

 MOTOROLA SOLUTIONS	    CERTIFICATE 2518.08 MS ISO/IEC 17025 TESTING SAMM NO. 0825																																
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia SDN BHD, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.	FCC/ISED TEST REPORT Report Revision : Rev.C																																
<table><tr><td>Date/s Tested</td><td>: 30-NOV-2021 - 10-JAN-2022</td></tr><tr><td>Report Issue Date</td><td>: 18-MAR-2022</td></tr><tr><td>Manufacturer</td><td>: Motorola Solutions Malaysia SDN BHD</td></tr><tr><td>Manufacturer Address</td><td>: Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>: HERI NIEVES</td></tr><tr><td>Product Type</td><td>: Mobile</td></tr><tr><td>Product Version (PMN)</td><td>: APX8500</td></tr><tr><td>Model Number (HVIN)</td><td>: M37TSS9PW1AN</td></tr><tr><td>Frequency Band</td><td>: 380-484; 485-512; 512-520 MHz</td></tr><tr><td>Max RF Output Power</td><td>: 54 Watts; 48 Watts; 30 Watts</td></tr><tr><td>Applicant Name</td><td>: Motorola Solutions Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322</td></tr><tr><td>ISED Registrations</td><td>: MY0001</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr><tr><td>Firmware Version (FVIN)</td><td>: D26.50.06</td></tr></table> The equipment was tested accordance to the requirement listed below: <table><tr><td>(LMR) FCC 47 CFR Part 2/ 22 / 74 / 80 / 90 ISED RSS- Gen Issue 5 / 119 Issue 12</td><td>PASS</td></tr></table>		Date/s Tested	: 30-NOV-2021 - 10-JAN-2022	Report Issue Date	: 18-MAR-2022	Manufacturer	: Motorola Solutions Malaysia SDN BHD	Manufacturer Address	: Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia	Requestor	: HERI NIEVES	Product Type	: Mobile	Product Version (PMN)	: APX8500	Model Number (HVIN)	: M37TSS9PW1AN	Frequency Band	: 380-484; 485-512; 512-520 MHz	Max RF Output Power	: 54 Watts; 48 Watts; 30 Watts	Applicant Name	: Motorola Solutions Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322	ISED Registrations	: MY0001	FCC Registrations	: 461337	Firmware Version (FVIN)	: D26.50.06	(LMR) FCC 47 CFR Part 2/ 22 / 74 / 80 / 90 ISED RSS- Gen Issue 5 / 119 Issue 12	PASS
Date/s Tested	: 30-NOV-2021 - 10-JAN-2022																																
Report Issue Date	: 18-MAR-2022																																
Manufacturer	: Motorola Solutions Malaysia SDN BHD																																
Manufacturer Address	: Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia																																
Requestor	: HERI NIEVES																																
Product Type	: Mobile																																
Product Version (PMN)	: APX8500																																
Model Number (HVIN)	: M37TSS9PW1AN																																
Frequency Band	: 380-484; 485-512; 512-520 MHz																																
Max RF Output Power	: 54 Watts; 48 Watts; 30 Watts																																
Applicant Name	: Motorola Solutions Inc																																
Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322																																
ISED Registrations	: MY0001																																
FCC Registrations	: 461337																																
Firmware Version (FVIN)	: D26.50.06																																
(LMR) FCC 47 CFR Part 2/ 22 / 74 / 80 / 90 ISED RSS- Gen Issue 5 / 119 Issue 12	PASS																																
This report shall not be reproduced without written approval from an officially designated representative of the Motorola Penang Adv. Comm. Laboratory. The results and statements contained in this report pertain only to the device(s) evaluated.																																	
Prepared By:  _____ Nuraini Binti Ismail Test Personnel	Approved Signatory:  _____ Soon Oi May Responsible Engineer																																

Table of Contents

Report Revision History.....	3
1.0 General Information	4
2.0 Summary of Test Results	5
3.0 Measurement Uncertainty	6
4.0 Equipment List.....	7
5.0 Test Condition.....	10
5.1. Transmitter Test Conditions.....	10
6.0 Transmitter Test Parameters.....	11
6.1. RF Output Power.....	11
6.1.1. Test Setup.....	11
6.1.2. Test Result.....	11
6.2. Frequency Stability.....	12
6.2.1. Test Setup.....	12
6.2.2. Test Result.....	13
6.2.3. Test Limit.....	14
6.3. Audio Frequency Response.....	15
6.3.1. Test Setup.....	15
6.3.2. Test Result.....	16
6.3.3. Test Limit.....	19
6.4. Audio Low Pass Filter Response.....	20
6.4.1. Test Setup.....	20
6.4.2. Test Result.....	21
6.4.3. Test Limit.....	24
6.5. Modulation Limiting	25
6.5.1. Test Setup.....	25
6.5.2. Test Result.....	26
6.5.3. Test Limit.....	28
6.6. Occupied Bandwidth	29
6.6.1. Test Setup (Analog)	29
6.6.2. Test Result (Analog)	30
6.6.3. Test Setup (Digital).....	32
6.6.4. Test Result (Digital).....	40
6.6.5. Test Limit.....	53
6.7. Band Edge Conducted Spurious Emission (Part 22).....	55
6.7.1. Test Setup (Analog)	55
6.7.2. Test Result (Analog)	56
6.7.3. Test Setup (Digital).....	58
6.7.4. Test Result (Digital).....	59
6.7.5. Test Limit.....	62
6.8. Transient Frequency Behavior	63
6.8.1. Test Setup.....	63
6.8.2. Test Result.....	64
6.8.3. Test Limit.....	66

6.9.	Adjacent Channel Power	67
6.9.1.	Test Setup (Analog)	67
6.9.2.	Test Result	67
6.9.3.	Test Setup (Digital)	68
6.9.4.	Test Result	68
6.9.5.	Test Limit	69
6.10.	Conducted Spurious Emission	71
6.10.1.	Test Setup	71
6.10.2.	Test Result (Analog)	72
6.10.3.	Test Result (Digital)	77
6.10.4.	Test Limit	92
6.11.	Radiated Spurious Emission	121
6.11.1.	Test Setup	121
6.11.2.	Test Result (Analog)	122
6.11.3.	Test Result (Digital)	133
6.11.4.	Test Limit	142
6.12.	Effective Radiated Power (ERP)	171
6.12.1.	Test Setup	171
6.12.2.	Test Result	172
6.12.3.	Test Limit	172
6.13.	GNSS (EIRP for 1559 - 1610MHz)	173
6.13.1.	Test Setup	173
6.13.1.	Test Result	174
6.13.2.	Test Limit	174

Report Revision History

Revision History	Description	Date	Originator
Rev. A	Initial Report	31-Jan-2022	Nuraini
Rev. B	Remove the rules part 24 in cover page	23-Mar-2022	Nuraini
Rev. C	Remove 8K10FXD, 8K10FXE in summary table	23-Mar-2022	Nuraini

1.0 General Information

EUT Description:

Technologies	Land Mobile Radio (LMR)
Modulation Type	Analog, C4FM, Phase II

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
2.4/5 GHz Wi-Fi/BT and GNSS BT/WiFi Antenna BT/WiFi/GPS Antenna	MOTOROLA	AN000163A01
O7 Control Head (English)	MOTOROLA	PMHN4194C
Audio (PTT)	MOTOROLA	HMN4079G

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

ANSI C63.26-2015

No modifications were done to the UUT to facilitate the tests in this report.

Deviation from standard

Not applicable as no deviation from standard test method

Antenna gain disclaimer

Antenna gain information is provided by customer. The validity of the results is dependent upon this information. The lab will not be held accountable in the event the supplied information affects compliance.

Test configuration of EUT

All relevant configurations involving radio models and accessories (including chargers, batteries, and antennas) were assessed. Only worst case configurations will be included in this report.

2.0 Summary of Test Results

FCC General Rules Part (47CFR)	ISED General Rules Part	Test Item	Result	Remarks	Serial number tested
2.1046(a), 22.565(f), 74.461, 80.215	RSS-Gen, RSS-119	RF Power Output	Pass		681TXT7208
2.1055, 22.355, 74.464, 80.209	-	Frequency Stability	Pass		681TXT7208
2.1047	RSS-Gen, RSS-119	Audio Frequency Response	Pass		681TXT7208
2.1047	RSS-Gen, RSS-119	Audio Low Pass Filter Response	Pass		681TXT7208
2.1047, 74.463, 80.213	RSS-Gen, RSS-119	Modulation limiting	NA		681TXT7208
2.1049, 22.359, 90.21, 74.462, 80.211(b), (c)	RSS-Gen, RSS-119	Occupied Bandwidth	Pass	16K0F3E- 15.0473kHz 11K0F3E- 9.9826kHz 8K10F1D - 8.0144kHz 8K10F1E - 7.2347kHz 8K10F1W - 8.0721kHz	681TXT7208
2.1051, 22.359 (a), (b)	RSS-119	Band Edge Conducted Spurious Emission	Pass		681TXT7208
90.214	-	Transient Frequency Behavior	Pass		681TXT7208
90.543(a), (b)	-	Adjacent Channel Power	NA		
2.1051, 22.359, 90.210 74.462(c), 80.211(c)	RSS-Gen, RSS-119,	Conducted Spurious Emissions	Pass	Worst case emission- -27.20 dBm	681TXT7208
2.1051, 22.359, 74.462(c), 80.211(c)	RSS-Gen, RSS-119,	Radiated Spurious Emission	Pass	Worst case emission – -53.37 dBm	681TXT7177, G0P0UX0XC
-	-	GNSS (EIRP for 1559 – 1610MHz)	NA		
Part 80	-	Effective Radiated Power (ERP)	Pass		681TXT7177

NA → Not Applicable

3.0 Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.48 dB
Radiated Emissions up to 1 GHz dBμV/m (Field Strength)	30MHz ~ 1000MHz	5.88 dB
Radiated Emissions above 1 GHz dBμV/m (Field Strength)	1GHz ~ 18GHz	5.84 dB
	18GHz ~ 40GHz	6.02 dB
Radiated Emissions dBm (ERP/EiRP)	30MHz ~ 18GHz	4.03 dB
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82 dB
Frequency Stability	9kHz ~ 12.75GHz	0.0085 ppm
Audio Frequency Response / Low Pass Filter Response	300Hz – 20kHz	4.09 %
Modulation Limiting	300Hz – 3kHz	1.15 %
Occupied Bandwidth	9kHz ~ 12.75GHz	2.82 dB
Band Edge Conducted Spurious Emission	9kHz ~ 12.75GHz	2.82 dB
Transient Frequency Behavior	9kHz ~ 12.75GHz	5.4 ms
Adjacent Channel Power	9kHz ~ 12.75GHz	2.82 dB

4.0 Equipment List

FCC Analog ATE#1: (SW version: 2.4.6 & FCC_Frequency Stability 1.0.3 rev.)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
CHAMBER	SH-641	92009188	08-Mar-21	08-Mar-22
SWITCH CONTROL SYSTEM	3499B	CN40150337	CNR	CNR
POWER SENSOR	E4412A	MY41502652	09-Sep-21	09-Sep-22
POWER SUPPLY	6032A	3232A08203	14-Jun-21	14-Jun-22
POWER METER	E4416A	GB41293240	14-Mar-21	14-Mar-22
SIGNAL GENERATOR	2042	203002/747	23-Feb-21	23-Feb-22
ANALYZER SIGNAL (DYNAMIC)	35670A	MY42506847	17-Sep-21	17-Sep-22
MODULATION ANALYZER	8901B	3403A04974	06-Sep-21	06-Sep-22
N to N RF Cable # 1	M17/128-RG400	NA	NA	NA
BNC to N RF Cable # 1	RG 58	NA	NA	NA
BNC to BNC RF Cable # 1	RG 58	NA	NA	NA
BNC to BNC RF Cable # 2	RG 58	NA	NA	NA
BNC to BNC RF Cable # 3	RG 58	NA	NA	NA
BNC to BNC RF Cable # 4	RG 58	NA	NA	NA
BNC to BNC RF Cable # 5	RG 58	NA	NA	NA
BNC to BNC RF Cable # 6	RG 58	NA	NA	NA
BNC to BNC RF Cable # 7	RG 58	NA	NA	NA
N to SMA RF Cable # 1	RG 58	NA	NA	NA
N to SMA RF Cable # 2	RG 58	NA	NA	NA
N to SMA RF Cable # 3	RG 58	NA	NA	NA
Aeroflex Attenuator 30dB	49-30-34-LIM	NA	NA	NA

FCC Transient ATE #1: (SW version: FCC Transient ATE R1.1.3)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
SWITCH CONTROL UNIT	3488A	2719A36210	CNR	CNR
ATTENUATOR / SWITCH DRIVER	11713A	2508A10141	CNR	CNR
POWER SENSOR	E9301B	MY41495393	15-May-21	15-May-22
SIGNAL GENERATOR	8657A	3039A02769	11-Jun-21	11-Jun-22
AUDIO ANALYZER	8903B	3011A10318	01-Nov-21	01-Nov-22
POWER METER	E4418B	MY45104923	20-Feb-21	20-Feb-22
STEP ATTENUATOR	8494G	MY52300967	17-Jun-21	17-Jun-22
POWER SUPPLY	6033A	3004A04987	08-Jul-21	08-Jul-22
ANALYZER SPECTRUM	E4445A	MY46181732	29-Jun-21	29-Jun-22
ATTENUATOR/110DB	8496G	MY52300176	22-Aug-21	22-Aug-22
AUDIO ANALYZER	8903B	3413A14586	13-Sep-21	13-Sep-22
ANALYZER MODULATION	8901B	2619A00845	30-Sep-21	30-Sep-22
AUDIO ANALYZER	8903B	3011A12488	13-Sep-21	13-Sep-22
N to N RF Cable # 1	SF126/11N/11N	NA	NA	NA
N to N RF Cable # 1	SF126/11N/11N	NA	NA	NA
N to N RF Cable # 2	M17/128-RG400	NA	NA	NA
N to N RF Cable # 3	M17/128-RG400	NA	NA	NA
N to N RF Cable # 4	M17/128-RG400	NA	NA	NA
N to N RF Cable # 5	M17/128-RG400	NA	NA	NA
N to N RF Cable # 6	M17/128-RG400	NA	NA	NA
N to N RF Cable # 7	M17/128-RG400	NA	NA	NA
N to N RF Cable # 8	M17/128-RG400	NA	NA	NA
N to N RF Cable # 9	M17/128-RG400	NA	NA	NA
BNC to BNC RF Cable # 1	RG 58	NA	NA	NA
BNC to BNC RF Cable # 2	RG 58	NA	NA	NA
BNC to BNC RF Cable # 3	RG 58	NA	NA	NA
BNC to BNC RF Cable # 4	RG 58	NA	NA	NA
BNC to BNC RF Cable # 5	RG 58	NA	NA	NA
BNC to BNC RF Cable # 6	RG 58	NA	NA	NA
BNC to N RF Cable # 1	RG 58	NA	NA	NA
Aeroflex Attenuator 10dB	49-10-43-LIM	NA	NA	NA
Aeroflex Attenuator 10dB	33-10-34-LIM	NA	NA	NA

FCC CONDUCTED SPUR EMISSION ATE # 1 (SW version: Conducted Spur ATE_rev 1.23.03)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
SWITCH CONTROL UNIT	3488A	2719A32735	CNR	CNR
ANALYZER SPECTRUM	E4440A	MY46185415	10-Jan-20	10-Jan-22
POWER SUPPLY	6031A	3221A02613	25-May-21	25-May-22
INTERFACE BOX - FILTER	CNR	CS001	06-Jul-21	06-Jul-22
N to N RF Cable # 1	SF126/11N/11N	NA	NA	NA
N to N RF Cable # 2	SF126/11N/11N	NA	NA	NA
BNC to BNC RF Cable # 1	RG 58	NA	NA	NA
Aeroflex Attenuator 30dB	49-30-43-LIM	NA	NA	NA
Aeroflex Attenuator 10dB	33-10-34-LIM	NA	NA	NA

EMC Chamber 1

DESCRIPTION	MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
DRG HORN FREQ.	SAS-571	720	06-Apr-21	06-Apr-23
DRG HORN FREQ.	SAS-571	719	13-Sep-21	13-Sep-22
POWER SUPPLY	N7976A	MY53410110	24-May-21	24-May-22
SIGNAL GENERATOR	SMB 100A	182511	4-Jun-21	4-Jun-24
EMI TEST RECEIVER	ESW44	101750	15-Jan-21	15-Jan-22
EMI TEST RECEIVER	ESIB26	827769/009	11-Mar-21	11-Mar-22
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
BILOG ANTENNA	CBL6112D	55546	06-Jun-21	06-Jun-22
BILOG ANTENNA	CBL6112B	2964	4-May-21	4-May-22
HYGRO-THERMOMETER	SDL500	A.016800	18-May-21	18-May-22
SYSTEM CONTROLLER	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	No Cal. Req'd	No Cal. Req'd
ANTENNA POSITIONING TOWER	TLT2	NA	No Cal. Req'd	No Cal. Req'd
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	4-Feb-21	4-Feb-22
PREAMPLIFIER 18-40GHz	BBV9721	9721-007	No Cal. Req'd	No Cal. Req'd
PREAMPLIFIER	PAM-0118P	361	11-Sep-20	11-Sep-23
LOOP ANTENNA	6502	00203479	5-Feb-21	5-Feb-22
TEST SOFTWARE	EMC_FCC_IC_BLUETOOTH_RE_TEST			
VERSION	EMC_FCC_RE_v1.6.2			

5.0 Test Condition

5.1 Transmitter Test Conditions

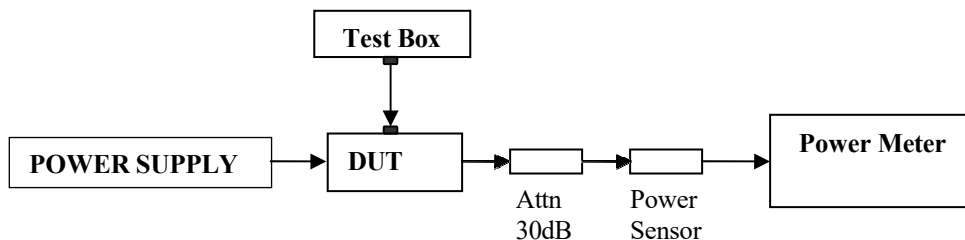
Test Item, (Channel Spacing)	Power (W)	Modulation	Test Frequency (MHz)	Tested By	Environmental conditions
RF Output Power	Low & Max	Analog	380.0125, 406.2, 450.025, 459.125, 467.775, 469.9875, 482.0125, 511.9875, 519.9875	Nuraini	23.4°C, 50%RH
Frequency Stability	Max	Analog	467.775	Nuraini	25.1°C, 54.3%RH, 60.3°C, 50%RH, -30.1°C, 51.2%RH
Audio Frequency Response (12.5kHz / 25kHz)	Max	Analog	467.775, 459.125, 511.9875	Nuraini	23.4°C, 50%RH
Audio Low Pass Filter Response (12.5kHz / 25kHz)	Max	Analog	467.775, 459.125, 511.9875	Nuraini	23.4°C, 50%RH
Modulation limiting (12.5kHz / 25kHz)	Max	Analog	467.775, 459.125, 511.9875	Nuraini	23.4°C, 50%RH
Occupied Bandwidth (12.5kHz / 20kHz / 25kHz)	Max	Analog, C4FM, Phase II	380.0125, 406.2, 450.025, 467.775, 473.0125, 511.9875	Nuraini	23.4°C, 50%RH
Band Edge Conducted Spurious Emissions (Part 22) (12.5kHz / 20kHz / 25kHz)	Max	Analog, C4FM, Phase II	459.025, 459.65, 473.0125, 479.2875	Nuraini	23.4°C, 50%RH
Transient Frequency Behavior (UHF & VHF Band) (12.5kHz / 25kHz)	Max	Analog, C4FM, Phase II	467.775	Nuraini	23.4°C, 50%RH
Adjacent Channel Power (700MHz Band) (12.5kHz / 25kHz)	Max	Analog, C4FM, Phase II	NA		
Conducted Spurious Emissions- (12.5kHz / 25kHz)	Low / Max	Analog, C4FM, Phase II	380.0125, 406.2, 450.025, 459.125, 467.775, 482.0125, 511.9875, 519.9875	Nuraini	23.4°C, 50%RH
Radiated Spurious Emission (12.5kHz / 25kHz)	Low / Max	Analog, C4FM, Phase II	380.0125, 406.2, 450.025, 459.125, 467.775, 482.0125, 511.9875, 519.9875	Aiman & Amaluddin	24.1°C, 69.8%RH
GNSS (EIRP for 1559 - 1610MHz) (12.5kHz / 25kHz)	Max	Analog	NA		
Effective Radiated Power (ERP) (12.5kHz / 25kHz)	Max	Analog	467.775	Qawiman	24.1°C, 69.8%RH

NA → Not Applicable

6.0 Transmitter Test Parameters

6.1. RF Output Power

6.1.1. Test Setup



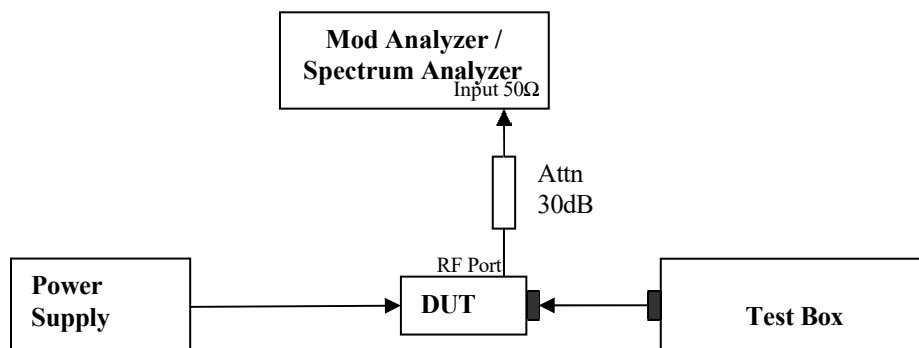
- 1) The DUT transmitter connected to Power Meter using the 30 dB attenuator and power sensor with above setup.
- 2) Path loss for the measurement included.
- 3) All the measurement was done at low, mid, high frequency for each band.
- 4) Record the power into the test report.

6.1.2. Test Result

Temperature	25°C				Remark
Voltage (V)	13.6V				
Frequency (MHz)	Low Power (W)	Current (A)	Max Power (W)	Current (A)	
380.01250	1.06	2.53	53.60	11.04	Not for FCC review
406.20000	1.05	2.4	53.10	9.31	
450.02500	1.06	2.53	53.70	11.01	
459.12500	1.05	2.56	53.40	10.13	
467.77500	1.02	2.54	1.00	2.6	Part 80
469.98750	1.04	2.54	53	10.43	
482.01250	1.03	2.55	52.9	10.49	
511.98750	1.03	2.56	47.3	9.26	
519.98750	1.06	2.55	29.7	7.34	Not for FCC review

6.2. Frequency Stability

6.2.1. Test Setup

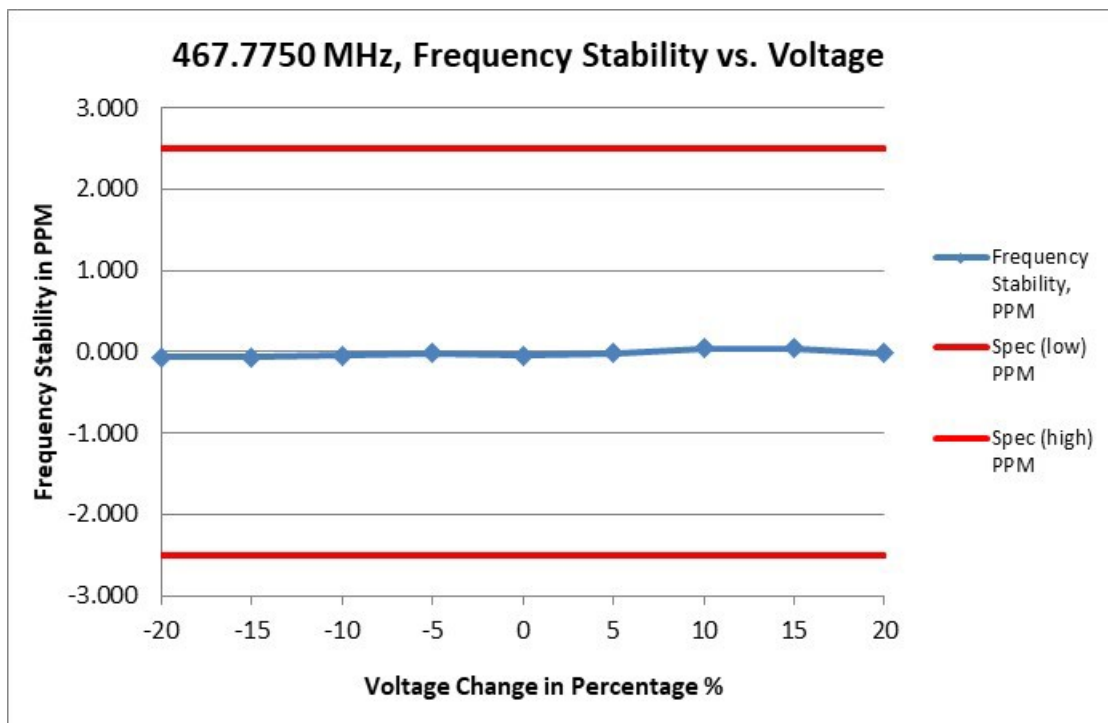


- 1) The DUT transmitter output port was connected to Modulation / Spectrum Analyzer.
- 2) Path loss for the measurement included.
- 3) Transmit the DUT and record the freq in MCF_{MHz} .
- 4) Test in 2 conditions:
 - Temperature: The frequency of the transmitter was measured from -30°C to 50°C.
 - Supply Voltage:
 - Mobile: The frequency of the transmitter was measured from 85% to 115% of the nominal operating input voltage.
 - Portable: The frequency of the transmitter was measured from nominal $\pm x$ % as specified by the manufacturer
- 5) Calculate the ppm frequency error by the following:

