

RF EXPOSURE REPORT



Applicant: ID TECH
10721 Walker Street Cypress, CA 90630

Manufacturer: ID TECH
10721 Walker Street Cypress, CA 90630

Product Name: VP3300 OEM EXT

Brand Name: ID TECH

FCC Model No.: ID-80149016-001, ID-80149016-ABC

ISED Model No.: ID-80149016-001, ID-80149016-011

Model Difference: Refer to section 1.3

Report Number: TESA2309000542ES

FCC ID WQJ-ID80149016

IC: 9847A-ID80149016

Date of EUT Received: Sep. 22, 2023

Issue Date: Nov. 10, 2023

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluate by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1093 and RSS-102.

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
TESA2309000542ES	00	Original	Nov. 01, 2023	Kimmy Chiou	
TESA2309000542ES	01	Modify FCC	Nov. 08, 2023	Ruby Ou	*
TESA2309000542ES	02	Update manufacturer's Address	Nov. 10, 2023	Cindy Chou	*

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.
- 2、Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received.
- 3、According to manufacture provide information and RF technical judgement, the full function and complex model is ID-80149016-001, could be as representative mode and perform full test.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	VP3300 OEM EXT
Brand Name:	ID TECH
FCC Model No.:	ID-80149016-001, ID-80149016-ABC
ISED Model No.:	ID-80149016-001, ID-80149016-011
Model Difference:	Refer to section 1.3
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	ID-80149016-001: 334T141206 ID-80149016-011: 334T141199
Power Supply:	5V
Test Software (Name/Version)	HW For TS160/V2.03.005

1.2 Reference Test Report

Test Lab:	SGS Taiwan Ltd. Central RF Lab
Report Number:	TERF2309002319ER

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1.3 Model Difference

Model No.	ID-80149016-001	ID-80149016-011
Circuit diagram differences	NFC+ICC	Only NFC
Internal component differences	NFC+ICC	Only NFC
Appearance differences	NFC+ICC	Only NFC
Functional differences	NFC+ICC	Only NFC

Family Model No.: ID-80149016-ABC (The letters ABC represent wild cards as A=0~5, B=0~3, and C=1~4 with the below differences)

A	Output encrypted format
0	EMV3.1, TDES (V1.10)
1	EMV3.1, AES (V1.10)
2	EMV2.3.1, TDES (V1.01)
3	EMV2.3.1, AES (V1.01)
4	EMV3.1, TDES (V1.20)
5	EMV3.1, AES (V1.20)

B	Card Technology
0	EMV+CTLS, with mounting hole (NFC+ICC) With RS232+USB
1	CTLS only, with mounting hole (Only NFC) With RS232+USB
2	EMV+CTLS, without mounting hole (NFC+ICC) USB only
3	CTLS only, without mounting hole (Only NFC) USB only

C	Appearance
1	White; Production
2	White; Demo
3	Black; Production
4	Black; Demo

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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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot \sqrt{f(\text{GHz})} \leq 3.0$ for 1-g Head & Body SAR and ≤ 7.5 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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2.1.2 As per KDB447498D01v06 4.3.1 c)

SAR test exclusion threshold for NFC (13.56MHz) shall be evaluated as below,

- a) 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 ½
 - b) The power threshold at 50mm/100 MHz in 4.3.1 b) is multiplied by [1 + log(100/f(MHz))] where f is 13.56MHz
 - c) The power threshold in 4.3.1 b) is [Power allowed at numeric threshold for 50 mm in 4.3.1 a)] + [(test separation distance – 50 mm)·(f(MHz)/150)] mW, for 100 MHz to 1500 MHz where test separation distance is 50mm, frequency is 100MHz.
 - d) 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:
- d) : $[3/\sqrt{0.1}] \cdot 50 = 474.3416\text{mW}$
 - c) : $474.3416 + (50-50) \cdot (100/150) = 474.3416\text{mW}$
 - b) : $474.3416 \cdot [1 + \log(100/13.56)] = 885.9469\text{mW}$
 - a) : $885.9469 \cdot 0.5 = 442.973\text{mW}$

Step c:

Frequency (MHz)	E-FIELD dBuV/m	Test Distance (m)	EIRP (dBm)	EIRP (mW)	Threshold (mW)
13.56	37.68	30	-37.47757	0.0001787	442.973

Note:

Distance Factor = $40\log(\text{Test Distance (m)} / \text{Separation Distance (m)})$

E-FIELD (dBuV/m) = E-FIELD (dBuV/m) + Distance Factor(dB)

EIRP (dBm) = (E-FIELD(dBuV/m) + 20log(d(m)) - 104.7

EIRP(mW) = $(10^{(EIRP(dBm)/10)})$

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2.2 ISED Standard Applicable

As per RSS-102 Issue 5 March 19, 2015, any transmitter shall be compliant with applicable RF exposure prior to being market. In §2.5.1, SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power.

For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5.

2.3 Result:

NFC

Freq. (MHz)	E-FIELD dBuV/m	Test Distance (m)	EIRP (dBm)	EIRP (mW)	Exemption Limit (mW)
13.56	37.68	30	-37.47757	0.00017875	71

Distance Factor = $40\log(\text{Test Distance (m)} / \text{Required Distance (m)})$

E-FIELD (dBuV/m) = E-FIELD (dBuV/m) + Distance Factor(dB)

EIRP (dBm) = $(\text{E-FIELD(dBuV/m)} + 20\log(d(m))) - 104.7$

EIRP(W) = $(10^{(\text{EIRP(dBm)}/10)})/1000$

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