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FCC PART 15.237
Auditory Assistance Device
Low Power Unlicensed Intentional Radiator
TEST REPORT

Applicant	Williams Sound Corporation
Address	10321 West 70th Street Eden Prairie, MN 55344 USA
FCC ID	CNMT27
Model Number	T27
Product Description	Audio Assistance Device
Date Sample Received	February 3, 2007
Date Tested	February 7, 2007
Tested By	Nam Nguyen
Approved By	Mario de Aranzeta
Report Number	351AUT7TestRepot.PDF
Test Results	☒ PASS ☐ FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Certificate # 0955-01

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STATEMENT OF COMPLIANCE



Certificate #0955-01

This equipment has been tested in accordance with the standards identified in the referenced test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment does comply with the appropriate standards.

All Timco instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made by me or under my supervision, at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45, Newberry, Florida 32669 USA.

Authorized by: Mario de Aranzeta

Signature: <on file>

Function: Engineer

Date: February 20, 2007

Tested by: Nam Nguyen

Date: February 16, 2007

REPORT SUMMARY

Purpose of Report	To demonstrate the DUT in compliance with FCC CFR 47 Part 15.237 requirements for auditory assistance device.
Disclaimer	The test results relate only to the items tested.
Applicable Standards	FCC CFR 47, Pt 15.237, ANSI C63.4-2003
Related Report	Digital portion is in compliance with Pt15.109, Pt 15.107 requirements in 2755BUT6TestReport

TEST ENVIRONMENT

Test Facility	Timco Engineering Inc 849 NW State Road 45 Newberry, FL 32669 USA
Laboratory Condition	Temperature: 26°C, Humidity: 50%

TEST SYSTEM SETUP

Certified System	The EUT was tested with the microphone and/or accessories provided by the applicant, which includes a S/N: 086 microphone and a microphone simulator.
Modification to DUT	No modification was made to ensure the DUT in compliance with regulatory requirements
Test Exercise	The DUT was placed in continuous transmit mode of operation
Cable	N/A
Supporting Equipment	The device is a stand-alone device operated by installed manufacturer software specified in operation manual.

DUT DESCRIPTION

Manufacturer	Williams Sound Corporation		
DUT	Auditory Assistance Device		
FCC ID	CNMT27		
Model Number	T27		
Serial Number	N/A		
Trade Name	Hearing Helper		
Operating Frequency	72.1 ~ 75.9 MHz		
No. of Channels	Selectable 17 channels, up and down push button		
Max. Output Power	N/A		
Modulation	Wideband FM		
Mic Connector	3.5 mm mono phone jack		
DUT Power Source	12VAC adaptor		
Test Item	☐ Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☐ Fixed	☐ Mobile	☒ Portable
Antenna Connector			
Antenna Specification	A. M/N: 021 B. M/N: 024 C. M/N: 025 D. M/N: 005		

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Antenna: Biconnical	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Analyzer Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Analyzer Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 9/5/05	9/5/07
Analyzer Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/06	8/27/08
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Antenna: Log-Periodic	Eaton	96005	1243	CAL 12/14/05	12/14/07

TEST PROCEDURES

Power Line Conducted Interference

The measurements were made in accordance with ANSI C63.4-2003 "Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz". The measurements were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω / 50uH Line Impedance Stabilization Network (LISN). The tests were performed in an RF shielded enclosure.

Radiation Interference

The test procedure used was ANSI C63.4-2003 using an Agilent spectrum analyzer with a pre-selector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Modulation Characteristics

Audio Frequency Response - The audio frequency response was measured in accordance with ANSI/TIA 603: 2003. The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured.

Audio input versus modulation

The audio input level needed for a particular percentage of modulation was measured in accordance with ANSI/TIA 603: 2003.

Occupied Bandwidth

The test procedure used was ANSI C63.4-2003.

Radiated Spurious Emissions Into Adjacent Restricted Band

An in band field strength measurement of the fundamental Emission using the RBW and detector function required by C63.4-2003 and FCC Rules. The procedure was repeated with an average detector and a plot made. The calculated field strength in the adjacent restricted band is presented in the following pages.

Formula Of Conversion Factors

The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBuV	+ 10.36 dB/m	+0.40 dB	=30.76 dBuV/m @ 3m

ANSI C63.4-2003 Measurement Procedures

The DUT was placed on a non-conducting table 80 cm above the ground plane with the DUT located in the center of the table. With the antenna vertical a preliminary scan was done at 1 meters distance, the DUT was moved to a 3.0-meter distance and the antenna height varied and also placed in a horizontal position. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes.

ANTENNA REQUIREMENT

Rules Part No.: Pt 15.203

Requirements: The antenna must meet at least one of the following criteria:

- A. Antenna be permanently attached to the unit
- B. Antenna must use a unique type of connector to attach to the DUT
- C. Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit

Results: The antenna meets the criteria of this rule by virtue of having a unique type of connector to attached to the DUT. The DUT is therefore compliant with Pt 15.203.

RADIATION INTERFERENCE

Rules Part No.: Pt 15.237 (c), Pt 15.35

Requirements: Carrier frequency shall not exceeds 98.0 dBuV/m at 3m. Out-of-band emissions, other than emissions in the restricted band shall not exceed 63.5 dBuV/m at 3m.

Test Data: Sample Calculation: FS: dBuV/m = MR(dBuV) + ACFdB

Antenna: 021

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
72.1	72.1	79.4	V	1.17	6.23	86.80	11.20
72.1	72.1	80.6	H	1.17	5.85	87.62	10.38
72.1	144.2	10.2	V	1.79	16.86	28.85	34.65
72.1	144.2	12.6	H	1.79	15.62	30.01	33.49
72.1	216.3	16.6	V	2.5	11.19	30.29	33.21
72.1	216.3	23.1	H	2.5	11.55	37.15	26.35
72.1	288.4	16.2	V	2.75	15	33.95	29.55
72.1	288.4	21.2	H	2.75	14.98	38.93	24.57
72.1	360.5	30.2	V	3.1	14.81	48.11	15.39
72.1	360.5	33.9	H	3.1	15.01	52.01	11.49
72.1	432.6	9.8	V	3.43	16.9	30.13	33.37
72.1	432.6	10.6	H	3.43	17.26	31.29	32.21
72.1	504.7	9.4	V	3.71	18.28	31.39	32.11
72.1	504.7	10.9	H	3.71	18.42	33.03	30.47
72.1	648.9	10.6	V	4.2	19.86	34.66	28.84
72.1	648.9	12.2	H	4.2	19.99	36.39	27.11
72.1	721	8.8	V	4.48	20.79	34.07	29.43
72.1	721	9.1	H	4.48	21.38	34.96	28.54
74.7	74.7	80.6	V	1.18	7.01	88.79	9.21
74.7	74.7	81.3	H	1.18	6.52	89.00	9.00
74.7	149.4	14.9	V	1.84	17.18	33.92	29.58
74.7	149.4	16.0	H	1.84	16.05	33.89	29.61
74.7	224.1	17.1	V	2.52	11.12	30.74	32.76
74.7	224.1	23.8	H	2.52	11.44	37.76	25.74

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Applicant: Williams Sound Corporation

FCC ID: CNMT27

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[Continued] Antenna: 021

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
74.7	298.8	16.1	V	2.8	14.57	33.47	30.03
74.7	298.8	21.5	H	2.8	14.56	38.86	24.64
74.7	373.5	25.1	V	3.17	15.11	43.38	20.12
74.7	373.5	28.6	H	3.17	15.21	46.98	16.52
74.7	448.2	11.1	H	3.49	17.45	32.04	31.46
74.7	448.2	11.2	V	3.49	16.95	31.64	31.86
74.7	522.9	9.6	V	3.77	18.08	31.45	32.05
74.7	522.9	10.4	H	3.77	18.8	32.97	30.53
74.7	597.6	9.1	V	3.99	18.65	31.74	31.76
74.7	597.6	10.7	H	3.99	19.25	33.94	29.56
74.7	672.3	8.1	V	4.29	20.58	32.97	30.53
74.7	672.3	8.6	H	4.29	20.67	33.56	29.94
74.7	747.0	8.8	V	4.59	20.67	34.06	29.44
74.7	747.0	9.1	H	4.59	21.41	35.10	28.40
75.9	75.9	82.5	V	1.19	7.41	91.10	6.90
75.9	75.9	82.9	H	1.19	6.91	91.00	7.00
75.9	151.8	16.1	H	1.87	16.17	34.14	29.36
75.9	151.8	16.4	V	1.87	17.24	35.51	27.99
75.9	227.7	18.6	V	2.53	11.23	32.36	31.14
75.9	227.7	24.2	H	2.53	11.48	38.21	25.29
75.9	303.6	16.4	V	2.82	14.43	33.65	29.85
75.9	303.6	16.6	H	2.82	14.43	33.85	29.65
75.9	379.5	21.4	V	3.20	15.47	40.07	23.43
75.9	379.5	25.1	H	3.20	15.39	43.69	19.81
75.9	455.4	11.2	H	3.52	17.08	31.80	31.70
75.9	455.4	11.5	V	3.52	16.9	31.92	31.58
75.9	531.3	9.0	V	3.79	17.83	30.62	32.88
75.9	531.3	10.7	H	3.79	18.29	32.78	30.72
75.9	759.0	8.6	V	4.64	20.79	34.03	29.47
75.9	759.0	9.4	H	4.64	21.59	35.63	27.87

Antenna 025

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
72.1	72.1	86.2	H	0.57	7.87	94.64	3.36
72.1	72.1	88.6	V	0.57	7.21	96.38	1.62
72.1	144.2	15.5	H	0.69	13.44	29.63	33.87
72.1	144.2	26.6	V	0.69	13.05	40.34	23.16
72.1	216.3	24.3	V	0.93	11.39	36.62	26.88
72.1	216.3	25.8	H	0.93	11.65	38.38	25.12
72.1	288.4	18.3	V	1.08	13.85	33.23	30.27
72.1	288.4	20.6	H	1.08	13.97	35.65	27.85
72.1	360.5	33.4	H	1.16	15.01	49.57	13.93
72.1	360.5	36.6	V	1.16	14.82	52.58	10.92
72.1	432.6	5.3	H	1.23	16.58	23.11	40.39
72.1	432.6	8.3	V	1.23	16.15	25.68	37.82
72.1	504.7	8.4	V	1.31	18.18	27.89	35.61
72.1	504.7	8.6	H	1.31	18.32	28.23	35.27
72.1	576.8	8.2	V	1.53	18.4	28.13	35.37
72.1	576.8	8.6	H	1.53	18.84	28.97	34.53
72.1	648.9	9.7	V	1.65	19.87	31.22	32.28
72.1	648.9	12.8	H	1.65	20.17	34.62	28.88
72.1	721	6.3	V	1.74	20.61	28.65	34.85
72.1	721	6.9	H	1.74	21.3	29.94	33.56
74.7	74.7	84.3	H	0.58	7.09	91.97	6.03
74.7	74.7	89.8	V	0.58	6.84	97.22	0.78
74.7	149.4	18.9	H	0.70	14.29	33.89	29.61
74.7	149.4	26.3	V	0.70	14.07	41.07	22.43
74.7	224.1	22.5	H	0.95	11.5	34.95	28.55
74.7	224.1	24.2	V	0.95	11.2	36.35	27.15
74.7	298.8	19.6	H	1.10	14.35	35.05	28.45
74.7	298.8	21	V	1.10	14.34	36.44	27.06
74.7	373.5	30.6	H	1.17	15.27	47.04	16.46
74.7	373.5	34.1	V	1.17	15.17	50.44	13.06

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[Continued] Antenna 025

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
74.7	448.2	8.0	H	1.25	16.88	26.13	37.37
74.7	448.2	10.3	V	1.25	16.55	28.1	35.4
74.7	522.9	8.8	V	1.37	18.13	28.3	35.2
74.7	522.9	9.6	H	1.37	18.78	29.75	33.75
74.7	597.6	7.9	H	1.59	19.10	28.59	34.91
74.7	597.6	8.6	V	1.59	18.60	28.79	34.71
74.7	672.3	5.4	H	1.67	20.77	27.84	35.66
74.7	672.3	7.7	V	1.67	20.5	29.87	33.63
74.7	747	5.5	V	1.79	20.66	27.95	35.55
74.7	747	6.1	H	1.79	21.51	29.4	34.10
75.9	75.9	83.6	H	0.59	6.93	91.12	6.88
75.9	75.9	89.7	V	0.59	6.78	97.07	0.93
75.9	151.8	14.7	H	0.71	14.22	29.63	33.87
75.9	151.8	27.0	V	0.71	14.31	42.02	21.48
75.9	227.7	25.9	H	0.96	11.5	38.36	25.14
75.9	227.7	25.9	V	0.96	11.2	38.06	25.44
75.9	303.6	13.7	H	1.1	14.69	29.49	34.01
75.9	303.6	16.7	V	1.1	14.65	32.45	31.05
75.9	379.5	25.9	H	1.18	15.39	42.47	21.03
75.9	379.5	28.9	V	1.18	15.29	45.37	18.13
75.9	455.4	8.5	H	1.26	16.85	26.61	36.89
75.9	455.4	10.8	V	1.26	16.76	28.82	34.68
75.9	531.3	8.6	V	1.39	17.75	27.74	35.76
75.9	531.3	8.9	H	1.39	18.47	28.76	34.74
75.9	607.2	7.5	H	1.61	19.39	28.5	35
75.9	607.2	9.6	V	1.61	18.89	30.1	33.4
75.9	683.1	5.9	V	1.68	20.5	28.08	35.42
75.9	683.1	7.2	H	1.68	21	29.88	33.62
75.9	759.0	4.5	H	1.82	21.6	27.92	35.58
75.9	759.0	6.6	V	1.82	20.69	29.11	34.39

Antenna 024

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
72.1	72.1	82.5	V	1.17	6.23	89.9	8.1
72.1	72.1	88.2	H	1.17	5.85	95.22	2.78
72.1	144.2	9.9	V	1.79	16.86	28.55	34.95
72.1	144.2	16.7	H	1.79	15.62	34.11	29.39
72.1	216.3	20.0	V	2.5	11.19	33.69	29.81
72.1	216.3	23.7	H	2.5	11.55	37.75	25.75
72.1	288.4	20.3	V	2.75	15	38.05	25.45
72.1	288.4	25.6	H	2.75	14.98	43.33	20.17
72.1	360.5	32.6	V	3.1	14.81	50.51	12.99
72.1	360.5	34.2	H	3.1	15.01	52.31	11.19
72.1	432.6	10.4	V	3.43	16.9	30.73	32.77
72.1	432.6	11.5	H	3.43	17.26	32.19	31.31
72.1	504.7	9.6	V	3.71	18.28	31.59	31.91
72.1	504.7	10.5	H	3.71	18.42	32.63	30.87
72.1	648.9	10.4	V	4.2	19.86	34.46	29.04
72.1	648.9	11.7	H	4.2	19.99	35.89	27.61
72.1	721.0	9.3	V	4.48	20.79	34.57	28.93
72.1	721.0	10.8	H	4.48	21.38	36.66	26.84
74.7	74.7	81.7	V	1.18	7.01	89.89	8.11
74.7	74.7	86.6	H	1.18	6.52	94.3	3.7
74.7	149.4	12	V	1.84	17.18	31.02	32.48
74.7	149.4	21.5	H	1.84	16.05	39.39	24.11
74.7	224.1	19.6	V	2.52	11.12	33.24	30.26
74.7	224.1	20.3	H	2.52	11.44	34.26	29.24
74.7	298.8	21	V	2.8	14.57	38.37	25.13
74.7	298.8	24.5	H	2.8	14.56	41.86	21.64
74.7	373.5	27.8	H	3.17	15.21	46.18	17.32
74.7	373.5	28.8	V	3.17	15.11	47.08	16.42
74.7	448.2	10	H	3.49	17.45	30.94	32.56
74.7	448.2	10.5	V	3.49	16.95	30.94	32.56

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[Continued] Antenna 024

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
74.7	522.9	10.1	V	3.77	18.08	31.95	31.55
74.7	522.9	11.6	H	3.77	18.8	34.17	29.33
74.7	597.6	9.5	H	3.99	19.25	32.74	30.76
74.7	597.6	9.6	V	3.99	18.65	32.24	31.26
74.7	672.3	9.1	V	4.29	20.58	33.97	29.53
74.7	672.3	9.3	H	4.29	20.67	34.26	29.24
74.7	747	8.4	V	4.59	20.67	33.66	29.84
74.7	747	9.6	H	4.59	21.41	35.6	27.9
75.9	75.9	82.2	V	1.19	7.41	90.8	7.2
75.9	75.9	87.1	H	1.19	6.91	95.2	2.8
75.9	151.8	12.9	V	1.87	17.24	32.01	31.49
75.9	151.8	19.1	H	1.87	16.17	37.14	26.36
75.9	227.7	19.9	V	2.53	11.23	33.66	29.84
75.9	227.7	20.9	H	2.53	11.48	34.91	28.59
75.9	303.6	18.1	V	2.82	14.43	35.35	28.15
75.9	303.6	19.6	H	2.82	14.43	36.85	26.65
75.9	379.5	23.4	V	3.2	15.47	42.07	21.43
75.9	379.5	25.1	H	3.2	15.39	43.69	19.81
75.9	455.4	9	V	3.52	16.9	29.42	34.08
75.9	455.4	10.4	H	3.52	17.08	31	32.5
75.9	531.3	9.3	V	3.79	17.83	30.92	32.58
75.9	531.3	12.4	H	3.79	18.29	34.48	29.02
75.9	683.1	9.4	V	4.33	20.56	34.29	29.21
75.9	683.1	9.6	H	4.33	20.9	34.83	28.67
75.9	759	9.1	H	4.64	21.59	35.33	28.17
75.9	759	9.2	V	4.64	20.79	34.63	28.87

Antenna 005

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
72.1	72.1	83.6	V	1.17	6.23	91.00	7.00
72.1	72.1	86.2	H	1.17	5.85	93.22	4.78
72.1	144.2	12.9	V	1.79	16.86	31.55	31.95
72.1	144.2	16.3	H	1.79	15.62	33.71	29.79
72.1	216.3	17.4	V	2.5	11.19	31.09	32.41
72.1	216.3	23.2	H	2.5	11.55	37.25	26.25
72.1	288.4	20.6	V	2.75	15	38.35	25.15
72.1	288.4	26.5	H	2.75	14.98	44.23	19.27
72.1	360.5	30.3	V	3.1	14.81	48.21	15.29
72.1	360.5	31.0	H	3.1	15.01	49.11	14.39
72.1	432.6	8.9	H	3.43	17.26	29.59	33.91
72.1	432.6	9.4	V	3.43	16.9	29.73	33.77
72.1	504.7	10.1	H	3.71	18.42	32.23	31.27
72.1	504.7	10.6	V	3.71	18.28	32.59	30.91
72.1	648.9	8.8	V	4.2	19.86	32.86	30.64
72.1	648.9	10.4	H	4.2	19.99	34.59	28.91
72.1	721	8.7	V	4.48	20.79	33.97	29.53
72.1	721	10.8	H	4.48	21.38	36.66	26.84
74.7	74.7	81.3	V	1.18	7.01	89.49	8.51
74.7	74.7	85.8	H	1.18	6.52	93.5	4.5
74.7	149.4	13.5	V	1.84	17.18	32.52	30.98
74.7	149.4	19.4	H	1.84	16.05	37.29	26.21
74.7	224.1	20.2	V	2.52	11.12	33.84	29.66
74.7	224.1	25.5	H	2.52	11.44	39.46	24.04
74.7	298.8	20.9	V	2.8	14.57	38.27	25.23
74.7	298.8	26.6	H	2.8	14.56	43.96	19.54
74.7	373.5	24	V	3.17	15.11	42.28	21.22
74.7	373.5	24.2	H	3.17	15.21	42.58	20.92
74.7	448.2	10.5	V	3.49	16.95	30.94	32.56
74.7	448.2	10.9	H	3.49	17.45	31.84	31.66

[Continued]

