Report on Test Measurements

Measurements Report
The measurement report shows compliance information against the pertinent technical standards. Each parameter is measured generally at the low end, middle, and at the high end of the applicable frequency band. Each section of the report contains either verbiage or a graph (or graphs) which show compliance to applicable standards as required, explains testing method used, and indicates what the applicable specification is.

Information and performance relative to 25 kHz 'wideband' operation is included in the report. Although wideband operation in the 150-174 MHz and 421-512 MHz bands is no longer allowable for rule part 90 in the US, it is available for other FCC rule parts and in use in other countries, including Industry Canada.

The time division multiple access (TDMA) mode of operation provides two voice paths in a 12.5 kHz channel bandwidth and a data rate of 9600 bits per second bits per second in a channel bandwidth of 12.5 kHz. This is equivalent to one voice path per 6.25 kHz of channel bandwidth and 4800 bits per second or greater in a 6.25 kHz channel bandwidth. The SLR 5700 conforms to the spectrum efficiency requirements of FCC rule § 90.203 (j) (5).

A list of test equipment for all sections, and certification signoff page are included at the end of the measurement report.

SUBMITTED MEASURED DATA -- INDEX

(Continued)

Report on Test Measurements

Measurements Report

SUBMITTED MEASURED DATA – INDEX (Continued)

EXHIBIT DESCRIPTION

Report on Test Measurements

RF Power Output Data

The RF power output was measured with the indicated voltage applied to and current into the final RF amplifying device(s). The DC current indicated is the total for the final RF amplifier stage.

Frequency Modulation and Compatible 4-Level Frequency Modulation Mode:

	406 MHz	420 MHz	430 MHz	
Measured RF output	110	110	110	Watts
DC Voltage, final RF amplifier stage/stages	15.75	15.75	15.75	Volts
DC Current, final RF amplifier stage/stages	12.9	13.4	13.7	Amperes
Input power for final RF amplifying device(s)	203	211	216	Watts
Primary Radio Input Supply Voltage	120	120	120	Volts AC
Minimum Measured RF output	1	1	1	Watts
DC Voltage, final RF amplifier stage/stages	15.75	15.75	15.75	Volts
Normal DC Current	2.5	2.5	2.5	Amperes
Input power for final RF amplifying device(s)	39	39	39	Watts
Primary Radio Input Supply Voltage	120	120	120	Volts AC

Frequency Modulation and Compatible 4-Level Frequency Modulation Mode:

	450 MHz	460 MHz	470 MHz	
Measured RF output	110	110	110	Watts
DC Voltage, final RF amplifier stage/stages	15.75	15.75	15.75	Volts
DC Current, final RF amplifier stage/stages	14.1	13.6	13.9	Amperes
Input power for final RF amplifying device(s)	222	214	219	Watts
Primary Radio Input Supply Voltage	120	120	120	Volts AC
Minimum Measured RF output	1	1	1	Watts
DC Voltage, final RF amplifier stage/stages	15.75	15.75	15.75	Volts
Normal DC Current	2.5	2.5	2.5	Amperes
Input power for final RF amplifying device(s)	39	39	39	Watts
Primary Radio Input Supply Voltage	120	120	120	Volts AC

Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 12.5 kHz Channel Spacing
MOTOTRBO™ Digital Modulation can be used in a system configuration based upon channel usage as described in Exhibit B. The 'F7E' and 'FXE' emission designators provide usage for telephony, the 'F7D' and 'FXD' designators provide usage for data / telecommand, and the 'F7W' designator provides for usage as a combination of telephony and telecommand. All are spectrally identical. The occupied bandwidth chart references the following setup and specification requirements.

Modulation Type:	MOTOTRBO™ Digital Modulation
Emission Designator:	7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE
Channelization:	12.5 kHz
Power Setting:	110 Watts

Specification Requirement 47 CFR §90.210(d) and IC RSS-119 section 5.8.3 - Emission Limits – "D-Mask":
Emission *Mask D.* For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth (f_0) to 5.625 kHz removed from f_0: *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 12.5 kHz: *At least 7.27 *(f_d –2.88 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 12.5 kHz: *At least 50 plus 10 log_{10}(P) dB or 70 dB, whichever is the lesser attenuation.*

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide to capture the true peak emission of the equipment under test. In order to show compliance with the emissions mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to ensure that the emission profile is developed.

Necessary Bandwidth Calculation:
The necessary bandwidth of the modulation per the formulas defined in 47 CFR §2.202(g) / TRC-43 section 8 is as follows:
Four Level Frequency Modulation is used to modulate a carrier with a digital bit stream: Data Rate: R = 9600 bps; Bits per Symbol: S=2; Modulation rate in baud = B = 9600 / 2 = 4800; Max Modulation Frequency = M = ½* B = 2400 Hz; Deviation at the outer symbols is 1.944 kHz; A square root raised cosine filter is implemented for the modulation low pass filter with the following magnitude response, |F(f)|:

$|F(f)| = 1$ for $|f| \leq 1920$ Hz
$|F(f)| = |\cos(\pi f / 1920)|$ for 1920 Hz < $|f| \leq 2880$ Hz
$|F(f)| = 0$ for $|f| > 2880$ Hz
where f = frequency in hertz.

Max Mod Freq, M= ½B	*Max Deviation, D*	*2M+2DK (K=.72)*	*Nec BW*
2.4 kHz	1.944 kHz	7.60 kHz	7K60

(Continued)

Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 12.5 kHz Channel Spacing (continued)

Measurement Procedure and Instrument Settings:

Emission Measurement Analyzer Settings				Measured Occupied Bandwidth	
Horizontal:	12.5 kHz per Division	Resolution BW:	100 Hz	Resolution BW:	100 Hz
Vertical:	10 dB per Division	Video BW:	10 kHz	Span:	125 kHz
Sweep Time:	72 Seconds (<2 kHz/Sec)	Span:	125 kHz	Number of Points:	6401
Detector:	Peak			Integration Time:	34.16 ms

Test Procedure:

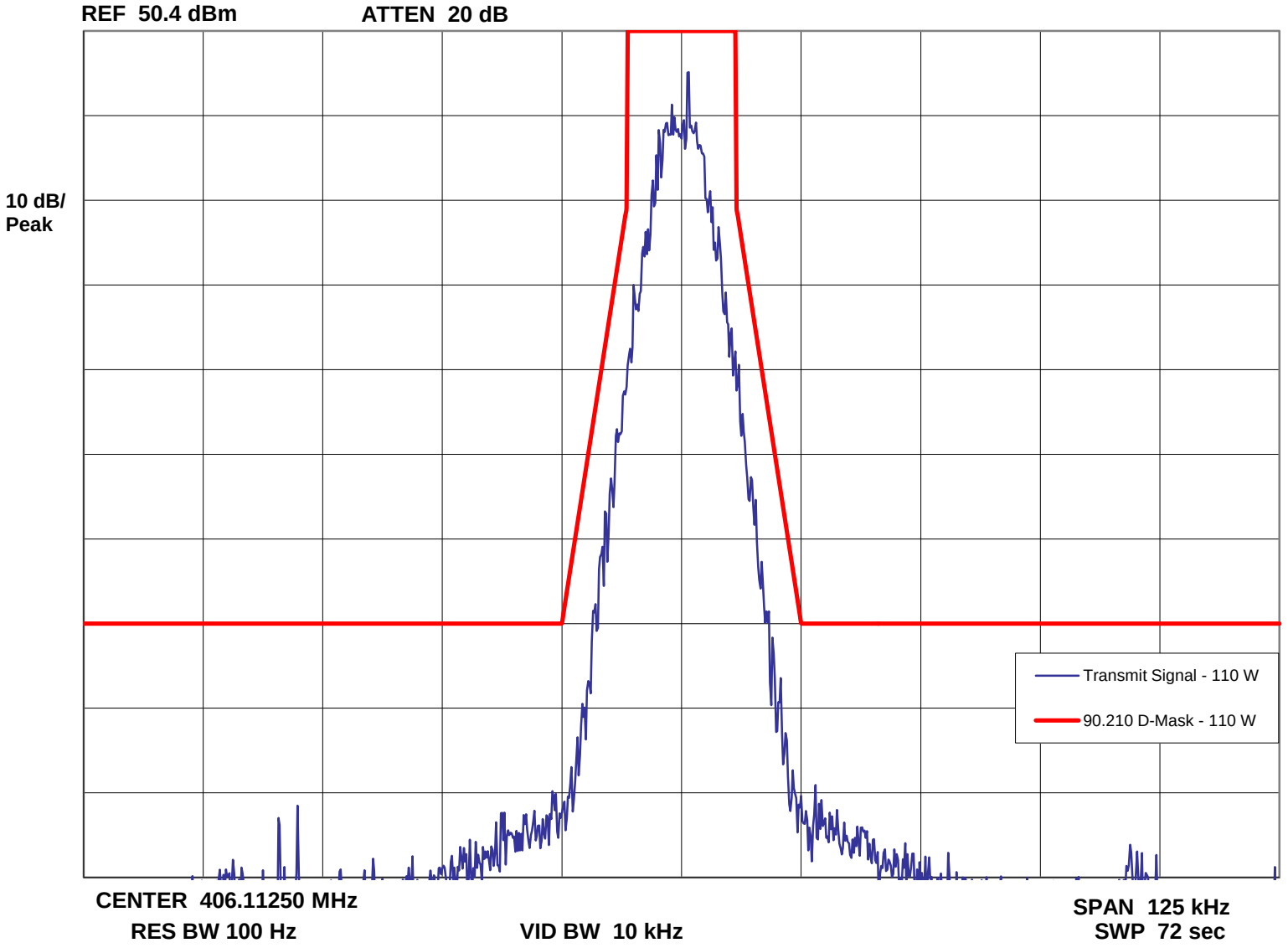
1) Adjust the spectrum analyzer per the values specified in the Emission Measurement Analyzer Settings.
2) Modulate the transmitter with the appropriate signaling pattern, (pseudorandom data) and key the transmitter at the full power rating. Use the analyzer controls to set this signal to the full-scale reference line. Allow the analyzer to sweep fully and store the sweep.
3) Use the band power marker function of the spectrum analyzer to measure the power of the carrier.
4) Use the carrier power value from the previous step to generate the emission mask limit.
5) Plot the resulting analyzer trace and the emission mask limit, add text and labeling as appropriate.
6) Adjust the signal analyzer resolution BW and span as indicated above, use the Occupied Bandwidth function to record the value.

EXHIBIT	DESCRIPTION	Meas Occ BW
E1-2.1	Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 406.1125 MHz	7.42 kHz
E1-2.2	Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 420.0125 MHz	7.42 kHz
E1-2.3	Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 429.9875 MHz	7.42 kHz
E1-2.4	Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 450.0125 MHz	7.42 kHz
E1-2.5	Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 460.0125 MHz	7.42 kHz
E1-2.6	Occupied Bandwidth – MOTOTRBO™ Digital Modulation, 469.9875 MHz	7.42 kHz

Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation – Emission Designator: 7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE

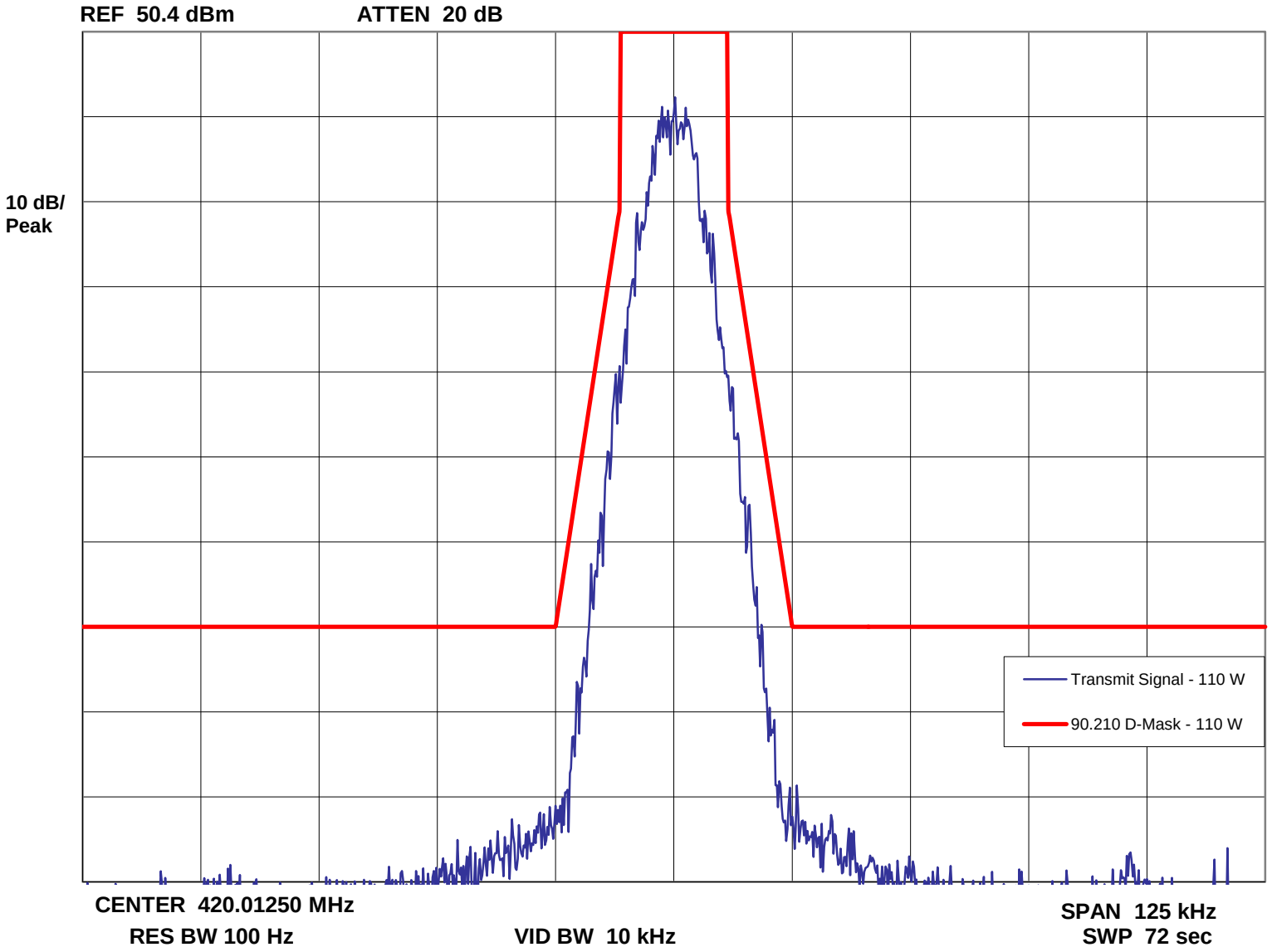
Occupied Bandwidth -- MOTOTRBO™ Digital Modulation - 110 Watts



Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation – Emission Designator: 7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE

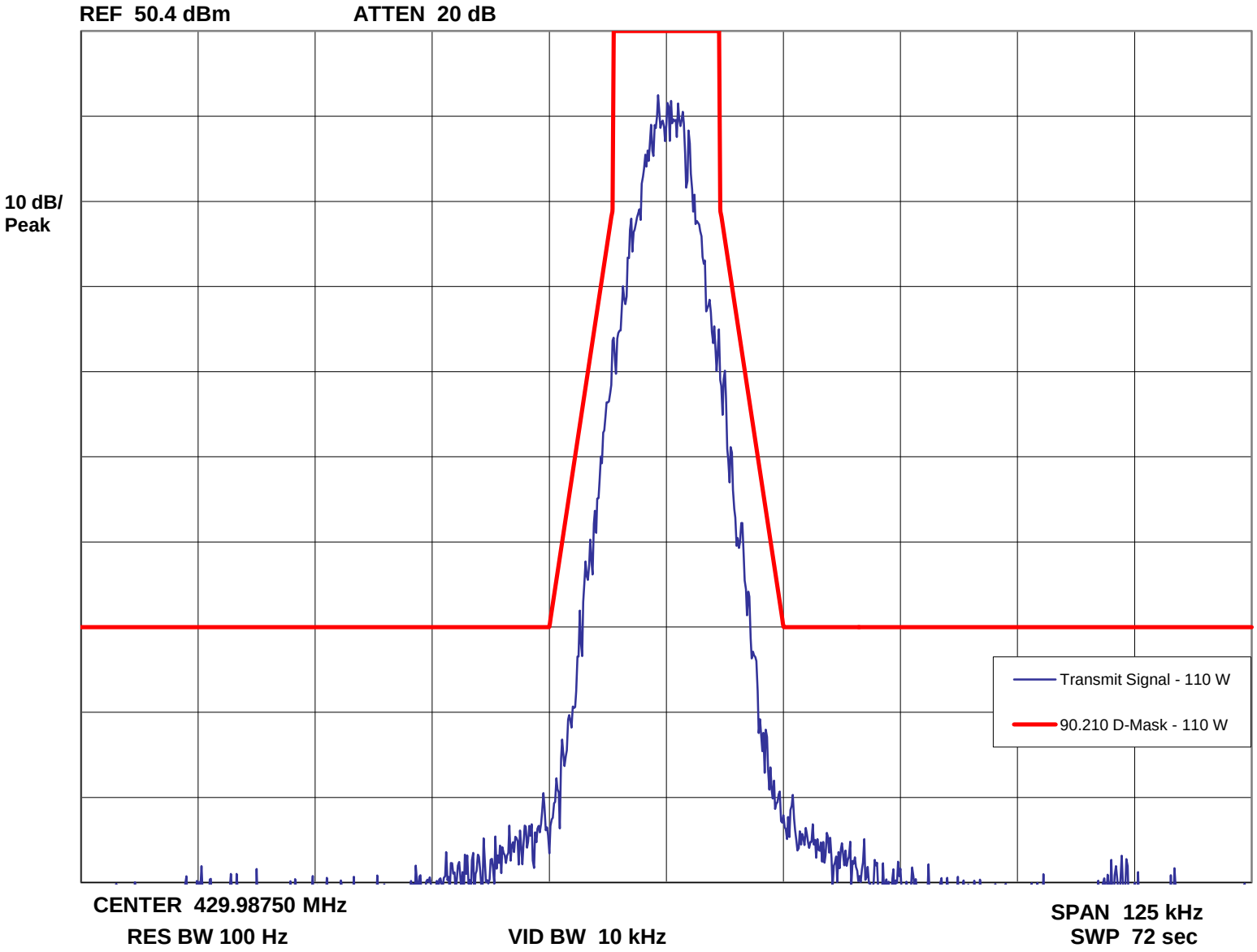
Occupied Bandwidth -- MOTOTRBO™ Digital Modulation - 110 Watts



Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation – Emission Designator: 7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE

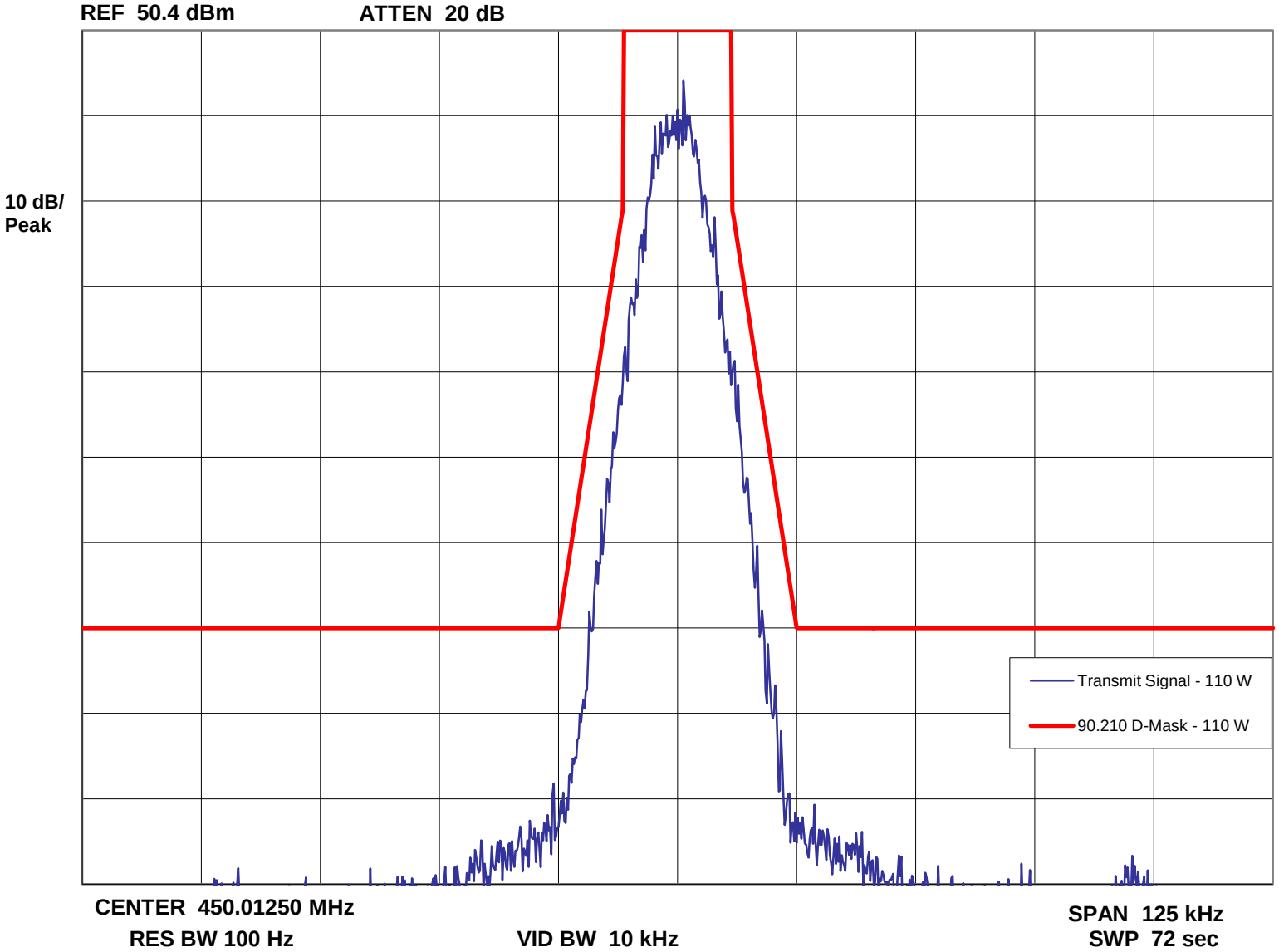
Occupied Bandwidth -- MOTOTRBO™ Digital Modulation - 110 Watts



Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation – Emission Designator: 7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE

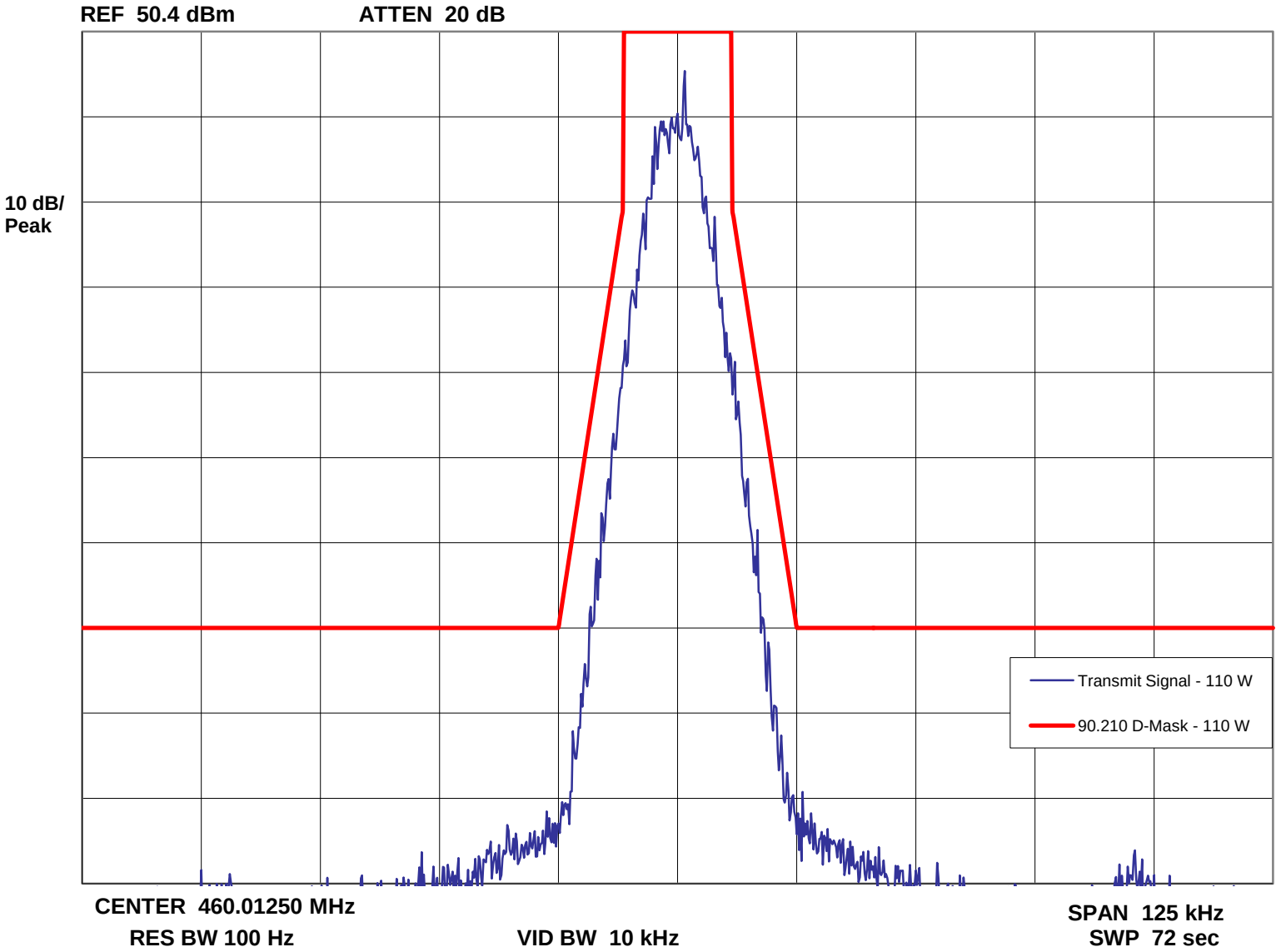
Occupied Bandwidth -- MOTOTRBO™ Digital Modulation - 110 Watts



Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation – Emission Designator: 7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE

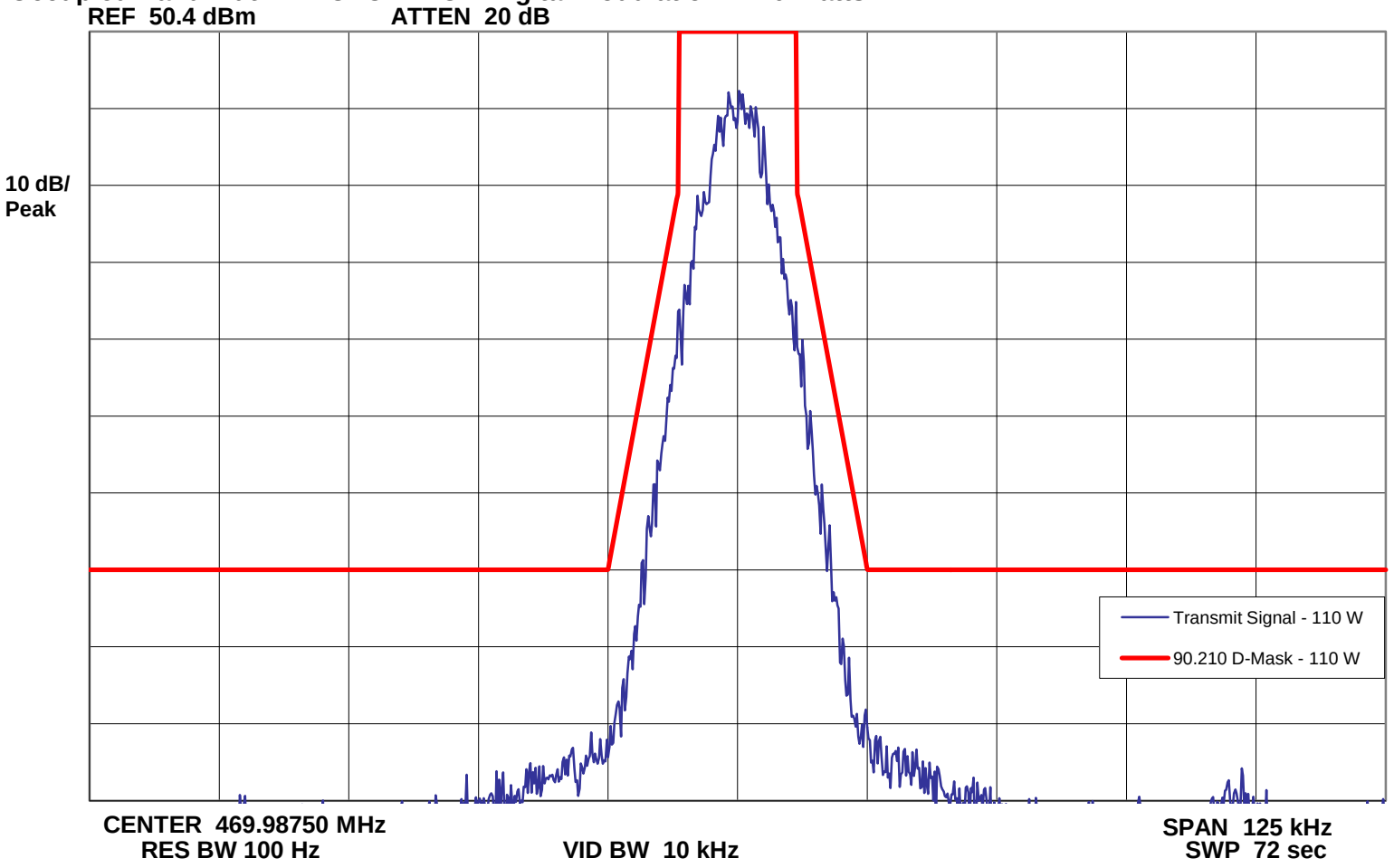
Occupied Bandwidth -- MOTOTRBO™ Digital Modulation - 110 Watts



Report on Test Measurements

Occupied Bandwidth – MOTOTRBO™ Digital Modulation – Emission Designator: 7K60F7W, 7K60F7D, 7K60F7E, 7K60FXD, 7K60FXE

Occupied Bandwidth -- MOTOTRBO™ Digital Modulation - 110 Watts



Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum

Specification Requirement 47 CFR §90.210(b) and IC RSS-119 section 5.8.1 - Emission Limits – "B-Mask":
For transmitters equipped with an audio low pass filter and designed to operate with a 25 kHz channel spacing (authorized bandwidth 20 kHz), the power of any emission must be below the unmodulated carrier power (P) as follows:

On any frequency removed from the assigned frequency by a displacement frequency (F_d in kHz) of:
c) >50 kHz *at least 43+10 * Log_{10} (P) dB.*

Specification Requirement 47 CFR §90.210(d) and IC RSS-119 section 5.8.3 - Emission Limits – "D-Mask":
Emission *Mask D:* For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:
(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: *At least 50 plus 10 log_{10}(P) dB or 70 dB, whichever is the lesser attenuation.*

Modulation: Analog Frequency Modulation – this is also representative of the performance of MOTOTRBO™ Digital Modulation, which is 4-level frequency modulation of the carrier.

Carrier Frequencies: Carrier frequencies of 406.1125, 420.0125, 429.9875, 450.0125, 460.0125, 469.9875 MHz were measured for conducted carrier harmonics.

Carrier frequencies of 406.1125, 420.0125, 429.9875, 450.0125, 460.0125, 469.9875 MHz were measured for conducted spurious emission measurements.

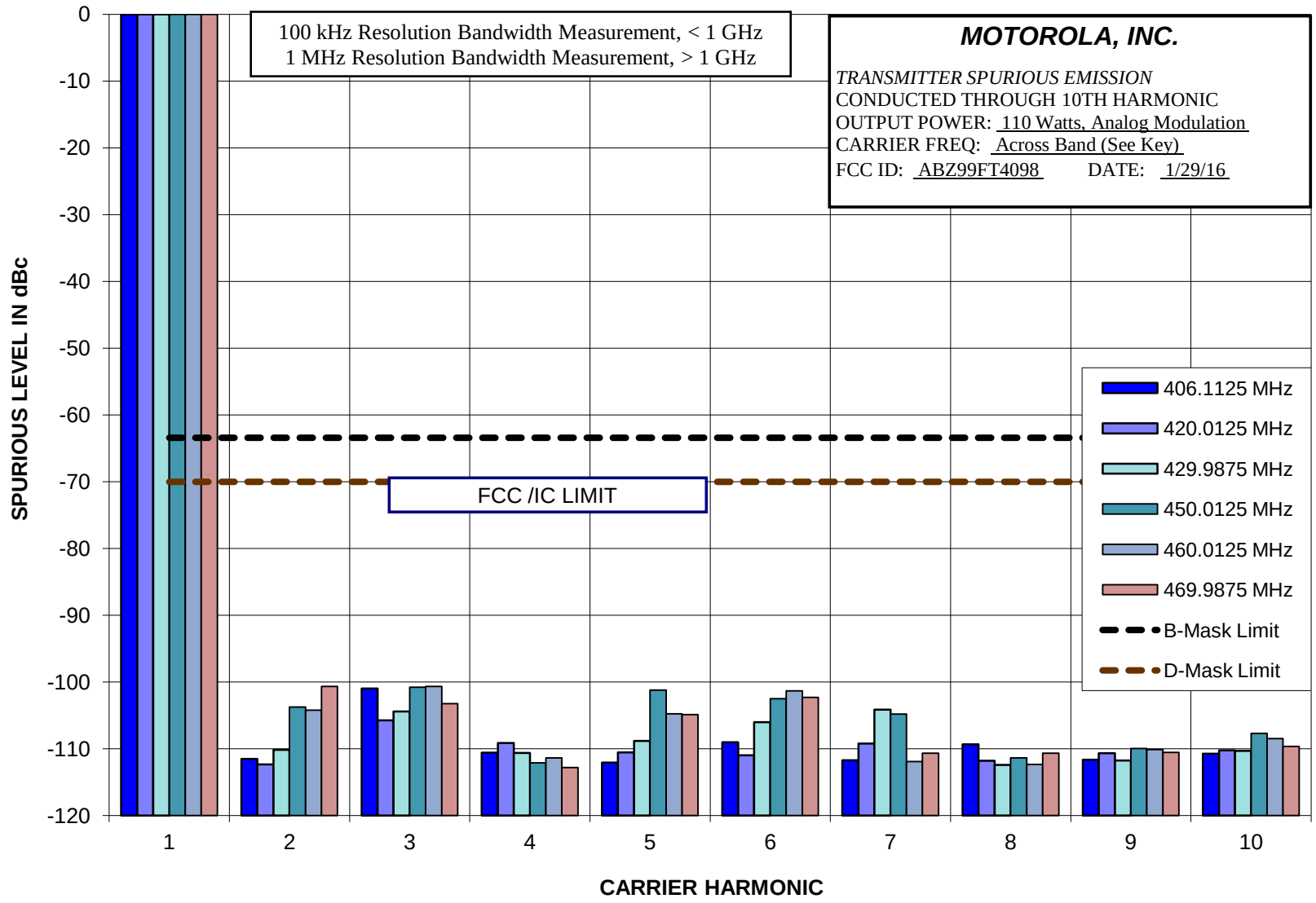
Only the worst case specification limit is shown.

These frequencies represent the low end, center, and high end of the 406.1-430 MHz band and the low end, center, and high end of the 450-470 MHz band, and are representative of the full operating band.

EXHIBIT	DESCRIPTION
E1-3.1	Conducted Spurious Harmonic Emissions, Power Output 110 Watts The specification limit is -70.0 dBc
E1-3.2	Conducted Spurious Harmonic Emissions, Power Output 1 Watt The specification limit is -50.0 dBc
E1-3.3	Conducted Spurious Emission Spectrum, 200 MHz Span, Power 110 Watts, 406.1125 MHz
E1-3.4	Conducted Spurious Emission Spectrum, 200 MHz Span, Power 110 Watts, 420.0125 MHz
E1-3.5	Conducted Spurious Emission Spectrum, 200 MHz Span, Power 110 Watts, 429.9875 MHz
E1-3.6	Conducted Spurious Emission Spectrum, 200 MHz Span, Power 110 Watts, 450.0125 MHz
E1-3.7	Conducted Spurious Emission Spectrum, 200 MHz Span, Power 110 Watts, 460.0125 MHz
E1-3.8	Conducted Spurious Emission Spectrum, 200 MHz Span, Power 110 Watts, 469.9875 MHz The specification limit is -70 dBc

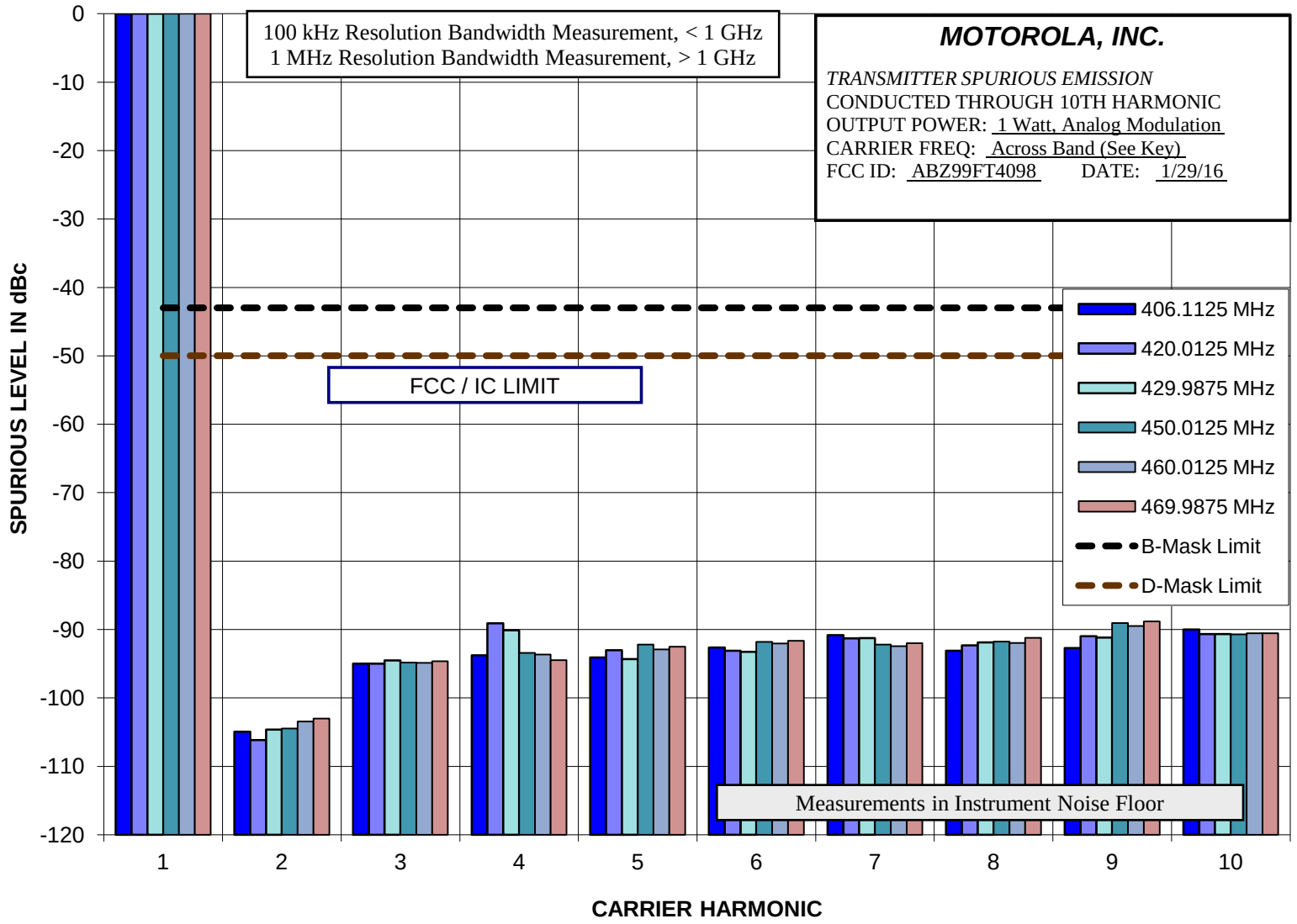
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 110 Watts



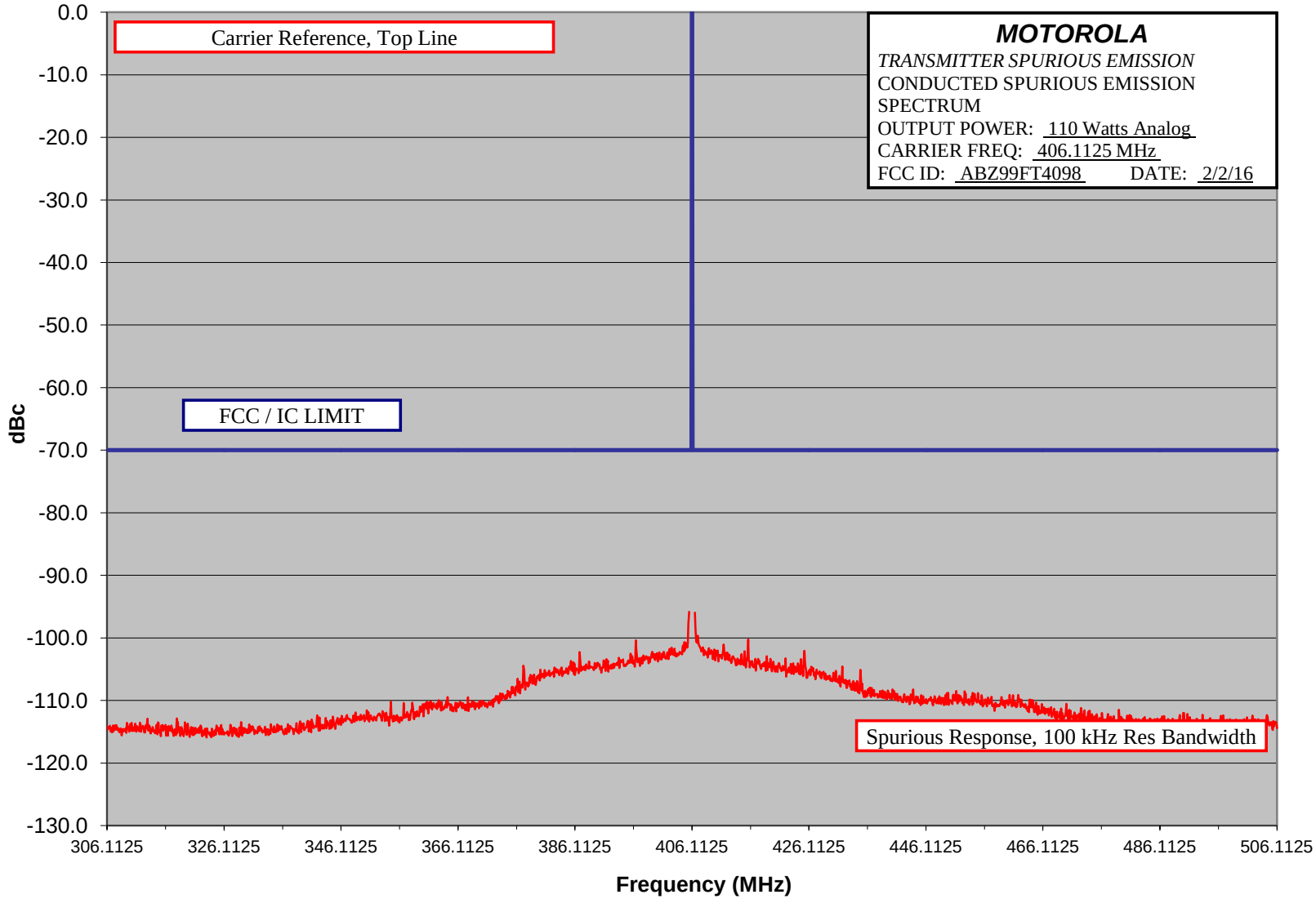
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 1 Watt



