

Prüfbericht - Nr.: <i>Test Report No.:</i>	50227412 001	Auftrags-Nr.: <i>Order No.:</i>	180103571	Seite 1 von 3 Page 1 of 3	
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	01.02.2019		
Auftraggeber: <i>Client:</i>	Ring LLC 1523 26 th St, Santa Monica, CA 90404, USA				
Prüfgegenstand: <i>Test item:</i>	Floodlight Battery				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	5B21S8				
Auftrags-Inhalt: <i>Order content:</i>	TÜV Rheinland – Frequency Exposure Compliance				
Prüfgrundlage: <i>Test specification:</i>	FCC Part1-1.1307(b)(1) FCC Part1-1.1310 ANSI/IEEE C95.1-1992 RSS-102 Issue 5 March 2015				
Wareneingangsdatum: <i>Date of receipt:</i>	21.01.2019				
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000876441-001/003				
Prüfzeitraum: <i>Testing period:</i>	21.01.2019-18.02.2019				
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft/ tested by:			kontrolliert/ reviewed by:		
Caidong Xie/Trainee 22.02.2019 Season Yang/PE			Caidong Xie 22.02.2019 Feng Liang /TC		
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges/ Other:					
Refer to page 2 & 3 for further information.					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>			Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
*Legende: 1= Sehr gut 2 = gut 3= befriedigend 4= ausreichend 5 = mangelhaft P(ass) =entspricht o.g. Prüfgrundlage(n) F(ail)= entspricht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T =nicht getestet Legend: 1= very good 2 = good 3= satisfactory 4= sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail)= failed a.m. test specification(s) N/A = not applicable N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>					

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Radio Frequency Exposure Compliance

Result:

Pass

1. Maximum E.I.R.P

E.I.R.P. BLE

Channel	Channel Frequency (MHz)	Peak Output Power (dBm)	Antenna Gain (dBi)	Maximum E.I.R.P. (dBm)
Low Channel	2402	1.75	0	1.75 (1.496mW)
Mid Channel	2440	1.5		
High Channel	2480	1.63		

E.I.R.P. LoRa DTS

Channel	Channel Frequency (MHz)	Peak Output Power (dBm)	Antenna Gain (dBi)	Maximum E.I.R.P. (dBm)
Low Channel	902.5	17.92	-2	15.99 (39.71mW)
Mid Channel	914.5	17.99		
High Channel	927.3	17.98		

2. RF Exposure Evaluation for FCC

MPE Calculation

The power Density (mW / CM^2) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

S=power density (mW / CM^2)

P=power input to the antenna (mW)

G=power input to the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna (CM)

FCC MPE, BLE standalone operation

Transmit Frequency (MHz)	Power Density limit (mW / CM^2)	Radio Power (dBm)	Antenna Gain (dBi)	Distance (CM)	Power Density (mW / CM^2)	Result
2402	1.0	1.75	0	20	0.0003	0.0003 < 1

Conclusion: Compliance with FCC's RF Exposure.

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LoRa DTS standalone operation

Transmit Frequency (MHz)	Power Density limit (mW / CM ²)	Radio Power (dBm)	Antenna Gain (dBi)	Distance (CM)	Power Density (mW / CM ²)	Result
914.5	0.61	17.99	-2	20	0.008	0.008 < 0.61

Conclusion: Compliance with FCC's RF Exposure.

FCC MPE, BLE & LoRa simultaneous operation

According to 865664D02 2.2 d) 1):

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits:

Simultaneous Transmission mode	The sum of the ratios	Result
BLE + LoRa DTS	0.0003/1 + 0.008/0.61	=0.0134 < 1

Conclusion: Compliance with FCC's RF Exposure.

3. RF Exposure Evaluation for IC

EUT RF Exposure Evaluation standalone operation

Exemption Limits for Routine Evaluation – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

At or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum E.I.R.P. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

RF exposure evaluation exempted power for BLE: 2.73W

RF exposure evaluation exempted power for LoRa DTS: 1.38W

The max E.I.R.P. for BLE: 1.75dBm = 0.001496W

The max E.I.R.P. for LoRa DTS: 15.99dBm = 0.03971W

All E.I.R.P. are less than RF exposure evaluation exempted power. So RF exposure evaluation is not required.

EUT RF Exposure Evaluation simultaneous operation

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits:

Simultaneous Transmission mode	The sum of the ratios	Result
BLE + LoRa DTS	0.001496/2.73 + 0.03971/1.38	=0.0293 < 1

Conclusion: Compliance with IC's RF Exposure.