

TEST SET-UP PROCUDURES**Equipment Used for Submitted Data**

Pursuant To FCC Rules 2.999. The calibration of this equipment is performed at regular intervals.

Transmitter Frequency:

HP8901B Modulation Analyzer

Temperature Measurement:

HP8901B Modulation Analyzer

HP8482B Power Sensor and 30dB Attenuator (High Power Attenuator)

DC Voltage and Currents:

HP6623A Power Supply

HP34401A Digital Multimeter

Deviation:

HP8901B Modulation Analyzer

Transmitter Conducted Spurious and Harmonic Emissions:

HP8561B Spectrum Analyzer

MiniCircuit NHP-300 High Pass Filter

Transmitter Occupied Bandwidth:

HP8561A Spectrum Analyzer

Transient Frequency Behavior:

PHILIPS PM3382 Digital Storage Oscilloscope

NADAR Bi-Directional Coaxial Coupler

HP8657A Signal Generator

HP8901B Modulation Analyzer

WAVETEK Negative RF Detector

30dB Attenuator

MEASUREMENT DIV. Combiner

PANASONIC KX-P1124 Printer

Radiated Spurious and Harmonic Emissions:

Hewlett Packard model 8566A spectrum analyzer

Hewlett Packard model 8350B sweep oscillator

Empire Devices DM-105/T3 tuned dipole antenna (400-1000 MHz)

EMCO 3121C-DB4 tuned dipole antenna (400-1000 MHz)

EMCO 3105 ridged W.G. antennas (1-12.4 GHz)

Bird model 8130 50 Ω , 50-Watt load

TEST SET-UP PROCUDURES

Measurement Procedures Used for Submitted Data

1) RF Power Vs. DC Power Input (FCC Rules Part 2.993)

The transmitter is operated under normal conditions at the specified nominal DC input voltage. The antenna output is terminated in 50 ohms. The DC supply path to the final stage only is interrupted to allow insertion of the DC ammeter in series with the DC supply. The DC voltage drop of the ammeter is negligible. A DC voltmeter is computed as the product of the DC current (in amps) times the DC voltage (in volts). This measurement is performed at the upper and lower limits of the frequency range. At each frequency, the measurement is performed at the upper and lower limits of the specified adjustable power range.

2) Transmitter Audio Frequency Response (FCC Rules Part 2.987(a))

The transmitter output is monitored with an HP8901B Modulation Analyzer, whose FM demodulator output is fed to an HP8903B Audio Analyzer. De-emphasis or filtering within the test equipment is not used. An audio oscillator signal, derived from the HP8903B Audio Analyzer, is connected to the microphone audio input of the transmitter. At a frequency of 1 kHz, the level is adjusted to obtain 20% of full system deviation, to ensure that limiting does not occur at any frequency in the range of 300 - 3000 Hz. A constant input level is then maintained and the oscillator frequency is varied between the range of 100 Hz to 3000 Hz. The frequency response is plotted, using a reference of 0 dB at 1 kHz. The audio oscillator signal is then increase to a level 20 dB greater than that required for standard test modulation at 1 kHz. The oscillator frequency is varied from 3 kHz to at least 30 kHz. The frequency response is plotted, using a reference of 0 dB at 1 kHz.

FCC Limits:

Minimum Standard - The audio frequency response shall not vary more than +1 or -3 dB from 300 to 3000 Hz as referenced to 1000 Hz level (with the exception of a permissible 6 dB/octave roll off from 2500 to 3000 Hz).

3) Transmitter Audio Post - Limiter Low Pass Filter Response (FCC Rules Part 2.987(a))

Operate the transmitter under standard test conditions and monitor the output with a modulation or calibrated test receiver. Adjust the audio input frequency to 1000 Hz and the input level to 20 dB greater than that required to produce standard test modulation. Note the output level on the frequency deviation meter or calibrated test receiver. Use this output level as a reference (0 dB), vary the modulating frequency from 1000 Hz to 30000 Hz and observe the change in output while maintaining a constant input level.

FCC Limits -- Per Applicable Rule Parts

Frequencies between 3kHz and 15kHz shall be attenuated greater than the attenuation at 1kHz by $40 \log_{10}(f/3)$ dB. Frequencies above 15kHz shall be attenuated 28 dB.

4) Modulation Limiting Characteristic (FCC Rules Part 2.987(a))

An audio oscillator is connected to the microphone audio input. The transmitter output is monitored with an HP8901B modulation analyzer, whose non-de-emphasized FM demodulator output is fed to an HP8903B audio analyzer. The modulation analyzer's 20 kHz low pass filter is used to reduce the level of residual high frequency noise. The oscillator level is adjusted, at 1 kHz, to obtain 60% of full system deviation. The oscillator level is then varied over a range of +/- 25 dB in 5 dB increments and the resulting deviation is plotted. This measurement is repeated at 300 Hz and 3 kHz. The above procedure is performed three times, for conditions with and without TPL and DPL (continuous sub audible signaling formats).

FCC Limits:

Minimum Standard - The transmitter modulation must not exceed rated system deviation at any frequency input or reasonable change in input level.

TEST SET-UP PROCUDURES

Measurement Procedures Used for Submitted Data

5) Occupied Bandwidth (FCC Rules Part 2.989)

Procedure for Occupied Bandwidth for Voice Transmission.

An audio oscillator is connected to the microphone input. The frequency is set to 2500 Hz and the amplitude is adjusted to a level 16 dB above that required to produce 50% of full system deviation at the frequency of maximum response of the audio modulating circuit, in accordance with FCC rules Part 2.989(a)(1). The transmitter output is connected, via a suitable attenuator, to an HP8568A spectrum analyzer. Spectrum analysis of the transmitter output is performed to at least +/- 2.5 times the channel spacing, first of the unmodulated carrier to establish a 0 dB reference, then with the modulated signal applied. This measurement is repeated with TPL continuous sub audible signaling added (250.3 Hz at 15% full system deviation) and again with DPL (code 131 at 15% of full system deviation). These measurements are then repeated for all types of signaling or data transmission that are not used simultaneously with voice. In these cases, the signaling or data modulation replaces the 2500 Hz tone modulation. The measurement is performed separately for conditions with TPL, DPL and without sub audible signaling.

Procedure for Occupied Bandwidth for Data Transmission.

An audio function generator capable of voltage control of frequency is connected to the Flat (non pre-emphasized) Transmit Audio Input of the transmitter under test. A second function generator producing a square wave output at a frequency of 1200 Hz is connected to the voltage control input of the first generator. The first generator is set to produce a sine wave signal at a center frequency of 2500 Hz, and the amplitude of the square wave from the second generator is adjusted so that the frequency of the first generator is varied ± 500 Hz. The resulting output of the first generator is an AFSK sine wave signal that shifts between two discrete frequencies, 2000 Hz and 3000 Hz, at a rate of 1200 Hz. The amplitude of the first generator, which modulates the transmitter, is adjusted for full system deviation.

The transmitter output is connected, via a suitable attenuator, to an HP8593A Spectrum Analyzer that outputs to an HP7470A plotter. Spectrum analysis of the transmitter output is performed to at least ± 2.5 times the channel spacing. The unmodulated carrier is used to establish a 0-dB reference, and then the modulating signal is applied. This measurement is repeated with Tone Private Line continuous sub audible signaling added (250.3 Hz at 15% full system deviation) and again with Digital Private Line (code 131 at 15% of full system deviation). In each case, the amplitude of the modulating signal is adjusted so that the total deviation level, including the TPL or DPL modulation, is the full system deviation.

FCC Limits -- Per 90.210 (a) (1), (2), (3)

Emission Mask B – 25kHz channel bandwidth. For Transmitters that is equipped with an audio low-pass filter.

Measured Data:

- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
- (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
- (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized Bandwidth: At least $43 + 10 \log_{10}(P)$ dB.

Emission Mask D - 12.5kHz channel bandwidth. For Transmitters that designed to operate with 12.5KHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

Measured Data:

- (1) On any frequency from the center of the authorized bandwidth f_o to 5.625kHz removed from f_o : Zero dB.
- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.625 kHz but no more than 12.5kHz. At least $7.27 (f_d - 2.88\text{kHz})$ dB.
- (3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5kHz: At least $50 + 10 \log_{10}(P)$ dB or 70 dB, whichever is the lesser attenuation.

TEST SET-UP PROCUDURES

Measurement Procedures Used for Submitted Data

6) Conducted Spurious Emissions (FCC rules Part 2.991)

The output of the transmitter is connected, via a suitable attenuator, to the input of an HP8561B spectrum analyzer. After a carrier reference level has been established, a tunable notch filter is inserted between the attenuator and the spectrum analyzer to allow suppression of the carrier level. The effect of the notch filter on other frequencies, if any, is plotted. This data is measured at the upper and lower frequency limits of the frequency range. If transmit power is adjusted, the measurement is repeated at various power levels including minimum and maximum.

FCC Limits -- Per Applicable Rule Parts

Conducted spurious emissions shall be attenuated below the maximum level of emission of the carrier frequency in accordance

with the following formula:

For 25KHz. Channel Bandwidth:

Spurious attenuation in dB = $43 + 10 \log_{10}$ (Power output in watts)

For 12.5KHz. Channel Bandwidth:

Spurious attenuation in dB = $50 + 10 \log_{10}$ (Power output in watt)

7) Radiated Spurious Emissions (FCC Rules Part 2.993)

Transmitter radiated spurious emissions were measured by Elite Electronic Engineering Company, 1516 Centre Circle, Downers Grove, Illinois 60515. Measurements were made at an approved open field test site constructed in accordance with Appendix B, FCC/OST 55 (1982), and were performed in accordance with the Code of Federal Regulations, Title 47, Part 2, paragraph 2.993.

Radiated Spurious and Harmonic Emissions were performed by:

Motorola Plantation EMC Lab. USA
FCC Registration : 91932

FCC Limits -- Per Applicable Rule Parts

Radiated Spurious emissions shall be attenuated below the maximum level of the emission of the carrier frequency in accordance with the following formula:

For 25KHz channel bandwidth:

Spurious attenuation in dB = $43 + 10 \log_{10}$ (Power output in watts)

For 12.5KHz channel bandwidth:

Spurious attenuation in dB = $50 + 10 \log_{10}$ (Power output in watts)

8) Frequency Stability Vs Temperature (FCC Rules Part 2.995)

This data was measured in accordance with FCC Rules Part 2.995 (a)(1). An HP8901B modulation analyzer is used as a reference for frequency measurements. The Tenney Jr. Chamber is used for temperature measurements of the environmental.

FCC Limits -- Per 90.213 and Applicable Rule Parts

Temperature - Frequency Stability of +/- .0005% from -30 to +60 degrees centigrade (-20 to +50 degrees centigrade Maritime parts 81 & 83).

TEST SET-UP PROCUDURES

Measurement Procedures Used for Submitted Data

9) Frequency Stability Vs. Voltage (FCC Rules Part 2.995)

This data measured in accordance with FCC Rules Part 2.995 (d). An HP8901B is used as a reference for frequency measurements.

FCC Limits -- Per 90.213 and Applicable Rule Parts

Power Supply Voltage - Frequency Stability of +/- .0005% from 85% to 115% of nominal voltage. (See CRF Rule Part 90.213)

10) Transient Frequency Behavior (FCC Rules Part 90.214)

This data measured in accordance with FCC Rules. Applicable method of measurement and definition in Section 2.2.19 of the TIA/EIA 603. Specifically, the triggering level was set in the following manner.

- 1) The radio (11W) was keyed into a HP438A Power Meter in order to set -10 dBm level. This level is 40 dB lower than the maximum input level of the HP8901B.
- 2) A HP8657A Signal Generator modulated with a 1 kHz tone and (12.5 kHz or 25 kHz) of deviation was then input to the Power Meter and the output adjusted to achieve a -10 dBm level. This level was then lowered by 20 dB, and maintained for the balance of the testing.
- 3) The 30 dB attenuator was then removed from the radio output path, thus creating a 40 dB difference between the Generator level and the transmitter level.

All other measurements were completed per the procedure outlined in part 2.2.19 of TIA/EIA-603 and the results saved and plotted.

FCC Limits -- Per Applicable Rule Parts

During the period t_1 and t_3 the frequency difference shall not exceed +/- 25kHz.

During the period t_2 the frequency difference shall not exceed +/- 12.5kHz.

If the transmitter carrier output power rating is 6 Watts or less, the frequency deviation during t_1 and t_3 may be greater than +/- 25kHz. The corresponding plot of frequency versus time during t_1 and t_3 shall be recorded in the test data.

TEST SET-UP PROCUDURES**Emission Designator Information**

Emission Designator for equipment: **AZ492FT4859**

Employing Carsons rule for the FM modulation, the required bandwidth for 5 and 2.5 kHz deviation systems is as follows.

i) For a 5 KHz Deviation System

$$BW = 2(M+D) = 2(3 + 5) = 2(8) = 16 \text{ kHz.}$$

Emission Designator 16K0F3E (Voice)

ii) For a 2.5 KHz Deviation System

$$BW = 2(M+D) = 2(3 + 2.5) = 2(5.5) = 11 \text{ kHz.}$$

Emission Designator 11K0F3E (Voice)

SUBMITTED MEASURED DATA AND METHOD OF MEASUREMENT

	MEASUREMENT	EXHIBIT	NUMBER OF PAGES
I	RF Power Output	6A	1
II	Audio Response	6B	2
III	Low Pass Filter Response	6C	2
IV	Modulation Limiting	6D	6
V	Occupied Bandwidth	6E	18
V1	Conducted Spurious Emissions	6F	18
VII	Radiated Spurious Emissions	6G	8
VIII	Frequency Stability		
	A. Temperature	6H	1
	B. Supply Voltage	6I	1
IX	Transient Frequency Behavior	6J	4

RF Power Output - Measured Data

The supply voltage to the transmitter was set to 13.6 volts DC. The RF output power was measured with the indicated voltage and current applied into the final RF amplifying device.

RF POWER OUTPUT 48W, FREQUENCY 450.100 MHz..

Measured RF Output Power : 48.0 WATTS
Measured DC Voltage : 13.19 VOLTS
Measured DC Current : 8.48 AMP
Measured DC Input Power : 111.85WATTS

RF POWER OUTPUT 48W, FREQUENCY 481.100 MHz..

Measured RF Output Power : 48.0 WATTS
Measured DC Voltage : 13.18VOLTS
Measured DC Current : 8.21 AMP
Measured DC Input Power : 108.21WATTS

RF POWER OUTPUT 48W, FREQUENCY 511.900 MHz..

Measured RF Output Power : 48.0 WATTS
Measured DC Voltage : 13.19 VOLTS
Measured DC Current : 7.76 AMP
Measured DC Input Power : 102.35WATTS

RF POWER OUTPUT 25W, FREQUENCY 450.100 MHz..

Measured RF Output Power : 25.1 WATTS
Measured DC Voltage : 13.33 VOLTS
Measured DC Current : 5.11 AMP
Measured DC Input Power : 68.12 WATTS

RF POWER OUTPUT 25W, FREQUENCY 481.100 MHz..

Measured RF Output Power : 25.6 WATTS
Measured DC Voltage : 13.4 VOLTS
Measured DC Current : 5.4 AMP
Measured DC Input Power : 72.36 WATTS

RF POWER OUTPUT 25W, FREQUENCY 511.900 MHz..

Measured RF Output Power: 25.4 WATTS
Measured DC Voltage: 13.36 VOLTS
Measured DC Current: 5.19 AMP
Measured DC Input Power: 69.34WATTS

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TRANSMITTER AUDIO RESPONSE CHARACTERISTIC
MODULATION LEVEL vs. AUDIO FREQUENCY

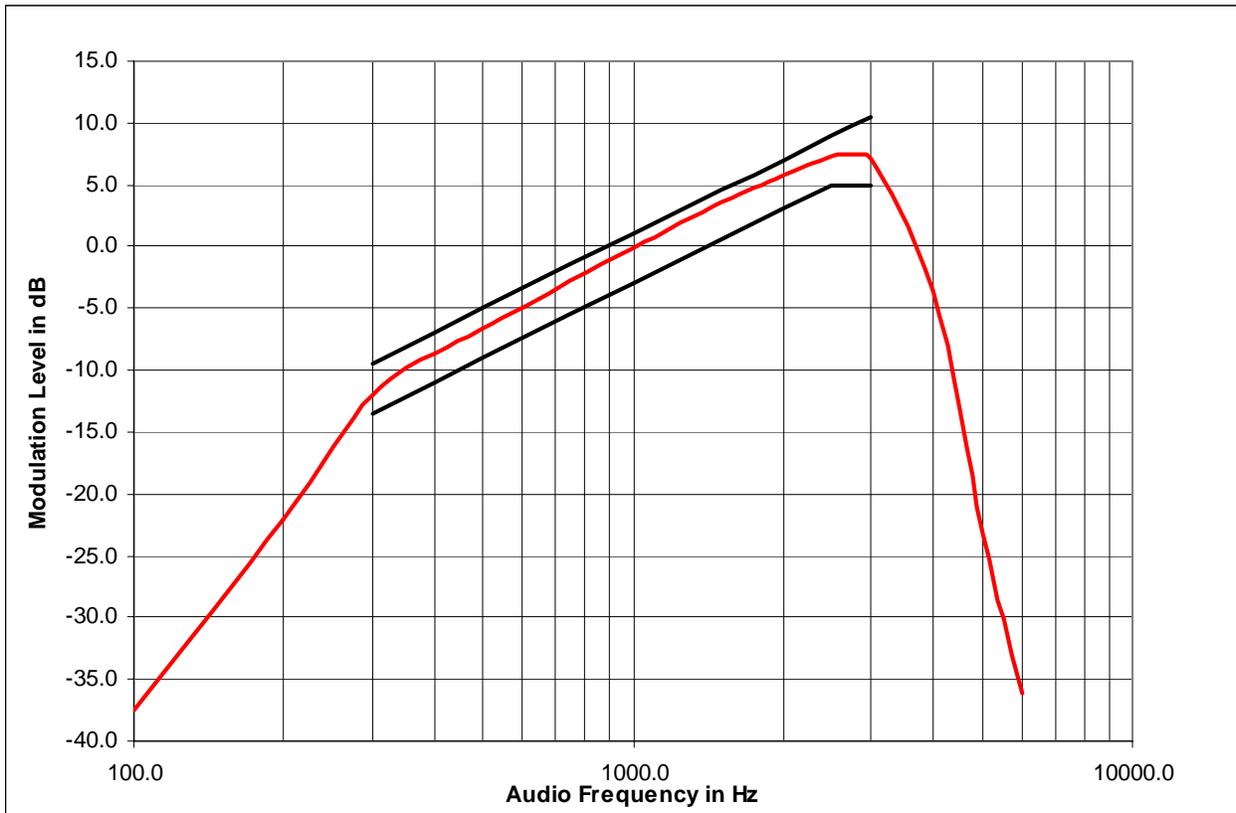
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Frequency: 481.100MHz.
Channel Spacing: 25kHz.



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TRANSMITTER AUDIO RESPONSE CHARACTERISTIC
MODULATION LEVEL vs. AUDIO FREQUENCY

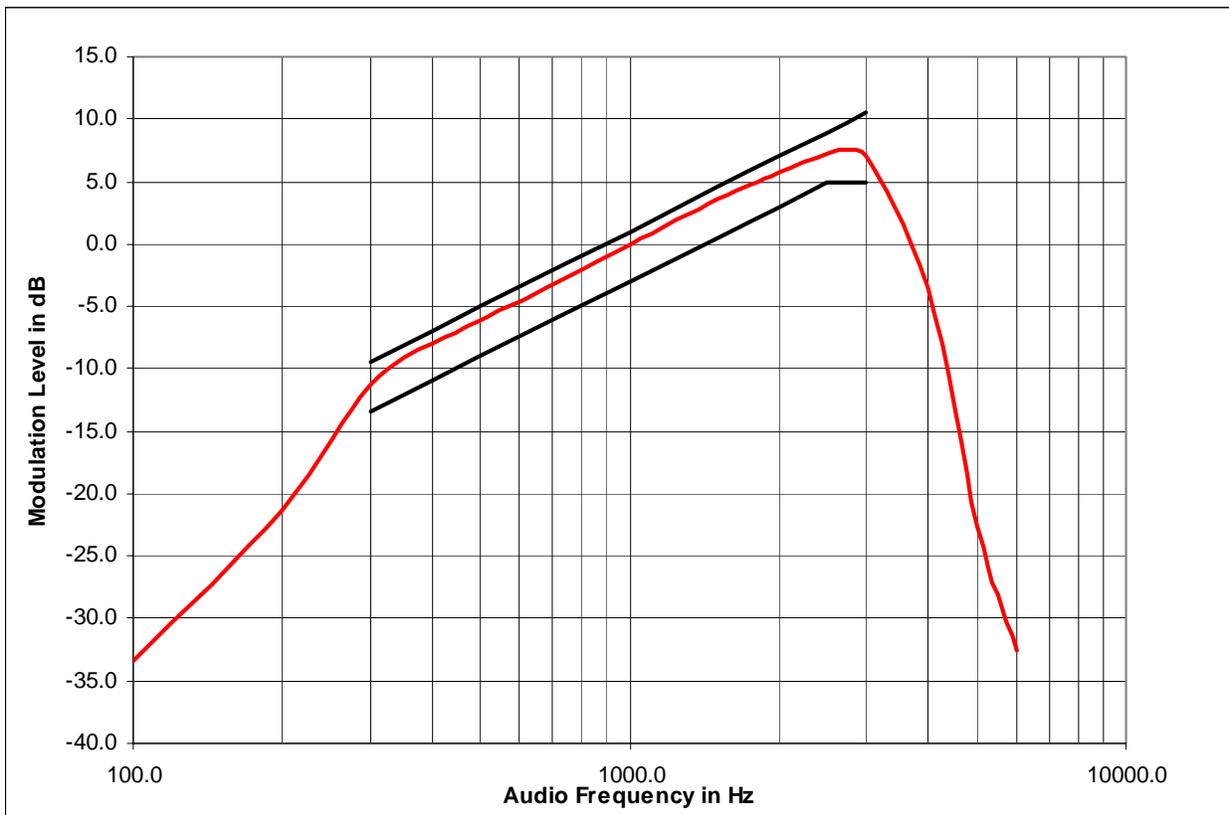
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th. November 2002

Signature : TK Wan

Frequency: 481.100MHz.
Channel Spacing: 12.5kHz.



