Test Report:	2W06694
Applicant:	Daniels Electronics Ltd. 43 Erie Street Victoria, B.C. V8V 1P8
Equipment Under Test: **(EUT)**	UT-3H930-SWB3 Paging Transmitter
FCC ID:	H4JUT-3H930-SW
In Accordance With:	**FCC Part 22, 90**
Tested By:	Nemko Canada Inc. 303 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	 Kevin Carr, EMC Specialist
Date:	15 January 2003
Total Number of Pages:	27

Table of Contents

Section 1. Summary of Test Results

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 Part 22 and FCC Part 90.

☒ New Submission ☒ Production Unit

☐ Class II Permissive Change ☐ Pre-Production Unit

T	N	B

Equipment Code

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. NONE
See " Summary of Test Data".

TESTED BY: _____ DATE: 15 January 2003
Russell Grant

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
Audio Frequency Response	2.1047	Complies
Audio Low-Pass Filter Response	2.1047	Complies
Modulation Limiting	2.1047	Complies
Occupied Bandwidth	2.1049	Complies
Spurious Emissions at Antenna Terminals	2.1051	Complies
Field Strength of Spurious Emissions	2.1053	Complies
Frequency Stability	2.1055	Complies
Transient Frequency Behavior	——	N/A

Indoor Temperature: 20°C
Humidity: 20%

Outdoor Temperature: 5°C
Humidity: 20%

.

Section 2. General Equipment Specification

Manufacturer:	Daniels Electronics
Model No.:	UT-3H930-SWB3
Serial No.:	10392
Date Received In Laboratory:	Jan 6, 2003
Nemko Identification No.:	1

Radio Base Station Paging Transmitter	
Primary Power	13.8 VDC
Emission Designator (Analog Paging)	16K0F3E
Emission Designator (Digital Paging)	16K8F1D
Power Output	3 Watts
Channel Spacing	25 kHz
Frequency Range	928 - 935 MHz

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Russell Grant	**Date of Test: Jan 10, 2003**

Minimum Standard: 1 dB

Test Results: Complies

Measurement Data: 3.1 Watts

Section 4. Audio Frequency Response

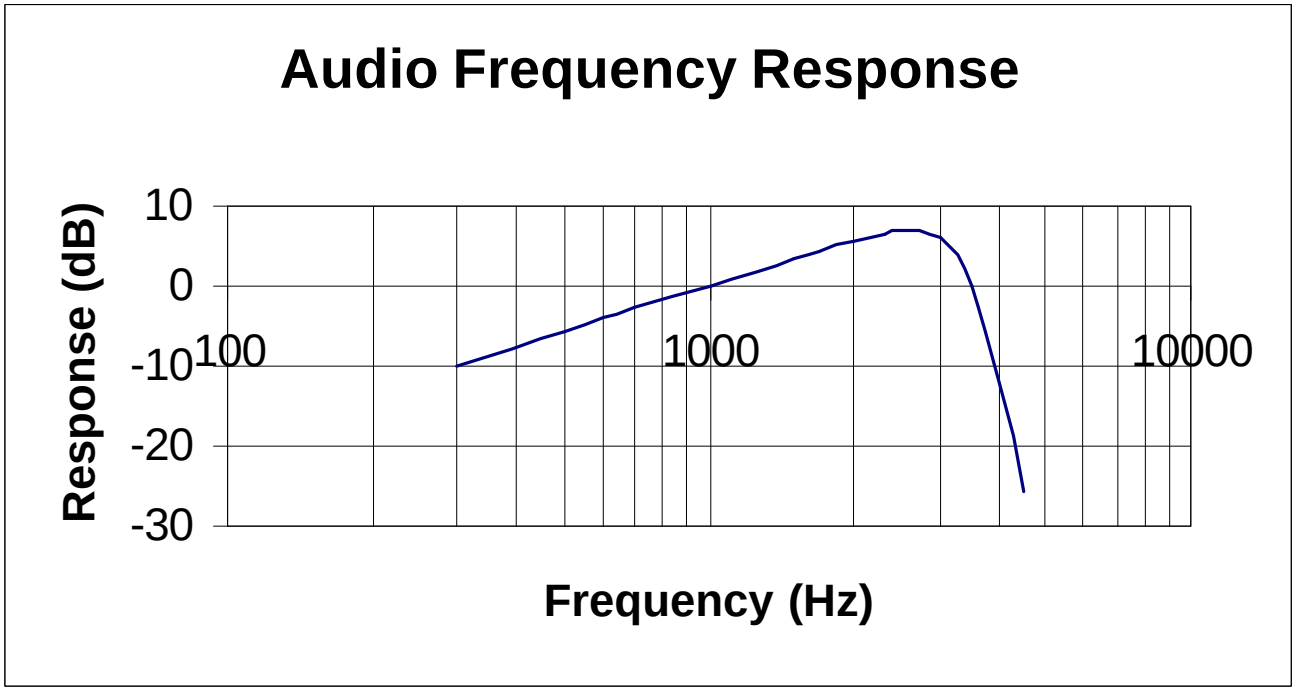
Para. No.: 2.1047

Test Performed By: Russell Grant	**Date of Test: Jan 9, 2003**

Minimum Standard: N/A

Test Results: Complies

Measurement Data: See attached graph.