[Continued] Antenna 005

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
74.7	522.9	8.9	V	3.77	18.08	30.75	32.75
74.7	522.9	10.8	H	3.77	18.8	33.37	30.13
74.7	597.6	10	V	3.99	18.65	32.64	30.86
74.7	597.6	11	H	3.99	19.25	34.24	29.26
74.7	672.3	9	V	4.29	20.58	33.87	29.63
74.7	672.3	9.2	H	4.29	20.67	34.16	29.34
74.7	747	8.5	V	4.59	20.67	33.76	29.74
74.7	747	9.9	H	4.59	21.41	35.9	27.6
75.9	75.9	82.1	V	1.19	7.41	90.7	7.3
75.9	75.9	88	H	1.19	6.91	96.1	1.9
75.9	151.8	13.8	V	1.87	17.24	32.91	30.59
75.9	151.8	20.2	H	1.87	16.17	38.24	25.26
75.9	227.7	20.3	V	2.53	11.23	34.06	29.44
75.9	227.7	25.5	H	2.53	11.48	39.51	23.99
75.9	303.6	18.3	V	2.82	14.43	35.55	27.95
75.9	303.6	22.2	H	2.82	14.43	39.45	24.05
75.9	379.5	22.9	H	3.2	15.39	41.49	22.01
75.9	379.5	23.1	V	3.2	15.47	41.77	21.73
75.9	455.4	11.6	V	3.52	16.9	32.02	31.48
75.9	455.4	12.7	H	3.52	17.08	33.3	30.2
75.9	531.3	10.9	V	3.79	17.83	32.52	30.98
75.9	531.3	11.9	H	3.79	18.29	33.98	29.52
75.9	683.1	8.6	H	4.33	20.9	33.83	29.67
75.9	759	8.6	V	4.64	20.79	34.03	29.47
75.9	759	10.1	H	4.64	21.59	36.33	27.17

MODULATION CHARACTERISTICS

Rule Parts No.: Pt 2.1047 (a) & (b)

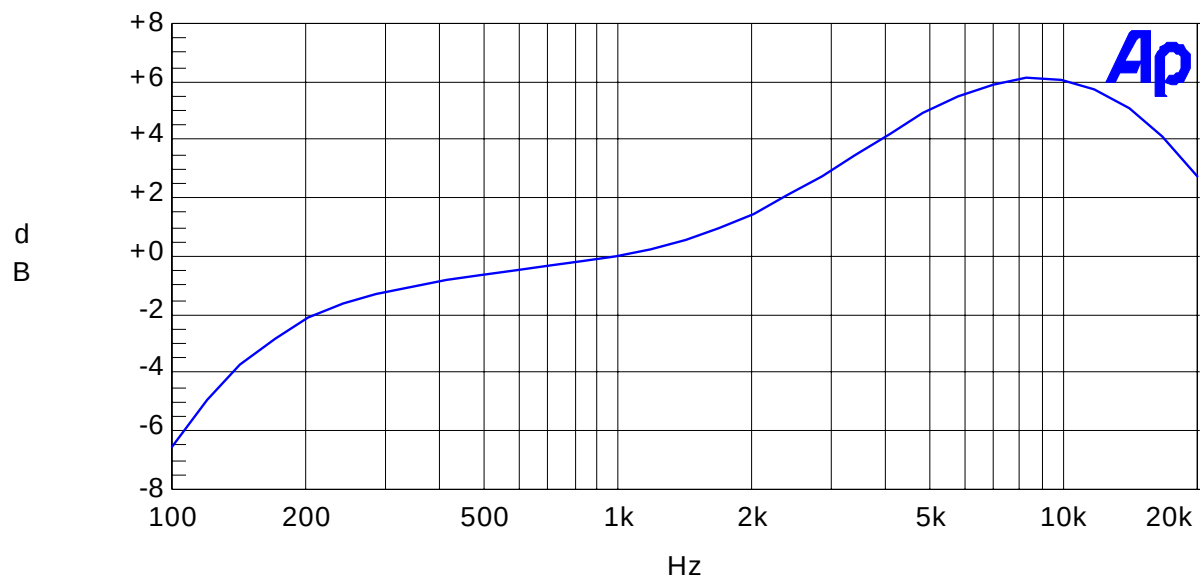
Requirements: A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 – 20,000Hz shall be submitted.

Audio input versus modulation cannot exceed 100%.

Test Data: The curve(s) is/are shown below.

Plot - Audio Frequency Response

Audio Frequency Response Plot

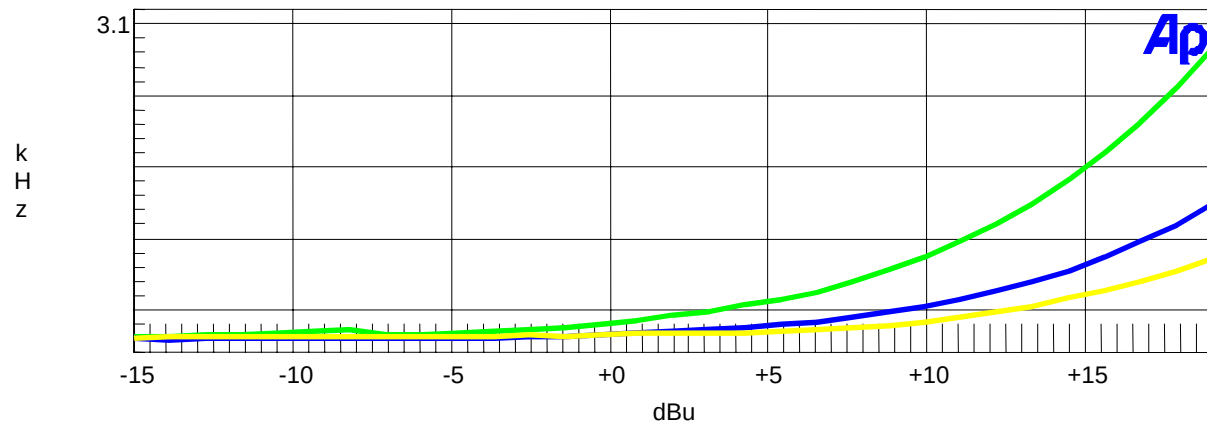


Color	Line Style	Thick	Data	Axis
Blue	Solid	1	Anlr.Level A!Normalize	Left

MaxFreq.at1

Plot – Audio input vs. Modulation

Modulation Limiting Plots:
10KHz (Green), 2.5KHz (Blue), and 300Hz (Yellow)



Color	Line Style	Thick	Data	Axis
Green	Solid	3	Anlr.Level A	Left
Blue	Solid	3	Anlr.Level A	Left
Yellow	Solid	3	Anlr.Level A	Left

