ^{1, 2}	Maximum frequency difference ³	All equipment	
		150 to 174 MHz	421 to 512MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 KHz Channels			
t ₁ ⁴	± 25.0 KHz	5.0 ms	10.0 ms
t ₂	± 12.5 KHz	20.0 ms	25.0 ms
t ₃ ⁴	± 25.0 KHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 KHz Channels			
t ₁ ⁴	± 12.5 KHz	5.0 ms	10.0 ms
t ₂	± 6.25 KHz	20.0 ms	25.0 ms
t ₃ ⁴	± 12.5 KHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 KHz Channels			
t ₁ ⁴	±6.25 KHz	5.0 ms	10.0 ms
t ₂	±3.125 KHz	20.0 ms	25.0 ms
t ₃ ⁴	±6.25 KHz	5.0 ms	10.0 ms

- t_{on} is the instant when a 1 KHz test signal is completely suppressed, including any capture time due to phasing.
 t_1 is the time period immediately following t_{on} .
 t_2 is the time period immediately following t_1 .
 t_3 is the time period from the instant when the transmitter is turned off until t_{off} .
 t_{off} is the instant when the 1 KHz test signal starts to rise.
- During the time from the end of t_2 to the beginning of t_3 , the frequency difference must not exceed the limits specified in § 90.213.
- Difference between the actual transmitter frequency and the assigned transmitter frequency.
- If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

TEST PROCEDURE

TIA/EIA-603 2.2.19

TEST CONFIGURATION

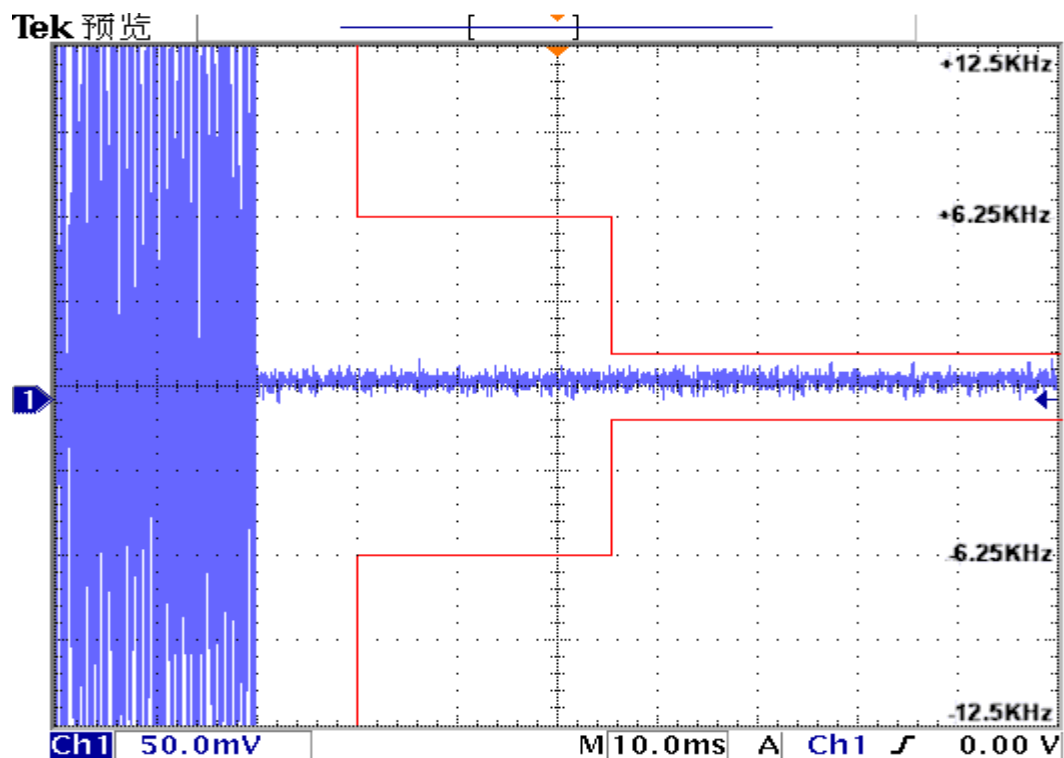


TEST RESULTS

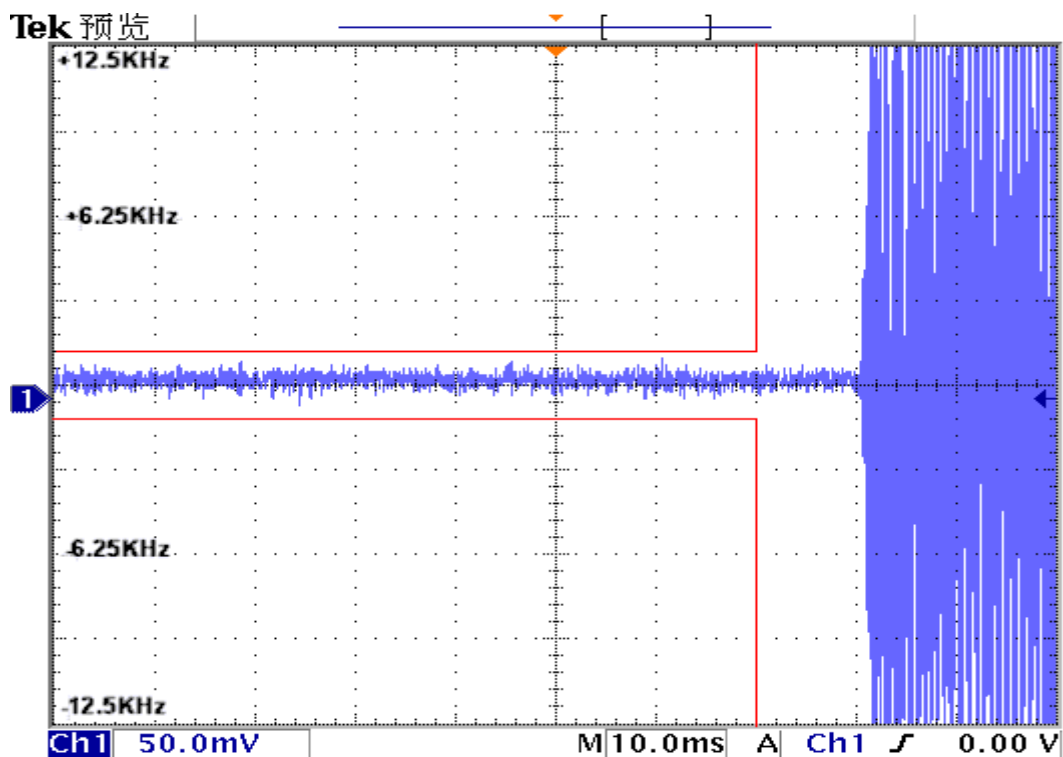
For both FCC and IC Review

Please refer to the following plots.

Transmitter Frequency Behaviour @ 12.5 KHz Channel Separation-----Off – On

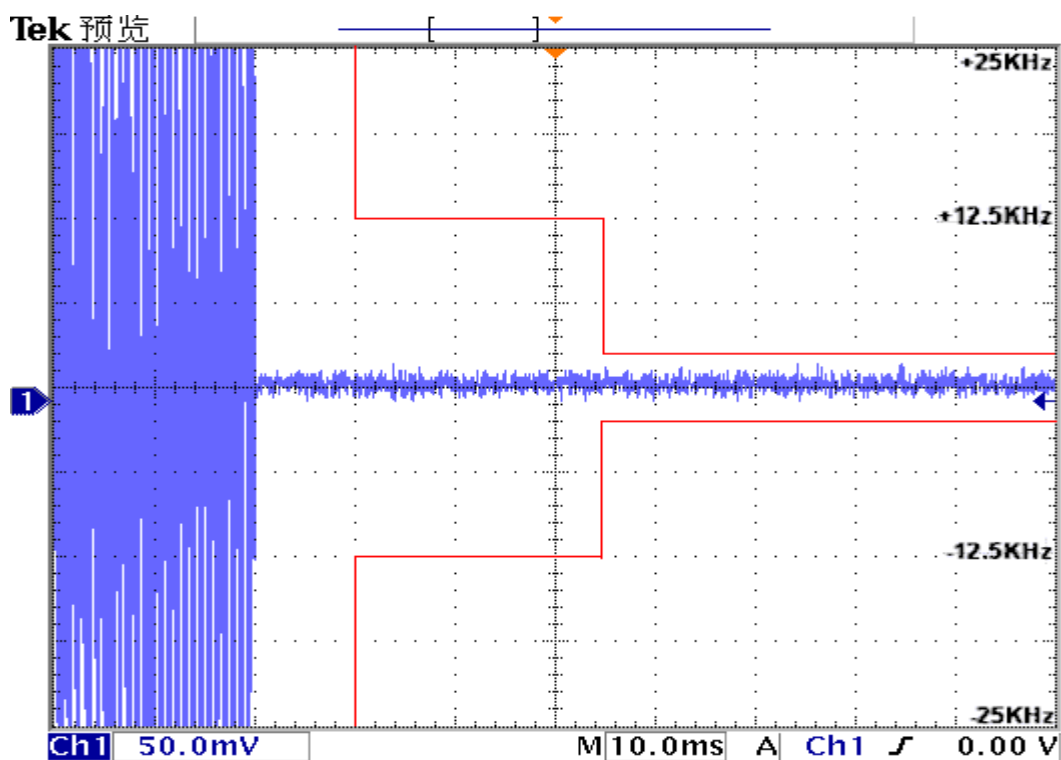


Transmitter Frequency Behaviour @ 12.5 KHz Channel Separation-----On - Off

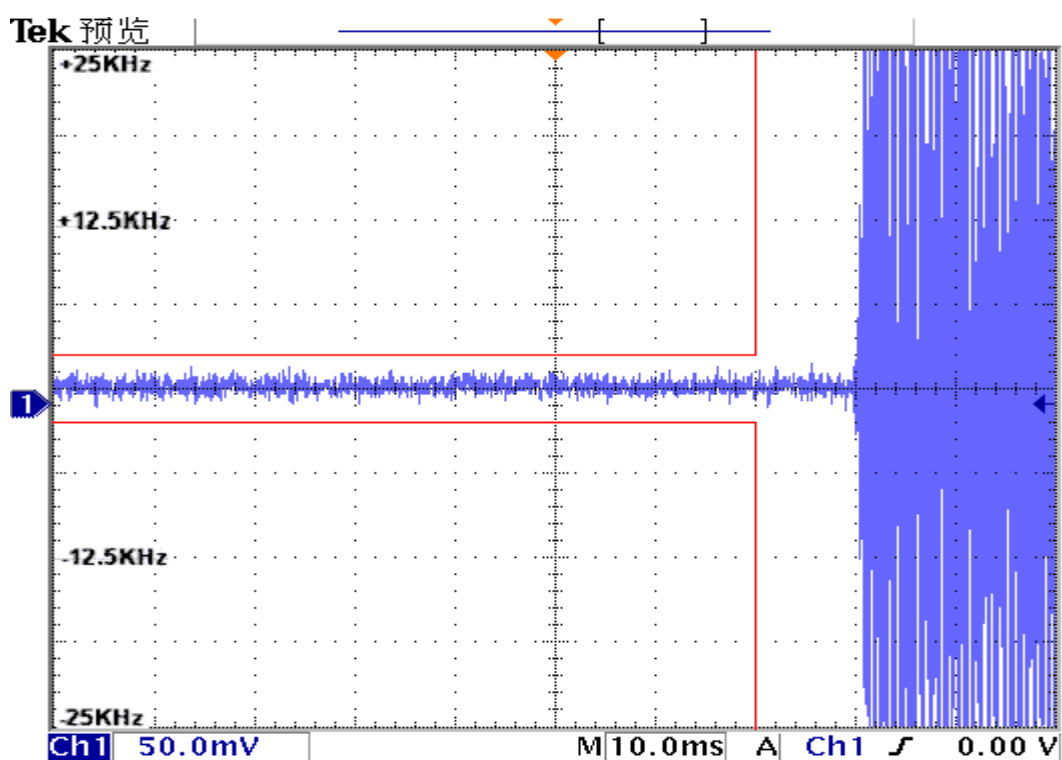


Only for IC Review (Not For FCC Review)

Transmitter Frequency Behaviour @ 25 KHz Channel Separation-----Off – On



Transmitter Frequency Behaviour @ 25 KHz Channel Separations-----On – Off



4.9. Receiver Radiated Spurious Emission

TEST APPLICABLE

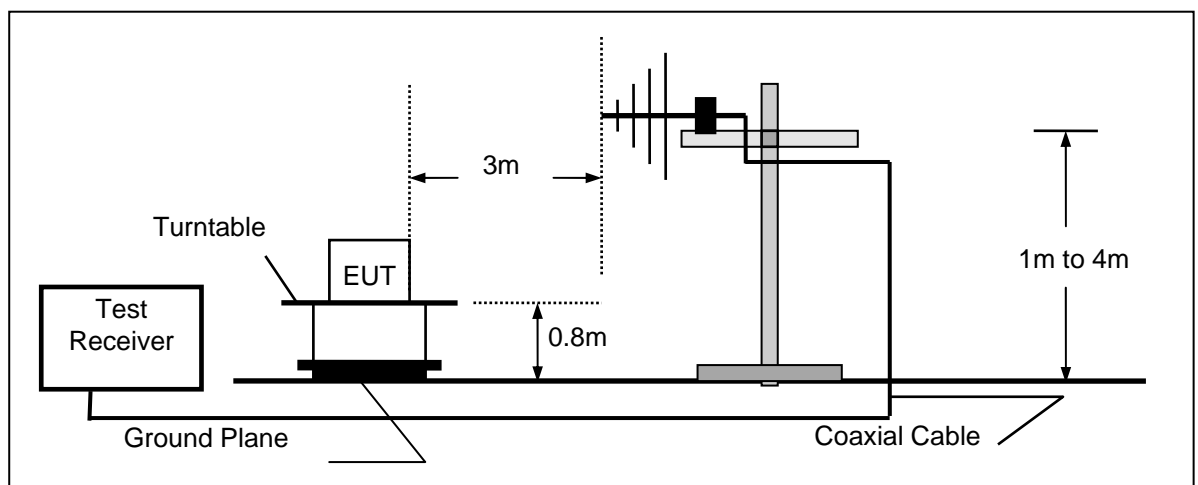
The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

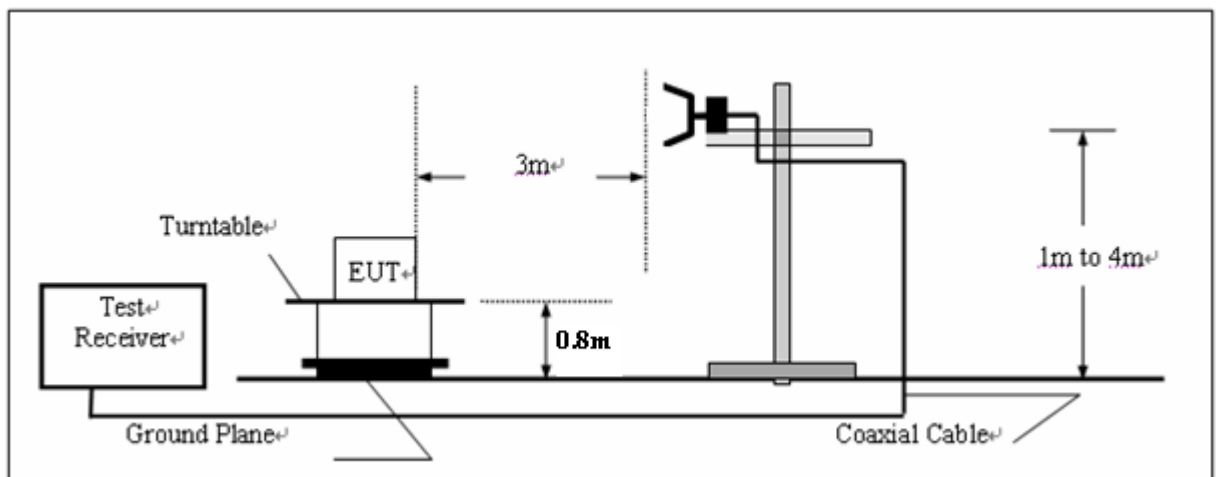
Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency below 1000MHz



(B) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
- 2 Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
- 3 And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4 Repeat above procedures until all frequency measurements have been completed.

RECEIVER RADIATED SPOUIOUS LIMIT

For unintentional device, according to § 15.109(a) and RSS-Gen, except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

TEST RESULTS

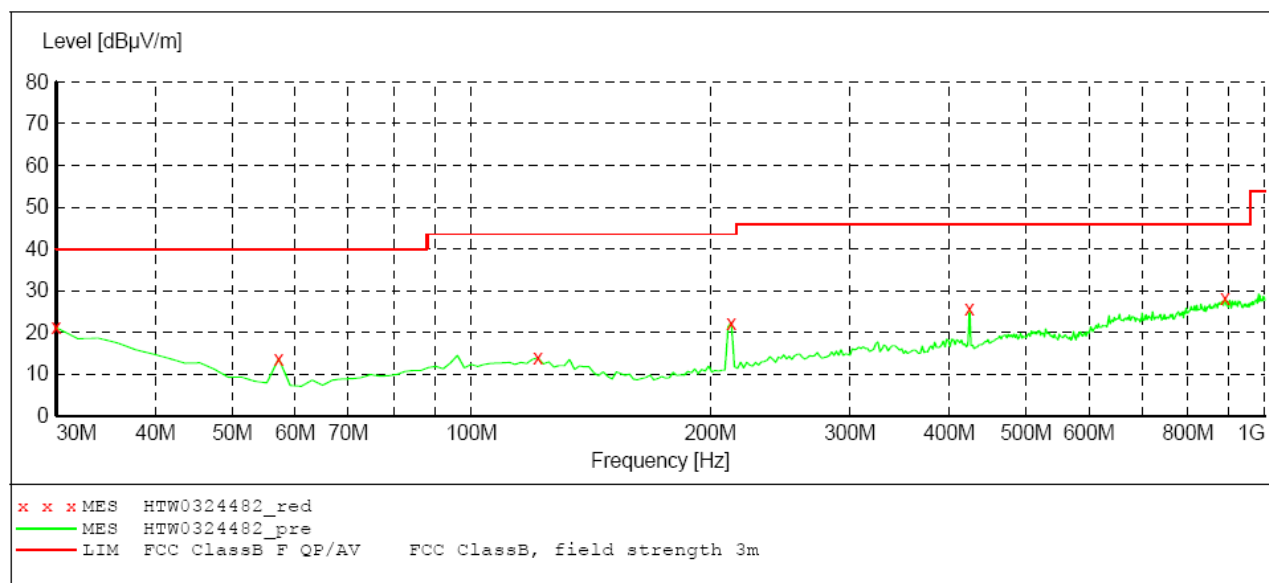
The Radiated Measurement are performed to the three channels (the top channel, the middle channel and the bottom channel), the datum recorded below is the worst case for each channel separation;and the EUT shall be scanned from 30 MHz to the 5th harmonic of the highest oscillator frequency in the digital devices or 1 GHz whichever is higher.

Only for IC Review (Not For FCC Review)

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		IC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
FM	25 KHz	173.5000	H	424.61	33.40	46.00
			V	891.14	28.10	46.00
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 2011

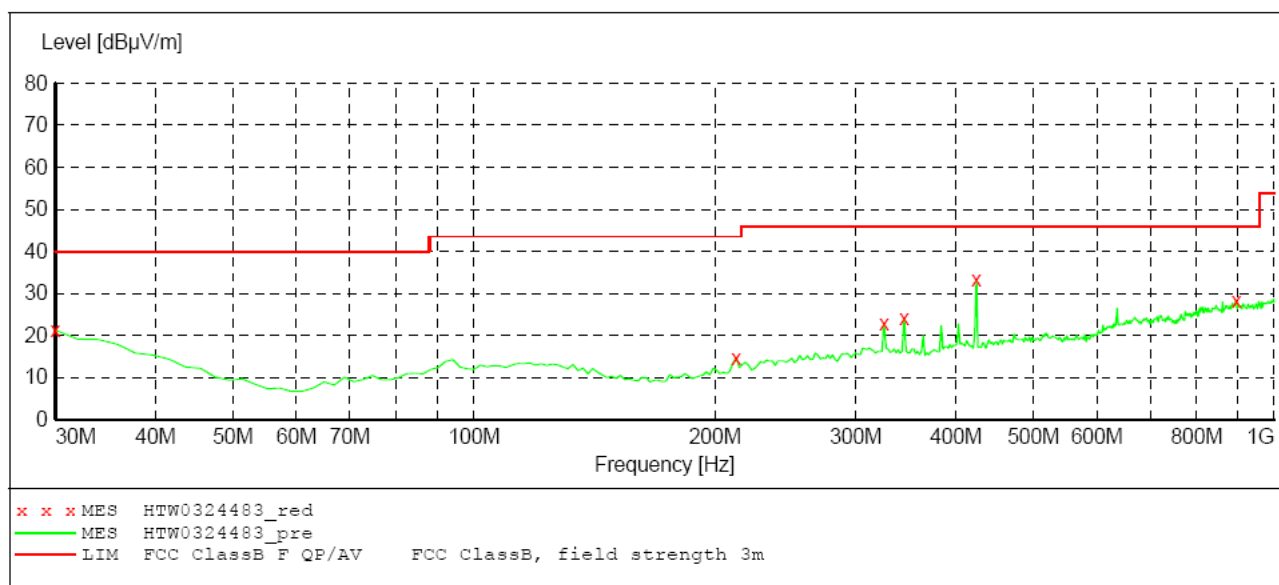
***MEASUREMENT RESULT: "HTW0324482_red"***

3/25/2012 6:34PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	21.10	-11.3	40.0	18.9	PK	100.0	232.00	VERTICAL
57.214429	13.70	-24.6	40.0	26.3	PK	100.0	340.00	VERTICAL
121.362725	13.80	-19.4	43.5	29.7	PK	100.0	111.00	VERTICAL
212.725451	22.30	-20.8	43.5	21.2	PK	100.0	116.00	VERTICAL
424.609218	25.80	-15.4	46.0	20.2	PK	100.0	205.00	VERTICAL
891.142285	28.10	-6.7	46.0	17.9	PK	100.0	195.00	VERTICAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 2010

