



**Applicant:** Daniels Electronics Ltd.  
43 Erie St  
Victoria, BC, V8V 1P8

**Equipment Under Test:** UT-3/460-SN08 UHF Transmitter  
450 - 470 MHz

**FCC ID:** H4JUT-3-460-S08

**In Accordance With:** 47 CFR Parts 22, 90

**Tested By:** Daniels Electronics Ltd.  
43 Erie St  
Victoria, BC, V8V 1P8

**Authorized By:**

A handwritten signature in black ink that reads 'Dale Reitsma'.

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Dale Reitsma, D&D Manager

**Testing Verified By:**

A handwritten signature in blue ink that reads 'Michael J. Cyr'.

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Michael J. Cyr, Communication System Designer

**Date:** 26 September 2005

**Total Number of Pages:** 10

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## 1. Summary of Test Data

Name of Test	Para No.	Result
Modulation Limiting	2.1047	Complies
Occupied Bandwidth	2.1049	Complies

### Notes:

- 1) This application is for approval of the UT-3/460-SN UHF Narrowband Transmitters
- 2) This Class II Permissive Change is to support the addition of emission designators 11K0F3E and 9K2F1D to the original filing. As such, only relevant test data has been provided in this report.

#### Emission Designator Calculations:

- FM Voice:  $2M+2DK = 2 \times 3000\text{Hz} + 2 \times 2500\text{Hz} = 11\text{K}0$
  - 4-Level Data:  $2M+2DK = 2 \times (1/2) \times (3200 \text{ baud}) + 2 \times (2500\text{Hz}) \times (1/2) = 9\text{K}2$
- 3) Two sets of tests were conducted on a two transmitters, Serial #'s 15222 and 15224, for emission designators 11K0F3E and 9K2F1D, respectively.
    - 11K0F3E: Modulation Limiting and Occupied Bandwidth
    - 9K2F1D: Occupied Bandwidth

### General

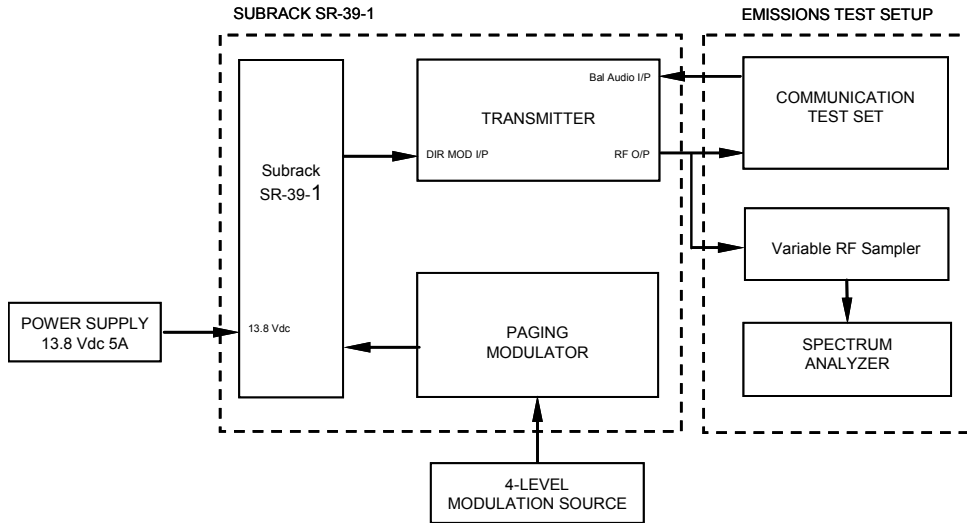
All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Parts 22 & 90.

