

RF EXPOSURE EVALUATION

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)

FCC ID: **2AZBU-BABY6T**

EUT Specification

EUT	Baby Monitor
Frequency band (Operating)	☒ 2.4GHz WiFi: 2412 MHz to 2462 MHz ☒ 2.4GHz BT: 2402 MHz to 2480 MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure ($S = 5\text{mW/cm}^2$) ☒ General Population/Uncontrolled exposure ($S=1\text{mW/cm}^2$)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power (peak power)	Fragment Antenna 2.4GHz WiFi IEEE 802.11b: 18.81 dBm IEEE 802.11g: 17.78 dBm IEEE 802.11n-HT20: 17.73 dBm Fragment Antenna 2.4GHz BT BLE: -0.61 dBm External Antenna 2.4GHz WiFi IEEE 802.11b: 18.83 dBm IEEE 802.11g: 18.09 dBm IEEE 802.11n-HT20: 17.47 dBm
Antenna gain (Max)	Fragment Antenna 2.4GHz WiFi + BT: 3.61 dBi External Antenna 2.4GHz WIFI: 4.10 dBi
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	6
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, $\pi=3.1416$

R= distance between observation point and center of the radiator in cm=20cm

P_d the limit of MPE, 1mW/cm². 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.

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation

$$\sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

$Evaluated_k$: the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

$Exposure Limit_k$: either the general population/uncontrolled maximum permissible exposure (MPE) or specific Absorption rate (SAR) limit for each fixed, mobile, or portable RF source k.

Measurement Result

Fragment Antenna

2.4GHz WIFI + BT:

Modulation Mode	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)	Results
802.11b	18.81	19±1	20	100.000	3.61	2.296	0.045679	1	Pass
802.11g	17.78	18±1	19	79.433	3.61	2.296	0.036284	1	Pass
802.11n HT20	17.73	18±1	19	79.433	3.61	2.296	0.036284	1	Pass
GFSK	-0.61	-0.5±1	0.5	1.122	3.61	2.296	0.000513	1	Pass

External Antenna

2.4GHz WIFI:

Modulation Mode	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)	Results
802.11b	18.83	19±1	20	100.000	4.10	2.570	0.051135	1	Pass
802.11g	18.09	18±1	19	79.433	4.10	2.570	0.040618	1	Pass
802.11n HT20	17.47	17±1	18	63.096	4.10	2.570	0.032264	1	Pass

Maximum Simultaneous transmission MPE Ratio for 2.4GHz WIFI & BT & 2.4GHz WIFI

Maximum MPE ratio (Fragment Antenna 2.4GHz WIFI)	Maximum MPE ratio (Fragment Antenna 2.4GHz BT)	Maximum MPE ratio (External Antenna 2.4GHz WIFI)	Σ MPE ratios	Limit	Results
0.045679	0.000513	0.051135	0.097327	1.000	Pass

Signature:



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