



Test report

Number: T251-0030/22 **Project file:** C20220152
Date: 2022-01-18
Pages: 6

Product: Vacuum cleaner with BLE

Type reference: CTC MIDI I

Ratings: 230 V ac; 50 Hz

Trademark: FESTOOL

Applicant: FESTOOL GmbH
Wertstrasse 20, 73240 Wendlingen, Germany

Manufacturer: FESTOOL GmbH
Wertstrasse 20, 73240 Wendlingen, Germany

Place of manufacture: FESTOOL GmbH
Wertstrasse 20, 73240 Wendlingen, Germany

Summary of testing

Testing method: 47 CFR FCC Part 2.1093,
KDB 447498 D01 General RF Exposure Guidance v06

Testing location: SIQ Ljubljana, Mašera-Spasičeva ulica 10, SI-1000 Ljubljana, Slovenia

Remarks: Date of receipt of test items: 2021-09-09
Number of items tested: 1
Date of performance of tests: 2021-09-23
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

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1 GENERAL

History sheet			
Date	Report No.	Change	Revision
2022-01-18	T251-0030/22	Initial Test Report issued.	--

1.1 Equipment under test

Vacuum cleaner with BLE

Type: **CTC MIDI I**

Environment: Uncontrolled / General Public

Assessment distance: 5 mm

FCC ID: **2AL2E-CTCCOM**

All products on first page contain the same RF module and are all covered with this report.



2 LIMITS

According to 47 CFR 1.1310:

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* 900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* 100	30
1.34-30	824/f	2.19/f	* 180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

3 ASSESSMENT PROCEDURE

MPE EVALUATION OF PORTABLE DEVICES

Evaluation of compliance with the exposure limits in § 1.1310 of chapter § 2.1093, and preparation of an EA if the limits are exceeded, is necessary for portable devices having single RF sources with more than an available maximum time-averaged power of 1 mW, more than the ERP listed in Table 1 to § 1.1307(b)(3)(i)(C), or more than the P_{th}, whichever is greater.

4 MEASUREMENTS

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:

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

Max. allowed transmission power at 2480 MHz for SAR exclusion at 5 mm distance is 9.5 mW. Device operates with 3.47 mW E.I.R.P and is with this excluded.

Frequency (MHz)	Maximum measured power density (mW/cm ²)	Power density limit (mW/cm ²)
2402-2480	0.0004	1.0

NOTE: There is no simultaneous transmission between any other transmitter.

Conclusion: PASS



Figure 1: measurement of Power density



5 USED TEST EQUIPMENT

Manufacturer & Description	Model No.	SIQ No.	Used	Calibrated until
Narda, E/H field measuring equipment	ELT400	103446	X	2022-07