Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT: **Pass**

Test item	:	testo 560i
Identification / Type No.	:	0564 1560
FCC ID	:	WAF-05641560
IC	:	6127B-05641560
HVIN	:	0564 1560
Test standard	:	CFR47 FCC Part 2: Section 2.1091 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06 RSS-102 Issue 5 February 2021

- **Product Classification**

This device defined as a transmitting device designed to be used in fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are over 20 centimeters of the body of the user.

Max 3.09 dBi

- **Radio Frequency Exposure Limit**

a. For FCC:

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

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

f = frequency in MHz.

* = Plane-wave equivalent power density.

b. For IC:

For the purpose of this standard, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6.

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range [MHz]	Electric Field [V/m rms]	Magnetic Field [A/m rms]	Power Density [W/m^2]	Reference Period [minutes]
0.003 - 10^{21}	83	90	-	Instantaneous*
0.1 - 10	-	0.73/f	-	6**
1.1 - 10	$87/f^{0.5}$	-	-	6**
10 - 20	27.46	0.0728	2	6
20 - 48	$58.07/f^{0.25}$	$0.1540/ f^{0.25}$	$8.944/f^{0.5}$	6
48 - 300	22.06	0.05852	1.291	6
300 - 6000	$3.142f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000 - 15000	61.4	0.163	10	6
15000 - 150000	61.4	0.163	10	$616000/f^{1.2}$
150000 - 300000	$0.158f^{0.5}$	$4.21*10^{-4}f^{0.5}$	$6.67*10^{-5}f$	$616000/f^{1.2}$

Note:
F is frequency in MHz
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR)

- **Radio Frequency Exposure Calculation Formula**
  - **a. Power Density**

$$S = \frac{PG}{4\pi R^2}$$

where:
S = power density (in appropriate units, e.g. mW/cm2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

or:

$$S = \frac{EIRP}{4\pi R^2}$$

where:
EIRP = equivalent (or effective) isotropically radiated power

- **EUT RF Exposure Evaluation**

  - **a. Evaluation for Standalone Transmission Operation**

Mode	Frequency [MHz]	Measured RF Output Power [dBm]	Antenna Gain [dBi]	E.I.R.P [dBm]	Distance [cm]	Power Density [mW/cm^2]	FCC Limit [mW/cm^2]	IC Limit [W/m^2]
BLE	2480	5.057	3.09	8.147	20	0.0013	1	5.469

Note:
1. BLE RF Output Power refer to, CN225KT4 001

- **Conclusion**

The maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit.