

KTL Test Report: 0R02733

Applicant: Tait Electronics Ltd.
558 Wairakei Road
Burnside
Christchurch, New Zealand

**Equipment Under Test:
(E.U.T.)** VHF Paging Transmitter
T836-26-1010 Standard
T836-26-1012 Externally Referenced

FCC ID: CASTEL0047

In Accordance With: **FCC Part 22**
FCC Part 90

Tested By: KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:

G. Westwell, Technologist

Date:

Total Number of Pages: 24

*EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard
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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



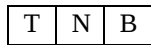
Production Unit



Class II Permissive Change



Pre-Production Unit



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 LAB CODE: 100351-0

TESTED BY: _____ DATE: _____
Russell Grant, Wireless Group Manager

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This report applies only to the items tested.

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Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
Audio Frequency Response	2.1047	Not Applicable
Audio Low-Pass Filter Response	2.1047	Not Applicable
Modulation Limiting	2.1047	Not Applicable
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	—	Complies

Footnotes For N/A's:**Test Conditions:**

Indoor Temperature: 23 °C
 Humidity: 50 %

Outdoor Temperature: 25 °C
 Humidity: 65 %

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Section 2. General Equipment Specification

Manufacturer:	Tait Electronics Ltd.
Model No.:	T836-26-1010 Standard T836-26-1012 Externally Referenced
Date Received In Laboratory:	July 24, 2000
KTL Identification No.:	Item #2 & 3
Transmitter:	120 VAC
Power:	25W
RF Output Power:	11K2F1D Wideband 6K60F1D Narrowband
Emission Designator:	Modulation: POCSAG 1200 bps Bn = 2M+2DK M=B/2 B = 1200 D = 5000 K = 1 Bn = 11200 Hz D = 2700 Bn = 6600 Hz

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Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Russell Grant	Date of Test: August 10, 2000
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Minimum Standard: ± 1 dB

Test Results: Complies. The RF power output is within 0.7 dB of the manufacturer's rating.

Measurement Data:

Measured (W)	Rated (W)
29.5	25.0

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Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Russell Grant	Date of Test: August 10, 2000
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Minimum Standard: Para. No.'s 90.210(c)
 90.210(d)
 22.359

Test Results: Complies.

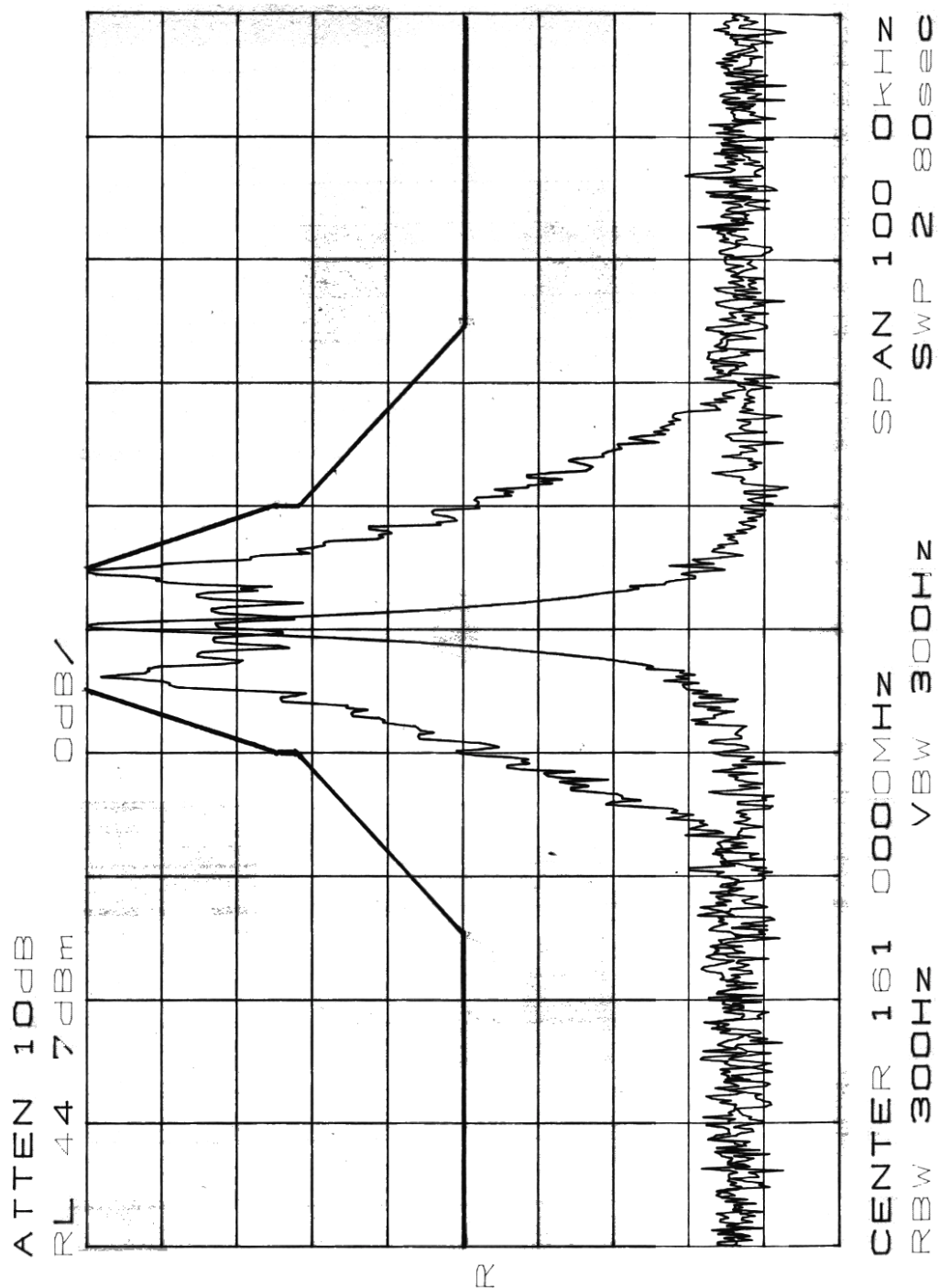
Measurement Data: See attached graphs.

EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard

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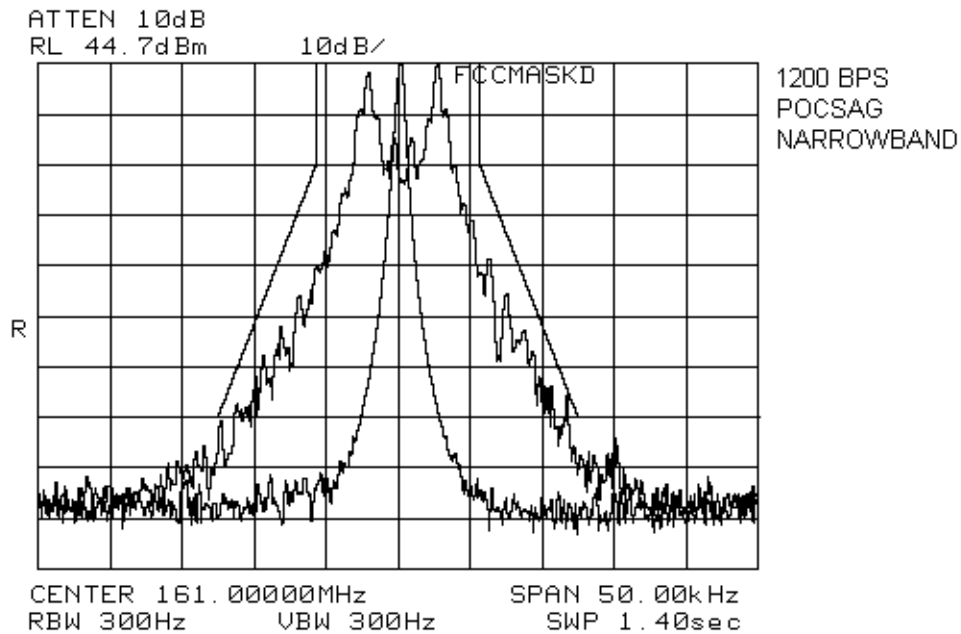
Modulated 1200 bps POCSAG 4.5 kHz Deviation



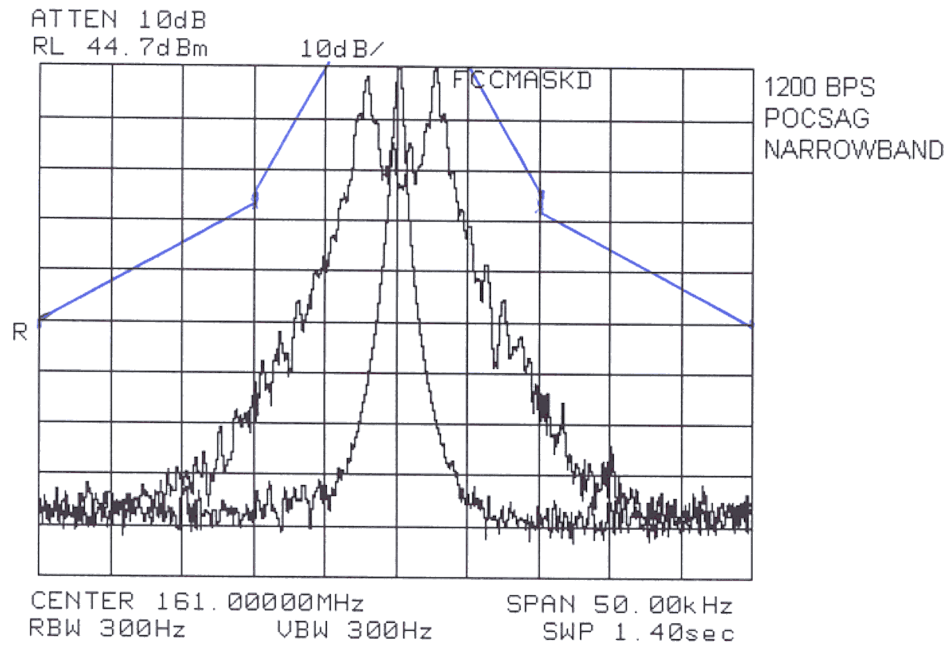
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Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Russell Grant	Date of Test: August 10, 2000
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Minimum Standard: Para. No.'s 90.210 (c)(d)
22.359 (b)(1)

Test Results: Complies.

No emissions were detected within 20dB of the specification limit.
The spectrum was searched up to the 10th harmonic of the
fundamental frequency of operation.

Measurement Data: See attached graphs.

*EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard
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Section 6. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Russell Grant	Date of Test: August 10, 2000
---	--------------------------------------

Minimum Standard: Para. No.'s 90.210 (c), (d)
 22.359 (b)(1)

Test Results: Complies. No emissions were detected within 20dB of the specification limit. The spectrum was searched up to the 10th harmonics of the fundamental frequency of operation.

Measurement Data: See attached tables.

*EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard
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Section 7. Frequency Stability

Para. No.: 2.1055

Test Performed By: Russell Grant	Date of Test: August 10, 2000
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Minimum Standard: Para. No.'s 22.355
90.213

Test Results: Complies. The maximum frequency drift is 61 Hz.
This is 0.379 ppm standard and 1 Hz, 0.00621 ppm external.

Measurement Data: Standard Test Voltage (STV): 120 VAC
Test Frequency: 161.000 MHz

Test Condition	Frequency (MHz)	Frequency Drift (Hz)
-30	161.000 027	27
-20	161.000 054	54
-10	161.000 040	40
0	161.000 018	18
+10	161.999 993	7
+20	161.000 039	39
+30	161.999 982	18
+40	161.999 981	19
+50	161.000 061	61

There was no change in the frequency due to $\pm 15\%$ variation of standard test voltage.

The maximum frequency drift using external reference is 1 Hz.

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Section 8. Transient Frequency Behaviour

Test Performed By: Russell Grant	Date of Test: August 10, 2000
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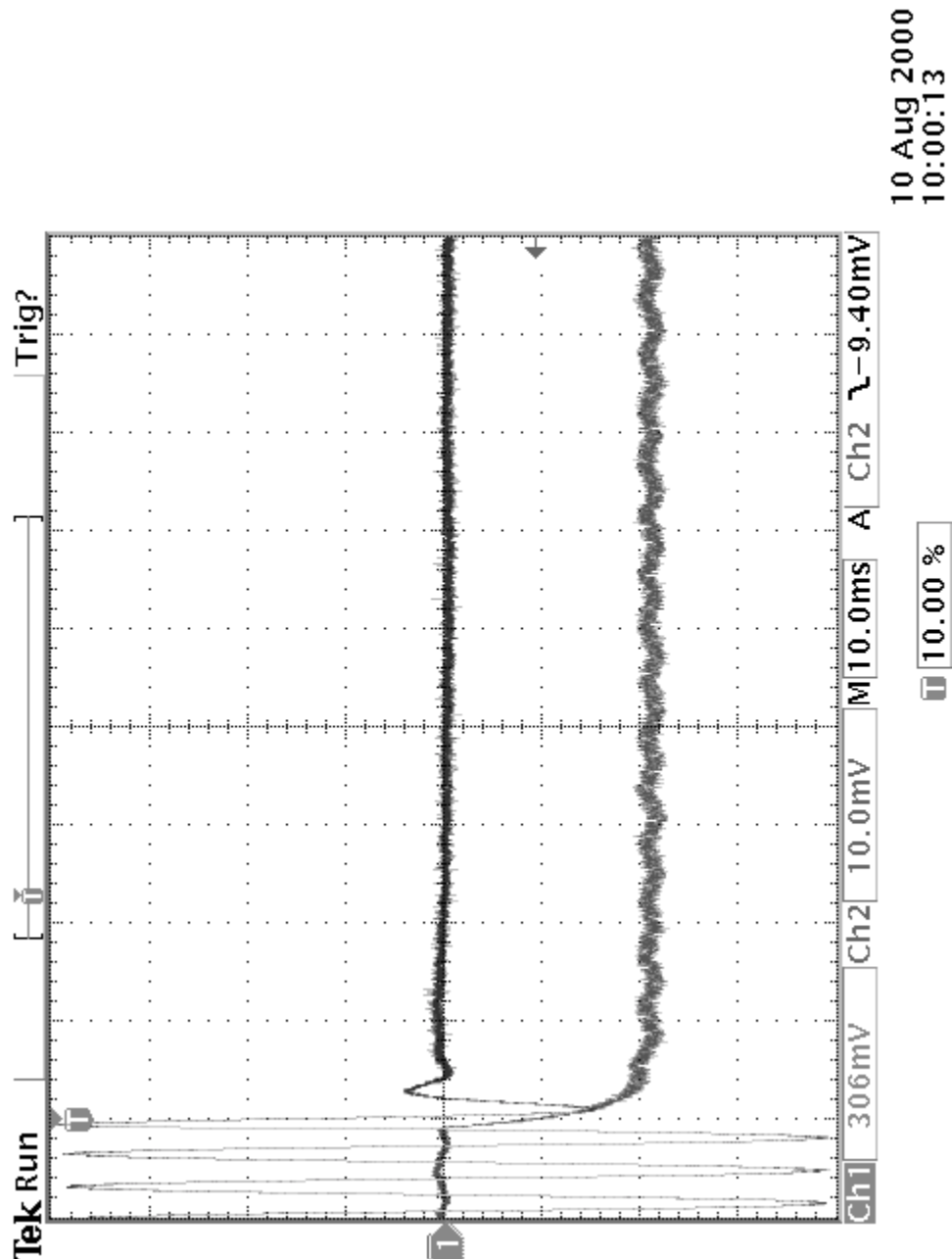
Minimum Standard: Para. No. 90.214

Test Results: Complies.

Measurement Data: See attached graphs.

EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard
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Wideband ± 25 kHz

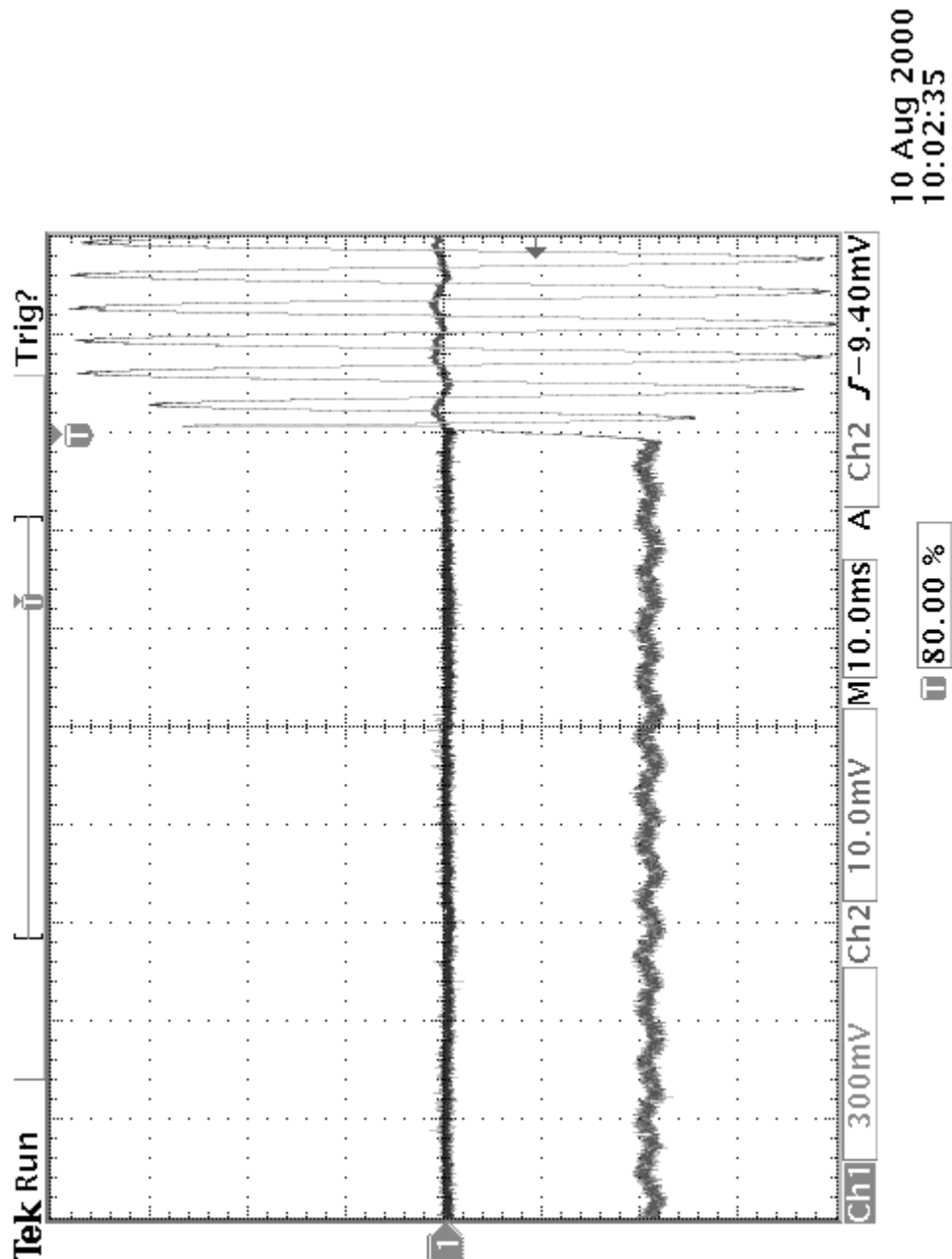


EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard

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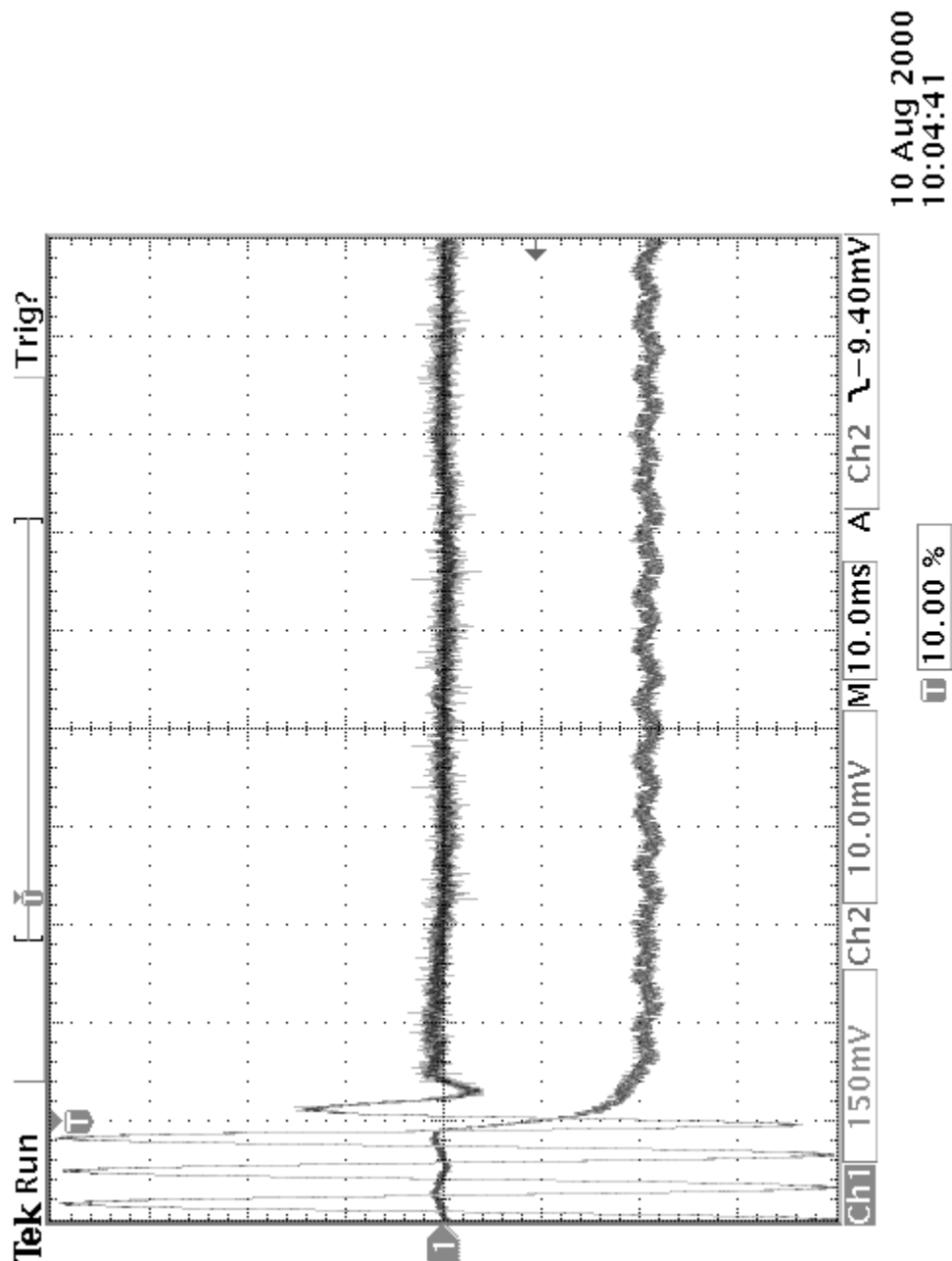
FCC ID: CASTEL0047

Wideband ± 25 kHz



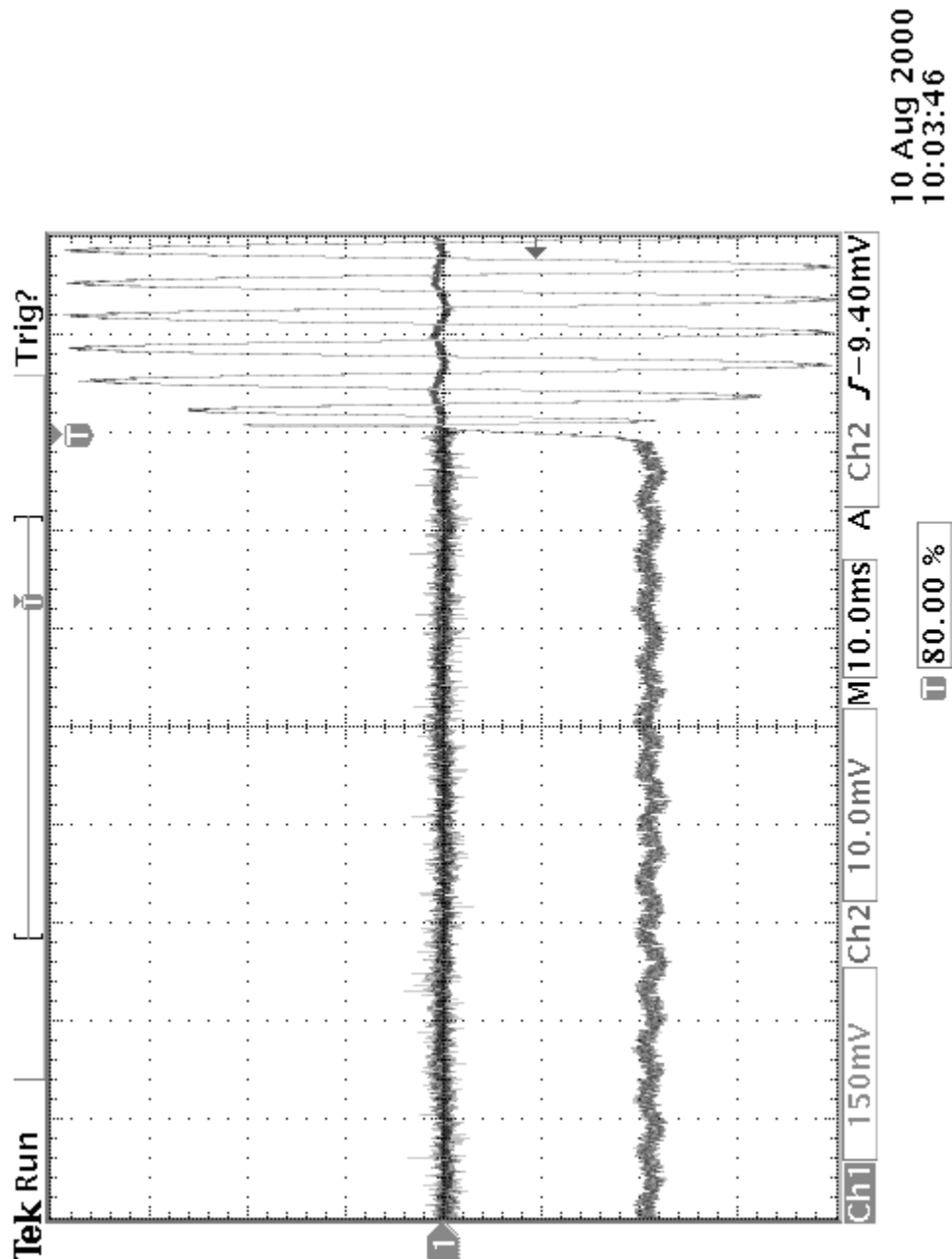
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Narrowband ± 12.5 kHz



