

APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ99FT3095

109AB-99FT3095

Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF 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 – 136.0125 MHz |
| E1-10.2 | Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 138.0125 MHz |
| E1-10.3 | Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 155.0125 MHz |
| E1-10.4 | Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 173.9875 MHz |
| E1-10.5 | Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 136.0125 MHz |
| E1-10.6 | Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 138.0125 MHz |

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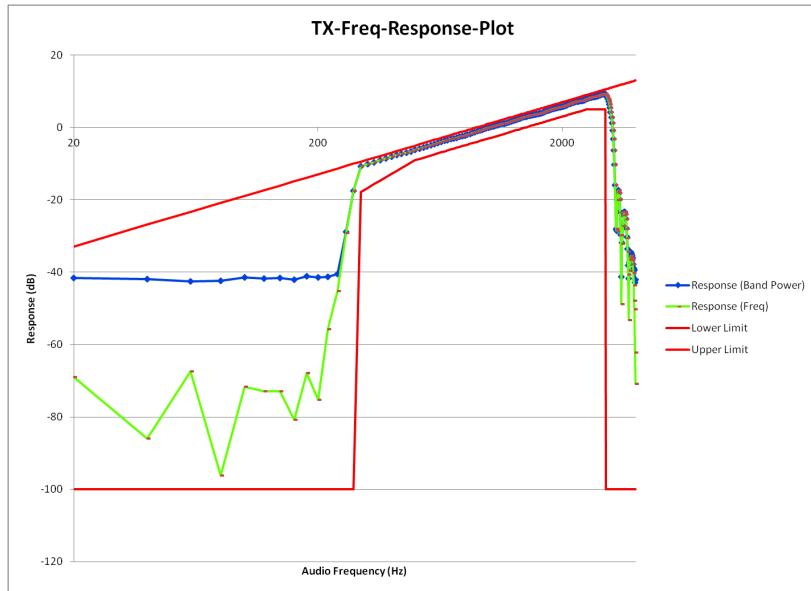
Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

E1-10.7 Audio Frequency Response – Modulation Characteristics, 12.5 kHz
Channels – 155.0125 MHz

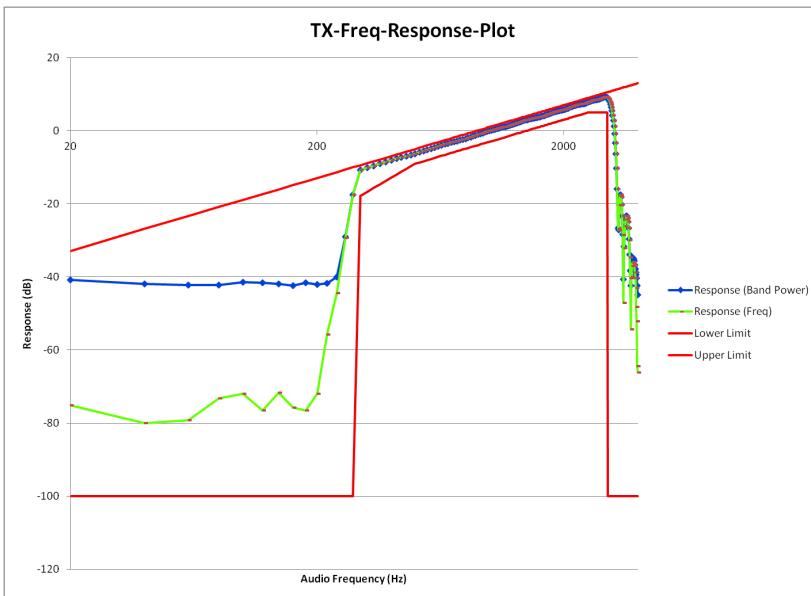
E1-10.8 Audio Frequency Response – Modulation Characteristics, 12.5 kHz
Channels – 173.9875 MHz

Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

E1-10.1 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 136.0125 MHz

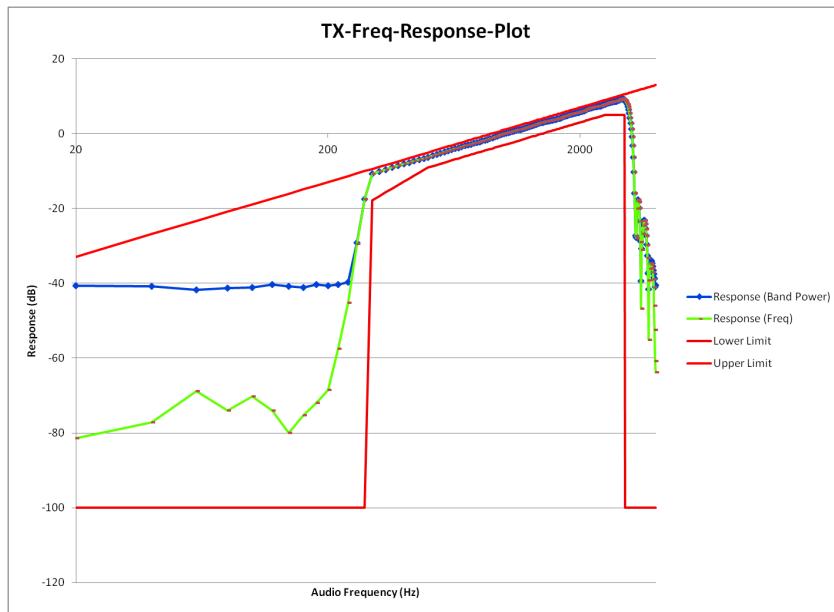


E1-10.2 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 138.0125 MHz

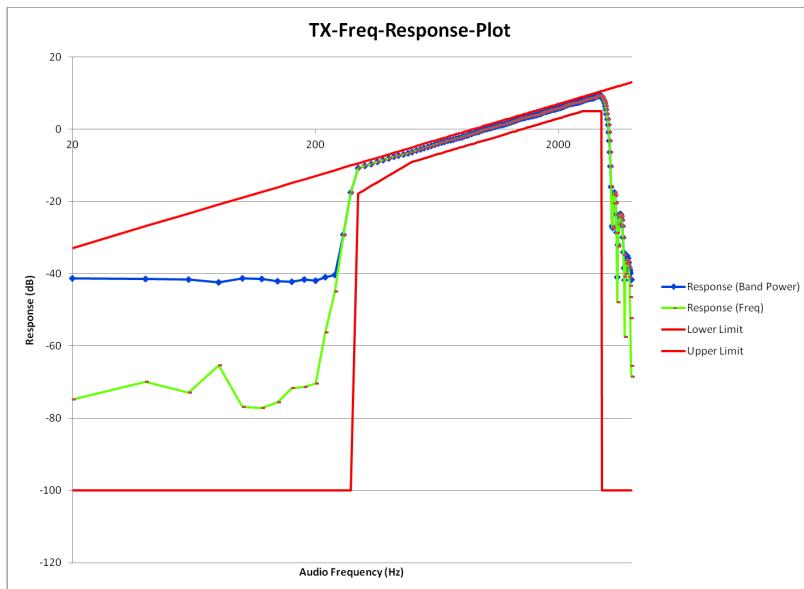


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E1-10.3 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 155.0125 MHz

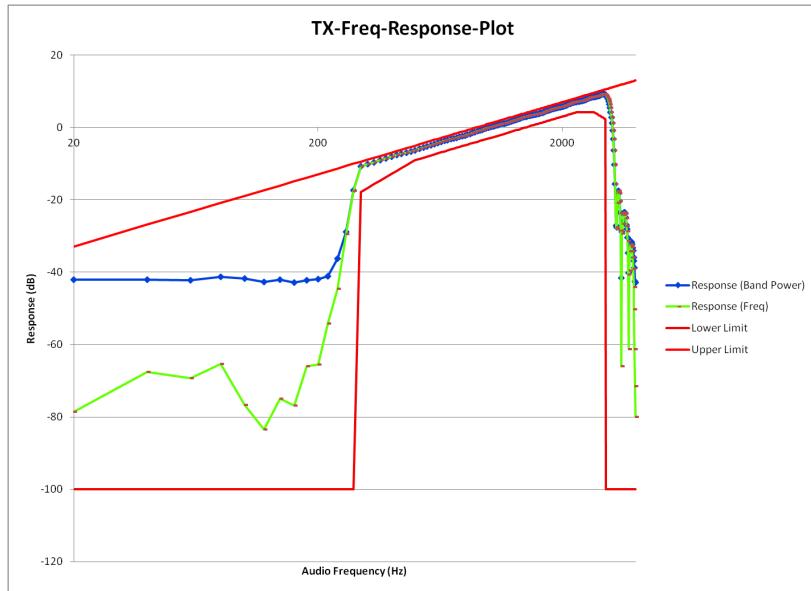


E1-10.4 Audio Frequency Response – Modulation Characteristics, 25 kHz Channels – 173.9875 MHz