$$ppm\ error = \left(\frac{MCF_{MHz}}{ACF_{MHz}} - 1 \right) * 10^6$$

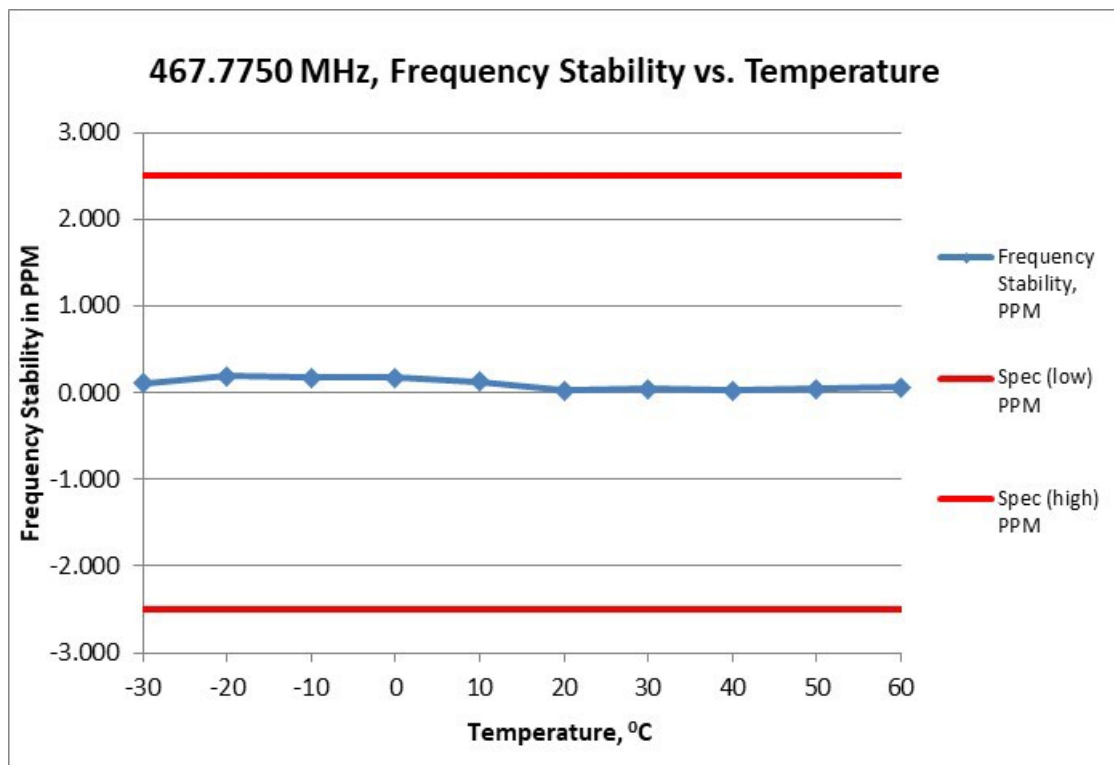
Where: MCF_{MHz} is the Measured Carrier Frequency in MHz
 ACF_{MHz} is the Assigned Carrier Frequency in MHz

6.2.2. Test Result



(i) Frequency Stability VS Voltage

Frequency / Channel Spacing	467.7750 MHz / 12.5 kHz				
Temperature, °C	25				
Voltage %	Voltage, V	Frequency, MHz	Frequency Stability, PPM	Spec (low) PPM	Spec (high) PPM
-20	10.880	467.774970	-0.064	-2.500	2.500
-15	11.560	467.774970	-0.064	-2.500	2.500
-10	12.240	467.774980	-0.043	-2.500	2.500
-5	12.920	467.774990	-0.021	-2.500	2.500
0	13.600	467.774980	-0.043	-2.500	2.500
5	14.280	467.774990	-0.021	-2.500	2.500
10	14.960	467.775020	0.043	-2.500	2.500
15	15.640	467.775020	0.043	-2.500	2.500
20	16.320	467.774990	-0.021	-2.500	2.500



(ii) Frequency Stability VS temperature

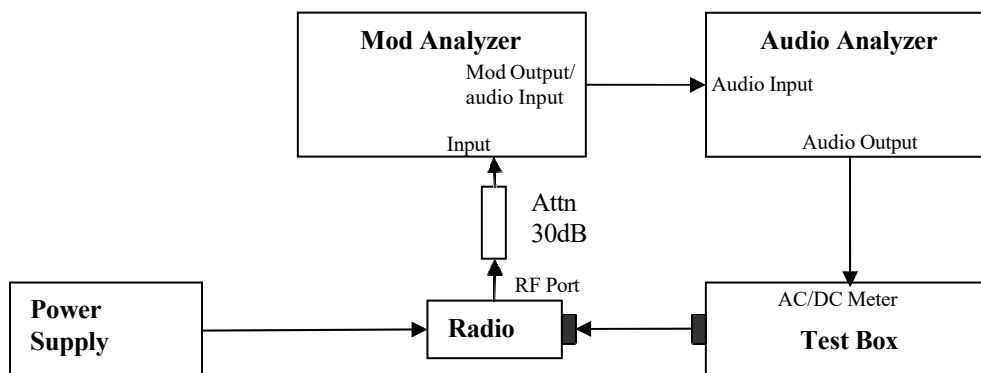
Frequency / Channel Spacing	467.7750 MHz / 12.5 kHz			
Voltage, V	13.6			
Temperature, °C	Frequency, MHz	Frequency Stability, PPM	Spec (low) PPM	Spec (high) PPM
-30	467.775050	0.107	-2.500	2.500
-20	467.775090	0.192	-2.500	2.500
-10	467.775080	0.171	-2.500	2.500
0	467.775080	0.171	-2.500	2.500
10	467.775060	0.128	-2.500	2.500
20	467.775010	0.021	-2.500	2.500
30	467.775020	0.043	-2.500	2.500
40	467.775010	0.021	-2.500	2.500
50	467.775020	0.043	-2.500	2.500
60	467.775030	0.064	-2.500	2.500

6.2.3. Test Limit

As per manufacturer declared spec +/- 2.5ppm

6.3. Audio Frequency Response

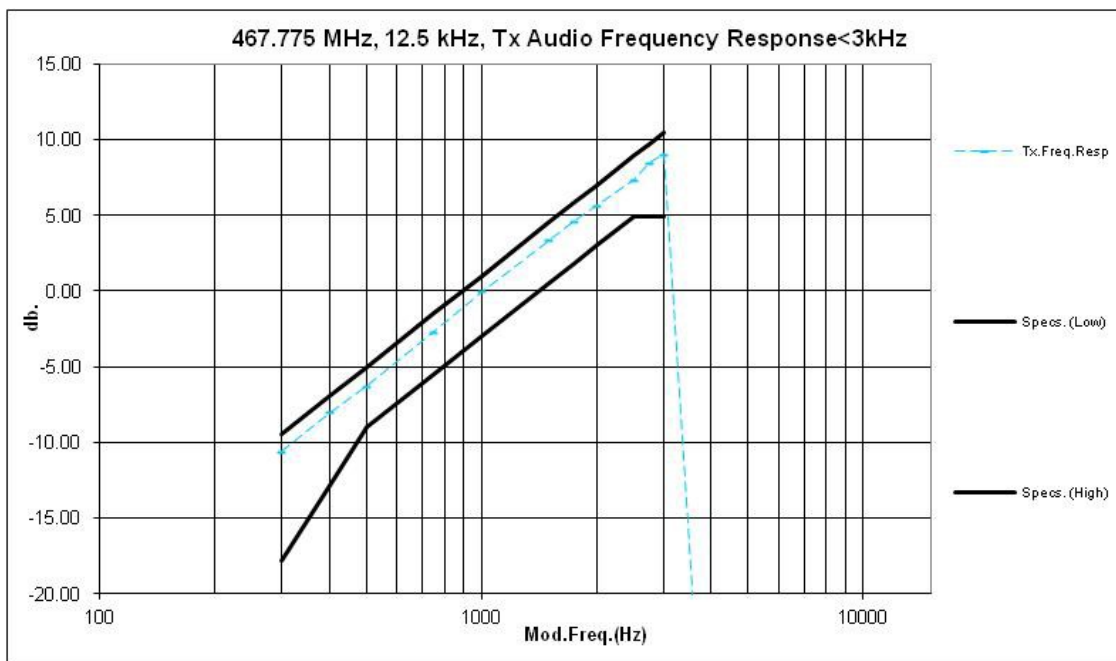
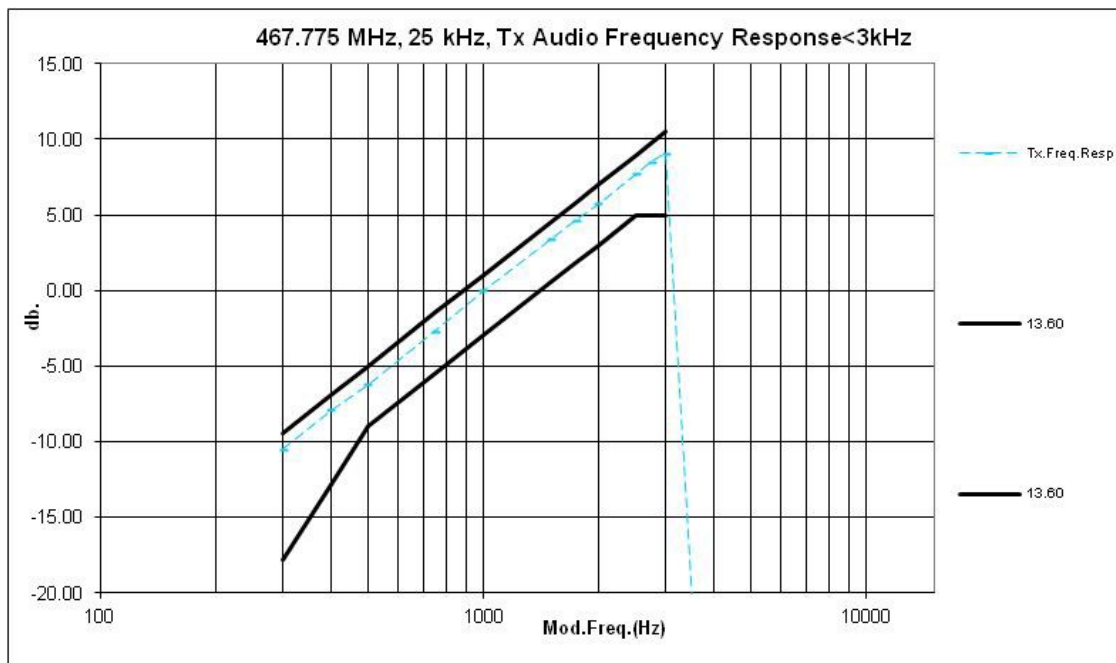
6.3.1. Test Setup



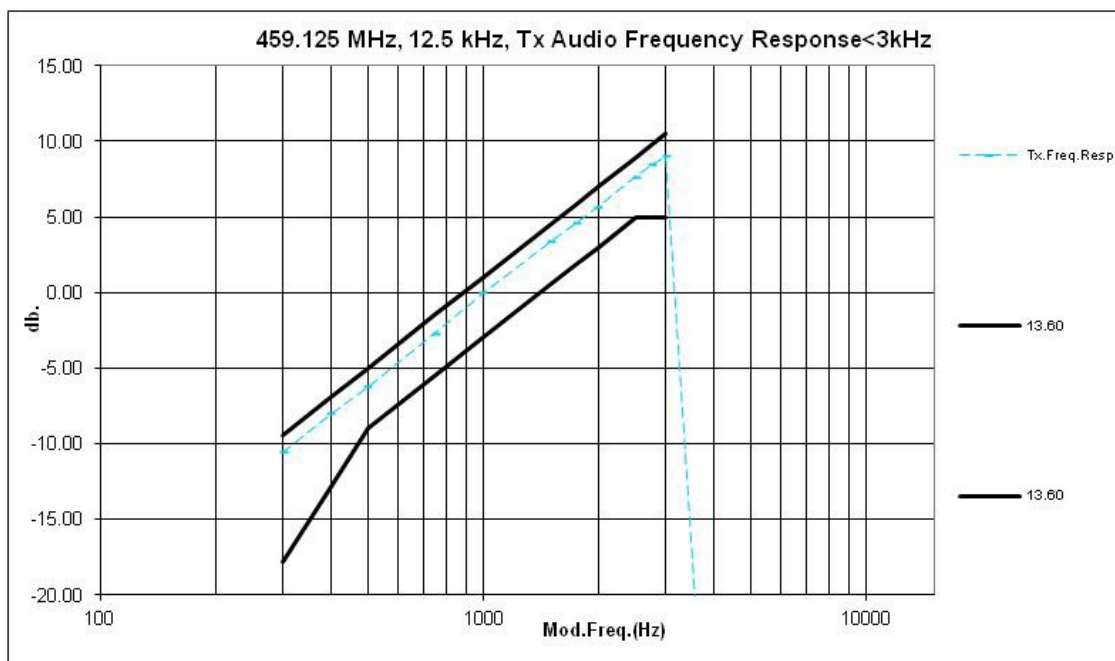
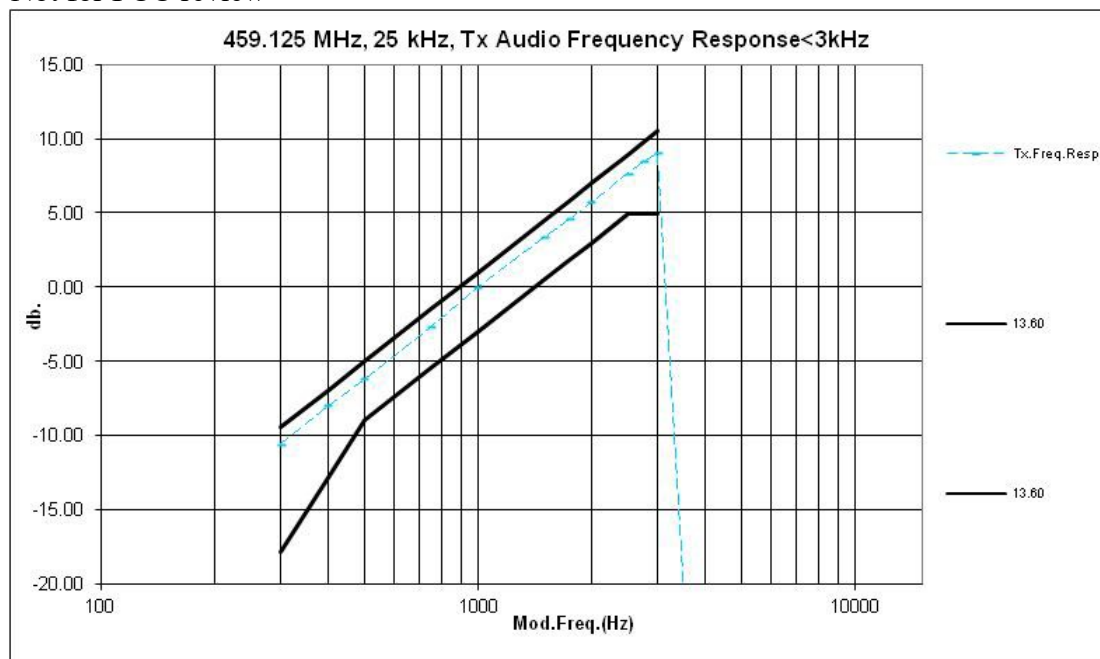
- 1) The DUT transmitter output port was connected to Modulation Analyzer.
- 2) Path loss for the measurement included.
- 3) Set the audio bandwidth filter to 15 kHz and 50 kHz.
- 4) Transmit the radio and set the audio analyzer to 1 kHz audio frequency and 20% of the Full rated system deviation.
- 5) On audio analyzer, set the rated level as reference to zero.
- 6) Vary the audio frequency from 300 Hz to 3 kHz. Record the change in dB on the audio analyzer.