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TRANSMITTER
POST - LIMITER ROLL OFF RESPONSE
FILTER OUTPUT vs. AUDIO FREQUENCY

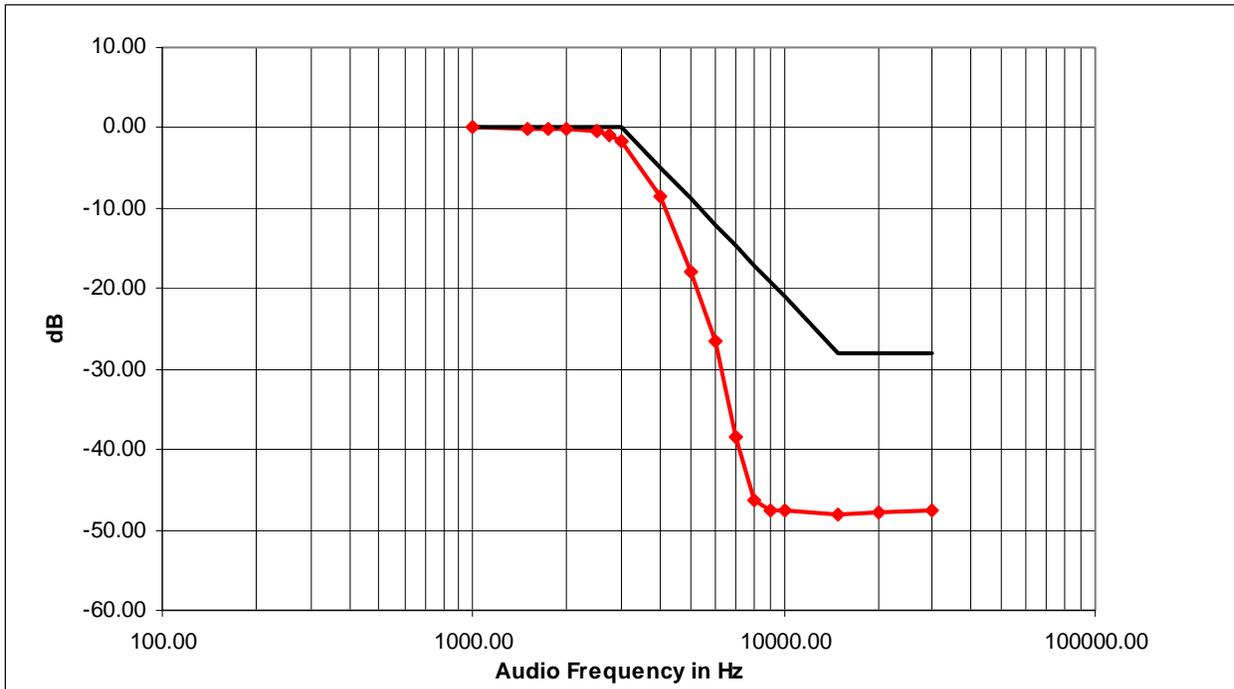
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Xmtr Type : AZ492FT4859
Log Page : ---

Date : 26th. November 2002

Signature : TK Wan

Frequency : 481.100MHz.
Channel Spacing : 25kHz.



MOTOROLA INC.
TRANSMITTER
POST - LIMITER ROLL OFF RESPONSE
FILTER OUTPUT vs. AUDIO FREQUENCY

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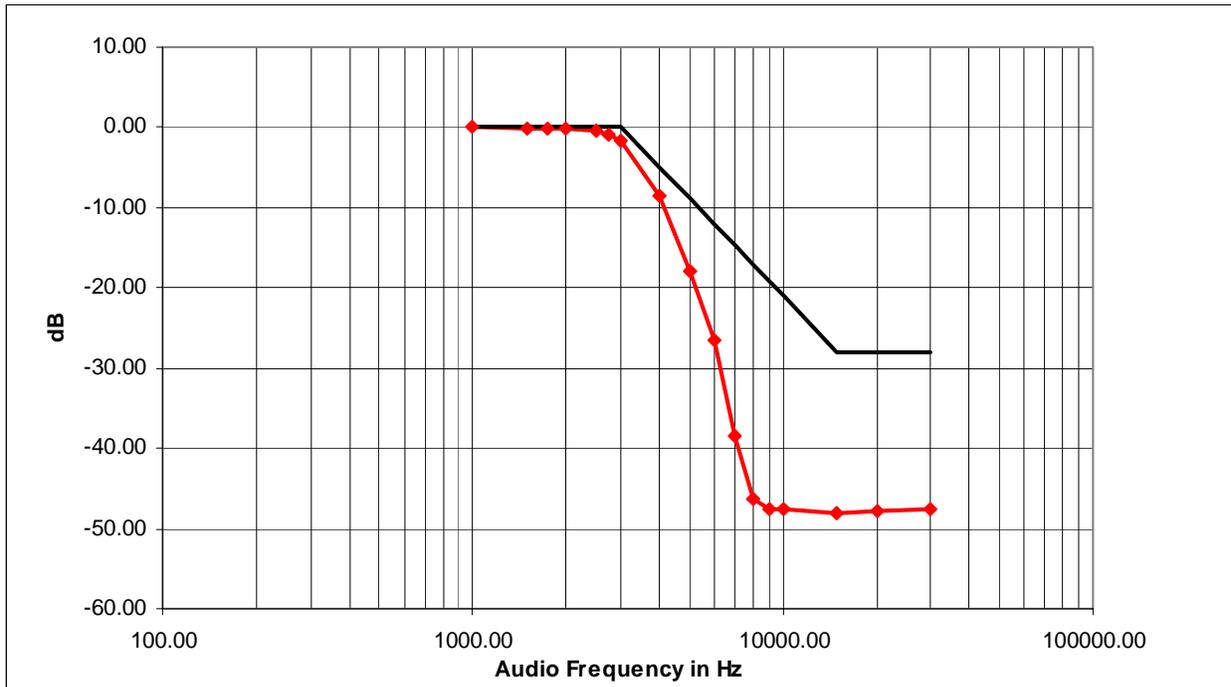
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Frequency : 481.100MHz.
Channel Spacing : 12.5kHz.



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CARRIER SQUELCH
AUDIO INPUT LEVEL vs. DEVIATION

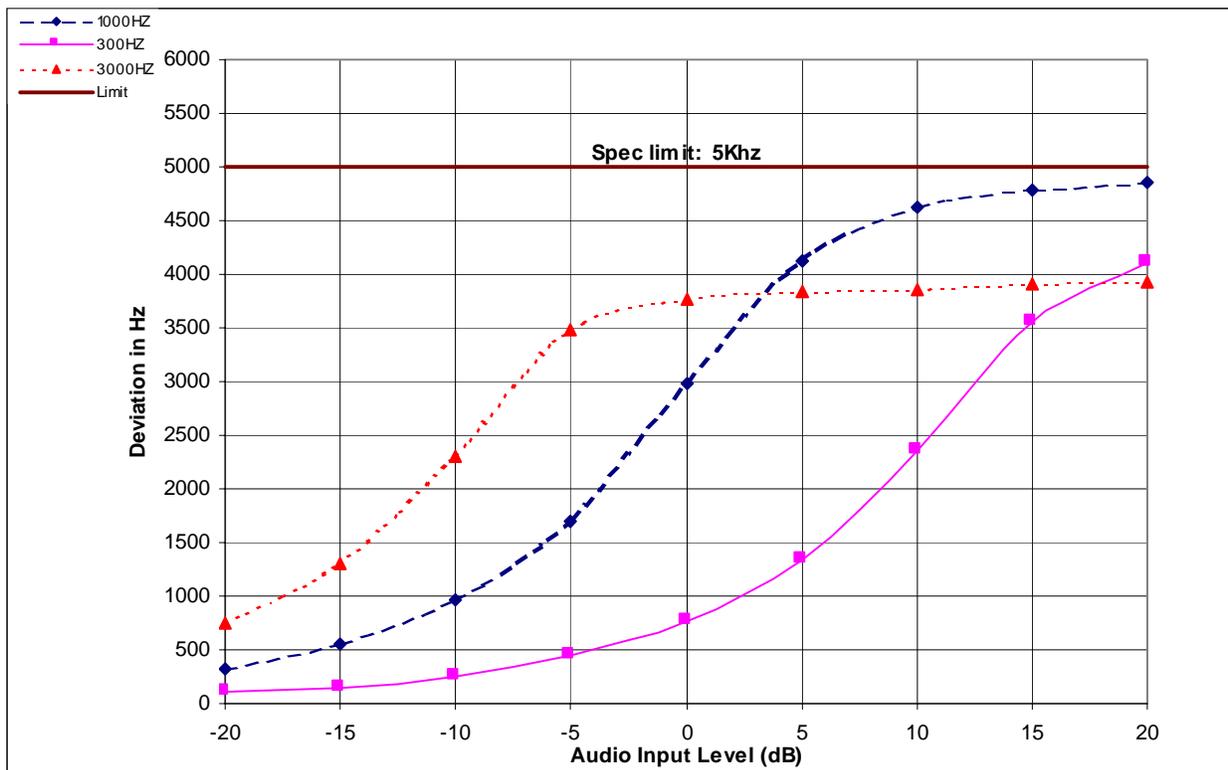
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th. November 2002

Signature : TK Wan

Frequency : 481.100MHz.
Channel Spacing : 25 kHz.



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TONE WITH "PL"
AUDIO INPUT LEVEL vs. DEVIATION

Xmtr Type : AZ492FT4859

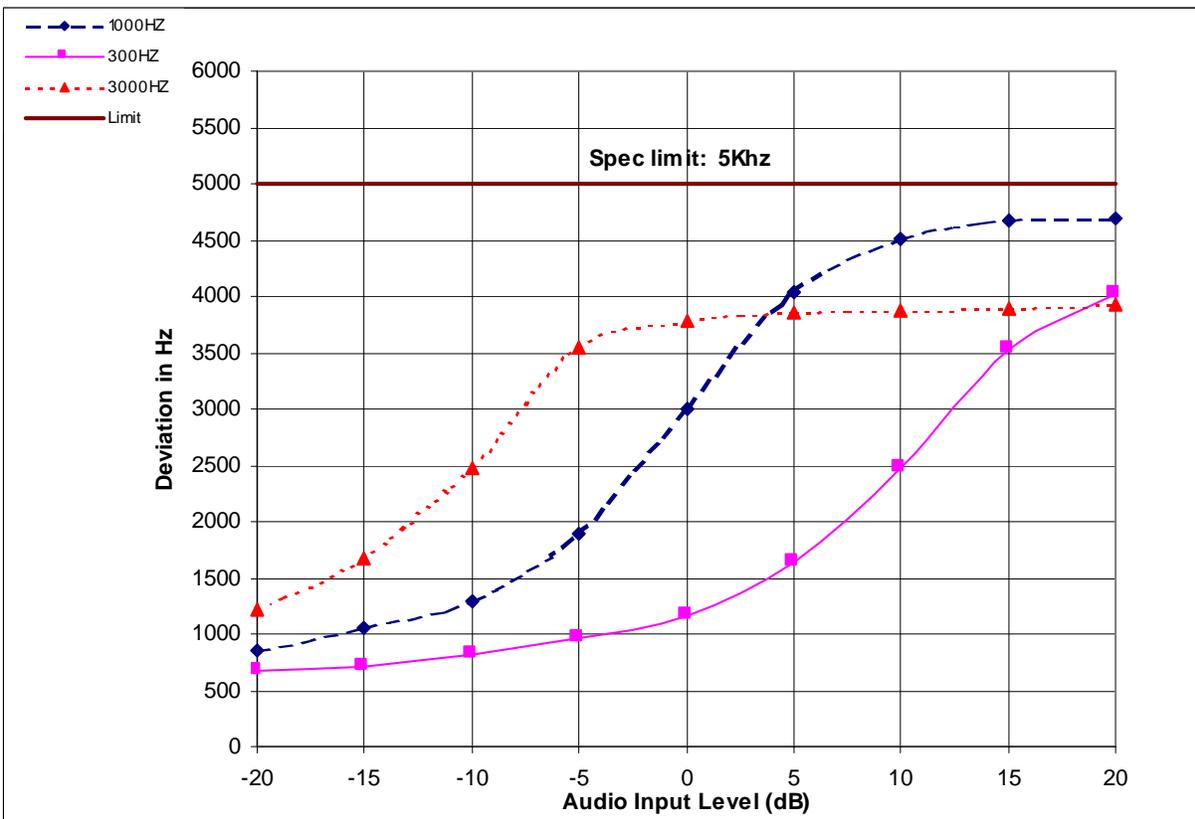
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Frequency : 481.100MHz.

Channel Spacing : 25kHz



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TONE WITH "DPL"
AUDIO INPUT LEVEL vs. DEVIATION

Xmtr Type : AZ492FT4859

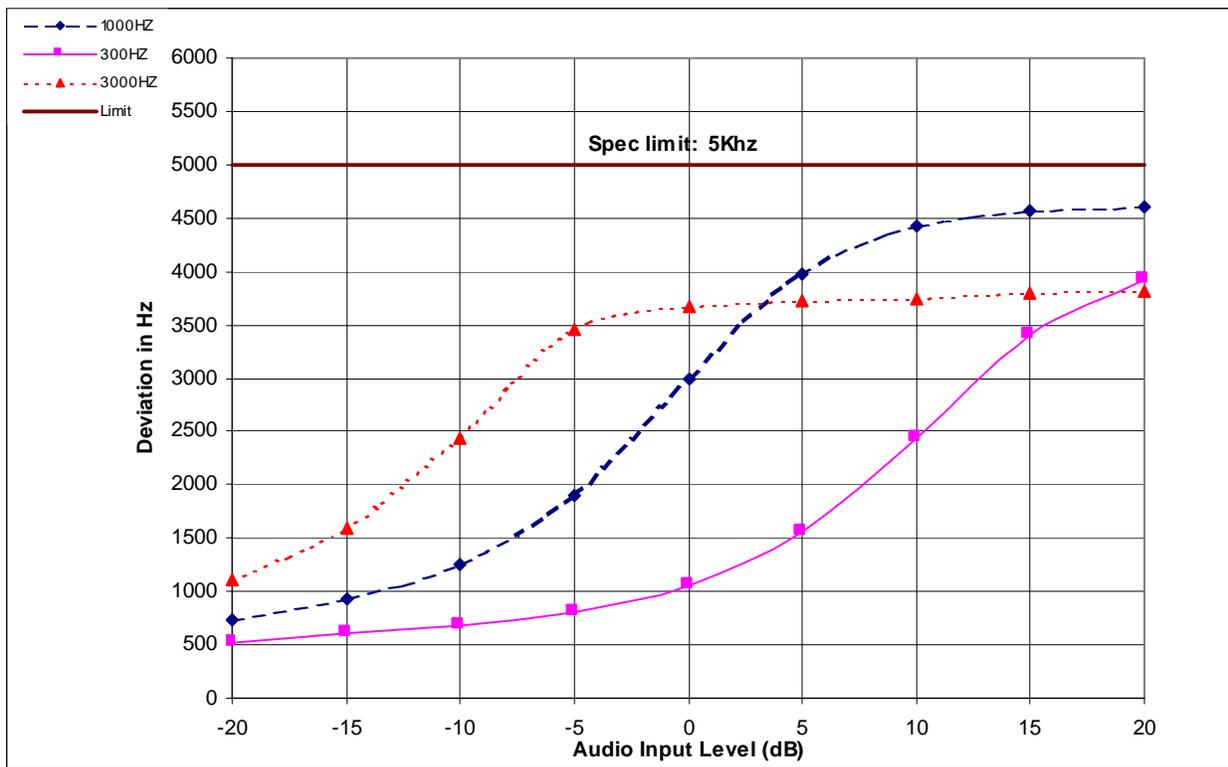
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Frequency : 481.100MHz.

Channel Spacing : 25kHz.



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CARRIER SQUELCH
AUDIO INPUT LEVEL vs. DEVIATION

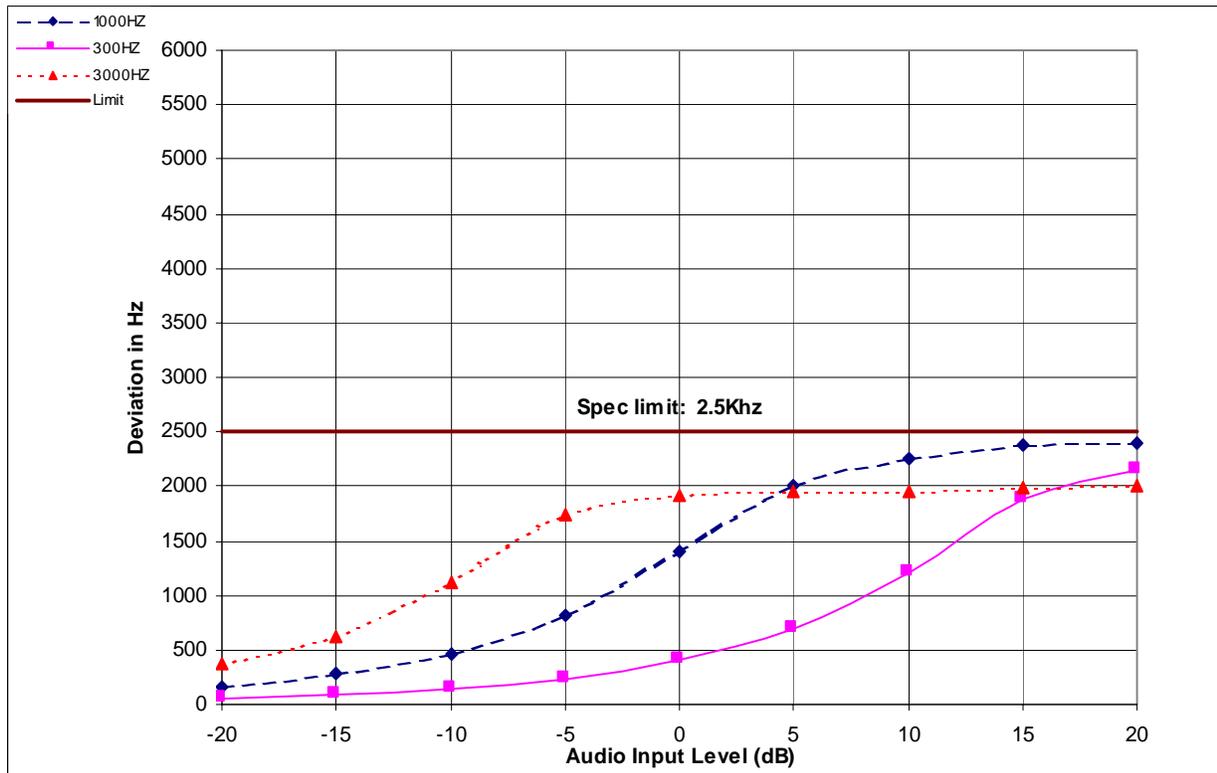
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th. November 2002

Signature : TK Wan

Frequency : 481.100MHz.
Channel Spacing : 12.5kHz.



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TONE WITH "PL"
AUDIO INPUT LEVEL vs. DEVIATION

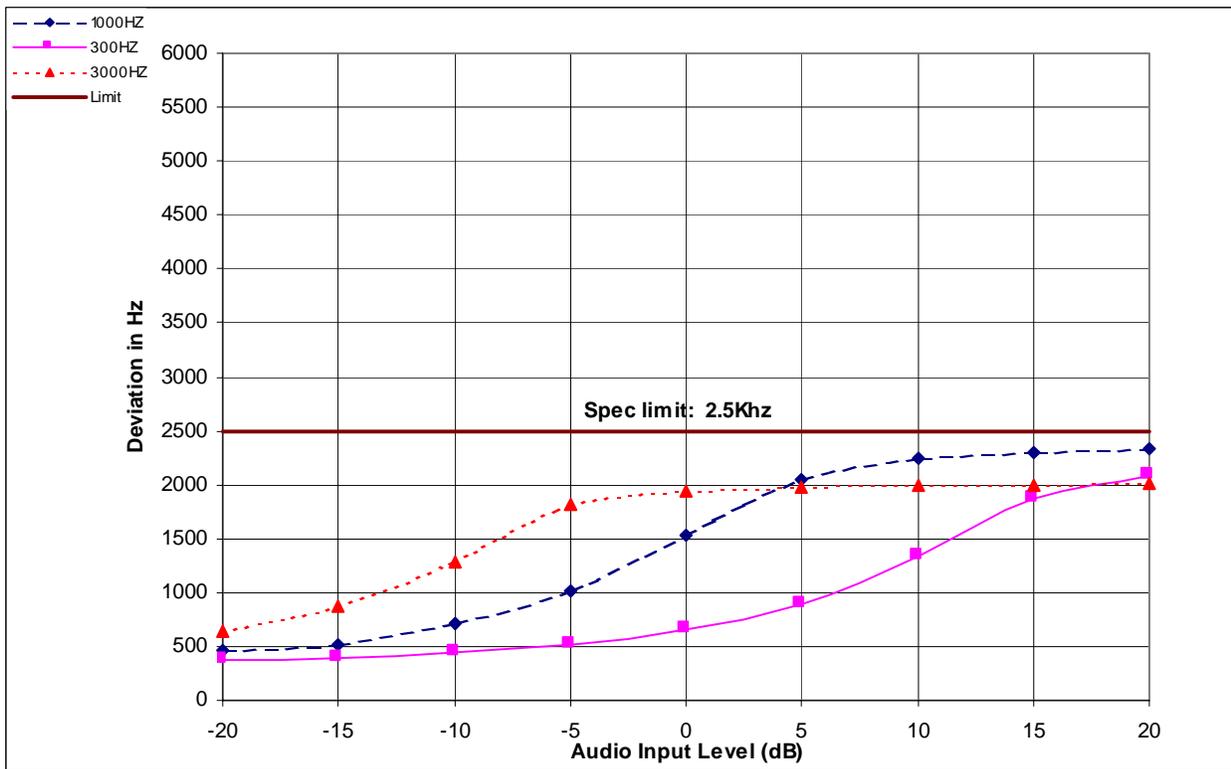
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Frequency : 481.100MHz.
Channel Spacing : 12.5kHz.



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TONE WITH "DPL"
AUDIO INPUT LEVEL vs. DEVIATION

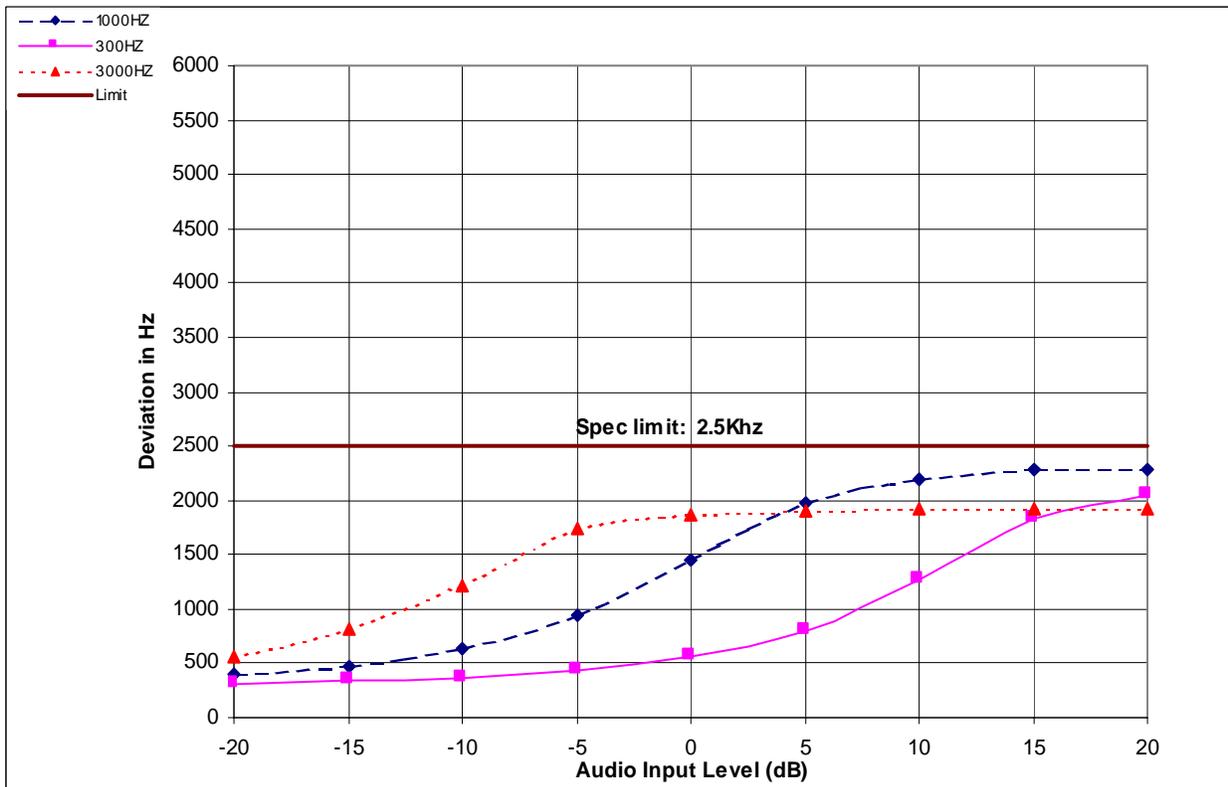
Xmtr Type : AZ492FT4859

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Date : 26th November 2002

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Frequency : 481.100MHz.
Channel Spacing : 12.5kHz.