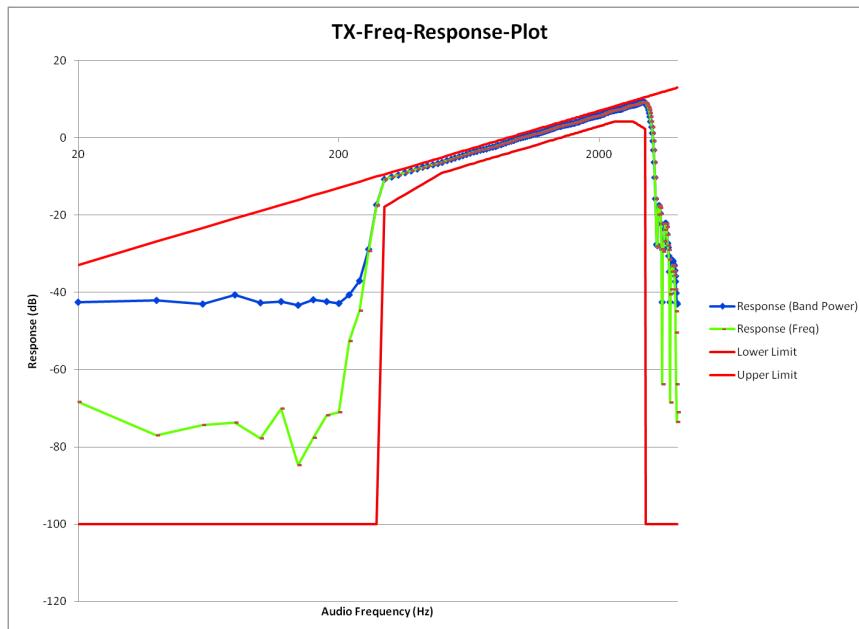


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E1-10.5 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 136.0125 MHz

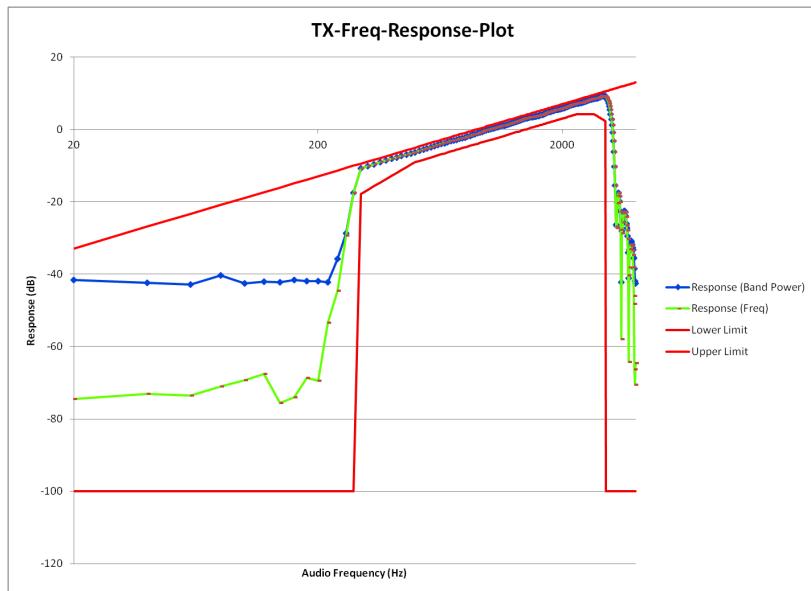


E1-10.6 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 138.0125 MHz

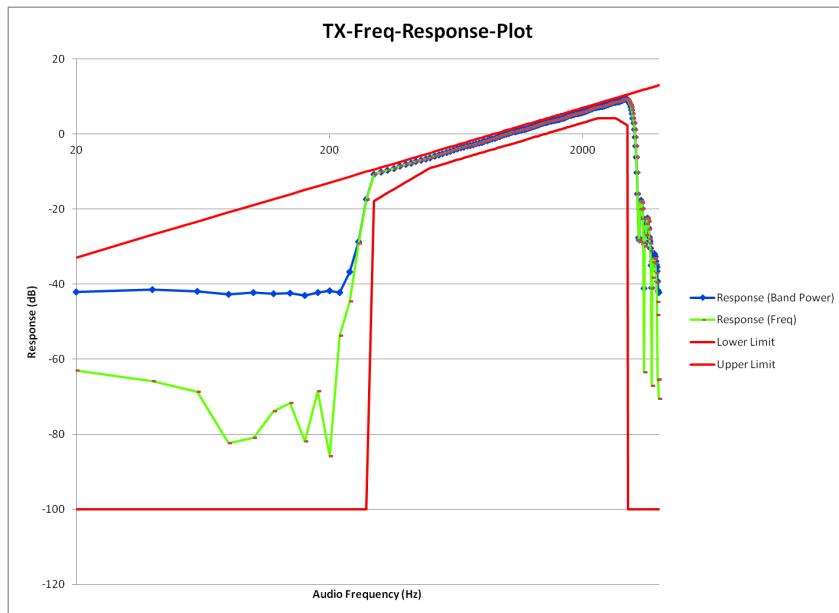


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E1-10.7 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 155.0125 MHz



E1-10.8 Audio Frequency Response – Modulation Characteristics, 12.5 kHz Channels – 173.9875 MHz



**Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47
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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.

Modulation Limiting Response Plots:

| EXHIBIT | DESCRIPTION |
|----------------|--|
| E1-11.1 | Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 136.0125 MHz |
| E1-11.2 | Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 138.0125 MHz |
| E1-11.3 | Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 155.0125 MHz |
| E1-11.4 | Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 173.9875 MHz |
| E1-11.5 | Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 136.0125 MHz |
| E1-11.6 | Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 138.0125 MHz |

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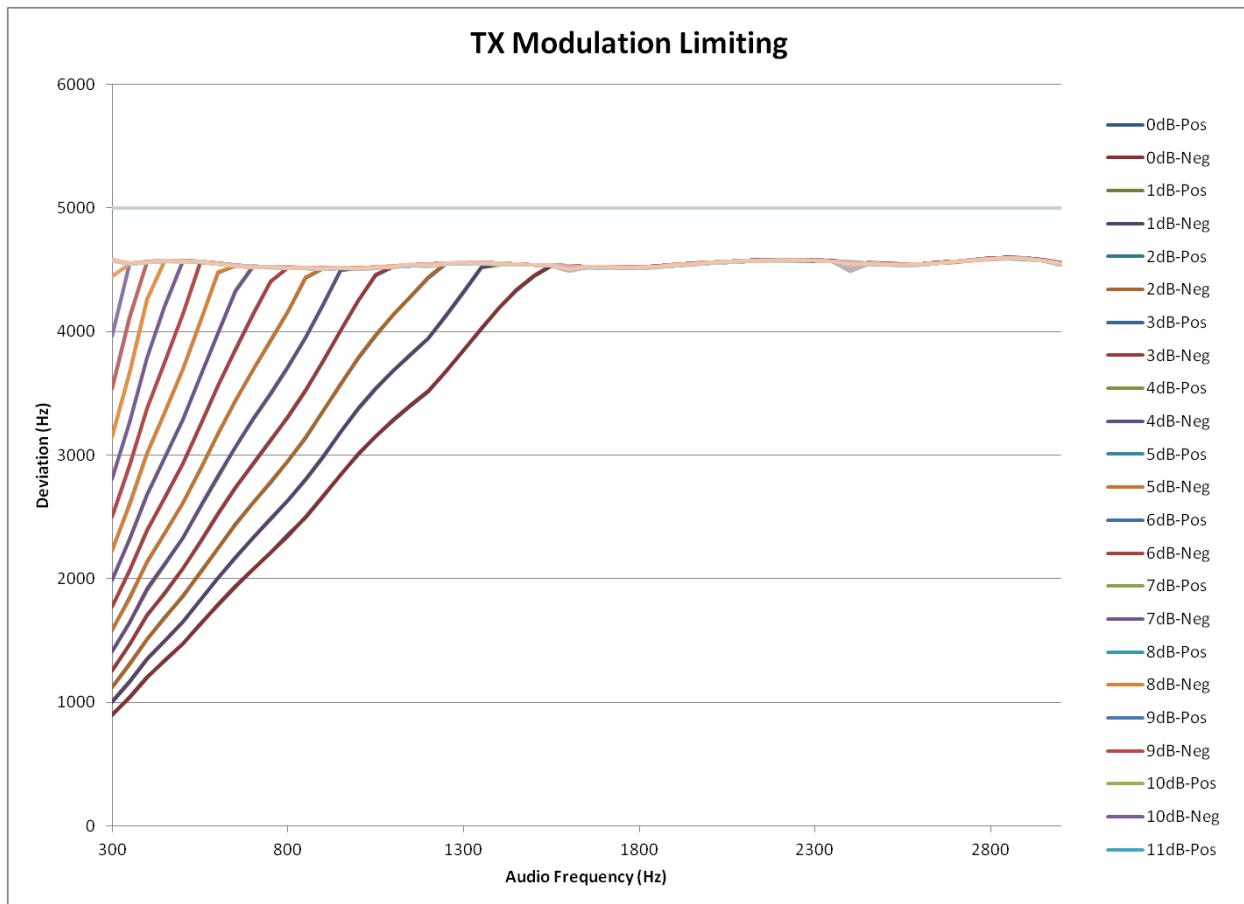
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E1-11.7 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 155.0125 MHz