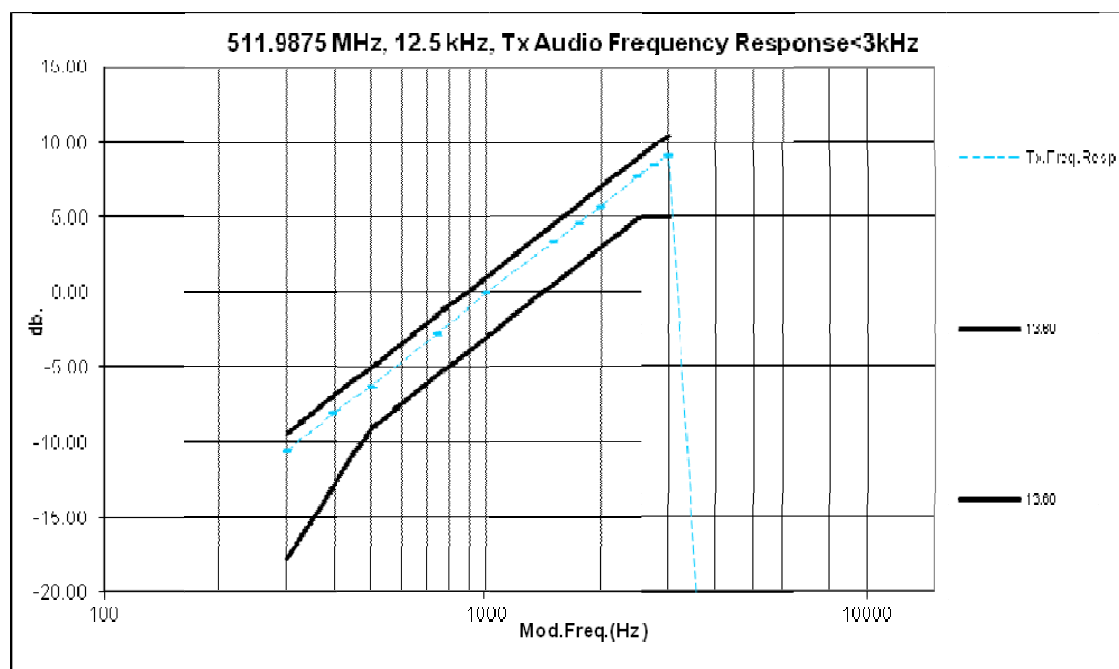
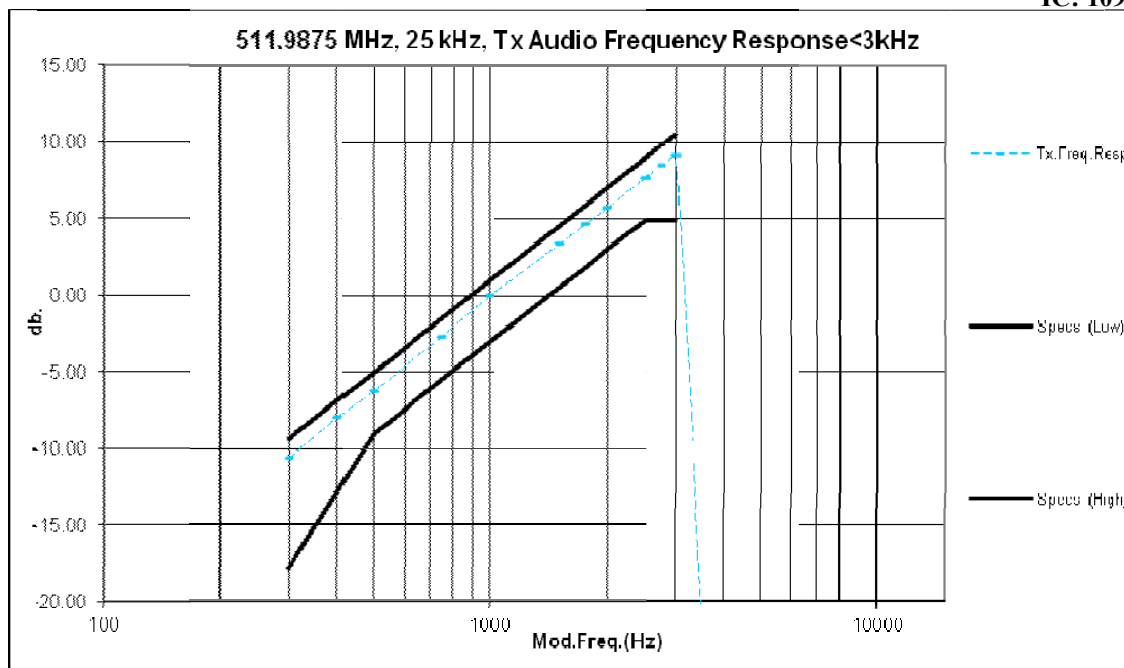
6.3.2. Test Result

Not for FCC review

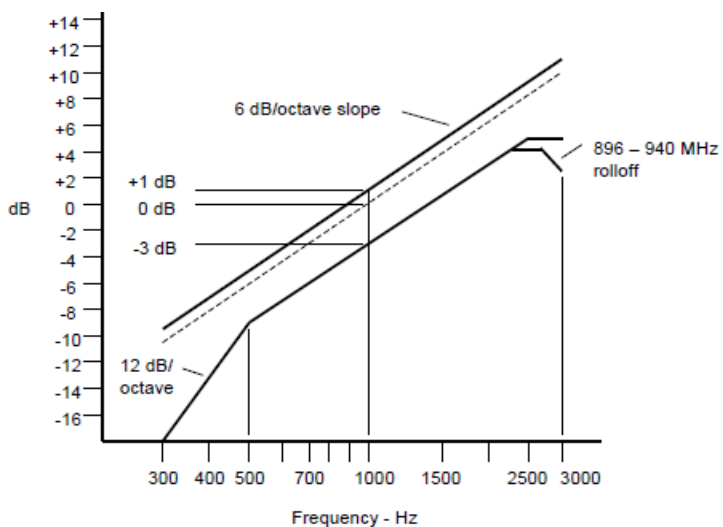


Not for FCC review





6.3.3. Test Limit

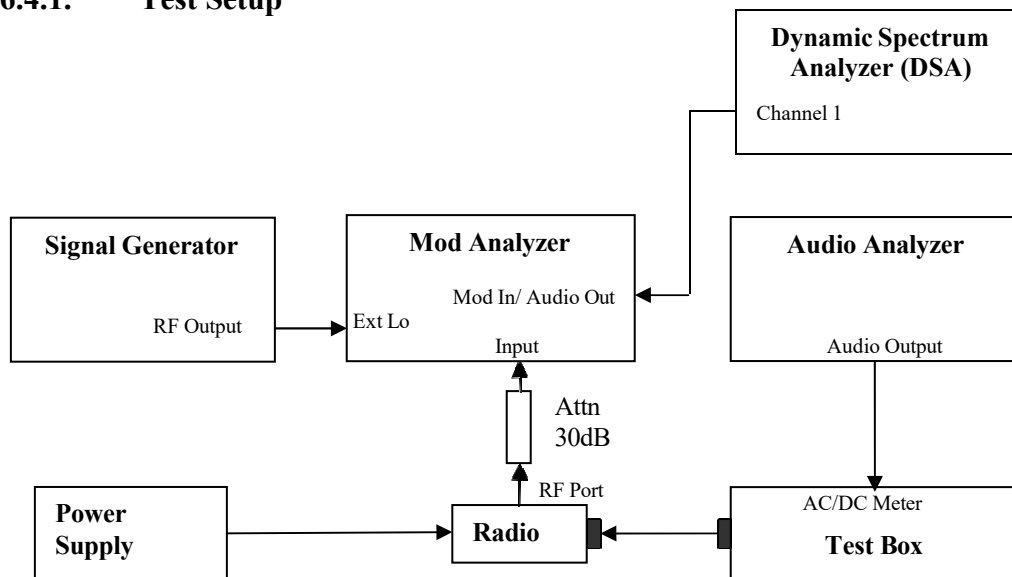


Note:

- o There are additional 6 dB per octave attenuation is allowed from 2.5KHz to 3KHz in equipment 25MHz to 869MHz radio.
- o Additional 6 dB per octave attenuation is allowed from 2.3KHz to 2.7KHz & additional 12 dB per octave attenuation is allowed from 2.7KHz to 3KHz in equipment 896MHz to 940MHz radio.

