

TEST REPORT

REPORT NUMBER 1296

OCT 1998

RADIO PERFORMANCE MEASUREMENTS

on the T858-10-0500 Base Station Transmitter

FCC ID: CASTEL0020

Serial N° 977756

in accordance with

FCC 47 CFR Parts 22 and 90

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NAME OF TEST: TRANSMITTER OUTPUT POWER (CONDUCTED)

TEST CONDITIONS: Ambient temperature 24°C
 Relative humidity 40 %
 Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.985 (a)

GUIDE: TIA/EIA-603 2.2.1

MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The coaxial attenuator used has an impedance of 50Ω.
3. The unmodulated output power was measured by means of an RF Power meter.

MEASUREMENT RESULTS:

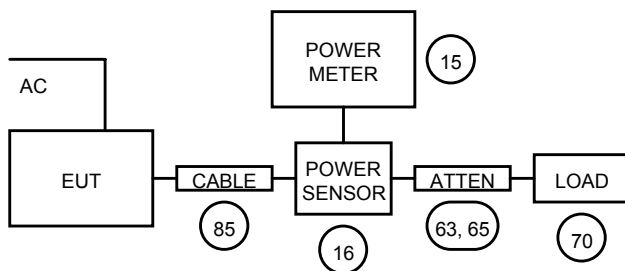
Manufacturers rated output power: Continuously variable 10W to 50W

| | | |
|------------------------------|----------------|-------------|
| 421.1MHz | 50W nominal | 10W nominal |
| Watts | 50.34 | 10.52 |
| % Variation from nom | +0.46 | +5.2 |
| Measurement uncertainty (dB) | +0.63 -0.68 | |

LIMIT CLAUSE: FCC 47 CFR 90.205

Radio Type: Base Station
 Frequency Band: 400MHz - 440MHz

(n) The output power shall not exceed by more than 20% the manufacturers rated output power for the particular transmitter.



TEST SETUP: See page 39 for test equipment information.

NAME OF TEST: AUDIO FREQUENCY FILTER RESPONSE

TEST CONDITIONS: Ambient temperature 25°C
Relative humidity 40 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.987(a)

GUIDE: TIA/EIA-603 2.2.15

MEASUREMENT PROCEDURE:

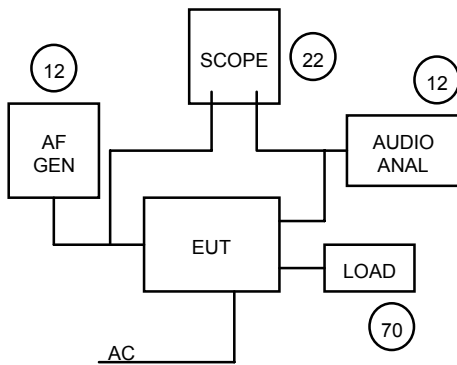
1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The EUT was set up in such a way that the audio input and audio output were connected directly to the audio low pass filter circuitry.
3. A tone of 1000 Hz was set as a reference.
4. The AF applied to the filter was varied, with the level held constant. The filter response in dB was plotted.

MEASUREMENT RESULTS:

See the plot on following page.

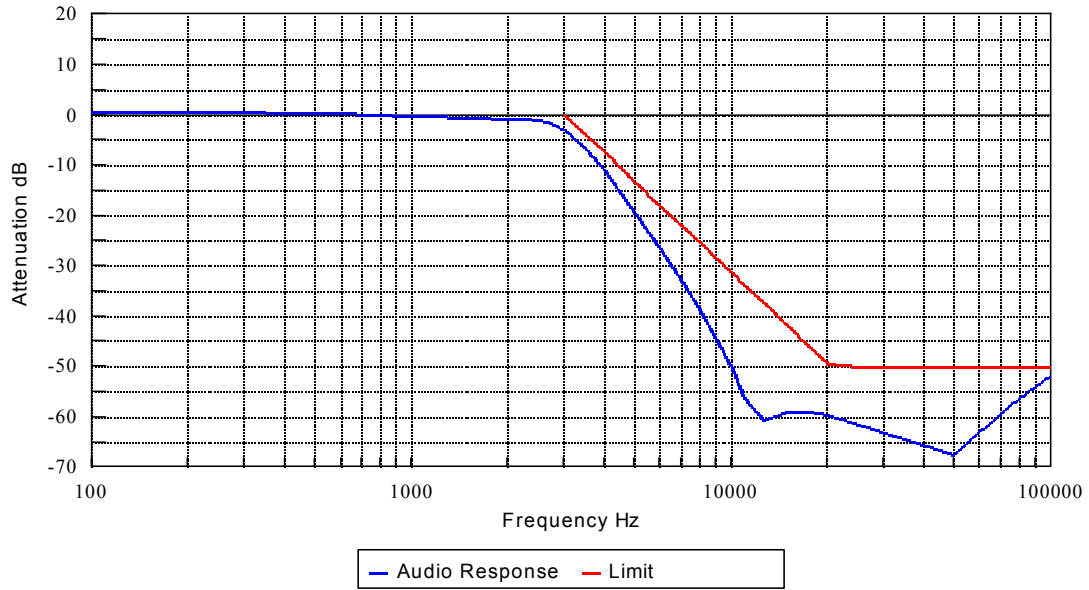
LIMIT CLAUSE: FCC 47 CFR 90.211(a)

TEST SETUP USED: See page 39 for test equipment information.



NAME OF TEST: AUDIO FREQUENCY FILTER RESPONSE

LOW PASS FILTER RESPONSE
CASTEL 0020



SPECIFICATION: FCC 47 CFR 2.987(a)

NAME OF TEST: TRANSMITTER AUDIO FREQUENCY RESPONSE
PRE-EMPHASIS

TEST CONDITIONS: Ambient temperature 19.5°C
Relative humidity 55 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.987 (a)

GUIDE: TIA/EIA-603 2.2.6

MEASUREMENT PROCEDURE:

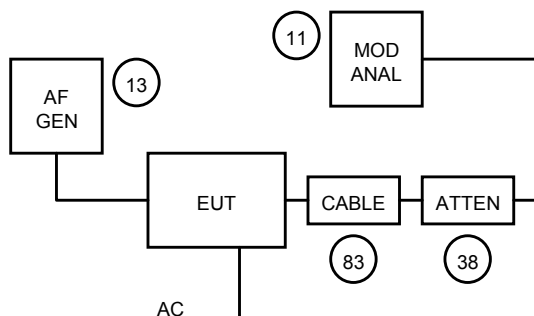
1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. An audio input tone of 1000Hz was applied, the level set to obtain 20% max deviation. This was used as the 0dB reference point.
3. With the input level held constant, the AF frequency was varied.
4. The response in dB relative to 1000Hz was measured.

MEASUREMENT RESULTS:

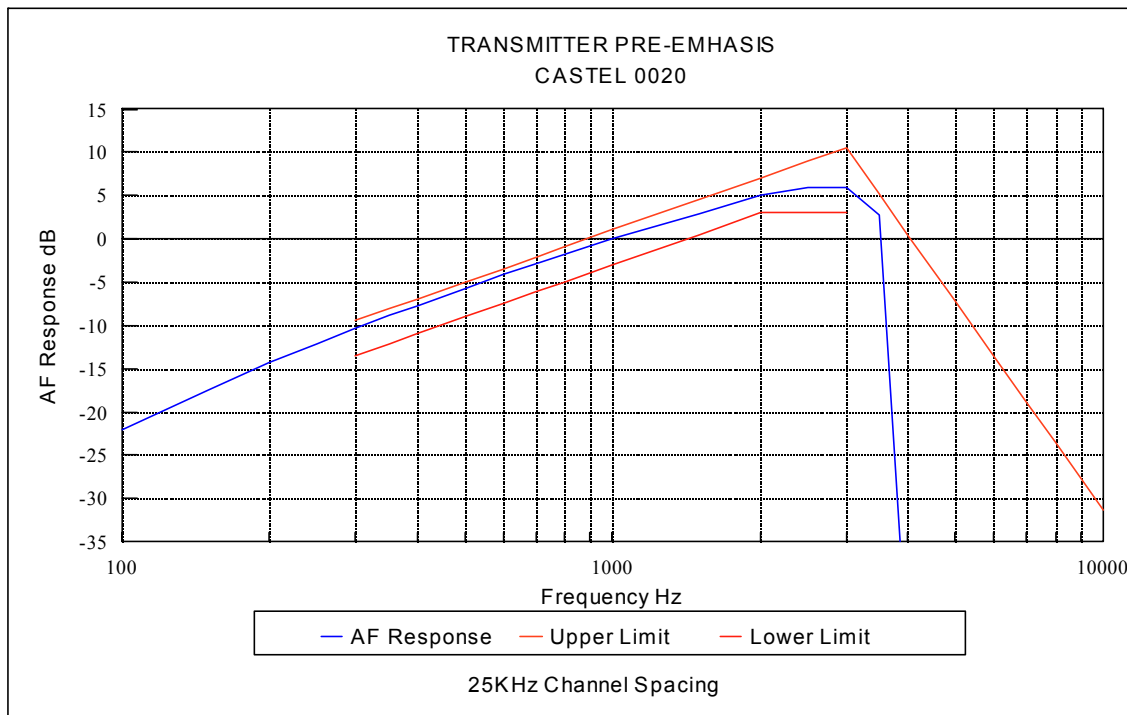
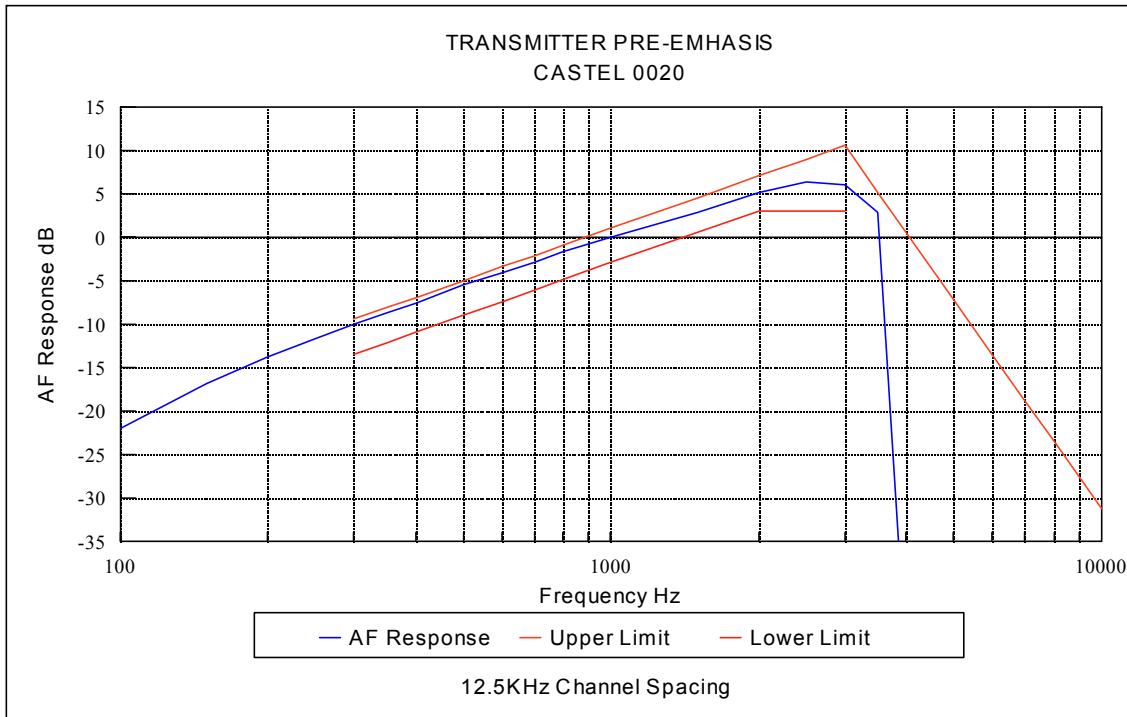
See the plots on following page for both 12.5KHz and 25KHz channel separation.

