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LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATIONIN ACCORDANCE WITH FCC RULES AND REGULATIONS,  
VOLUME II, PART 2 AND TO

90

Sub-part 2.1033(c) (1): NAME AND ADDRESS OF APPLICANT:Dassault Sercel Navigation-Positionnement  
16 rue de Bel Air  
B.P. 433, 44474 Carquefou Cedex  
Nantes, FranceMANUFACTURER:

Applicant

(c) (2): FCC ID: NZI26E1075203CMODEL NO: 26E1075203C(c) (3): INSTRUCTION MANUAL(S):

PLEASE SEE ATTACHED EXHIBITS

(c) (4): TYPE OF EMISSION: 14K6G1D(c) (5): FREQUENCY RANGE, MHz: 410 to 470(c) (6): POWER RATING, Watts: 0.5  
Switchable Variable x N/A(c) (7): MAXIMUM POWER RATING, Watts: 500

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Subpart 2.1033 (continued)  
(c) (8): VOLTAGES & CURRENTS IN ALL ELEMENTS IN FINAL R. F. STAGE,  
INCLUDING FINAL TRANSISTOR OR SOLID STATE DEVICE:

COLLECTOR CURRENT, A = per manual  
COLLECTOR VOLTAGE, Vdc = per manual  
SUPPLY VOLTAGE, Vdc = 12

(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  
x N/A

(c) (14): TEST AND MEASUREMENT DATA:

FOLLOWS

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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:

- \_\_\_\_\_ 21 - Domestic Public Fixed Radio Services
- \_\_\_\_\_ 22 - Public Mobile Services
- \_\_\_\_\_ 22 Subpart H - Cellular Radiotelephone Service
- \_\_\_\_\_ 22.901(d) - Alternative technologies and auxiliary services
- \_\_\_\_\_ 23 - International Fixed Public Radiocommunication services
- \_\_\_\_\_ 24 - Personal Communications Services
- \_\_\_\_\_ 74 Subpart H - Low Power Auxiliary Stations
- \_\_\_\_\_ 80 - Stations in the Maritime Services
- \_\_\_\_\_ 80 Subpart E - General Technical Standards
- \_\_\_\_\_ 80 Subpart F - Equipment Authorization for Compulsory Ships
- \_\_\_\_\_ 80 Subpart K - Private Coast Stations and Marine Utility Stations
- \_\_\_\_\_ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
- \_\_\_\_\_ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
- \_\_\_\_\_ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
- \_\_\_\_\_ 80 Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)
- \_\_\_\_\_ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
- \_\_\_\_\_ 80 Subpart X - Voluntary Radio Installations
- \_\_\_\_\_ 87 - Aviation Services
- x   90 - Private Land Mobile Radio Services
- \_\_\_\_\_ 94 - Private Operational-Fixed Microwave Service
- \_\_\_\_\_ 95 Subpart A - General Mobile Radio Service (GMRS)
- \_\_\_\_\_ 95 Subpart C - Radio Control (R/C) Radio Service
- \_\_\_\_\_ 95 Subpart D - Citizens Band (CB) Radio Service
- \_\_\_\_\_ 95 Subpart E - Family Radio Service
- \_\_\_\_\_ 95 Subpart F - Interactive Video and Data Service (IVDS)
- \_\_\_\_\_ 101 - Fixed Microwave Services

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STANDARD TEST CONDITIONS  
and  
ENGINEERING PRACTICES

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

In accordance with ANSI C63.4-1992, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT 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.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

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

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NAME OF TEST: Carrier Output Power (Conducted)

SPECIFICATION: 47 CFR 2.1046(a)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an R. F. Power Meter.
2. Measurement accuracy is  $\pm 3\%$ .

MEASUREMENT RESULTS  
(Worst case)

FREQUENCY OF CARRIER, MHz = 440, 410, 470

| <u>POWER SETTING</u> | <u>R. F. POWER, WATTS</u> |
|----------------------|---------------------------|
| High                 | 0.5                       |

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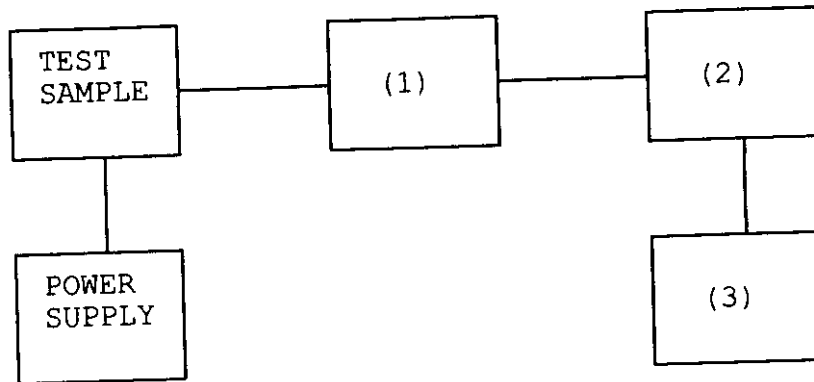
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Morton Flom, P. Eng.

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TRANSMITTER POWER CONDUCTED MEASUREMENTS

TEST 1: R. F. POWER OUTPUT  
 TEST 2: FREQUENCY STABILITY



Asset Description

s/n

(1) COAXIAL ATTENUATOR

|          |                          |       |
|----------|--------------------------|-------|
| —        | i00122 Narda 766-10      | 7802  |
| —        | i00123 Narda 766-10      | 7802A |
| —        | i00069 Bird 8329 (30 dB) | 1006  |
| <u>x</u> | i00113 Sierra 661A-3D    | 1059  |

(2) POWER METERS

|          |                            |            |
|----------|----------------------------|------------|
| —        | i00014 HP 435A             | 1733A05836 |
| <u>x</u> | i00039 HP 436A             | 2709A26776 |
| <u>x</u> | i00020 HP 8901A POWER MODE | 2105A01087 |

(3) FREQUENCY COUNTER

|          |                                |            |
|----------|--------------------------------|------------|
| —        | i00042 HP 5383A                | 1628A00959 |
| <u>x</u> | i00019 HP 5334B                | 2704A00347 |
| <u>x</u> | i00020 HP 8901A FREQUENCY MODE | 2105A01087 |

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)

SPECIFICATION: 47 CFR 2.1051

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.13

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The emissions were measured for the worst case as follows:
  - (a): within a band of frequencies defined by the carrier frequency plus and minus one channel.
  - (b): from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.

2. The magnitude of spurious emissions that are attenuated more than 20 dB below the permissible value need not be specified.

3. MEASUREMENT RESULTS: ATTACHED FOR WORST CASE

FREQUENCY OF CARRIER, MHz = 440, 410, 470

SPECTRUM SEARCHED, GHz = 0 to  $10 \times F_c$

MAXIMUM RESPONSE, Hz = N/A

ALL OTHER EMISSIONS =  $\geq 20$  dB BELOW LIMIT

LIMIT(S), dBc  
 $-(50 + 10 \times \log P) = -47(0.5 \text{ Watts})$

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Morton Flom, P. Eng.