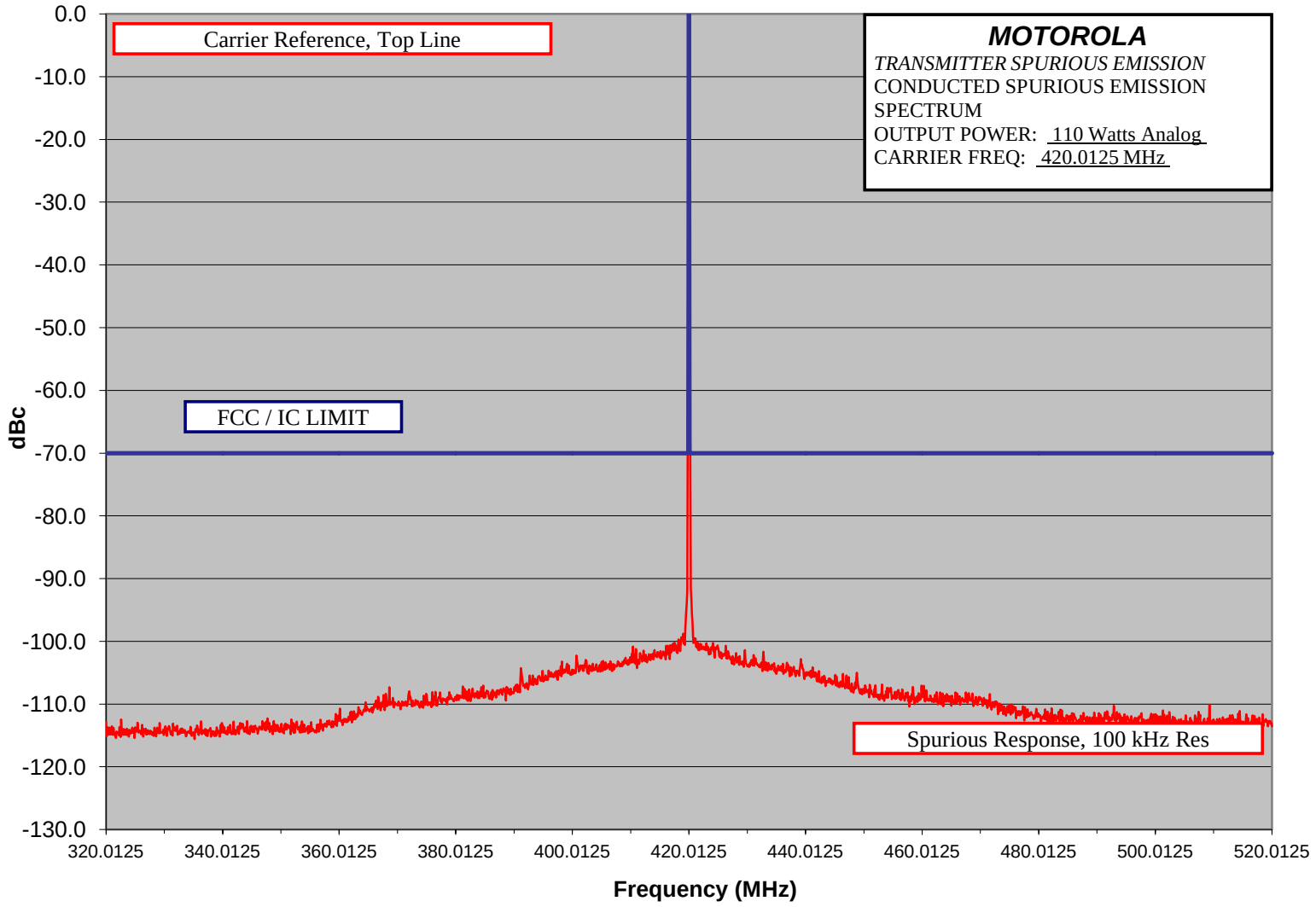
Report on Test Measurements

Conducted Spurious Emission Spectrum – 110 Watts – 200 MHz Span



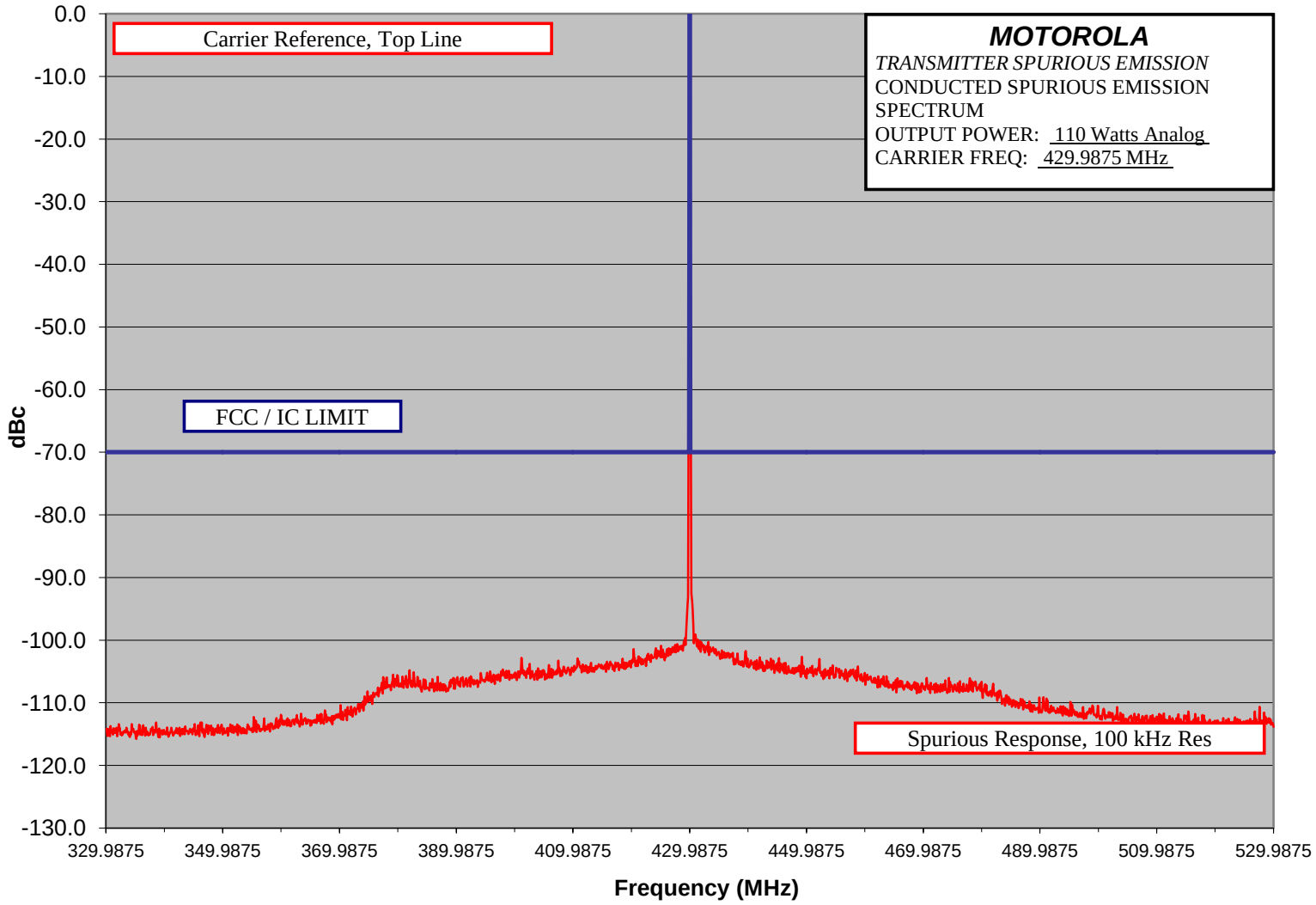
Report on Test Measurements

Conducted Spurious Emission Spectrum – 110 Watts – 200 MHz Span



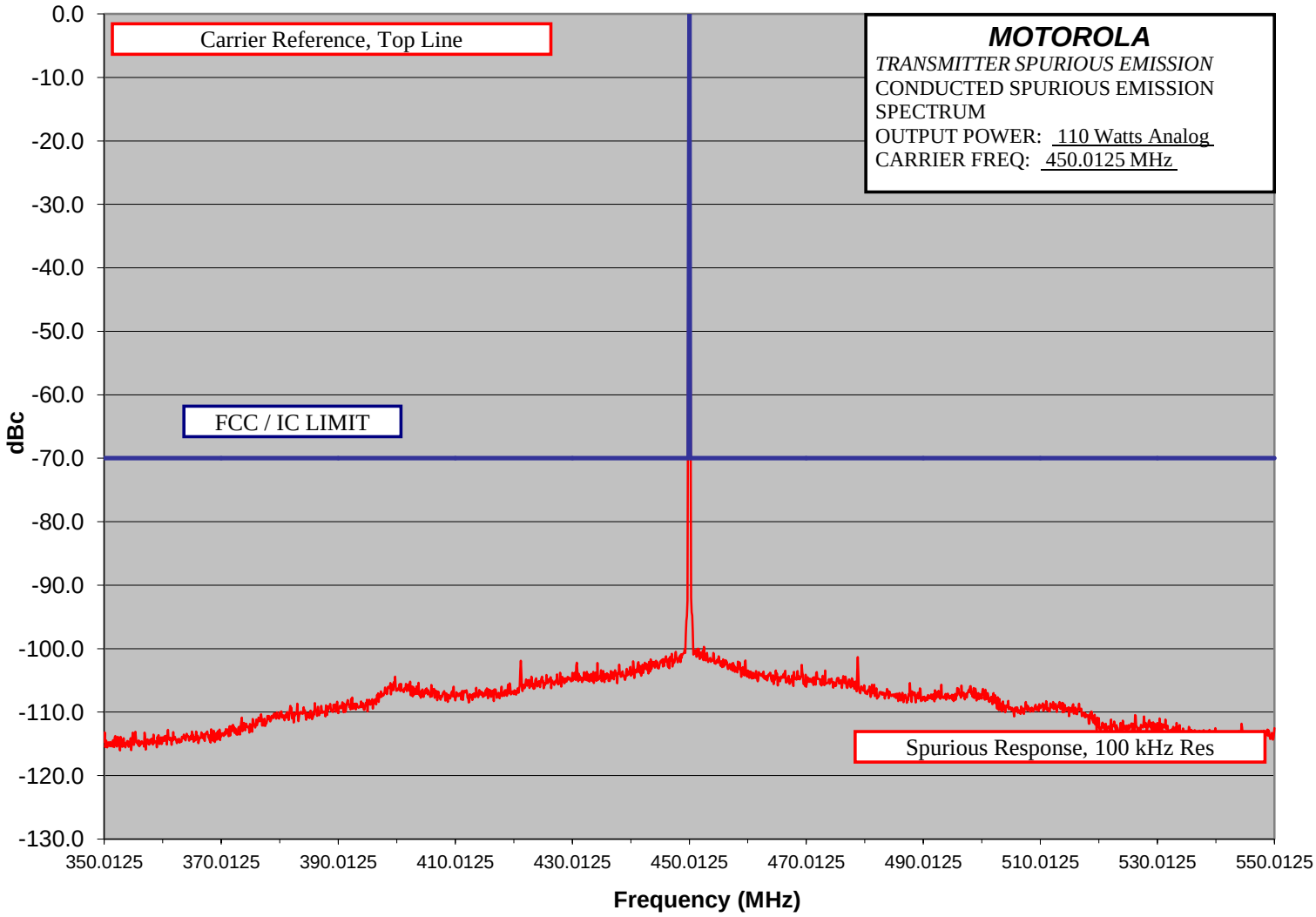
Report on Test Measurements

Conducted Spurious Emission Spectrum – 110 Watts – 200 MHz Span



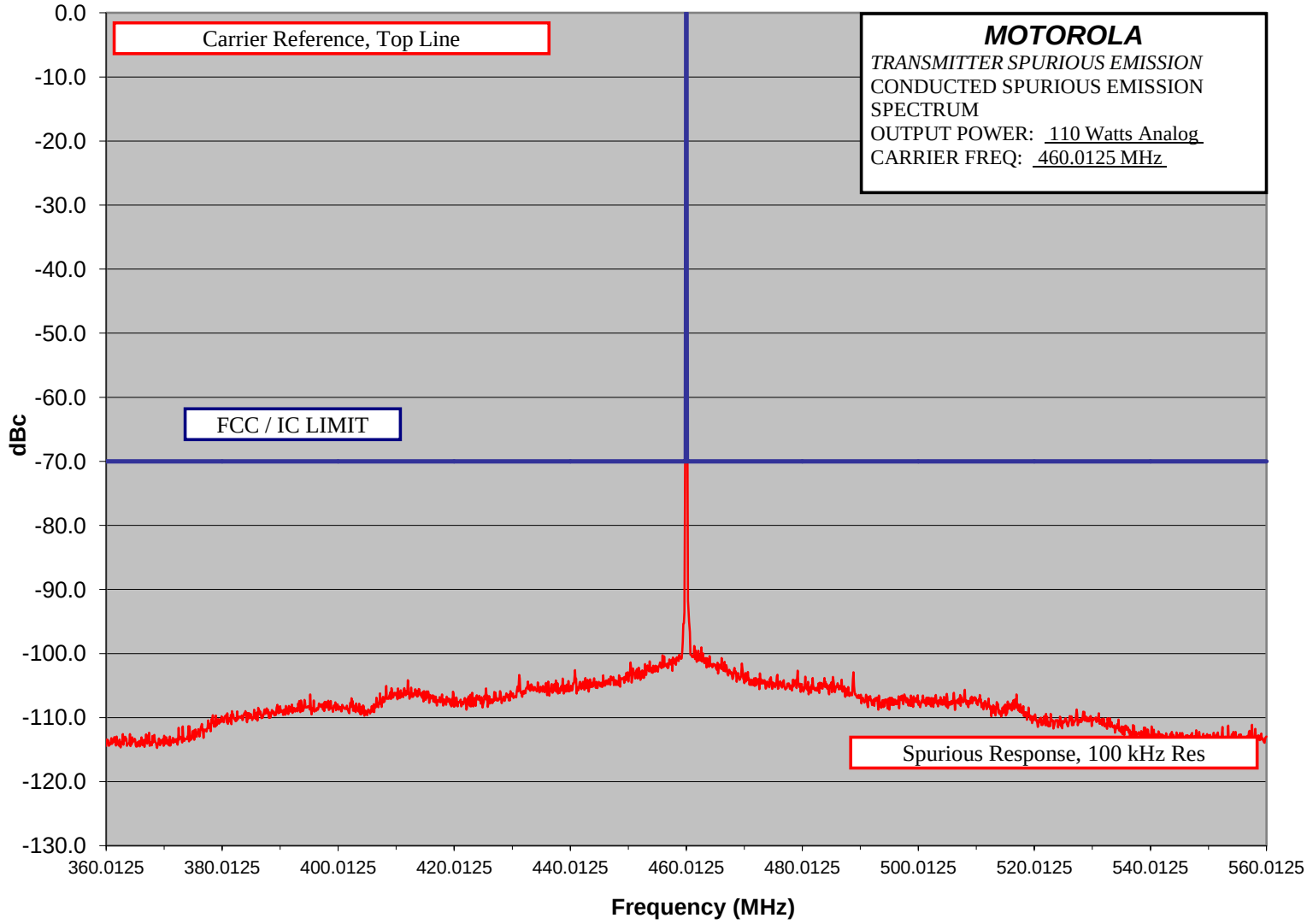
Report on Test Measurements

Conducted Spurious Emission Spectrum – 110 Watts – 200 MHz Span



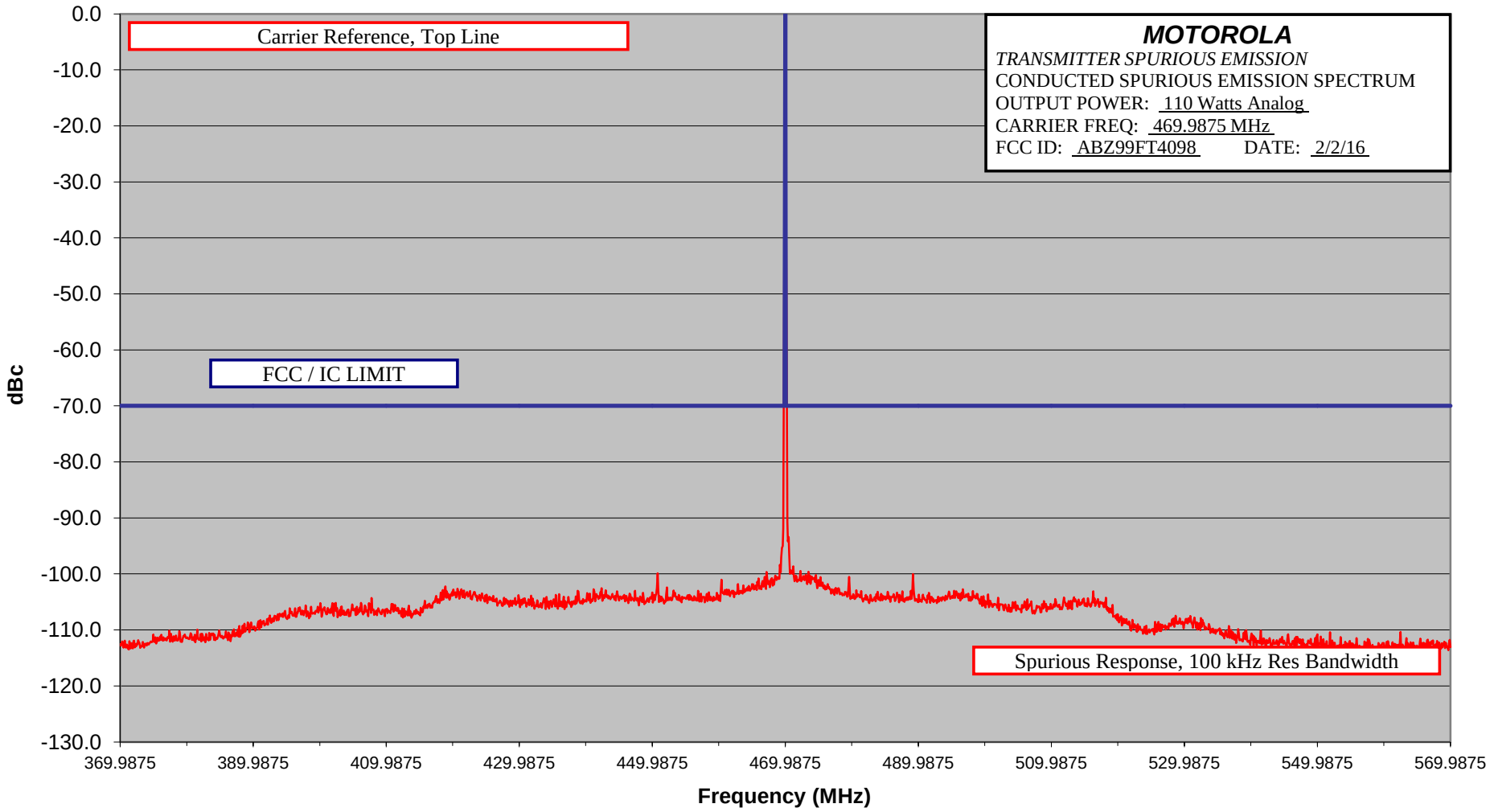
Report on Test Measurements

Conducted Spurious Emission Spectrum – 110 Watts – 200 MHz Span



Report on Test Measurements

Conducted Spurious Emission Spectrum – 60 Watts – 200 MHz Span



Report on Test Measurements

Radiated Spurious Emissions, Harmonics

Specification Requirement 47 CFR §90.210(b) and IC RSS-119 section 5.8.1 - Emission Limits – "B-Mask":
For transmitters equipped with an audio low pass filter and designed to operate with a 25 kHz channel spacing (authorized bandwidth 20 kHz), the power of any emission must be below the unmodulated carrier power (P) as follows:

On any frequency removed from the assigned frequency by a displacement frequency (F_d in kHz) of:
c) >50 kHz *at least 43+10 * Log_{10} (P) dB.*

Specification Requirement 47 CFR §90.210(d) and IC RSS-119 section 5.8.3 - Emission Limits – "D-Mask":
Emission *Mask D:* For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:
(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: *At least 50 plus 10 log_{10}(P) dB or 70 dB, whichever is the lesser attenuation.*

Modulation: Analog Frequency Modulation – this is also representative of the performance of MOTOTRBO™ Digital Modulation, which is 4-level frequency modulation of the carrier.

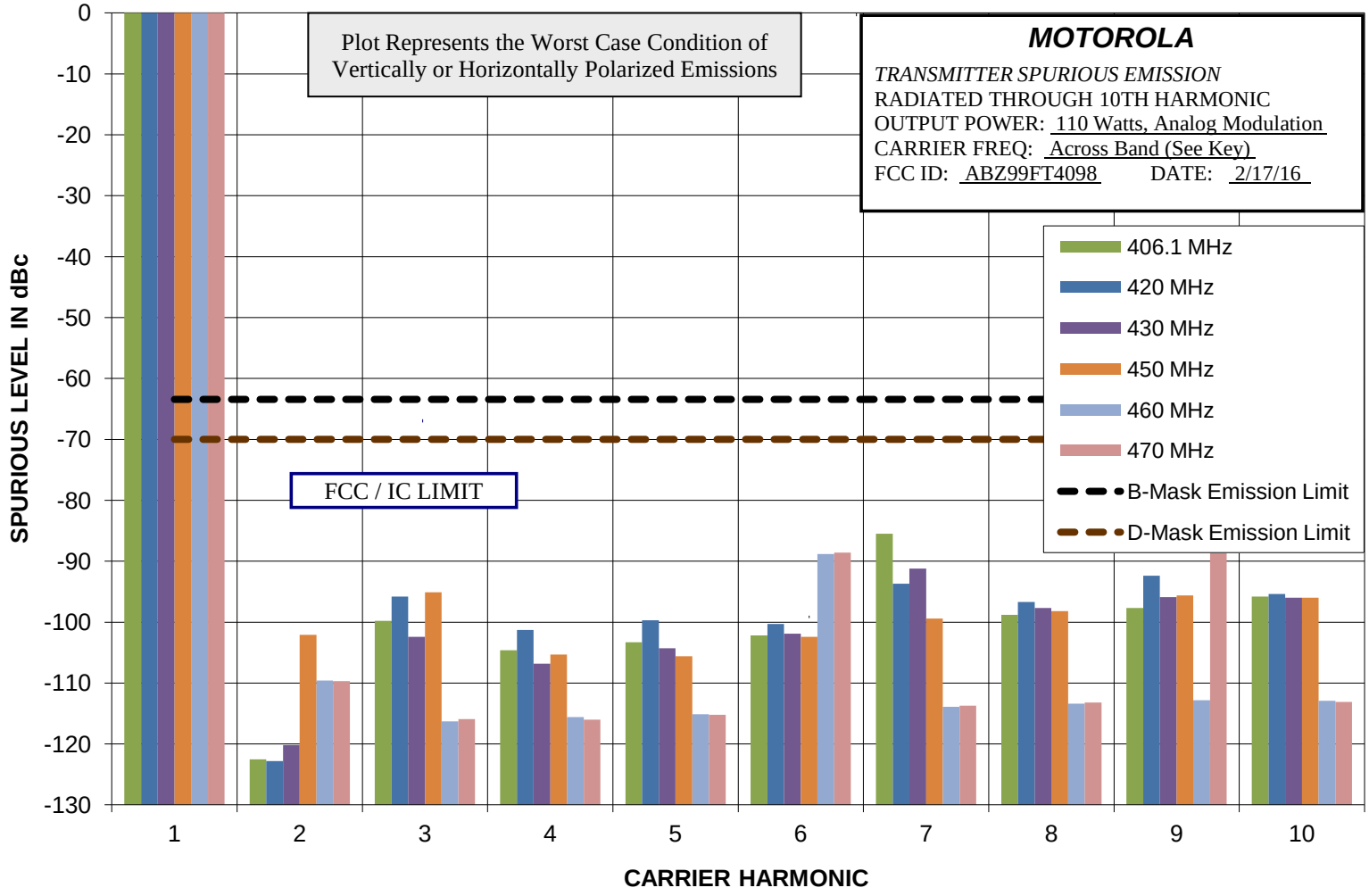
Carrier Frequencies: Carrier frequencies of 406.1, 420, 430, 450, 460, 470 MHz were measured for radiated carrier harmonics at the high rated power. These frequencies represent the low end, center, and high end of the 406.1-430 MHz band and the low end, center, and high end of the 450-470 MHz band, and are representative of the full 406.1-512 MHz operating band.

: Carrier frequencies of 420 and 460 MHz were measured for radiated carrier harmonics at the low rated power. These frequencies represent the center of the 406.1-430 MHz band and the center of the 450-470 MHz band, and are representative of the full 406.1-512 MHz operating band at this power level.

EXHIBIT	DESCRIPTION
E1-4.1	Radiated Spurious Harmonic Emissions, Power Output 110 Watts The specification limit is -70.0 dBc
E1-4.2	Radiated Spurious Harmonic Emissions, Power Output 1 Watt The specification limit is -50.0 dBc

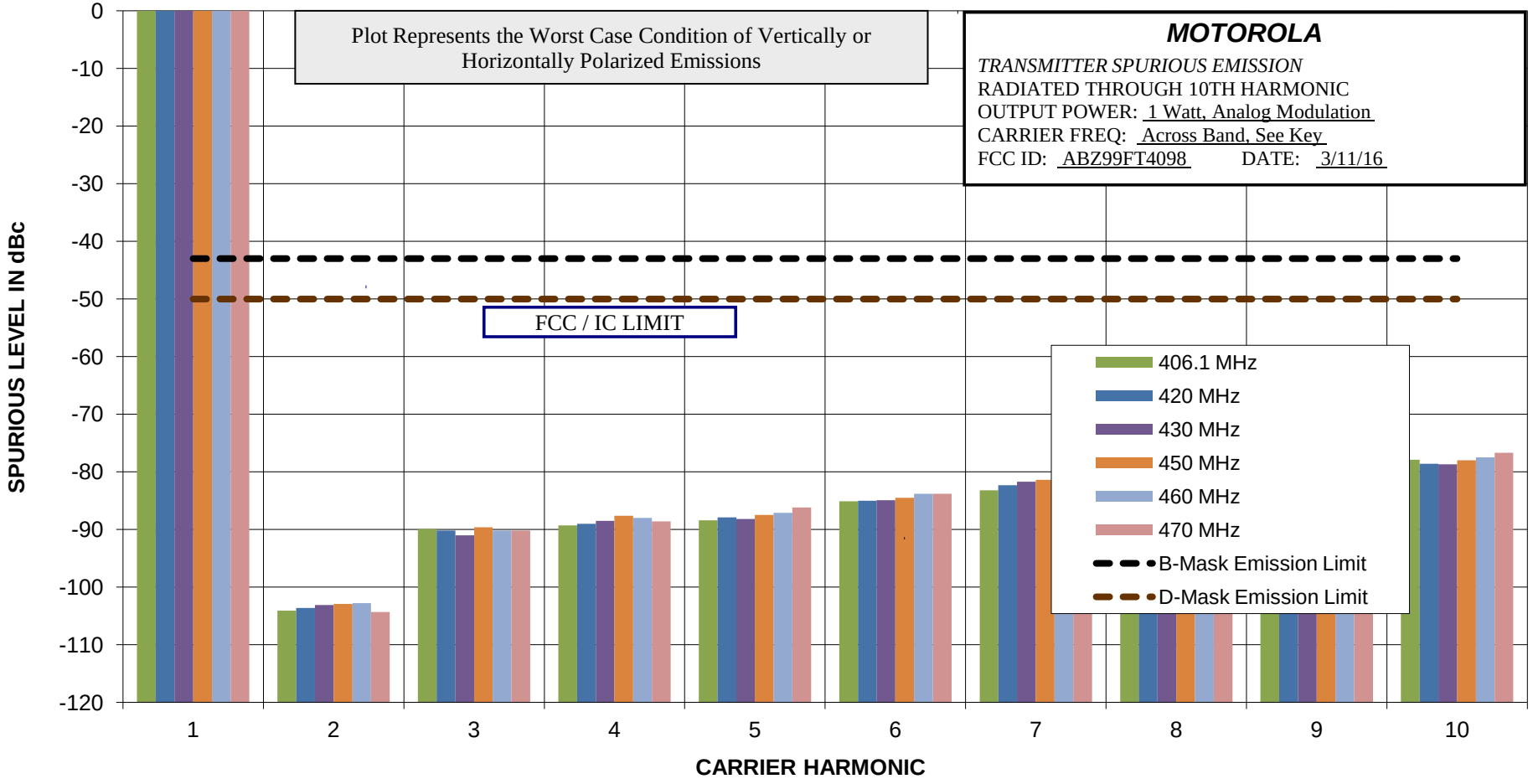
Report on Test Measurements

Radiated Spurious Harmonic Emissions — 60 Watts



Report on Test Measurements

Radiated Spurious Harmonic Emissions — 1 Watt



Report on Test Measurements

Oscillator Frequency Stability

Manufacturer data for the system site frequency standard was used in generation of the following frequency stability exhibits.

Specification Requirement IC RSS-119 section 5.3:

Fixed and Base stations operating at 406.1-430 MHz and 450-470 MHz and 12.5 kHz channel bandwidth must have a frequency stability of better than +/- 1.5 PPM, and those operating at 25 kHz channel bandwidth must have a frequency stability of better than +/- 2.5 PPM.

Specification Requirement: Reference Part 90.213

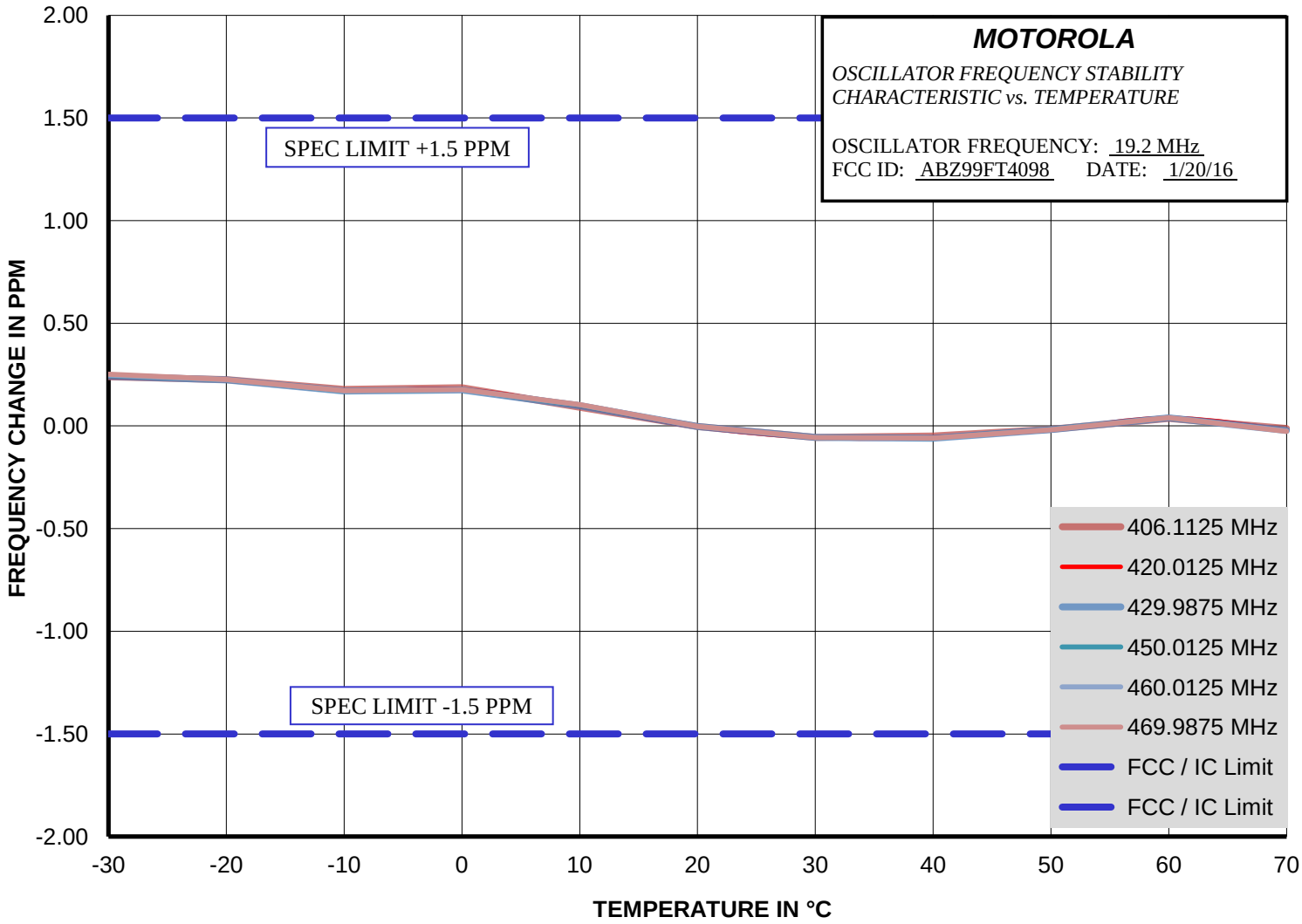
Fixed and Base stations operating at 421-512 MHz and 12.5 kHz channel bandwidth must have a frequency stability of better than +/- 1.5 PPM, and those operating at 25 kHz channel bandwidth must have a frequency stability of better than +/- 2.5 PPM.

Only the more stringent specification limit is shown on the frequency stability exhibits.
Performance was measured at carrier frequencies across the operating band.

EXHIBIT	DESCRIPTION
E1-5.1	Frequency Stability Vs Temperature
E1-5.2	Frequency Stability Vs Voltage

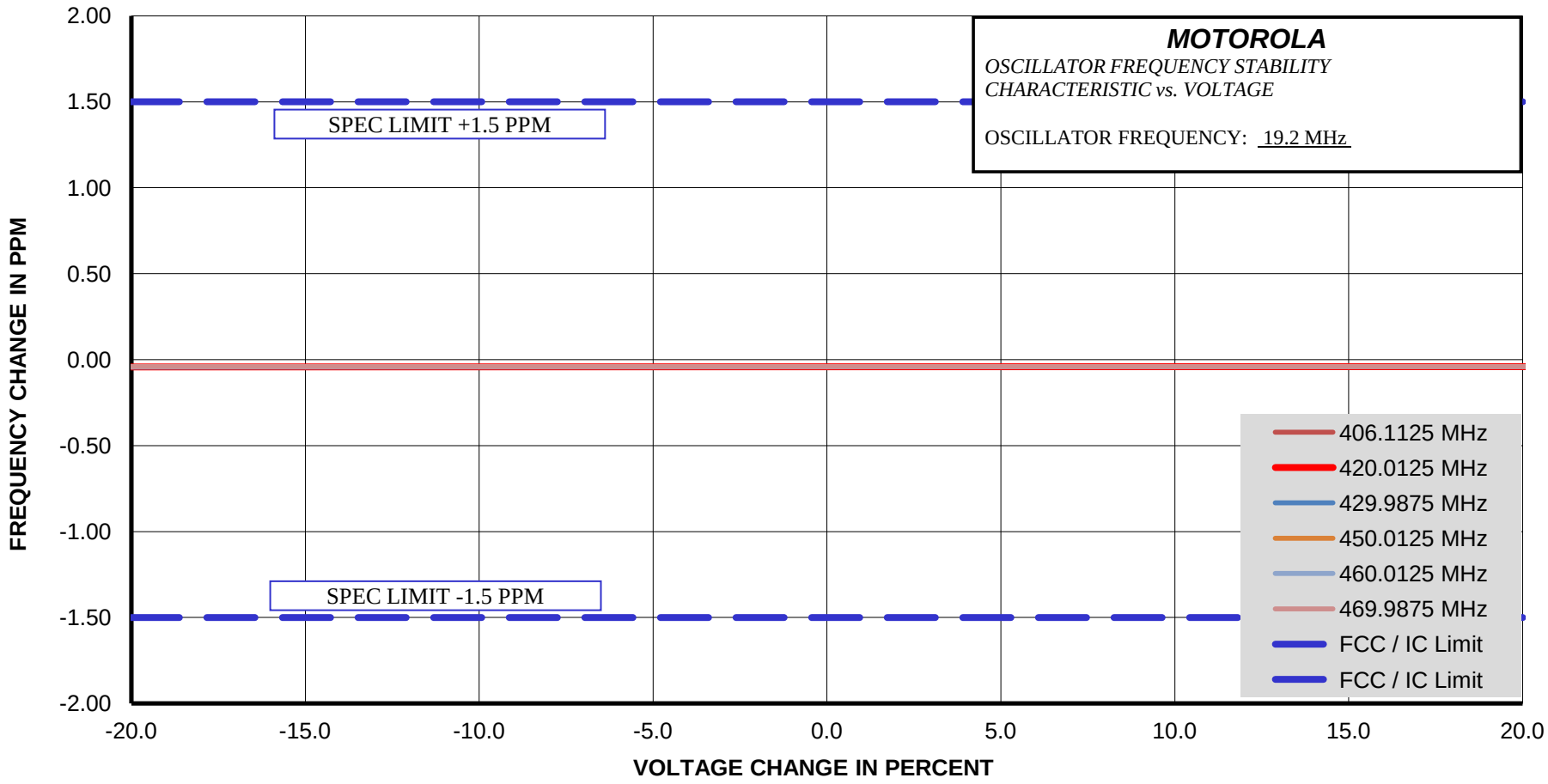
Report on Test Measurements

Frequency Stability Vs Temperature



Report on Test Measurements

Frequency Stability Vs Voltage



Report on Test Measurements

Frequency Transient Behavior

Specification Requirement 47 CFR §90.214 and IC RSS-119 section 5.9:

Transmitters designed to operate in the 406.1-512 MHz (421-512 MHz for FCC) frequency band must maintain transient frequencies within the maximum frequency difference limits during the time intervals indicated below:

Transient Frequency Behavior 25 kHz Channels

For time intervals:

a. t_1 = 10 ms Maximum Frequency Difference ±25 kHz

b. t_2 = 25 ms Maximum Frequency Difference ±12.5 kHz

c. t_3 = 10 ms Maximum Frequency Difference ±25 kHz

Transient Frequency Behavior 12.5 kHz Channels

For time intervals:

a. t_1 = 10 ms Maximum Frequency Difference ±12.5 kHz

b. t_2 = 25 ms Maximum Frequency Difference ±6.25 kHz

c. t_3 = 10 ms Maximum Frequency Difference ±12.5 kHz

Where t_1 and t_2 are times immediately following when the transmitter is turned on, and t_3 is the time from when the transmitter is turned off.

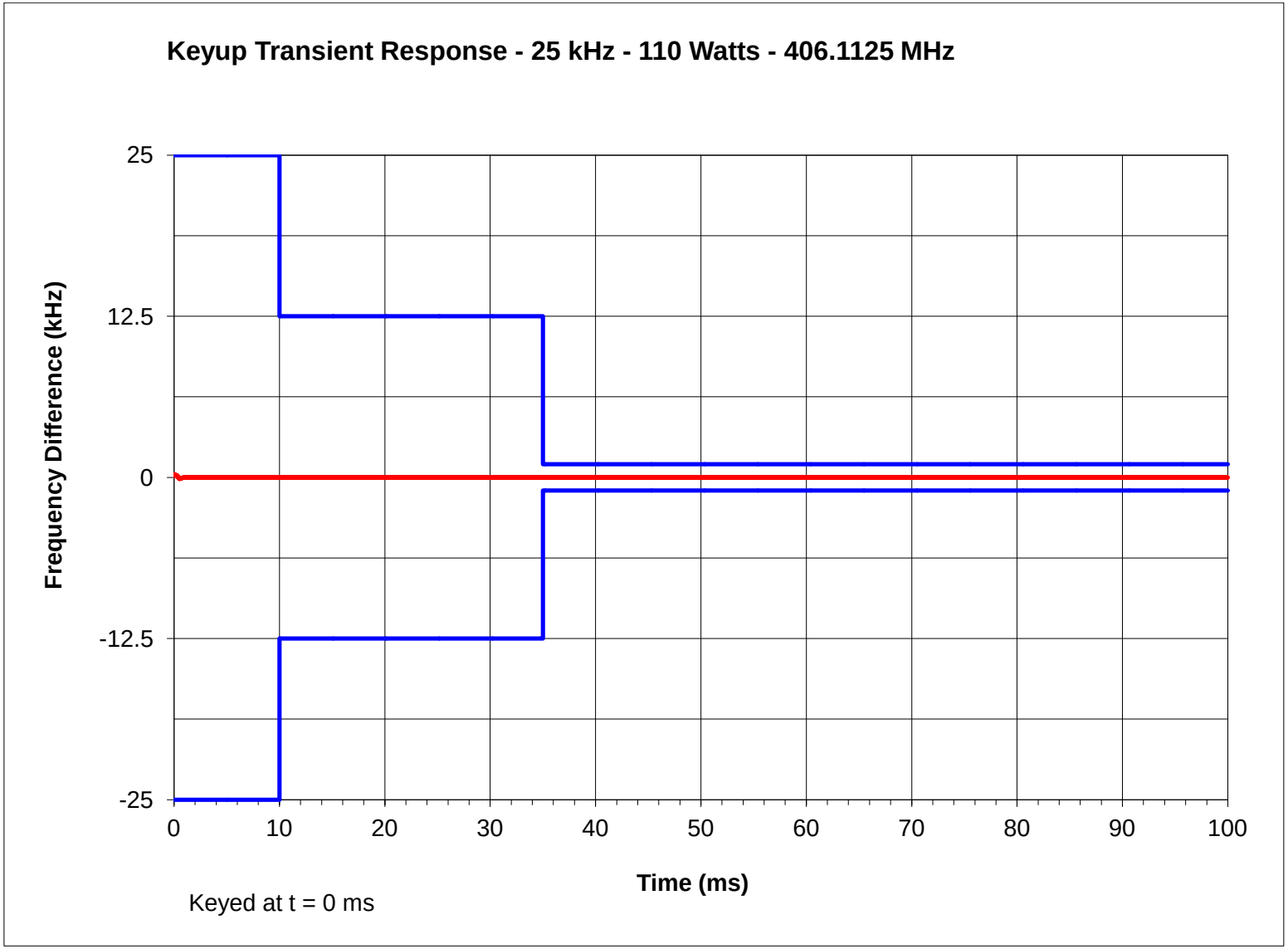
During the time from the end of t_2 to the beginning of t_3, the frequency difference must not exceed the limits specified in §90.213 / RSS-119 section 5.3.

Modulation: Analog Mode Frequency Modulation
Carrier Frequencies: Performance was measured at carrier frequencies at the low end, middle, and high end of the operating band.

EXHIBIT	DESCRIPTION
E1-6.1, 2, 3	Frequency Transient Behavior, 25 kHz Channel Key-Up, 406.1 - 430 MHz
E1-6.4, 5, 6	Frequency Transient Behavior, 25 kHz Channel Key-Up, 450 - 470 MHz
E1-6.7, 8, 9	Frequency Transient Behavior, 25 kHz Channel De-Key, 406.1 - 430 MHz
E1-6.10, 11, 12	Frequency Transient Behavior, 25 kHz Channel De-Key, 450 - 470 MHz
E1-6.13, 14, 15	Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 406.1 - 430 MHz
E1-6.16, 17, 18	Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 450 - 470 MHz
E1-6.19, 20, 21	Frequency Transient Behavior, 12.5 kHz Channel De-key, 406.1 - 430 MHz
E1-6.34, 23, 24	Frequency Transient Behavior, 12.5 kHz Channel De-key, 450 - 470 MHz

