166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Code of Federal Regulations 47 Part 74 – EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES

Subpart H – Low Power Auxiliary Stations

Section 74.861(d)

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

Formal Name:	Antenna Combiner
Kind of Equipment:	Wireless Microphone Accessory
Frequency Range:	944-952 MHz
Test Configuration:	Tabletop
Model Number(s):	PA421BX
Model(s) Tested:	PA421BX
Serial Number(s):	prototype sample
Date of Tests:	May 27th to June 21, 2016 and October 12, 2016
Test Conducted For:	Shure Incorporated 5800 W. Touhy Avenue Niles, Illinois 60714-4608

NOTICE: "This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Description of Test Sample" page listed inside of this report.

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166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

SIGNATURE PAGE

Tested By:

Paul Leo
Test Engineer

Reviewed By:

Craig Brandt
Senior Test Engineer

Approved By:

William Stumpf
OATS Manager

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.
Wheeling, IL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-09-25 through 2016-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY & TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

Emissions

Designation	***Description***
Off-site test location	D.L.S. Electronics performs radiated emissions testing at an additional location, 166 South Carter Street, Genoa City, WI 53128.

1.0 Summary of Test Report

It was determined that the Antenna Combiner, Model PA421BX, complies with the requirements of CFR 47 Part 74 Subpart H Section 74.861(d) for low power auxiliary stations.

Subpart H Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
74.861(d)(1), 2.1046	Conducted Output Power	TIA-603D 2010 (2.2.1)	1	Yes
74.861(d)(3), 2.1049	99% Emission Bandwidth	FCC Part 2.1049	1	Yes
74.861(d)(4), 2.1051	Emission Mask	N/A	2	N/A
74.861(d)(3), 2.1051	RF Conducted Spurious Emissions	TIA-603D 2010 (2.2.13)	1	Yes
74.861(d)(3), 2.1053	Radiated Spurious Emissions	TIA-603D 2010 (2.2.12)	3	Yes
Part 15 Subpart C Section 15.207	AC Line Conducted Emissions	ANSI C63.4-2014	4	Yes

Note 1: RF Conducted Measurement.
Note 2: Emission Mask tests not tested by D.L.S. Electronic Systems, Inc.
Note 3: Radiated Emission Measurement.
Note 4: AC Line Conducted Measurement.

2.0 Introduction

From May 24th to June 21, 2016 and October 12, 2016 the Antenna Combiner, Model PA421BX, as provided from Shure Incorporated was tested to the requirements of CFR 47 Part 74 Subpart H Section 74.861(d). To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.

3.0 Test Facilities

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at http://www.dlsemc.com/certificate. Our facilities are registered with the FCC, Industry Canada, and VCCI.

Wisconsin Test Facility:
D.L.S. Electronic Systems, Inc.
166 S. Carter Street
Genoa City, Wisconsin 53128

Wheeling Test Facility:
D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, IL 60090

FCC Registration #90531

4.0 Description of Test Sample

Description:

Combines outputs of personal-monitor transmitters into a single antenna output.

Type of Equipment / Frequency Range:

Antenna Combiner / 944-952 MHz

Physical Dimensions of Equipment Under Test:

Length: 14.4 in. x Width: 15.8 in. x Height: 1.7 in.

Power Source:

120V, 240V / 60 Hz

Internal Frequencies:

70-100kHz, 225kHz

Transmit Frequencies Used For Test Purpose:

945.150MHz, 949.400MHz, 949.975MHz, 946.625MHz, 951.875MHz

Type of Modulation(s) / Antenna Type:

FM / Shure UA860SWB passive wide band UHF omnidirectional antenna (470-1100 MHz) with 2.15 dBi gain

Description of Circuit Board(s) / Part Number:

Antenna Combiner PCB	95D31572
PA421 DC jack board	190A32637

5.0 Test Equipment

A list of the equipment used can be found in the table below. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

5.0a D.L.S. Wisconsin - Test Equipment:

30 – 1000 MHz (OATS Site 2)

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	6-25-15	6-25-16
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3-11-16	3-11-18
Antenna	Electro-Metrics	LPA-25	1205	200 MHz – 1 GHz	3-23-16	3-23-18
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

Additional if 1-18 GHz (OATS Site 2)

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Preamp	Miteq	AMF-7D-01001800-22-10P	17779900	1GHz-18GHz	1-22-16	1-22-17
Horn Antenna	EMCO	3115	6204	1-18GHz	8-25-15	8-25-17
High Pass Filter	Planer	HP2G-1780-CD-SS	PF1227/0728	1-20GHz	6-5-16	6-5-17
High Pass Filter	Q Microwave	100460	2	500MHz-18GHz	10-14-15	10-14-16
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

Other

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Horn Antenna	EMCO	3115	9502-4451	1-18GHz	6-1-15	6-1-17
Di-Pole Antenna	Com-Power	AD-100	40139	30-1000MHz	N/A	N/A
20 dB attenuator	MCE/weinschel	5955A-20	0256	DC- 40 GHz	7-1-15	7-1-16
20 dB attenuator	Aeroflex/weinschel	75A-20-12	1071	DC – 40 GHz	7-1-15	7-1-16
Signal Generator	Rhode & Schwarz	SMT-03	DE23762	5kHz-3GHz	6-25-15	6-25-16
Signal Generator	Rhode & Schwarz	SMR40	100092	1-40 GHz	6-25-15	6-25-16
Function Generator	Hewlet Packard	3312A	2501A18150	0.1Hz-13MHz	N/A	N/A
Power Meter	Anritsu	ML2487A	6K00002069	100kHz-65GHz	6-25-15	6-25-16
Power Sensor	Anritsu	MA2490A	031563	50MHz-8GHz	6-25-15	6-25-16

AC Line Conducted (Screen Room)

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Narda PMM	9010F	020WW40102	10Hz-50MHz	6-25-15	6-25-16
LISN	Solar	9252-50-R-24-BNC	961019	9 kHz – 30 MHz	5-4-16	5-4-17
Filter- High-Pass	SOLAR	7930-120	090702	120 kHz – 30 MHz	12-3-15	12-3-16
Limiter	Electro-Metrics	EM-7600	705	9 kHz – 30 MHz	12-3-15	12-3-16
Test Software	Narda PMM	PMM Emission Suite	Rel.2.17	N/A	N/A	N/A

5.0b Shure Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Audio Signal Generator	Leader	LAG-25	2237708	10Hz-1MHz	3-15-16	3-15-17

6.0 Test Arrangements

Radiated Emissions Measurement Arrangement:

All radiated emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to TIA-603d 2010 or ANSI C63.4-2014, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for additional photos of the test set up. See Appendix C for Measurement Uncertainty.

Unless otherwise noted, the bandwidth of the measuring receiver / analyzer used during testing is shown below.

Frequency Range	Bandwidth (-6 dB)
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

7.0 Test Conditions

Temperature and Humidity:

73°F at 45% RH - Conducted testing,
66°F at 46% RH - Radiated testing

Supply Voltage:

120V, 240V / 60 Hz

8.0 Modifications Made To EUT For Compliance

None noted at time of test.

9.0 Additional Descriptions & Notes

Continuous Transmit at maximum output power level.

The EUT was tested at Low, Mid., and High Channels, unmodulated, modulated at 2.5kHz 16dB> 50% modulation, and 15kHz at 85% modulation

Frequency stability testing was not performed. The EUT (combiner) is a pass-through device. The frequency determining circuits are part of the transmitter inputs and not part of the combiner.

Emission mask test was not performed by D.L.S. Electronic Systems, Inc.

The modulation characteristics test was not performed by D.L.S. Electronic Systems, Inc.

10.0 Results

Measurements were performed in accordance with TIA-603D 2010 and ANSI C63.4-2014. Graphical and tabular data can be found in Appendix B at the end of this report.

11.0 Conclusion

The Antenna Combiner, Model PA421BX as provided from Shure Incorporated, tested from May 24th to June 21, 2016 and October 12, 2016 **meets** the requirements of CFR 47 Part 74 Subpart H Section 74.861(d).

Appendix A – Test Setup Photos

Photo Information and Test Setup:

Item: EUT – Model PA421BX

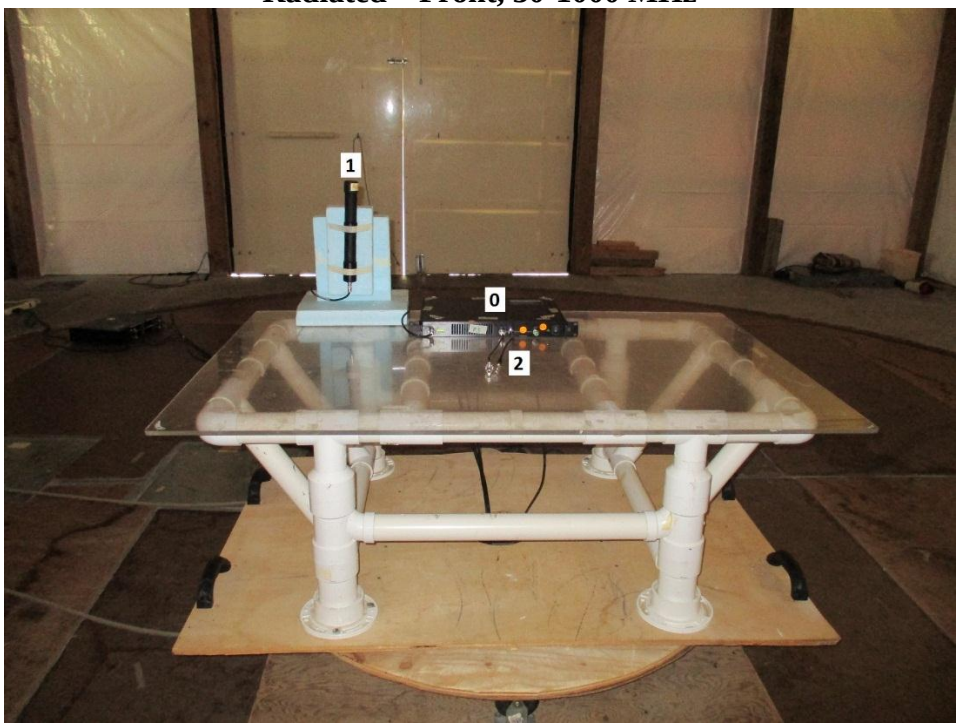
RF Conducted - 1

RF Conducted - 2

Appendix A

Conducted Power

Radiated – Front, 30-1000 MHz



Appendix A

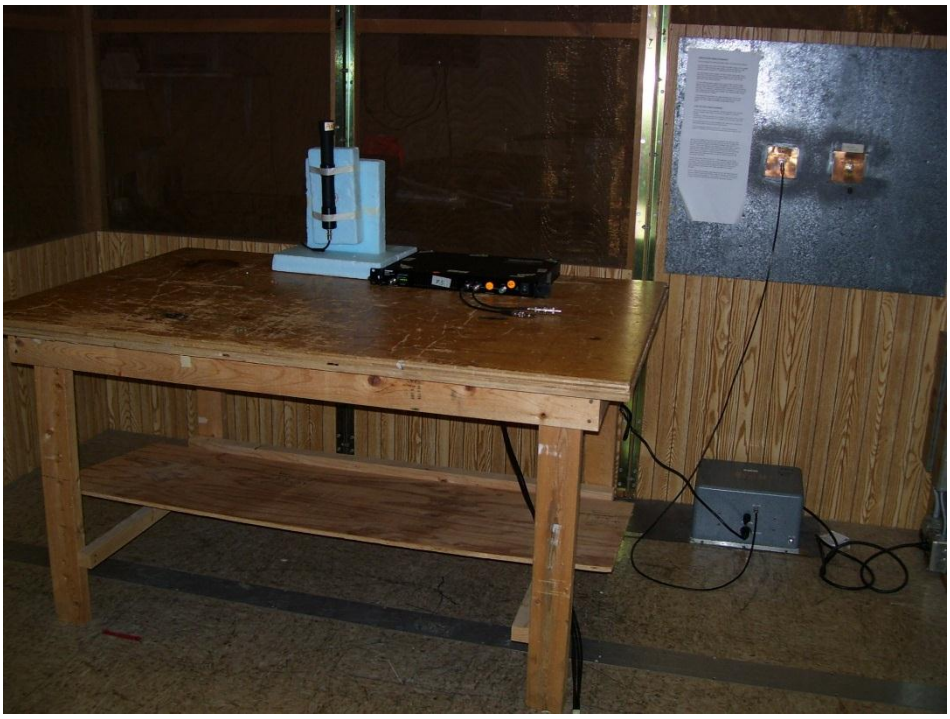
Radiated – Back, 30-1000 MHz

Radiated – Front, 1-7 GHz

Appendix A

Radiated – Back, 1-7 GHz

AC Line Conducted - Front



Appendix A

AC Line Conducted - Back

Appendix B – Measurement Data

B1.0 Conducted Output Power

Rule Part: FCC Part 74.861(d)(1), Part 2.1046

Test Procedure: TIA-603D 2010 (2.2.1)

Limit: 1W (30.0 dBm)

Results: Compliant

Sample Equation: 10^(15.87dBm/10) = 38.64mW

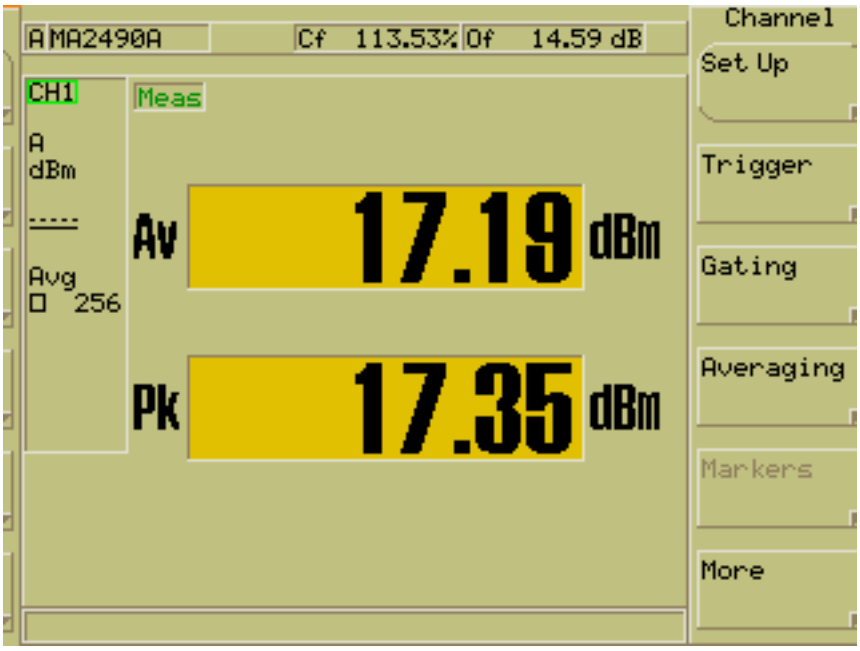
Notes: This was an RF conducted measurement. The EUT was connected to the measuring equipment through the external antenna connector. Cable loss and attenuation was accounted for in the transducer factors set in the analyzer.
The EUT was set to transmit continuously at its maximum power level at the low, middle and high channels of the operating band.
The transmitter was modulated by a 2500Hz tone at an input level 16dB greater than that necessary to produce 50% modulation

166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	05-27-2016
Company:	Shure, Inc.
EUT:	PA421BX 4-input Combiner
Test:	Peak Power Output - Conducted (Modulated 2.5khz 16db> 50%)
Rule part:	FCC Part 74; FCC Part 2.1046
Operator:	Paul L
Comment:	Channel: 945.150MHz

Peak Output Power = 17.35dBm = 54.33mW

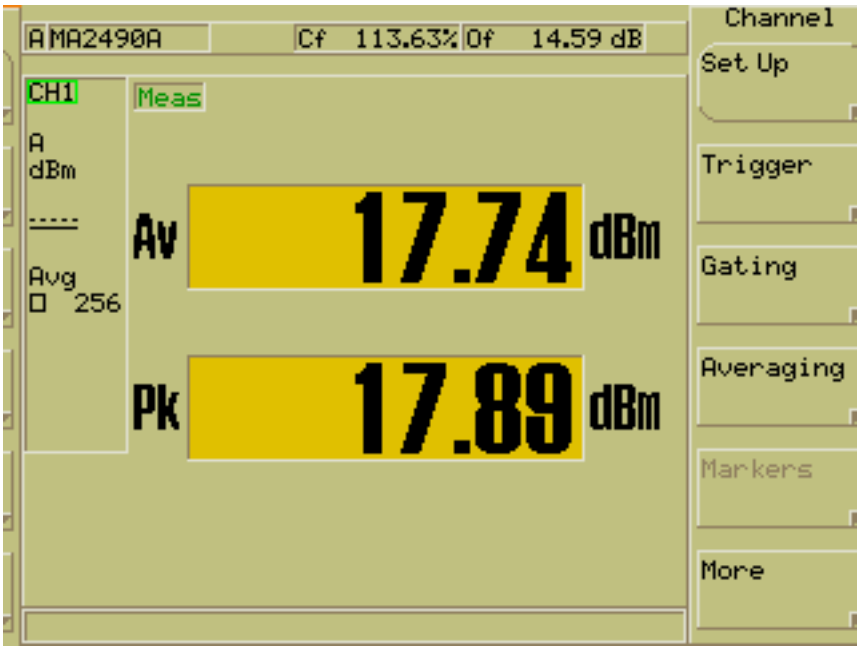


166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	05-27-2016
Company:	Shure, Inc.
EUT:	PA421BX 4-input Combiner
Test:	Peak Power Output - Conducted (Modulated 2.5khz 16db> 50%)
Rule part:	FCC Part 74; FCC Part 2.1046
Operator:	Paul L
Comment:	Channel: 949.400MHz

Peak Output Power = 17.89dBm = 61.52mW

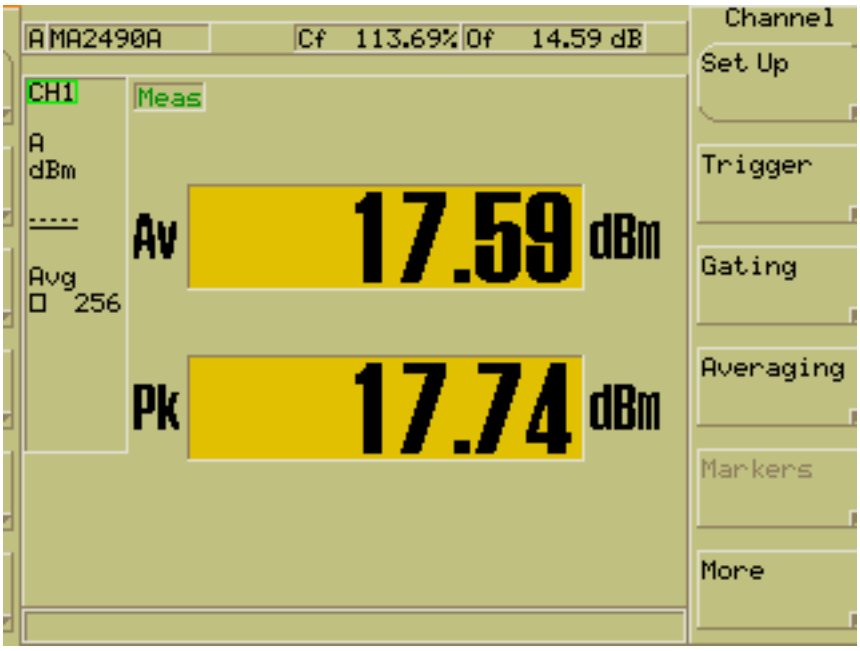


166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	05-27-2016
Company:	Shure, Inc.
EUT:	PA421BX 4-input Combiner
Test:	Peak Power Output - Conducted (Modulated 2.5khz 16db> 50%)
Rule part:	FCC Part 74; FCC Part 2.1046
Operator:	Paul L
Comment:	Channel: 951.875MHz

Peak Output Power = 17.74dBm = 59.429 mW



Appendix B

B2.0 99% Emission Bandwidth

Rule Parts: FCC Part 74.861(d)(3), FCC Part 2.1049

Test Procedure: FCC Part 2.1049

Limit: The occupied bandwidth shall not be greater than that necessary for satisfactory transmission.

Results: Compliant

Sample Equation: None

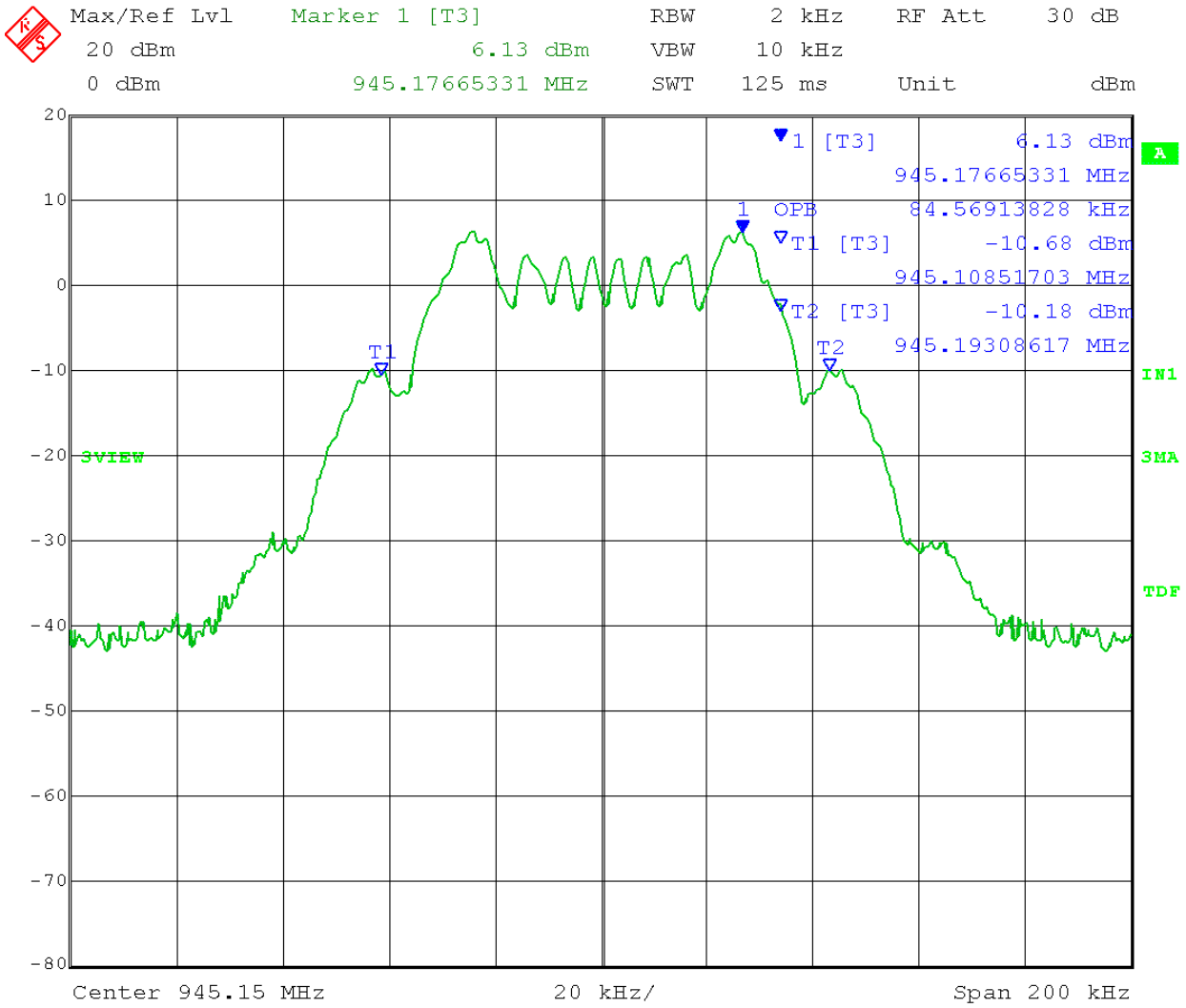
Notes: The EUT was set to transmit at its maximum power. The EUT was tested at Low, Mid, and High Channels modulated at 2500 Hz 16dB > 50% modulation & 15kHz @ 85% modulation.

166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	6-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Occupied Bandwidth; 99% bandwidth
Rule part:	FCC Part 74; FCC Part 2.1049
Operator:	Paul L

Frequency: 945.15 MHz
Audio Input: Modulated 2.5khz, 16db> 50%)
99% power bandwidth = 84.57kHz



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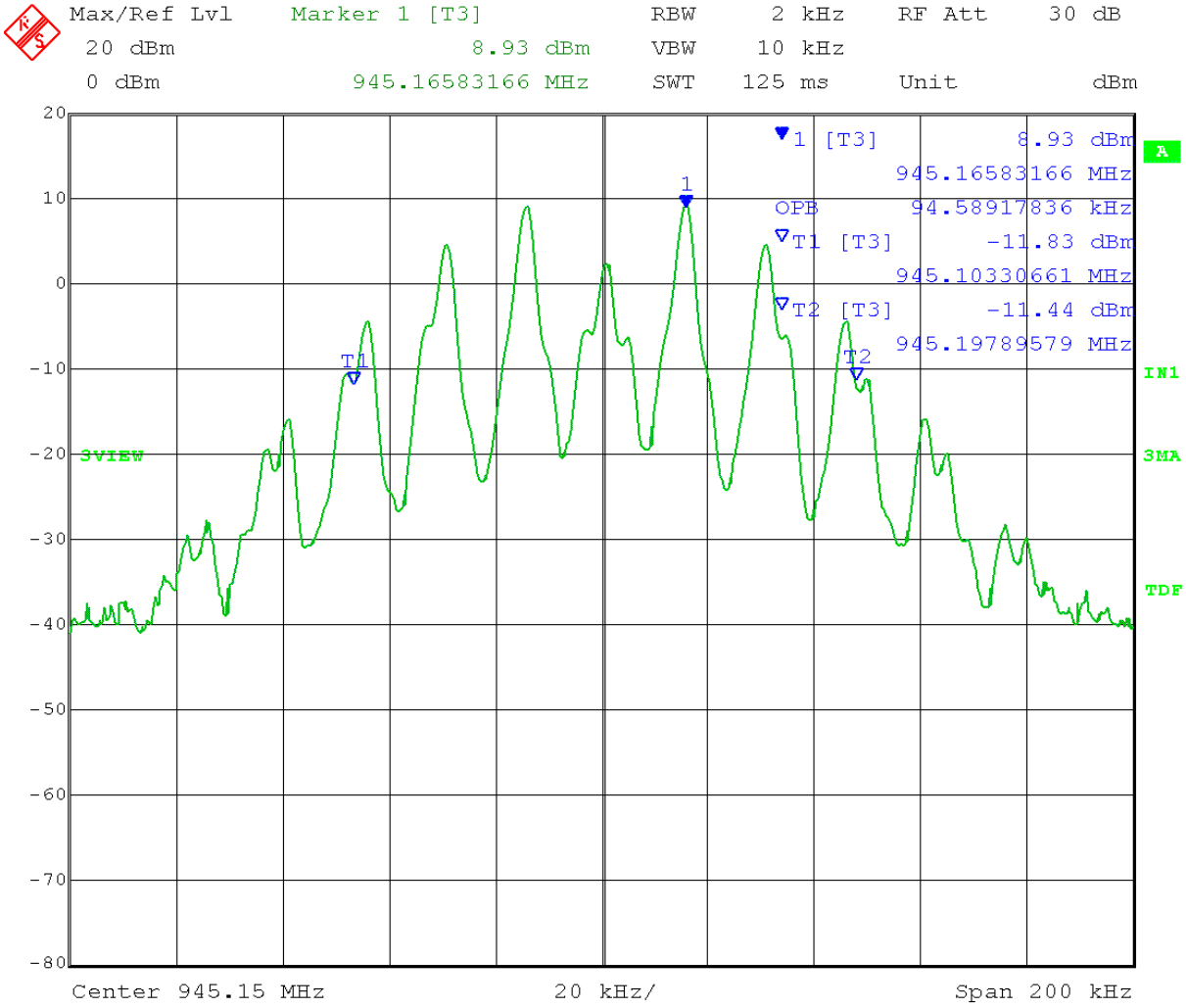
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	06-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Occupied Bandwidth; 99% bandwidth
Rule part:	FCC Part 74; FCC Part 2.1049
Operator:	Paul L