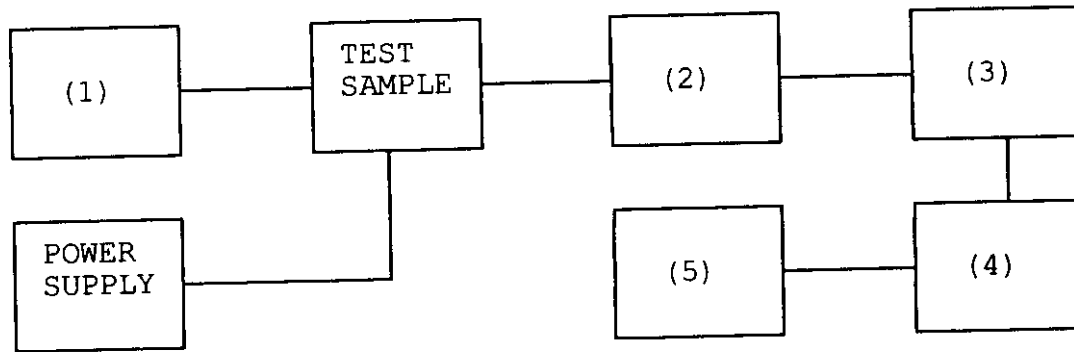
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TRANSMITTER SPURIOUS EMISSION

TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)  
 TEST B. OUT-OF-BAND SPURIOUS



| Asset | Description                       | s/n          |
|-------|-----------------------------------|--------------|
| (1)   | <u>AUDIO OSCILLATOR/GENERATOR</u> |              |
| —     | i00010 HP 204D                    | 1105A04683   |
| —     | i00017 HP 8903A                   | 2216A01753   |
| x     | i00012 HP 3312A                   | 1432A11250   |
| (2)   | <u>COAXIAL ATTENUATOR</u>         |              |
| —     | i00122 Narda 766-10               | 7802         |
| —     | i00123 Narda 766-10               | 7802A        |
| x     | i00069 Bird 8329 (30 dB)          | 1006         |
| x     | i00113 Sierra 661A-3D             | 1059         |
| (3)   | <u>FILTERS; NOTCH, HP, LP, BP</u> |              |
| x     | i00126 Eagle TNF-1                | 100-250      |
| x     | i00125 Eagle TNF-1                | 50-60        |
| x     | i00124 Eagle TNF-1                | 250-850      |
| (4)   | <u>SPECTRUM ANALYZER</u>          |              |
| x     | i00048 HP 8566B                   | 2511A01467   |
| —     | i00029 HP 8563E                   | 3213A00104   |
| (5)   | <u>SCOPE</u>                      |              |
| —     | i00058 HP 1741A                   | 2251A09356   |
| —     | i00030 HP 54502A                  | 2927A00209   |
| —     | i00071 Tektronix 935              | 1935-B011343 |

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g9930094: 1999-Mar-19 Fri 09:00:00  
 STATE: 2:High Power

| FREQUENCY TUNED,<br>MHz | FREQUENCY<br>EMISSION, MHz | LEVEL, dBm | LEVEL, dBc | MARGIN, dB |
|-------------------------|----------------------------|------------|------------|------------|
| 410.000000              | 820.224000                 | -52.7      | -79.3      | -32.7      |
| 458.550000              | 916.796000                 | -53.8      | -80.4      | -33.8      |
| 470.000000              | 939.523000                 | -55.5      | -82.1      | -35.5      |
| 410.000000              | 1230.024000                | -54.8      | -81.4      | -34.8      |
| 458.550000              | 1375.727000                | -53.1      | -79.7      | -33.1      |
| 470.000000              | 1409.722000                | -54.1      | -80.7      | -34.1      |
| 410.000000              | 1639.591000                | -53.7      | -80.3      | -33.7      |
| 458.550000              | 1834.146000                | -52.8      | -79.4      | -32.8      |
| 470.000000              | 1880.396000                | -53.7      | -80.3      | -33.7      |
| 410.000000              | 2049.725000                | -52.2      | -78.8      | -32.2      |
| 458.550000              | 2292.825000                | -52.1      | -78.7      | -32.1      |
| 470.000000              | 2349.757000                | -52.3      | -78.9      | -32.3      |
| 410.000000              | 2460.130000                | -53.2      | -79.8      | -33.2      |
| 458.550000              | 2750.907000                | -54        | -80.6      | -34        |
| 470.000000              | 2819.684000                | -55.4      | -82        | -35.4      |
| 410.000000              | 2869.697000                | -55.1      | -81.7      | -35.1      |
| 458.550000              | 3209.960000                | -54.1      | -80.7      | -34.1      |
| 470.000000              | 3279.651000                | -55.7      | -82.3      | -35.7      |
| 410.000000              | 3289.597000                | -55.9      | -82.5      | -35.9      |
| 458.550000              | 3668.173000                | -54.4      | -81        | -34.4      |
| 470.000000              | 3690.338000                | -55.4      | -82        | -35.4      |
| 410.000000              | 3759.931000                | -55.8      | -82.4      | -35.8      |
| 458.550000              | 4100.497000                | -55.6      | -82.2      | -35.6      |
| 470.000000              | 4126.627000                | -53.2      | -79.8      | -33.2      |
| 410.000000              | 4230.393000                | -55.1      | -81.7      | -35.1      |
| 458.550000              | 4510.112000                | -55        | -81.6      | -35        |
| 470.000000              | 4585.894000                | -53.7      | -80.3      | -33.7      |
| 410.000000              | 4700.194000                | -56.3      | -82.9      | -36.3      |
| 458.550000              | 4919.974000                | -54.2      | -80.8      | -34.2      |
| 470.000000              | 5043.995000                | -53.9      | -80.5      | -33.9      |
| 410.000000              | 5170.050000                | -53.9      | -80.5      | -33.9      |
| 458.550000              | 5330.171000                | -54.9      | -81.5      | -34.9      |
| 470.000000              | 5502.911000                | -54.5      | -81.1      | -34.5      |
| 410.000000              | 5640.197000                | -56.1      | -82.7      | -36.1      |
| 458.550000              | 5740.175000                | -55.2      | -81.8      | -35.2      |
| 470.000000              | 5961.141000                | -48.3      | -74.9      | -28.3      |
| 410.000000              | 6109.720000                | -49.6      | -76.2      | -29.6      |
| 458.550000              | 6150.189000                | -49.7      | -76.3      | -29.7      |
| 470.000000              | 6419.596000                | -49.1      | -75.7      | -29.1      |
| 410.000000              | 6580.003000                | -49.8      | -76.4      | -29.8      |
| 458.550000              | 6878.177000                | -47.8      | -74.4      | -27.8      |
| 470.000000              | 7050.258000                | -49.4      | -76        | -29.4      |