### Test Conditions:

**Indoor**      Temperature: 23°C  
                  Humidity: 30%

**Test Arrangement Diagram:**



## 2. General Equipment Specifications

<b>Manufacturer:</b>	Daniels Electronics Ltd.
<b>Model Number:</b>	UT-3/460-SN08 UHF Transmitter
<b>Serial Number(s) of EUT(s):</b>	15222 (11K0F3E) 15224 (9K2F1D)
<b>Starting Date of Testing:</b>	6 September 2005
<b>Primary Power:</b>	13.8Vdc
<b>Modulation:</b>	FM 4-LEVEL DATA @ 6400 B.P.S.
<b>Emission Designator:</b>	11K0F3E 9K2F1D
<b>Power Output:</b>	8.0 W
<b>Channel Spacing:</b>	12.5 kHz
<b>Frequency Range:</b>	450 – 470 MHz

### 3. Modulation Limiting (47 CFR §2.1047)

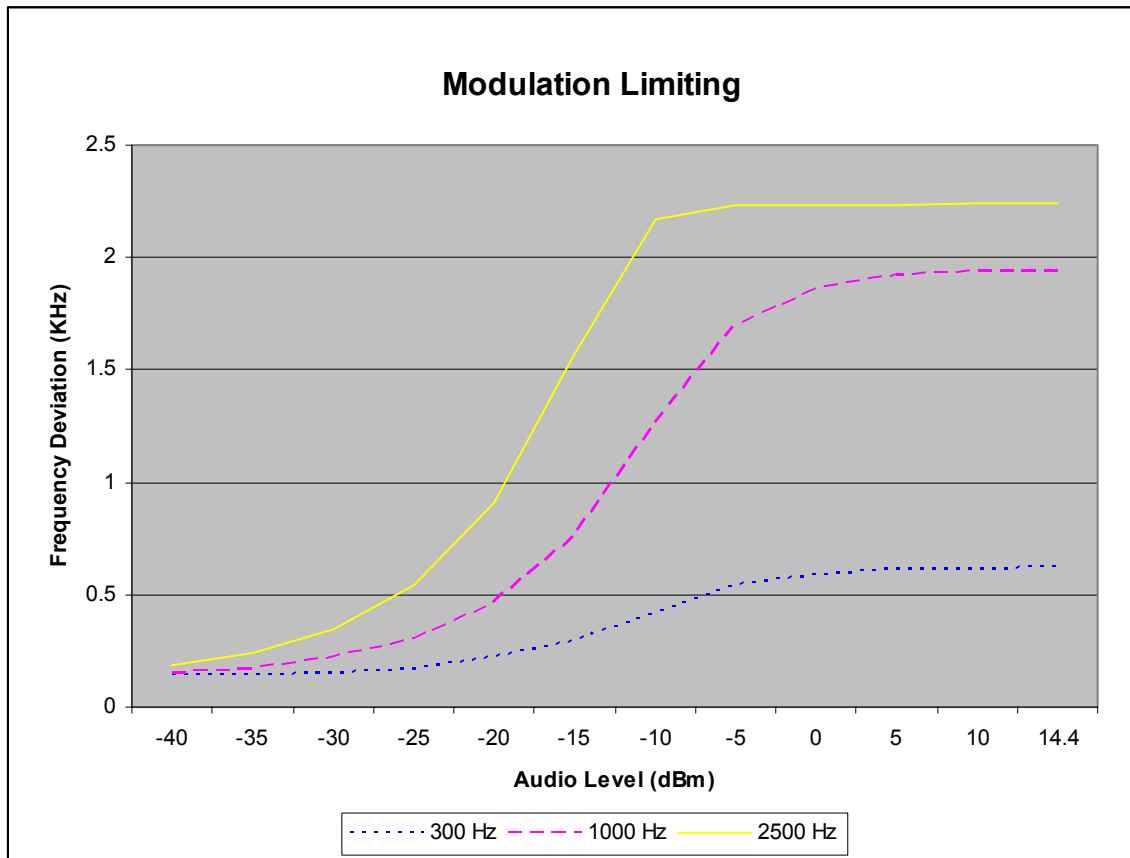
**Test Results:** Complies

The transmitter was modulated FM modulation for emission designator 11K0F3E.

**Serial Number(s) of EUT(s):** 15222

**Minimum Standard:** N/A

**Test Data:** See following graph:



#### 4. Occupied Bandwidth (47 CFR §2.1049)

**Test Results:** Complies

Note: (1) & (2) below represent tests with FM and 4-level Data modulation, respectively.

