

FCC SAR Exclusion Report

Report No. : SFBHQC-WTW-P22070414A

Applicant : HON HAI PRECISION IND. CO., LTD.

Address : 5F-1, 5 Hsin-An Road Hsinchu, Science-Based Industrial Park Taiwan, R.O.C.

Product : NFC module

Brand : FOXCONN

FCC ID : MCLT77H747

Model No. : T77H747

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

Sample Received Date : Jul. 12, 2023

Date of Evaluation : Jul. 31, 2023

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

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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FCC Accredited No.: TW0003

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Release Control Record

Issue No.	Reason for Change	Date Issued
SFBHQC-WTW-P22070414A	Initial release	Aug. 10, 2023

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported SAR _{1g} (W/kg)
DXX	NFC	Not Required

Note:

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

2. Description of Equipment Under Test

EUT Type	NFC module
Brand Name	FOXCONN
FCC ID	MCLT77H747
Model Name	T77H747
Tx Frequency Bands (Unit: MHz)	13.56
Uplink Modulations	NFC : ASK
Maximum Tune-up Conducted Power (Unit: dBm)	Please refer to section 3.1 of this report
Antenna Type	Refer to Note
EUT Stage	Engineering Sample

Note:

1. 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.
2. The antennas provided to the EUT, please refer to the following table:

Antenna No.	Brand	Model	Antenna Gain(dBi)	Frequency range (MHz)	Antenna Type
1	SAA	LX8416-12-000-C	NA	13.56	PCB
2	Dexerials	ANT-M041A	NA	13.56	PCB
3	Dexerials	ANT-M043A	NA	13.56	PCB
4	Dexerials	ANT-M047A	NA	13.56	PCB
5	SAA	LX7828-12-000-C	NA	13.56	PCB
6	Murata	FLANBPA-0715	NA	13.56	PCB

3. SAR Measurement Evaluation

3.1 Maximum Output Power

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

Mode	Frequency	Ant. 0 Max Tune-up
NFC	13.56	-34.5

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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.

A. For the test separation distance ≤ 50 mm

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

- 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

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

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

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

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.

- {[Power allowed at numeric threshold for 50 mm in step A]} + [(test separation distance - 50 mm) · (f(MHz)/150)] mW, for 100 MHz to 1500 MHz

- {[Power allowed at numeric threshold for 50 mm in step A]} + [(test separation distance - 50 mm) × 10] mW, for > 1500 MHz and ≤ 6 GHz

C. For frequencies below 100 MHz, the following may be considered for SAR test exclusion.

- 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 $[1 + \log(100/f(\text{MHz}))]$

- 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 $\frac{1}{2}$

- SAR measurement procedures are not established below 100 MHz.

Mode	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Exclusion (mW)	Require SAR Testing?
NFC	13.56	-34.5	0.000355	237.17	No

Note:

- When the device output power is less than the power threshold shown in above table, the SAR testing exclusion is applied.

Summary:

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

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 accredited and approved according to ISO/IEC 17025.

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

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

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