



Radio Frequency Exposure Evaluation Report

FOR:

BI Incorporated

Model Number:

SL3

Product Description:

Breath Alcohol Tester

FCC ID: CSQ-SL300A

IC ID: 1499A-SL300A

Applied Rules and Standards:

CFR 47 Part 2.1093 and RSS-102 Issue 5

FCC KDB 447498 D01 General RF Exposure Guidance v06

Test Report #: SAR_EX_BIINC-015-20001_FCC_ISED

DATE: 2020-05-06



A2LA Accredited

IC recognized #
3462B-1

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1. Assessment

The following device meets the limits of general population uncontrolled exposure specified in CFR 47 Part 2.1093 according to SAR evaluation exclusion requirements specified in FCC regulation as listed in KDB 447498 and ISED RSS-102 Issue 5.

Responsible for Testing Laboratory:

2020-05-06	Compliance	Cindy Li (Lab Manager)	
Date	Section	Name	Signature

Responsible for the Report:

2020-05-06	Compliance	Kris Lazarov (Test Engineer)	
Date	Section	Name	Signature

The test results of this test report relate exclusively to the test item specified in Section 3.

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2. Administrative Data

2.1. Identification of the Testing Laboratory Issuing the Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Street Address:	411 Dixon Landing Road
City/Zip Code	Milpitas, CA 95035
Country	USA
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Compliance Manager:	Cindy Li
Responsible Project Manager:	Cathy Palacios

2.2. Identification of the Client

Client's Name:	BI Incorporated
Street Address:	6265 Gunbarrel Avenue, Suite B
City/Zip Code	Boulder CO 80301
Country	USA

2.3. Identification of the Manufacturer

Applicant's Name:	Same as Client
Street Address:	-
City/Zip Code	-
Country	-

3. Equipment under Assessment

Model No:	SL3
Hardware Version:	17.0
Software Version:	17.0
FCC ID	CSQ-SL300A
IC ID	1499A-SL300A
HVIN	SL3
Minimum distance of antenna or radiating parts to user	5mm
Firmware Version Identification Number (FVIN):	N/A
Power Supply/ Rated Operating Voltage Range:	Input 90VAC to 264VAC, 47Hz to 63Hz, Output 4.75V to 5.25V
Operating Temperature Range:	0 C to 50 °C
Modes of Operation:	LTE Band 13
Radios included in the device:	Cellular: Telit ME910C1-NV (FCC ID: RI7ME910C1NV)
EUT Dimensions(mm):	Height = 127mm, Width = 74mm, Depth = 36mm
Weight(grams):	247 grams
Co-located Transmitters/ Antennas:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Exposure Category:	<input type="checkbox"/> Occupational/ Controlled <input checked="" type="checkbox"/> General Population/ Uncontrolled
Device Category:	<input type="checkbox"/> Fixed Installation <input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Mixed Mobile and Portable
EUT Diameter	<input checked="" type="checkbox"/> < 60 cm <input type="checkbox"/> Other _____
Sample Revision	<input type="checkbox"/> Prototype Unit; <input type="checkbox"/> Production Unit; <input checked="" type="checkbox"/> Pre-Production

4. FCC Exemption Limits for Routine Evaluation

4.1. FCC SAR test exclusions are set by KDB 447498 D01 General RF Exposure Guidance v06

KDB 447498 Section: 4.3.1. Standalone SAR test exclusion considerations

a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \\ \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

4.2. ISED SAR test exclusions per IC RSS-102 Issue 5

ISED RSS-102 Section: 2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1. Output power level shall be the higher of the maximum conducted or equivalent isotropical radiated power (e.i.r.p.) source-based, time-averaged output power.

Table with limits for the frequencies off interest

Frequency (MHz)	d[mm]	Exemption Limits [mW]
450	5	52
835	5	17
1900	5	7
2450	5	4
3500	5	2

5. Stand-Alone SAR Evaluation Exclusion

5.1. Justification for using the 5 mm Distance

The conservative distance of 5 mm is an estimate of how close a human body can be to the device in its typical application.

5.2. SAR Exclusion Calculation Table

According to KDB 447498, SAR evaluation can be excluded if the following equation is satisfied:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR}$$

FCC Standalone Transmission SAR Exclusion Calculations									
Band	Frequency [GHz]	Max Conducted Output Power + tune up [mW]	Antenna gain [dBi]	Source Based Duty Cycle (%)	Load based duty cycle based on Maximum payload	Distance [mm]	Effective Time Average Max Power [mW]	SAR at ≤ 5mm	1-g ≤ 3.0 10-g ≤ 7.5
LTE B13	0.782	251.19 ^{Note1}	1.1	1	0.215 ^{Note2}	5	0.696	0.123	Yes

Note1: The max conducted power +tune up is from the RF exposure report from the cellular module under FCC ID: RI7ME910C1NV

Note2: This is based on KDB inquiry (Tracking number 155866), which has been approved by FCC on 3/27/2020

ISED Standalone Transmission SAR Exclusion Calculations								
Band	Frequency [GHz]	Max Conducted Output Power + tune up [mW]	Antenna gain [dBi]	Source Based Duty Cycle	Load based duty cycle based on Maximum payload	Distance [mm]	Effective Time Average Max Power [mW]	Limit [mW]
LTE B13	0.782	251.19	1.1	1	0.215	5	0.696	21.8 ^{Note1}

Note 1: Calculated by applying linear interpolation according to RSS-102 Section 2.5.1

6. Revision History

Date	Report Name	Changes to report	Report prepared by
2020-05-06	SAR_EX_BIINC-015-20001_FCC_ISED	Initial Version	Kris Lazarov

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