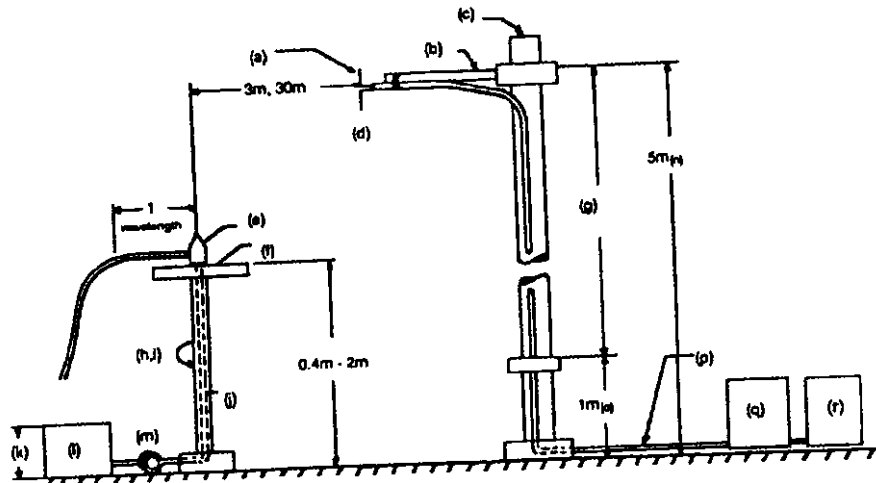
PAGE NO. 11 of 29.  
NAME OF TEST: Field Strength of Spurious Radiation  
SPECIFICATION: 47 CFR 2.1053(a)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.12  
TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. A description of the measurement facilities was filed with the FCC and was found to be in compliance with the requirements of Section 15.38, by letter from the FCC dated March 3, 1997, FILE 31040/SIT. All pertinent changes will be reported to the Commission by up-date prior to March 2000.
2. At first, in order to locate all spurious frequencies and approximate amplitudes, and to determine proper equipment functioning, the test sample was set up at a distance of three meters from the test instrument. Valid spurious signals were determined by switching the power on and off.
3. In the field, the test sample was placed on a wooden turntable above ground at three (or thirty) meters away from the search antenna. Excess power leads were coiled near the power supply.  
  
The cables were oriented in order to obtain the maximum response. At each emission frequency, the turntable was rotated and the search antennas were raised and lowered vertically.
4. The emission was observed with both a vertically polarized and a horizontally polarized search antenna and the worst case was used.
6. The field strength of each emission within 20 dB of the limit was recorded and corrected with the appropriate cable and transducer factors.
7. The worst case for all channels is shown.
8. Measurement results: ATTACHED FOR WORST CASE

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RADIATED TEST SETUP

## NOTES:

- (a) Search Antenna - Rotatable on boom  
 (b) Non-metallic boom  
 (c) Non-metallic mast  
 (d) Adjustable horizontally  
 (e) Equipment Under Test  
 (f) Turntable  
 (g) Boom adjustable in height.  
 (h) External control cables routed horizontally at least one wavelength.  
 (i) Rotatable  
 (j) Cables routed through hollow turntable center  
 (k) 30 cm or less  
 (l) External power source  
 (m) 10 cm diameter coil of excess cable  
 (n) 25 cm (V), 1 m-7 m (V, H)  
 (o) 25 cm from bottom end of 'V', 1m normally  
 (p) Calibrated Cable at least 10m in length  
 (q) Amplifier (optional)  
 (r) Spectrum Analyzer

| Asset | Description | s/n | Cycle | Last Cal |
|-------|-------------|-----|-------|----------|
|-------|-------------|-----|-------|----------|

TRANSDUCER

|   |        |                            |           |        |        |
|---|--------|----------------------------|-----------|--------|--------|
| — | i00065 | EMCO 3109B 100Hz-50MHz     | 2336      | 12 mo. |        |
| — | i00033 | Singer 94593-1 10kHz-32MHz | 0219      | 12 mo. |        |
| — | i00088 | EMCO 3109-B 25MHz-300MHz   | 2336      | 12 mo. | Oct-98 |
| x | i00089 | Apral 2001 200MHz-1GHz     | 001500    | 12 mo. | Oct-98 |
| x | i00103 | EMCO 3115 1GHz-18GHz       | 9208-3925 | 12 mo. | Oct-98 |
| — | i00085 | EMCO 3116 10GHz-40GHz      | 2076      | 12 mo. |        |

AMPLIFIER

|   |        |          |            |        |        |
|---|--------|----------|------------|--------|--------|
| — | i00028 | HP 8449A | 2749A00121 | 12 mo. | Mar-98 |
|---|--------|----------|------------|--------|--------|

SPECTRUM ANALYZER

|   |        |           |            |        |        |
|---|--------|-----------|------------|--------|--------|
| — | i00029 | HP 8563E  | 3213A00104 | 12 mo. | Aug-98 |
| — | i00033 | HP 85462A | 3625A00357 | 12 mo. | Dec-98 |
| x | i00048 | HP 8566B  | 2511AD1467 | 6 mo.  | Dec-98 |

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NAME OF TEST:

Field Strength of Spurious Radiation

ALL OTHER EMISSIONS

=  $\geq$  20 dB BELOW LIMITEMISSION, MHz/HARMONICSPURIOUS LEVEL, dBc

High

&lt;-70

2nd to 10th

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NAME OF TEST: Field Strength of Spurious Radiation  
 g9930098: 1999-Mar-19 Fri 11:14:00  
 STATE: 2:High Power

| FREQUENCY<br>TUNED, MHz | FREQUENCY<br>EMISSION, MHz | METER,<br>dBuV | CF,<br>dB | uV/m @<br>3m | ERP,<br>dBm | MARGIN,<br>dB |
|-------------------------|----------------------------|----------------|-----------|--------------|-------------|---------------|
| 458.550000              | 917.103066                 | 11.5 P         | 32.51     | 158.67       | -53.35      | -40.4         |
| 458.550000              | 1375.654599                | 18.5 P         | -0.35     | 8.08         | -79.25      | -66.3         |
| 458.550000              | 1834.206099                | 14.67P         | 2.31      | 7.06         | -80.35      | -67.4         |
| 458.550000              | 2292.757632                | 5.33P          | 4.62      | 3.14         | -87.45      | -74.5         |
| 458.550000              | 2751.309165                | 20.33P         | 6.64      | 22.31        | -70.45      | -57.4         |
| 458.550000              | 3209.860664                | 14.83P         | 8.19      | 14.16        | -74.35      | -61.4         |
| 458.550000              | 3668.411864                | 25.83P         | 9.35      | 57.41        | -62.15      | -49.2         |
| 458.550000              | 4126.963397                | 25.5 P         | 10.49     | 63.02        | -61.35      | -48.4         |
| 458.550000              | 4585.514930                | 12.67P         | 11.82     | 16.77        | -72.85      | -59.9         |

(P: Peak reading, A: Average reading)

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
SPECIFICATION: 47 CFR 2.1049(c) (1)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.11  
TEST EQUIPMENT: As per previous page

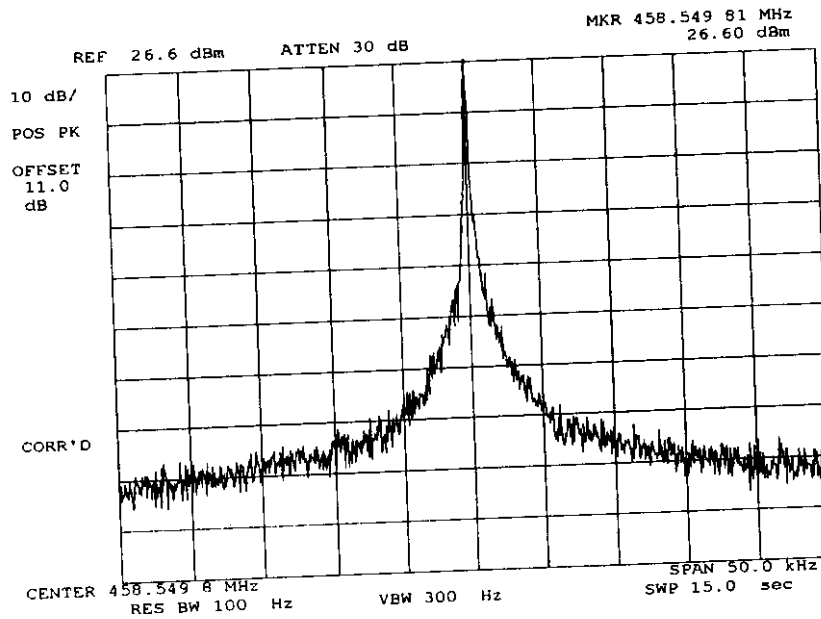
MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up as shown on the following page, with the Spectrum Analyzer connected.
2. For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for  $\pm 2.5$  kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.
3. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
4. The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.
5. MEASUREMENT RESULTS: ATTACHED

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9930091: 1999-Mar-19 Fri 08:47:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
NONE

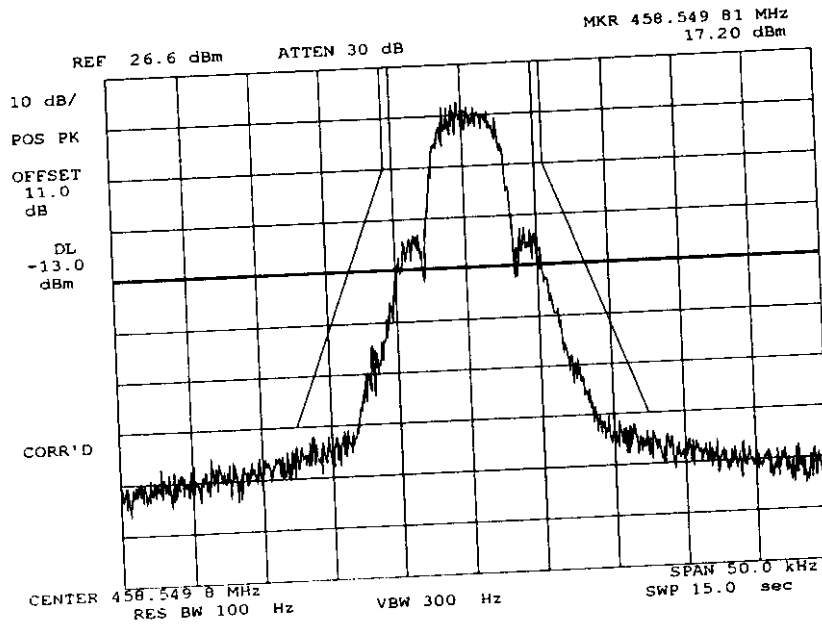
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9930092: 1999-Mar-19 Fri 08:51:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
DATA F1D  
MASK: D, VHF/UHF 12.5kHz BW  
4800 bps

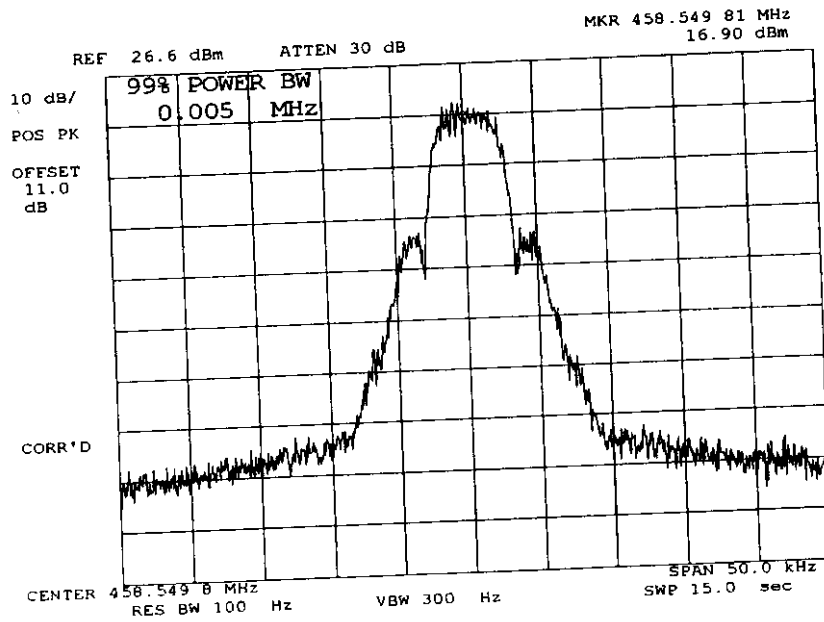
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Morton Flom, P. Eng.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g9930093: 1999-Mar-19 Fri 08:55:00  
 STATE: 2:High Power



POWER:  
 MODULATION:

HIGH  
 DATA F1D  
 99 % POWER BANDWIDTH

SUPERVISED BY:

*Morton Flom P. Eng.*  
 Morton Flom, P. Eng.

PAGE NO. 19 of 29.  
NAME OF TEST: Transient Frequency Behavior  
SPECIFICATION: 47 CFR 90.214  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.19  
TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT was setup as shown on the attached page, following TIA/EIA-603 steps a, b, and c as a guide.

2. The transmitter was turned on.

3. Sufficient attenuation was provided so that the transmitter carrier level measured at the output of the combiner was 40 dB below the maximum input level of the test receiver. This level was recorded as step f.

4. The transmitter was turned off.

5. An RF signal generator (1) modulated with a 1 kHz tone at either 25, 12.5, or 6.25 kHz deviation, and set to the same frequency as the assigned transmitter frequency, (2) was adjusted to a level -20 dB below the level recorded for step f, as measured at the output of the combiner. This level was then fixed for the remainder of the test and is recorded at step h.

6. The oscilloscope was setup using TIA/EIA-603 steps j and k as a guide, and to either 10 ms/div (UHF) or 5 ms/div (VHF).

7. The 30 dB attenuator was removed, the transmitter was turned on, and the level of the carrier at the output of the combiner was recorded as step l.