OCCUPIED BANDWIDTH

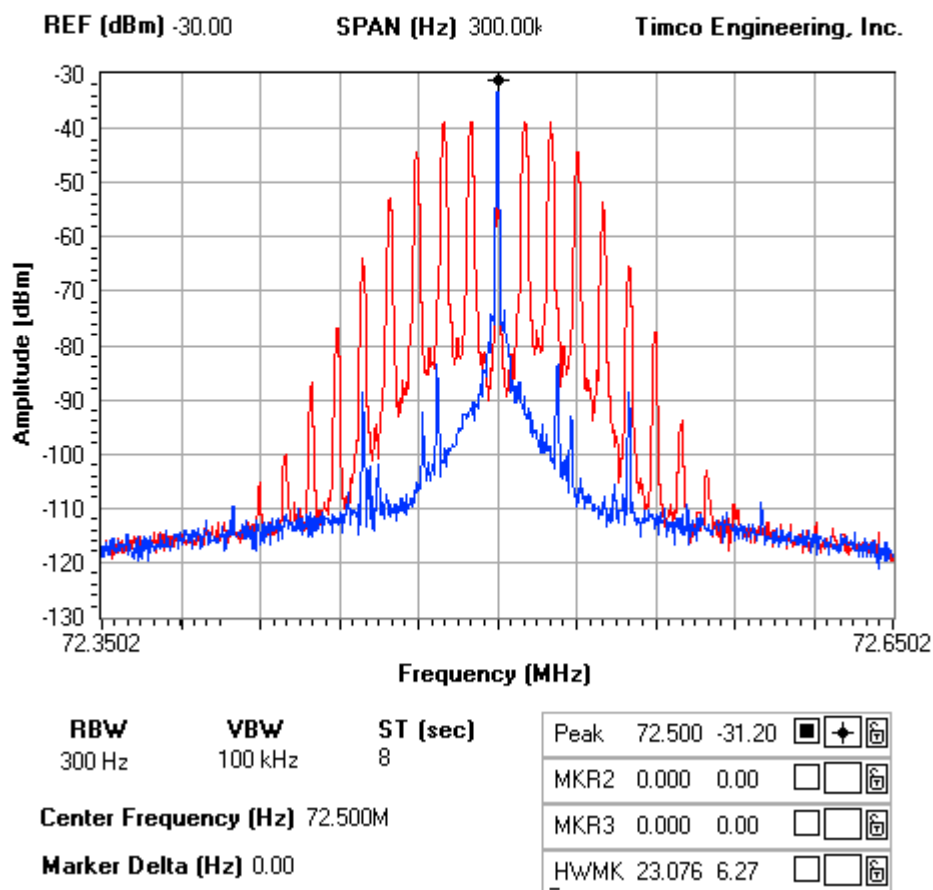
Rules Part No.: FCC Part 15.237 (b)

Requirements: Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the above specified frequency ranges.

Test Data:

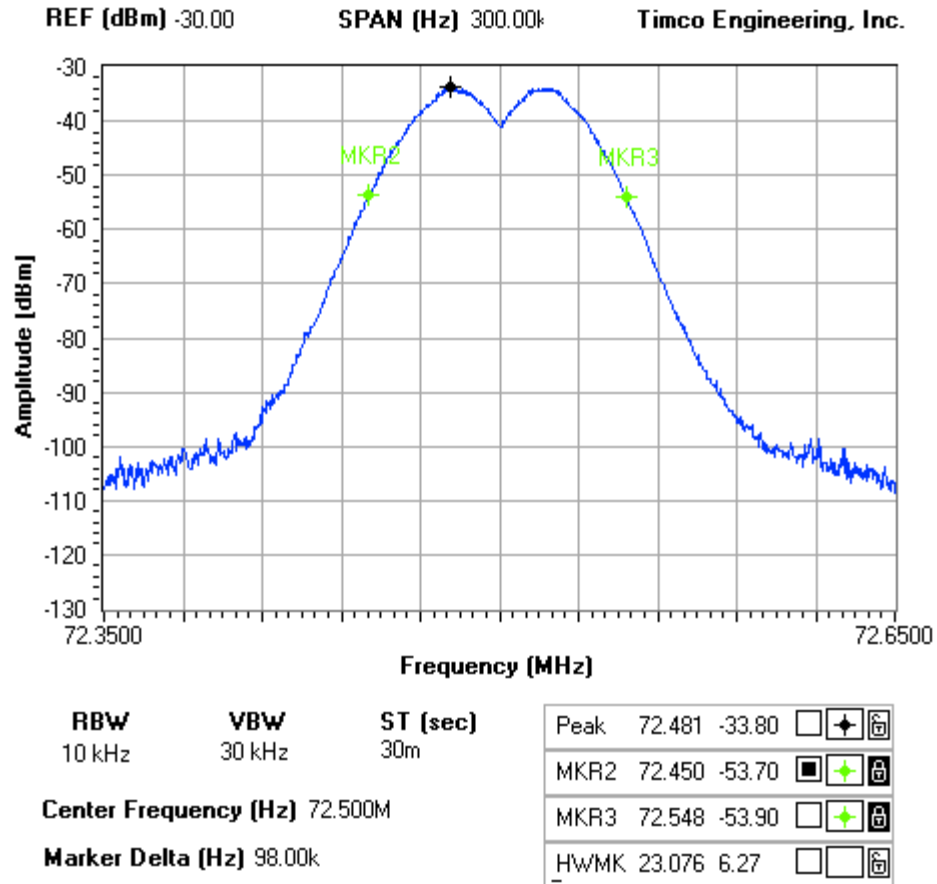
NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
OCCUPIED BANDWIDTH PLOT



NOTES:

Williams Sound Corporation - FCC ID: CNMT27
20dB OCCUPIED BANDWIDTH PLOT - MARKER DELTA = 98 KHz



Note: the 20 dB bandwidth was found to be 98 kHz.

RADIATED SPURIOUS EMISSIONS INTO ADJACENT RESTRICTED BAND

Rule Parts No.: Pt 15.237 (b) and (c), Pt 15.205

Requirements: The emissions that fall in the restricted bands must be less than or equal to the limits shown in Part 15.209 and described in Part 15.35 (b). For the frequencies shown in the table below, the emissions in the restricted bands must be equal to or less than 100 uV/m (40 dBuV/m). The Emissions outside the restricted band must be 63.5dBuV/m or below.

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
¹ 0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2655 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.75 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 15.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	(2)
13.36 – 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490 – 0.510 MHz

² Above 38.6

Test Data: The plot is presented in the following pages. Data was collected in the following table. The EUT was fed by the 11.5 KHz signal (audio frequency response) at the microphone input.

The following plots show that the 200 kHz bandwidth for each fundamental frequency lie wholly within the allowed frequency ranges of operation.

The marker(s) on each plot indicate a band-edge frequency. Frequency scale: 4 divisions correspond to a 200 kHz bandwidth.