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OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(2500 HZ AUDIO MODULATION ONLY)

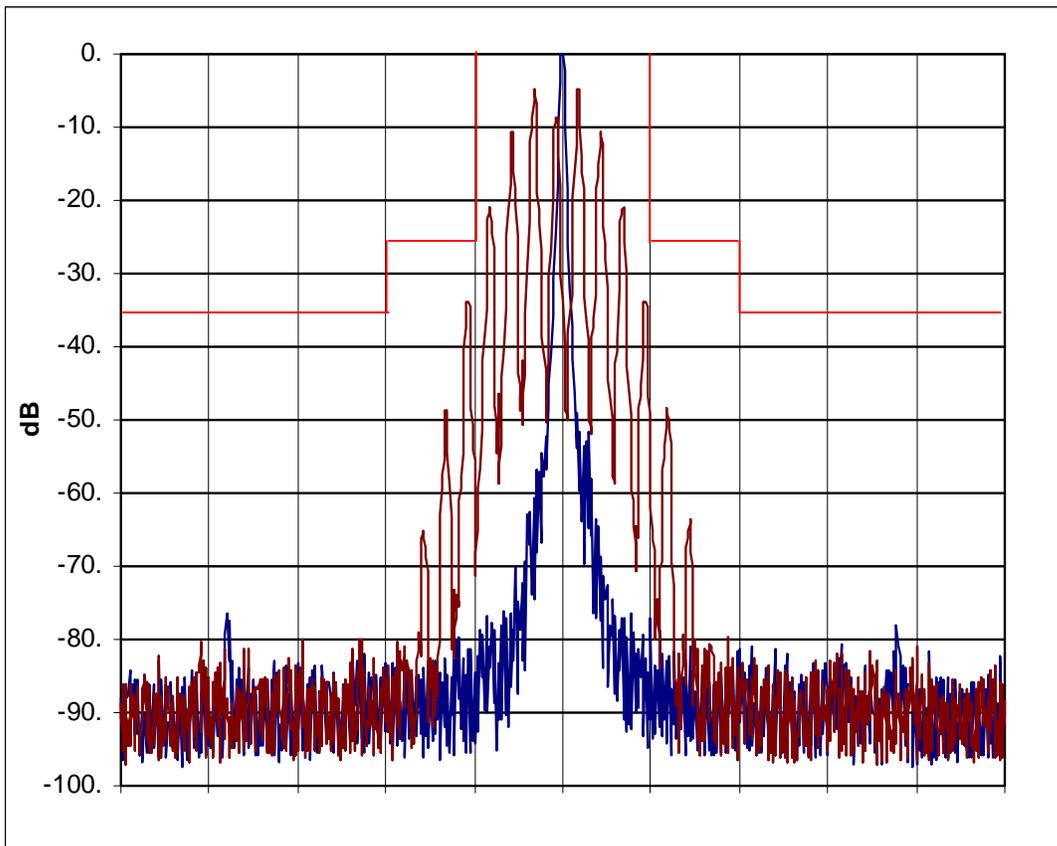
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th. November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

**OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(2500 HZ AUDIO & PL TONE MODULATION)**

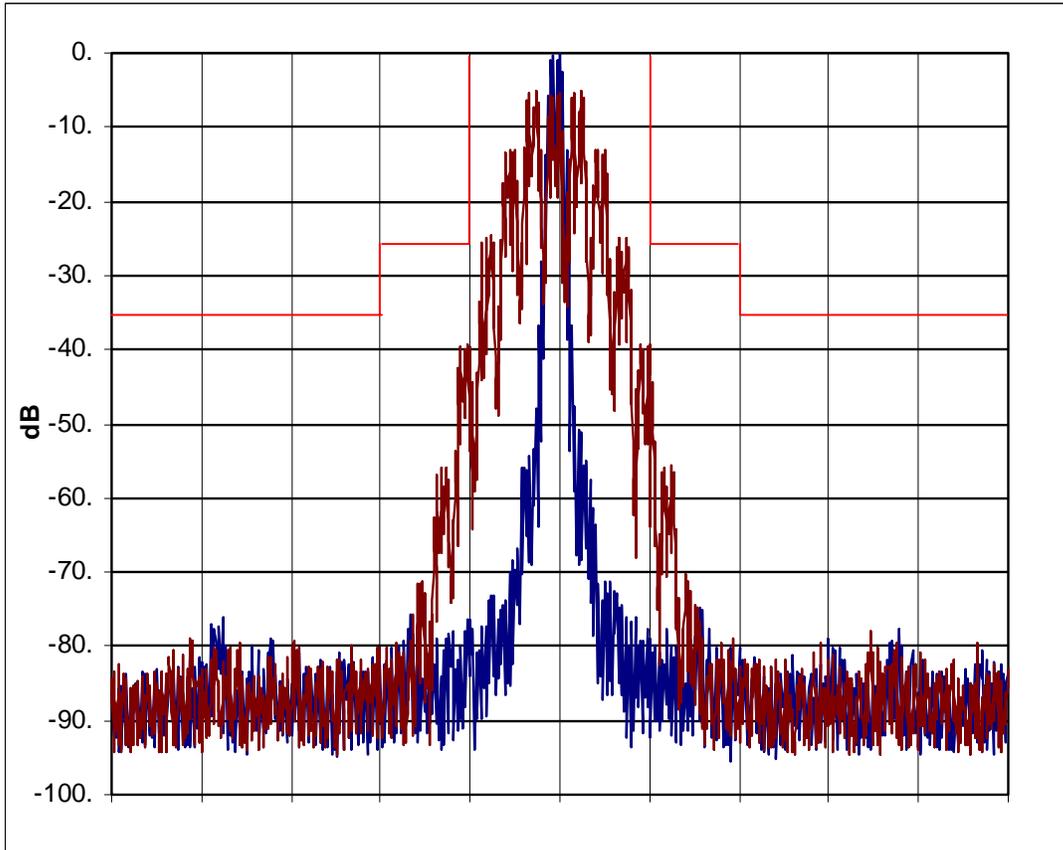
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(2500 HZ AUDIO & DPL TONE MODULATION)

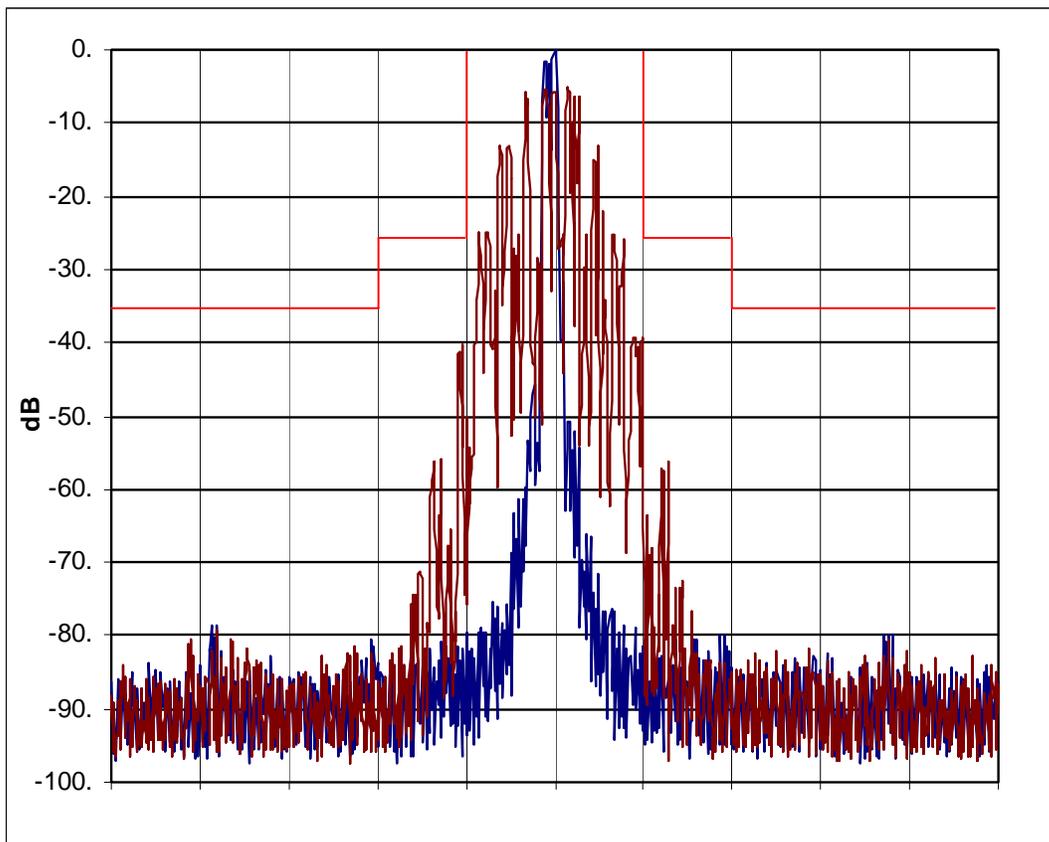
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Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(DTMF MODULATION ONLY)

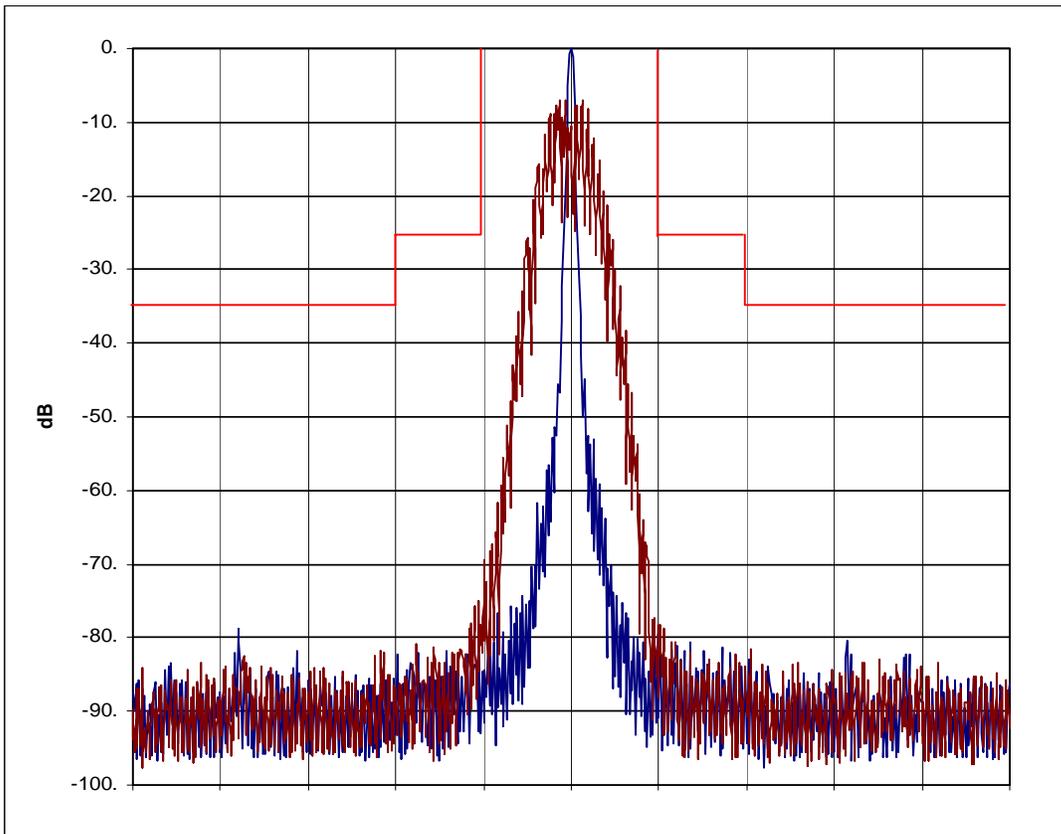
Xmtr Type : AZ492FT4859

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Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(DTMF MODULATION & PL TONE MODULATION)

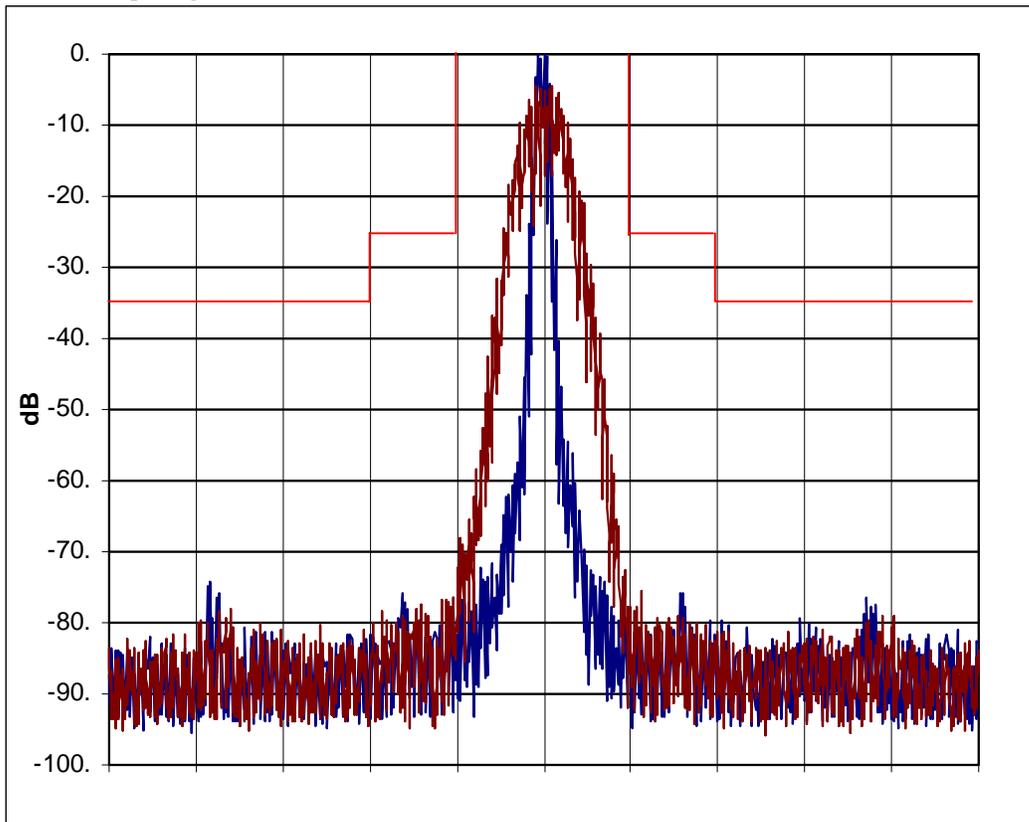
Xmtr Type : AZ492FT4859

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Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(DTMF MODULATION & DPL TONE MODULATION)

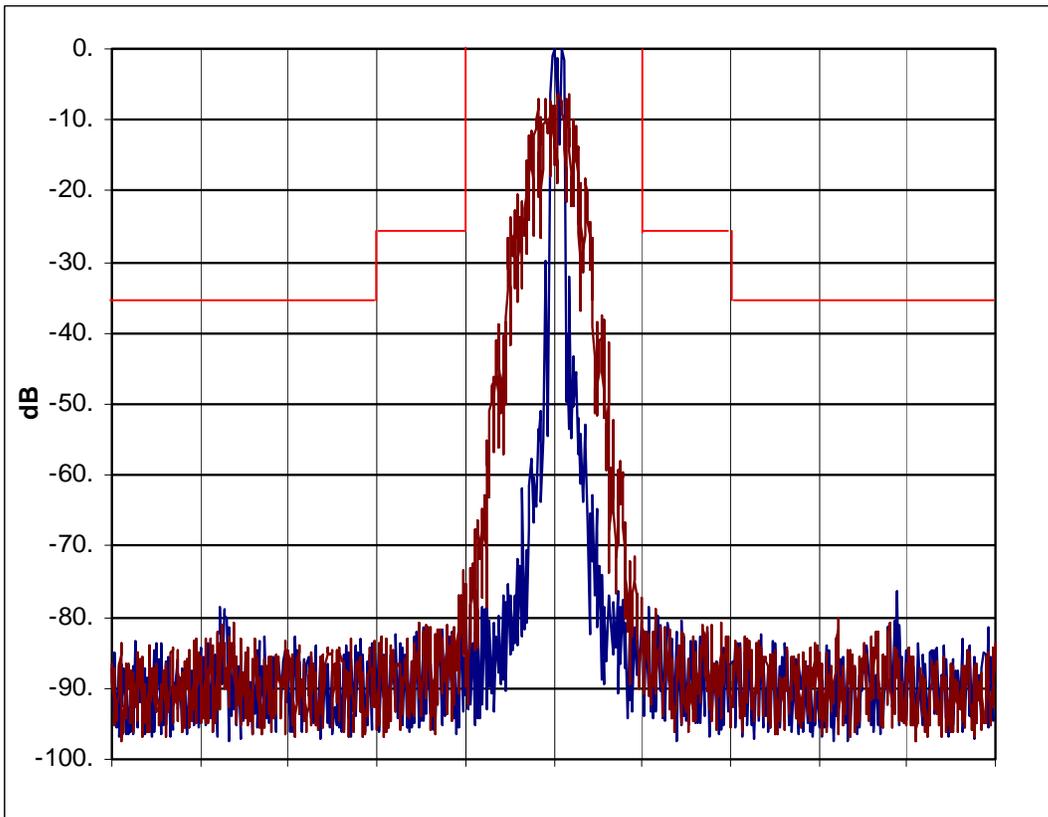
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Date : 26th November 2002

Signature : SF Ooi

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(2500 HZ AUDIO MODULATION ONLY)

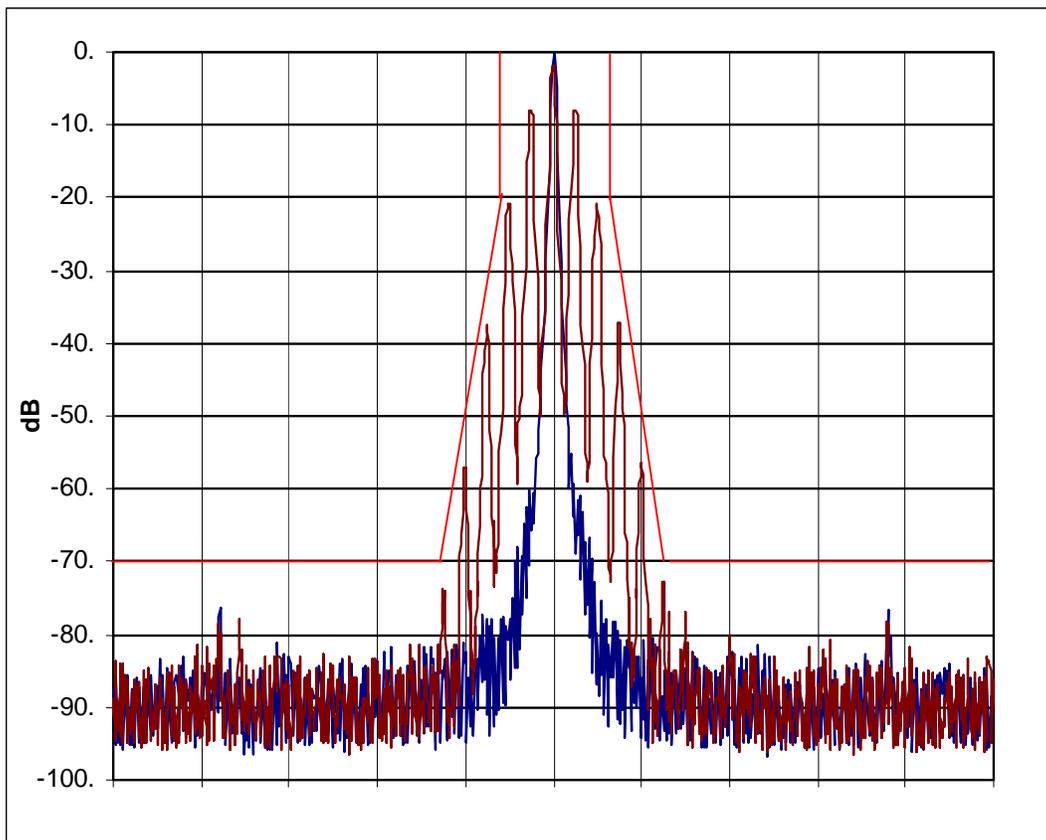
Xmtr Type : AZ492FT4859

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Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(2500 HZ AUDIO & PL TONE MODULATION)

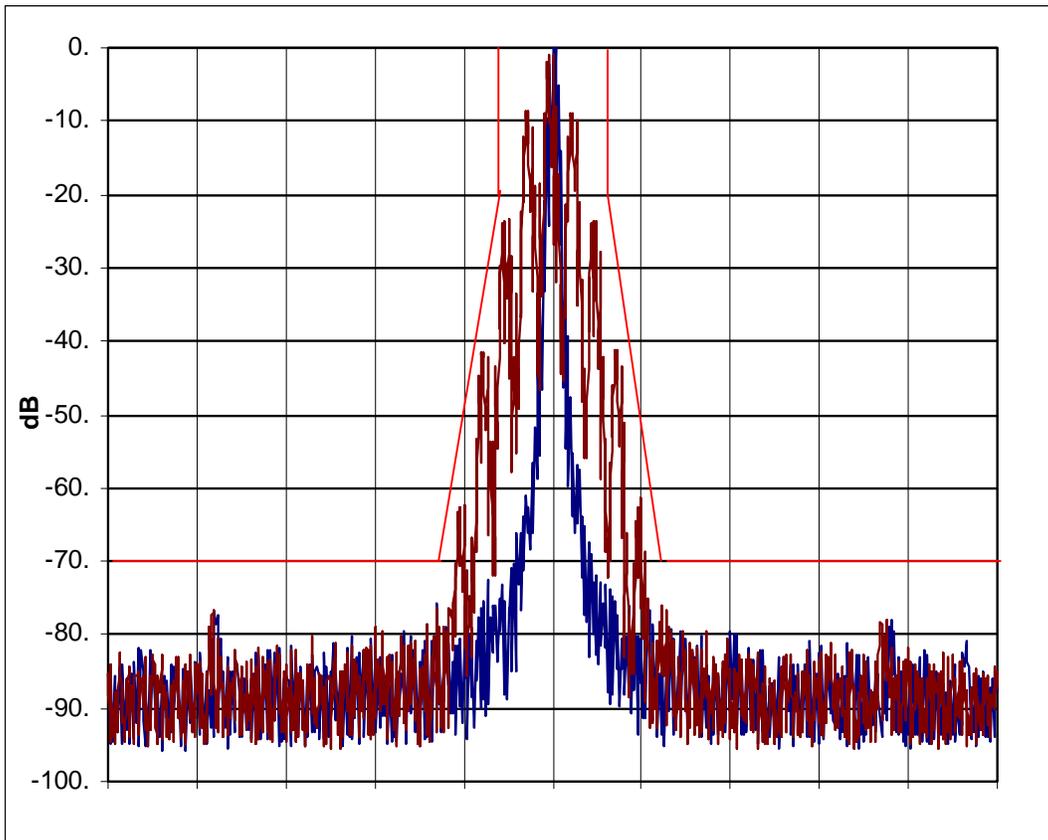
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Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

**OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(2500 HZ AUDIO & DPL TONE MODULATION)**

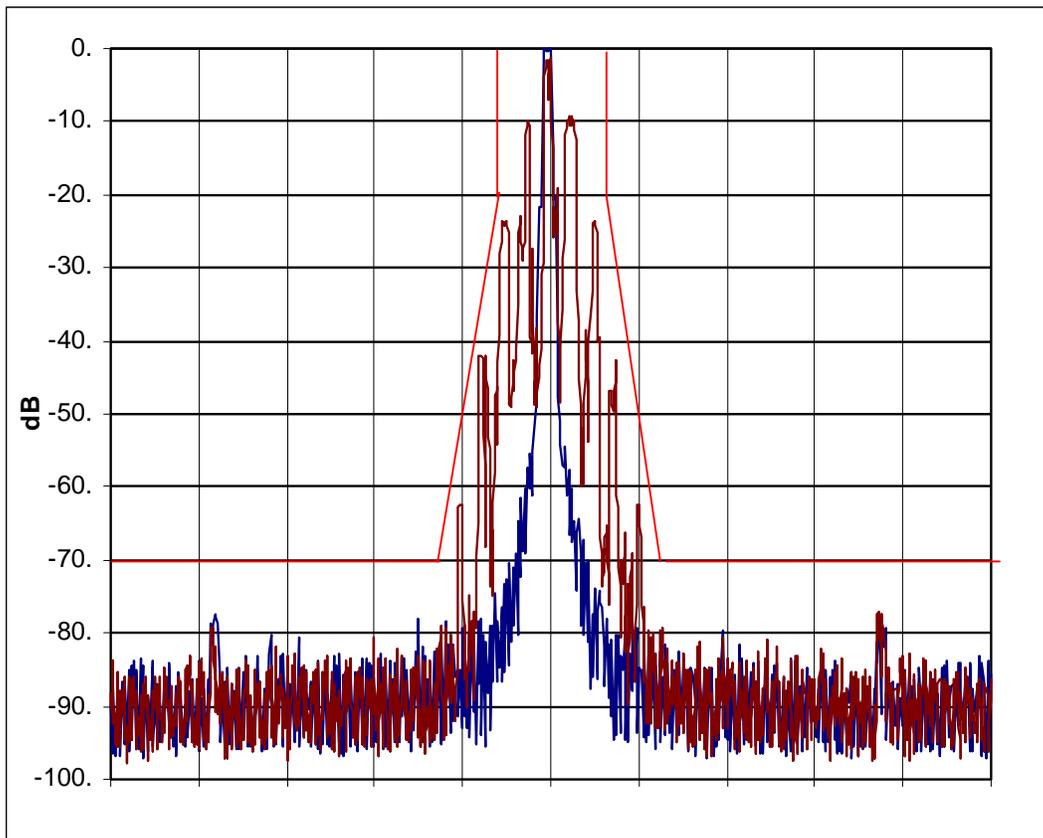
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

**OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(DTMF MODULATION ONLY)**

=====

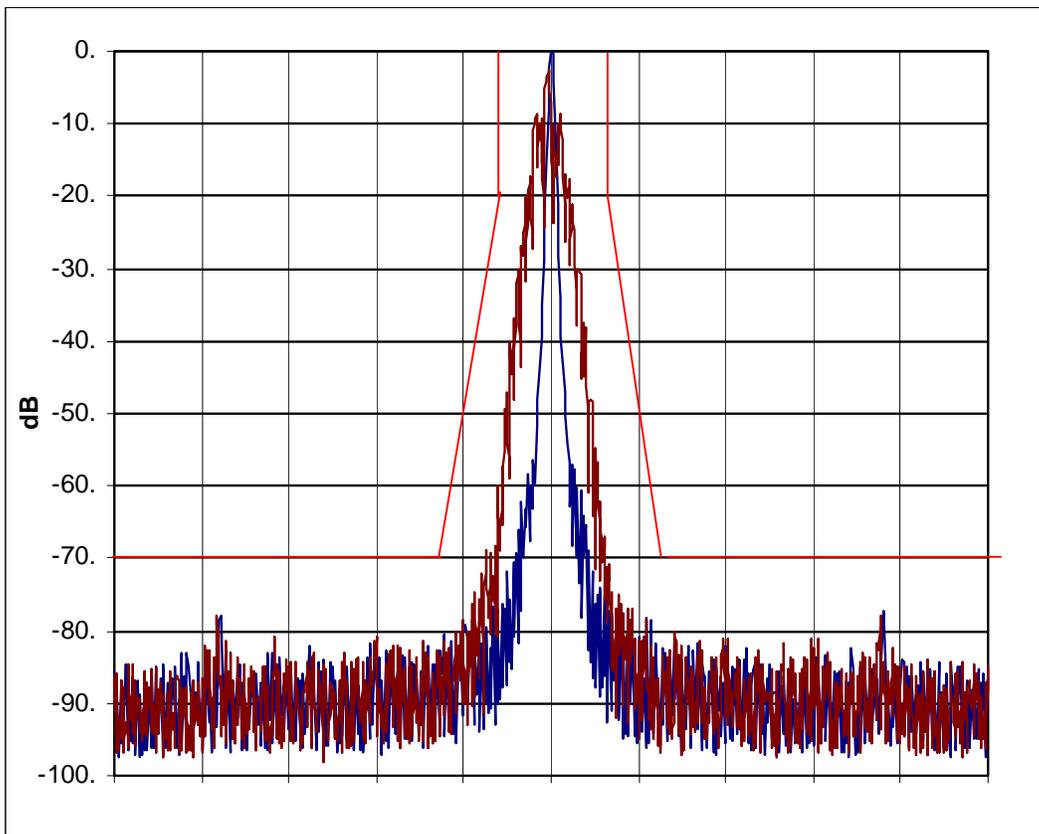
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(DTMF MODULATION & PL TONE MODULATION)

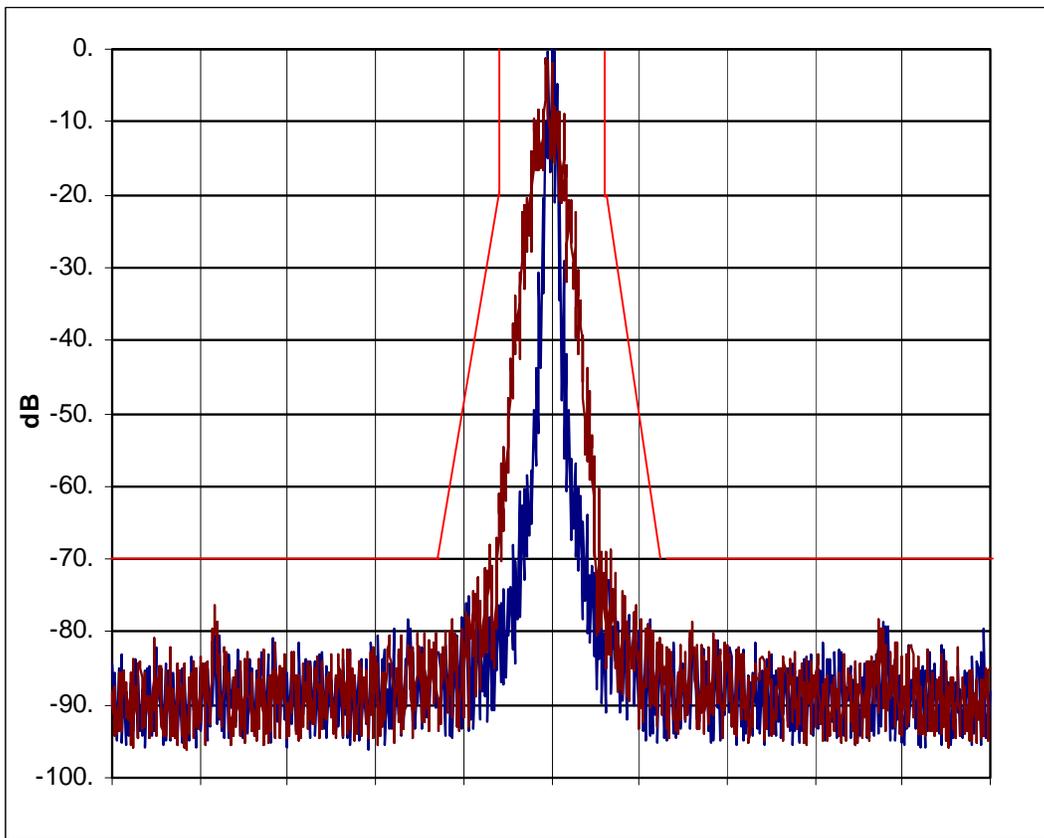
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR VOICE TRANSMISSION
(DTMF MODULATION & DPL TONE MODULATION)

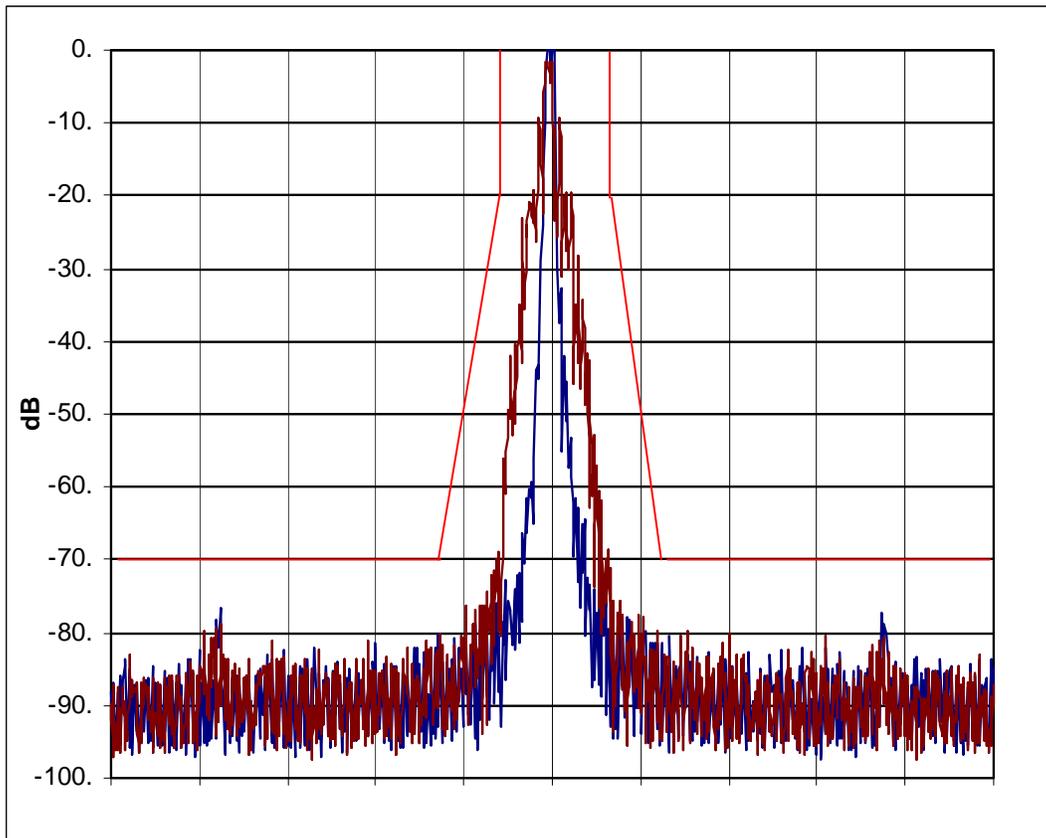
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

**OCCUPIED BANDWIDTH FOR DATA TRANSMISSION
(2000/3000 HZ FSK DATA MODULATION)**

=====

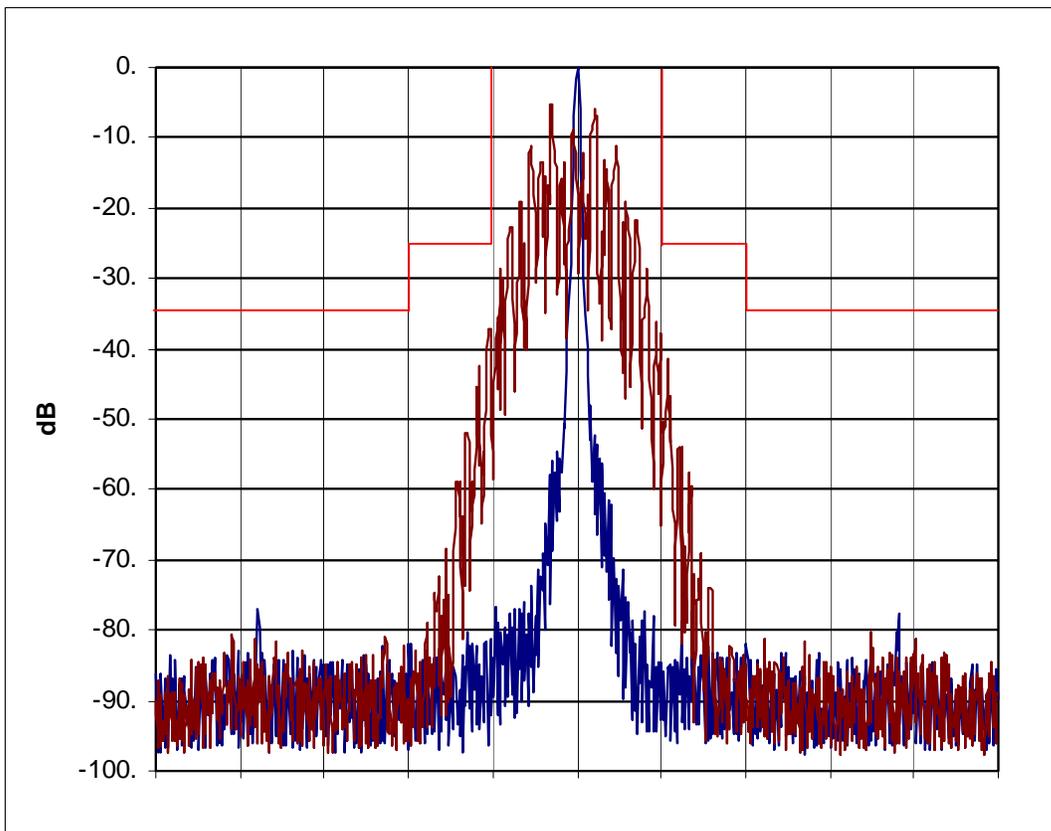
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR DATA TRANSMISSION
(2000/3000 HZ FSK DATA AND PL TONE MODULATION)

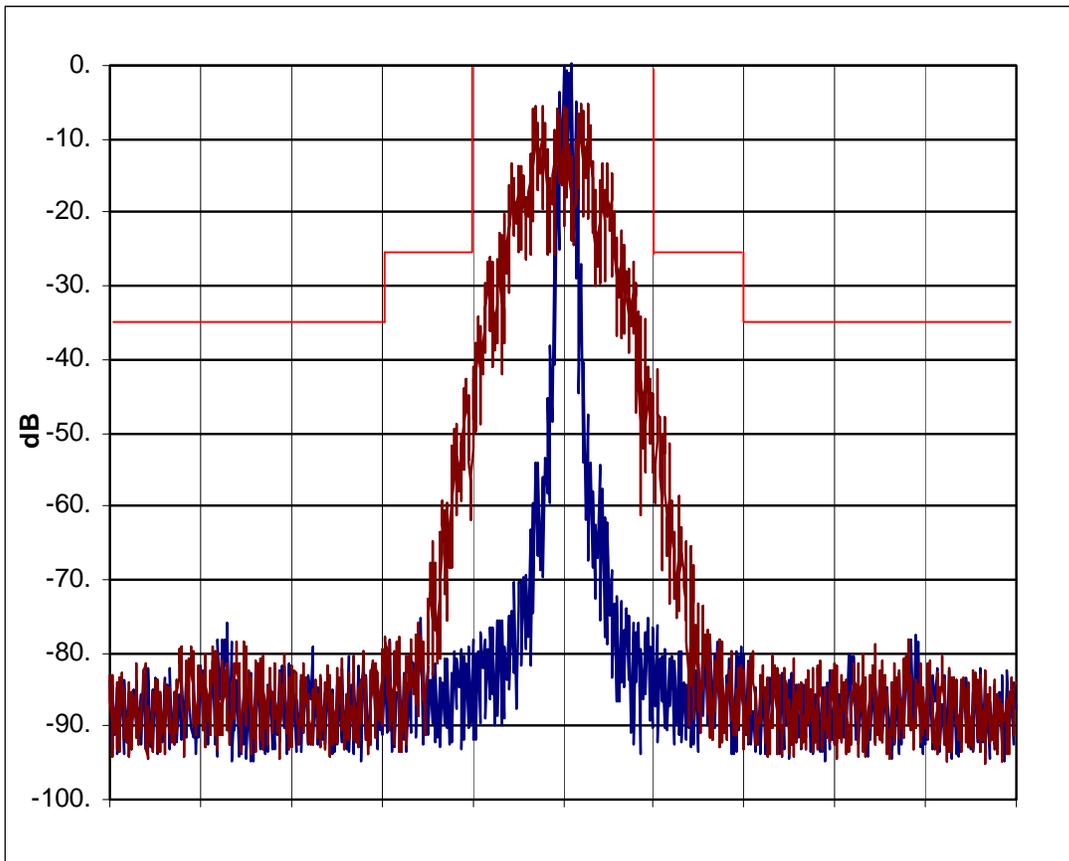
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR DATA TRANSMISSION
(2000/3000 HZ FSK DATA AND DPL TONE MODULATION)

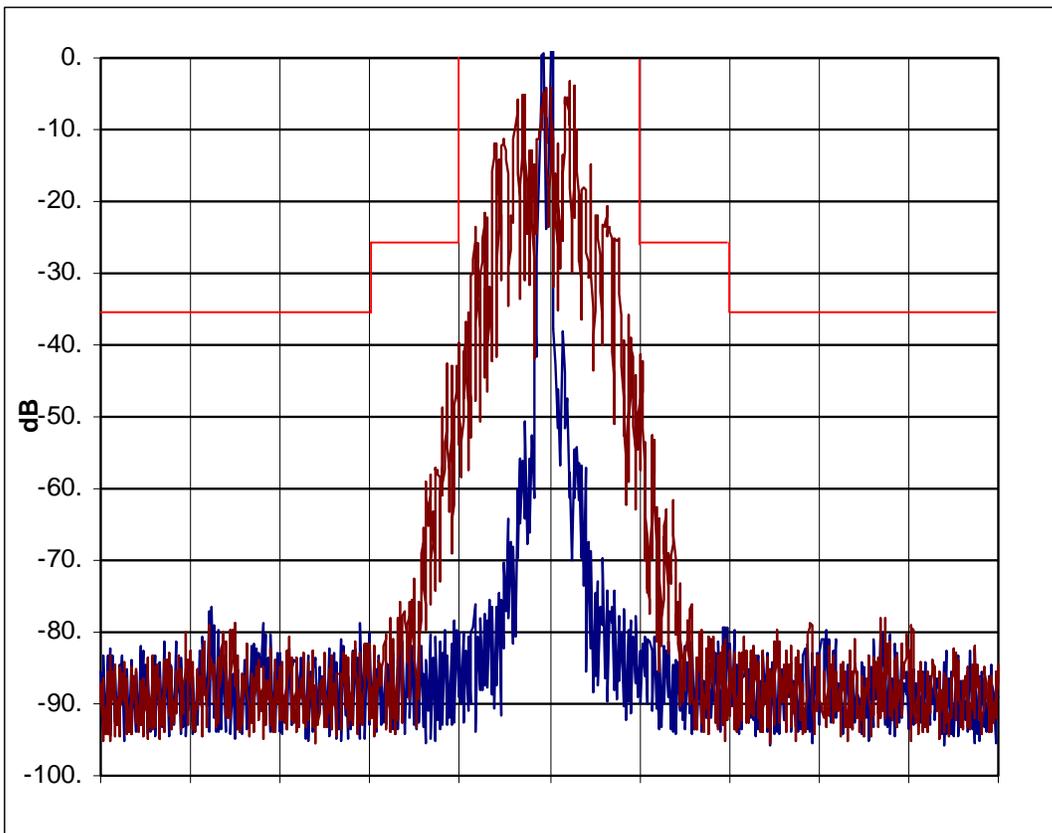
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

25kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask B

MOTOROLA INC.

**OCCUPIED BANDWIDTH FOR DATA TRANSMISSION
(2000/3000 HZ FSK DATA MODULATION)**

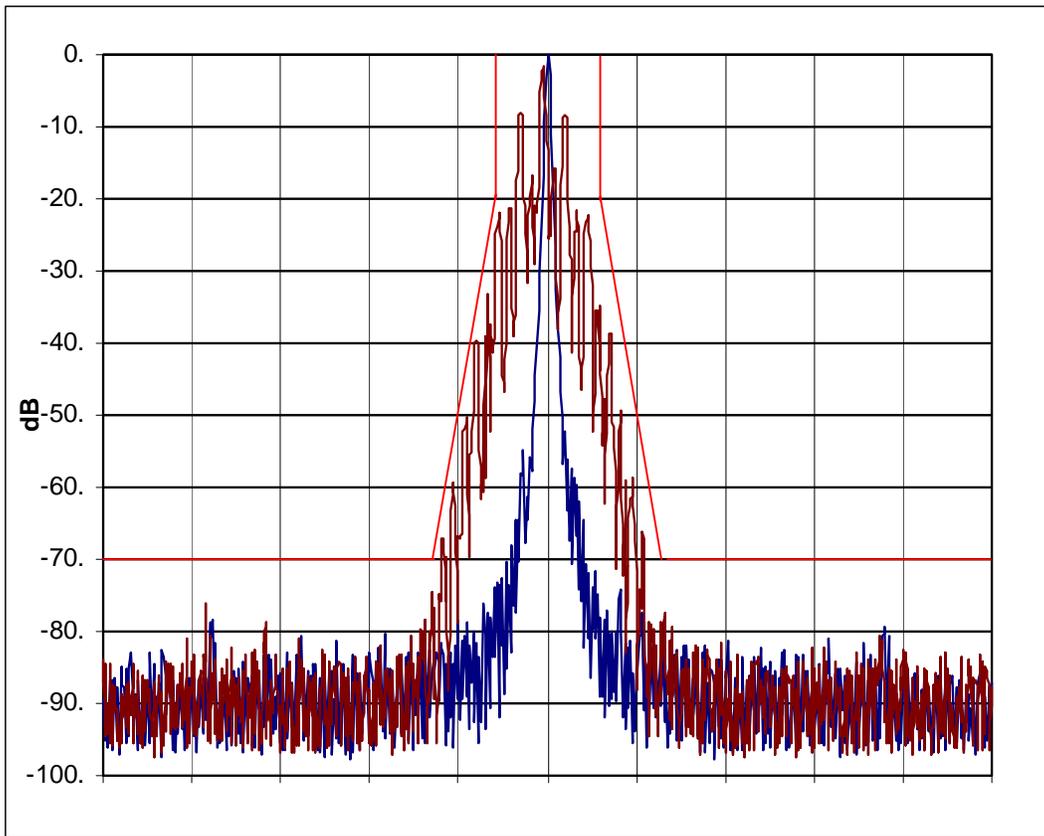
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR DATA TRANSMISSION
(2000/3000 HZ FSK DATA & PL TONE MODULATION)

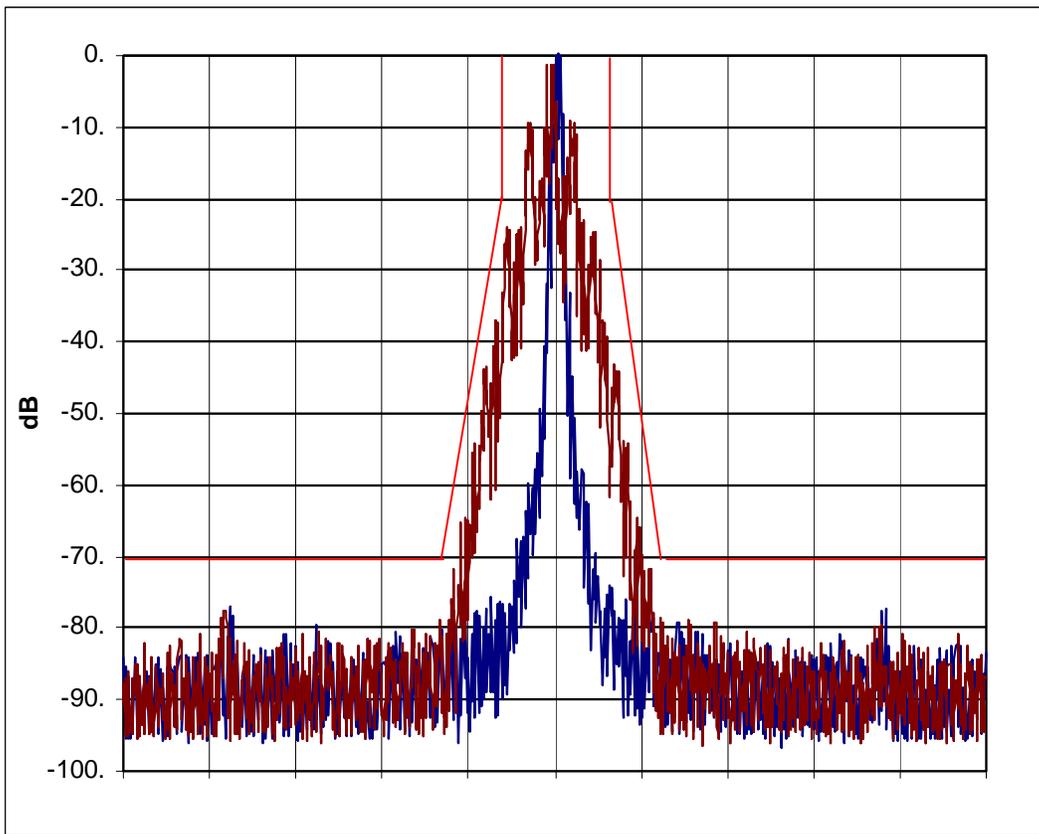
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

OCCUPIED BANDWIDTH FOR DATA TRANSMISSION
(2000/3000 HZ FSK DATA & DPL TONE MODULATION)

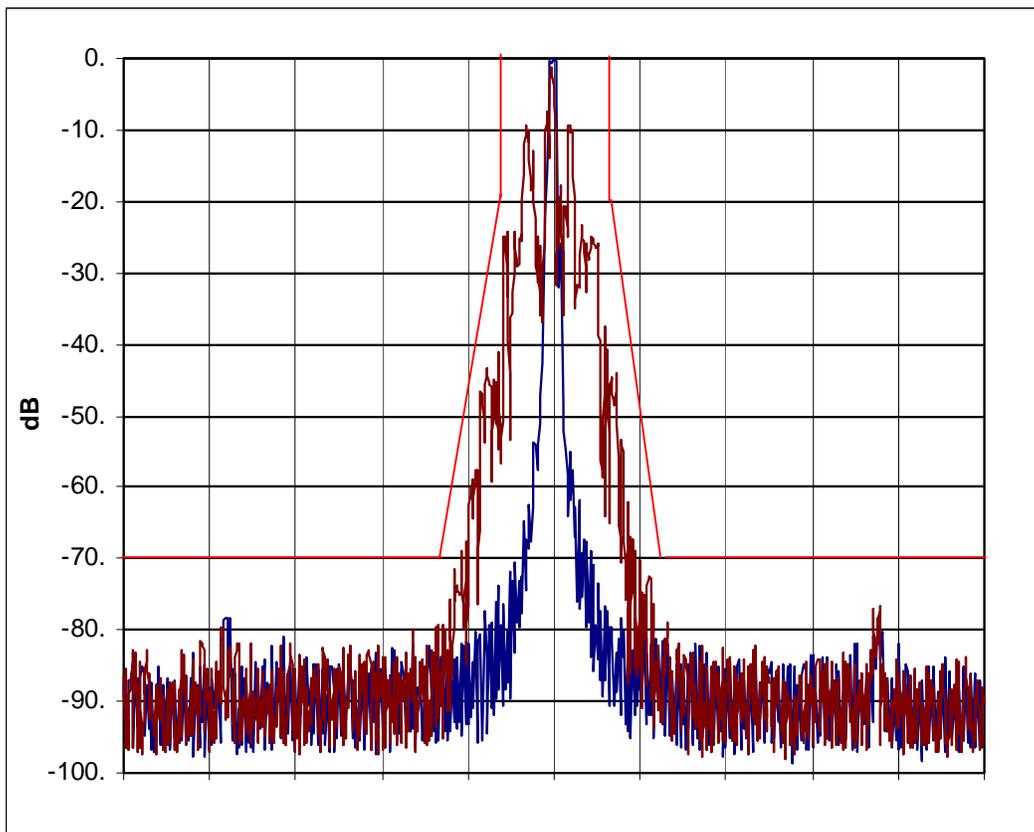
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

12.5kHz. Channel Spacing



CENTER FREQUENCY(MHz.):	481.100
RESOLUTION BANDWIDTH(Hz):	300
VIDEO BANDWIDTH(kHz.):	300
SPAN(kHz.):	100
SWEEP TIME(SEC):	3
SCALE(DB/):	10
REF LEVEL(dBm)	6.2
ATTEN (dB)	30

Note: Emission Mask D

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

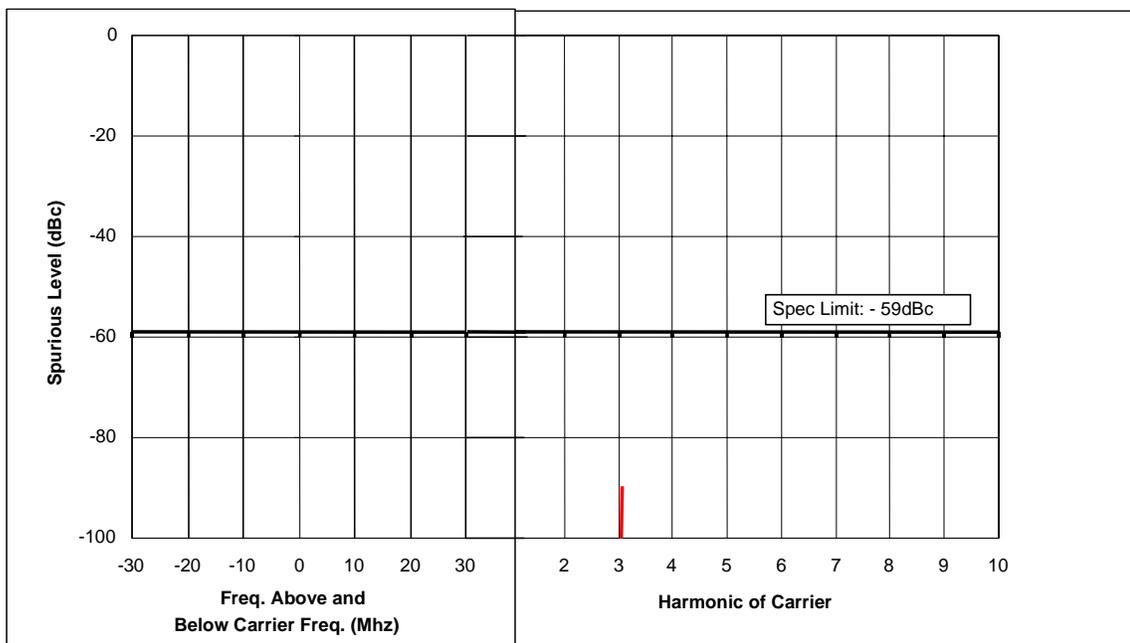
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 40W at 450.100Mhz.
Channel Spacing : 25KHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

=====

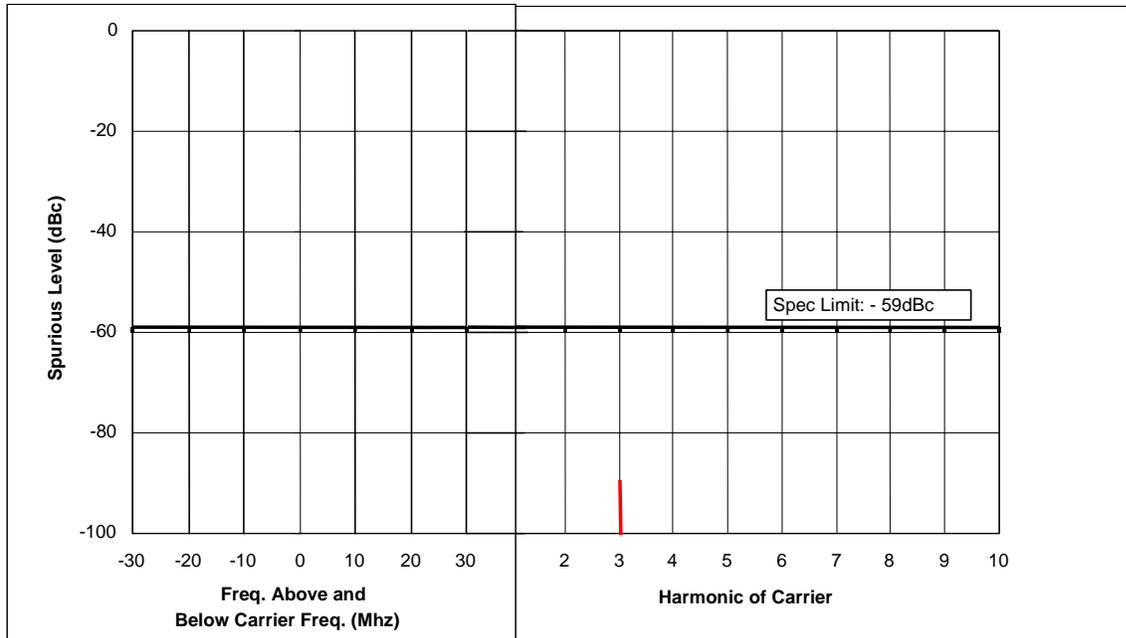
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 40W at 481.100MHz.
Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit.

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

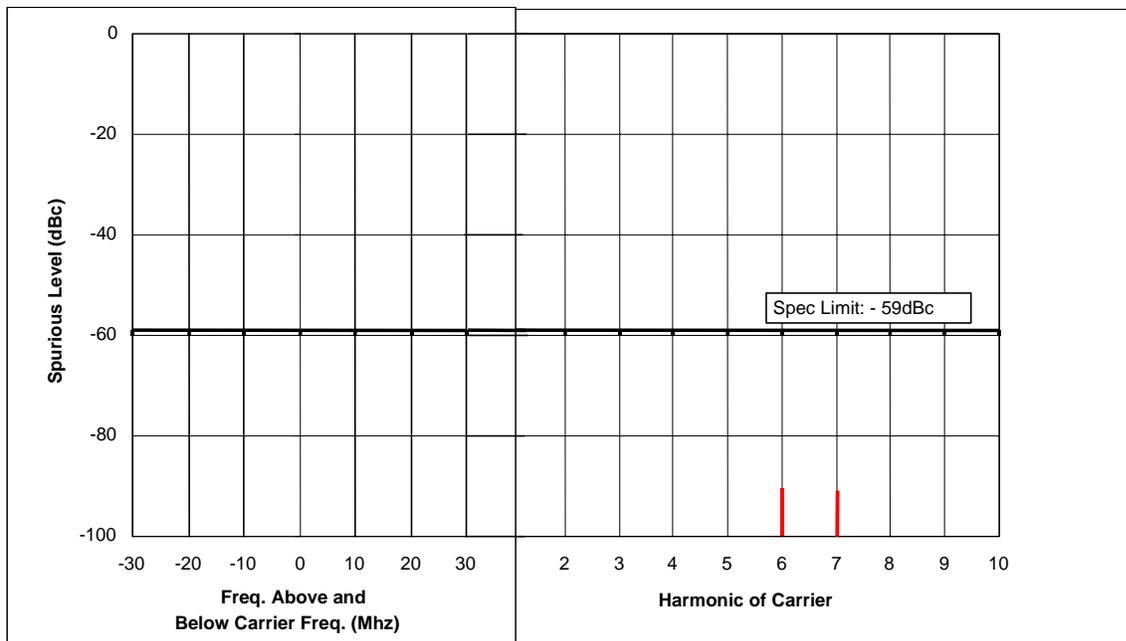
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 40W at 511.900MHz.
Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit.

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

=====

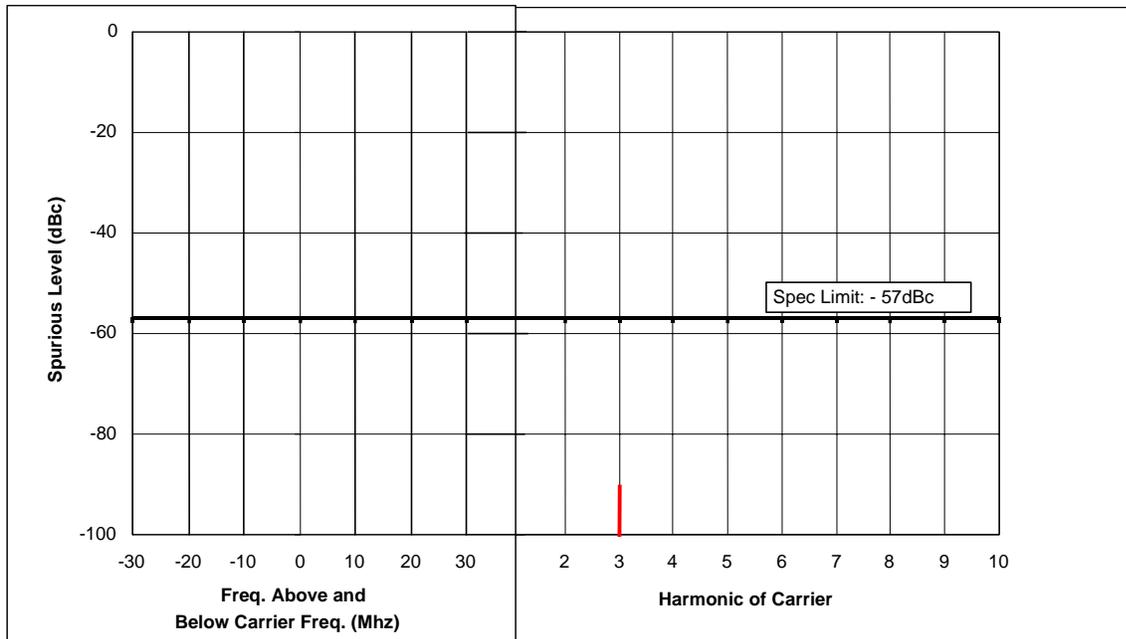
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 25W at 450.100MHz.
Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

=====

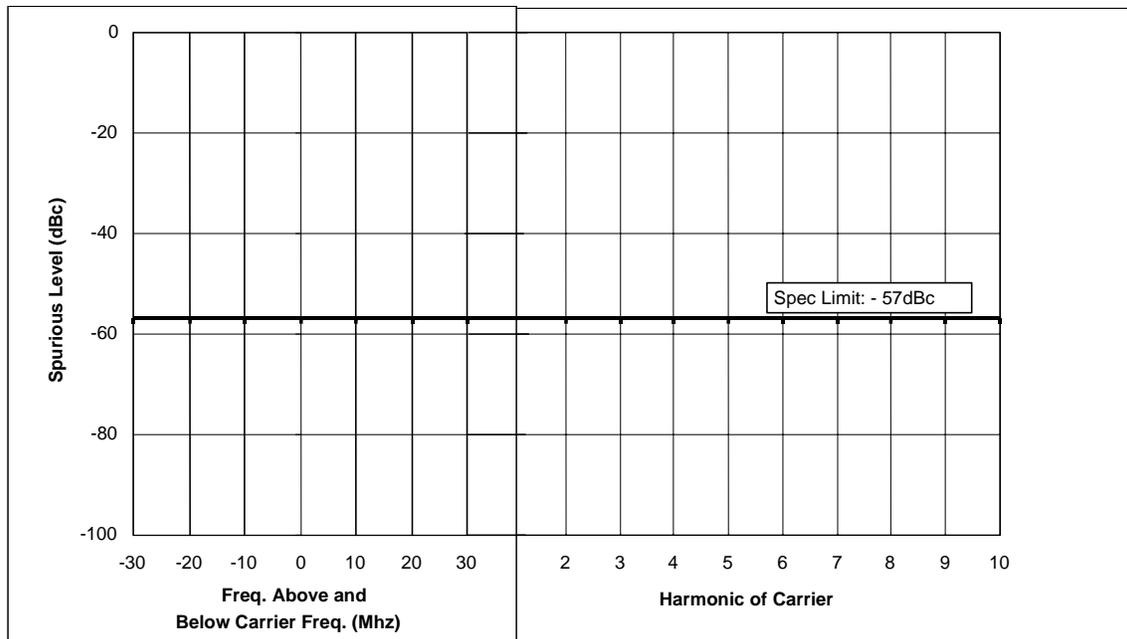
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 25W at 481.100MHz.
Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

Xmtr Type : AZ492FT4859

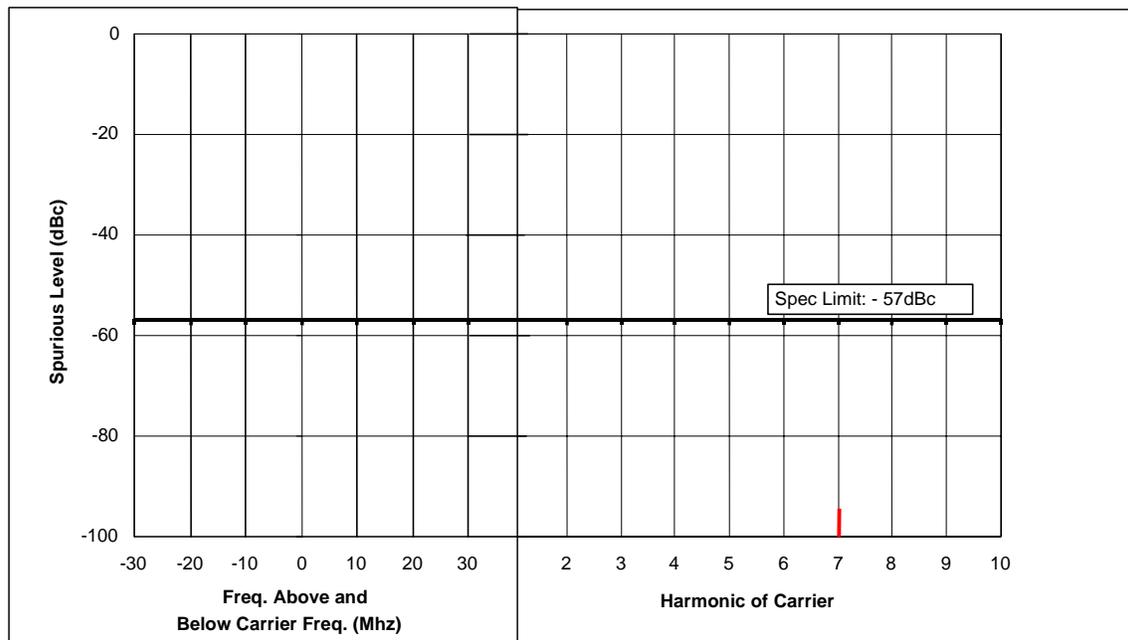
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 25W at 511.900MHz.

Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

=====

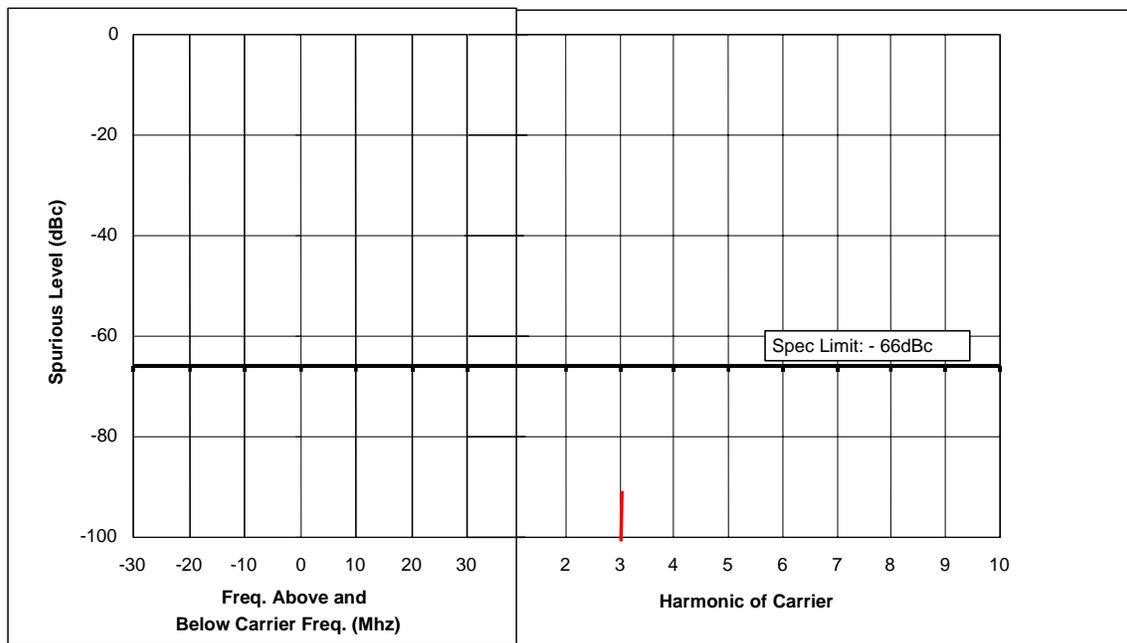
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 40W at 450.100MHz.
Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 30dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

Xmtr Type : AZ492FT4859

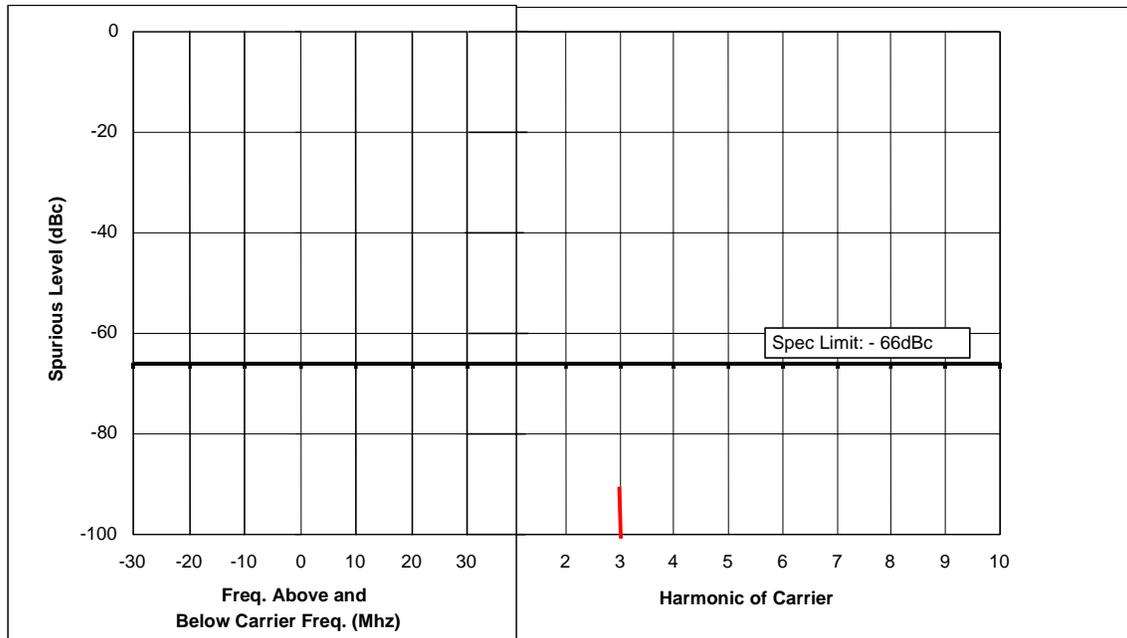
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 40W at 481.100MHz.

Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

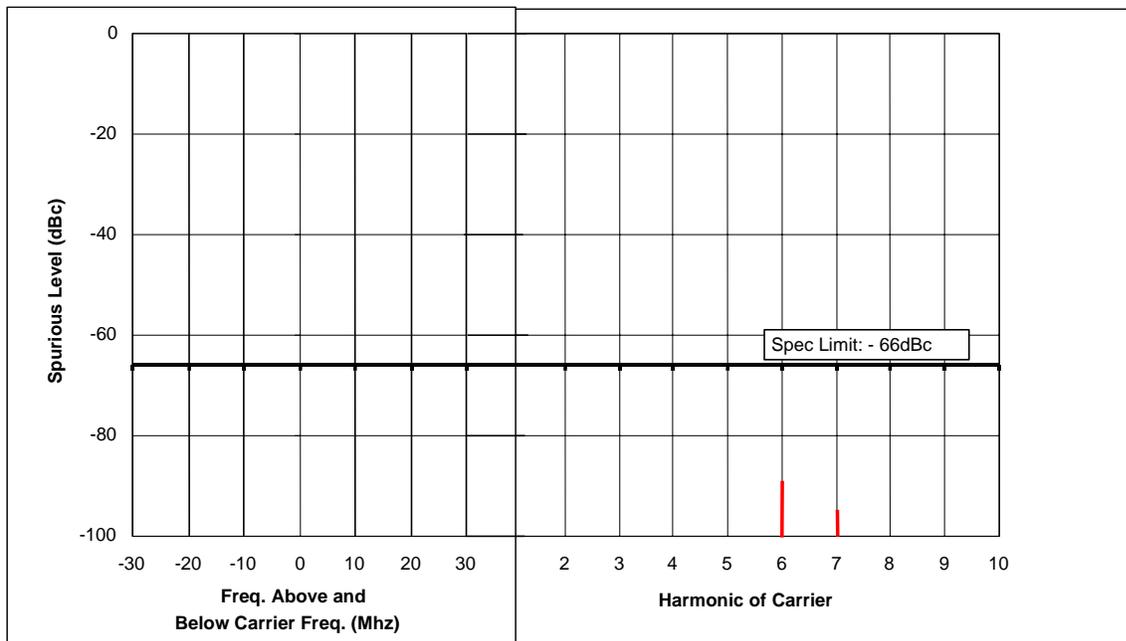
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th. November 2002

Signature : TK Wan

Power Output : 40W at 511.900MHz.
Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

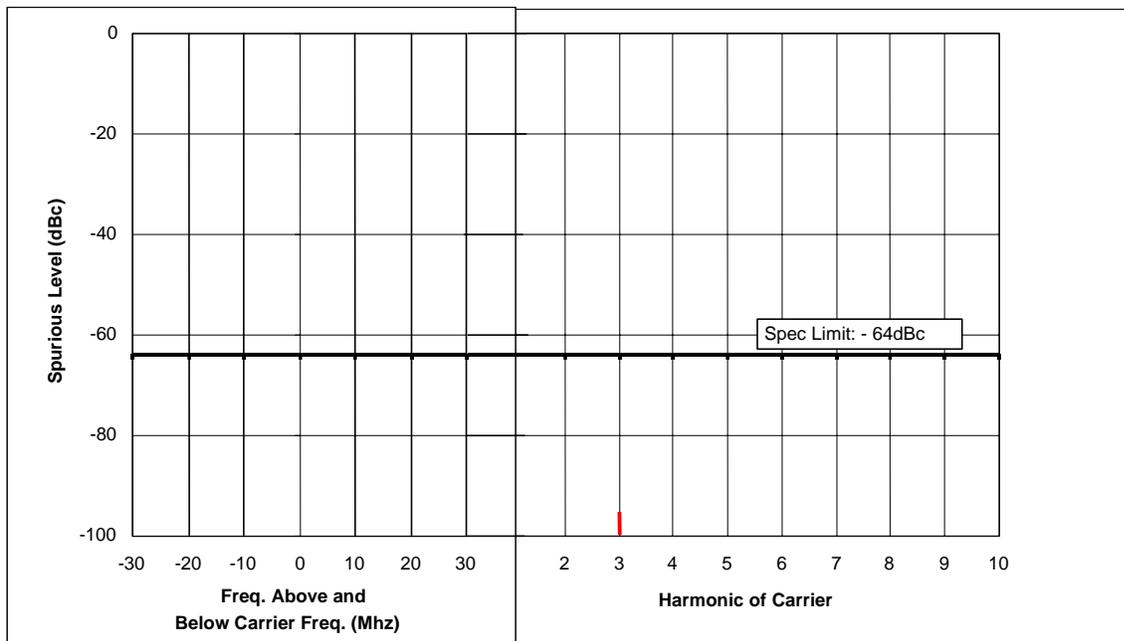
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 25W at 450.100MHz.
Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 30dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

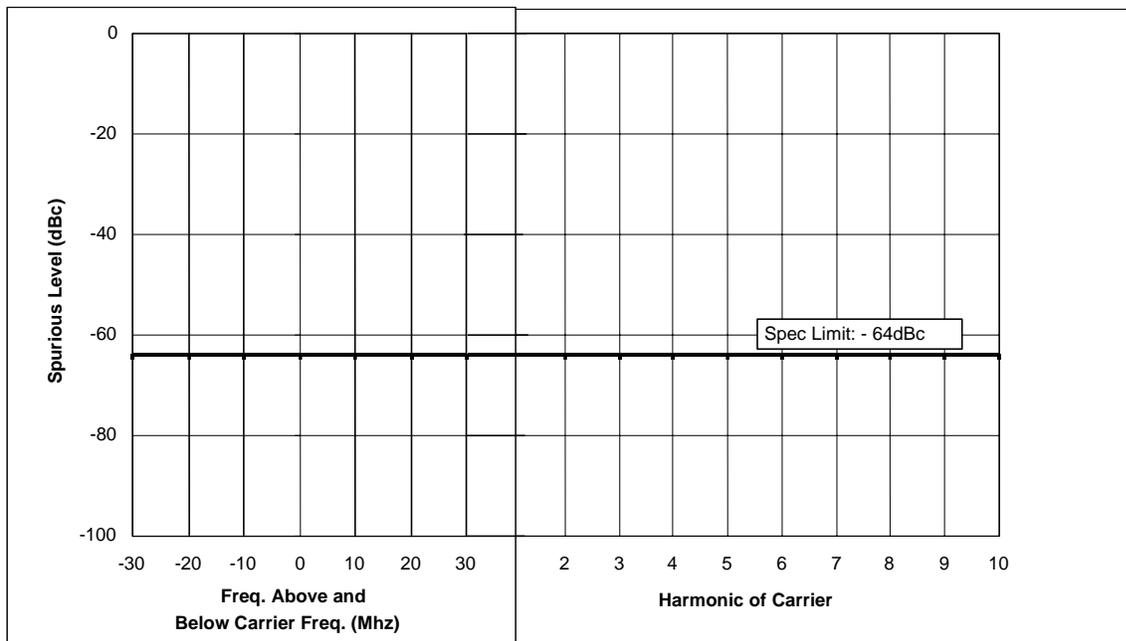
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 25W at 481.100MHz.
Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 30dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

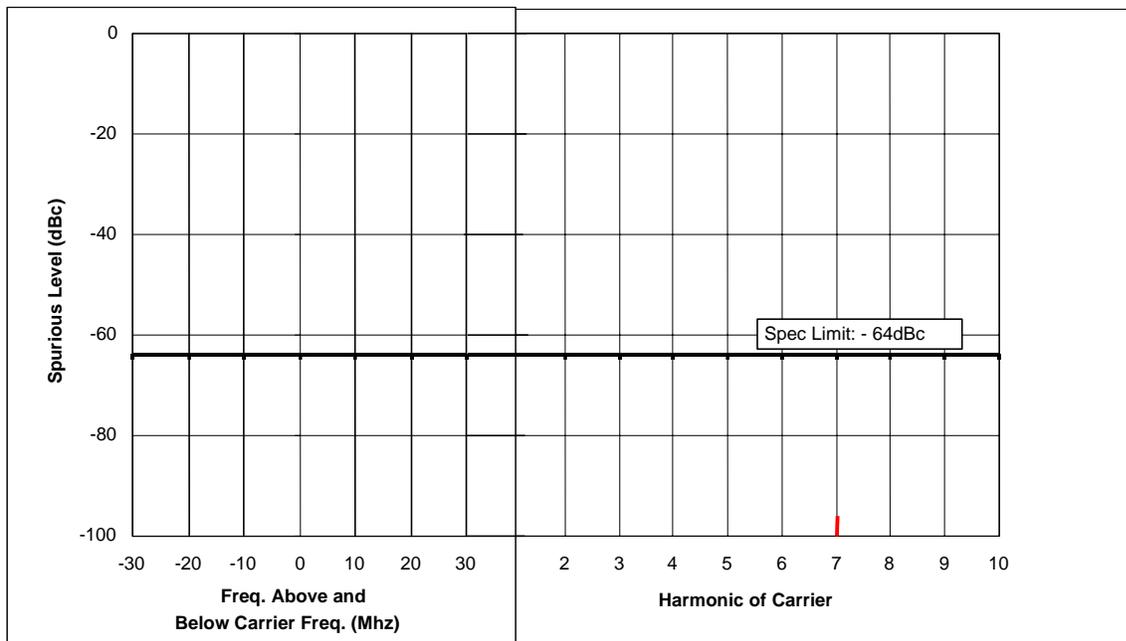
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 25W at 511.900Mhz.
Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 30dB below the limit

MOTOROLA INC.

TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS

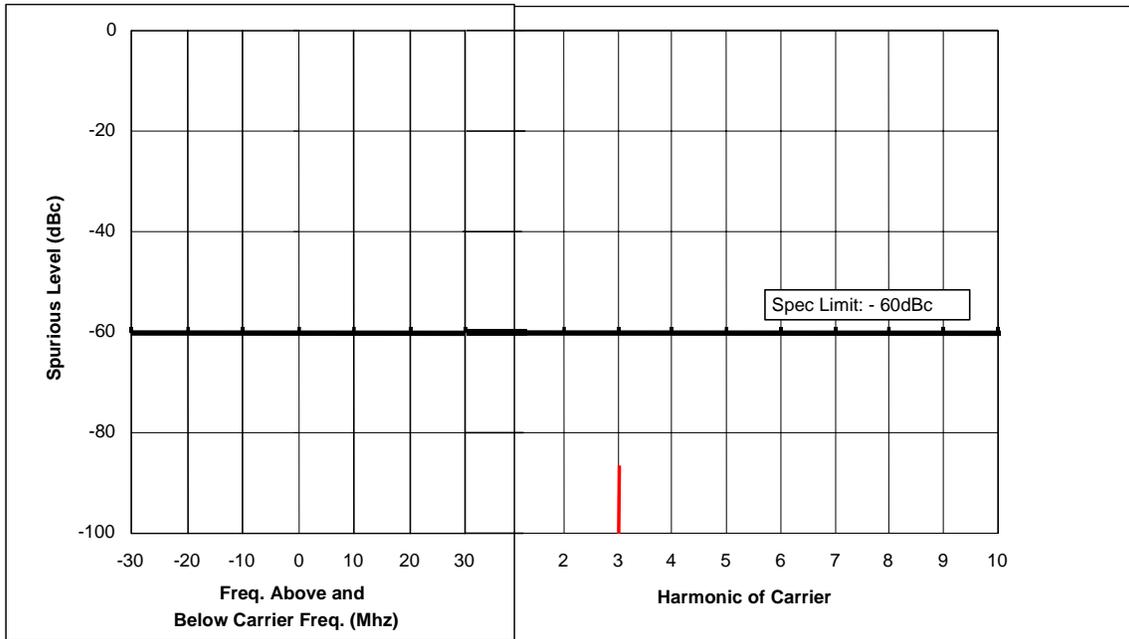
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 48W at 450.100MHz.
Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

=====

Xmtr Type : AZ492FT4859

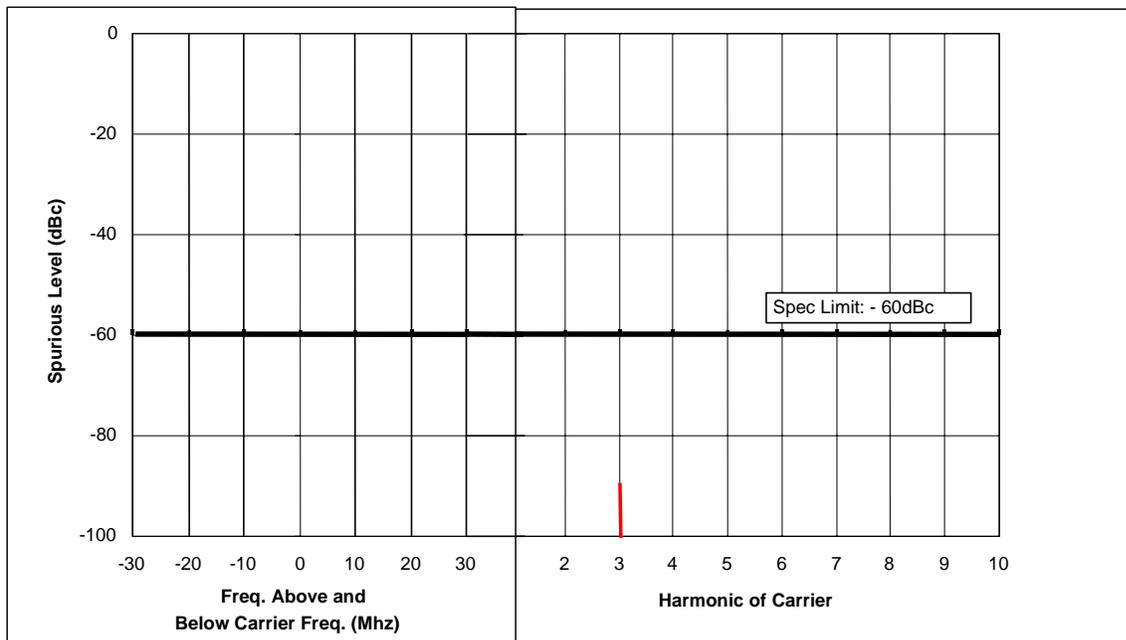
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 48W at 481.100MHz.

Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit.

MOTOROLA INC.

TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS

Xmtr Type : AZ492FT4859

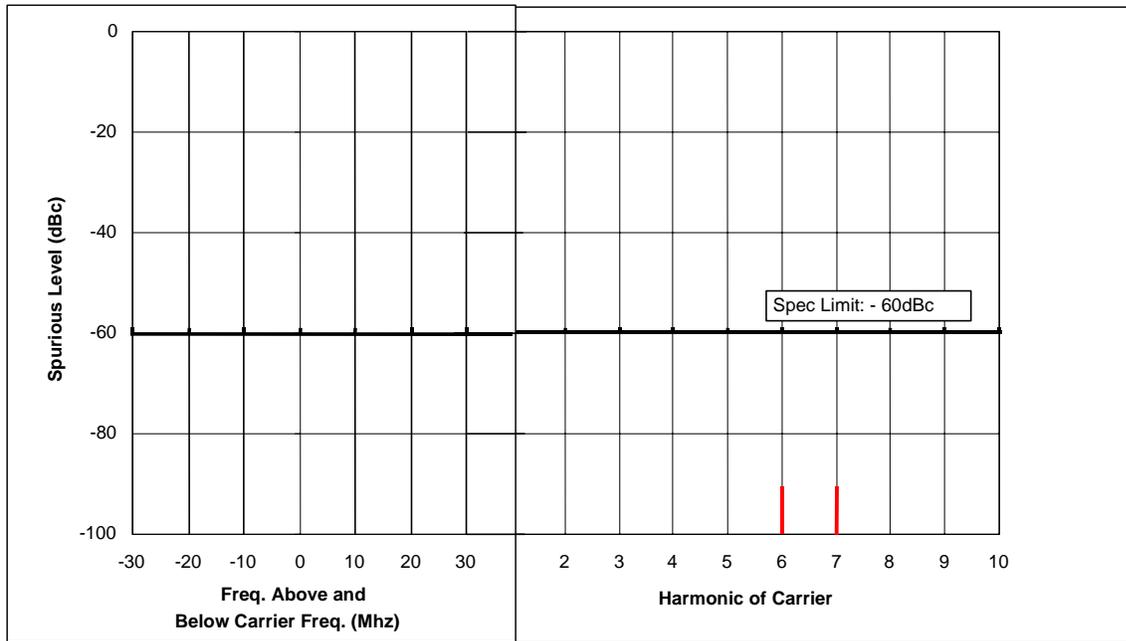
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 48W at 511.900MHz.

Channel Spacing : 25kHz.



Note: Other emissions not reported were more than 35dB below the limit.

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

=====

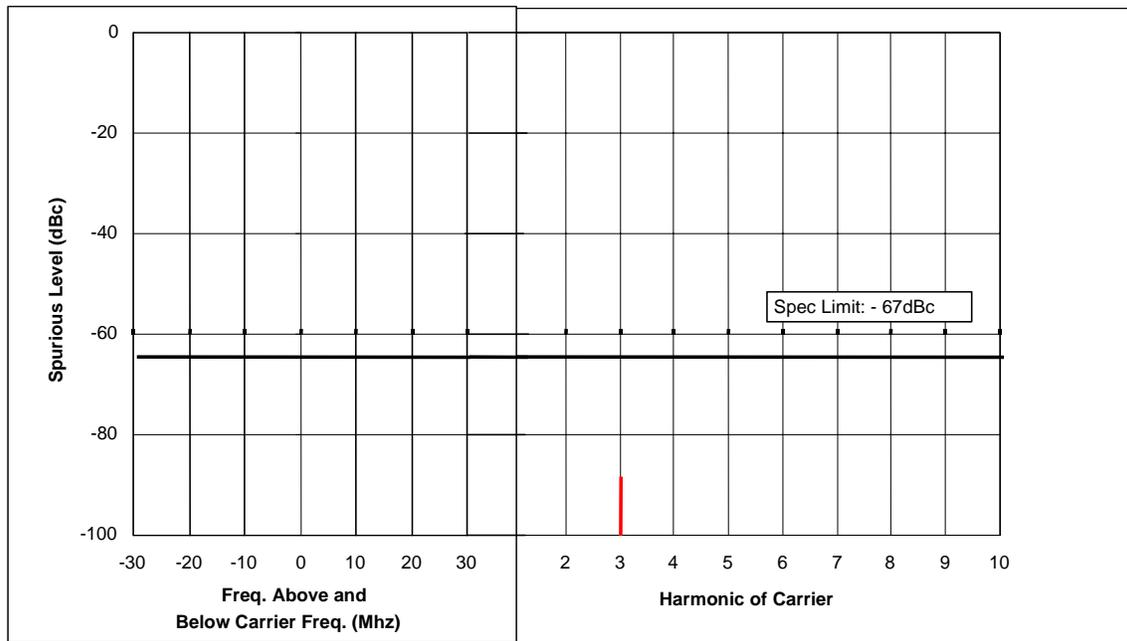
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 48W at 450.100MHz.
Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 35dB below the limit

MOTOROLA INC.

TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS

Xmtr Type : AZ492FT4859

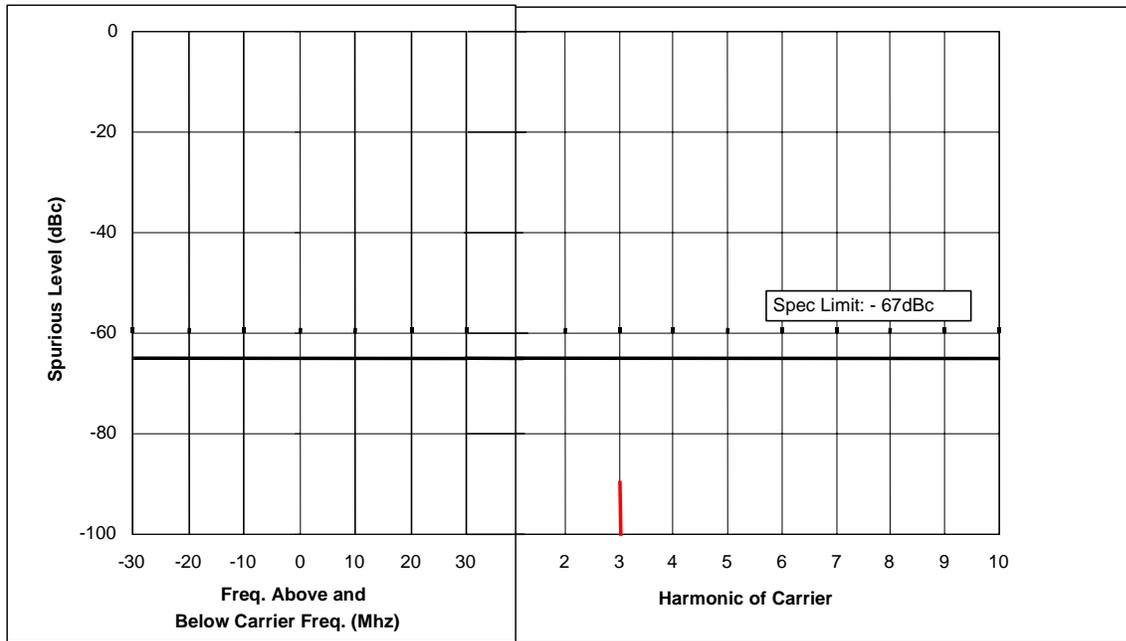
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 48W at 481.100MHz.

Channel Spacing : 12.5kHz.



Note: Other emissions not reported were more than 35dB below the limit.

MOTOROLA INC.

**TRANSMITTER SPURIOUS EMISSION CHARACTERISTIC
CONDUCTED SPURIOUS AND HARMONIC EMISSIONS**

Xmtr Type : AZ492FT4859

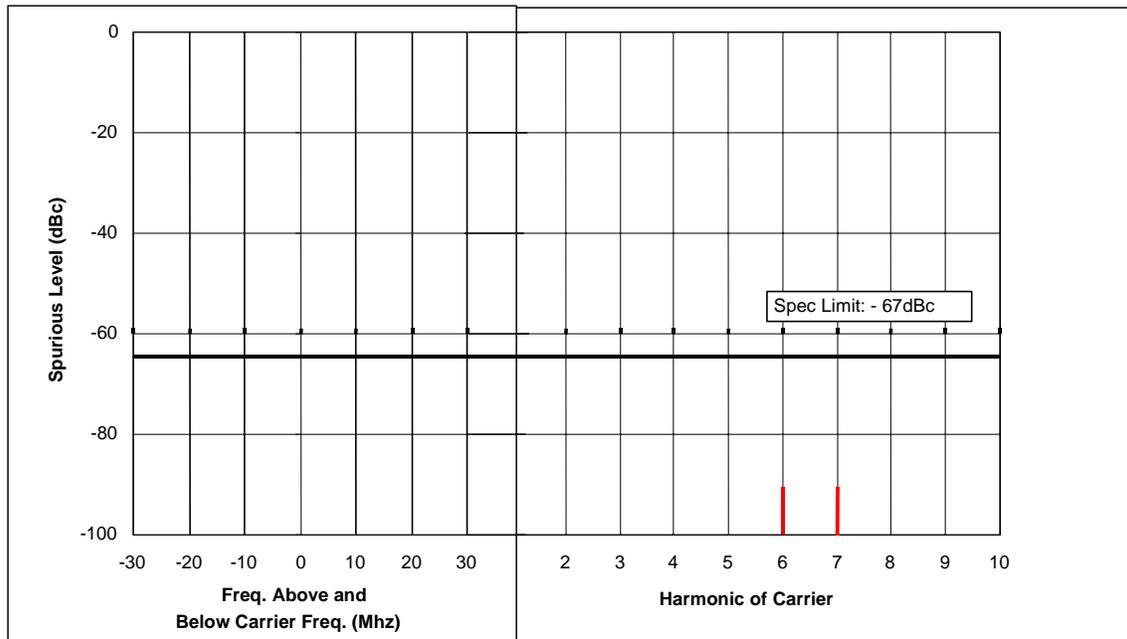
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power Output : 48W at 511.900MHz.