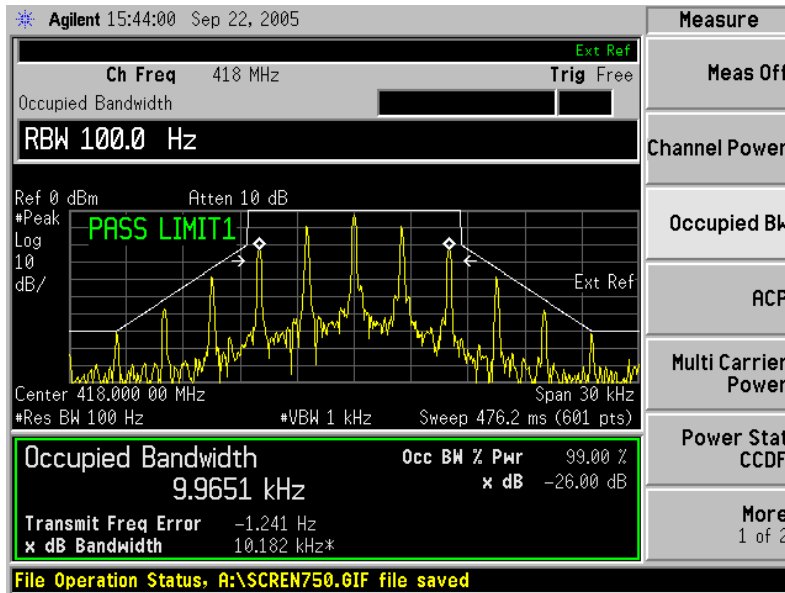
**Serial Numbers of EUTs:** 15222, 15224

**Minimum Standard:** Mask D

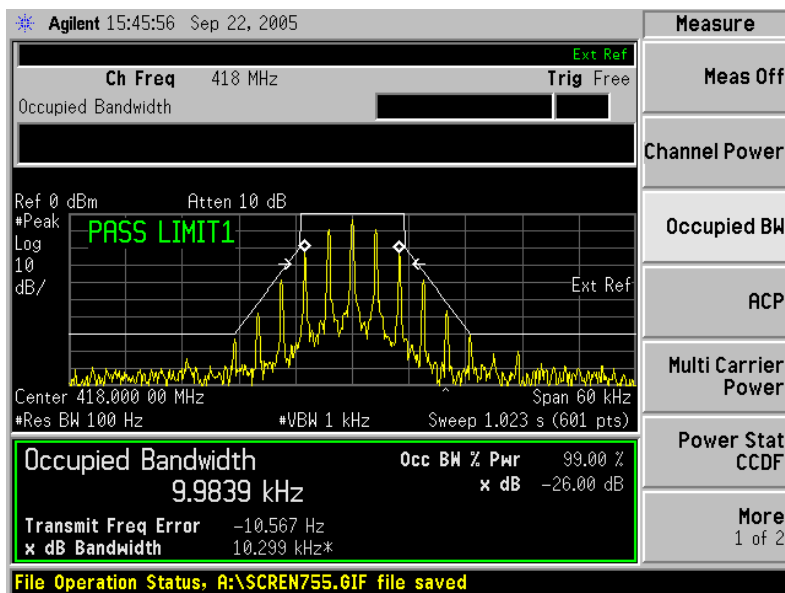
**Max 99% Emission Bandwidth:** 11K0F3E = 9.9839 kHz  
9K2F1D = 7.0409 kHz