Frequency: 945.15 MHz
Audio Input: Modulated 15khz 85% Modulation
99% power bandwidth = 94.59 kHz



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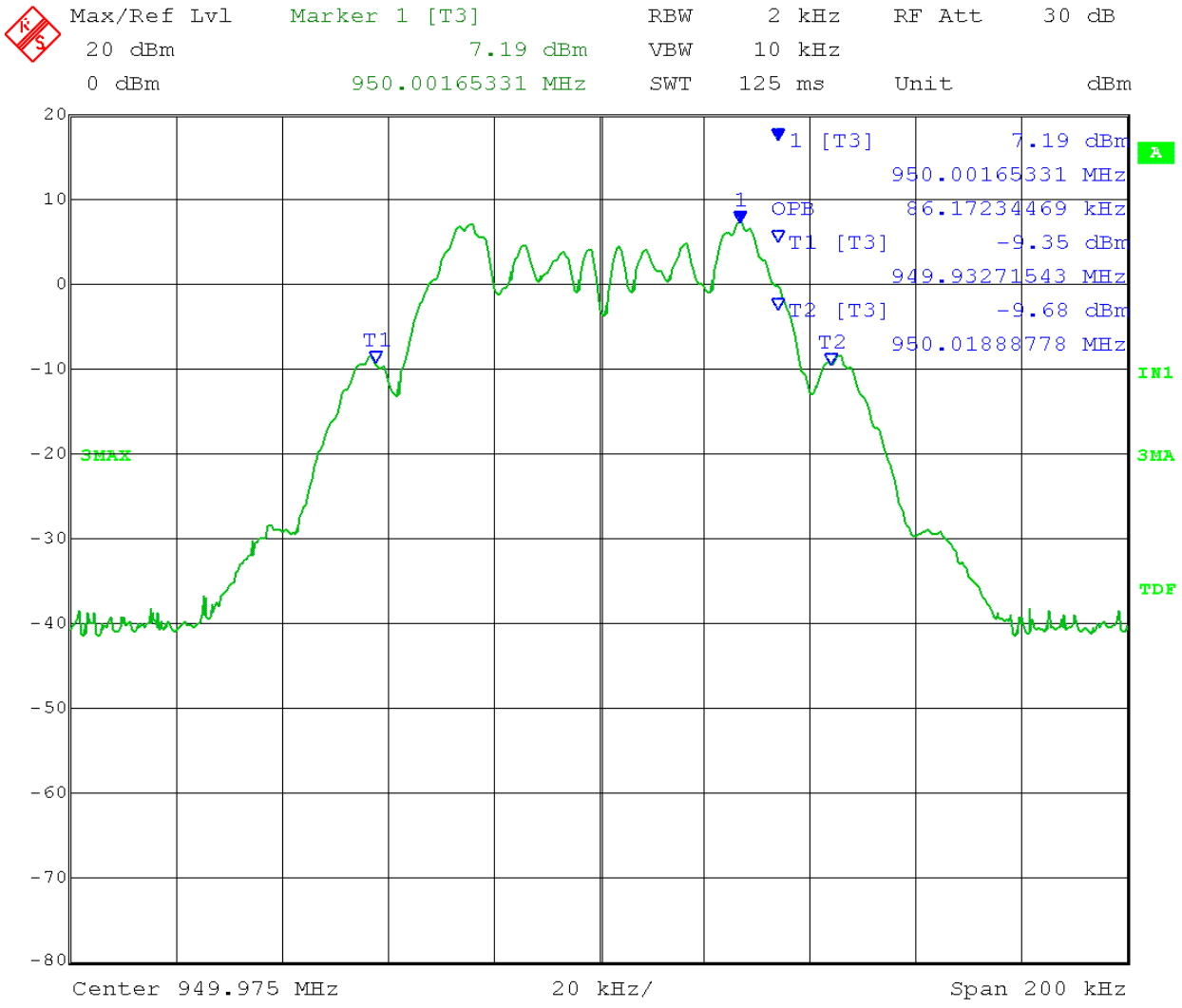
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	6-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Occupied Bandwidth; 99% bandwidth
Rule part:	FCC Part 74; FCC Part 2.1049
Operator:	Paul L

Frequency: 949.975 MHz
Audio Input: Modulated 2.5khz, 16db> 50%)
99% power bandwidth = 86.17kHz



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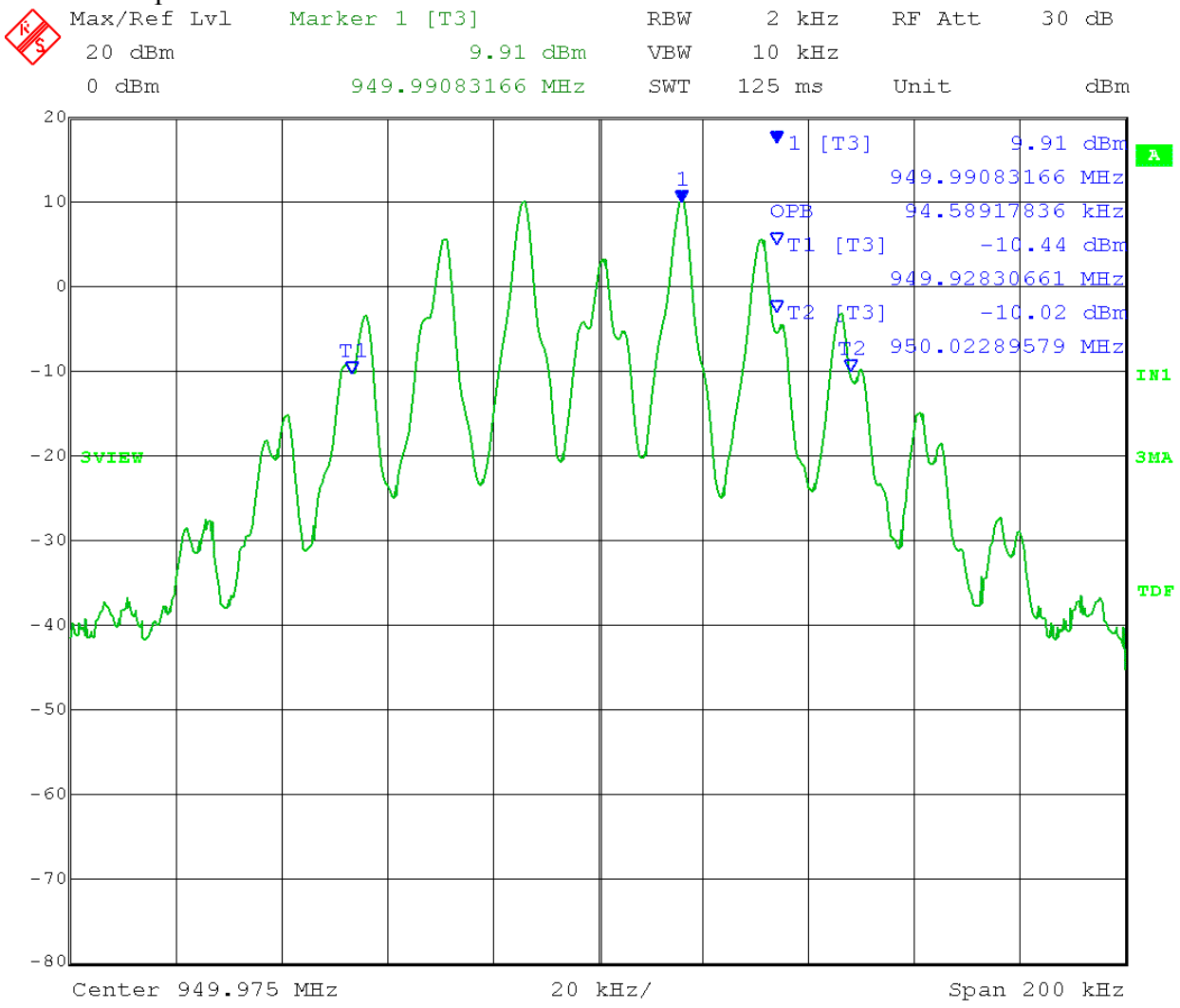
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	06-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Occupied Bandwidth; 99% bandwidth
Rule part:	FCC Part 74; FCC Part 2.1049
Operator:	Paul L

Frequency: 949.975MHz
Audio Input: Modulated 15khz 85% Modulation
99% power bandwidth = 94.59kHz



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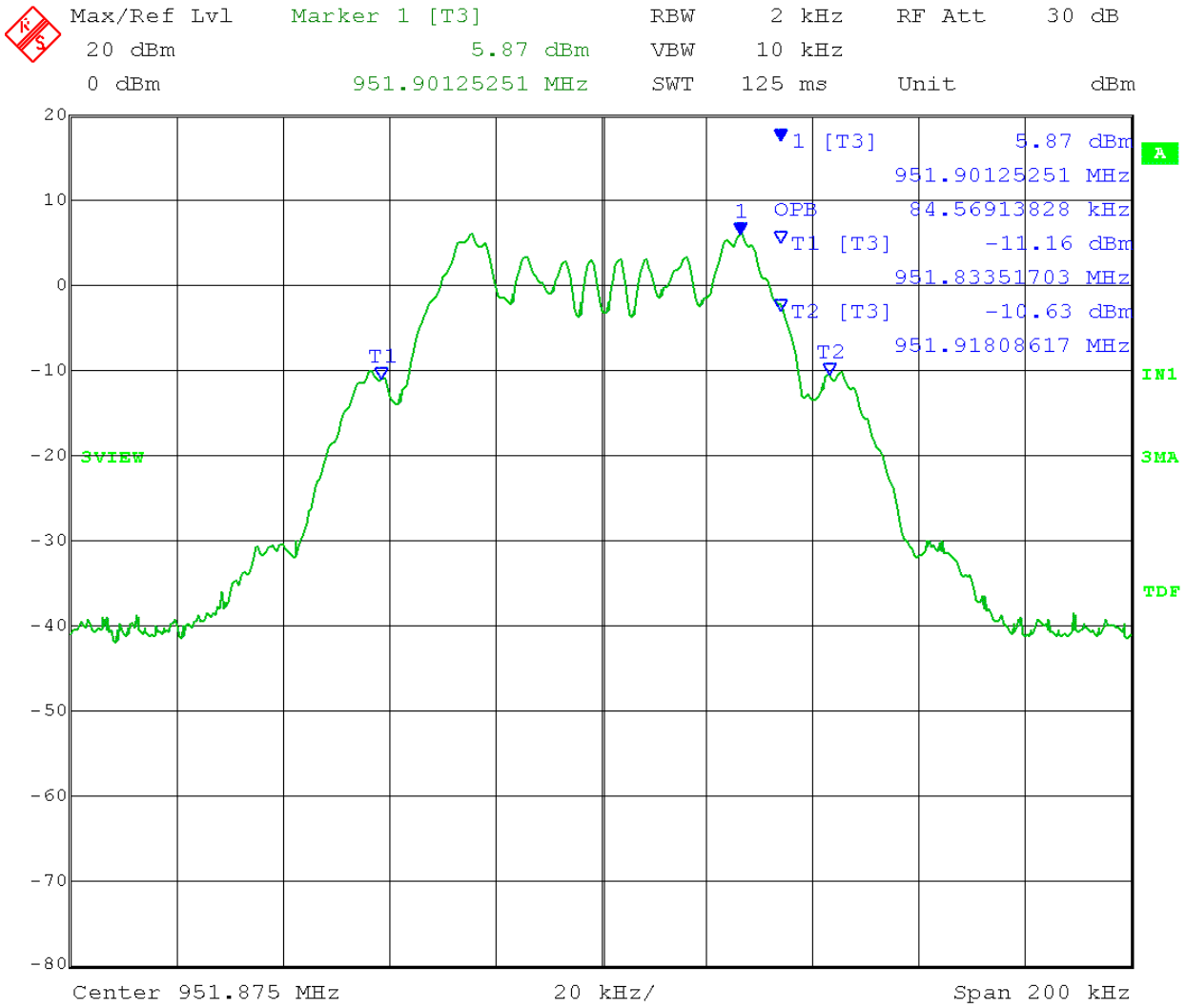
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	6-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Occupied Bandwidth; 99% bandwidth
Rule part:	FCC Part 74; FCC Part 2.1049
Operator:	Paul L

Frequency: 951.875 MHz
Audio Input: Modulated 2.5khz, 16db> 50%)
99% power bandwidth = 84.57kHz



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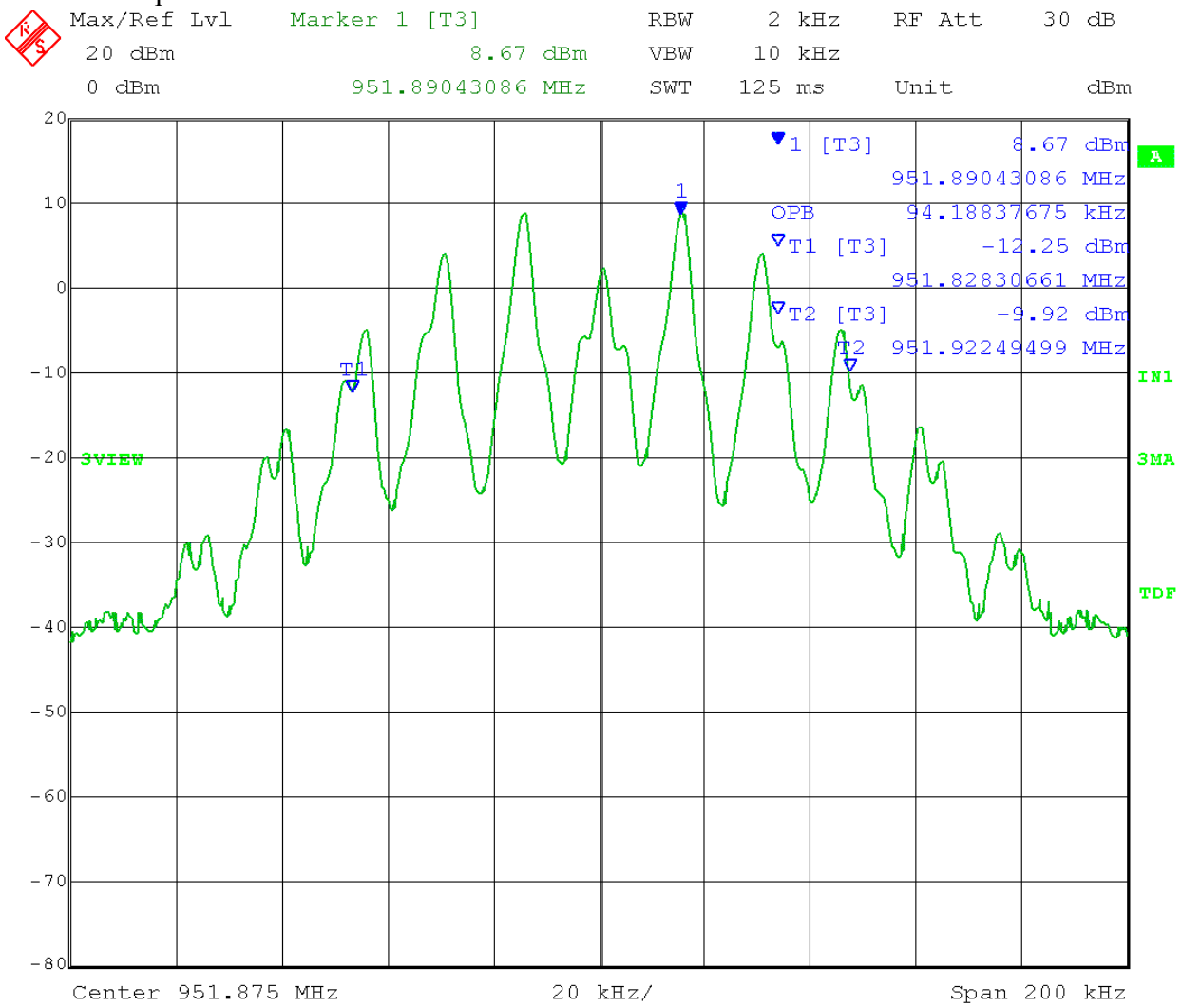
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	06-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Occupied Bandwidth; 99% bandwidth
Rule part:	FCC Part 74; FCC Part 2.1049
Operator:	Paul L

Frequency: 951.875MHz
Audio Input: Modulated 15khz 85% Modulation
99% power bandwidth = 94.19kHz



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Appendix B

B3.0 RF Conducted Spurious Emissions

Rule Part: FCC Part 74.861(d)(3)), FCC Part 2.1051

Test Procedure: TIA 603D 2010 2.2.13

Limit: An emission appearing on any discrete frequency outside the authorized band shall be attenuated, at least 43+10log¹º (mean output power, in watts)dB below the mean output power of the transmitting unit

Results: Compliant

Notes: The EUT was set to transmit at its maximum power. A peak detector was used for this test.

The EUT was tested in two configurations: 1) A transmitted signal passed through all available channels unmodulated. 2) A transmitted signal passed through all channels with three channels modulated at 2.5khz 16db >50% modulation.

Sample Equation: 43+10log(.04989W)=29.98

10log(49.89mW)=16.98dbm

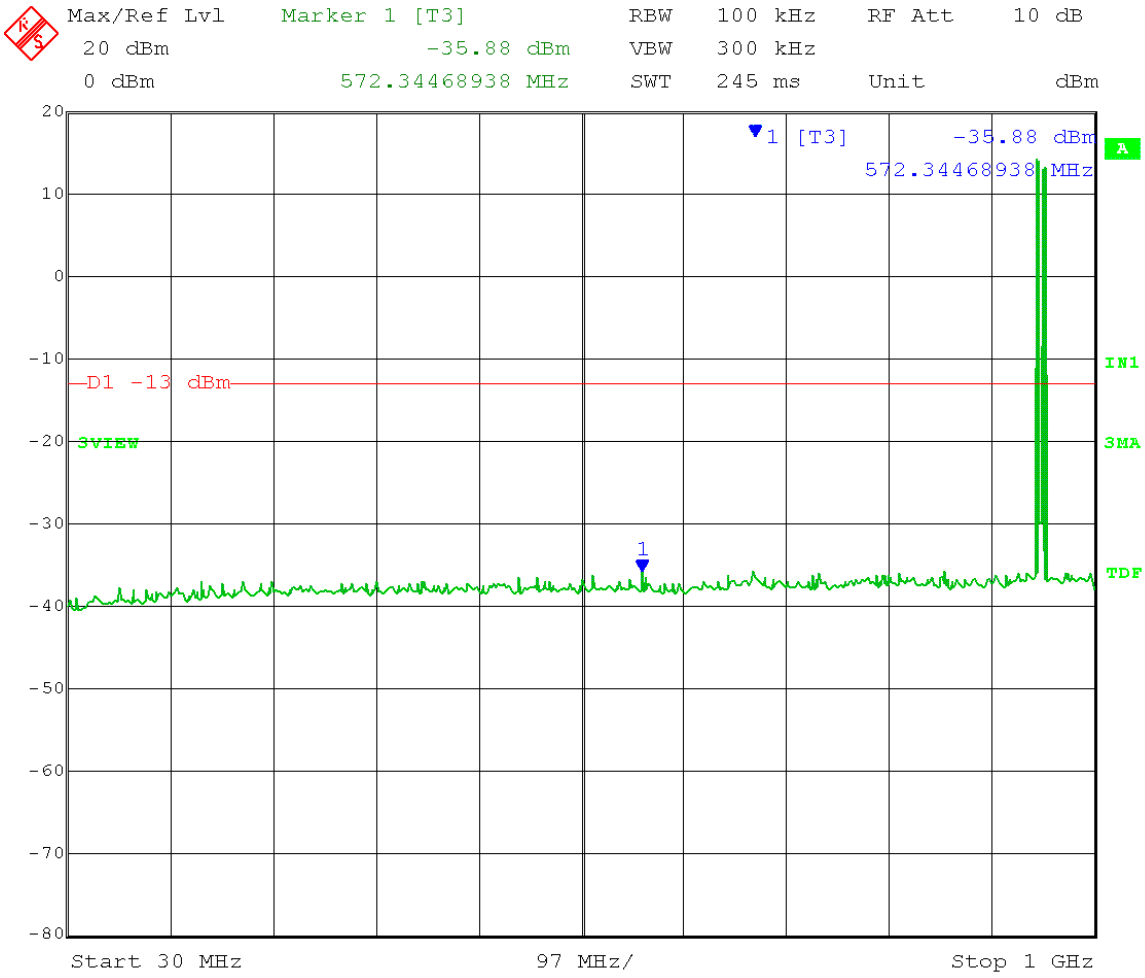
16.98 - 29.98 = -13dbm

DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	6-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Spurious Emissions - Conducted
Rule part:	FCC Part 74; FCC Part 2.1051
Operator:	Paul L
Comment:	Inputs: 945.15 MHz 946.625MHz 949.975MHz 951.875MHz

Frequency Range: 30 to 1000 MHz
Limit = -13 dBm



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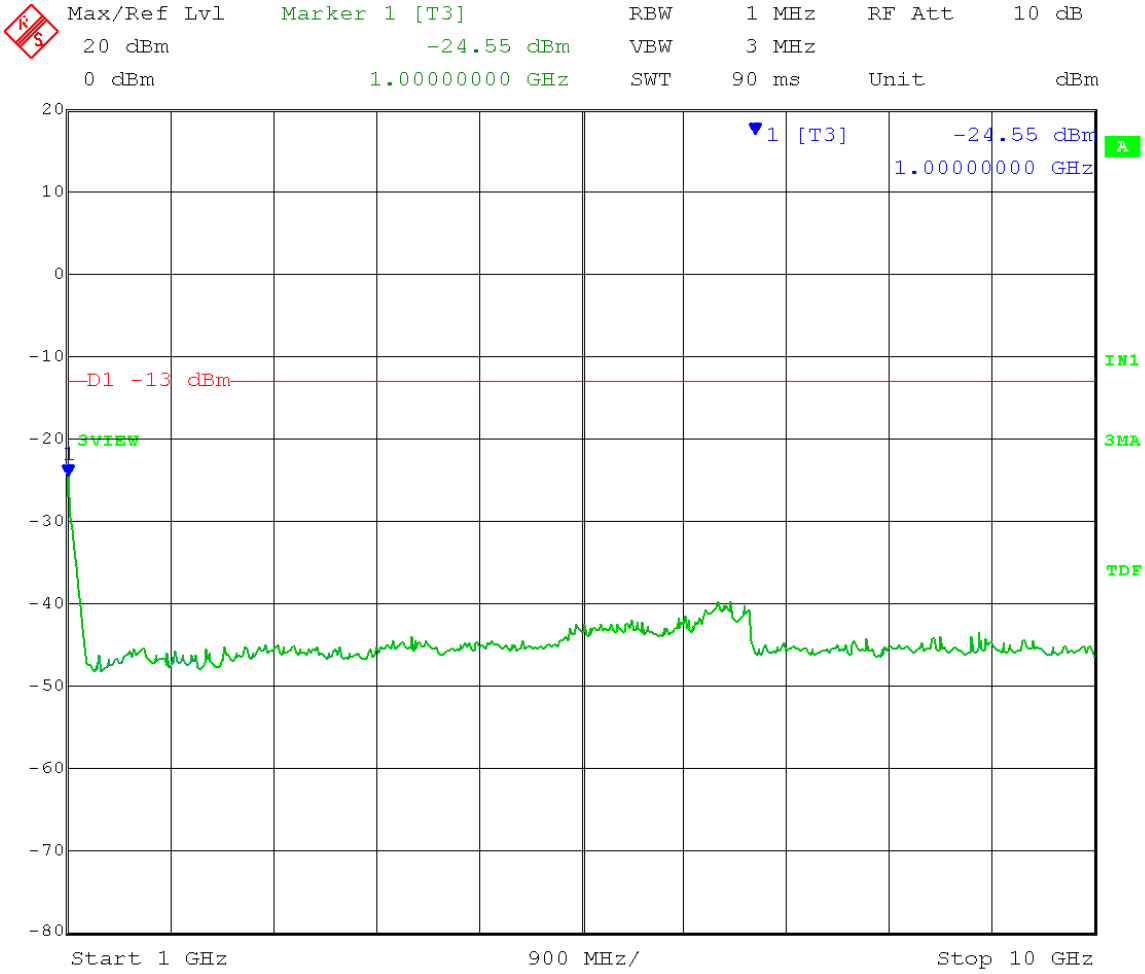
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date:	6-16-2016
Company:	Shure, Inc.
EUT:	PA421BX Antenna Combiner
Test:	Spurious Emissions - Conducted
Rule part:	FCC Part 74; FCC Part 2.1051
Operator:	Paul L
Comment:	Inputs: 945.15 MHz 946.625MHz 949.975MHz 951.875MHz