***MEASUREMENT RESULT: "HTW0324483_red"***

3/25/2012 6:50PM

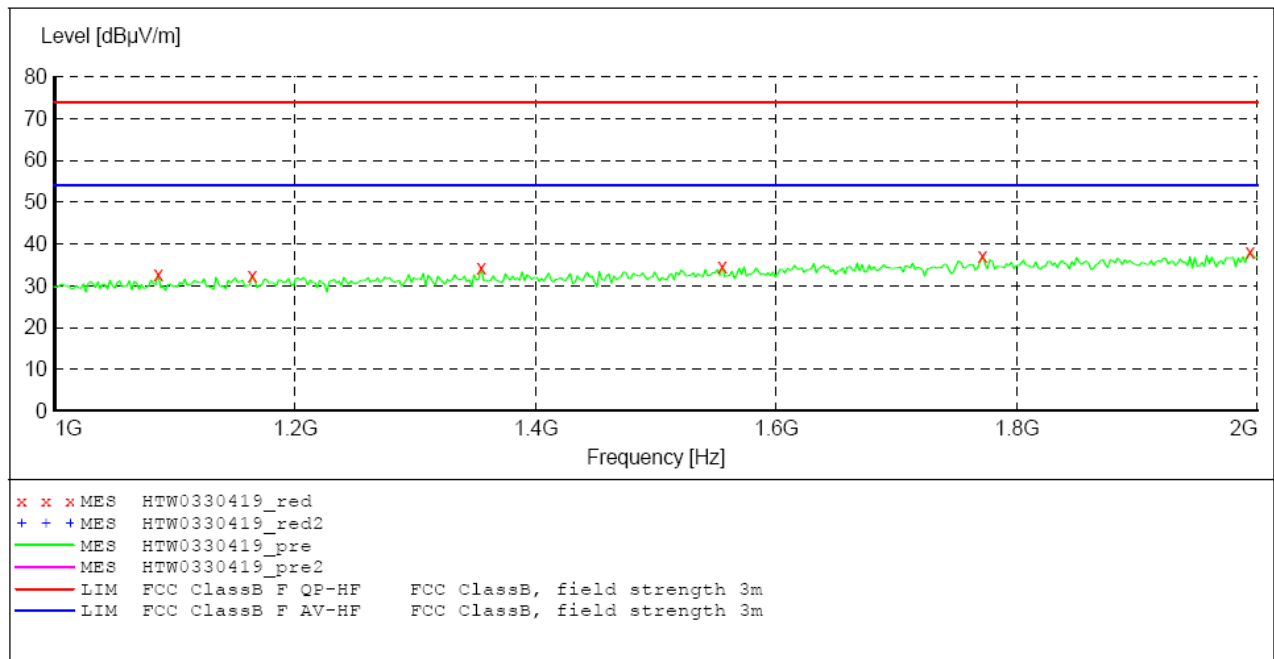
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	21.20	-11.3	40.0	18.8	PK	100.0	278.00	HORIZONTAL
212.725451	14.60	-20.8	43.5	28.9	PK	100.0	161.00	HORIZONTAL
325.470942	22.90	-16.2	46.0	23.1	PK	100.0	290.00	HORIZONTAL
344.909820	24.20	-16.5	46.0	21.8	PK	100.0	84.00	HORIZONTAL
424.609218	33.40	-15.4	46.0	12.6	PK	100.0	113.00	HORIZONTAL
896.973948	28.20	-7.1	46.0	17.8	PK	300.0	137.00	HORIZONTAL

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		IC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
FM	25 KHz	173.5000	H	1771.54	37.10	54.00
			V	1937.87	37.60	54.00
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 2010

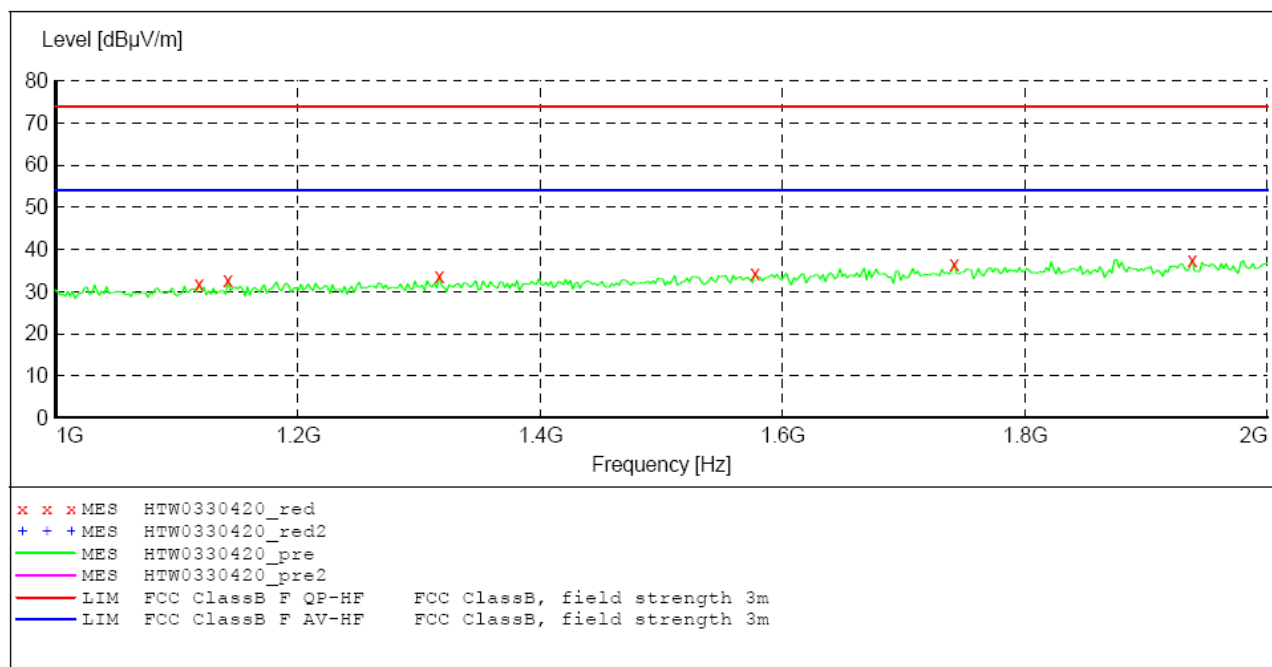
***MEASUREMENT RESULT: "HTW0330419_red"***

3/30/2012 1:49AM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1086.172345	32.80	-26.2	74.0	41.2	PK	100.0	211.00	HORIZONTAL
1164.328657	32.50	-25.6	74.0	41.5	PK	100.0	199.00	HORIZONTAL
1354.709419	34.40	-24.4	74.0	39.6	PK	100.0	164.00	HORIZONTAL
1555.110220	34.70	-23.1	74.0	39.3	PK	100.0	49.00	HORIZONTAL
1771.543086	37.10	-21.3	74.0	36.9	PK	100.0	266.00	HORIZONTAL
1937.987976	38.00	-19.6	74.0	36.0	PK	100.0	333.00	HORIZONTAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562

***MEASUREMENT RESULT: "HTW0330420_red"***

3/30/2012 1:50AM

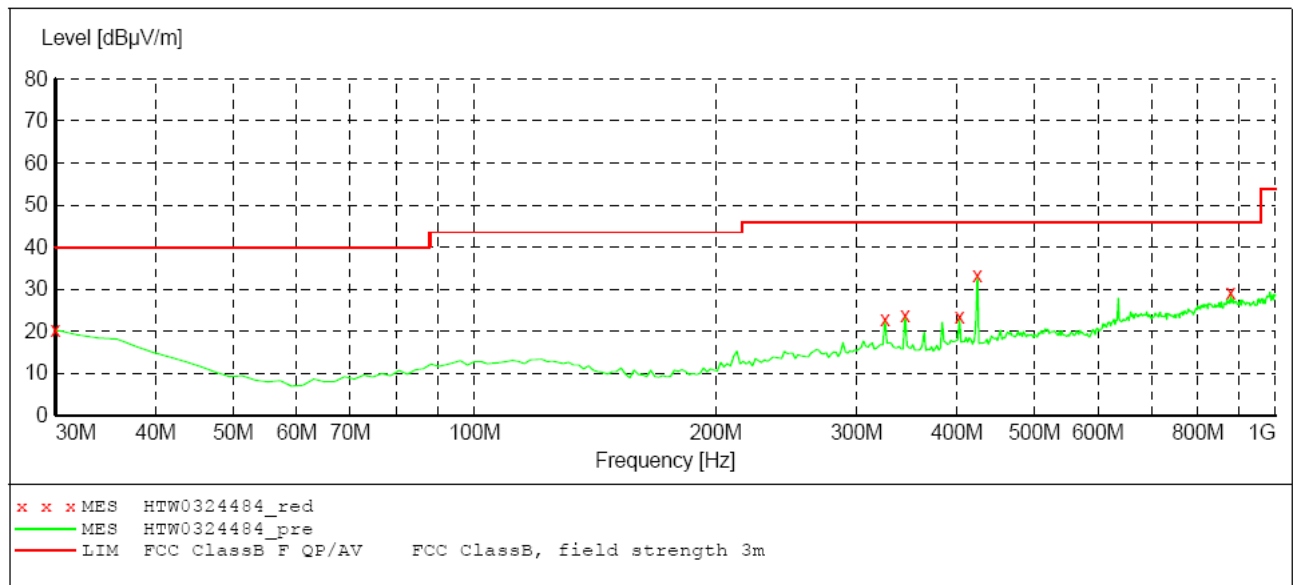
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1118.236473	31.60	-26.0	74.0	42.4	PK	100.0	320.00	VERTICAL
1142.284569	32.60	-25.8	74.0	41.4	PK	100.0	239.00	VERTICAL
1316.633267	33.80	-24.7	74.0	40.2	PK	100.0	317.00	VERTICAL
1577.154309	34.20	-22.9	74.0	39.8	PK	100.0	280.00	VERTICAL
1741.482966	36.60	-21.5	74.0	37.4	PK	100.0	253.00	VERTICAL
1937.875752	37.60	-20.0	74.0	36.4	PK	100.0	337.00	VERTICAL

For both FCC and IC Review

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		IC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
FM	12.5 KHz	173.5000	H	424.61	33.40	46.00
			V	924.18	28.20	46.00
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562

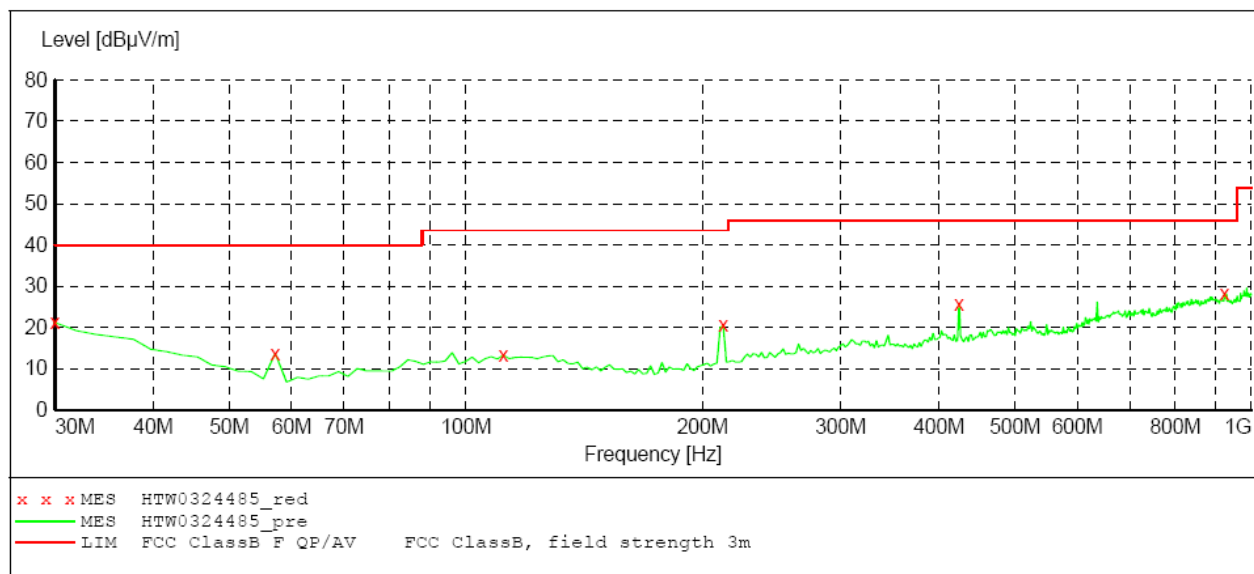
***MEASUREMENT RESULT: "HTW0324484_red"***