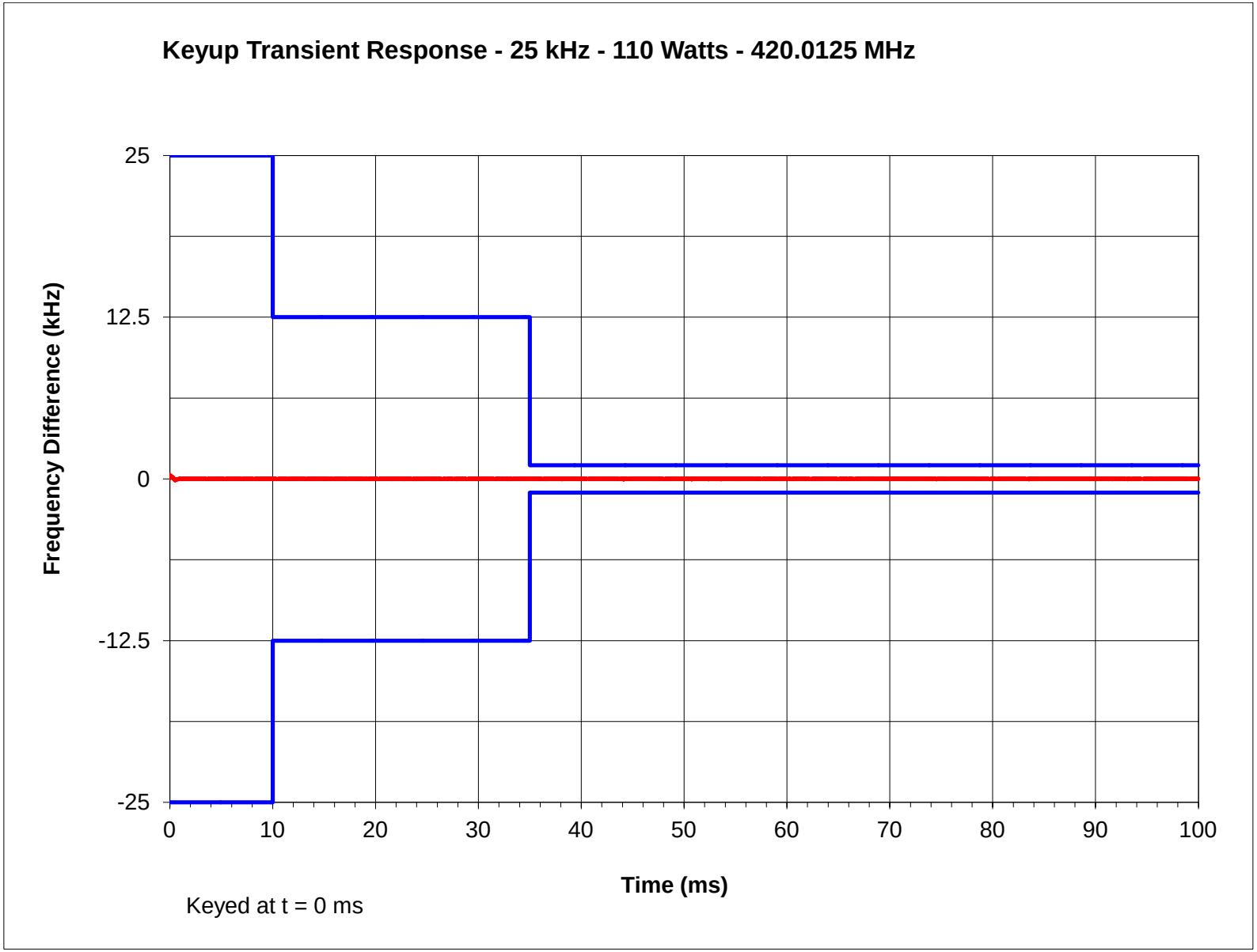
Report on Test Measurements

Frequency Transient – Key-Up – 25 kHz Channels – Low End of 406.1-430 MHz Band



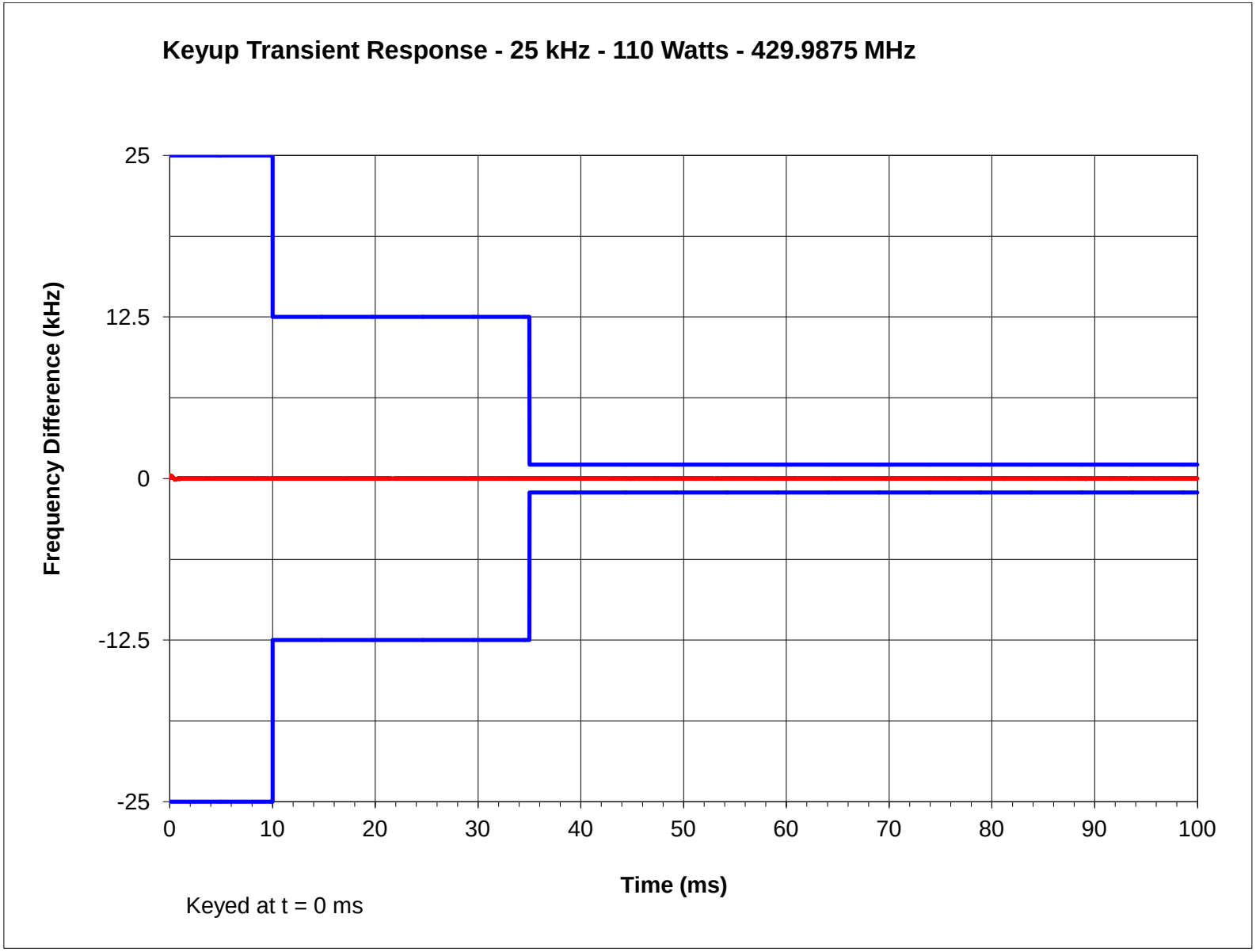
Report on Test Measurements

Frequency Transient – Key-Up – 25 kHz Channels – Middle of 406.1-430 MHz Band



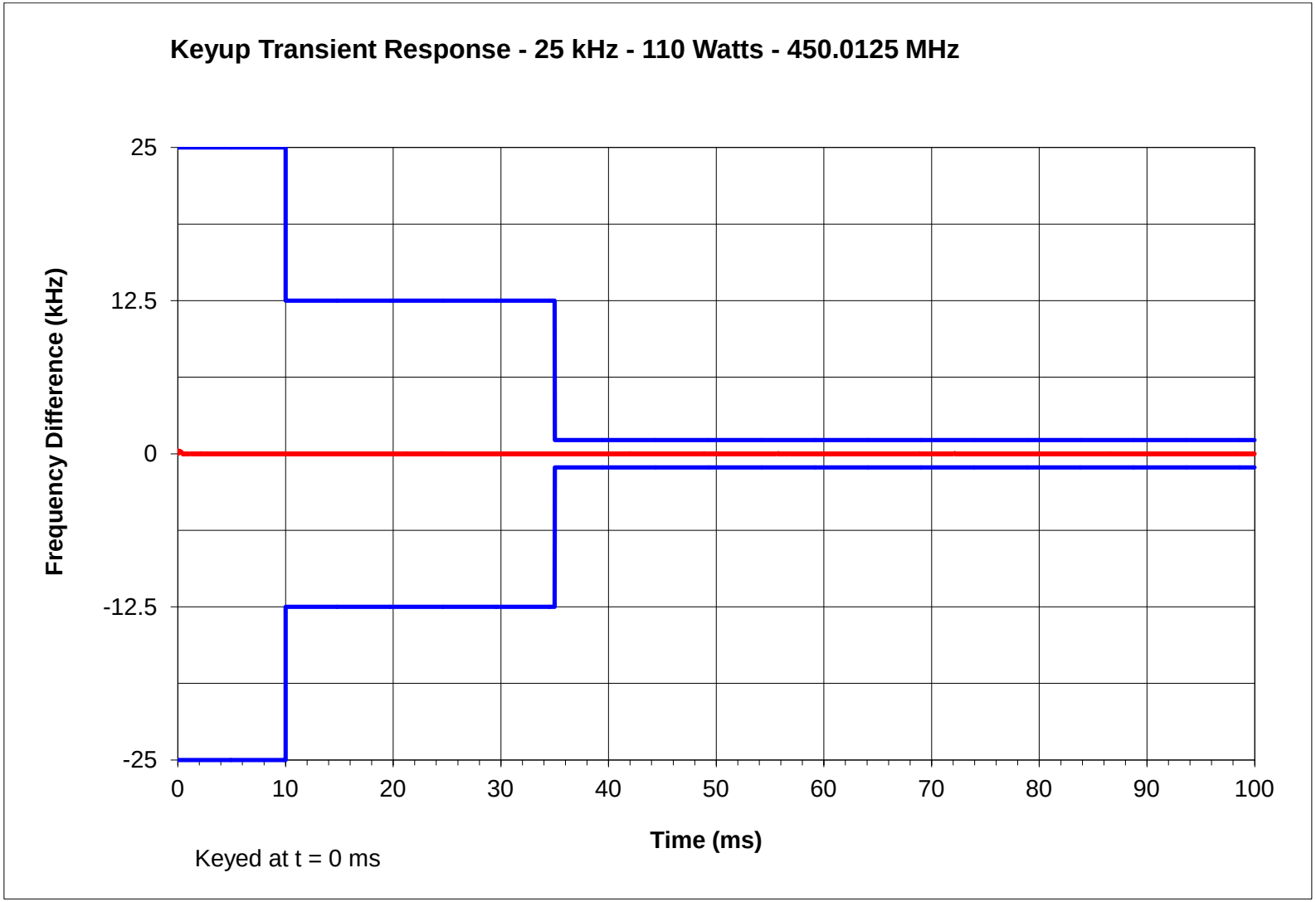
Report on Test Measurements

Frequency Transient – Key-Up – 25 kHz Channels – High End of 406.1-430 MHz Band



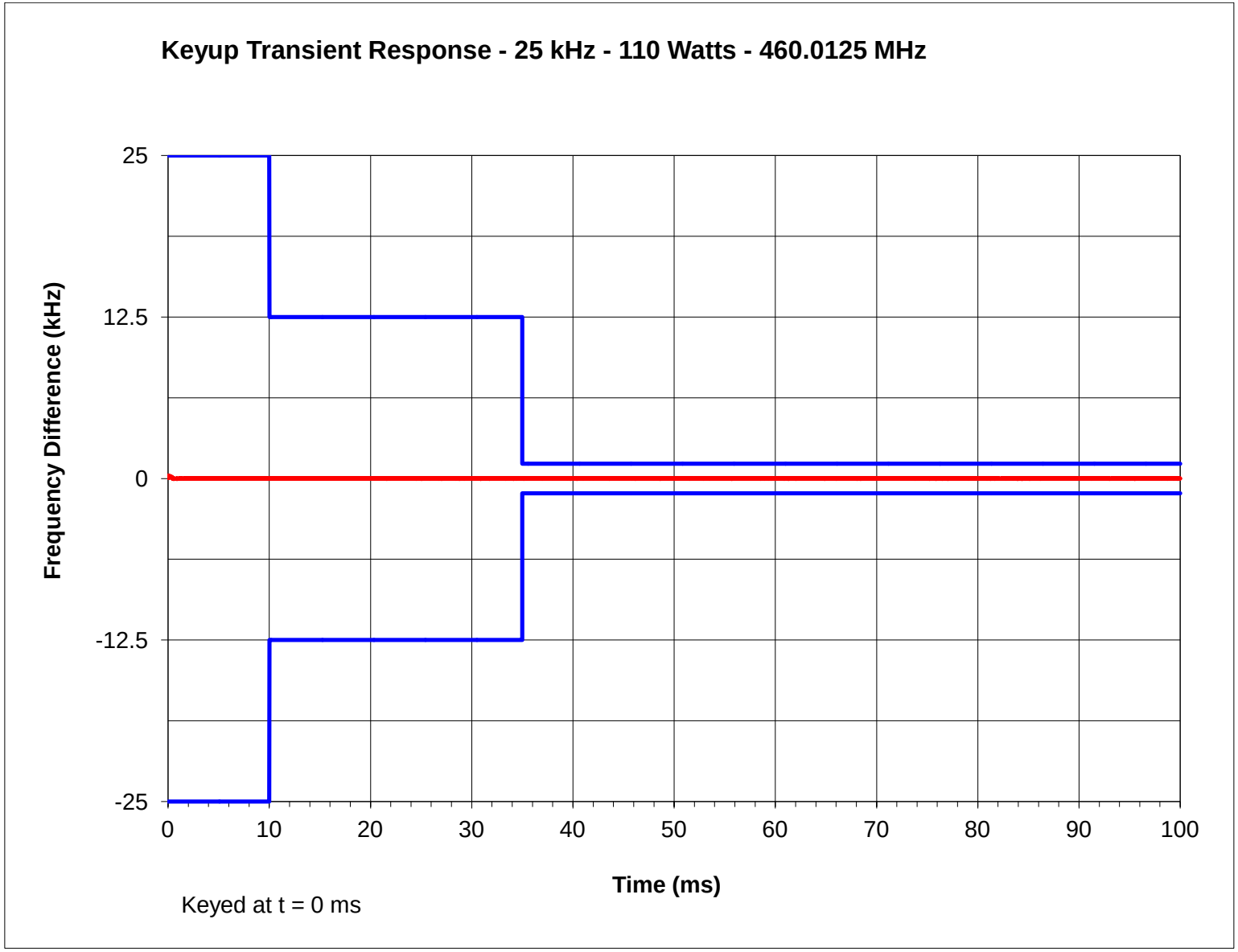
Report on Test Measurements

Frequency Transient – Key-Up – 25 kHz Channels – Low End of 450-470 MHz Band



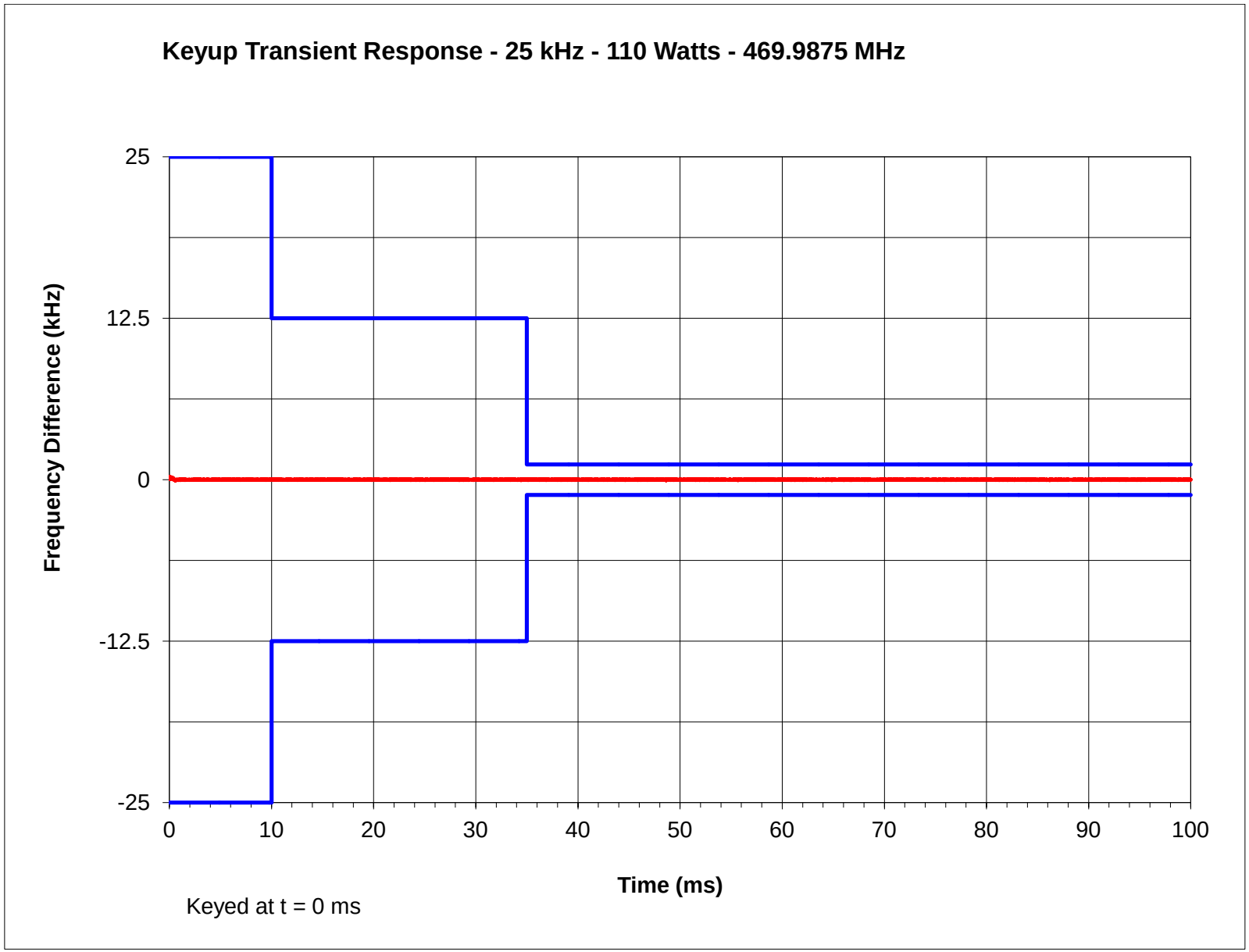
Report on Test Measurements

Frequency Transient – Key-Up – 25 kHz Channels – Middle of 450-470 MHz Band



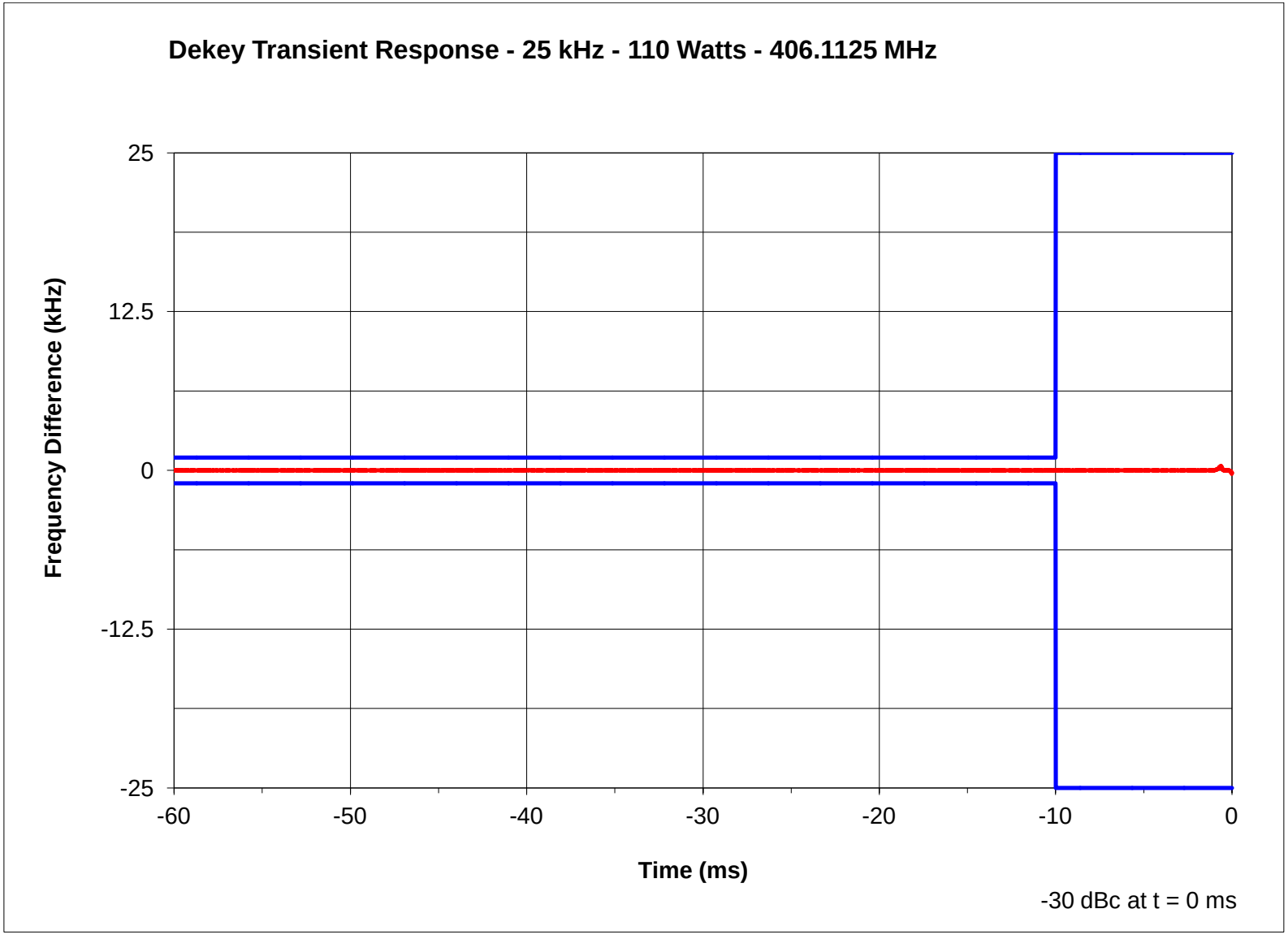
Report on Test Measurements

Frequency Transient – Key-Up – 25 kHz Channels – High End of 450-470 MHz Band



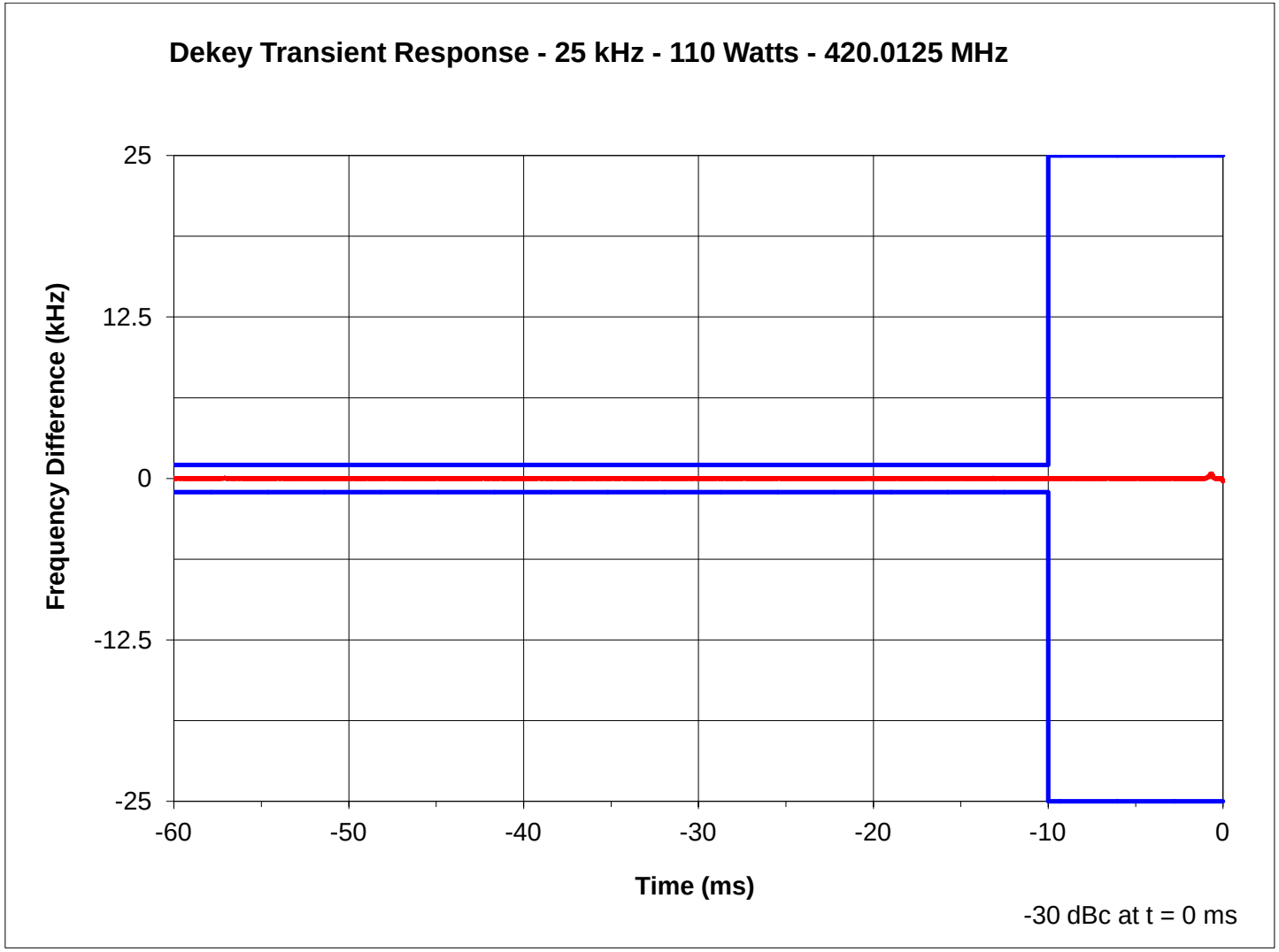
Report on Test Measurements

Frequency Transient – De-Key – 25 kHz Channels – Low End of 406.1-430 MHz Band



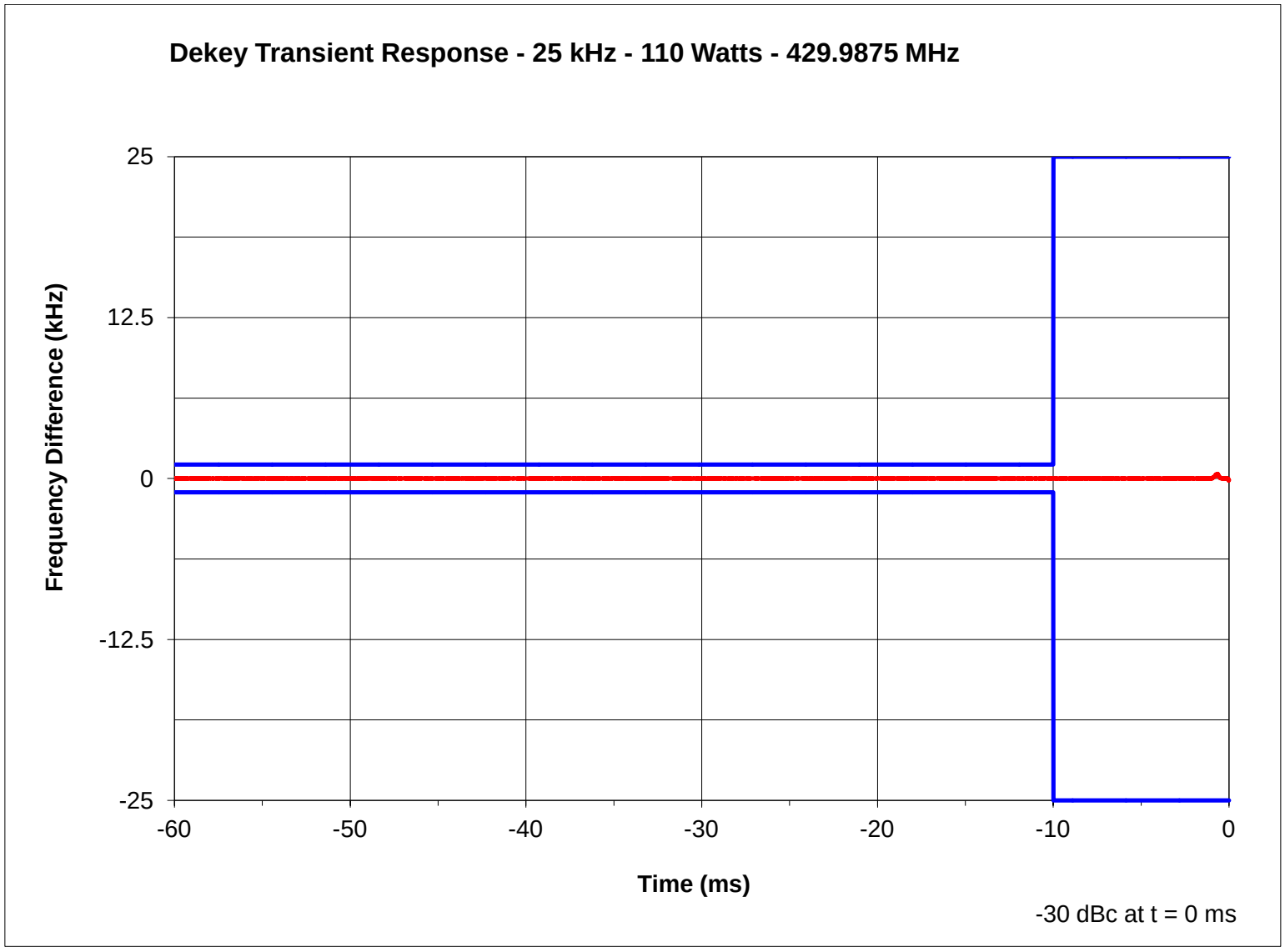
Report on Test Measurements

Frequency Transient – De-Key – 25 kHz Channels – Middle of 406.1-430 MHz Band



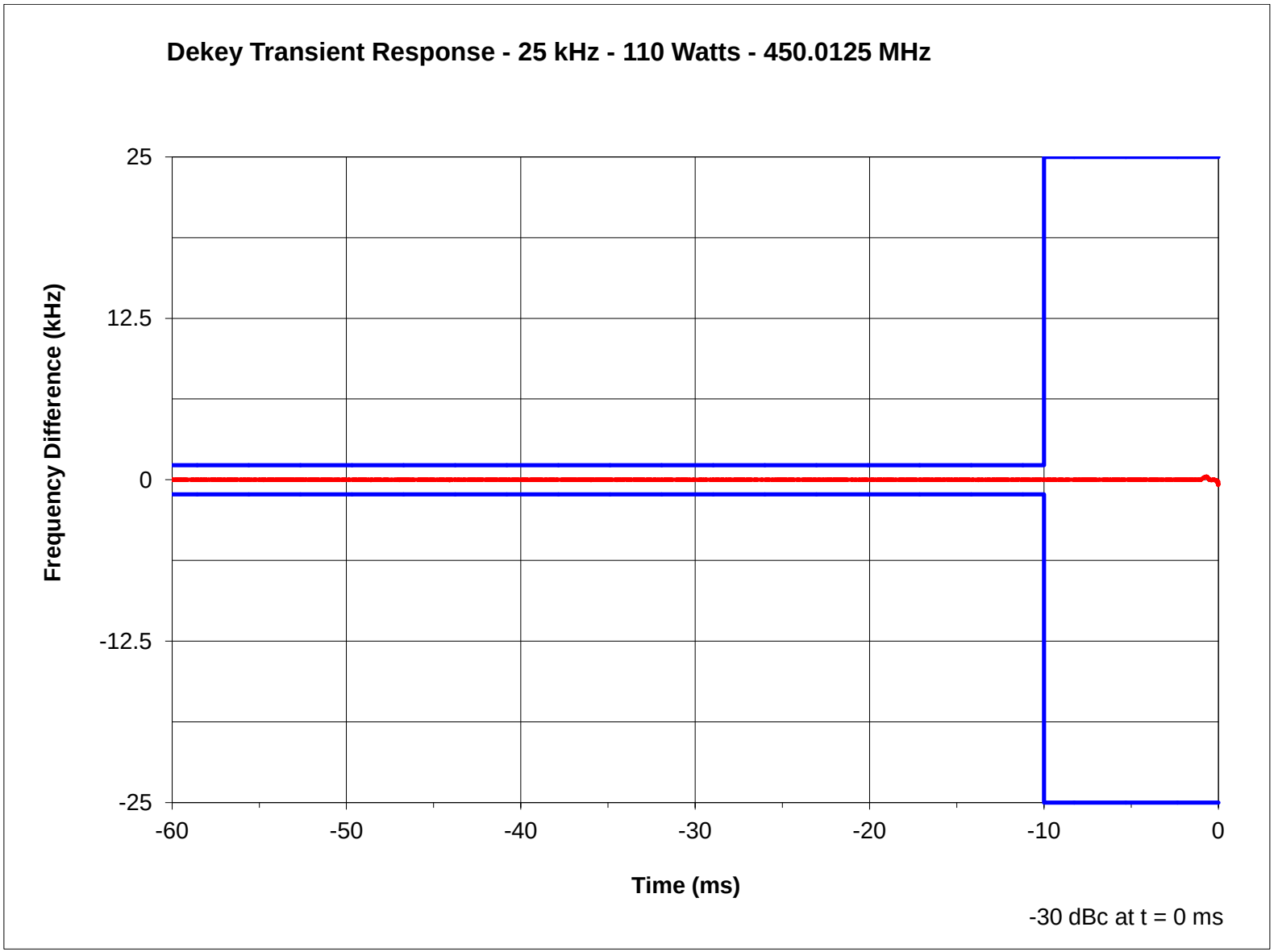
Report on Test Measurements

Frequency Transient – De-Key – 25 kHz Channels – High End of 406.1-430 MHz Band



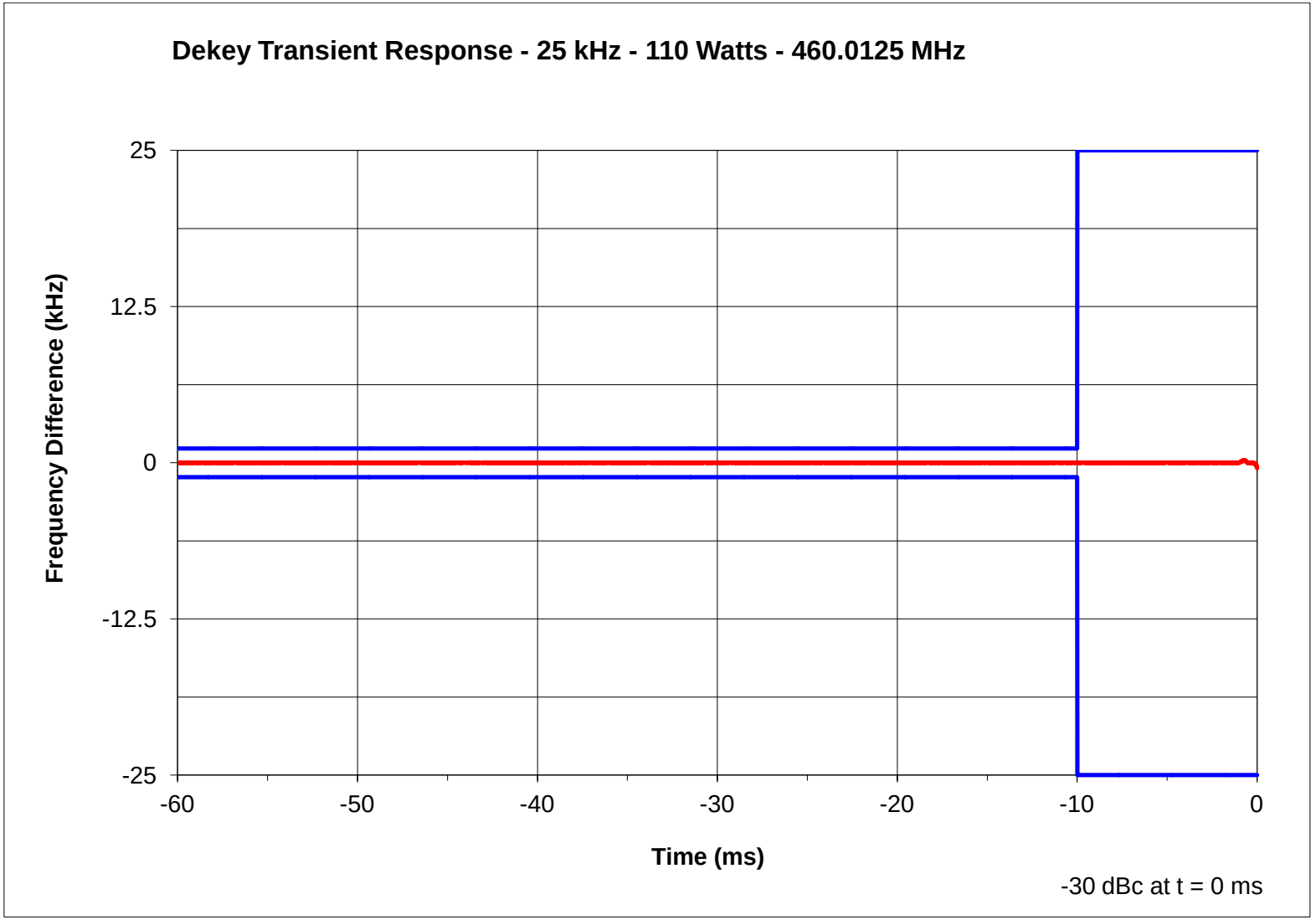
Report on Test Measurements

Frequency Transient – De-Key – 25 kHz Channels – Low End of 450-470 MHz Band



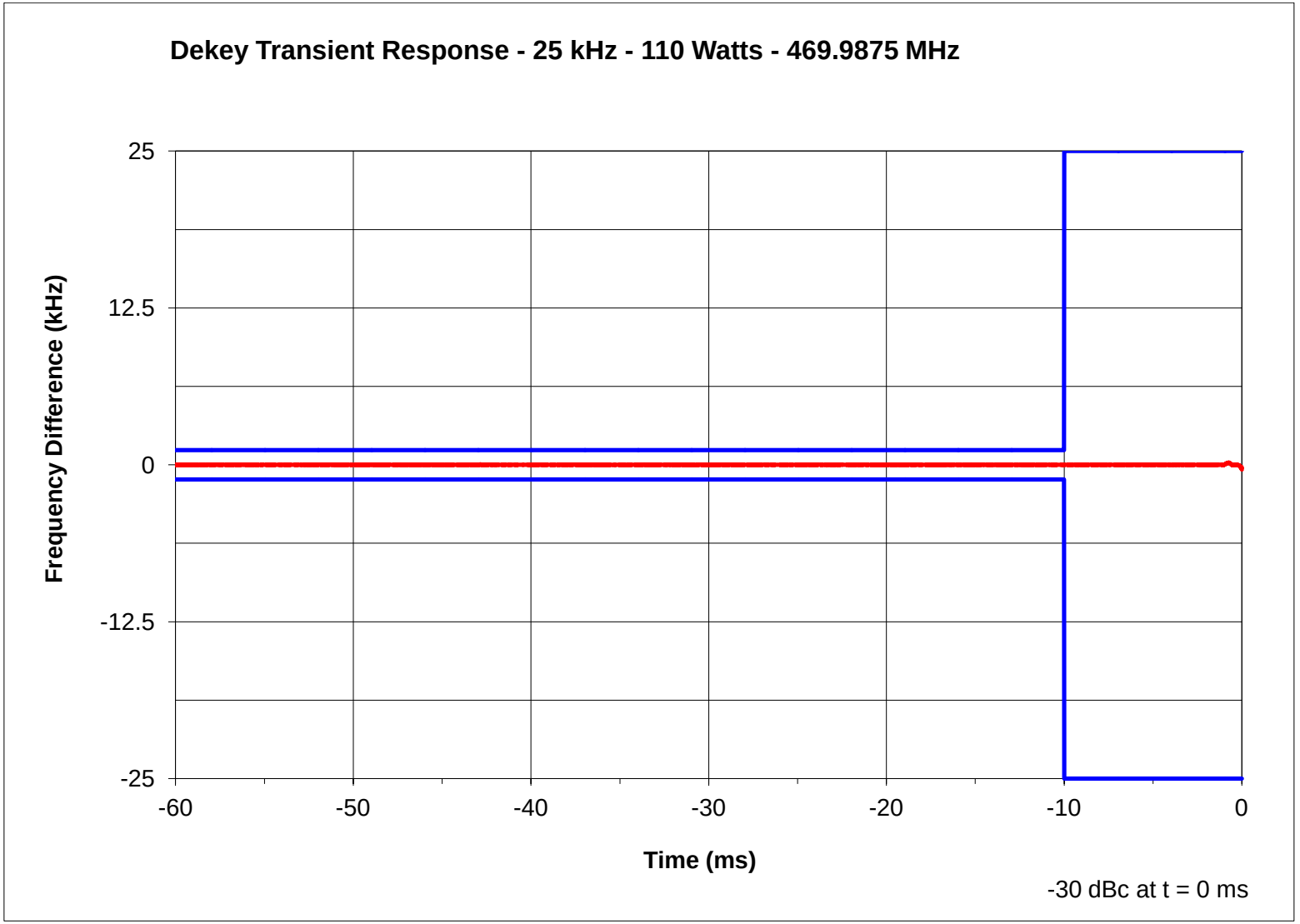
Report on Test Measurements

Frequency Transient – De-Key – 25 kHz Channels – Middle of 450-470 MHz Band



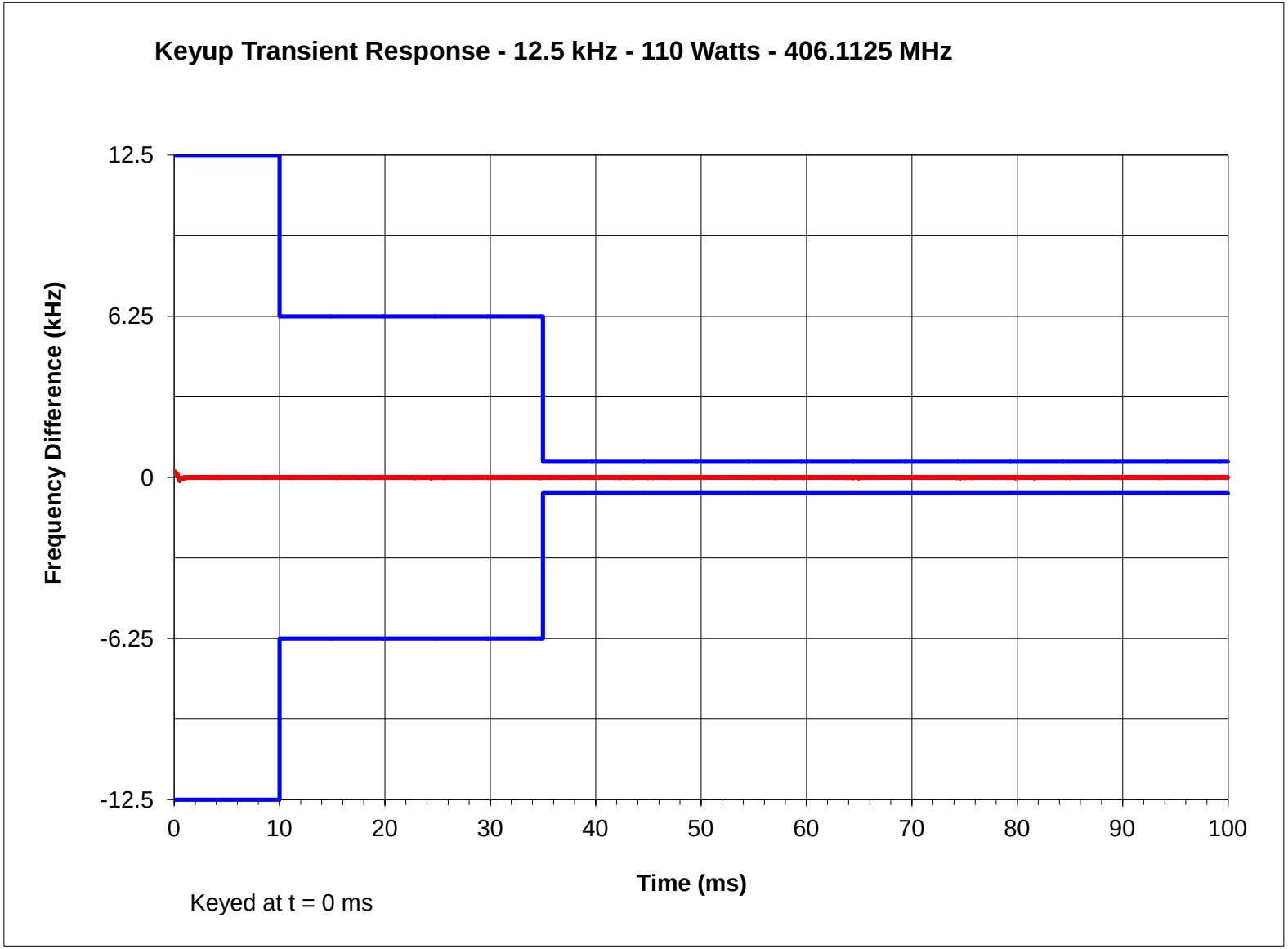
Report on Test Measurements

Frequency Transient – De-Key – 25 kHz Channels – High End of 450-470 MHz Band



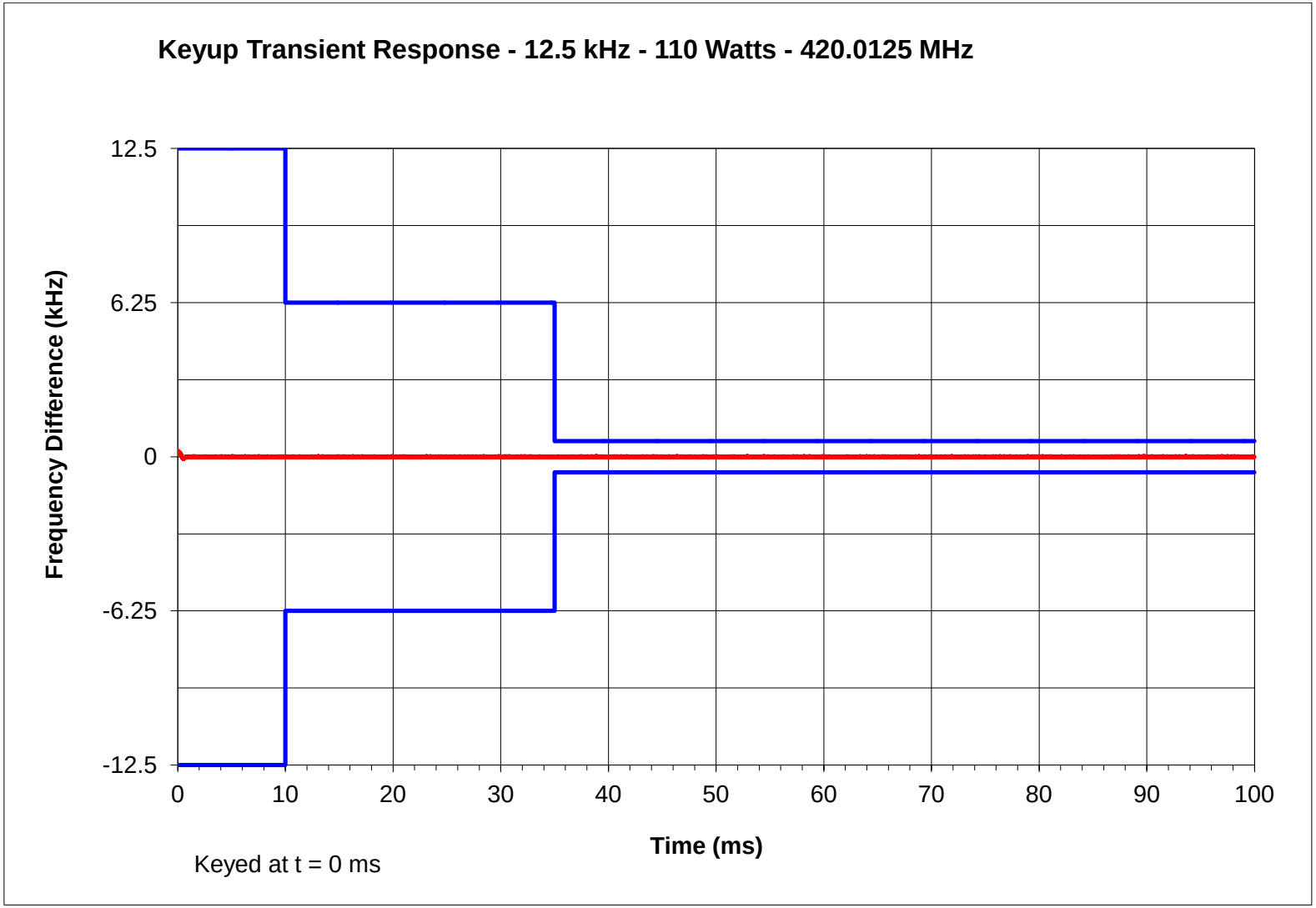
Report on Test Measurements

Frequency Transient – Key-Up – 12.5 kHz Channels – Low End of 406.1-430 MHz Band



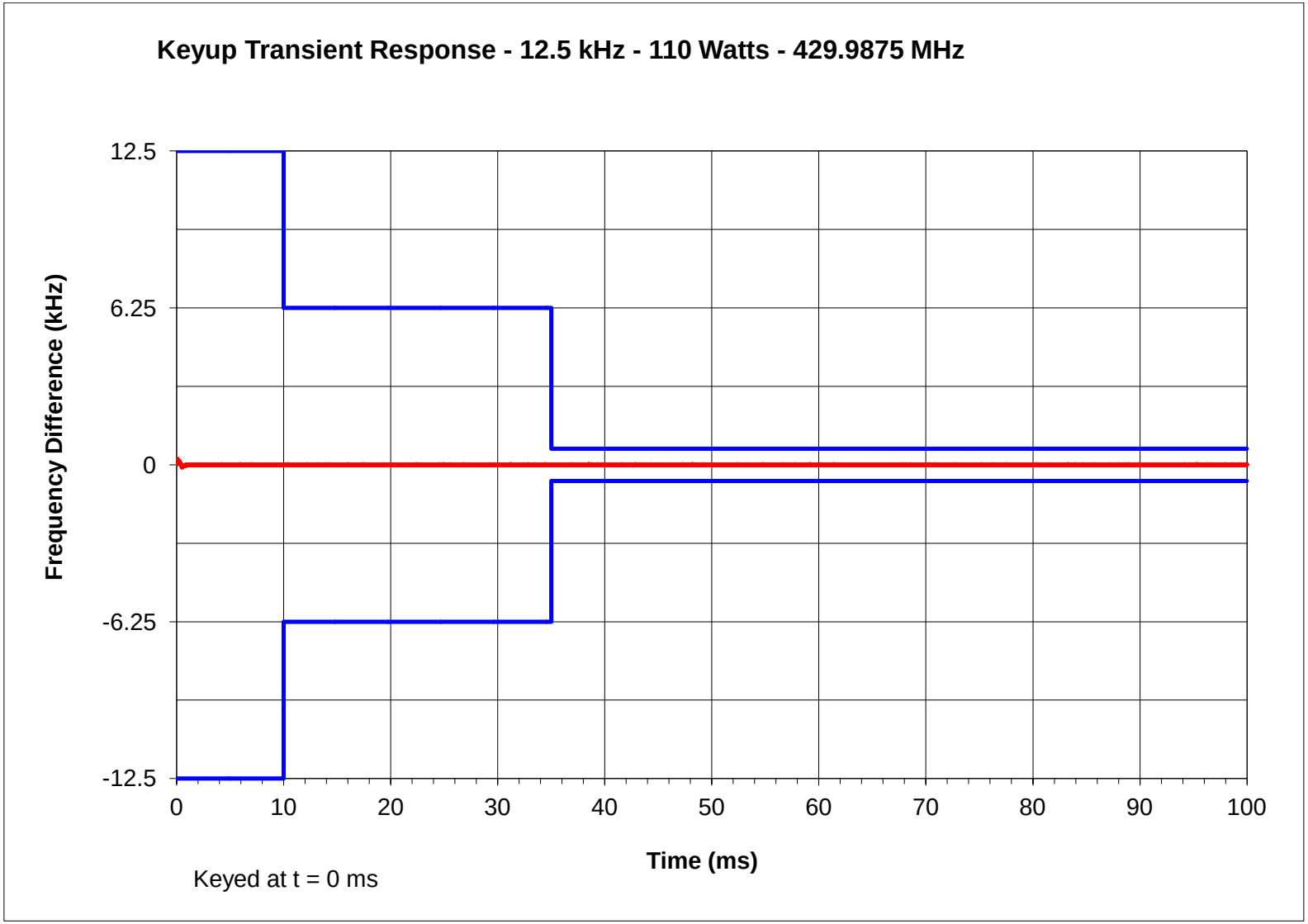
Report on Test Measurements

Frequency Transient – Key-Up – 12.5 kHz Channels – Middle of 406.1-430 MHz Band



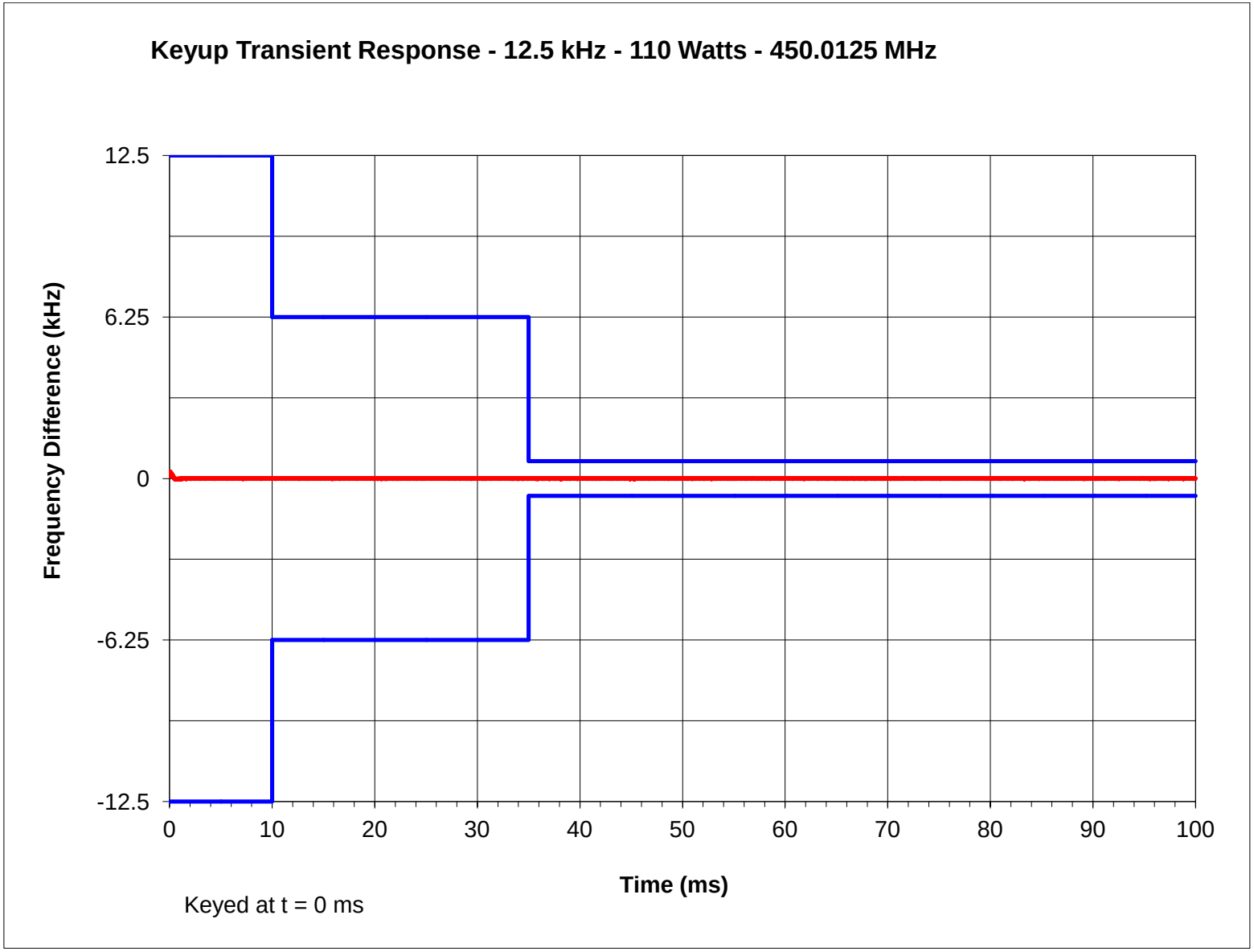
Report on Test Measurements

Frequency Transient – Key-Up – 12.5 kHz Channels – High End of 406.1-430 MHz Band