LIMIT CLAUSE: TIA/EIA-603 4.2.6

TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: TRANSMITTER AUDIO FREQUENCY RESPONSE
PRE-EMPHASIS



SPECIFICATION: FCC 47 CFR 2.987 (a)

NAME OF TEST: TRANSMITTER MODULATION LIMITING

TEST CONDITIONS: Ambient temperature 22°C
Relative humidity 45 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.987

GUIDE: TIA/EIA-603 2.2.3

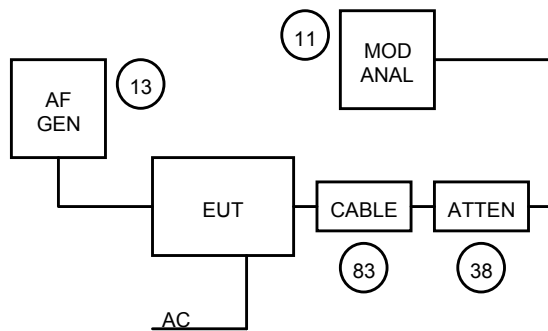
MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The modulation response was measured at three audio frequencies, varying the input level.
3. Measurements were made for both positive and negative deviation.

MEASUREMENT RESULTS:

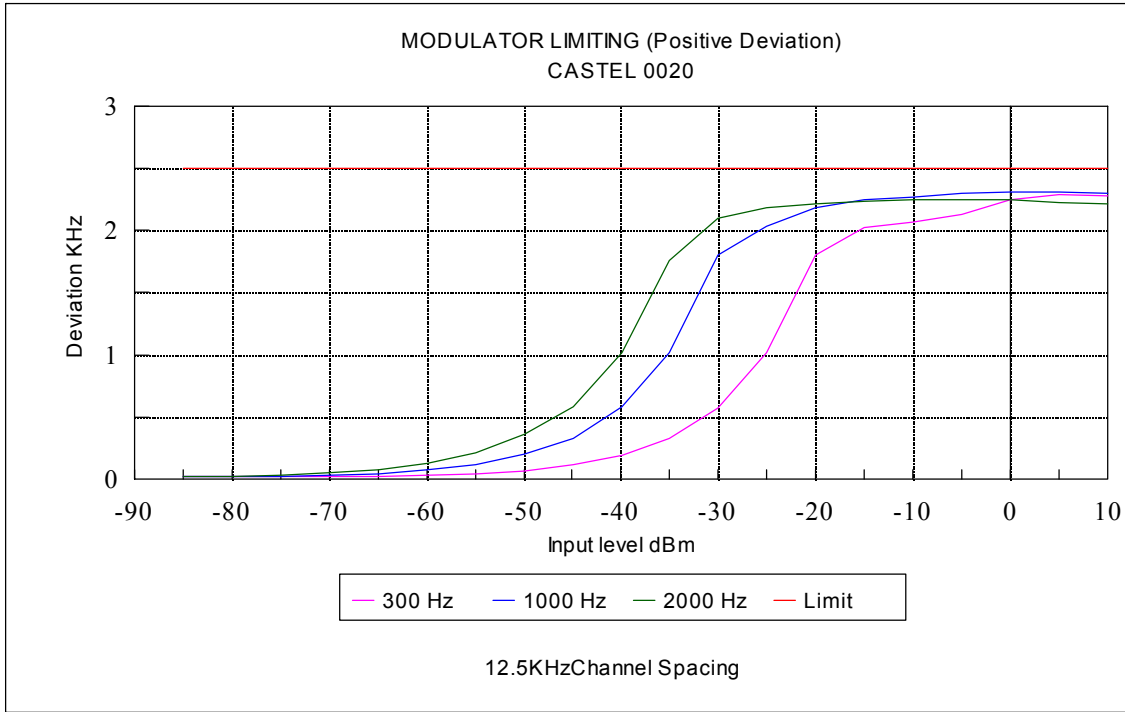
See the plots on following pages for both 12.5KHz and 25KHz channel spacing.

LIMIT CLAUSE: FCC 47 CFR 90.211(a)

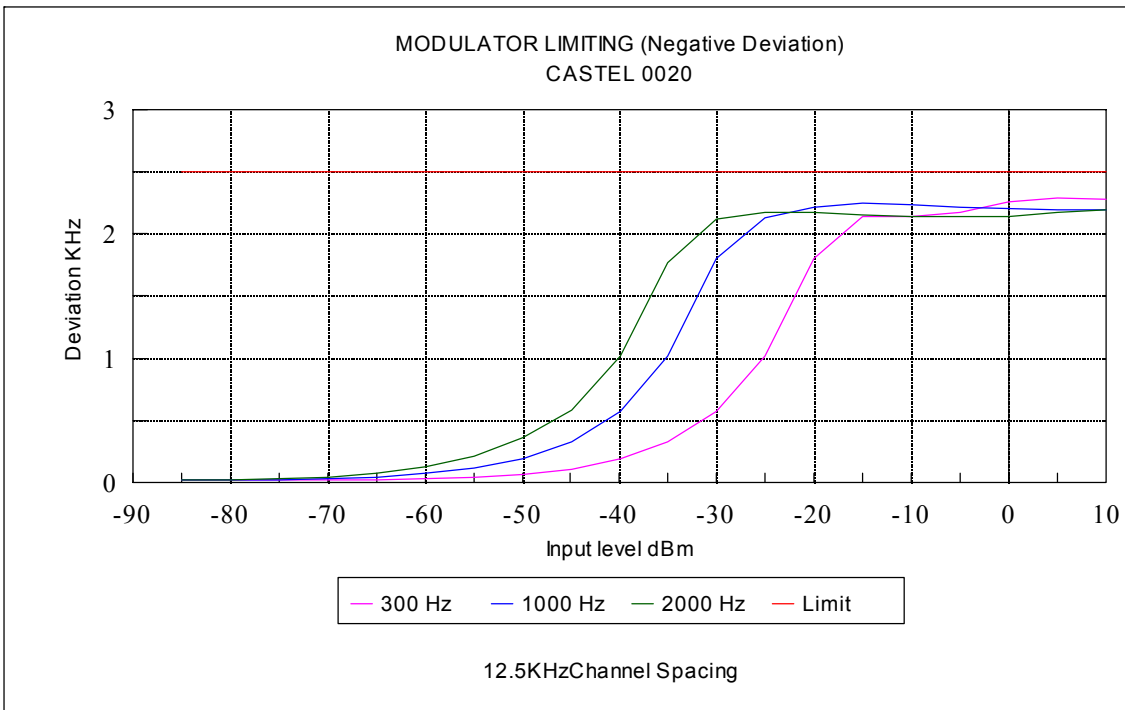


TEST SETUP: See page 39 for test equipment information.

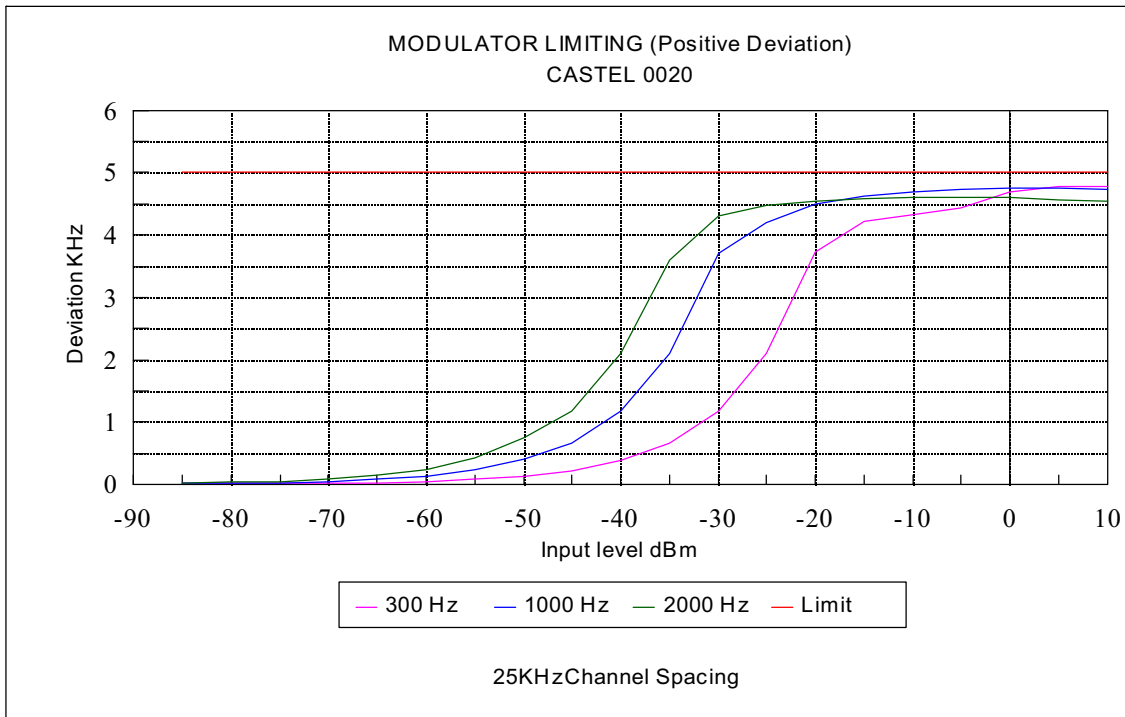
NAME OF TEST: TRANSMITTER MODULATION LIMITING