3/25/2012 6:53PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	20.30	-11.3	40.0	19.7	PK	100.0	312.00	HORIZONTAL
325.470942	22.70	-16.2	46.0	23.3	PK	100.0	299.00	HORIZONTAL
344.909820	23.80	-16.5	46.0	22.2	PK	100.0	253.00	HORIZONTAL
403.226453	23.50	-15.1	46.0	22.5	PK	100.0	103.00	HORIZONTAL
424.609218	33.40	-15.4	46.0	12.6	PK	100.0	116.00	HORIZONTAL
879.478958	29.20	-7.0	46.0	16.8	PK	100.0	304.00	HORIZONTAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562

***MEASUREMENT RESULT: "HTW0324485_red"***

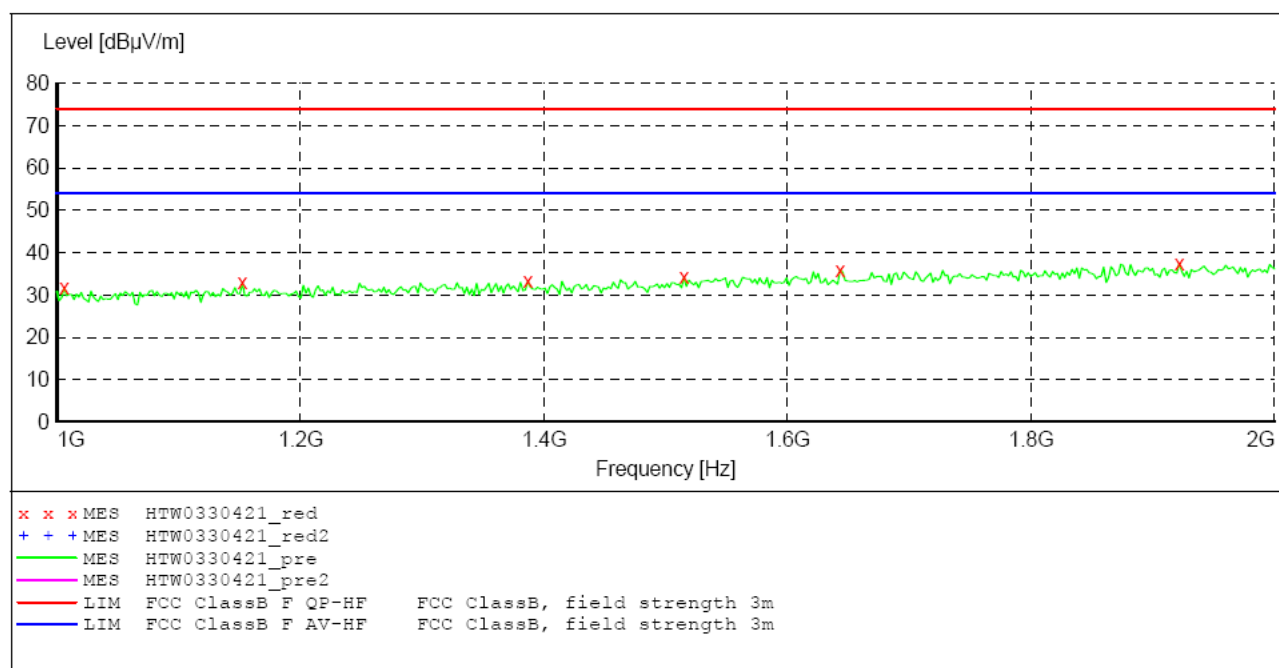
3/25/2012 6:55PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	21.10	-11.3	40.0	18.9	PK	100.0	208.00	VERTICAL
57.214429	13.70	-24.6	40.0	26.3	PK	100.0	355.00	VERTICAL
111.643287	13.20	-19.5	43.5	30.3	PK	100.0	94.00	VERTICAL
212.725451	20.50	-20.8	43.5	23.0	PK	100.0	109.00	VERTICAL
424.609218	25.80	-15.4	46.0	20.2	PK	100.0	178.00	VERTICAL
924.188377	28.20	-7.1	46.0	17.8	PK	100.0	234.00	VERTICAL

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		FCC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
FM	12.5 KHz	173.5000	H	1917.83	37.70	54.00
			V	1921.84	37.50	54.00
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562

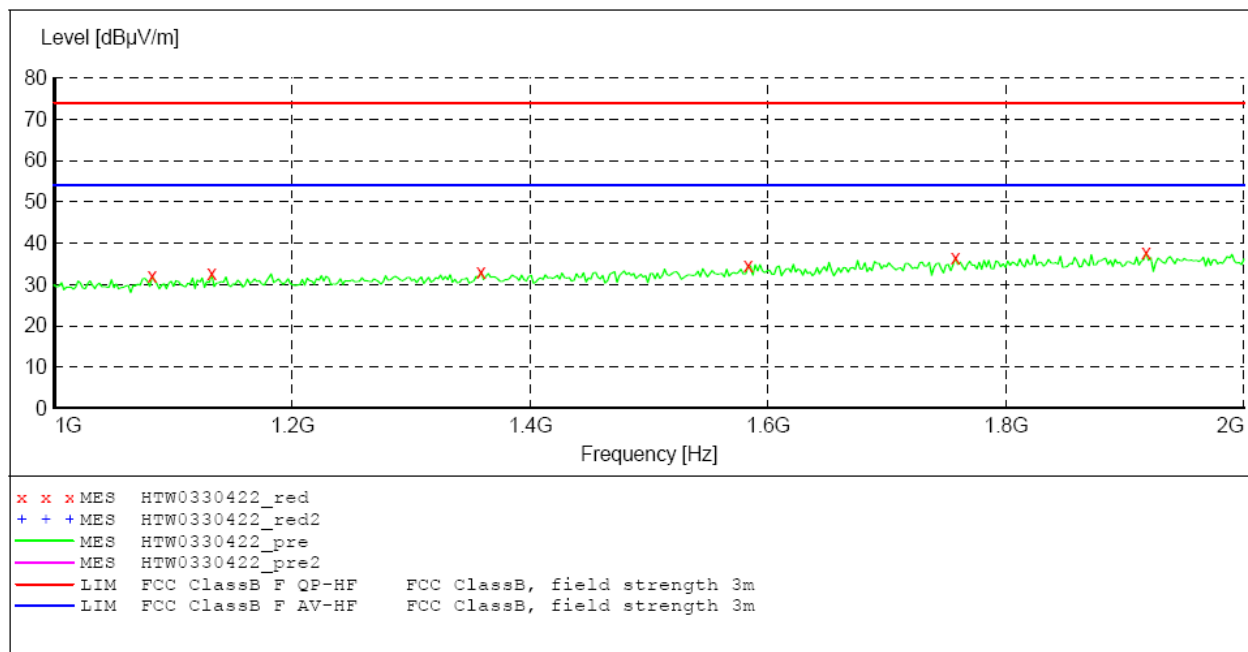
***MEASUREMENT RESULT: "HTW0330421_red"***

3/30/2012 1:52AM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1006.012024	31.70	-26.9	74.0	42.3	PK	100.0	124.00	VERTICAL
1152.304609	32.90	-25.7	74.0	41.1	PK	100.0	59.00	VERTICAL
1386.773547	33.30	-24.2	74.0	40.7	PK	100.0	359.00	VERTICAL
1515.030060	34.20	-23.5	74.0	39.8	PK	100.0	357.00	VERTICAL
1643.286573	36.00	-22.3	74.0	38.0	PK	100.0	355.00	VERTICAL
1921.843687	37.50	-20.1	74.0	36.5	PK	100.0	7.00	VERTICAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 2010

**MEASUREMENT RESULT: "HTW0330422_red"**

3/30/2012 1:54AM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1082.164329	32.00	-26.2	74.0	42.0	PK	100.0	46.00	VERTICAL
1132.264529	32.60	-25.9	74.0	41.4	PK	100.0	300.00	VERTICAL
1358.717435	33.20	-24.4	74.0	40.8	PK	100.0	80.00	VERTICAL
1583.166333	34.60	-22.9	74.0	39.4	PK	100.0	100.00	VERTICAL
1757.515030	36.40	-21.4	74.0	37.6	PK	100.0	317.00	VERTICAL
1917.835671	37.70	-20.1	74.0	36.3	PK	100.0	0.00	VERTICAL

4.10. Receiver Conducted Spurious Emssion

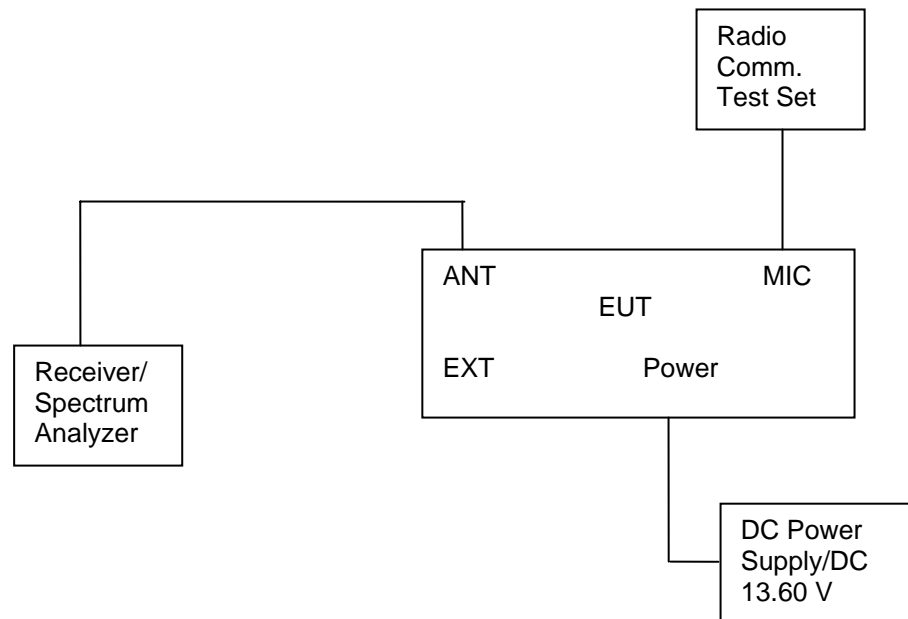
TEST APPLICABLE

The same as Section 4.3

TEST PROCEDURE

The spectrum analyzer was connected to the RF output power of the EUT, the EUT was setup in receiving mode; The RBW of the spectrum analyzer was set to 100 kHz and the VBW set to 300 KHz below the test frequency 1GHz. While the RBW of the spectrum analyzer was set to the 1MHz and VBW set to the 3MHz from 1GHz to the 10th harmonic.

