



FCC Part 1 Subpart I
FCC Part 2 Subpart J

RF EXPOSURE REPORT

FOR

Smart Pill Bottle

MODEL NUMBER: 900-00004

FCC ID: XPYUBX18Z001

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Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/18/2019	Original issue	
V2	9/19/2019	Added Band 5	Dave Weaver
V3	9/20/2019	Corrected RF power	Dave Weaver

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
5.1. <i>Description</i>	5
5.2. <i>Wireless Technologies and Output Power</i>	5
6. DUTY CYCLE POWER CORRECTION.....	6
7. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS	6
8. SIMULTANEOUS TRANSMISSION SAR ANALYSIS	6

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: AdhereTech
11 Broadway, Suite 457
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DUT DESCRIPTION: Smart Pill Bottle

MODEL: 900-00004

SERIAL NUMBER: N/A

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

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.

Approved & Released For
UL Verification Services Inc. By:



Dave Weaver
Operations Leader
UL Verification Services Inc.

2. TEST METHODOLOGY

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

3. REFERENCES

Output power, Duty cycle 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

5.1. Description

The AdhereTech Smart Pill Bottle is a device intended to generate alerts and reminders for pre-determined medication dosing schedules. The device is in a sleep state for 99% of its life and only powers on and connects very infrequently to deliver small packets of data. The device powers on, connects to the base-station, and powers down as a function of two data events:

1. Auto check-in, and
2. Dose event.

For any given medication dose schedule (1, 2, or 3 doses per day) the device will perform one auto check-in event and one dose event. The auto check-in is scheduled by the device using an internal real-time clock and the dose event is triggered by the user opening and closing the bottle cap.

In a worst-case scenario there could be two data events in a 30-minute window. This would be one auto check-in and one dose event (i.e. the bottle has an auto check-in and then the user opens the bottle within 30 minutes). During any given data event the device transmits for no more than 3 seconds (one second for cell tower registration and two seconds to deliver and receive one packet of data equal to no more than 2 kB).

5.2. Wireless Technologies and Output Power

Wireless technologies	Frequency bands	Maximum Output Power
LTE	2, 4, 5 and 12	316 mW for all bands

6. DUTY CYCLE POWER CORRECTION

The device supports LTE bands 2, 4, 5 and 12. The minimum LTE bitrate, assuming an allocation of 1 RB, is around 300 kb/s. The amount of data transferred per transmission is less than 2 kB so 2 seconds to transfer the data is conservative.

The maximum transmit power for any supported band is 316 mW.

The worst-case duty cycle over a thirty-minute period (1800 seconds) is calculated assuming 6 seconds of total transmission time as described in Section 5.

$$\text{Duty Cycle} = 6/1800 = 0.0033$$

Scaling the output power based upon duty cycle gives $316 \times 0.0033 = \underline{1.0 \text{ mW}}$

7. 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.

The device was assessed the 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)		
LTE Band 2	Body-w orn	1.910	1	5	0.3
LTE Band 4	Body-w orn	1.755	1	5	0.3
LTE Band 5	Body-w orn	0.849	1	5	0.2
LTE Band 12	Body-w orn	0.716	1	5	0.2

Conclusion:

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

8. SIMULTANEOUS TRANSMISSION SAR ANALYSIS

Simultaneous transmission is not supported.

END OF REPORT