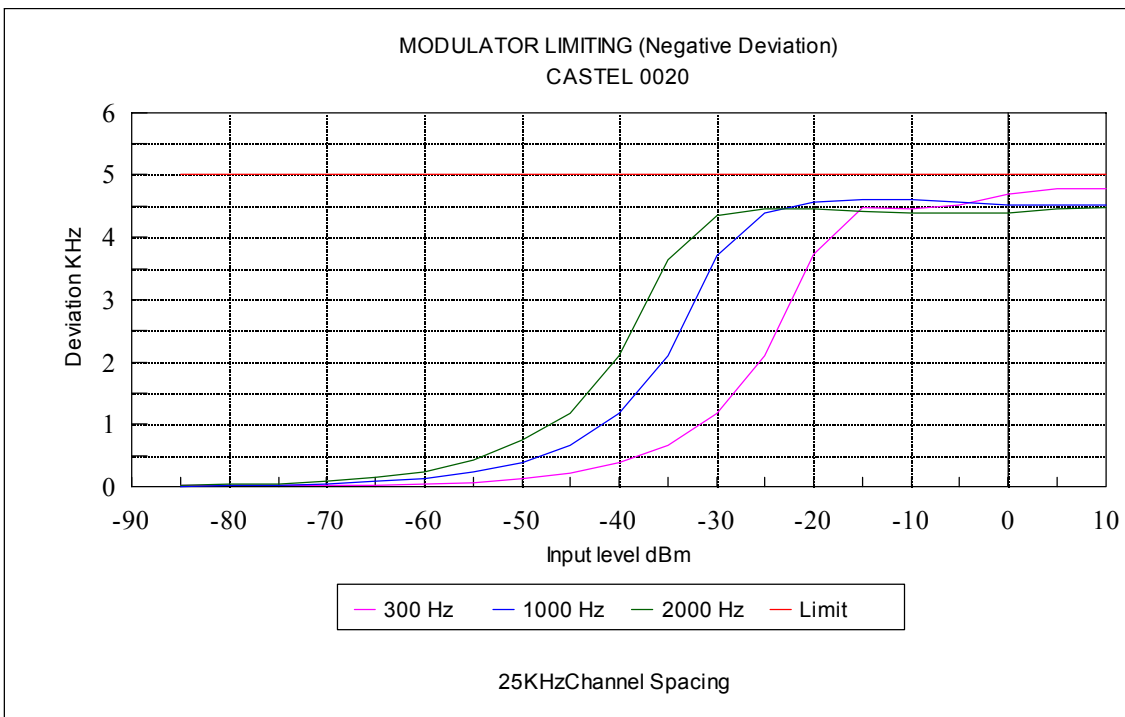
SPECIFICATION: FCC 47 CFR 2.987



NAME OF TEST: TRANSMITTER MODULATION LIMITING



SPECIFICATION: FCC 47 CFR 2.987



NAME OF TEST: TRANSMITTER MODULATION LIMITING
STEADY STATE

TEST CONDITIONS: Ambient temperature 22°C
Relative humidity 45 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.987 (b)

GUIDE: TIA/EIA-603 2.2.3

MEASUREMENT PROCEDURE:

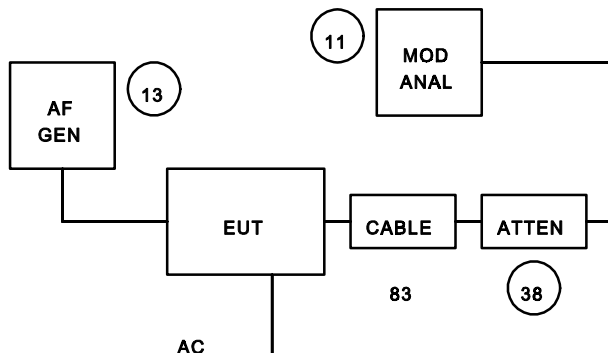
1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The modulation response was measured with the level stepped 20dB above the level required to obtain 60% Deviation at 1000Hz AF.
3. Measurements were made for both positive and negative deviation.

MEASUREMENT RESULTS:

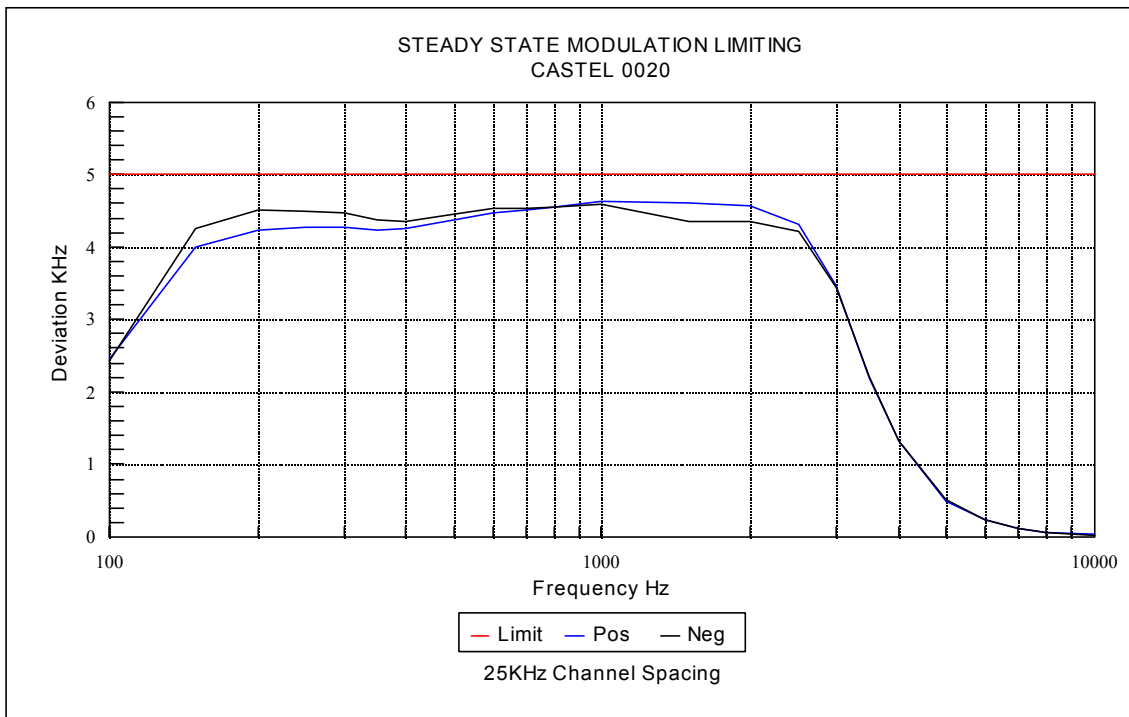
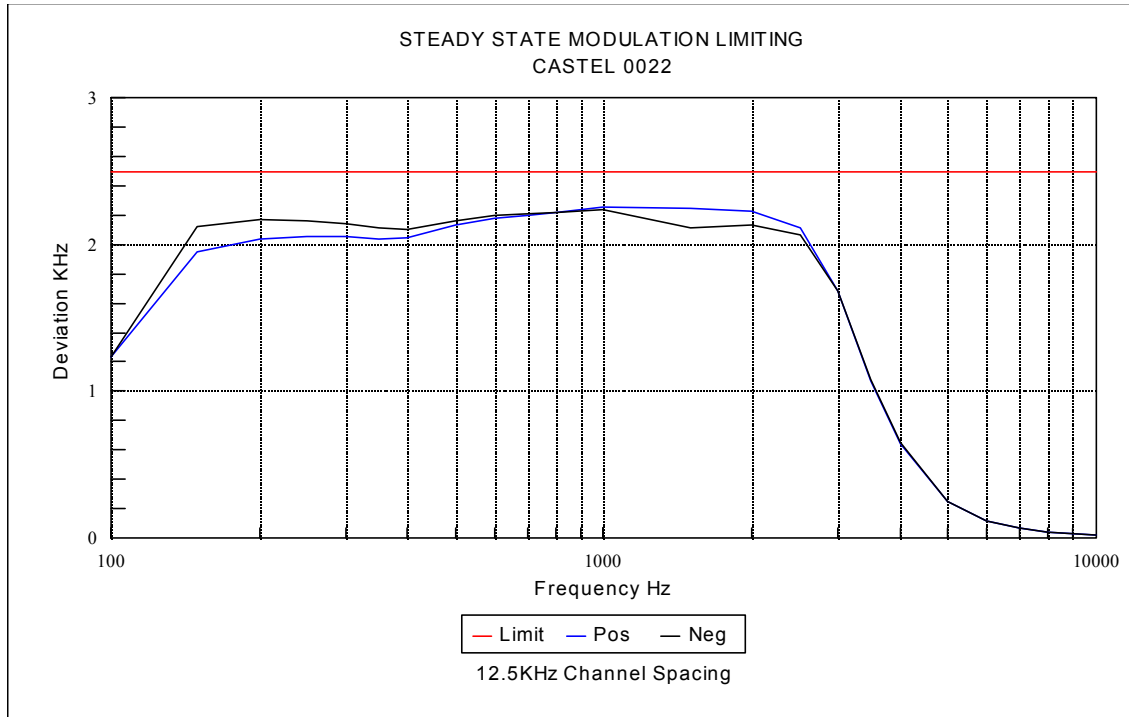
See the plots on following page for both 12.5KHz and 25KHz channel spacing.

LIMIT CLAUSE: FCC 47 CFR 90.211(a)

TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: TRANSMITTER MODULATION LIMITING
STEADY STATE



SPECIFICATION: FCC 47 CFR 2.987 (b)

NAME OF TEST: TRANSMITTER MODULATION LIMITING INSTANTANEOUS

TEST CONDITIONS: Ambient temperature 22°C
Relative humidity 45 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.987 (b)

GUIDE: TIA/EIA-603 2.2.3

MEASUREMENT PROCEDURE:

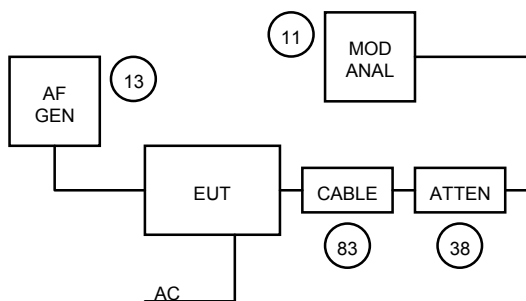
1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The modulation response was measured with the level stepped 20dB above the level required to obtain 60% Deviation at 1000Hz AF.
3. Measurements were made for both positive and negative deviation.

MEASUREMENT RESULTS:

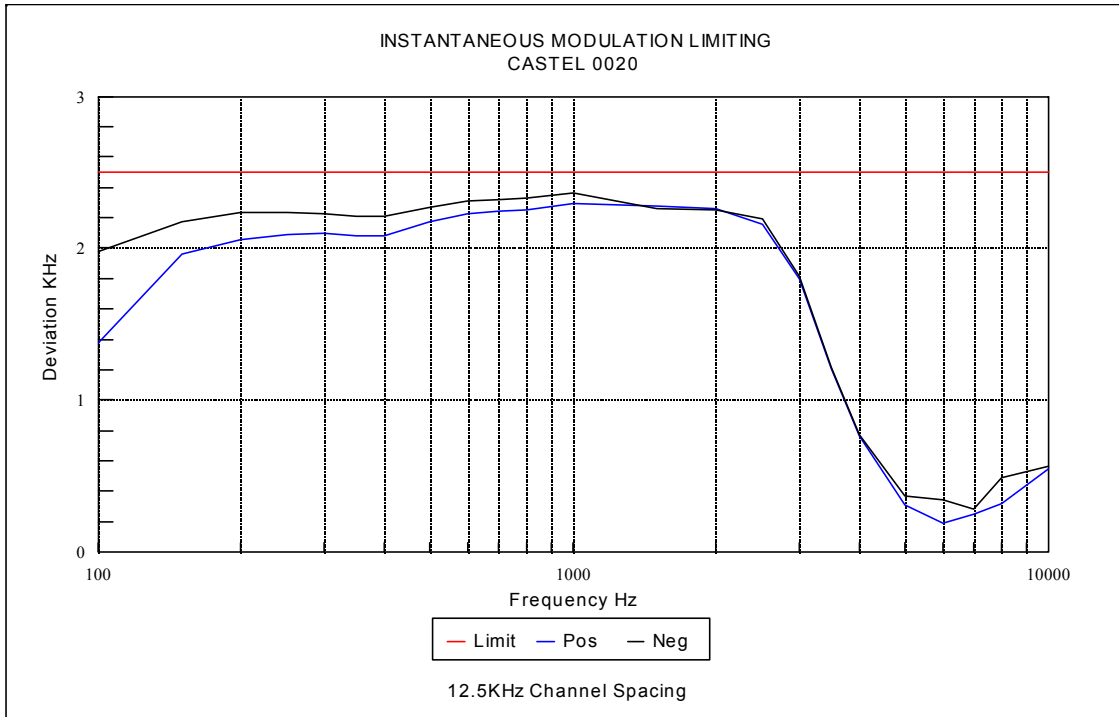
See the plots on following page for both 12.5KHz and 25KHz channel spacing.

LIMIT CLAUSE: FCC 47 CFR 90.211(a)

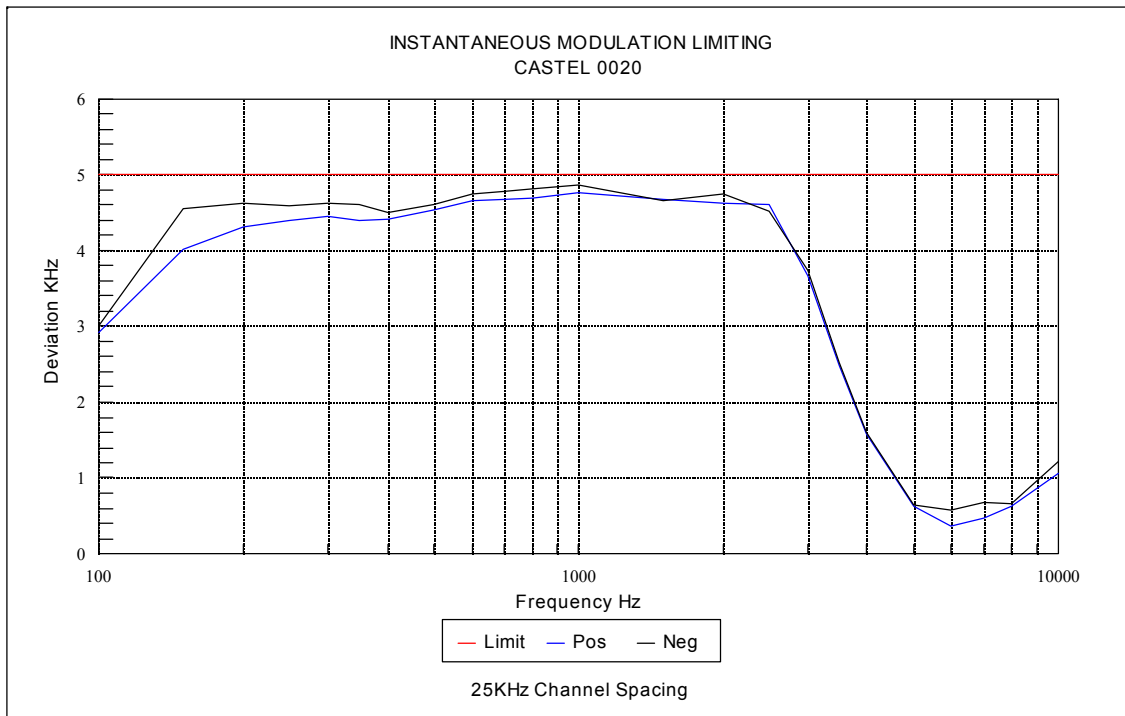
TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: TRANSMITTER MODULATION LIMITING INSTANTANEOUS



SPECIFICATION: FCC 47 CFR 2.987 (b)



NAME OF TEST: OCCUPIED BANDWIDTH

TEST CONDITIONS: Ambient temperature 21°C
Relative humidity 50 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.989(c)

GUIDE: TIA/EIA-603 Para 2.2.11

MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The EUT was modulated by a 2500Hz tone at an input level 16dB above a level that produced 50% deviation.
3. The Occupied Bandwidth was measured on the Spectrum Analyser with the controls set as shown on the following plots.

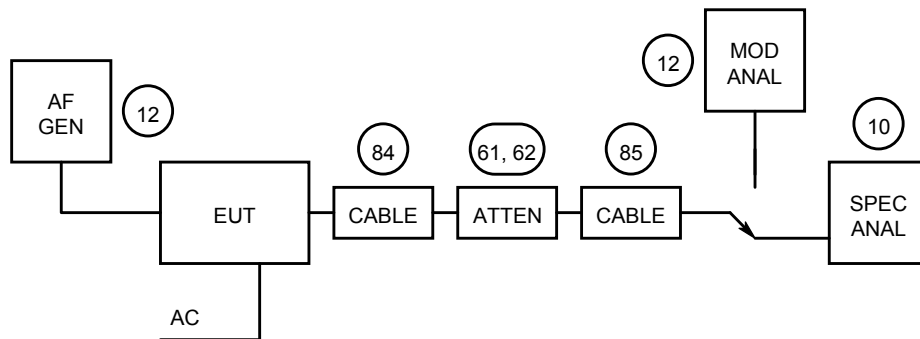
MEASUREMENT RESULTS:

See the plots on following pages for both 12.5KHz and 25KHz channel spacing.

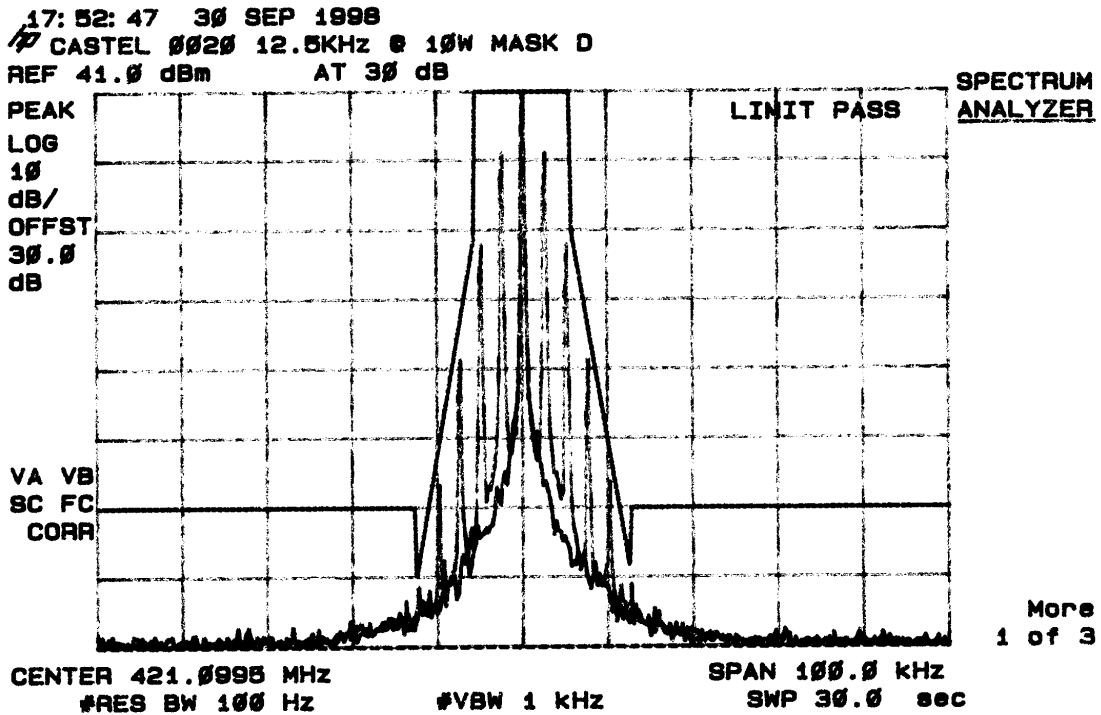
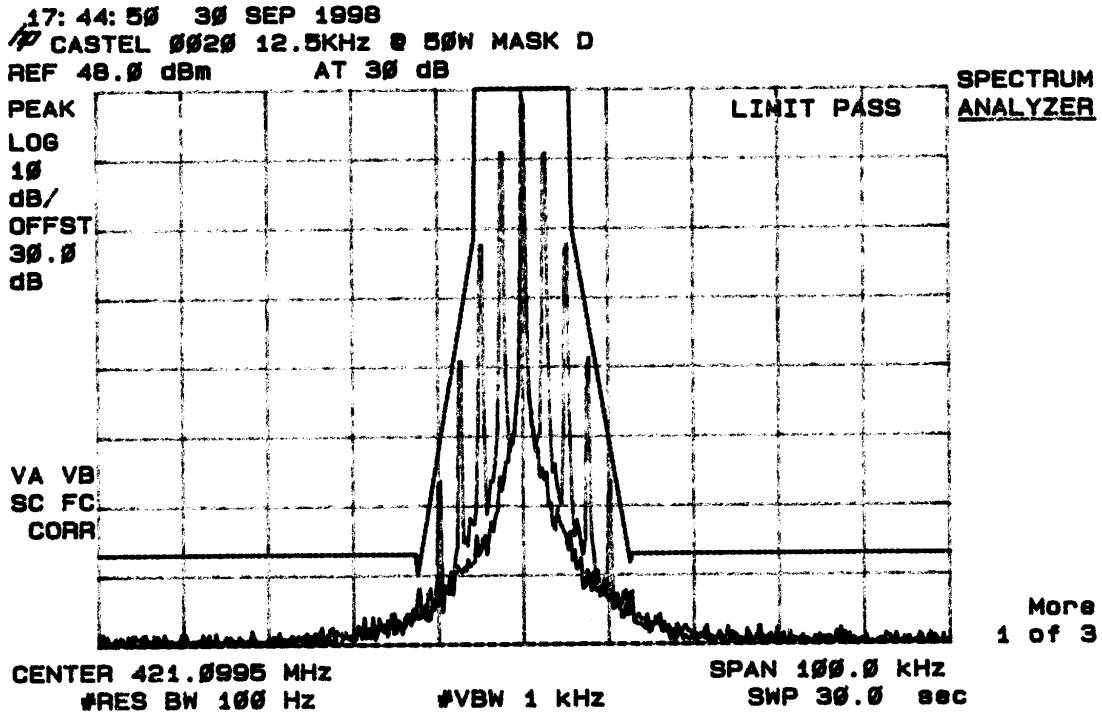
LIMIT CLAUSE: FCC 47 CFR 90.210

Emission Mask "B" 25KHz channel spacing
Emission Mask "D" 12.5KHz channel spacing

TEST SETUP: See page 39 for test equipment information.

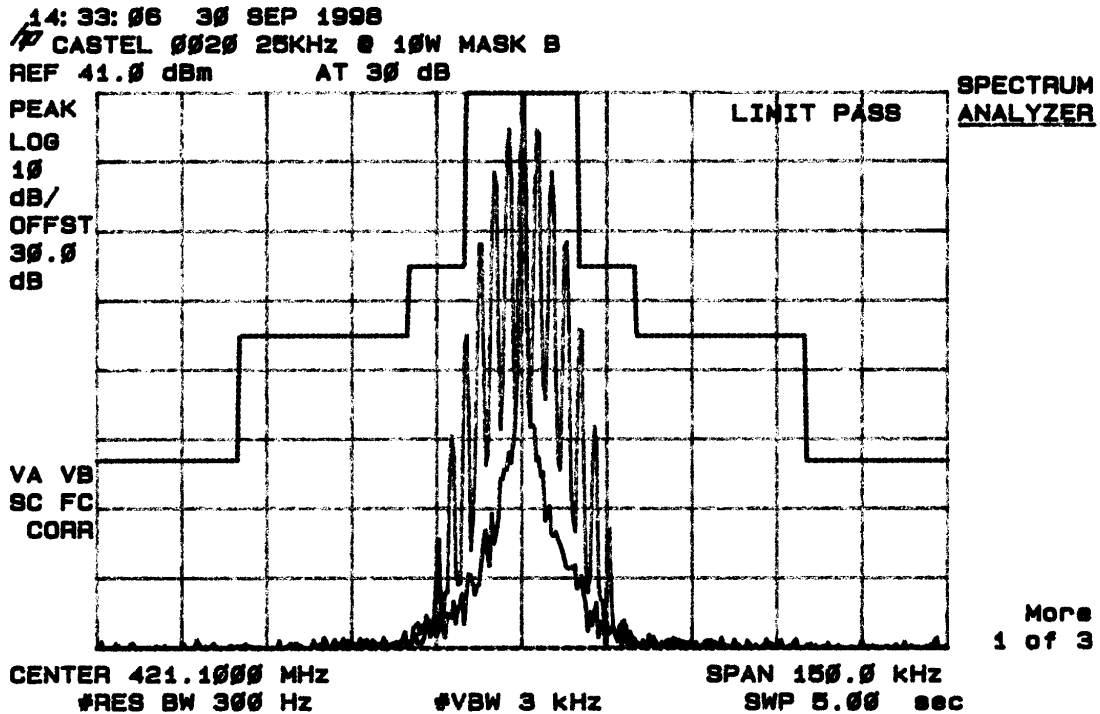
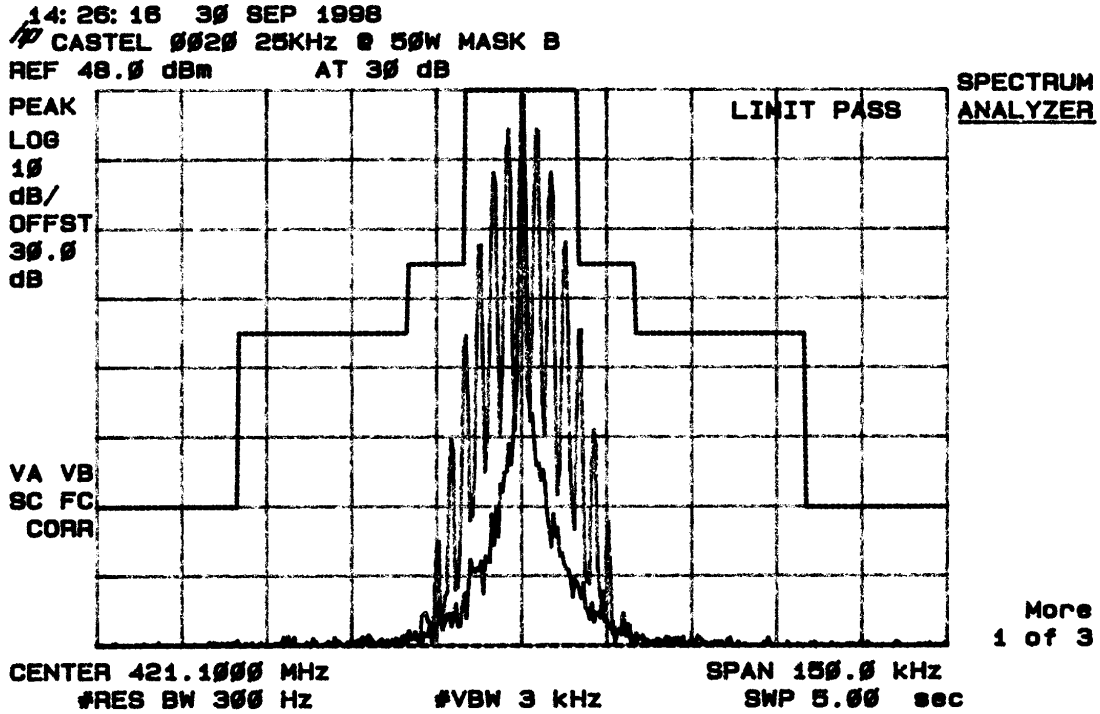


NAME OF TEST: OCCUPIED BANDWIDTH



SPECIFICATION: FCC 47 CFR 2.989(c)

NAME OF TEST: OCCUPIED BANDWIDTH



SPECIFICATION: FCC 47 CFR 2.989(c)

NAME OF TEST: SPURIOUS EMISSIONS (CONDUCTED)

TEST CONDITIONS: Ambient temperature 21°C
Relative humidity 55 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.991

GUIDE: TIA/EIA-603 2.2.13

MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The frequency range examined was from the lowest frequency generated within the EUT to a frequency higher than the 10th harmonic: 100KHz to Fc-BW
Fc+BW to 5GHz
3. Spurious emissions which were attenuated more than 20dB below the limit were not recorded

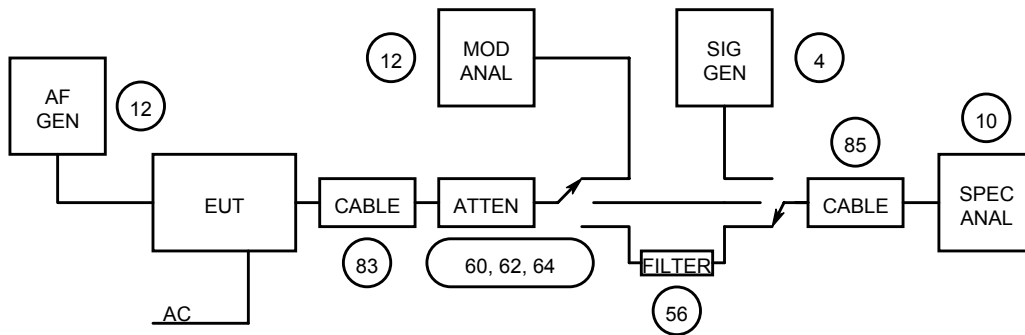
MEASUREMENT RESULTS:

See the tables on following pages for both 12.5KHz and 25KHz channel spacing.

LIMIT CLAUSE: FCC 47 CFR 90.210

See the tables on following pages.

TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: SPURIOUS EMISSIONS (RADIATED)

TEST CONDITIONS: Ambient temperature 23°C
Relative humidity 45 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.993(a)

GUIDE: TIA/EIA-603 2.2.12

MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The EUT was placed on a wooden turntable at a distance of three metres from the test antenna. The output terminal was connected to an RF dummy load.
3. The turntable was rotated through 360° to obtain the maximum response of each spurious emission. Valid emissions were determined by switching the EUT on and off.
4. The EUT was replaced by a signal generator and substitution antenna to make measurements by the substitution method.

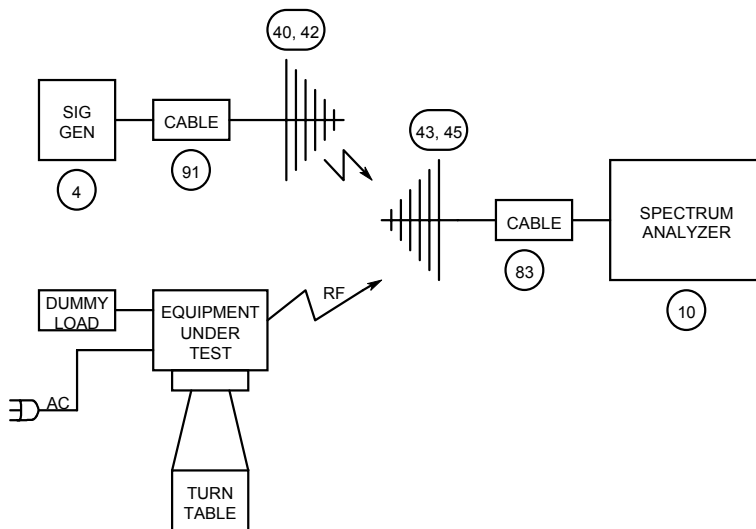
MEASUREMENT RESULTS:

See the tables on following pages for 12.5KHz and 25KHz channel spacing.

LIMIT CLAUSE: FCC 47 CFR 90.210

See the tables on following pages

TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: SPURIOUS EMISSIONS (RADIATED)

SPECIFICATION: FCC 47 CFR 2.993(a)

| 12.5KHz channel spacing | | 421.1MHz @ 50W | Emission Mask "D" |
|--|-----------|----------------|-------------------|
| Emission Freq MHz | Level dBm | Level dBc | |
| 1684.4 | -34.5 | 81.5 | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| No other emissions were detected at a level greater than 20 dB below the limit | | | |

LIMITS:

| Carrier output power P Watts | Emission Mask "D" 12.5KHz channel spacing $50 + \text{Log}_{10}(P_{\text{Watts}})$ | |
|---------------------------------|--|--------|
| 100W | 70dBc | -20dBm |
| 50W | 67dBc | -20dBm |
| 20W | 63dBc | -20dBm |
| 10W | 60dBc | -20dBm |

NAME OF TEST: TRANSMITTER FREQUENCY STABILITY (TEMPERATURE)

TEST CONDITIONS: Ambient temperature 23°C
Relative humidity 45 %
Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.995(a)(1)

GUIDE: TIA/EIA-603 2.2.2

MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The EUT was tested for frequency error from -30°C to -50°C in 10°C increments.
3. The frequency error was recorded in parts per million (PPM)

MEASUREMENT RESULTS:

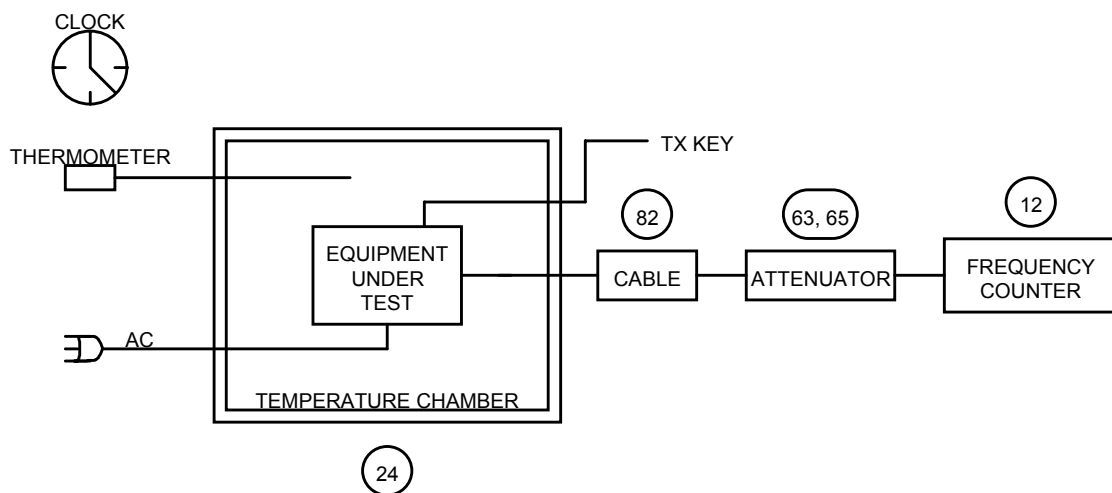
See the plot on the following page.

