

Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-9 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. t1 = 10 ms Maximum Frequency Difference ± 25 kHz
- b. t2 = 25 ms Maximum Frequency Difference ± 12.5 kHz
- c. t3 = 10 ms Maximum Frequency Difference ± 25 kHz

Transient Frequency Behavior 12.5 kHz Channels

For time intervals:

- a. t1 = 10 ms Maximum Frequency Difference ± 12.5 kHz
- b. t2 = 25 ms Maximum Frequency Difference ± 6.25 kHz
- c. t3 = 10 ms Maximum Frequency Difference ± 12.5 kHz

Where t1 and t2 are times immediately following when the transmitter is turned on, and t3 is the time from when the transmitter is turned off.

During the time from the end of t2 to the beginning of t3, the frequency difference must not exceed the limits specified in §90.213 / RSS-119 section 5.3.

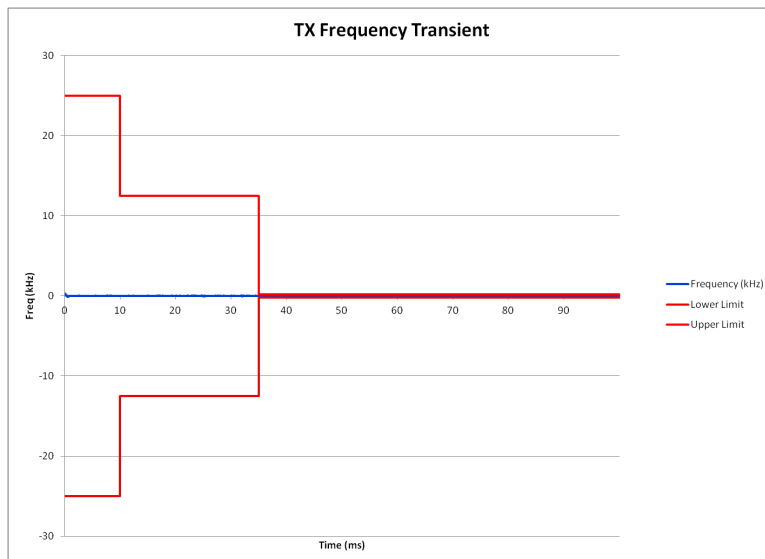
Modulation: Analog Mode Frequency Modulation

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

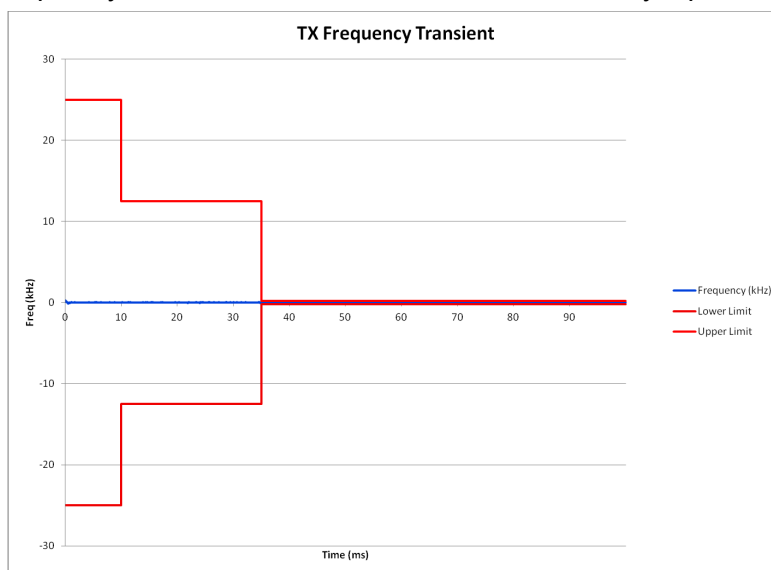
<u>EXHIBIT</u>	<u>DESCRIPTION</u>
E1-9.1, 2, 3	Frequency Transient Behavior, 25 kHz Channel Key-Up, 406.1 - 430 MHz
E1-9.4, 5, 6	Frequency Transient Behavior, 25 kHz Channel Key-Up, 450 - 470 MHz
E1-9.7, 8, 9	Frequency Transient Behavior, 25 kHz Channel De-Key, 406.1 - 430 MHz
E1-9.10, 11, 12	Frequency Transient Behavior, 25 kHz Channel De-Key, 450 - 470 MHz
E1-9.13, 14, 15	Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 406.1 - 430 MHz
E1-9.16, 17, 18	Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 450 - 470 MHz
E1-9.19, 20, 21	Frequency Transient Behavior, 12.5 kHz Channel De-key, 406.1 - 430 MHz
E1-9.34, 23, 24	Frequency Transient Behavior, 12.5 kHz Channel De-key, 450 - 470 MHz

Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-9.1 Frequency Transient Behavior, 25 kHz Channel Key-Up, 406.1125MHz

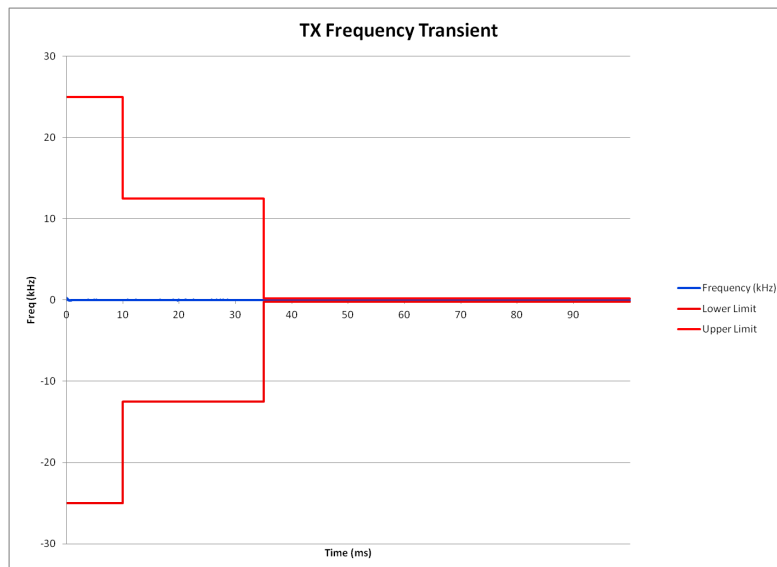


E1-9.2 Frequency Transient Behavior, 25 kHz Channel Key-Up, 420.0125MHz

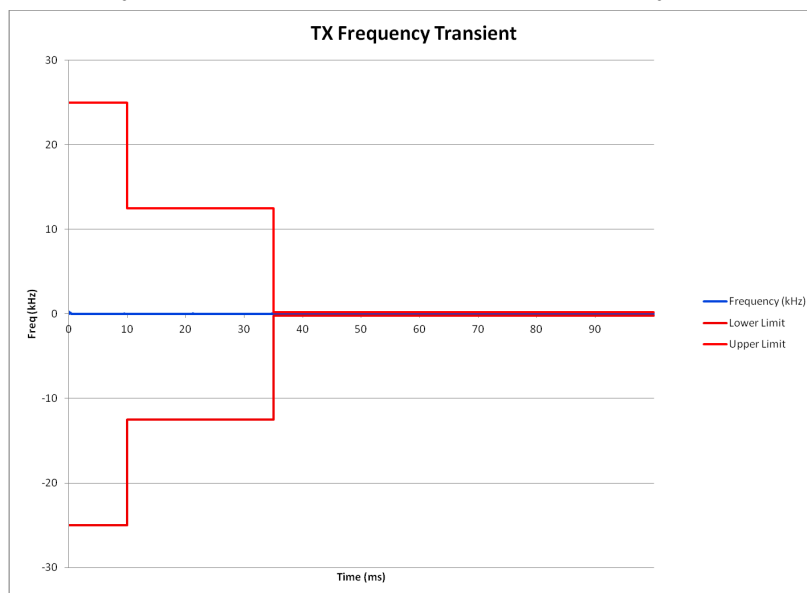


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E1-9.3 Frequency Transient Behavior, 25 kHz Channel Key-Up, 429.9875MHz

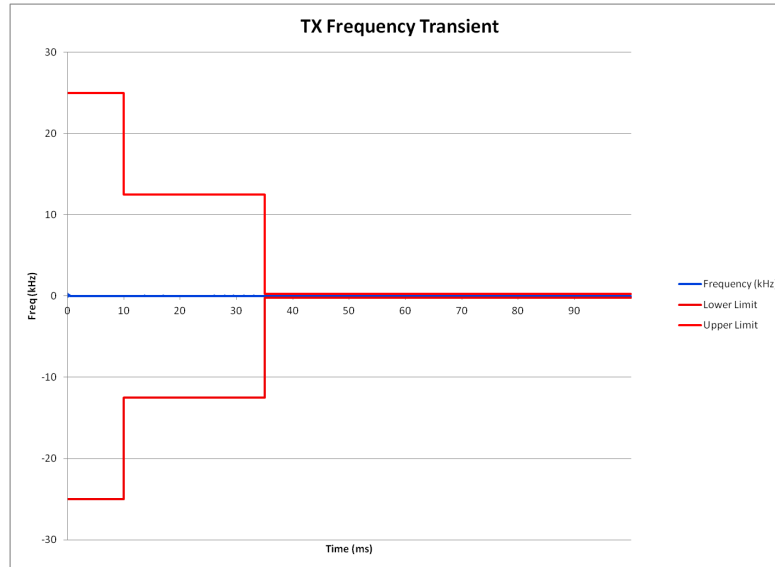


E1-9.4 Frequency Transient Behavior, 25 kHz Channel Key-Up, 450.0125 MHz

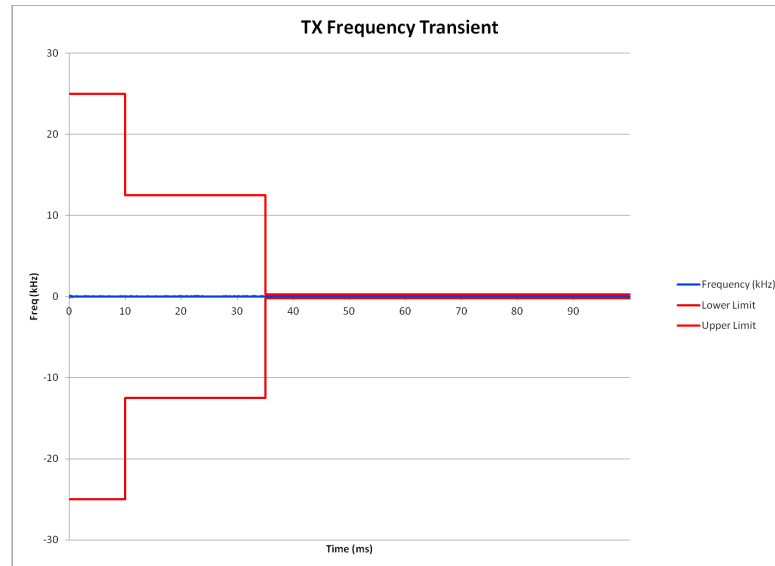


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E1-9.5 Frequency Transient Behavior, 25 kHz Channel Key-Up, 460.0125 MHz

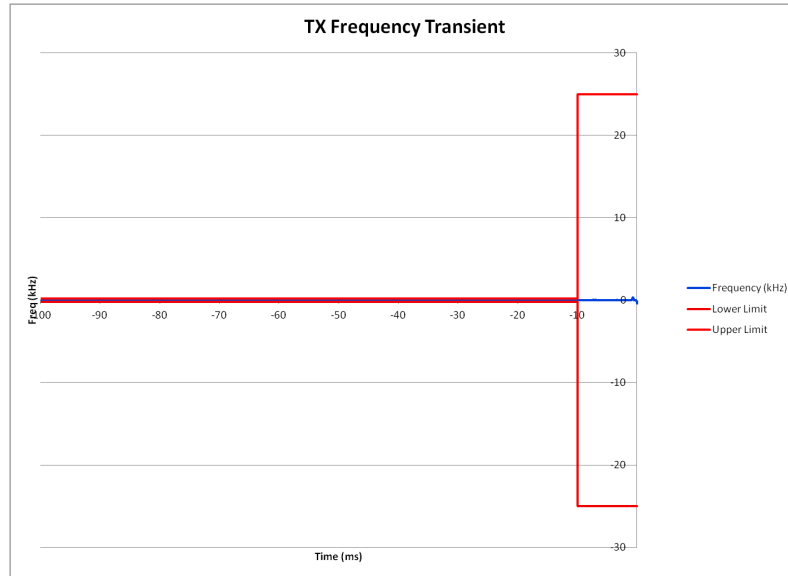


E1-9.6 Frequency Transient Behavior, 25 kHz Channel Key-Up, 469.9875 MHz

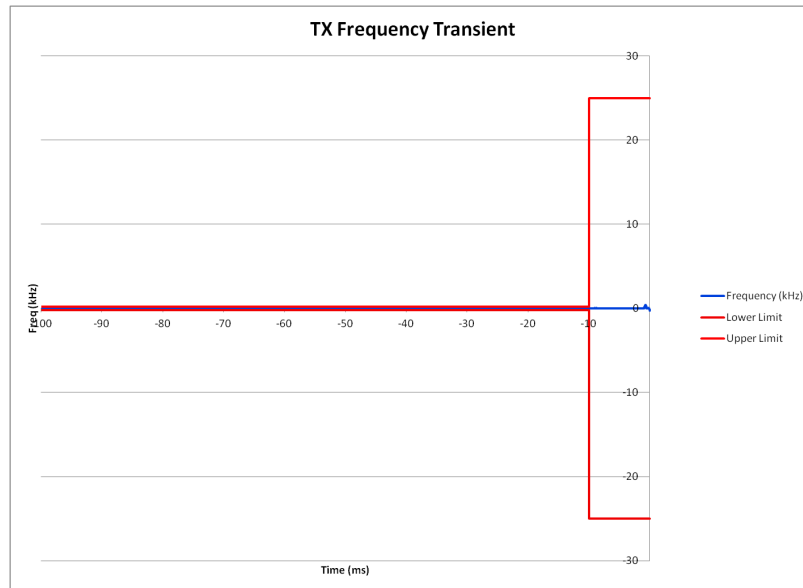


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E1-9.7 Frequency Transient Behavior, 25 kHz Channel De-Key, 406.1125 MHz