Audio Frequency Response
Response (dB)
10
0
-10
-20
-30
100
1000
10000
Frequency (Hz)

Section 5. Audio Low-Pass Filter Response

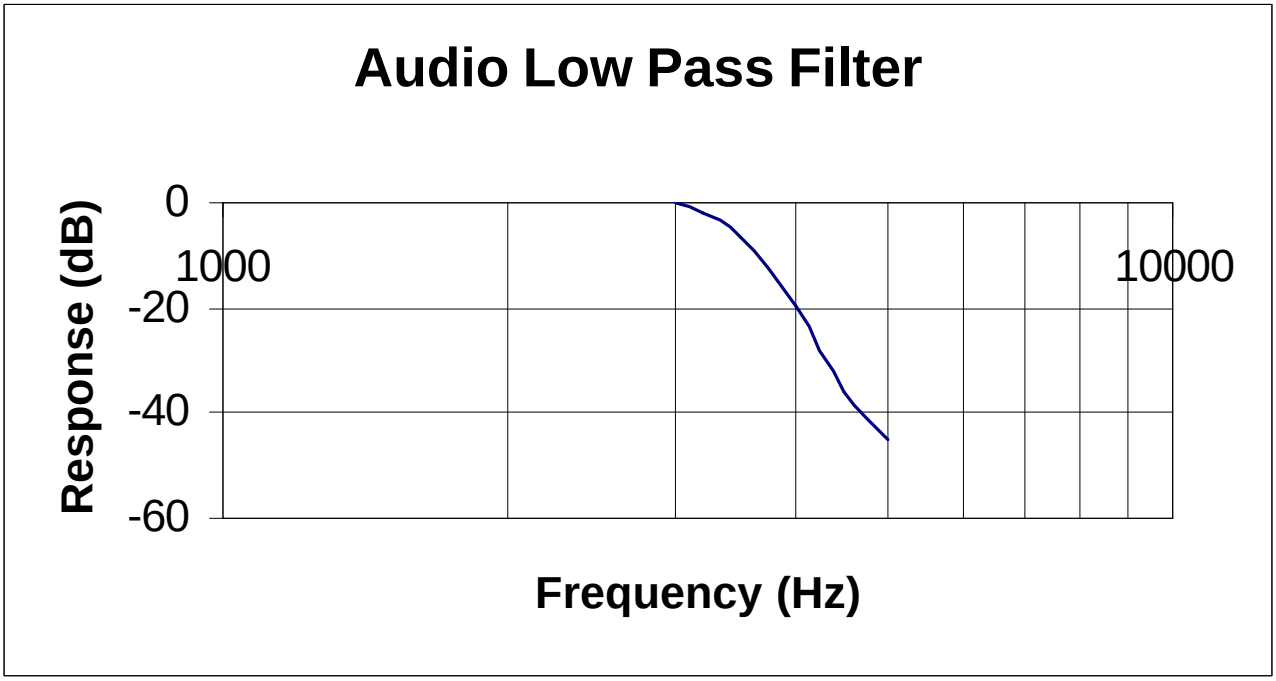
Para. No.: 2.1047

Test Performed By: Russell Grant	**Date of Test: Jan 14, 2003**

Minimum Standard: N/A

Test Results: Complies

Measurement Data: See attached graph.


Audio Low Pass Filter
Response (dB)
0
-20
-40
-60
1000
10000
Frequency (Hz)

