RF EXPOSURE REPORT

REPORT NO.: SA141021C27A

MODEL NO.: 1862

FCC ID: Q3N-1862

RECEIVED: Oct. 21, 2014

TESTED: Nov. 07 ~ Nov. 18, 2014

ISSUED: Nov. 21, 2014

APPLICANT: CIPHERLAB CO., LTD

ADDRESS: 12F, 333 Dunhua S. Rd., Sec.2 Taipei, Taiwan 106

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA141021C27A	Original release.	Nov. 21, 2014

1. CERTIFICATION

PRODUCT:	Handheld RFID Reader
MODEL NO.:	1862
BRAND:	Cipherlab
APPLICANT:	CIPHERLAB CO., LTD
TESTED:	Nov. 07 ~ Nov. 18, 2014
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 2 (Section 2.1091)**
	KDB 447498 D03
	IEEE C95.1

The above equipment (model: 1862) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** 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 EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ **, DATE :** Nov. 21, 2014
Ivy Lin / Specialist

APPROVED BY : _____ **, DATE :** Nov. 21, 2014
Ken Liu / Senior Manager

2. EVALUATION RESULT

2.1 SAR TEST EXCLUSION THRESHOLDS

Following FCC KDB 447498 D03 "General SAR test exclusion guidance"

The corresponding SAR Exclusion Threshold condition, listed below:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR where
- f(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 test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

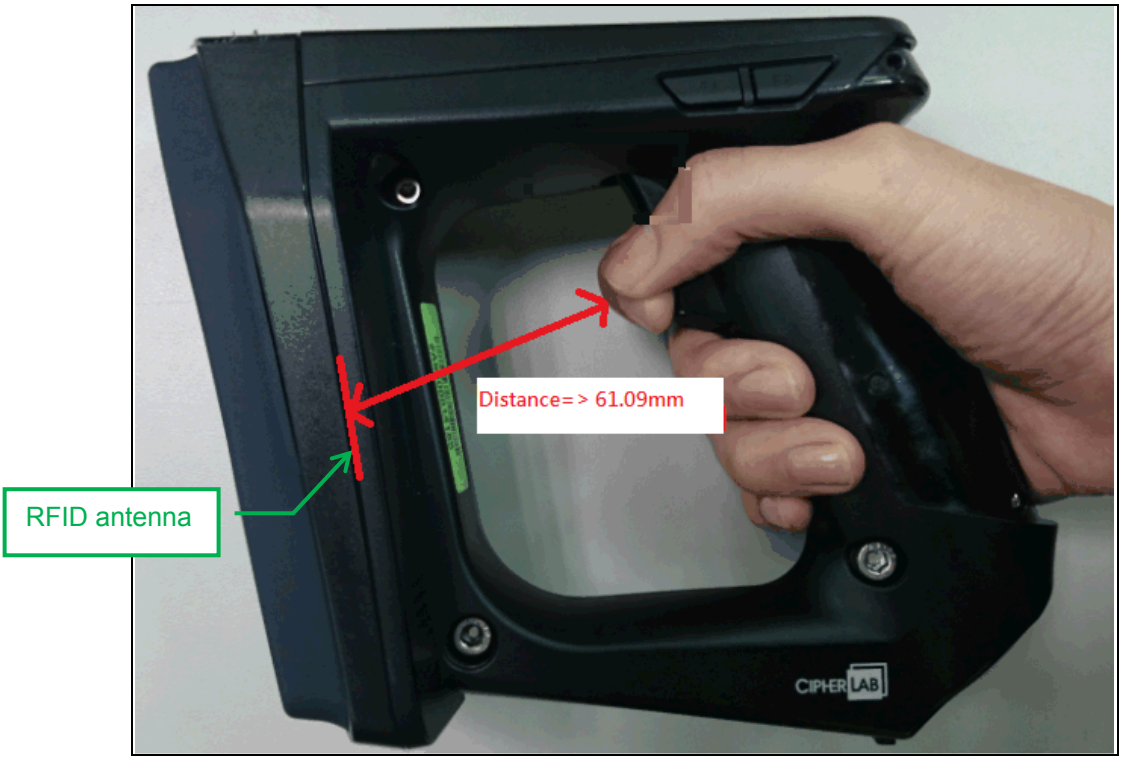
2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:
a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100MHz to 1500 MHz
b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

