

RF EXPOSURE REPORT



FCC Applicant: Harman Professional, Inc.
8500 Balboa Blvd., Northridge, CA 91329 USA
Product Name: Wall Mount Touch Panel
Brand Name: AMX
Model No.: VARIA-SL80
Report Number: TESA2209000362ES
FCC ID: 2AUHEVARIA-SL80
Issue Date: Oct. 24, 2022

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluated by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC KDB 447498 D01v06.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2209000362ES	00	Original	Oct. 24, 2022	Kimmy Chiou	

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	Wall Mount Touch Panel
Brand Name:	AMX
Model No.:	VARIA-SL80
Hardware Version:	R.04
Firmware Version:	N/A
Power Supply:	100-240V 50/60Hz

1.2 Reference Test Report

Test Lab:	SGS Taiwan Ltd. Central RF Lab
Report Number:	TERF2209001798ER

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2 RF EXPOSURE EVALUATION FOR PORTABLE CONDITIONS

2.1 FCC Standard Applicable:

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

2.1.1 As per KDB 447498 D01 4.3.1,

Step a: For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- $f(\text{GHz})$ 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 values 3.0 and 7.5 are referred to as numeric thresholds in **step b)** below

Step b: For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following (also illustrated in Appendix B):

- 1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz
- 2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and ≤ 6 GHz

Step c: For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):

- 1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by $[1 + \log(100/f(\text{MHz}))]$
- 2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz

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2.2 Measurement Result:

2.2.1 As per KDB447498D01v06 4.3.1 c)

Based on KDB447498D01v06 4.3.1 c), SAR test exclusion threshold for NFC (13.56MHz) shall be evaluated as below,

- For test separation distances ≤ 50 mm, the power threshold determined by the equation in 4.3.1 c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$
- The power threshold at 50mm/100 MHz in 4.3.1 b) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ where f is 13.56MHz
- The power threshold in 4.3.1 b) is $[\text{Power allowed at numeric threshold for 50 mm in 4.3.1 a)} + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW}$, for 100 MHz to 1500 MHz where test separation distance is 50mm, frequency is 100MHz.
- Power allowed at numeric threshold for 50 mm in 4.3.1 a) is $[3/\sqrt{f(\text{GHz})}] \cdot (\text{test separation distance})$

Hence, SAR test exclusion threshold is calculated in reverse sequence:

- $[3/\sqrt{0.1}] \cdot 50 = 474.3416\text{mW}$
- $474.3416 + (50-50) \cdot (100/150) = 474.3416\text{mW}$
- $474.3416 \cdot [1 + \log(100/13.56)] = 885.9470\text{mW}$
- $885.9470 \cdot 0.5 = 442.974\text{mW}$

So the SAR test exclusion power threshold for NFC(13.56MHz) is 442.974mW(equal to 26.464dBm).

Also, the maximum power of NFC is -88.77 dBm (converted from 6.46 dBuV/m at 3m) and it is far below the exclusion threshold (26.464dBm), so SAR test for NFC can be excluded.

2.2.2 As per KDB447498D01v06 4.3.2 b)

Based on KDB447498D01v06 4.3.2 b), when an antenna qualifies for the standalone SAR test exclusion of 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:

- $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg}$, for test separation distances ≤ 50 mm, where $x = 7.5$ for 1-g SAR and $x = 18.75$ for 10-g SAR.

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