Section 6. Modulation Limiting

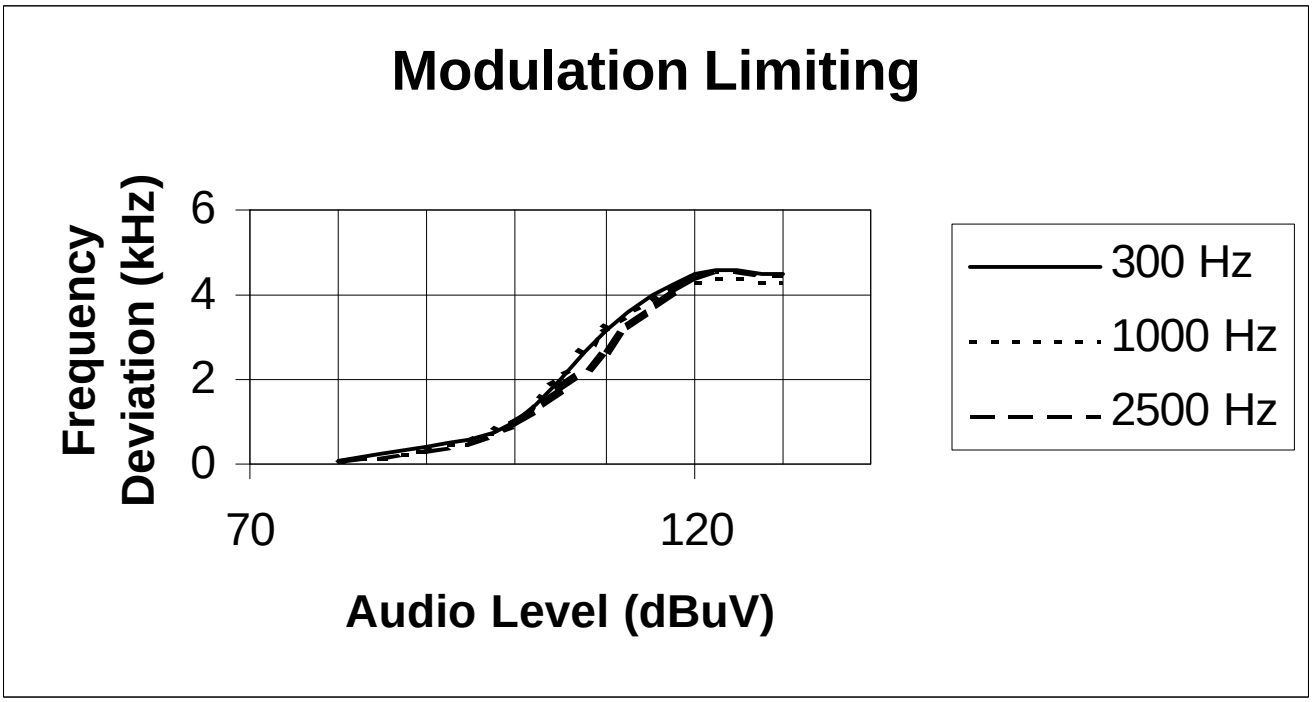
Para. No.: 2.1047

Test Performed By: Russell Grant	**Date of Test: Jan 9, 2003**

Minimum Standard: N/A

Test Results: Complies

Measurement Data: See attached graph.


Modulation Limiting
Frequency Deviation (kHz)
6
4
2
0
70
120
Audio Level (dBuV)
300 Hz
1000 Hz
2500 Hz