6.4. Audio Low Pass Filter Response

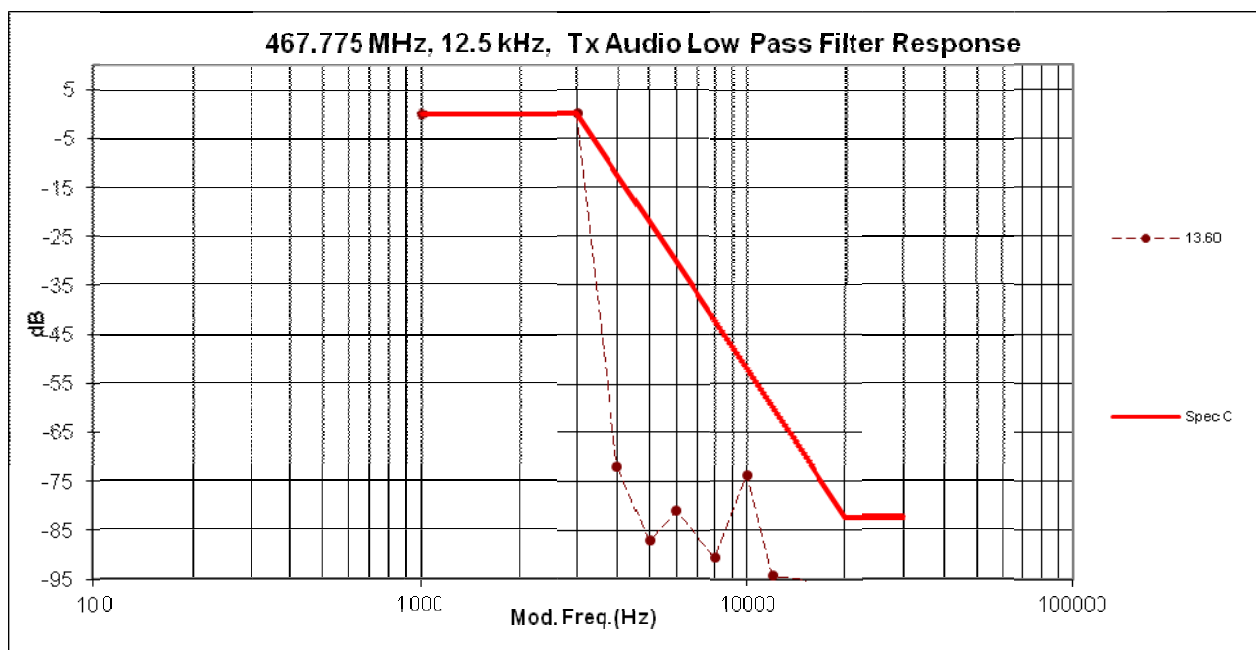
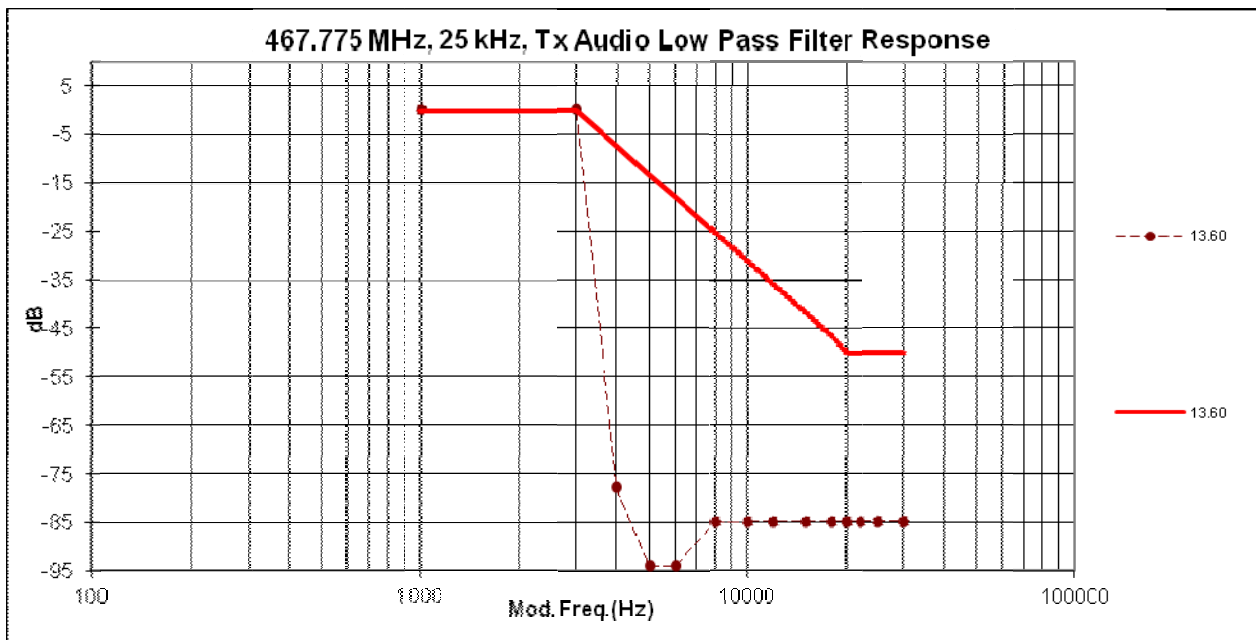
6.4.1. Test Setup



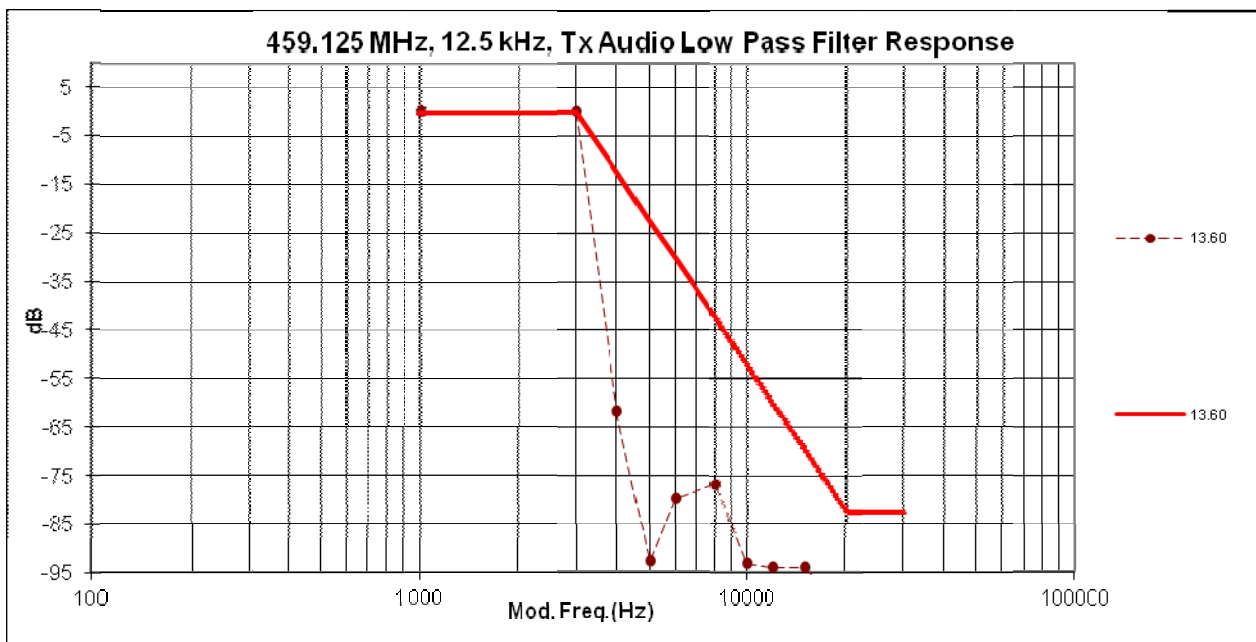
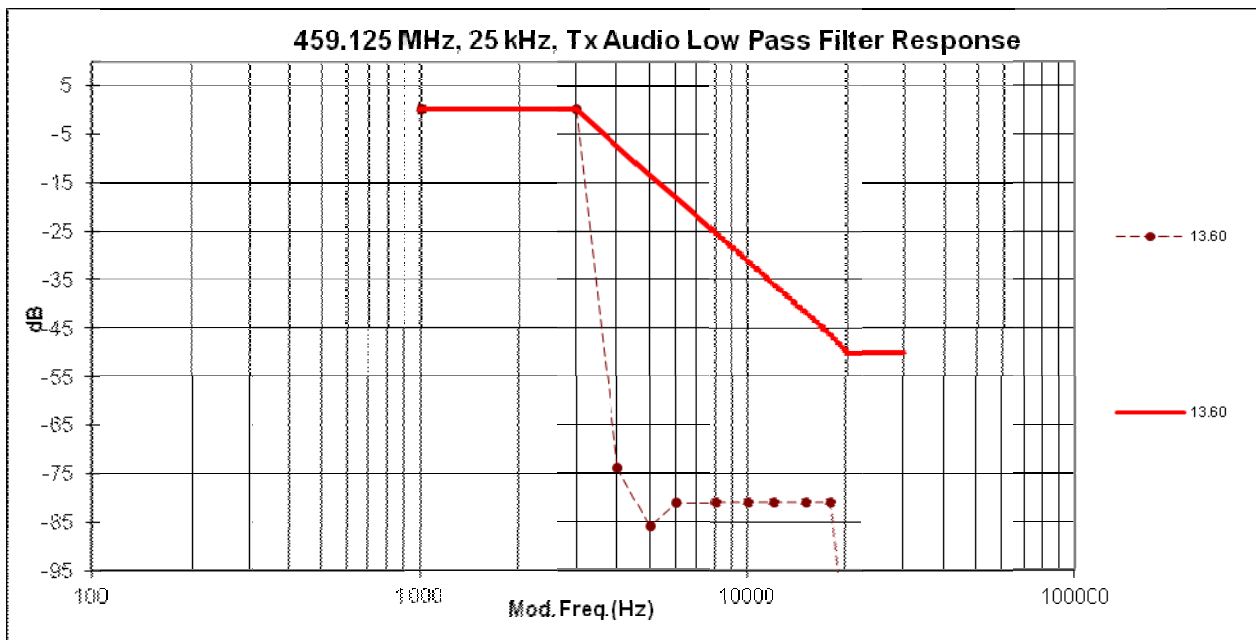
- 1) The DUT transmitter output port was connected to Modulation Analyzer.
- 2) Path loss for the measurement included.
- 3) Press 23.1SPCL on modulation analyzer to enable the external LO from Sigen.
- 4) Set the Sigen frequency to $F_c + 1.5$ MHz, RF output level to 0dBm without modulation.
- 5) Transmit the radio and set the audio analyzer to 1 kHz audio frequency and 60% of the Full rated system deviation.
- 6) Up the amplitude by 20dB.
- 7) On DSA, get the reference point to 0dB.
- 8) Vary the frequency on audio analyzer from 3 kHz to 20 kHz, record the audio tone from DSA.

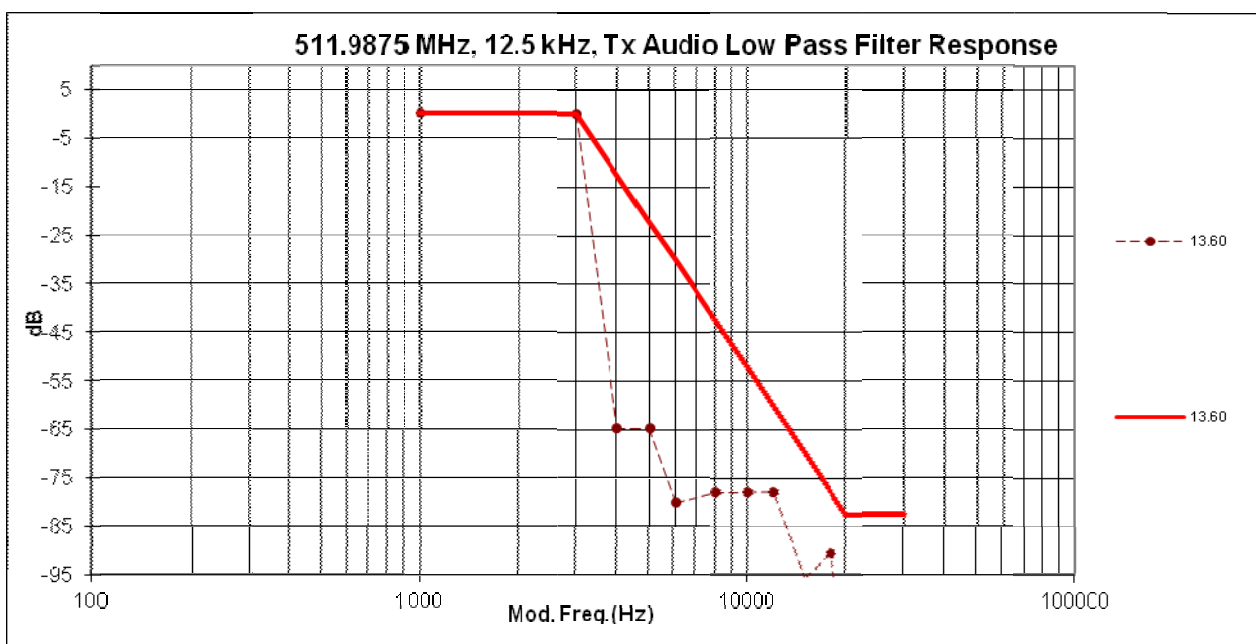
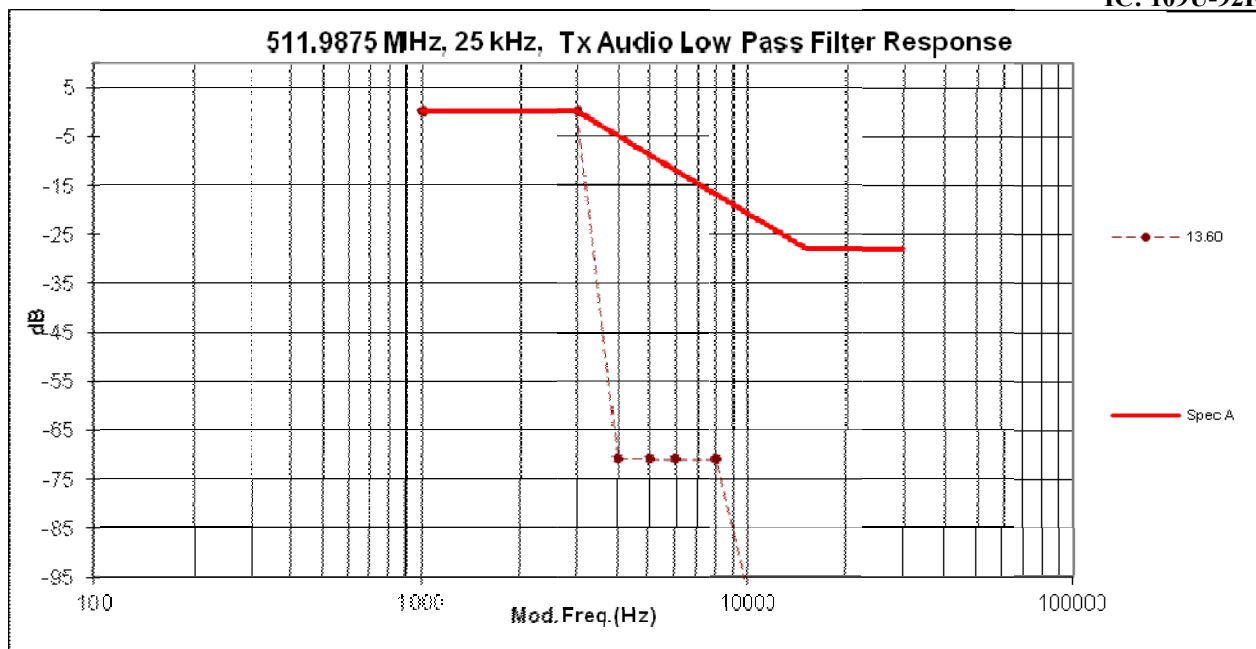
6.4.2. Test Result

