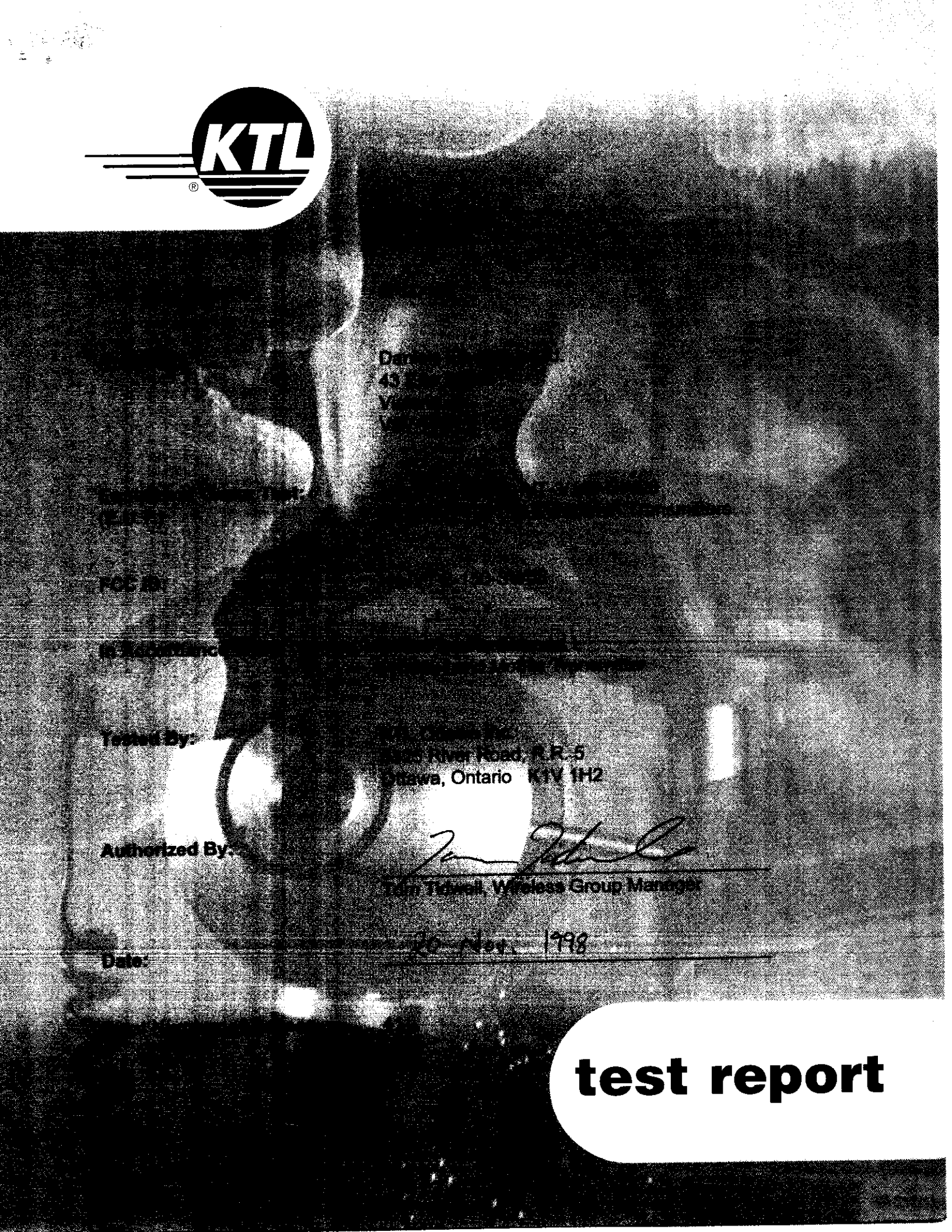


Tested By:

Authorized By:

Date:

Tom Tidwell, Wireless Group Manager

20 Oct. 1998

test report

Table of Contents

Section 1. Summary of Test Results

Manufacturer: Daniels Electronics Ltd.

Model No.: VT-3/140-SW08, VT-3/160-SW08 and H4JVT-3-150-SW08

Serial No.: 12353

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 90, Subpart I.

☐ 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.
See " Summary of Test Data".

NVLAP

NVLAP LAB CODE: 100351-0

TESTED BY: Russell Grant DATE: Nov 20, 98
Russell Grant, Technologist

Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	MEAS.	RESULT
RF Power Output	90.205	± 1dB	39.3 dBm	Complies
Audio Frequency Response	TIA EIA-603.3.2.6	N/A	N/A	N/A
Audio Low-Pass Filter Response	TIA EIA-603.3.2.6	N/A	Graph	Complies
Modulation Limiting	TIA EIA-603.3.2.6	5 kHz	4.8 kHz	Complies
Occupied Bandwidth	90.210	Mask B	Graph	Complies
Spurious Emissions at Antenna Terminals	90.210	-13 dBm	Graph	Complies
Field Strength of Spurious Emissions	90.210	77.4 dBµV/m	17.9 dBµV/m	Complies
Frequency Stability	90.213	N/A	N/A	N/A
Transient Frequency Behavior	90.214	N/A	N/A	N/A

Note: All measurements were made on the model VT-3/140-SW08 transmitting at 149.24 MHz.

Footnotes For N/A's: See attached Theory of Operation and test rational.

Test Conditions: Temperature: 20 °C
Humidity: 30 %

Section 2. General Equipment Specification

Transmitter

Supply Voltage Input:		13.8 Vdc
Frequency Range:		132 – 150 MHz
Tunable Bands:		1
Necessary Bandwidth:	**Analog:**	16 kHz
	Digital:	14.4 kHz

Type(s) of Modulation:

F3E (Voice)	F1D	F2D	D7W (QAM)	Other
☒	☒	☐	☐	☐

Data Rate(s)	512, 1200, 1600, 2400 Band
Internal/External Data Source:	External
Emission Designator:	16K0F3D
Output Impedance:	14K4F1D
RF Power Output (rated):	50 ohms
Duty Cycle:	2 to 8 watts continuously variable
Channel Spacing(s):	Continuous
Operator Selection of Operating Frequency:	5.0 / 6.25 kHz
Power Output Adjustment Capability:	None