Section 7. Occupied Bandwidth

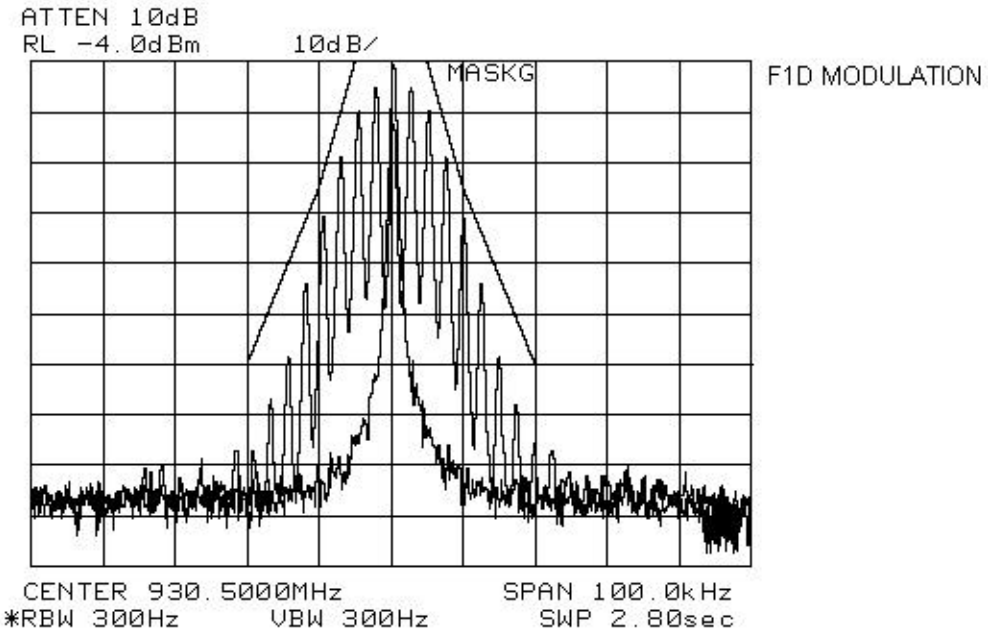
Para. No.: 2.1049

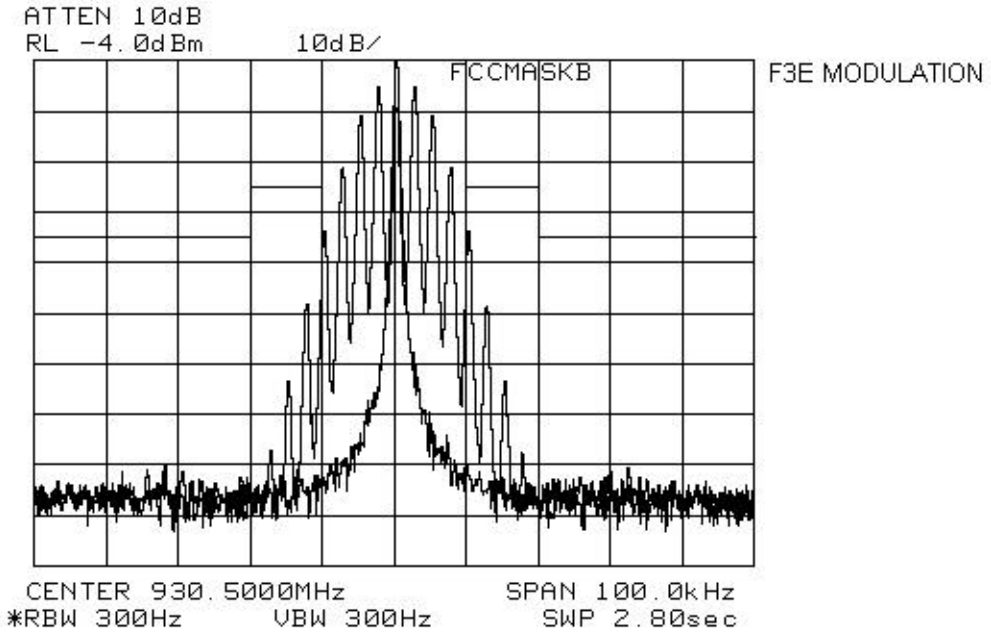
Test Performed By: Russell Grant	**Date of Test: Jan 10, 2003**

Minimum Standard: Mask B, G

Test Results: Complies

Measurement Data: See attached graph.


ATTEN 10dB
RL -4.0dBm
10dB/
MASKG
F1D MODULATION
CENTER 930.5000MHz
SPAN 100.0kHz
*RBW 300Hz
VBW 300Hz
SWP 2.80sec


ATTEN 10dB
RL -4.0dBm
10dB/
FCCMASKB
F3E MODULATION
CENTER 930.5000MHz
SPAN 100.0kHz
*RBW 300Hz
VBW 300Hz
SWP 2.80sec

Section 8. Spurious Emissions at Antenna Terminals

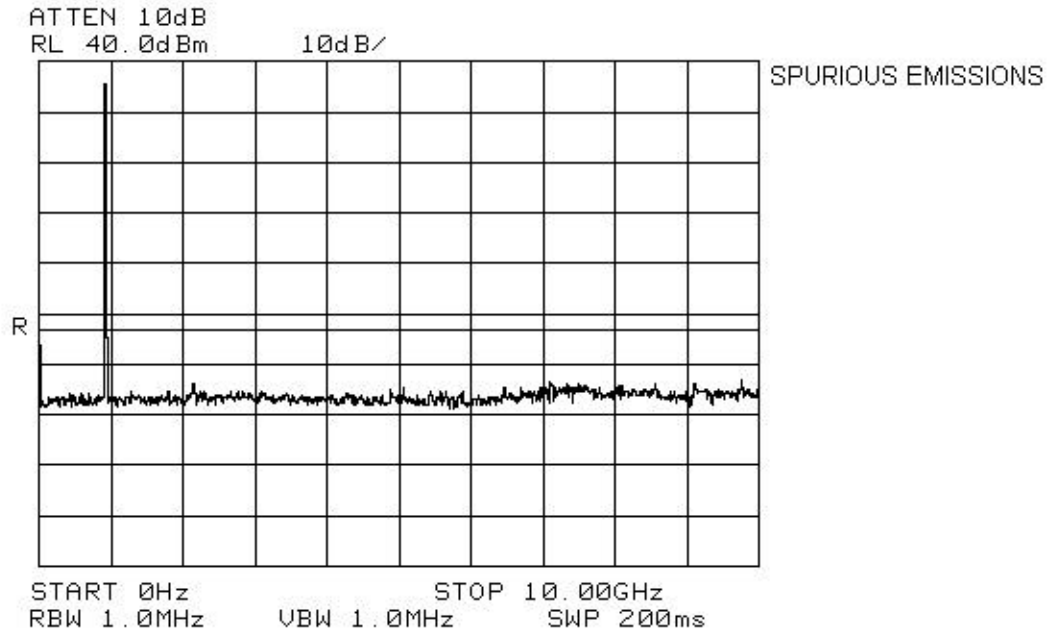
Para. No.: 2.1051

Test Performed By: Russell Grant	**Date of Test: Jan 10, 2003**

Minimum Standard: -13 dBm

Test Results: Complies

Measurement Data: See attached graph.


ATTEN 10dB
RL 40.0dBm
10dB/
SPURIOUS EMISSIONS
R
START 0Hz
STOP 10.00GHz
RBW 1.0MHz
VBW 1.0MHz
SWP 200ms

Section 9. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Russell Grant	**Date of Test: Jan 6, 2003**

Minimum Standard: -13 dBm

Test Results: Complies

Measurement Data: See attached tabulated data.

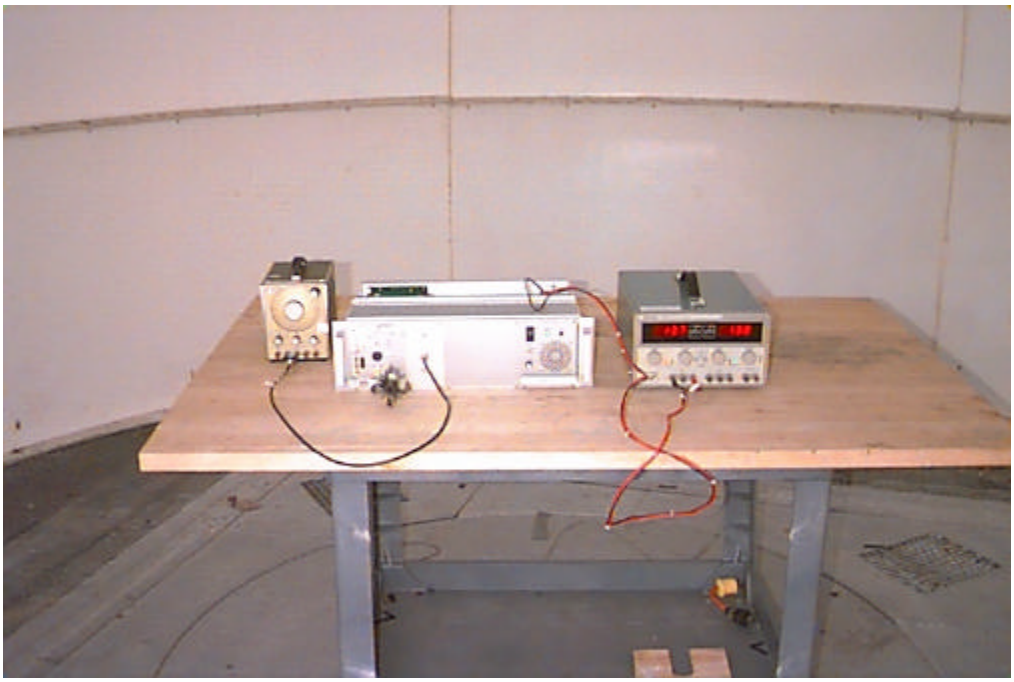
Radiated Disturbance Test Data:

Test Date: 10 Jan 2003	
Engineer's Name: Russel Grant	
Temperature (C°): 5	Humidity %: 20
Tested as per (Table Top/Floor Standing):	
Test Distance (meters): Table Top	Range: A
Emissions within 20 dB of the limit have been recorded. Pre-scan data can be found at the back of this section	

Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Sig. Sub. Factor (dB)	Cable Loss (dB)	Rad. Power (dBm)	Limit (dBm)	Margin (dB)	Detector	Amp.
1861.0000	Horn 1	V	52.0	-119.1	3.8	-63.3	-13.0	50.3	Peak	1-2GHz
1861.0000	Horn 1	H	54.0	-119.7	3.8	-61.9	-13.0	48.9	Peak	1-2GHz
2791.5000	Horn 1	V	55.2	-127.4	5.7	-66.5	-13.0	53.5	Peak	2-4GHz
2791.5000	Horn 1	H	48.0	-129.1	5.7	-75.4	-13.0	62.4	Peak	2-4GHz
3722.0000	Horn 1	V	55.8	-124.3	6.1	-62.5	-13.0	49.5	Peak	2-4GHz
3722.0000	Horn 1	H	53.0	-125.7	6.1	-66.6	-13.0	53.6	Peak	2-4GHz
4652.5000	Horn 1	V	44.3	-121.1	7.3	-69.5	-13.0	56.5	Peak	4-8GHz
4652.5000	Horn 1	H	42.5	121.3	7.3	-71.6	-13.0	58.6	Peak	4-8GHz

Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole
Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW

Notes:	



Section 10. Frequency Stability

Para. No.: 2.1055

Test Performed By: Russell Grant	**Date of Test: Jan 6, 2003**

Minimum Standard: 1.5 ppm

Test Results: Complies

Measurement Data: See attached tabulated data.

Standard Test Frequency (MHz):		930.5	
Standard Test Voltage (STV): 13.8 VDC			
Temperature	Measured Frequency	Frequency Drift	
(C)	(MHz)	(Hz)	ppm
-30	930.499943	-57	-0.0613
-20	930.499941	-59	-0.0634
-10	930.499938	-62	-0.0666
0	930.499934	-66	-0.0709
10	930.499930	-70	-0.0752
20	930.499922	-78	-0.0838
30	930.499943	-57	-0.0613
40	930.499942	-58	-0.0623
50	930.499946	-54	-0.0580