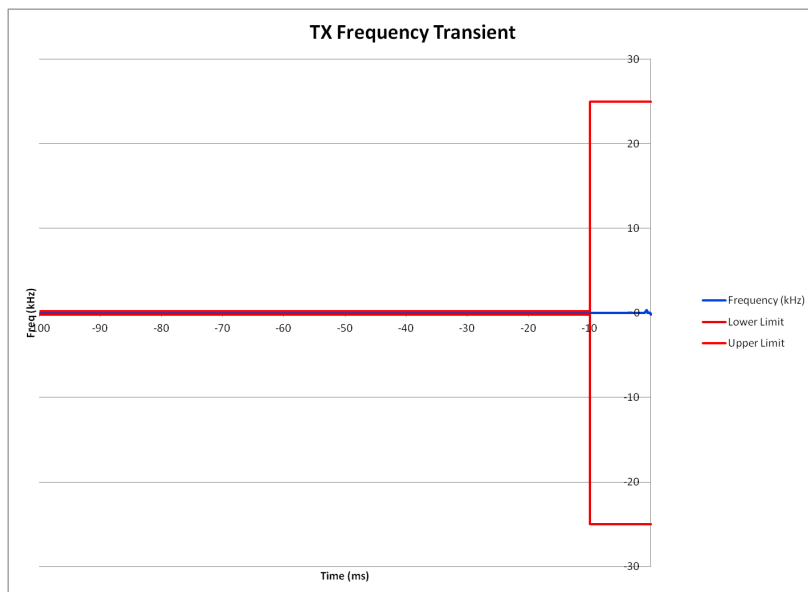


E1-9.8 Frequency Transient Behavior, 25 kHz Channel De-Key, 420.0125 MHz

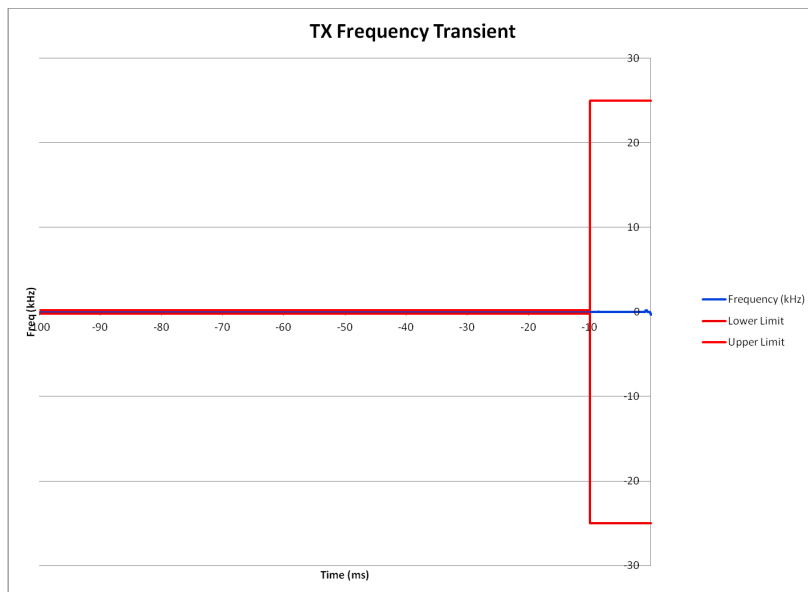


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E1-9.9 Frequency Transient Behavior, 25 kHz Channel De-Key, 429.9875 MHz

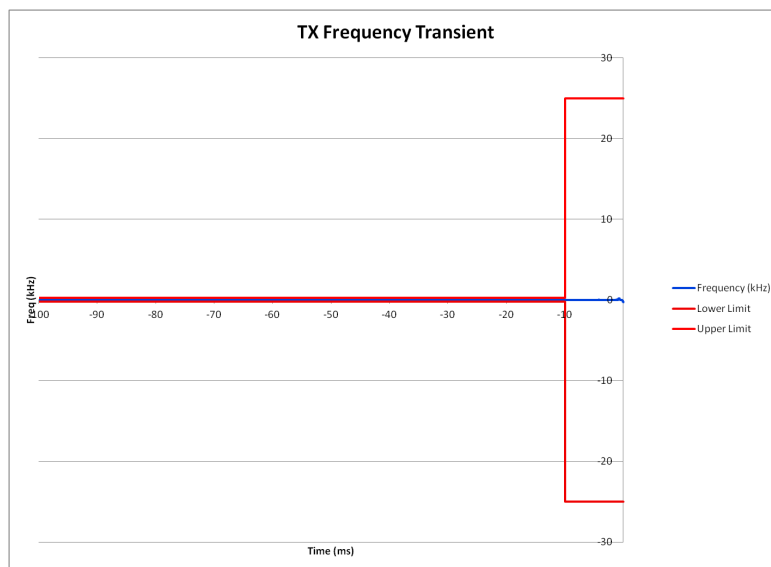


E1-9.10 Frequency Transient Behavior, 25 kHz Channel De-Key, 450.0125 MHz

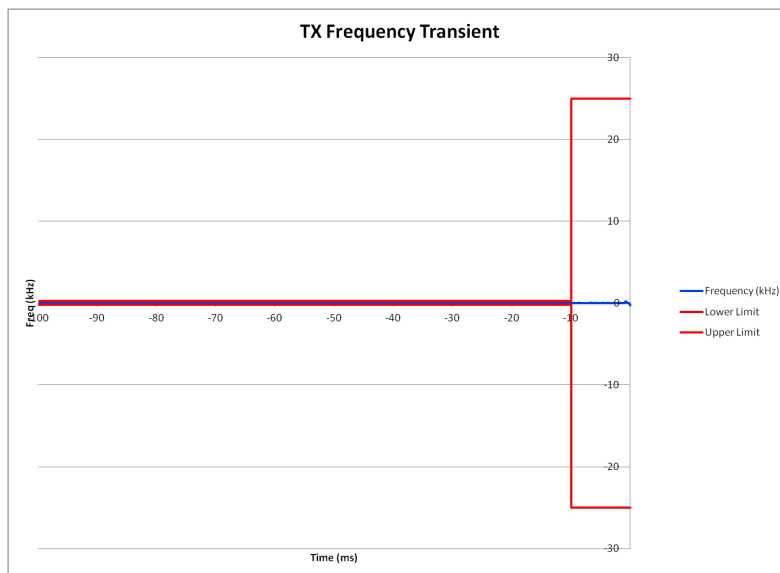


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E1-9.11 Frequency Transient Behavior, 25 kHz Channel De-Key, 460.0125 MHz

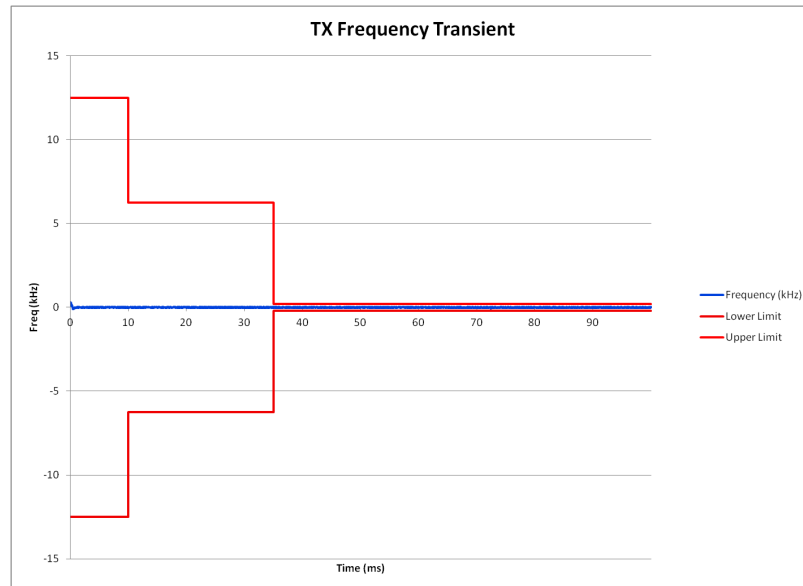


E1-9.12 Frequency Transient Behavior, 25 kHz Channel De-Key, 469.9875 MHz

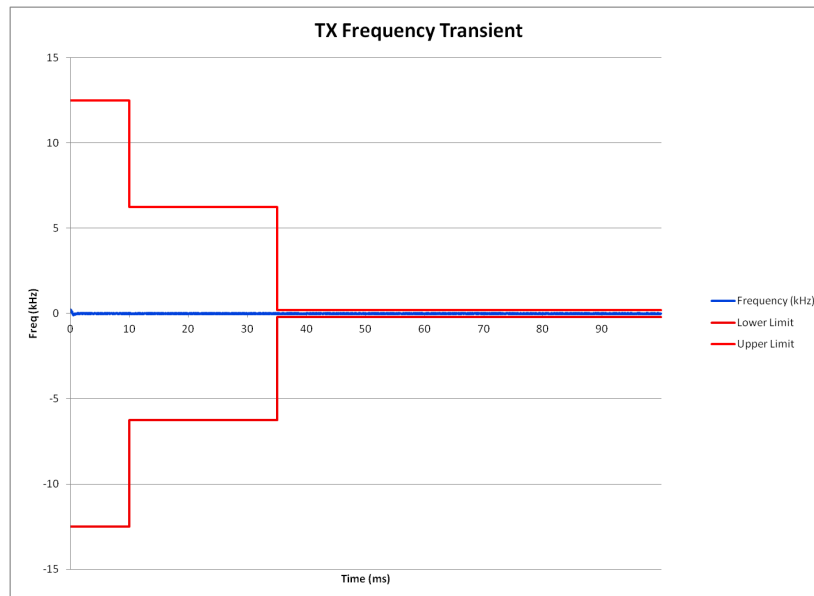


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E1-9.13 Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 406.1125 MHz