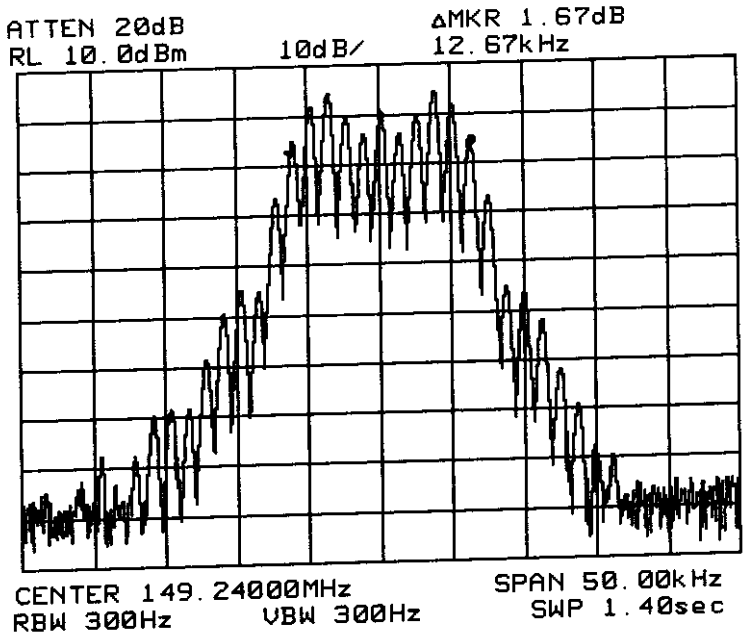
Receiver

Frequency Range:	Not Applicable
Tunable Bands:	Not Applicable
Local Oscillator:	Not Applicable
1st IF:	Not Applicable
2nd IF:	Not Applicable
Operator Selection of Operating Frequency:	Not Applicable

Emission Designators

For analog paging this equipment use the same circuitry as the previously approved VT-3/140-SW08 transmitter. Therefore, we are requesting an emission designator 16K0F3D.

This equipment uses a linear FM modulator and the highest digital baud rate is 2400 baud. The necessary bandwidth is Bn=2M + 2DK with M=B/2 = 2400/2 = 1200, D=5000, K=1.2, Bn=2 x 1220 + 2 x 5000 x 1.2 = 14400 Hz. Therefore, we require an emission designator 14K4FID for digital paging. See attached 99% bandwidth plot.


ATTEN 20dB
RL 10.0dBm
10dB/
ΔMKR 1.67dB
12.67kHz
CENTER 149.24000MHz
RBW 300Hz
VBW 300Hz
SPAN 50.00kHz
SWP 1.40sec

Description of Modifications For Class II Permissive Change

Additional paging modulator model CI-PM-3. The CI-PM-3 is an optional paging module and is designed for use with the model VT-3/140-SW08 132-150 MHz transmitter. The paging modulator and transmitter interface by using a proprietary backplane.

Theory of Operation

The VT-3/160-SW08, 150-174 MHz transmitter supports digital and analog paging formats. Both digital and analog paging signals are provided by an external generic paging terminal via the front panel dB15 connection. The digital signal undergoes signal conditioning, reshaping and frequency deviation limiting. It is then passed through a 6 pole audio low pass filter.

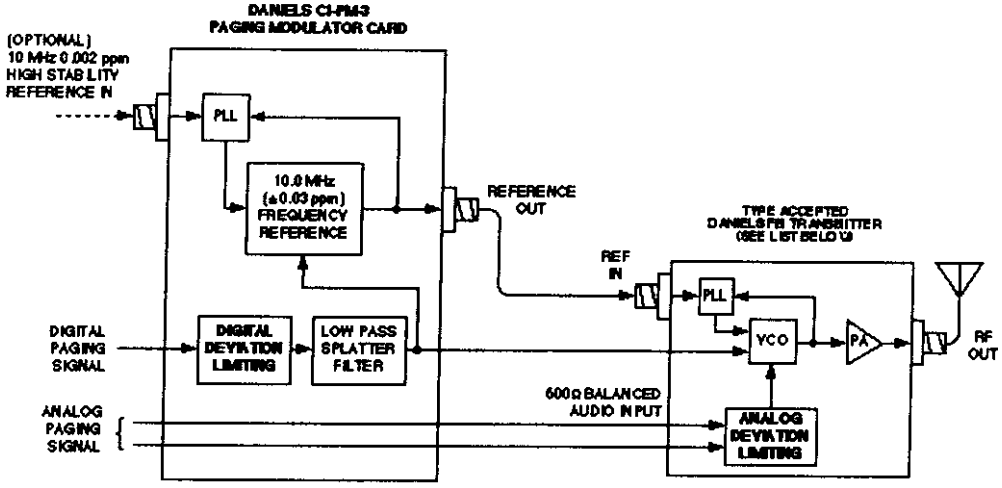
The filtered signal is used to modulate a reference oscillator and to directly modulate a separate transmitter module. Analog paging signals are directly connected to the analog input of the transmitter.

Modifications Made During Testing

NOT APPLICABLE

System Diagram

BLOCK DIAGRAM - CI-PM-3 PAGING MODULATOR INTERCONNECTIONS



DANIELS FM Tx MODEL #	FREQ RANGE	POWER	FCC ID #
VT-3/140-SX	132-150 MHz	8 W	H4JVT-3-150-SW08
VT-3/160-SW	150-174 MHz	8 W	H4JVT-3-150-SW08
UT-3/420-SWX2	406-430 MHz	2 W	H4JUT-3-420-S02
UT-3/420-SWX8	406-430 MHz	8 W	H4JUT-3-420-S08
UT-3/460-SWX2	450-470 MHz	2 W	H4JUT-3-460-S02
UT-3/460-SWX8	450-470 MHz	8 W	H4JUT-3-460-S08
UT-3/815-SWC3	806-824 MHz	3 W	H4JUT-3L
UT-3/860-SWC3	851-869 MHz	3 W	H4JUT-3H
UT-3/930-SWB3	928-935 MHz	3 W	H4JUT-3-930-SW03
UT-3/950-SWB3	935-960 MHz	3 W	H4JUT-3-950-SW03

Test Rationale

The additional paging module changes the modulation characteristic and frequency stability. Therefore, it is our engineering opinion that it is only necessary to retest occupied bandwidth using digital paging signals. As well as frequency stability using internal and external reference oscillators.

It is not necessary to conduct measurements using analog paging formats because the analog signals are connected directly to the voice input port at the previously approved transmitter.

The VT-3/160-SW08 (150-174 MHz) transmitters are identical to the VT-140-SW08 transmitter except for tuning. All measurements were made on the VT-140-SW08 at 149.24 MHz. In our engineering opinion these results are representative of the VT-3/160-SW08 (150-174 MHz) transmitter.

Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.985
TESTED BY: Russell Grant	DATE: November 4, 1998