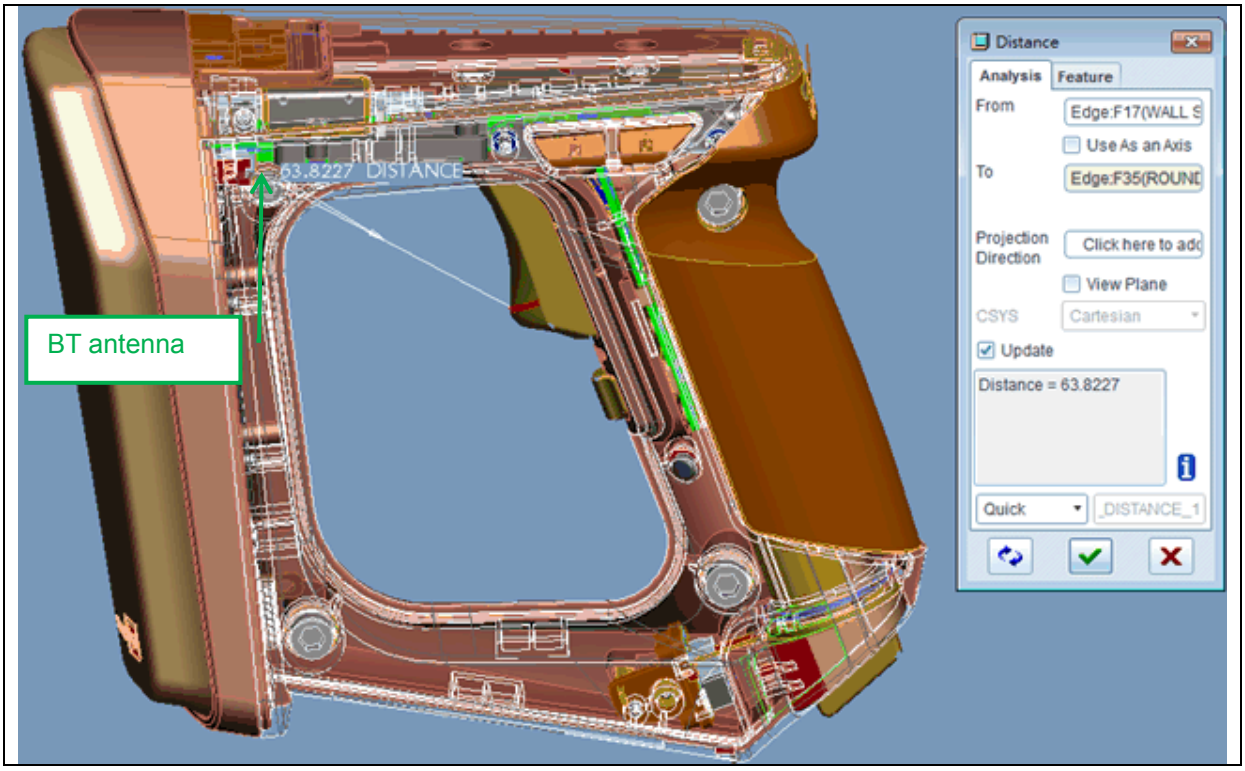
3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by [1 + log(100/f(MHz))] for test separation distances > 50 mm and < 200 mm.
b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by ½ for test separation distances ≤ 50 mm.
c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

2.2 SMALLEST DISTANCE FROM THE ANTENNA AND RADIATING STRUCTURES OR OUTER SURFACE OF THE DEVICE

The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander. (See below figure)

RFID antenna




63.8227 DISTANCE
BT antenna
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2.3 BLUETOOTH MODE

Maximum measured transmitter power:

BT EDR

Frequency (GHz)	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 2)	10-g extremity SAR test exclusion thresholds	Result
2.402 ~ 2.480	7.261	5	2.287	7.5	Pass

NOTE: 1. The antenna type is PIFA antenna with -1.71dBi gain.
2. Calculate SAR test exclusion thresholds from condition “1” formulas.

BT LE

Frequency (GHz)	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 2)	10-g extremity SAR test exclusion thresholds	Result
2.402 ~ 2.480	8.730	5	2.750	7.5	Pass

NOTE: 1. The antenna type is PIFA antenna with -1.71dBi gain.
2. Calculate SAR test exclusion thresholds from condition “1” formulas.

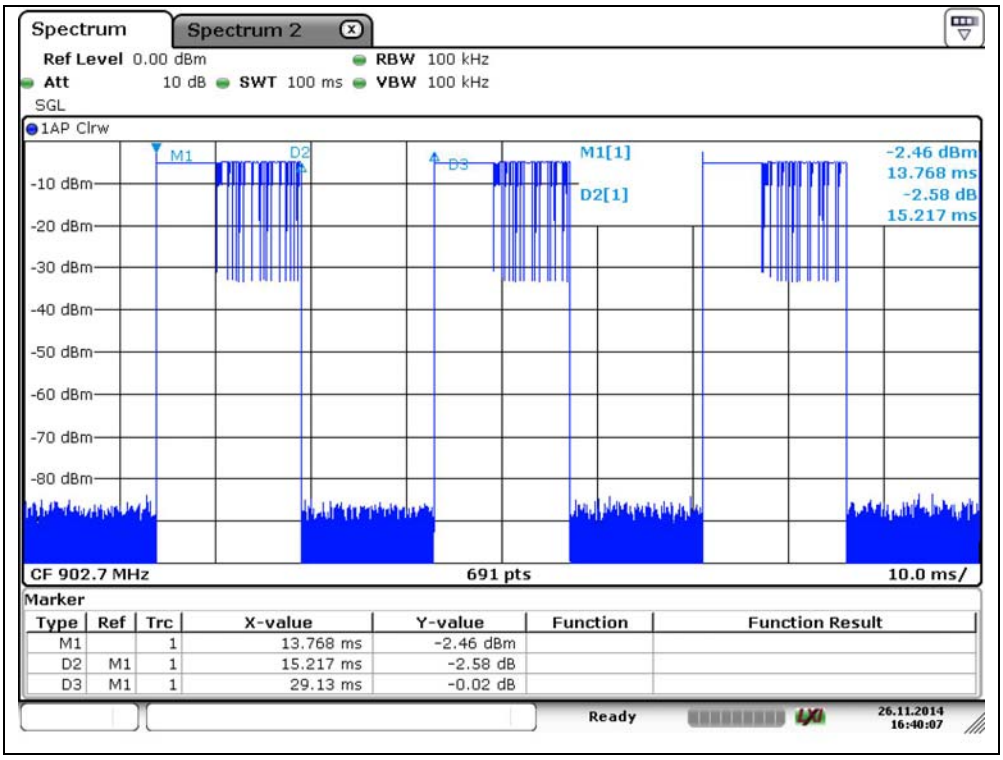
Conclusion

Since average power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

2.4 RFID MODE

Power Table

Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Duty Cycle	Time-Average Power (dBm)
902.75 ~ 927.25	29.32	29.23	0.525	26.5



SAR Test Exclusion Thresholds

Frequency (MHz)	Time-Average Power (mW)	Min. test separation distance (mm)	SAR test exclusion power thresholds*1 (mW)	Result
902.75 ~ 927.25	446.68	61.09	464.6	Pass
2402 ~ 2480	8.73	63.8227	378	Pass

*1 Calculate SAR test exclusion thresholds from " 2) " formulas. (base on 10-g extremity SAR exclusion thresholds).

Conclusion

Since maximum power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

Both of the Bluetooth & RFID can transmit simultaneously, the formula of calculated the SAR exempt is:

EUT BT 2.4G + RFID = 446.68/464.6 + 8.73/378 = 0.984 <1

Therefore, the product can be exempted from SAR test.

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