

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-V3AMP
EUT	Android Media Player
Frequency band (Operating)	☒ BT: 2.402GHz ~ 2.480GHz ☒ 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: WiFi UNII5 WiFi UNII6
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
Antenna gain (Max)	BDR+EDR&BLE: 1.80dBi WiFi 2.4G ANT1: 4.52dBi WiFi 2.4G ANT2: 2.20dBi WiFi 5.2G ANT1: 1.68dBi WiFi 5.2G ANT2: 3.58dBi WiFi 5.3G ANT1: 2.16dBi WiFi 5.3G ANT2: 3.91dBi WiFi 5.6G ANT1: 2.80dBi WiFi 5.6G ANT2: 4.83dBi WiFi 5.8G ANT1: 2.80dBi WiFi 5.8G ANT2: 4.83dBi WiFi UNII5 ANT1: 2.37dBi

	WiFi UNII5 ANT2: 4.27dBi WiFi UNII6 ANT1: 2.37dBi WiFi UNII6 ANT2: 4.27dBi
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	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)
BDR+EDR	12.92	12.92 ±1	13.92	1.8	0.0074	1
BLE	13.46	13.46 ±1	14.46	1.8	0.0084	1
WiFi 2.4G ANT1	14.58	14.58 ±1	15.58	4.52	0.0204	1
WiFi 2.4G ANT2	14.35	14.35 ±1	15.35	2.20	0.0113	1
WiFi 5.2G ANT1	14.7	14.7 ±1	15.70	1.68	0.0109	1
WiFi 5.2G ANT2	15.35	15.35 ±1	16.35	3.58	0.0196	1
WiFi 5.3G ANT1	14.26	14.26 ±1	15.26	2.16	0.0110	1
WiFi 5.3G ANT2	13.54	13.54 ±1	14.54	3.91	0.0139	1
WiFi 5.6G ANT1	15.65	15.65 ±1	16.65	2.80	0.0175	1

WiFi 5.6G ANT2	15.45	15.45 ±1	16.45	4.83	0.0267	1
WiFi 5.8G ANT1	16.79	16.79 ±1	17.79	2.8	0.0228	1
WiFi 5.8G ANT2	14.79	14.79 ±1	15.79	4.83	0.0230	1
WiFi UNII5 ANT1	6.77	6.77 ±1	7.77	2.37	0.0021	1
WiFi UNII5 ANT2	6.63	6.63 ±1	7.63	4.27	0.0031	1
WiFi UNII6 ANT1	7.12	7.12 ±1	8.12	2.37	0.0022	1
WiFi UNII6 ANT2	7.4	7.4 ±1	8.40	4.27	0.0037	1

The Maximum simultaneous transmission for BT+WLAN+ RLAN+ UNII:

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

$$= S_{BT}/S_{limit} + S_{WLAN}/S_{limit} + S_{RLAN}/S_{limit} + S_{UNII}/S_{limit}$$

$$= 0.0158/1 + 0.0317/1 + 0.1454/1 + 0.0111/1$$

$$= 0.204$$

$$< 1.0$$

Result: No Standalone SAR test is required.