Channel Spacing : 12.5kHz.

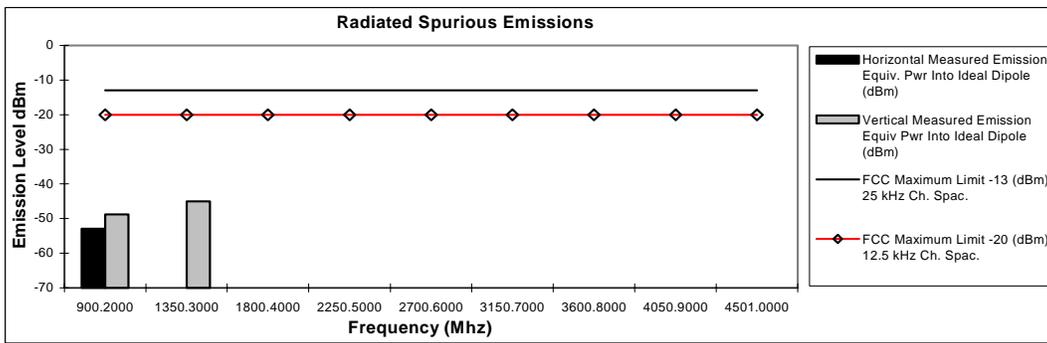


Note: Other emissions not reported were more than 35dB below the limit.

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

450.1 Mhz 25 Watts Channel Spacing 12.5kHz | S/N 103TTT0001

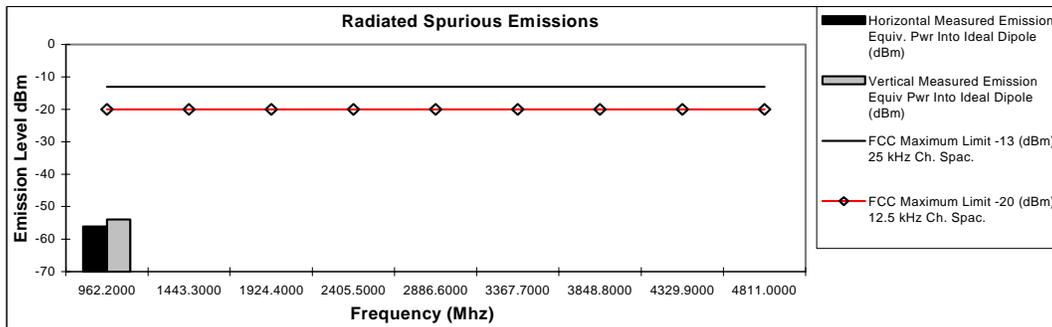
Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
900.2000	-13	-20	-52.85	-48.79
1350.3000	-13	-20	*	-45.00
1800.4000	-13	-20	*	*
2250.5000	-13	-20	*	*
2700.6000	-13	-20	*	*
3150.7000	-13	-20	*	*
3600.8000	-13	-20	*	*
4050.9000	-13	-20	*	*
4501.0000	-13	-20	*	*



Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

481.1 Mhz 25 Watts Channel Spacing 12.5kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
962.2000	-13	-20	-56.03	-53.96
1443.3000	-13	-20	*	*
1924.4000	-13	-20	*	*
2405.5000	-13	-20	*	*
2886.6000	-13	-20	*	*
3367.7000	-13	-20	*	*
3848.8000	-13	-20	*	*
4329.9000	-13	-20	*	*
4811.0000	-13	-20	*	*



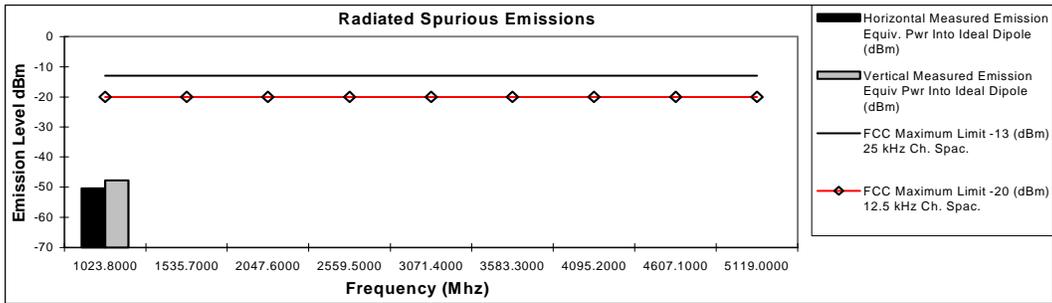
* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

511.9 Mhz 25 Watts Channel Spacing 12.5kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1023.8000	-13	-20	-50.37	-47.67
1535.7000	-13	-20	*	*
2047.6000	-13	-20	*	*
2559.5000	-13	-20	*	*
3071.4000	-13	-20	*	*
3583.3000	-13	-20	*	*
4095.2000	-13	-20	*	*
4607.1000	-13	-20	*	*
5119.0000	-13	-20	*	*



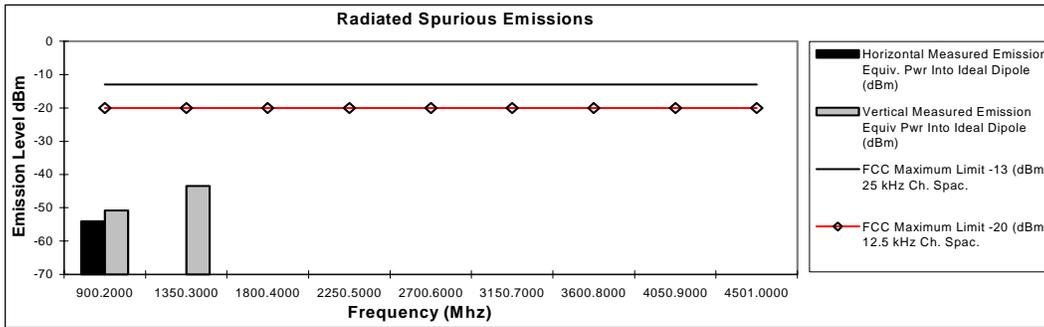
* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.
 The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Inc.

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

450.1 Mhz 40 Watts Channel Spacing 12.5kHz | S/N 103TTT0001

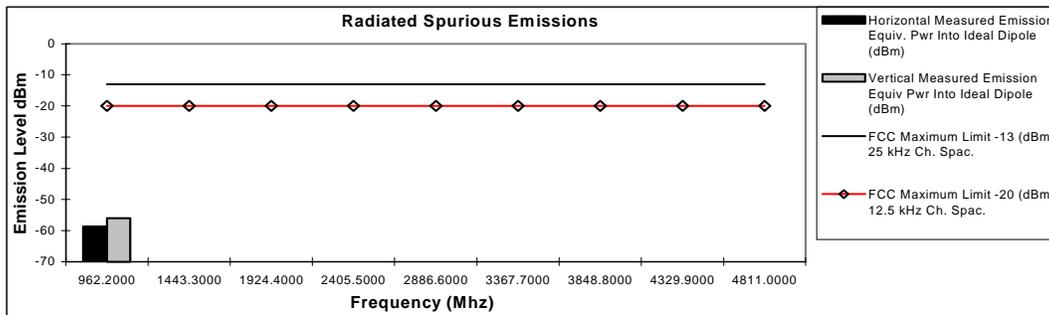
Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
900.2000	-13	-20	-54.03	-50.78
1350.3000	-13	-20	*	-43.47
1800.4000	-13	-20	*	*
2250.5000	-13	-20	*	*
2700.6000	-13	-20	*	*
3150.7000	-13	-20	*	*
3600.8000	-13	-20	*	*
4050.9000	-13	-20	*	*
4501.0000	-13	-20	*	*



Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

481.1 Mhz 40 Watts Channel Spacing 12.5kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
962.2000	-13	-20	-58.63	-56.07
1443.3000	-13	-20	*	*
1924.4000	-13	-20	*	*
2405.5000	-13	-20	*	*
2886.6000	-13	-20	*	*
3367.7000	-13	-20	*	*
3848.8000	-13	-20	*	*
4329.9000	-13	-20	*	*
4811.0000	-13	-20	*	*



* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

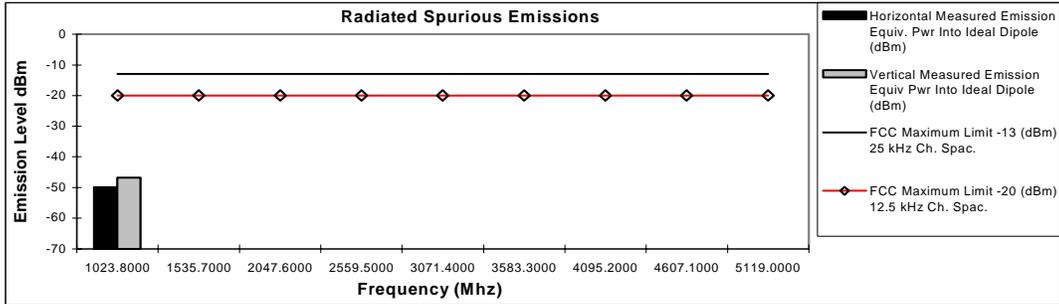
Motorola Plantation EMC Lab – Test Performed by: Curt McLennan
 FCC Registration: 91932 / Industry Canada: IC3679

May 21, 2002

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

511.9 Mhz 40 Watts Channel Spacing 12.5kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1023.8000	-13	-20	-49.93	-46.76
1535.7000	-13	-20	*	*
2047.6000	-13	-20	*	*
2559.5000	-13	-20	*	*
3071.4000	-13	-20	*	*
3583.3000	-13	-20	*	*
4095.2000	-13	-20	*	*
4607.1000	-13	-20	*	*
5119.0000	-13	-20	*	*

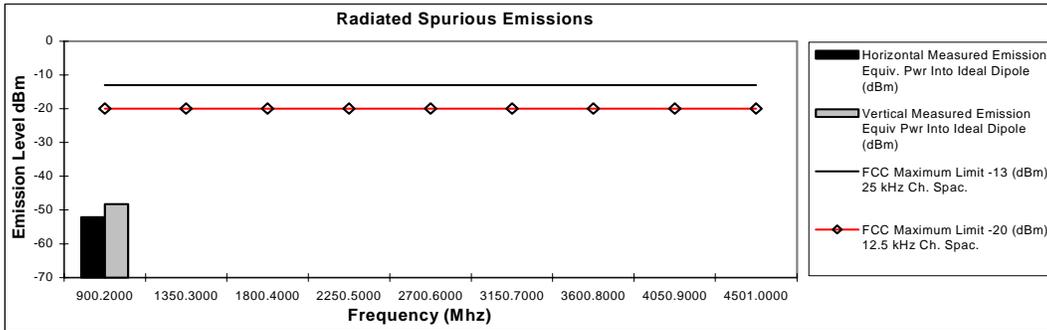


* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.
 The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

450.1 Mhz 25 Watts Channel Spacing 25kHz | S/N 103TTT0001

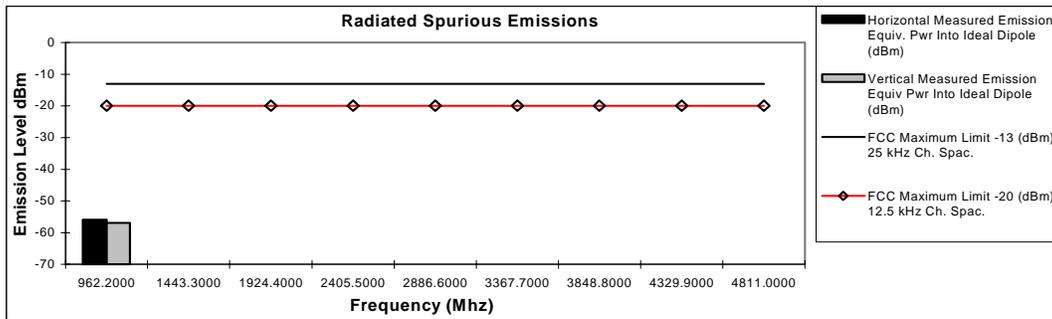
Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equip. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equip Pwr Into Ideal Dipole (dBm)
900.2000	-13	-20	-52.16	-48.28
1350.3000	-13	-20	*	*
1800.4000	-13	-20	*	*
2250.5000	-13	-20	*	*
2700.6000	-13	-20	*	*
3150.7000	-13	-20	*	*
3600.8000	-13	-20	*	*
4050.9000	-13	-20	*	*
4501.0000	-13	-20	*	*



Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

481.1 Mhz 25 Watts Channel Spacing 25kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equip. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equip Pwr Into Ideal Dipole (dBm)
962.2000	-13	-20	-55.91	-56.93
1443.3000	-13	-20	*	*
1924.4000	-13	-20	*	*
2405.5000	-13	-20	*	*
2886.6000	-13	-20	*	*
3367.7000	-13	-20	*	*
3848.8000	-13	-20	*	*
4329.9000	-13	-20	*	*
4811.0000	-13	-20	*	*



* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

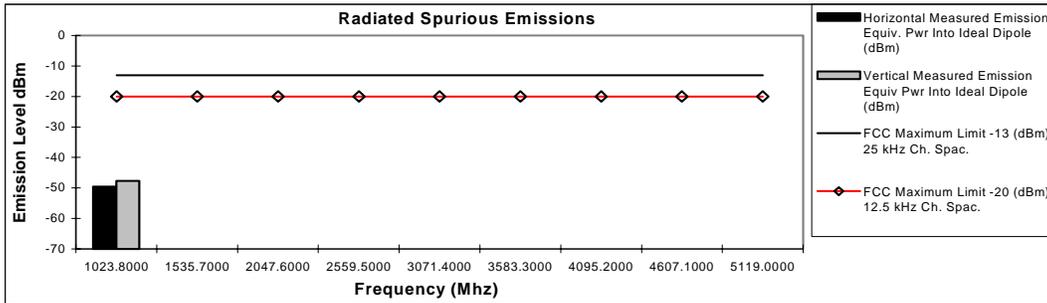
Motorola Plantation EMC Lab – Test Performed by: Curt McLennan
 FCC Registration: 91932 / Industry Canada: IC3679

May 21, 2002

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

5119.9 Mhz 25 Watts Channel Spacing 25kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1023.8000	-13	-20	-49.58	-47.68
1535.7000	-13	-20	*	*
2047.6000	-13	-20	*	*
2559.5000	-13	-20	*	*
3071.4000	-13	-20	*	*
3583.3000	-13	-20	*	*
4095.2000	-13	-20	*	*
4607.1000	-13	-20	*	*
5119.0000	-13	-20	*	*

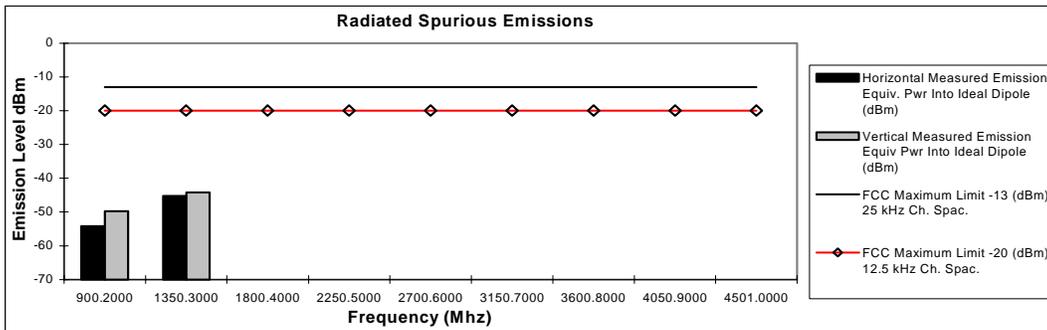


* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.
 The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

450.1 Mhz 40 Watts Channel Spacing 25kHz | S/N 103TTT0001

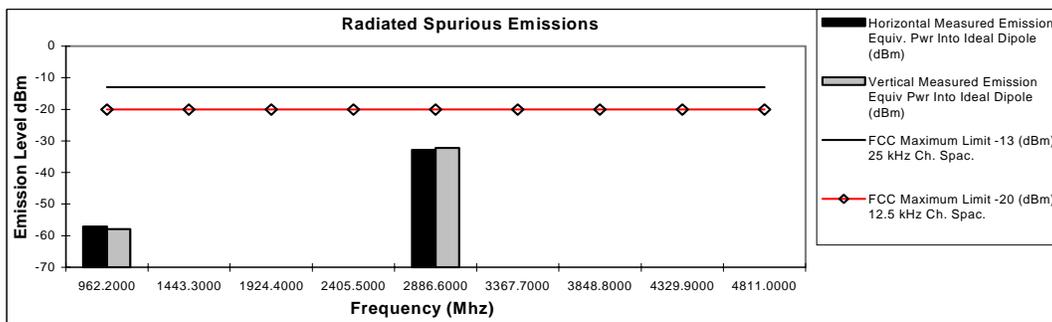
Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
900.2000	-13	-20	-54.22	-49.77
1350.3000	-13	-20	-45.28	-44.20
1800.4000	-13	-20	*	*
2250.5000	-13	-20	*	*
2700.6000	-13	-20	*	*
3150.7000	-13	-20	*	*
3600.8000	-13	-20	*	*
4050.9000	-13	-20	*	*
4501.0000	-13	-20	*	*



Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

481.1 Mhz 40 Watts Channel Spacing 25kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
962.2000	-13	-20	-57.06	-57.88
1443.3000	-13	-20	*	*
1924.4000	-13	-20	*	*
2405.5000	-13	-20	*	*
2886.6000	-13	-20	-32.79	-32.26
3367.7000	-13	-20	*	*
3848.8000	-13	-20	*	*
4329.9000	-13	-20	*	*
4811.0000	-13	-20	*	*



* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt McLennan
FCC Registration: 91932 / Industry Canada: IC3679

May 21, 2002

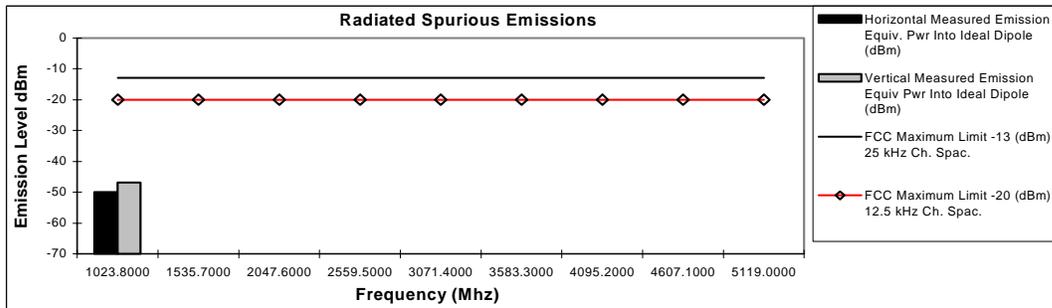
Transmitter Radiated Spurious Emissions: WARIS UHF Mobile

511.9 Mhz

40 Watts

Channel Spacing 25kHz | S/N 103TTT0001

Frequency (Mhz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1023.8000	-13	-20	-49.96	-46.81
1535.7000	-13	-20	*	*
2047.6000	-13	-20	*	*
2559.5000	-13	-20	*	*
3071.4000	-13	-20	*	*
3583.3000	-13	-20	*	*
4095.2000	-13	-20	*	*
4607.1000	-13	-20	*	*
5119.0000	-13	-20	*	*



* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.
 The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt McLennan
 FCC Registration: 91932 / Industry Canada: IC3679

May 21, 2002

MOTOROLA INC.

CRYSTAL OSCILLATOR STABILITY CHARACTERISTIC
FREQUENCY vs. TEMPERATURE

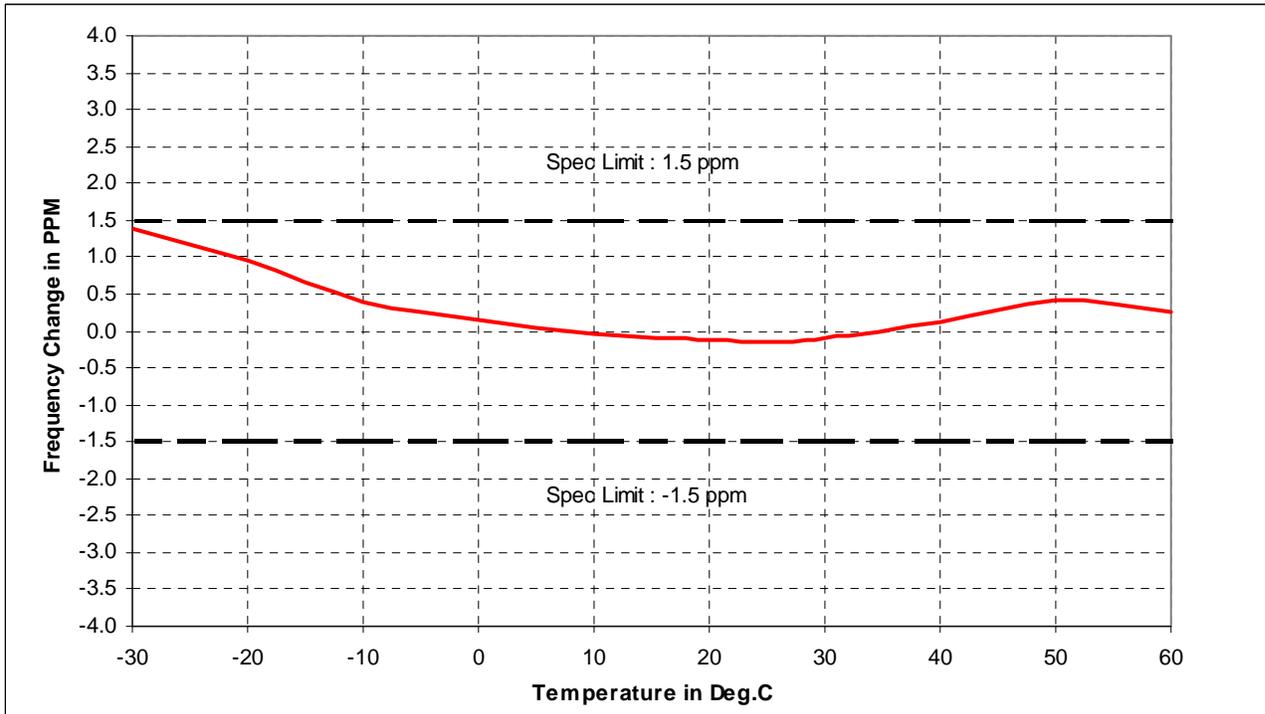
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

FREQ : 481.100MHz.



MOTOROLA INC.