Frequency Range: 1 to 10GHz
Limit = -13 dBm



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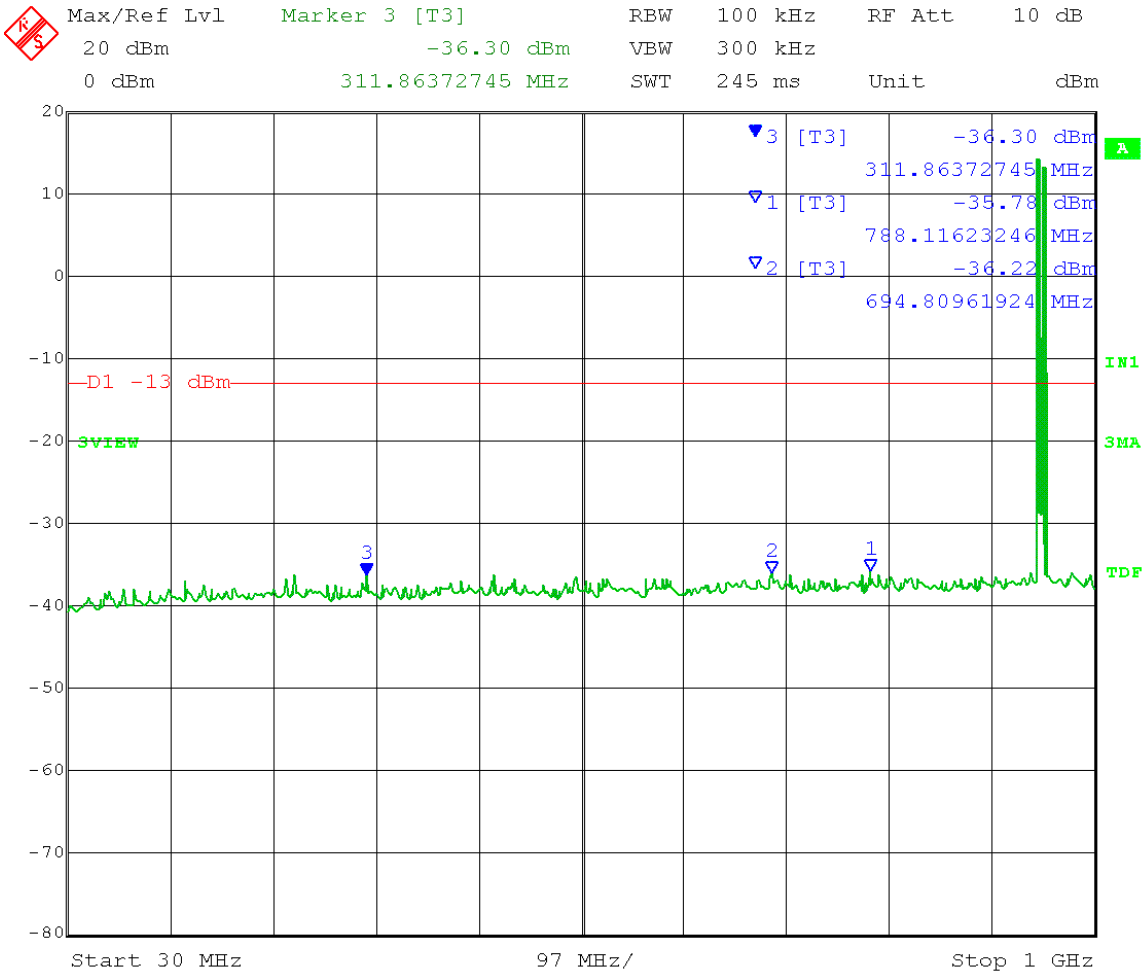
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date: 6-16-2016
Company: Shure, Inc.
EUT: PA421BX Antenna Combiner
Test: Spurious Emissions Conducted
Intermodulation 3 signal test. (2.5khz 16db >50% modulation)

Rule part: FCC Part 74; FCC Part 2.1051
Operator: Paul L
Comment: Modulated Inputs: 945.15 MHz
949.975MHz
951.875MHz
Other Inputs: 946.625MHz

Frequency Range: 30 to 1000 MHz
Limit = -13 dBm



Date: 16.JUN.2016 13:59:48

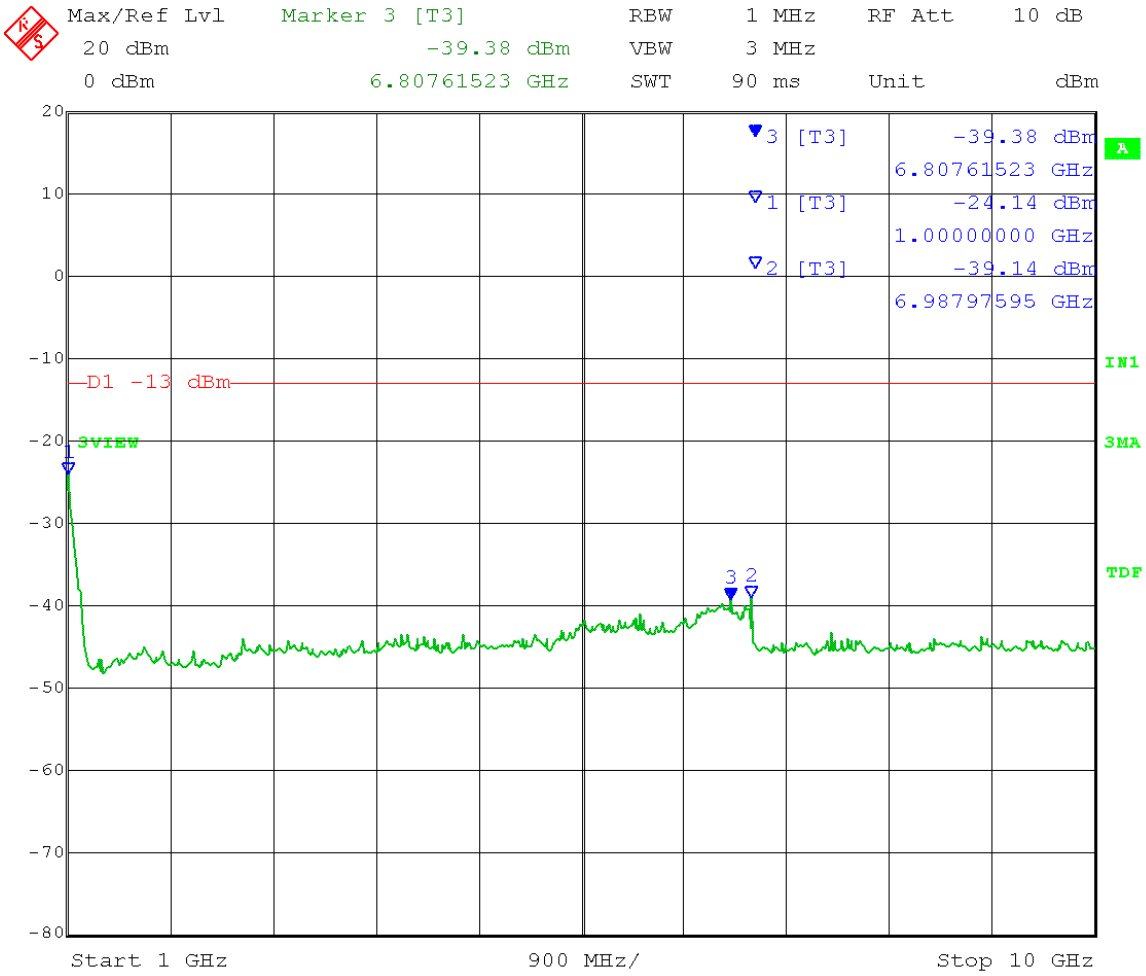
DLS ELECTRONIC SYSTEMS, INC.
166 South Carter, Genoa City, WI 53128

Company:	Shure Incorporated
Model Tested:	PA421BX
Report Number:	22308
Project Number:	8113

Test Date: 6-16-2016
Company: Shure, Inc.
EUT: PA421BX Antenna Combiner
Test: Spurious Emissions Conducted
Intermodulation 3 signal test. (2.5khz 16db >50% modulation)

Rule part: FCC Part 74; FCC Part 2.1051
Operator: Paul L
Comment: Modulated Inputs: 945.15 MHz
949.975MHz
951.875MHz
Other Inputs: 946.625MHz

Frequency Range: 1 to 10 GHz
Limit = -13 dBm



Date: 16.JUN.2016 14:25:10

Appendix B

B4.0 Radiated Spurious Emissions

Rule Part: FCC Part 74.861(d)(3)), FCC Part 2.1051

Test Procedure: TIA 603D 2010 2.2.13

Limit: An emission appearing on any discrete frequency outside the authorized band shall be attenuated, at least 43+10log¹º (mean output power, in watts)dB below the mean output power of the transmitting unit

Results: Compliant

Notes: The EUT was set to transmit at its maximum power. A peak detector was used for this test.
The EUT was tested in two configurations: 1) A transmitted signal passed through all available channels unmodulated. 2) A transmitted signal passed through all channels with three channels modulated at 2.5khz 16db >50% modulation.

Sample Equation: 43+10log(.04989W)=29.98

10log(49.89mW)=16.98dbm

16.98 - 29.98 = -13dbm

Notes: The measurement bandwidth on the receiver was set 120 kHz from 30 to 1000 MHz, and 1 MHz from 1 to 7GHz. The detector was set to Quasi-Peak below 1 GHz and Peak above 1 GHz. The test distance was 3 meters.

DLS ELECTRONIC SYSTEMS, INC.

Company: Shure Incorporated
Model Tested: PA421BX
Report Number: 22308
Project Number: 8113

166 South Carter, Genoa City, WI 53128

Company: Shure, Inc
Operator: Paul L
Date of test: 06-14-2016
Temperature: 72 deg. F
Humidity: 49% R.H.
Test: FCC Pt.74.861, FCC PT.2.1053

Transmitter Radiated Spurious Emissions (e.r.p. substitution method) 30 MHz to 10.0 GHz

Model: **PA421BX** Transmit Frequency (MHz): 945.150, 946.625, 949.975, 951.875

	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [ERP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [ERP] (uW)
111.06 vertical	34.1	-69.3	2.5	2.15	-71.8	-13	58.8	6.60693E-05
111.06 horizontal	34.1	-70.96	2.5	2.15	-73.46	-13	60.46	4.50817E-05
124.8 vertical	38.5	-62.8	2.66	2.15	-65.46	-13	52.46	0.000284446
124.8 horizontal	35.5	-68.7	2.66	2.15	-71.36	-13	58.36	7.31139E-05
1890.4 vertical	41.7	-69.1	2.55	8.49	-65.31	-13	52.31	0.000294442
1890.4 horizontal	41.6	-69.2	2.55	8.6	-65.3	-13	52.3	0.000295121
1903.6 horizontal	39.4	-72	2.56	8.59	-68.12	-13	55.12	0.00015417
3786.4 vertical	46.2	-61.4	3.72	9.06	-58.21	-13	45.21	0.00151008
4733.2 vertical	44.2	-65.9	4.24	10.98	-61.31	-13	48.31	0.000739605
4750.0 vertical	45.4	-65.8	4.25	10.97	-61.23	-13	48.23	0.000753356
4759.375 vertical	45.9	-66.4	4.26	10.97	-61.84	-13	48.84	0.00065
4759.375 horizontal	44.4	-76.1	4.26	10.98	-71.53	-13	58.53	0.00007
5670.8 vertical	47.3	-60.5	4.7	11.37	-55.98	-13	42.98	0.00252
5680.0 vertical	45.9	-61.8	4.71	11.39	-57.27	-13	44.27	0.00187
5700.0 vertical	47.4	-61.1	4.71	11.45	-56.51	-13	43.51	0.00223
5711.2 vertical	41.3	nf	4.72	11.42	#VALUE!	-13	#VALUE!	#VALUE!
5711.2 horizontal	45.7	-65.8	4.72	11.49	-61.18	-13	48.18	0.00076
6662.8 vertical	45.8	-62.7	5.15	11.97	-58.03	-13	45.03	0.00157

EIRP = Signal generator output - cable loss + antenna gain

$ERP_{(ref.\ to\ ½\lambda\ dipole)}$ = Signal generator output - cable loss + antenna gain - 2.15

Appendix B

B5.0 AC Line Conducted Emissions

Rule Part: FCC Part 15.207

Test Procedure: ANSI C63.4-2014

Limit: 15.207 Class B

Results: Compliant

Notes: This was an AC Mains Conducted emissions measurement.
The EUT was powered with an input of 120 and 240 VAC 60 Hz.

PMM NARDA REPORT: 8113 Shure Inc PA421BX 120V 60Hz L1_000

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L1 Avg
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

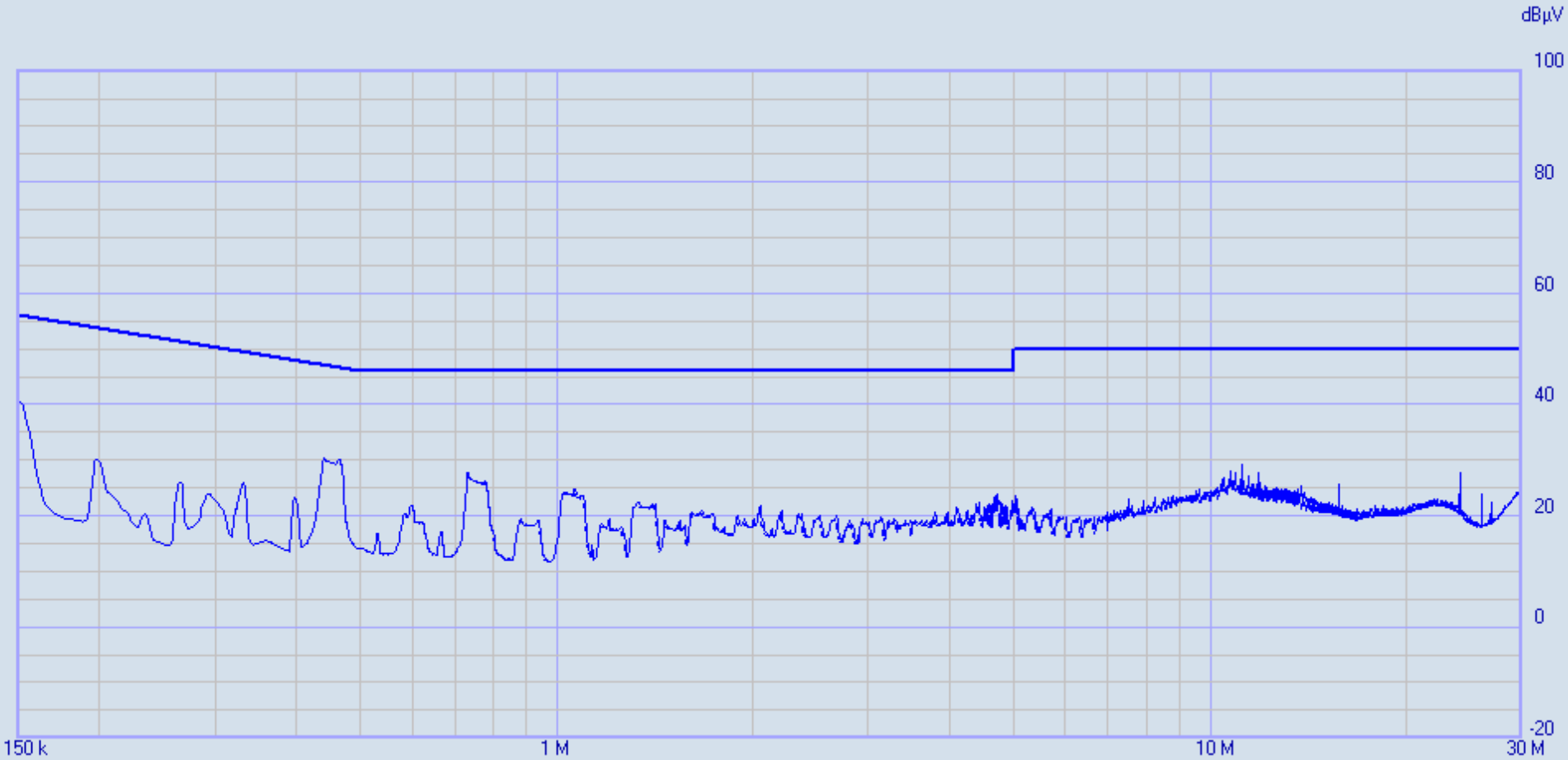
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 120VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8113 Shure Inc PA421BX 120V 60Hz L1_000