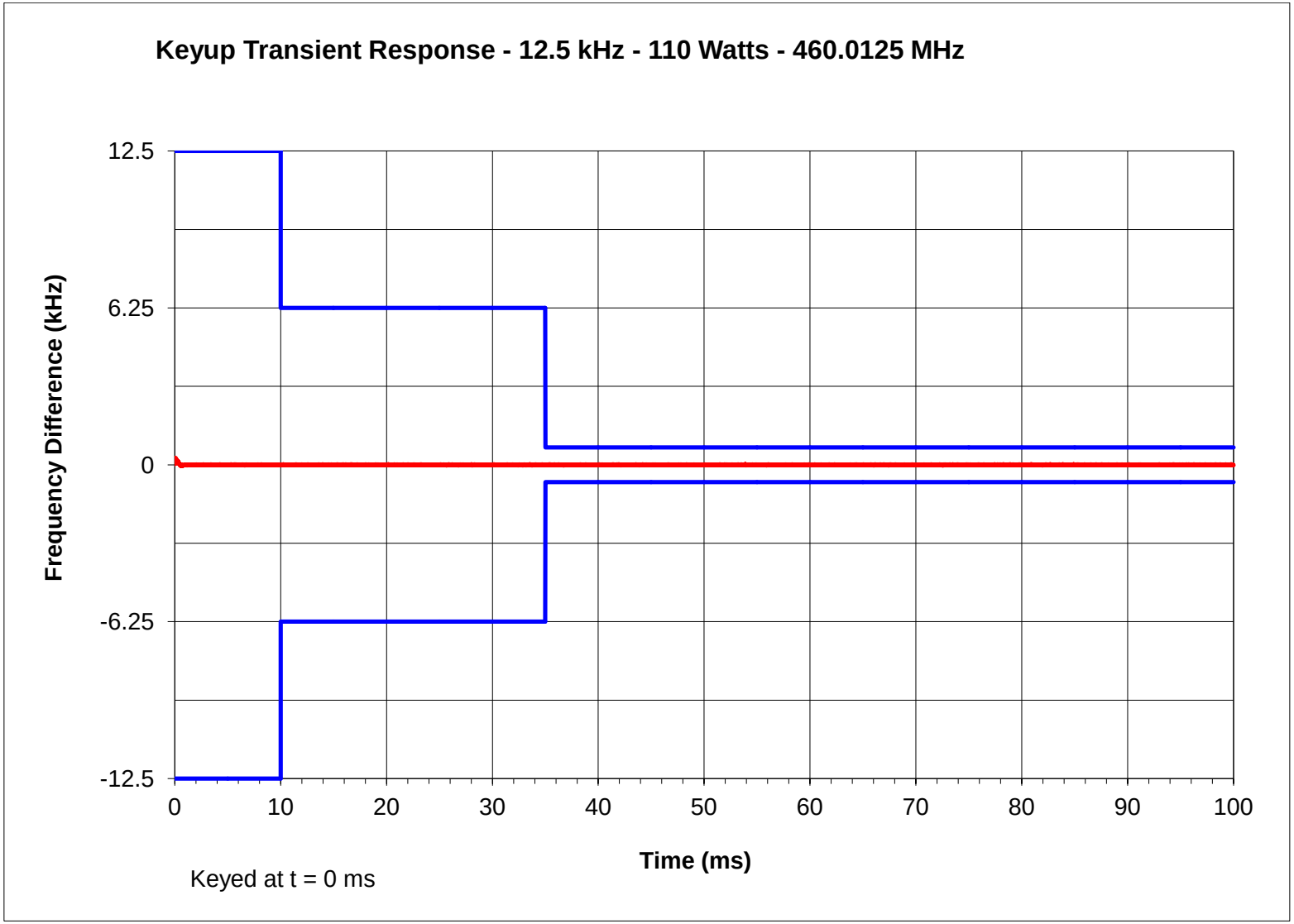
Report on Test Measurements

Frequency Transient – Key-Up – 12.5 kHz Channels – Low End of 450-470 MHz Band



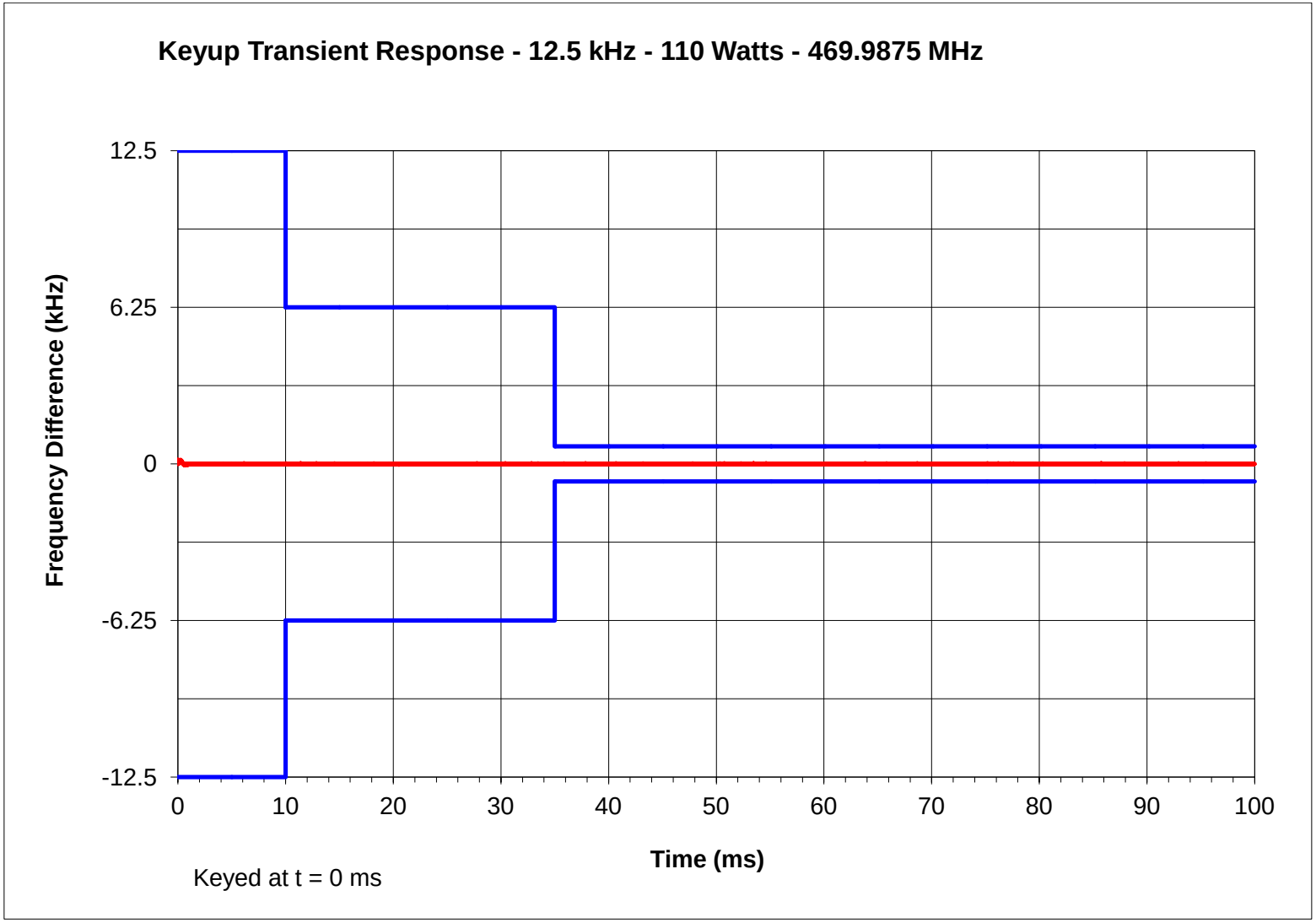
Report on Test Measurements

Frequency Transient – Key-Up – 12.5 kHz Channels – Middle of 450-470 MHz Band



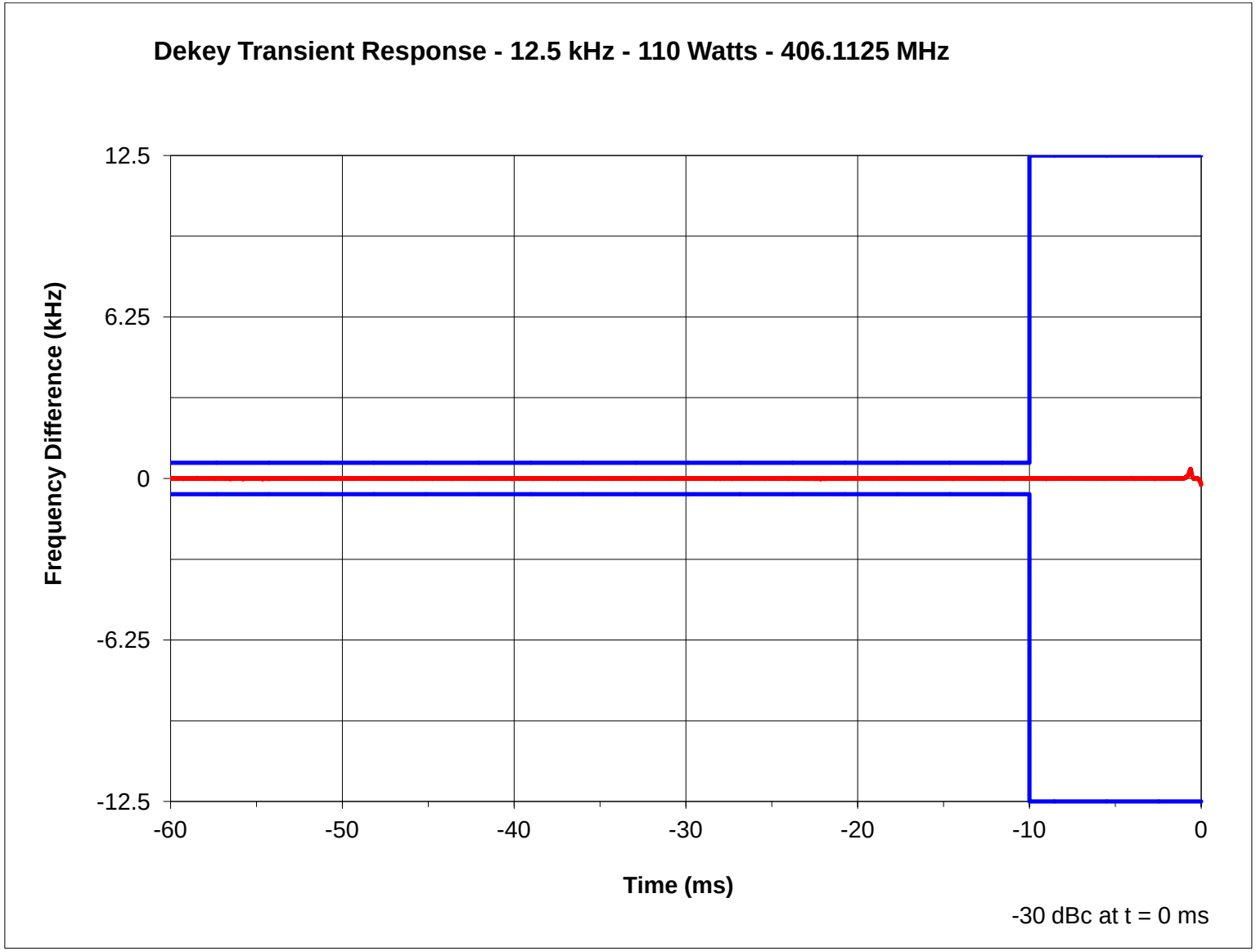
Report on Test Measurements

Frequency Transient – Key-Up – 12.5 kHz Channels – High End of 450-470 MHz Band



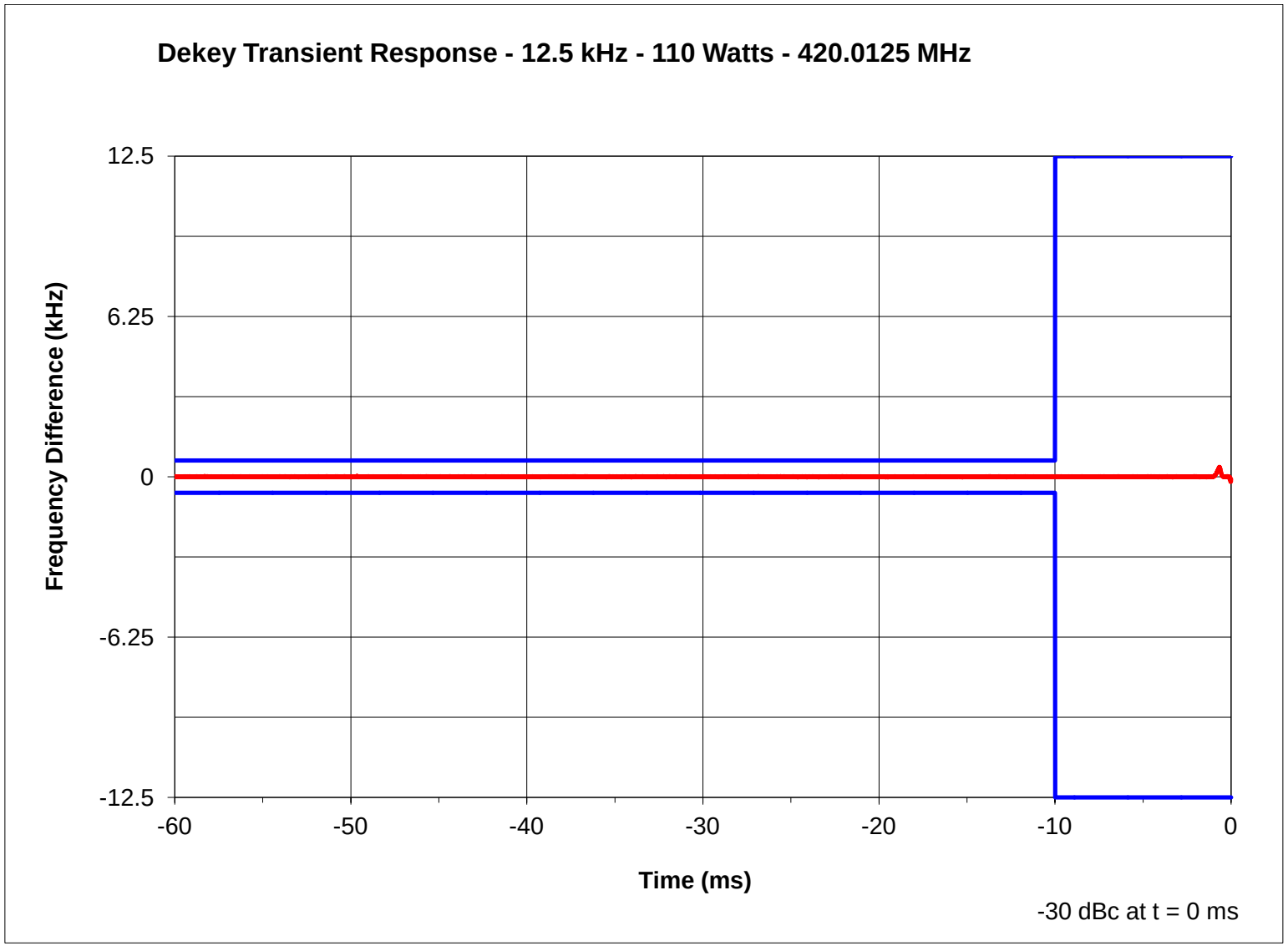
Report on Test Measurements

Frequency Transient – De-Key – 12.5 kHz Channels – Low End of 406.1-430 MHz Band



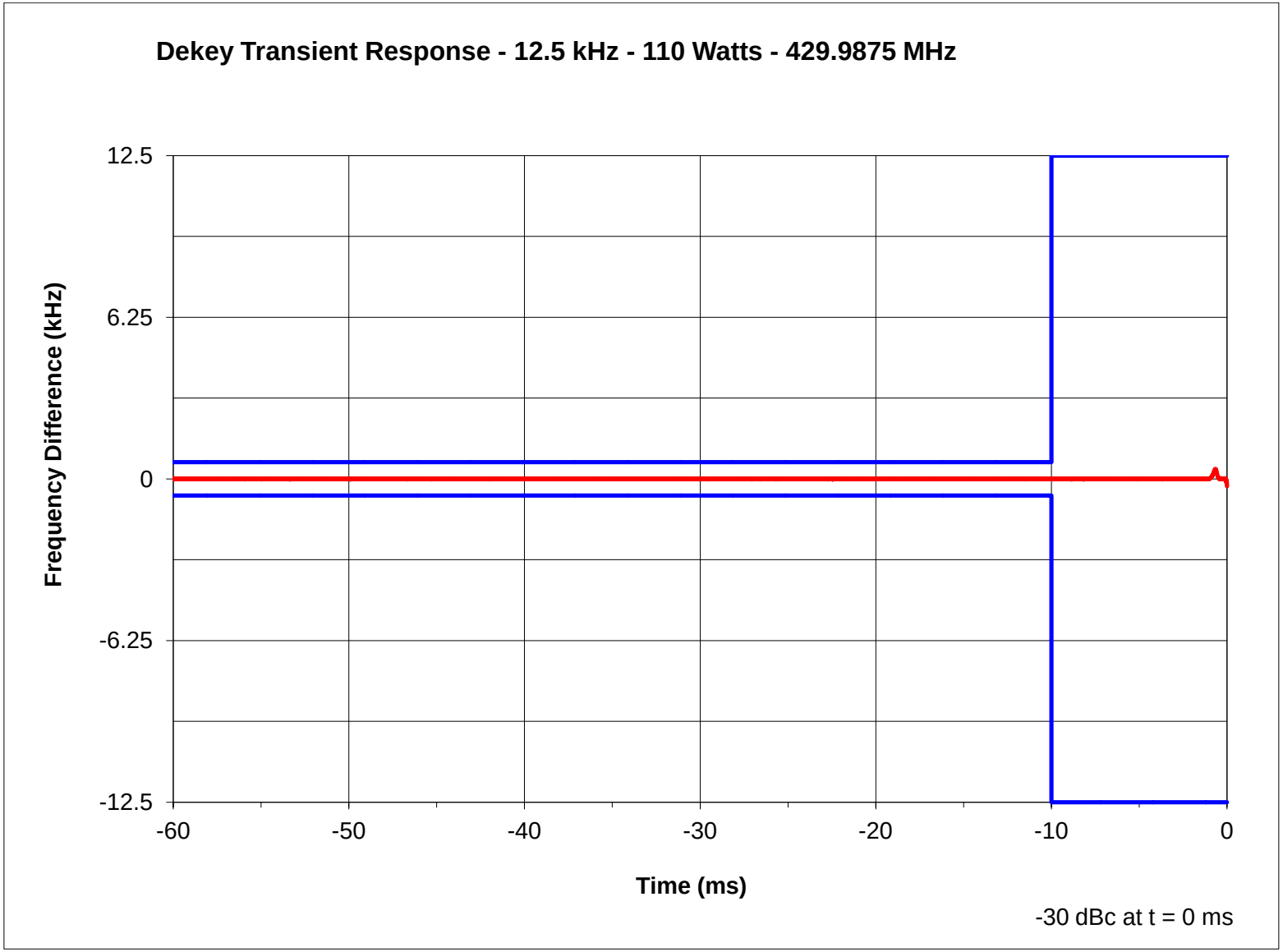
Report on Test Measurements

Frequency Transient – De-Key – 12.5 kHz Channels – Middle of 406.1-430 MHz Band



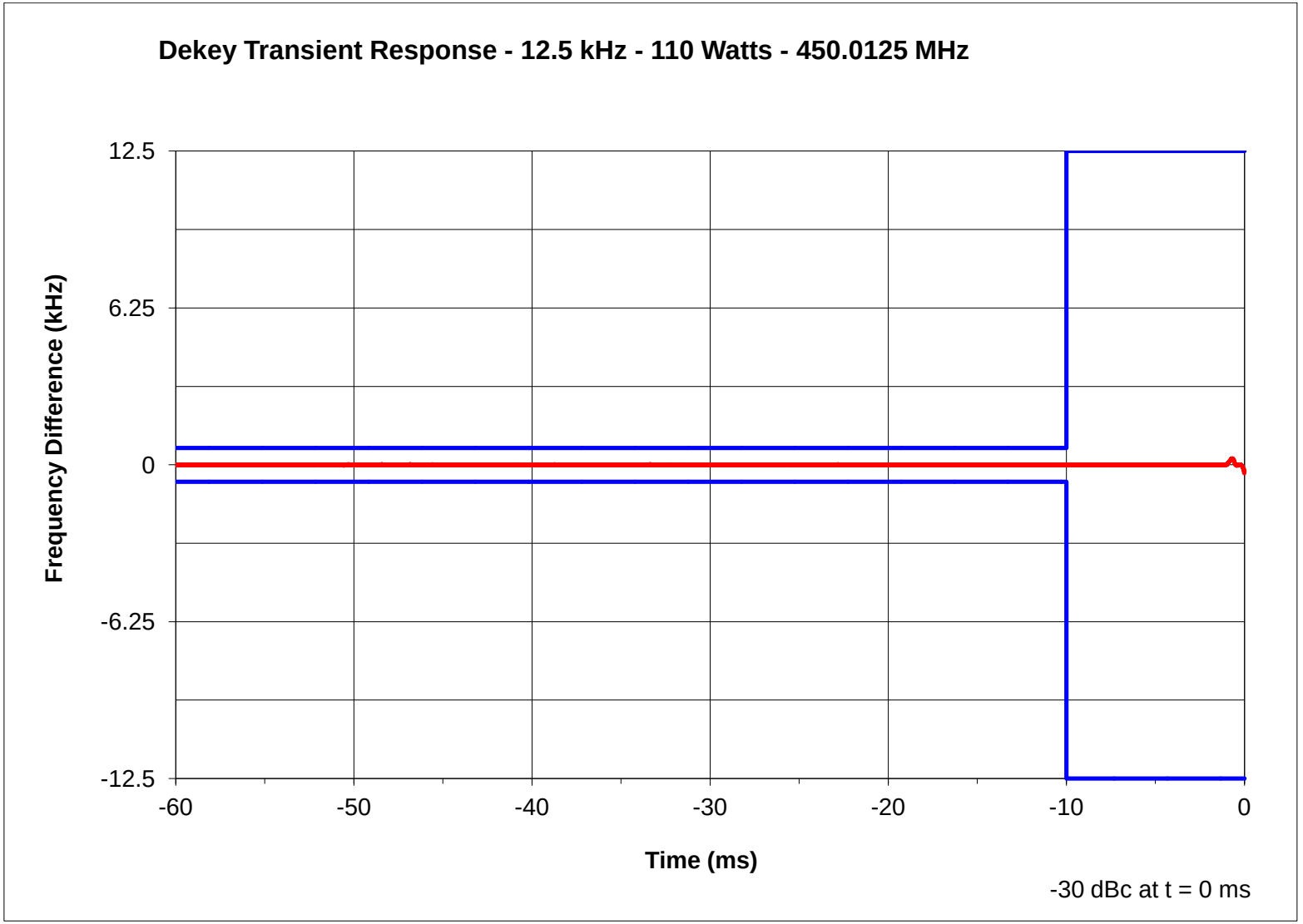
Report on Test Measurements

Frequency Transient – De-Key – 12.5 kHz Channels – High End of 406.1-430 MHz Band



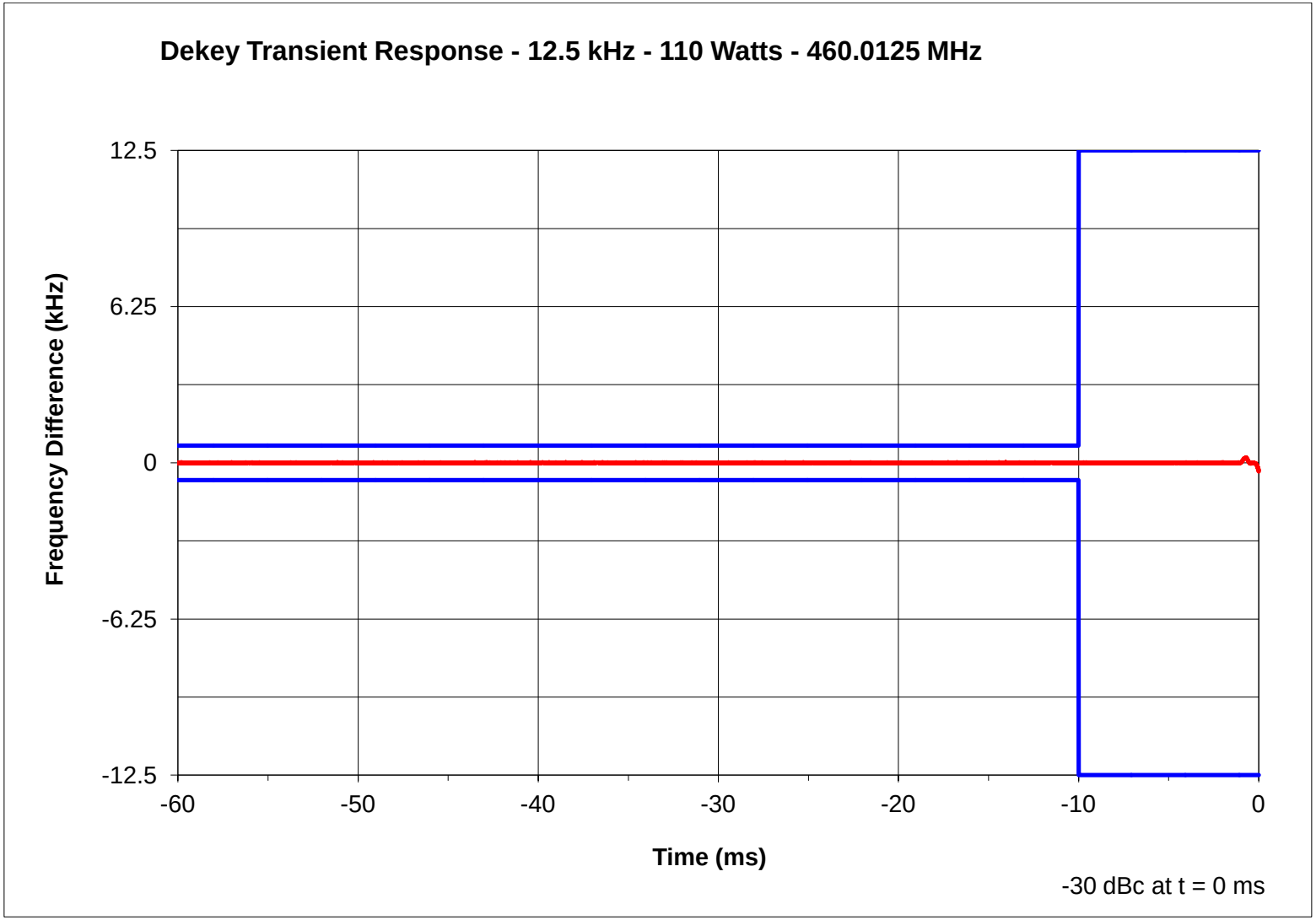
Report on Test Measurements

Frequency Transient – De-Key – 12.5 kHz Channels – Low End of 450-470 MHz Band



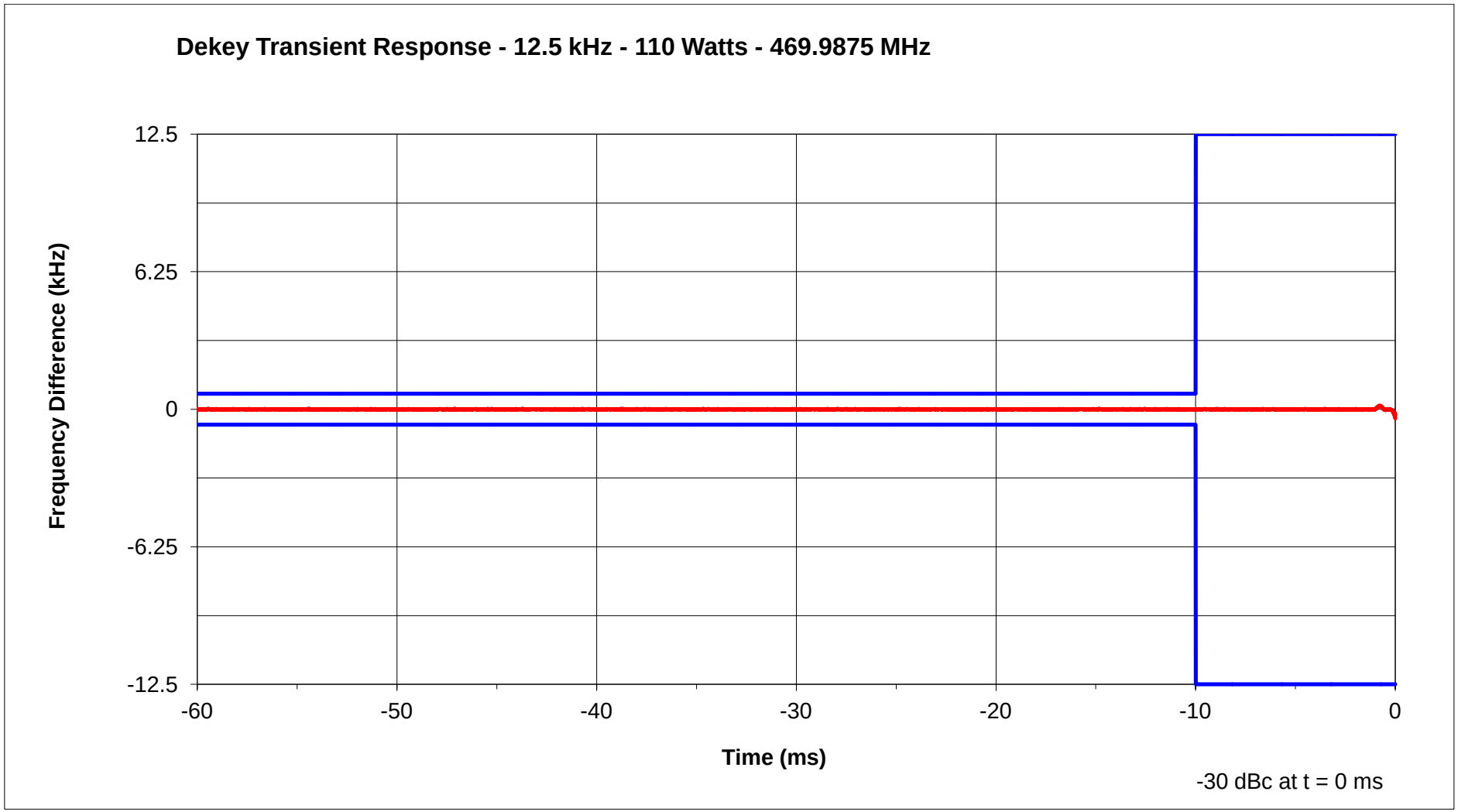
Report on Test Measurements

Frequency Transient – De-Key – 12.5 kHz Channels – Middle of 450-470 MHz Band



Report on Test Measurements

Frequency Transient – De-Key – 12.5 kHz Channels – High End of 450-470 MHz Band



Report on Test Measurements

Audio Frequency Response

Specification Requirement per TIA 603:
Audio Frequency Response, 25 kHz Channels*:* The audio frequency response from 300 Hz to 3000 Hz shall not vary more than +1 dB or -3 dB from a true 6 dB per octave pre-emphasis characteristic as referenced to the 1000 Hz level, with an additional 6 dB per octave attenuation allowed from 500 Hz to 300 Hz, and an additional 6 dB per octave attenuation is allowed from 2500 Hz to 3000 Hz in equipment operating in the 25 MHz to 869 MHz range.

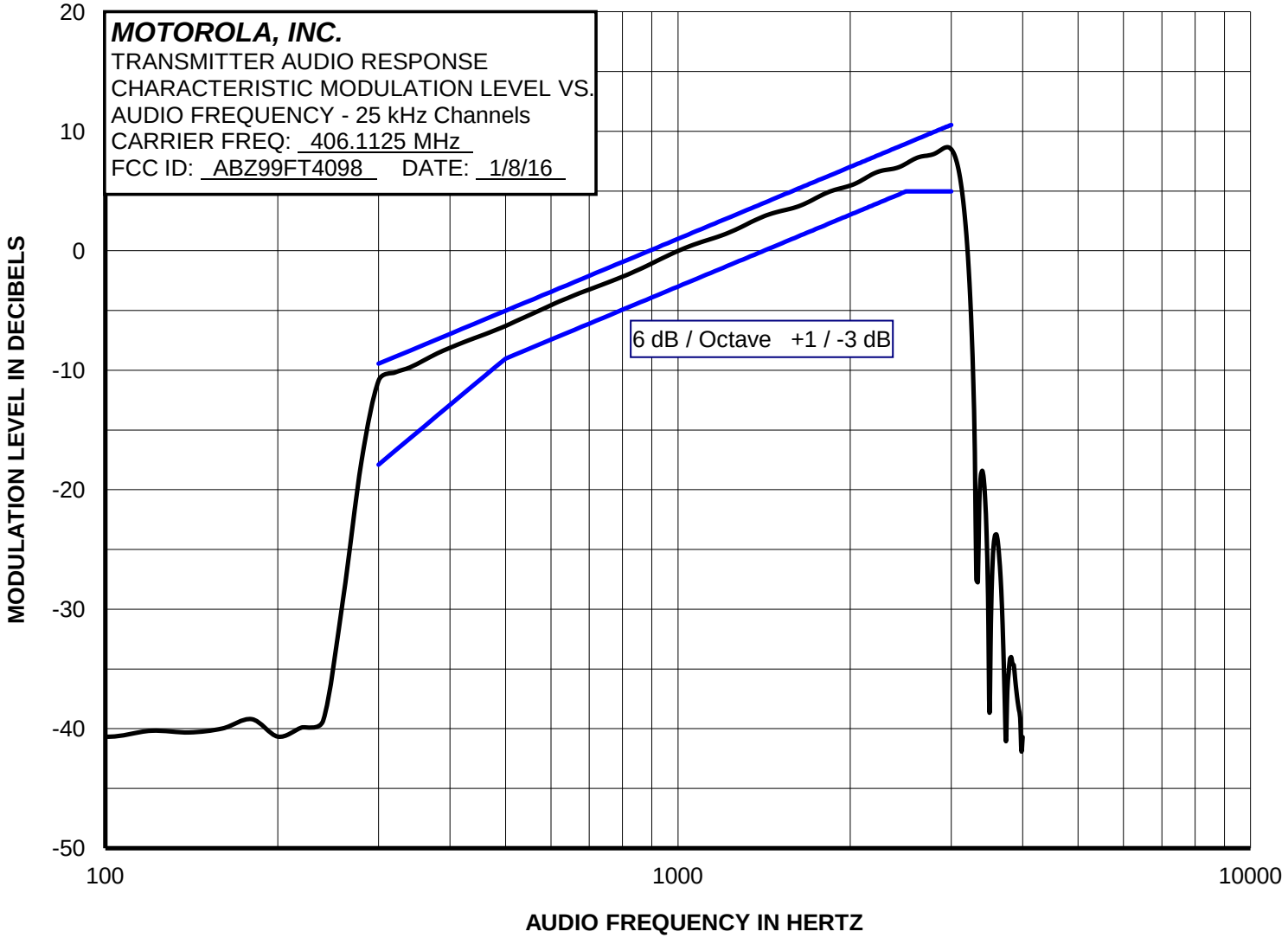
Audio Frequency Response, 12.5 kHz Channels*:* The audio frequency response from 300 Hz to 3000 Hz shall not vary more than +1 dB or -3 dB from a true 6 dB per octave pre-emphasis characteristic as referenced to the 1000 Hz level, with an additional 6 dB per octave attenuation allowed from 500 Hz to 300 Hz. An additional 6 dB per octave rolloff is allowed from 2300 Hz to 2700 Hz, and an additional 12 dB per octave is allowed from 2700 Hz to 3000 Hz in equipment operating in the 896 MHz to 940 MHz range or for 12.5 kHz channel operation.

Modulation:	Audio Test Tone
Carrier Frequency:	Performance was measured at carrier frequencies at the low end, middle, and high end of the operating band.
Specification:	The specification limit is shown on the response plots

EXHIBIT	DESCRIPTION
E1-7.1	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 406.1125 MHz
E1-7.2	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 420.0125 MHz
E1-7.3	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 429.9875 MHz
E1-7.4	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 450.0125 MHz
E1-7.5	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 460.0125 MHz
E1-7.6	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 469.9875 MHz
E1-7.7	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 406.1125 MHz
E1-7.8	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 420.0125 MHz
E1-7.9	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 429.9875 MHz
E1-7.10	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 450.0125 MHz
E1-7.11	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 460.0125 MHz
E1-7.12	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 469.9875 MHz

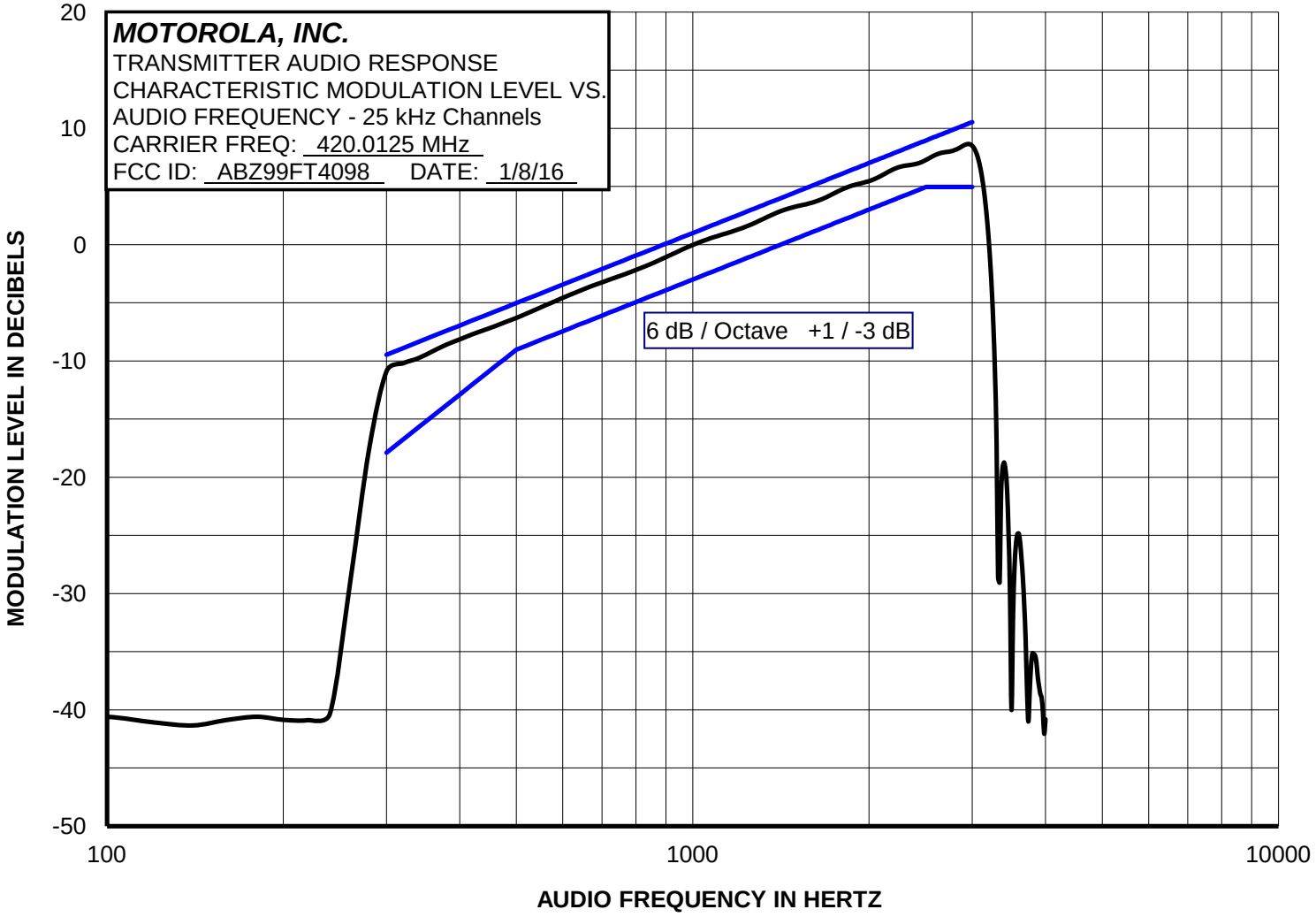
Report on Test Measurements

Audio Frequency Response – 25 kHz Channels



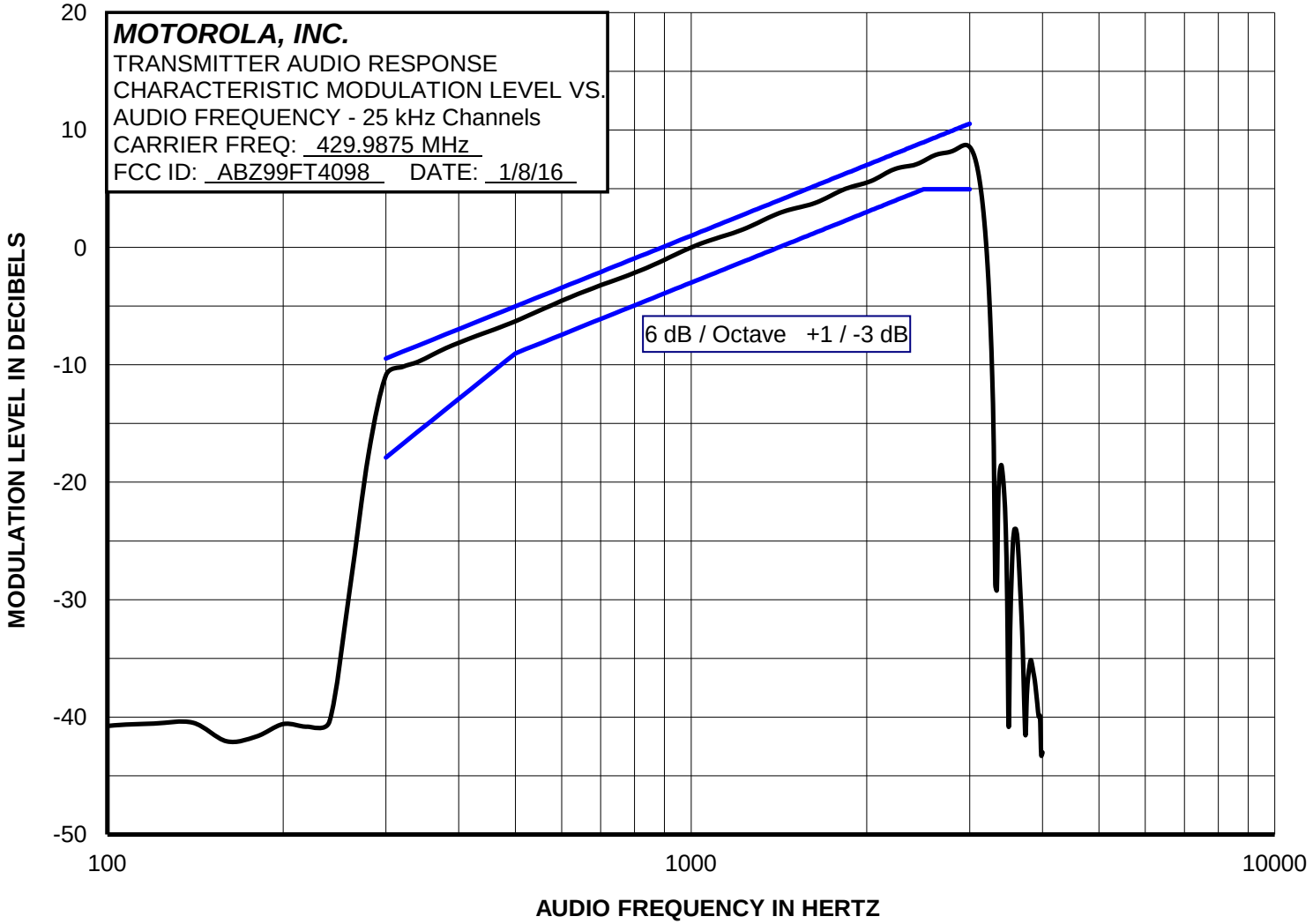
Report on Test Measurements

Audio Frequency Response – 25 kHz Channels



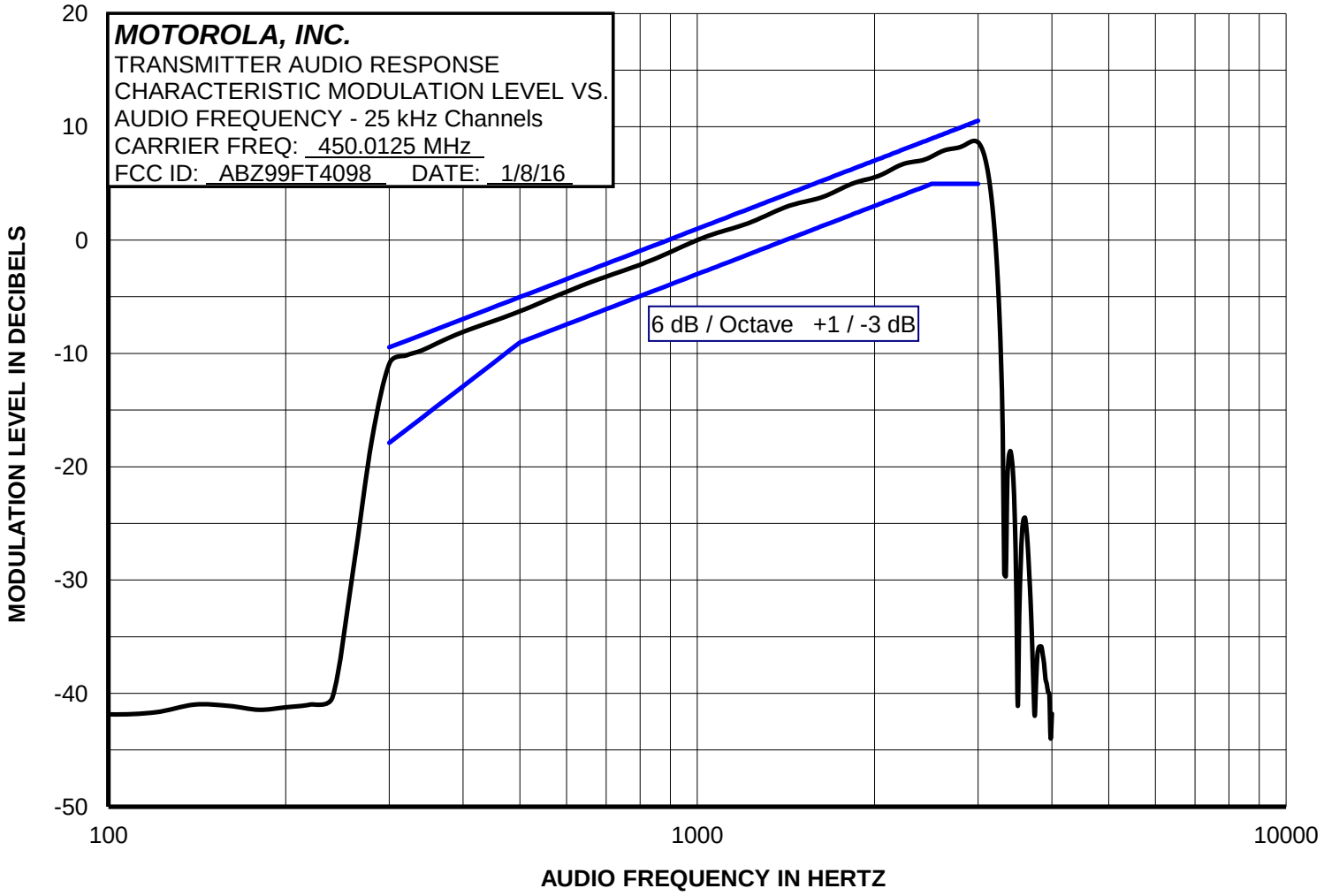
Report on Test Measurements

Audio Frequency Response – 25 kHz Channels



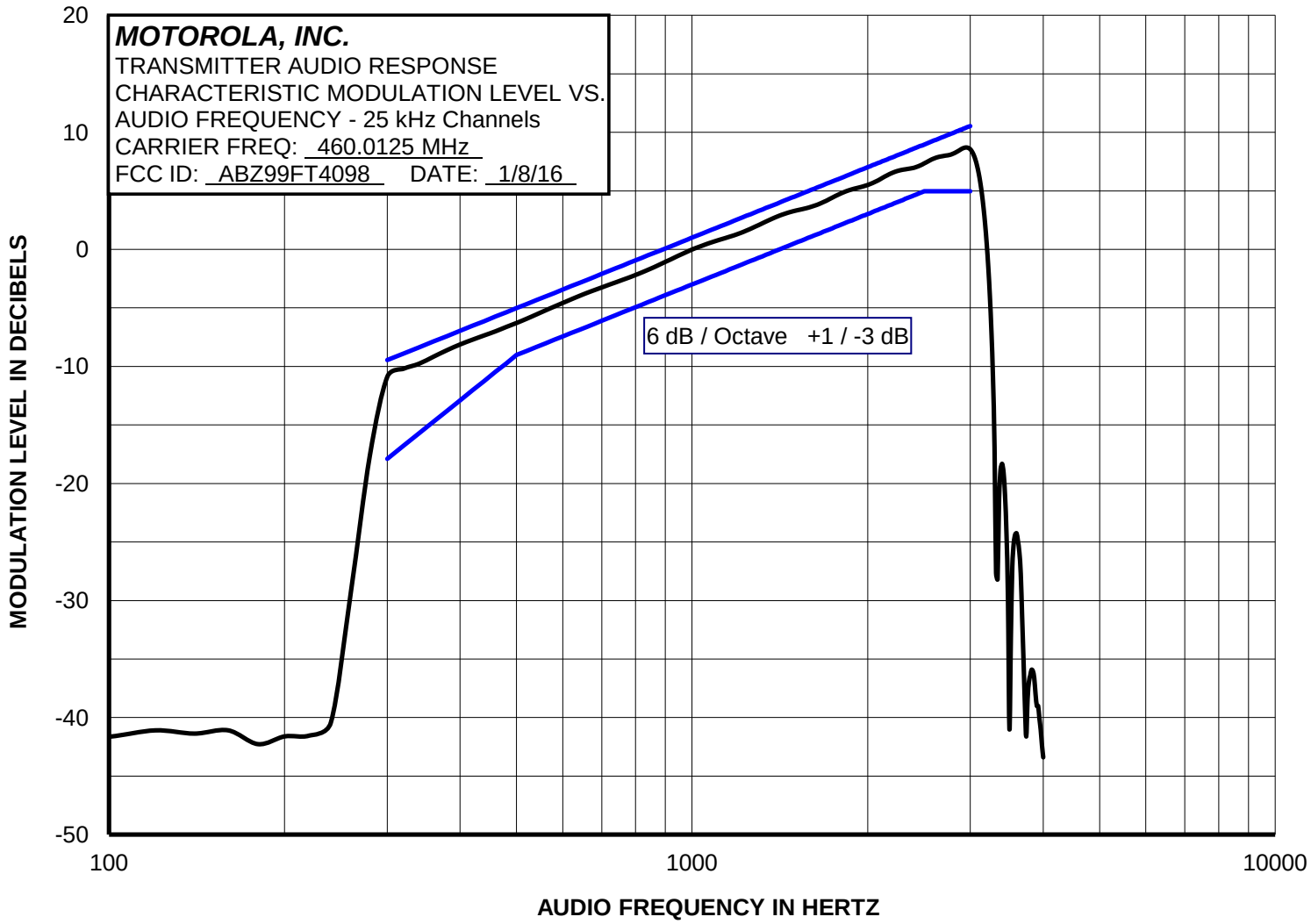
Report on Test Measurements

Audio Frequency Response – 25 kHz Channels



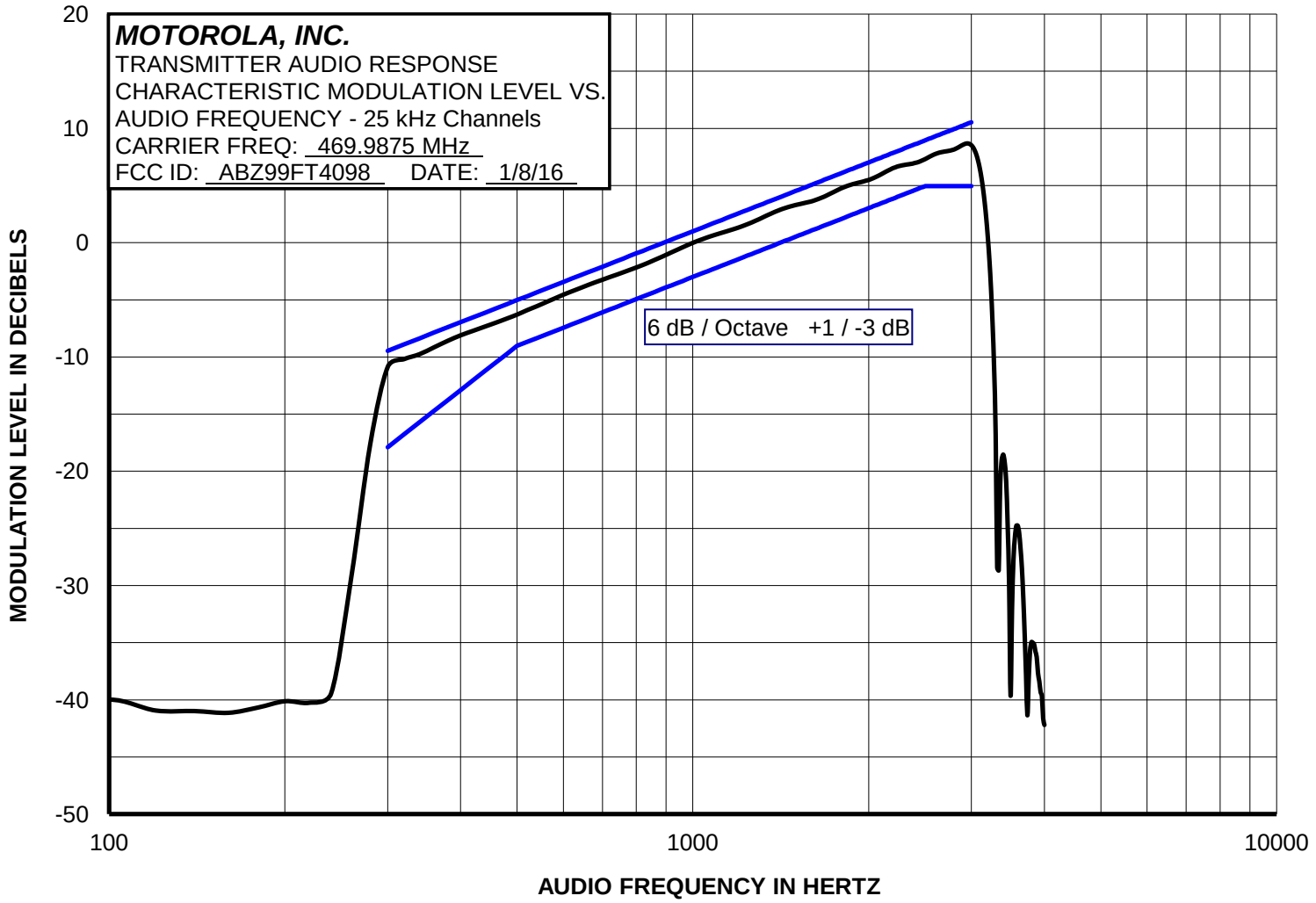
Report on Test Measurements

Audio Frequency Response – 25 kHz Channels



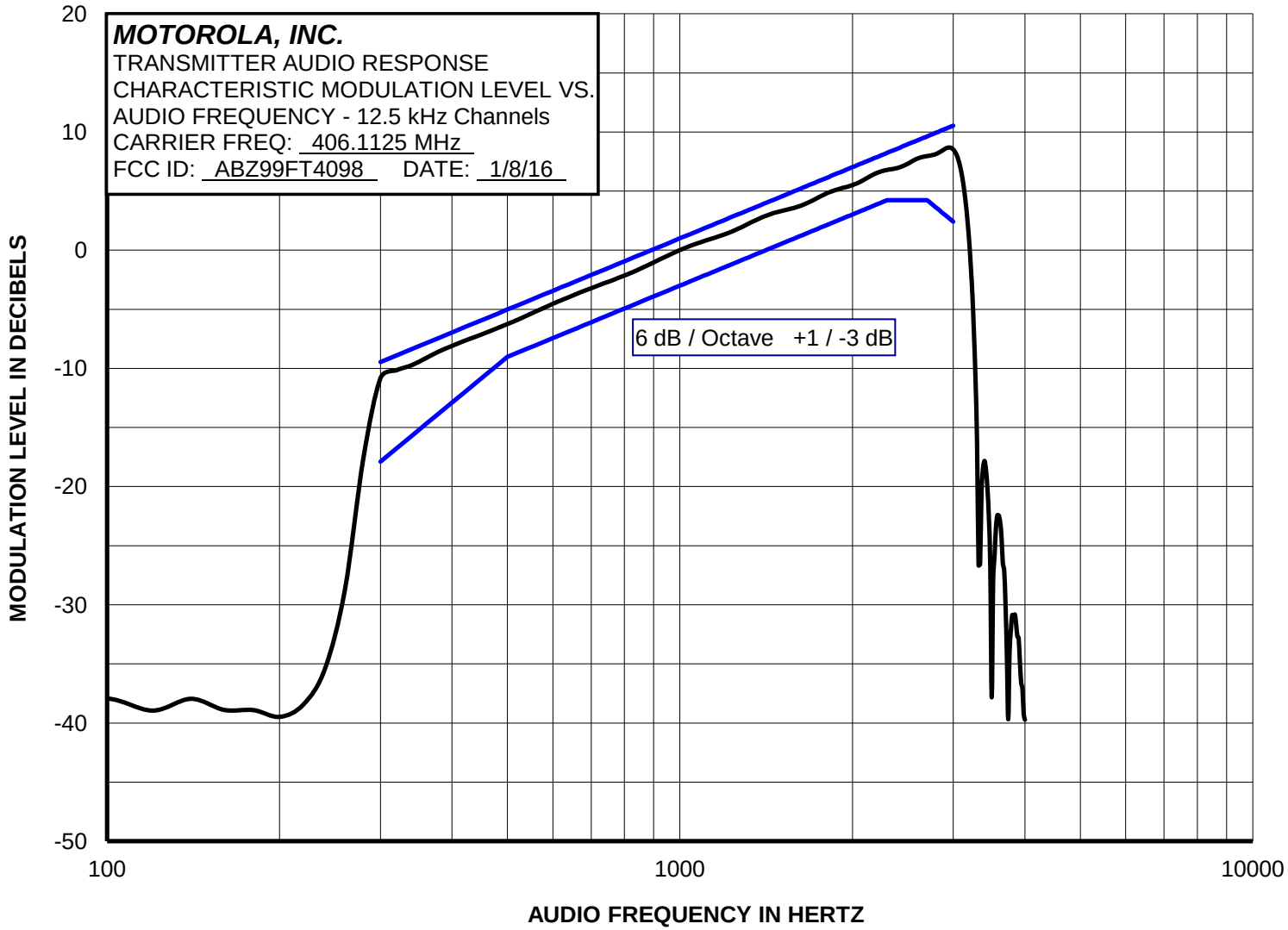
Report on Test Measurements

Audio Frequency Response – 25 kHz Channels



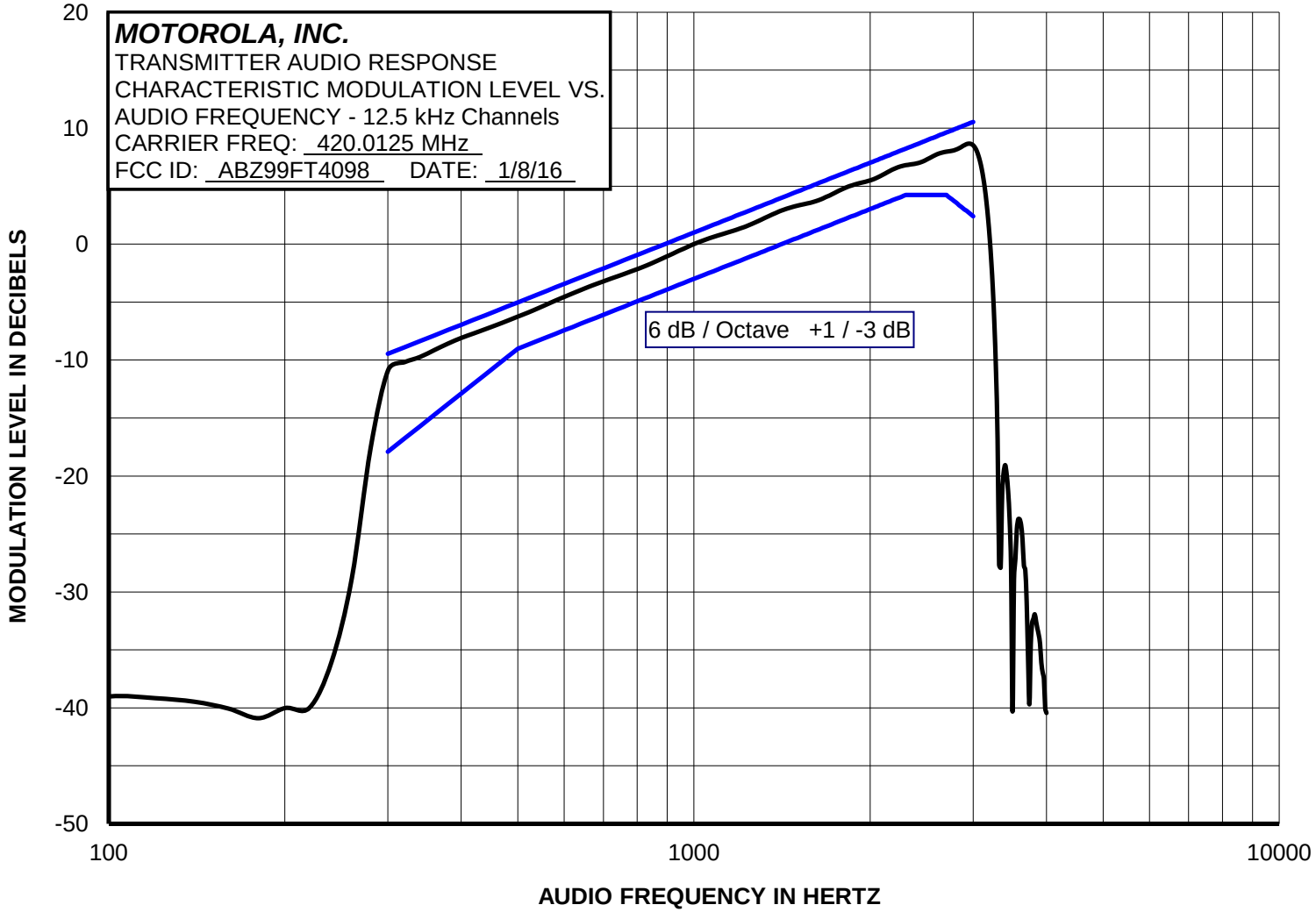
Report on Test Measurements

Audio Frequency Response – 12.5 kHz Channels



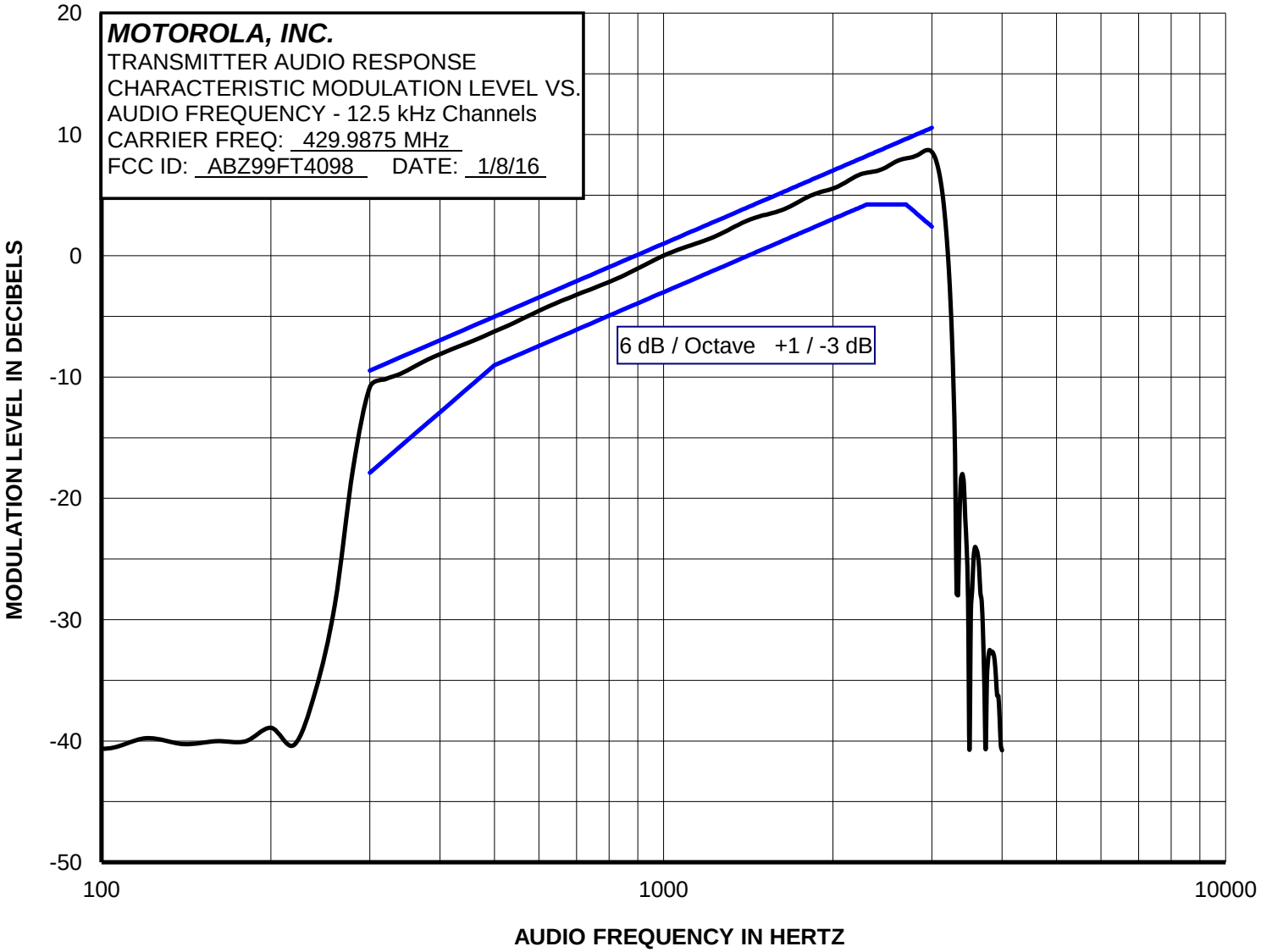
Report on Test Measurements

Audio Frequency Response – 12.5 kHz Channels



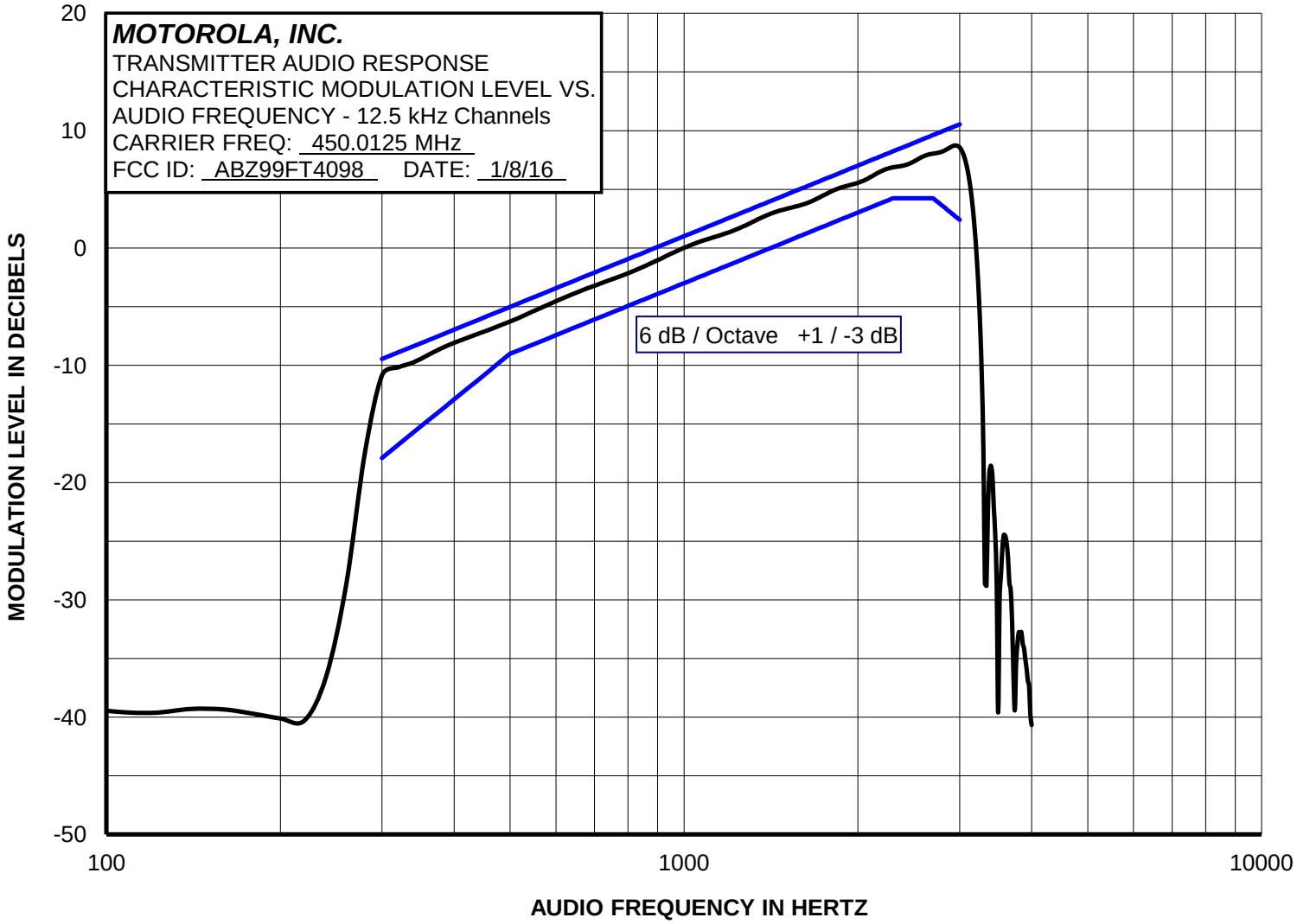
Report on Test Measurements

Audio Frequency Response – 12.5 kHz Channels



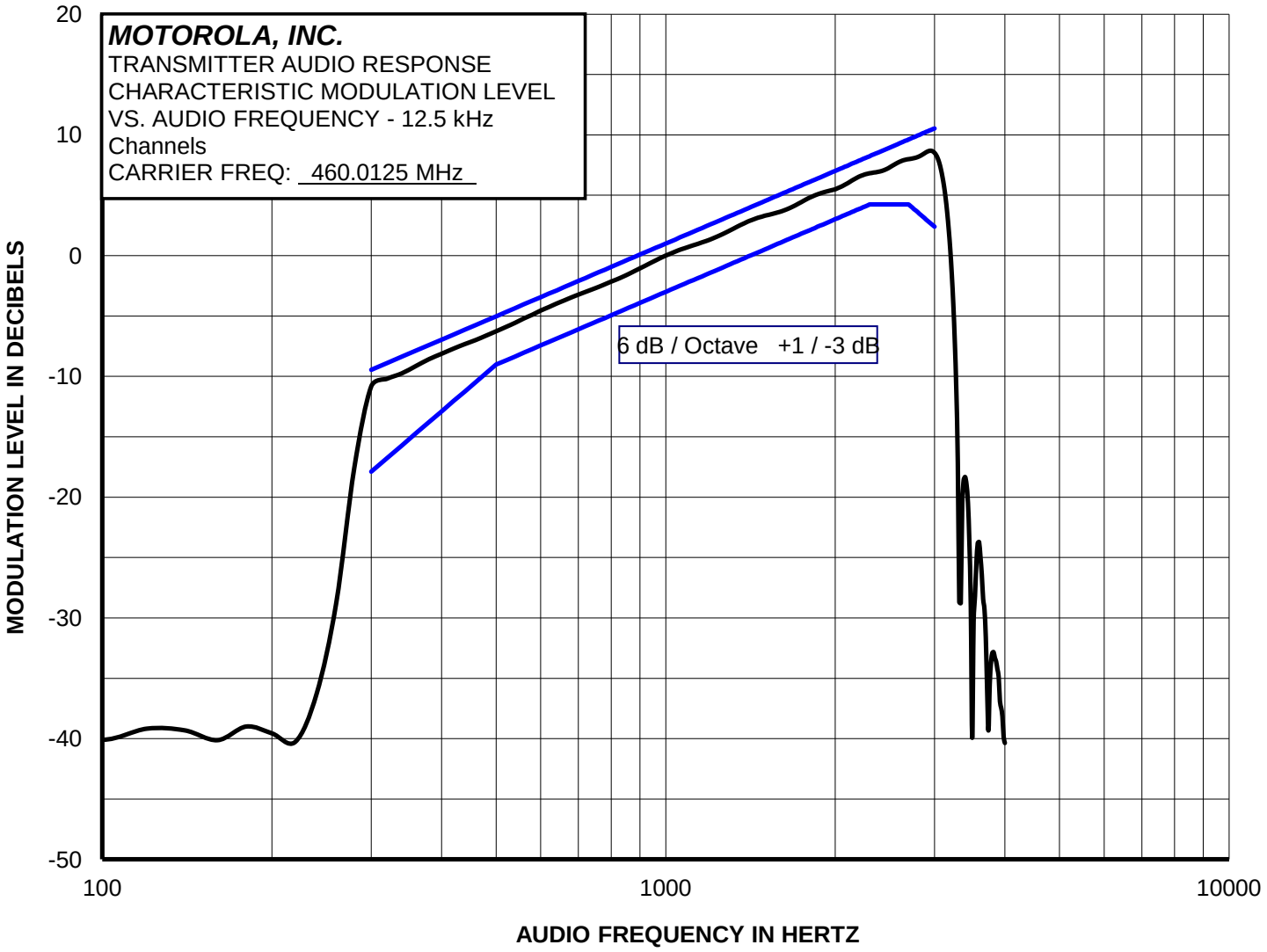
Report on Test Measurements

Audio Frequency Response – 12.5 kHz Channels



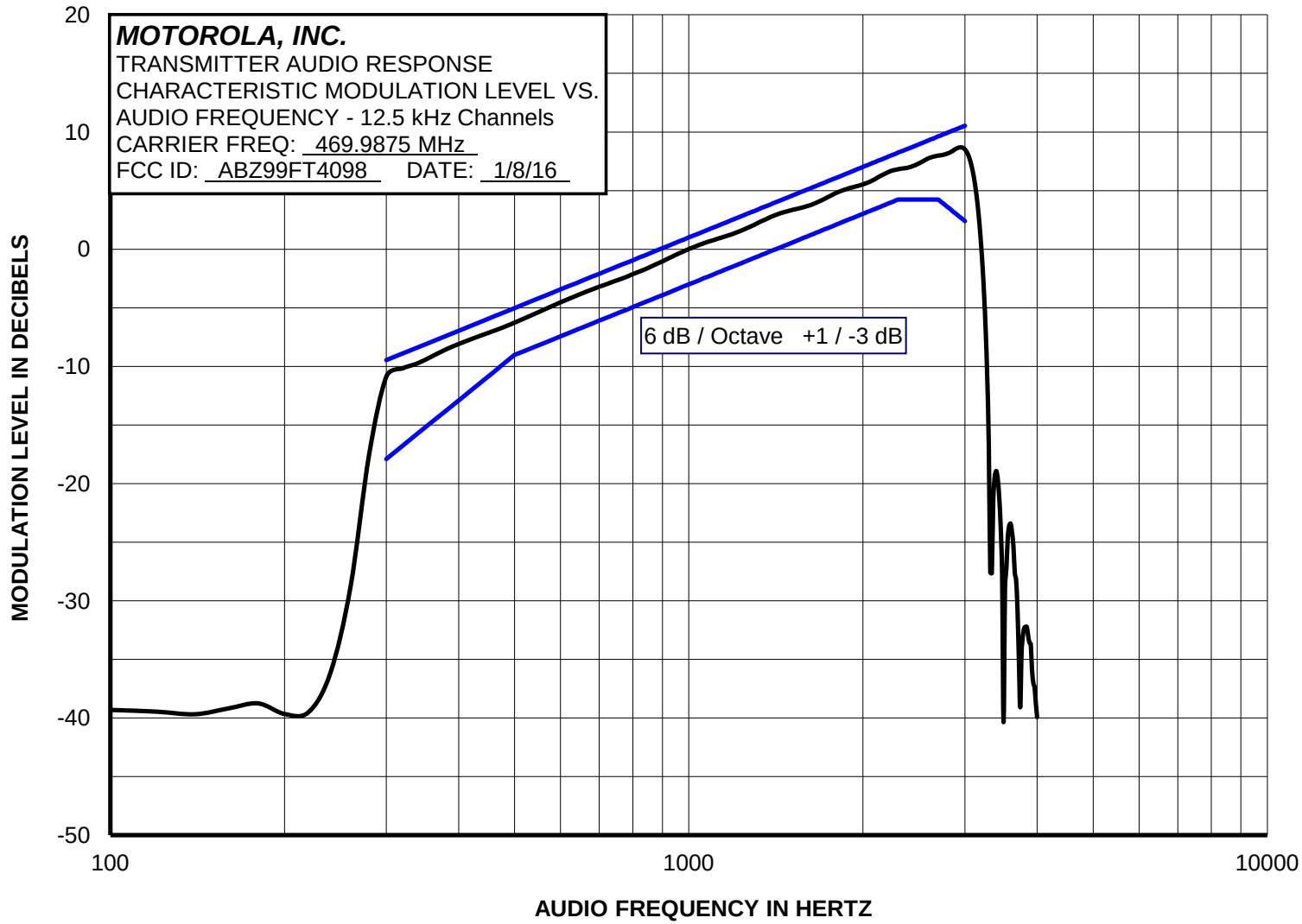
Report on Test Measurements

Audio Frequency Response – 12.5 kHz Channels



Report on Test Measurements

Audio Frequency Response – 12.5 kHz Channels



Report on Test Measurements

Modulation Limiting

Specification Requirement per TIA 603:
Modulation Limiting, 25 kHz Channels*:* The maximum instantaneous peak and steady state deviations shall not exceed the rated system deviation of +/- 5 kHz at any audio frequency or change in level as specified in the method of measurement.

The minimum value of modulation limiting shall be at least 60% of the rated system deviation, or 3 kHz.

Modulation Limiting, 12.5 kHz Channels*:* The maximum instantaneous peak and steady state deviations shall not exceed the rated system deviation of +/- 2.5 kHz at any audio frequency or change in level as specified in the method of measurement.

The minimum value of modulation limiting shall be at least 60% of the rated system deviation, or 1.5 kHz.

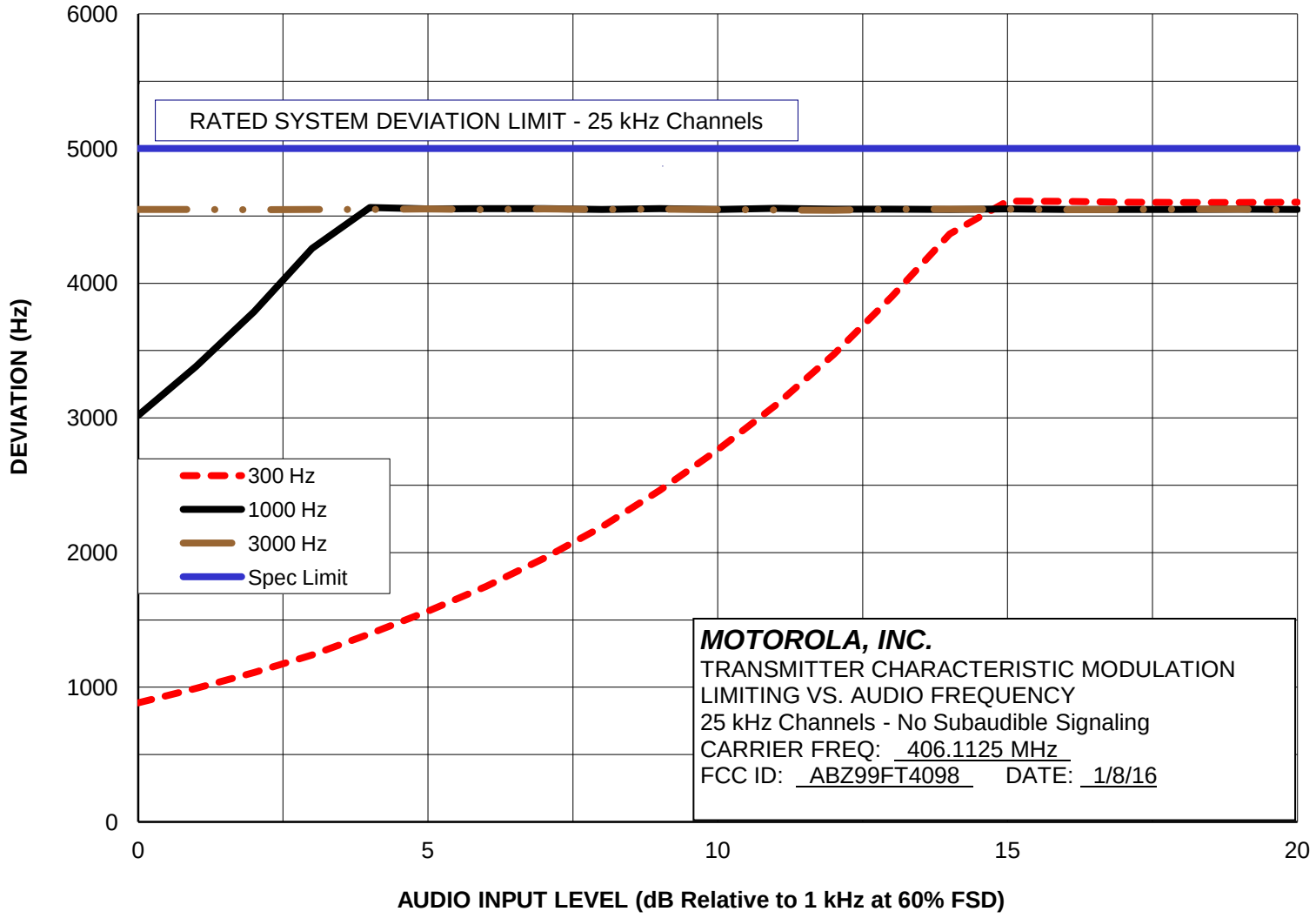
Modulation:	Audio Test Tone, Varying Frequency between 300 Hz and 3000 Hz
Carrier Frequency:	Performance was measured at carrier frequencies at the low end, middle, and high end of the operating band.
Specification:	5 kHz max for 25 kHz channels, 2.5 kHz max for 12.5 kHz channels as shown on charts

Modulation Limiting Response Plots:

EXHIBIT	DESCRIPTION
E1-8.1	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 406.1125 MHz
E1-8.2	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 420.0125 MHz
E1-8.3	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 429.9875 MHz
E1-8.4	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 450.0125 MHz
E1-8.5	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 460.0125 MHz
E1-8.6	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 469.9875 MHz
E1-8.7	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 406.1125 MHz
E1-8.8	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 420.0125 MHz
E1-8.9	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 429.9875 MHz
E1-8.10	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 450.0125 MHz
E1-8.11	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 460.0125 MHz
E1-8.12	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 469.9875 MHz

