

Date: April 12, 2018

FCC ID : AK8NWA50
Applicant: Sony Corporation

SAR Evaluation Exemption

To whom it may concern,

We, Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory, Main Lab., hereby declare that Digital Music Players, models: NW-A55, NW-A56, and NW-A57 (FCC ID: AK8NWA50) of Sony Corporation are exempt from RF exposure SAR evaluation, as their output power meet the exclusion limits, stated in FCC Part 2 §2.1093.

According to KDB 447498 D01 (v06), section 4.3.1:

... These test exclusion conditions are based on source-based time-averaged (i.e. frame averaged) maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

... The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \cdot \sqrt{f(\text{GHz})} \right] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ 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.

For above device,

Regarding **Bluetooth BR/EDR**;

$f = 2.48$ GHz, distance = 5mm (the min. separation distance is < 5 mm),

the max. possible duty cycle = 83% = -0.81 dB,

(* xDH5: 83% = (On time; 625 μ s * 5 slots) / (On time + Off time; 625 μ s * 6 slots))

the max. possible burst averaged power incl. tune-up tolerance = 8.50 dBm, and

the max. possible frame averaged power incl. tune-up tolerance = 8.50 + (-0.81) = 7.69 dBm ≈ 6 mW.

Therefore,

$$6 \text{ mW} / 5 \text{ mm} * (\sqrt{2.48 \text{ GHz}}) = 1.9 < 3.0$$

and no SAR evaluation is required.

Regarding **Bluetooth Low Energy**;

$f = 2.48$ GHz, distance = 5mm (the min. separation distance is < 5 mm),

the max. possible duty cycle = 100% = 0.00 dB,

the max. possible burst averaged power incl. tune-up tolerance = 8.50 dBm, and

the max. possible frame averaged power incl. tune-up tolerance = 8.50 + (0.00) = 8.50 dBm ≈ 7 mW.

Therefore,

$$7 \text{ mW} / 5 \text{ mm} * (\sqrt{2.48 \text{ GHz}}) = 2.2 < 3.0$$

and no SAR evaluation is required.

SONY

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Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, reading "T. Kurihara". The signature is written in a cursive style with a horizontal line underneath it.

Teruki Kurihara

Technical Manager

EMC/ RF Test Laboratory Main Lab.

Design Technology Division

Sony Global Manufacturing & Operations Corporation