E1-11.8 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 173.9875 MHz

Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

E1-11.1 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 136.0125 MHz



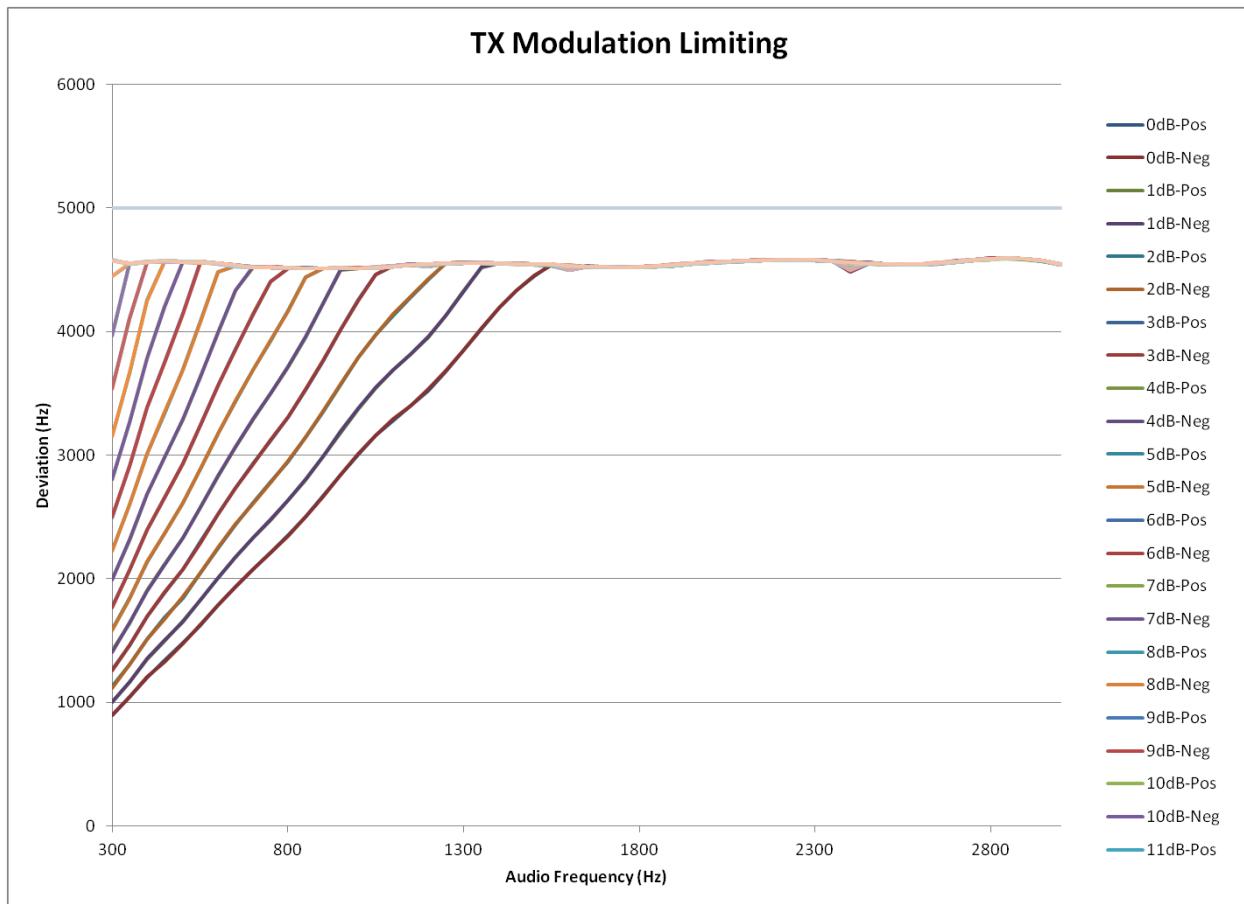
APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ99FT3095

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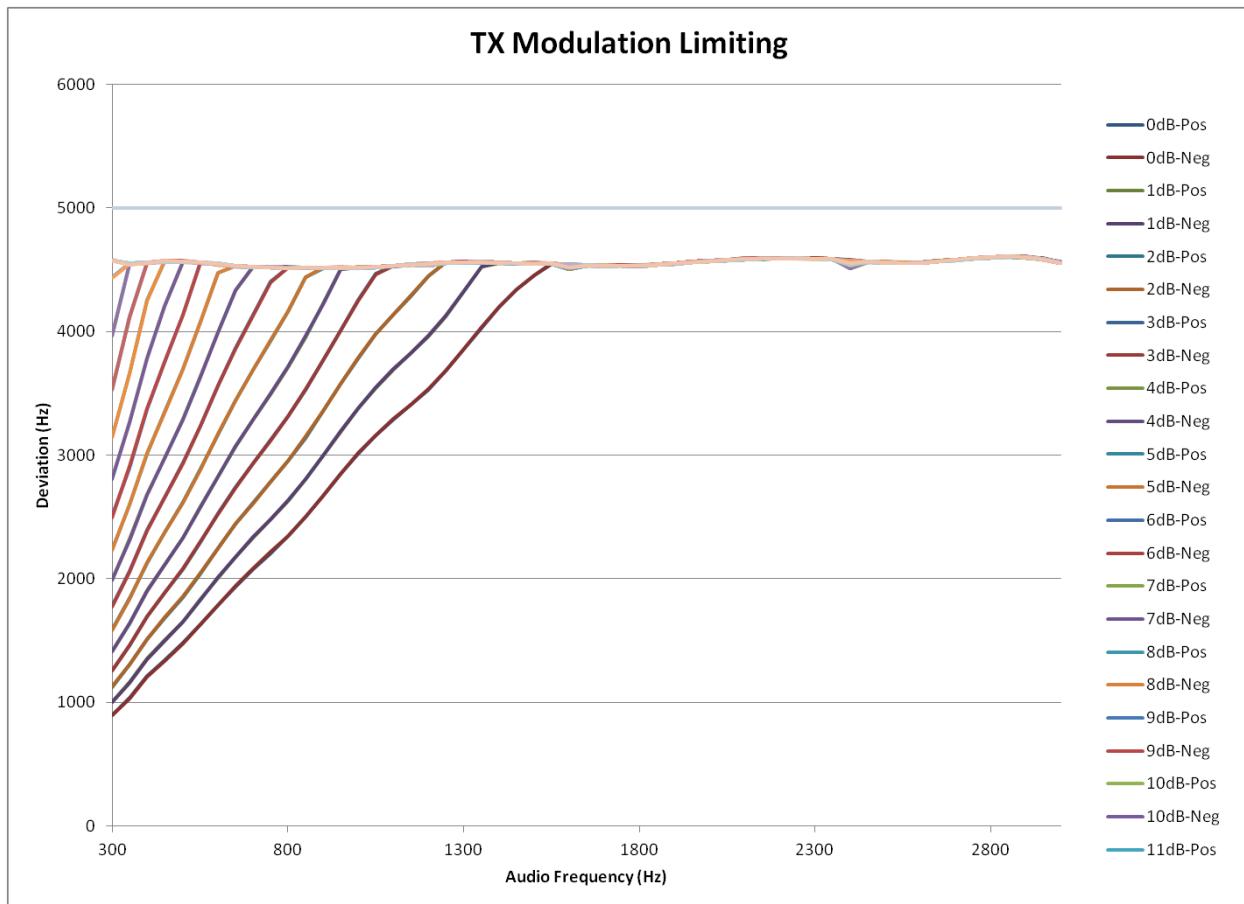
Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