**Test Data:** See following graphs:

(1) FM Modulation



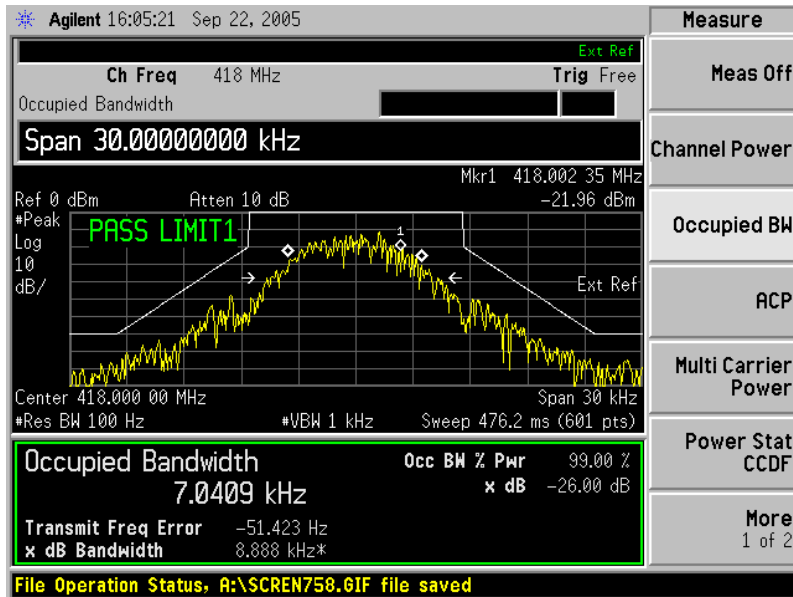
FCC Mask D  
 11K0F3E  
 8W, 12.5 KHz Channel Spacing



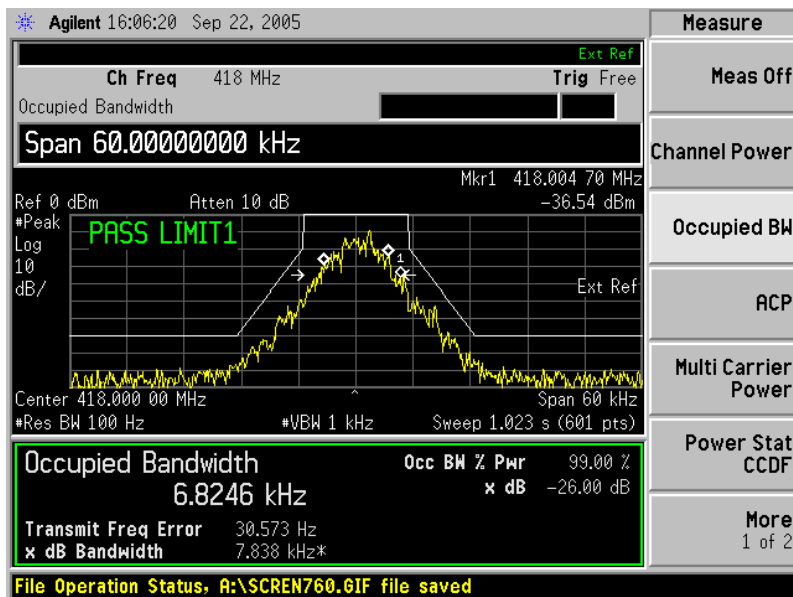
FCC Mask D  
 11K0F3E  
 8W, 12.5 KHz Channel Spacing



(2) 4-LEVEL DATA Modulation



FCC Mask D  
 9K2F1D  
 8W, 12.5 KHz Channel Spacing



FCC Mask D  
 9K2F1D  
 8W, 12.5 KHz Channel Spacing

## 5. Test Equipment List

<b>CAL CYCLE</b>	<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL</b>	<b>SERIAL</b>	<b>LAST CAL</b>	<b>NEXT CAL</b>
N/A	Paging Modulator	Daniels Electronics Ltd	CI-PM-3	D&D 42460	N/A	N/A
2 Year	Radio Test Set	IFR	2948	294504/340	21/Nov/2003	21/Nov/2005
1 Year	Spectrum Analyzer	Agilent Technologies	E4440A	US40420232	14/Apr/2005	14/Apr/2006
N/A	Variable RF Sampler	Bird	4275-020	DE 2803	N/A	N/A
N/A	4-Level Modulation Source	Daniels Electronics Ltd	Paging Test Code	N/A	N/A	N/A