

Variant FCC SAR Exclusion Report

Report No. : SA110801C10J
Applicant : DENSO WAVE INCORPORATED
Address : 1 Yoshiike Kusagi Agui-cho, Chita-gun Aichi 470-2297, Japan
Product : Hand Held Terminal
Brand : NEC
FCC ID : PZWS1635-01
Model No. : S1635-01 (Refer to section 2.1 for the more details)
Standards : FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1992 / IEEE 1528:2003
 IEEE 1528a-2005 / KDB 865664 D01 v01r03 / KDB 865664 D02 v01r01
 KDB 248227 D01 v02r01 / KDB 447498 D01 v05r02
Sample Received Date : Mar. 03, 2015
Date of Evaluation : Jun. 11, 2015

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.

This report is issued as a supplementary report to BV ADT no.: SA110801C10. The differences compared with original report is adding one model and updating standards to the latest version.

Prepared By : Rona Chen
 Rona Chen / Specialist
Approved By : Gordon Lin
 Gordon Lin / Assistant Manager



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.



Table of Contents

Release Control Record	3
1. Summary of Maximum SAR Value	4
2. Description of Equipment Under Test	5
3. SAR Measurement Evaluation	6
3.1 Maximum Output Power	6
3.2 SAR Testing Exclusions	6
4. Information on the Testing Laboratories	7
 Appendix A. Photographs of EUT and Setup	



FCC SAR Exclusion Report

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported SAR _{1g} (W/kg)
DTS	2.4G WLAN	Not Required
NII	5.2G WLAN	Not Required
	5.8G WLAN	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.



FCC SAR Exclusion Report

2. Description of Equipment Under Test

EUT Type	Hand Held Terminal
Brand Name	NEC
FCC ID	PZWS1635-01
Model Name	S1635-01
Tx Frequency Bands (Unit: MHz)	WLAN : 2412 ~ 2462, 5180 ~ 5240, 5745 ~ 5825
Uplink Modulations	802.11b : DSSS 802.11a/g/n : OFDM
Maximum Tune-up Conducted Power (Unit: dBm)	WLAN 2.4G : 13.0 WLAN 5.2G : 5.0 WLAN 5.8G : 11.0 BT : 3.5
Antenna Type	Printed PCB antenna
EUT Stage	Identical Prototype

Note:

1. This report is issued as a supplementary report to BV ADT no.: SA110801C10. The differences compared with original report is adding one model and updating standards to the latest version.
2. The following models are provided to this EUT .

BRAND	Model	DESCRIPTION
NEC	S1635-01	All models are electrically identical. The different model no. is for marketing purpose.
	S1635-01A	
	S1635-01B	
	S1635-01U	

3. 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:

Battery	Model Name	BT-110LA(BP06-00028C)
	Power Rating	3.7Vdc, 8.5Wh

3. SAR Measurement Evaluation

3.1 Maximum Output Power

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

Mode	2.4G WLAN	5.2G WLAN	5.8G WLAN
802.11b	13.00	N/A	N/A
802.11g	11.00	N/A	N/A
802.11a	N/A	5.00	11.00
802.11n HT20	10.50	5.00	11.00

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.

- 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

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

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Body-Worn		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
WLAN 2.4G	13.0	20	15	2.1	No
WLAN 5.2G	5.0	3	15	0.5	No
WLAN 5.8G	11.0	13	15	2.1	No
BT	3.5	2	15	0.2	No

Note:

- When separation distance ≤ 50 mm and the calculated result shown in above table is ≤ 3.0 , the SAR testing exclusion is applied.
- 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.

Summary:

Since the SAR testing 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:

Taiwan HwaYa EMC/RF/Safety/Telecom Lab:

Add: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan, R.O.C.

Tel: 886-3-318-3232

Fax: 886-3-327-0892

Taiwan LinKo EMC/RF Lab:

Add: No. 47-2, 14th Ling, Chia Pau Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C.

Tel: 886-2-2605-2180

Fax: 886-2-2605-1924

Taiwan HsinChu EMC/RF Lab:

Add: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Vil., Chiung Lin Township, Hsinchu County 307, Taiwan, R.O.C.

Tel: 886-3-593-5343

Fax: 886-3-593-5342

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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

---END---



Appendix A. Photographs of EUT and Setup

FCC SAR Exclusion Report

<Photographs of EUT>