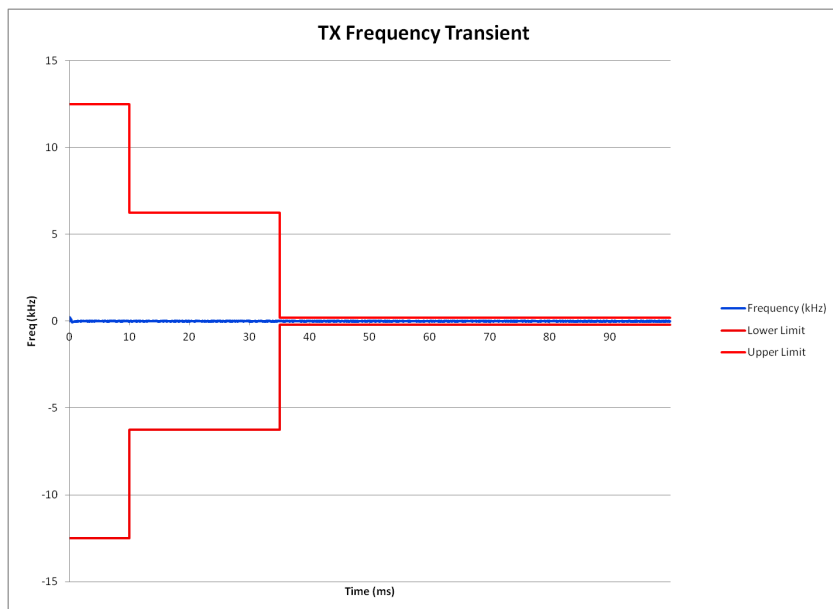


E1-9.14 Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 420.0125 MHz

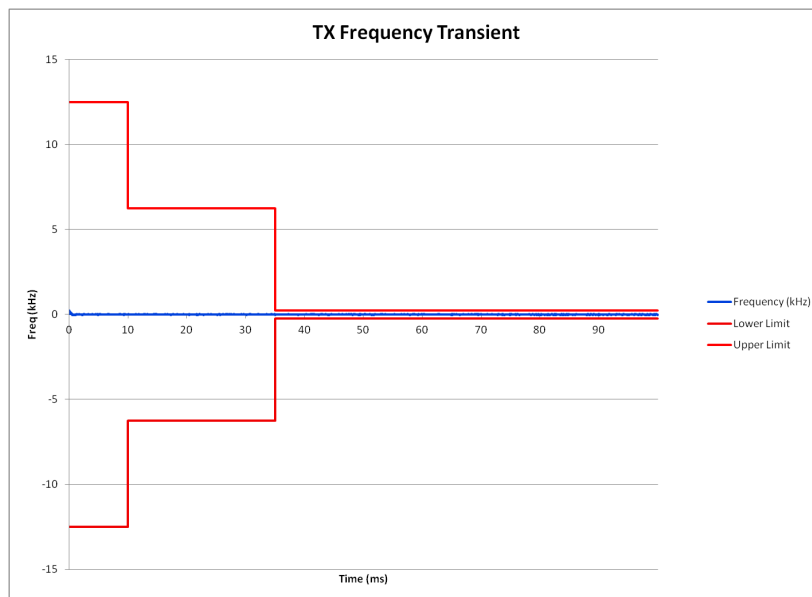


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E1-9.15 Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 429.9875 MHz

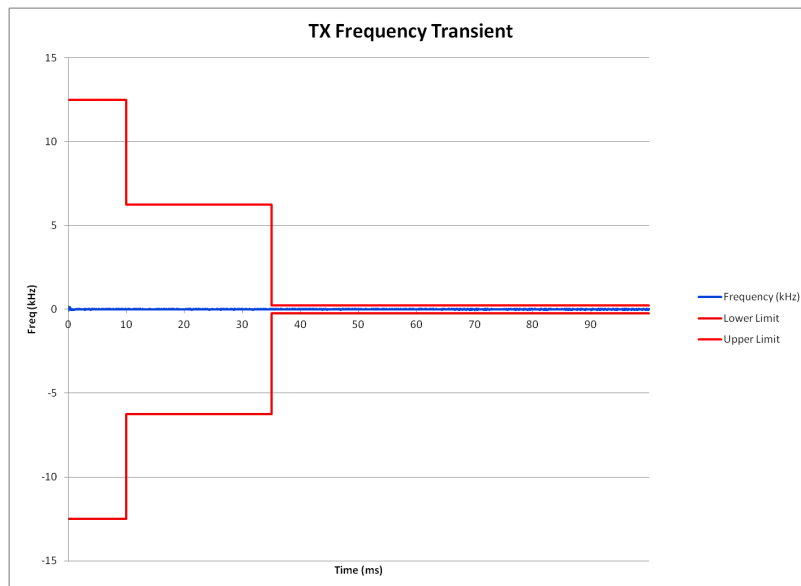


E1-9.16 Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 450.0125 MHz

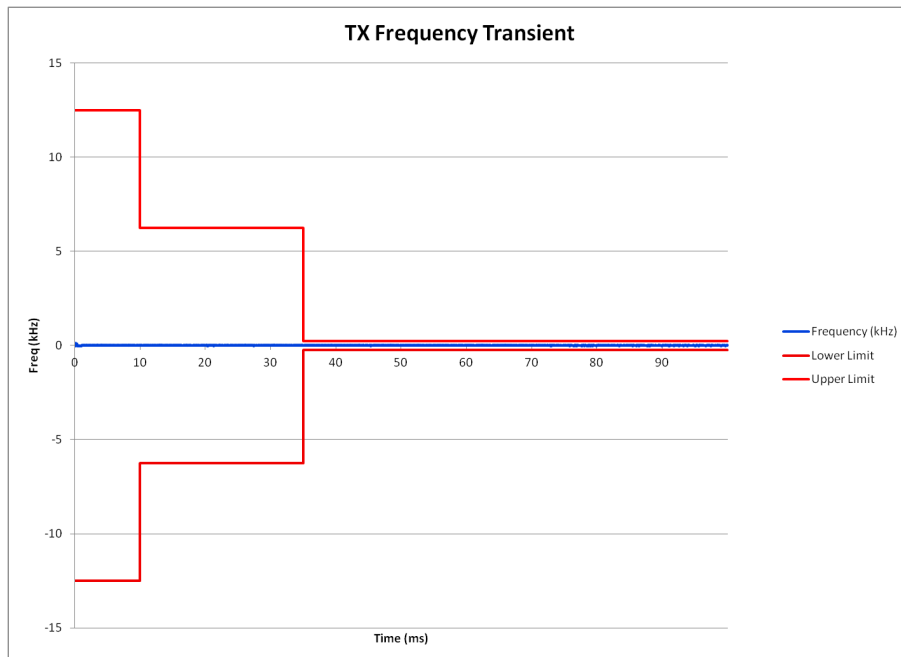


Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-9.17 Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 460.0125 MHz

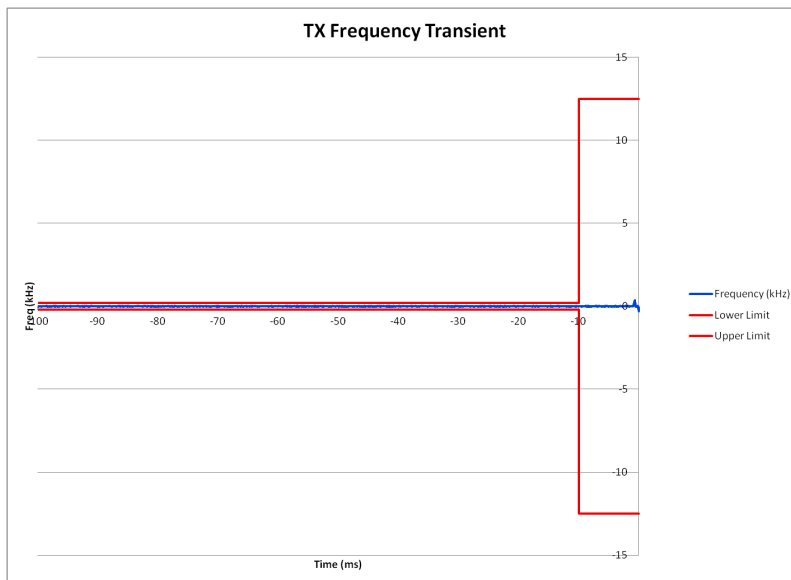


E1-9.18 Frequency Transient Behavior, 12.5 kHz Channel Key-Up, 469.9875 MHz

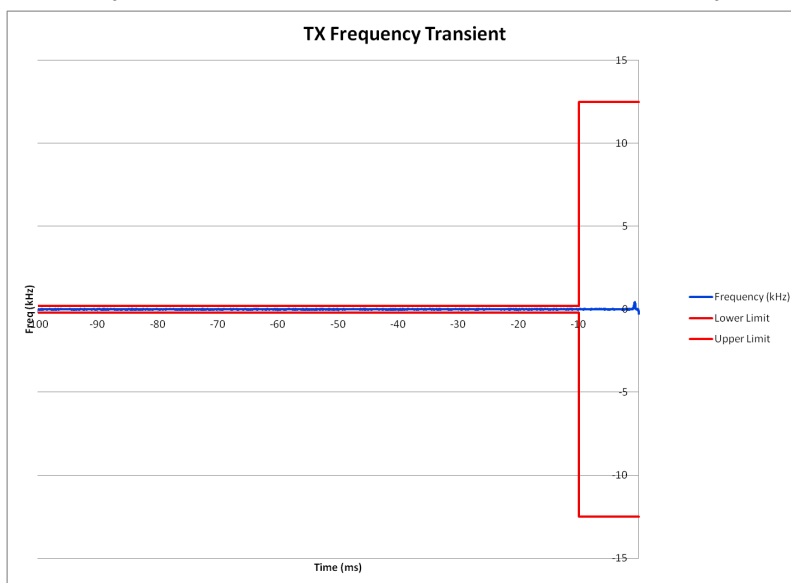


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E1-9.19 Frequency Transient Behavior, 12.5 kHz Channel De-key, 406.1125 MHz

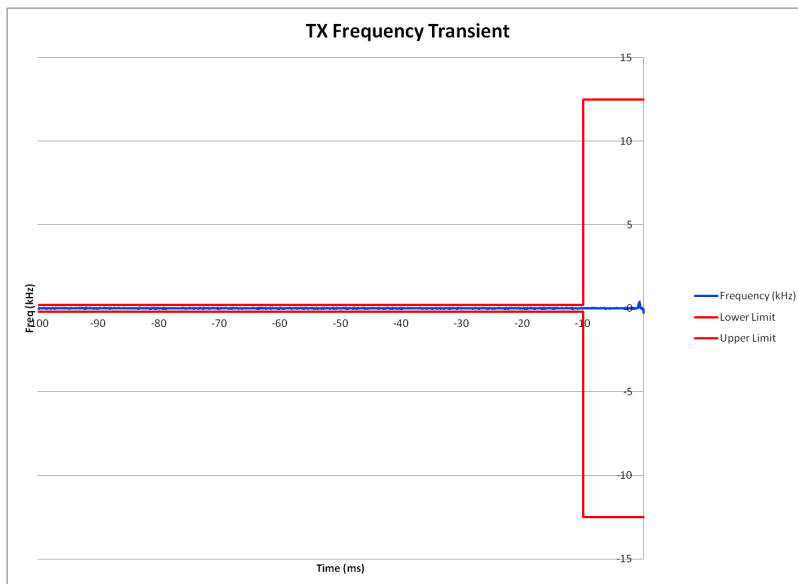


E1-9.20 Frequency Transient Behavior, 12.5 kHz Channel De-key, 420.0125 MHz

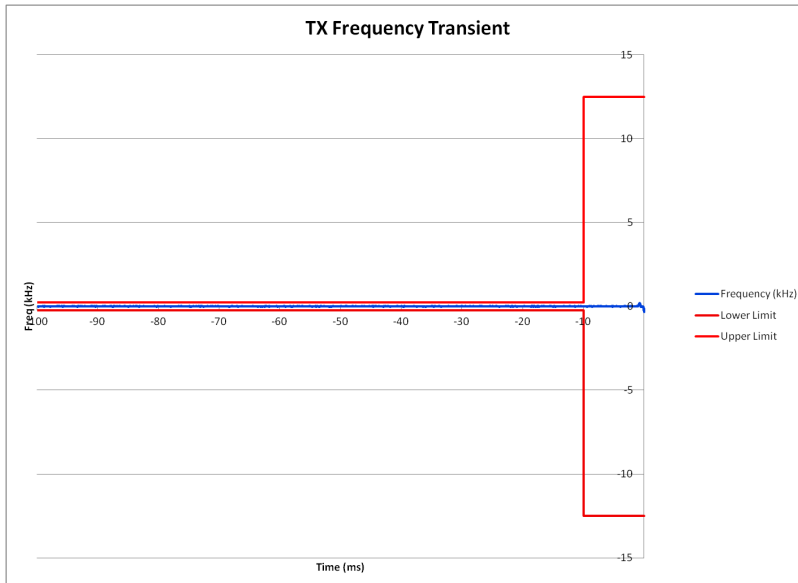


Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-9.21 Frequency Transient Behavior, 12.5 kHz Channel De-key, 429.9875 MHz

