RF Exposure Evaluation Report

1 RF EXPOSURE

Product Name:	Wi-Fi Wall Clock
Model No.:	GZJMS12inBlackWifiUS-2, GZFJWiFi-001, GZFJWiFi-002, GZFJWiFi-003, GZFJWiFi-004, GZFJWiFi-005, GZFJWiFi-006, GZFJWiFi-007, GZFJWiFi-008, GZFJWiFi-009, GZFJWiFi-010, GZFJWiFi-011, GZFJWiFi-012, GZFJWiFi-013, GZFJWiFi-014, GZFJWiFi-015, GZFJWiFi-016, GZFJWiFi-017, GZFJWiFi-018, GZFJWiFi-019, GZFJWiFi-020, GZFJWiFi-021, GZFJWiFi-022, GZFJWiFi-023, GZFJWiFi-024, GZFJWiFi-025, GZFJWiFi-026, GZFJWiFi-027, GZFJWiFi-028, GZFJWiFi-029, GZFJWiFi-030, GZFJWiFi-031, GZFJWiFi-032, GZFJWiFi-033, GZFJWiFi-034, GZFJWiFi-035, GZFJWiFi-036, GZFJWiFi-037, GZFJWiFi-038, GZFJWiFi-039, GZFJWiFi-040, GZFJWiFi-041, GZFJWiFi-042, GZFJWiFi-043, GZFJWiFi-044, GZFJWiFi-045
FCC ID:	2BRZR-GZWIFI

2. RF Exposure Evaluation

FCC KDB447498 D01 General RF Exposure Guidance v06: Mobile and Portable Device, RF Exposure, Equipment Authorization Procedures.

FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.

FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices.

2.1 LIMITS

According to FCC Part1.1310: 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 part1.1307(b)

Table 1 to § 1.1310(e)(1)—Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*(100)	≤6
3.0–30	1842/f	4.89/f	*($900/f^2$)	<6
30–300	61.4	0.163	1.0	<6
300–1,500			f/300	<6
1,500–100,000			5	<6

(ii) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	<30
1.34–30	824/f	2.19/f	*(180/f^2)	<30
30–300	27.5	0.073	0.2	<30
300–1,500			f/1500	<30
1,500–100,000			1.0	<30

F= Frequency in MHz Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R 2) Where

Pd = power density in mW/cm2

Pout = 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

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

2.2 EUT RF EXPOSURE EVALUATION

WIFI ANT1: -1.17dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.0 in linear scale.

The Max Conducted Peak Output Power data refer to report No.: DACE250814002RL001

2.4GWIFI worst mode and channel:

Test channel	Conducted Power (dBm)	Maximum tune-up Power (dbm)	Maximum tune-up Power (dbm)	Maximum tune-up Power (mW)	Calculated value (mW/cm2)	Limit (mW/cm2)
802.11b-2412MHz	15.83	16.0±1.0	17.0	50.12	0.0076	1.0
802.11b-2437MHz	15.64	16.0±1.0	17.0	50.12	0.0076	1.0
802.11b-2462MHz	15.60	16.0±1.0	17.0	50.12	0.0076	1.0

Remark: Pd = (Pout*G)/(4* Pi * R^2)=(50.12*0.764)/(4*3.1415*20*20)=0.0076, $G=10^{gain/10}$ =0.764

NOTE:1. EUT wifi-2.4G module is more than 20cm away from the human body.

2.The Calculated value is less than the limit value of 1.0, so there is no sar requirement.