8. The carrier on-time as referenced in TIA/EIA-603 steps m, n, and o was captured and plotted. The carrier off-time as referenced in TIA/EIA-603 steps p, q, r, and s was captured and plotted.

|                  |         |
|------------------|---------|
| LEVELS MEASURED: |         |
| step f, dBm      | = -13.9 |
| step h, dBm      | = -34.8 |
| step l, dBm      | = 14.9  |

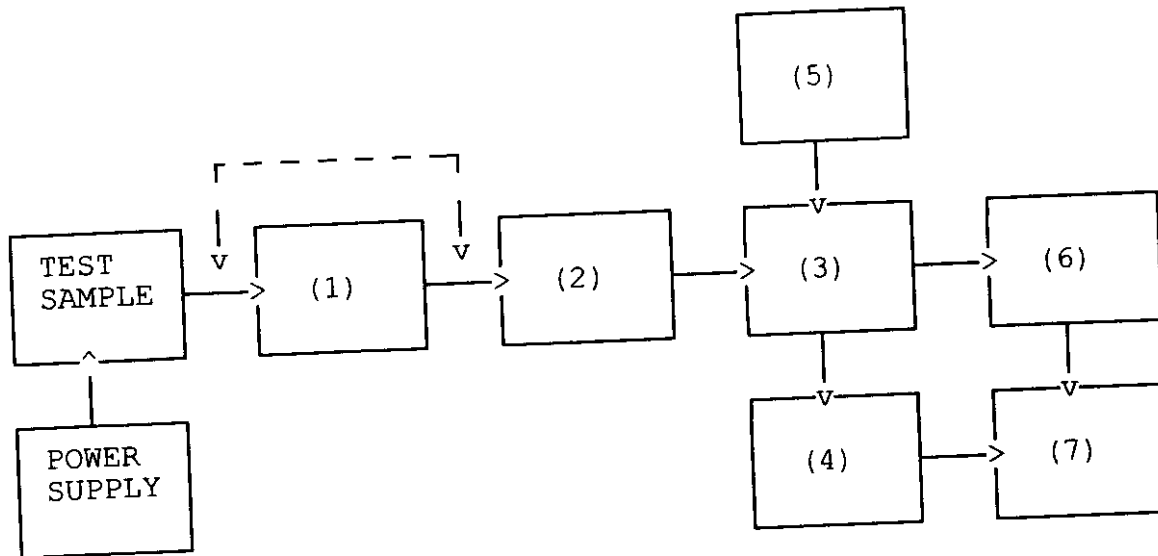


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TRANSIENT FREQUENCY BEHAVIOR

Asset Description

s/n

(1) ATTENUATOR (Removed after 1st step)  
x i00112 Philco 30 dB 989

(2) ATTENUATOR.  
 i00112 Philco 30 dB 989  
 i00172 Bird 30 dB 989  
x i00122 Narda 10 dB 7802  
 i00123 Narda 10 dB 7802A  
 i00110 Kay Variable 145-387

(3) COMBINER  
x i00154 4 x 25  $\Omega$  COMBINER 154

(4) CRYSTAL DETECTOR  
x i00159 HP 8470B 1822A10054

(5) RF SIGNAL GENERATOR  
 i00018 HP 8656A 2228A03472  
 i00031 HP 8656A 2402A06180  
x i00067 HP 8920A 3345U01242

(6) MODULATION ANALYZER  
x i00020 HP 8901A 2105A01087

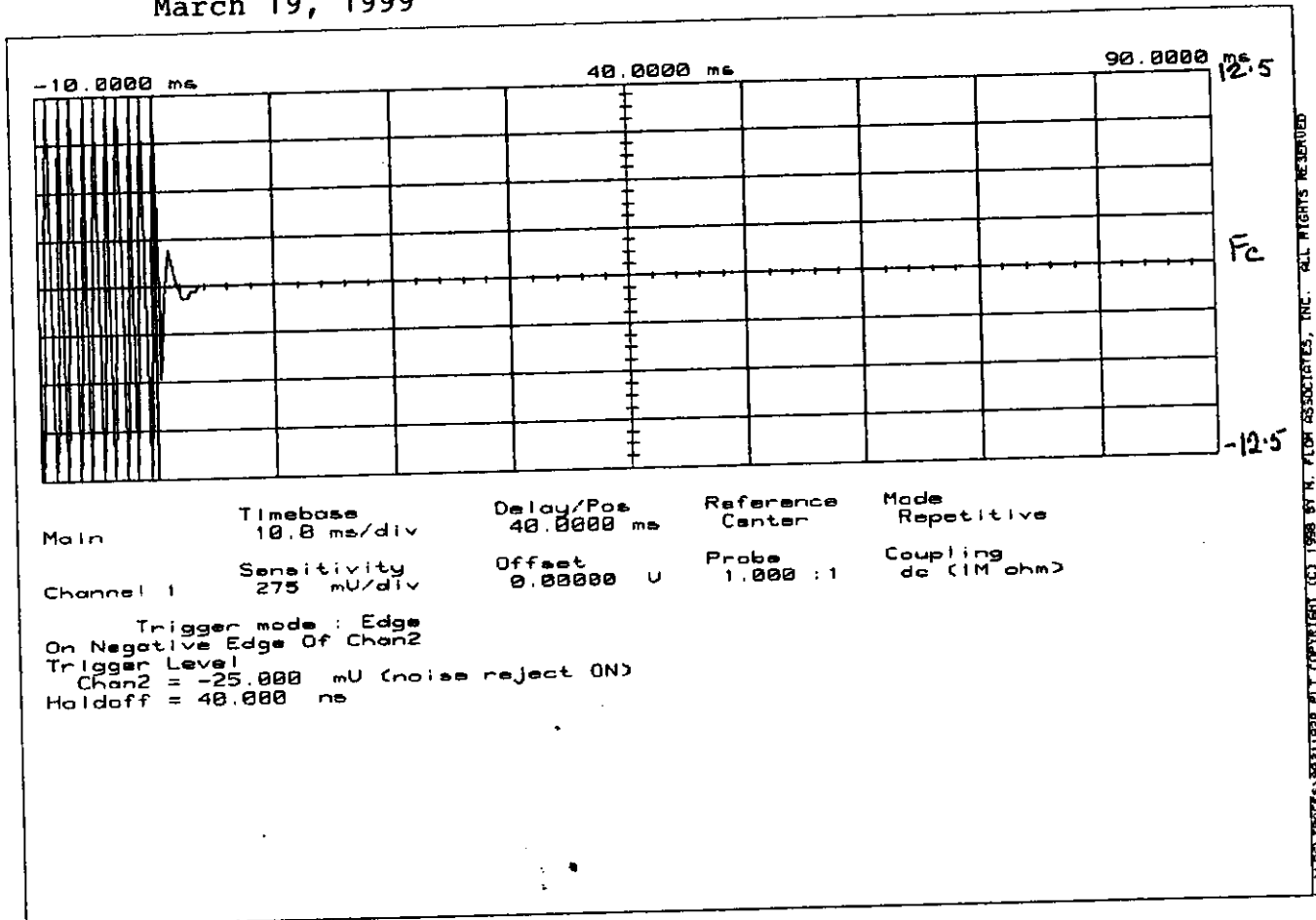
(7) SCOPE  
x i00030 HP 54502A 2927A00209

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MODULATION: Ref Gen=12.5 kHz Deviation