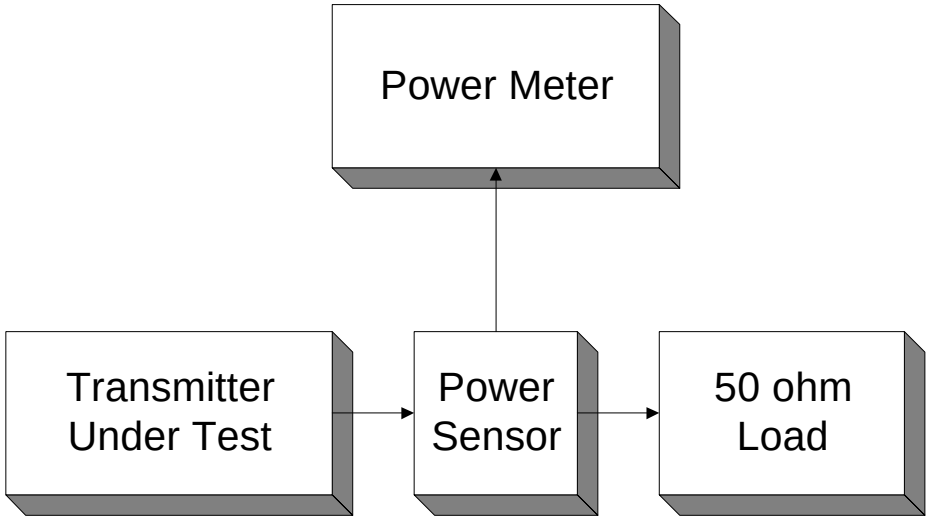
Section 11. Test Equipment List

RADIO TEST EQUIPMENT LIST

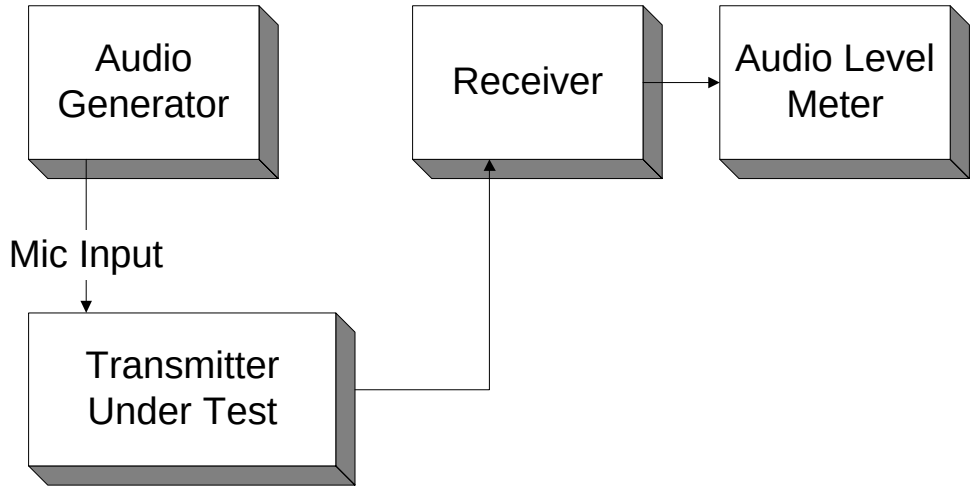
CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981
1 Year	Radio Communications	Rohde & Schwarz	CMTA 54	840343/013
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S
	Power Supply	Astron	VS-50M	8405071
1 Year	Attenuator	Narda	768-20	9507
1 Year	Attenuator	Narda	769-20	4153
3 Year	RF Millivoltmeter	Rohde & Schwarz	URV5	FA001570
3 Year	Insertion Unit	Rohde & Schwarz	URV5-Z4	FA000905
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014
1 Year	Horn Antenna	EMCO #2	3115	4336
1 Year	Horn Antenna	EMCO #1	3115	3132
1 Year	Dipole Antenna Set	EMCO #2	3121C	FA001349
1 Year	50 ohm Combiner Pad	Mini Circuits	ZFC-3-4	922603
3 Year	Signal Generator	Rohde & Schwarz	SM1Q03	DE22004
1Year	Frequency Counter	Hewlett Packard	HP5350A	2444A00135
1 Year	RF AMP	JCA	2-4 GHz	FA001496
1 Year	RF AMP	JCA	1-2 GHz	FA001498
1 Year	RF AMP	JCA	4-8 GHz	FA001497