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FCC ID: CASTEL0047

Narrowband ± 12.5 kHz



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Section 9. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 16/00	June 16/01
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S	COU	COU
1 Year	Attenuator	Narda	768-10	9709	Oct. 8/99	Oct. 8/00
1 Year	Attenuator	Narda	769-20	4153	Oct. 1/99	Oct. 1/00
1 Year	Attenuator	Narda	776B-20	FA001400	Oct. 15/99	Oct. 15/00
2 Year	Insertion Unit	Rohde & Schwarz	URV5-Z4	FA000905	Oct. 6/99	Oct. 6/01
2 Year	Power Sensor	Rohde & Schwarz	URV5-Z5	FA000419	Oct. 6/99	Oct. 6/01
1 Year	Horn Antenna	EMCO #2	3115	4336	Nov. 11/99	Nov. 11/00
1 Year	Dipole Antenna Set	EMCO #2	3121C	FA001349	June 27/00	June 27/01
1Year	Frequency Counter	Hewlett Packard	HP5350A	2444A00135	May 7/00	Nov. 7/00

NA: Not Applicable
NCR: No Cal Required
COU: CAL On Use

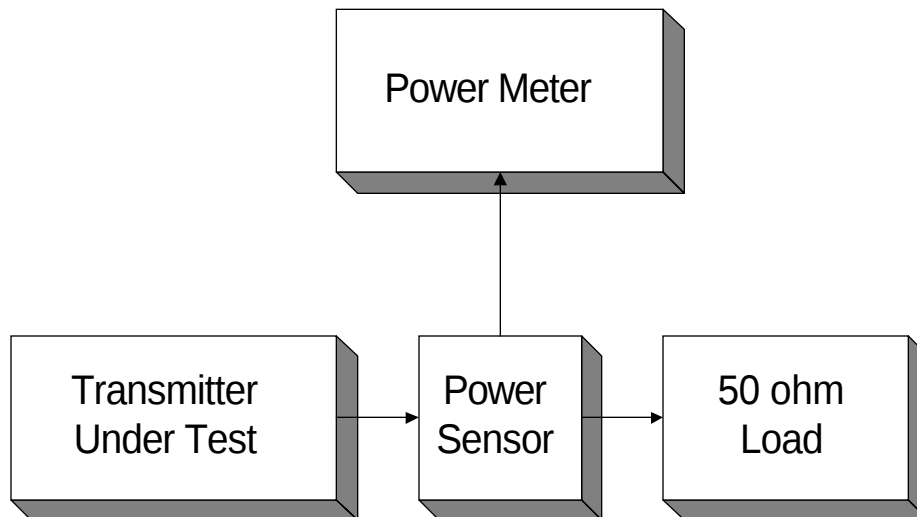
*EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard
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Annex A

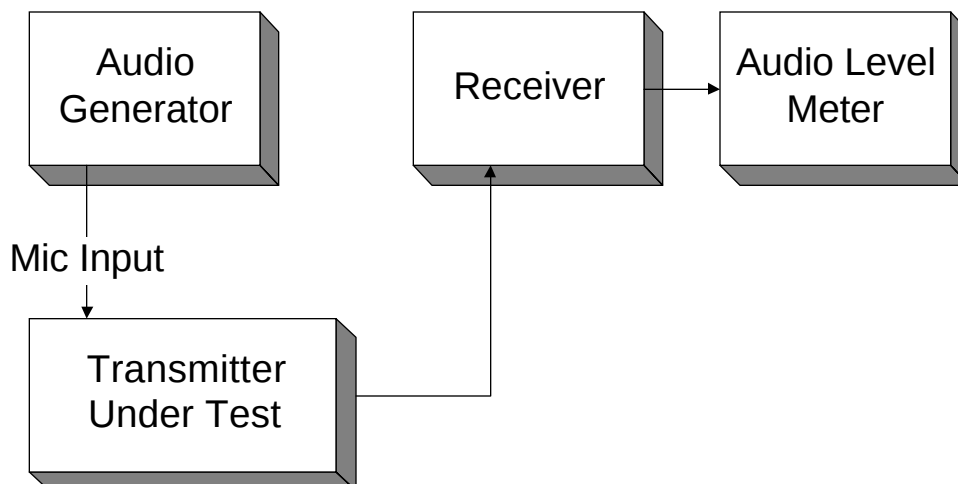
Test Diagrams

*EQUIPMENT: VHF Paging Transmitter, T836-26-1010 Standard
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Para. No. 2.1046 - R.F. Power Output

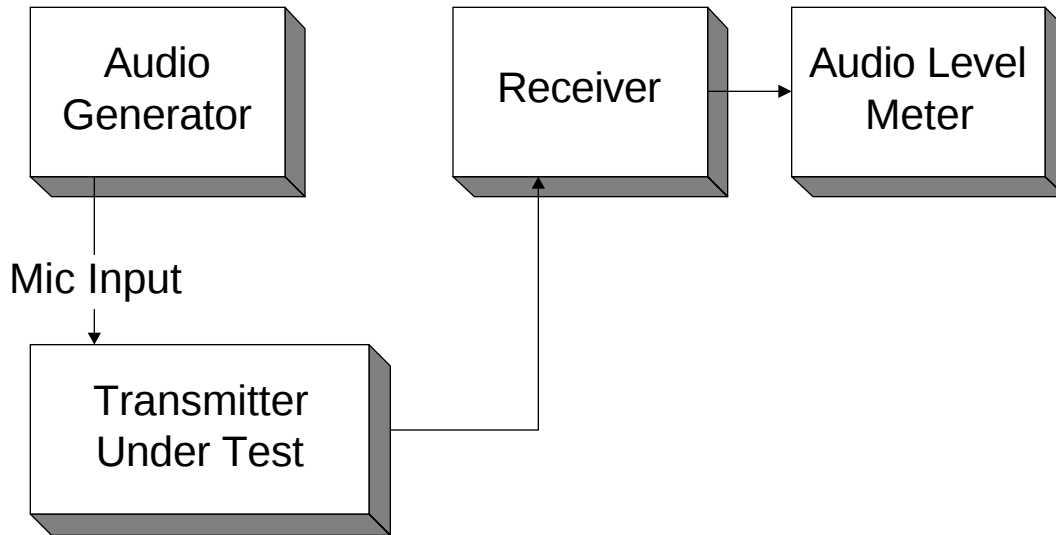


Para. No. 2.1047 - Audio Frequency Response

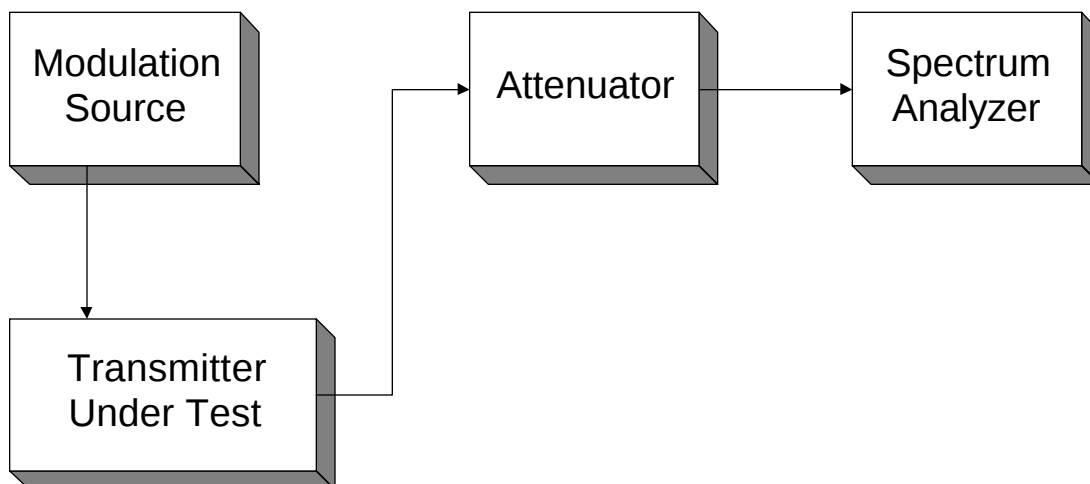


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Para. No. 2.1047 - Modulation Limiting