REMARK: CARRIER ON TIME

March 19, 1999

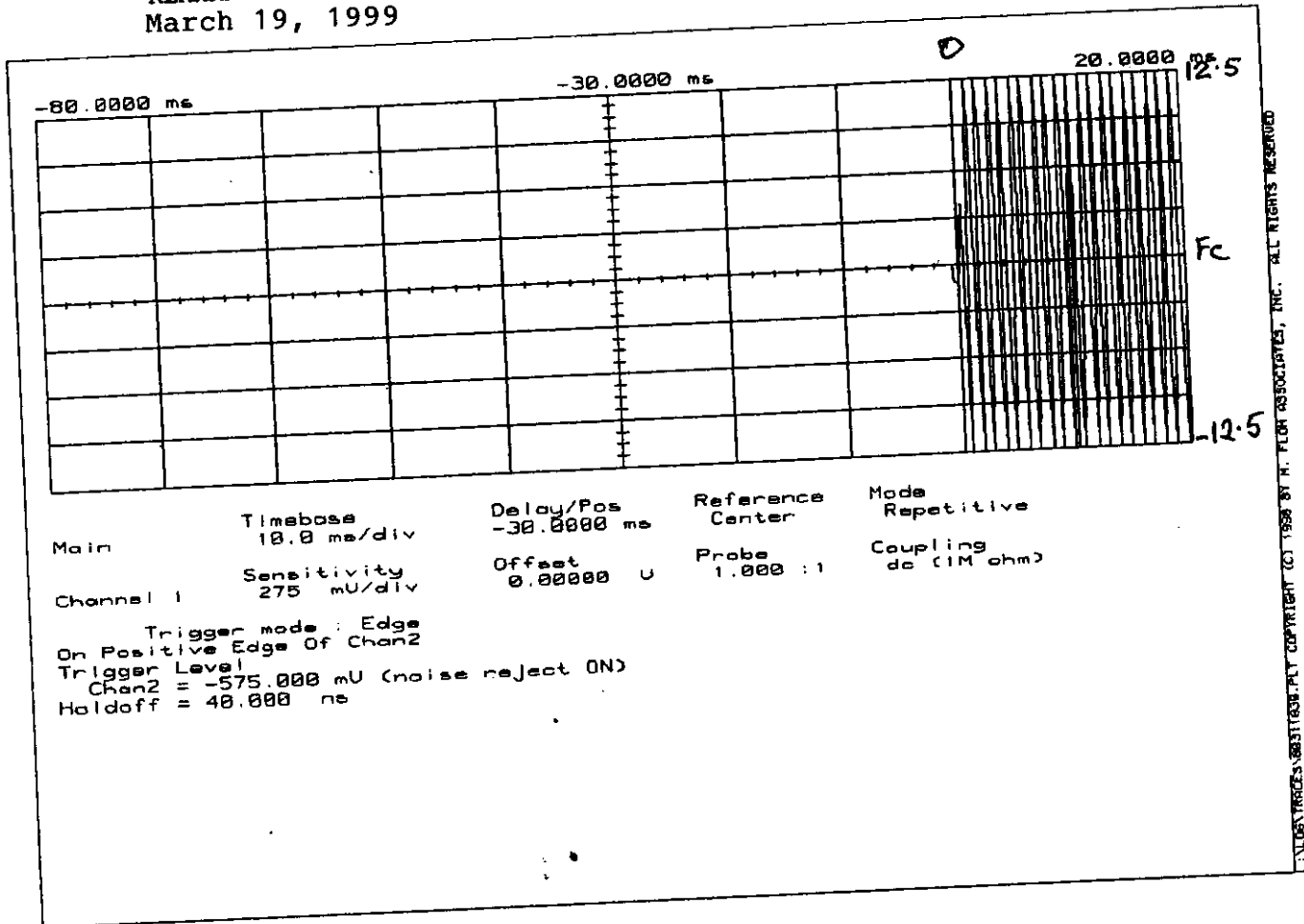


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MODULATION: Ref Gen=12.5 kHz Deviation

