

SAR Exclusion Report

FCC Rule Part : CFR §2.1093

Standards : IEEE Std 1528:2013
KDB 865664 D01 v01r04, KDB 865664 D02 v01r02,
KDB 447498 D01_v06_2015.10.23_General RF Exposure Guidance

Report No. : SFBAOZ-WTW-P26010567

Applicant : Synology Inc.

Address : 9F., No.1, Yuandong Rd., Banqiao Dist., New Taipei City 220632

Product : AR100

Brand : Synology

Model No. : AR100

FCC ID : YOR-AR100

Sample Received Date : 2026/1/28

Date of Evaluation : 2026/3/2

Lab Address : No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location : No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City, Taiwan

FCC Accredited No. : TW0003

CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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Release Control Record

Issue No.	Reason for Change	Date Issued
SFBAOZ-WTW-P26010567	Initial release	2026/7/14

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1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported SAR _{10g} (W/kg)
DTS	Bluetooth	Not Required
DXX	NFC	Not Required
DXX	RFID	Not Required

Note:

1. The SAR limit (**Head & Body: SAR_{1g} 1.6 W/kg, and Extremity: SAR_{10g} 4.0 W/kg**) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.

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2. Description of Equipment Under Test

EUT Type	AR100
Brand Name	Synology
Model Name	AR100
FCC ID	YOR-AR100
Tx Frequency Bands	Bluetooth : 2402 ~ 2480MHz NFC : 13.56MHz RFID: 125kHz
Uplink Modulations	Bluetooth : GFSK NFC : ASK RFID : ASK
Antenna Type	Bluetooth: PIFA Antenna (Peak Antenna Gain : 3.22 dBi) RFID: Coil Antenna NFC: Coil Antenna
EUT Stage	Engineering Sample

Note: The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

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3. SAR Measurement Evaluation

3.1 Maximum Output Power

The maximum Tune up power (Unit: dBm) including tune-up tolerance is shown as below.

Bluetooth			
Mode	Channel	Frequency (MHz)	Ant. 0 Max. Tune-up power
BT LE	0	2402	8.0
	19	2440	8.0
	39	2480	8.0

NFC			
Mode	Channel	Frequency (MHz)	Ant. 1 Max. Tune-up power
ASK	1	13.56	-68.0

RFID			
Mode	Channel	Frequency (MHz)	Ant. 2 Max. Tune-up power
ASK	1	0.125	-108.0

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3.2 SAR Testing Exclusions

According to KDB 447498 D01, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following formula.

- For the test separation distance ≤ 50 mm

$$\frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \sqrt{f_{(\text{GHz})}} \leq 3.0$$

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

- For the test separation distance > 50 mm, and the frequency at 100 MHz to 1500 MHz

$$\left[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times \left(\frac{f_{(\text{MHz})}}{150} \right) \right]_{(\text{mW})}$$

- For the test separation distance > 50 mm, and the frequency at > 1500 MHz to 6 GHz

$$[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times 10]_{(\text{mW})}$$

Mode	Frequency (MHz)	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Exclusion	Require SAR Testing?
BT LE	2480	8	6.31	$1.99 < 7.5$	No
NFC	13.56	-68	0.00	1107.43 (mW)	No
RFID	0.125	-108	0.00	2314.25 (mW)	No

Note:

- When the device output power is less than the power threshold shown in above table, the SAR testing exclusion is applied.
- The exclusion is multiplied by 2.5 for extremity limits.

Summary:

Since the SAR assess for all device orientations apply SAR test exclusion per KDB 447498, SAR testing for this device is not required.

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<Estimated SAR Calculation>

According to KDB 447498 D01, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR was estimated according to following formula to result in substantially conservative SAR values of ≤ 0.4 W/kg to determine simultaneous transmission SAR test exclusion.

$$\text{Estimated SAR} = \frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \frac{\sqrt{f_{(\text{GHz})}}}{7.5}$$

If the minimum test separation distance is < 5 mm, a distance of 5 mm is used for estimated SAR calculation. When the test separation distance is > 50 mm, the 0.4 W/kg is used for SAR-1g.

Mode	Frequency (GHz)	Max. Tune-up Power (dBm)	Separation Distance (mm)	Estimated 10g SAR (W/kg)
BT LE	2.48	8	5	0.11
NFC	0.01356	-68	5	0
RFID	0.000125	-108	5	0

Note:

- When standalone SAR testing is not required, an estimated SAR can be applied to determine simultaneous transmission SAR test exclusion.

<Simultaneous Multi-band Transmission Evaluation>

The simultaneous transmission possibilities for this device is listed as below.

Simultaneous TX Combination	Capable Transmit Configurations	Extremity Exposure Condition
A	MAX. BT + MAX. NFC + MAX. RFID	Yes

Simultaneous Transmission SAR Evaluation (Extremity)				
Position	1	2	3	A(1+2+3)
	Max BT	Max NFC	Max RFID	Summing result 10g SAR W/kg
	10g SAR W/kg	10g SAR W/kg	10g SAR W/kg	
worst	0.11	0.00	0.00	0.11

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4. Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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