

# Test report

**Number** T251-0035/23

Project file: C20212616

Date: 2023-01-23

Pages: 10

**Product:** Surface-restoration grinder

**Type reference:** RG 130 ECI

**Ratings:** 120 V~; 60 Hz  
Protection class: II

**Trademark:** 

**Applicant:** FESTOOL GmbH  
Wertstrasse 20, 73240 Wendlingen, Germany

**Manufacturer:** FESTOOL GmbH  
Wertstrasse 20, 73240 Wendlingen, Germany

**Place of manufacture:** See page 3

## Summary of testing

**Testing method:** Antenna pattern measurements

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

**Remarks:** Date of receipt of test items: 2022-03-23  
Number of items tested: 1  
Date of performance of tests: 2023-01-09  
The test results presented in this report relate only to the items tested.  
The test items were tested in the condition as received.  
The product complies with the requirements of the testing methods.

**Tested by:** Luka Cvajnar

**Approved by:** Marjan Mak

*The report shall not be reproduced except in full.*



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## 1 GENERAL

### History sheet

Date	Report No.	Change	Revision
2023-01-23	T251-0035/23	Initial Test Report issued.	--

#### Environmental conditions:

Ambient temperature: 15 °C to 35 °C

Relative humidity: 30 % to 60 %

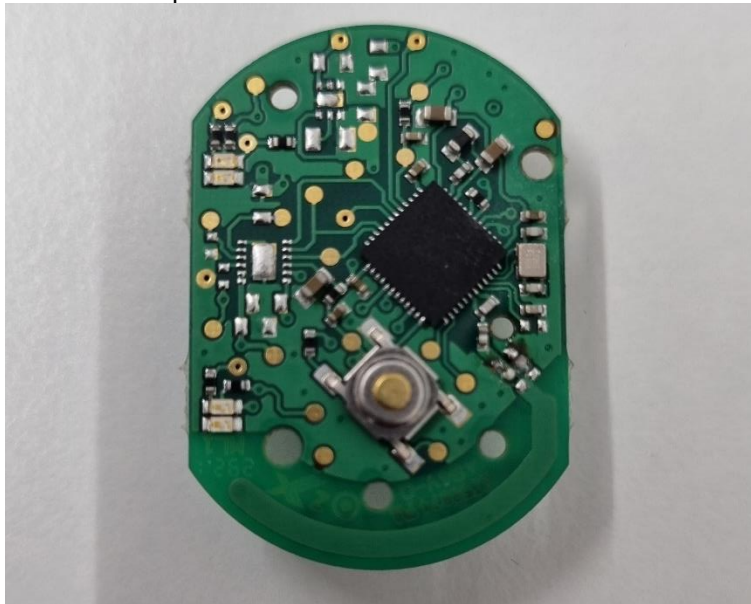
Atmospheric pressure: 860 mbar to 1060 mbar

### 1.1 Equipment under test

#### Surface-restoration grinder

Type: RG 130 ECI

Tested was antenna pattern of the sample below.



Picture of test sample – BLE Antenna

#### Places of manufacture:

- Festool GmbH, Weilheimer Strasse 32, 73272 Neidlingen, Germany,
- Festool s.r.o., Chelčického 1932, 470 37 Česká Lípa, Czech Republic,
- Festool GmbH, Johannes-Rau-Strasse 1, 73235 Wilhelm an der Teck, Germany.



**Copy of marking plate**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBS that own these marks.



## **1.2 Antenna pattern measurement**

### **1.2.1 Test procedure**

The radiation pattern for BLE antenna implemented to PCB reference design has been measured in an anechoic chamber with 3 meters test distance. Test results show radiation patterns for two planes, measured with vertical and horizontal polarization of measuring antenna. All measurements were performed at 2402, 2440 and 2480 MHz frequency.



### 1.3 Test results BLE Antenna

#### EUT Information

EUT:

RG 130

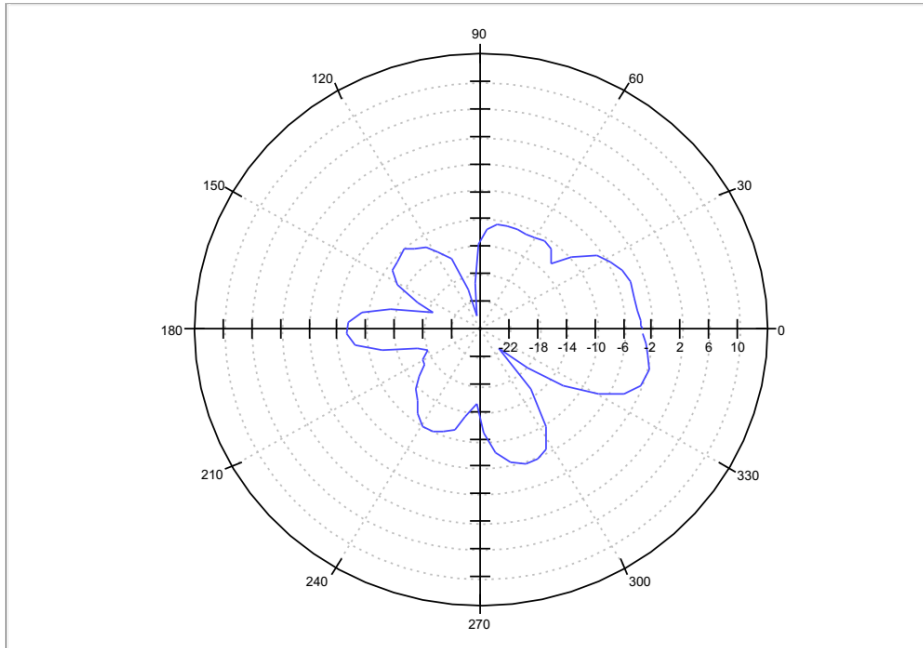
Operating mode

TX 2402 MHz

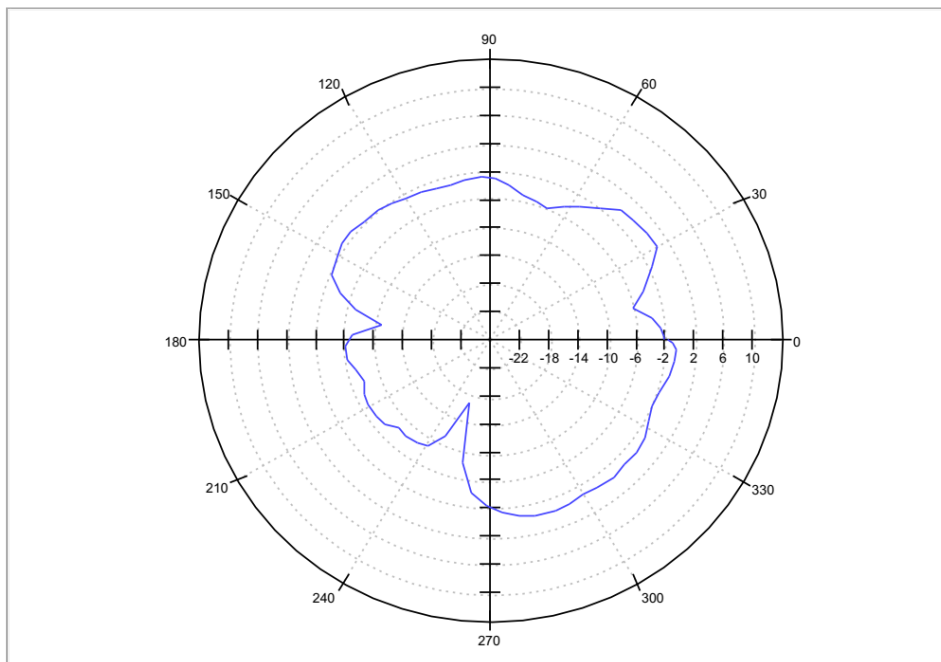
#### AziChart MinMax Eval

Frequency (MHz)	Max. Value (dBm)	Azimuth max. (deg)	Pol max.	Min. Value (dBm)	Azimuth min. (deg)	Pol min.
2402.000000	0.40	30	V	-23.96	102	H