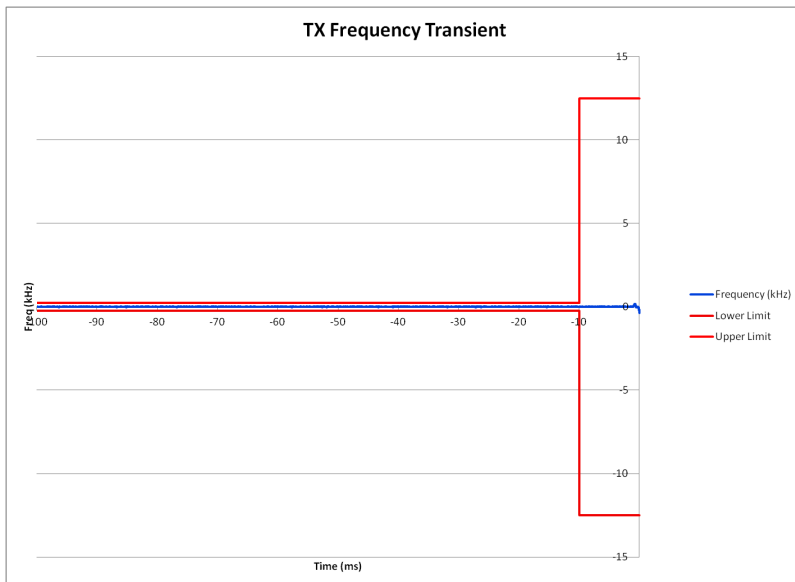


E1-9.22 Frequency Transient Behavior, 12.5 kHz Channel De-key, 450.0125 MHz

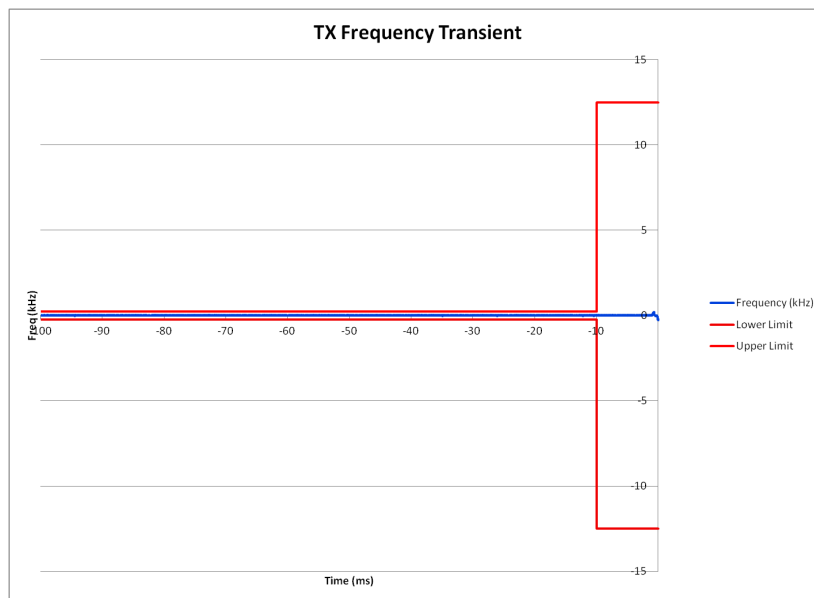


Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-9.23 Frequency Transient Behavior, 12.5 kHz Channel De-key, 460.0125 MHz



E1-9.24 Frequency Transient Behavior, 12.5 kHz Channel De-key, 469.9875 MHz



Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-10 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

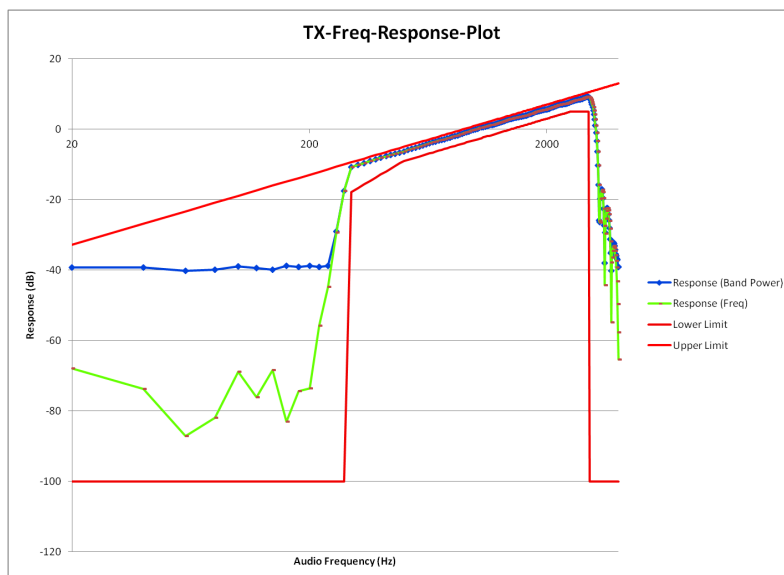
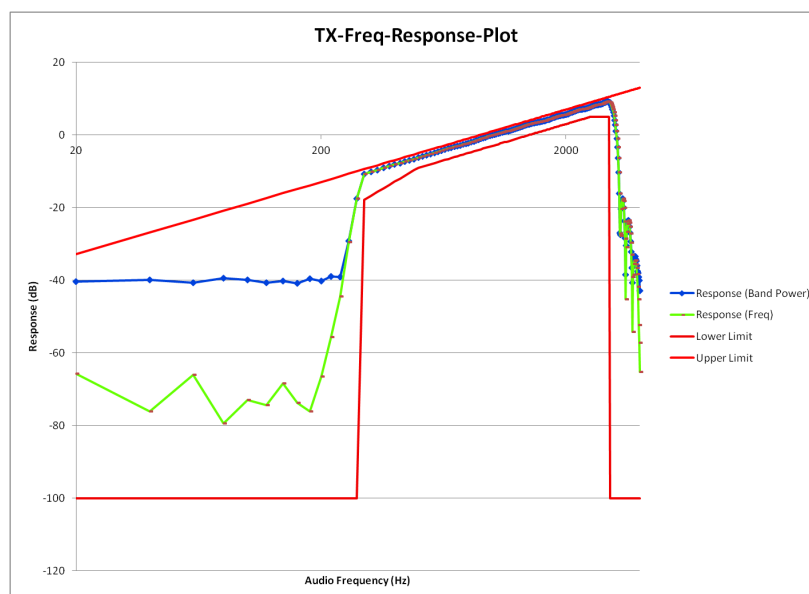
Carrier Frequency: Performance was measured at carrier frequencies at the low end, middle, and high end of the operating band..

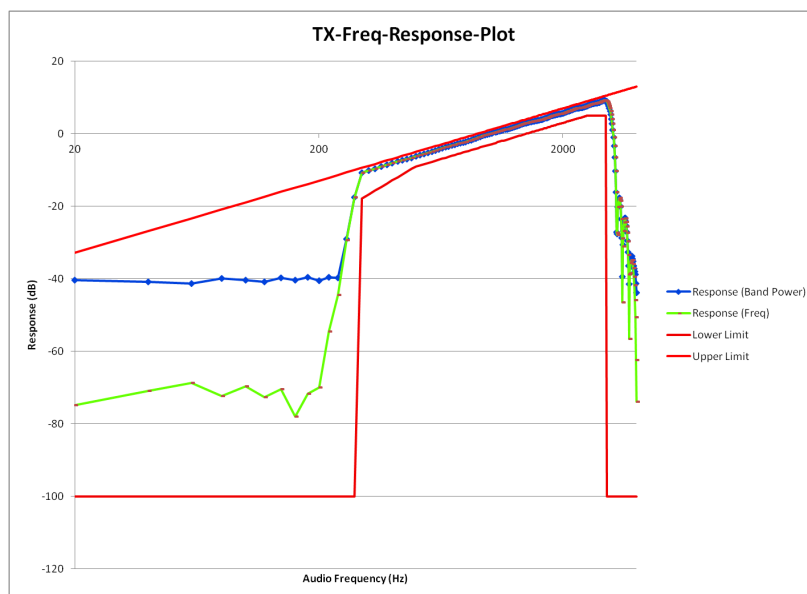
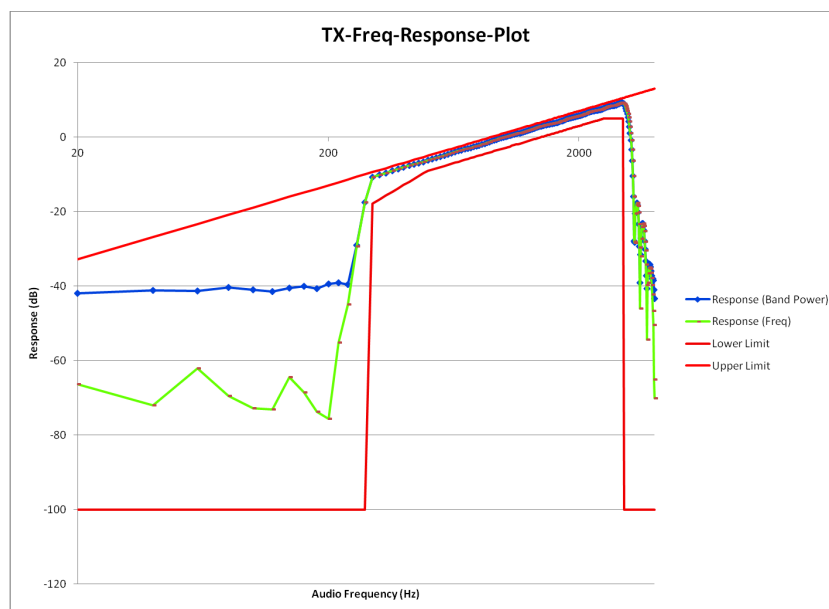
Specification: The specification limit is shown on the response plots

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
E1-10.1	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 406.1125 MHz
E1-10.2	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 420.0125 MHz
E1-10.3	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 429.9875 MHz
E1-10.4	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 450.0125 MHz
E1-10.5	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 460.0125 MHz
E1-10.6	Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 469.9875 MHz

Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

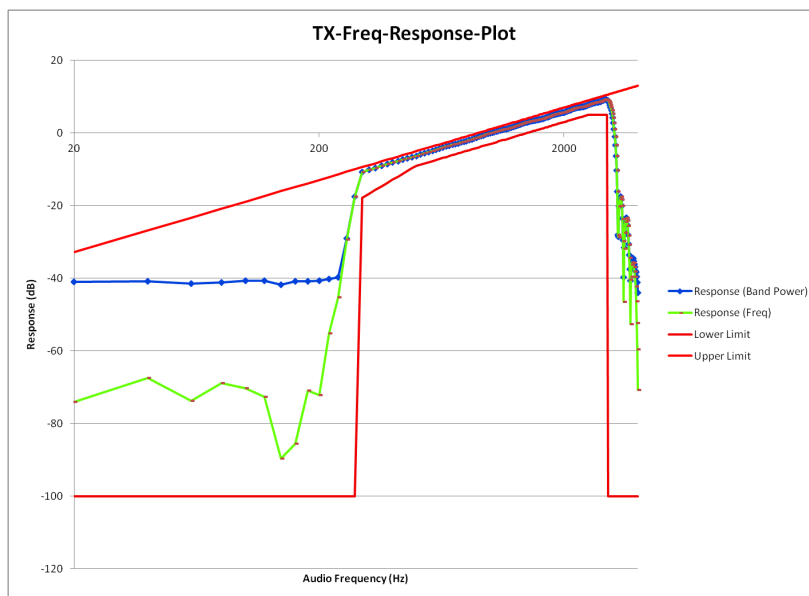
E1-10.7	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 406.1125 MHz
E1-10.8	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 420.0125 MHz
E1-10.9	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 429.9875 MHz
E1-10.10	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 450.0125 MHz
E1-10.11	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 460.0125 MHz
E1-10.12	Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 469.9875 MHz

Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.**E1-10.1 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 406.1125 MHz****E1-10.2 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 420.0125 MHz**

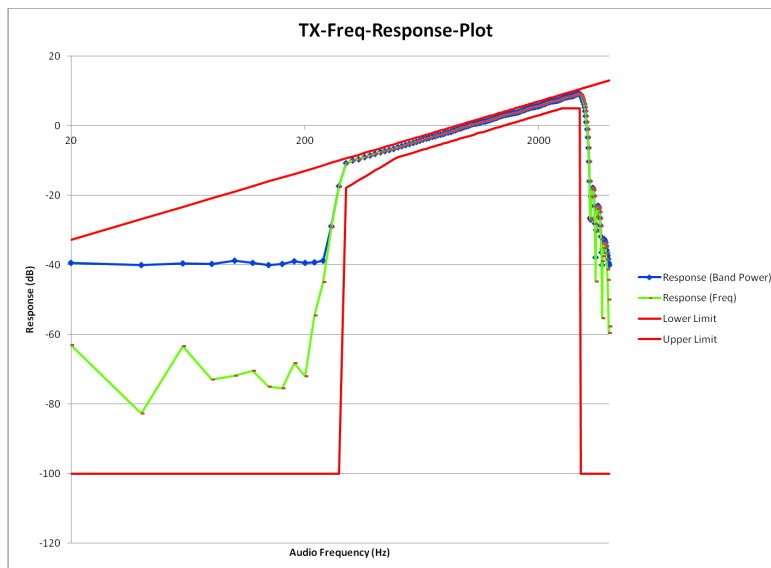
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.**E1-10.3 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 429.9875 MHz****E1-10.4 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 450.0125 MHz**

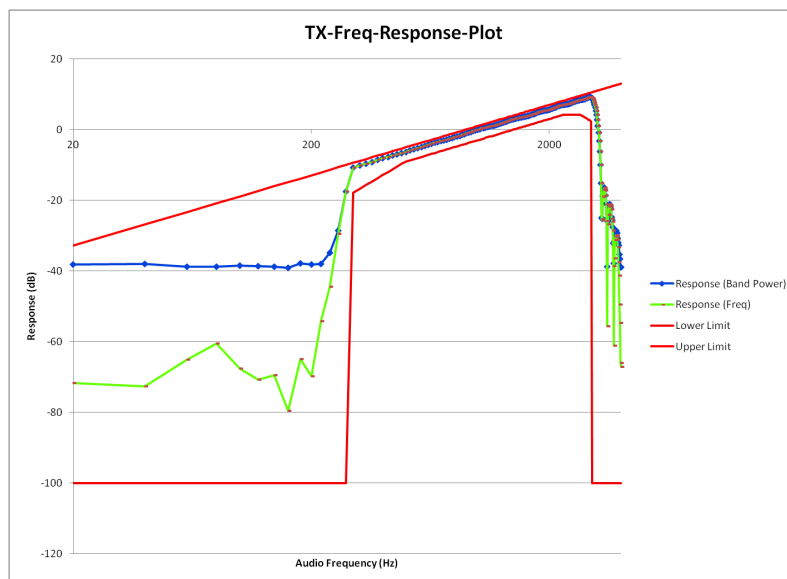
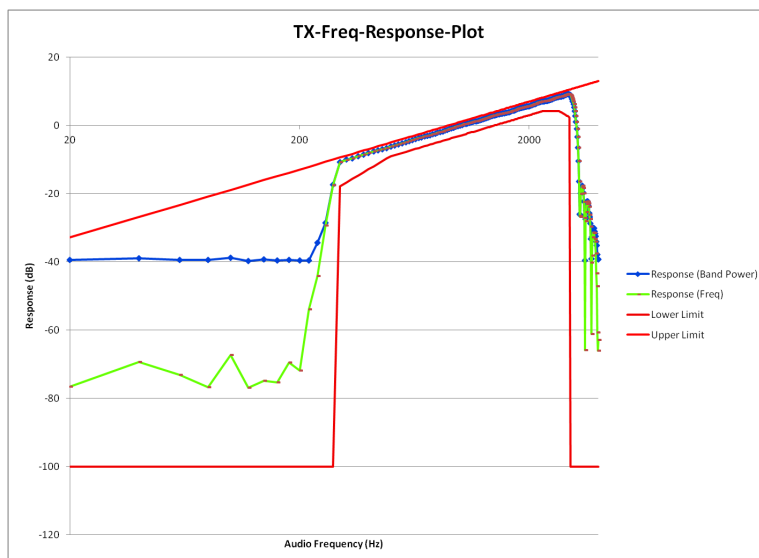
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

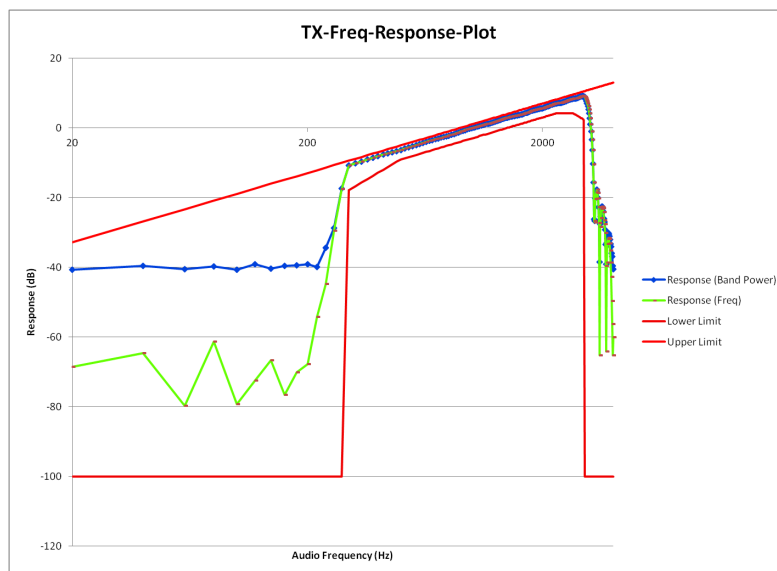
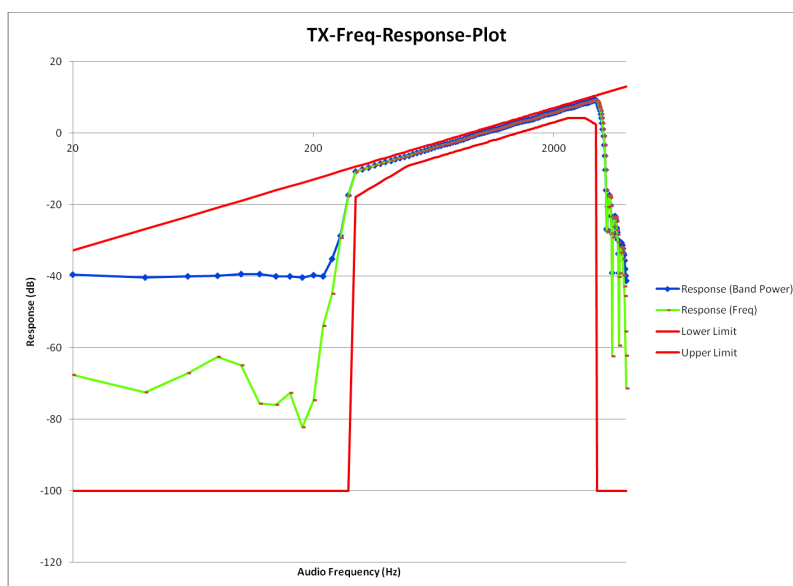
E1-10.5 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 460.0125 MHz



E1-10.6 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 469.9875 MHz

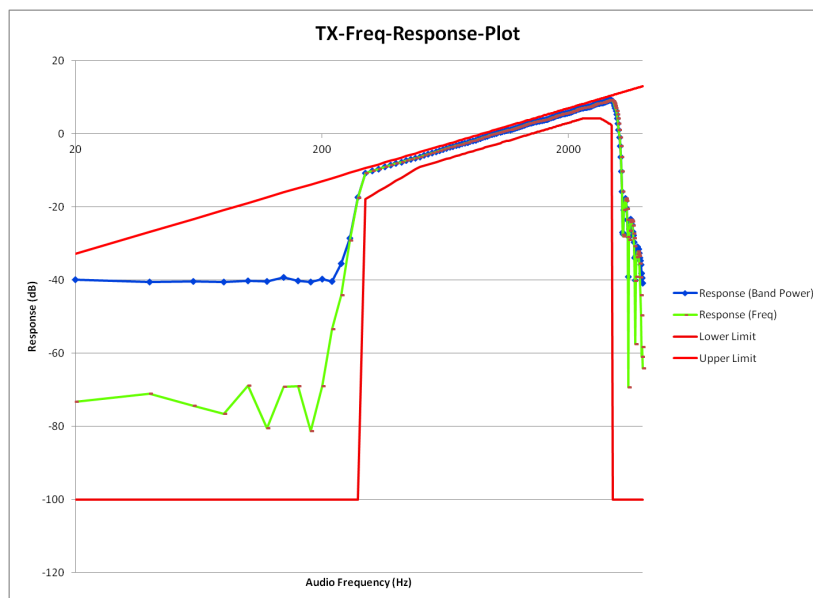


Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.**E1-10.7 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 406.1125 MHz****E1-10.8 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 420.0125 MHz**

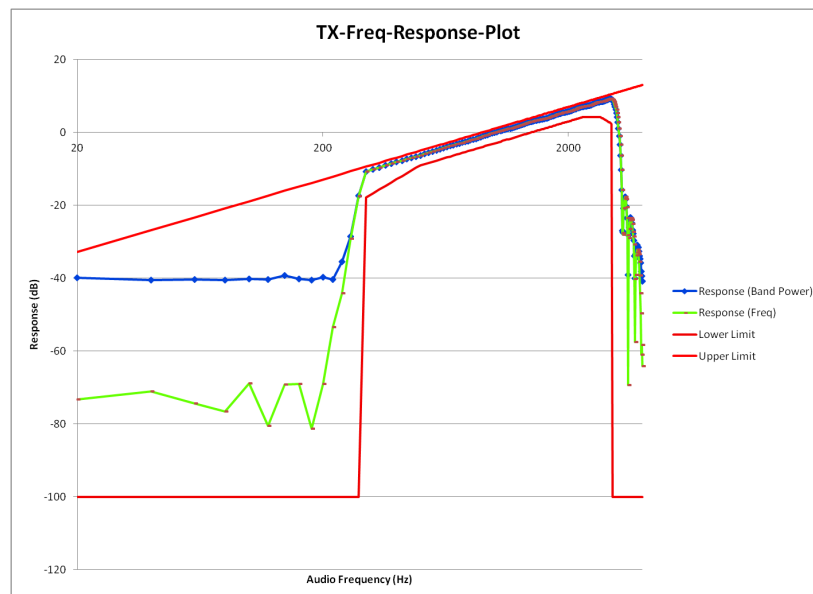
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.**E1-10.9 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 429.9875 MHz****E1-10.10 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 450.0125 MHz**

Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-10.11 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 460.0125 MHz



E1-10.12 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 469.9875 MHz



Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.**E1-11 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. Performance was measured at carrier frequencies at the low end, middle,

Modulation Limiting Response Plots:

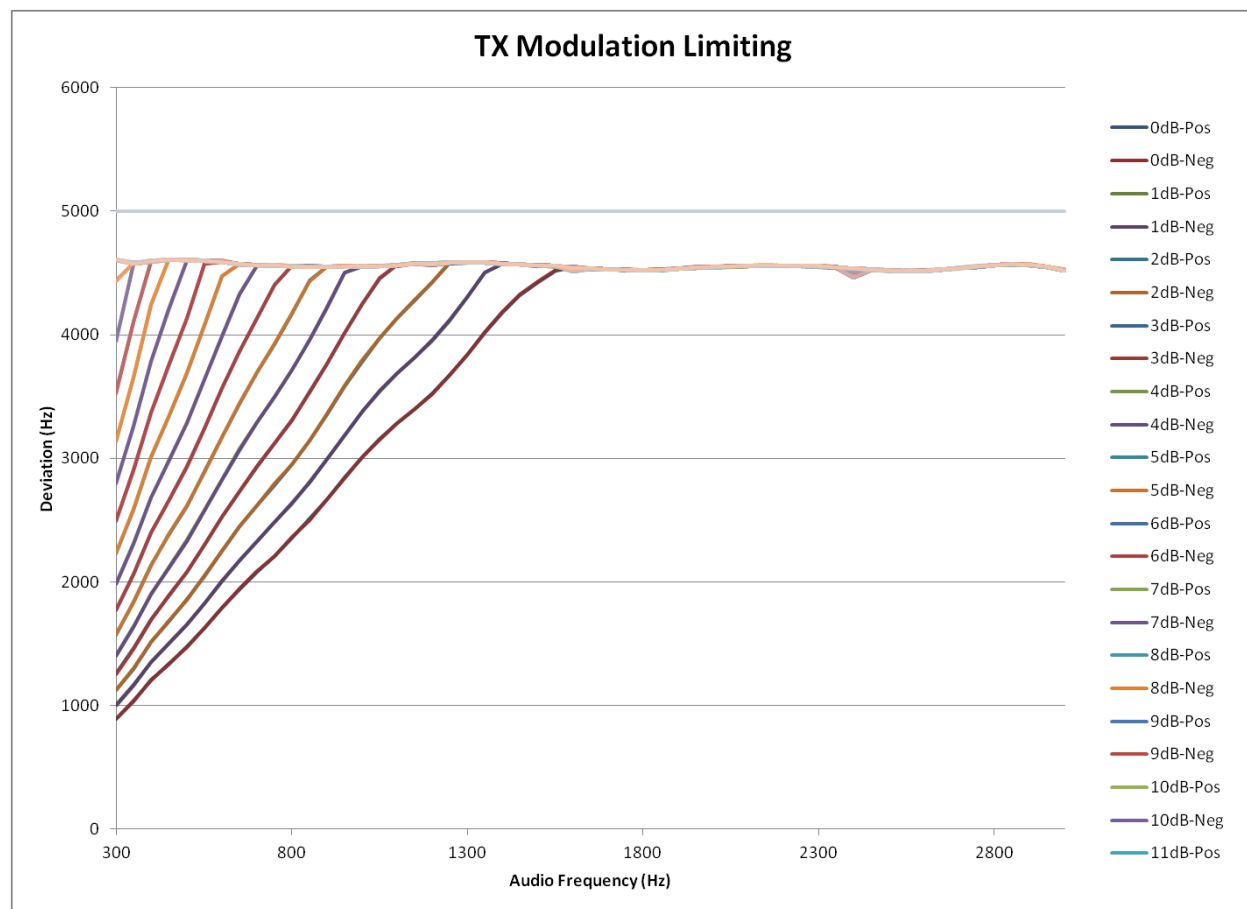
EXHIBIT	DESCRIPTION
E1-11.1	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 406.1125 MHz
E1-11.2	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 420.0125 MHz
E1-11.3	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 429.9875 MHz
E1-11.4	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 450.0125 MHz
E1-11.5	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 460.0125 MHz

Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.6	Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 469.9875 MHz
E1-11.7	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 406.1125 MHz
E1-11.8	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 420.0125 MHz
E1-11.9	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 429.9875 MHz
E1-11.10	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 450.0125 MHz
E1-11.11	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 460.0125 MHz
E1-11.12	Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 469.9875 MHz

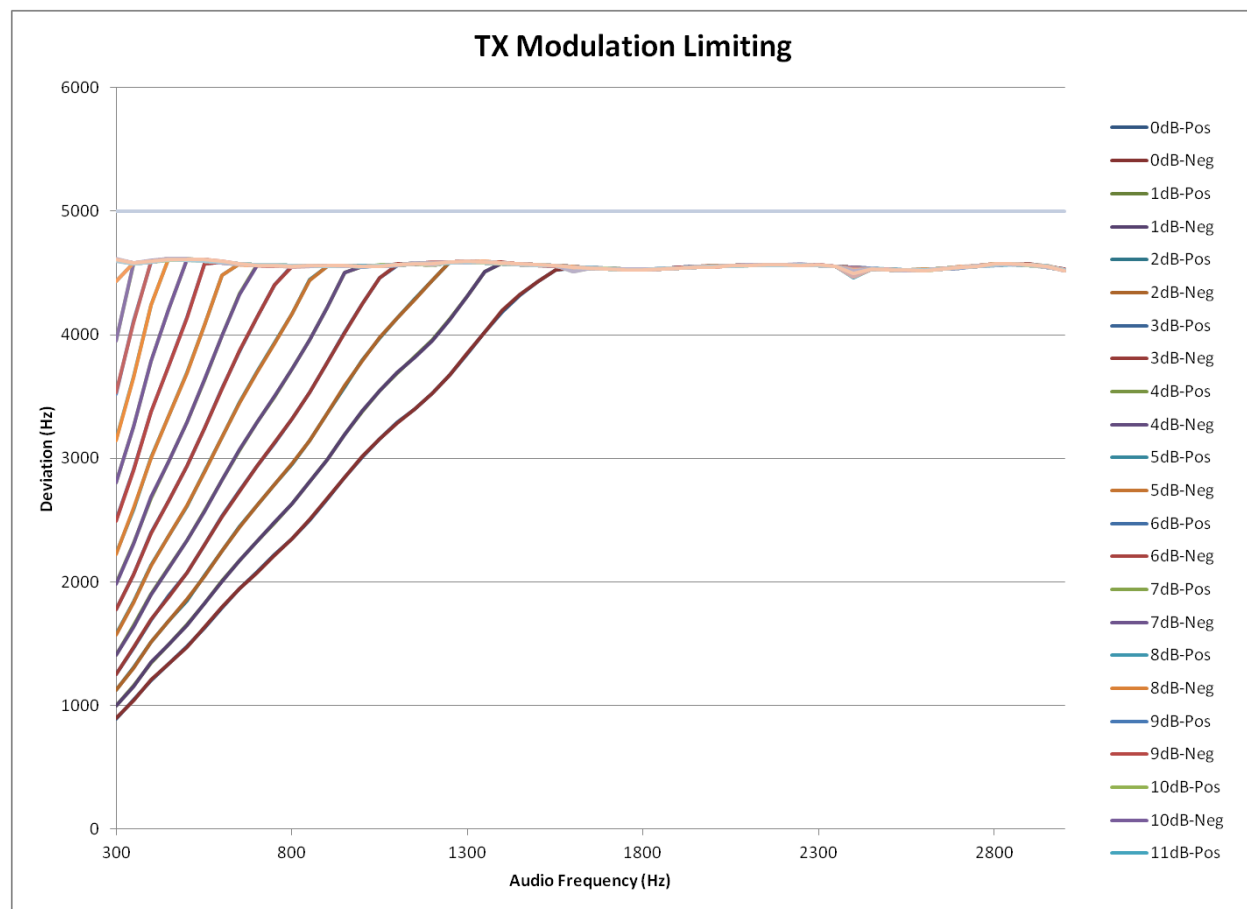
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

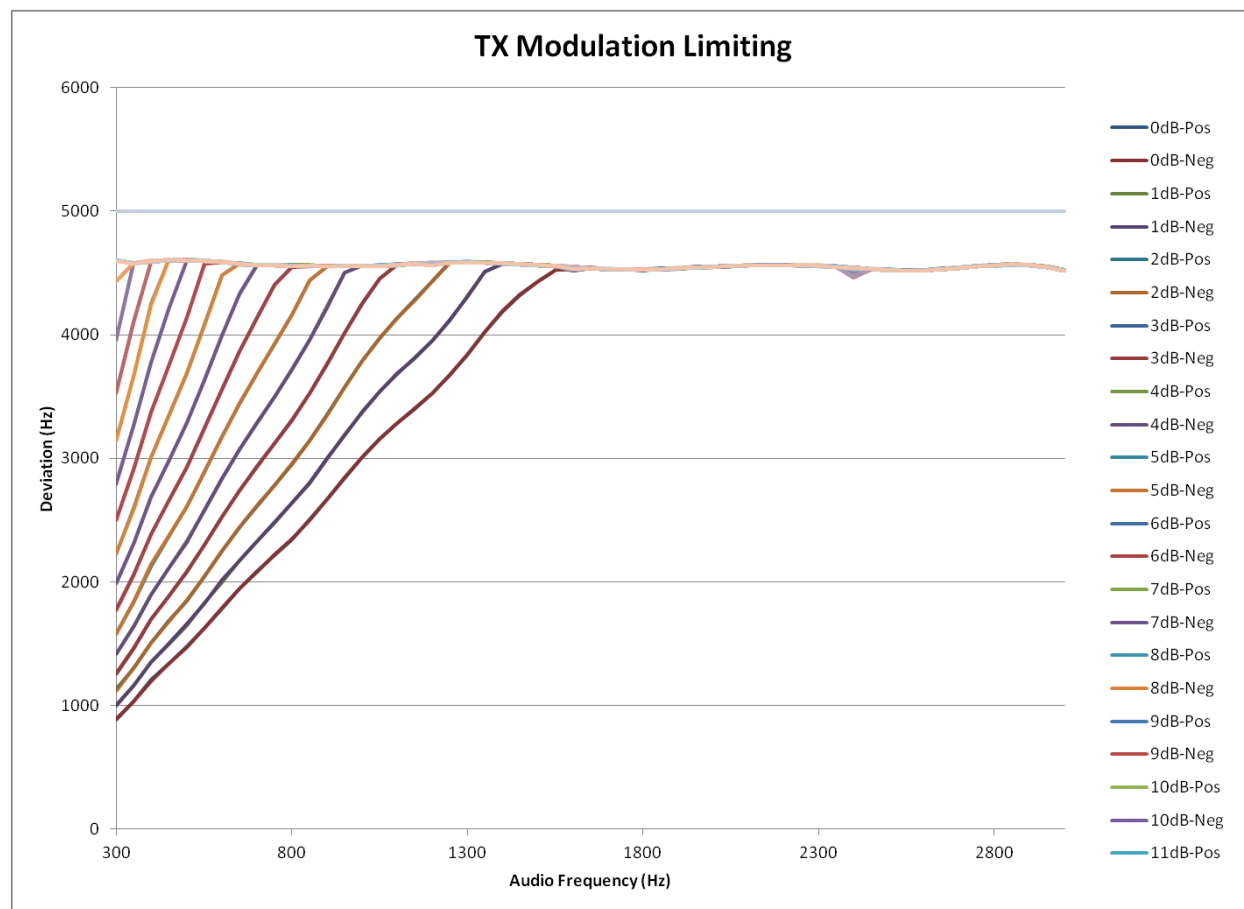
E1-11.1 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 406.1125 MHz



Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

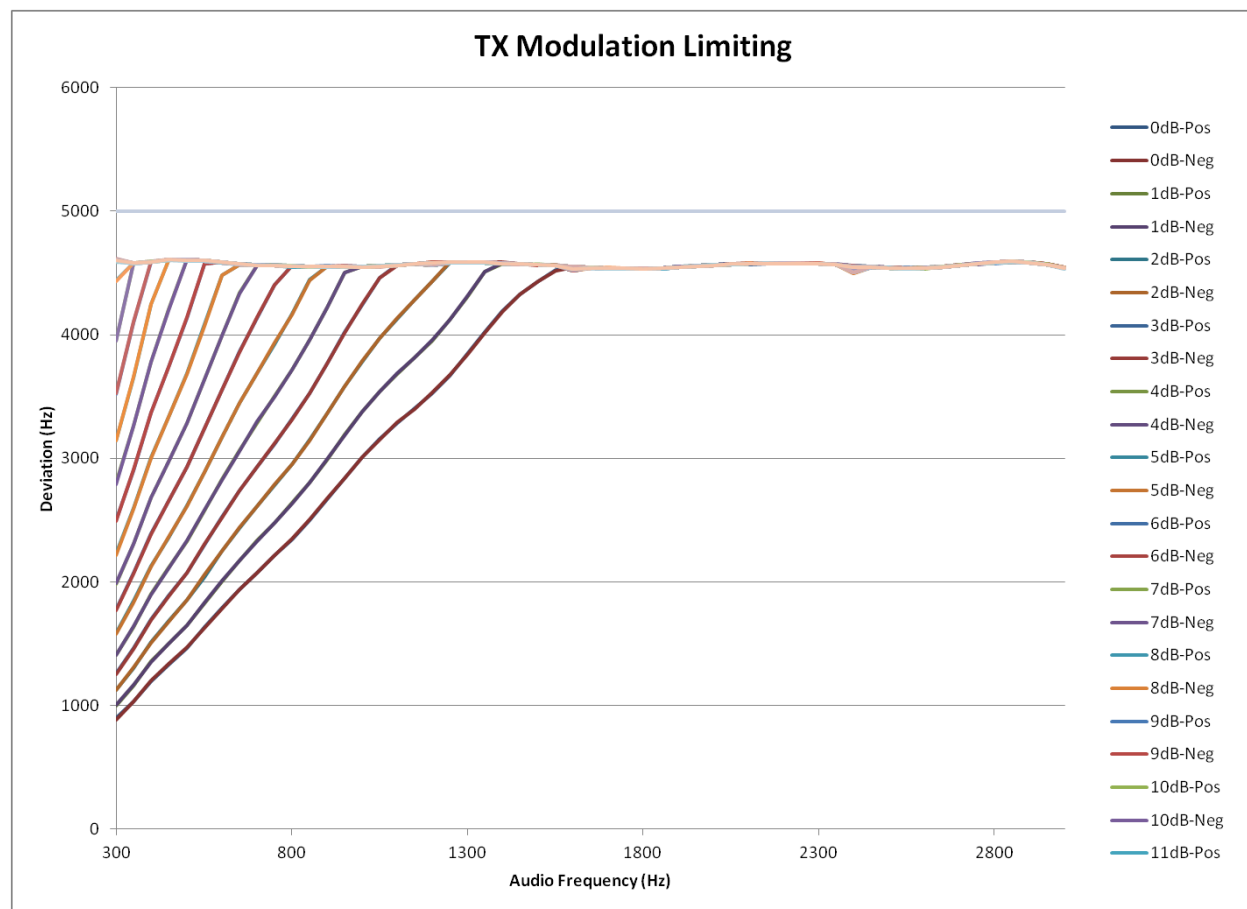
E1-11.2 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 420.0125 MHz



Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.**E1-11.3 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 429.9875 MHz**

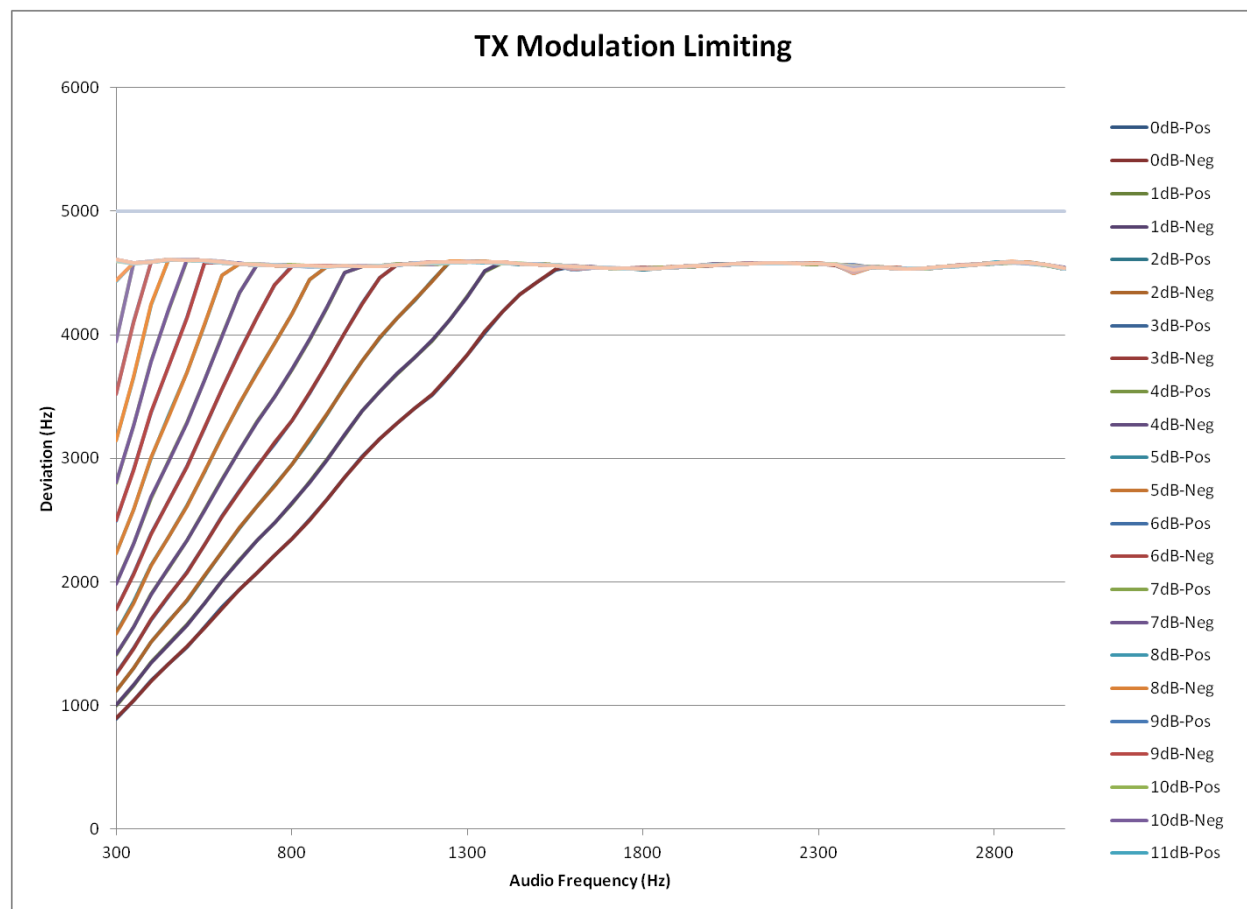
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.4 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 450.0125 MHz



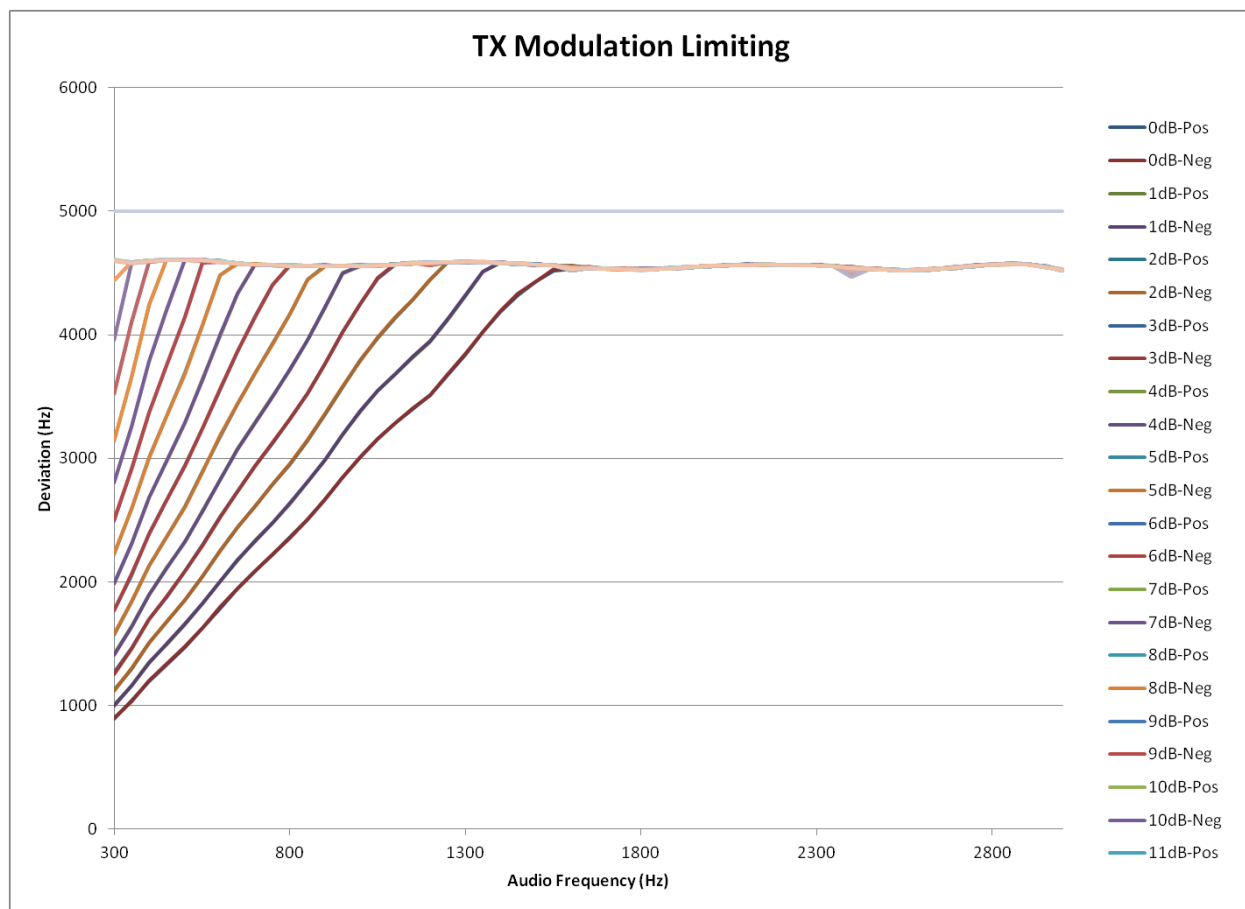
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.5 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 460.0125 MHz



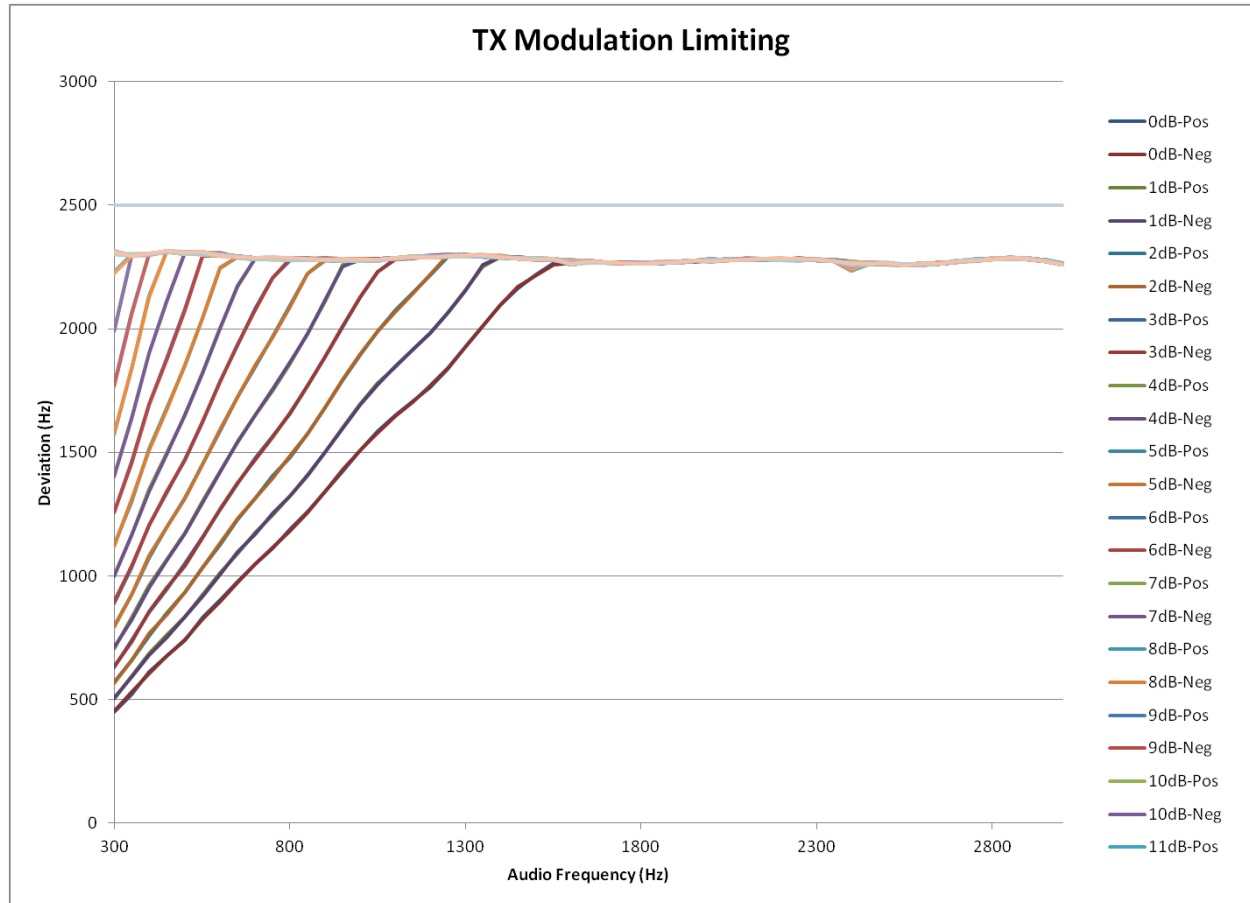
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.6 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 469.9875 MHz



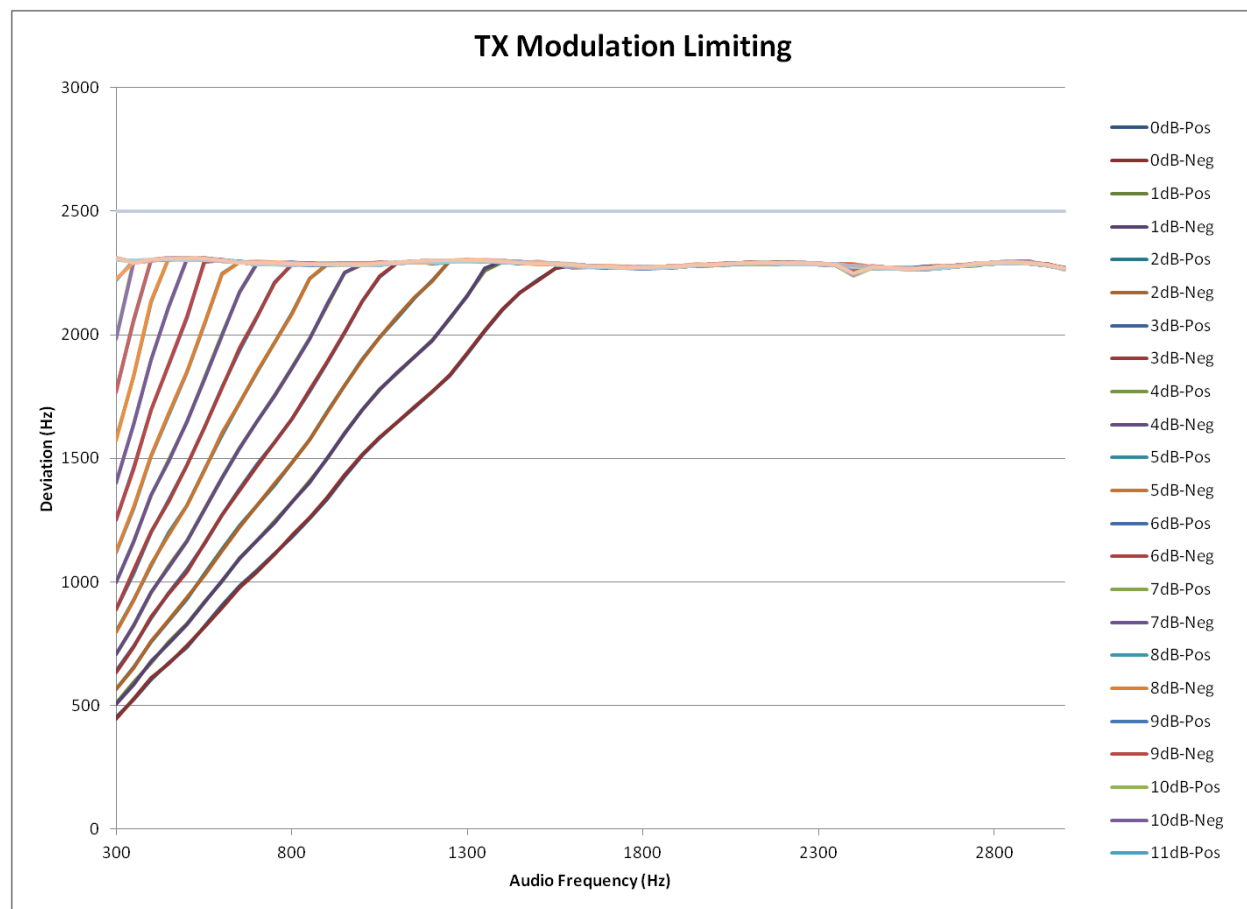
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.7 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 406.1125 MHz



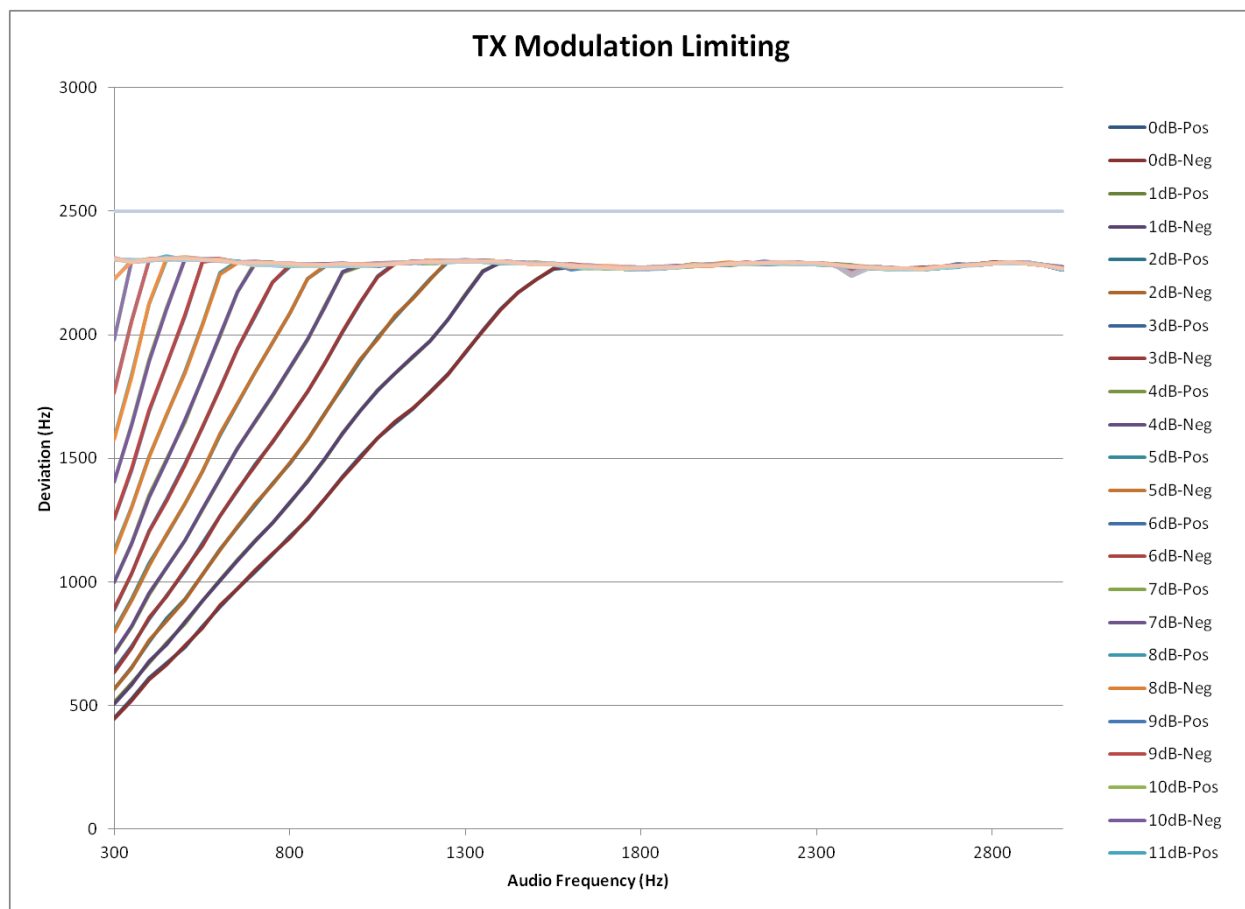
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.8 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 420.0125 MHz



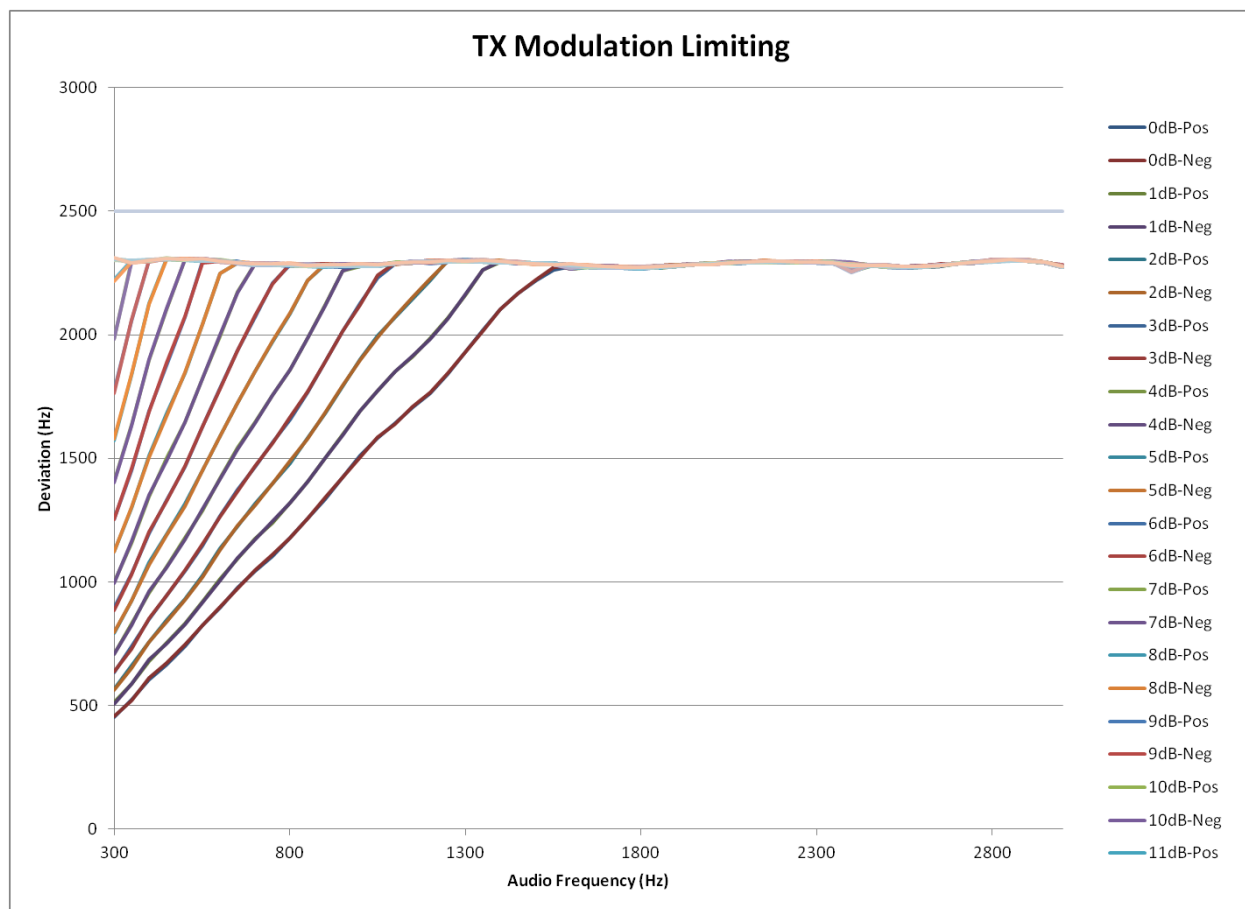
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.9 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 429.9875 MHz



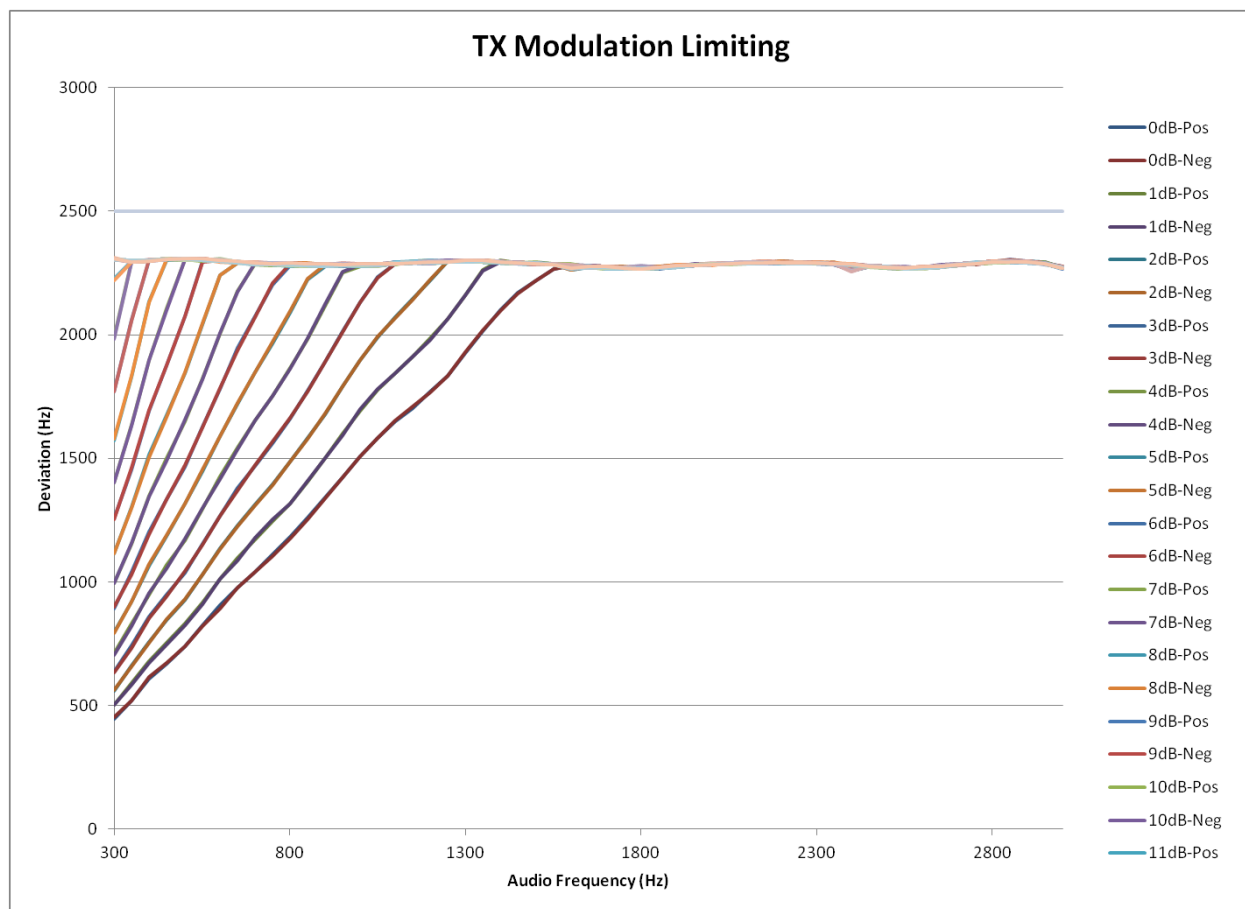
Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.10 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 450.0125 MHz



Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.11 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 460.0125 MHz



Report on Test Measurements for FCC ID ABZ99FT4098, HVIN SLR 8000-UHF1 per FCC 47 CFR 90 and IC RSS-119.

E1-11.12 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 469.9875 MHz