Fundamental Frequency (MHz)	Field Strength Level of Fund. (dBuV/m)	Freq of Max. Band-edges Emission (MHz)	Delta Marker (dB) *	Cal. Max. Out of Band Emission Level (dBuV/m) **	Limit (dBuV/m)	Margin (dB)
72.1	86.74	71.9990	62.5	24.24	63.5	39.26
72.9	87.01	73.0040	61.7	25.31	40	14.69
74.7	86.97	74.5900	64.3	22.67	40	17.33
74.7	86.97	74.8050	62.2	24.77	40	15.23
75.3	87.26	75.1950	62.7	24.56	40	15.44
75.9	88.12	76.0010	60.9	27.22	63.5	36.28

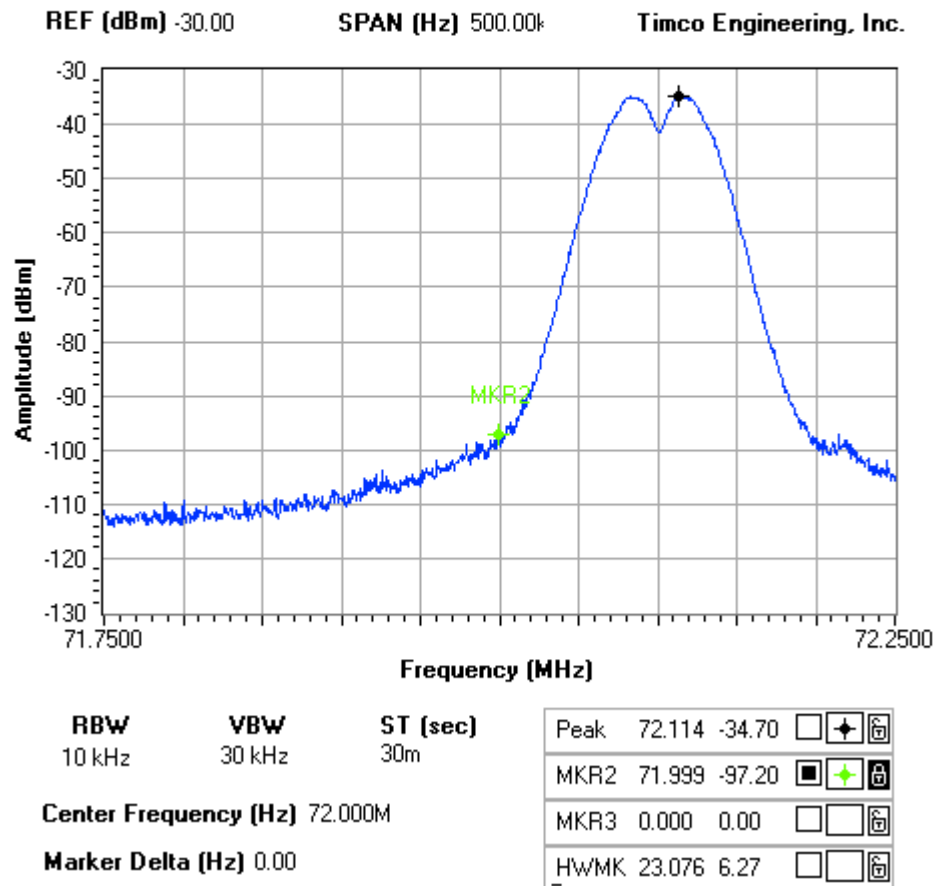
* According to step 2 of Marker-Delta Method DA 00-705 (following plots included).

** According to step 3 of Marker-Delta Method:

Calculated Emission Level = Field Strength Level - Delta Marker Level

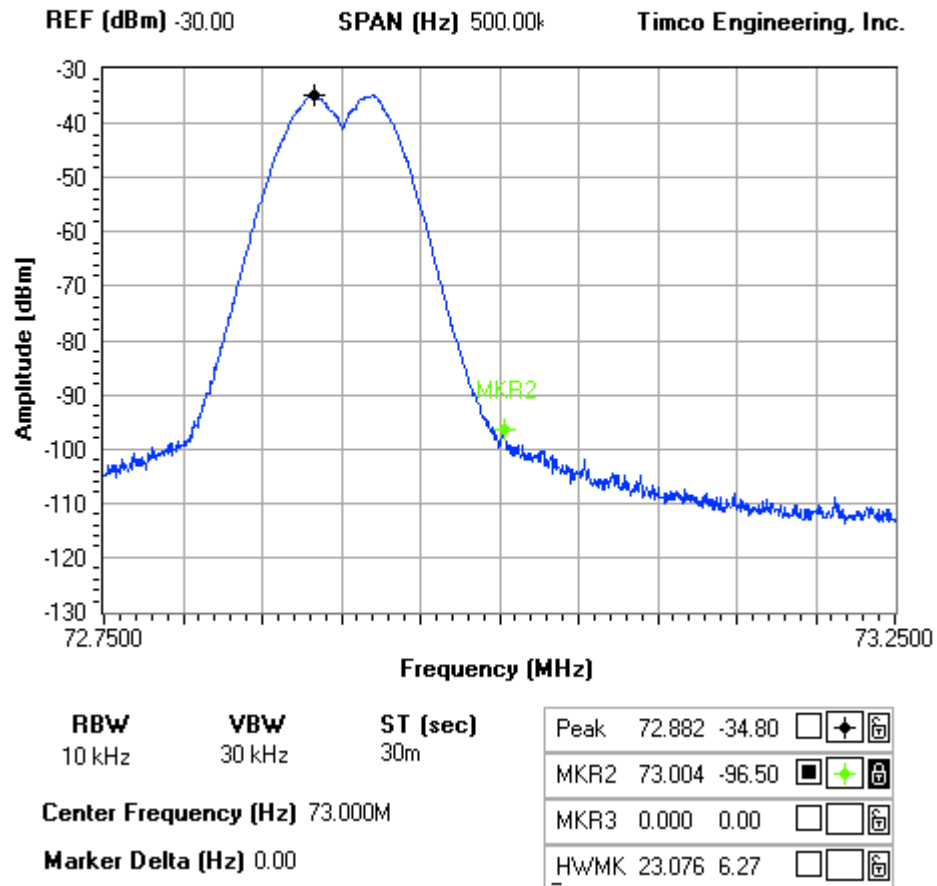
NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
 ADJACENT RESTRICTED BAND PLOT - TUNED FREQUENCY 72.1 MHz.



