

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	2BFG2-THEMAGICLINK
EUT	The Magic Link
Frequency band (Operating)	☒ BT: 2.402GHz ~ 2.480GH ☒ WLAN: 2.412GHz ~ 2.462GHz ☒ RLAN: 5.180GHz ~ 5.240GHz ☒ RLAN: 5.260GHz ~ 5.320GHz ☒ RLAN: 5.500GHz ~ 5.700GHz ☒ RLAN: 5.745GHz ~ 5.825GHz ☐ Others:
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure ☒ General Population/Uncontrolled exposure
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	BDR+EDR: 1.96 dBm (0.0016W) BLE: 4.83 dBm (0.0030W) WiFi 2.4G ANT1: 15.11 dBm (0.0324W) WiFi 2.4G ANT2: 15.27 dBm (0.0337W) WiFi 2.4G MIMO: 18.18 dBm (0.0658W) WiFi 5.2G ANT1: 15.51 dBm (0.0356W) WiFi 5.2G ANT2: 15.48 dBm (0.0353W) WiFi 5.2G MIMO: 18.51 dBm (0.0710W) WiFi 5.3G ANT1: 15.09 dBm (0.0323W) WiFi 5.3G ANT2: 15.11 dBm (0.0324W) WiFi 5.3G MIMO: 18.11 dBm (0.0647W) WiFi 5.6G ANT1: 14.92 dBm (0.0310W) WiFi 5.6G ANT2: 14.96 dBm (0.0313W) WiFi 5.6G MIMO: 17.95 dBm (0.0624W)



	WiFi 5.8G ANT1: 14.42 dBm (0.027W) WiFi 5.8G ANT2: 14.48 dBm (0.0281W) WiFi 5.8G MIMO: 17.43 dBm (0.0553W)
Antenna gain (Max)	BDR+EDR: 1.41 dBi BLE: 1.41 dBi WiFi 2.4G ANT1: 1.41 dBi WiFi 2.4G ANT2: 1.41 dBi WiFi 5.2G ANT1: 2.48dBi WiFi 5.2G ANT2: 2.48dBi WiFi 5.3G ANT1: 2.75dBi WiFi 5.3G ANT2: 2.75dBi WiFi 5.6G ANT1: 4.85dBi WiFi 5.6G ANT2: 4.85dBi WiFi 5.8G ANT1: 4.39dBi WiFi 5.8G ANT2: 4.39dBi
Evaluation applied	☒ MPE Evaluation ☐ 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	Measured Power	Tune up tolerance		Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits
	(dBm)	(dBm)		(dBm)	(dBi)	(mW/cm ²)	(mW/cm ²)
BDR+EDR	1.96	1.96	±1	2.96	1.41	0.0005	1
BLE	4.83	4.83	±1	5.83	1.41	0.0011	1
WiFi 2.4G ANT1	15.11	15.11	±1	16.11	1.41	0.0112	1
WiFi 2.4G ANT2	15.27	15.27	±1	16.27	1.41	0.0117	1
WiFi 2.4G MIMO	18.18	18.18	±1	19.18	4.42	0.0456	1
WiFi 5.2G ANT1	15.51	15.51	±1	16.51	2.48	0.0158	1
WiFi 5.2G ANT2	15.48	15.48	±1	16.48	2.48	0.0157	1
WiFi 5.2G MIMO	18.51	18.51	±1	19.51	5.49	0.0629	1
WiFi 5.3G ANT1	15.09	15.09	±1	16.09	2.75	0.0152	1
WiFi 5.3G ANT2	15.11	15.11	±1	16.11	2.75	0.0153	1
WiFi 5.3G MIMO	18.11	18.11	±1	19.11	5.76	0.0611	1
WiFi 5.6G ANT1	14.92	14.92	±1	15.92	4.85	0.0238	1
WiFi 5.6G ANT2	14.96	14.96	±1	15.96	4.85	0.0240	1
WiFi 5.6G MIMO	17.95	17.95	±1	18.95	7.86	0.0955	1
WiFi 5.8G ANT1	14.42	14.42	±1	15.42	4.39	0.0191	1
WiFi 5.8G ANT2	14.48	14.48	±1	15.48	4.39	0.0193	1
WiFi 5.8G MIMO	17.43	17.43	±1	18.43	7.40	0.0762	1

The ratios cannot simultaneous transmission.

Result: No Standalone SAR test is required.

