



a Laird Business TESTING CERT #1255.01

W66 N220 Commerce Court • Cedarburg, WI 53012

Phone: 262.375.4400 • Fax: 262.375.4248


www.lsr.com

TEST REPORT #: 316339
LSR Job #: C-2612

Compliance Testing of:
MixPre 6

Prepared For:
Sound Devices
Attn: Don Zahrte
E7556 State Road 23/33
Reedsburg, WI 53959

This Test Report is issued under the Authority of:
John Johnston, EMC Engineer

Signature: 

Date: 1/17/2017

This Test Report may not be reproduced, except in full, without written approval of LS Research, LLC.

TABLE OF CONTENTS

EXHIBIT 1	INTRODUCTION	3
1.1	Client Information	3
1.2	Equipment Under Test (EUT) Information.....	3
1.3	Product Description	3
1.4	Compliance Statement	3
EXHIBIT 2	SAR Minimum Separation Distance	4
2.1	BLE Transmitter	4
2.1.1	1-g Head/Body Minimum Separation Distance.....	4
EXHIBIT 3	RSS 102 Compliance.....	5
3.1	BLE Transmitter	5
3.1.1	1-g SAR Exemption:	6

Prepared For: Sound Devices	Model #: MixPre6	Report #: 316339
EUT: MixPre6	Serial #: QC0116270004	LSR Job #: C-2612

EXHIBIT 1 INTRODUCTION

1.1 Client Information

Manufacturer Name:	Sound Devices
Address:	E7556 State Road 23/33
Contact Name:	Don Zahrte

1.2 Equipment Under Test (EUT) Information

Product Name:	MixPre 6
Model Number:	MixPre 6
Serial Number:	QC0116270004

1.3 Product Description

The MixPre 6 is a studio-quality, portable, stereo microphone preamplifier/mixer. The MixPre 6 includes multiple input/output ports. The MixPre 6 can be powered via: (1) an AA battery cartridge (2) an L-mount battery cartridge (3) 5 V output AC/DC adapter. Two AC/DC adapters included in test set-up during testing: (1) Model JD-AP024U-050300BB-B1 including a 1 meter long cable, referred to herein as "Adapter 1;" (2) Adapter Tech Model ATM012T-W051V including a 1.8 meter long cable, referred to herein as "Adapter 2." The MixPre 6 may be configured to operate in a recording mode using one of four designated sampling rates (44.1 kHz, 48 kHz, 96 kHz, and 192 kHz).

Moreover, the MixPre 6 includes a Murata BLE module (Model # P2ML3599 Type ZS).

1.4 Compliance Statement

The MixPre 6 was evaluated against the SAR test exclusion threshold listed in FCC KDB 447498 D01 General RF Exposure Guidance v06 Section 4.3 (1) and RSS 102 issue 5. As such, the MixPre 6 is found to be compliant as a mobile and portable device and, as such, is exempt from SAR testing.

Prepared For: Sound Devices	Model #: MixPre6	Report #: 316339
EUT: MixPre6	Serial #: QC0116270004	LSR Job #: C-2612

EXHIBIT 2 SAR Minimum Separation Distance

2.1 BLE Transmitter

The EUT was evaluated against the SAR test exclusion threshold listed in FCC KDB 447498 D01 General RF Exposure Guidance v06 Section 4.3 (1).

Transmitter output power:

Channel Frequency (MHz)	Max Peak Conducted Output Power (dBm)
2402	-1.635
2440	-1.583
2480	-1.666

Frequency = **2440 MHz**

Output Power = **-1.583 dBm**

Tune-up Tolerance = **1 dB**

P_{out} including tune-up tolerance = -1.583 dBm + 1 dB = -0.583 dBm = **0.874 mW**

2.1.1 1-g Head/Body Minimum Separation Distance

d (Separation Distance) ≤ 5mm; use 5 mm in calculation per KDB 447498

$$(0.874 \text{ mW} / 5\text{mm}) * \sqrt{(2.440 \text{ GHz})} = \underline{\underline{0.27 < 3}}$$

The EUT meets the power requirement and thus, SAR testing is exempt.

Prepared For: Sound Devices	Model #: MixPre6	Report #: 316339
EUT: MixPre6	Serial #: QC0116270004	LSR Job #: C-2612

EXHIBIT 3 RSS 102 Compliance

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤ 5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤ 300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥ 50 mm
≤ 300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Note: Table 1 from RSS 102. The exemption limits represented in this table apply to 1-gram tissue, head and body, evaluation (uncontrolled). For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in the table are multiplied by a factor of 2.5

3.1 BLE Transmitter

Frequency = **2440 MHz**

Output Power = **-1.583 dBm**

Tune-up Tolerance = **1 dB**

Antenna gain = **2.7 dBi**

P_{out} including tune-up tolerance = $-1.583 \text{ dBm} + 1.0 \text{ dB} + 2.7 \text{ dBi} = 2.117 \text{ dBm} = \mathbf{1.63 \text{ mW}}$

Prepared For: Sound Devices	Model #: MixPre6	Report #: 316339
EUT: MixPre6	Serial #: QC0116270004	LSR Job #: C-2612

3.1.1 1-g SAR Exemption:

Interpolating between 1900 MHz and 2450 MHz for 2440 MHz at a separation distance of **less than 5 mm** yields the exemption limit of **4.1 mW**.

When evaluated against RSS 102 issue 5 section 2.5, table 1:

$$\underline{1.63 \text{ mW} < 4.1 \text{ mW}}$$

The EUT meets the power requirement and thus, SAR testing is exempt.

Prepared For: Sound Devices	Model #: MixPre6	Report #: 316339
EUT: MixPre6	Serial #: QC0116270004	LSR Job #: C-2612