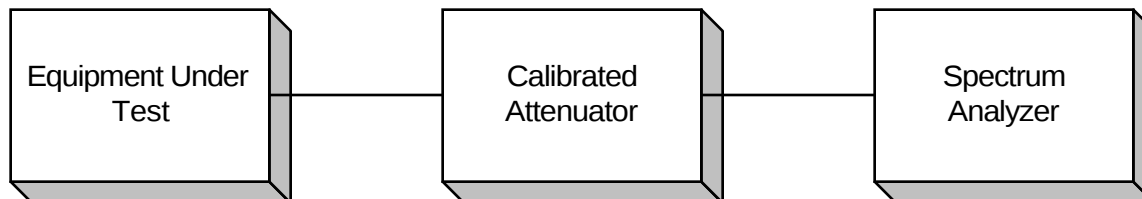


Para. No. 2.1049 - Occupied Bandwidth

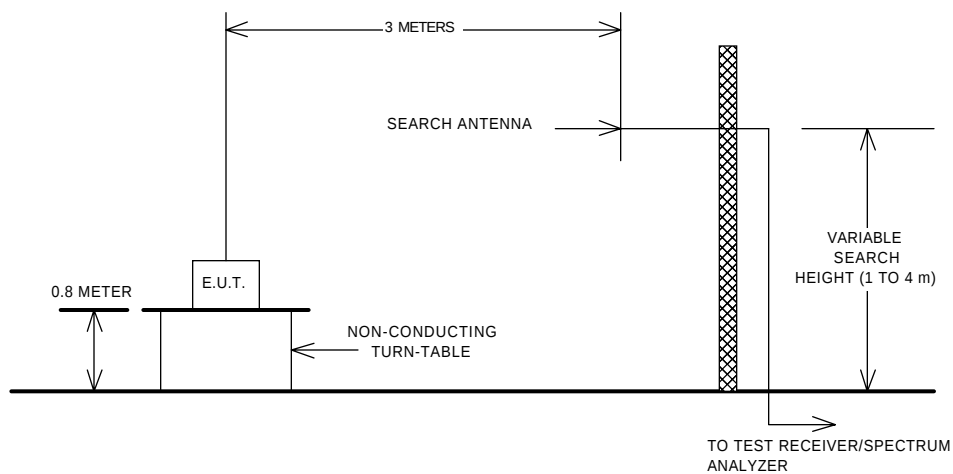


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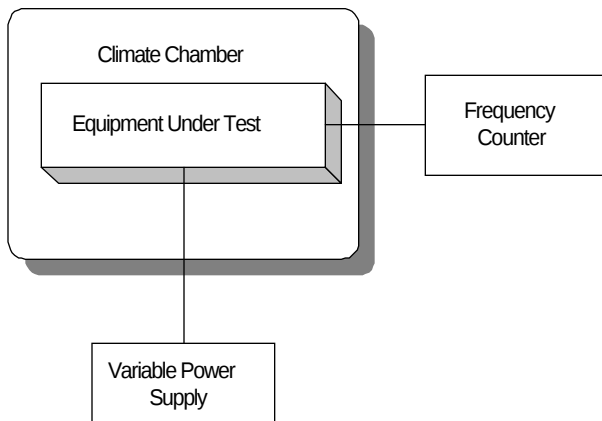
Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Spurious Radiation

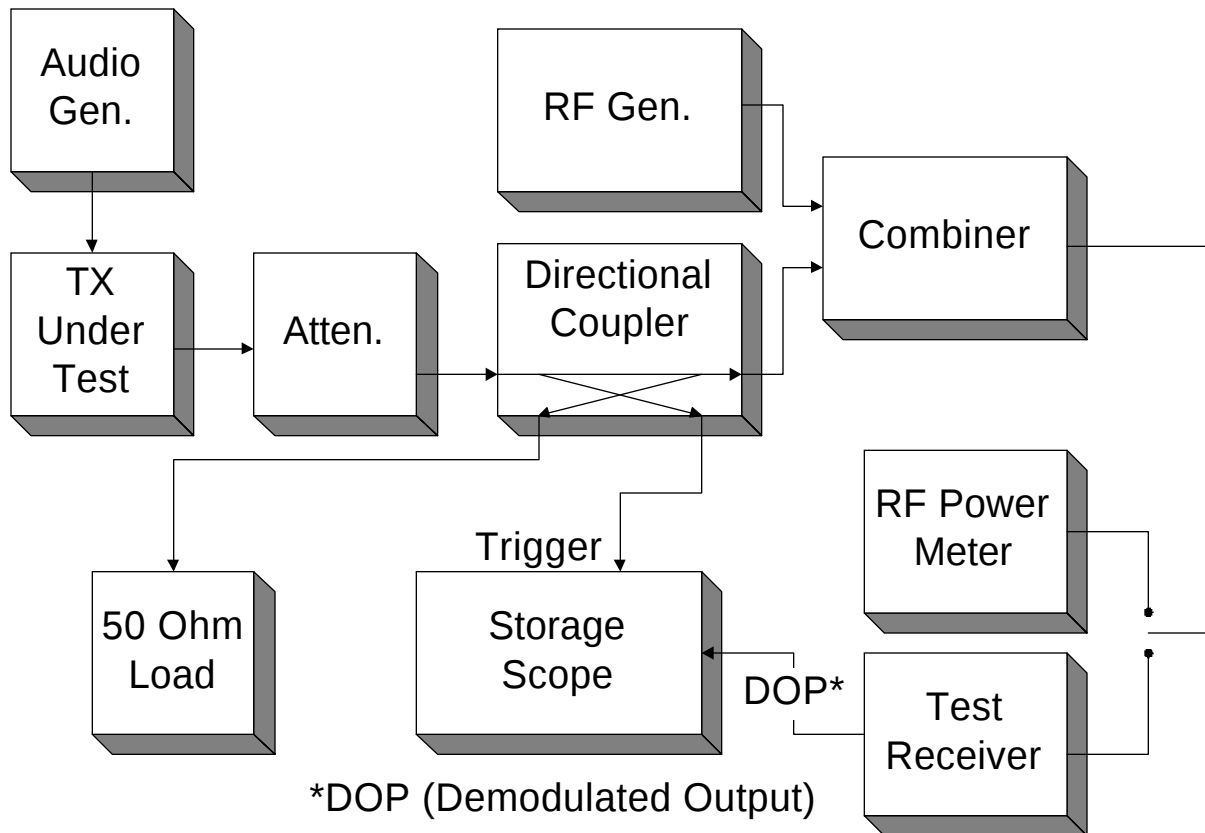


Para. No. 2.1055 - Frequency Stability



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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).