LIMIT CLAUSE: FCC 47 CFR 90.213

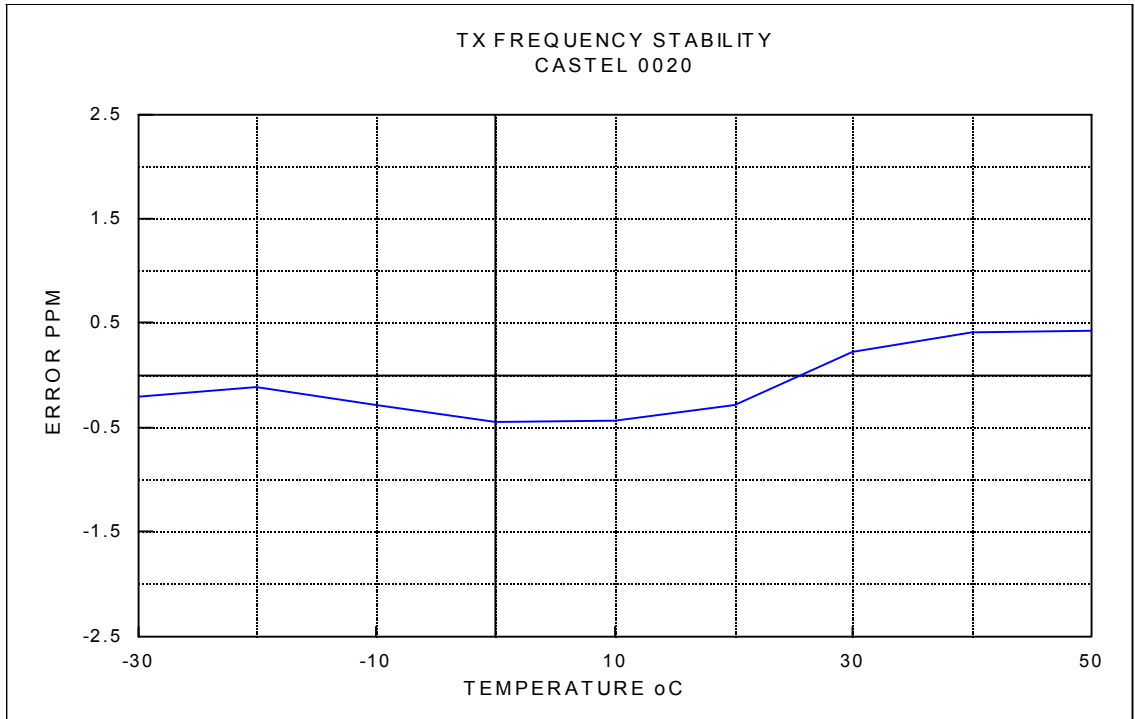
Frequency Range 421MHz to 512MHz

| Channel Spacing (KHz) | Frequency Error (PPM) |
|-----------------------|-----------------------|
| 12.5 | 2.5 |
| 25 | 5 |

TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: TRANSMITTER FREQUENCY STABILITY (TEMPERATURE)



SPECIFICATION: FCC 47 CFR 2.995(a)(1)

NAME OF TEST: TRANSMITTER FREQUENCY STABILITY (VOLTAGE)

TEST CONDITIONS: Ambient temperature 22°C
 Relative humidity 45 %
 Standard Voltage 120VAC

SPECIFICATION: FCC 47 CFR 2.995(b)(1)

GUIDE: TIA/EIA-603 2.2.2

MEASUREMENT PROCEDURE:

1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. The EUT was tested for frequency error at an input voltage to the power supply of 85% to 115%, by means of a Variac.
3. The frequency error was recorded in parts per million (PPM)

MEASUREMENT RESULTS:

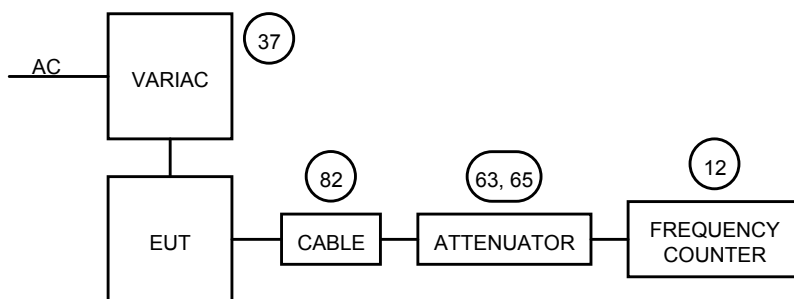
| Channel Spacing (KHz) | Frequency Error (PPM) | | |
|-----------------------|-----------------------|--------|--------|
| | 102VAC | 120VAC | 138VAC |
| 12.5 | 0.12 | 0.12 | 0.12 |
| 25 | 0.12 | 0.12 | 0.12 |

LIMIT CLAUSE: FCC 47 CFR 90.213

Frequency Range 421MHz to 512MHz

| Channel Spacing (KHz) | Frequency Error (PPM) |
|-----------------------|-----------------------|
| 12.5 | 2.5 |
| 25 | 5 |

TEST SETUP: See page 39 for test equipment information.



NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

TEST CONDITIONS: Ambient temperature 25°C
Relative humidity 45 %
Standard Voltage 120VAC

SPECIFICATION: 90.214

GUIDE: TIA/EIA-603 2.2.19

MEASUREMENT PROCEDURE:

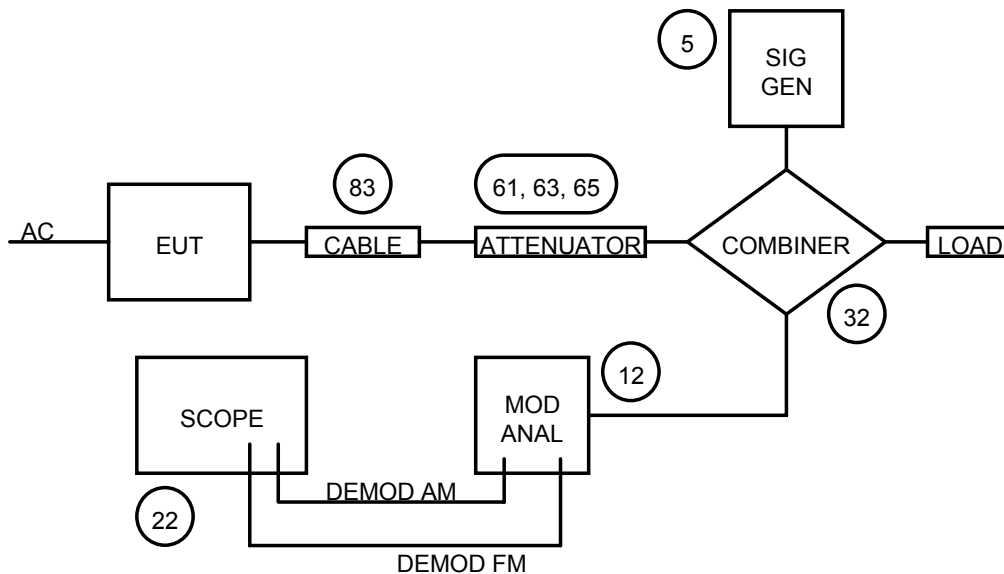
1. The Unit Under Test (EUT) was set up as shown on the following diagram.
2. Measurements and plots were made following the TIA/EIA procedure.

MEASUREMENT RESULTS:

See the tables and plots on the following pages.

LIMIT CLAUSE: FCC 47 CFR 90.214

See the tables on the following pages.



TEST SETUP: See page 39 for test equipment information.

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

12.5KHz CHANNEL SPACING

| FREQUENCY | 421.1MHz @ 50W Tx | |
|--------------------------------------|-------------------------------------|-----------------|
| TRANSIENT RESPONSE PERIOD | CARRIER PEAK VARIATION FROM NOMINAL | |
| | KEY "ON" (KHz) | KEY "OFF" (KHz) |
| t1 | 4.28 | N/A |
| t2 | 0.15 | N/A |
| t3 | N/A | 0.78 |
| t2~t3 | 0.15 | |
| ERROR LIMIT (t2~t3) @2.5PPM (KHz) | 1.05 | |

| | | |
|---|-----|----|
| Confirm that during periods "t1" and "t3" the frequency difference does not exceed the value of one channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" the frequency difference does not exceed half a channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" to "t3" the frequency difference does not exceed the frequency error limit | YES | NO |
| | - | |

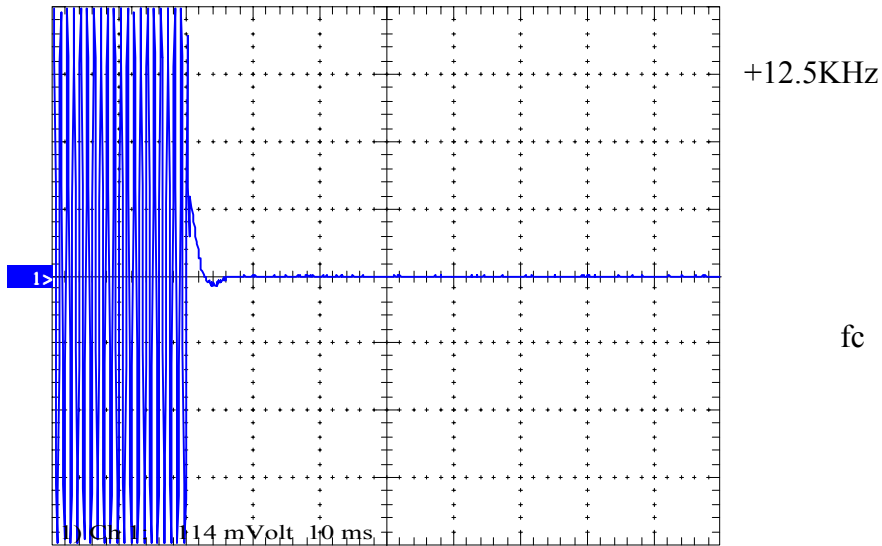
LIMITS: 12.5KHz CHANNEL SPACING

| TRANSIENT PERIODS | MAXIMUM FREQUENCY DIFFERENCE (KHz) | FREQUENCY RANGE 421-512 MHz |
|-------------------|------------------------------------|--------------------------------|
| t1 (mS) | ±12.5 | 10 mS |
| t2 (mS) | ±6.25 | 25 mS |
| t3 (mS) | ±12.5 | 10 mS |

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

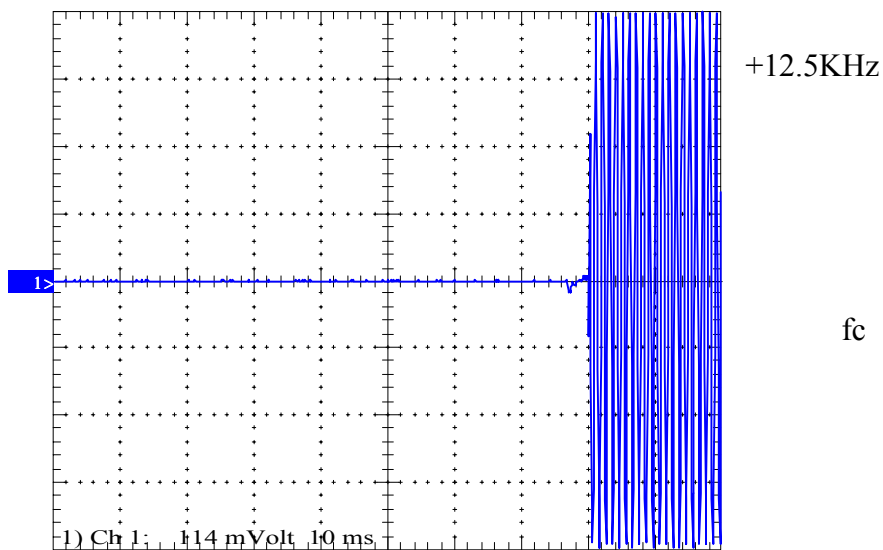
12.5KHz CHANNEL SPACING 50W KEY-ON (Size image H=7.2c w=9.55c)