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V AV

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

C-Avg

8113 Shure Inc PA421BX 120V 60Hz L1_000 26/08/2016 09:52:46
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 17 dB

	Frequency [MHz]	C-Avg [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.15	40.74	56.00	-15.26	1.66	9.87	2.16	0.17
2	0.152045	39.74	55.89	-16.15	1.62	9.86	2.13	0.16
3	0.44039	30.25	47.05	-16.80	0.49	9.95	1.01	0.12
4	0.442435	30.20	47.02	-16.82	0.49	9.95	1.01	0.12
5	0.462885	30.06	46.64	-16.58	0.47	9.95	0.98	0.12
6	0.46493	29.94	46.60	-16.66	0.47	9.95	0.97	0.12

PMM NARDA REPORT: 8113 Shure Inc PA421BX 120V 60Hz L1_000

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L1 QP
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

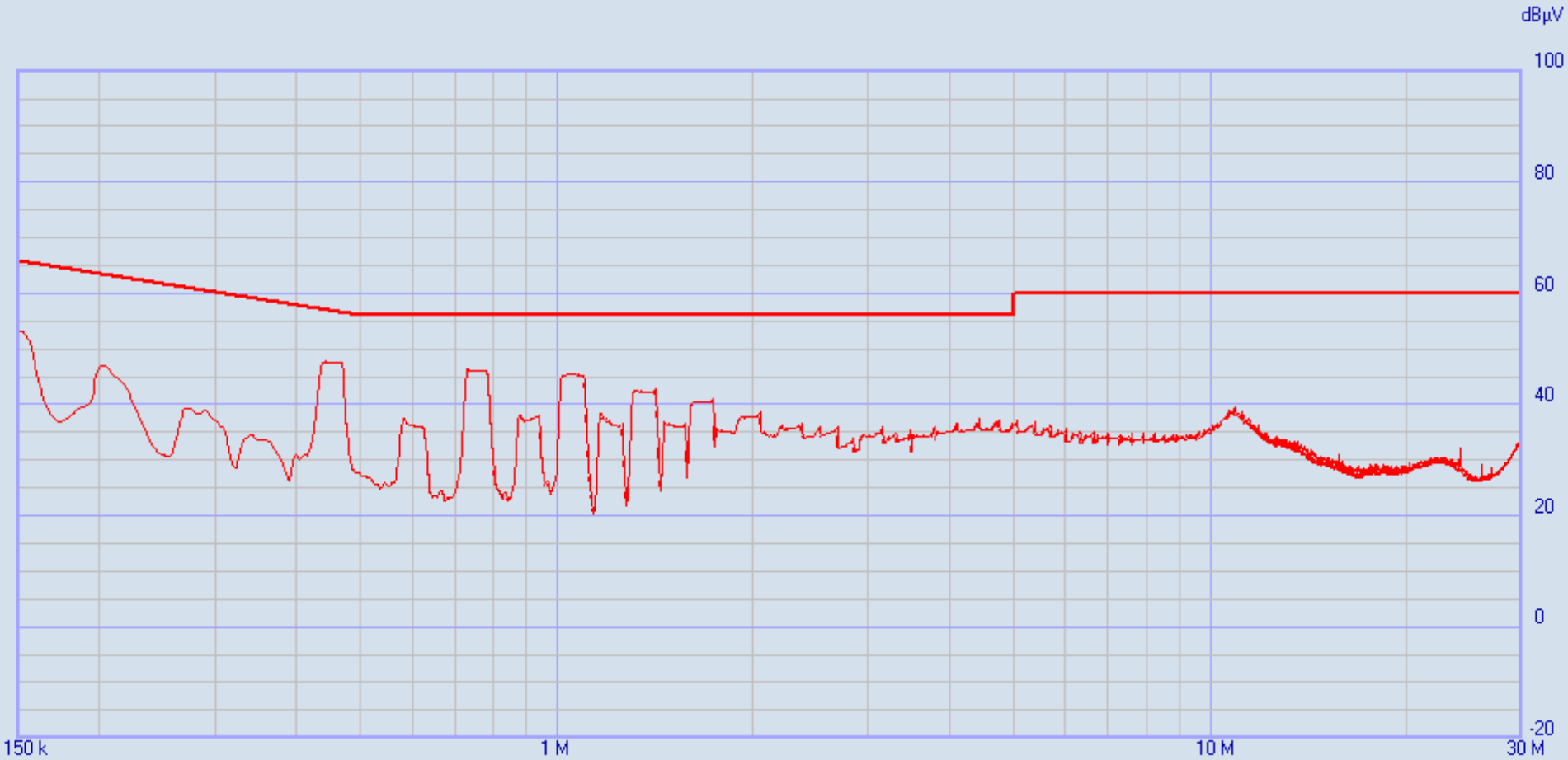
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 120VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8113 Shure Inc PA421BX 120V 60Hz L1_000

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V QP

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

QPeak

8113 Shure Inc PA421BX 120V 60Hz L1_000 26/08/2016 09:52:46
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 10 dB

	Frequency [MHz]	QPeak [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.4363	47.42	57.13	-9.71	---	---	---	---
2	0.438345	47.60	57.09	-9.49	0.50	9.95	1.02	0.12
3	0.44039	47.66	57.05	-9.39	0.49	9.95	1.01	0.12
4	0.442435	47.67	57.02	-9.35	0.49	9.95	1.01	0.12
5	0.44448	47.63	56.98	-9.35	0.49	9.95	1.01	0.12
6	0.446525	47.64	56.94	-9.30	0.49	9.95	1.00	0.12
7	0.44857	47.58	56.90	-9.32	0.49	9.95	1.00	0.12
8	0.450615	47.55	56.86	-9.31	0.49	9.95	1.00	0.12
9	0.45266	47.52	56.83	-9.31	0.49	9.95	0.99	0.12
10	0.454705	47.55	56.79	-9.24	0.48	9.95	0.99	0.12
11	0.45675	47.58	56.75	-9.17	0.48	9.95	0.99	0.12
12	0.458795	47.55	56.71	-9.16	0.48	9.95	0.98	0.12
13	0.46084	47.56	56.68	-9.12	0.48	9.95	0.98	0.12
14	0.462885	47.60	56.64	-9.04	0.47	9.95	0.98	0.12
15	0.46493	47.50	56.60	-9.10	0.47	9.95	0.97	0.12
16	0.466975	47.43	56.57	-9.14	0.47	9.95	0.97	0.12
17	0.46902	46.93	56.53	-9.60	0.47	9.95	0.97	0.13
18	0.728735	46.11	56.00	-9.89	0.37	9.96	0.68	0.16
19	0.73078	46.16	56.00	-9.84	0.37	9.96	0.68	0.16
20	0.732825	46.19	56.00	-9.81	0.37	9.96	0.67	0.16
21	0.73487	46.21	56.00	-9.79	0.37	9.96	0.67	0.16
22	0.736915	46.17	56.00	-9.83	0.37	9.96	0.67	0.16
23	0.73896	46.14	56.00	-9.86	0.37	9.96	0.67	0.16
24	0.741005	46.11	56.00	-9.89	0.36	9.96	0.67	0.16
25	0.74305	46.07	56.00	-9.93	0.36	9.96	0.66	0.16
26	0.745095	46.04	56.00	-9.96	0.36	9.96	0.66	0.16
27	0.74714	46.03	56.00	-9.97	0.36	9.96	0.66	0.16
28	0.749185	46.01	56.00	-9.99	0.36	9.96	0.66	0.16
29	0.777815	46.00	56.00	-10.00	0.36	9.96	0.64	0.16
30	0.77986	46.11	56.00	-9.89	0.36	9.96	0.64	0.16
31	0.781905	46.05	56.00	-9.95	0.36	9.96	0.63	0.16

PMM NARDA REPORT: 8113 Shure Inc PA421BX 120V 60Hz L2

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L2 Avg
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

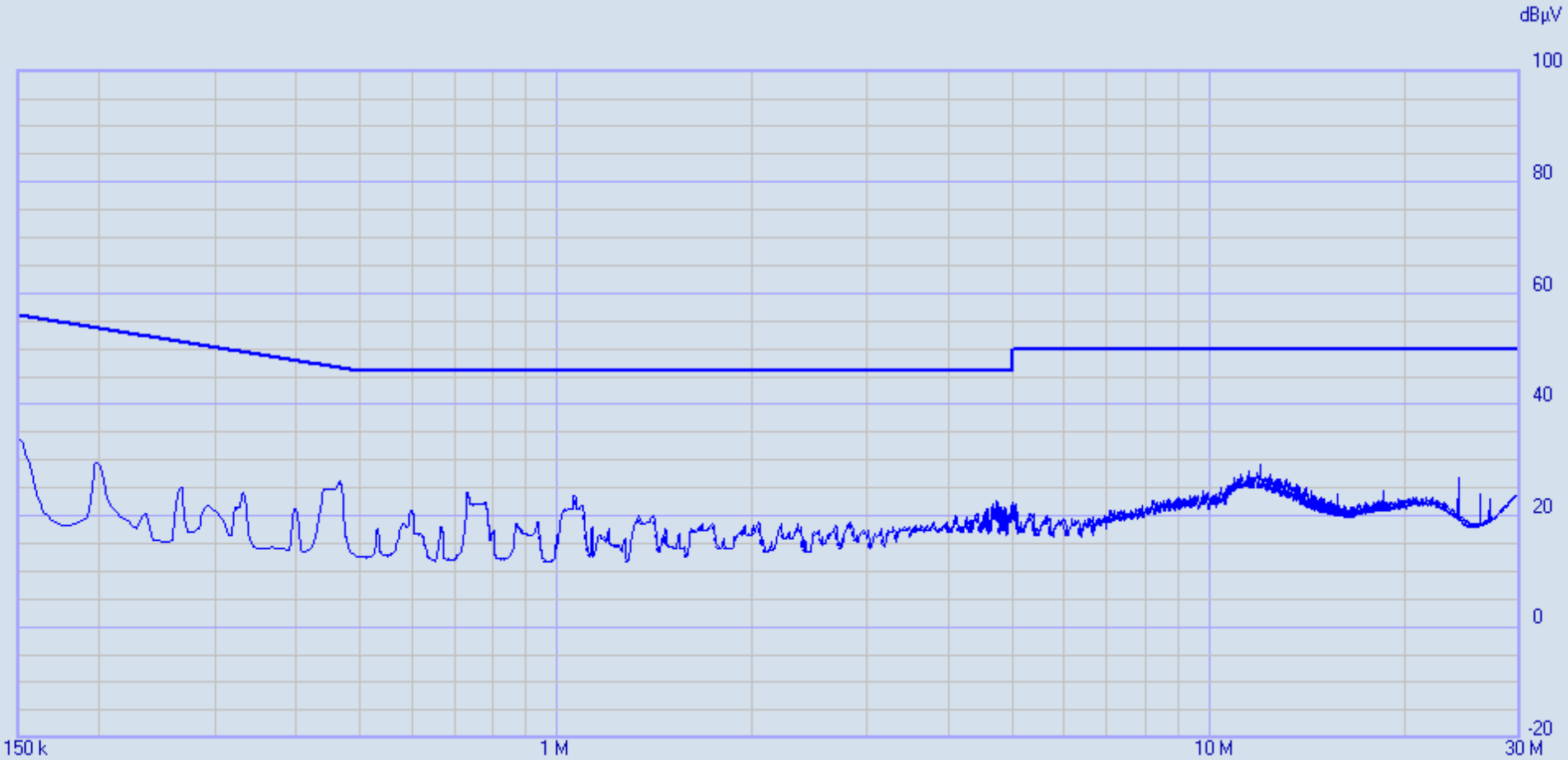
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 120VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8113 Shure Inc PA421BX 120V 60Hz L2

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V AV

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

C-Avg

8113 Shure Inc PA421BX 120V 60Hz L2 26/08/2016 10:05:16
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 22 dB

	Frequency [MHz]	C-Avg [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.46084	25.03	46.68	-21.65	0.48	9.95	0.98	0.12
2	0.462885	26.02	46.64	-20.62	0.47	9.95	0.98	0.12
3	0.46493	26.17	46.60	-20.43	0.47	9.95	0.97	0.12
4	0.466975	25.64	46.57	-20.93	0.47	9.95	0.97	0.12
5	0.732825	24.13	46.00	-21.87	0.37	9.96	0.67	0.16
6	0.73487	24.10	46.00	-21.90	0.37	9.96	0.67	0.16
7	11.493615	28.01	50.00	-21.99	0.29	10.09	0.35	0.64
8	11.49566	28.13	50.00	-21.87	0.29	10.09	0.35	0.64
9	11.497705	28.07	50.00	-21.93	0.29	10.09	0.35	0.64
10	11.927155	28.64	50.00	-21.36	0.29	10.09	0.36	0.68
11	11.9292	29.10	50.00	-20.90	0.29	10.09	0.36	0.68
12	11.931245	29.12	50.00	-20.88	0.29	10.09	0.36	0.68
13	11.93329	28.19	50.00	-21.81	0.29	10.09	0.36	0.68

PMM NARDA REPORT: 8113 Shure Inc PA421BX 120V 60Hz L2

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L2 QP
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

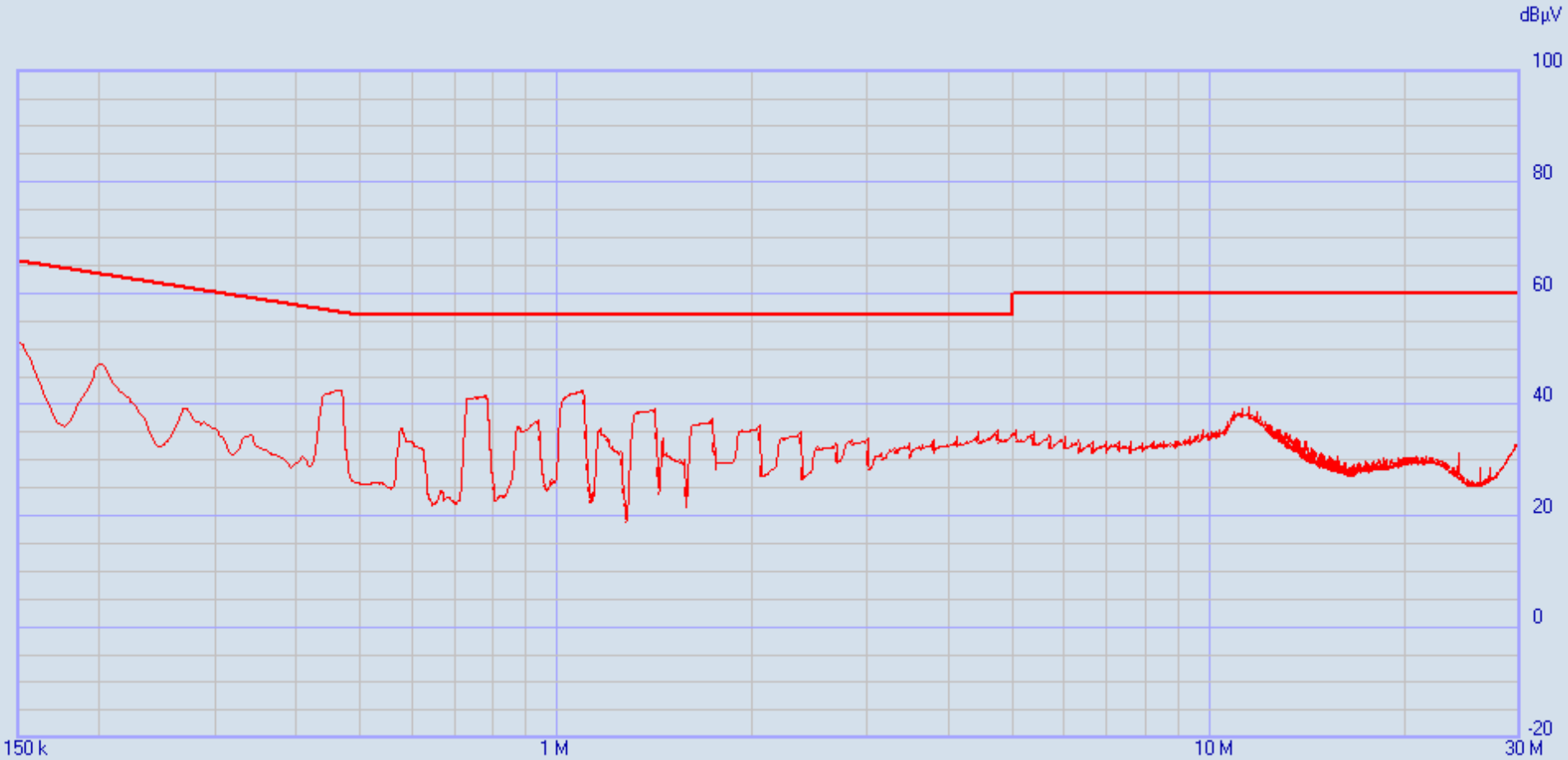
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 120VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8113 Shure Inc PA421BX 120V 60Hz L2

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V QP

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

QPeak

8113 Shure Inc PA421BX 120V 60Hz L2 26/08/2016 10:05:16
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 14 dB

	Frequency [MHz]	QPeak [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.46493	42.60	56.60	-14.00	0.47	9.95	0.97	0.12
2	0.466975	42.63	56.57	-13.94	0.47	9.95	0.97	0.12
3	1.07025	42.00	56.00	-14.00	0.32	9.97	0.50	0.22
4	1.072295	42.04	56.00	-13.96	0.32	9.97	0.50	0.23
5	1.07434	42.04	56.00	-13.96	0.32	9.97	0.50	0.23
6	1.076385	42.06	56.00	-13.94	0.32	9.97	0.50	0.23
7	1.07843	42.07	56.00	-13.93	0.32	9.97	0.50	0.23
8	1.080475	42.07	56.00	-13.93	0.32	9.97	0.49	0.23
9	1.08252	42.16	56.00	-13.84	0.32	9.97	0.49	0.23
10	1.084565	42.17	56.00	-13.83	0.32	9.97	0.49	0.23
11	1.08661	42.21	56.00	-13.79	0.32	9.97	0.49	0.23
12	1.088655	42.21	56.00	-13.79	0.32	9.97	0.49	0.24
13	1.0907	42.24	56.00	-13.76	0.32	9.97	0.49	0.24
14	1.092745	42.32	56.00	-13.68	0.32	9.97	0.49	0.24
15	1.09479	42.41	56.00	-13.59	0.32	9.97	0.49	0.24
16	1.096835	42.22	56.00	-13.78	0.32	9.97	0.49	0.24

PMM NARDA REPORT: 8113 Shure Inc PA421BX 240V 60Hz L2

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L2 Avg
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 240VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.

8113 Shure Inc PA421BX 240V 60Hz L2

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V AV

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

C-Avg

8113 Shure Inc PA421BX 240V 60Hz L2 26/08/2016 09:38:15
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 23 dB

	Frequency [MHz]	C-Avg [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.15	34.55	56.00	-21.45	1.66	9.87	2.16	0.17
2	0.152045	34.06	55.89	-21.83	1.62	9.86	2.13	0.16
3	0.15409	32.83	55.78	-22.95	1.59	9.86	2.09	0.15
4	0.44039	24.60	47.05	-22.45	0.49	9.95	1.01	0.12
5	0.442435	24.88	47.02	-22.14	0.49	9.95	1.01	0.12
6	0.44448	24.88	46.98	-22.10	0.49	9.95	1.01	0.12
7	0.446525	24.78	46.94	-22.16	0.49	9.95	1.00	0.12
8	0.44857	24.71	46.90	-22.19	0.49	9.95	1.00	0.12
9	0.450615	24.75	46.86	-22.11	0.49	9.95	1.00	0.12
10	0.45266	24.74	46.83	-22.09	0.49	9.95	0.99	0.12
11	0.454705	24.70	46.79	-22.09	0.48	9.95	0.99	0.12
12	0.45675	24.77	46.75	-21.98	0.48	9.95	0.99	0.12
13	0.458795	24.72	46.71	-21.99	0.48	9.95	0.98	0.12
14	0.46084	24.89	46.68	-21.79	0.48	9.95	0.98	0.12
15	0.462885	25.44	46.64	-21.20	0.47	9.95	0.98	0.12
16	0.46493	25.37	46.60	-21.23	0.47	9.95	0.97	0.12
17	0.466975	24.73	46.57	-21.84	0.47	9.95	0.97	0.12
18	0.46902	23.54	46.53	-22.99	0.47	9.95	0.97	0.13
19	11.137785	27.01	50.00	-22.99	0.29	10.09	0.33	0.63
20	11.82286	27.23	50.00	-22.77	0.29	10.09	0.36	0.67
21	11.824905	27.28	50.00	-22.72	0.29	10.09	0.36	0.67
22	11.82695	27.31	50.00	-22.69	0.29	10.09	0.36	0.67
23	23.99879	29.80	50.00	-20.20	0.36	10.15	0.46	0.89
24	24.000835	31.08	50.00	-18.92	0.36	10.15	0.46	0.89
25	24.00288	31.09	50.00	-18.91	0.36	10.15	0.46	0.89
26	24.004925	29.71	50.00	-20.29	0.36	10.15	0.46	0.89

PMM NARDA REPORT: 8113 Shure Inc PA421BX 240V 60Hz L2

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L2 QP
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

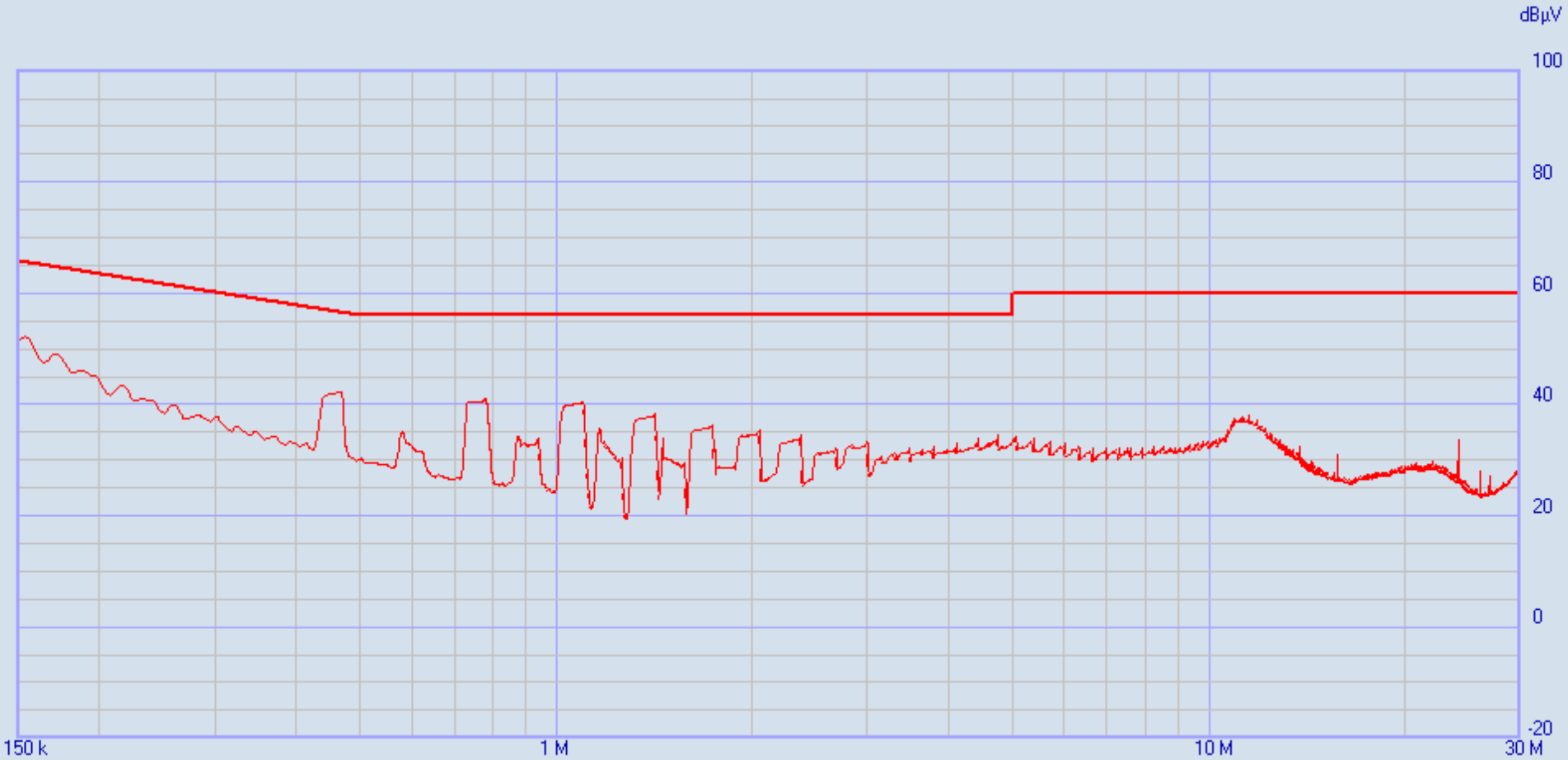
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 240VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8113 Shure Inc PA421BX 240V 60Hz L2

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V QP

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

QPeak

8113 Shure Inc PA421BX 240V 60Hz L2 26/08/2016 09:38:15
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 15 dB

	Frequency [MHz]	QPeak [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.15	51.68	66.00	-14.32	1.66	9.87	2.16	0.17
2	0.152045	52.03	65.89	-13.86	1.62	9.86	2.13	0.16
3	0.15409	52.15	65.78	-13.63	1.59	9.86	2.09	0.15
4	0.156135	51.69	65.67	-13.98	1.57	9.86	2.06	0.14
5	0.450615	41.86	56.86	-15.00	0.49	9.95	1.00	0.12
6	0.45266	41.89	56.83	-14.94	0.49	9.95	0.99	0.12
7	0.454705	41.93	56.79	-14.86	0.48	9.95	0.99	0.12
8	0.45675	41.98	56.75	-14.77	0.48	9.95	0.99	0.12
9	0.458795	42.04	56.71	-14.67	0.48	9.95	0.98	0.12
10	0.46084	42.11	56.68	-14.57	0.48	9.95	0.98	0.12
11	0.462885	42.24	56.64	-14.40	0.47	9.95	0.98	0.12
12	0.46493	42.23	56.60	-14.37	0.47	9.95	0.97	0.12
13	0.466975	42.26	56.57	-14.31	0.47	9.95	0.97	0.12
14	0.46902	41.79	56.53	-14.74	0.47	9.95	0.97	0.13

PMM NARDA REPORT: 8133 Shure Inc PA421BX 240V 60Hz L1

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L1 Avg
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

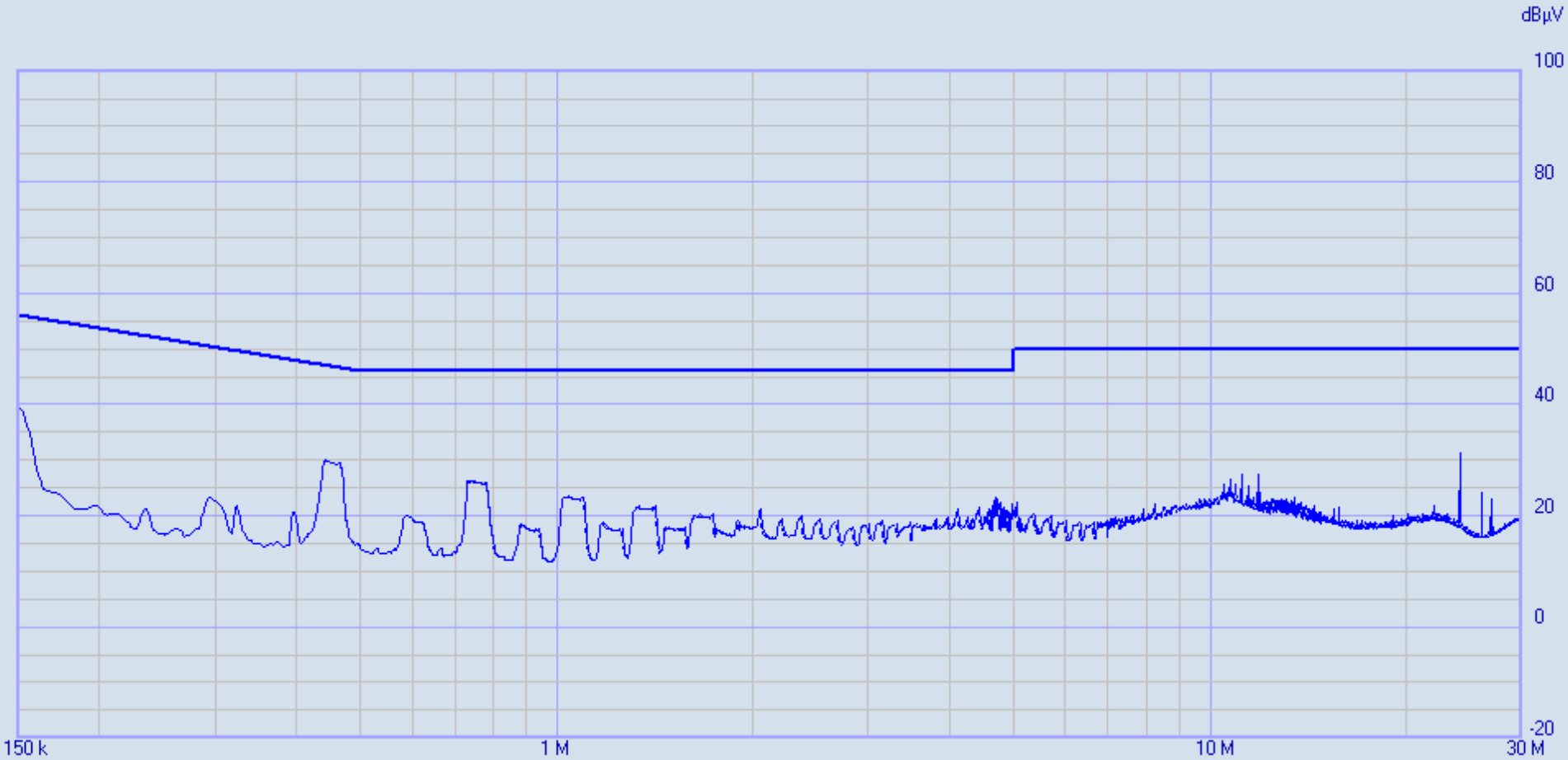
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 240VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8133 Shure Inc PA421BX 240V 60Hz L1

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V AV

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

C-Avg

8133 Shure Inc PA421BX 240V 60Hz L1 26/08/2016 09:25:29
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 20 dB

	Frequency [MHz]	C-Avg [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.15	39.39	56.00	-16.61	1.66	9.87	2.16	0.17
2	0.152045	38.69	55.89	-17.20	1.62	9.86	2.13	0.16
3	0.15409	37.02	55.78	-18.76	1.59	9.86	2.09	0.15
4	0.4363	27.19	47.13	-19.94	0.50	9.95	1.02	0.12
5	0.438345	28.67	47.09	-18.42	0.50	9.95	1.02	0.12
6	0.44039	29.60	47.05	-17.45	0.49	9.95	1.01	0.12
7	0.442435	29.96	47.02	-17.06	0.49	9.95	1.01	0.12
8	0.44448	29.73	46.98	-17.25	0.49	9.95	1.01	0.12
9	0.446525	29.64	46.94	-17.30	0.49	9.95	1.00	0.12
10	0.44857	29.71	46.90	-17.19	0.49	9.95	1.00	0.12
11	0.450615	29.50	46.86	-17.36	0.49	9.95	1.00	0.12
12	0.45266	29.43	46.83	-17.40	0.49	9.95	0.99	0.12
13	0.454705	29.29	46.79	-17.50	0.48	9.95	0.99	0.12
14	0.45675	29.34	46.75	-17.41	0.48	9.95	0.99	0.12
15	0.458795	29.28	46.71	-17.43	0.48	9.95	0.98	0.12
16	0.46084	29.20	46.68	-17.48	0.48	9.95	0.98	0.12
17	0.462885	29.54	46.64	-17.10	0.47	9.95	0.98	0.12
18	0.46493	29.46	46.60	-17.14	0.47	9.95	0.97	0.12
19	0.466975	28.62	46.57	-17.95	0.47	9.95	0.97	0.12
20	0.46902	27.33	46.53	-19.20	0.47	9.95	0.97	0.13
21	0.732825	26.20	46.00	-19.80	0.37	9.96	0.67	0.16
22	0.73487	26.19	46.00	-19.81	0.37	9.96	0.67	0.16
23	0.741005	26.22	46.00	-19.78	0.36	9.96	0.67	0.16
24	0.74305	26.26	46.00	-19.74	0.36	9.96	0.66	0.16
25	0.745095	26.00	46.00	-20.00	0.36	9.96	0.66	0.16
26	0.74714	26.08	46.00	-19.92	0.36	9.96	0.66	0.16
27	24.000835	31.14	50.00	-18.86	0.36	10.15	0.46	0.89
28	24.00288	31.15	50.00	-18.85	0.36	10.15	0.46	0.89

PMM NARDA REPORT: 8133 Shure Inc PA421BX 240V 60Hz L1

Report issuing date : 8-26-2016

Standard	: FCC Pt.15.107 Class B
Test Type	: Voltage Mains Test
Test Site	: DLS O.F. Screen Room
Temperature	: 75 °F
Humidity	: 43 %
Test Specs	: L1 QP
Operator	: Paul L
DLS Project #	: 8113
Result	: Pass

EUT

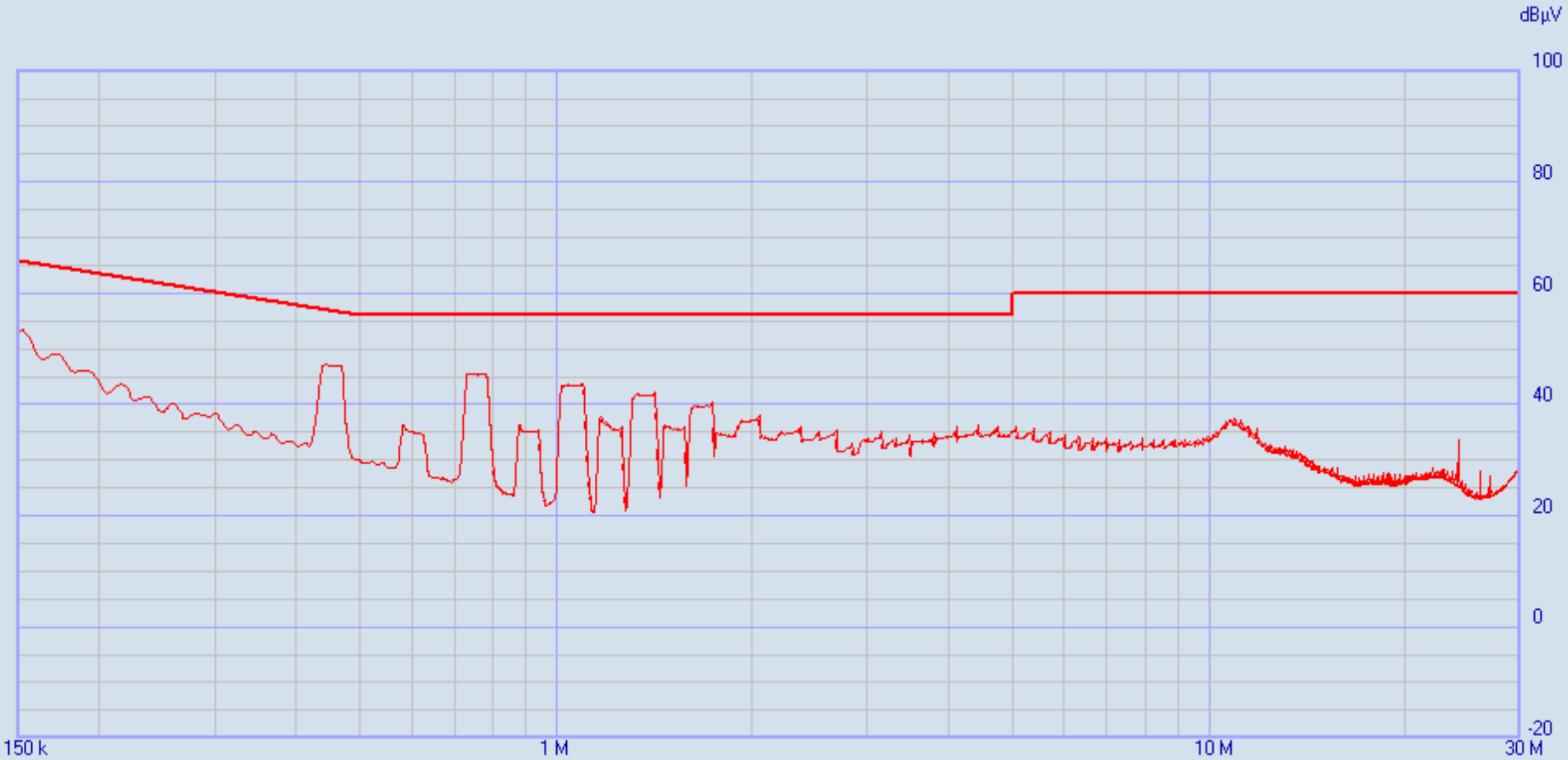
Manufacturer	: Shure, Inc.
Model	: PA421BX
Product	: 4 input Antenna Combiner
Notes	: 240VAC 60Hz

Testing Company	: DLS Electronic Systems
Tel./Fax	: 262-279-0210
Web site	: http://www.dlsemc.com

Receiver Details

Model	: PMM 9010F
Brand	: Narda
S/N	: 020WW40102
Last Calibration	: 06/23/2016

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



8133 Shure Inc PA421BX 240V 60Hz L1

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary
1	0.15	30	AUTO (2.045 kHz)	P Q C	1500 ms	9 kHz	10	OFF	ON	...	...

Ancillary = General

Limits:
Class B V QP

Factors:
LISN DLS#128
E-M L705
DLS #592
Cables 43 & 45

QPeak

8133 Shure Inc PA421BX 240V 60Hz L1 26/08/2016 09:25:29
Rel. SW 2.22 (August 2015)
Rel. FW 1.54 20/04/16
Margin: 10 dB

	Frequency [MHz]	QPeak [dBµV]	Limit Class B V.. [dBµV]	Delta [dB]	Factor LISN DLS#.. [dB]	Factor E-M L705 [dB]	Factor DLS #592 [dB]	Factor Cables 43.. [dB]
1	0.442435	47.12	57.02	-9.90	0.49	9.95	1.01	0.12
2	0.44448	47.10	56.98	-9.88	0.49	9.95	1.01	0.12
3	0.446525	47.08	56.94	-9.86	0.49	9.95	1.00	0.12
4	0.44857	47.06	56.90	-9.84	0.49	9.95	1.00	0.12
5	0.450615	47.01	56.86	-9.85	0.49	9.95	1.00	0.12
6	0.45266	46.98	56.83	-9.85	0.49	9.95	0.99	0.12
7	0.454705	46.95	56.79	-9.84	0.48	9.95	0.99	0.12
8	0.45675	47.01	56.75	-9.74	0.48	9.95	0.99	0.12
9	0.458795	47.04	56.71	-9.67	0.48	9.95	0.98	0.12
10	0.46084	46.95	56.68	-9.73	0.48	9.95	0.98	0.12
11	0.462885	46.99	56.64	-9.65	0.47	9.95	0.98	0.12
12	0.46493	46.99	56.60	-9.61	0.47	9.95	0.97	0.12
13	0.466975	46.88	56.57	-9.69	0.47	9.95	0.97	0.12

Appendix C – Measurement Uncertainty

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Parameter		Expanded Uncertainty (K=2)
Emission Bandwidth, Conducted		+/-1.14%
RF Output Power, Conducted		+/-1.36dB
Power Spectral Density, Conducted		+/-1.26dB
All Emissions, Radiated		+/-5.69dB
Duty Cycle		+/-0.05%

166 South Carter, Genoa City, WI 53128

Company: Shure Incorporated
Model Tested: PA421BX
Report Number: 22308
Project Number: 8113

END OF REPORT

Revision #	Date	Comments	By
1.0	11-7-2016	Initial Release	PL