

Applicant:	Daniels Electronics Ltd.
Model:	UT-4E850-00-300
FCC ID:	H4JUT-4E850

Formulaire:	P:\\Users\\Marks\\FCC.Certification.General_calrevised10_06.rtf
Last Modified:	July 8, 2008
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Rev 1.0 Mark Sechrist July 8, 2008



# Flom Test Labs

EMI, EMC, RF Testing Experts Since 1963

toll-free: (866) 311-3268  
fax: (480) 926-3598  
<http://www.flomlabs.com>  
[info@flomlabs.com](mailto:info@flomlabs.com)

**Date:** August 14, 2008

**Applicant:** Daniels Electronics Ltd.  
43 Erie Street  
Victoria BC V8V 1P8  
Canada

**Attention of:** Mike Cyr  
Ph: 250-382-8268  
Fax: 250-382-6139  
Email: [mike\\_cyr@danelec.com](mailto:mike_cyr@danelec.com)

**Equipment:** UT-4E850-00-300  
**FCC ID:** H4JUT-4E850  
**FCC Rules:** 90

Gentlemen:

Enclosed please find your copy of the Engineering Test Report for which you are subject to the restrictions as listed on the attached summary.

Once a Telecommunication Certification Body (TCB) issues a Grant the Federal Communication Commission (FCC) has 30 days to review the application and request added information. It is your decision whether or not to market the equipment subject to a possible recall before the end of the 30 days.

If your equipment is still retained by us, it will be returned to you 30 days after approval is achieved. Our invoice for services has been directed to your Accounts Payable Department.

For any additional information please contact us.

Thank you.

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director



## Summary of Restrictions

1. All submissions to the FCC are subject to **their** Examiner's interpretation.
2. Please allow from 60 to 90 days before hearing from the FCC with regard to any submission.
3. The FCC can set aside any action; modify or set aside any action, within 30 days. (FCC Rule 1.108, 1.113).
4. Under Rule 2.803, if device is not type accepted/certificated then it must **not** be sold, leased, offered for sale, imported, shipped or distributed or advertised for sale.
5. FCC can revoke its certificates at any time if the equipment does not meet or **continue** to meet their Rules. (Rule Parts 2.927, 2.939).
6. FCC can request a sample at any time (2.936).



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**Date:** August 14, 2008

Federal Communications Commission  
Via: Electronic Filing

**Attention:** Authorization & Evaluation Division

**Applicant:** Daniels Electronics Ltd.  
**Equipment:** UT-4E850-00-300  
**FCC ID:** H4JUT-4E850  
**FCC Rules:** 90

Dear Sir or Madam:

On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director

Flom Test Labs  
3356 N. San Marcos Place, Suite 107  
Chandler, Arizona 85225-7176  
(866) 311-3268 phone, (480) 926-3598 fax

p0870001, d0880013 Rev 4.0



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## Test Report

for

FCC ID: H4JUT-4E850

**Model:** UT-4E850-00-300

to

**Federal Communications Commission**

Rule Part(s) 90

Date of report: August 14, 2008

Date of Revised Report: September 10, 2008

**On the Behalf of the Applicant:** Daniels Electronics Ltd.

**At the Request of:** Daniels Electronics Ltd.  
43 Erie Street  
Victoria BC V8V 1P8  
Canada

**Attention of:** Mike Cyr  
Ph: 250-382-8268  
Fax: 250-382-6139  
Email: [mike\\_cyr@danelec.com](mailto:mike_cyr@danelec.com)

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director

## Revision History

Revision	Date	Revised By	Reason for revision
1.0	August 14, 2008	J Erhard	Original Document
2.0	September 4, 2008	S Valentine	Edit customer contact information
3.0	September 9, 2008	J Erhard	Edit technical data per TCB request
4.0	September 17, 2008	J Erhard	Edit technical data per TCB request

List of Exhibits

(FCC **Certification** (Transmitters) - Revised 9/28/98)

**Applicant:** Daniels Electronics Ltd.

**FCC ID:** H4JUT-4E850

**By Applicant:**

1. Letter of Authorization
2. Confidentiality Request: 0.457 And 0.459
3. Identification Drawings, 2.1033(c)(11)
  - Label
  - Location of Label
  - Compliance Statement
  - Location of Compliance Statement
4. Photographs, 2.1033(c)(12)
5. Documentation: 2.1033(c)
  - (3) User Manual
  - (9) Tune Up Info
  - (10) Schematic Diagram
  - (10) Circuit Description
  - Block Diagram
  - Parts List
  - Active Devices
6. MPE/SAR Report

**By F.T.L.:**

- A. Testimonial & Statement of Certification

## **The Applicant has been cautioned as to the following:**

### **15.21 Information to the User.**

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **15.27(a) Special Accessories.**

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

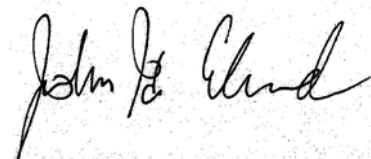
Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.



## Testimonial and Statement of Certification

**This is to Certify:**

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.
2. **That** the technical data supplied with the application was taken under my direction and supervision.
3. **That** the data was obtained on representative units, randomly selected.
4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.



John Erhard

Certifying Engineer:

Flom Test Labs  
3356 N. San Marcos Place, Suite 107  
Chandler, Arizona 85225-7176  
(866) 311-3268 phone, (480) 926-3598 fax

p0870001, d0880013 Rev 4.0

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Required information per ISO 17025-2005, paragraph 5.10.2:

a) **Test Report**

b) Laboratory: Flom Test Lab  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044-A) Chandler, AZ 85225

c) Report Number: d0880013

d) Client: Daniels Electronics Ltd.  
43 Erie Street  
Victoria BC V8V 1P8  
Canada

e) Identification: UT-4E850-00-300  
FCC ID: H4JUT-4E850

UUT Description: Radio

f) UUT Condition: Not required unless specified in individual tests.

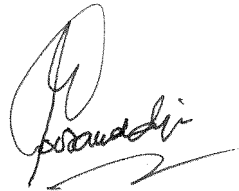
g) Report Date: August 14, 2008  
UUT Received:

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Measurement Uncertainty: In accordance with FTL internal quality manual.

m) Reviewed by:



Hoosamuddin S. Bandukwala, Lab Director

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

Accessories used during testing:

N/A	N/A	N/A	N/A	N/A	N/A
Type	Quantity	Manufacturer	Model	Serial No.	FCC ID

Sub-part  
2.1033(c)(14):

## Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

     X    90 Subpart S - Regulations Governing Licensing and Use of Frequencies in the  
           806–824, 851–869, 896–901, and 935–940 MHz Bands

## Standard Test Conditions and Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI/TIA-603-C-2004, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual UUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Measurement results, unless otherwise noted, are worst-case measurements.

### **A2LA**

“A2LA has accredited Flom Test Labs, Chandler, AZ for technical competence in the field of Electrical testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO 17025:2005 ‘General Requirements for the Competence of Testing and Calibration Laboratories’ and any additional program requirements in the identified field of testing.”

Please refer to [www.a2la.org](http://www.a2la.org) for current scope of accreditation.

Certificate number: 2152.01



**FCC OATS Reg. #933597**

**IC Reg. # 2044A-1**

## List of General Information Required for Certification

In Accordance with FCC Rules and Regulations,  
Volume II, Part 2 and to Part 90Sub-part 2.1033

(c)(1):

**Name and Address of Applicant:** Daniels Electronics Ltd.  
43 Erie Street  
Victoria BC V8V 1P8  
Canada

**Manufacturer:** Daniels Electronics Ltd.  
43 Erie Street  
Victoria BC V8V 1P8  
Canada

(c)(2): **FCC ID:** H4JUT-4E850

**Model Number:** UT-4E850-00-300

(c)(3): **Instruction Manual(s):**

Please see attached exhibits

(c)(4): **Type of Emission:** 11K0F3E, 14K0F3E, 16K0F3E, 8K10F1E, 8K10F1D, 9K2F1D

(c)(5): **Frequency Range, MHz:** 799 to 869

(c)(6): **Power Rating, Watts:** 3.85  
 Switchable                       Variable                       N/A

**FCC Grant Note:**

(c)(7): **Maximum Allowable Power, Watts:** 100

**DUT Results:** Passes   x   Fails \_\_\_\_\_

Subpart 2.1033 (continued)

(c)(8): Voltages & currents in all elements in final RF stage, including final transistor or solid-state device:

Collector Current, A	=	1.8
Collector Voltage, Vdc	=	9.5
Supply Voltage, Vdc	=	13.8

(c)(9): **Tune-Up Procedure:**

Please see attached exhibits

(c)(10): **Circuit Diagram/Circuit Description:**

Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Please see attached exhibits

(c)(11): **Label Information:**

Please see attached exhibits

(c)(12): **Photographs:**

Please see attached exhibits

(c)(13): **Digital Modulation Description:**

Attached Exhibits  
 N/A

(c)(14): **Test and Measurement Data:**

Follows

### Test Results Summary

Specification	Test Name	Pass, Fail, N/A	Comments
90.635	Carrier Output Power (Conducted)	Pass	
2.1051	Unwanted Emissions (Transmitter Conducted)	Pass	
2.1053(a)	Field Strength of Spurious Radiation	Pass	
90.210	Emission Masks (Occupied Bandwidth)	Pass	
2.1047(a)	Audio Low Pass Filter (Voice Input)	Pass	
2.1047(a)	Audio Frequency Response	Pass	
2.1047(b)	Modulation Limiting	Pass	
90.214	Transient Frequency Behavior	N/A	UUT does not operate in the frequency ranges listed in 90.214
90.213	Frequency Stability (Temperature Variation)	Pass	
90.213	Frequency Stability (Voltage Variation)	Pass	
2.202(g)	Necessary Bandwidth and Emission Bandwidth	Pass	



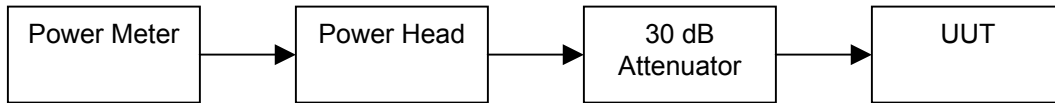
**Name of Test:** Carrier Output Power (Conducted)  
**Specification:** 90.635  
**Test Equipment Utilized:** i00005, i00228, i00317

**Performed By:** J Erhard  
**Test Date:** 8/01/2008

**Measurement Procedure**

The Unit Under Test (UUT) was connected directly to a power meter input. The peak readings were taken and the result was then compared to the limit.

**Test Setup**



**Transmitter Peak Output Power**

Tuned Frequency MHz	Recorded Measurement (dBm)	Result
802	35.69	Pass
815	35.38	Pass
860	35.85	Pass

**Name of Test:** Conducted Spurious Emissions  
**Specification:** 2.1051  
**Test Equipment Utilized:** i00005, i00321, i00331

**Performed By:** J Erhard  
**Test Date:** 8/05/2008

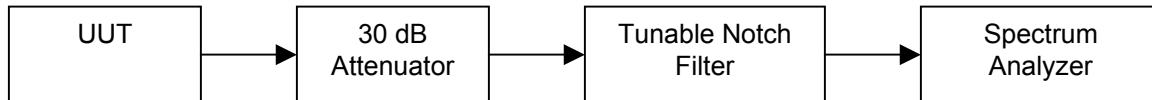
**Test Procedure**

The UUT was connected to a spectrum analyzer through a tunable notch filter adjusted to match the fundamental frequency to verify that the UUT met the requirements for spurious emissions. The limit is calculated based upon the formula, Power (dBm) - 43+10 LOG (P in Watts).

$(35.85) - 43 + 10 \text{ Log } (3.85) = -13 \text{ dBm}$ .

Only the worst-case emission for each tuned frequency is recorded in the Conducted Spurious Emissions Summary Test Table.