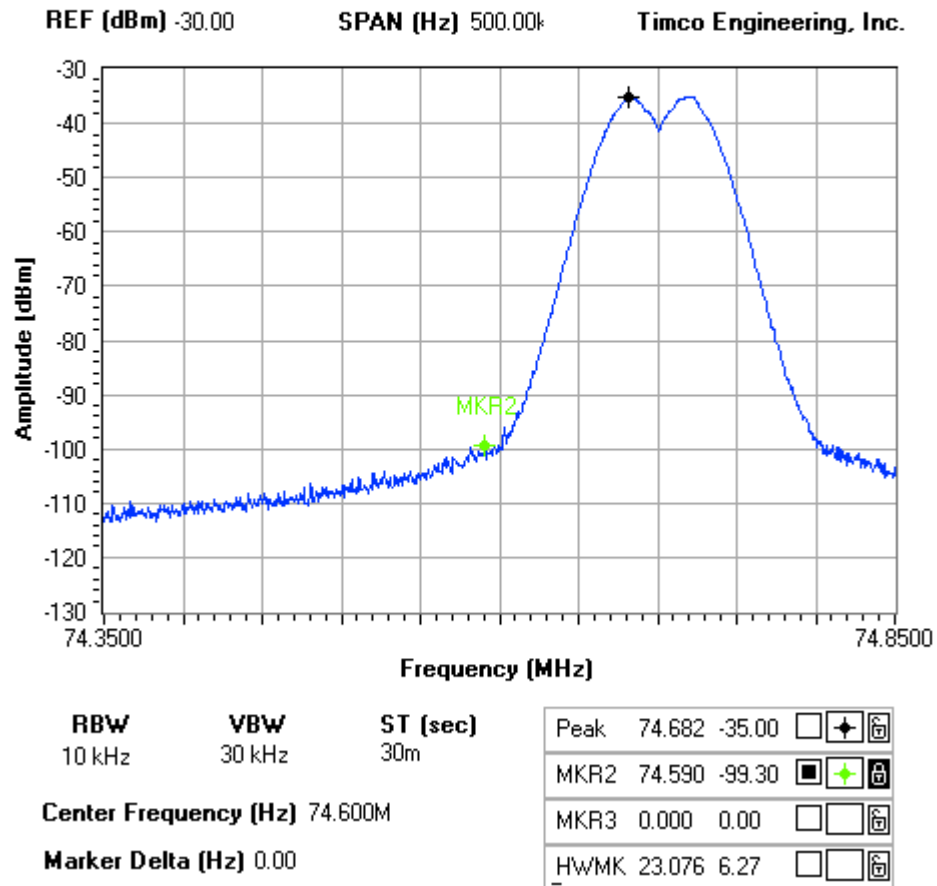
NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
 ADJACENT RESTRICTED BAND PLOT - TUNED FREQUENCY 72.9 MHz.



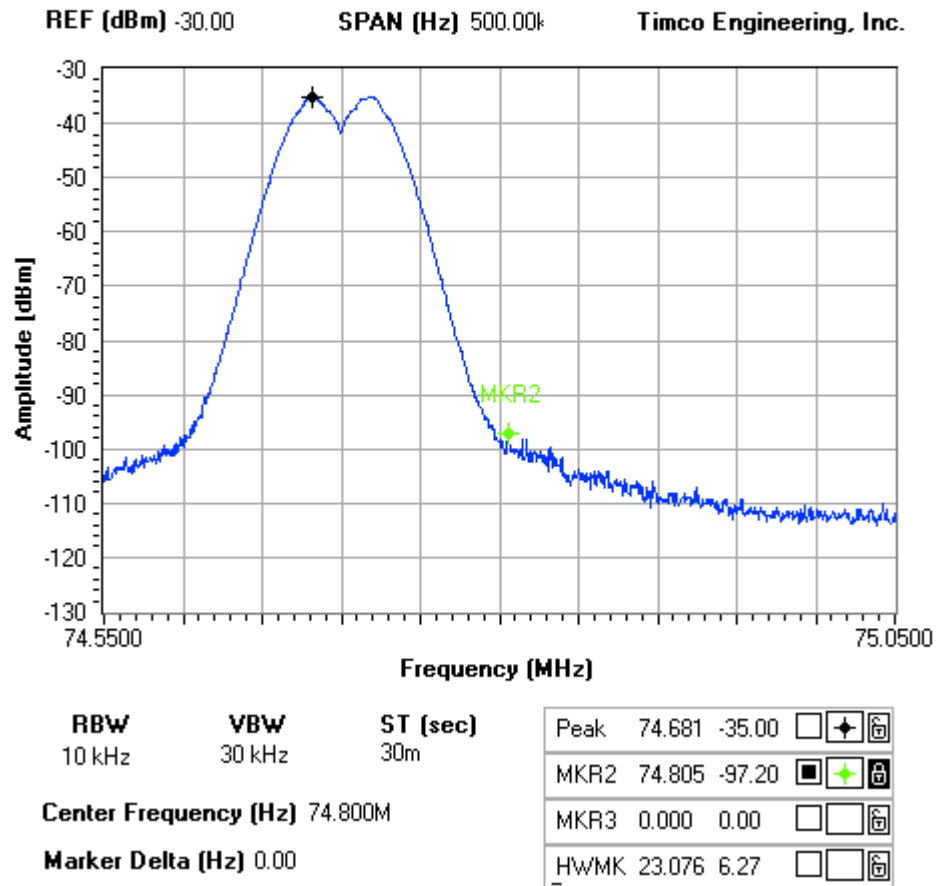
NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
 ADJACENT RESTRICTED BAND PLOT - TUNED FREQUENCY 74.7 MHz.



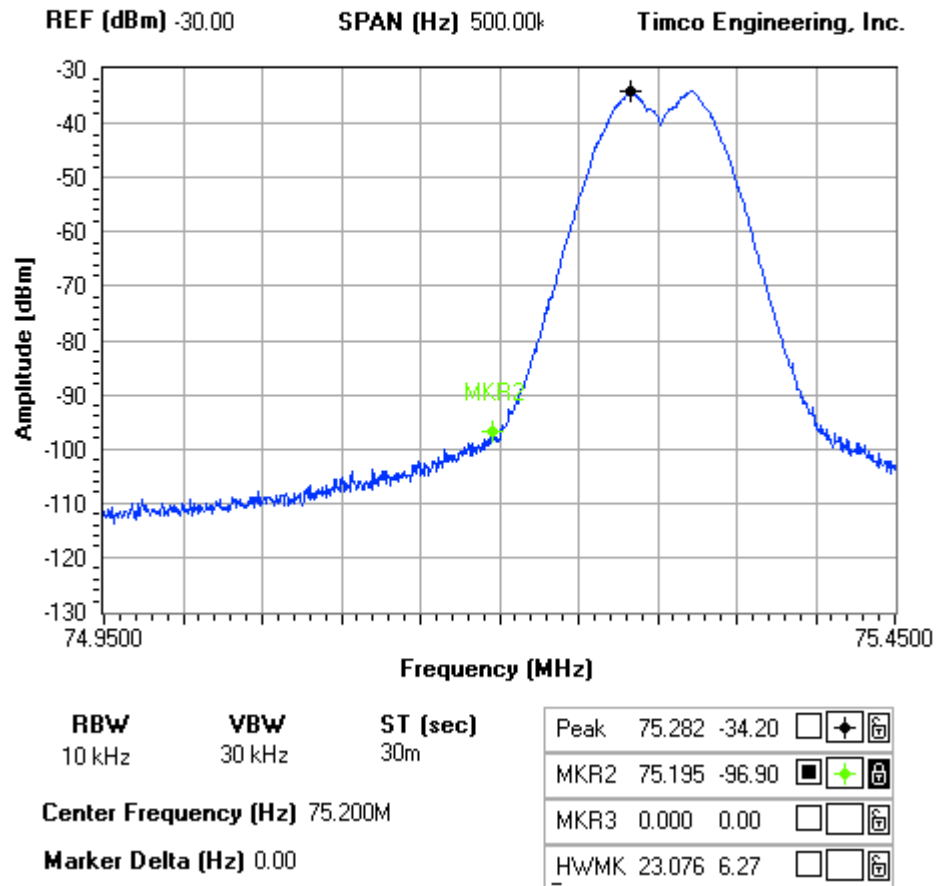
NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
 ADJACENT RESTRICTED BAND PLOT - TUNED FREQUENCY 74.7 MHz.



