RF Exposure Report

Report No.:	SA190201C02-1
IC:	5121A-RK25UHF
Test Model:	RK25-UHF
Received Date:	Feb. 01, 2019
Test Date:	Feb. 12 ~ Feb. 22, 2019
Issued Date:	Mar. 05, 2019
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 Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

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Release Control Record

Issue No.	Description	Date Issued
SA190201C02-1	Original release	Mar. 05, 2019

1 Certificate of Conformity

Product:	UHF RFID Reader
Brand:	CIPHERLAB
Test Model:	RK25-UHF
Sample Status:	Engineering sample
Applicant:	CIPHERLAB CO., LTD
Test Date:	Feb. 12 ~ Feb. 22, 2019
Standards:	RSS-102 Issue 5 (2015-03) IEEE C95.3 -2002

The above equipment 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 RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Mar. 05, 2019

Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Mar. 05, 2019

Bruce Chen / Project Engineer

2 Limits for Maximum Permissible Exposure

Per RSS-102 issue 5, section 2.5.1 as reproduced below:

2.5.1 Exemption from Routine Evaluation Limits – SAR Evaluation

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 below table:

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤ 5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥ 50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

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 controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. 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. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation

3 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)

<Antenna Location>

4 SAR Test Exclusion Thresholds

Maximum measured transmitter power:

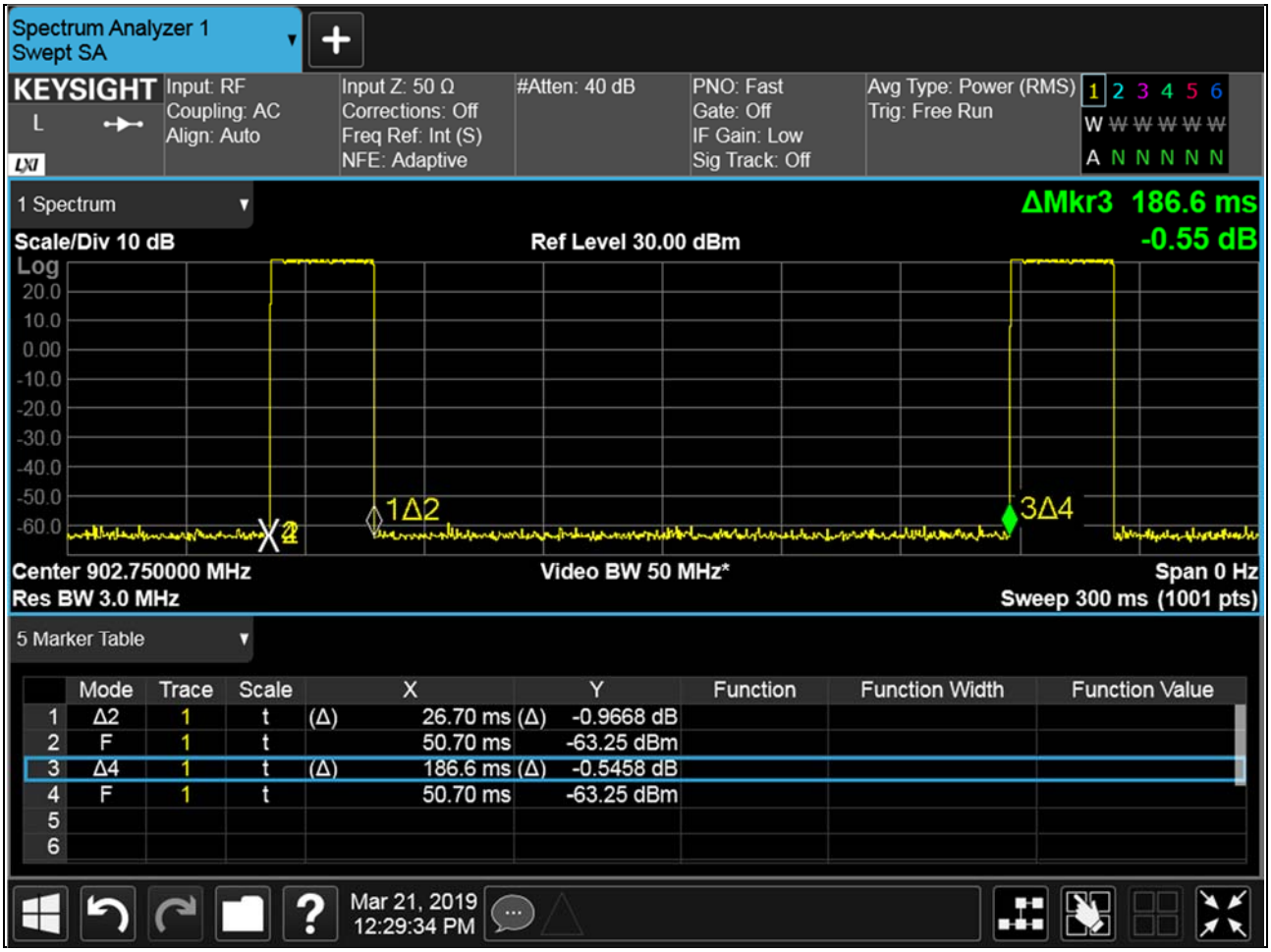
Max. Power (dB)	*Time Peak Power (dBm)	*Time Peak Power (mW)	Min. test separation distance (mm)	Limits of RF Exposure Evaluation (mW)	Result
27.88	19.65	92.257	47.06	117.65	Pass

Note: 1. The antenna type is PIFA antenna with 2.5dBi gain.
2. The limits for routine evaluation in Table 2.
3. *Time Average Power =Max. Power + Duty Factor

Duty Cycle of Test Signal

Duty Cycle	TX on (ms)	TX off (ms)	Duty Cycle (%)	Duty Factor (dB)
	26.7	186.6	15.0	-8.23

Note: The duty cycle correlation factor be equal to: 10log(26.7/186.6) = -8.23



5 Conclusion

Since Source-base time average power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

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