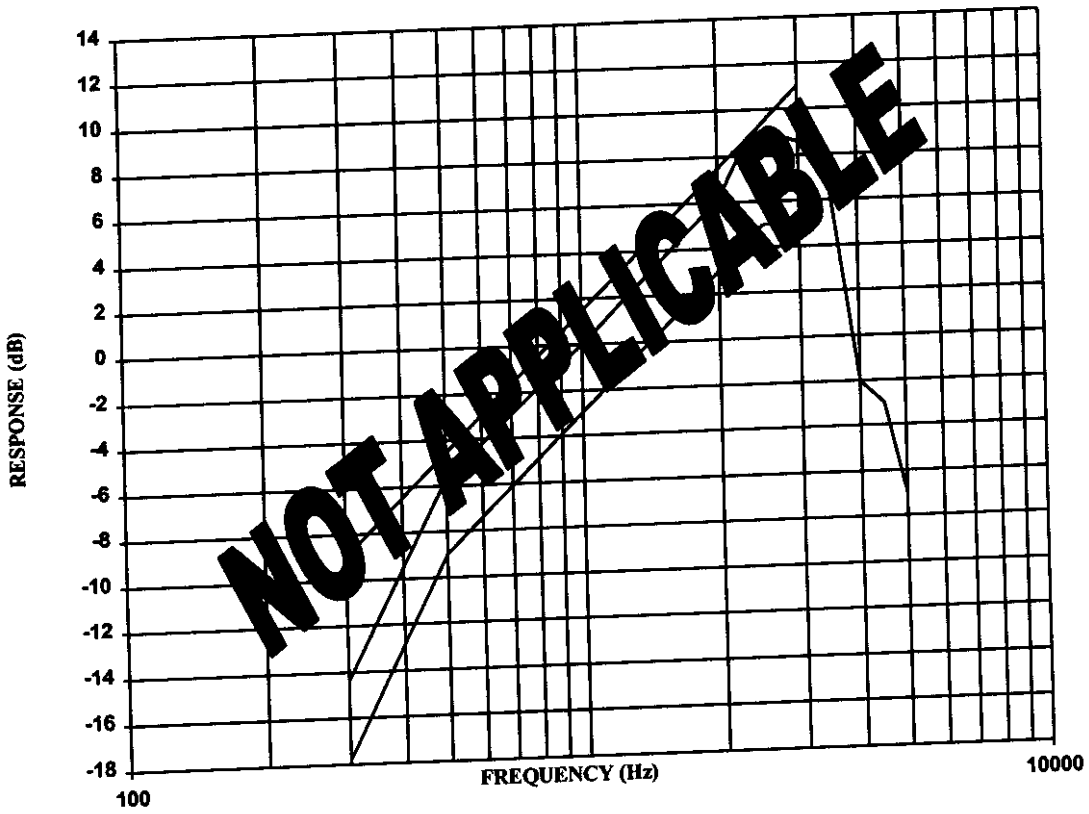
Test Results: Complies.

Measurement Data:

Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)	Measured/Rated (dB)
149.240	39.3	39.0	+0.3

Section 4. Audio Frequency Response

NAME OF TEST: Audio Frequency Response	PARA. NO.: 2.987(a)
TESTED BY:	DATE:



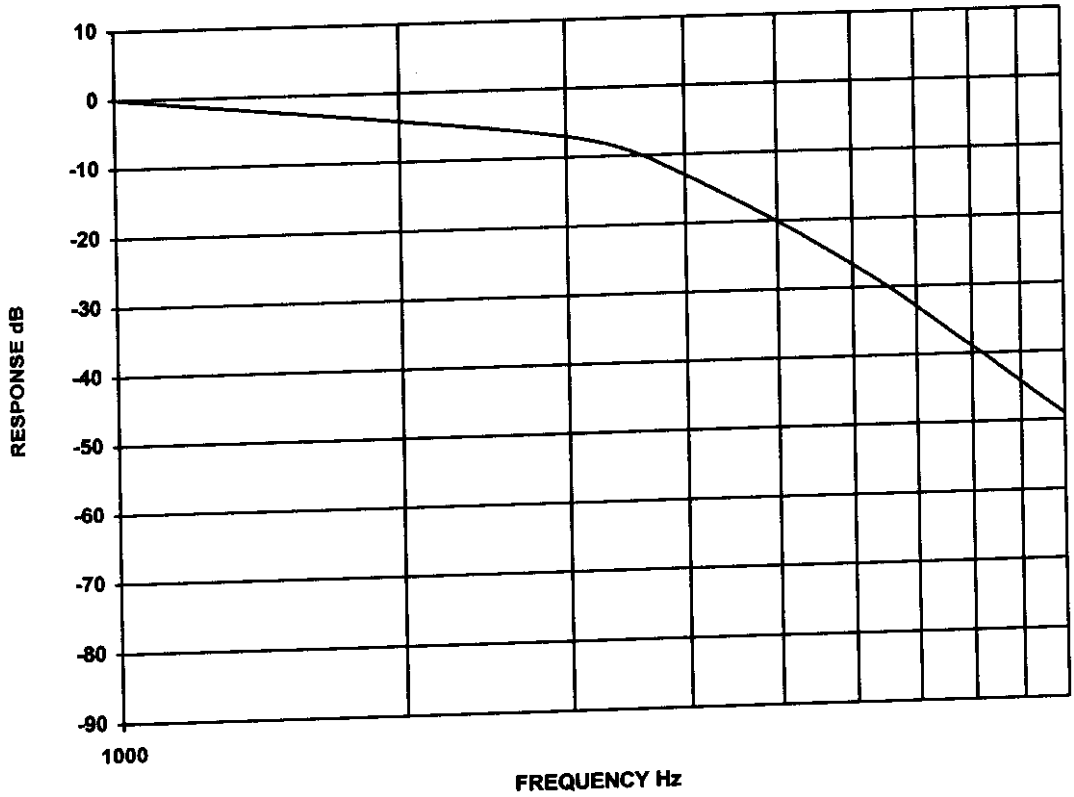
Audio Frequency Response

Frequency	300	600	900	1.2 k	1.5 k	1.8 k	2.1k	2.3 k	2.6 k	3.0 k	3.5 k	4 k

Frequency	4.5 k	5 k	5.5 k	6 k	6.5 k	7 k	7.5 k	8 k	8.5 k	9 k	9.5 k	10 k

Section 5. Audio Low-Pass Filter Response

NAME OF TEST: Audio Low-Pass Filter Response	PARA. NO.: 2.987(a)
TESTED BY: Russell Grant	DATE: November 4, 1998

