FCC SAR Exclusion Report

Report No.	:	**SA161006C05**
Applicant	:	**Dell Inc.**
Address	:	**One Dell Way,Round Rock,TX 78682,USA**
Product	:	**RFID 13.56MHz Wireless Module**
Brand	:	**DELL**
FCC ID	:	**E2K-DWRFID1603**
Model No.	:	**DWRFID1603**
Standards	:	**FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1992 / IEEE 1528:2013** **KDB 865664 D01 v01r04 / KDB 865664 D02 v01r02 / KDB 447498 D01 v06**
Sample Received Date	:	**Oct. 06, 2016**
Date of Evaluation	:	**Oct. 20, 2016**

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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Approved By : Eli Hsu / Supervisor

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Release Control Record

Issue No.	Reason for Change	Date Issued
SA161006C05	Initial release	Oct. 21, 2016

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	RFID 13.56MHz Wireless Module
Brand Name	DELL
FCC ID	E2K-DWRFID1603
Model Name	DWRFID1603
Tx Frequency Bands (Unit: MHz)	NFC : 13.56
Uplink Modulations	NFC : ASK
Antenna Type	Loop Antenna
EUT Stage	Production Unit

Note:

1. The EUT is authorized for use in specific End-product. Please refer to below table for more details.

Item	Brand	Model
Portable Computer - Tablet	DELL	T17G

2. 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.

List of Accessory:

AC Adapter	**Brand Name**	DELL
	Model Name	LA45NM150
	Power Rating	I/P:100-240Vac, 50-60Hz, 1.3A; O/P: 5Vdc, 2A or 20Vdc, 2.25A
Battery 1	**Brand Name**	DELL
	Model Name	J0PGR
	Power Rating	7.6Vdc, 42Wh
	Type	Li-ion
Battery 2	**Brand Name**	DELL
	Model Name	1WND8
	Power Rating	11.4Vdc, 31.5Wh
	Type	Li-ion

3. SAR Measurement Evaluation

3.1 E.I.R.P. Results

Field Strength		
13.56 MHz (dBμA/m)	13.56 MHz (dBm)	13.56 MHz (mW)
66.69	-18.08	0.01556

3.2 SAR Test Exclusion Evaluations

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.

1. For the test separation distance <= 50 mm

$$\frac{\textbf{Max. Tune up Power}_{(\textbf{mW})}}{\textbf{Min. Test Separation Distance}_{(\textbf{mm})}} \times \sqrt{\mathbf{f}_{(\mathbf{GHz})}} \leq \textbf{3.0 for SAR-1g, ≤ 7.5 for SAR-10g}$$

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

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

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

3. 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	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
RFID	<0.01	<0.01	5	0	No

Note:

1. When separation distance <= 50 mm and the calculated result shown in above table is <= 3.0 for SAR-1g exposure condition, or <= 7.5 for SAR-10g exposure condition, the SAR testing exclusion is applied.
2. When separation distance > 50 mm and the device output power is less than the calculated result (power threshold, mW) shown in above table, the SAR testing exclusion is applied.

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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