-12.5KHz

t 10mS/Div

12.5KHz CHANNEL SPACING 50W KEY-OFF



-12.5KHz

t 10mS/Div

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

12.5KHz CHANNEL SPACING

| FREQUENCY | 421.1MHz @ 10W Tx | |
|--------------------------------------|-------------------------------------|-----------------|
| TRANSIENT RESPONSE PERIOD | CARRIER PEAK VARIATION FROM NOMINAL | |
| | KEY "ON" (KHz) | KEY "OFF" (KHz) |
| t1 | 4.22 | N/A |
| t2 | 0.15 | N/A |
| t3 | N/A | 0.93 |
| t2~t3 | 0.15 | |
| ERROR LIMIT (t2~t3) @2.5PPM (KHz) | 1.05 | |

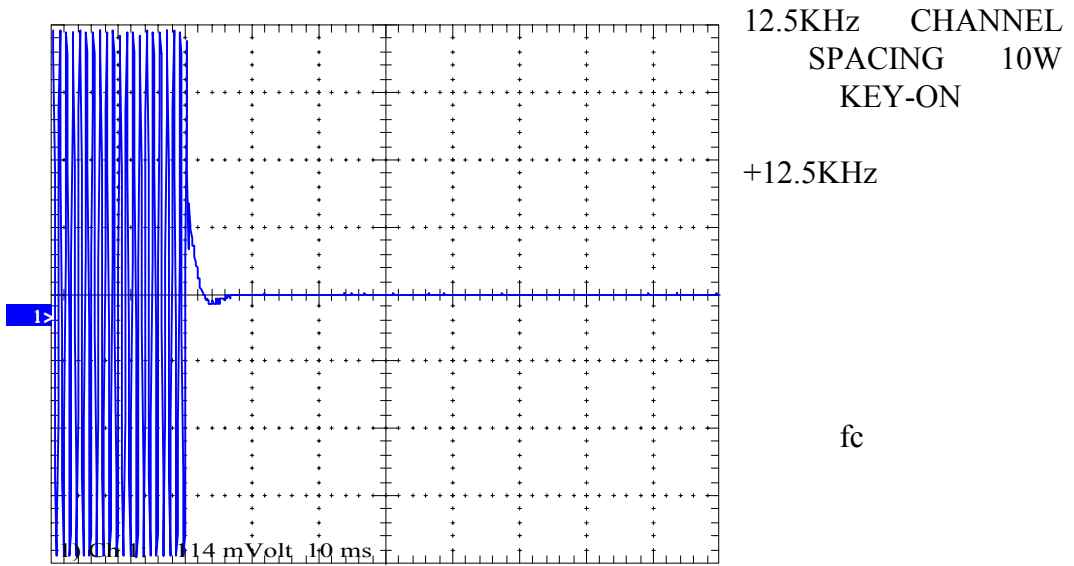
| | | |
|---|-----|----|
| Confirm that during periods "t1" and "t3" the frequency difference does not exceed the value of one channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" the frequency difference does not exceed half a channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" to "t3" the frequency difference does not exceed the frequency error limit | YES | NO |
| | - | |

LIMITS: 12.5KHz CHANNEL SPACING

| TRANSIENT PERIODS | MAXIMUM FREQUENCY DIFFERENCE (KHz) | FREQUENCY RANGE 421-512 MHz |
|-------------------|------------------------------------|--------------------------------|
| t1 (mS) | ±12.5 | 10 mS |
| t2 (mS) | ±6.25 | 25 mS |
| t3 (mS) | ±12.5 | 10 mS |

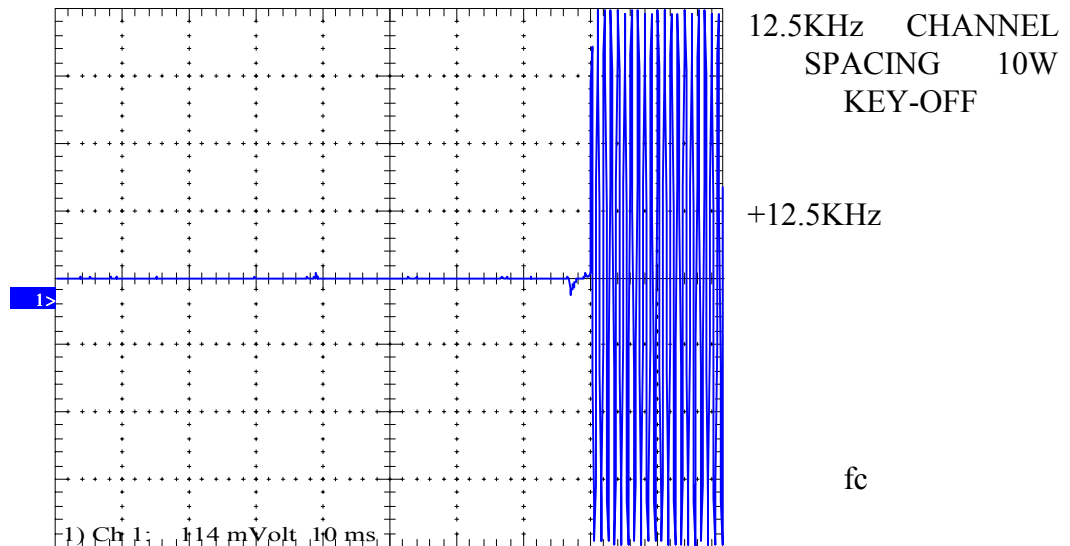
NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214



-12.5KHz

t 10mS/Div



FCC ID: CASTEL 0020

-12.5KHz

t 10mS/Div

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

25KHz CHANNEL SPACING

| FREQUENCY | 421.1MHz @ 50W Tx | |
|------------------------------------|-------------------------------------|-----------------|
| TRANSIENT RESPONSE PERIOD | CARRIER PEAK VARIATION FROM NOMINAL | |
| | KEY "ON" (KHz) | KEY "OFF" (KHz) |
| t1 | 2.02 | N/A |
| t2 | 0.28 | N/A |
| t3 | N/A | 0.45 |
| t2~t3 | 0.28 | |
| ERROR LIMIT (t2~t3) @5PPM (KHz) | 2.10 | |

| | | |
|---|-----|----|
| Confirm that during periods "t1" and "t3" the frequency difference does not exceed the value of one channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" the frequency difference does not exceed half a channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" to "t3" the frequency difference does not exceed the frequency error limit | YES | NO |
| | - | |

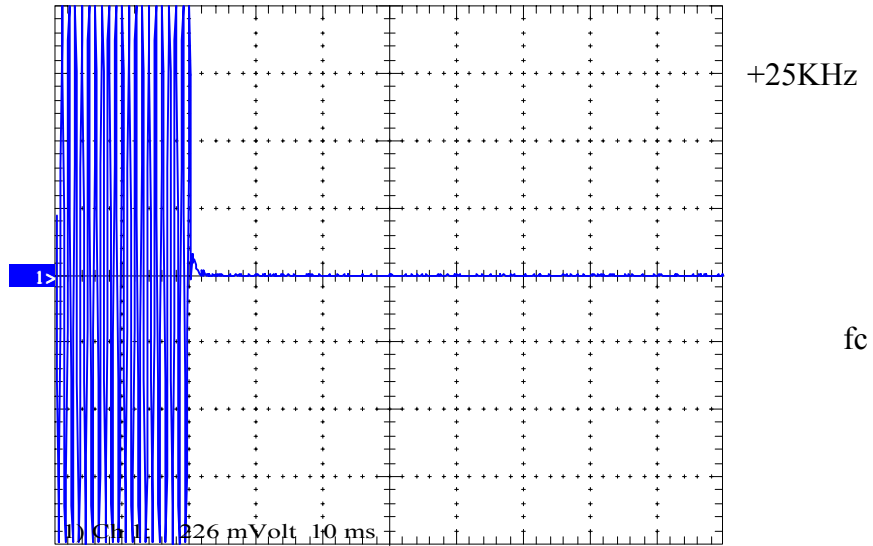
LIMITS: 25KHz CHANNEL SPACING

| TRANSIENT PERIODS | MAXIMUM FREQUENCY DIFFERENCE (KHz) | FREQUENCY RANGE 421-512 MHz |
|-------------------|------------------------------------|--------------------------------|
| t1 (mS) | ±25 | 10 mS |
| t2 (mS) | ±12.5 | 25 mS |
| t3 (mS) | ±25 | 10 mS |

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

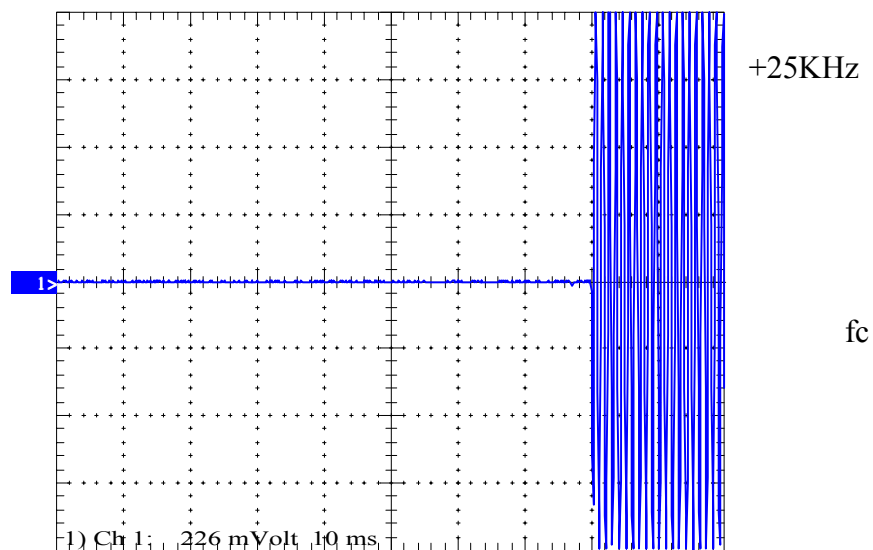
25KHz CHANNEL SPACING 50W KEY-ON



-25KHz

t 10mS/Div

25KHz CHANNEL SPACING 50W KEY-OFF



-25KHz

t 10mS/Div

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

25KHz CHANNEL SPACING

| FREQUENCY | 421.1MHz @ 10W Tx | |
|------------------------------------|-------------------------------------|-----------------|
| TRANSIENT RESPONSE PERIOD | CARRIER PEAK VARIATION FROM NOMINAL | |
| | KEY "ON" (KHz) | KEY "OFF" (KHz) |
| t1 | 1.69 | N/A |
| t2 | 0.28 | N/A |
| t3 | N/A | 0.75 |
| t2~t3 | 0.28 | |
| ERROR LIMIT (t2~t3) @5PPM (KHz) | 2.1 | |

| | | |
|---|-----|----|
| Confirm that during periods "t1" and "t3" the frequency difference does not exceed the value of one channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" the frequency difference does not exceed half a channel separation. | YES | NO |
| | - | |
| Confirm that during the period "t2" to "t3" the frequency difference does not exceed the frequency error limit | YES | NO |
| | - | |