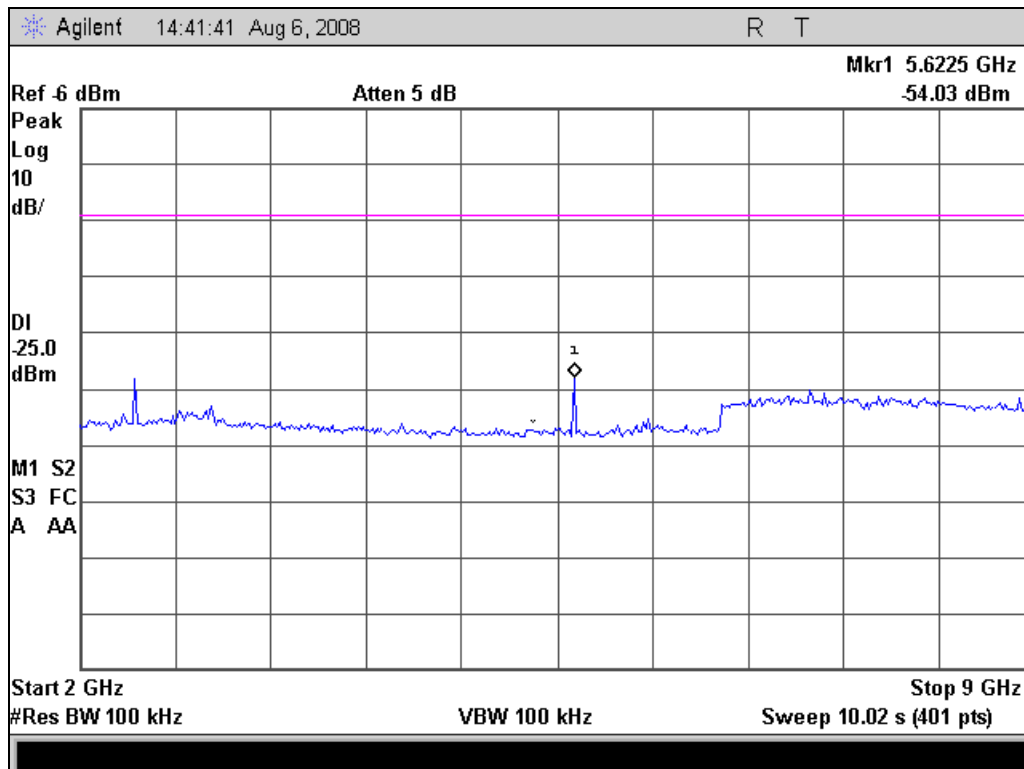
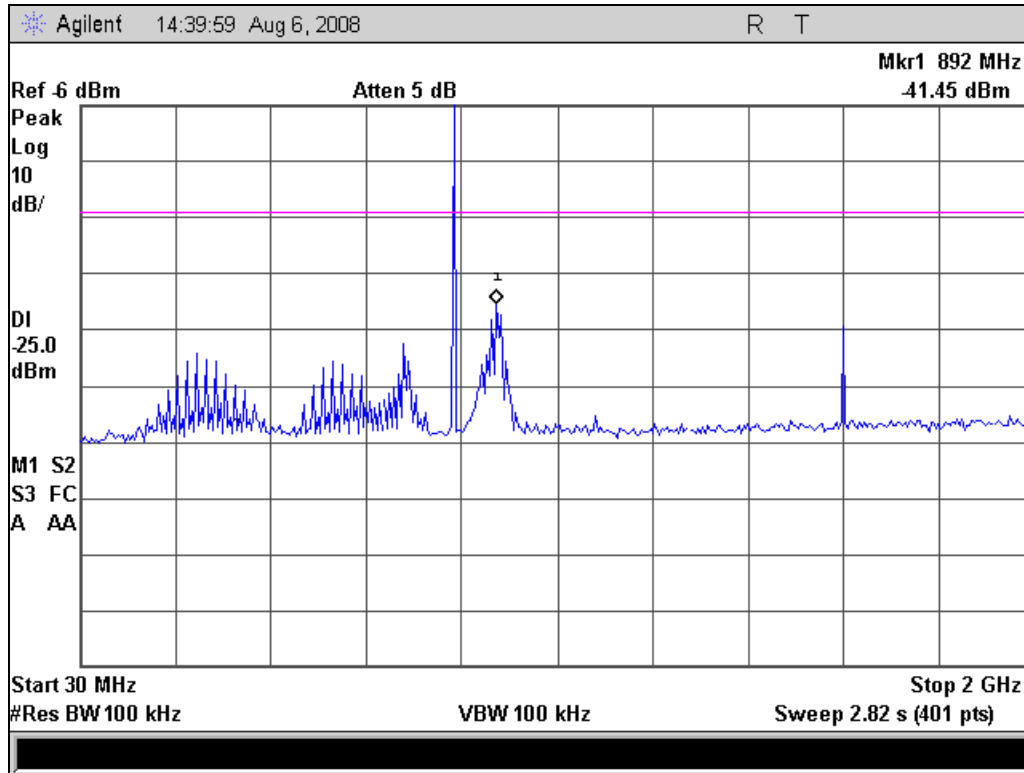
**Test Setup**



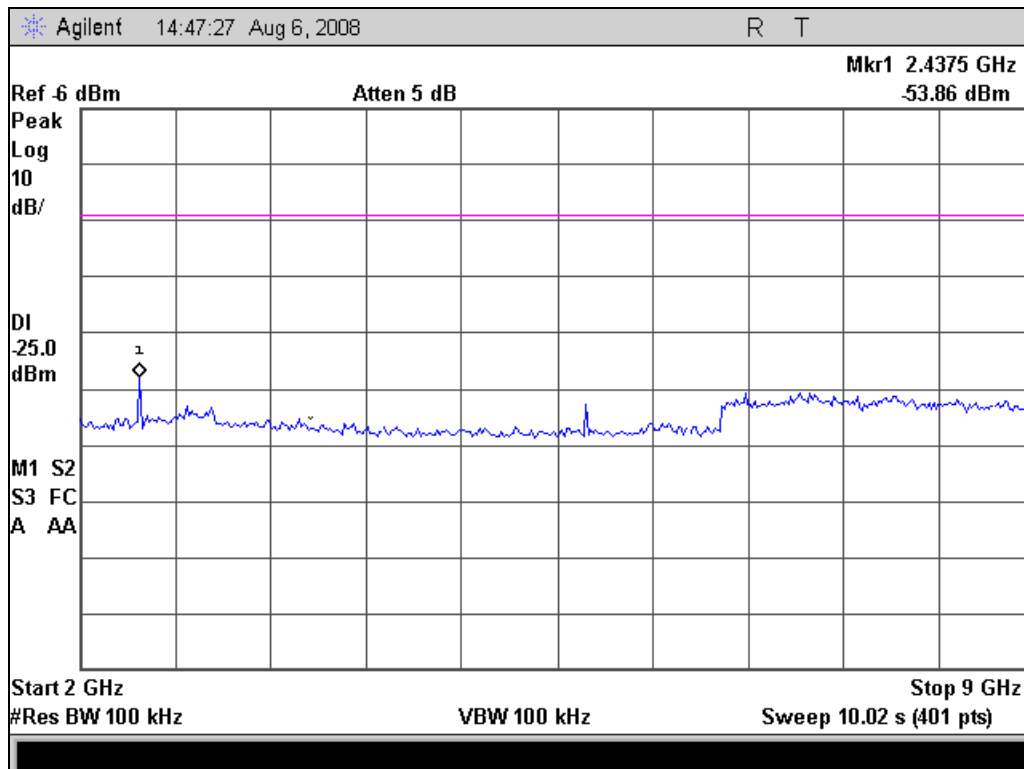
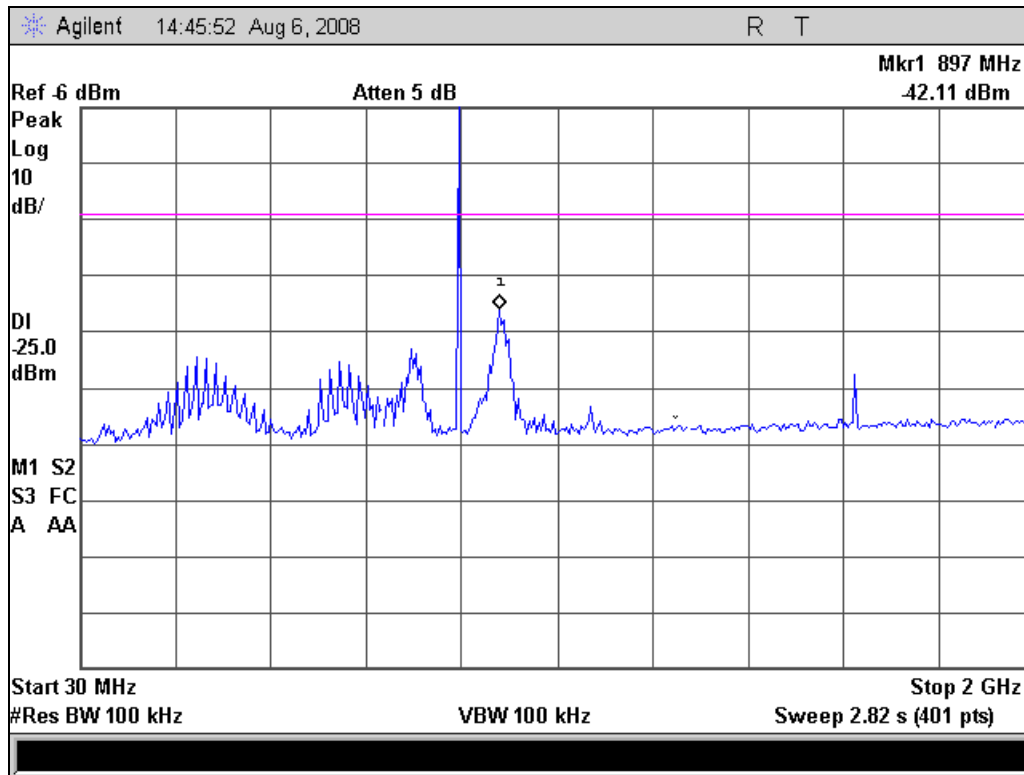
**Conducted Spurious Emissions Summary Test Table**

Tuned Frequency MHz	Spurious Frequency MHz	Measured Spurious Level (dBm)	Specification Limit	Result
802	892	-41.54	-13 dBm	Pass
815	987	-42.11	-13 dBm	Pass
860	271	-50.01	-13 dBm	Pass

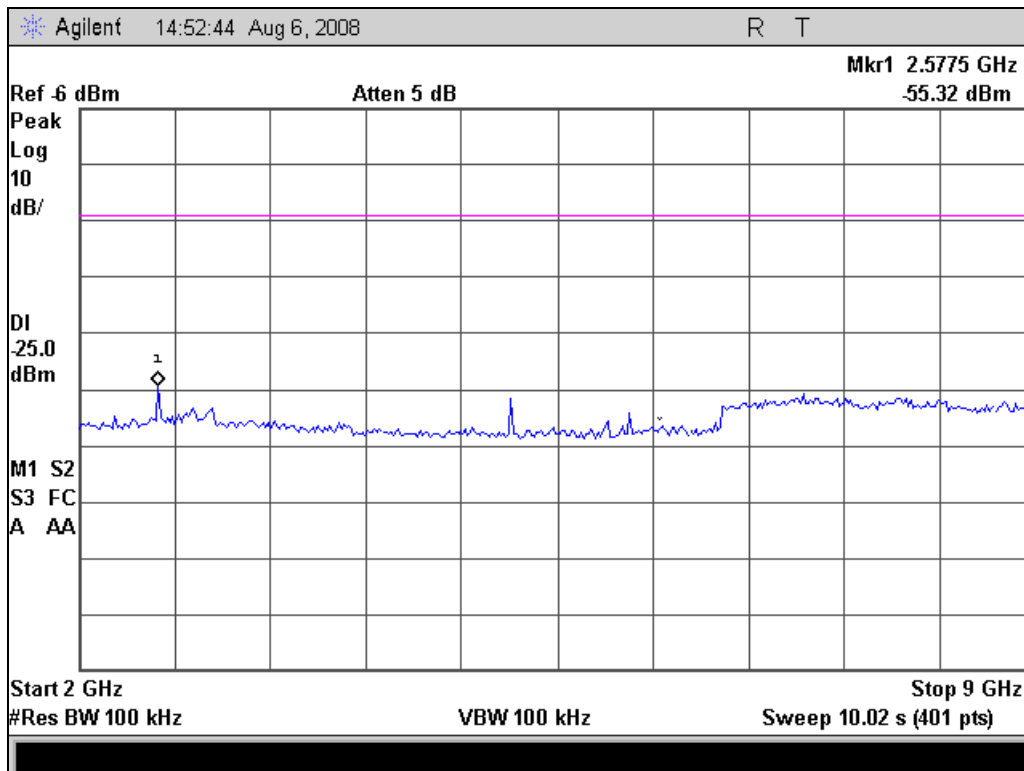
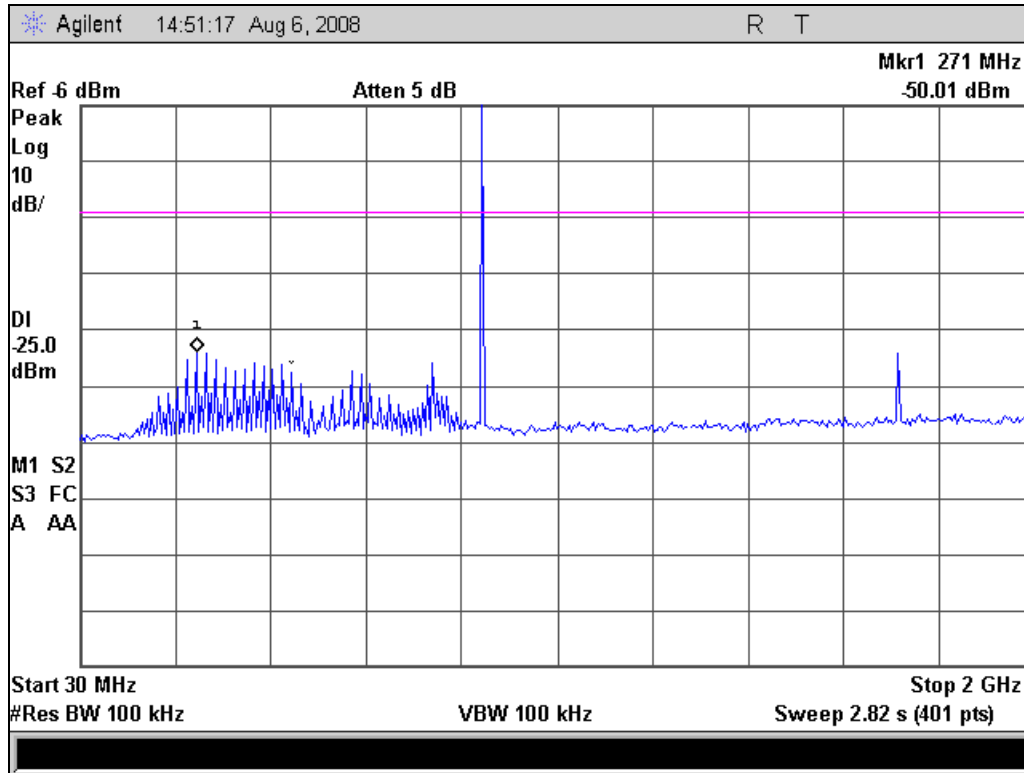
### 802 MHz Conducted Spurious Emissions plots