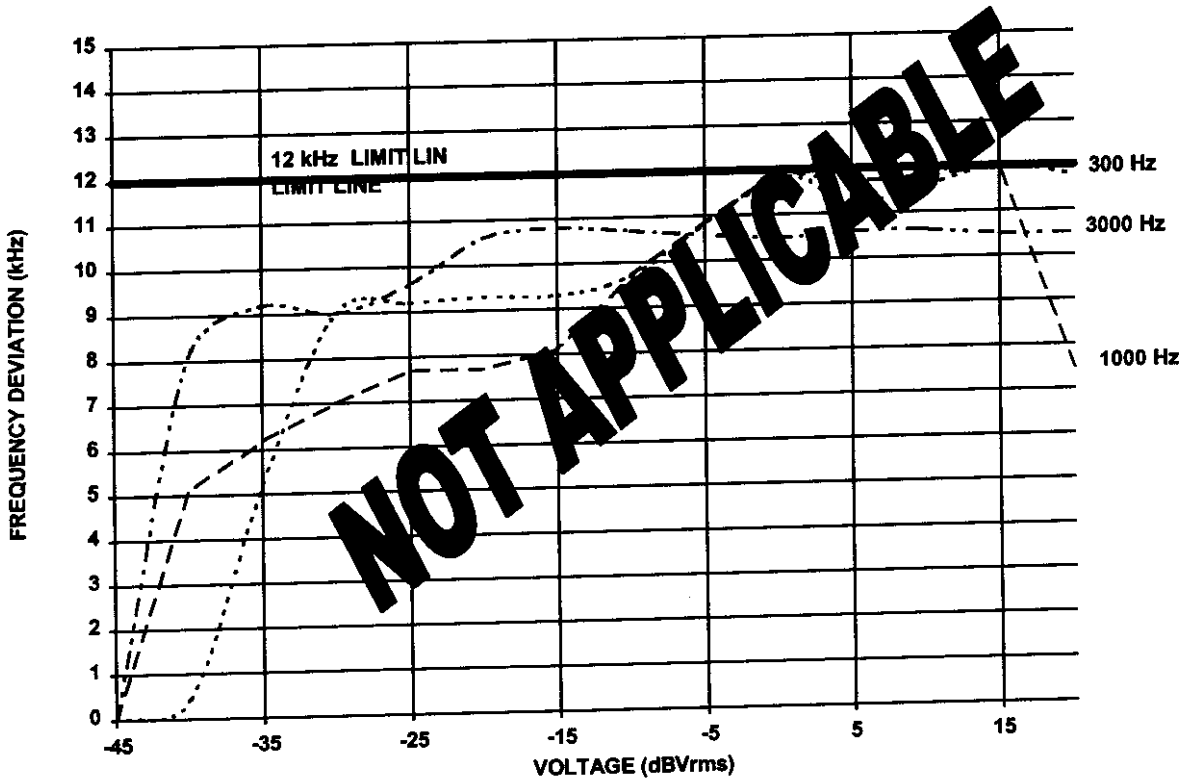


Audio Low-Pass Filter Response

Frequency	1k	3 k	3.5 k	4 k	4.5 k	5 k	5.5 k	6 k	7 k	8 k	9 k	10 k

Section 6. Modulation Limiting

NAME OF TEST: Modulation Limiting	PARA. NO.: 2.987(b)
TESTED BY:	DATE:



Input	-45	-40	-35	-30	-25	-20	-15	-10	0	5	10	15	20
300 Hz	0	0.452	5.2	9	902	9.3	9.3	9.7	11.8	11.2	11.6	12	11.8
1 kHz	0	5.1	6.2	7	7.7	7.7	8.1	9.7	12	11.7	11.8	12	7.5
Limit	12	12	12	12	12	12	12	12	12	12	12	12	12.
3 kHz	0	8.1	9.2	9	9.6	10.6	10.8	10.7	10.5	10.6	10.6	10.5	10.5

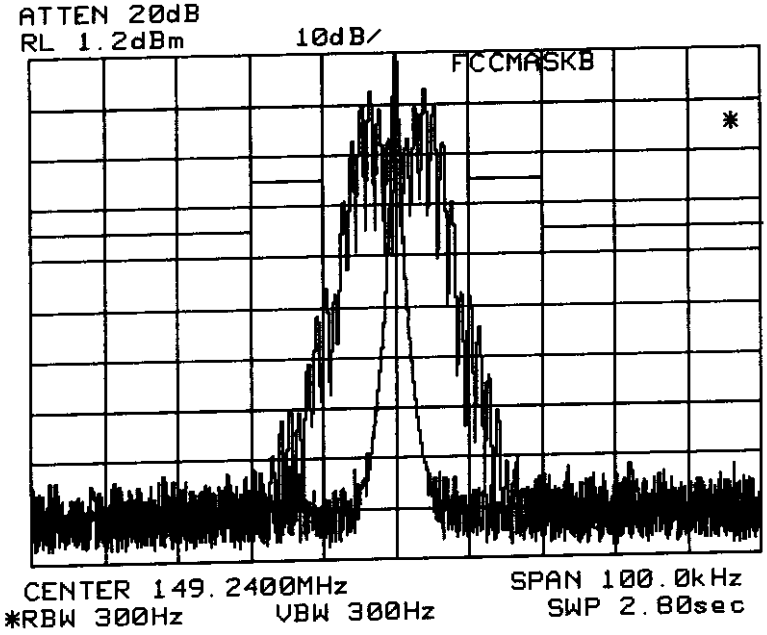
Maximum deviation for non-voice modulation 4.8 kHz.

Section 7. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.989
TESTED BY: Russell Grant	DATE: November 4, 1998

Test Results: Complies.

Test Data: See attached graph(s).



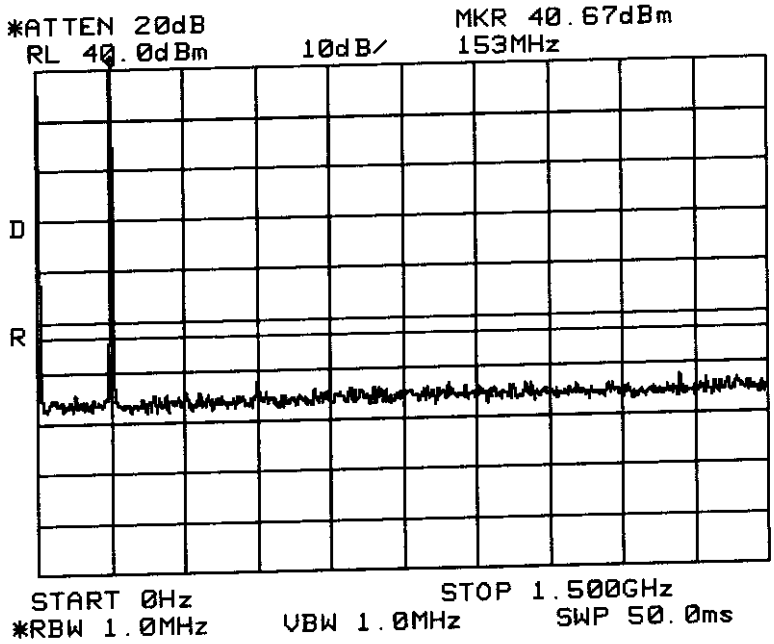
DIGITAL MODULATION
2400 BPS
4.8 KHZ FREQUENCY DEVIATION

Section 8. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.991
TESTED BY: Russell Grant	DATE: November 4, 1998

Test Results: Complies.

Test Data: See attached graph(s).



DIGITAL PAGING
2400 BPS
4.8 KHZ FREQUENCY DEVIATION

Section 9. Field Strength of Spurious Emissions

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.993
TESTED BY: Russell Grant	DATE: November 4, 1998

Test Results: Complies.

Test Data: See attached table.

Test Data - Radiated Emissions

Test Distance (meters) : 3		Range: A Tower		Receiver: ESVP		RBW(kHz): 100		Detector: Peak			
Freq. (MHz)	Ant. *	Pol. (V/H)	Ant. HGT. (m)	Table (deg.)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Dist. Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
298.48	L/P	V			-1.1	19.0			17.9	77.4	59.5
298.48	L/P	H			-1.4	19.0			17.6	77.4	59.8

Notes:
The spectrum was search up to the 10th harmonic of the fundamental frequency.
B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole
* Includes cable loss when amplifier is not used.
** Includes cable loss.
( ) Denotes failing emission level.

Section 10. Frequency Stability

NAME OF TEST: Frequency Stability	PARA. NO.: 2.995
TESTED BY: Russell Grant	DATE: November 4, 1998

Test Results: Complies.

Measurement Data: See attached tables.

Voltage Variations

For Project: 8R00190
Saved under file: 8R190
Frequency being tested: 149.240000 MHz

	Frequency (MHz)		
Time (min.)	85%	100%	115%
0.0	149.239995	149.239995	149.239996
0.5	149.239992	149.239997	149.239996
1.0	149.239994	149.239999	149.239996
1.5	149.239996	149.239999	149.239996
2.0	149.239996	149.239998	149.239996
2.5	149.239996	149.239997	149.239996
3.0	149.239996	149.239996	149.239996
3.5	149.239995	149.239996	149.239996
4.0	149.239996	149.239996	149.239996
4.5	149.239995	149.239996	149.239997
5.0	149.239996	149.239996	149.239996

	Maximum Deviation	
Voltage	MHz	ppm
85%	0.000008	0.05
100%	0.000005	0.03
115%	0.000004	0.03

Frequency Stability

For Project: 8R00190
Saved under file: 8R191
Frequency being tested: 149.240000 MHz

	Frequency (MHz)				
Time (min.)	-30 øC	-20 øC	-10 øC	0 øC	10 øC
0.0	149.239979	149.239978	149.239979	149.239979	149.239979
0.5	149.239979	149.239978	149.239979	149.239979	149.239979
1.0	149.239979	149.239978	149.239979	149.239979	149.239979
1.5	149.239979	149.239978	149.239979	149.239979	149.239979
2.0	149.239979	149.239978	149.239979	149.239979	149.239979
2.5	149.239979	149.239978	149.239979	149.239979	149.239979
3.0	149.239979	149.239978	149.239979	149.239979	149.239979
3.5	149.239979	149.239978	149.239979	149.239979	149.239979
4.0	149.239979	149.239978	149.239979	149.239979	149.239979
4.5	149.239980	149.239978	149.239979	149.239979	149.239979
5.0	149.239979	149.239978	149.239979	149.239979	149.239979

	Frequency (MHz)				
Time (min.)	20 øC	30 øC	40 øC	50 øC	60 øC
0.0	149.239978	149.239977	149.239980	149.239983	149.239995
0.5	149.239978	149.239977	149.239980	149.239983	149.239995
1.0	149.239978	149.239977	149.239980	149.239983	149.239995
1.5	149.239978	149.239977	149.239980	149.239983	149.239995
2.0	149.239978	149.239977	149.239980	149.239983	149.239995
2.5	149.239978	149.239977	149.239980	149.239983	149.239995
3.0	149.239978	149.239977	149.239980	149.239983	149.239995
3.5	149.239976	149.239977	149.239980	149.239983	149.239995
4.0	149.239976	149.239977	149.239980	149.239983	149.239995
4.5	149.239976	149.239977	149.239980	149.239983	149.239995
5.0	149.239976	149.239977	149.239980	149.239983	149.239995

	Maximum Deviation	
Temperature	MHz	ppm
-30øC	0.000021	0.14
-20øC	0.000022	0.15
-10øC	0.000021	0.14
0øC	0.000021	0.14
10øC	0.000021	0.14
20øC	0.000024	0.16
30øC	0.000023	0.15
40øC	0.000020	0.13
50øC	0.000017	0.11
60øC	0.000005	0.03

Voltage Variations

For Project: 8R00190
Saved under file: 8R192
Frequency being tested: 149.240000 MHz

	Frequency (MHz)		
Time (min.)	85%	100%	115%
0.0	149.240000	149.239998	149.239999
0.5	149.240000	149.239998	149.239999
1.0	149.240000	149.239998	149.239999
1.5	149.240000	149.239998	149.239999
2.0	149.240000	149.239998	149.239999
2.5	149.240000	149.239998	149.239999
3.0	149.240000	149.239998	149.239999
3.5	149.240000	149.239998	149.239999
4.0	149.240000	149.240000	149.239999
4.5	149.240000	149.240001	149.239999
5.0	149.240000	149.240001	149.239999

	Maximum Deviation	
Voltage	MHz	ppm
85%	0.000000	0.00
100%	0.000002	0.01
115%	0.000001	0.01

Frequency Stability

For Project: 8R00190
Saved under file: 8R193
Frequency being tested: 149.240000 MHz

	Frequency (MHz)				
Time (min.)	-30 øC	-20 øC	-10 øC	0 øC	10 øC
0.0	149.239982	149.239982	149.239982	14.239982	149.239985
0.5	149.239982	149.239982	149.239982	149.239982	149.239985
1.0	149.239982	149.239982	149.239982	149.239982	149.239985
1.5	149.239982	149.239982	149.239982	149.239982	149.239985
2.0	149.239982	149.239982	149.239982	149.239982	149.239985
2.5	149.239982	149.239982	149.239982	149.239982	149.239985
3.0	149.239982	149.239982	149.239982	149.239982	149.239985
3.5	149.239982	149.239982	149.239982	149.239982	149.239985
4.0	149.239982	149.239982	149.239982	149.239982	149.239985
4.5	149.239982	149.239982	149.239982	149.239982	149.239985
5.0	149.239982	149.239982	149.239982	149.239982	149.239985

	Frequency (MHz)				
Time (min.)	20 øC	30 øC	40 øC	50 øC	60 øC
0.0	149.239986	149.239983	149.239984	149.239985	149.239997
0.5	149.239986	149.239983	149.239984	149.239985	149.239997
1.0	149.239986	149.239983	149.239984	149.239985	149.239997
1.5	149.239986	149.239983	149.239984	149.239985	149.239997
2.0	149.239986	149.239983	149.239984	149.239985	149.239997
2.5	149.239986	149.239983	149.239984	149.239985	149.239997
3.0	149.239986	149.239983	149.239984	149.239985	149.239997
3.5	149.239986	149.239983	149.239984	149.239985	149.239997
4.0	149.239986	149.239983	149.239984	149.239985	149.239997
4.5	149.239986	149.239983	149.239984	149.239985	149.239997
5.0	149.239986	149.239983	149.239984	149.239985	149.239997

	Maximum Deviation	
Temperature	MHz	ppm
-30øC	0.000018	0.12
-20øC	0.000018	0.12
-10øC	0.000018	0.12
0øC	0.000018	0.12
10øC	0.000015	0.10
20øC	0.000014	0.09
30øC	0.000017	0.11
40øC	0.000016	0.11
50øC	0.000015	0.10
60øC	0.000003	0.02

Section 11. Transient Frequency Behaviour

NAME OF TEST: Transient Frequency Behaviour	PARA. NO.: 90.214
TESTED BY:	DATE:

Test Results: Complies/Does Not Comply.

Measurement Data: See attached graphs.