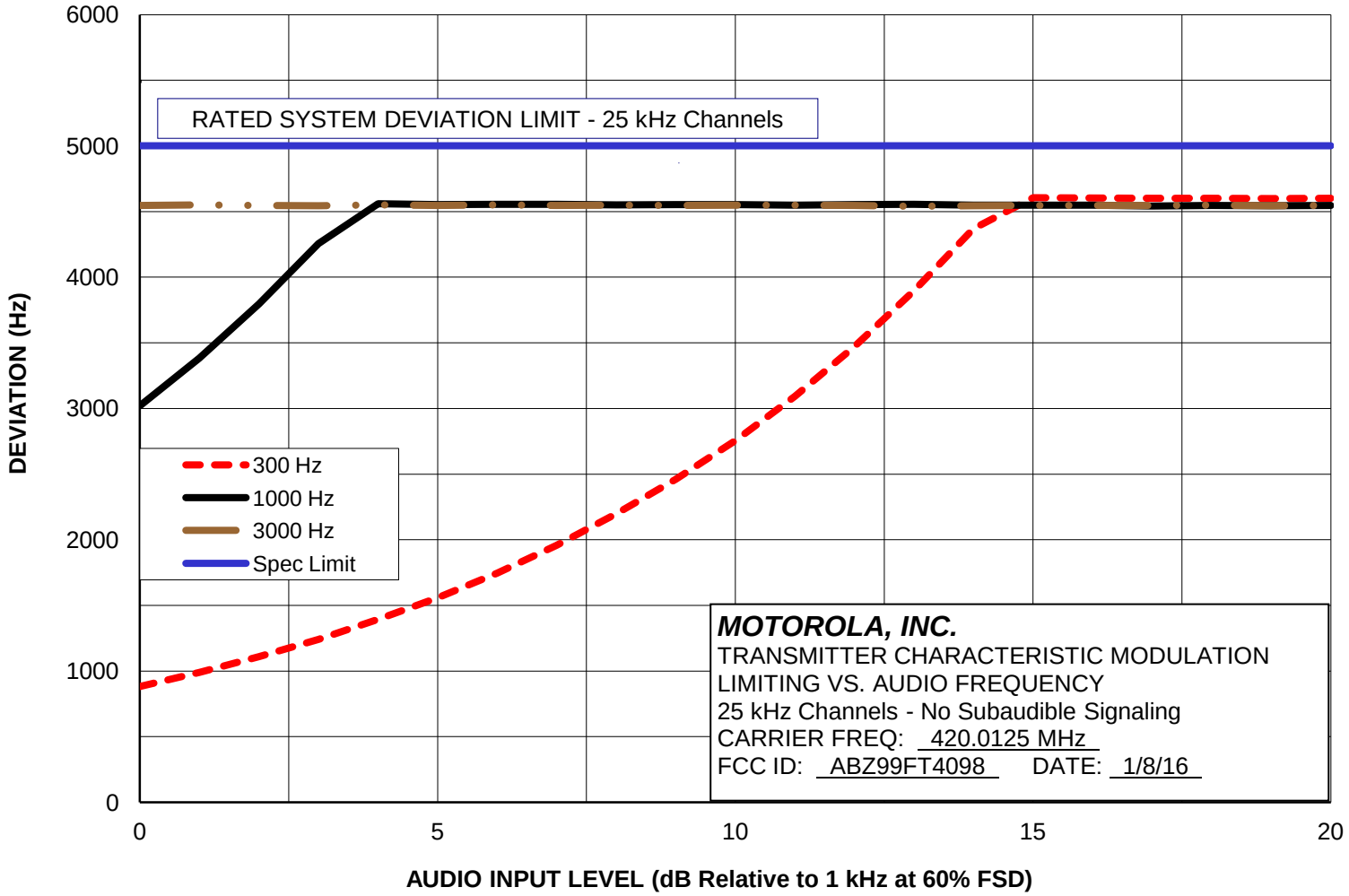
Report on Test Measurements

Modulation Limiting – 25 kHz Channels



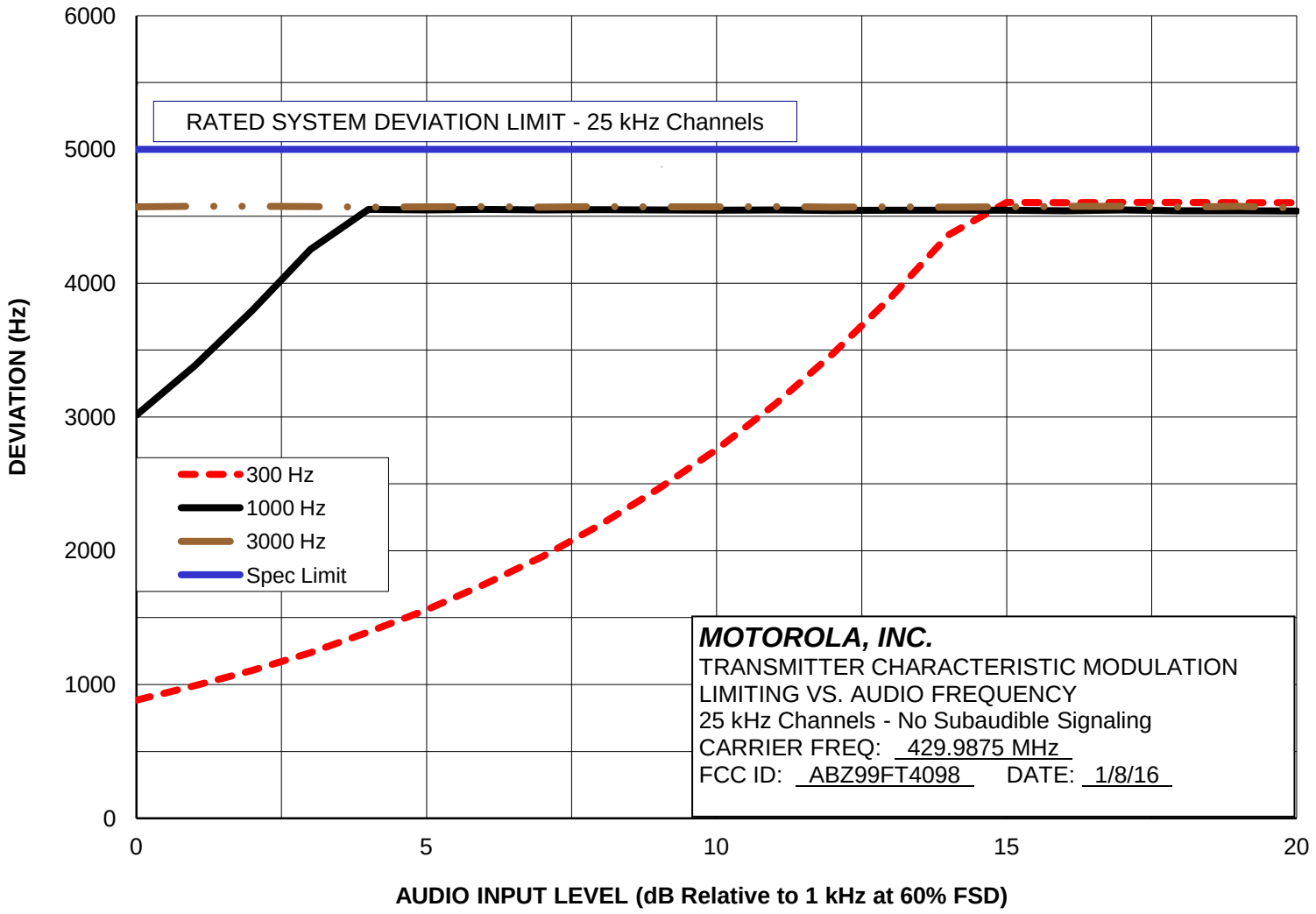
Report on Test Measurements

Modulation Limiting – 25 kHz Channels



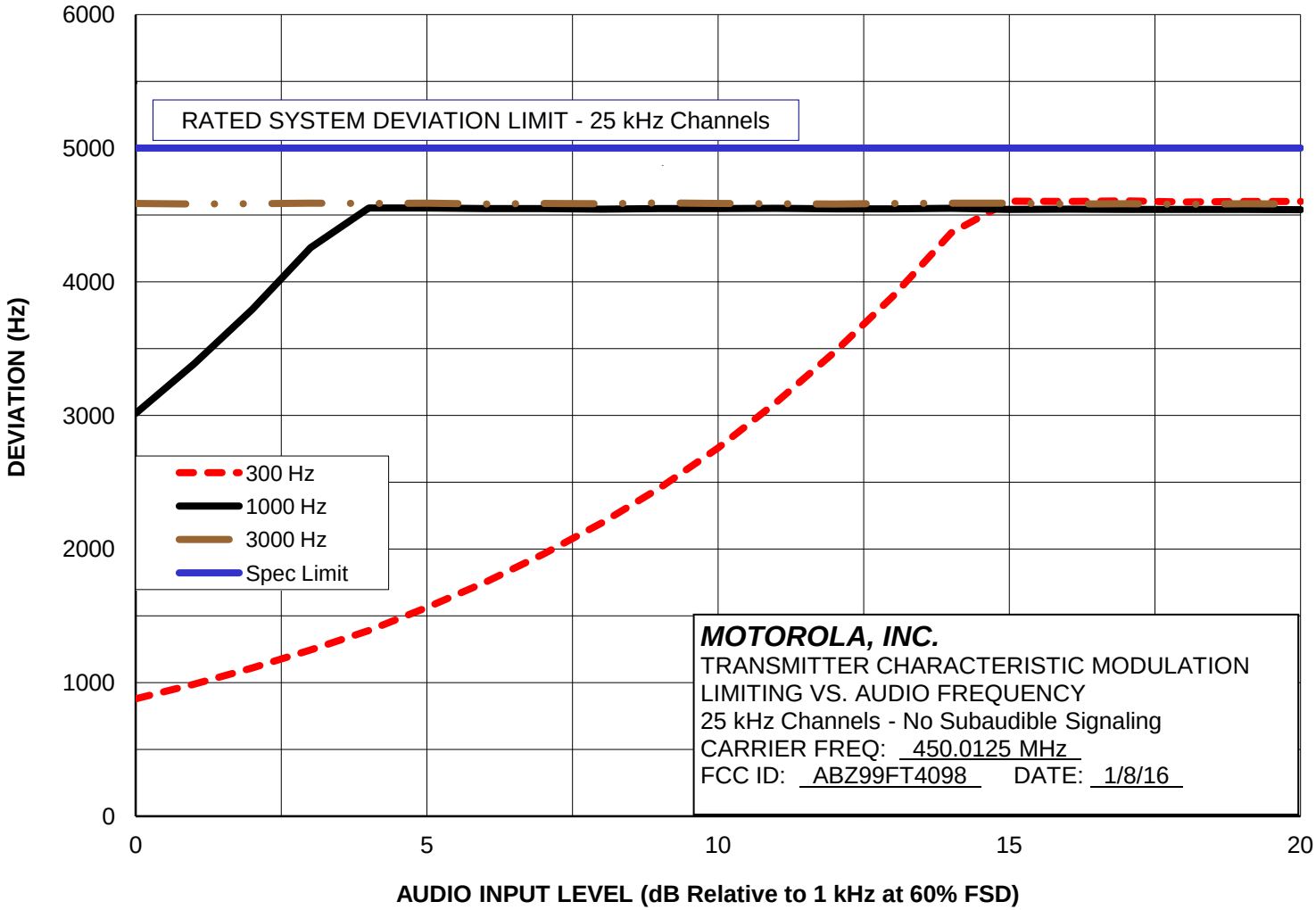
Report on Test Measurements

Modulation Limiting – 25 kHz Channels



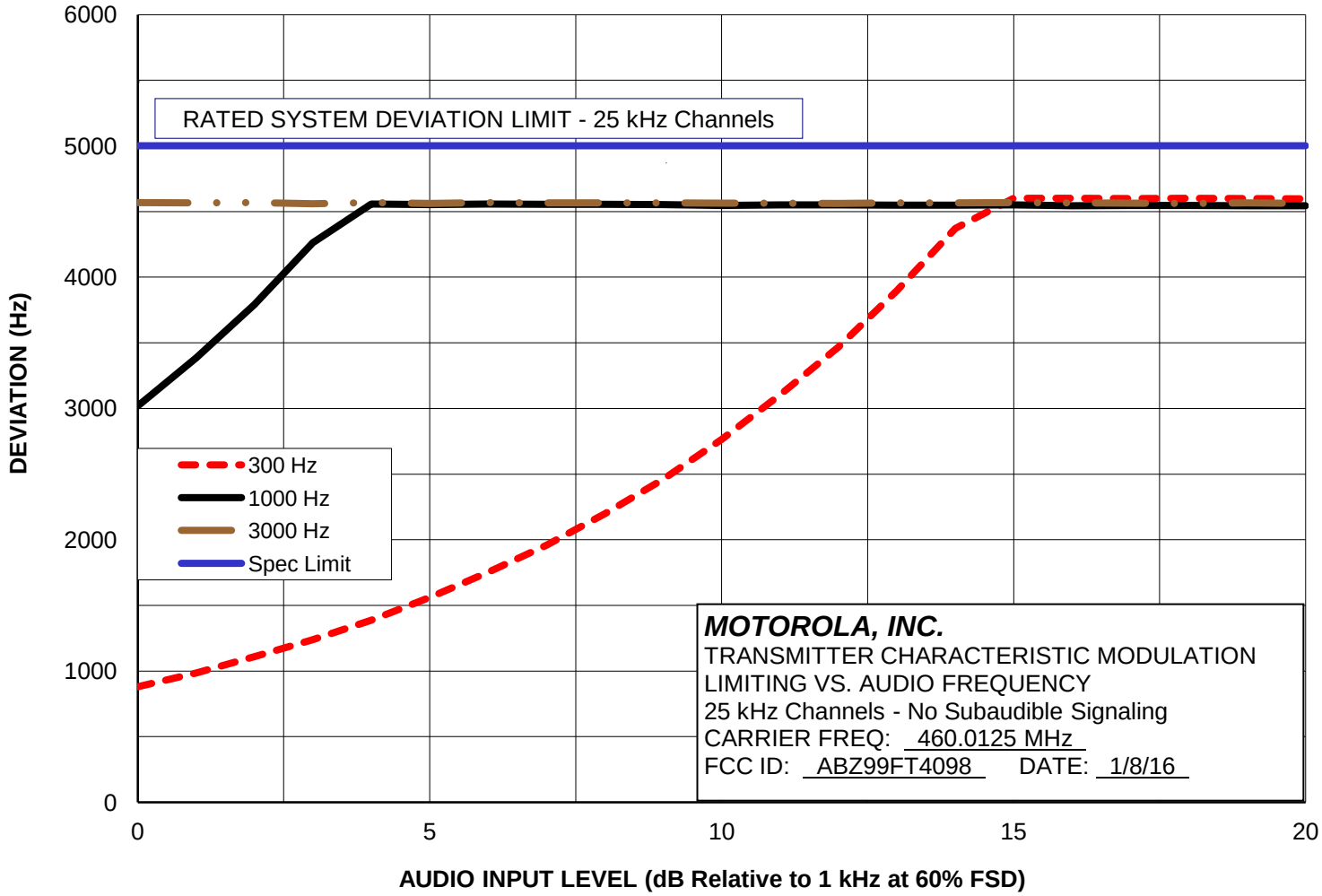
Report on Test Measurements

Modulation Limiting – 25 kHz Channels



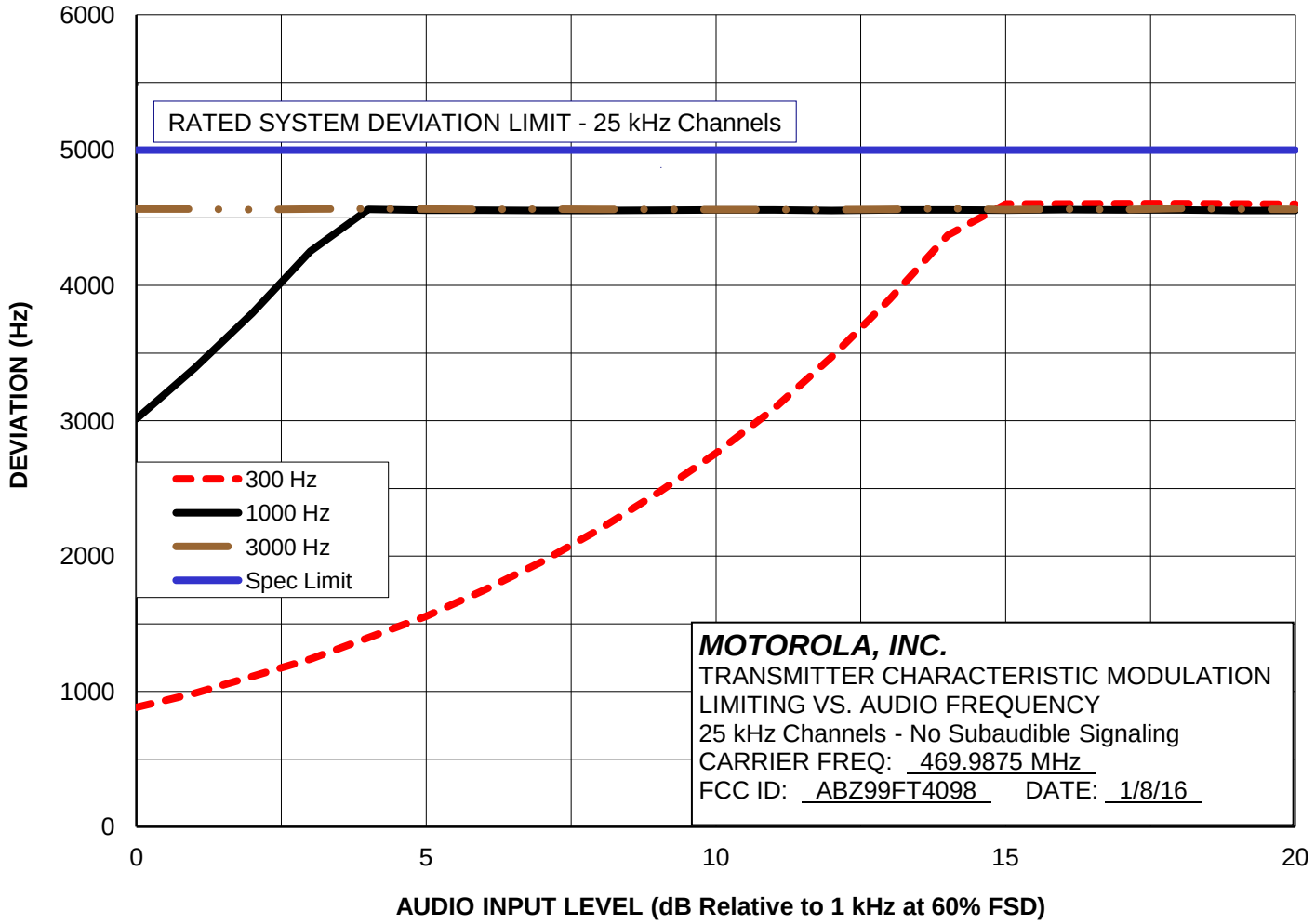
Report on Test Measurements

Modulation Limiting – 25 kHz Channels



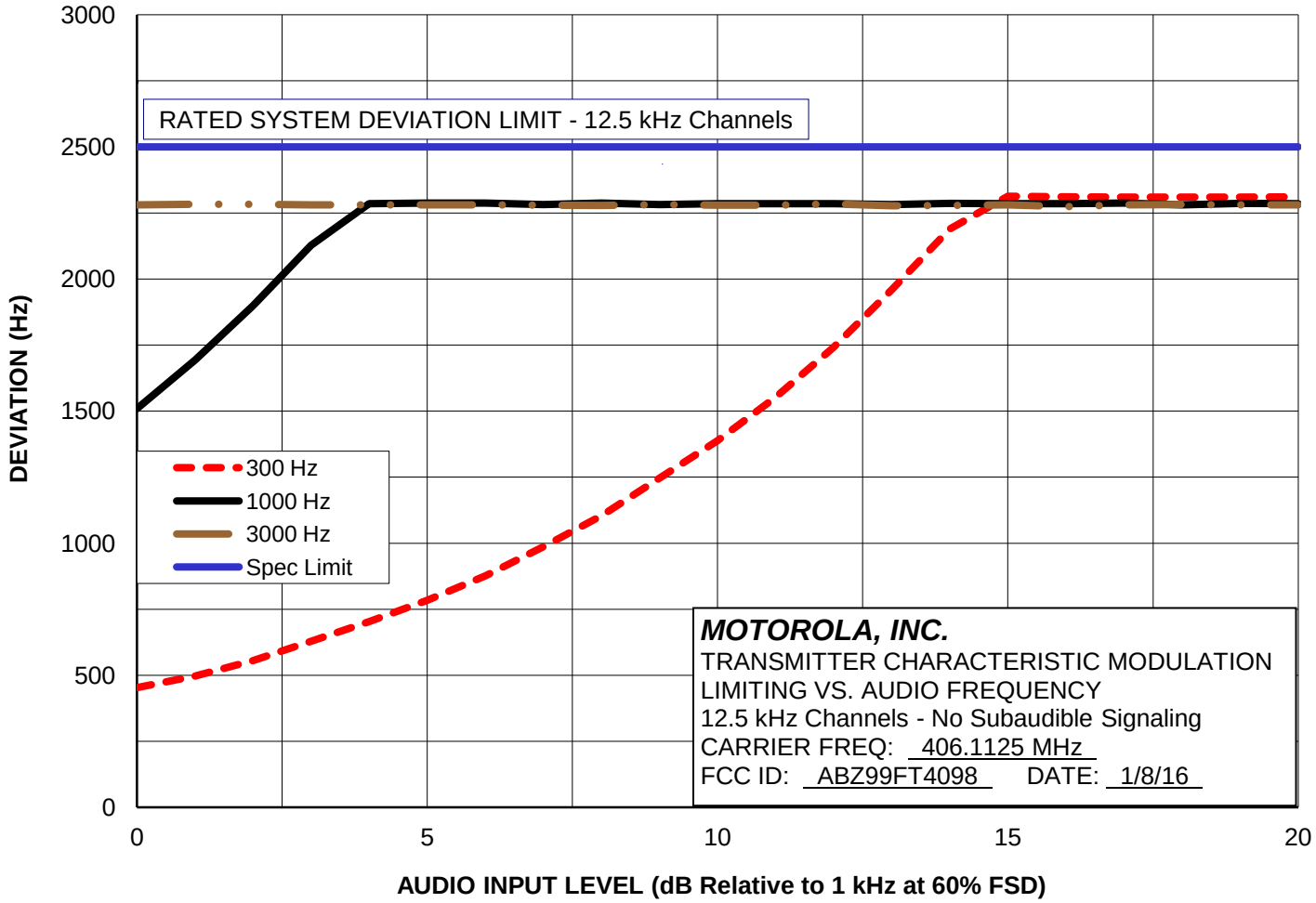
Report on Test Measurements

Modulation Limiting – 25 kHz Channels



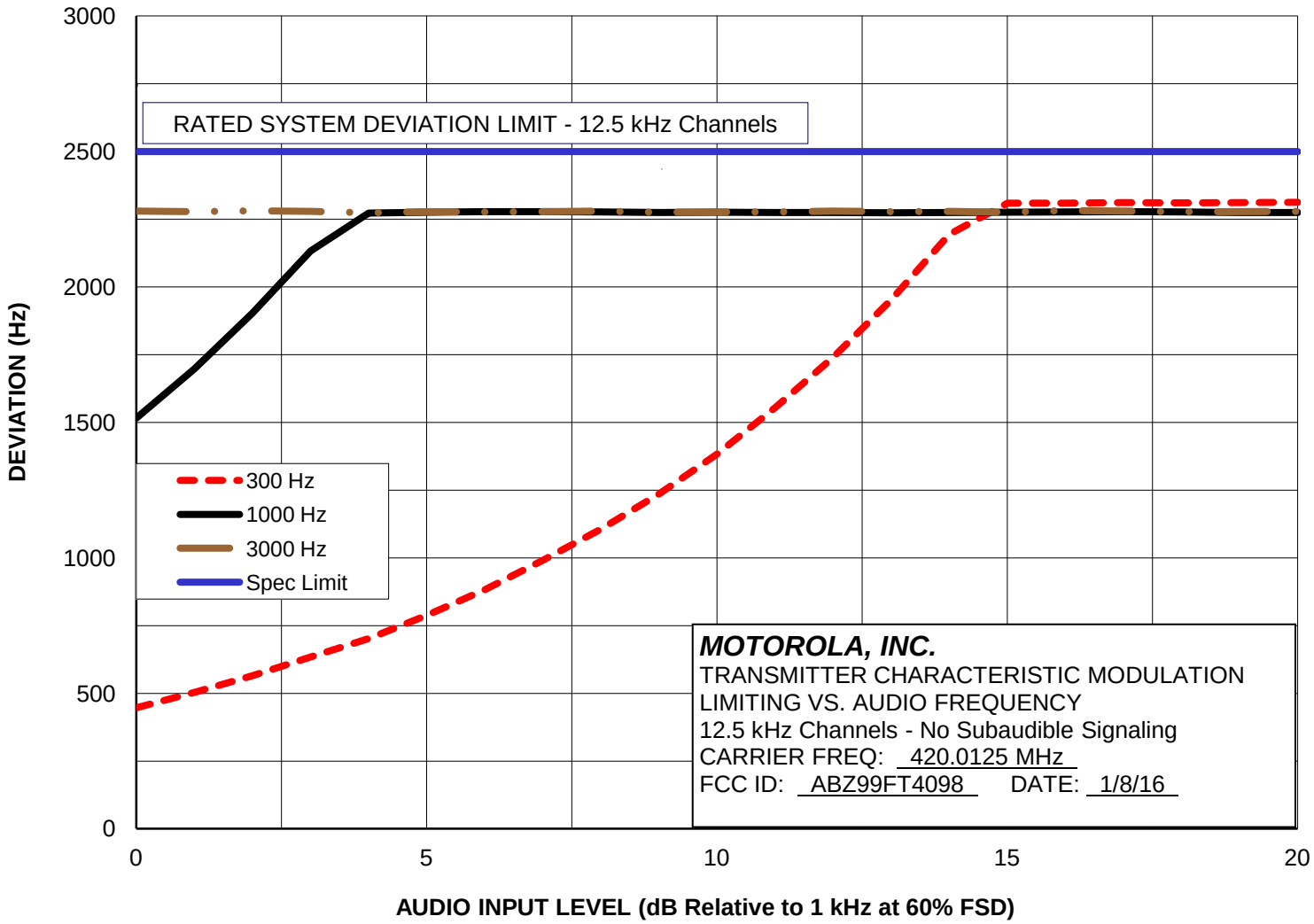
Report on Test Measurements

Modulation Limiting – 12.5 kHz Channels



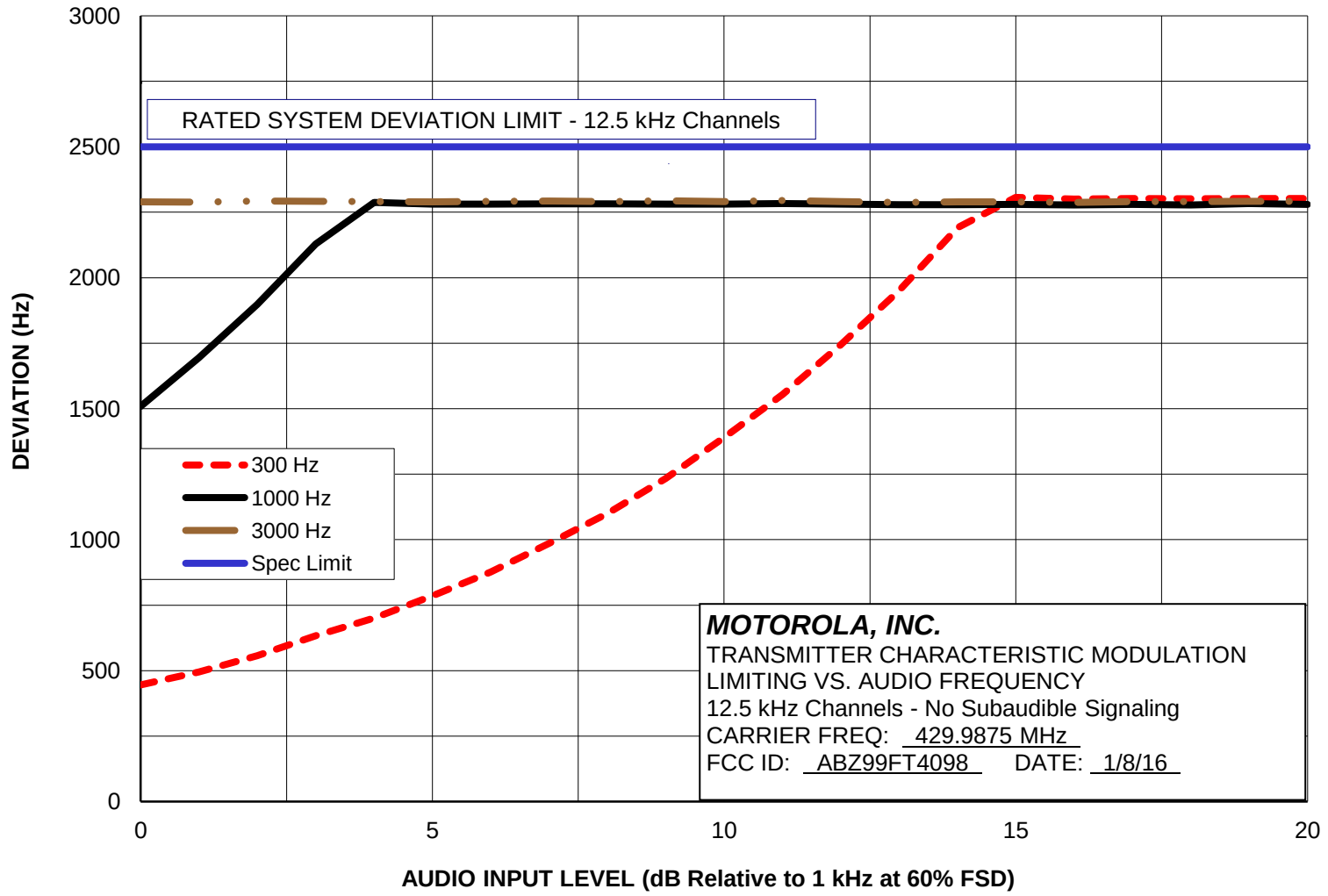
Report on Test Measurements

Modulation Limiting – 12.5 kHz Channels



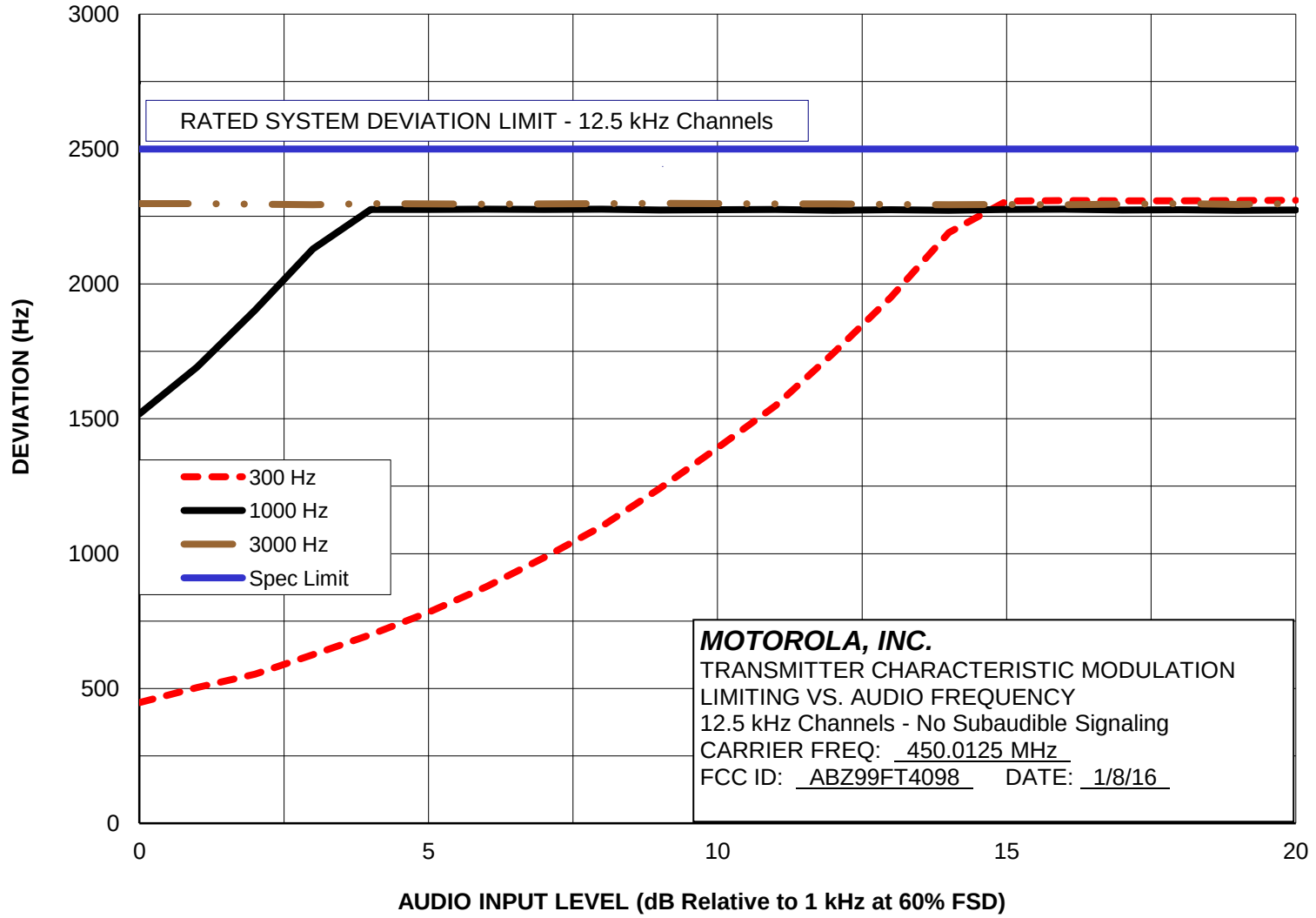
Report on Test Measurements

Modulation Limiting – 12.5 kHz Channels



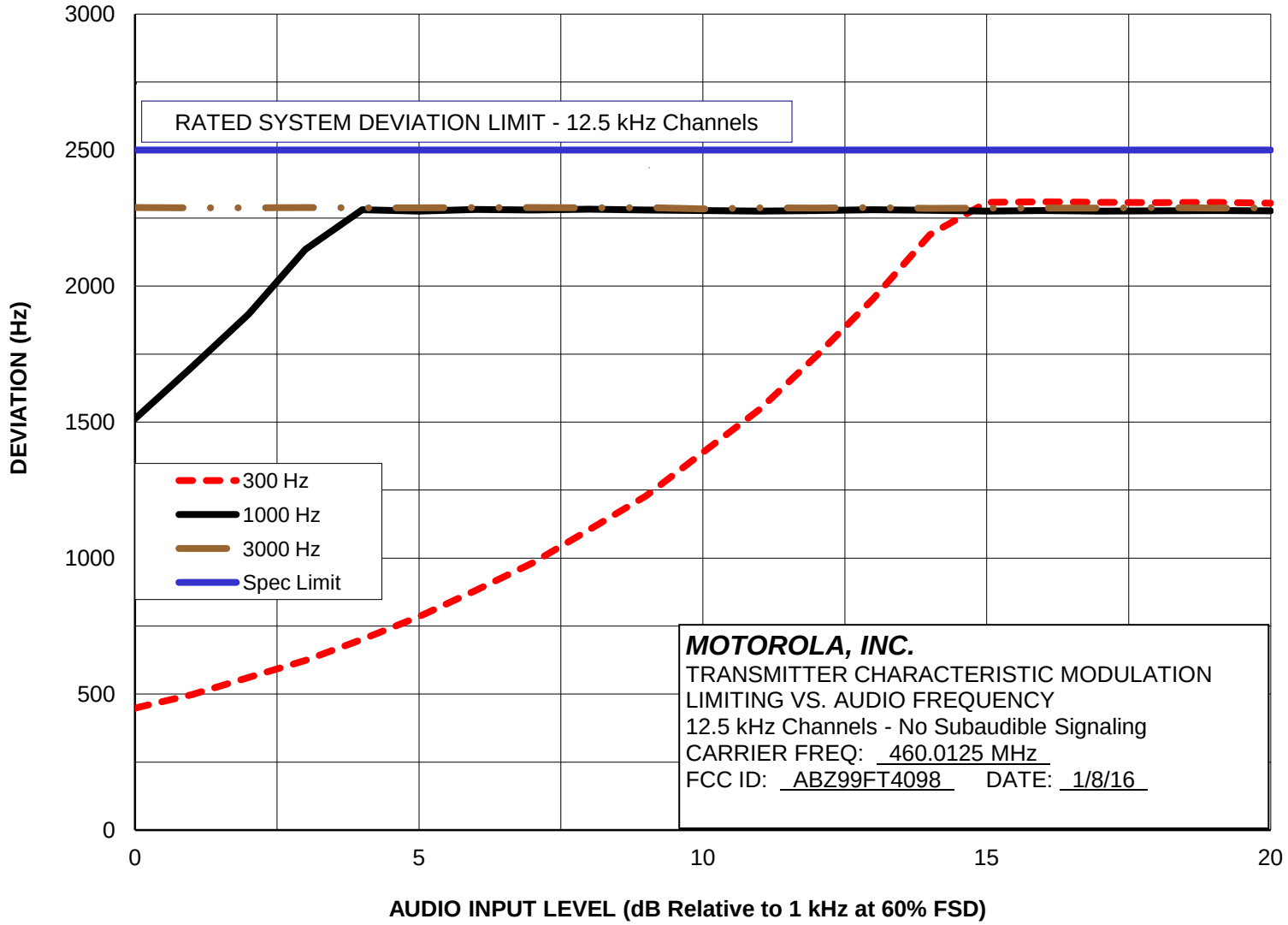
Report on Test Measurements

Modulation Limiting – 12.5 kHz Channels



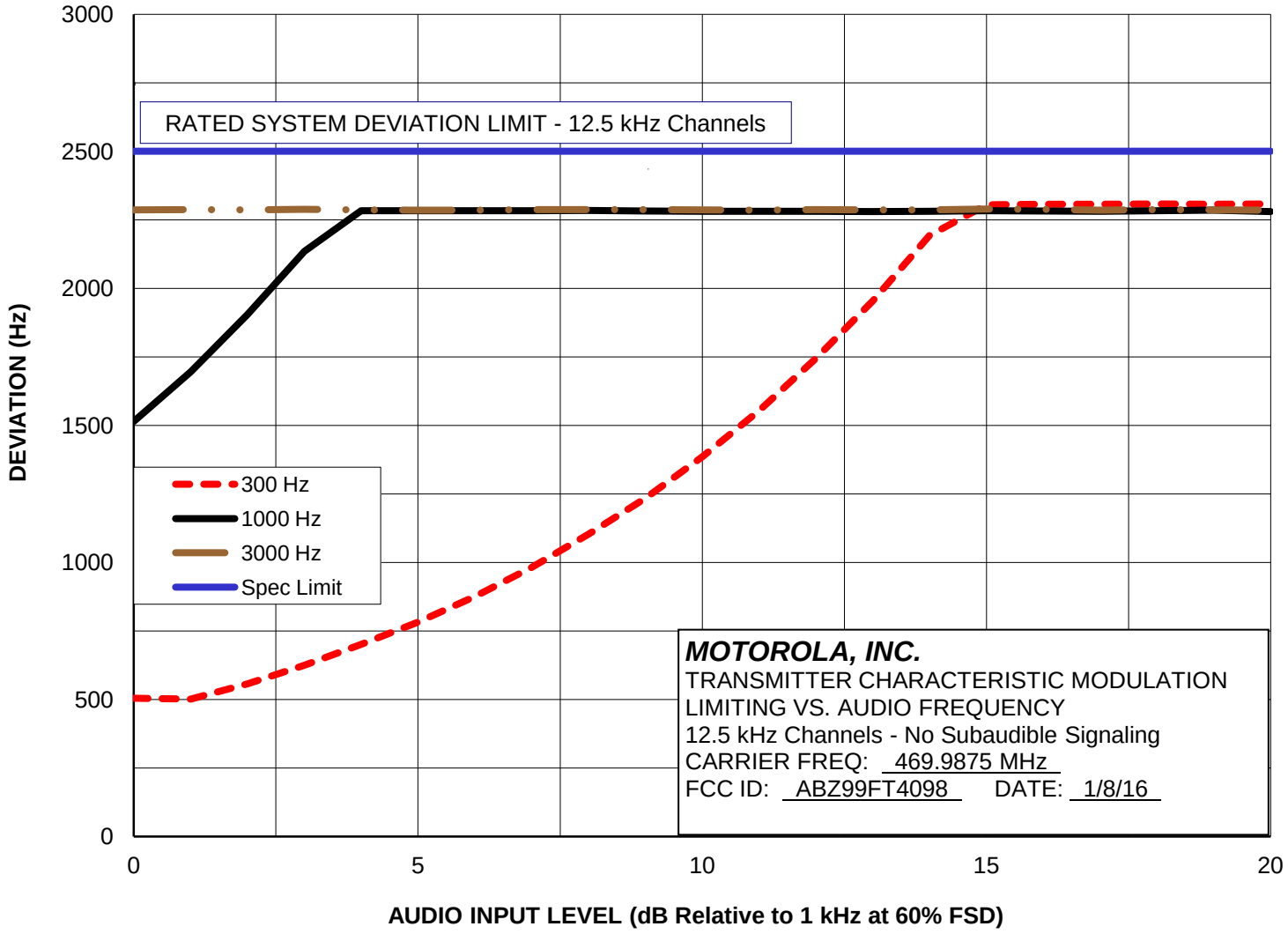
Report on Test Measurements

Modulation Limiting – 12.5 kHz Channels



Report on Test Measurements

Modulation Limiting – 12.5 kHz Channels



Report on Test Measurements

Occupied Bandwidth – Analog Voice Frequency Modulation, 25 kHz Channel Spacing
The exhibits in this section show occupied bandwidth plots for analog voice modulation. Data is shown with the modulating audio tone itself, the tone plus Private Line (PL) sub-audible tone signaling, and tone plus Digital Private Line (DPL) sub-audible signaling. PL is a Continuous Tone Coded Squelch System (CTCSS), a method of using low frequency sub audible tones to share a single radio channel among multiple users. DPL is a digital version of Private Line.

The occupied bandwidth charts reference the following setup and specification requirements.

Modulation Type:	Analog Voice
Emission Designator:	16K0F3E
Channelization:	25 kHz
Deviation Limit:	±5.0 kHz Max
Power Setting:	110 Watts

Specification Requirement 47 CFR §90.210(b) and IC RSS-119 section 5.8.1 - Emission Limits – "B-Mask":
For transmitters equipped with an audio low pass filter and designed to operate with a 25 kHz channel spacing (authorized bandwidth 20 kHz), the power of any emission must be below the unmodulated carrier power (P) as follows:
On any frequency removed from the assigned frequency by a displacement frequency (F_d in kHz) of:

a) >10 kHz up to and including 20 kHz — *At least 25 dB;*
b) >20 kHz up to and including 50 kHz — *At least 35 dB;*
c) >50 kHz — *at least 43+10 * Log_{10} (P) dB.*

Necessary Bandwidth Calculation:
The necessary bandwidth of the modulation per the formulas defined in 47 CFR §2.202(g) / TRC-43 section 8 is as follows:

Max Mod Freq, M	*Max Deviation, D*	*2*(M+D)*	*Nec BW*
3 kHz	5 kHz	16 kHz	16K0

Measurement Procedure and Instrument Settings:

Emission Measurement Analyzer Settings			
Horizontal:	12.5 kHz per Division	Resolution BW:	300 Hz
Vertical:	10 dB per Division	Video BW:	10 kHz
Sweep Time:	72 Seconds (<2 kHz/Sec)	Span:	125 kHz
Detector:	Peak		

Measured Occupied Bandwidth	
Resolution BW:	300 Hz
Span:	30 kHz
Number of Points:	1601
Integration Time:	7.4 ms

Test Procedure:
1) Key the station with no modulation to obtain the unmodulated carrier reference level on the analyzer. Use the analyzer controls to set this reference to a full-scale reference line. Store this analyzer trace in trace A.
2) Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation.
3) Allow the analyzer to sweep, and record the resultant emission levels in trace B.
4) Plot the resulting analyzer trace. The occupied bandwidth mask is then added along with additional labeling as appropriate.
5) Adjust the signal analyzer resolution BW and span as indicated above, use the Occupied Bandwidth function to record the value.

EXHIBIT	DESCRIPTION	Meas Occ BW: No PL, PL, DPL
E1-9.1, 2, 3	Occupied Bandwidth, Analog, 25 kHz Channels, 406.1125 MHz	15.04, 11.91, 11.83 kHz
E1-9.4, 5, 6	Occupied Bandwidth, Analog, 25 kHz Channels, 420.0125 MHz	15.04, 11.87, 11.83 kHz
E1-9.7, 8, 9	Occupied Bandwidth, Analog, 25 kHz Channels, 429.9875 MHz	15.04, 11.93, 11.87 kHz
E1-9.10, 11, 12	Occupied Bandwidth, Analog, 25 kHz Channels, 450.0125 MHz	15.05, 11.98, 11.94 kHz
E1-9.13, 14, 15	Occupied Bandwidth, Analog, 25 kHz Channels, 460.0125 MHz	15.04, 11.88, 11.87 kHz
E1-9.16, 17, 18	Occupied Bandwidth, Analog, 25 kHz Channels, 469.9875 MHz	15.05, 11.99, 11.93 kHz

Report on Test Measurements

Occupied Bandwidth – Analog Voice Frequency Modulation, 12.5 kHz Channel Spacing
The exhibits in this section show occupied bandwidth plots for analog voice modulation. Data is shown with the modulating audio tone itself, the tone plus Private Line (PL) sub-audible tone signaling, and tone plus Digital Private Line (DPL) sub-audible signaling. PL is a Continuous Tone Coded Squelch System (CTCSS), a method of using low frequency sub audible tones to share a single radio channel among multiple users. DPL is a digital version of Private Line.

The occupied bandwidth charts reference the following setup and specification requirements.

Modulation Type:	Analog Voice
Emission Designator:	11K0F3E
Channelization:	12.5 kHz
Deviation Limit:	±2.5 kHz Max
Power Setting:	110 Watts

Specification Requirement 47 CFR §90.210(d) and IC RSS-119 section 5.8.3 - Emission Limits – "D-Mask":
Emission *Mask D.* For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth (f_0) to 5.625 kHz removed from f_0: *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 12.5 kHz: *At least 7.27 *(f_d –2.88 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 12.5 kHz: *At least 50 plus 10 log_{10}(P) dB or 70 dB, whichever is the lesser attenuation.*

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide to capture the true peak emission of the equipment under test. In order to show compliance with the emissions mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to ensure that the emission profile is developed.

Necessary Bandwidth Calculation (Analog Emission):
The necessary bandwidth of the modulation signal per the formulas defined in 47 CFR 2.202 (b) is as follows:

Max Mod Freq, M	*Max Deviation, D*	*2*(M+D)*	*Nec BW*
3 kHz	2.5 kHz	11 kHz	11K0

Measurement Procedure and Instrument Settings:

Emission Measurement Analyzer Settings				Measured Occupied Bandwidth	
Horizontal:	12.5 kHz per Division	Resolution BW:	100 Hz	Resolution BW:	150 Hz
Vertical:	10 dB per Division	Video BW:	10 kHz	Span:	15 kHz
Sweep Time:	72 Seconds (<2 kHz/Sec)	Span:	125 kHz	Number of Points:	1601
Detector:	Peak			Integration Time:	14.8 ms

(continued next page)

Report on Test Measurements

Occupied Bandwidth –12.5 kHz Channel Spacing (continued)

Test Procedure (Analog Voice):

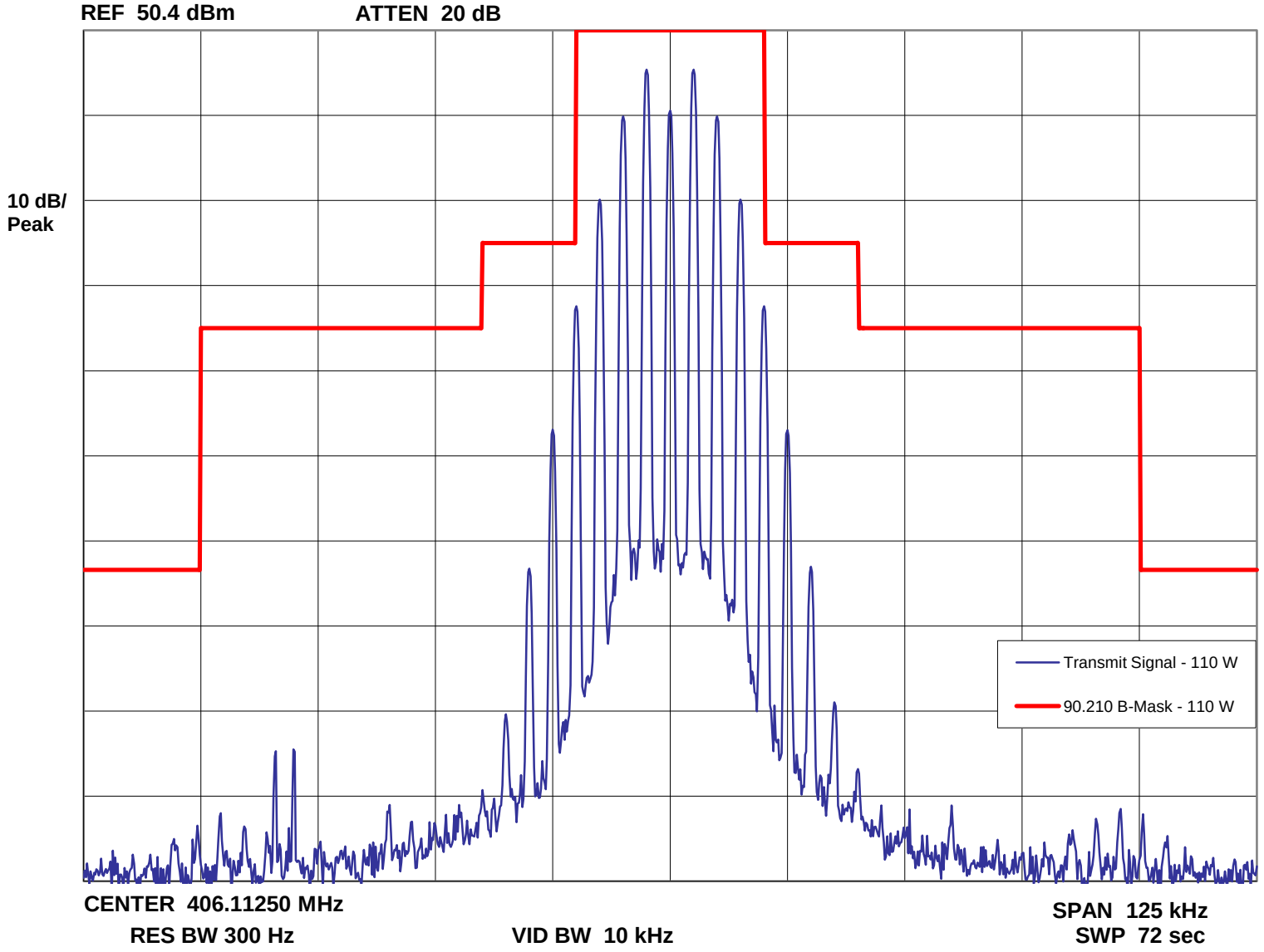
1) Key the station with no modulation to obtain the unmodulated carrier reference level on the analyzer. Use the analyzer controls to set this reference to a full-scale reference line. Store this analyzer trace in trace A.
2) Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation.
3) Allow the analyzer to sweep, and record the resultant emission levels in trace B.
4) Plot the resulting analyzer trace. The occupied bandwidth mask is then added along with additional labeling as appropriate.
5) Adjust the signal analyzer resolution BW and span as indicated above, use the Occupied Bandwidth function to record the value.

EXHIBIT	DESCRIPTION	Meas Occ BW: No PL PL DPL
E1-9.19, 20, 21	Occupied Bandwidth, Analog, 12.5 kHz Channels, 406.1125 MHz	9.99, 9.16, 9.08 kHz
E1-9.34, 23, 24	Occupied Bandwidth, Analog, 12.5 kHz Channels, 420.0125 MHz	9.99, 9.14, 9.08 kHz
E1-9.25, 26, 27	Occupied Bandwidth, Analog, 12.5 kHz Channels, 429.9875 MHz	9.99, 9.17, 9.10 kHz
E1-9.28, 29, 30	Occupied Bandwidth, Analog, 12.5 kHz Channels, 450.0125 MHz	9.99, 9.20, 9.11 kHz
E1-9.31, 32, 33	Occupied Bandwidth, Analog, 12.5 kHz Channels, 460.0125 MHz	9.99, 9.17, 9.10 kHz
E1-9.34, 35, 36	Occupied Bandwidth, Analog, 12.5 kHz Channels, 469.9875 MHz	9.99, 9.20, 9.18 kHz

Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 25 kHz Channels – Emission Designator: 16K0F3E

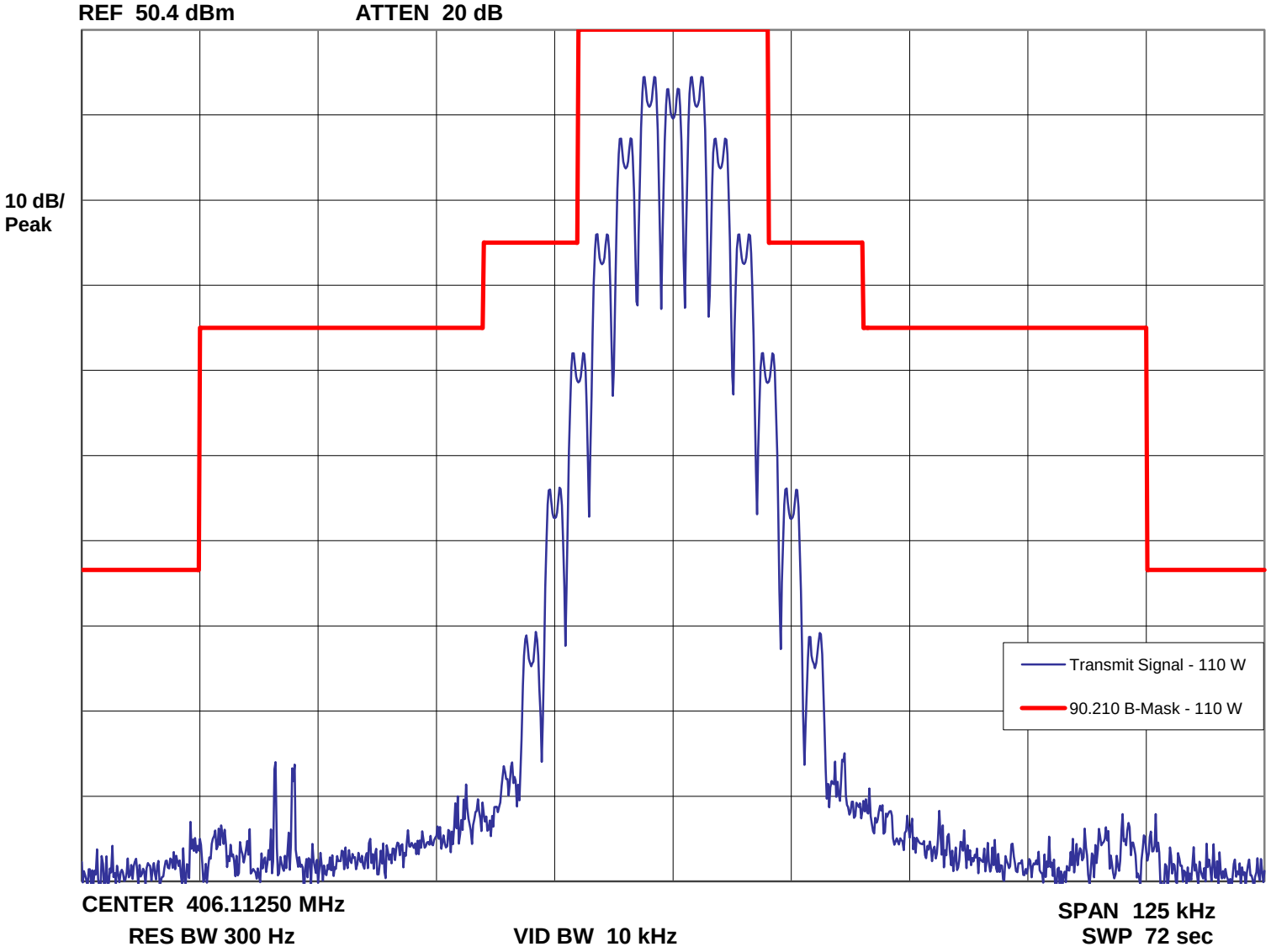
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

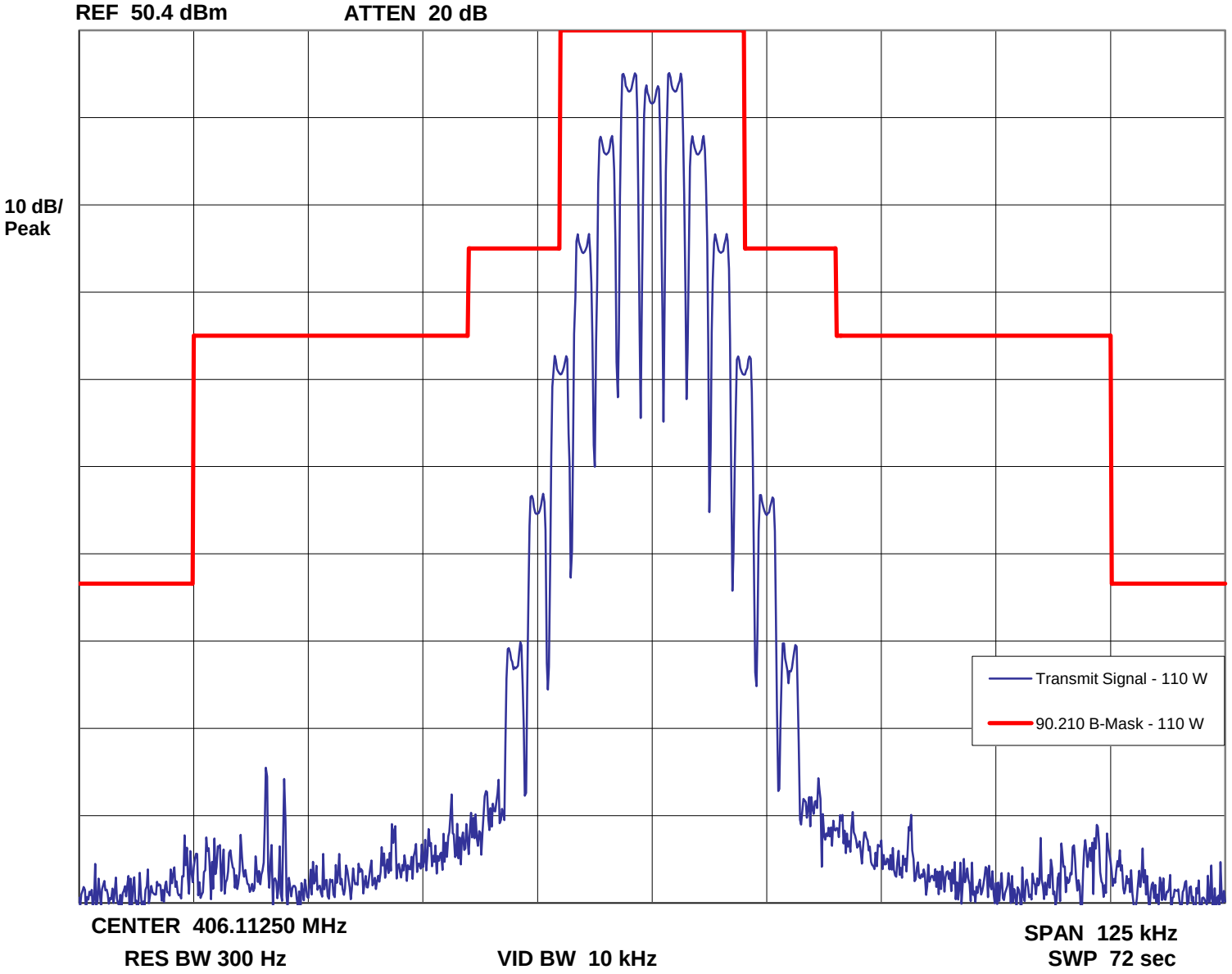
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

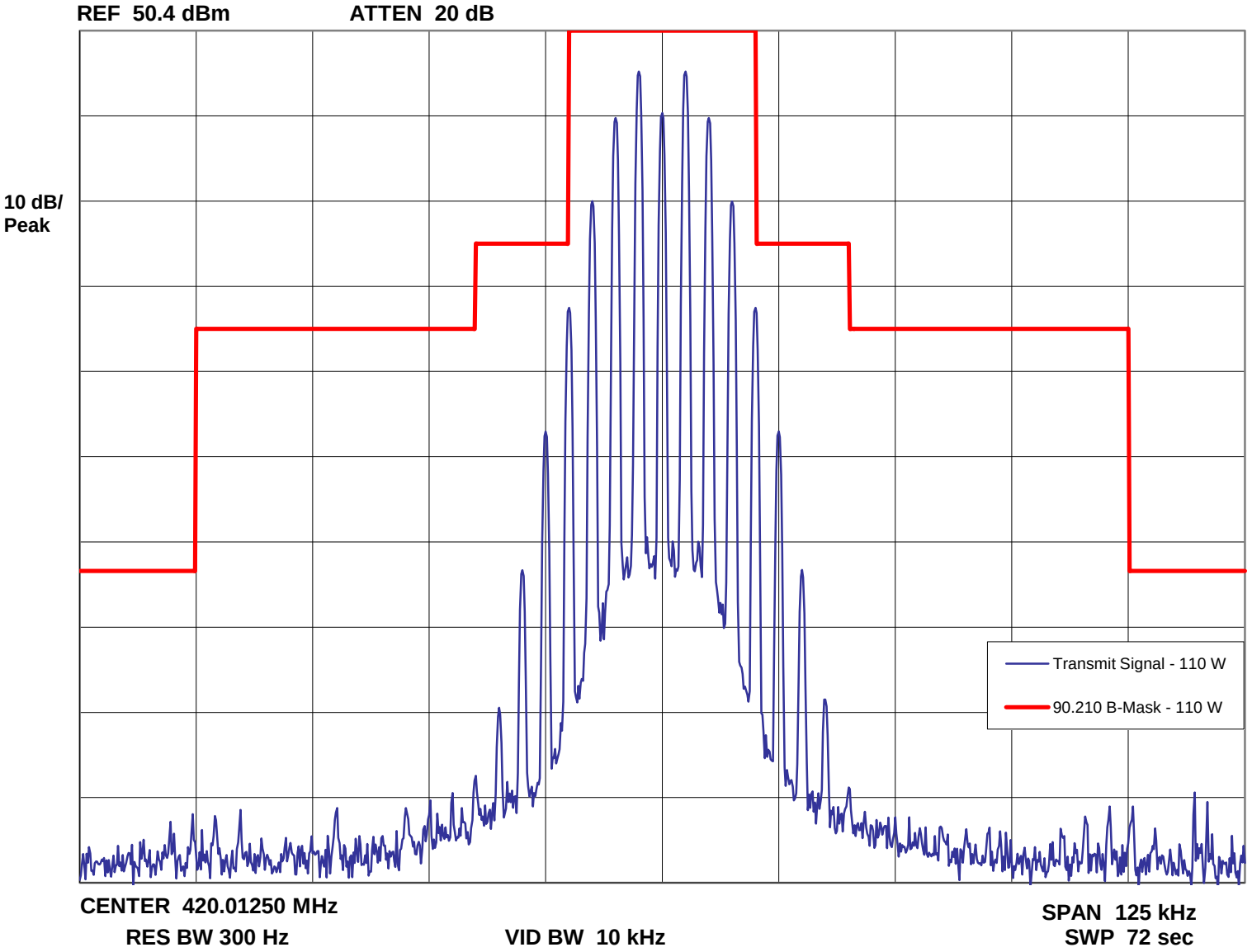
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 25 kHz Channels – Emission Designator: 16K0F3E

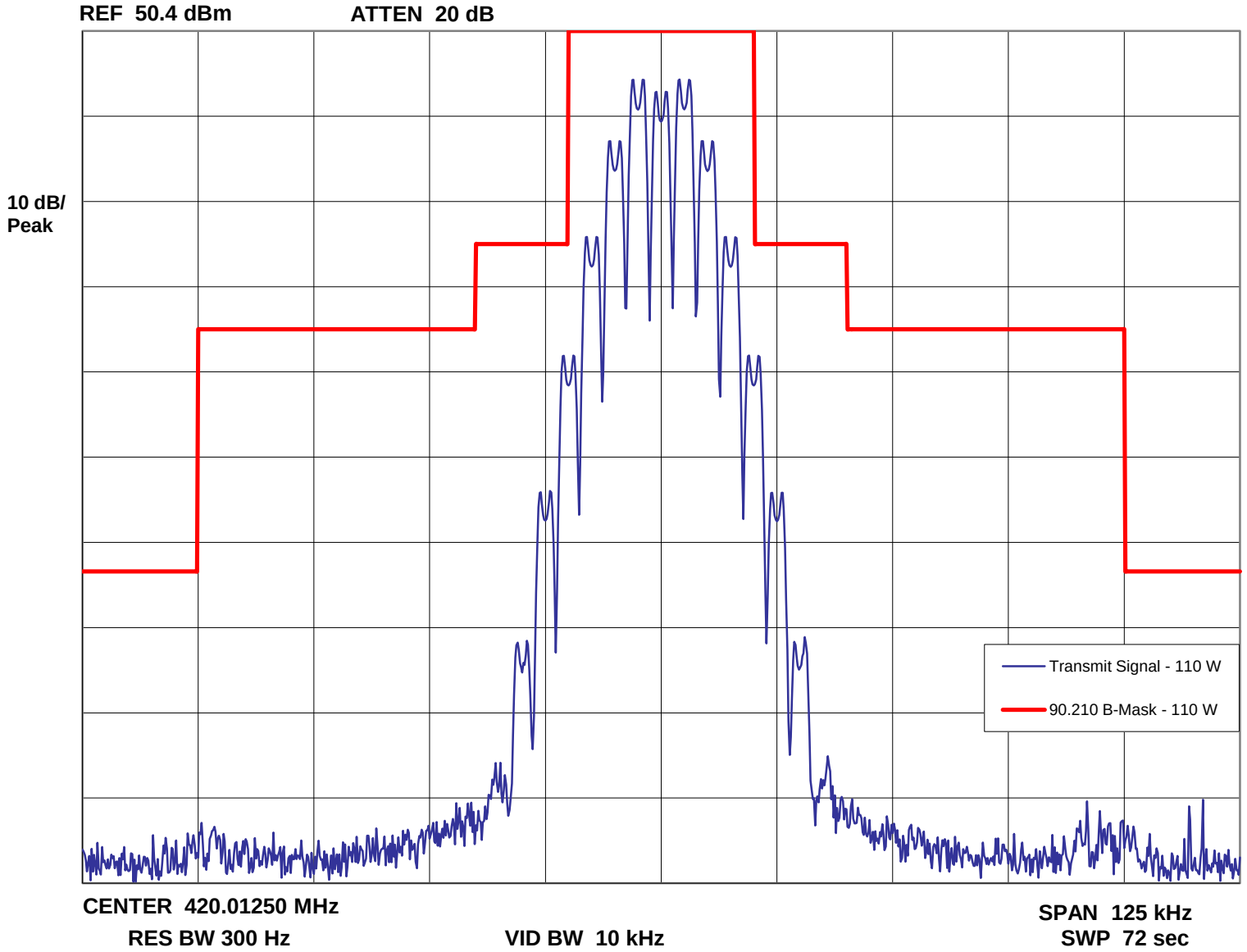
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

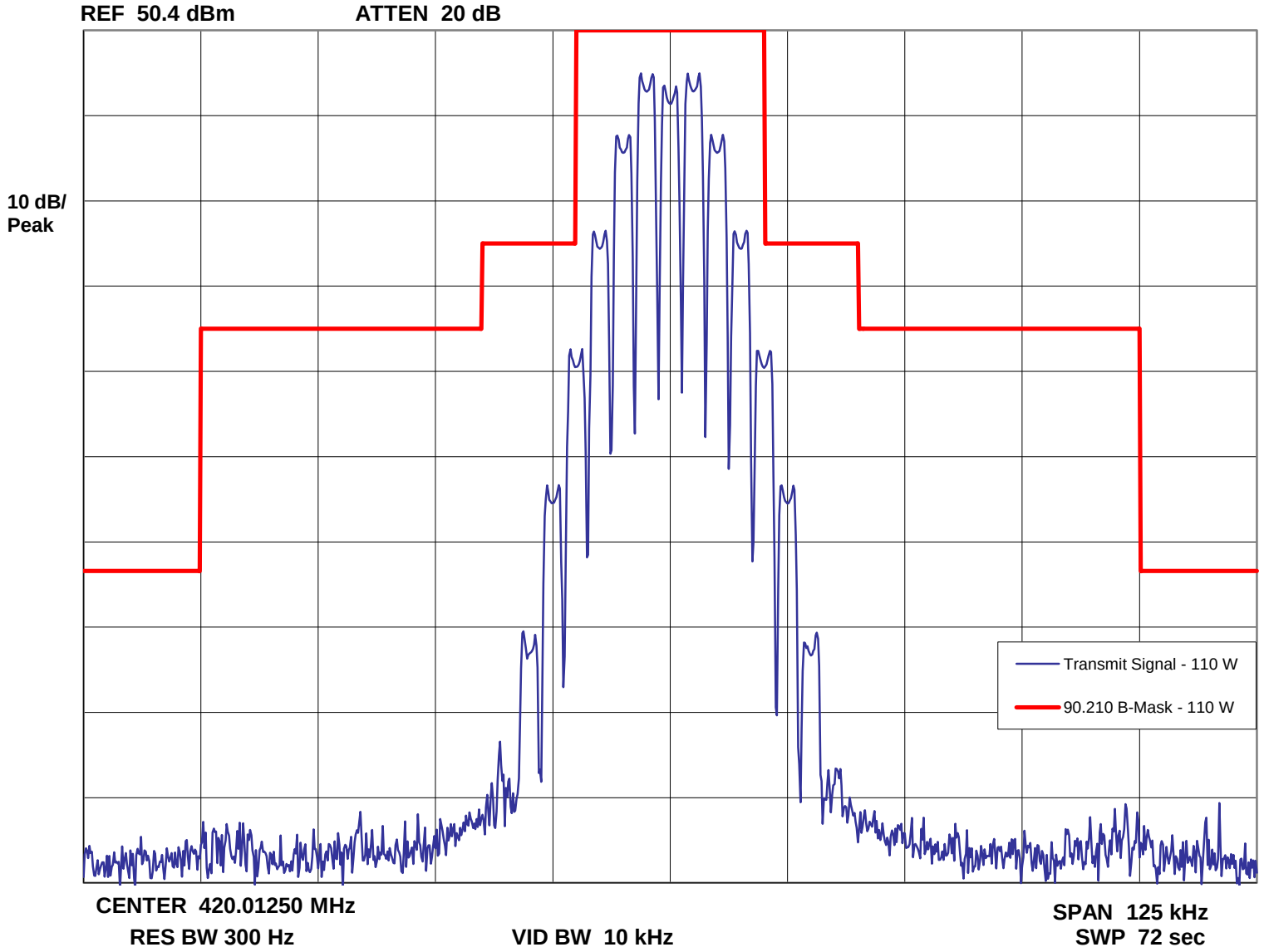
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

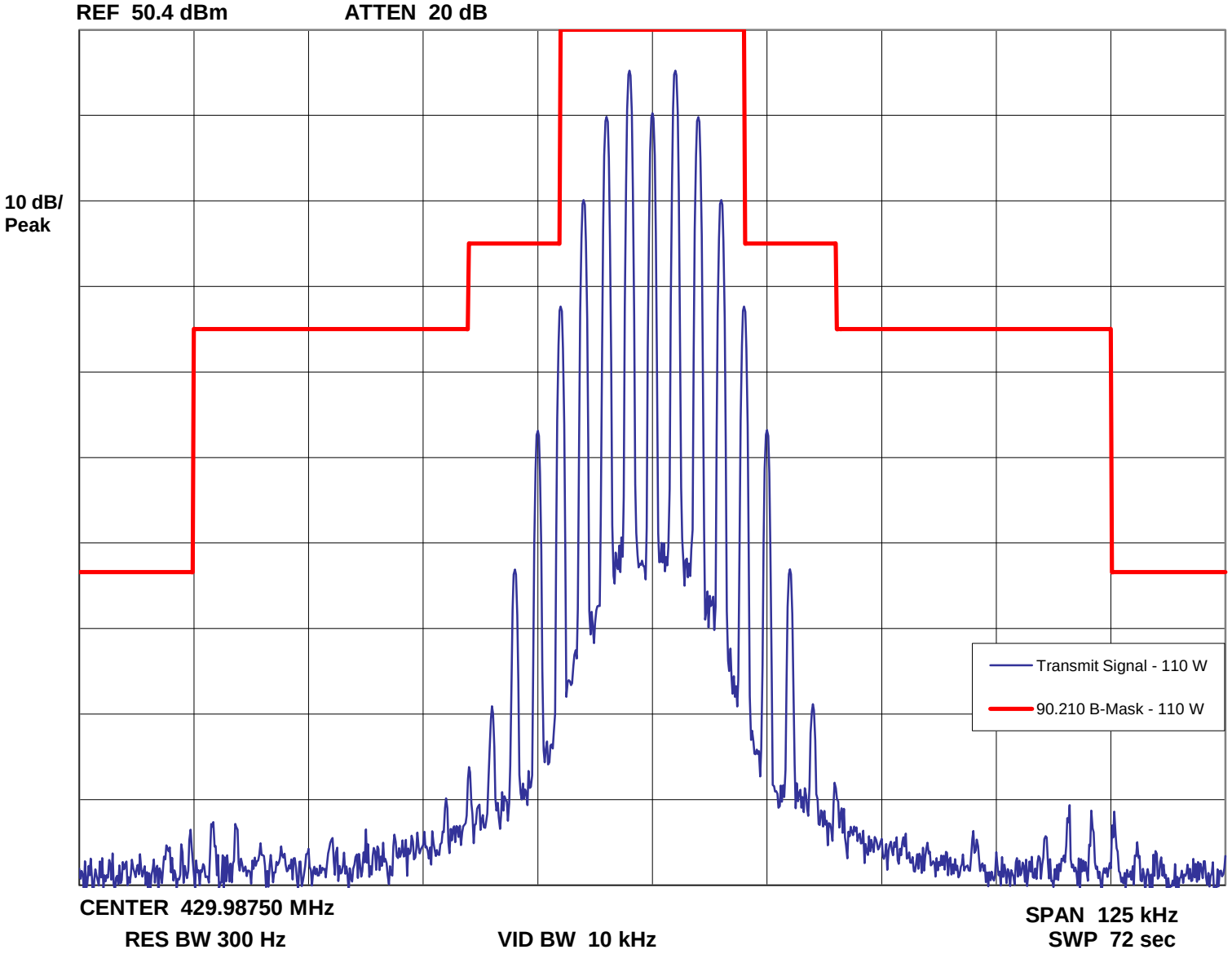
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 25 kHz Channels – Emission Designator: 16K0F3E

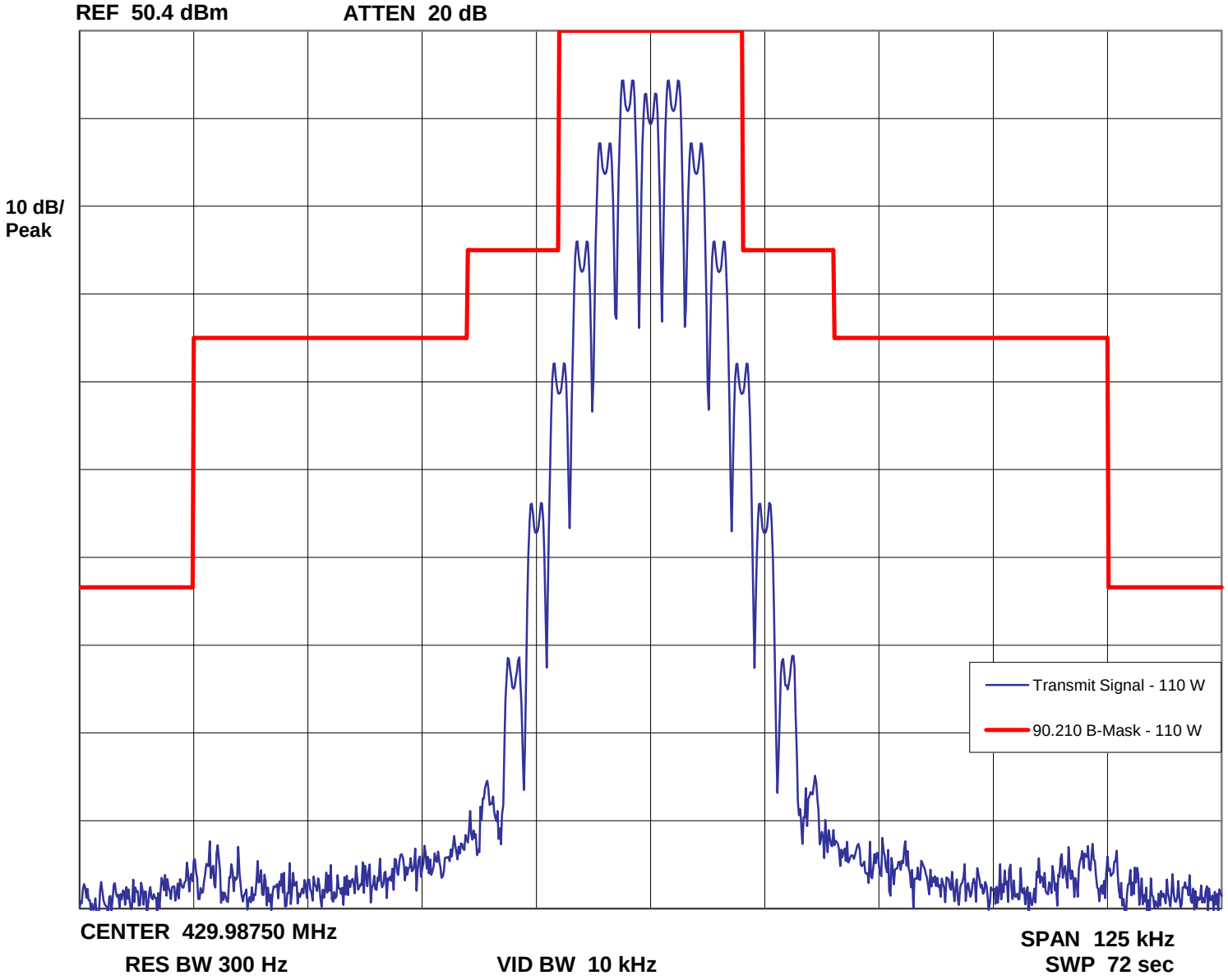
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

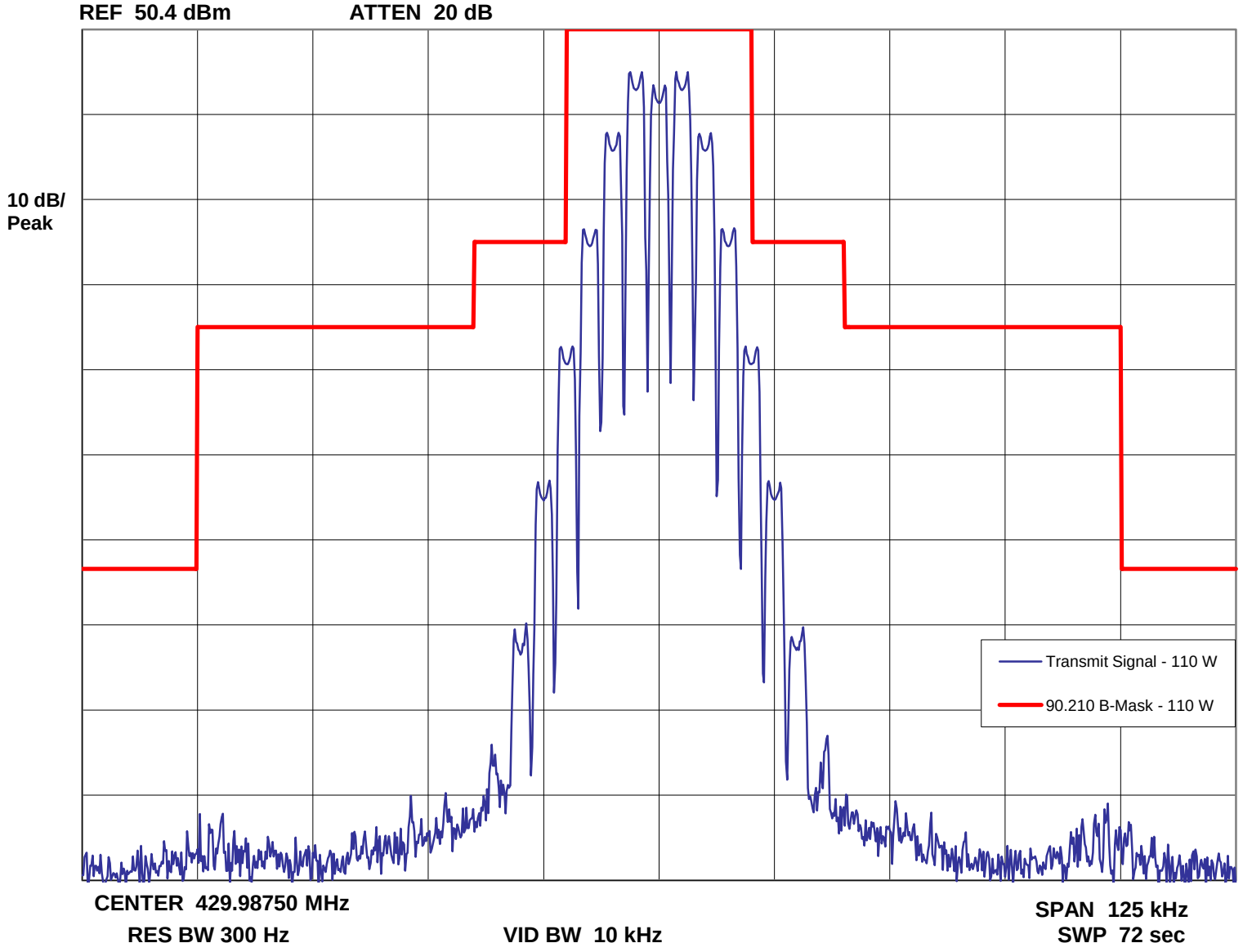
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