TEST CONFIGURATION



LIMIT

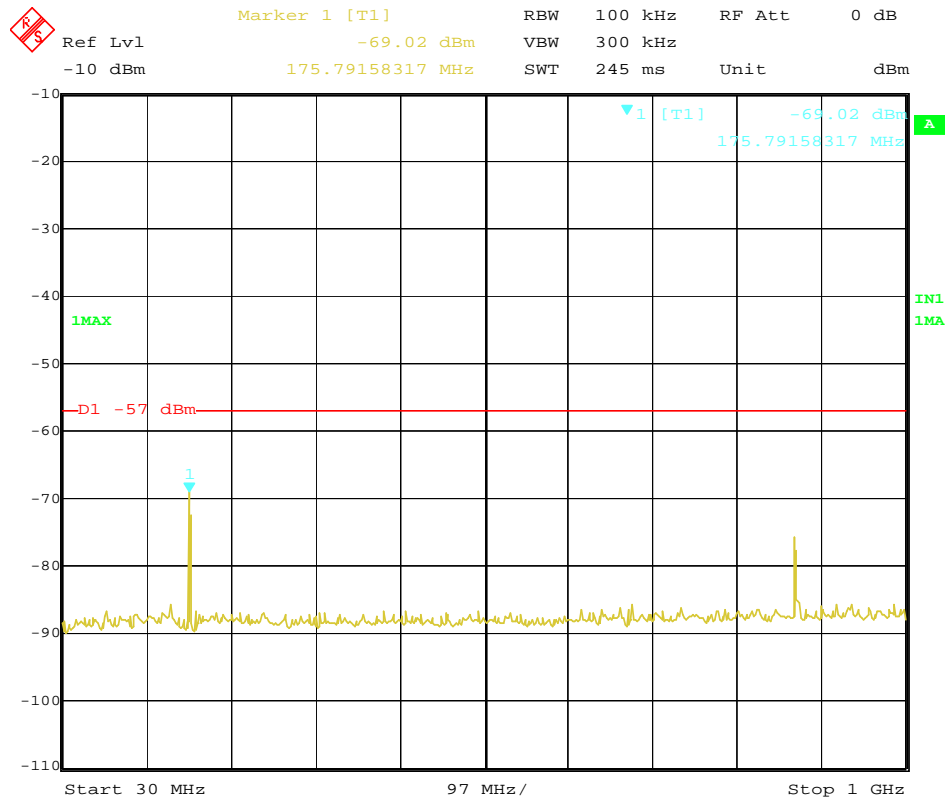
The power at the antenna terminal shall not exceed 2.0 nanowatts (-57dBm).

TEST RESULTS

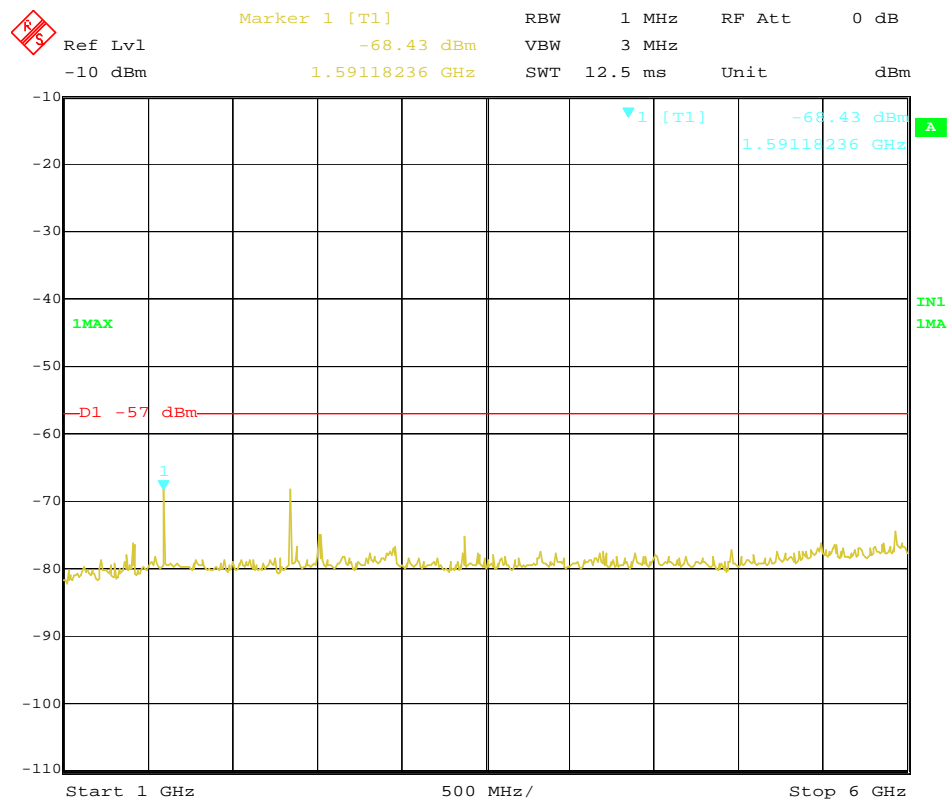
The Receiver Conducted Spurious Emssions Measurement is performed to the three channels (the high channel, the middle channel and the low channel), the datums recorded below were for the three channels; and the EUT shall be scanned from 30 MHz to the 2 GHz.

Only for IC Review (Not For FCC Review)

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Low	138.5000	175.79	-69.02	1591.18	-68.43	-57dBm
Test Results				Compliance				

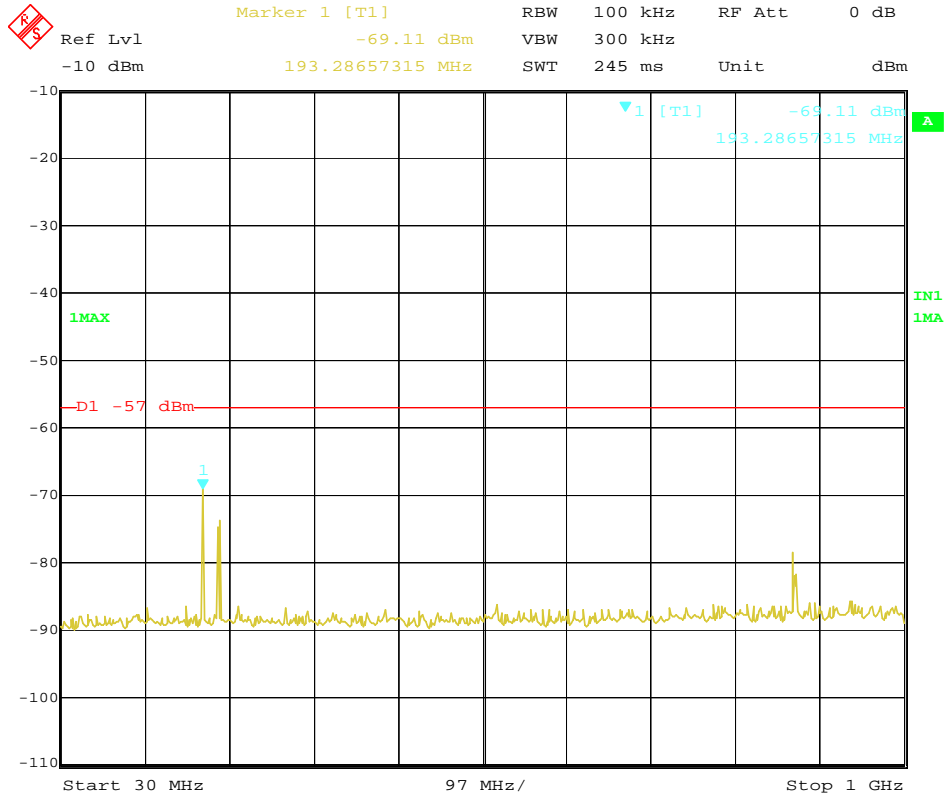


Date: 28.MAR.2012 12:17:15

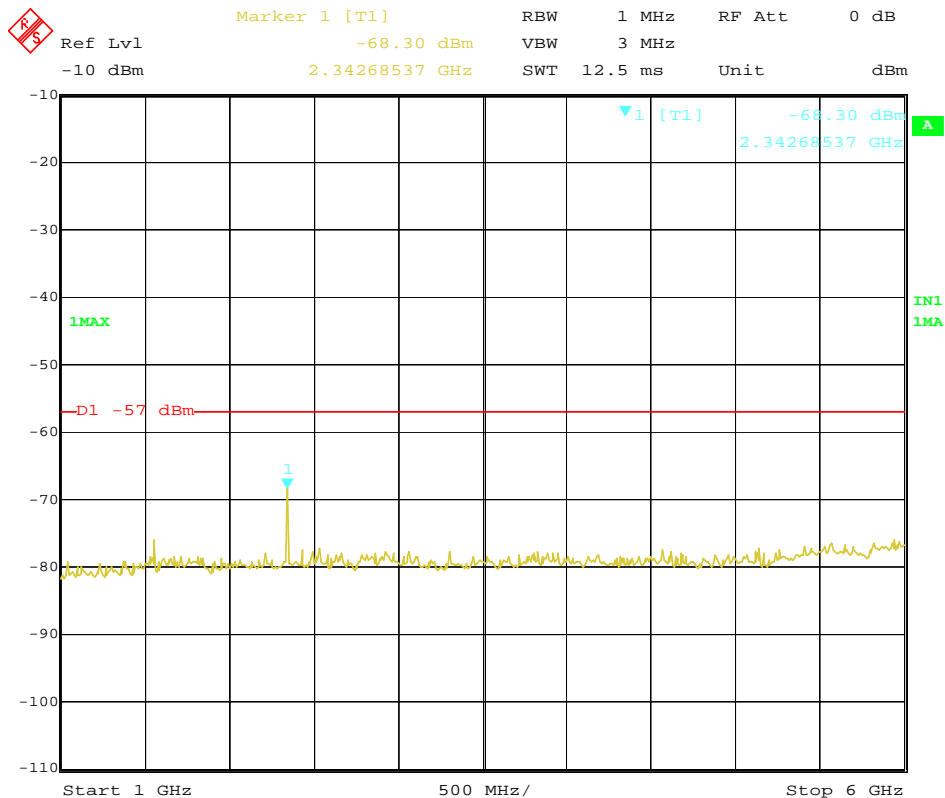


Date: 28.MAR.2012 12:16:04

Modulation Type	Channel SpARATION	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Middle	155.000	193.29	-69.11	2342.68	-68.30	-57dBm
Test Results				Compliance				