### 815 MHz Conducted Spurious Emissions plots



### 860 MHz Conducted Spurious Emissions plots



**Name of Test:** Field Strength of Spurious Radiation  
**Specification:** 2.1053(a)  
**Test Equipment Utilized:** i00005, i00037, i00039, i00042, i00048, i00049, i00088, i00089, i00091, i00103, i00266

**Performed By:** J Erhard  
**Test Date:** 8/12/2008

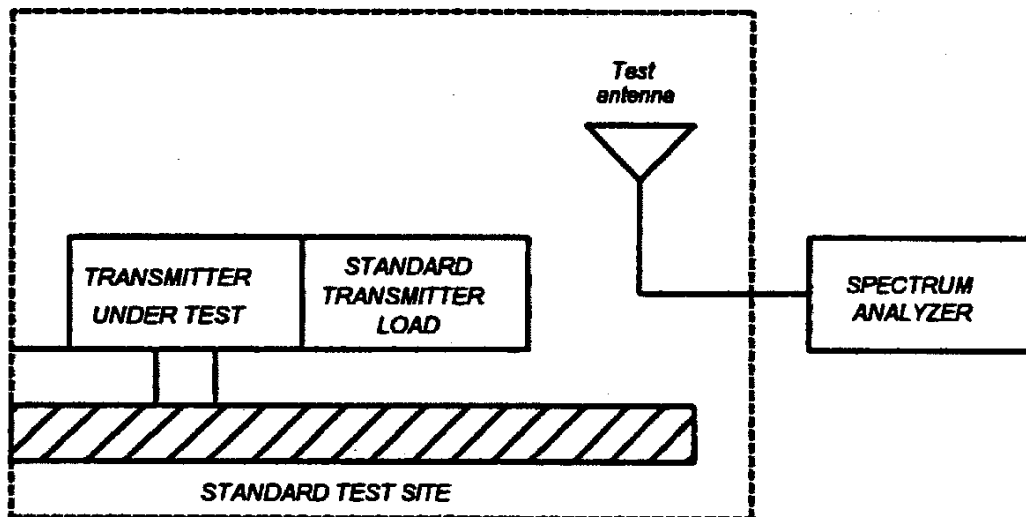
### Measurement Procedure

**Definition:**

Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies, which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications, desired.

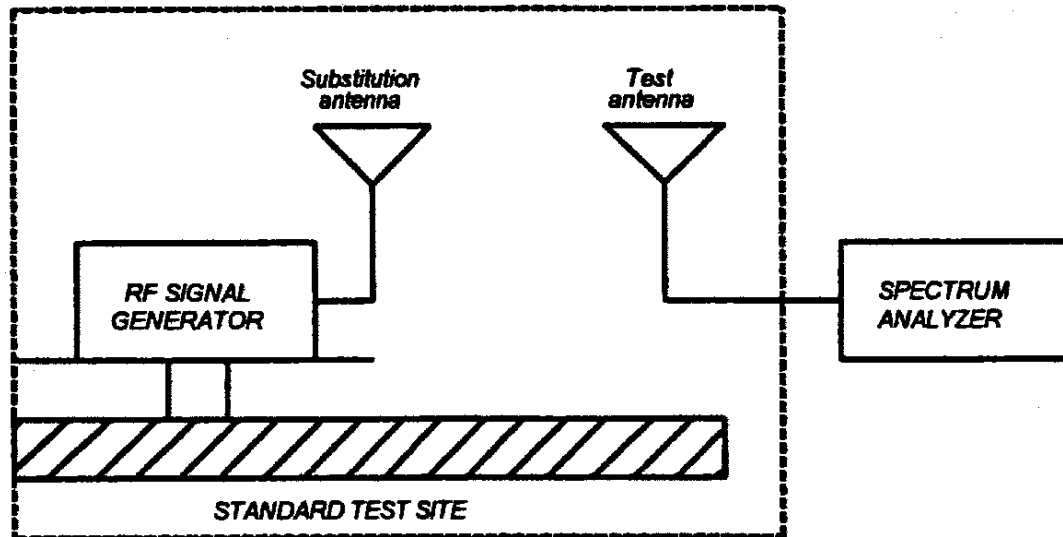
**Method of Measurement:**

- A) Connect the equipment as illustrated
- B) Adjust the spectrum analyzer for the following settings:
  - 1) Resolution Bandwidth 100 kHz (<1 GHz), 1 MHz (> 1GHz).
  - 2) Video Bandwidth  $\geq$  3 times Resolution Bandwidth, or 30 kHz
  - 3) Sweep Speed  $\leq$  2000 Hz/second
  - 4) Detector Mode = Mean or Average Power
- C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load that is placed on the turntable. The RF cable to this load should be of minimum length.



- D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to  $\pm$  the test bandwidth (see section 1.3.4.4).
- E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.
- F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.
- G) Reconnect the equipment as illustrated.

- H) Keep the spectrum analyzer adjusted as in step B).  
 I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.



- J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.  
 K) Repeat step J) with both antennas vertically polarized for each spurious frequency.  
 L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.  
 M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions dB =  
 $10\log_{10}(\text{TX power in watts}/0.001) - \text{the levels in step I)}$

*NOTE: It is permissible that other antennas provided can be referenced to a dipole.*

### Measurement Results

#### 802 MHz

Emission Frequency (MHz)	Measured Level (dBm) ERP/EIRP	Correction Factor (dB)	Corrected Value (dBm) ERP/EIRP	Limit (dBm) ERP/EIRP	Result
1604	-69.1	39.6	-29.5	-13 dBm	Pass
2406	-62.1	26.8	-35.3	-13 dBm	Pass

No other emissions were detected. All emissions were less than -13 dBm.

#### 815 MHz

Emission Frequency (MHz)	Monitored Level (dBm) ERP/EIRP	Correction Factor (dB)	Corrected Value (dBm) ERP/EIRP	Limit (dBm) ERP/EIRP	Result
1630	-60.8	29.8	-31.0	-13 dBm	Pass
2445	-70.5	33.3	-37.2	-13 dBm	Pass

No other emissions were detected. All emissions were less than -13 dBm..

#### 860 MHz

Emission Frequency (MHz)	Monitored Level (dBm) ERP/EIRP	Correction Factor (dB)	Corrected Value (dBm) ERP/EIRP	Limit (dBm) ERP/EIRP	Result
1720	-60.7	30.3	-30.4	-13 dBm	Pass
2580	-69.3	33.8	-35.5	-13 dBm	Pass

No other emissions were detected. All emissions were less than -13 dBm.

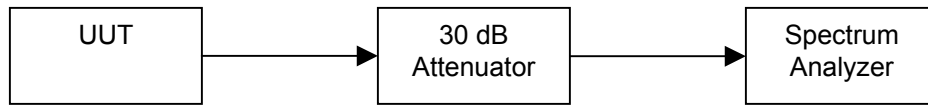


**Name of Test:** Emission Masks (Occupied Bandwidth)  
**Specification:** 90.210  
**Test Equipment Utilized:** i00005, i00321, i00331

**Performed By:** J Erhard  
**Test Date:**

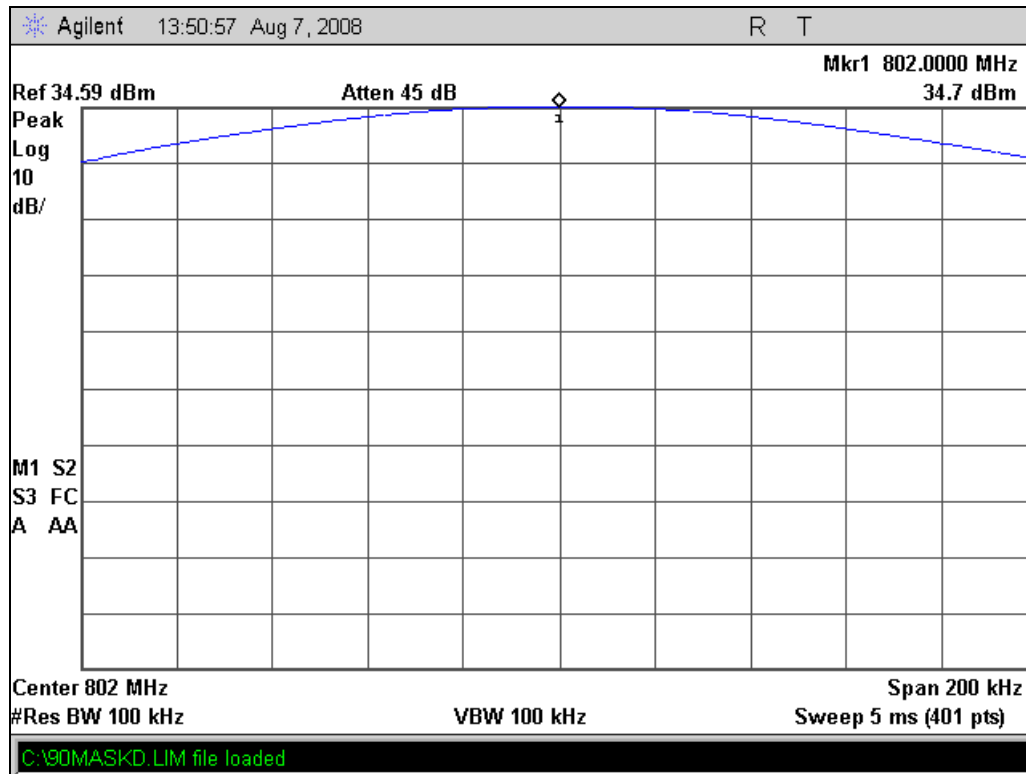
The UUT was connected directly to a spectrum analyzer to verify that the UUT meets the required emissions mask. A reference level plot is provided to verify that the peak power was established prior to testing the mask. An audio frequency of 2.5 KHz with amplitude of 1.0 VPP was used as the modulation source for the analog radio. The digital radio used a preset data pattern that operates at maximum symbol rate.

