

## 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:

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

Where

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

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

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]

Pth (mW)	23.16
f (GHz)	0.43392
ERP <sub>20 cm</sub> (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.

T.Amamura

Toyokazu Immaura Engineer