Not for FCC review

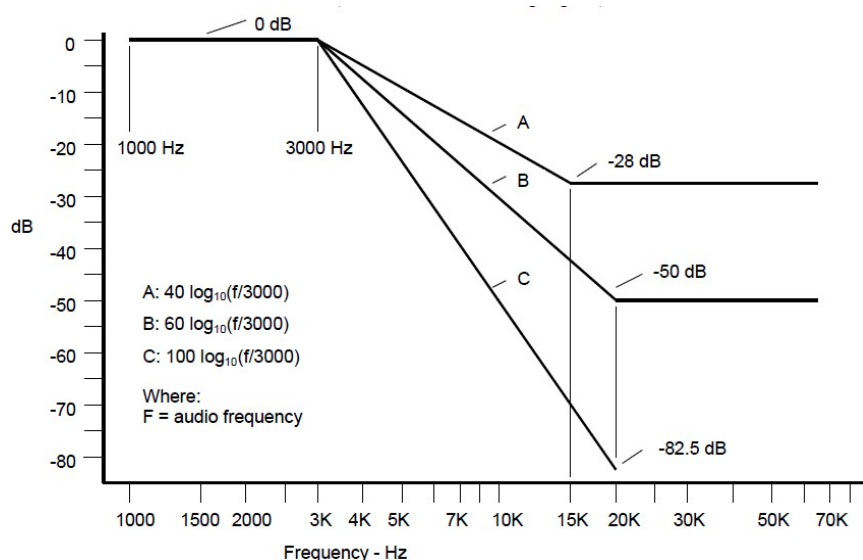


Not for FCC review





6.4.3. Test Limit



For audio frequencies above 3000 Hz, the audio response of the post limiter low-pass filter shall meet or exceed the following requirements:

- a) For equipment operating on 20, 25 or 30 kHz channel bandwidth in the 25 MHz to 174 MHz range:

At frequencies from 3000 Hz through 15,000 Hz the attenuation shall be greater than the attenuation at 1000 Hz by at least: $40 \log_{10}(f / 3000)$ dB

where: f is the audio frequency in Hz.

At frequencies above 15,000 Hz, the attenuation shall be greater than the attenuation at 1000 Hz, by at least: 28 dB.

- b) For equipment operating with 25 kHz bandwidth channels between 406 and 512 MHz through 896 MHz, and between 929 MHz through 930 MHz:

At frequencies from 3000 Hz through 20,000 Hz, the attenuation shall be greater than the attenuation at 1000 Hz by at least: $60 \log_{10}(f / 3000)$ dB

where: f is the audio frequency in Hz.

At frequencies above 20,000 Hz the attenuation shall be greater than the attenuation at 1000 Hz by at least: 50 dB.

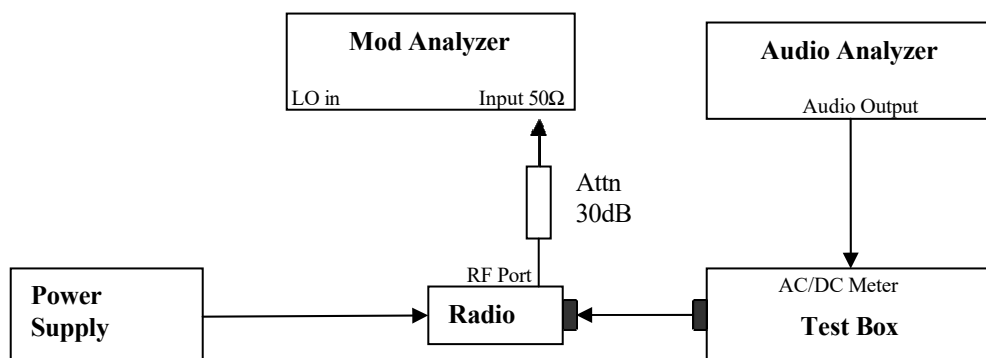
- c) For equipment operating on channels between 896 MHz through 901 MHz, between 935 MHz through 940 MHz, and 12.5 or 15 kHz spaced channels in the frequency range 138-174 MHz and 406-512 MHz.

At frequencies from 3000 Hz through 20,000 Hz the attenuation shall be greater than the attenuation at 1000 Hz by at least: $100 \log_{10}(f / 3000)$ dB

where: f is the audio frequency in Hz.

6.5. Modulation Limiting

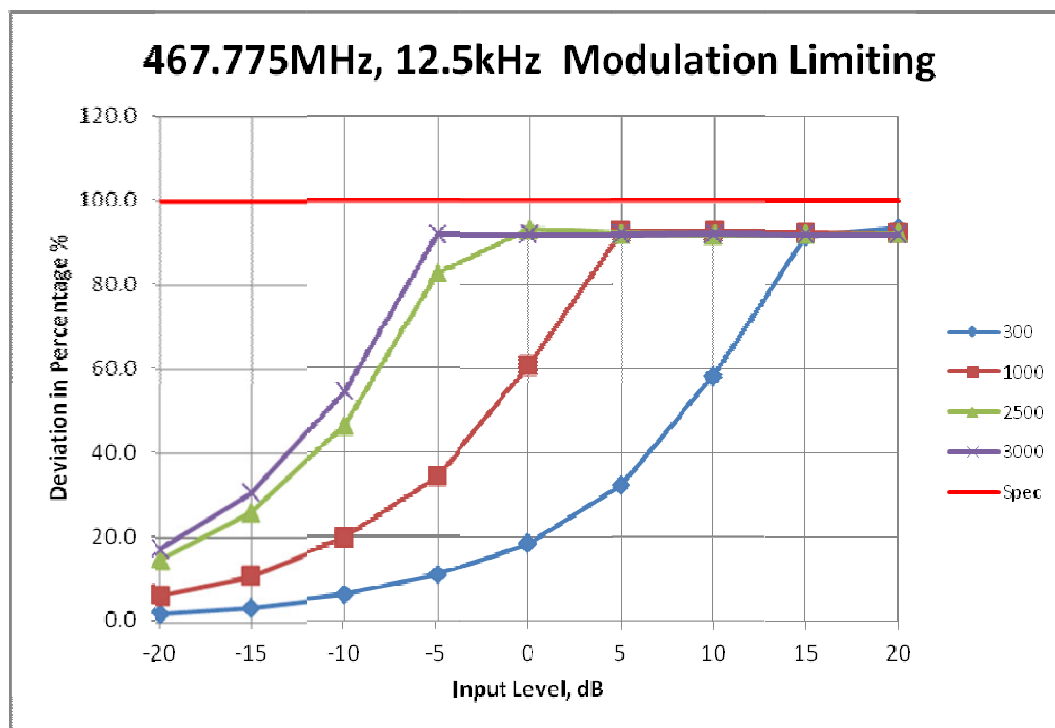
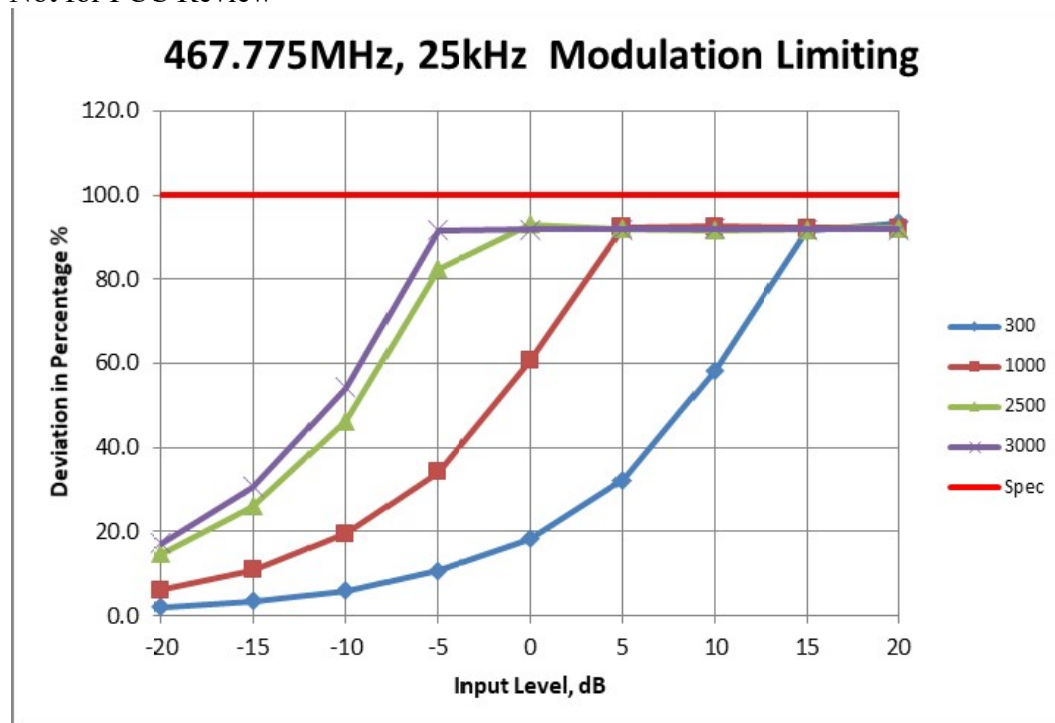
6.5.1. Test Setup



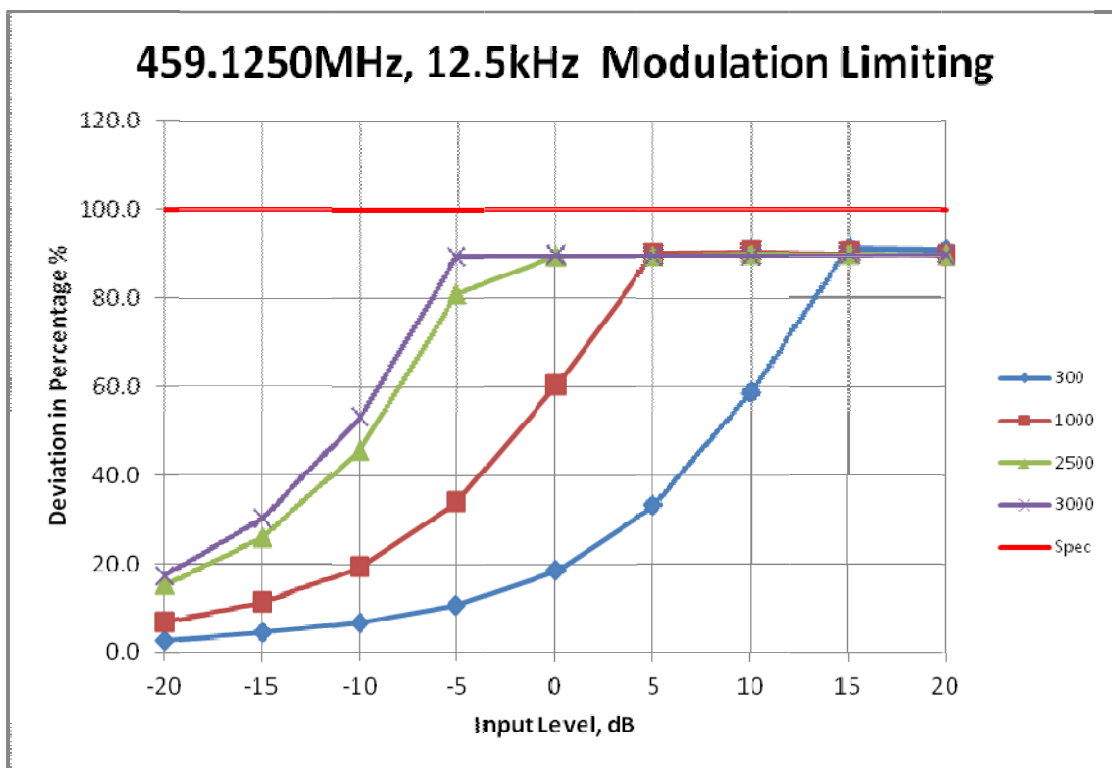
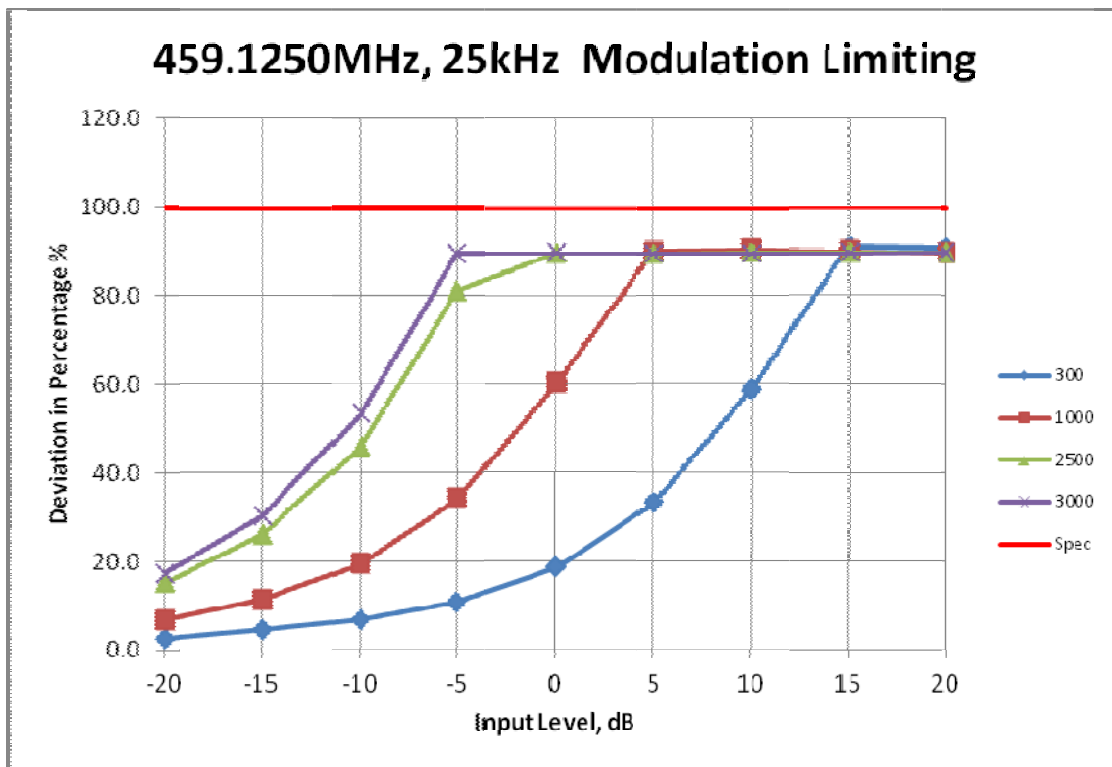
- 1) The DUT transmitter output port was connected to Modulation Analyzer.
- 2) Path loss for the measurement included.
- 3) Set the audio bandwidth filter to 15 kHz.
- 4) Transmit the radio and set the audio analyzer to 1 kHz audio frequency and 60% of the Full rated system deviation.
- 5) Record the frequency deviation as 0dB input level at 1kHz audio frequency.
- 6) Repeat the step and record the frequency deviation from -20 dB to 20dB by 5 dB increments and different audio freq 300 Hz, 2.5 kHz and 3 kHz.

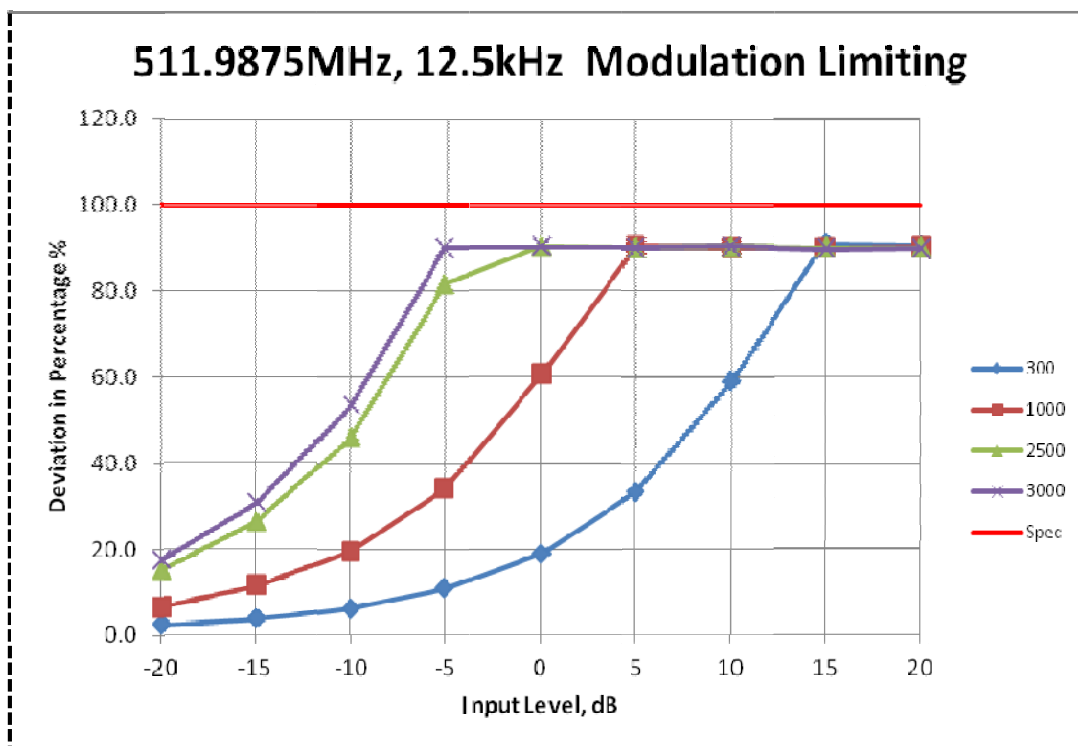
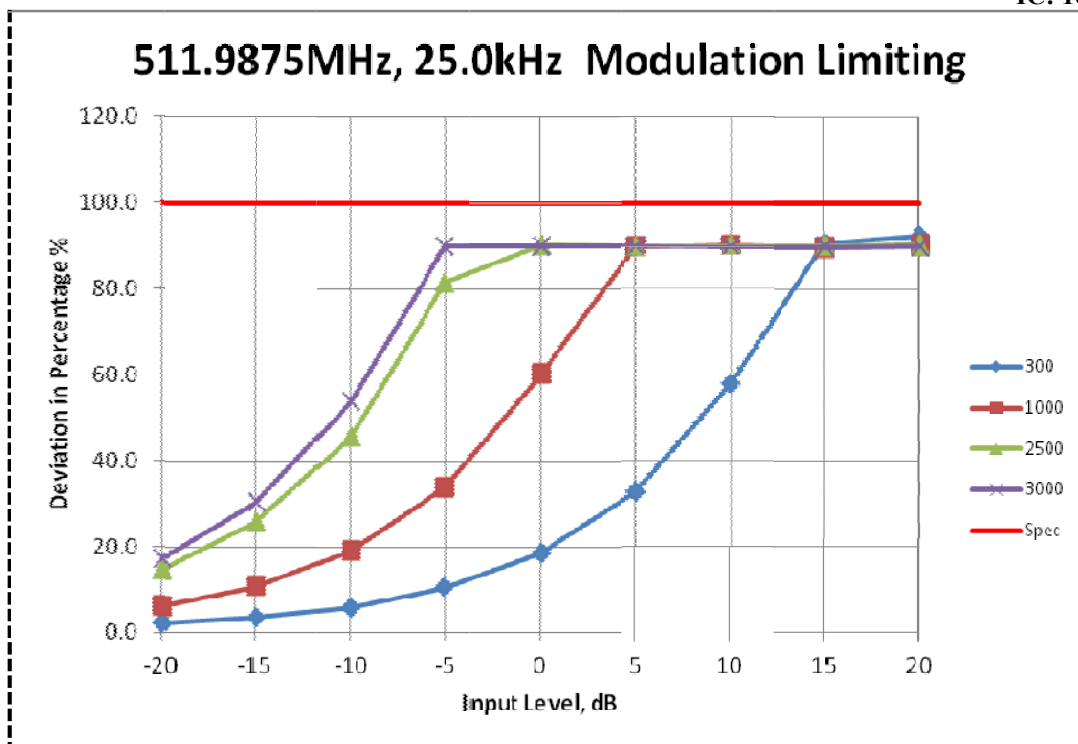
6.5.2. Test Result

Not for FCC Review



Not for FCC review



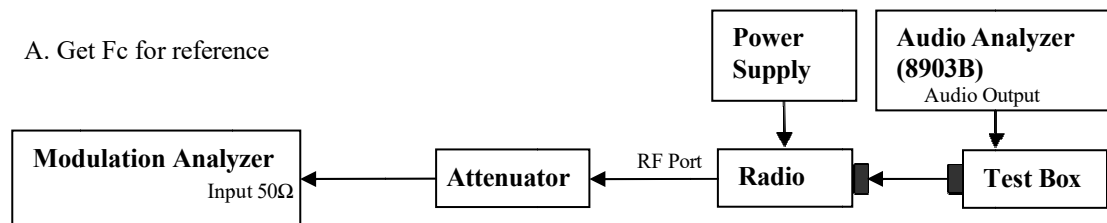


- 6.5.3. **Test Limit**
Modulation Limiting shall not exceed 100 percent.

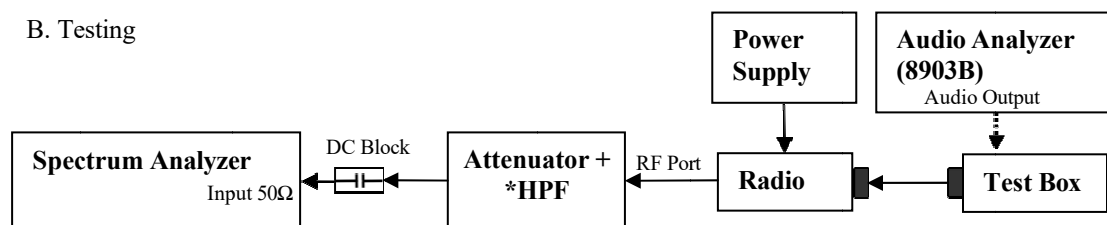
6.6. Occupied Bandwidth

6.6.1. Test Setup (Analog)

A. Get Fc for reference



B. Testing



- 1) The DUT transmitter output port was connected to Modulation Analyzer.
- 2) Set the audio bandwidth filter to 15 kHz low pass filter and 50 kHz high pass filter.
- 3) Transmit the radio and set the audio analyzer to 2.5 kHz audio frequency and 50% of the rated deviation. Up the amplitude by 16 dB. Dekey the DUT.
- 4) Path loss for the measurement included.
- 5) Select the Occupied Bandwidth measurement for 99% Emissions Bandwidth Measurement.
- 6) Key in the Fc and Resolution Bandwidth (1 ~ 5 % of emission designator).
- 7) Transmit the DUT and record the occupied Bandwidth frequency.
- 8) Preset the spectrum analyzer for sideband spectrum measurement.
- 9) Set the span and Resolution Bandwidth (according to FCC/ ISED standard).
- 10) Save the screen shot as modulated signal
- 11) Remove the audio tone from audio analyzer to capture unmodulated signal.

* Only HPF added for Mask 80.211 measurement with attenuator.

* 99% Bandwidth measurement is computed by the spectrum analyzer and is consistent with the C63.26 5.4.4 method.

6.6.2. Test Result (Analog)

Standard Audio Modulation (25 kHz Channelization, Analog Voice):
Emission Designator 16K0F3E

In this case, the maximum modulating frequency is 3 kHz with a 5 kHz deviation.

$BW = 2(M+D) = 2*(3 \text{ kHz} + 5 \text{ kHz}) = 16 \text{ kHz} = 16K0$
F3E portion of the designator indicates voice.

Therefore, the entire designator for 25 kHz channelization analog voice is 16K0F3E.

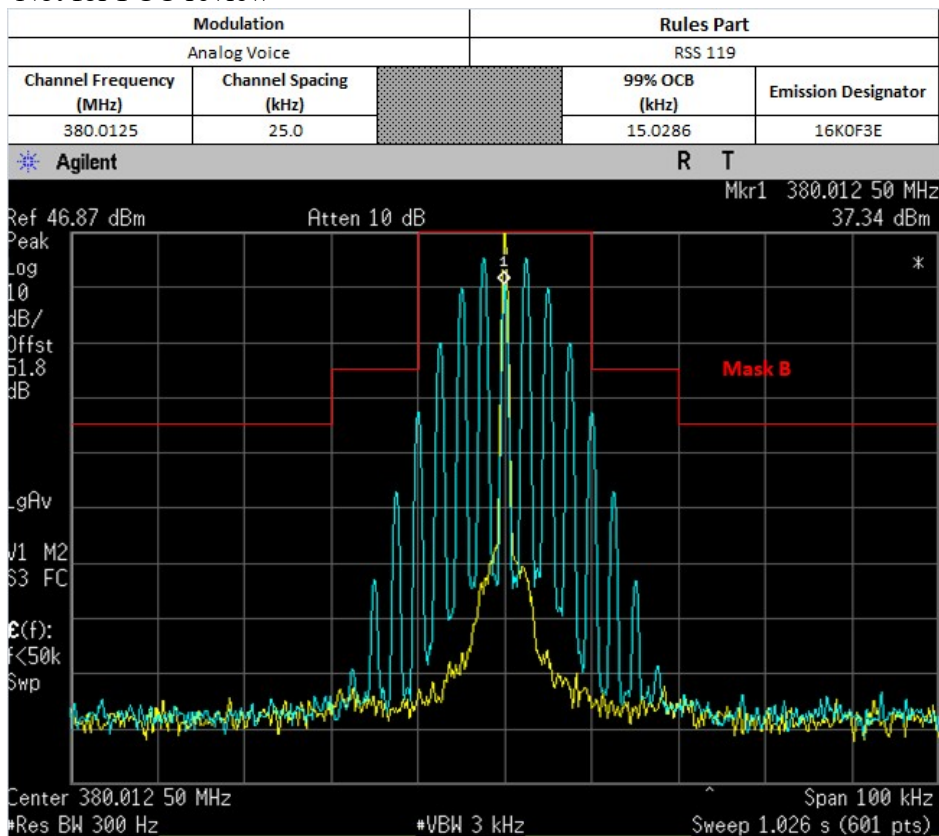
Standard Audio Modulation (12.5 kHz Channelization, Analog Voice):
Emission Designator 11K0F3E

In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.

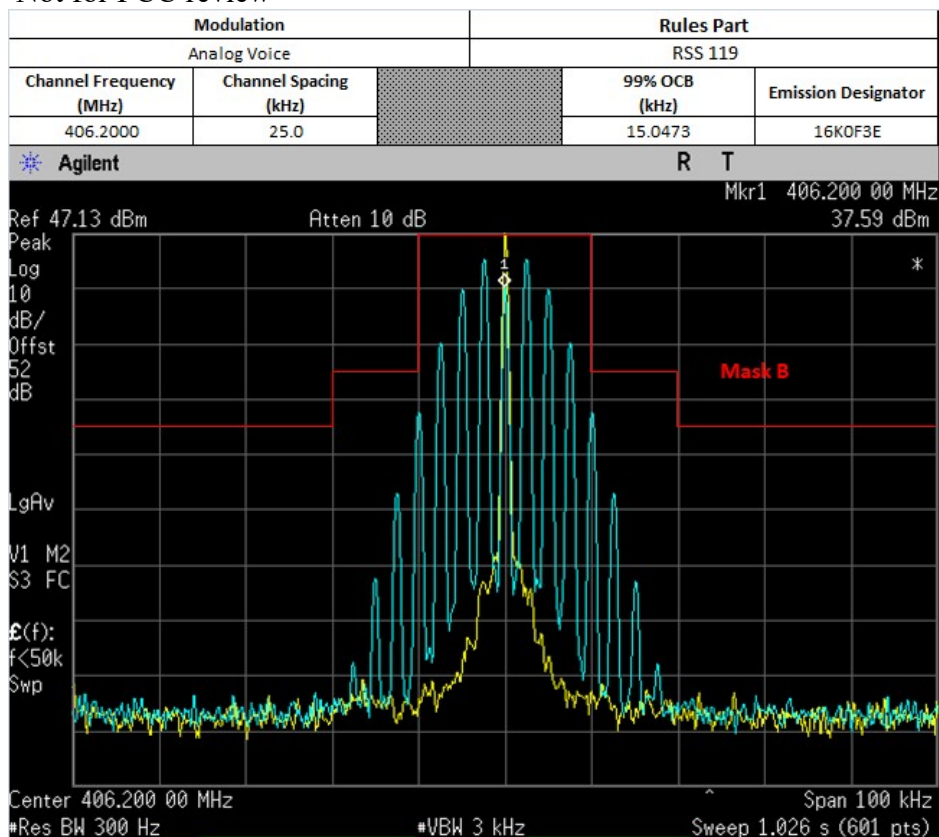
$BW = 2(M+D) = 2*(3.0 \text{ kHz} + 2.5 \text{ kHz}) = 11 \text{ kHz} = 11K0$
F3E portion of the designator indicates voice.

Therefore, the entire designator for 12.5 kHz channelization analog voice is 11K0F3E.

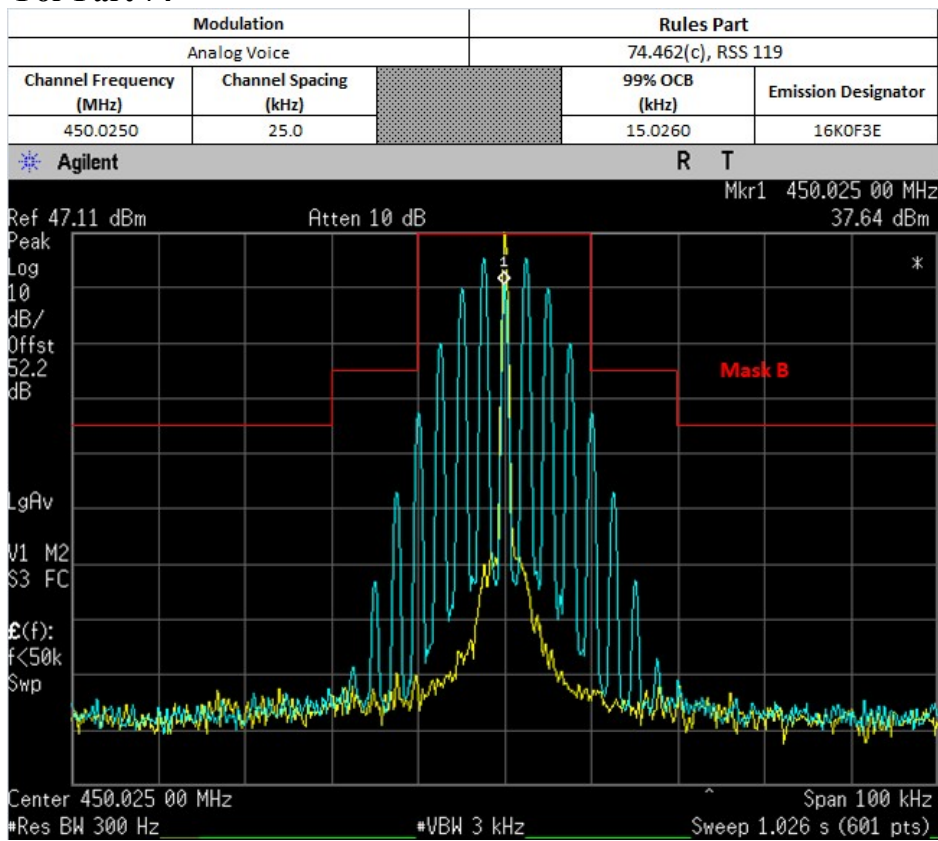
Not for FCC review



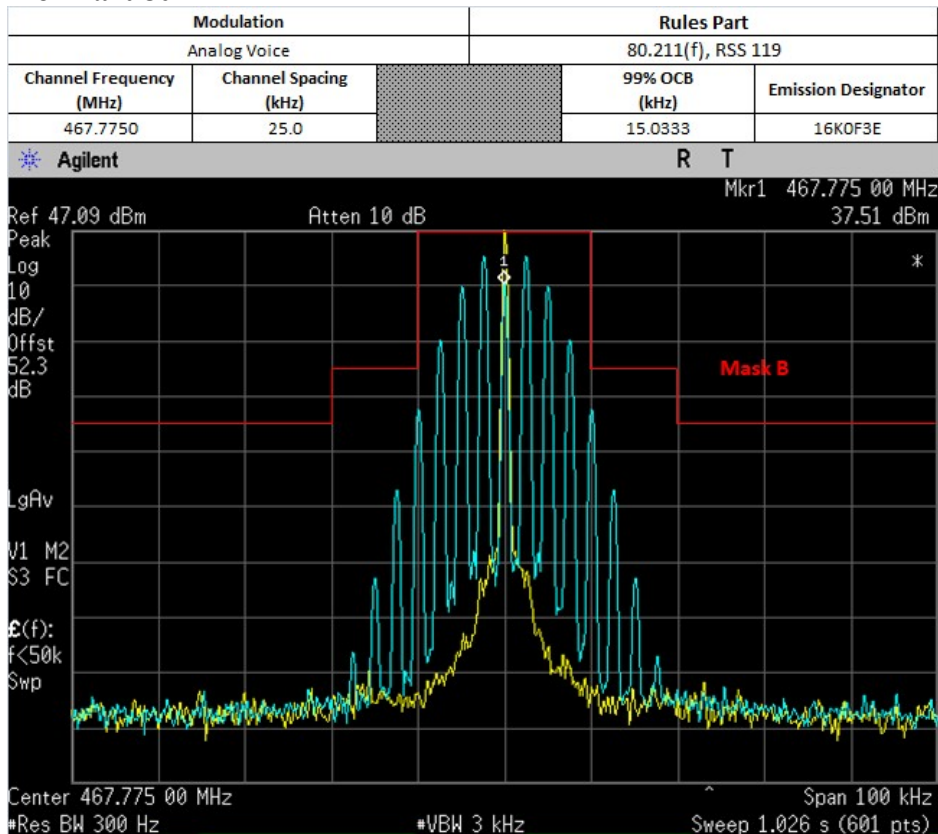
Not for FCC review

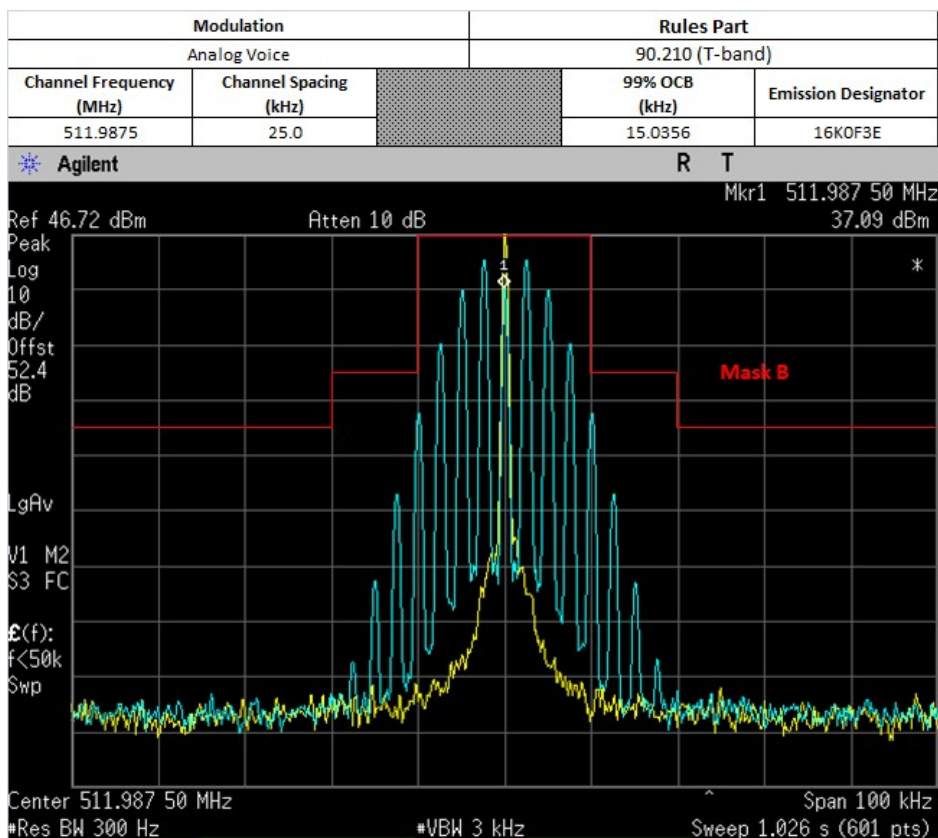
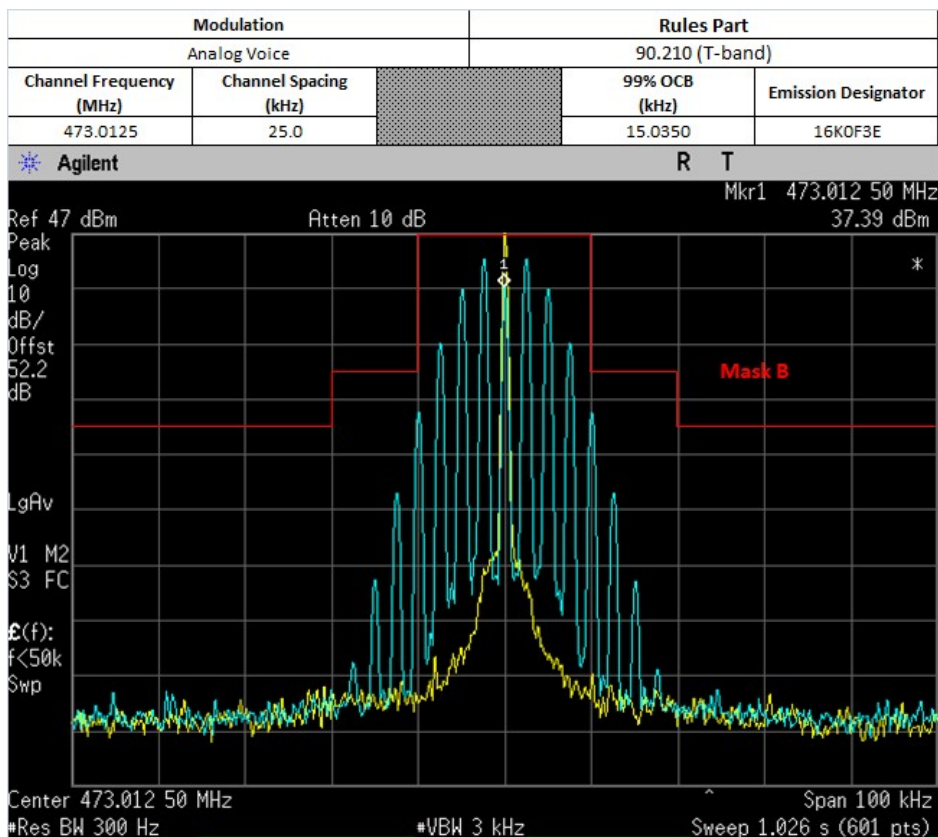


For Part 74



For Part 80





Not for FCC review

