

FCC ID: CWTWB1G0636

To whom it may concern,

We, UL Japan, Inc, hereby declare that Hand Unit, model: TWB1G0636 (FCC ID: CWTWB1G0636) of ALPS ALPINE CO., LTD. is exempt from RF exposure SAR evaluation because the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula according to the Code of Federal Regulation title 47 section 1.1307(b)(3)(i)(B). This method is used at separation distances d (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive) for single RF sources. P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d / 20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz}$$

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

When the minimum separation distance is shorter than 0.5 cm, 0.5 cm is applied.

The SAR evaluation exemption threshold is calculated as below.

[UHF part]

<i>P</i> _{th} (mW)	23.16
<i>f</i> (GHz)	0.43392
<i>ERP</i> _{20 cm} (mW)	885.197
<i>d</i> (cm)	0.5

Conducted Power (dBm)	1.00
(mW)	1.26
Antenna Gain (dBi)	-
EIRP (dBm)	-18.10
ERP (dBm)	-20.24
(mW)	0.01

The Maximum time-averaged power or ERP whichever greater is 1.3 mW.
(Rounded up to two decimals place)

*The eirp was derived from a field strength specification value of the fundamental signal(77.1 dBuV/m at 3m) which was converted to an eirp using the free space equation $E = \sqrt{(30PG)/d}$.

[UWB part:

Its output power meets the 1-mW test exemption threshold stated in the Code of Federal Regulation title 47 section 1.1307(b)(3)(i)(A).

This device available maximum time-averaged power is 0.05 mW, so no other assessment is required.

Reference of average Power [EIRP]

EIRP specification value: -41.3 dBm/MHz = 0.00007413 mW/MHz *Specification value

99 % occupied bandwidth = 619.794 MHz

0.00007413 mW/MHz [mW/MHz] x 619.794 [MHz] = **0.04594533 [mW]**

Thank you for your attention to this matter.



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