**Test Setup**

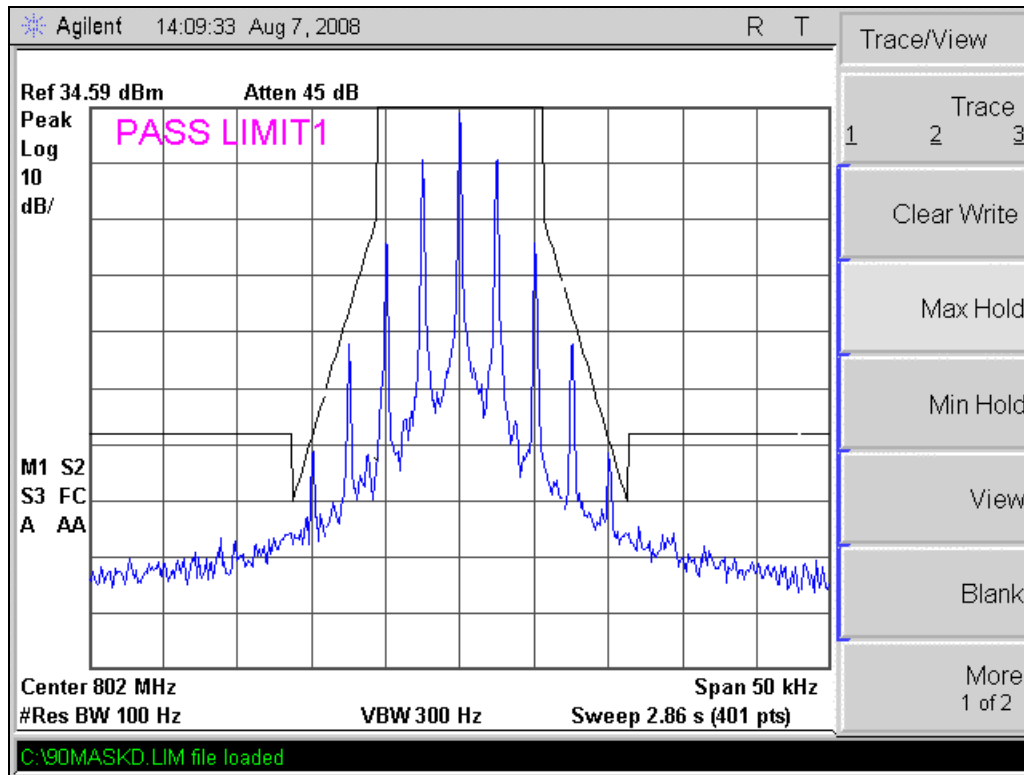


**802 MHz Emission Mask Plots**

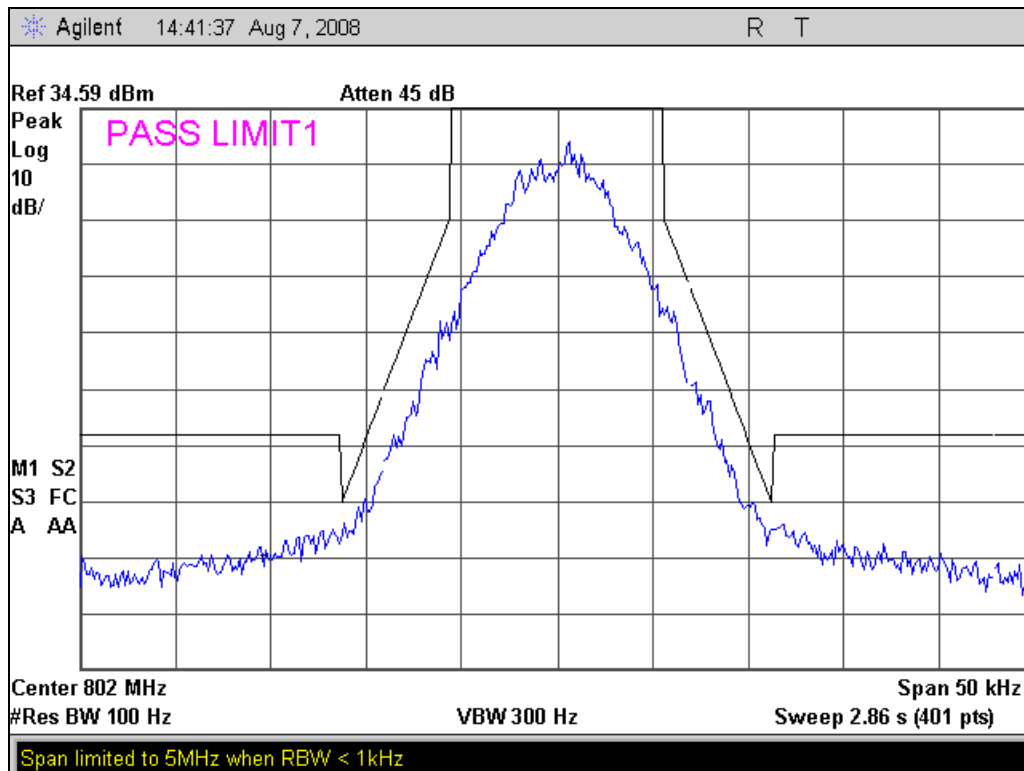
**Power Reference**



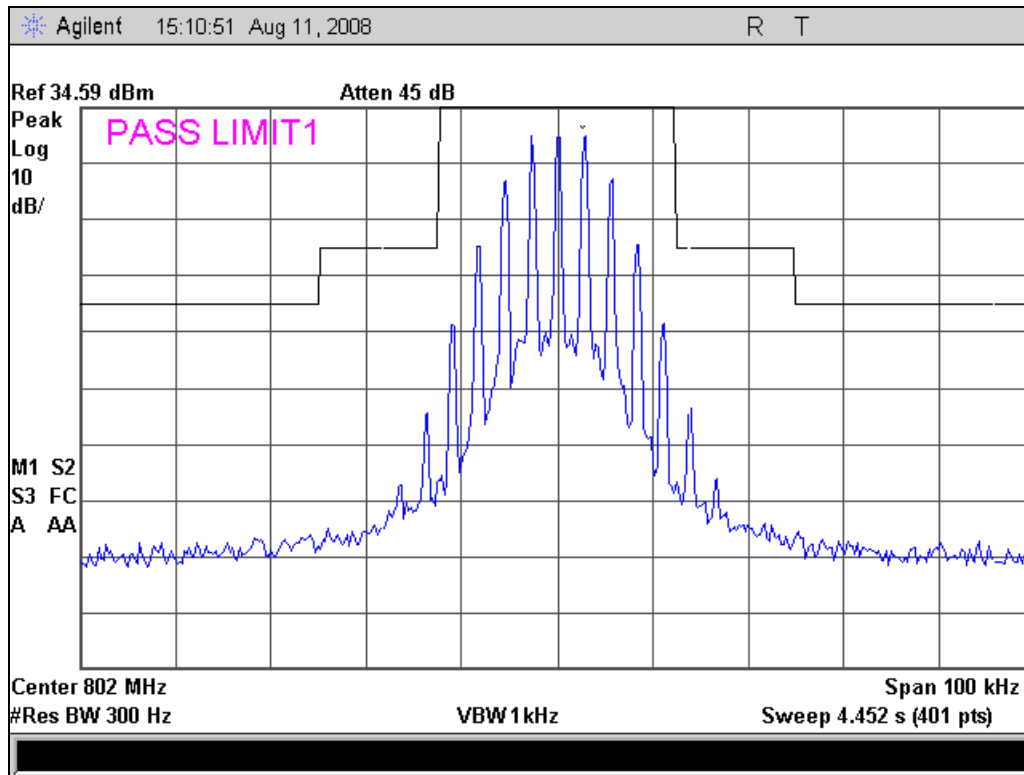
### 12.5 KHz Analog Radio



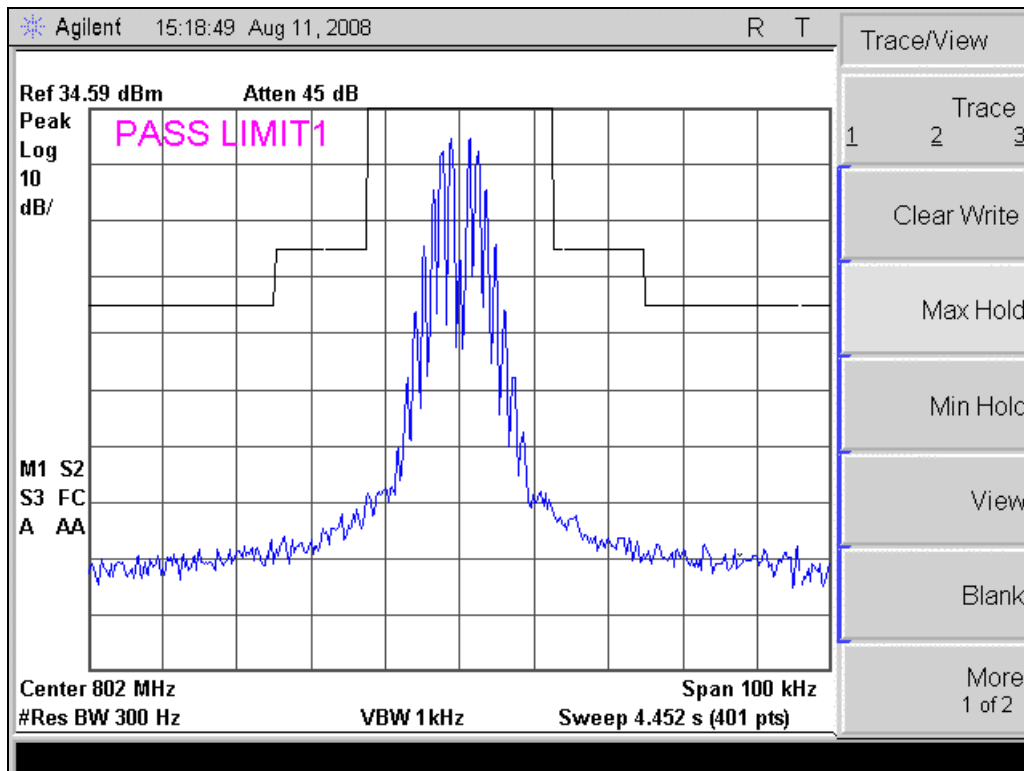
### 12.5 KHz Digital Radio



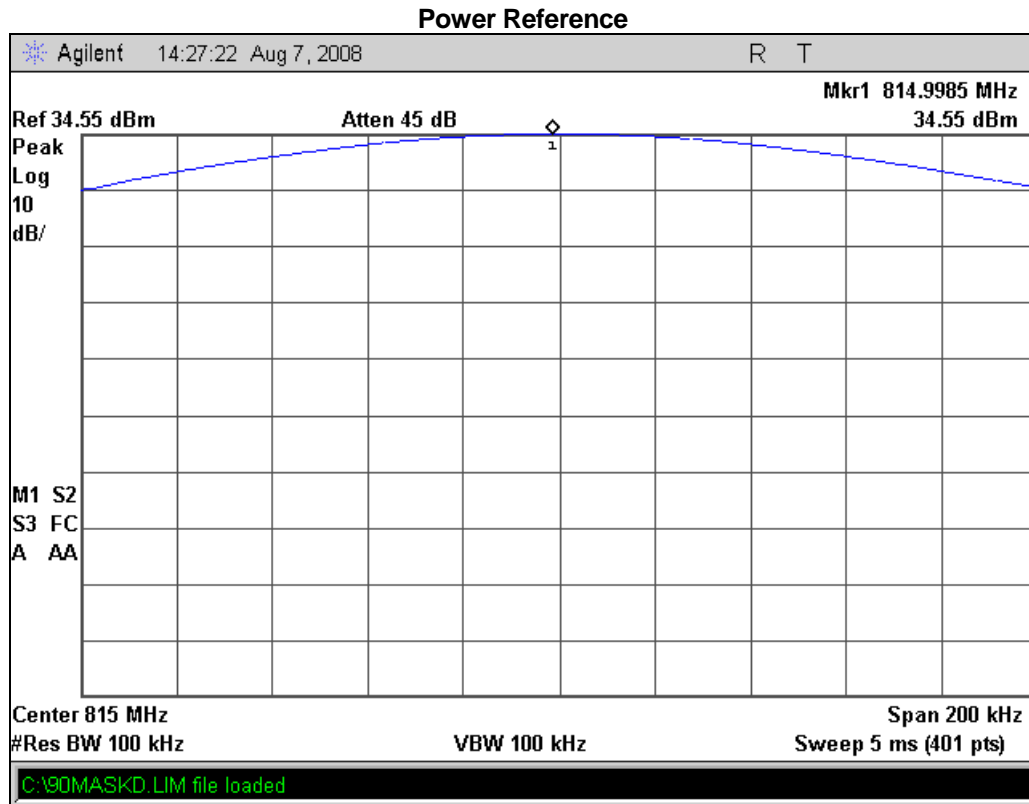
### 25 KHz Analog Radio



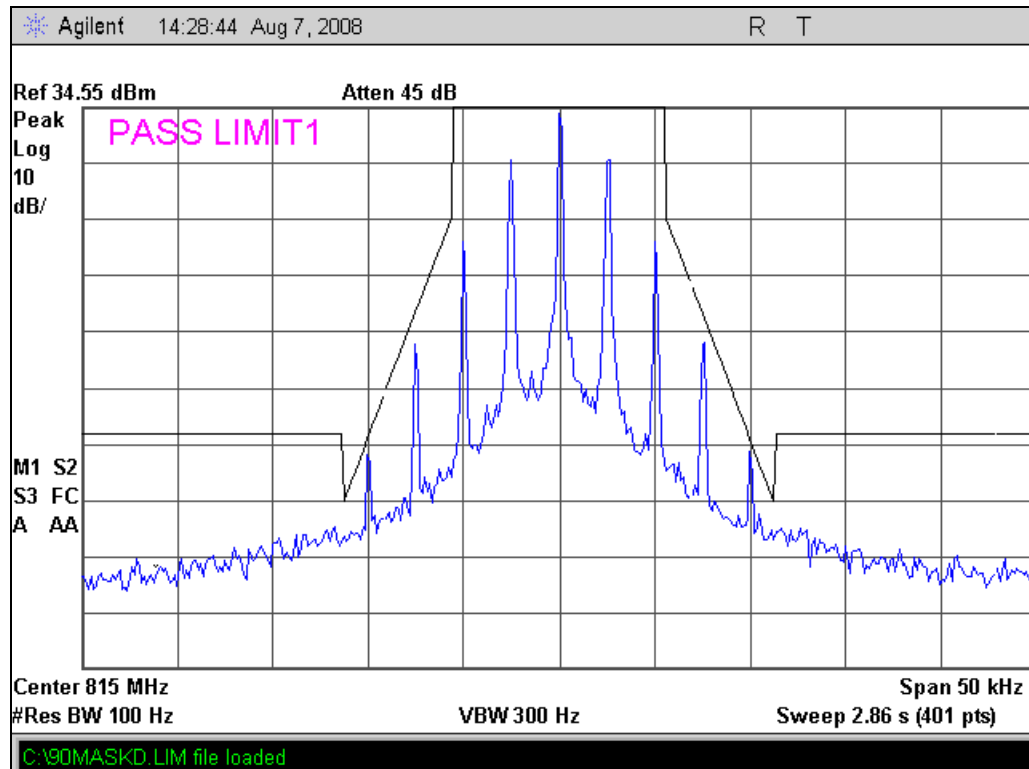
