

MAXIMUM PERMISSIBLE EXPOSURE

KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

EUT Specification

FCC ID	2ABC5-E0076	
EUT	Briefcase Smart Screen	
Frequency band (Operating)	<input checked="" type="checkbox"/> BT: 2.402GHz ~ 2.480GHz <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> RLAN: 5.180GHz ~ 5.240GHz <input type="checkbox"/> RLAN: 5.260GHz ~ 5.320GHz <input type="checkbox"/> RLAN: 5.500GHz ~ 5.700GHz <input checked="" type="checkbox"/> RLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others:	
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others _____	
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure <input checked="" type="checkbox"/> General Population/Uncontrolled exposure	
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity	
Antenna gain (Max)	BT	2.78dBi
	WLAN	Ant1:2.78dBi Ant2:2.76dBi
	U-NII Band 1	Ant1: 2.29dBi Ant2: 2.06dBi
	U-NII Band 3	Ant1: 2.52dBi Ant2: 2.52dBi
Directional gain	WLAN: 5.78dBi	
	U-NII Band 1: 5.19dBi	
	U-NII Band 3: 5.53dBi	
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation	



Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	30
1500-100000	--	--	1	30

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Operating Mode	Maximum output power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
BRD+ERD	6.86	6.86 ±1	7.86	2.78	0.0023	1
BLE	4.81	4.81 ±1	5.81	2.78	0.0014	1
WLAN ANT1	16.18	16.18 ±1	17.18	2.78	0.0197	1
WLAN ANT2	16.12	16.12 ±1	17.12	2.76	0.0194	1
U-NII Band 1(ANT1)	14.25	14.25 ±1	15.25	2.29	0.0113	1
U-NII Band 1(ANT2)	15.48	15.48 ±1	16.48	2.06	0.0142	1
U-NII Band 3(ANT1)	15.81	15.81 ±1	16.81	2.52	0.0171	1
U-NII Band 3(ANT2)	16.29	16.29 ±1	17.29	2.52	0.0191	1



No. Applicable Simultaneous Transmission

1. BT+WiFi 2.4G ANT2
2. BT+U-NII Band 1 ANT2
3. BT+U-NII Band 3 ANT2
4. WiFi 2.4G ANT1+WiFi 2.4G ANT2
5. WiFi 2.4G ANT1+U-NII Band 1 ANT2
6. WiFi 2.4G ANT1+U-NII Band 3 ANT2
7. U-NII Band 1 ANT1+WiFi 2.4G ANT2
8. U-NII Band 1 ANT1+U-NII Band 1 ANT2
9. U-NII Band 1 ANT1+U-NII Band 3 ANT2
10. U-NII Band 3 ANT1+WiFi 2.4G ANT2
11. U-NII Band 3 ANT1+U-NII Band 1 ANT2
12. U-NII Band 3 ANT1+U-NII Band 3 ANT2

The Maximum simultaneous transmission for WiFi 2.4G ANT1+WiFi 2.4G ANT2:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$= SWLAN_{ANT1}/S_{limit-2.4} + SWLAN_{ANT2}/S_{limit-2.4}$$

$$= 0.0197/1 + 0.0194/1$$

$$= 0.0391$$

$$< 1.0$$

Result: No Standalone SAR test is required.

