RF Exposure Evaluation

of

E.U.T.   : KBW24 Booster with NDC WLAN Access Point

FCC ID.   : QZGKBW24-001

MODEL   : KBW24-101

for

APPLICANT   : K-Best Technology Inc.

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Product Information:

Type of EUT: KBW24 Booster with NDC WLAN Access Point

FCC ID: QZGKBW24-001

Manufacturer: K-Best Technology Inc.

Model: KBW24-101

Description:
1. 2400~2500 MHz unlicensed ISM Band
2. Provides DC Power to the booster without an additional Power cord
3. Booster has 0.5/1W output power levels.
4. 20 dB receive gain for the booster
5. Bi-directional TDD technology
6. Transmitter and receiver LED
7. Waterproof housing
8. The NDC WLAN Access Point is currently certified with FCC ID: IOU0660S02

Maximum conducted output power (measured): **29.8** dBm or **954.14** mW

The following table lists the provided authorized antennas:

Model	Antenna Type	Antenna Gain	
		(dBi)	Numeric
KBNT2406-01	Flat Panel	6	3.98

Below is an example of the RF Exposure Statement:

Notice:

To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

Relative Requirement for Compliance

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following:

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f^2)	6
30-300	61.4	0.163	1.0	6
300-1500	....	....	f/300	6
1500-100,000	....	....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	....	....	f/1500	30
1500-100,000	....	....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1.0 mW/cm^2 uncontrolled exposure limit. The formula shown in OET Bulletin 65 is used in the calculation.

Equation from page 19 of OET Bulletin 65, Edition 97-01 is:

$$S = PG / 4\pi R^2$$

where: S = power density (in appropriate units, e.g. mW/cm^2)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

hence

$$R = (PG / 4\pi S)^{1/2}$$

For our device

P = 954.14 mW

G = 3.98

S = Exposure limit = 1.0 mW/cm^2

R = ((954.14 * 3.98) / (4π *1.0))$^{1/2}$

   = **17.38 cm**

For complying the FCC limits for general population/uncontrolled exposure, the minimum MPE distance is 17.38 cm.