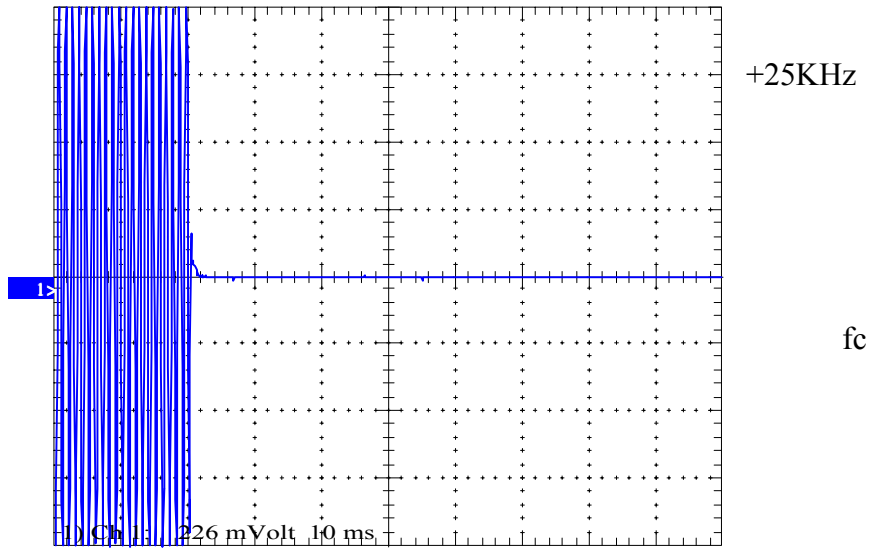
LIMITS: 25KHz CHANNEL SPACING

| TRANSIENT PERIODS | MAXIMUM FREQUENCY DIFFERENCE (KHz) | FREQUENCY RANGE 421-512 MHz |
|-------------------|------------------------------------|--------------------------------|
| t1 (mS) | ±25 | 10 mS |
| t2 (mS) | ±12.5 | 25 mS |
| t3 (mS) | ±25 | 10 mS |

NAME OF TEST: TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: 90.214

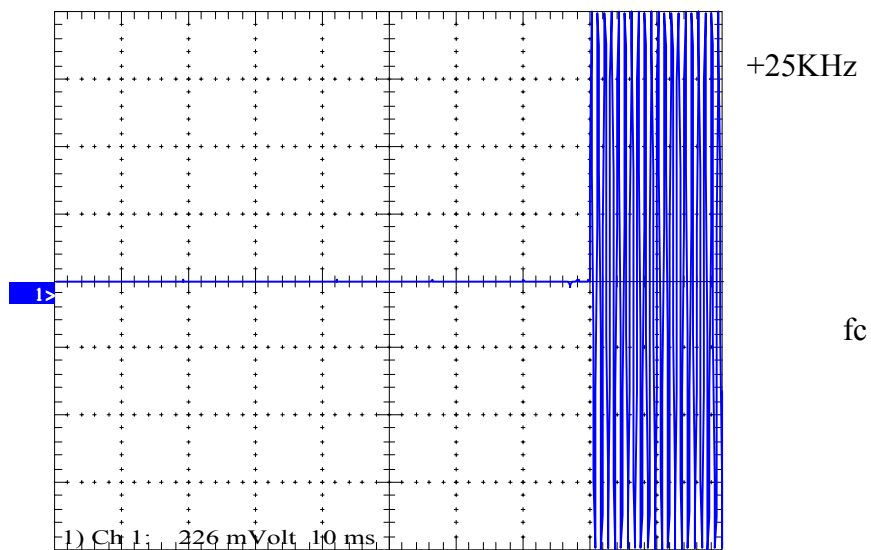
25KHz CHANNEL SPACING 10W KEY-ON



-25KHz

t 10mS/Div

25KHz CHANNEL SPACING 10W KEY-OFF



-25KHz

t 10mS/Div

TEST EQUIPMENT LIST

FCC ID: CASTEL 0020

To facilitate inclusion on each page, the test equipment used is identified (numbered) and listed against the related test in the report.

| No | Equipment Type | Model number | Serial Number | Tait ID: |
|----|-------------------------|------------------------|---------------|----------|
| 01 | Signal Generator | HP 8642B (Opt 001) | 2512A00176 | E3064 |
| 02 | Signal Generator | HP8648A | 3430U00344 | E3579 |
| 03 | Signal Generator | HP8656A | 2142A02103 | E3063 |
| 04 | Signal Generator | HP8648C | 3443U00543 | E3558 |
| 05 | Signal Generator | SMY01 1062.5502.11 | 841736/019 | E3553 |
| 10 | Spectrum Analyser | HP8596E (Opt 140) | 3346A00213 | E3427 |
| 11 | Modulation Analyser | HP8901B (Opt 002) | 2441A00393 | E3073 |
| 12 | Modulation Analyser | FMA 0852.8500.52 | 842541/001 | E3554 |
| 13 | Audio Analyser | HP8903A | 2308A02597 | E3074 |
| 14 | Power Head | HP11722A | 2320A00688 | E3307 |
| 15 | Power Meter | NRVS 1020.1809.02 | 841954/005 | E3555 |
| 16 | Power Sensor | URV5-Z4 395.1619.55 | 841.498/003 | E3557 |
| 20 | Power Supply | HP6032A | 2441A-0041 | E3075 |
| 21 | Power Supply | NGSM32/10 192.0810.31 | Fnr 434 | E3556 |
| 22 | Oscilloscope | Tektronics TDS 340 | B013611 | E3585 |
| 23 | Universal Counter | Goldstar FC-2015U | 600801 | E3550 |
| 24 | Environmental Chamber | Contherm Spatial Cal | E3397 | E3397 |
| 24 | Environmental Chamber | Contherm Temp Control | E3397 | E3397 |
| 25 | Portable Hygromer (ASL) | Rotronic A1 | 2070300/38 | N/A |
| 25 | Whirling Hygromer | Casella 3156 / 82 | TA004 | TA004 |
| 30 | Directional Coupler | HP778D-012 | 1144 07392 | E3292 |
| 31 | 4 Port Combiner (CAST) | DVU4, ¼W 201.4018.03 | 300729/47 | E3623 |
| 32 | 4 Port Combiner | DVU4, ¼W 201.4018.03 | 300971/28 | E3572 |
| 33 | 3 Port Combiner | Weinschel 1506A, 1W | LD858 | E3672 |
| 34 | Mixer Spurious Emission | Tait (3.2G≤ Rfx≤ 4.0G) | E3661 | E3661 |
| 35 | Mixer Transient ACP | Minicircuits ZAD-11 | 77031 | E3394 |

TEST EQUIPMENT LIST (Cont.)

| No | Equipment Type | Model number | Serial Number | Tait ID: | |
|----|------------------------|---------------------|---------------|----------|---|
| 36 | Voltmeter | HP3478A | 2545A25838 | E1559 | |
| 37 | Variact | Yamabishi S-260-5 | TX-533 | E1737 | |
| 38 | RX and TX, RF Paths | Tait CAST Interface | E3067 | E3067 | |
| 40 | Reference Dipoles | Emco 3121C-DB1 | 9510-1164 | E3559 | |
| 41 | Antenna | Biconical | 9307-1680 | E3033 | |
| 42 | Reference Horn Antenna | Emco DRG 3115 | 9512-4638 | E3560 | |
| 43 | Horn Antenna | Emco DRG 3115 | 2084 | E3076 | |
| 44 | Corner 175-420 MHz | Ailtech DM 105A-T2 | J1417-103 | E3031 | |
| 45 | Corner 400-1000 MHz | Ailtech DM 105A-T3 | J1418-108 | E3036 | |
| 46 | S-LINE TEM CELL | 1089.9296.02 | 338232/003 | E3636 | |
| 50 | Amplifier AR 1M-1000M | 25W1000A | 20444 | E3637 | |
| 51 | Amplifier AR 10K-250M | 25A250 | 16373 | E3570 | |
| 52 | Amplifier +21.7 dB | Tait ZFL-1000LN | E3660 | E3360 | |
| 53 | RF Filter 21.4M (CAST) | Tait NDK 21G-6DT | E3069 | E3069 | |
| 54 | RF Filter 21.4M (ACP) | Tait NDK 21G-6DT | RA-7' | E3249 | |
| 55 | Filter Notch | Tait | N/A | ? | |
| 56 | Filter High Pass | Tait | Mhz | N/A | ? |
| 57 | Filter Low Pass | Tait | Mhz | N/A | ? |
| 60 | RF Attenuator 250W | Weinschel 45-30-34 | JW663 | E3386 | |
| 61 | RF Attenuator 150W | Weinschel 40-20-33 | CJ404 | E3387 | |
| 62 | RF Attenuator 150W | Weinschel 57-10-34 | LB590 | E3674 | |
| 63 | RF Attenuator 150W | Weinschel 40-06-34 | KV457 | E3561 | |
| 64 | RF Attenuator 50W | Weinschel 24-10-34 | AL0401 | E3388 | |
| 65 | RF Attenuator 50W | Weinschel 24-20-44 | AW1266 | E3562 | |

TEST EQUIPMENT LIST (Cont.)

| No | Equipment Type | Model number | Serial Number | Tait ID: |
|----|-------------------------|----------------------|---------------|----------|
| 66 | RF Attenuator 25W | Weinschel 33-20-33 | BD5871 | E3673 |
| 67 | RF Attenuator150W(CAST) | Weinschel 40-20-33 | CJ405 | 3366/82 |
| 70 | RF Load 150W | Byrd 8166 | 524 | E3625 |
| 71 | RF Load 50 W | Weinschel F1426 | BF0487 | E3675 |
| 72 | RF Load 50 W | Weinschel F1426 | AE2490 | E3624 |
| 73 | RF Termination 20W | Deltec | 118.001 | E3626 |
| 74 | RF Termination ½ W | MCL NTRM-50 | 951215 | E3574 |
| 75 | RF Termination ½ W | MCL NTRM-50 | 954214 | E3575 |
| 76 | RF Termination ½ W | MCL NTRM-50 | 954214 | E3576 |
| 80 | 20 M Coax Cable | RG214/U 50 (Ext Cal) | CBL01 | E3659 |
| 81 | 2 M Coax Cable | RG213/U 50 (Ext Cal) | CBL02 | E3658 |
| 82 | 3 M Coax Cable (BLUE) | Suhner Sucoflex 104A | 25033 / 4A | E3694 |
| 83 | 1 M Coax Cable (BLUE) | Suhner Sucoflex 104A | 25006 / 4A | E3693 |
| 84 | 1 M Coax Cable (BLUE) | Suhner Sucoflex 104A | 25005 / 4A | E3692 |
| 85 | 1 M Coax Cable (BLUE) | Suhner Sucoflex 104A | 25004 / 4A | E3691 |
| 86 | 1 M Coax Cable (BLUE) | Suhner Sucoflex 104A | 25003 / 4A | E3690 |
| 87 | Audio Analyser | HP8903B | 2818A04275 | E3710 |
| 88 | Spectrum Analyser | HP8562E | 3821A00799 | E3715 |
| 89 | Field Strength Meter | Holiday HI-422 | 95661 | E3630 |
| 90 | Power Supply | HP6012B | 2524A00616 | E3712 |
| 91 | 20 M Coax Cable | RG214/U 50 (Ext Cal) | 3404 | 24/08/99 |
| 92 | LISN | EMCO 3825/2 | 9204-1961 | E3040 |
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