

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.

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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:

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

- $f(\text{GHz})$ 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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2.1.2 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 $\frac{1}{2}$
 - b) 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
 - c) 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.
 - 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) = $(10^{(\text{EIRP(dBm)}/10)})$

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

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

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