REMARK: CARRIER OFF TIME

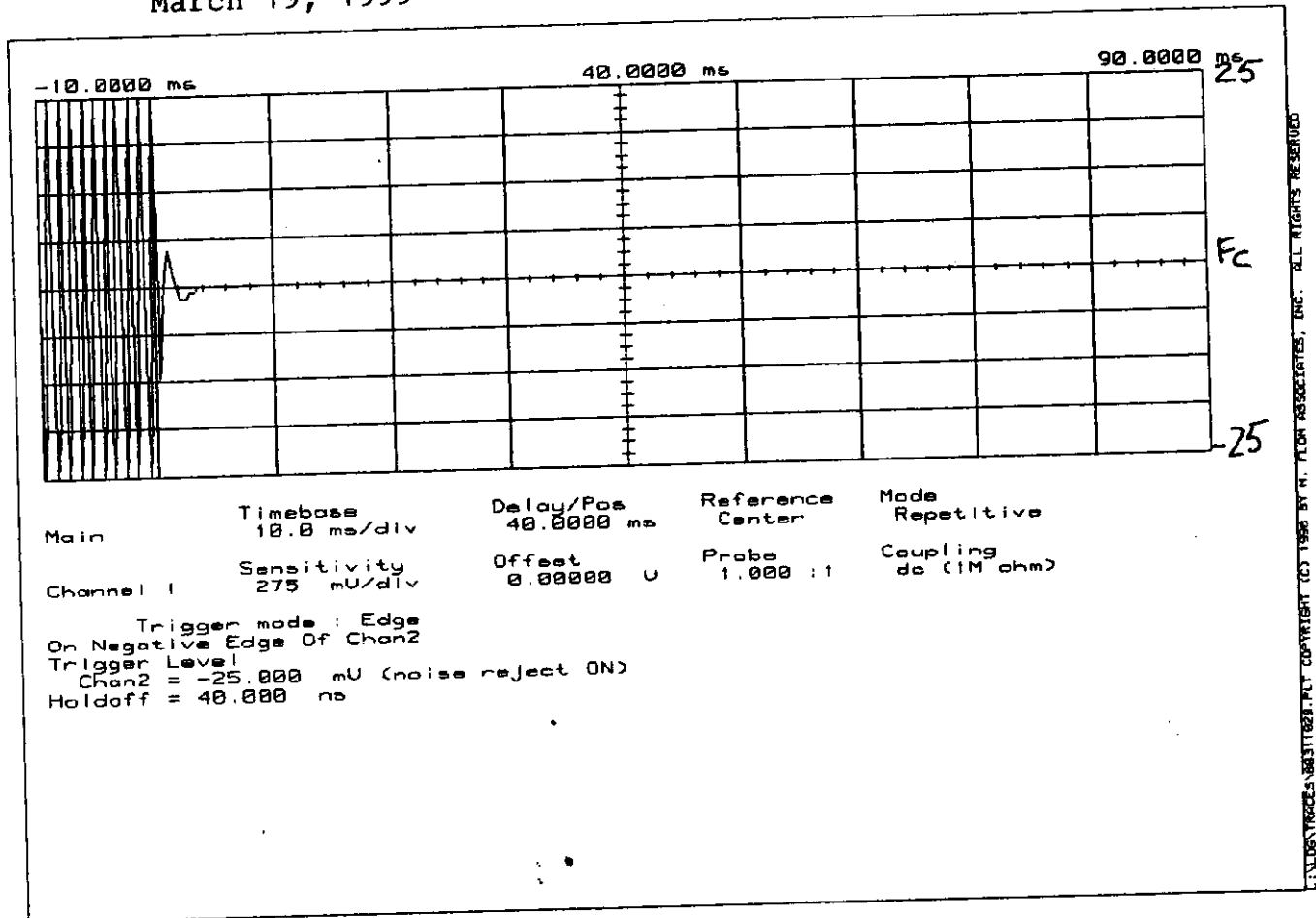
March 19, 1999



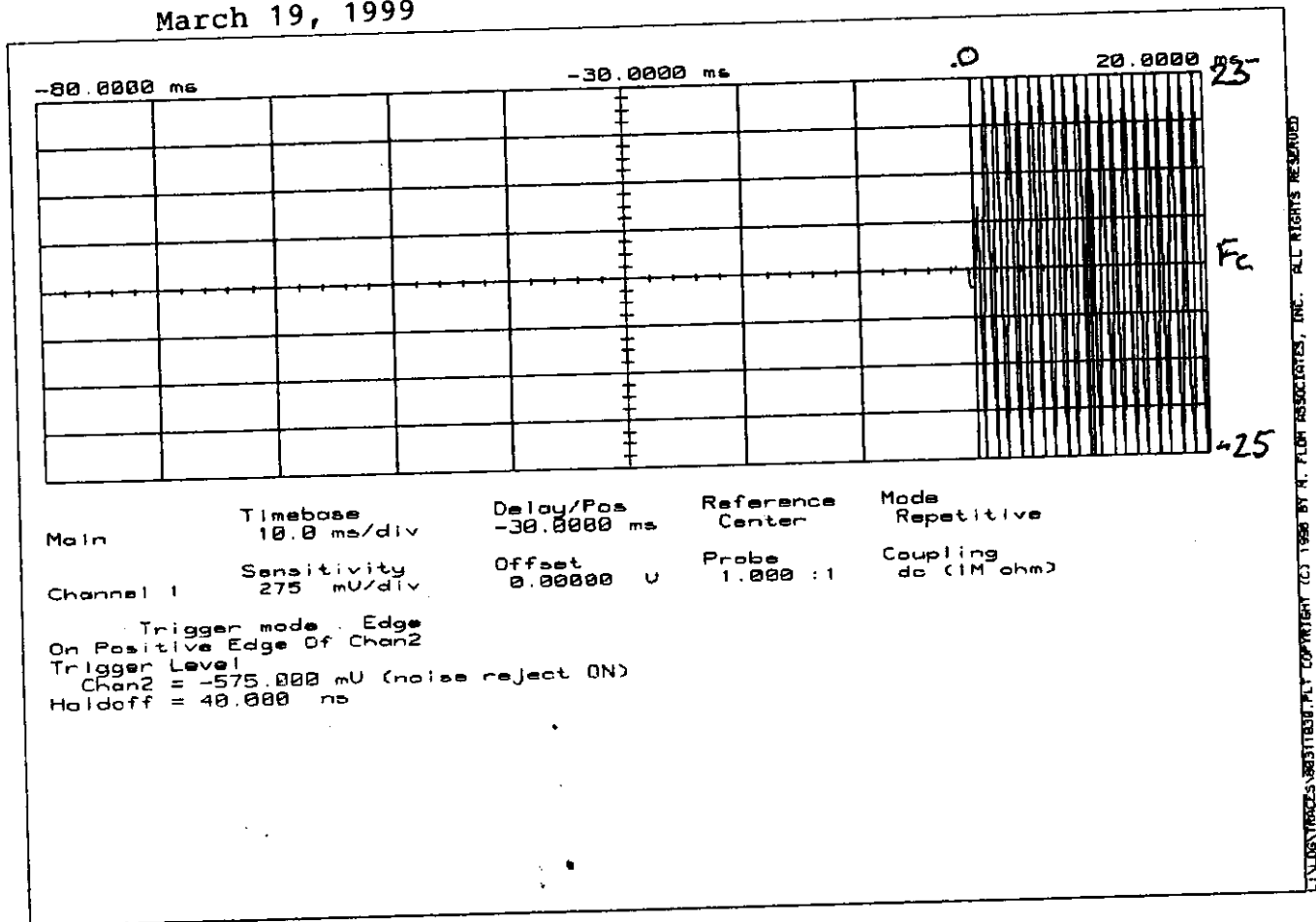
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MODULATION: WORST CASE

REMARK: CARRIER ON TIME  
March 19, 1999



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 MODULATION: WORST CASE  
 REMARK: CARRIER OFF TIME  
 March 19, 1999



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NAME OF TEST: Frequency Stability (Temperature Variation)  
SPECIFICATION: 47 CFR 2.1055(a)(1)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2  
TEST CONDITIONS: As Indicated  
TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

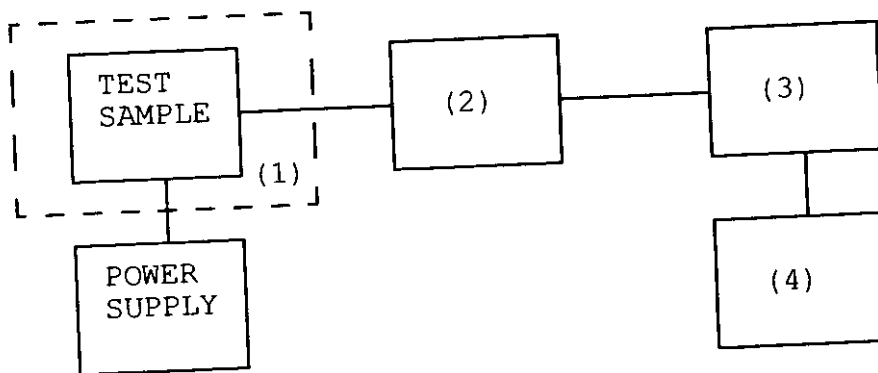
1. The EUT and test equipment were set up as shown on the following page.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. MEASUREMENT RESULTS: ATTACHED

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TRANSMITTER TEST SET-UP

TEST A. OPERATIONAL STABILITY  
 TEST B. CARRIER FREQUENCY STABILITY  
 TEST C. OPERATIONAL PERFORMANCE STABILITY  
 TEST D. HUMIDITY  
 TEST E. VIBRATION  
 TEST F. ENVIRONMENTAL TEMPERATURE  
 TEST G. FREQUENCY STABILITY: TEMPERATURE VARIATION  
 TEST H. FREQUENCY STABILITY: VOLTAGE VARIATION



Asset Description

s/n

(1) TEMPERATURE, HUMIDITY, VIBRATION

|   |        |                        |              |
|---|--------|------------------------|--------------|
| x | i00027 | Tenny Temp. Chamber    | 9083-765-234 |
| — | i00    | Weber Humidity Chamber |              |
| — | i00    | L.A.B. RVH 18-100      |              |

(2) COAXIAL ATTENUATOR

|   |        |                   |       |
|---|--------|-------------------|-------|
| — | i00122 | NARDA 766-10      | 7802  |
| — | i00123 | NARDA 766-10      | 7802A |
| x | i00113 | SIERRA 661A-3D    | 1059  |
| — | i00069 | BIRD 8329 (30 dB) | 10066 |