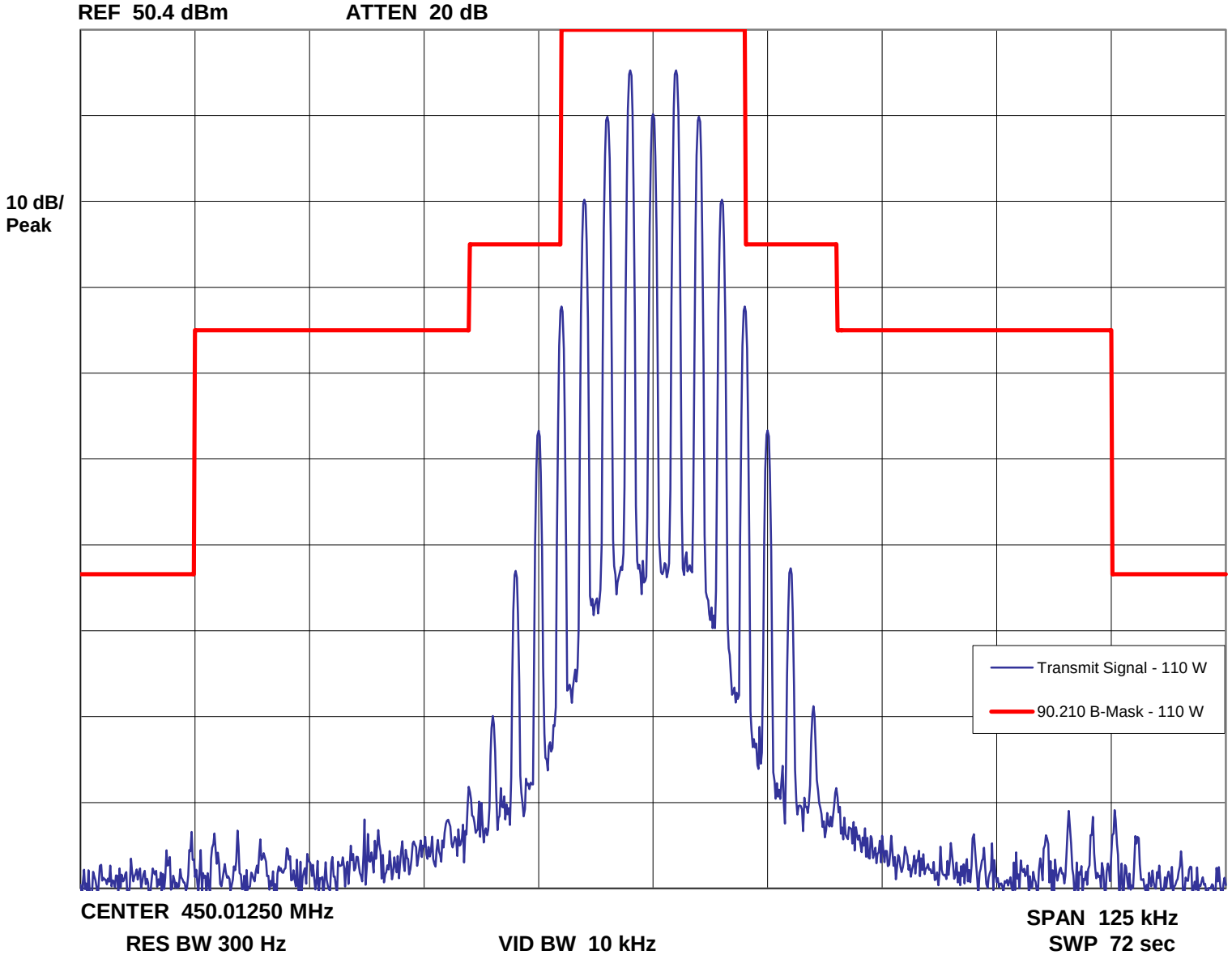
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 25 kHz Channels – Emission Designator: 16K0F3E

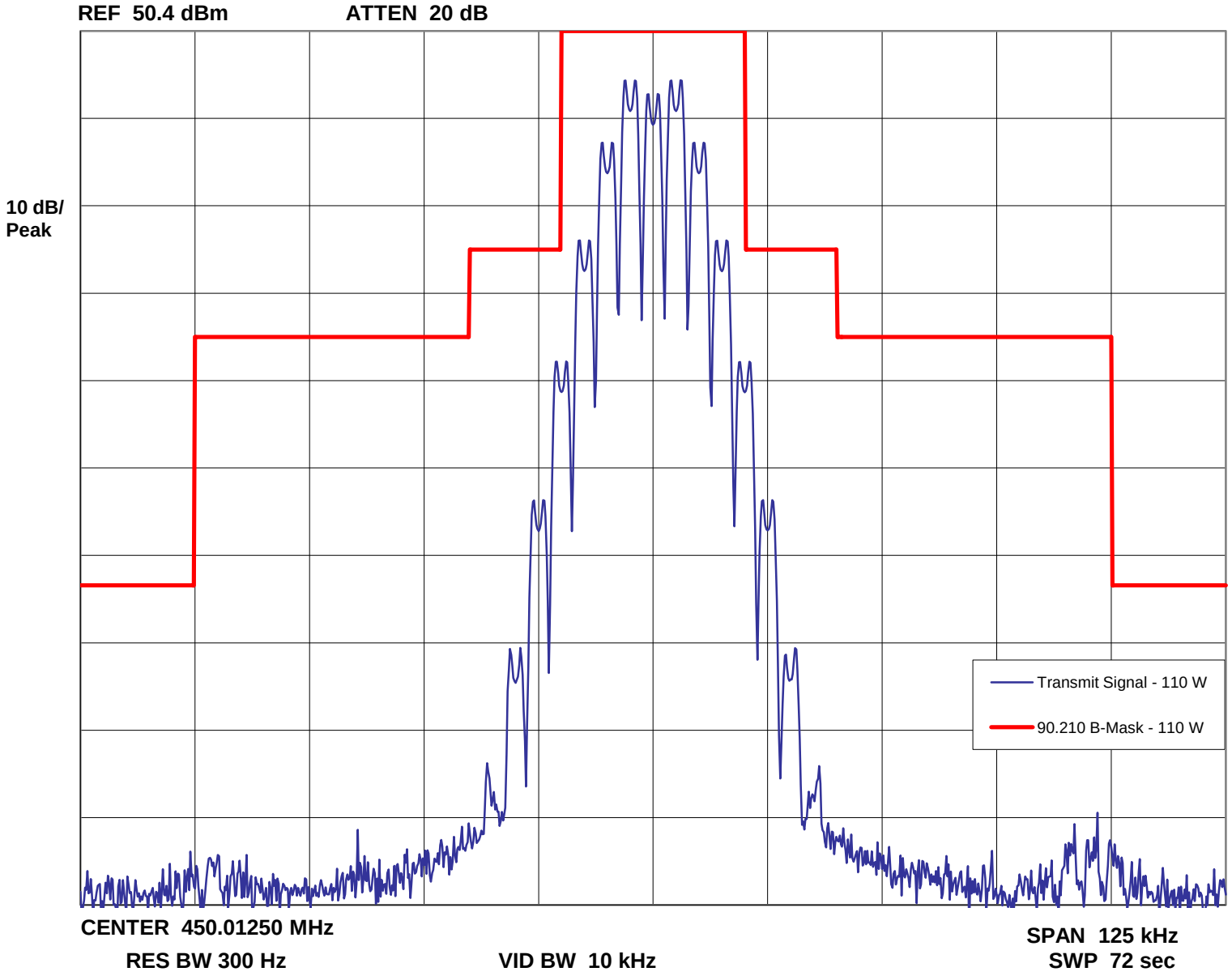
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

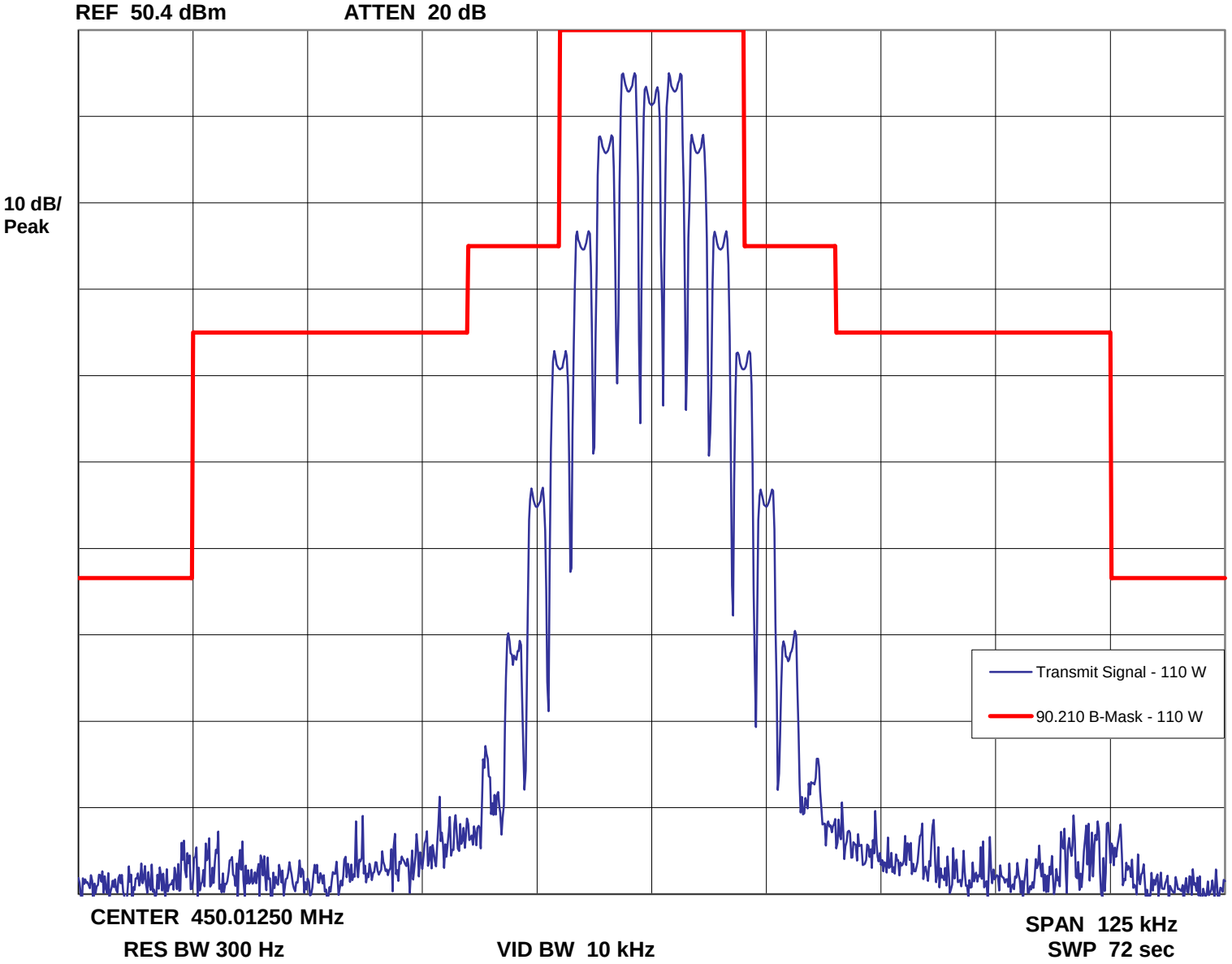
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

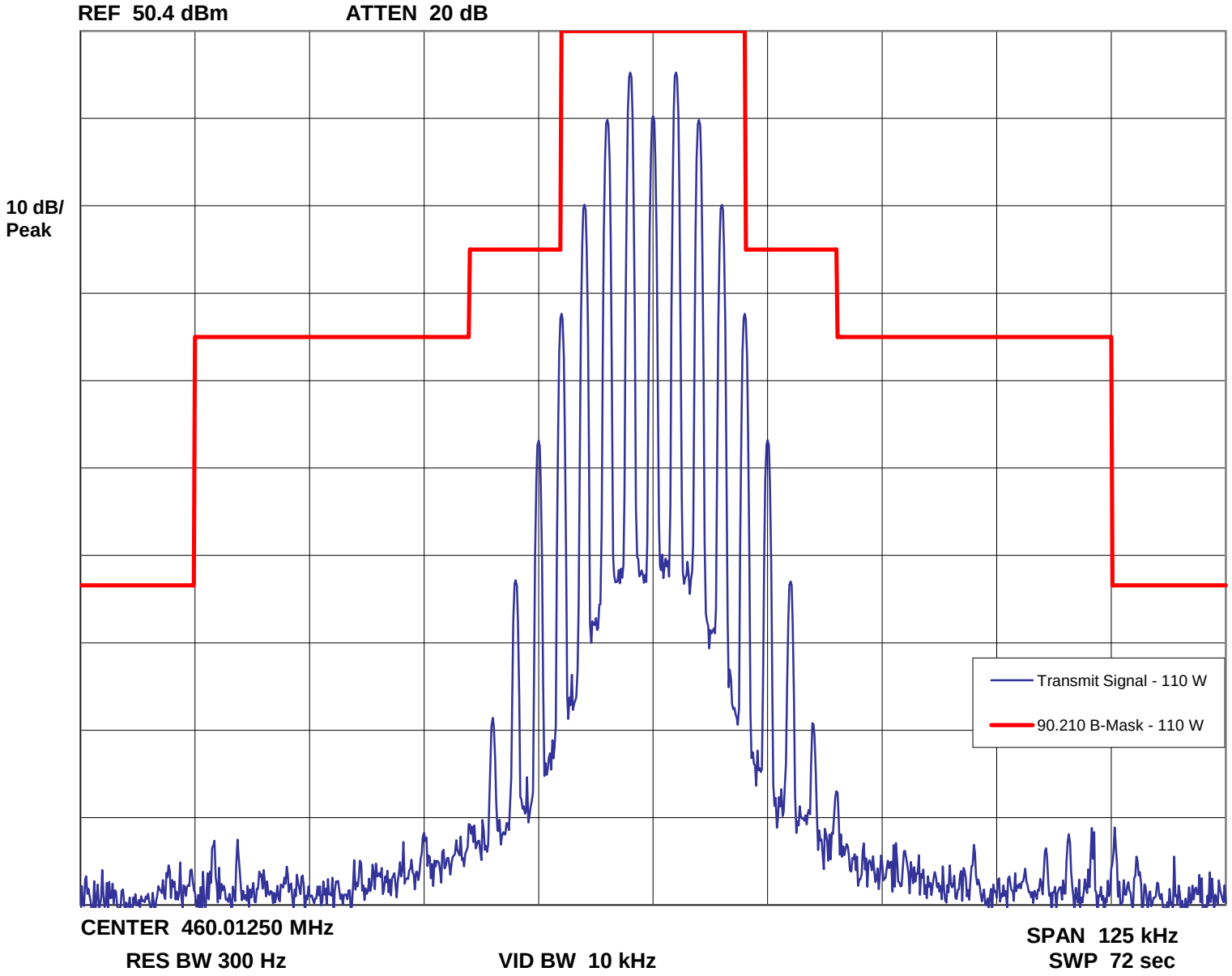
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 25 kHz Channels – Emission Designator: 16K0F3E

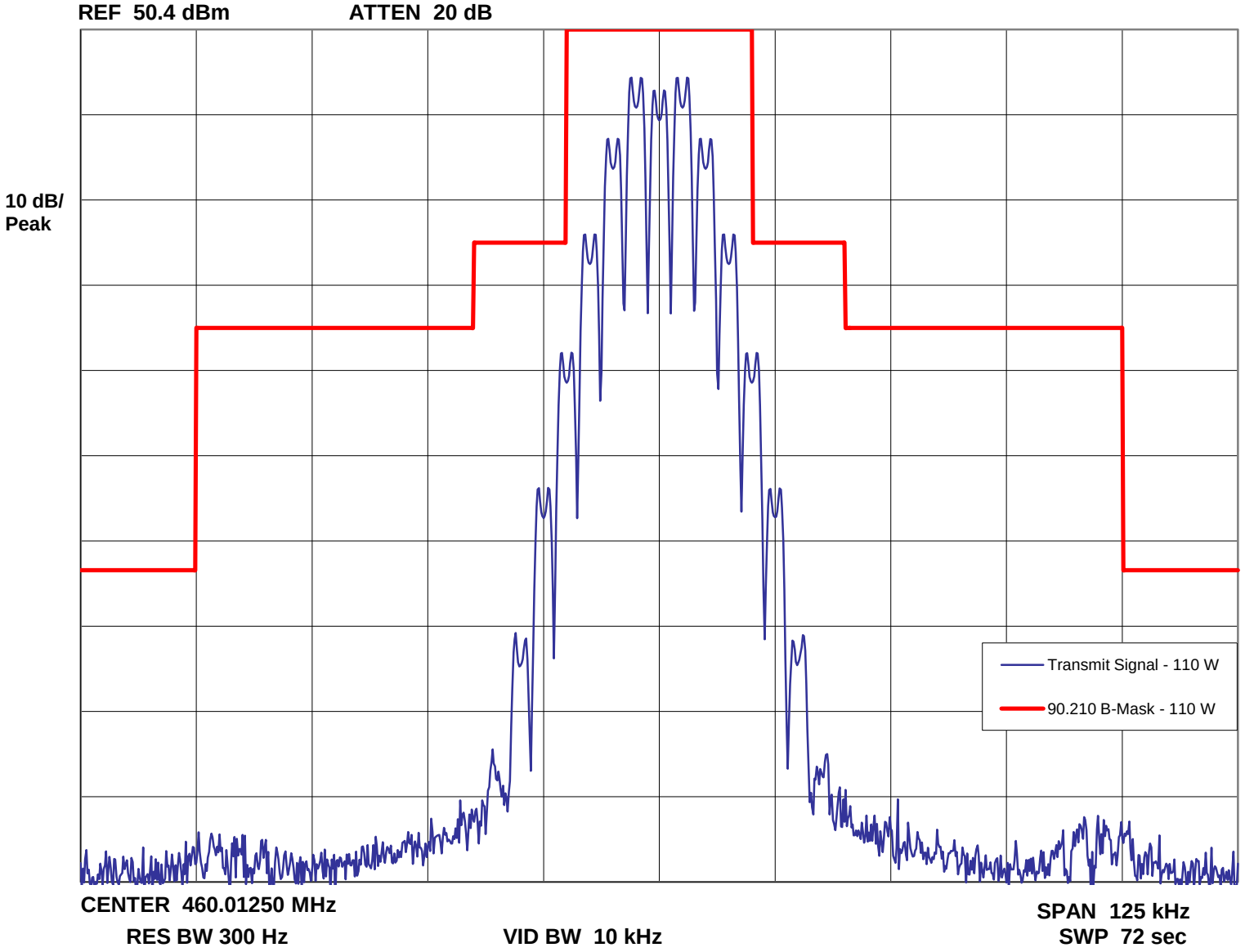
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

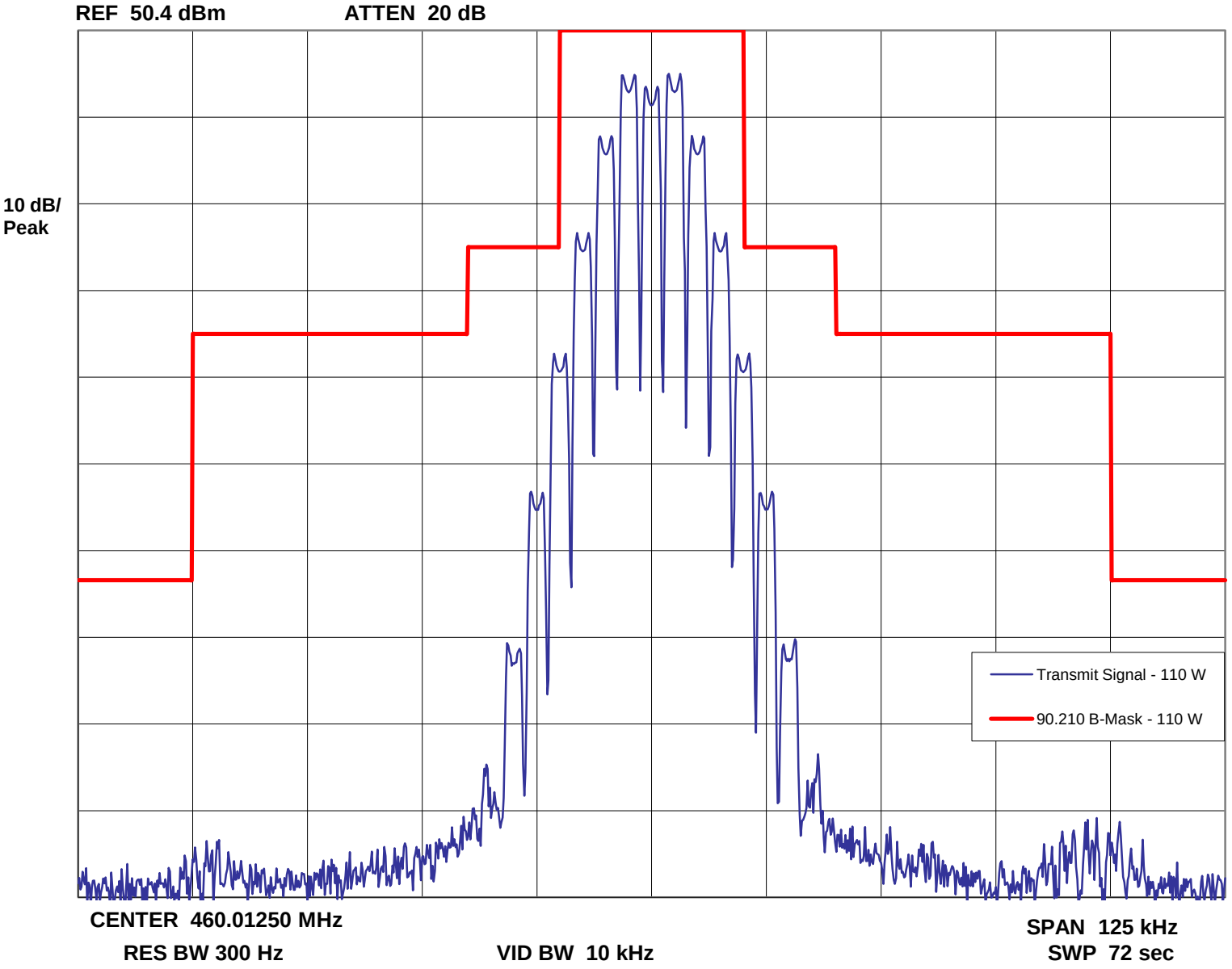
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

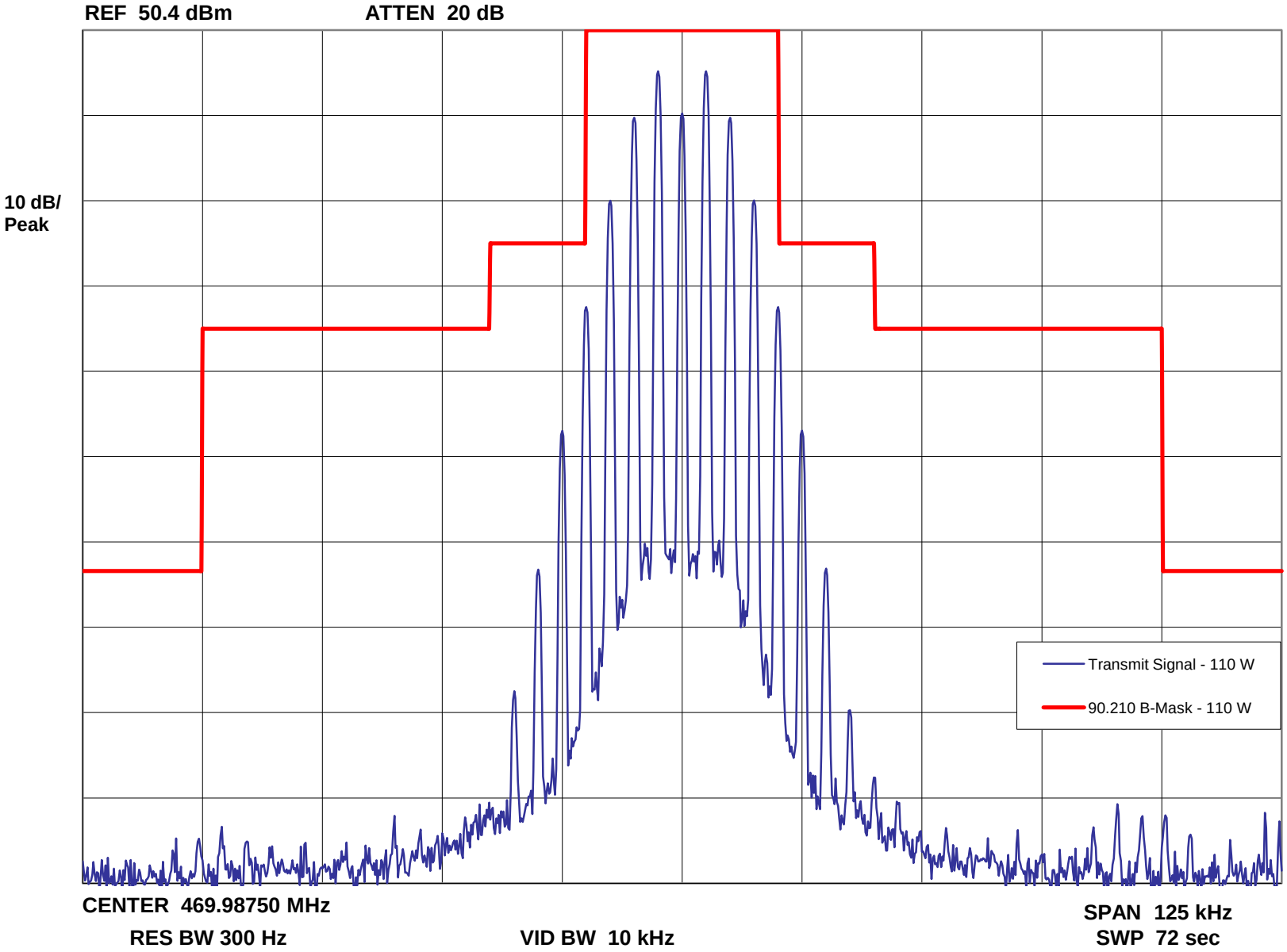
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 25 kHz Channels – Emission Designator: 16K0F3E

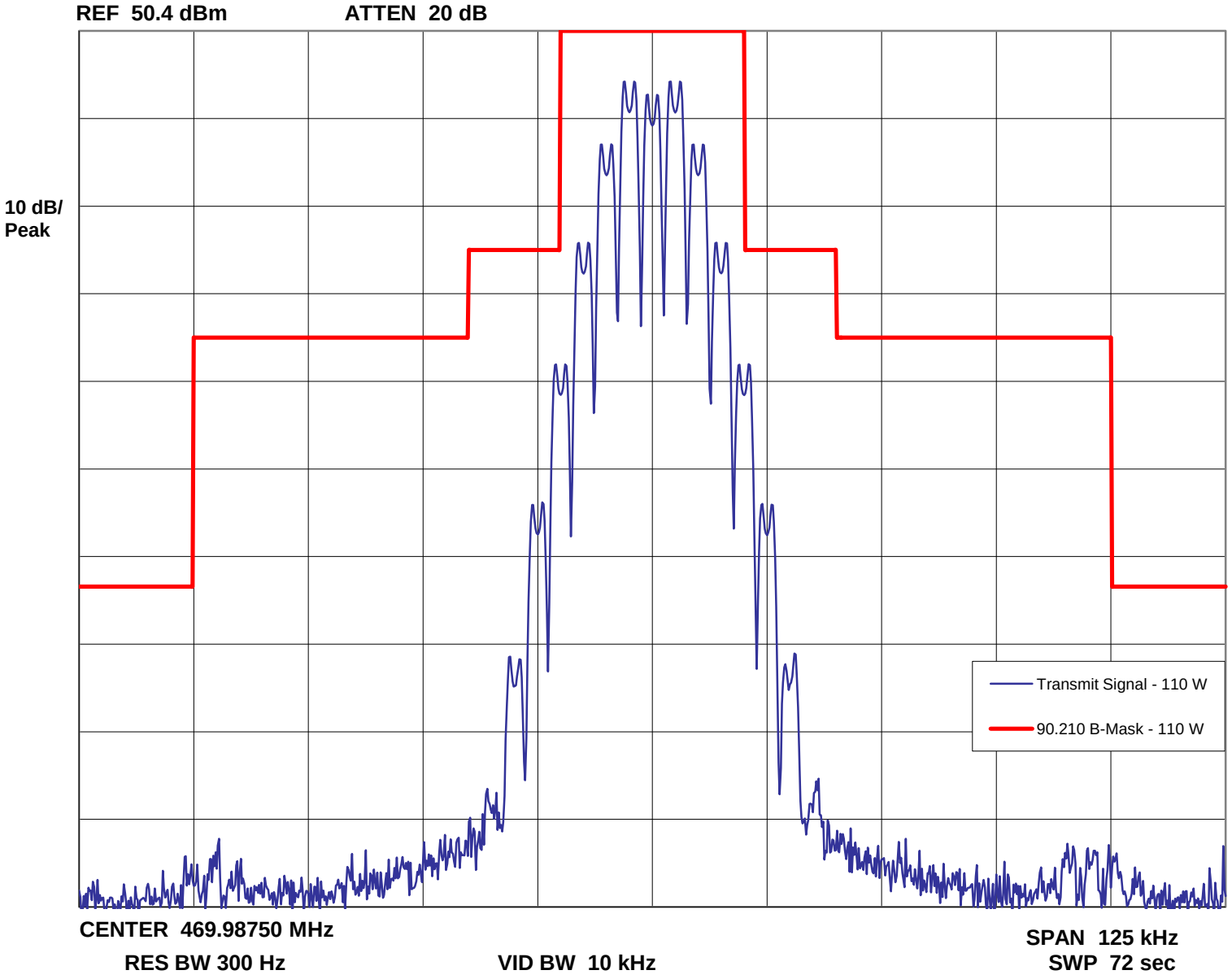
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

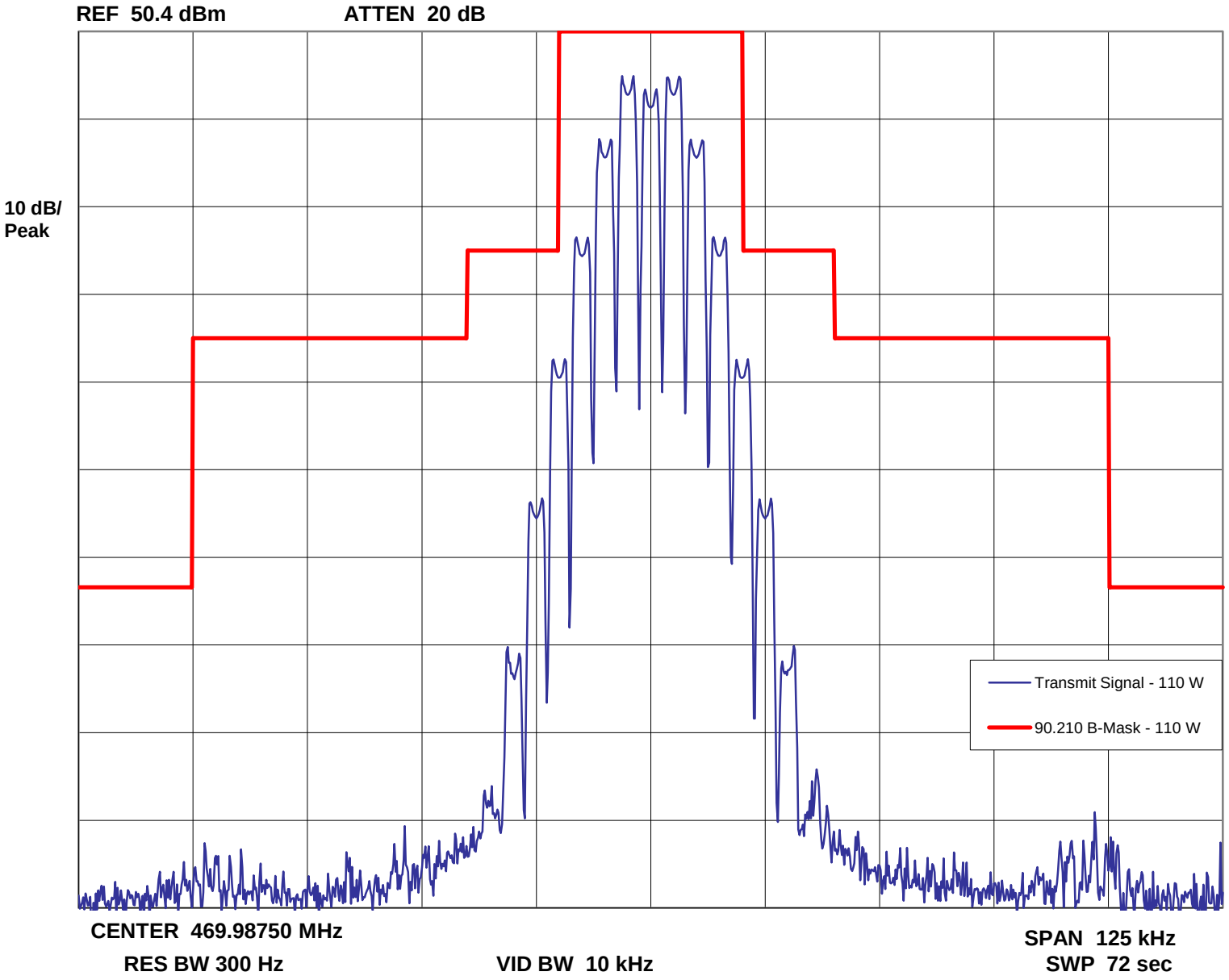
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 25 kHz Channels – Emission Designator: 16K0F3E

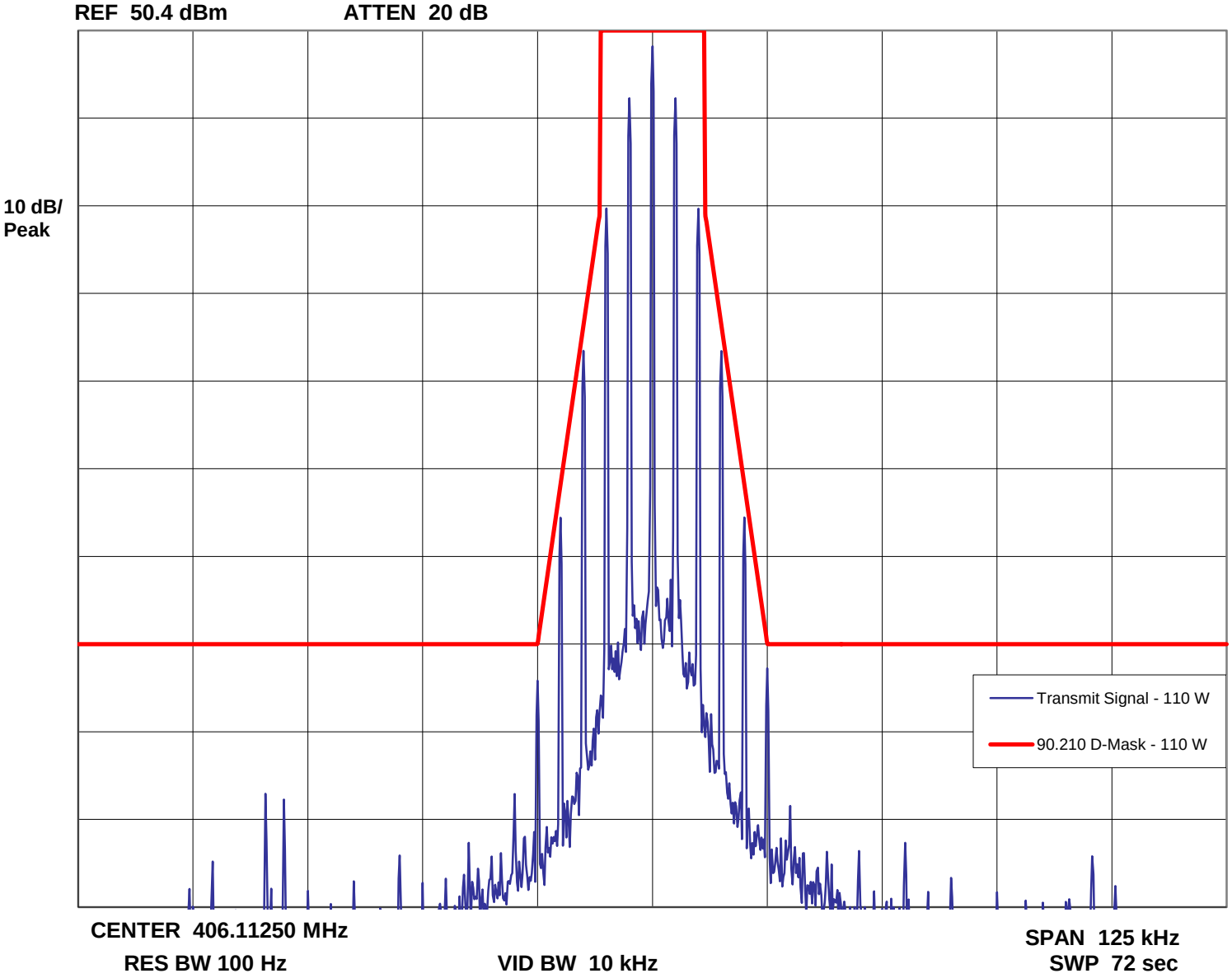
Occupied Bandwidth - 25 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 12.5 kHz Channels – Emission Designator: 11K0F3E

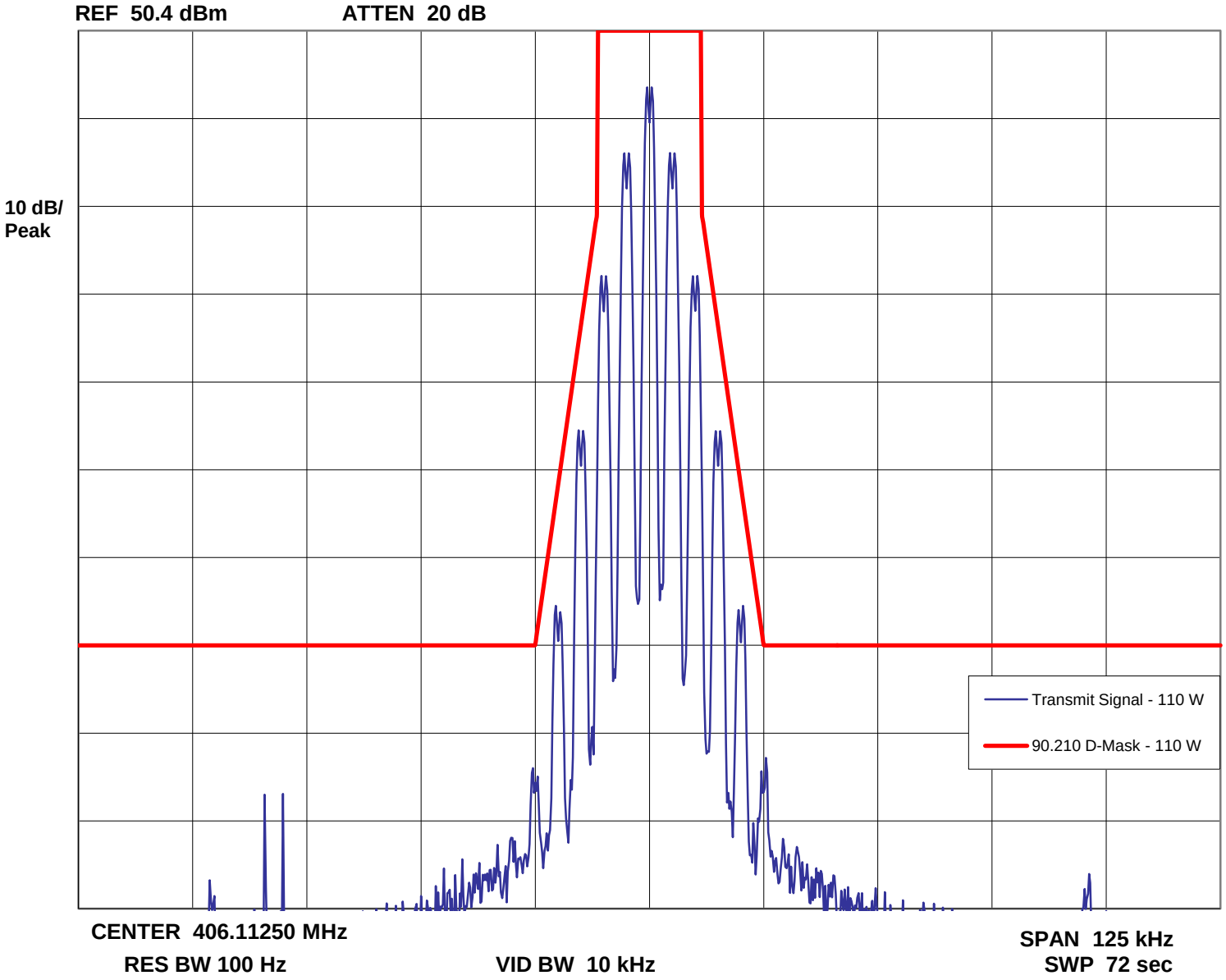
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

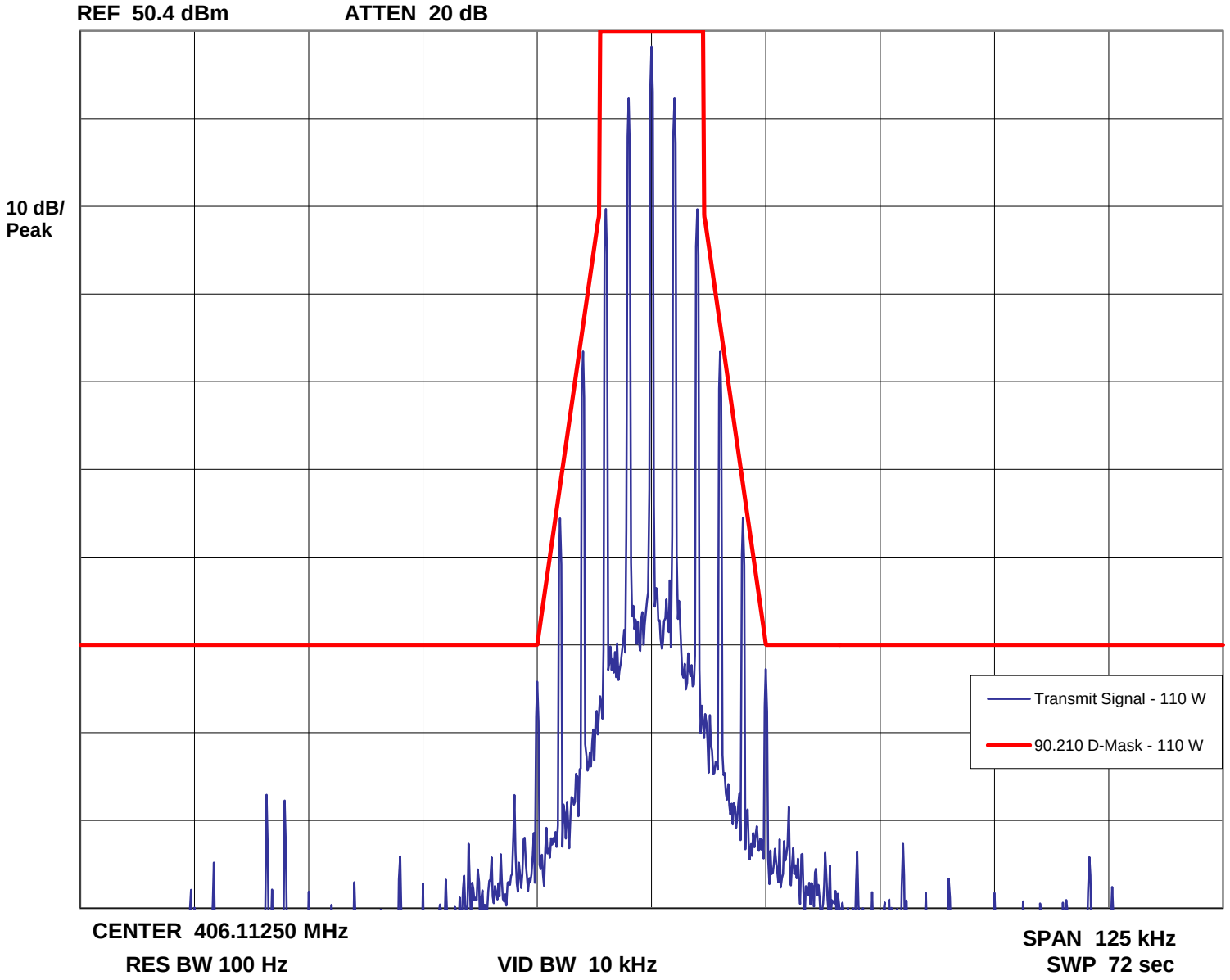
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

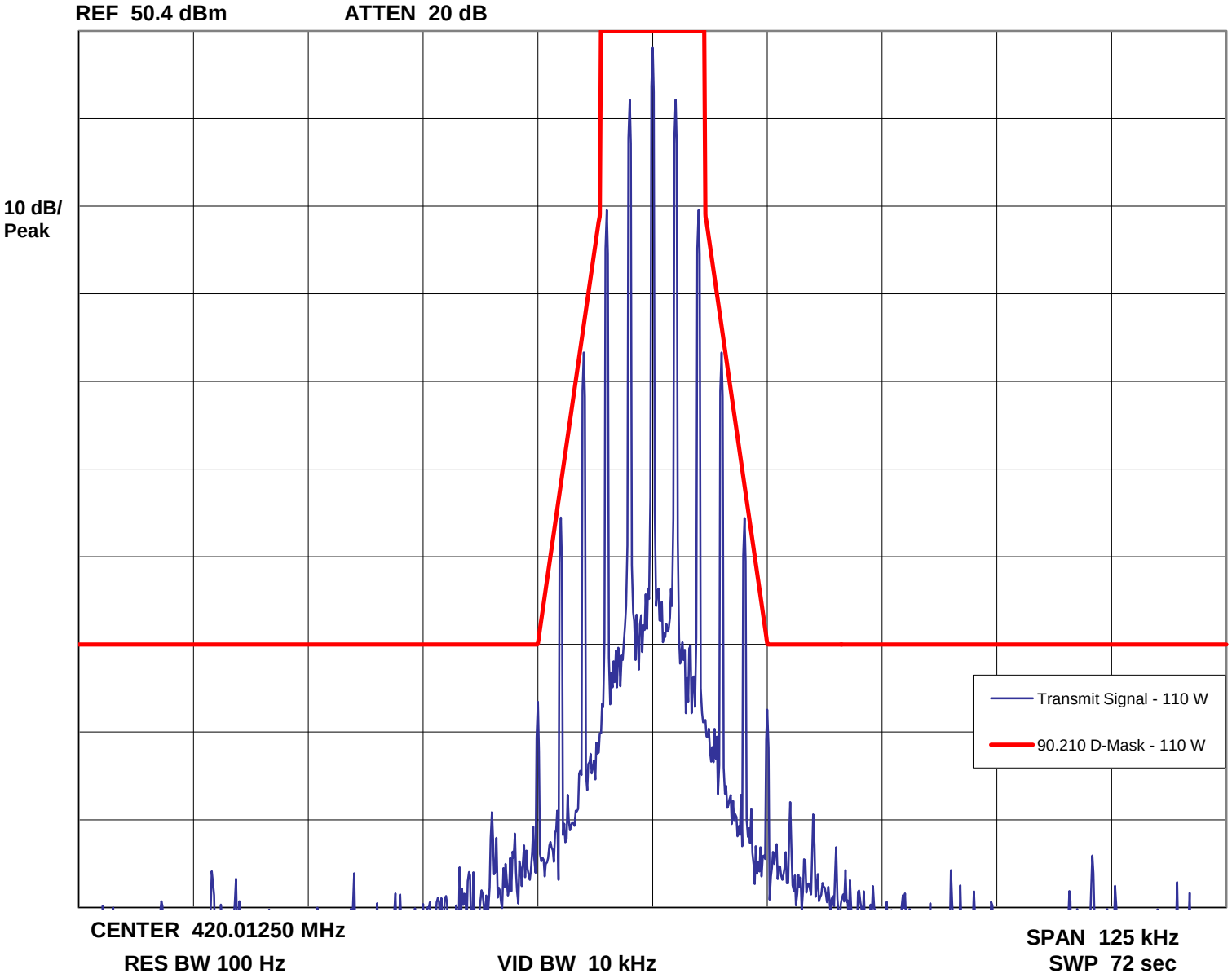
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 12.5 kHz Channels – Emission Designator: 11K0F3E

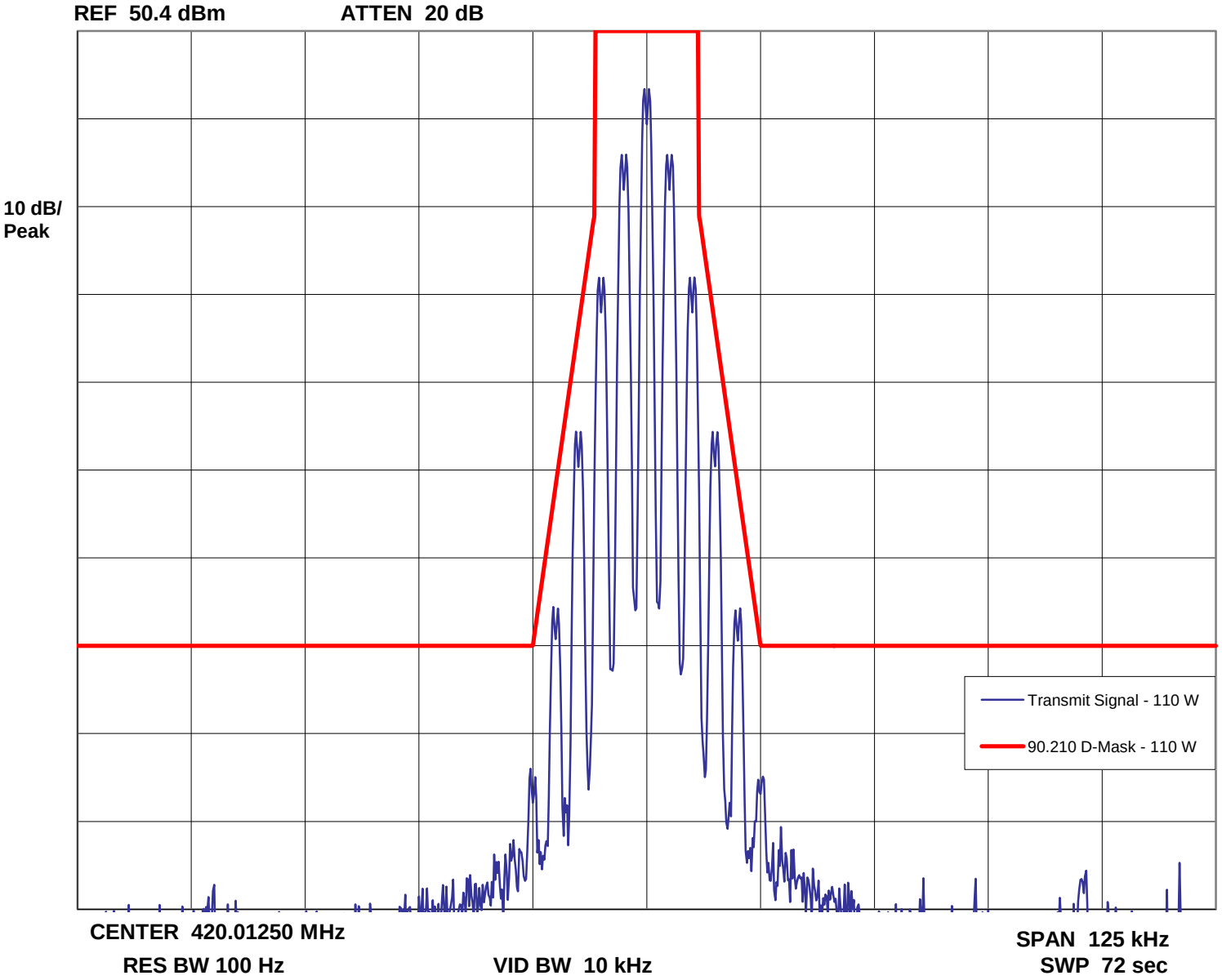
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

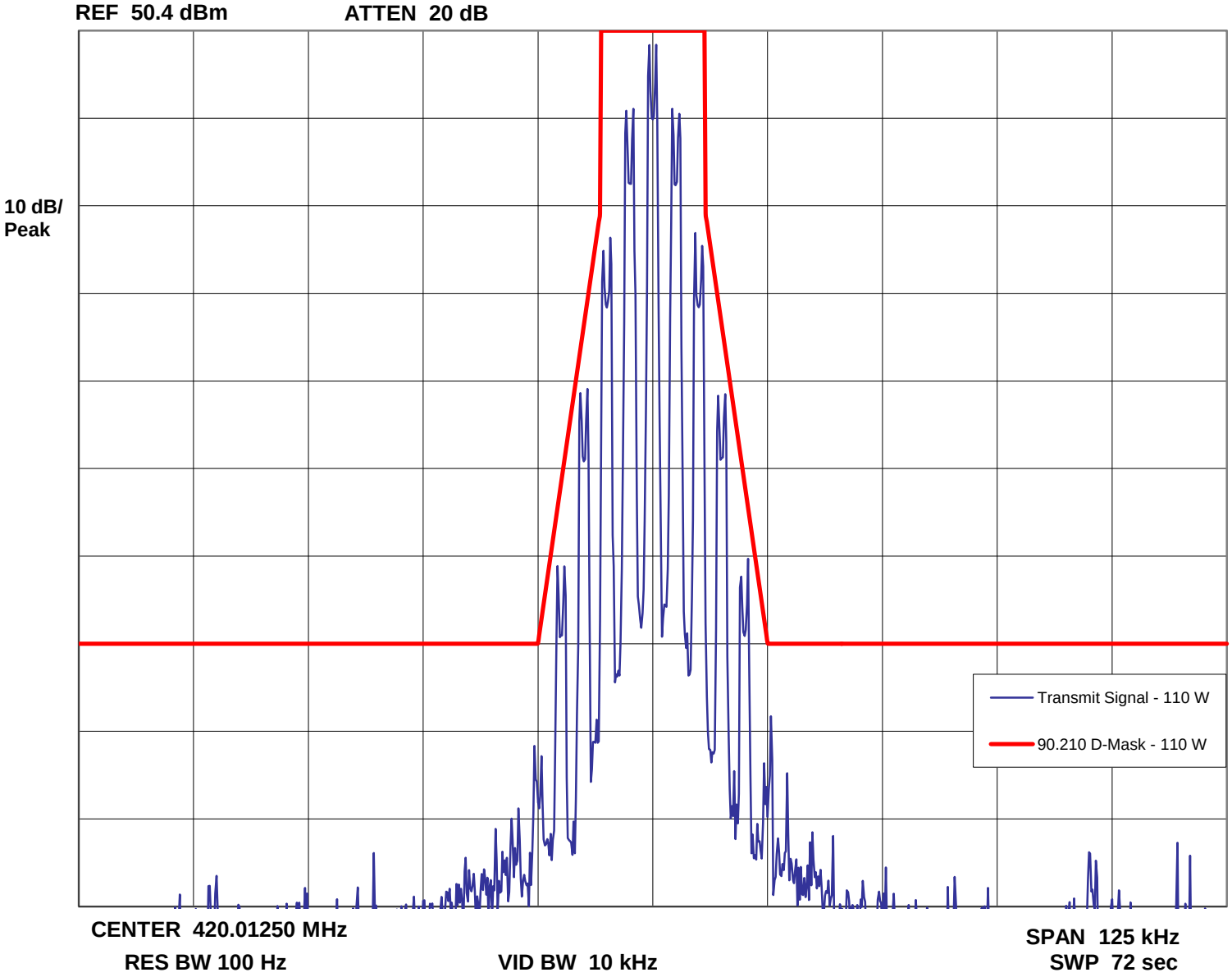
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

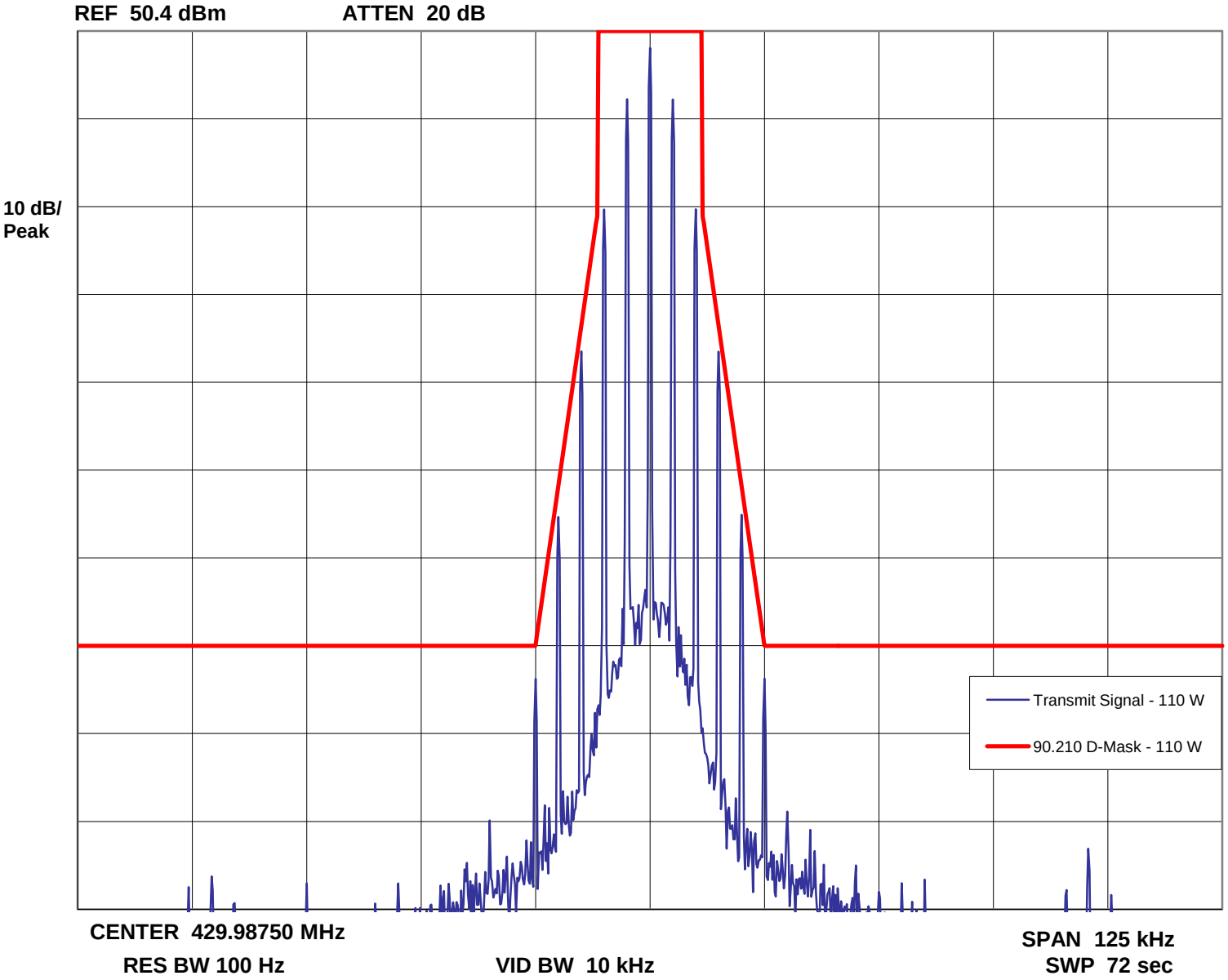
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 12.5 kHz Channels – Emission Designator: 11K0F3E

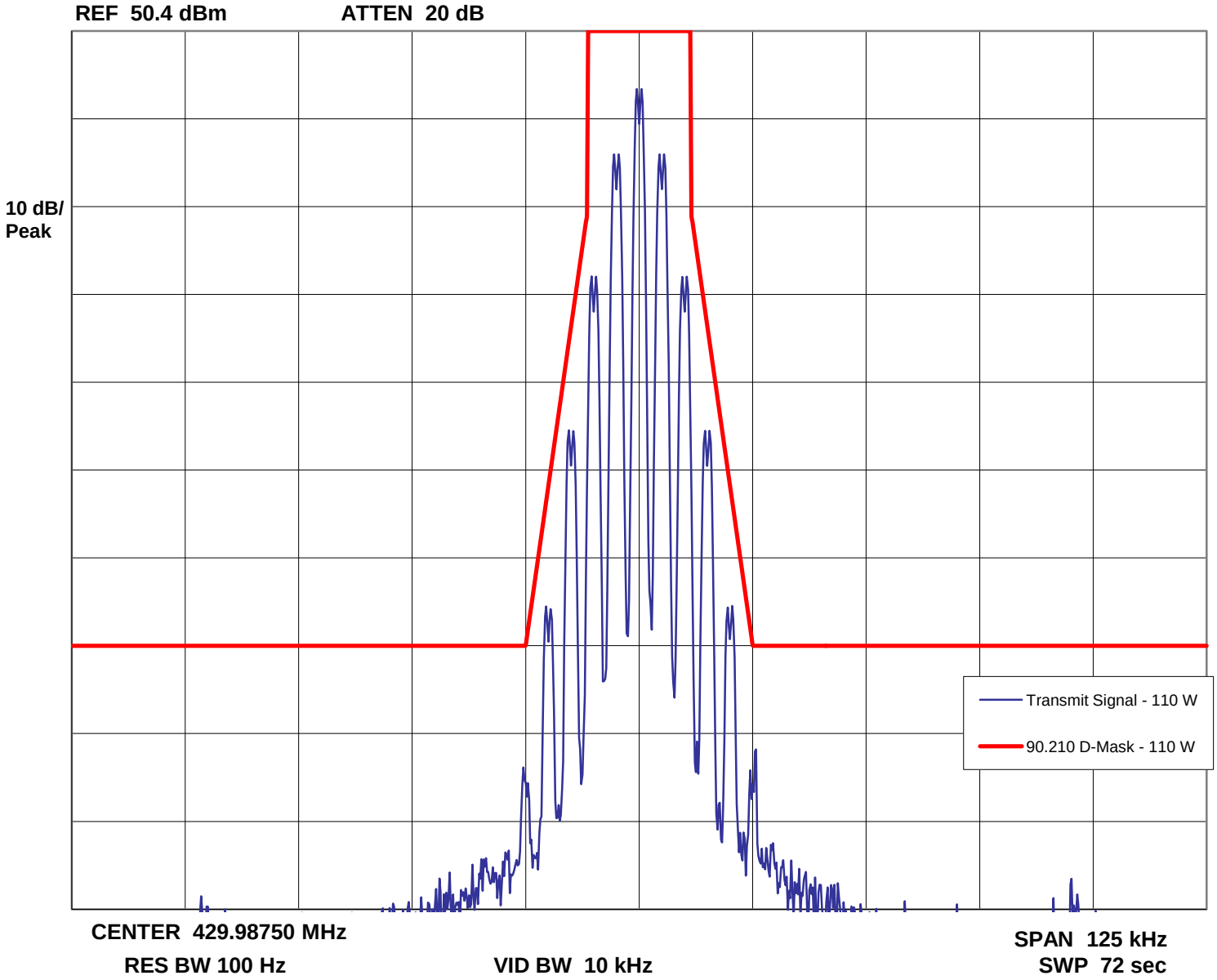
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

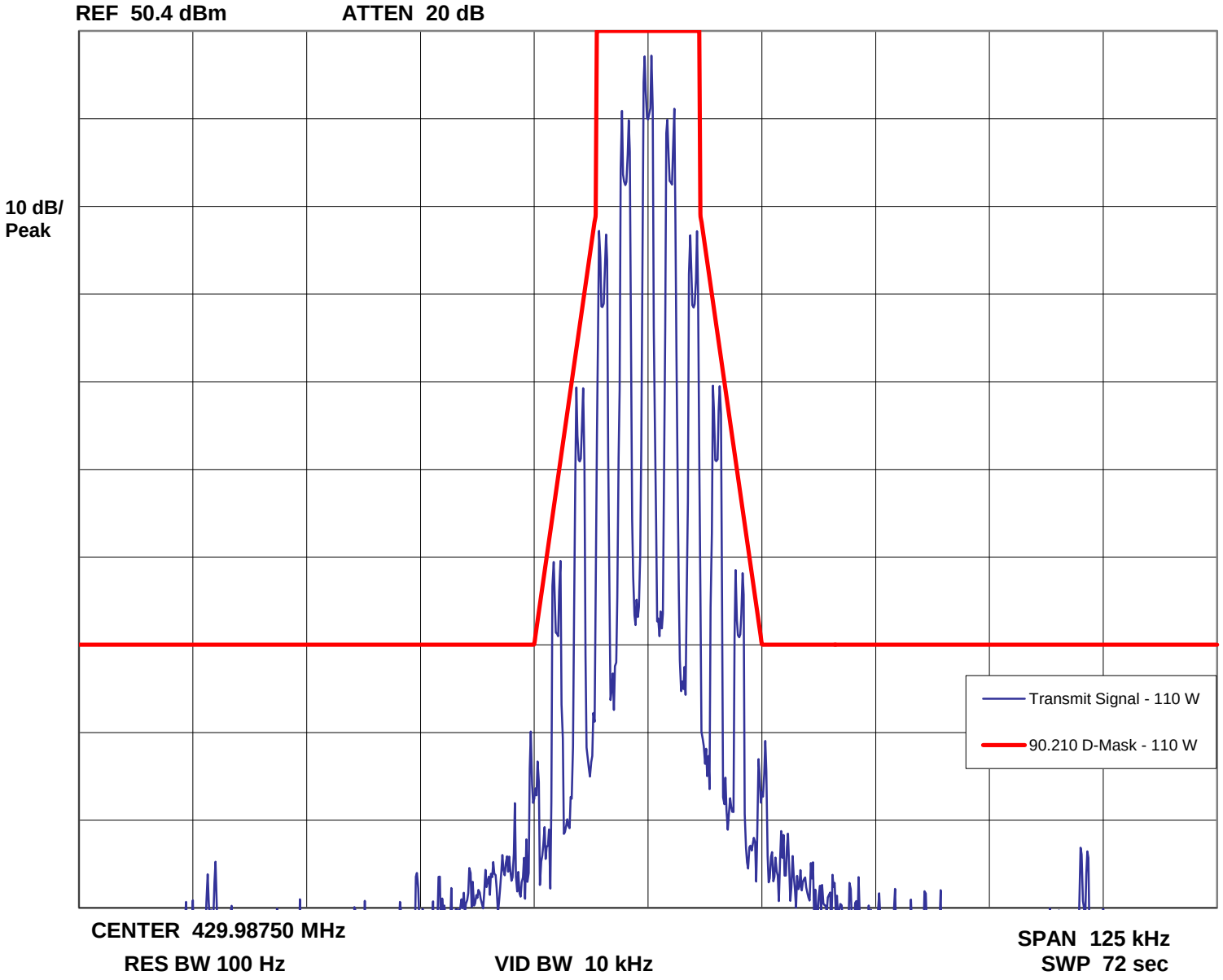
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

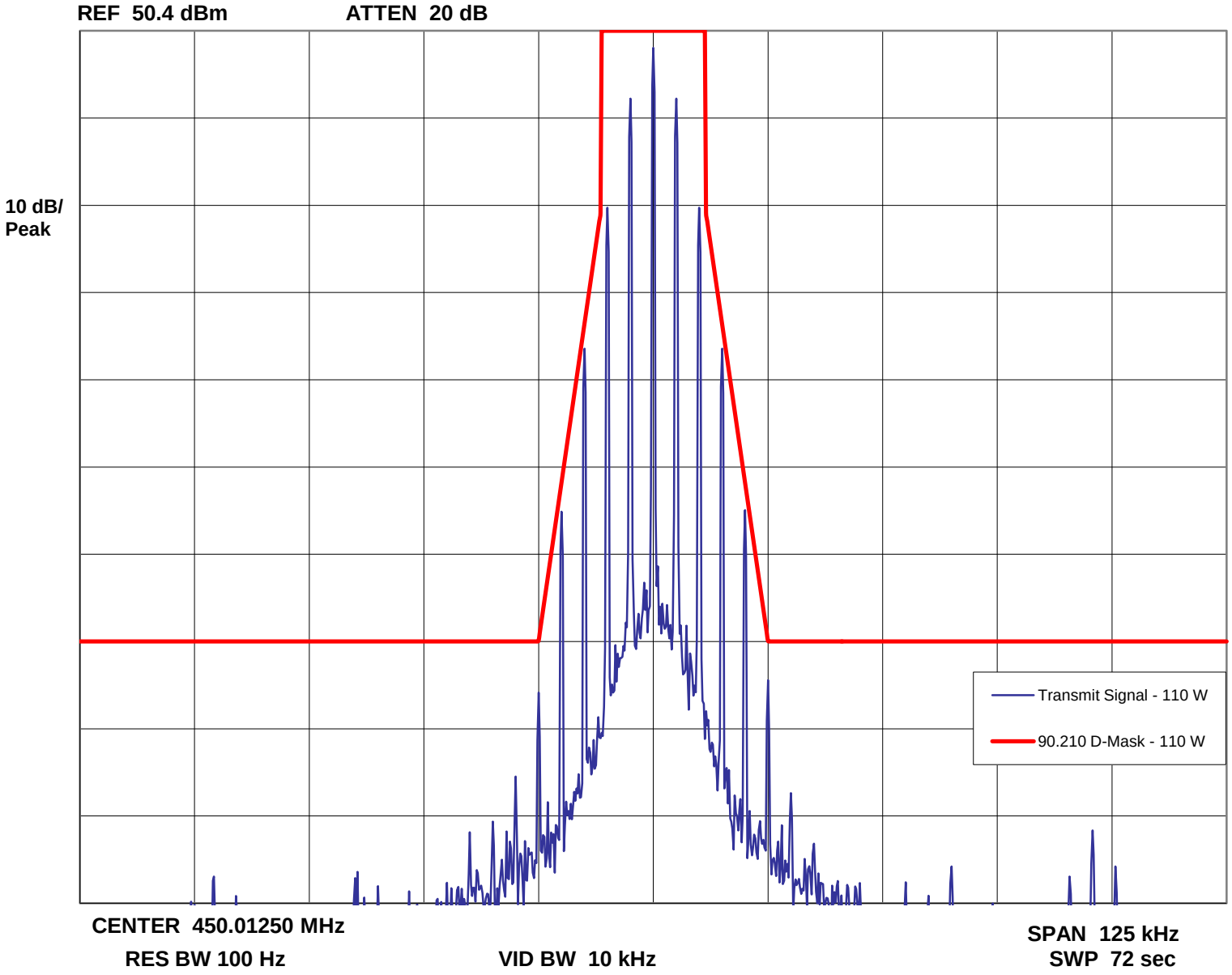
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 12.5 kHz Channels – Emission Designator: 11K0F3E

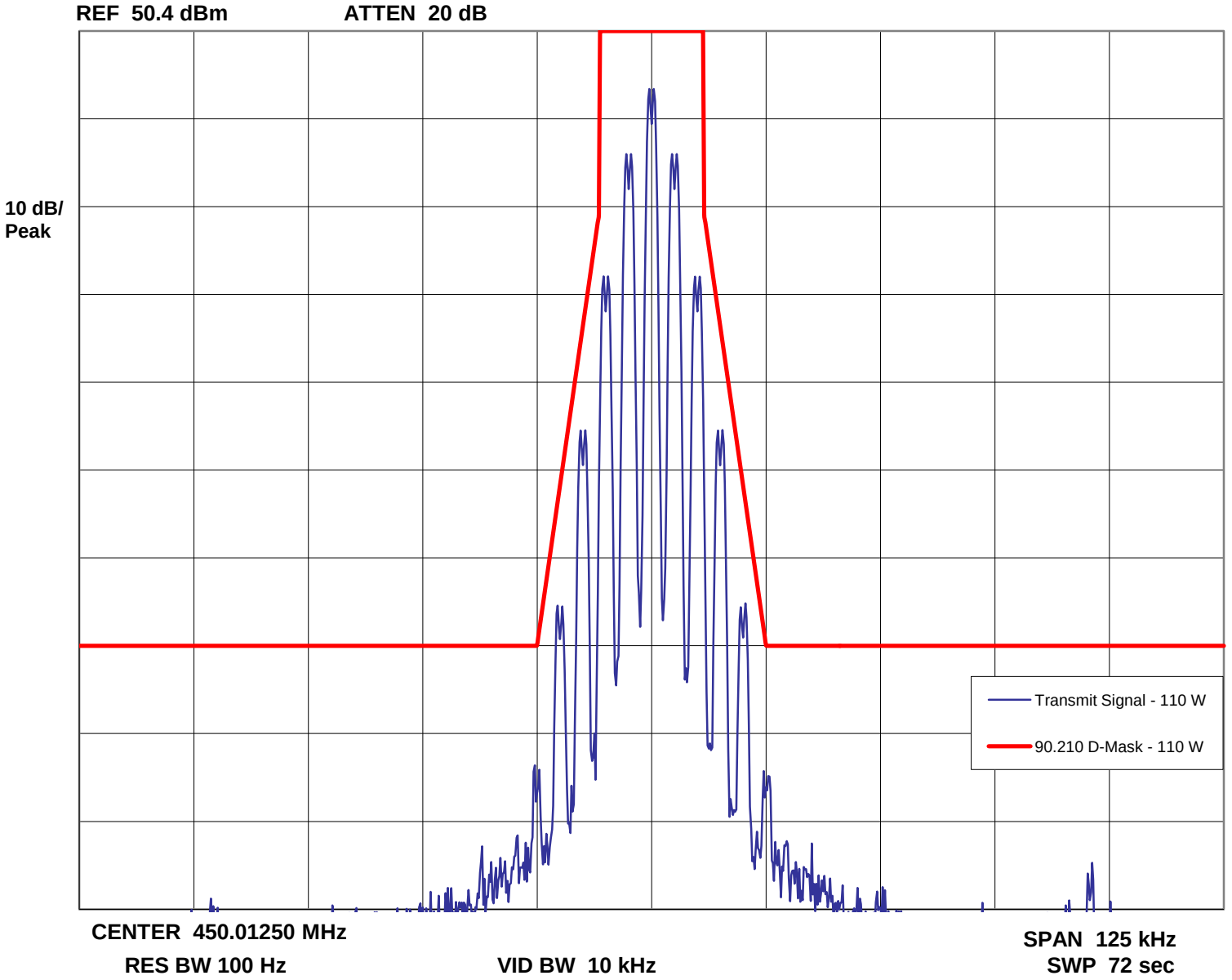
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

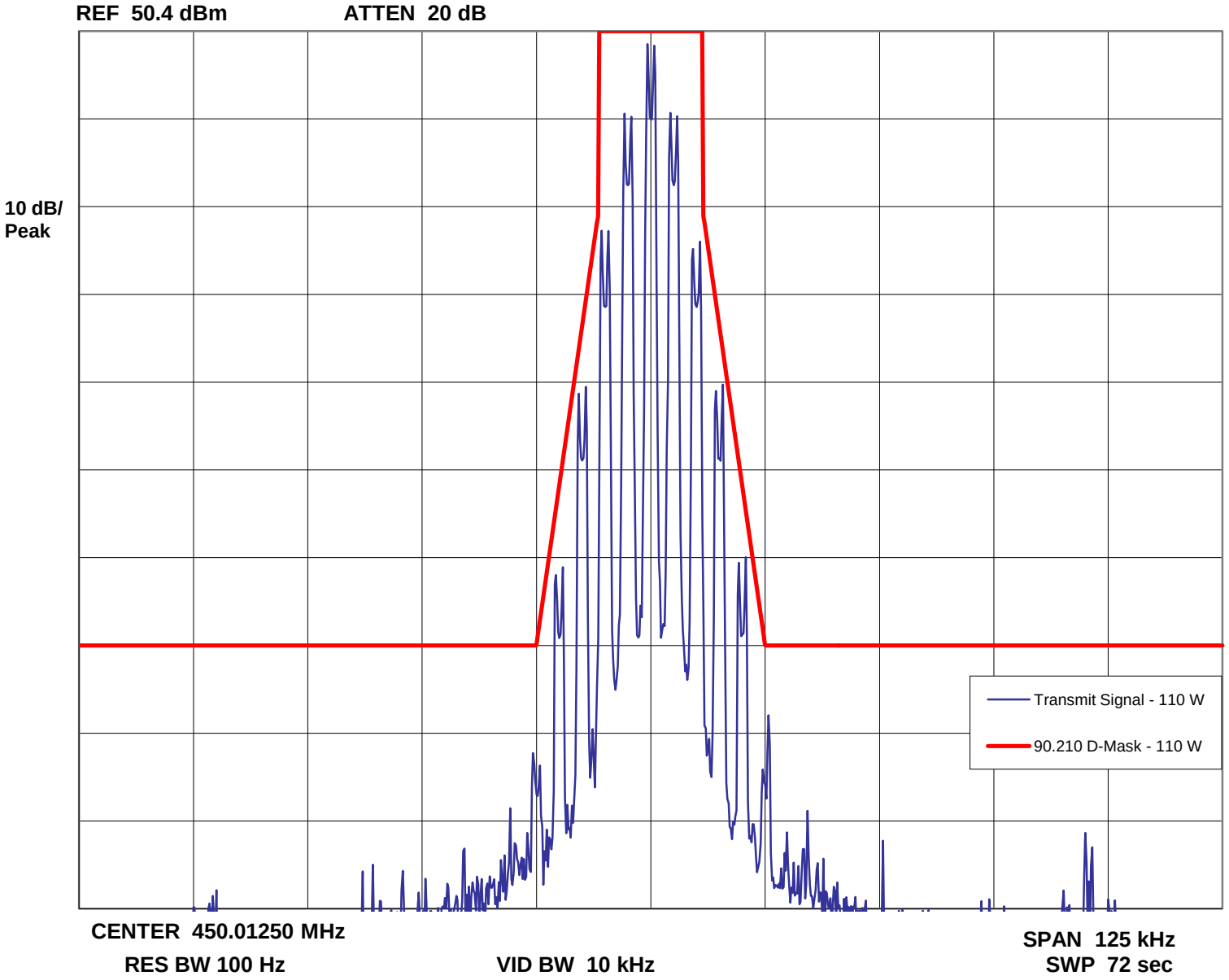
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

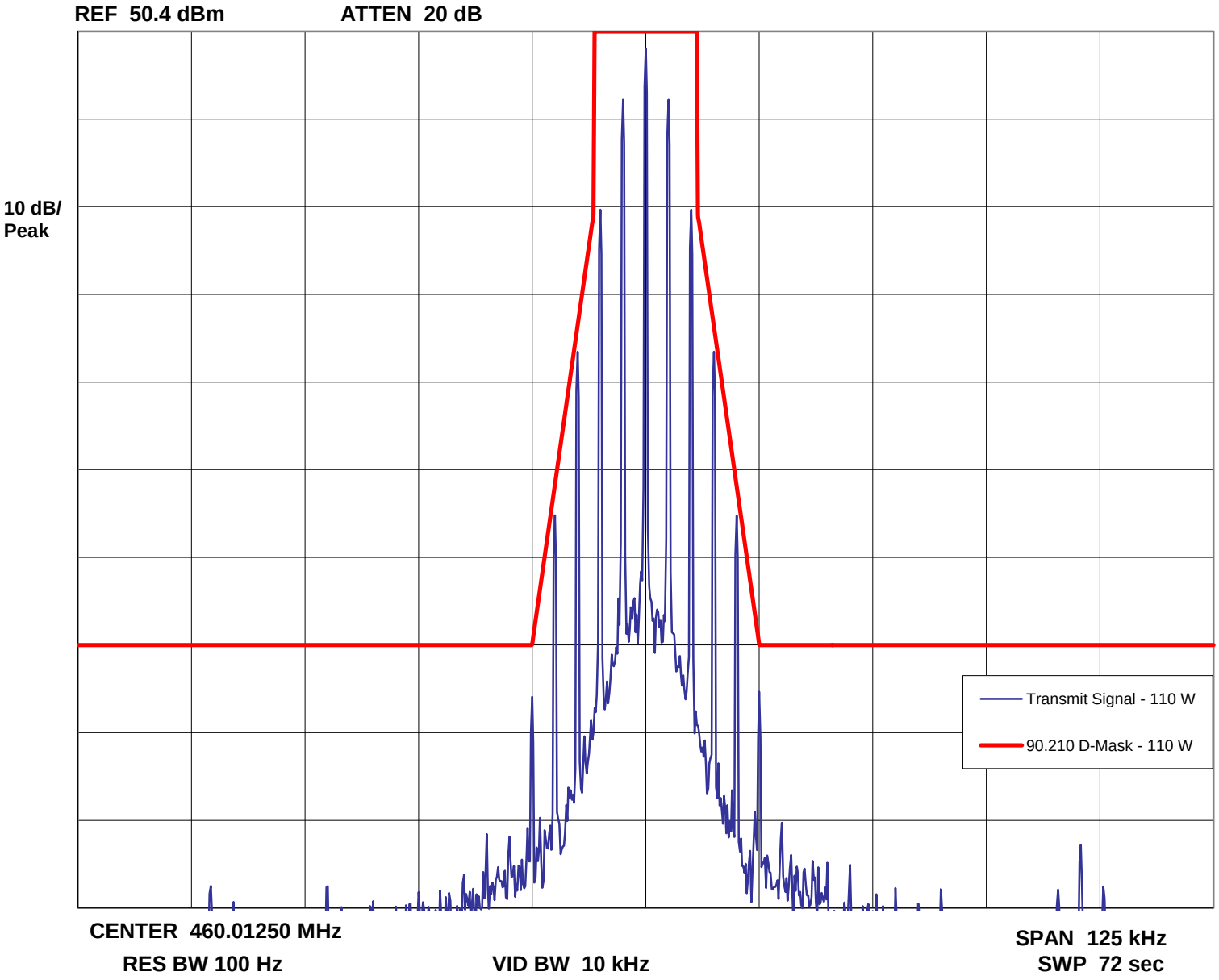
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 12.5 kHz Channels – Emission Designator: 11K0F3E

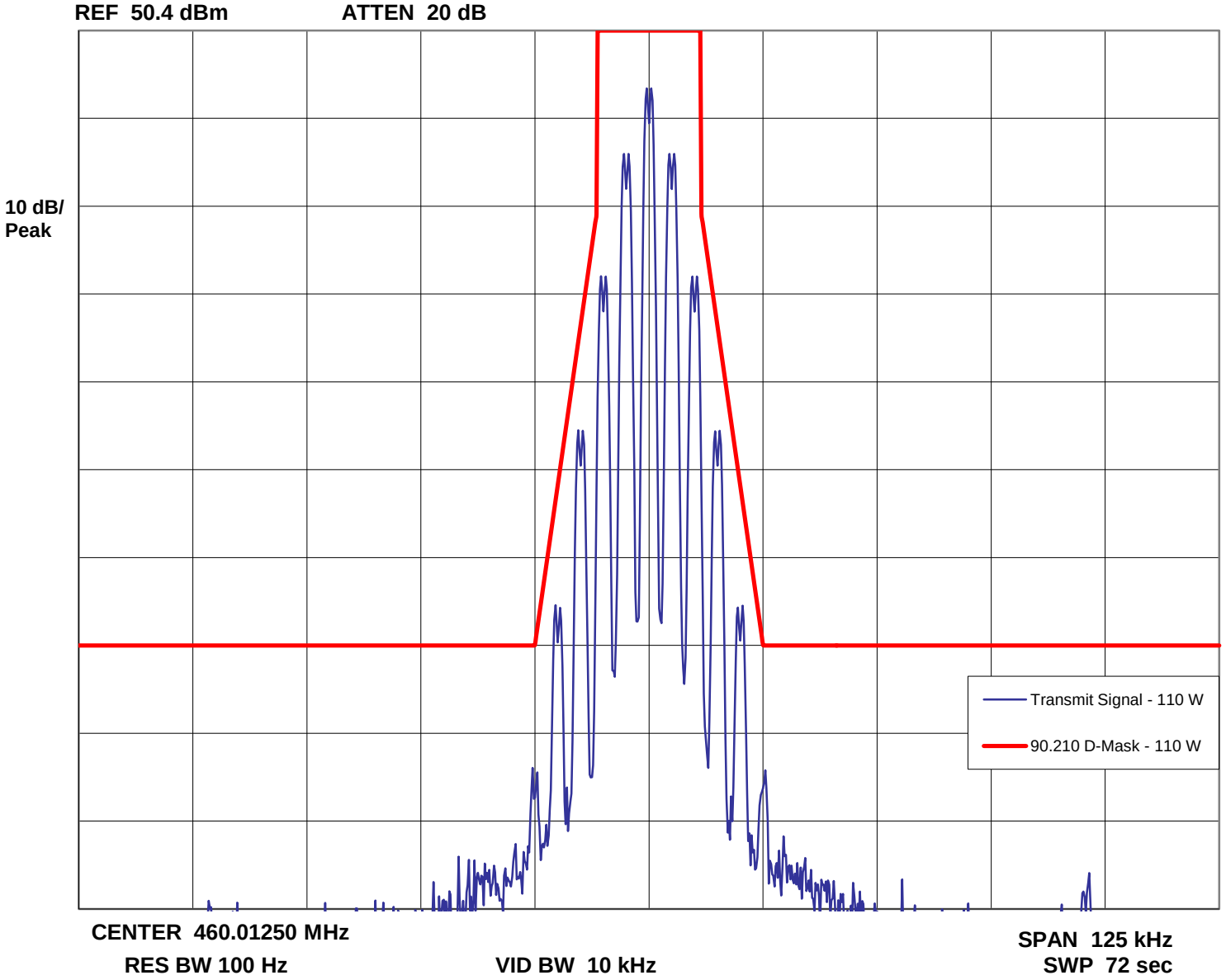
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

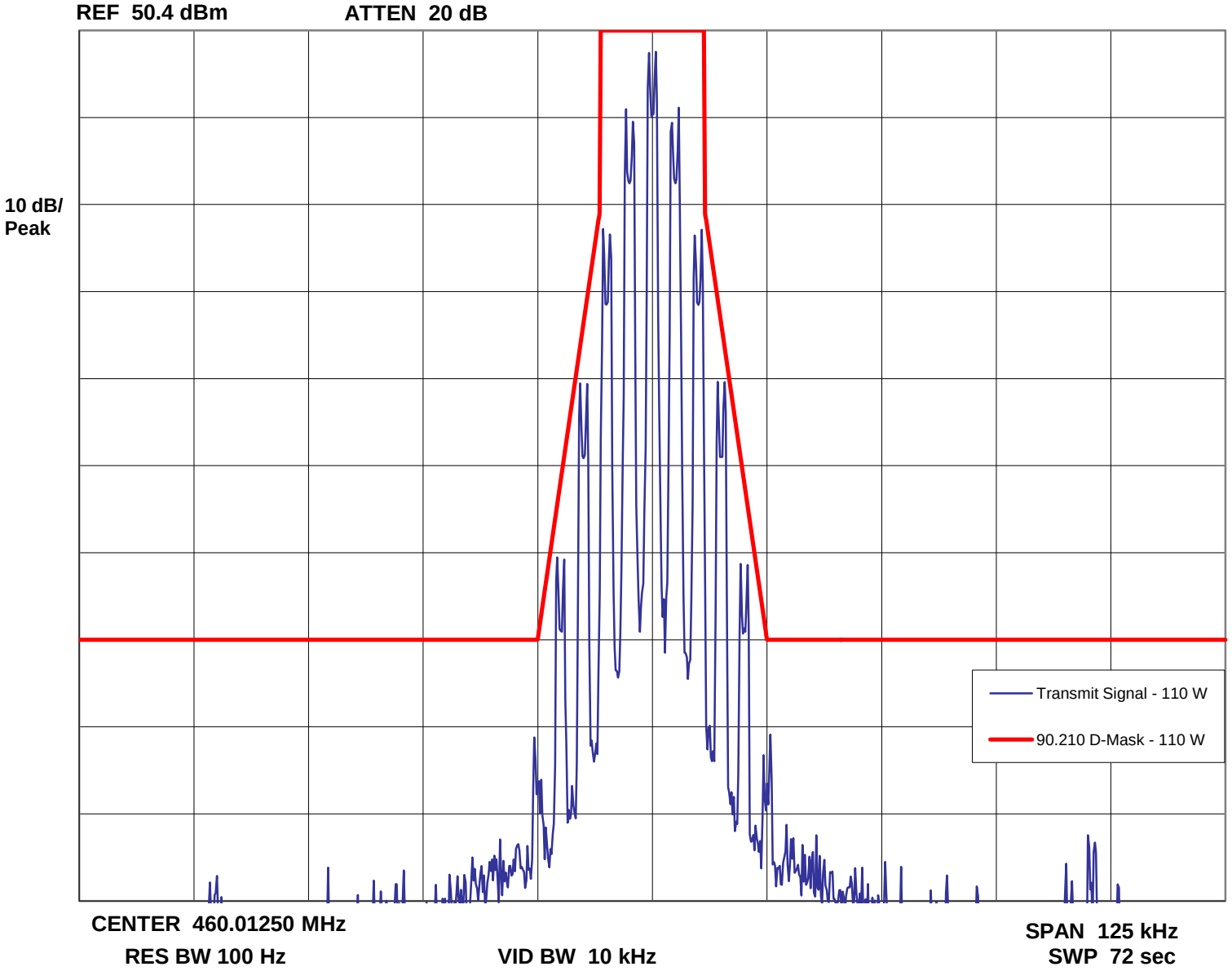
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

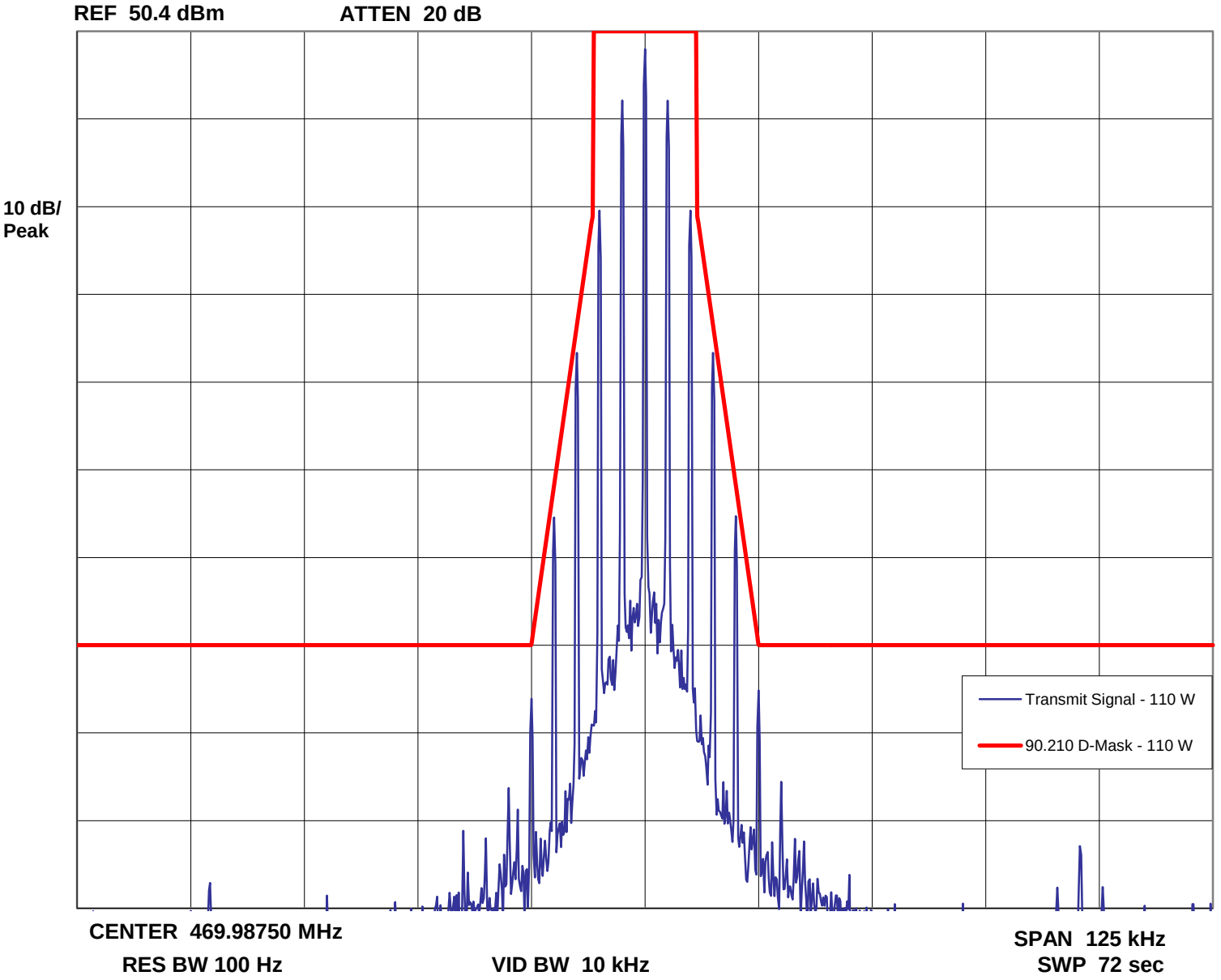
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone, 12.5 kHz Channels – Emission Designator: 11K0F3E

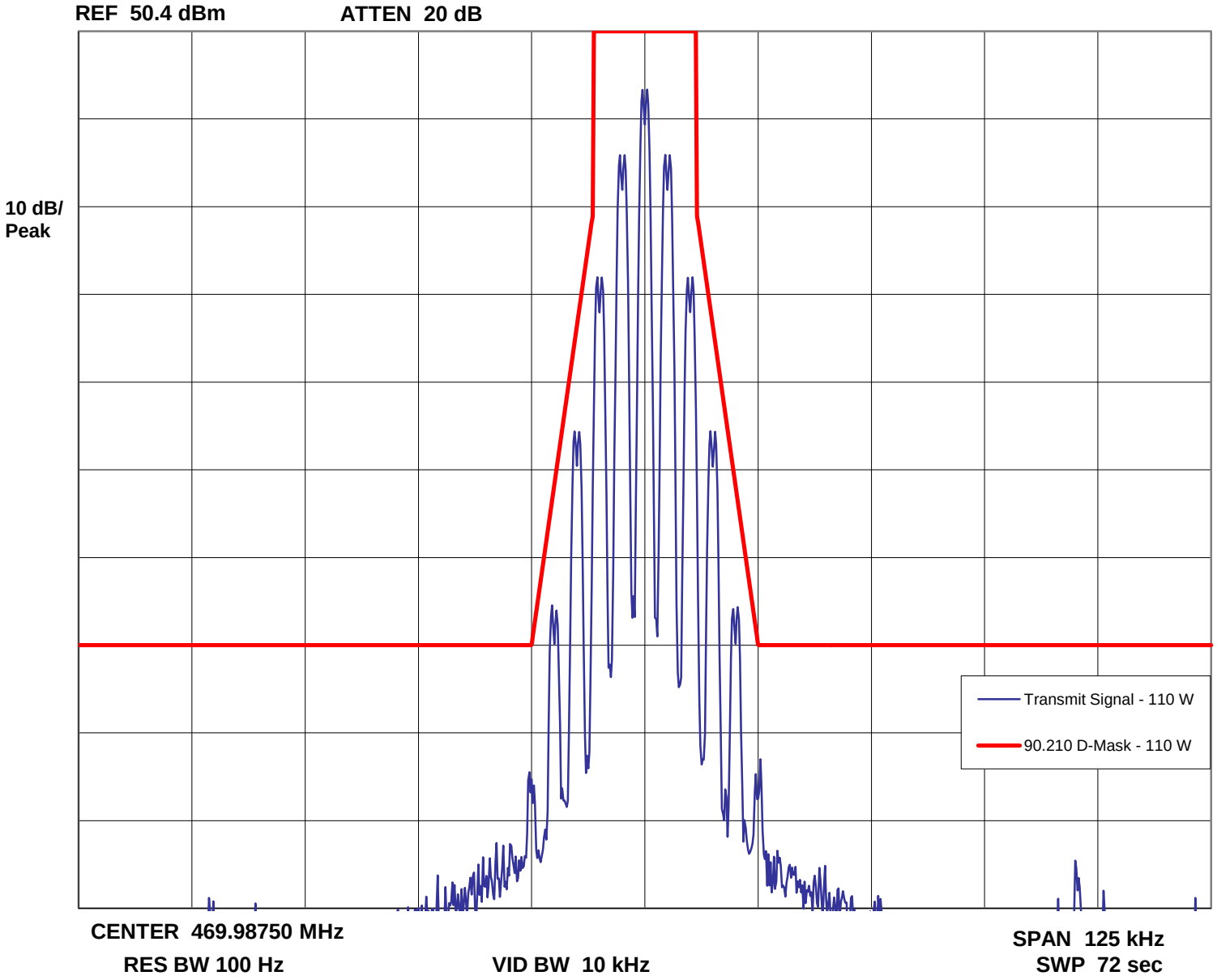
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio Tone



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Audio Tone and Private Line (PL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

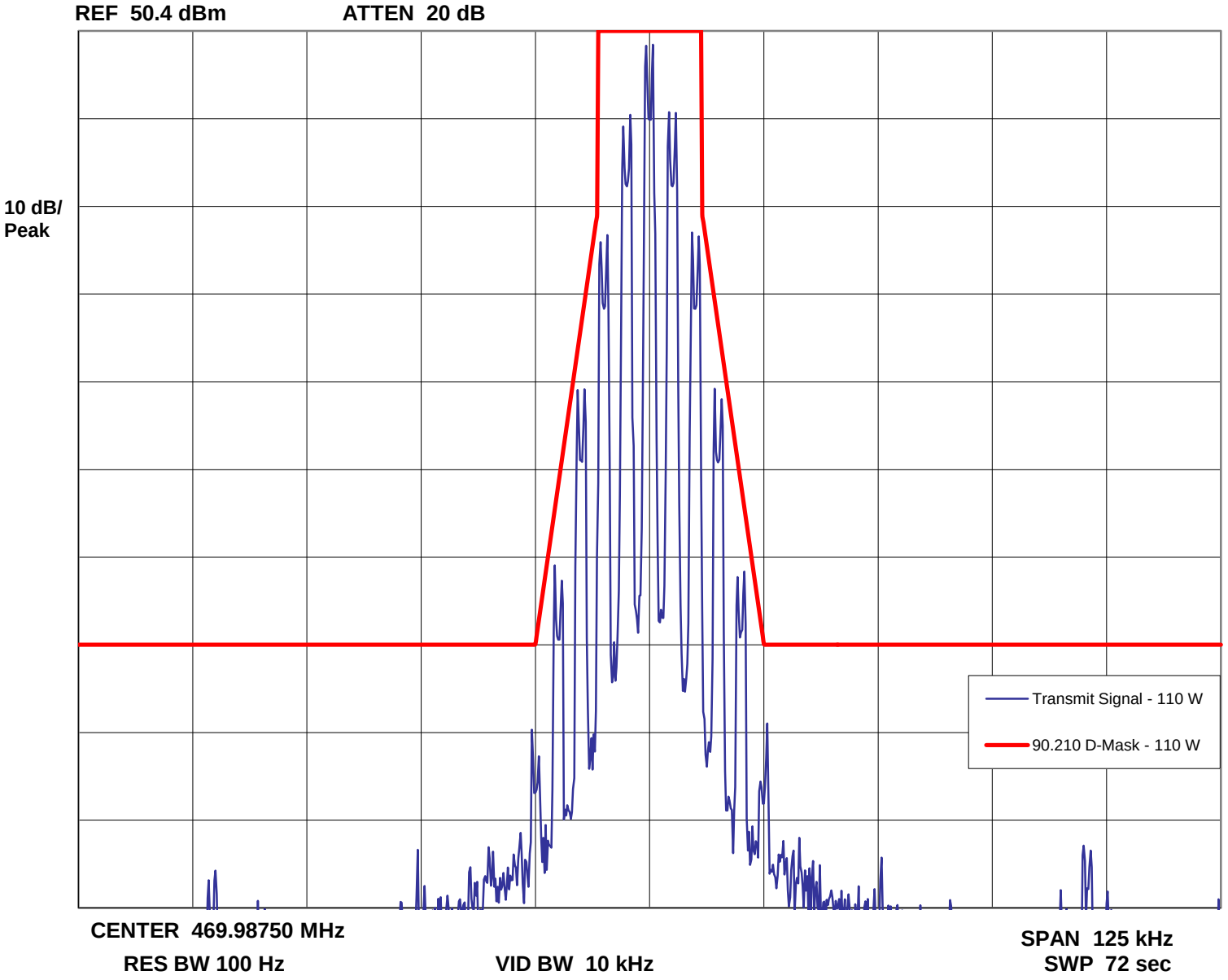
Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 123 Hz PL



Report on Test Measurements

Occupied Bandwidth – Carrier with 2500 Hz Tone and Digital Private Line (DPL) Signaling, 12.5 kHz Channels – Emission Designator: 11K0F3E

Occupied Bandwidth - 12.5 kHz Channels - Carrier with 2500 Hz Audio and 627 DPL



Report on Test Measurements

Test Equipment List

MODEL	MANUFACTURER	DESCRIPTION	Serial No.	Last Cal	Next Cal
Conducted Harmonics / Conducted Spurious Emission Spectrum					
E4440A	Agilent	Spectrum Analyzer	MY46185813	09/04/15	09/04/18
438A	Hewlett Packard	Power Meter	3048U02488	05/07/14	05/07/16
8482A	Hewlett Packard	Power Sensor	GG00004032	05/14/14	05/14/17
Frequency Stability					
N9020A	Agilent	Spectrum Analyzer	MY51110030	09/01/15	09/01/18
6032A	Hewlett Packard	DC Power Supply	US38321104	Correlated to DMM (*)	
34401A	Hewlett Packard	Digital Multimeter (*)	US36056373	10/01/14	10/01/15
6813B	Hewlett Packard	AC Power Supply	MY41000529	Correlated to DMM (*)	
Occupied Bandwidth / Modulation Limiting / Audio Frequency Response / Frequency Transients					
N9030A	Agilent	Spertrum Analyzer	MY49432180	10/01/14	10/01/17
U8903A	Agilent	Audio Analyzer	MY49420007	09/17/14	09/17/17

Radiated and Power Supply Conducted Emissions

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
GRB0	1MHZ, LISN SIGNAL CHECKER	ELITE	LISNCHKR1M	1	1MHZ	1/28/2016	1/28/2017
NTA0	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL6112	2057	0.03-2GHZ	9/11/2015	9/11/2016
NTA2	BILOG ANTENNA	TESEQ	6112D	28040	25-1000MHz	10/27/2015	10/27/2016
NWQ1	DOUBLE RIDGED WAVEGUIDE ANTENNA	ETS-LINDGREN	3117	66655	1GHZ-18GHZ	3/11/2014	3/11/2016
NWQ2	DOUBLE RIDGED WAVEGUIDE ANTENNA	ETS LINDGREN	3117	66659	1GHZ-18GHZ	3/2/2016	3/2/2018
NWU0	HIGH GAIN HORN ANTENNA	AMPLIFIER RESEARCH	ATH800M5GA	0342561	0.8-5GHz	NOTE 1	
PLF2	CISPR16 50UH LISN	ELITE	CISPR16/70A	002	.15-30MHz	5/18/2015	5/18/2016
PLF4	CISPR16 50UH LISN	ELITE	CISPR16/70A	003	.15-30MHz	5/18/2015	5/18/2016
RAKH	RF FILTER SECTION	HEWLETT PACKARD	85460A	3448A00324	---	2/22/2016	2/22/2017
RAKI	RF SECTION	HEWLETT PACKARD	85462A	3411A00181	0.009-6500MHZ	3/12/2015	3/12/2016
RBD0	EMI TEST RECIEVER	ROHDE & SCHWARZ	ESU40	100010	20Hz-40GHz	9/3/2015	9/3/2016
T1E1	10DB 25W ATTENUATOR	WEINSCHEL	46-10-43	AU1883	DC-18GHZ	8/11/2015	8/11/2016
VBR8	CISPR EN FCC CE VOLTAGE.exe						
WKA1	SOFTWARE, UNIVERSAL RCV EMI	ELITE	UNIV_RCV_EMI	1	---	I/O	
WQB0	RE_8546A						
WQC0	HF_8546A						

Report on Test Measurements

Statement of Certification

The technical data supplied with this application, having been taken under my supervision is hereby duly certified. The following is a statement of my qualifications:

College Degree: **BSEE, University of Illinois, Urbana-Champaign, Illinois, USA**

__30__ years of Design and Development experience in the field of two-way radio communication.

NAME: **Robert Sarocka**

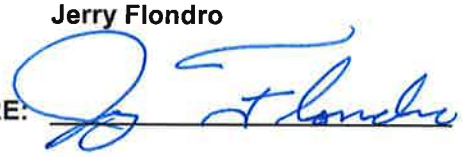
SIGNATURE: 

DATE: **March 14, 2016**

POSITION: **Technical Manager**

I hereby certify that the above application was prepared under my direction and that to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct:

NAME: **Jerry Flondro**

SIGNATURE: 

DATE: **March 14, 2016**

POSITION: **Senior Resource Manager**