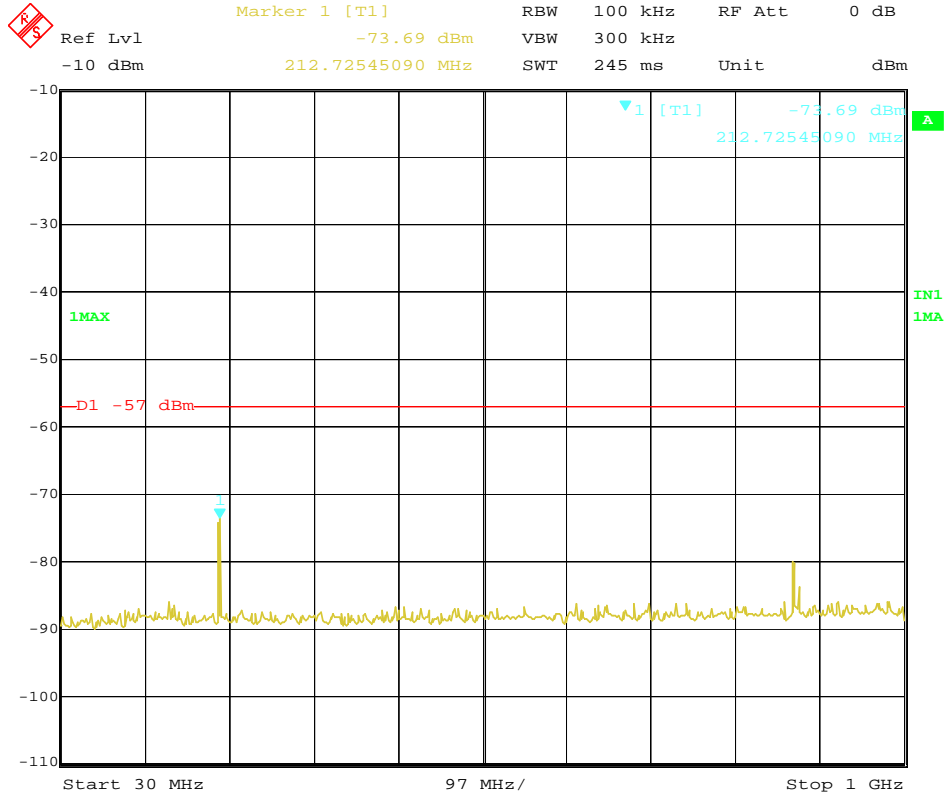


Date: 28.MAR.2012 12:17:24

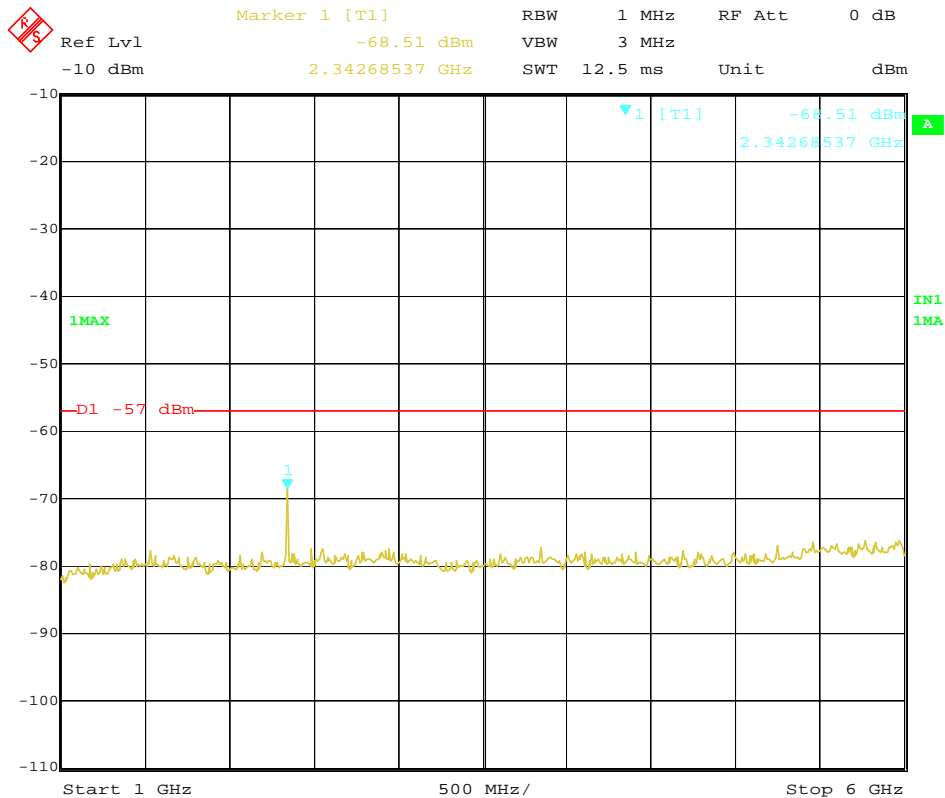


Date: 28.MAR.2012 12:16:15

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		IC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	High	173.5000	212.73	-73.69	2342.68	-68.51	-57dBm
Test Results				Compliance				



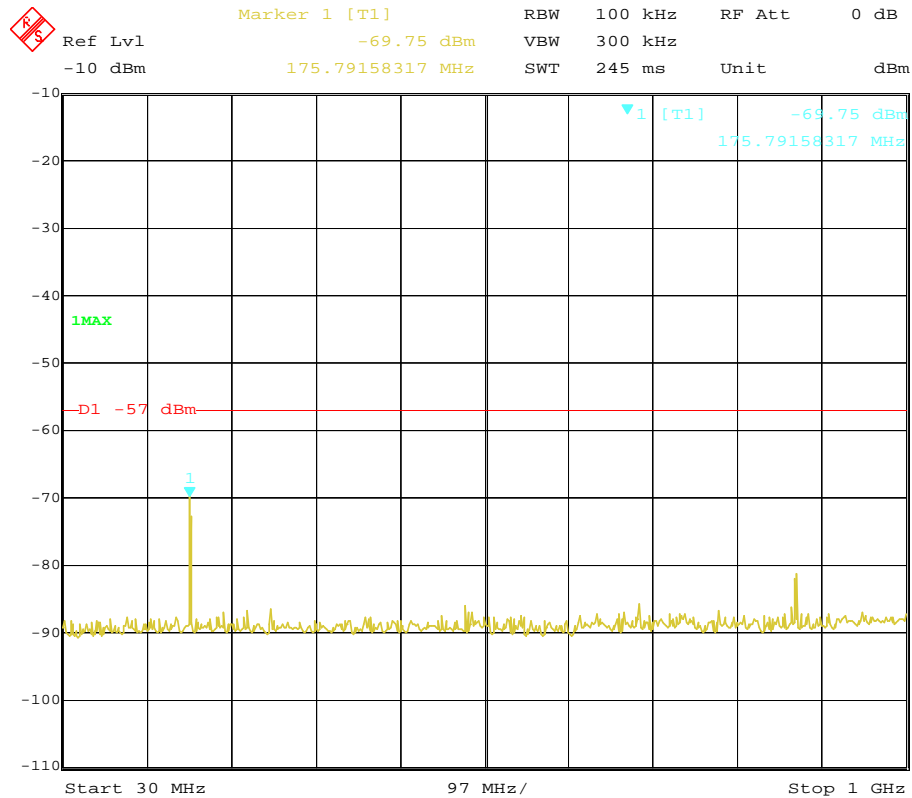
Date: 28.MAR.2012 12:17:33



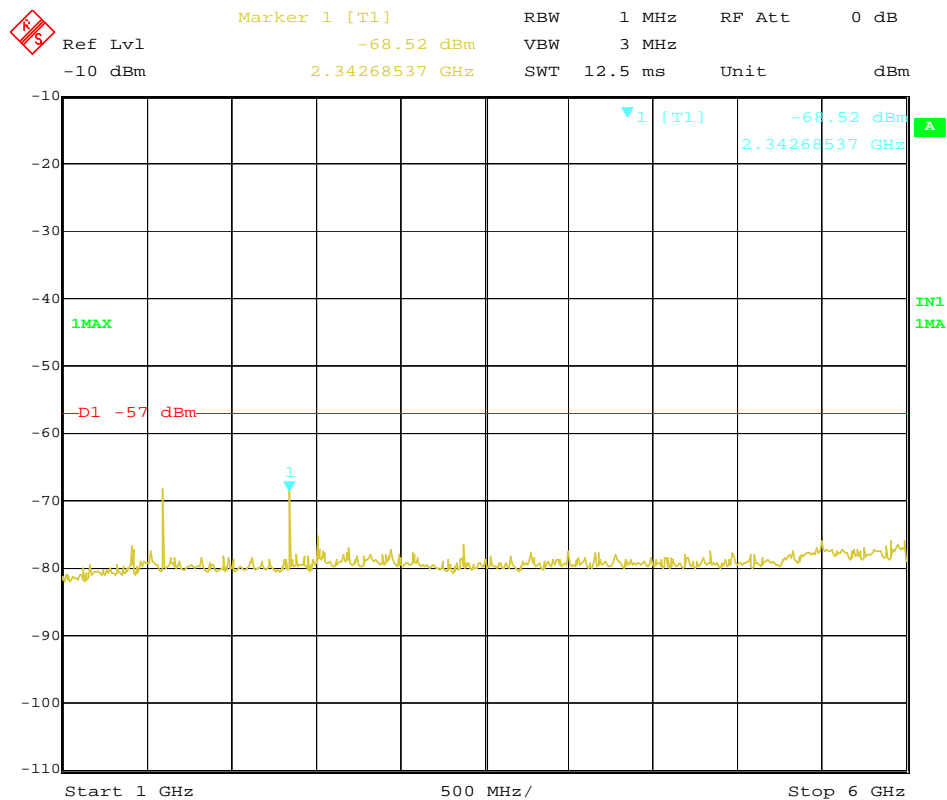
Date: 28.MAR.2012 12:16:23

For both FCC and IC Review

Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Low	138.5000	175.79	-69.75	2342.68	-68.52	-57dBm
Test Results				Compliance				