### 25 KHz Digital Radio



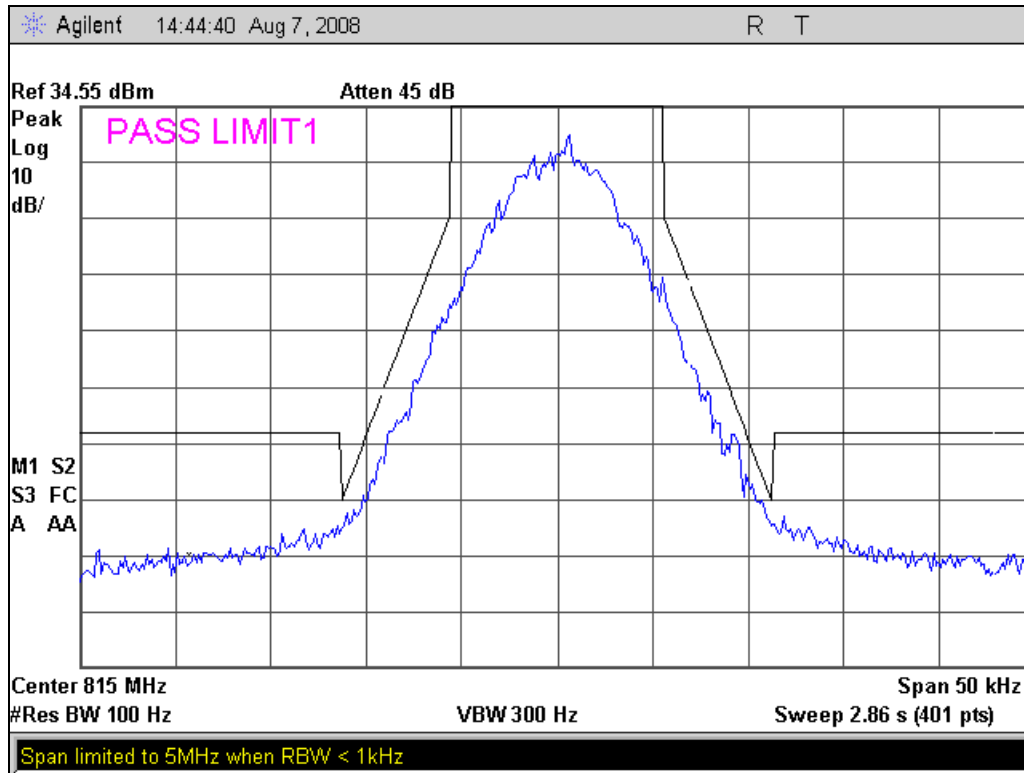
### 815 MHz Emission Mask Plots



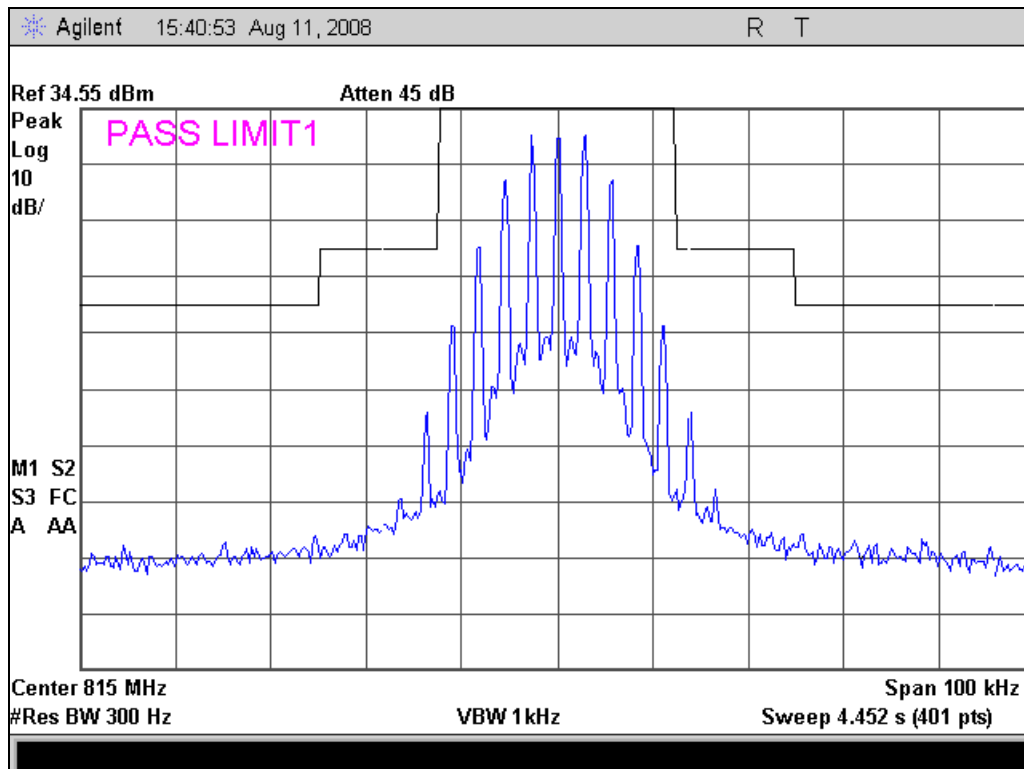
### 12.5 KHz Analog Radio



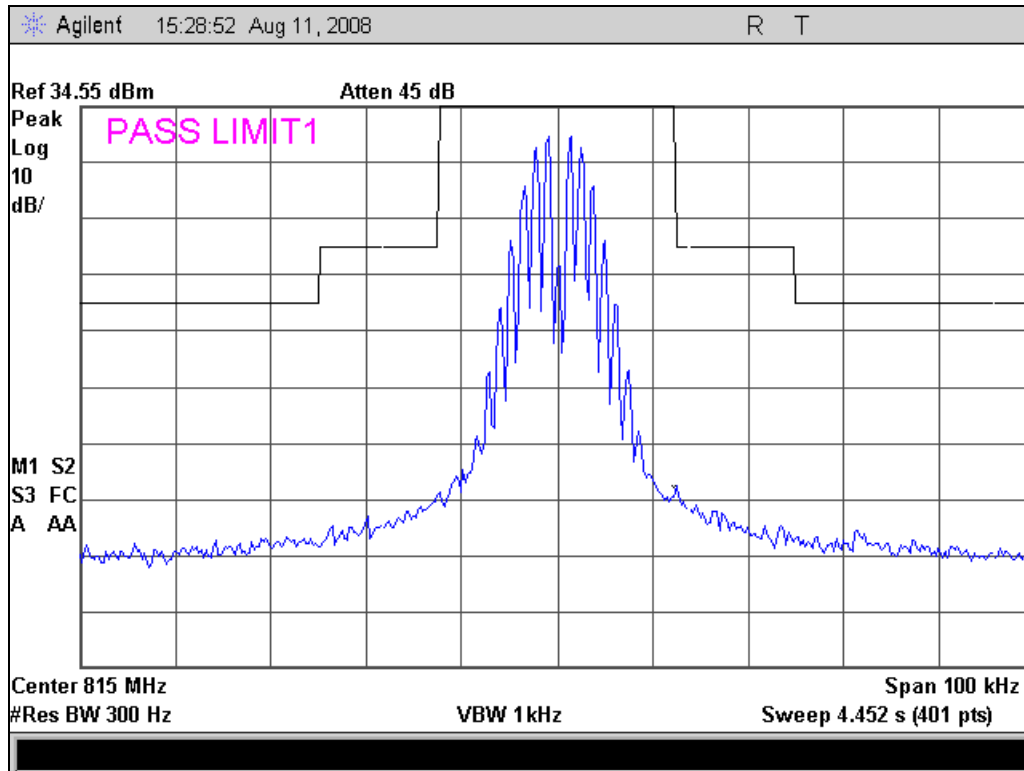
### 12.5 KHz Digital Radio



### 25 KHz Analog Radio

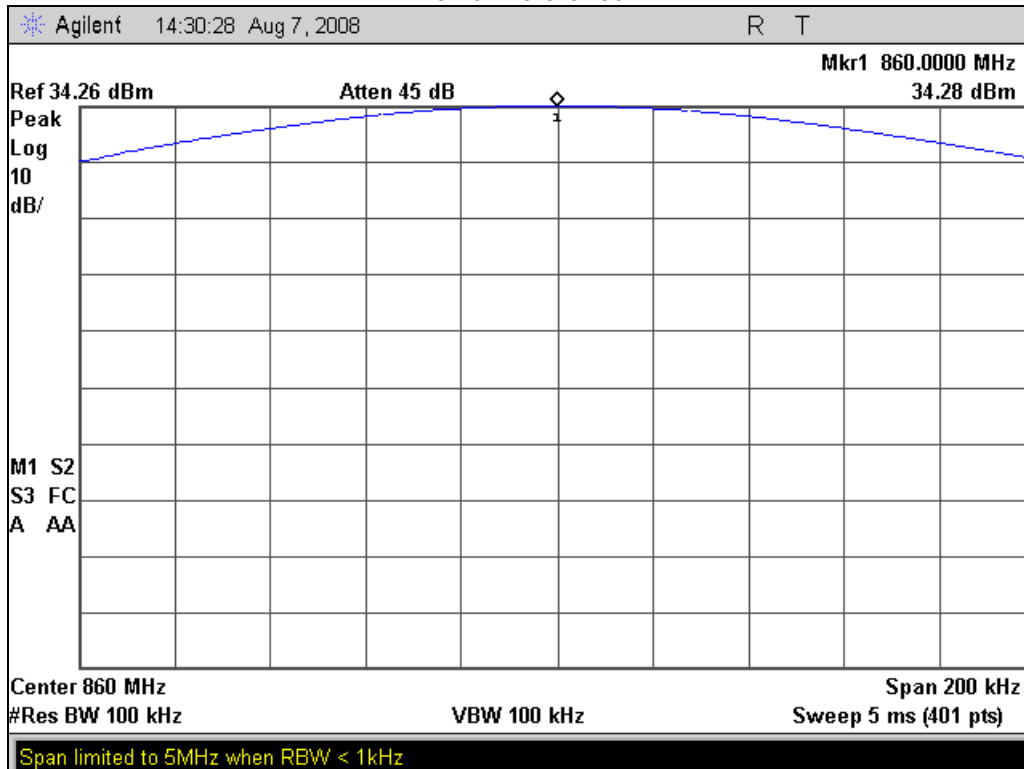


### 25 KHz Digital Radio

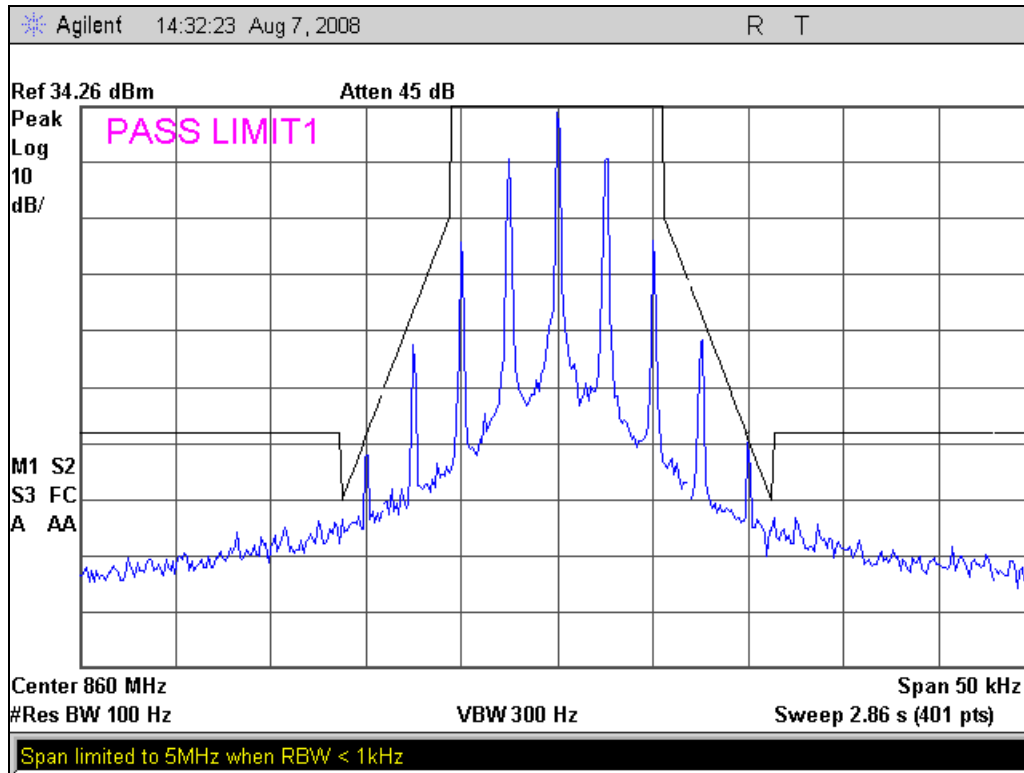


### 860 MHz Emission Mask Plots

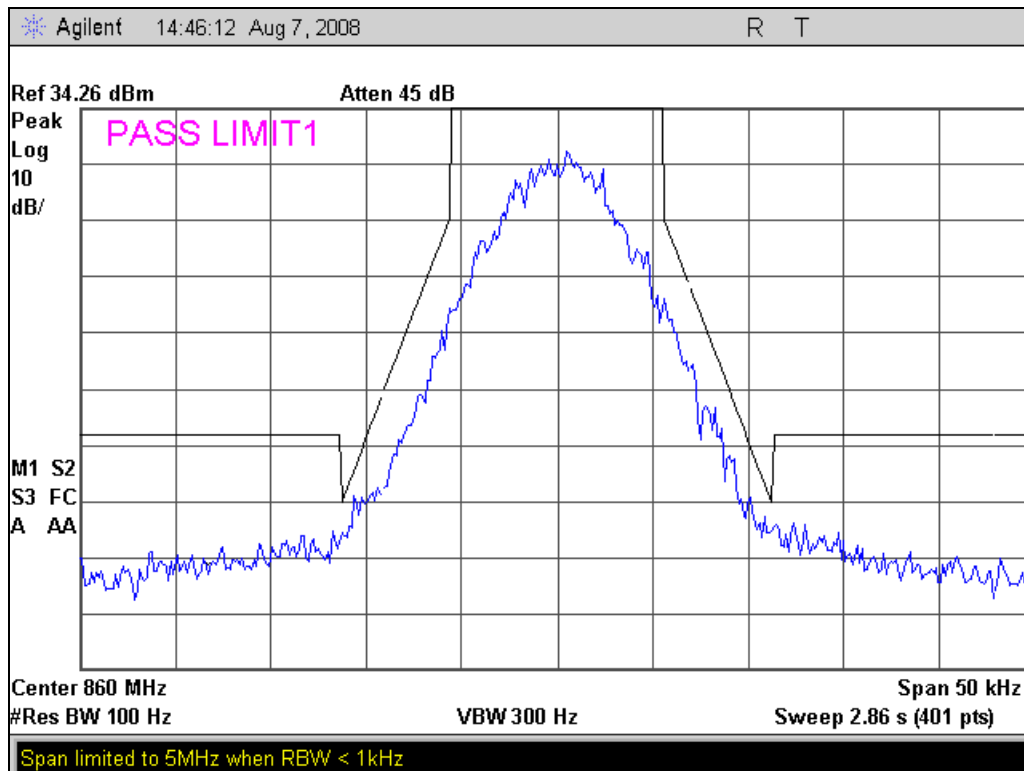