Section 12. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.	
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	May 20/98	May 20/99	
1 Year	Radio Test Set	Rohde & Schwarz	CMS 52	840.0009.52	July 23/98	July 23/99	
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S	Aug. 7/98	Aug. 7/99	
1 Year	Selective Level Meter	Hewlett Packard	3586B	1928A01971	July 12/98	July 12/99	
	Power Supply	Astron	VS-50M	8405071	NCR	NCR	
1 Year	Attenuator	Narda	768-20	9507	July 24/98	July 24/99	
1 Year	Attenuator	Narda	765-20	9510	July 24/98	July 24/99	
1 Year	Attenuator	Narda	768-10	9704	July 24/98	July 24/99	
1 Year	Attenuator	Narda	768-10	9709	July 24/98	July 24/99	
1 Year	RF Millivoltmeter	Rohde & Schwarz	URV5	FA000420	July 23/98	July 23/99	
1 Year	Insertion Unit	Rohde & Schwarz	URV5-Z4	FA000905	July 23/98	July 23/99	
1 Year	Power Sensor	Rohde & Schwarz	URV5-Z5	FA000419	July 23/98	July 23/99	
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014	Mar. 31/98	Mar. 31/99	
	Biconilog Antenna	EMCO	3143	1038	NCR	NCR	
1 Year	Log Periodic Antenna	EMCO	LPA-25	1141	July 27/98	July 27/99	
1Year	Frequency Counter	Hewlett Packard	HP5350A	2444A00135	Mar. 27/98	Mar. 27/99	

NA: Not Applicable
NCR: No Cal Required

ANNEX A

TEST METHODOLOGIES

NAME OF TEST: RF Power Output	**PARA. NO.: 2.985**

Minimum Standard: Para. No. 90.205(a). The maximum allowable station ERP is dependent upon the stations HAAT and required service area and will be authorized in accordance with Table 1 of 90.205(d).

Method Of Measurement:

Detachable Antenna:
The peak power at antenna terminals is measured using an in-line peak power meter. Power output is measured with the maximum rated input level.

Integral Antenna:
If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts
E = the maximum measured field strength in V/m
R = the measurement range (3 meters)
G = the numeric gain of the transmit antenna in relation to an isotropic radiator

NAME OF TEST: Audio Frequency Response **PARA. NO.: 2.987(a)**

Test Method: TIA/EIA-603

Minimum Standard: TIA/EIA-603, Para. 3.2.6 from 300 Hz to 3000 Hz. The transmitter audio frequency response shall have a nominal 6 dB per octave pre-emphasis characteristic.

NAME OF TEST: Audio Low-Pass Filter Frequency Response **PARA. NO.: 2.987(a)**

Test Method: TIA/EIA-603

Minimum Standard: TIA/EIA-603

NAME OF TEST: Modulation Limiting **PARA. NO.: 2.987(a)**

Test Method: TIA/EIA-603

Minimum Standard: TIA/EIA-603

NAME OF TEST: Occupied Bandwidth **PARA. NO.: 2.989**

Minimum Standard: Para. No. 90.210, see table 1 below for applicable mask.

Table 1

Frequency Band (MHz)	Mask for equipment with Low Pass Filter	Mask for equipment without Low Pass Filter
Below 25	A or B	A or C
25 - 50	B	C
72 - 76	B	C
150 - 174	B, D or E	C, D or E
150 Paging only	B	C
220 - 222	F	F
421 - 512	B, D or E	C, D or E
450 paging only	B	H
806 - 821/ 851 - 866	B	G
821 - 824/ 866 - 869	B	H
896 - 901/ 935 - 940	I	J
902 - 928	K	K
929 - 930	B	G
Above 940	B	C
All other bands	B	C

Test Method:

RBW: 1% of emission bandwidth in 0 - 1 GHz range. 1 MHz at frequencies above 1 GHz.
VBW: $\Rightarrow$ RBW

The spectrum is search up to 10 times the fundamental frequency.

NAME OF TEST: Field Strength of Spurious **PARA. NO.: 2.993**

Minimum Standard: Para. No. 90.210, see table 1 for applicable mask.

Calculation of Field Strength Limit

An example of attenuation requirement of 50 + 10 Log P is equivalent to -20 dBm (1×10^{-5} Watts) at the antenna terminal. We determine the field strength limit by using the plane wave relation.

$GP/4\pi R^2 = E^2/120\pi$

For emissions ≤ 1 GHz:

G = 1.64 (Dipole Gain)
P = 10^{-5} Watts (Maximum spurious output power)
R = 3m (Measurement Distance)

$$E = \frac{\sqrt{30GP}}{R} = E = \frac{\sqrt{30 \times 1.64 \times 10^{-5}}}{3} = 0.00739 \text{ V / m} = 77.4 \text{ dB}\mu\text{V / m}$$

For emissions > 1 GHz:

G = 1 (Isotropic Gain)
P = 1×10^{-5} Watts (Maximum spurious output power)
R = 3m (Measurement Distance)

$$E = 77.4 - 20Log\sqrt{1.64} = 75.2 dB\mu V / m@3m$$

MASK	Spurious Limit	FS Limit Below 1 GHz	FS Limit Above 1 GHz
A,B,C,G,H,I	-13dBm	84.4 dBμV/m@3m	82.2 dBμV/m@3m
D,J	-20dBm	77.4 dBμV/m@3m	75.2 dBμV/m@3m
E,F,K	-25dBm	72.4 dBμV/m@3m	70.2 dBμV/m@3m

NAME OF TEST: Frequency Stability — PARA. NO.: 2.995

Minimum Standard: Para. No. 990.213. The transmitter carrier frequency shall remain within the assigned frequency below in ppm.

Table 2

Frequency Band (MHz)	Fixed And Base Stations	Mobile Stations	
		> 2 Watts o/p pwr	< 2 Watts o/p pwr
Below 25	100	100	200
25 - 50	20	20	50
72 - 76	5	-	50
150 - 174	5	5	5
220 - 222	0.1	1.5	1.5
421 - 512	2.5	5	5
806 - 821	1.5	2.5	2.5
821 - 824	1.0	1.5	15
851 - 866	1.5	2.5	2.5
866 - 869	1.0	1.5	1.5
869 - 901	0.1	1.5	1.5
902 - 928	2.5	2.5	2.5
929 - 930	1.5	-	-
935 - 940	0.1	1.5	1.5
1427 - 1435	300	300	300
Above 2450	-	-	-

NAME OF TEST: Transient Frequency Behaviour — PARA. NO.: 2.214

Minimum Standard:

Transient Frequency Behaviour for Equipment Designed to Operate on 25 kHz Channels

		Frequency ranges (MHz) All equipment					
		Base station and portable radios			Mobile Radios		
Time intervals [1,2]	Maximum Frequency difference[3] (kHz)	150 - 174 (ms)	450 - 500 (ms)	500 - 512 (ms)	150 - 174 (ms)	450 - 500 (ms)	500 - 512 (ms)
t_1[4]	± 25	5.0	10.0	20.0	5.0	10.0	5.0
t_2	± 12	20.0	25.0	50.0	20.0	25.0	20.0
t_3[4]	± 25	5.0	10.0	10.0	5.0	10.0	5.0

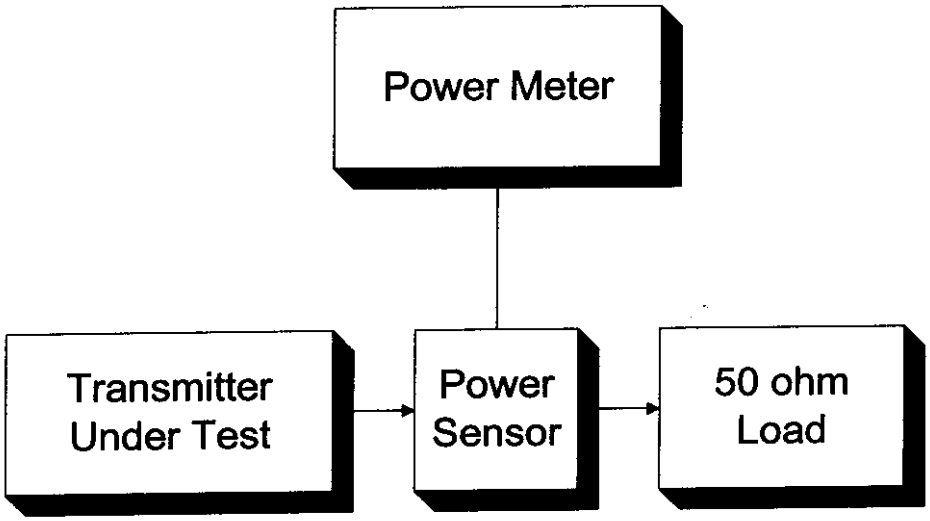
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz & 6.25 kHz Channels

		Frequency ranges (MHz) All equipment		
Time intervals [1,2]	Maximum Frequency difference[3] (kHz)	150 - 174 (ms)	450 - 500 (ms)	500 - 512 (ms)
t_1[4]	± 12.5 / ± 6.25	5.0	10.0	20.0
t_2	± 6.25 / ± 3.125	20.0	25.0	50.0
t_3[4]	± 12.5 / ± 6.25	5.0	10.0	10.0

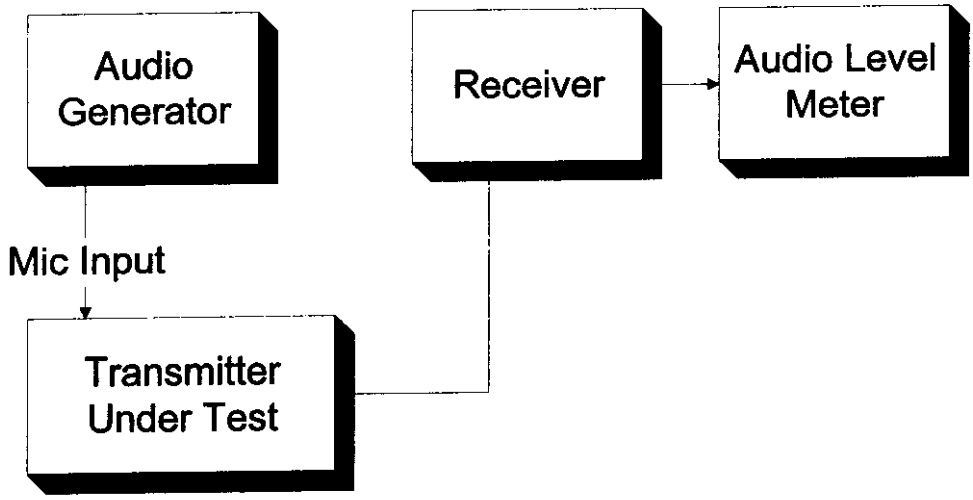
ANNEX B

TEST DIAGRAMS

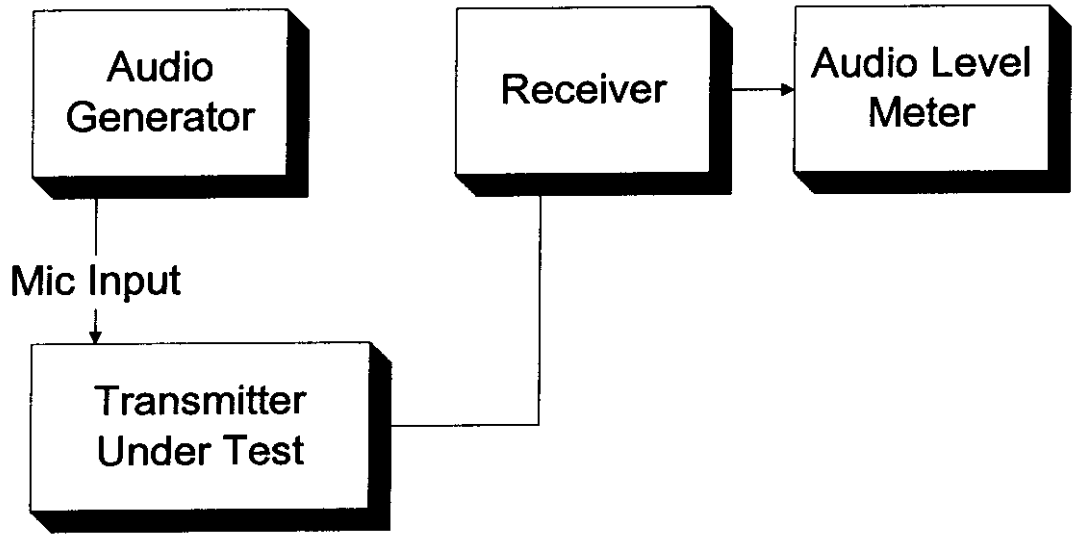
Para. No. 2.985 - R.F. Power Output



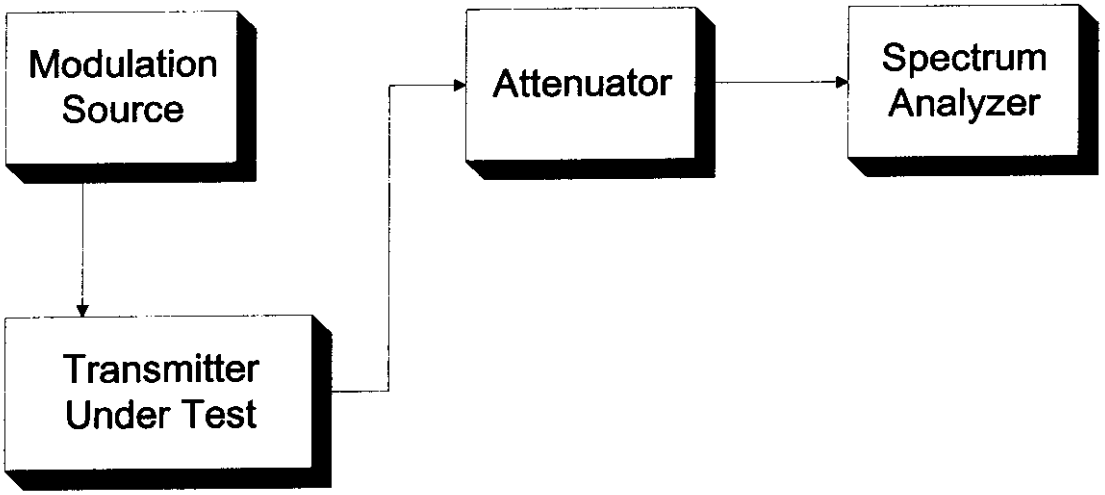
Para. No. 2.987(a) - Audio Frequency Response