E1-11.2 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 138.0125 MHz



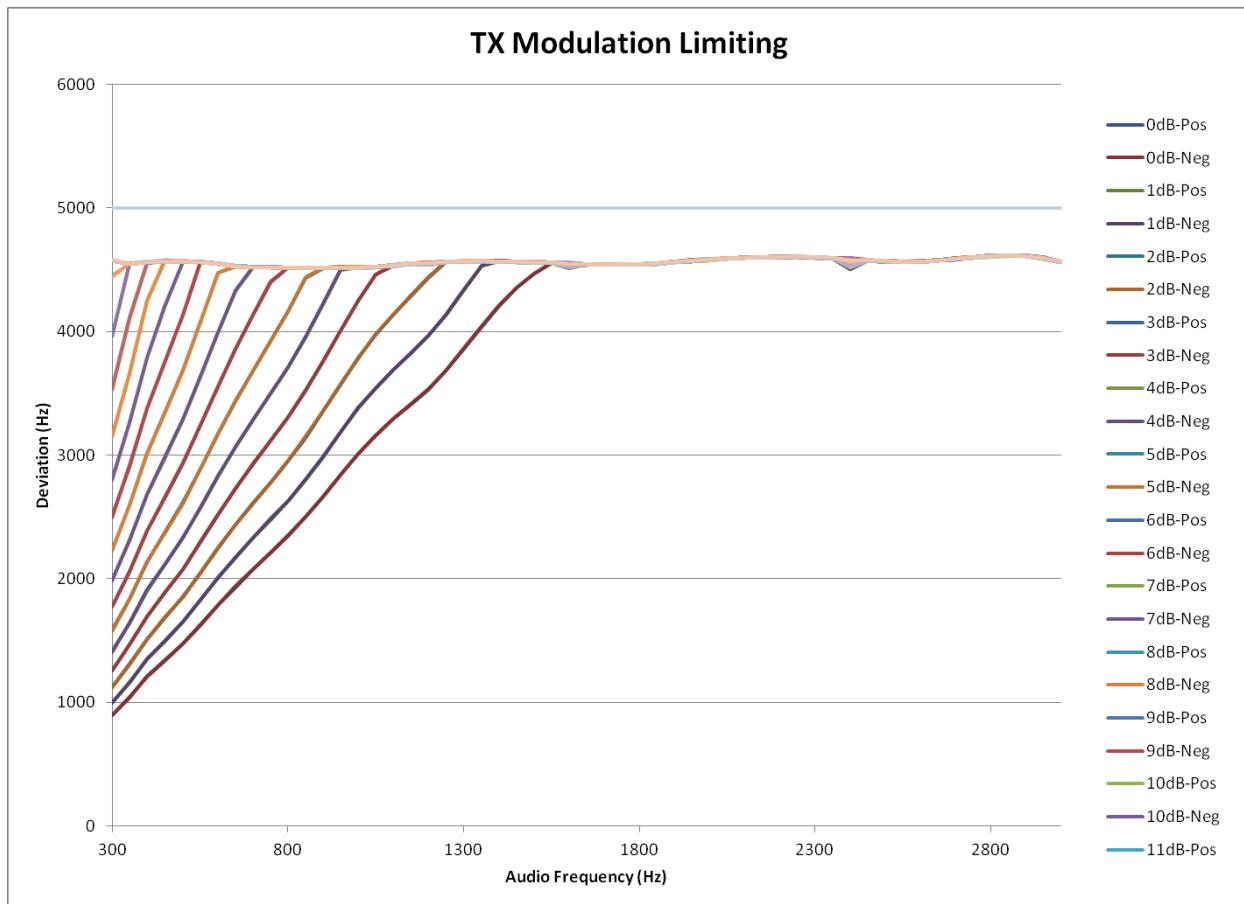
**Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47
CFR 90 and IC RSS-119.**

E1-11.3 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 155.0125 MHz



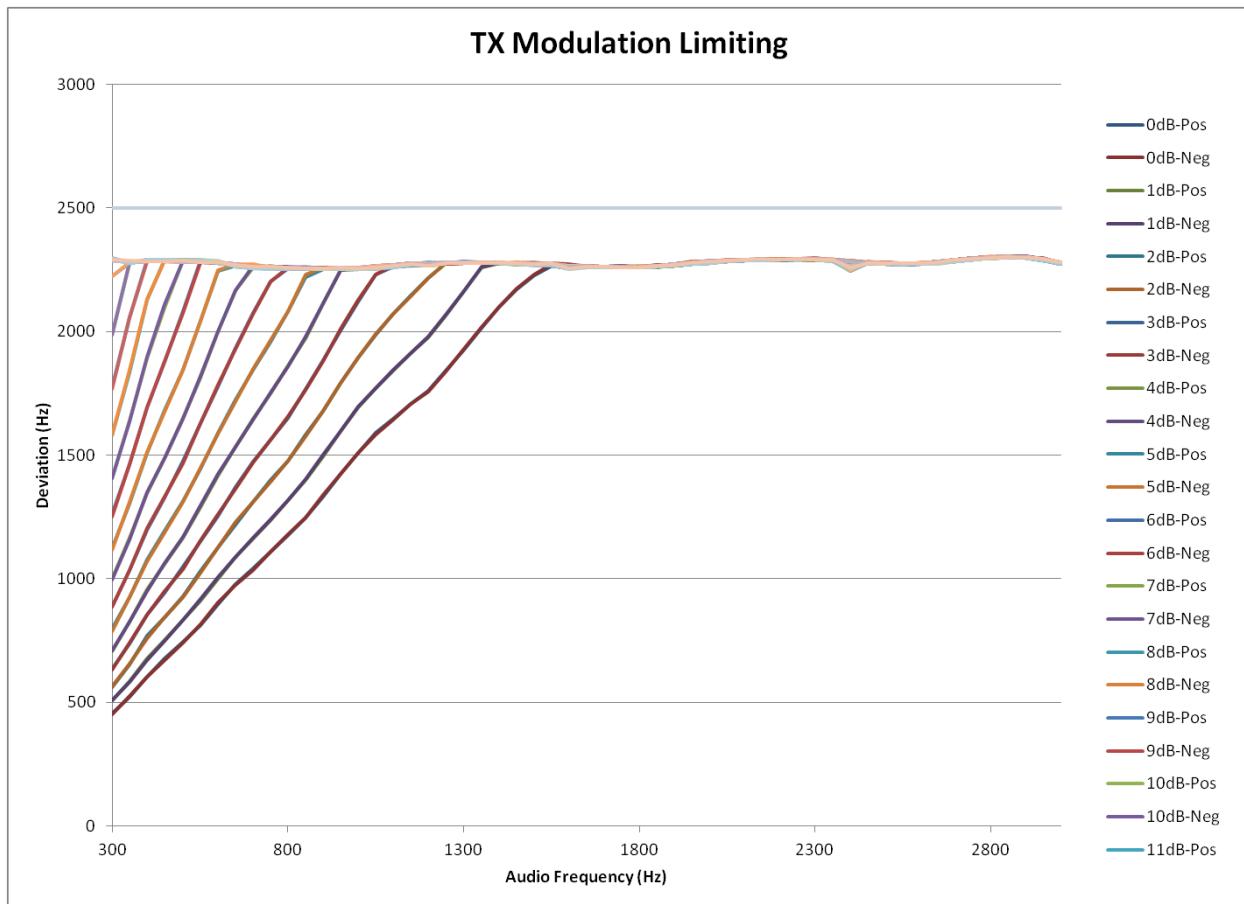
**Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47
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E1-11.4 Audio Modulation Limiting – Modulation Characteristics, 25 kHz Channels – 173.9875 MHz