#### Power Reference



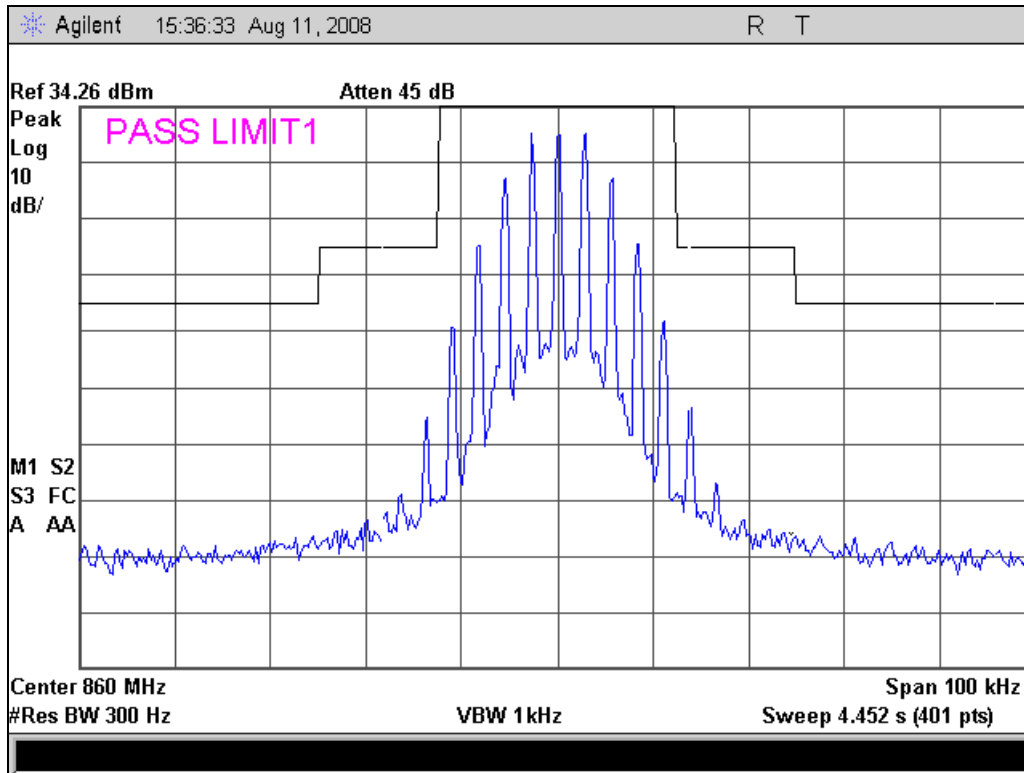
### 12.5 KHz Analog Radio



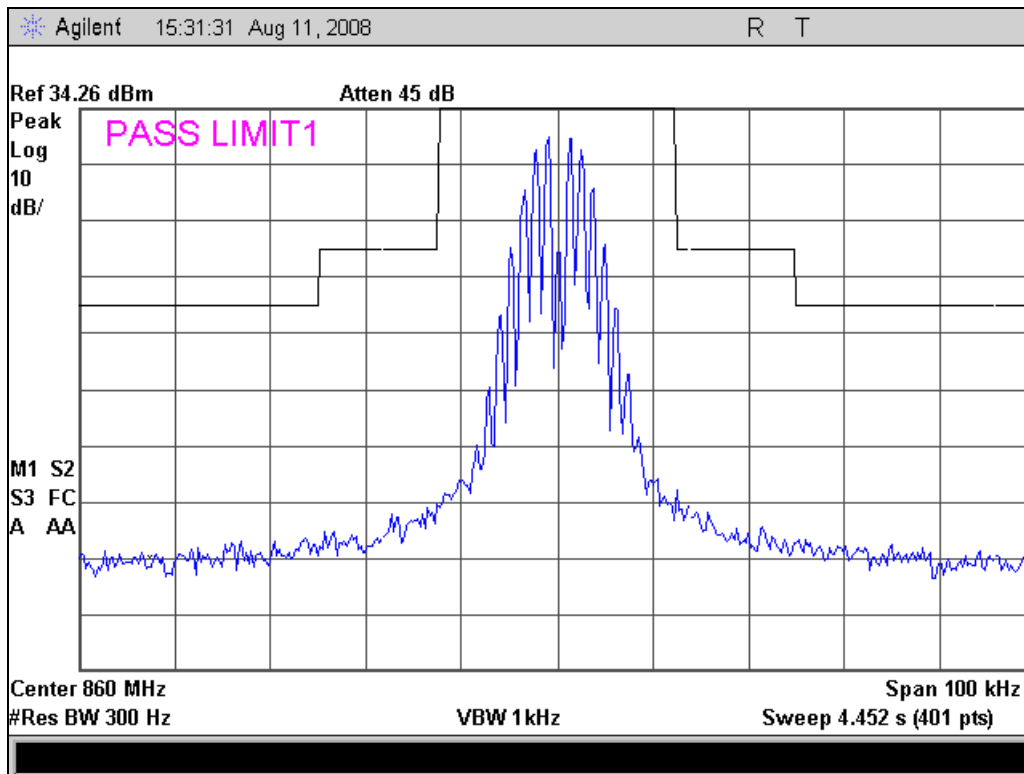
### 12.5 KHz Digital Radio



### 25 KHz Analog Radio



### 25 KHz Digital Radio





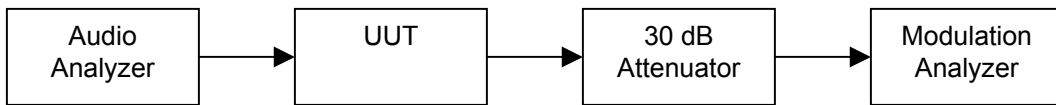
**Name of Test:** Audio Low Pass Filter (Voice Input)  
**Specification:** 2.1047(a)  
**Test Equipment Utilized:** i00005, i00321, i00324