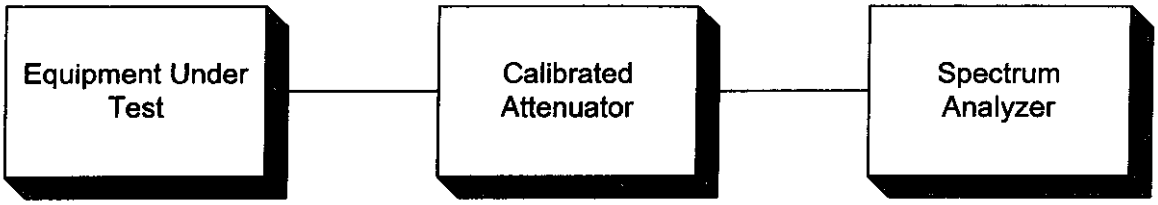
Para. No. 2.987(b) - Modulation Limiting



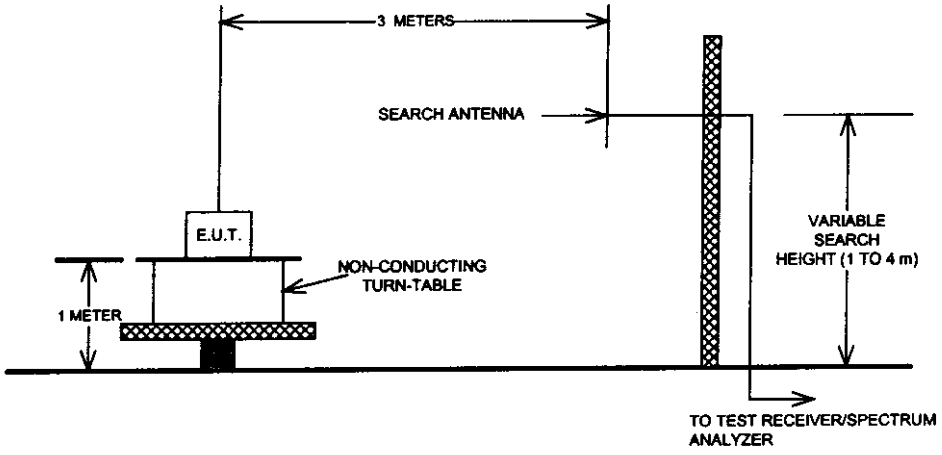
Para. No. 2.989 - Occupied Bandwidth



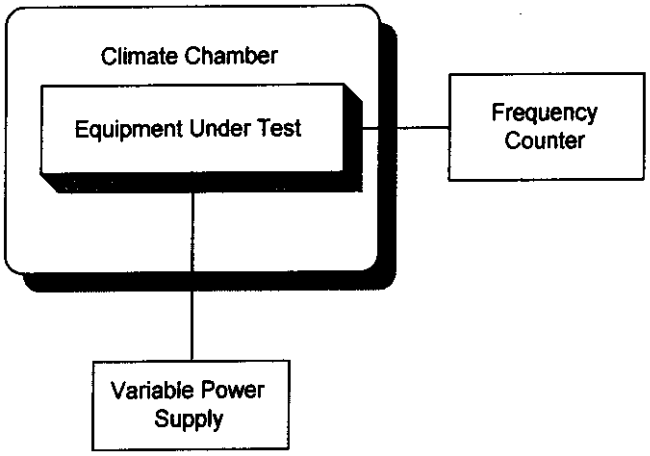
Para. No. 2.991 - Spurious Emissions at Antenna Terminals



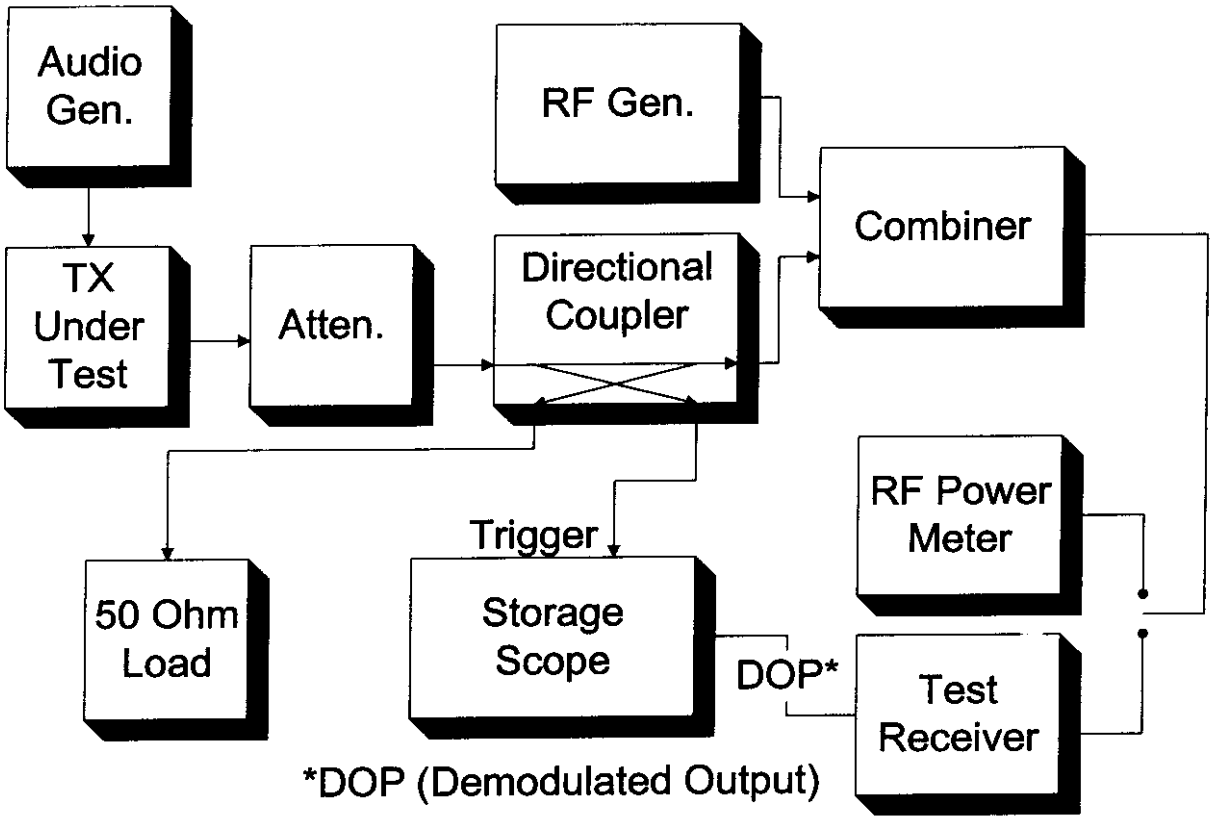
Para. No. 2.993 - Field Strength of Spurious Radiation



Para. No. 2.995 - Frequency Stability



Para. No. 90.214 - 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).