FCC ID: WY7-3HY2

To whom it may concern,

We, UL Japan, Inc, hereby declare that Rear Derailleur, model: 3HY2 (FCC ID: WY7-3HY2) of SHIMANO INC. 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.

[SHIMANO ORIGINAL]

Pth (mW)	3060
f (GHz)	2.478
$ERP_{20 \text{ cm}}$ (mW)	3060
d (cm)	20.0

Conducted Power	(dBm)	7.70
	(mW)	5.89
Antenna Gain (dBi)		-0.08
EIRP (dBm)		7.62
ERP	(dBm)	5.48
	(mW)	3.53

The Maximum time-averaged power or ERP whichever greater is 5.9 mW.
(Rounded up to two decimals place)

Transmitters used in mobile exposure conditions for simultaneous transmission operations according to KDB447498 D04.

Value is calculated using the following formula according to the Code of Federal Regulation title 47 section 1.1307(b)(3)(ii)(B).

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{a} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

[SHIMANO ORIGINAL + Bluetooth Low Energy]
5.9 / 3060 + 2.1 / 3060 = 0.0019 + 0.0007 = **0.0026** <1

[SHIMANO ORIGINAL + ANT+]
5.9 / 3060 + 2.1 / 3060 = 0.0019 + 0.0007 = **0.0026** <1

Thank you for your attention to this matter.

Takayuki Shimada
Leader