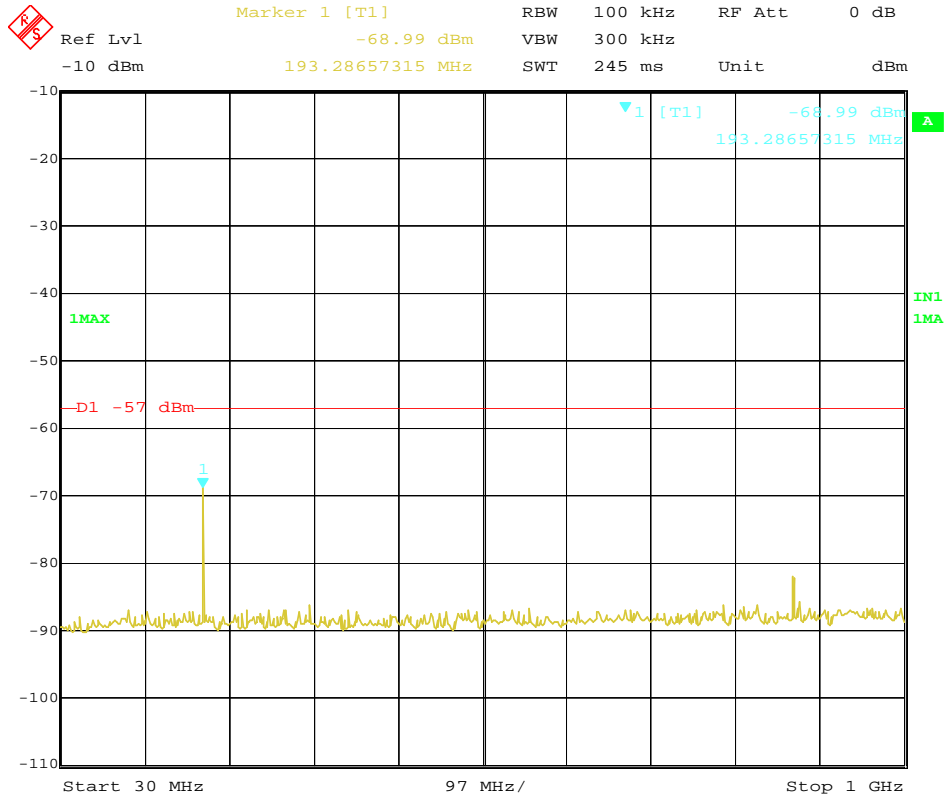


Date: 28.MAR.2012 12:17:42

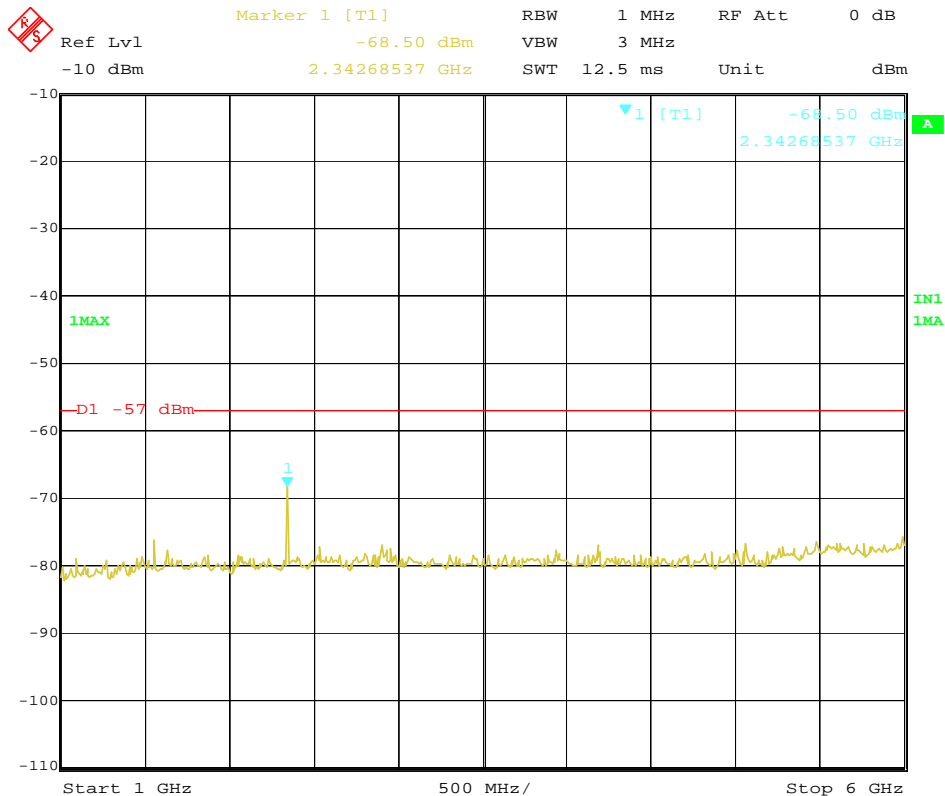


Date: 28.MAR.2012 12:16:30

Modulation Type	Channel Sparation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Middle	155.5000	193.29	-68.99	2342.68	-68.50	-57dBm
Test Results				Compliance				

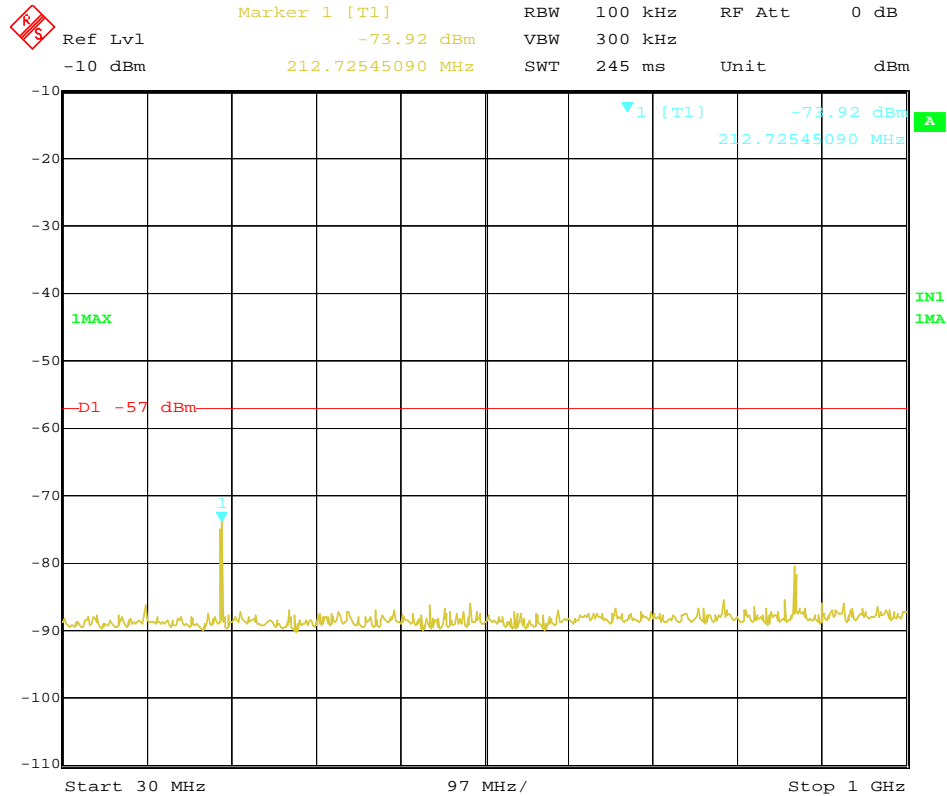


Date: 28.MAR.2012 12:17:51

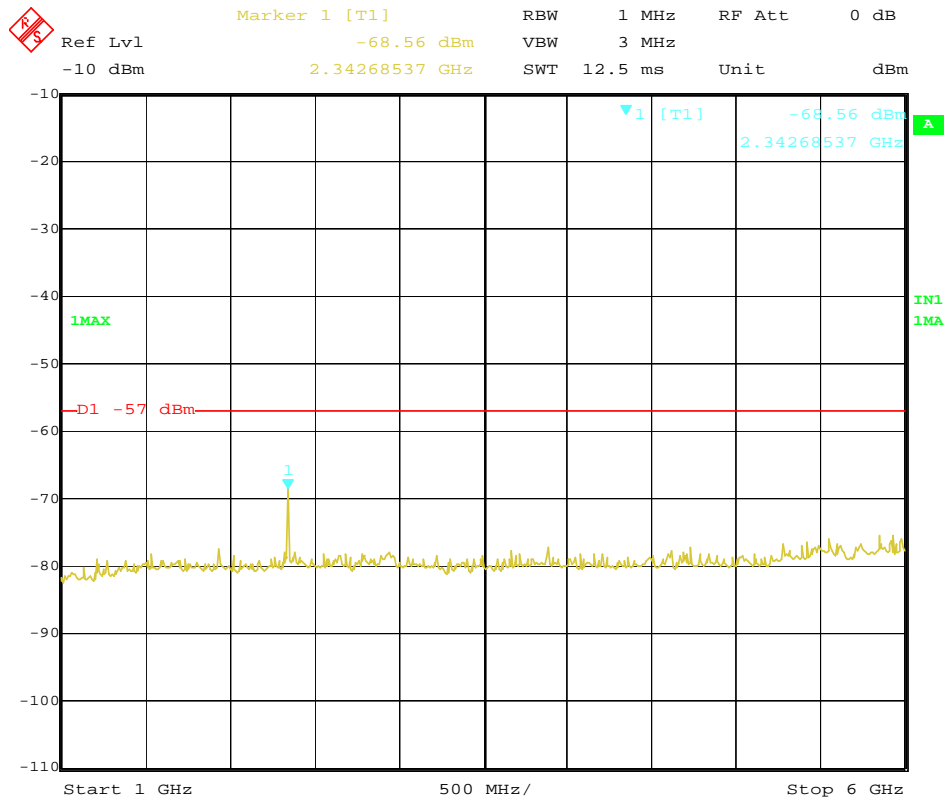


Date: 28.MAR.2012 12:16:40

Modulation Type	Channel SpARATION	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	High	173.5000	212.73	-73.92	2342.68	-68.56	-57dBm
Test Results				Compliance				

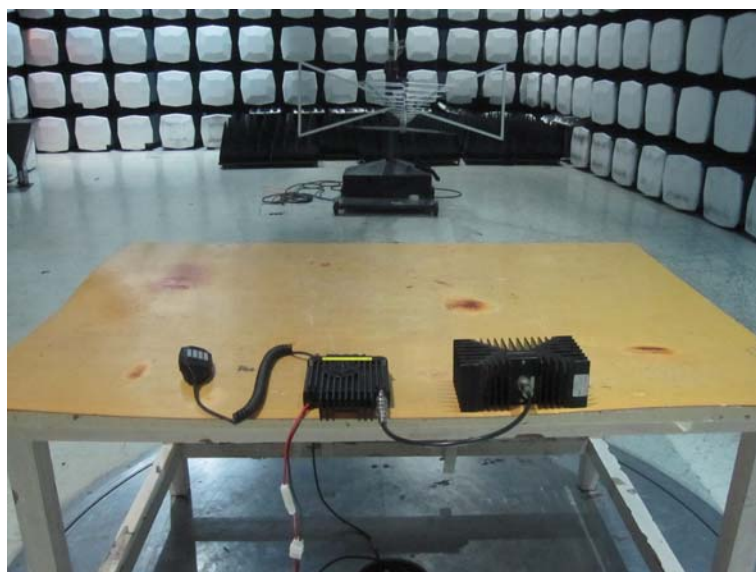


Date: 28.MAR.2012 12:17:59



Date: 28.MAR.2012 12:16:47

5. Test Setup Photos of the EUT





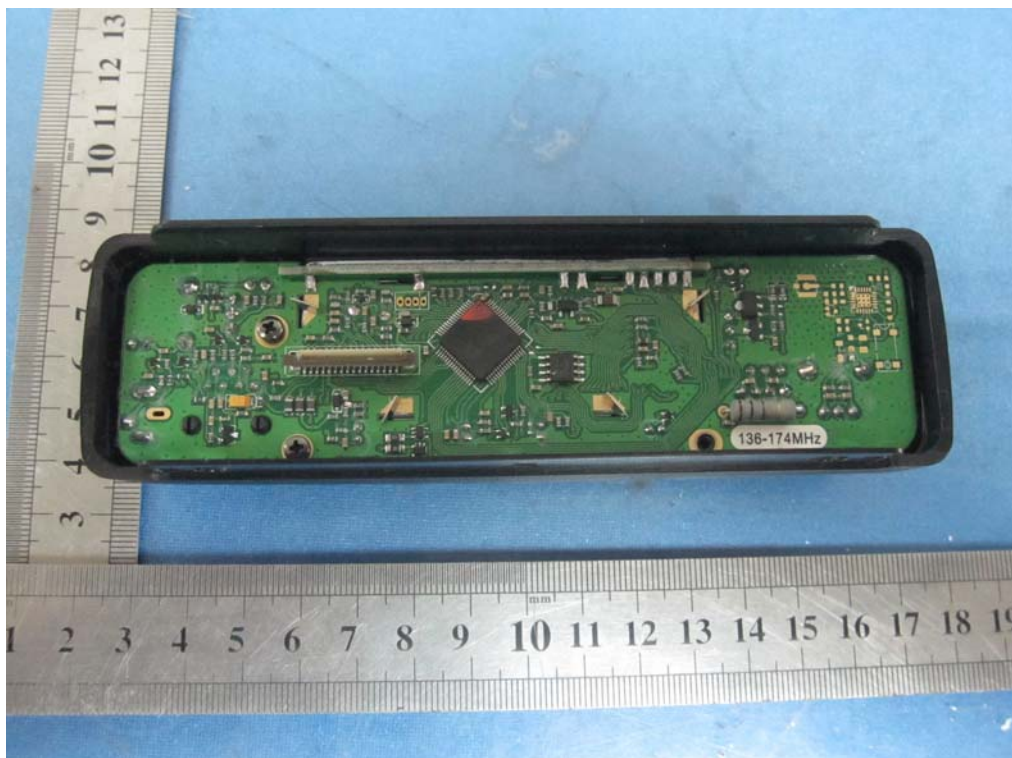
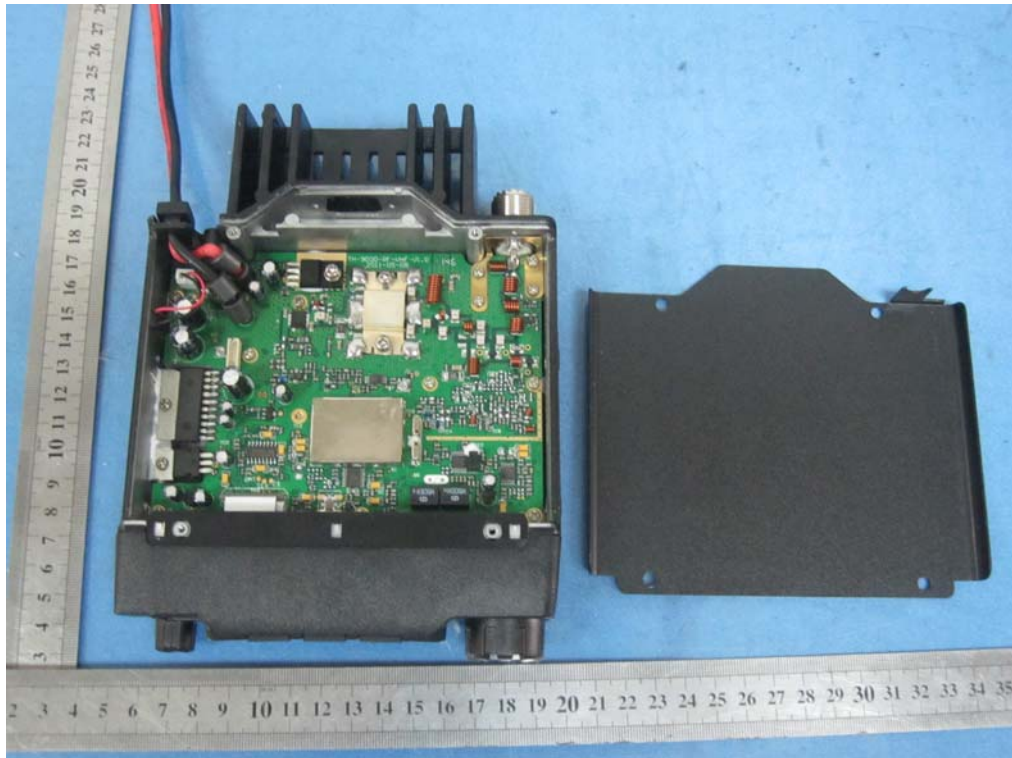
6. External and Internal Photos of the EUT

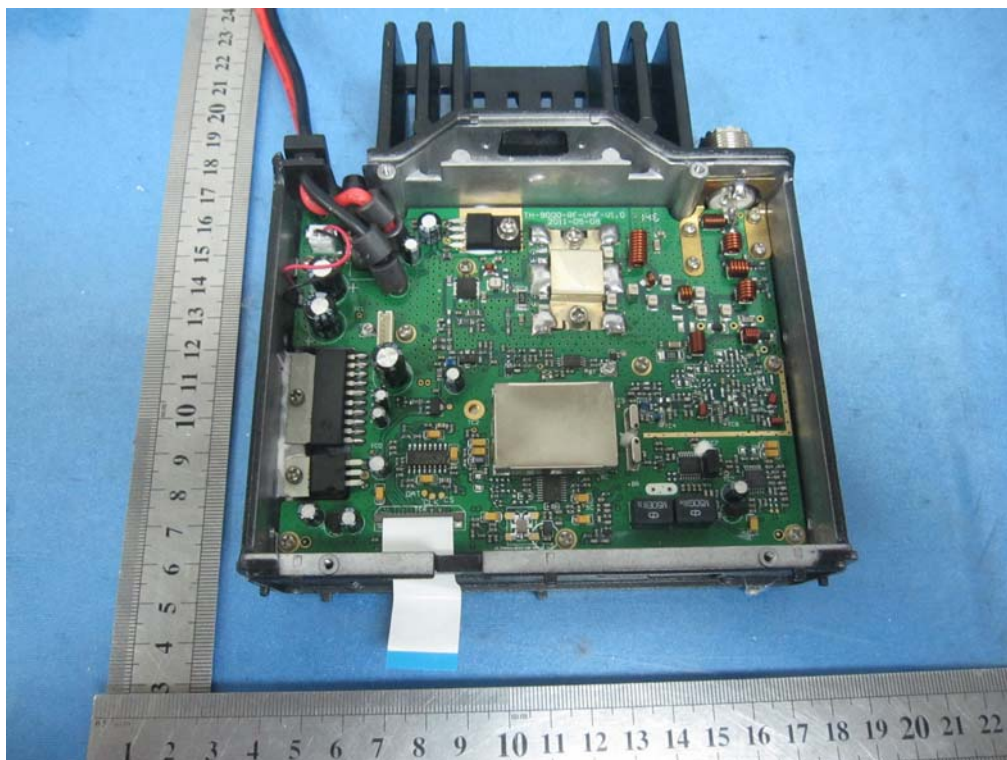
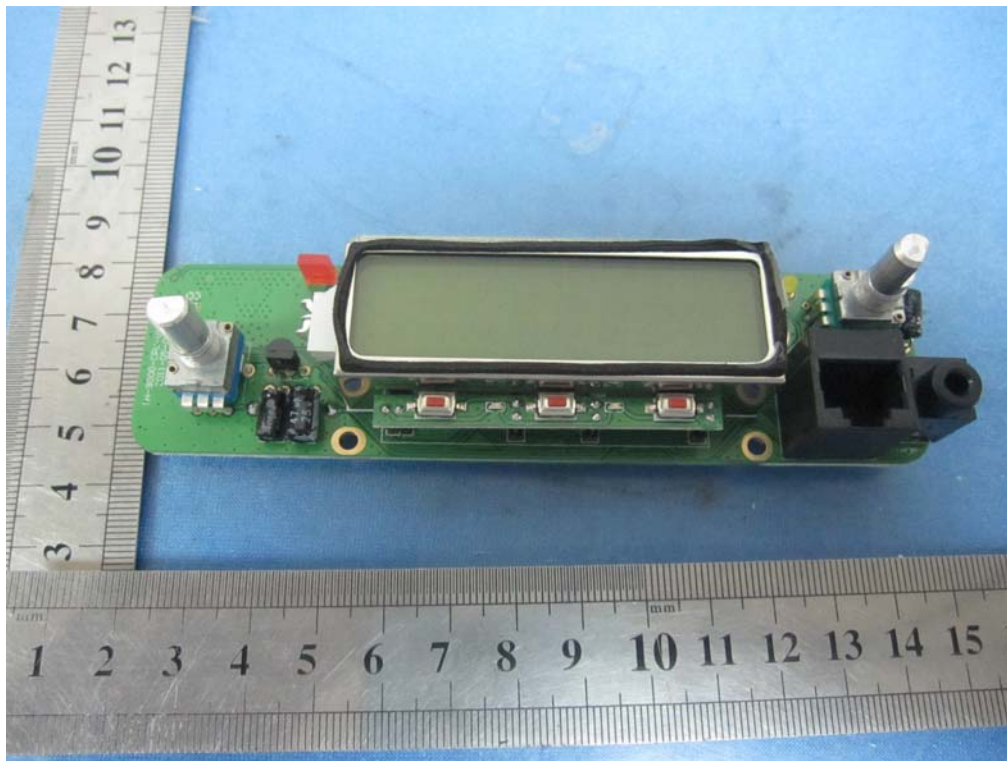
External Photos

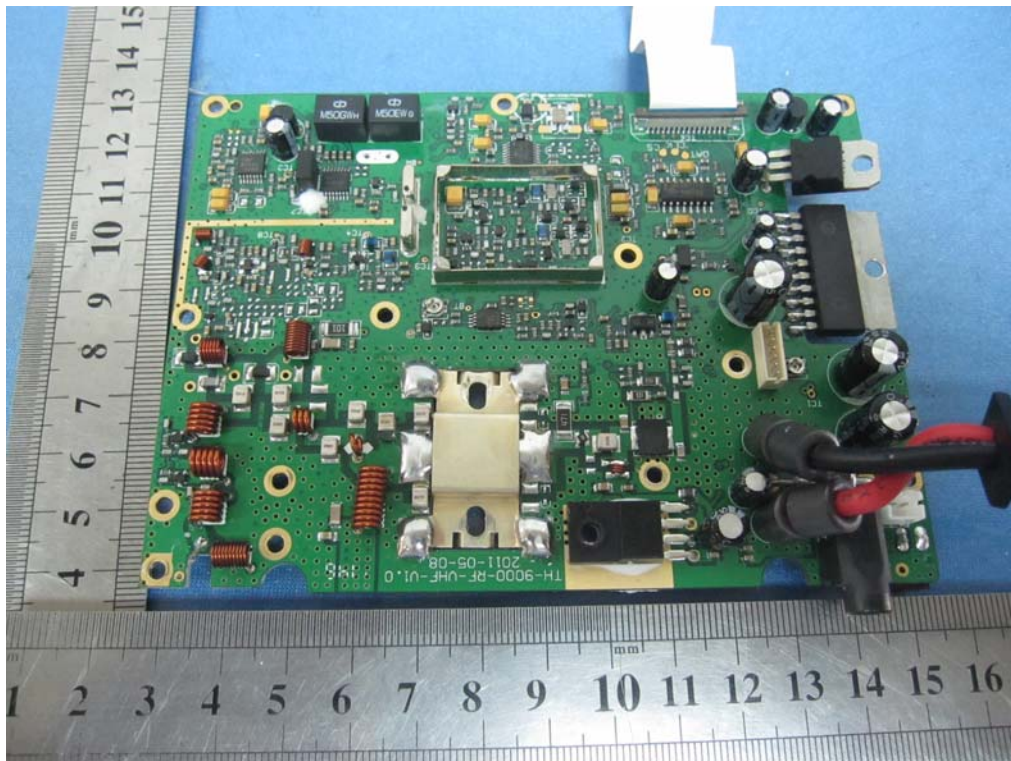




Internal Photos









.....End of Report.....