



# RF EXPOSURE EVALUATION REPORT

**APPLICANT** : Testo SE & Co. KGaA

**PRODUCT NAME** : testo 550i

**MODEL NAME** : 0564 1550

**BRAND NAME** : Testo

**FCC ID** : WAF-05641550

**STANDARD(S)** : 47CFR 2.1091  
KDB 447498

**RECEIPT DATE** : 2020-11-16

**TEST DATE** : 2020-11-18 to 2020-11-27

**ISSUE DATE** : 2020-12-09

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Change History		
Version	Date	Reason for Change
1.0	2020-12-09	First edition



# 1. Technical Information

**Note:** Provide by applicant.

## 1.1 Applicant and Manufacturer Information

<b>Applicant:</b>	Testo SE & Co. KGaA
<b>Applicant Address:</b>	Testo-Strasse 1, Lenzkirch, 79853, Germany
<b>Manufacturer:</b>	Testo Instruments (Shenzhen) Co., Ltd
<b>Manufacturer Address:</b>	Block A, B4 Building, China Merchants Guangming Sci&Tech Park, No.3009 Guan Guang Road, Guangming New District, Shenzhen City

## 1.2 Equipment under Test (EUT) Description

<b>Product Name:</b>	testo 550i
<b>Serial No.:</b>	(N/A, marked #1 by test site)
<b>Hardware Version:</b>	0460 0478_2.0
<b>Software Version:</b>	V1.0.0
<b>Bluetooth Version:</b>	5.0
<b>Frequency Bands:</b>	2402MHz - 2480MHz
<b>Modulation Mode:</b>	GFSK(1Mbps, 2Mbps )
<b>Antenna Type:</b>	Built-in omnidirectional Antenna
<b>Antenna Gain:</b>	2.43dBi



### 1.3 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title	Method determination /Remark
1	47 CFR§2.1091	Radio Frequency Radiation Exposure Assessment: mobile devices	No deviation
2	KDB 447498 D01v06	General RF Exposure Guidance	No deviation

**Note 1:** The test item is not applicable.

**Note 2:** Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

**Note 3:** When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% risk level.



## 2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

### Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

### General Population/Uncontrolled Exposure:

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

**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 <sup>2</sup> )	Averaging time (minutes)
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz\* = Plane-wave equivalent power density



<Bluetooth Output Power>

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			GFSK	
			1Mbps	2Mbps
Bluetooth LE	CH 00	2402	16.19	<b>16.63</b>
	CH 19	2440	16.08	16.38
	CH 39	2480	15.50	15.93
Tune-up Limit			17.0	17.0

**Note:**

1. According to KDB 447498 Section 4.3, MPE assessment is based on source-based time-averaged maximum conducted output power of the RF channel requiring assessment, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.
2. The output power of 2.4GHz WLAN is derived from the report SZ20110122W01.

### 3. RF Exposure Assessment

➤ **Standalone Transmission Assessment:**

Bands	Frequency (MHz)	Tune-up Power(dBm)	Antenna Gain(dBi)	E.I.R.P. (mW)	Power Density (mW/cm <sup>2</sup> )	Limit for MPE (mW/cm <sup>2</sup> )
Bluetooth	2402	17	2.43	87.70	0.017	1.0

**Note:**

1. According to KDB 447498, MPE assessment is based on source-based time-averaged maximum conducted output power of the RF channel requiring assessment, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

2. MPE calculate method

$$\text{Power Density} = \text{E.I.R.P.}/4\pi R^2$$

Where: E.I.R.P. = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)

➤ **Simultaneous Transmission Assessment:**

This device only incorporates a Bluetooth transmitter, Therefore simultaneous SAR assessment is not required.

➤ **Conclusion:**

According to 47 CFR §2.1091, this device complies with human exposure basic restrictions.



## Annex A General Information

### 1. Identification of the Responsible Testing Laboratory

<b>Laboratory Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Laboratory Address:</b>	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
<b>Telephone:</b>	+86 755 36698555
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### 2. Identification of the Responsible Testing Location

<b>Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Address:</b>	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

### 3. Facilities and Accreditations

The FCC designation number is CN1192, the test firm registration number is 226174.

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