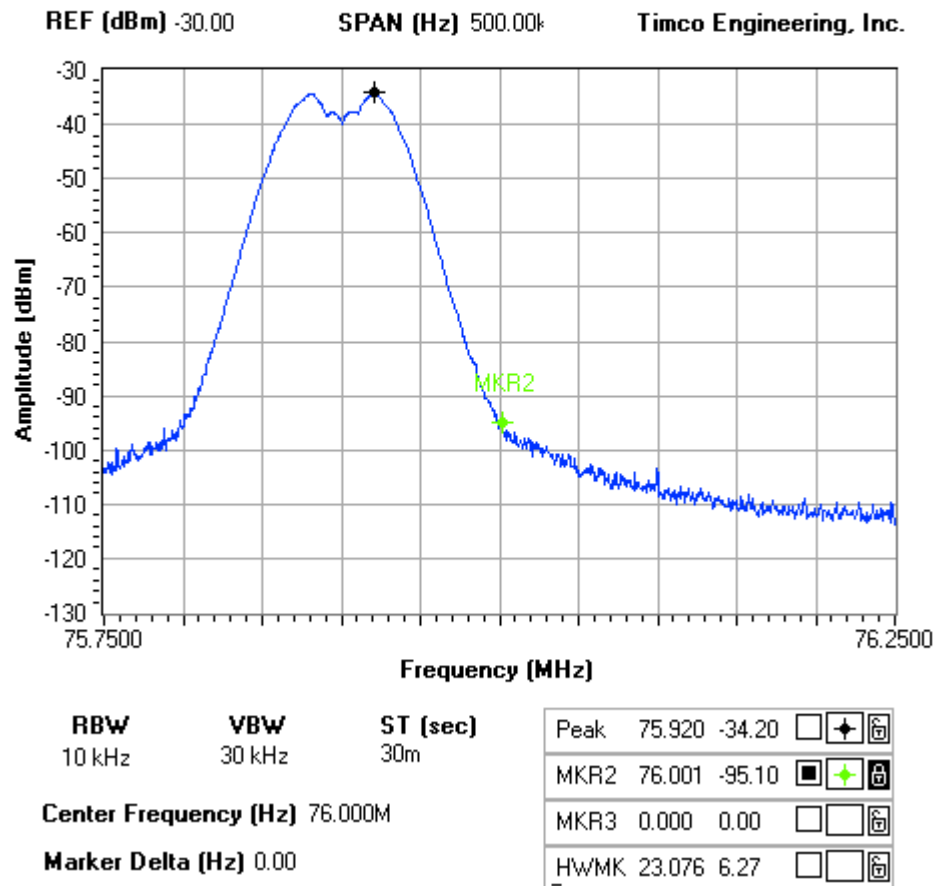
NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
 ADJACENT RESTRICTED BAND PLOT - TUNED FREQUENCY 75.3 MHz.



NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
 ADJACENT RESTRICTED BAND PLOT - TUNED FREQUENCY 75.9 MHz.



POWER LINE CONDUCTED INTERFERENCE

Rules Part No.: Part 15.207 Class B

Requirements:

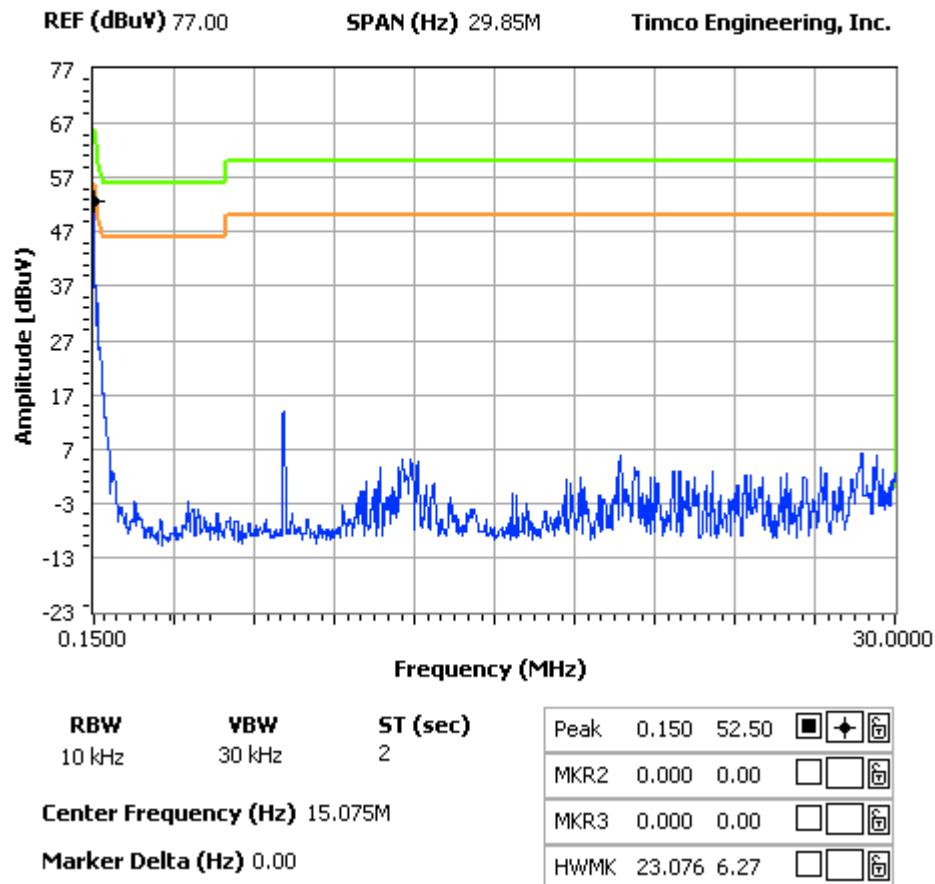
Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

Test Data:

NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
POWER LINE CONDUCTED PLOT - LINE 1

FCC 15.107 Mask Class B



NOTES:

WILLIAMS SOUND CORPORATION - FCC ID: CNMT27
POWER LINE CONDUCTED PLOT - LINE 2

FCC 15.107 Mask Class B