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CFR 90 and IC RSS-119.**

E1-11.5 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 136.0125 MHz



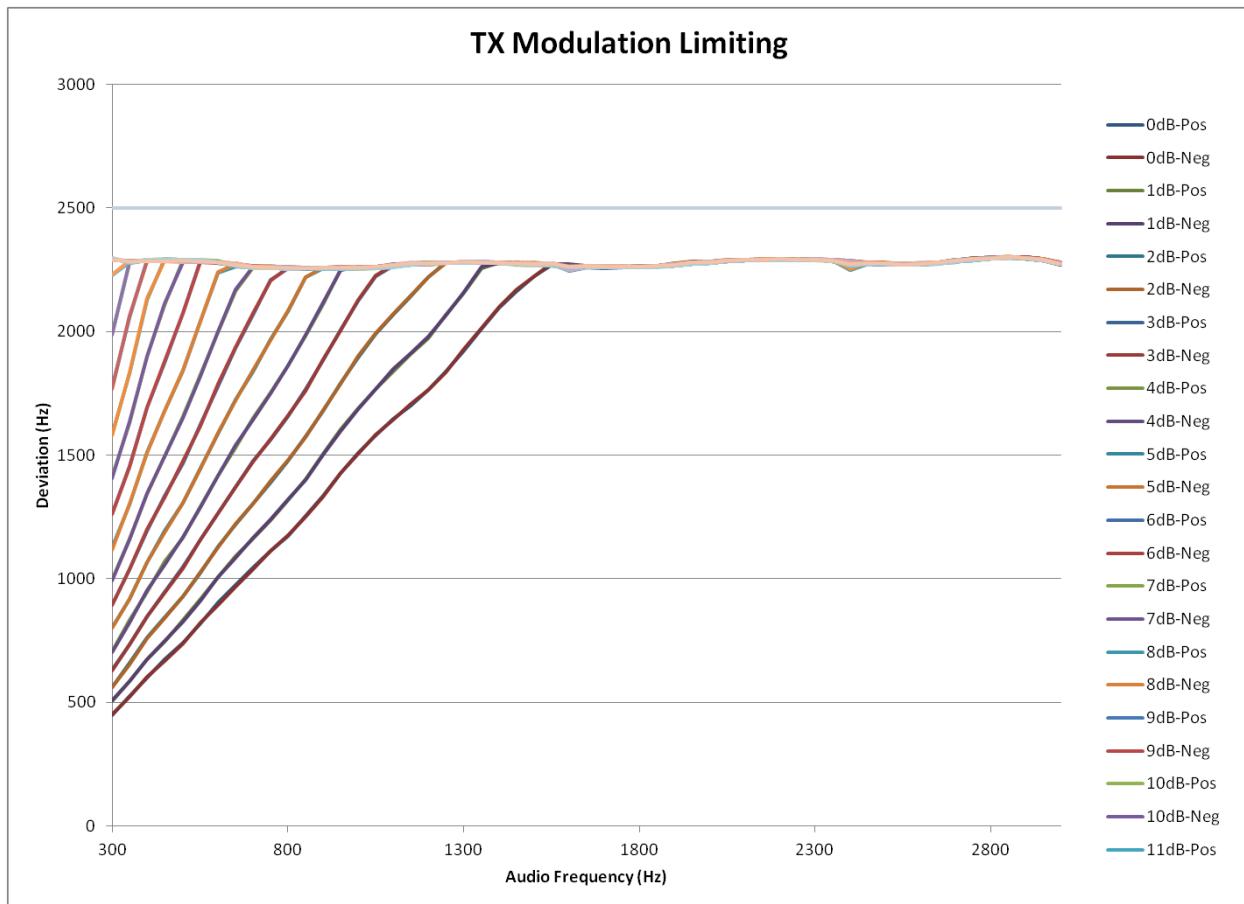
APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ99FT3095

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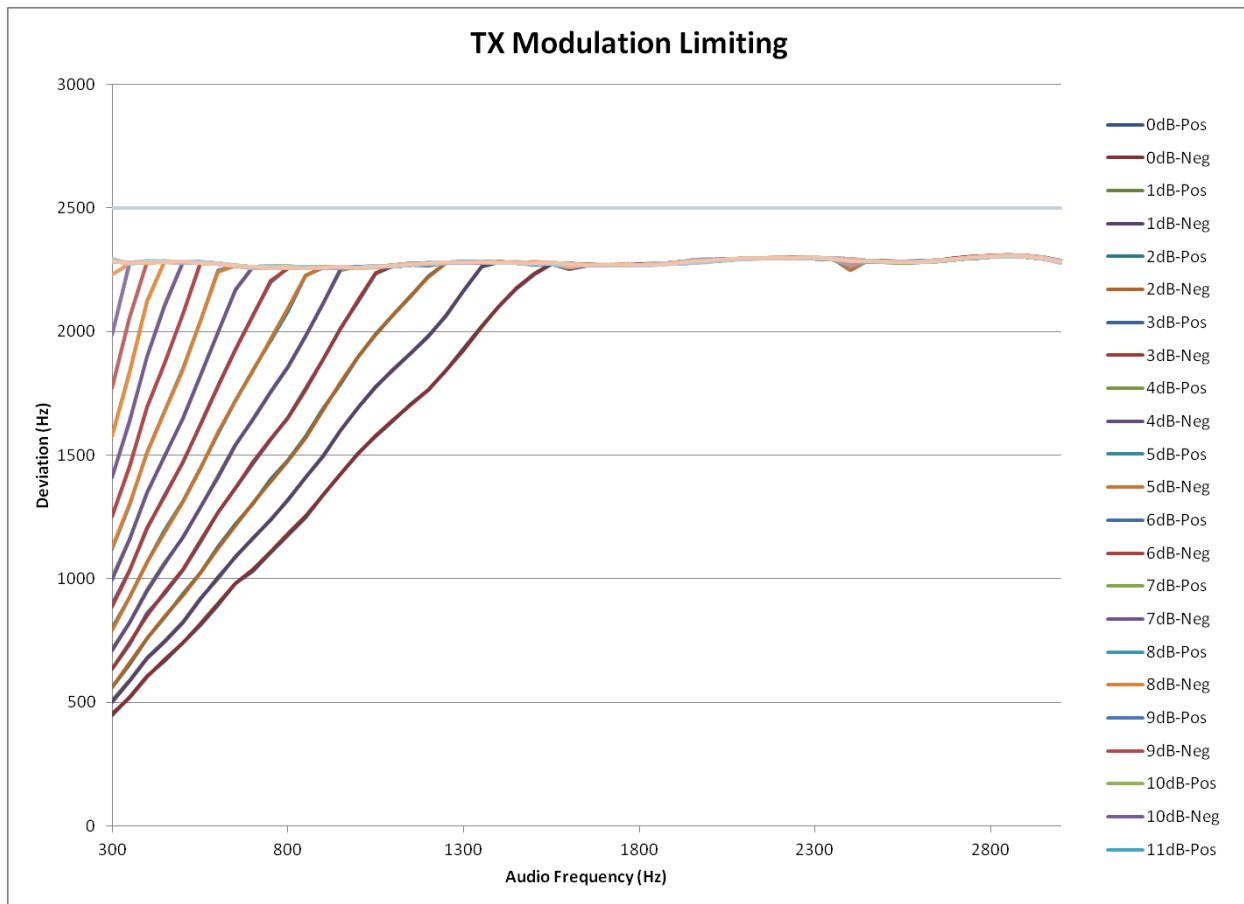
Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

E1-11.6 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 138.0125 MHz



**Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47
CFR 90 and IC RSS-119.**

E1-11.7 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 155.0125 MHz



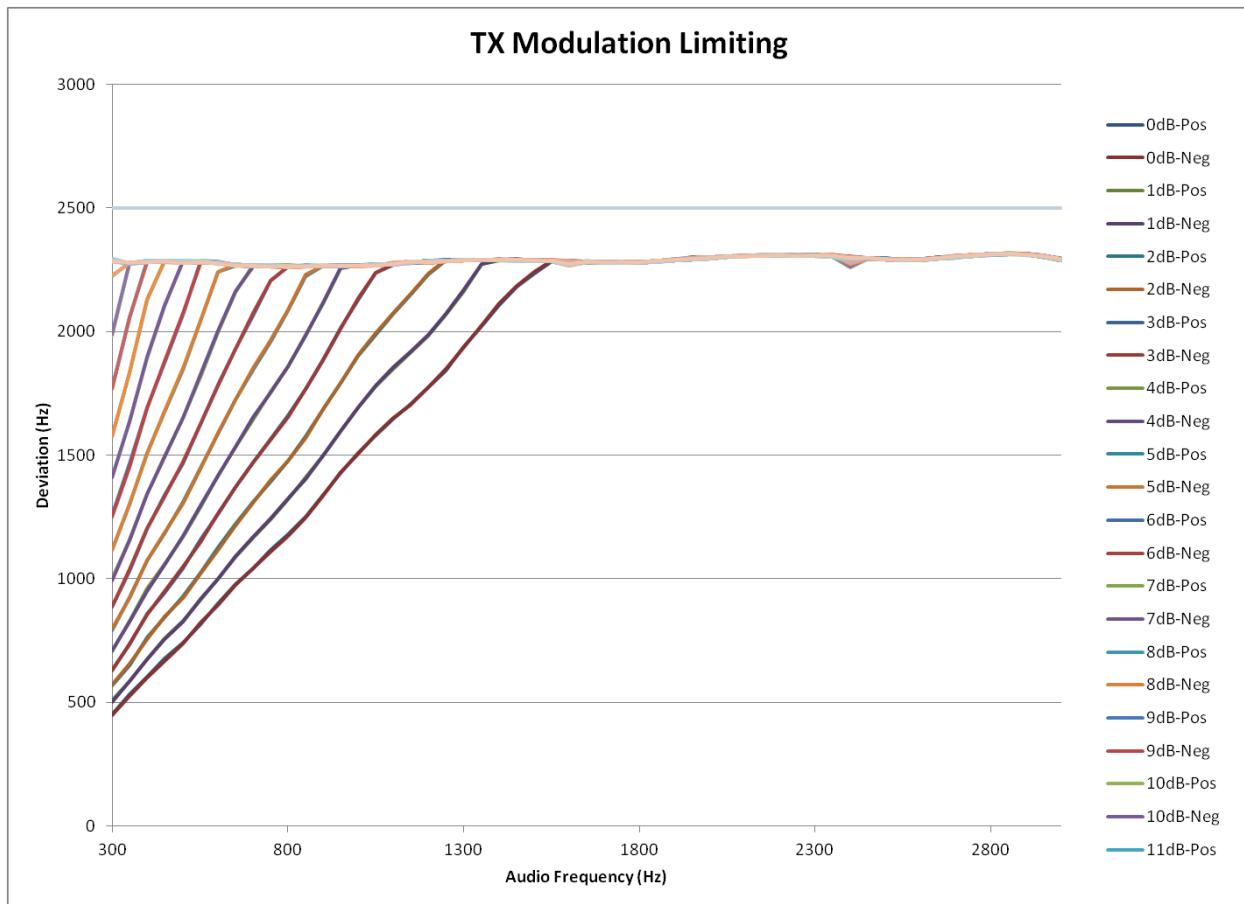
APPLICANT: MOTOROLA SOLUTIONS

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E1-11.8 Audio Modulation Limiting – Modulation Characteristics, 12.5 kHz Channels – 173.9875 MHz



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**Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47
CFR 90 and IC RSS-119.**

E1-12 Test Setup Details

Test Location:

(for all tests except radiated emissions)

Motorola Solutions, Inc., Schaumburg Lab

2000 Progress Parkway, Schaumburg, IL 60196

FCC Registration Number 786245

IC CAB Identifier US0220

Test Engineer Matt Nawrocki

(for radiated emissions)

Elite Electronic Engineering Inc.

1516 Centre Circle Dr., Downers Grove, IL 60515

FCC Registration Number 269750

IC Registration Number 2987A

IC CAB Identifier US0107

Test Engineer Tylar Jozefczyk

APPLICANT: MOTOROLA SOLUTIONS

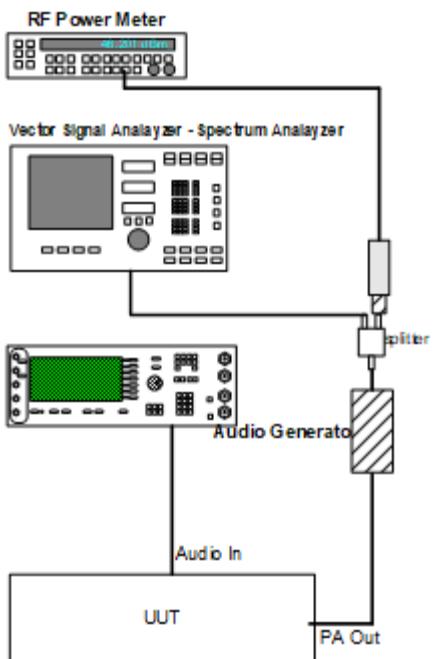
EQUIPMENT TYPE: ABZ99FT3095

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Test Setup: Motorola Solutions

RF Output Power, Occupied Bandwidth, Frequency Stability, Frequency Transient Behavior, Modulation Characteristics



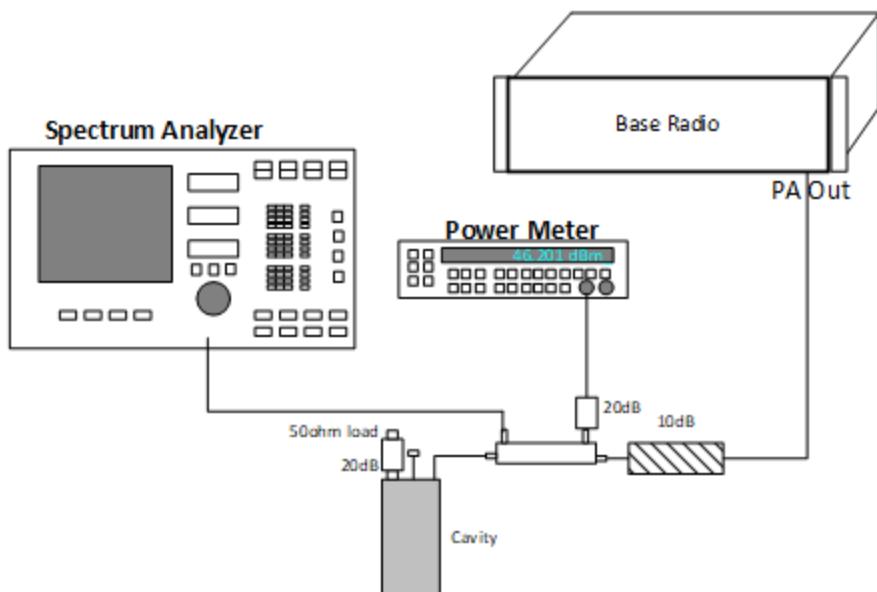
APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ99FT3095

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Conducted Spurious Emissions Close-in



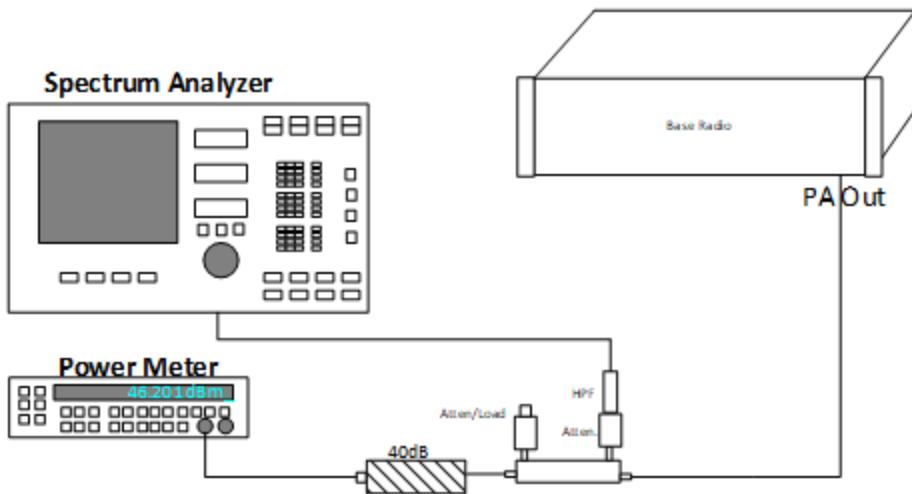
APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ99FT3095

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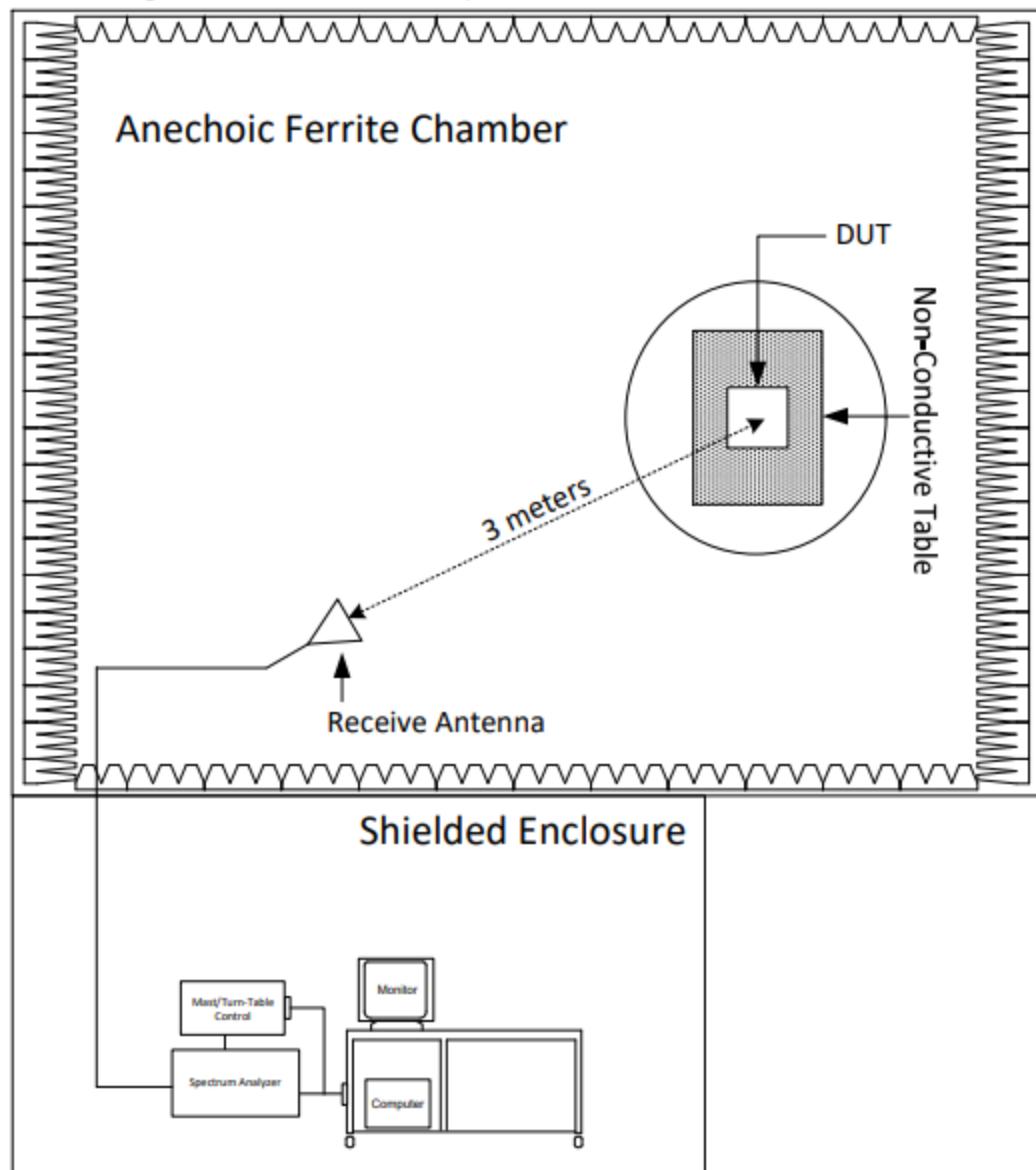
Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

Conducted Harmonic Emissions



Report on Test Measurements for FCC ID ABZ99FT3095, HVIN SLR 8000-VHF per FCC 47 CFR 90 and IC RSS-119.

Test Setup: Elite



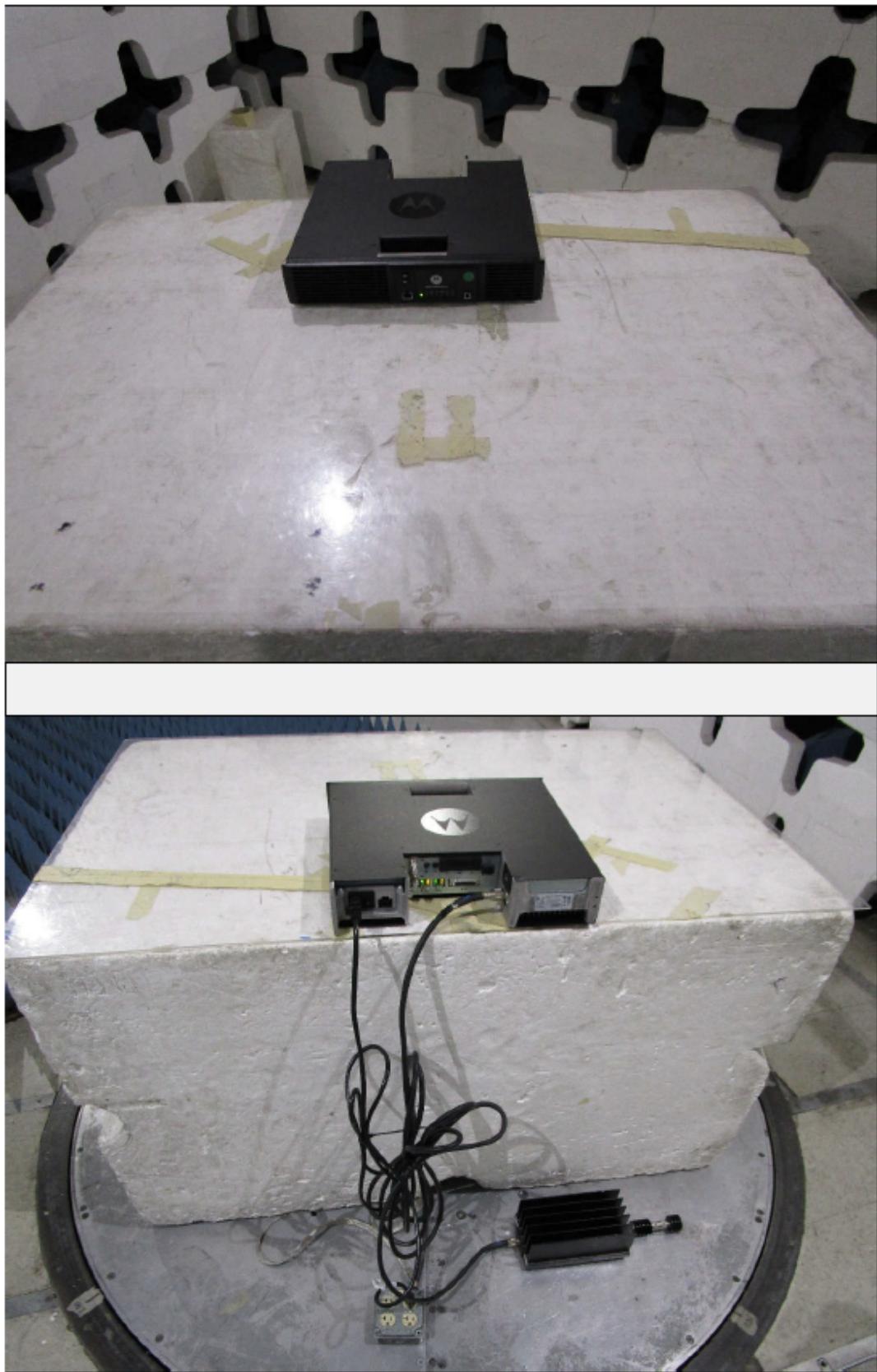
Radiated Measurements Test Setup

APPLICANT: MOTOROLA SOLUTIONS

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Test Setup for Radiated Emissions: 30MHz to 1GHz, Horizontal Polarization



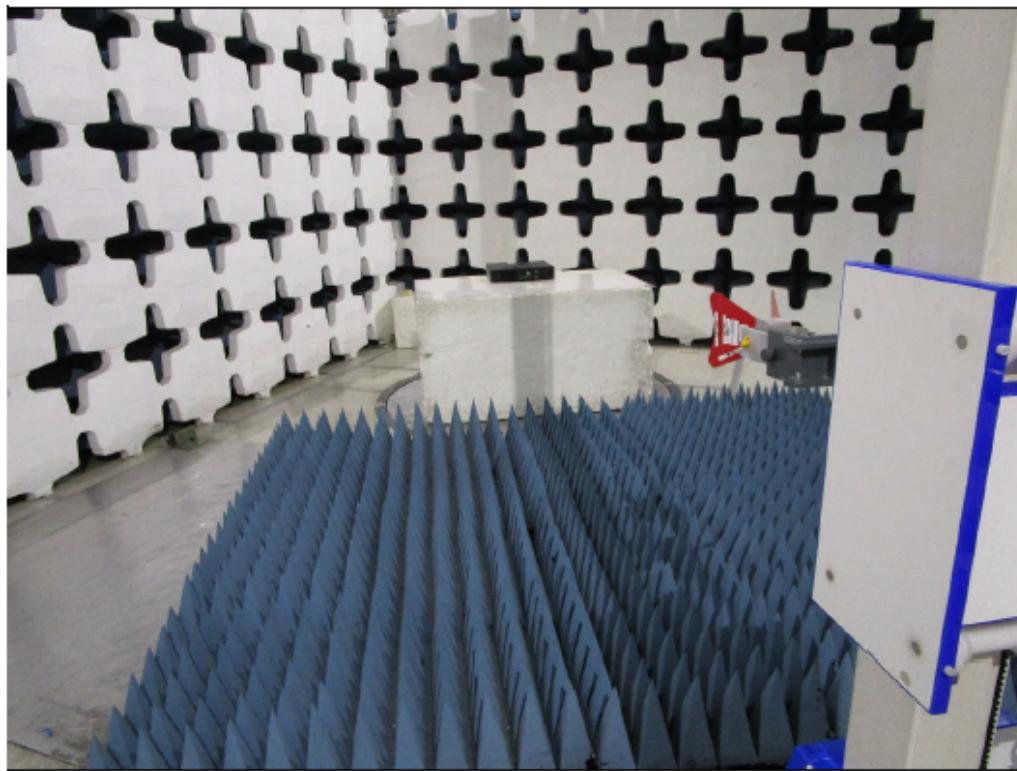
Test Setup for Radiated Emissions: 30MHz to 1GHz, Vertical Polarization

APPLICANT: MOTOROLA SOLUTIONS

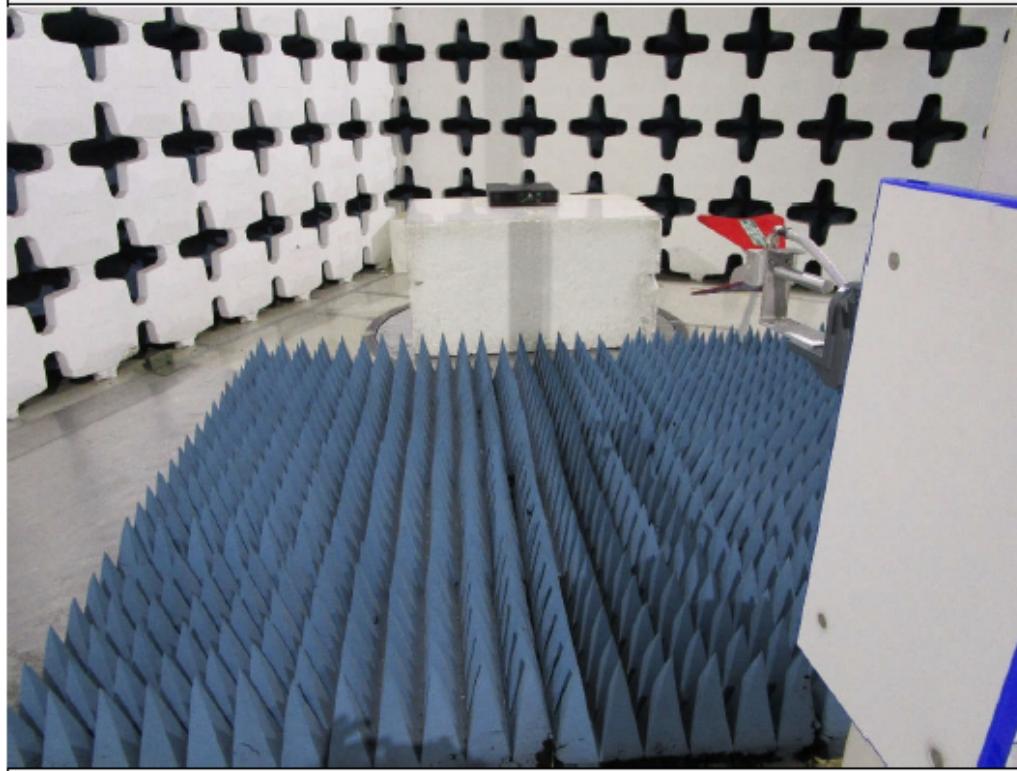
EQUIPMENT TYPE: ABZ99FT3095

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Test Setup for Radiated Emissions: 1GHz to 2GHz, Horizontal Polarization



Test Setup for Radiated Emissions: 1GHz to 2GHz, Vertical Polarization

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Test Equipment List – Motorola Solutions

| Manufacturer | Model | Serial Number | Description | Last Cal | Interval |
|---------------------|--------------------------|---------------|---------------------------------------|------------|-----------|
| Keysight/Agilent/HP | N9030A | MY53310751 | PXA Signal Analyzer, 3 Hz to 50 GHz | 09-21-2021 | 9/21/2022 |
| Keysight/Agilent/HP | U8903A | my50500002 | Audio Analyzer, 10 Hz to 100 kHz | 08-23-2021 | 8/23/2022 |
| Keysight/Agilent/HP | 8482a | gg00004032 | Power Sensor | 09-20-2021 | 9/20/2022 |
| Keysight/Agilent/HP | E5071C | MY46316134 | ENA Series Network analyzer | 09-23-2021 | 9/23/2022 |
| Thermotron | WS-108-C HM-15-15-5-S | 9107 | Temperature Chamber | | |
| Keysight/Agilent/HP | E4440A | my46185813 | PSA Spectrum Analyzer 3 Hz - 26.5 GHz | 08-12-2020 | 8/12/2022 |
| Keysight/Agilent/HP | 8753es | us39175306 | S-parameter Network Analyzer | 09-28-2021 | 9/28/2022 |

Test Equipment List – Elite

| Eq ID | Equipment Description | Manufacturer | Model No. | Serial No. | Frequency Range | Cal Date | Due Date |
|-------|-----------------------------------|--------------------|--------------------------|------------|-----------------|-----------|-----------|
| APW3 | PREAMPLIFIER | PLANAR ELECTRONICS | PE2-35-120-5R0-10-12 | PL2924 | 1GHZ-20GHZ | 3/9/2022 | 3/9/2023 |
| CDZ4 | LAB WORKSTATION | ELITE | LWS-10 | | WINDOWS 10 | CNR | |
| GRE1 | SIGNAL GENERATOR | AGILENT | E4438C | MY42081749 | 250KHZ-6GHZ | 3/7/2022 | 3/7/2023 |
| NDQ1 | TUNED DIPOLE ANTENNA | EMCO | 3121C-DB4 | 313 | 400-1000MHZ | 7/28/2020 | 7/28/2022 |
| NSDS1 | UNIVERSAL SPHERICAL DIPOLE SOURCE | AET | USDS-H | AET-1116 | | NOTE 1 | |
| NTA4 | BILOG ANTENNA | TESEQ | 6112D | 46660 | 20-2000GHZ | 10/5/2020 | 10/5/2022 |
| NWQ1 | DOUBLE RIDGED WAVEGUIDE ANTENNA | ETS-LINDGREN | 3117 | 66655 | 1GHZ-18GHZ | 4/28/2020 | 4/28/2022 |
| NWQ2 | DOUBLE RIDGED WAVEGUIDE ANTENNA | ETS LINDGREN | 3117 | 66659 | 1GHZ-18GHZ | 4/7/2020 | 4/7/2022 |
| RBG2 | EMI ANALYZER | ROHDE & SCHWARZ | ESW44 | 101591 | 2HZ-44GHZ | 3/11/2021 | 4/11/2022 |
| SHC2 | Power Supplies | HENGFU | HF60W-SL-24 | A11372702 | 24V | NOTE 1 | |
| VBV2 | CISPR EN FCC ICES RE.EXE | ELITE | CISPR EN FCC ICES RE.EXE | -- | -- | N/A | |
| WKA1 | SOFTWARE, UNIVERSAL RCV EMI | ELITE | UNIV_RCV_EMI | 1 | -- | I/O | |

N/A: Not Applicable

I/O: Initial Only

CNR: Calibration Not Required

NOTE 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

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E1-13 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

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

NAME: Robert Sarocka



SIGNATURE: _____

DATE: May 16, 2022

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: May 16, 2022

POSITION: Director

REPORT END