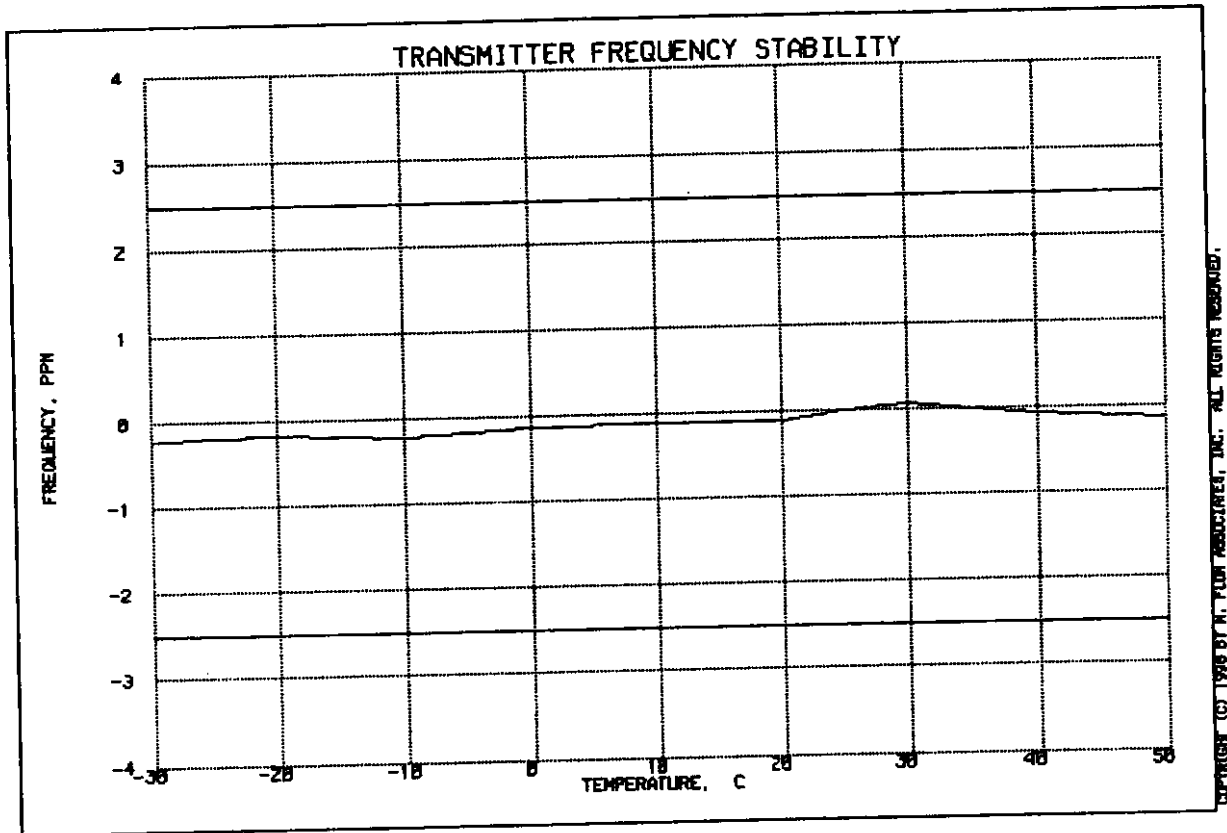
(3) R.F. POWER

|   |        |                     |            |
|---|--------|---------------------|------------|
| — | i00014 | HP 435A POWER METER | 1733A05839 |
| x | i00039 | HP 436A POWER METER | 2709A26776 |
| x | i00020 | HP 8901A POWER MODE | 2105A01087 |

(4) FREQUENCY COUNTER

|   |        |          |            |
|---|--------|----------|------------|
| — | i00042 | HP 5383A | 1628A00959 |
| x | i00019 | HP 5334B | 2704A00347 |
| x | i00020 | HP 8901A | 2105A01087 |

TRANSMITTER FREQUENCY STABILITY



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FREQUENCY OF CARRIER, MHz = 439.99992

LIMIT, ppm = 2.5

LIMIT, Hz = 1100

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NZI26E1075203

NAME OF TEST:

Frequency Stability (Voltage Variation)

SPECIFICATION:

FCC: 47 CFR 2.995 (b)(1)  
IC: RSS-119, Section 7.0

GUIDE:

TIA/EIA-602, Section 2.2.2

TEST CONDITIONS:

As indicated

TEST EQUIPMENT:

As per attached page

MEASUREMENT PROCEDURE

1. The EUT was placed in a temperature chamber at  $25 \pm 5^\circ\text{C}$  and connected as for "Frequency Stability - Temperature Variation" test.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

MEASUREMENT RESULTS

LIMIT, ppm  
LIMIT, Hz

= 2.5  
= 1100

| STV, %             | Vdc  | <u>CHANGE IN FREQUENCY, Hz</u> |     |
|--------------------|------|--------------------------------|-----|
| 85                 | 13.6 | 439999990                      | -10 |
| 100                | 16.0 | 440000000                      | 0   |
| 115                | 18.4 | 439999980                      | -20 |
| BATTERY END POINT: | 9.6  | 439999990                      | -10 |

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*M. J. Flom*  
MORTON FLOM, P. Eng.

PAGE NO. 29 of 29.  
NAME OF TEST: Necessary Bandwidth and Emission Bandwidth  
SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 14K6G1D

NECESSARY BANDWIDTH CALCULATION:

MAXIMUM MODULATION (M), kHz

= 4.8 B/s

MAXIMUM DEVIATION (D), kHz

= 2.2

CONSTANT FACTOR (K)

= 1

NECESSARY BANDWIDTH (B<sub>N</sub>), kHz

= (2 x M) + (2 x D x K)

= 14

SUPERVISED BY:

*Morton Flom P. Eng.*

Morton Flom, P. Eng.

TESTIMONIAL  
AND  
STATEMENT OF CERTIFICATION

THIS IS TO CERTIFY THAT:

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.

CERTIFYING ENGINEER:

  
Morton Flom, P. Eng.

## STATEMENT OF QUALIFICATIONS

### EDUCATION:

1. B. ENG. in ENGINEERING PHYSICS, 1949, McGill University, Montreal, Canada.
2. Post Graduate Studies, McGill University & Sir George Williams University, Montreal.

### PROFESSIONAL AFFILIATIONS:

1. ARIZONA SOCIETY OF PROFESSIONAL ENGINEERS (NSPE), #026 031 821.
2. ORDER OF ENGINEERS (QUEBEC) 1949. #45 34.
3. ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOPHYSICISTS & GEOLOGISTS OF ALBERIA #5916.
4. REGISTERED ENGINEERING CONSULTANT - GOVERNMENT OF CANADA, DEPARTMENT OF COMMUNICATIONS. Radio Equipment approvals.
5. IEEE, Lifetime member no. 041/204 (Member since 1947).

### EXPERIENCE:

1. Research/Development/Senior Project Engineer. R.C.A. LIMITED (4 years).
2. Owner/Chief Engineer of Electronics. Design/Manufacturing & Cable TV Companies (10 years)
3. CONSULTING ENGINEER (over 25 years).



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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

TEST REPORT

- a)
- b) Laboratory: M. Flom Associates, Inc.  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044) Chandler, AZ 85224
- c) Report Number: d9930076
- d) Client: Dassault Sercel Navigation-Positionnement  
16 rue de Bel Air  
B.P. 433, 44474 Carquefou Cedex  
Nantes, France
- e) Identification: 26E1075203C  
Description: FCC ID: NZ126E1075203C  
UHF FM Transceiver
- f) EUT Condition: Not required unless specified in individual tests.
- g) Report Date: March 23, 1999  
EUT Received: March 19, 1999
- h, j, k): As indicated in individual tests.
- i) Sampling method: No sampling procedure used.
- l) Uncertainty: In accordance with MFA internal quality manual.
- m) Supervised by:   
Morton Flom, P. Eng.
- 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.