**Performed By:** J Erhard  
**Test Date:** 8/12/2008

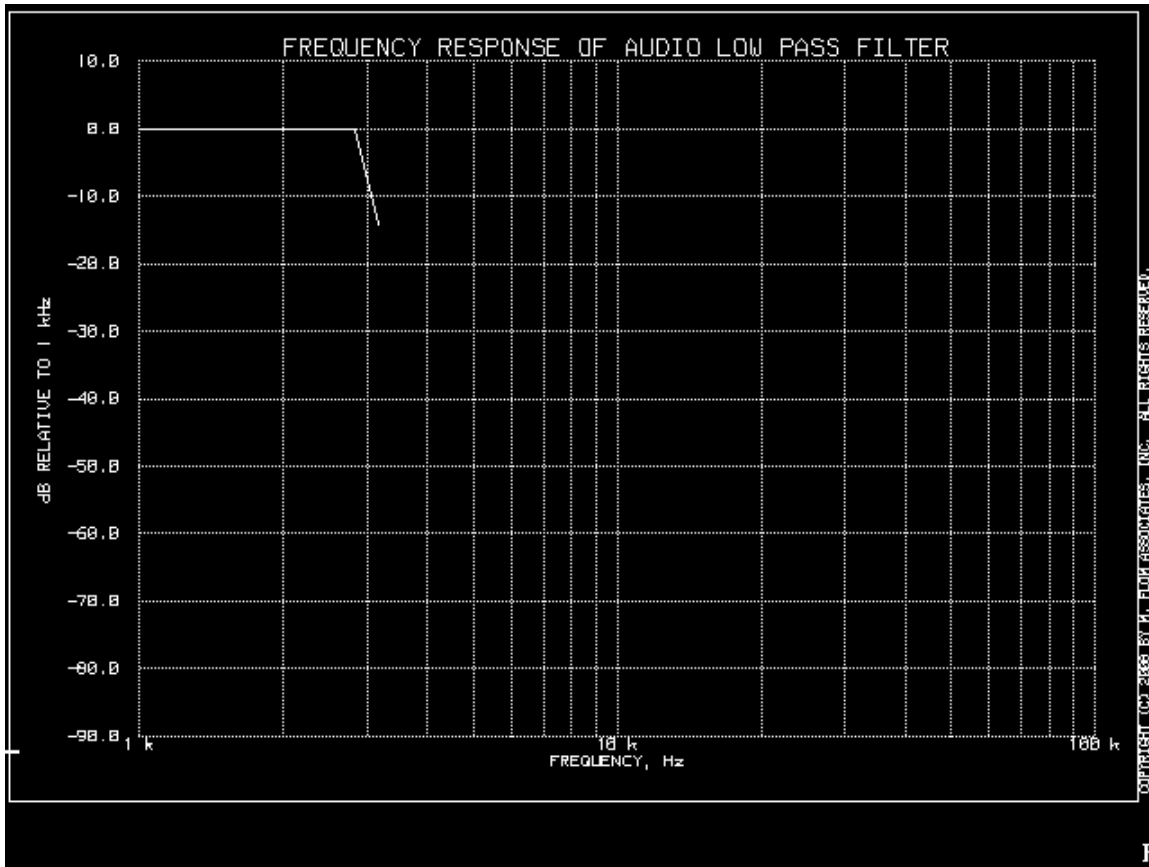
**Measurement Procedure**

- A) The UUT and test equipment were set up such that the audio input was connected at the input to the modulation limiter, and the modulated stage.
- B) The audio output was connected at the output to the modulated stage.

**Transmitter Test Set-Up**



**Measurement Results**



This unit is a digital radio and the roll-off for the filter is very linear in the operational band and sharp out of the band,

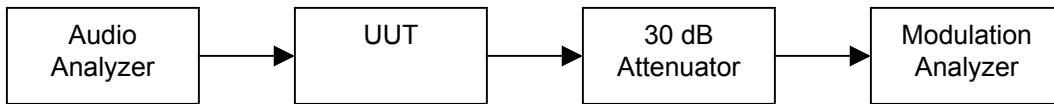
**Name of Test:** Audio Frequency Response  
**Specification:** 2.1047(a)  
**Test Equipment Utilized:** i00005, i00321, i00324

**Performed By:** J Erhard  
**Test Date:** 8/12/2008

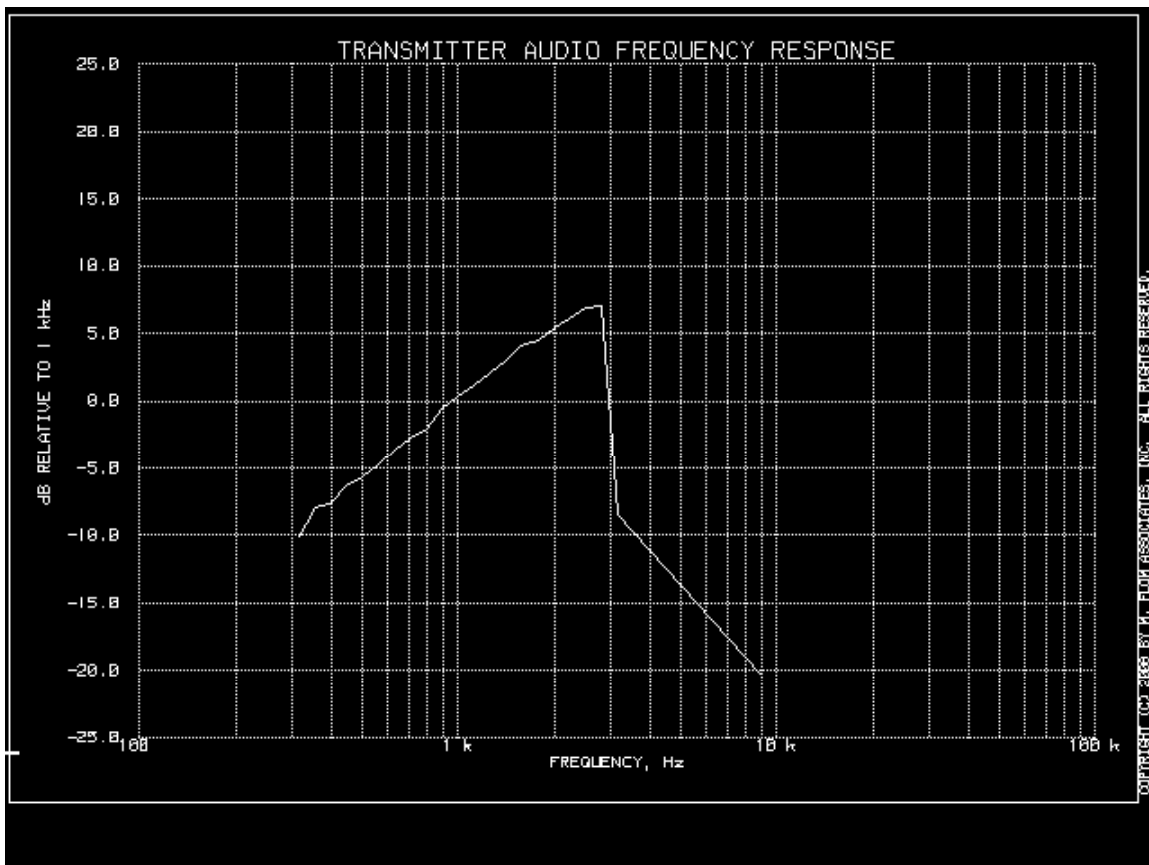
**Measurement Procedure**

- A) The UUT and test equipment were set up as shown below.
- B) The audio signal generator was connected to the audio input circuit/microphone of the UUT.
- C) The audio signal input was adjusted to obtain 20% modulation at 1 kHz, and this point was taken as the 0 dB reference level.
- D) With input levels held constant and below limiting at all frequencies, the audio signal generator was varied from 100 Hz to 50 kHz.
- E) The response in dB relative to 1 kHz was measured, using the HP 8901A Modulation Meter.

**Transmitter Test Set-Up**



**Measurement Results**



This is a digital radio and the output response is limited as such.

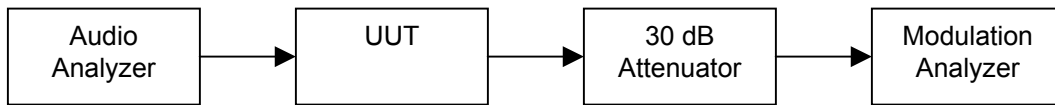
**Name of Test:** Modulation Limiting  
**Specification:** 2.1047(b)  
**Test Equipment Utilized:** i00005, i00321, i00324

**Performed By:** J Erhard  
**Test Date:** 8/12/2008

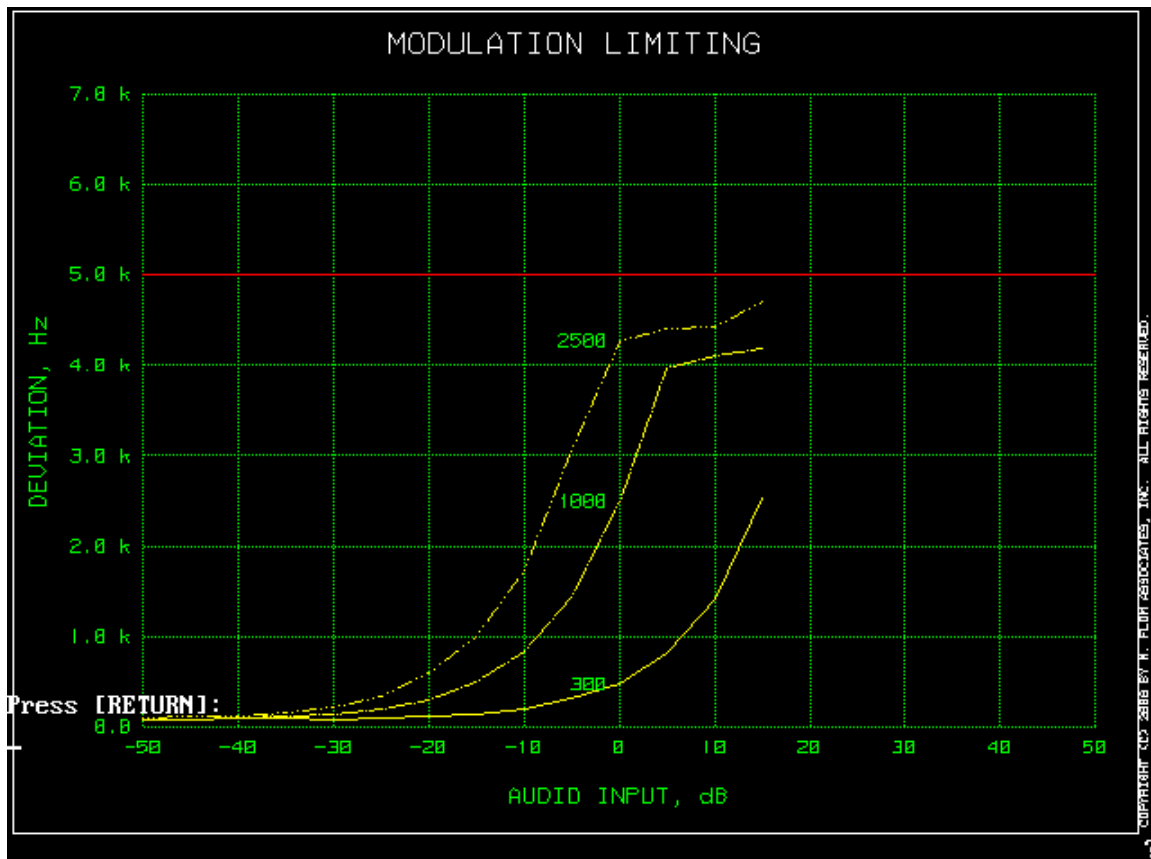
**Measurement Procedure**

- A) The signal generator was connected to the input of the UUT as shown below.
- B) The modulation response was measured for each of three frequencies (one of which was the frequency of maximum response), and the input voltage was varied and was observed on an HP 8901A Modulation Analyzer.
- C) The input level was varied from 30% modulation ( $\pm 1.5$  kHz deviation) to at least 20 dB higher than the saturation point.
- D) Measurements were performed for both negative and positive modulation and the respective results were recorded.

