

## RF EXPOSURE EVALUATION

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

<b>FCC ID</b>	2BEWXSC319
<b>EUT</b>	Smart Camera
<b>Frequency band (Operating)</b>	<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 checked="" 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:
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm2) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm2)
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Antenna gain (Max)</b>	BT/WiFi 2.4G: 2.24dBi WiFi 5.2G: 1.42dBi WiFi 5.3G: 1.42dBi WiFi 5.8G: 1.51dBi
<b>Evaluation applied</b>	<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 <sup>2</sup> )	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	6
1500-100000	--	--	1	30

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

Where

$P_d$ = Power density in mW/cm<sup>2</sup>

$P_{out}$ =output power to antenna in Mw

$G$ = gain of antenna in linear scale

$\pi$ =3.1416

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

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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.

### Max Measurement Result

Operating Mode	Measured Power	Tune up tolerance		Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm <sup>2</sup> )
	(dBm)	(dBm)		(dBm)	(dBi)	(mW/ cm <sup>2</sup> )	
BLE	8.18	8.18	±1	9.18	2.24	0.0028	1
WiFi 2.4G	17.29	17.29	±1	18.29	2.24	0.0225	1
WiFi 5.2G	12.60	12.60	±1	13.60	1.42	0.0063	1
WiFi 5.3G	15.39	15.39	±1	16.39	1.42	0.0120	1
WiFi 5.8G	13.49	13.49	±1	14.49	1.51	0.0079	1

**The BLE and WiFi cannot simultaneous transmission.**

**Result:** No Standalone SAR test is required.