

FCC RF exposure report

Product name : iotspot LTE-M
Applicant : iottum B.V.
FCC ID : 2AYAIEM02

Test report No. : 200101624 FCC RF exposure Ver 1.00

Laboratory information

Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2017. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Designation number is: NL0001.

Telefication is a Wireless Device Testing laboratory recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

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Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherlands.

Testing Location

Test Site	Telefication BV
Test Site location	Edisonstraat 12a 6902 PK Zevenaar The Netherlands Tel. +31889983600 Fax. +31316583189

Test Site	Kiwa Telefication BV
Test Site location	Wilmersdorf 50 7327 AC Apeldoorn The Netherlands Tel. +31 88998 3393
Test Site FCC	NL0001

Revision History

Version	Date	Remarks	By
v1.00	15-02-2021	Release version	RvB

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1 General Description

1.1 Applicant

1.2 Applicant

Client name:	iottum B.V.
Address	Veemarktkade 8, 5222 AE, 's-Hertogenbosch, The Netherlands.
Zip code:	5221 LC
E-mail:	marnix@iotspot.co
Contact name:	Mr. M. Lankhorst

1.3 Manufacturer

Manufacturer name:	iottum B.V.
Address:	Veemarktkade 8, 5222 AE, 's-Hertogenbosch, The Netherlands.
Zip code:	5221 LC
E-mail:	marnix@iotspot.co
Contact name:	Mr. M. Lankhorst

1.4 Tested Equipment Under Test (EUT)

Product name:	iotspot LTE-M
Brand name:	iotspot
Product type:	iotspot LTE-M is an on-premise, low-voltage powered device that transmits and receives GSM and Bluetooth signals, transmits passive NFC signals and emits LED light
Variant model(s):	--
Software version:	--
Hardware version:	--

1.4.1 RF exposure, Mobile use

Calculation method of RF Safety Distance:

$$PD = \frac{P_{out} * G}{4\pi r^2}$$

Where:

PD = Power Density in mW/cm^2

Pout = Output power in mW

G = Gain of antenna

R = Distance between observation point and centre of the radiator in cm

Antenna

Technology	LTE-M GSM Bluetooth LE
Antenna type	LTE-M = Chip GSM =Chip Bluetooth LE =Chip
Antenna gain	LTE-M = 1.5 dBi GSM =1.5 dBi Bluetooth LE =0.5 dBi

Calculation results

Technology	Frequency (MHz)	Max power (mW)	Antenna gain (numeric)	Duty cycle (%)	Max power (mW) DC corrected	Distance (cm)	Power density (mW/cm^2)	Limit (mW/cm^2)
LTE-M	Band 2	316.23	1.4	100	316.23	20	0.088	1
LTE-M	Band 4	316.23	1.4	100	316.23	20	0.088	1
LTE-M	Band 5	316.23	1.4	100	316.23	20	0.088	1
LTE-M	Band 12	316.23	1.4	100	316.23	20	0.088	0.47
GSM	850	2113.59	1.4	12.5	264.19	20	0.073	0.56
GSM	1900	1059.25	1.4	12.5	132.41	20	0.037	1
Bluetooth LE	2400	0.53	1.12	100	0.53	20	0.00012	1

Note: Max power for LTE-M and GSM taken from report EMC_CTSMC-003-18001_FCC_ISSED_MPE_REV_1 of FCC id XPYUBX18ZO01. Max Power form Bluetooth low energy taken from Telefication report 200101624 002 v1.00.

1.5 Summary

According to FCC part 2 § 2.1091 the RF exposure limits are met.