Test report

Number:	**T251-0411/20**	Project file:	C20193276
		Date:	2020-06-17
		Pages:	5
Product:	**Bluetooth item finder**		
Type reference:	**C19M**		
Ratings:	1 x Coin battery; CR2032; 3 V Protection class: III		
Trademark:	chipolo		
Applicant:	**Chipolo d.o.o.** **Gabrsko 12, SI-1420 Trbovlje, Slovenia**		
Manufacturer:	Chipolo d.o.o. Gabrsko 12, SI-1420 Trbovlje, Slovenia		
Place of manufacture:	Chipolo d.o.o. Gabrsko 12, SI-1420 Trbovlje, Slovenia		

Summary of testing

Testing method:	47 CFR Part 2.1093, KDB 447498 D01 General RF Exposure Guidance v06
Testing location:	SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, Slovenia
Remarks:	Date of receipt of test items: 2020-06-18 Number of items tested: 1 Date of performance of tests: 2020-06-18 The test results presented in this report relate only to the items tested. The product complies with the requirements of the testing methods.

Tested by: Luka Tosetto

Approved by: Marjan Mak

The report shall not be reproduced except in full.

SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, Slovenia
T +386 1 4778 100, F +386 1 4778 444, info@siq.si, www.siq.si

CONTENTS page

1 GENERAL

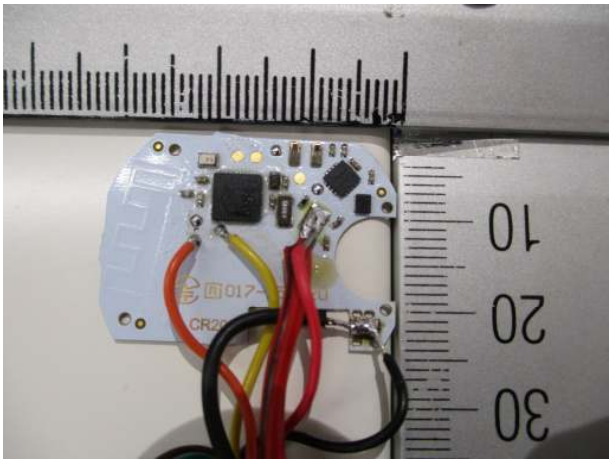
History sheet			
Date	Report No.	Change	Revision
2020-06-18	T251-0411/20	Initial Test Report issued.	--

1.1 Equipment under test

Bluetooth item finder
Type: **C19M**

Device uses integral antenna with 0 dBi.

Equipment falls under product for portable use.



Samples photos

1.2 Reviewed / referenced documents

Reviewed documents:
- T251-0278/20 from SIQ Ljubljana

2 LIMITS

According to 47 CFR §2.1093:

The test separation distances required for a device to demonstrate SAR or MPE compliance must be sufficiently conservative to support the operational separation distances required by the device and its antennas and radiating structures. For devices used in close proximity to users, the test separation distance is determined by the smallest distance between the outer surface of the device and the user. When the test separation distance is specified as a “not to exceed” distance in the published RF exposure KDB procedures; for example, ≤ 5 mm, the operational separation distance of the host device cannot be less than the tested distance.

Test separation distances specified in the published RF exposure KDB publications as less than or equal to a threshold distance should be treated as a “not to exceed distance,” where smaller test distances may be necessary to satisfy more conservative exposure conditions.

Devices that are designed to operate on the body of users using lanyards and straps or without requiring additional body-worn accessories must be tested for SAR compliance using a conservative minimum test separation distance ≤ 5 mm to support compliance.

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

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR, where f(GHz) is the RF channel transmit frequency in GHz.

Maximum output power approximations for SAR Test Exclusion Treshold (in mW) at 5 mm distance:

Frequency (MHz)	150	300	450	835	900	1500	1900	2450	3600	5200	5400	5800
Power (mW)	39	27	22	16	16	12	11	10	8	7	6	6

3 ASSESSMENT PROCEDURE

SAR EVALUATION OF PORTABLE DEVICES

Human exposure to RF emissions from mobile devices (47 CFR §2.1093) may be evaluated based on the Clause 4.3 of the KDB 447498 D01 General RF Exposure Guidance v06 adopted by the FCC.

Procedure "Standalone SAR test exclusion consideration" used.

Standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Environment: Uncontrolled / General Public

Assessment distances: < 5 mm; < 1 mm (approximation of separation used based on thickness of the enclosure material)

Assessed frequency ranges: 2,400 GHz to 2,4835 GHz

Max power channel (2,402 GHz):

At normal test conditions:

Max Burst ERP (dBm)	Max Burst EIRP (dBm / mW)
-2,4	-2,4 / 0,575

At test conditions -15ºC:

Max Burst ERP (dBm)	Max Burst EIRP (dBm / mW)
-2,0	-2,0 / 0,631

Calculation formula: $P_{max.} \cdot \sqrt{f} / SD \leq 3.0$

Where:
$P_{max.}$ = max. power of channel, including tune-up tolerance in mW
SD = min. test separation distance in mm
f = assessed RF channel frequency in GHz

Calculated value of $P_{max.} \cdot \sqrt{f} / SD$ at 5 mm distance:

At normal test conditions	At test conditions -15ºC
0,178	0,195

Calculated value of $P_{max.} \cdot \sqrt{f} / SD$ at 1 mm distance:

At normal test conditions	At test conditions -15ºC
0,89	0,976

Conclusion:
Device passes exclusion requirements of 47 CFR part 2.1093.