Azimuth Chart: Horizontal



Azimuth Chart: Vertical



### EUT Information

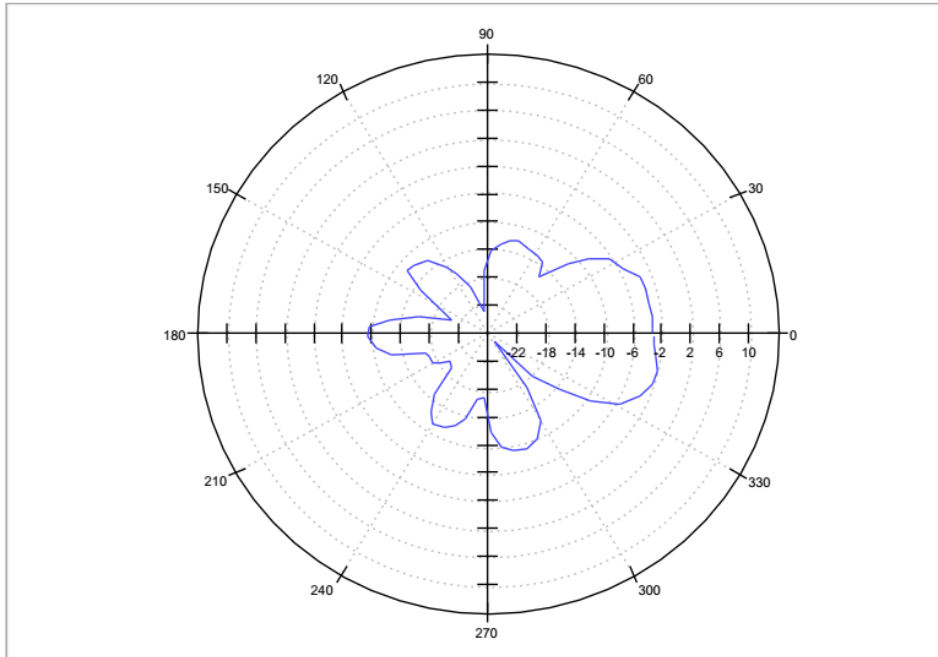
EUT:  
Operating mode

RG 130  
TX 2440 MHz

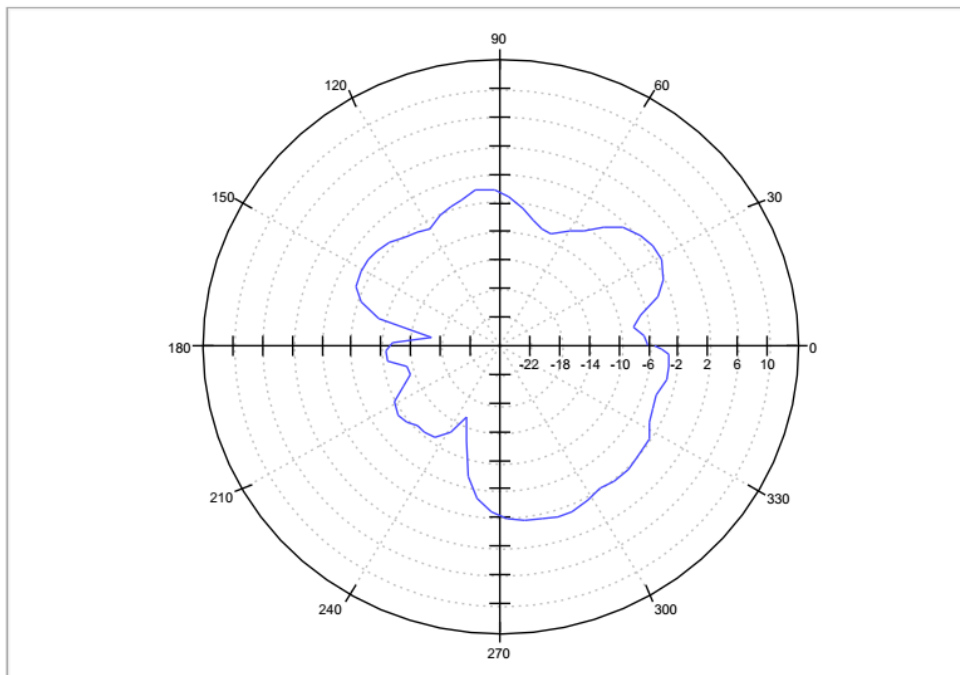
### AziChart MinMax Eval

Frequency (MHz)	Max. Value (dBm)	Azimuth max. (deg)	Pol max.	Min. Value (dBm)	Azimuth min. (deg)	Pol min.
2440.000000	-0.90	293	V	-24.56	310	H

Azimuth Chart: Horizontal



Azimuth Chart: Vertical





### EUT Information

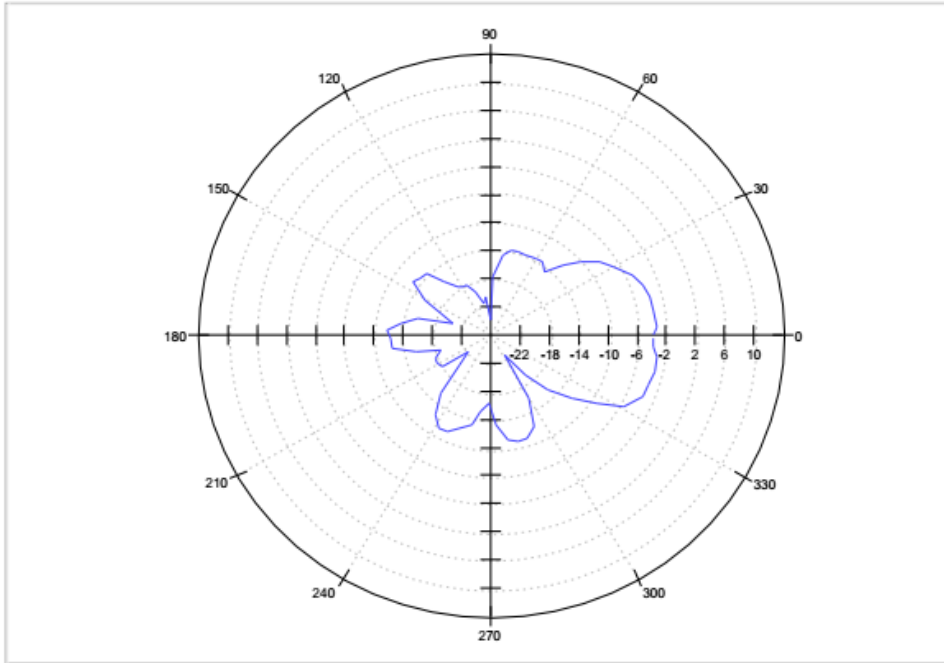
EUT:  
Operating mode

RG 130  
TX 2480 MHz

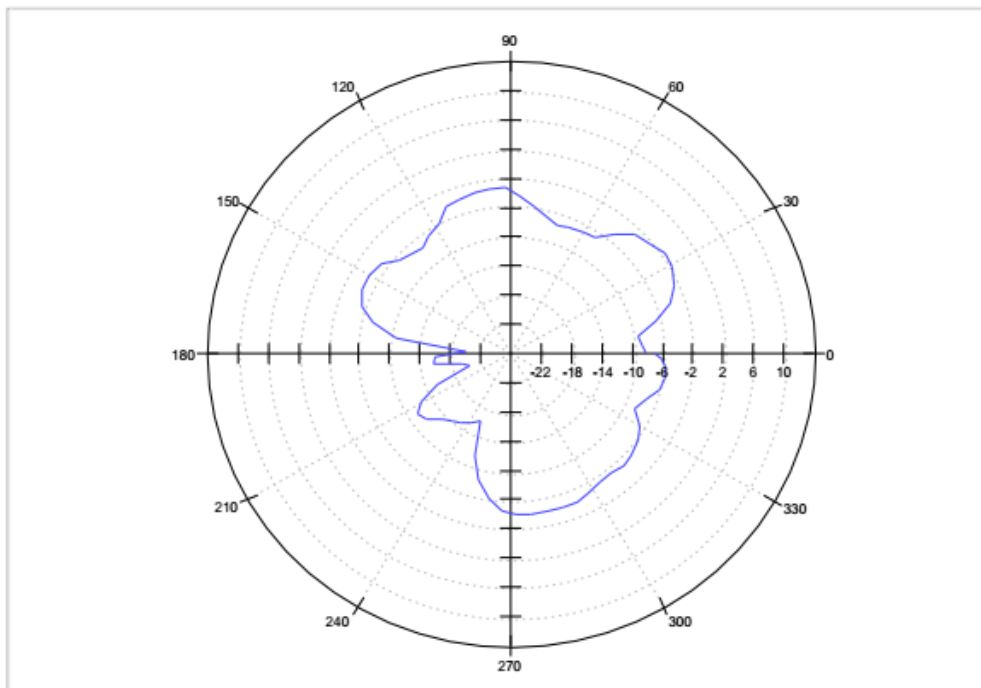
### AziChart MinMax Eval

Frequency (MHz)	Max. Value (dBm)	Azimuth max. (deg)	Pol max.	Min. Value (dBm)	Azimuth min. (deg)	Pol min.
2480.000000	-1.58	34	V	-23.91	93	H

Azimuth Chart: Horizontal



Azimuth Chart: Vertical





## 1.4 Maximum BLE antenna gain

DUT Frequency (MHz)	Maximum antenna gain (dBi)
2402.000000	-3.6
2440.000000	-4.9
2480.000000	-5.58



## 2 USED TEST EQUIPMENT

Antenna pattern measurement

Manufacturer	Model No.	Used	Calibrated	Calibrated until
Comtest engineering, SAC2 (together with controlling equipment)	SAC 3m	X	2022-04-14	2025-04-14
Maturo, Turn table (2 m diameter)	TT 2.0 SI	X	/	/
Maturo, Bore-sight antenna mast	BAM-4.0-P	X	/	/
Maturo, positioning equipment	NCD	X	/	/
Rohde & Schwarz, RFI receiver	ESU 26	X	2022-01-04	2023-07-04
R&S, Ultra Broadband Antenna	HL562E		2020-09-30	2023-09-30
R&S, Horn Antenna	HF907	X	2020-08-21	2023-08-21