Section 12. Test Diagrams

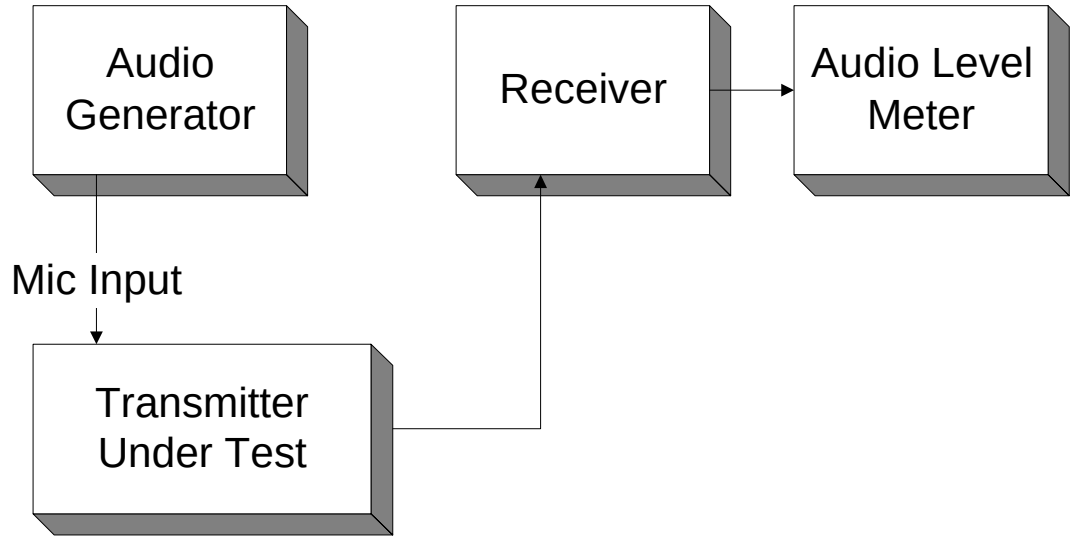
Para. No. 2.1046 - R.F. Power Output



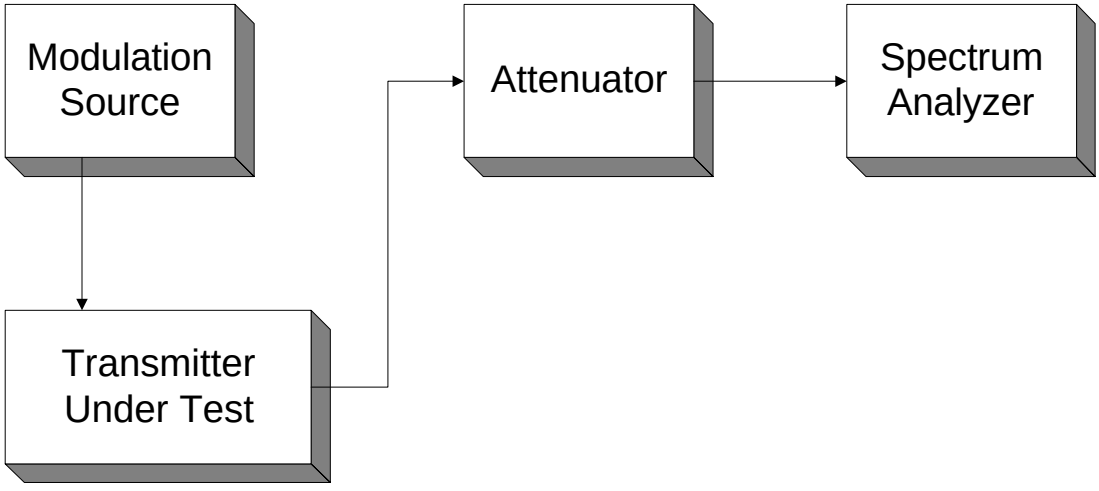
Para. No. 2.2.1047 - Audio Frequency Response



