



FCC Part 1 Subpart I
FCC Part 2 Subpart J

RF EXPOSURE REPORT

FOR

Portable Alcohol Detection Product

MODEL NUMBER: SoberTrack

FCC ID: S5EST10417

REPORT NUMBER: 11494246-S1V1

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Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	4/27/2017	Original issue	

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	4
2. TEST METHODOLOGY	5
3. REFERENCES	5
4. FACILITIES AND ACCREDITATION.....	5
5. DEVICE UNDER TEST	5
6. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS.....	8

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Satellite Tracking of People LLC
1212 North Post Oak Road, Suite 100
Houston, Texas 77055, U.S.A.

DUT DESCRIPTION: Portable Alcohol Detection Product

MODEL: SoberTrack

SERIAL NUMBER: N/A

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 1 SUBPART I & PART 2 SUBPART J	Pass

UL Verification Services Inc. calculated the RF Exposure of the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc., based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By:



Dave Weaver
Program Manager
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2. TEST METHODOLOGY

All calculations were made in accordance with FCC KDB 447498 D01 v06.

3. REFERENCES

Output power, Duty cycle and Antenna gain data is excerpted from the applicable test reports or client declarations.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

5. DEVICE UNDER TEST

SoberTrack is primarily a handheld alcohol detection device used to perform several regularly scheduled or random sobriety tests on the user. The device includes a camera which is used to take still and/or video images of the user whilst performing the sobriety test. The pictures and test results are sent back to a central gateway using GSM / CDMA wireless networks once the tests have been completed. Additionally, video may be saved to an SD card.

5.1. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR Evaluation
GSM	850 1900	GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: <input type="checkbox"/> Class 8 - 1 Up, 4 Down <input type="checkbox"/> Class 10 - 2 Up, 4 Down <input checked="" type="checkbox"/> Class 12 - 4 Up, 4 Down <input type="checkbox"/> Class 33 - 4 Up, 5 Down	(E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
W-CDMA (UMTS)	Band II and V	UMTS Rel. 99 (Data) HSDPA (Rel. 5) HSUPA (Rel. 6)		100%
CDMA2000	BC0 and BC1	1xRTT (Data)		100%
Short range, low power transceiver	915 MHz	NA – Categorically excluded from RF exposure analysis (47 CFR 15.249)		NA

5.2. Maximum Output Power

Per KDB 941225 D01 3G SAR Procedures:

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

Technology/Band	Maximum Power (dBm)	Maximum Power (mW)
W-CDMA II	24.5	282
W-CDMA V	24.5	282
CDMA BC0	24.5	282
CDMA BC1	24.5	282

RF Air Interface	GPRS/EGPRS							
	Tx 1 Slot		Tx 2 Slots		Tx 3 Slots		Tx 4 Slots	
	Maximum Power (dBm)	Maximum Power (mW)	Maximum Power (dBm)	Maximum Power (mW)	Maximum Power (dBm)	Maximum Power (mW)	Maximum Power (dBm)	Maximum Power (mW)
GSM 850	33.5	2239	30.5	1122	28.7	741	27.5	562
GSM 1900	30.5	1122	27.5	562	25.7	372	24.5	282

RF Air Interface	Tx 1 Slot		Tx 2 Slots		Tx 3 Slots		Tx 4 Slots	
	Maximum Burst Power (mW)	Maximum Frame power (mW)	Maximum Burst Power (mW)	Maximum Frame power (mW)	Maximum Burst Power (mW)	Maximum Frame power (mW)	Maximum Burst Power (mW)	Maximum Frame power (mW)
GSM 850	2239	282	1122	282	741	278	562	281
GSM 1900	1122	141	562	141	372	140	282	141

5.1. Duty Cycle Power Correction

The DUT is, by default, programmed to transmit sobriety results via cellular data message every 300 seconds lasting typically 2-3 seconds. In a worst-case scenario with latency this could be increased to a maximum transmission lasting 6 seconds every 300 seconds. In the event of latency exceeding 6s the device will terminate the call and retry in the next 5-minute cycle.

The correction of average output power for duty cycle is thus $6/300 \times \text{maximum power}$. The tables in the following section show the maximum rated power, including tune up tolerance for each of the technologies and operating bands supported in the USA by the module. Those power values are corrected for source based duty cycle (i.e. GSM frame power) and then corrected for the 6/300 operational duty cycle and the resulting power levels are used to determine the SAR exclusion requirements based on KDB 447498.

Technology/Band	Upper Frequency (MHz)	Maximum Power (mW) <u>without</u> duty factor correction (mW)	Maximum Power (mW) <u>with</u> duty factor correction (mW)
W-CDMA II	1907.6	282	5.6
W-CDMA V	846.6	282	5.6
CDMA BC0, BC10	849	282	5.6
CDMA BC1	1910	282	5.6
GSM850	849	282	5.6
GSM1900	1910	141	2.8

6. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

From KDB 447498, for transmission frequencies 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g SAR test exclusion thresholds are determined by the following: $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ 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;
- For a separation distance of less than 5mm, 5mm is used.

The result is rounded to one decimal place for comparison with the 3.0 threshold. The table below shows that at the maximum power for all bands and technologies, after accounting for source-based and operational duty cycles, and for a separation distance of 5mm or less, SAR test exclusion applies.

Normal use would have the person take the breathalyzer test and put the device down before the device transmits the data because of the programmed delay between test and data transmission. The only potential for head or body exposure would be if the cellular transmissions sending the test data occurred because either the user held the device close to the head, or body, for a long period of time after taking the test. As a result the device was assessed the more conservative 1g SAR limits.

RF Air interface	RF Exposure Conditions	Frequency (GHz)	Max. tune-up tolerance	Min. test separation distance (mm)	SAR test exclusion Result*
			(mW)		
W-CDMA II	Body-worn	0.191	6	5	0.5
W-CDMA V	Body-worn	0.847	6	5	1.1
CDMA BC0	Body-worn	0.849	6	5	1.1
CDMA BC1	Body-worn	0.191	6	5	0.5
GSM850	Body-worn	0.849	6	5	1.1
GSM1900	Body-worn	0.191	3	5	0.3

Conclusion:

*: The computed value is ≤ 3 ; therefore, this qualifies for SAR test exclusion.

7. Simultaneous Transmission SAR Analysis

Simultaneous transmission is not supported.

END OF REPORT