July 31, 2023

FCC ID: VBU-V2VBS24

To whom it may concern,

We, UL Japan, Inc, hereby declare that Hotel Card Lock (Slim type), model: ALVBS (FCC ID: VBU-V2VBS24) of MIWA LOCK CO., LTD. is exempt from RF exposure SAR evaluation as its output power meets the exclusion limits stated in KDB 447498D01(v06).

KDB 447498D01(v06) has the following exclusion for portable devices:
The SAR test exclusion thresholds for below 100 MHz at test separation distances ≤ 50 mm are determined by step c) 2):

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion:

1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by [1 + log(100 / f(MHz))]
2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½

[RFID]

Numeric exemption threshold:

$Pth_{\text{step c)}}$ [mW]:	442.97

Radio specification and use-case for this deveice are below:

f [MHz]:	13.56
d [mm]:	0
Maximum average output power [mW]:	20.23

f [MHz]: Operating frequency

d [mm]: Minimum separation distance

Maximum average output power [mW]: timed-average power

This is less than Pth step c), so SAR test is exemption for this device.

[Detector]

Numeric exemption threshold:

$Pth_{\text{step c)}}$ [mW]:	442.97

Radio specification and use-case for this deveice are below:

f [MHz]:	13.56
d [mm]:	0
Maximum average output power [mW]:	5.08

f [MHz]: Operating frequency

d [mm]: Minimum separation distance

Maximum average output power [mW]: timed-average power

This is less than Pth step c), so SAR test is exemption for this device.

[Bluetooth (LE) part]

We, UL Japan, Inc, hereby declare that Hotel Card Lock (Slim type), model: ALVBS (FCC ID: VBU-V2VBS24) of MIWA LOCK CO., LTD. is exempt from RF exposure SAR evaluation as its output power meets the exclusion limits stated in KDB 447498D01(v06).

KDB 447498D01(v06) has the following exclusion for portable devices:
The 1g and 10g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]
·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
·f(GHz) is the RF channel transmit frequency in GHz
·Power and distance are rounded to the nearest mW and mm before calculation
·The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

This device has f = 2.48 GHz and distance = 5 mm (minimum separation distance: 5 mm was used in the calculation) and the maximum average output power was 2.8 mW.

So for this device:
3 mW[maximum average output power]/5 mm[minimum separation distance]*√2.48 = 0.9

*This is less than 3.0, so no SAR is required.

[RFID part and Bluetooth (LE) part]

20.23 / 442.97	+	0.9 / 3	=	0.05	+	0.30	=	**0.35** <1

[Detector part and Bluetooth (LE) part]

5.08 / 442.97	+	0.9 / 3	=	0.01	+	0.30	=	**0.31** <1

Thank you for your attention to this matter.

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