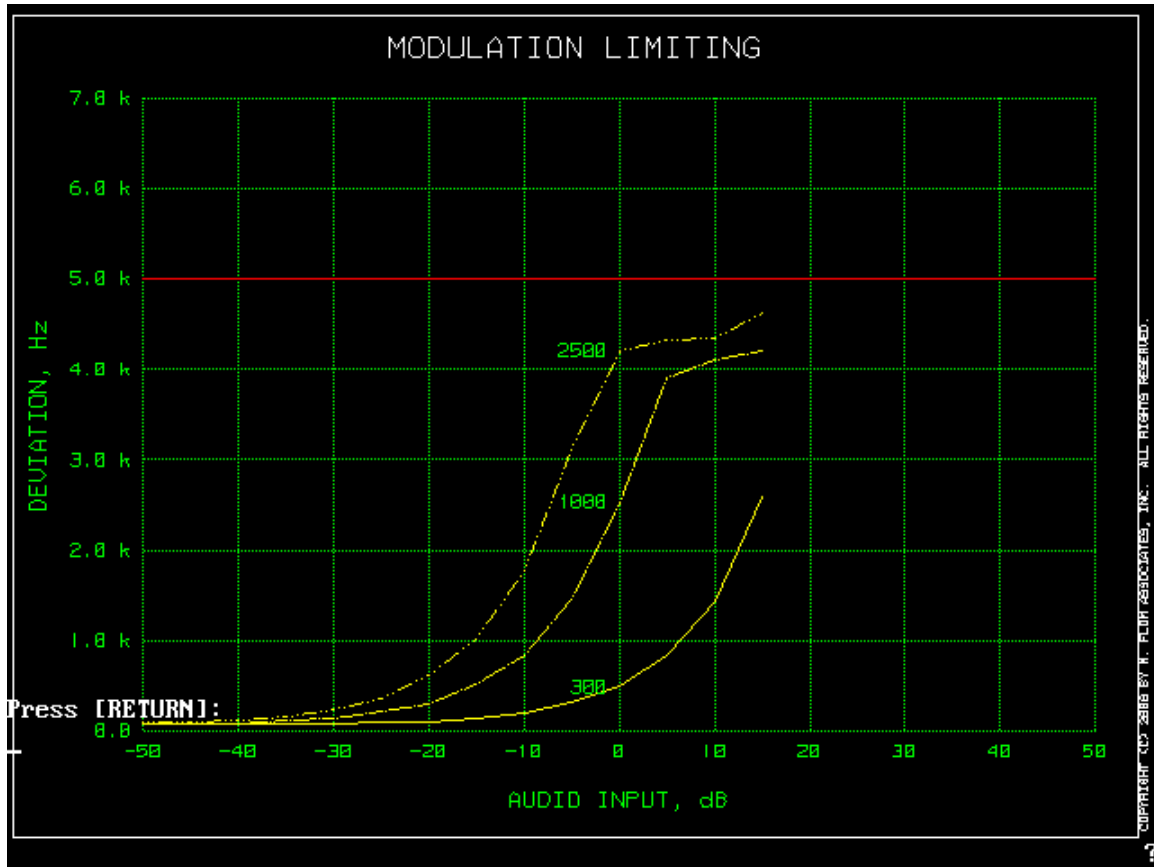
**Transmitter Test Set-Up**



**Measurement Results Positive Peaks**



### Measurement Results Negative Peaks

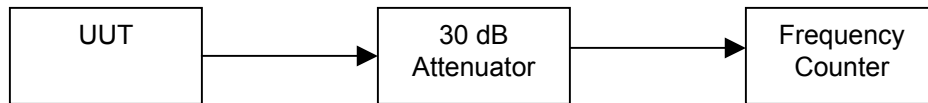


**Name of Test:** Frequency Stability (Temperature Variation)  
**Specification:** 90.213  
**Test Equipment Utilized:** i00005, i00019, i00027, i00319  
**Performed By:** J Erhard  
**Test Date:** 8/5/2008

**Measurement Procedure**

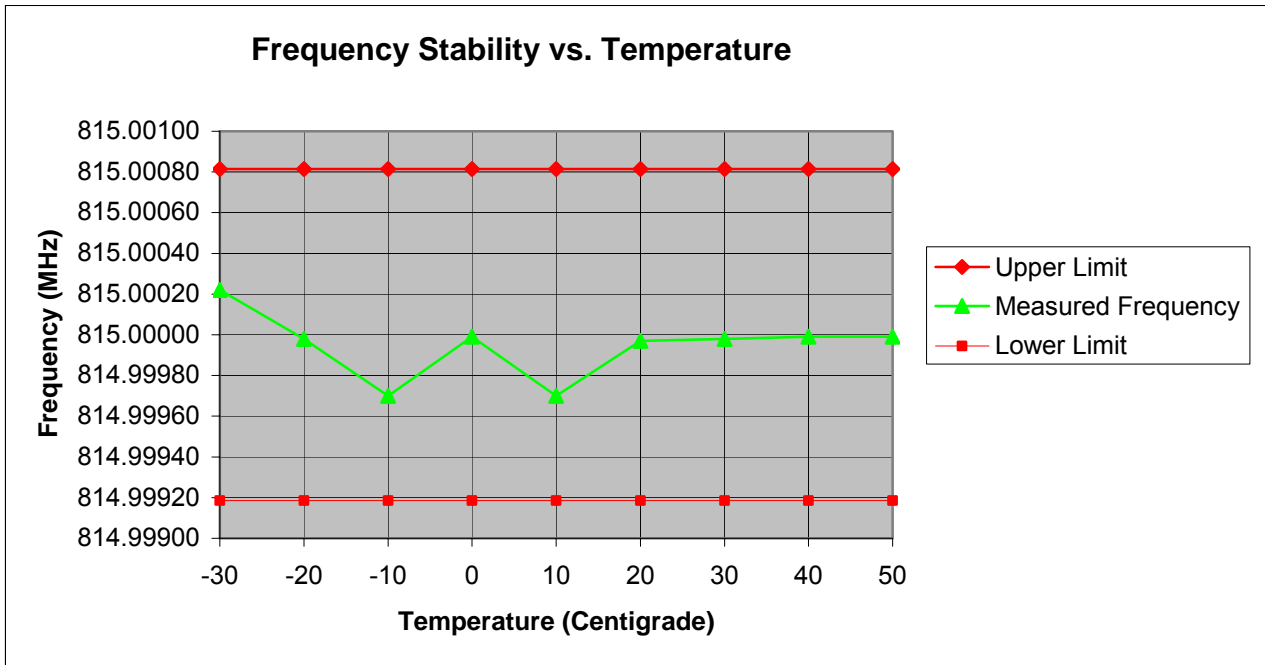
The UUT was placed in an environmental test chamber and the RF output was connected directly to a frequency counter. The temperature was varied from -30°C to 50°C in 10°C increments. After a sufficient time for temperature stabilization the RF output frequency was measured.

**Measurement Setup**



**Measurement Results**

Tuned Frequency (MHz)	Frequency Tolerance PPM	Upper Limit (MHz)	Lower Limit (MHz)
815.00	1	815.00122	814.99878



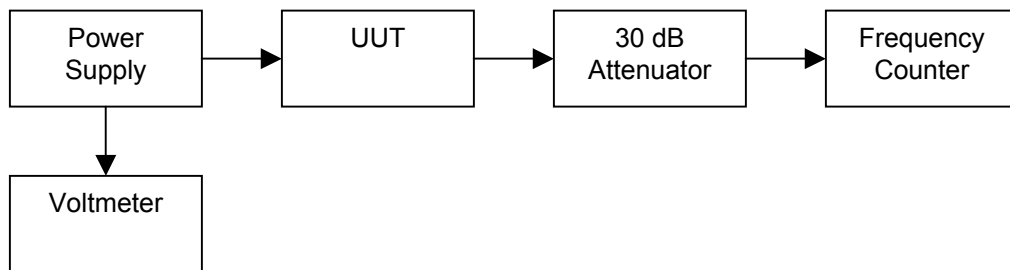
**Name of Test:** Frequency Stability (Voltage Variation)  
**Specification:** 90.213  
**Test Equipment Utilized:** i00005, i00019, i00027, i00319

**Performed By; J Erhard**  
**Test Date: 8/5/2008**

**Measurement Procedure**

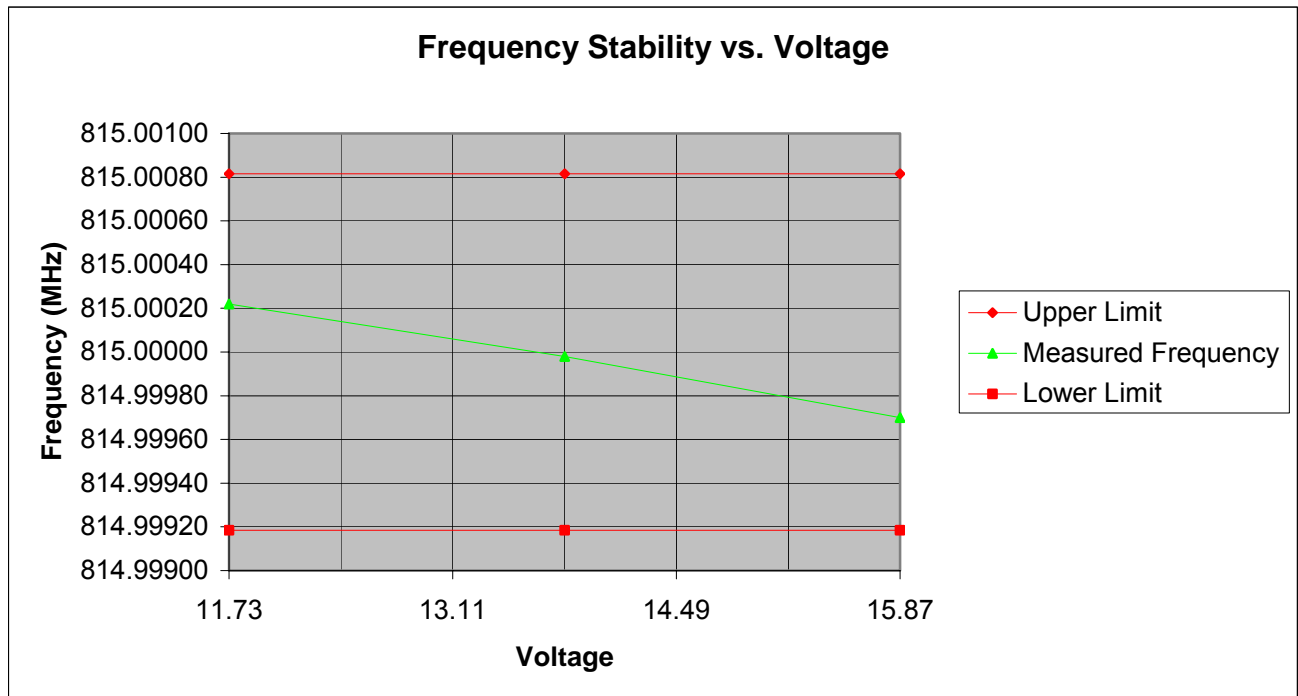
The UUT was placed in a temperature chamber at 25±5°C and connected directly to a frequency counter and variable power supply. The power supply voltage to the UUT was varied from 85% to 115% of the nominal value and the RF output was measured.

**Measurement Setup**



**Measurement Results**

Tuned Frequency (MHz)	Frequency Tolerance PPM	Upper Limit (MHz)	Lower Limit (MHz)
815.00	1	815.00122	814.99878



### Test Equipment Utilized

Description	MFG	Model Number	FTL Asset Number	Last Cal Date	Cal Due Date
Power Supply	HP	6286A	i00005	NCR	NCR
Frequency Counter	HP	5334A	i00019	11/20/07	11/20/08
Temperature Chamber	Tenney	Tenney Jr.	i00027	9/25/07	9/25/08
Monopole Antenna Set	Ailtech	DM-105A-T1, T2, T3	i00037, 39, 42, 48	Verified	Verified
Spectrum Analyzer	HP	8566B	i00049	8/18/07	8/18/08
Bi Con Antenna	EMCO	3109B	i00088	10/15/07	10/15/09
Log Periodic Antenna	Aprel	2001	i00089	10/22/07	10/22/09
Horn Antenna	Aprel	3115	i00091	NCR	NCR
Horn Antenna	EMCO	3115	i00103	9/5/06	9/5/08
Tunable Notch Filter	Eagle	TNF-1	i00124	When Used	
Crystal Detector	HP	8472B	i00159	NCR	NCR
Network Analyzer	HP	8753D	i00207	8/4/07	8/4/08*
Power Meter	HP	E4418B	i00228	9/6/07	9/6/08
Signal Generator	R&S	SMT-03	i00266	NCR	NCR
Power sensor	HP	8481A	i00317	9/6/07	9/6/08
Digitizing Oscilloscope	HP	50402	i00318	10/17/07	10/17/08
Voltmeter	Fluke	87III	i00319	11/05/07	11/05/08
Modulation Analyzer	HP	8901A	i00321	9/17/07	9/17/08
Audio Analyzer	HP	8903A	i00324	9/14/07	9/14/08
Spectrum Analyzer	Agilent	E4407B	i00331	10/23/07	10/23/08

\* Used under a 30-day calibration extension.

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT