ENGINEERING TEST REPORT

VHF/UHF Dual Band FM Transceiver
Model No.: IC-T70A

FCC ID: AFJ325300

Applicant:

ICOM Incorporated
1-1-32, Kamiminami, Hirano-ku
Osaka, Japan, 547-0003

Tested in Accordance With

Federal Communications Commission (FCC)
47 CFR, Part 15, Subpart B
Scanning Receivers Operating in the Frequency Band
30 MHz - 960 MHz (excluding cellular bands)

UltraTech's File No.: ICOM-228F15B121

This Test report is Issued under the Authority of Tri M. Luu, Professional Engineer, Vice President of Engineering UltraTech Group of Labs Date: January 4, 2010	
Report Prepared by: Santhosh Fernandez Issued Date: January 4, 2010	Tested by: Wayne Wu and Quan Ngo, EMI/RFI Technicians Test Dates: December 16, 23 and 29, 2009

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

UltraTech

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91038	1309	46390-2049	NvLap Lab Code 200093-0	SL2-IN-E-1119R	Korea KCC-RRL CA2049

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EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	FCC Part 15, Subpart B, Sections 15.107, 15.109, 15.111 & 15.121
Title:	Code of Federal Regulations (CFR), Title 47, Telecommunication, Part 15
Purpose of Test:	To gain FCC Certification Authorization for Scanning Receivers Operating in 30 MHz - 960 MHz band (excluding cellular bands).
Test Procedures:	Both conducted and radiated emissions measurements were conducted in accordance with American National Standards Institute ANSI C63.4 - American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
Environmental Classification:	Residential, Commercial, Industrial or Business environment.

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None.

1.3. NORMATIVE REFERENCES

Publication	Year	Title
CFR , Title 47, Parts 0-19	2008	Code of Federal Regulations – Telecommunication
ANSI C63.4	2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
CISPR 22 EN 55022	2008-09, Edition 6.0 2006	Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement
CISPR 16-1-1 +A1 +A2	2006 2006 2007	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus
CISPR 16-1-2 +A1: 2004 +A2: 2006	2003	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-2: Conducted disturbances

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

Name:	Icom Incorporated
Address:	1-1-32, Kamiminami, Hirano-ku, Osaka Japan, 547-0003
Contact Person:	Mr. Takayuki Watanabe Phone #: +81-66-793-5301 Fax #: +81-66-793-0013 Email Address: export@icom.co.jp

MANUFACTURER	
Name:	ICOM Incorporated
Address:	1-1-32, Kamiminami Hirano-ku, Osaka Japan, 547-0003
Contact Person:	Mr. Masaaki Takahashi Phone #: 425-450-6043 Email Address: MasaakiTakahashi@icomamerica.com

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	ICOM Incorporated
Product:	VHF/UHF Dual Band FM Transceiver
Model Name or Number:	IC-T70A
Serial Number:	Test sample
Type of Equipment:	Scanning Receiver
Power input source:	7.2V from BP-264 Battery Pack / 10-16V for external Dc operation

2.3. EUT'S TECHNICAL SPECIFICATIONS

RECEIVER	
Equipment Type:	Portable
Power Supply Requirement:	7.2V using BP-264 Battery Pack or 7.4V using BP-265 Battery Pack or AA (LR6) x 6 alkaline batteries using BP-263 case or 10-16V for external Dc operation
Operating Frequency Range:	136-174 MHz and 400-479 MHz
Intermediate Frequencies:	1st 46.35MHz, 2nd 450 kHz
RF Input Impedance:	50 Ω

2.4. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
1	Antenna Connector	1	SMA	N/A
2	External DC In Jack	1	Power Jack	Non-Shielded
3	External headset jack	1	I/O Jack	Non-Shielded

2.5. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

Ancillary Equipment # 1	
Description:	Optional DC cable
Brand name:	ICOM
Model Name or Number:	OPC-254L

Ancillary Equipment # 2	
Description:	Headset
Brand name:	ICOM
Model Name or Number:	HS-94

EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TEST SIGNALS

Operating Modes:	The receiver was operated in the normal intended mode during testing
Special Test Software:	None
Special Hardware Used:	None
Receiver Test Antenna:	The EUT's was tested with its antenna connected as intended.

Receiver Test Signals	
Frequency Band(s):	136-174 MHz and 400-479 MHz
Test Frequency(ies):	(Near lowest, near middle & near highest frequencies in the frequency range of operation.)
136-174 MHz Band:	136 MHz, 155 MHz, 174 MHz
400-479 MHz Band:	400 MHz, 440 MHz, 479 MHz

EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- Power Line Conducted Emissions were performed in UltraTech's shielded room, 16'(L) by 12'(W) by 12'(H).

- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site has been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 91038) and Industry Canada office (Industry Canada File No.: 2049A-3). Expiry Date: 2011-05-01.

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

FCC Part 15, Subpart B	Test Requirements	Compliance (Yes/No)
15.107(a), Class B	Power Line Conducted Emissions Measurements	Yes
15.111(a)	Receiver Antenna Power Conducted Emissions for Non-Integral Antenna Port	Yes
15.109(a)	Radiated Emissions from Scanning Receivers & Class B Digital Device	Yes
15.121	Requirements for Scanning Receivers	Yes

4.3. MODIFICATIONS REQUIRED FOR COMPLIANCE

None.

EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS

5.1. TEST PROCEDURES

Please refer to Ultratech Test Procedures, File# ULTR-P001-2004 and for Test Procedures.

5.2. MEASUREMENT UNCERTAINTIES

The measurement uncertainties stated were calculated in accordance with requirements of UKAS Document LAB 34 with a confidence level of 95%. Please refer to Exhibit 6 for Measurement Uncertainties.

5.3. MEASUREMENT EQUIPMENT USED

The measurement equipment used complied with the requirements of the Standards referenced in the Methods & Procedures ANSI C63.4 and CIPSR 16-1-1.

5.4. POWER LINE CONDUCTED EMISSIONS [§ 15.107(a)]

5.4.1. Limits

The equipment shall meet the limits of the following table:

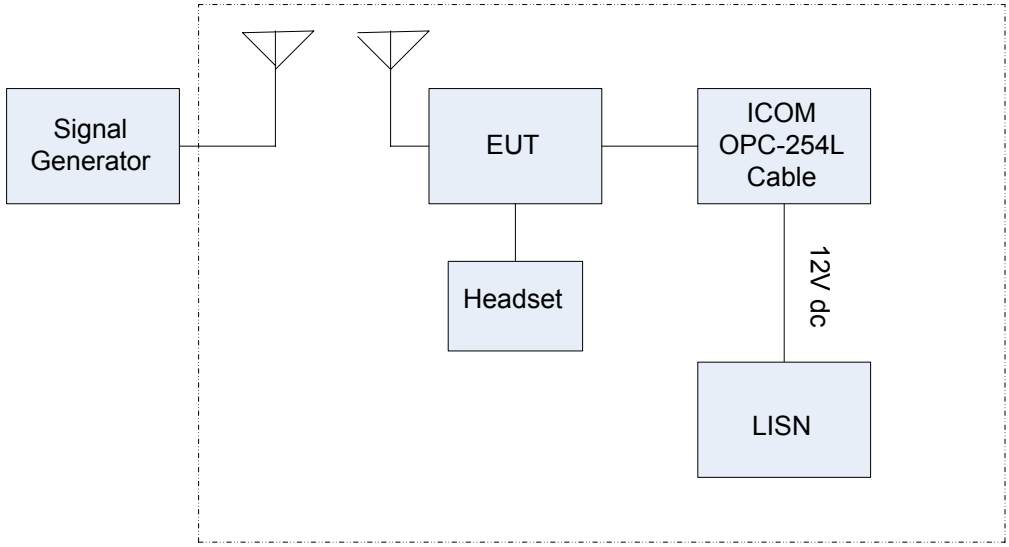
Frequency of Emissions (MHz)	Class B Conducted Limit (dBμV)	
	Quasi-Peak	Average
0.15 to 0.5 0.5 to 5 5 to 30	66 to 56* 56 60	56 to 46* 46 50

* Decreasing linearly with logarithm of frequency

5.4.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-200 & ANSI C63.4 for method of measurements.

5.4.3. Test Arrangement

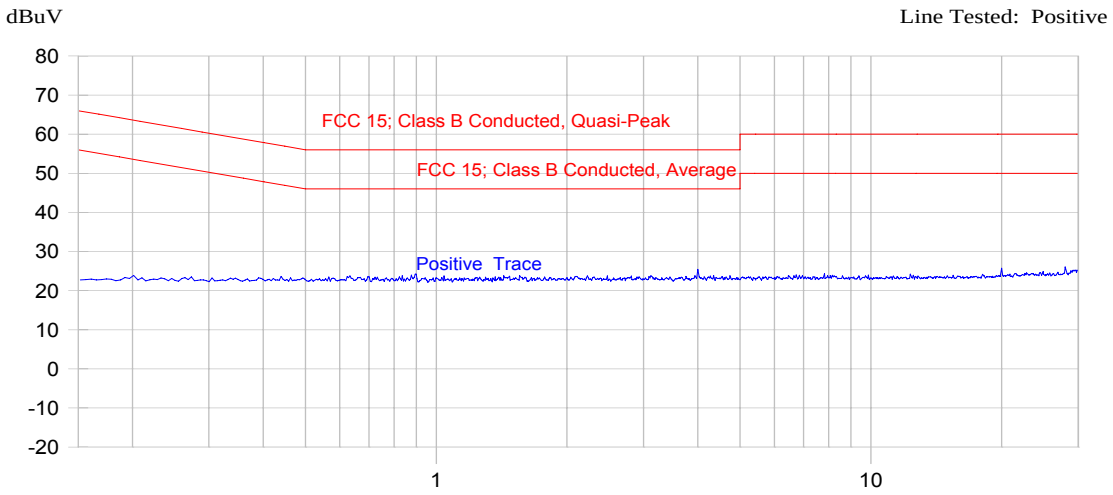


5.4.4. Test Data

DC 12V, Positive Line

Description: Line Voltage:12Vdc
Setup Name: FCC 15 Class B
Customer Name: ICOM
Project Number: ICOM-228Q
Operator Name: QUAN KHAI NGO
EUT Name: IC-T70A

Current Graph



Frequency MHz	Peak dBuV	QP dBuV	Delta QP-QP Limit dB	Avg dBuV	Delta Avg-Avg Limit dB	Trace Name
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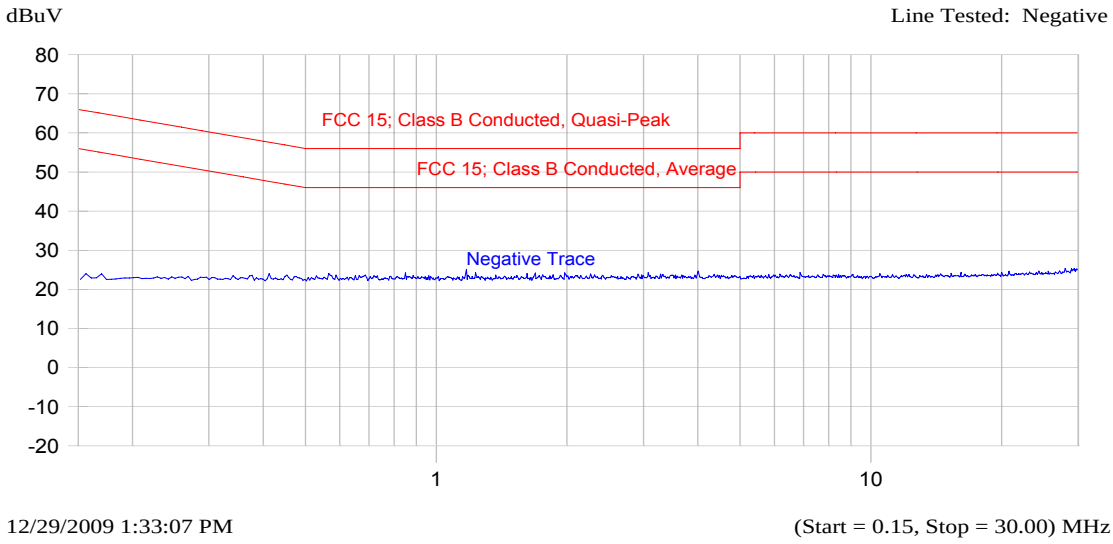
Note: No significant Emissions found:

DC 12V, Negative Line

Description: Line Voltage:12Vdc
Setup Name: FCC 15 Class B
Customer Name: ICOM
Project Number: ICOM-228Q
Operator Name: QUAN KHAI NGO
EUT Name: IC-T70A



Frequency MHz	Peak dBuV	QP dBuV	Delta QP-QP Limit dB	Avg dBuV	Delta Avg-Avg Limit dB	Trace Name
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Note: No significant Emissions found:

5.5. RECEIVER ANTENNA POWER SPURIOUS/HARMONIC CONDUCTED EMISSIONS [§15.111(a)]

5.5.1. Limits

Receivers that operate (tune) in the frequency range 30 to 960 Mhz and CB receivers that provides terminals for the connection of an external antenna may be tested to demonstrate compliance with the provisions of @ 15.109 with the antenna terminals shielded and terminated with a resistive termination equal to the impedance specified for the antenna, provided these receivers also comply with the following:- ***With the receiver antenna terminal connected to a resistive termination equal to the impedance specified or employed for the antenna, the power at the antenna terminal at frequency within the range from 30 Mhz to 5th harmonic of the highest frequency shall not exceed 2.0 nanowatts (or -57 dBm @ 50 Ohm).***

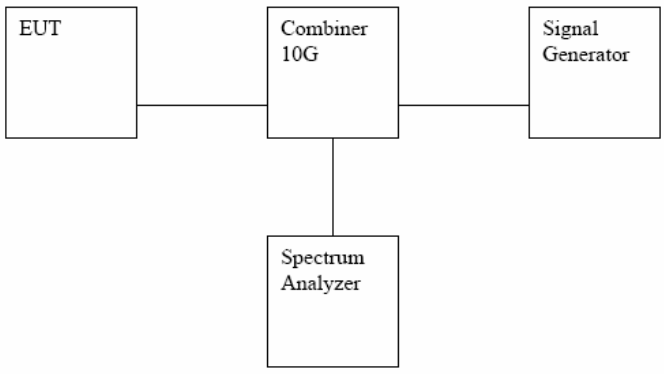
5.5.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-200 & ANSI C63.4 for method of measurements.

The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

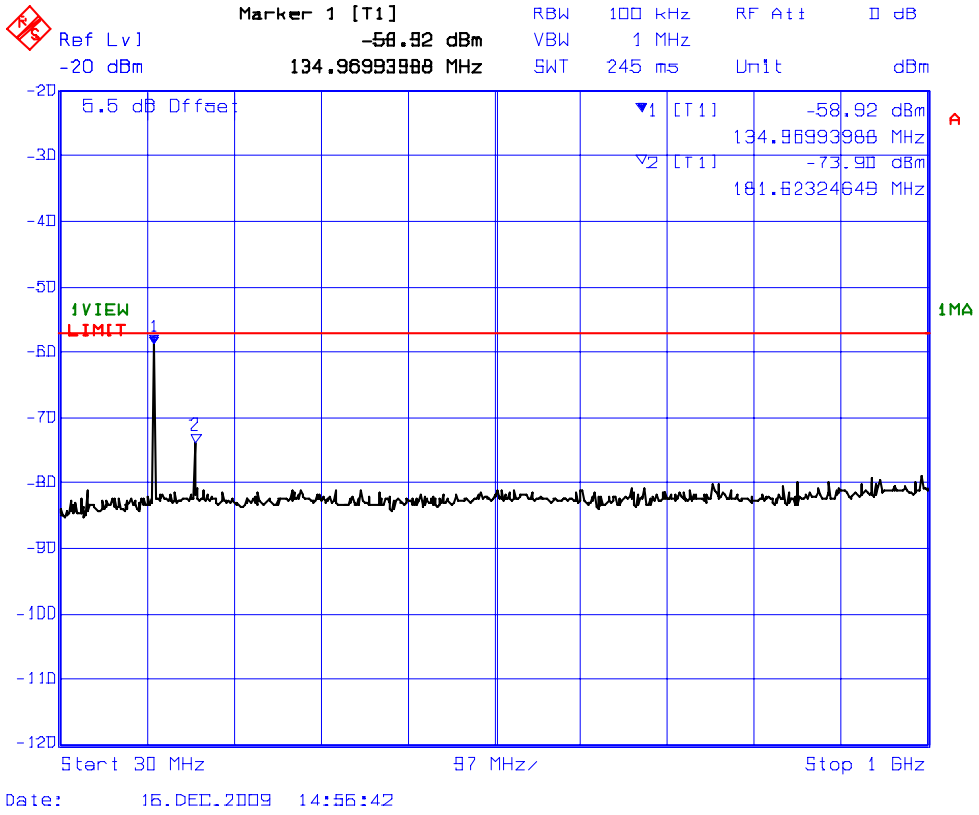
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 - 108	1000
108 – 500	2000
500 -1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

5.5.3. Test Arrangement

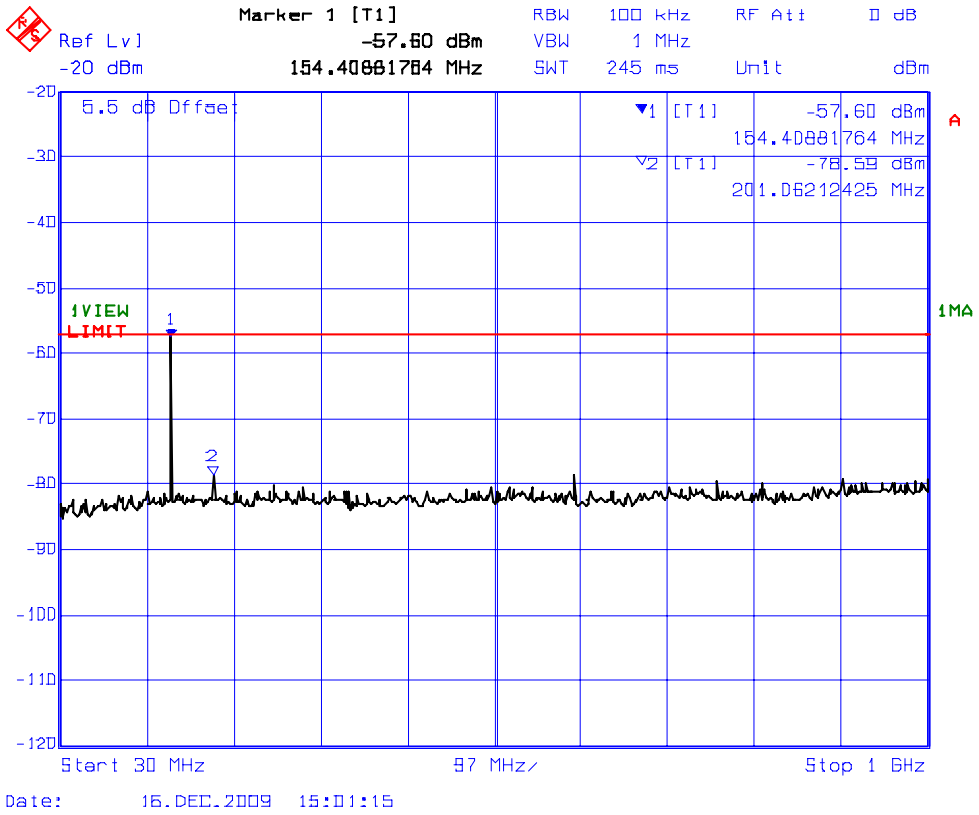


5.5.4. Test Data

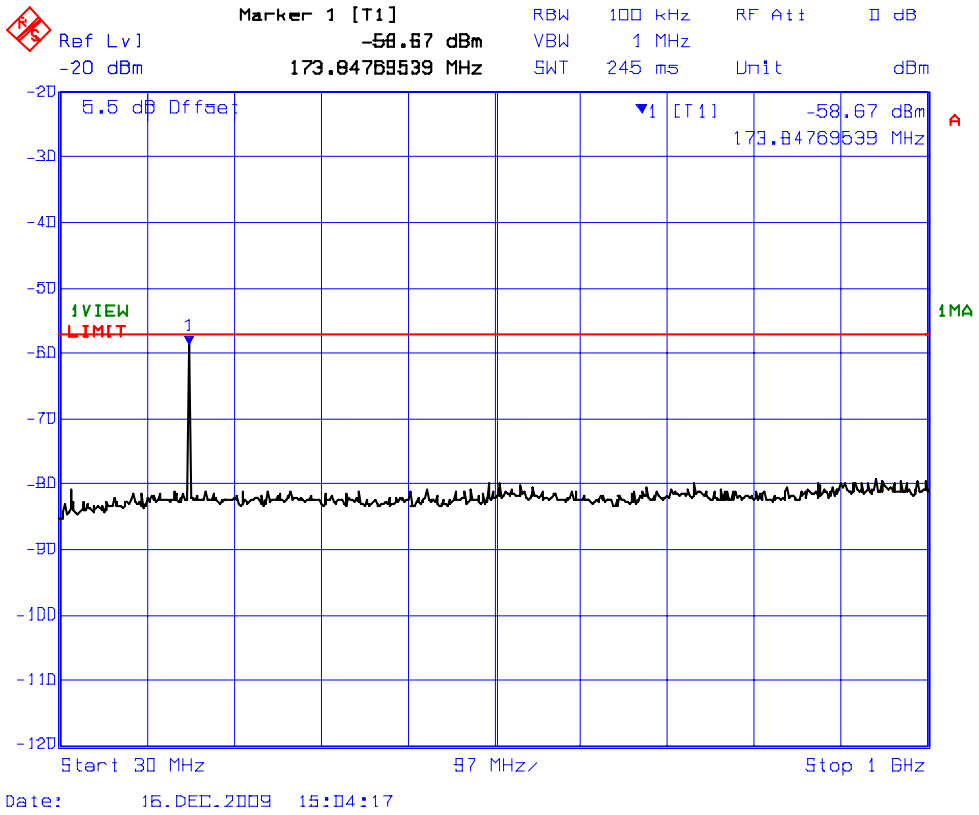
5.5.4.1. 136-174MHz Band- Near Lowest Frequency (60dBuV CW input)



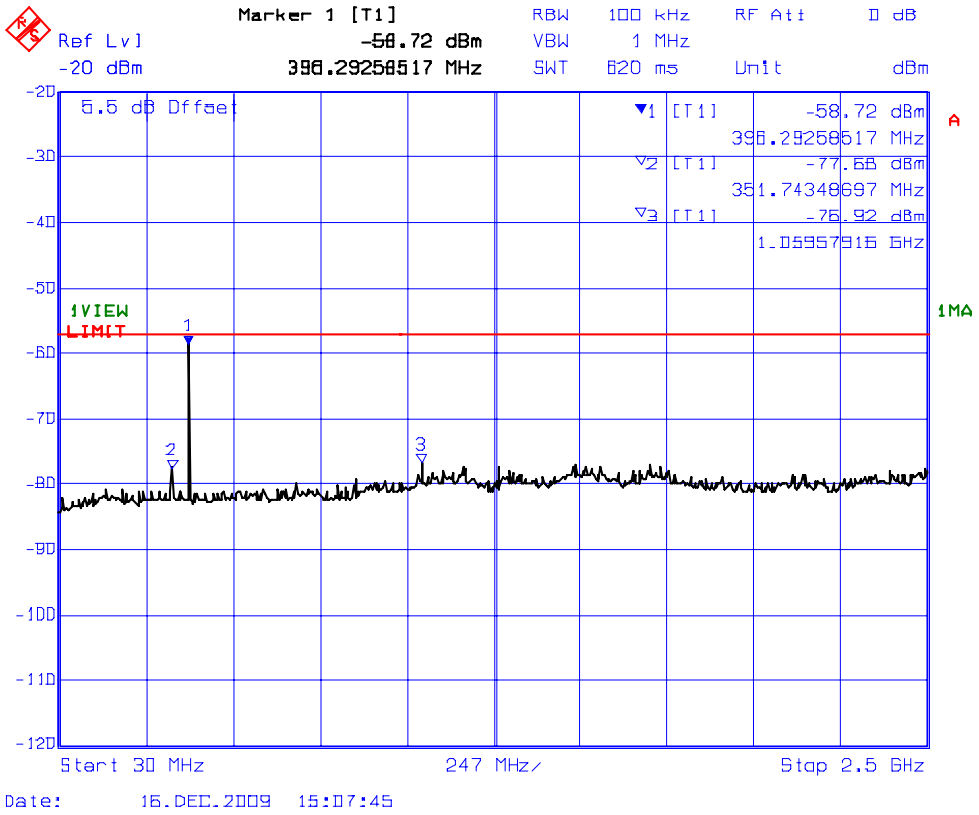
5.5.4.2. 136-174MHz Band- Near Middle Frequency (60dBuV CW input)



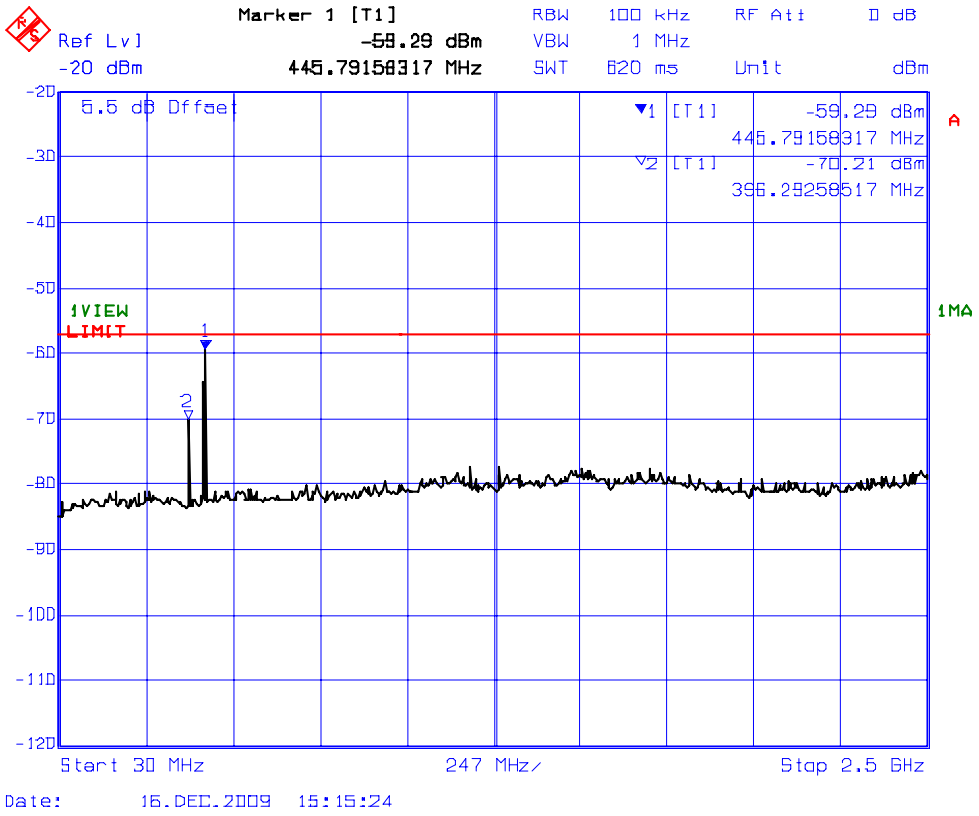
5.5.4.3. 136-174MHz Band- Near Highest Frequency (60dBuV CW input)



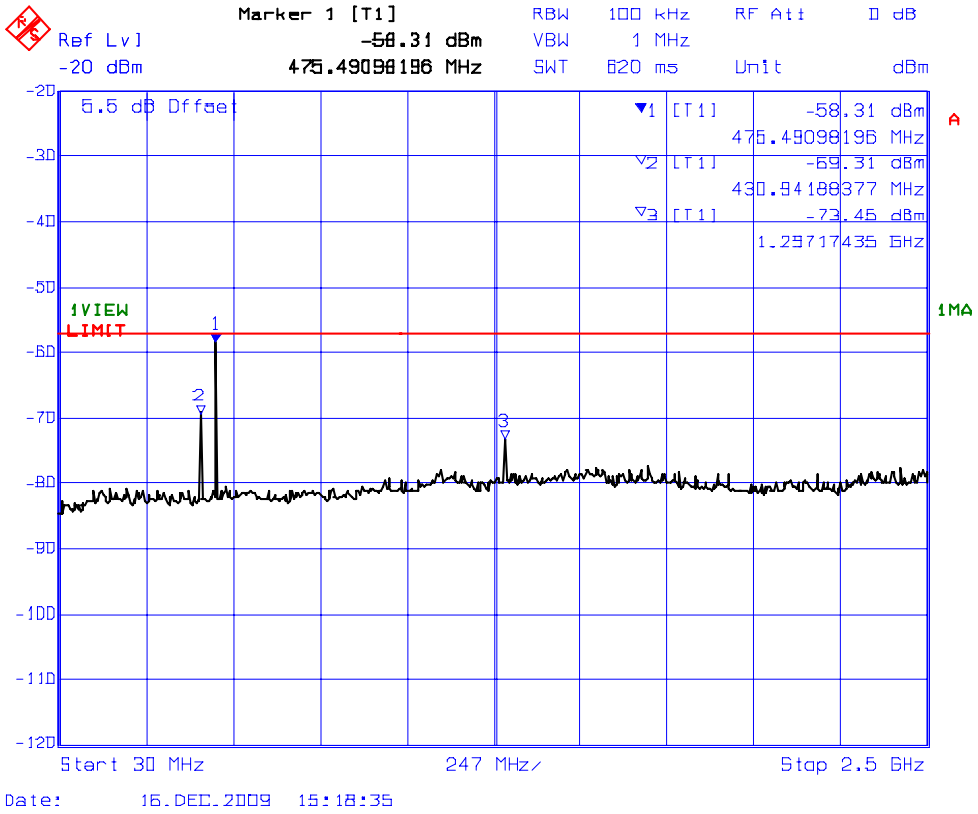
5.5.4.4. 400-479MHz Band- Near Lowest Frequency (60dBuV CW input)



5.5.4.5. 400-479MHz Band- Near Middle Frequency (60dBuV CW input)



5.5.4.6. 400-479MHz Band- Near Highest Frequency (60dBuV CW input)



5.6. SPURIOUS/HARMONIC RADIATED EMISSIONS FROM RECEIVER AND CLASS B UNINTENTIONAL RADIATORS (DIGITAL DEVICES) [§ 15.109(a)]

5.6.1. Limits

The equipment shall meet the limits of the following table:

Test Frequency Range (MHz)	Class B Limits @ 3 m (dBμV/m)
30 – 88	40.0
88 – 216	43.5
216 – 960	46.0
Above 960	54.0

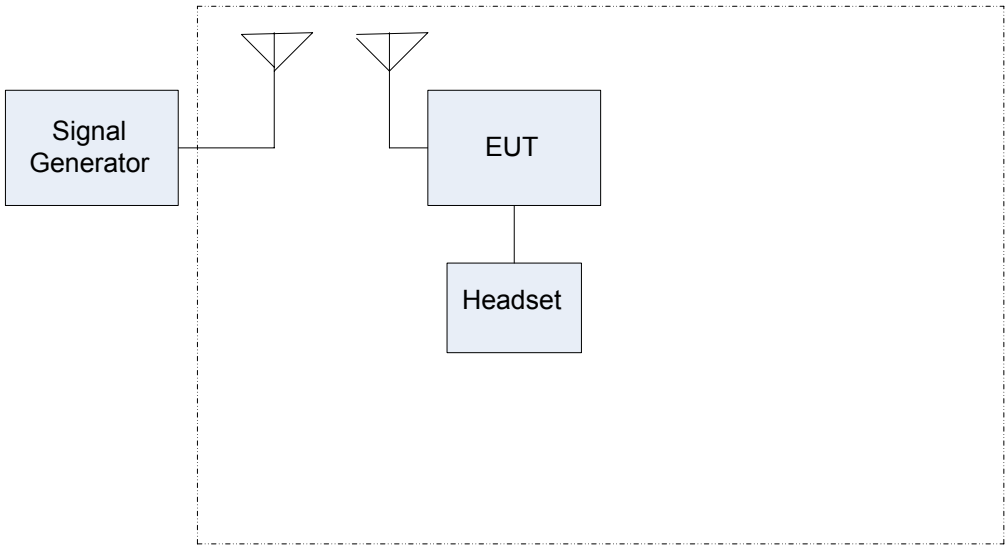
5.6.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-200 & ANSI C63.4 for method of measurements.

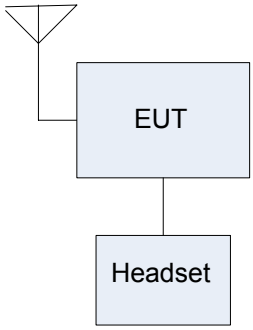
The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 - 108	1000
108 – 500	2000
500 -1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

5.6.3. Test Arrangement



Setup for spurious Radiated Emissions from receiver



Setup for Unintentional Radiated Emissions from Digital devices

5.6.4. Test Data

5.6.4.1. 136-174MHz Band: Near Lowest Frequency

The emissions were scanned from 30 MHz to 6GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
364.70	29.5	Peak	V	46.0	-16.6	PASS
364.70	26.7	Peak	H	46.0	-19.4	PASS
729.40	26.1	Peak	V	46.0	-19.9	PASS
911.75	30.0	Peak	V	46.0	-16.0	PASS
911.75	32.7	Peak	H	46.0	-13.3	PASS

5.6.4.2. 136-174MHz Band: Near Middle Frequency

The emissions were scanned from 30 MHz to 6GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
956.75	28.1	Peak	V	46.0	-18.0	PASS
956.75	30.5	Peak	H	46.0	-15.5	PASS

5.6.4.3. 136-174MHz Band: Near Highest Frequency

The emissions were scanned from 30 MHz to 6GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
No signal found. All the measurements were at least 20 dB below the limits.						

5.6.4.4. 400-479MHz Band: Near Lowest Frequency

The emissions were scanned from 30 MHz to 6GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
353.65	36.0	Peak	V	46.0	-10.0	PASS
353.65	37.6	Peak	H	46.0	-8.5	PASS
707.30	31.1	Peak	V	46.0	-15.0	PASS
707.30	26.5	Peak	H	46.0	-19.5	PASS
1060.95	44.0	Peak	V	54.0	-10.0	PASS
1060.95	43.8	Peak	H	54.0	-10.2	PASS
1414.60	41.3	Peak	V	54.0	-12.7	PASS
1414.60	43.42	Peak	H	54.0	-10.6	PASS
1768.25	42.9	Peak	V	54.0	-11.1	PASS
1768.25	43.1	Peak	H	54.0	-10.9	PASS

5.6.4.5. 400-479MHz Band: Near Middle Frequency

The emissions were scanned from 30 MHz to 6GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
408.65	37.6	Peak	V	46.0	-8.4	PASS
408.65	32.2	Peak	H	46.0	-13.8	PASS
817.30	34.4	Peak	V	46.0	-11.6	PASS
817.30	34.1	Peak	H	46.0	-11.9	PASS
1225.95	45.3	Peak	V	54.0	-8.7	PASS
1225.95	43.8	Peak	H	54.0	-10.2	PASS
1634.60	43.9	Peak	V	54.0	-10.1	PASS
1634.60	44.7	Peak	H	54.0	-9.4	PASS
2043.25	47.4	Peak	V	54.0	-6.6	PASS
2043.25	46.2	Peak	H	54.0	-7.8	PASS

5.6.4.6. 400-479MHz Band:Near Highest Frequency

The emissions were scanned from 30 MHz to 6GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
432.65	38.7	QP	V	46.0	-7.3	PASS
432.65	40.6	QP	H	46.0	-5.4	PASS
865.30	37.0	QP	V	46.0	-9.0	PASS
865.30	38.8	Peak	H	46.0	-7.2	PASS
1297.00	47.1	Peak	V	54.0	-6.9	PASS
1297.00	47.5	Peak	H	54.0	-6.5	PASS
1730.00	48.9	Peak	V	54.0	-5.1	PASS
1730.00	48.7	Peak	H	54.0	-5.4	PASS
2163.00	47.4	Peak	V	54.0	-6.7	PASS
2163.00	46.0	Peak	H	54.0	-8.0	PASS

5.6.4.7. Class B Digital Devices- Unintentional Radiations

The emissions were scanned from 30 MHz to 6 GHz at 3 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
All the signals measured were at least 20 dB below the limits.						

5.7. REQUIREMENTS FOR SCANNING RECEIVERS [§ 15.121]

5.7.1. FCC Rules

a. Except as provided in paragraph (c) of this section, scanning receivers and frequency converters designed or marketed for use with scanning receivers, shall:

(1) Be incapable of operating (tuning), or readily being altered by the user to operate, within the frequency bands allocated to the Cellular Radiotelephone Service in part 22 of this chapter (cellular telephone bands). Scanning receivers capable of ``readily being altered by the user'' include, but are not limited to, those for which the ability to receive transmissions in the cellular telephone bands can be added by clipping the leads of, or installing, a simple component such as a diode, resistor or jumper wire; replacing a plug-in semiconductor chip; or programming a semiconductor chip using special access codes or an external device, such as a personal computer. Scanning receivers, and frequency converters designed for use with scanning receivers, also shall be incapable of converting digital cellular communication transmissions to analog voice audio.

(2) Be designed so that the tuning, control and filtering circuitry is inaccessible. The design must be such that any attempts to modify the equipment to receive transmissions from the Cellular Radiotelephone Service likely will render the receiver inoperable.

b. Except as provided in paragraph (c) of this section, scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38 dB or lower based upon a 12 dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present.

c. Scanning receivers and frequency converters designed or marketed for use with scanning receivers, are not subject to the requirements of paragraphs (a) and (b) of this section provided that they are manufactured exclusively for, and marketed exclusively to, entities described in 18 U.S.C. 2512(2), or are marketed exclusively as test equipment pursuant to Sec. 15.3(dd)

d. Modification of a scanning receiver to receive transmissions from Cellular Radiotelephone Service frequency bands will be considered to constitute manufacture of such equipment. This includes any individual, individuals, entity or organization that modifies one or more scanners. Any modification to a scanning receiver to receive transmissions from the Cellular Radiotelephone Service frequency bands voids the certification of the scanning receiver, regardless of the date of manufacture of the original unit. In addition, the provisions of Sec. 15.23 shall not be interpreted as permitting modification of a scanning receiver to receiver cellular radiotelephone service transmissions.

e. Scanning receivers and frequency converters designed for use with scanning receivers shall not be assembled from kits or marketed in kit form unless they comply with the requirements in paragraph (a) through (c) of this section.

f. Scanning receivers shall have a label permanently affixed to the product, and this label shall be readily visible to the purchaser at the time of purchase. The label shall read as follows: WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

(1) ``Permanently affixed'' means that the label is etched, engraved, stamped, silkscreened, indelible printed or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic or other material fastened to the equipment by welding, riveting, or permanent adhesive. The label shall be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable. The label shall not be a stick-on, paper label.

(2) When the device is so small that it is not practicable to place the warning label on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user and shall also be placed on the container in which the device is marketed. However, the FCC identifier must be displayed on the device.

5.7.2. Declaration for Compliance with FCC §15.121

- Comply with FCC 121(a)(1) – This Scanning Receiver is incapable of operating (tuning), or readily being altered by the user to operate, within the frequency bands allocated to the Cellular Radiotelephone Service in part 22 of this chapter (cellular telephone bands).

  Please refer to ICOM attestation letter conforming compliance with this requirement.

- Comply with FCC 121(a)(2) – This Scanning Receiver is designed so that the tuning, control and filtering circuitry is inaccessible. The design is such that any attempts to modify the equipment to receive transmissions from the Cellular Radiotelephone Service likely will render the receiver inoperable.

  Please refer to ICOM attestation letter conforming compliance with this requirement.

- Comply with FCC 121(b) – Please refer to the following Section of this Test Report for Scanning Receivers Cellular Band Rejection test.

- Comply with FCC 121(c) – Not applicable.

- Comply with FCC 121(d) – The Users Manual of this Scanning Receiver is provided with the Warning statement as below.

Warning: Modifications not expressly approved by ICOM Inc., could void the user's authority to operate this device under FCC regulations.

- Comply with FCC 121(e) – This Scanning Receiver is not assembled from kits or marketed in kit form.

- Comply with FCC 121(f) – This device is so small that it is not practicable to place the warning label on it. Hence the information required by this paragraph is placed on front page of the user manual supplied to the user and will also be placed on the container in which the device is marketed.. The label reads as follows: **WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW**.

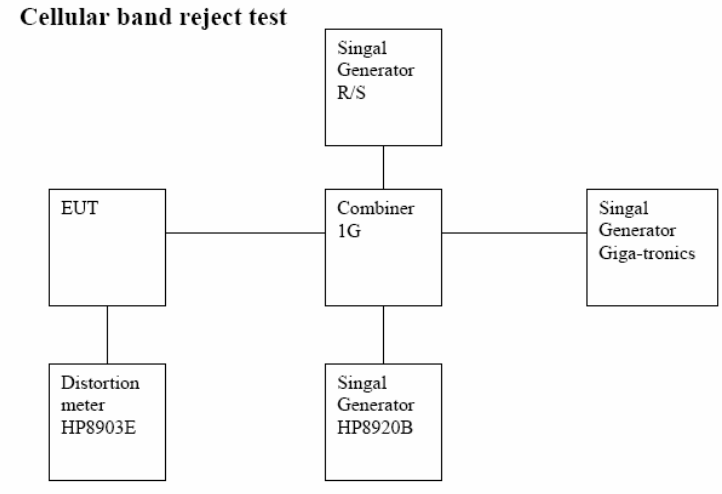
5.8. SCANNING RECEIVERS CELLULAR BAND REJECTION [§ 15.121(b)]

5.8.1. Limits

Except as provided in paragraph (c) of this section, scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38dB or lower based upon a 12dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present.

5.8.2. Method of Measurements

(1) Connected the EUT as shown in the following block diagram
(2) Apply a standard RF signal to the receiver input port
(3) Adjust the audio output signal of the receiver to it's rated value with the distortion less than 10%
(4) Adjust the RF Signal Generator Output Power to produce 12 dB SINAD without the audio output power dropping by more than 3 dB
(5) Repeat step (4) at lowest, middle and highest channel frequencies across all cellular base station band to establish a reference sensitivity level. The reference sensitivity taken was the lowest or worse-case sensitivity for all of the bands.
(6) Adjust the RF Signal Generator output to a level of +60 dB above the reference sensitivity obtained in step (5)
(7) Set the Receiver squelch threshold (the signal required to open the squelch) no greater than +20 dB above the reference sensitivity level.
(8) Put the receiver in a scanning mode and allow it to scan across it's complete receive range
(9) If the receiver unsquelched or stopped on any frequency, the display frequency is recorded. The signal generator output level was then adjusted until 12 dB SINAD from the receiver was produced. The signal generator level associated with this response was also noted.
(10) Repeat this procedure for 3 frequencies in the cellular base station transmit band.
(11) The difference between the signal generator output for any response recorded and reference sensitivity is the rejection ratio



5.8.3. Test Data

5.8.3.1. FM

EUT's Scanning Frequency Band (MHz)	Cellular Transmitter Test Frequencies (MHz)	RF Input Signal Level @ Cellular Frequencies for 12 dB SINAD (dBm)	Reference Sensitivity (dBm)	Rejection Ratio (dB)	Maximum Rejection Ratio Limit (dB)
136.800	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-120.1	< -50	-38.0
139.400	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-120.5	< -50	-38.0
139.500	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-120.3	< -50	-38.0
139.700	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-123.3	< -50	-38.0
141.600	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-46.6	-123.8	< -50	-38.0
141.700	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-45.1	-123.7	< -50	-38.0
150.350	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-124.3	< -50	-38.0
151.300	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-44.8	-123.9	< -50	-38.0
153.000	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-117.3	< -50	-38.0
153.600	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-123.5	< -50	-38.0
153.700	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-123.4	< -50	-38.0
166.350	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-120.7	< -50	-38.0
168.300	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-115.9	< -50	-38.0
428.400	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-119.6	< -50	-38.0
447.000	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-44.2	-123.1	< -50	-38.0
452.975	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-121.4	< -50	-38.0
461.29	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-40	-120.8	< -50	-38.0
463.500	824.04, 836.40, 848.97, 869.04, 880.62, 893.97	-45.1	-123.3	< -50	-38.0

EXHIBIT 6. Test Equipments List

Test Instruments	Manufacturer	Model No.	Serial No.	Operating Range
BiConiLog Antenna	ETS-Lindgren	3142B	1575	26 MHz – 2 GHz
Communication test set	Hewlett Packard	8920B	US39064699	AF SG DC – 20 kHz
Combiner	Mini Circuit	ZFSC-3-4	9629 02	1MHz - 1GHz
Combiner	Mini Circuit	ZFSC-2-10G	0 9917	1MHz - 10GHz
Distortion analyzer	Hewlett-Packard	8903E	3514A01460	20-100K Hz
EMC Analyzer	Hewlett Packard	8593EM	…	9kHz – 22 GHz
Horn Antenna	Emco	3115	5955	1 – 18 GHz
L.I.S.N.	EMCO	3825/2	8907-1531	9 kHz – 200 MHz 50 Ohms / 50 μH
12'x16'x12' RF Shielded Chamber	RF Shielding	…	..	…
Power Divider	Mini-Circuits	15542	105	1 MHz – 1 GHz
RF Amplifier	Com-Power	PA-103		1 MHz – 1 GHz
RF Amplifier	Hewlett Packard	84498	3008A00769	1 – 26.5 GHz
RF Synthesized signal Generator	Giga-tronics	6061A	5130586	10K--1050M Hz AM&FM
Signal Generator	Hewlett Packard	83752B	3610A00457	0.01- 20 GHz
Signal Generator	R/S	SMIQ 02E	DE22858	300KHz-2.2GHz
Spectrum Analyzer	Advantest	R3271	15050203	100 Hz – 26.5 GHz
Spectrum Analyzer / EMI Receiver	Hewlett Packard	8546A	3650A00371	9 kHz – 6.5 GHz Built-in amplifier 30dB

EXHIBIT 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 and LAB 34

7.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY

CONTRIBUTION (Line Conducted)	PROBABILITY DISTRIBUTION	UNCERTAINTY (dB)	
		9-150 kHz	0.15-30 MHz
EMI Receiver specification	Rectangular	±1.5	±1.5
LISN coupling specification	Rectangular	±1.5	±1.5
Cable and Input Transient Limiter calibration	Normal (k=2)	±0.3	±0.5
Mismatch: Receiver VRC Γ_1 = 0.03 LISN VRC Γ_R = 0.8(9 kHz) 0.2 (30 MHz) Uncertainty limits 20Log(1±$\Gamma_1\Gamma_R$)	U-Shaped	±0.2	±0.3
System repeatability	Std. deviation	±0.2	±0.05
Repeatability of EUT	--	--	--
Combined standard uncertainty	Normal	±1.25	±1.30
Expanded uncertainty U	Normal (k=2)	±2.50	±2.60

Sample Calculation for Measurement Accuracy in 150 kHz to 30 MHz Band:

$u_c(y) = \sqrt{\sum_{i=1}^{m} u_i^2(y)} = \pm \sqrt{(1.5^2 + 1.5^2)/3 + (0.5/2)^2 + (0.05/2)^2 + 0.35^2} = \pm 1.30$ dB

$U = 2u_c(y) = \pm 2.6$ dB

7.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY

CONTRIBUTION (Radiated Emissions)	PROBABILITY DISTRIBUTION	UNCERTAINTY (± dB)	
		3 m	10 m
Antenna Factor Calibration	Normal (k=2)	±1.0	±1.0
Cable Loss Calibration	Normal (k=2)	±0.3	±0.5
EMI Receiver specification	Rectangular	±1.5	±1.5
Antenna Directivity	Rectangular	+0.5	+0.5
Antenna factor variation with height	Rectangular	±2.0	±0.5
Antenna phase center variation	Rectangular	0.0	±0.2
Antenna factor frequency interpolation	Rectangular	±0.25	±0.25
Measurement distance variation	Rectangular	±0.6	±0.4
Site imperfections	Rectangular	±2.0	±2.0
Mismatch: Receiver VRC Γ_1 = 0.2 Antenna VRC Γ_R = 0.67(Bi) 0.3 (Lp) Uncertainty limits 20Log(1±$\Gamma_1\Gamma_R$)	U-Shaped	+1.1 -1.25	±0.5
System repeatability	Std. Deviation	±0.5	±0.5
Repeatability of EUT		-	-
Combined standard uncertainty	Normal	+2.19 / -2.21	+1.74 / -1.72
Expanded uncertainty U	Normal (k=2)	+4.38 / -4.42	+3.48 / -3.44

Calculation for maximum uncertainty when 3m biconical antenna including a factor of k = 2 is used:

$U = 2u_c(y) = 2x(+2.19) = +4.38$ dB And $U = 2u_c(y) = 2x(-2.21) = -4.42$ Db