STABILITY CHARACTERISTIC
FREQUENCY vs. VOLTAGE

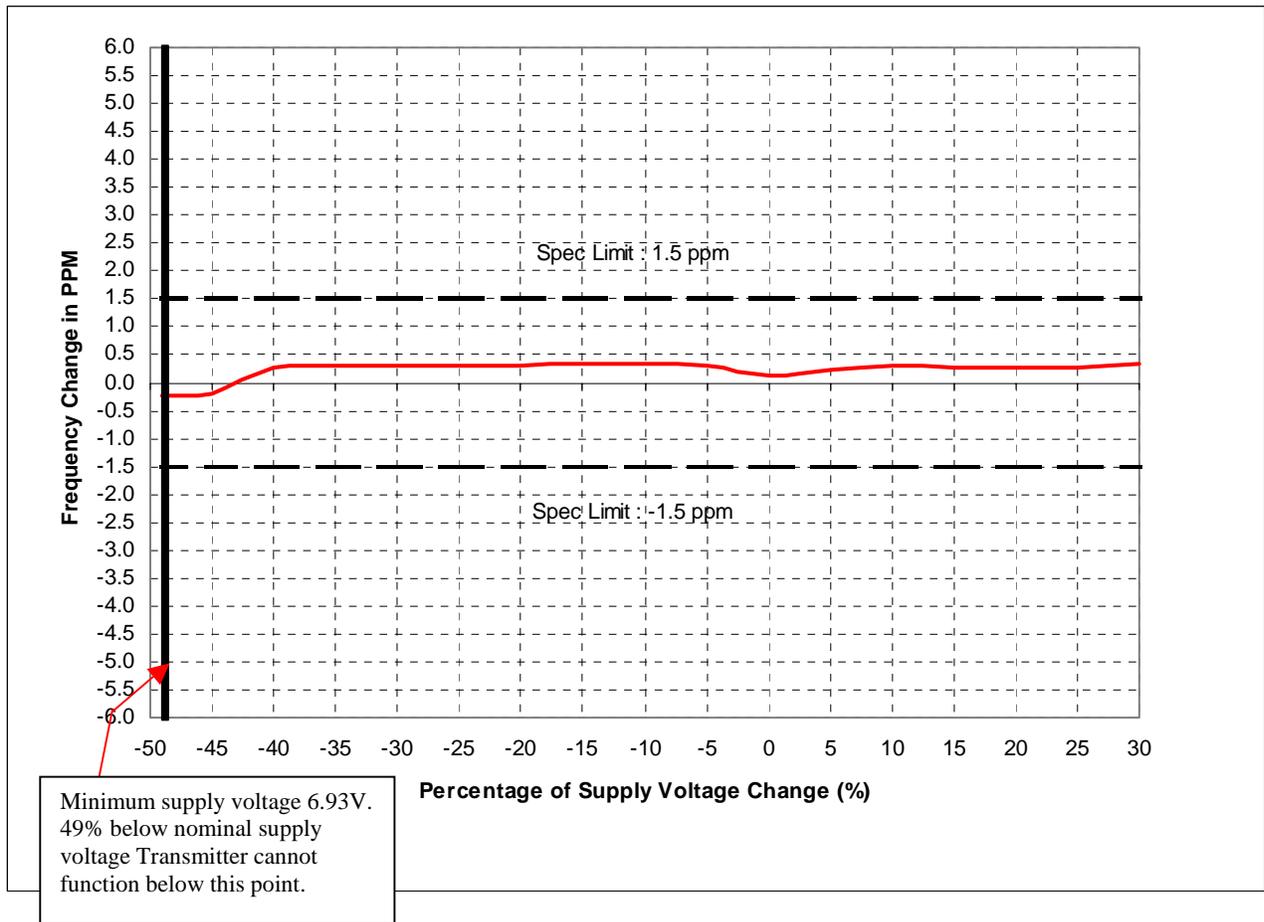
Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

FREQ : 481.100MHz.



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

Log Page : ---

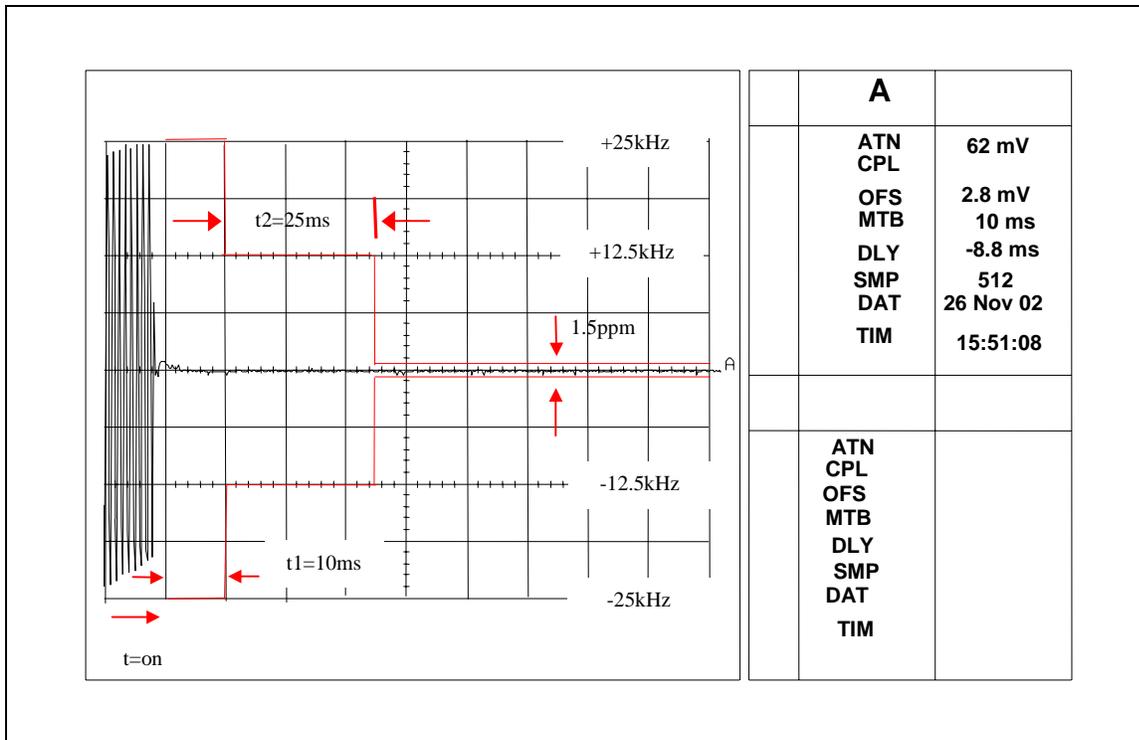
Date : 26th November 2002

Signature : TK Wan

Power : 25W at 481.100MHz.

Channel Spacing : 25kHz.

Switch - On Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

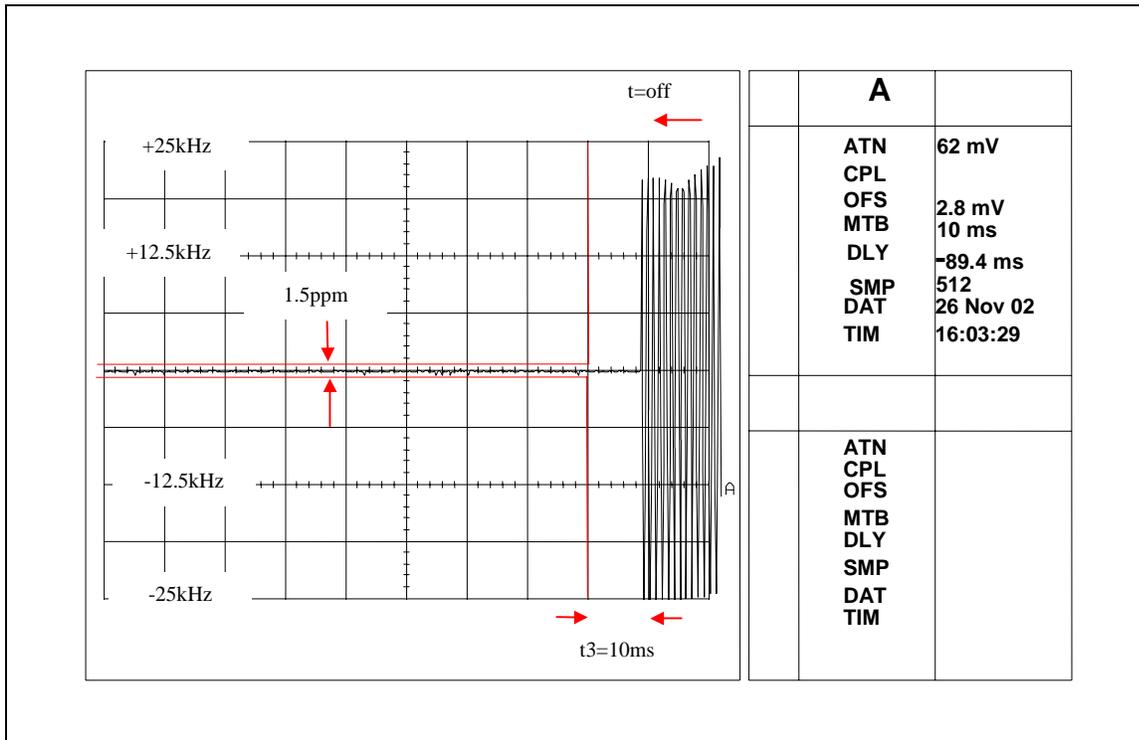
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power : 25W at 481.100Mhz.
Channel Spacing : 25kHz.

Switch - Off Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

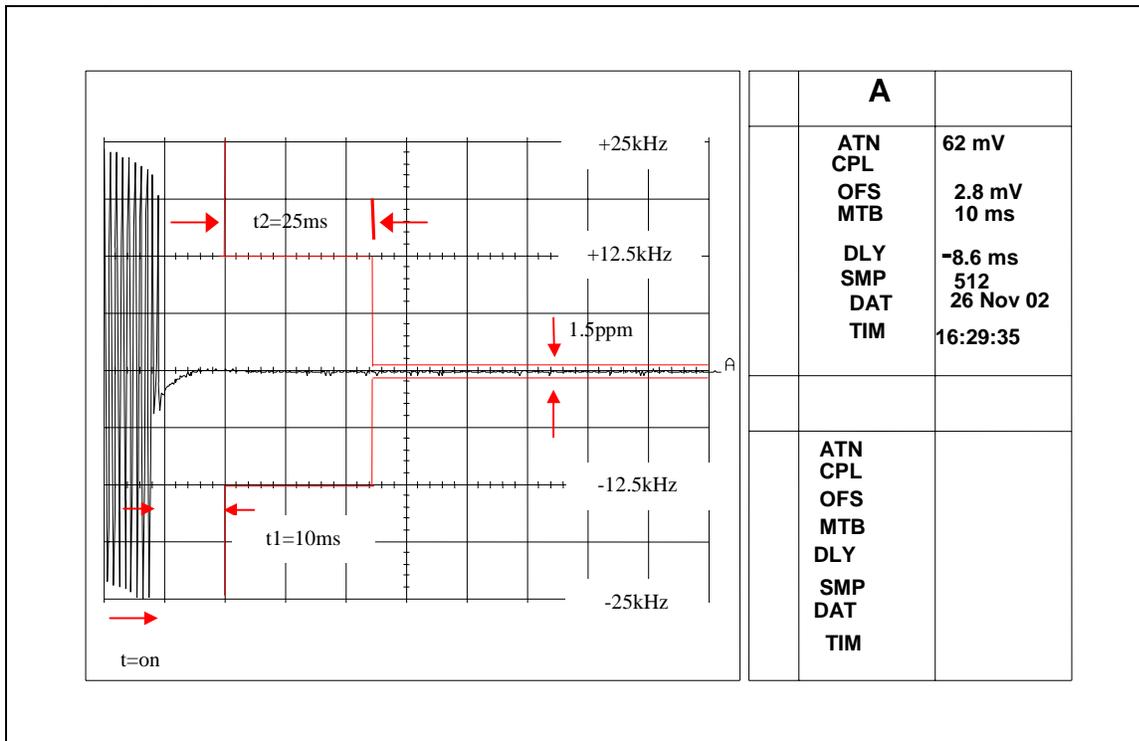
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power : 25W at 481.100MHz
 Channel Spacing : 12.5kHz.

Switch - On Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

Log Page : ---

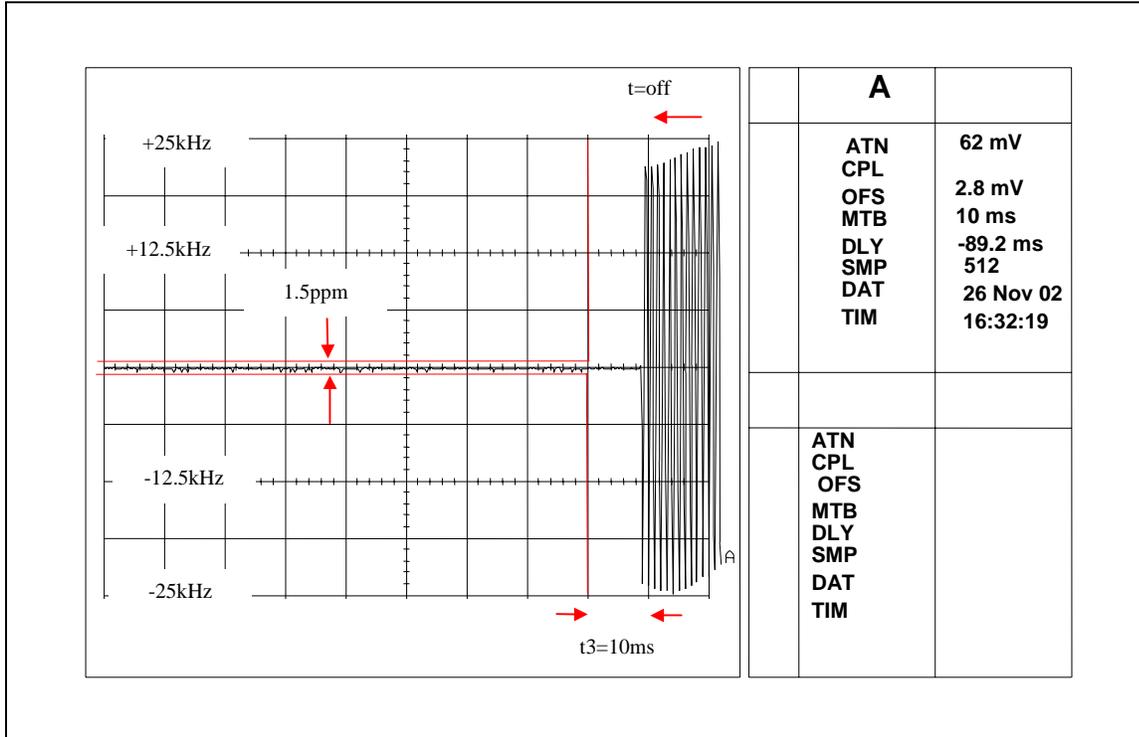
Date : 26th November 2002

Signature : TK Wan

Power : 25W at 481.100Mhz.

Channel Spacing : 12.5kHz.

Switch - Off Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

Log Page : ---

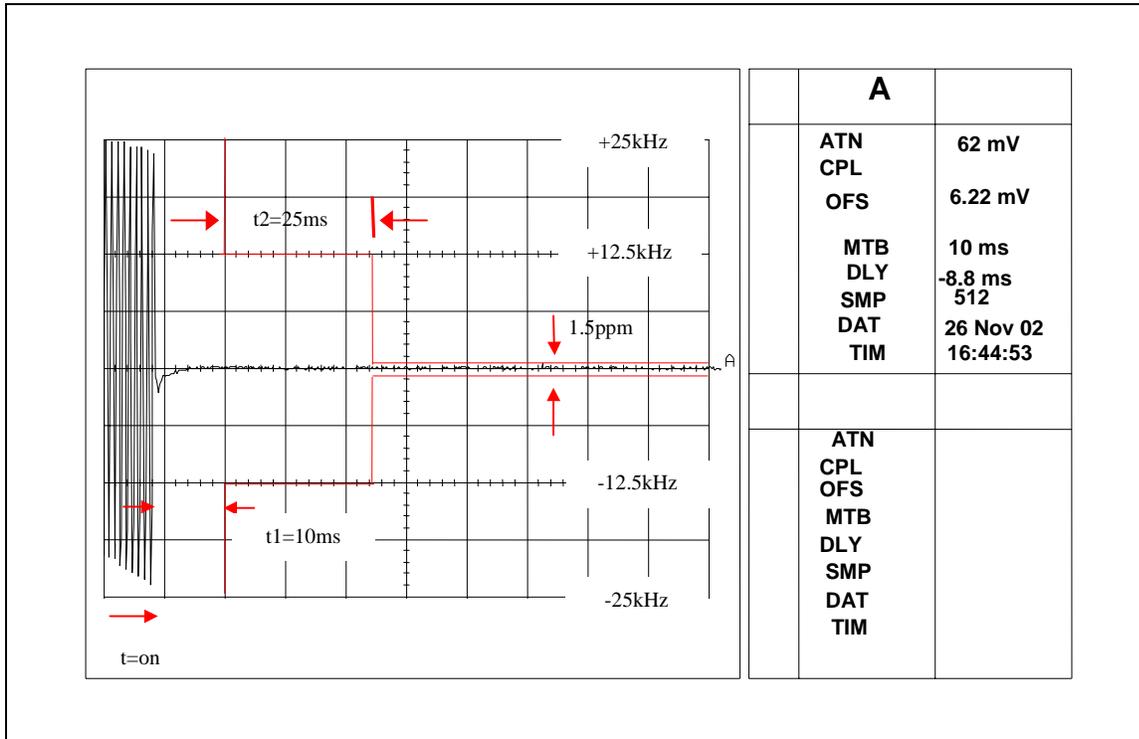
Date : 26th November 2002

Signature : TK Wan

Power : 48W at 481.100MHz

Channel Spacing : 12.5kHz.

Switch - On Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

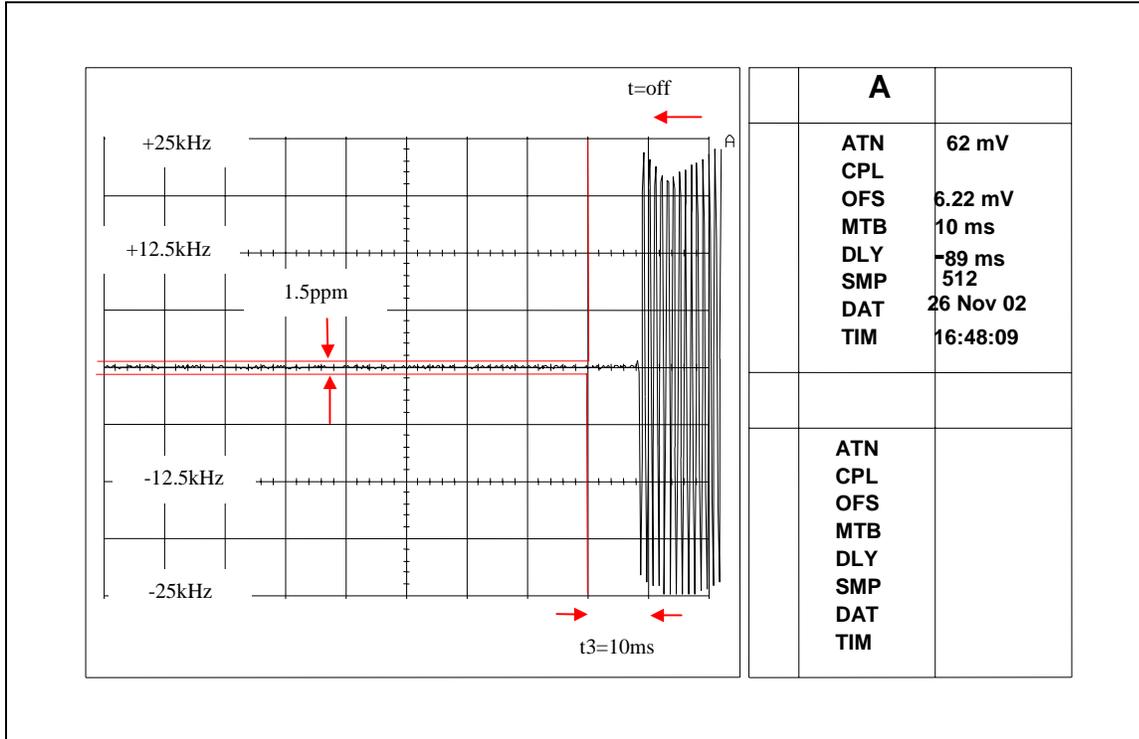
Log Page : ---

Date : 26th November2002

Signature : TK Wan

Power : 48W at 481.100Mhz.
Channel Spacing : 12.5kHz.

Switch - Off Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

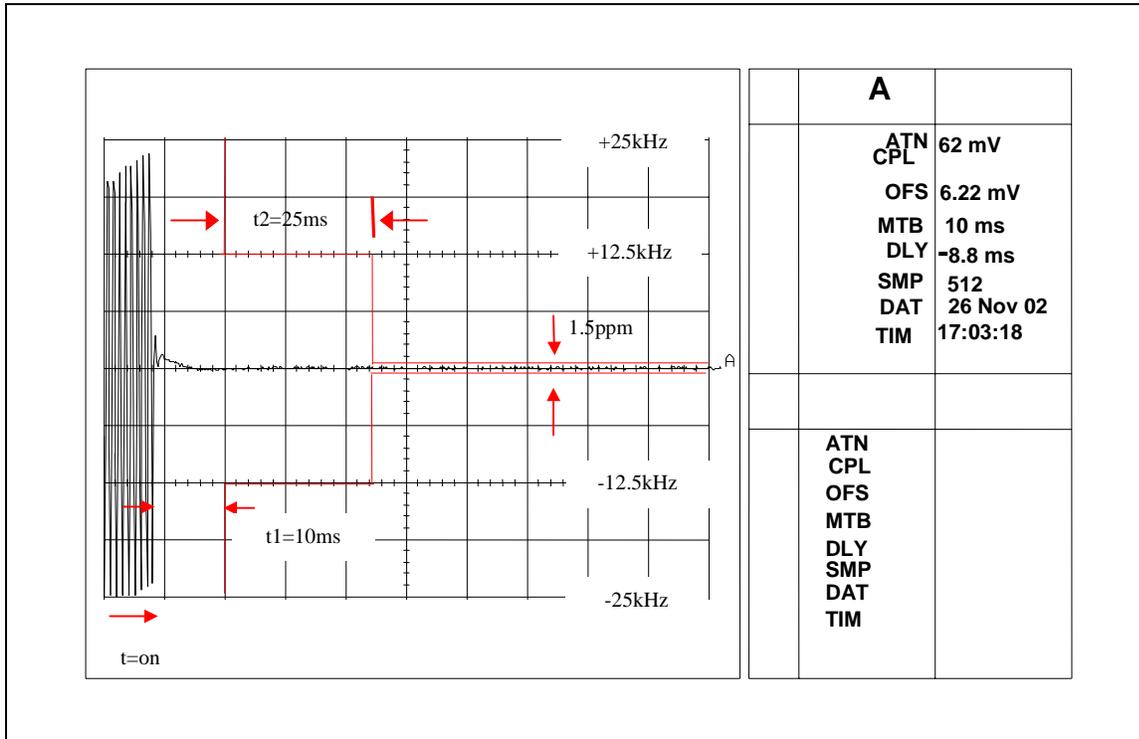
Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power : 48W at 481.100MHz
 Channel Spacing : 25kHz.

Switch - On Condition



MOTOROLA INC.

TRANSIENT FREQUENCY BEHAVIOR

Xmtr Type : AZ492FT4859

Log Page : ---

Date : 26th November 2002

Signature : TK Wan

Power : 48W at 481.100Mhz.

Channel Spacing : 25kHz.

Switch - Off Condition