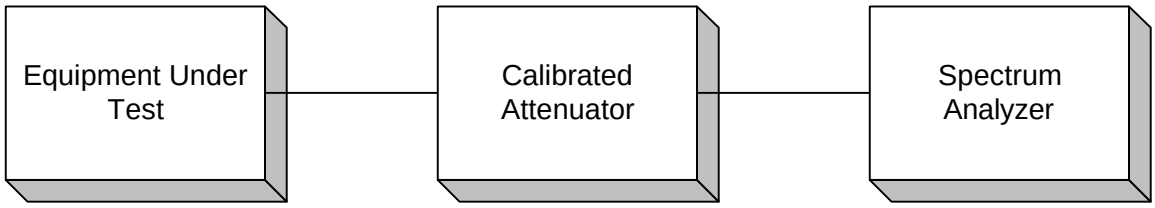
Para. No. 2.1047 - Modulation Limiting



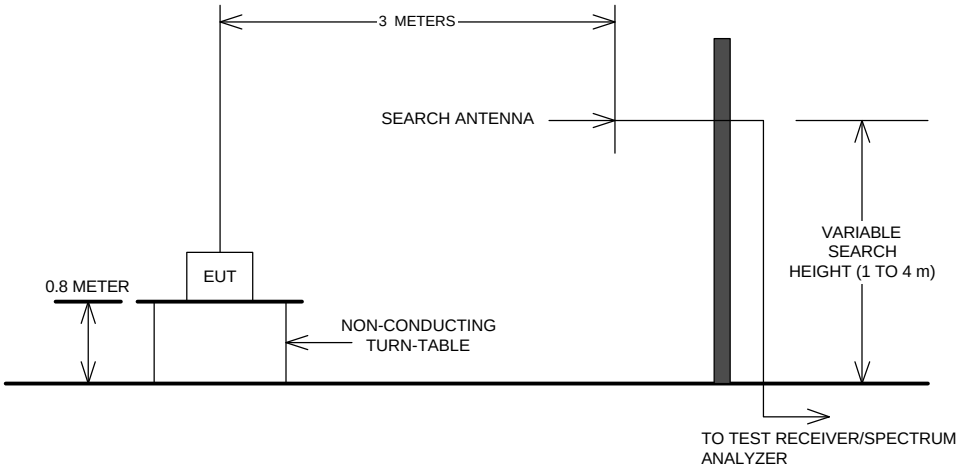
Para. No. 2.1049 - Occupied Bandwidth



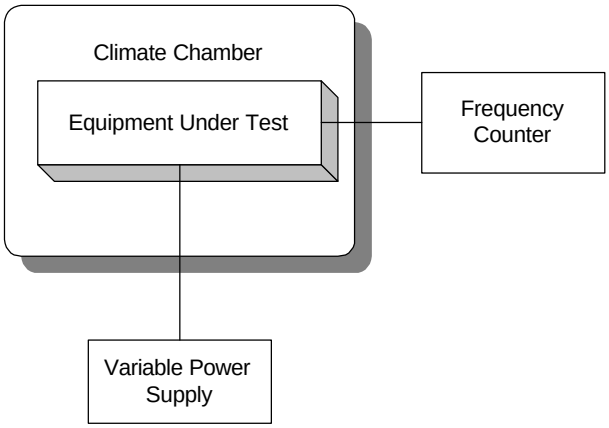
Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



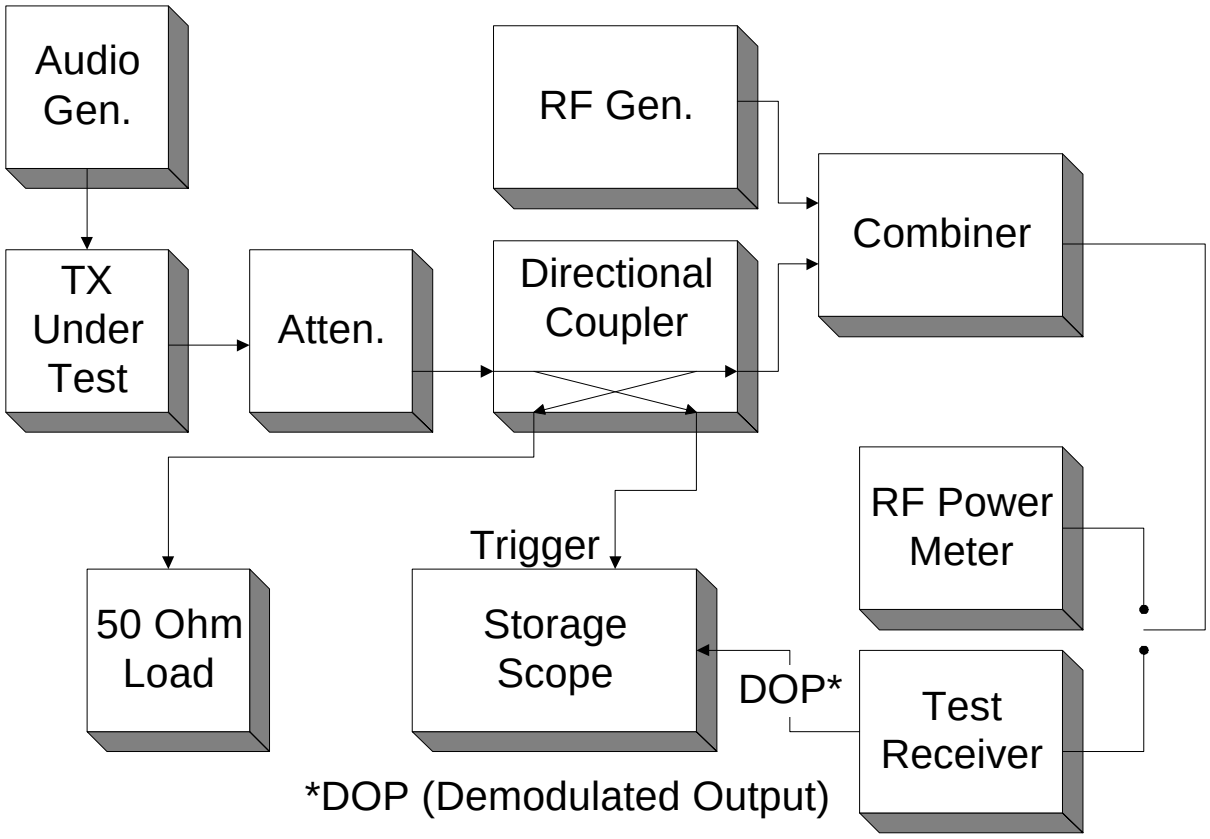
Para. No. 2.1053 - Field Strength of Spurious Radiation



Para. No. 2.1055 - Frequency Stability



Transient Frequency Behaviour



Voice

This measurement was made using measurement procedure TIA/EIA Land Mobile FM or PM Communications Equipment Measurement and Performance Standards TIA/EIA-603 February 1993 Telecommunications Industry Association (American National Standard ANSI/TIA/EIA-603-1992 Approved: October 27, 1992) Para. no. 2.2 Methods of Measurement for Transmitters Para. no. 2.2.19 Transient Frequency Behaviour (page no. 83).

Data

This measurement was made using measurement procedure TIA/EIA Digital C4FM/CQPSK Transceiver Measurement Methods TSB102.CAAA Para. no. 2.2.17 Transient Frequency Behaviour (page no. 74).