

FCC SAR Exclusion Report

Product name : TR2
Applicant : MYLAPS B.V.
FCC ID : NXY-TR2

Test report No. : 190800885 FCC RF exposure Ver 1.0

Laboratory information

Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2005. 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.
The Industry Canada registration number for the 3 meter test chamber of Telefication is: 4173A-1.

Telefication is a registered Conformity Assessment body (CAB) under the Japan-EC MRA (Agreement on Mutual Recognition between Japan and the European Community). The registration number is: 201.

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 |

Revision History

| Version | Date | Remarks | By |
|---------|------------|-----------------|-----|
| v0.5 | 31-10-2019 | Draft version | PvW |
| v1.0 | 31-10-2019 | Release version | PvW |
| | | | |

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1 General Description

1.1 Applicant

| | |
|---------------|----------------------------------------------------------------------------|
| Client name: | MYLAPS B.V. |
| Address | Zuiderhoutlaan 4, Haarlem, the Netherlands |
| Zip code: | 2012 PJ |
| Telephone: | 023 760 0100 |
| E-mail: | Wouter.wieleman@mylaps.com |
| Contact name: | Wouter Wieleman |

1.2 Manufacturer

| | |
|--------------------|----------------------------------------------------------------------------|
| Manufacturer name: | MYLAPS B.V. |
| Address: | Zuiderhoutlaan 4, Haarlem, the Netherlands |
| Zip code: | 2012 PJ |
| Telephone: | 0627177706 |
| E-mail: | Jeroen.willemse@mylaps.com |
| Contact name: | Jeroen Willemse |

1.3 Tested Equipment Under Test (EUT)

| | |
|-------------------------|-----------------|
| Product name: | TR2 |
| Brand name: | MYLAPS BV |
| FCC ID: | NXY-TR2 |
| Product type: | TR2 transponder |
| Model(s): | TR2 |
| Batch and/or serial No. | -- |
| Software version: | 1.0.0 |
| Hardware version: | 8 |

1.4 SAR Measurement Evaluation

1.4.1 Maximum Output Power

The maximum radiated power including tune-up tolerance is shown as below.

| Mode | Output power (dBm) | Field strength (V/m) |
|--------------|--------------------|----------------------|
| Bluetooth LE | -2.10* | -- |
| 3.59 MHz | -- | 0.003125 |

* from Telefication report 190800885 001

1.4.2 SAR Testing Exclusions, Mobile use

Calculation method of RF Safety Distance:

$$PD = 10 * \frac{P_{out} + G}{4\pi r^2}$$

Where:

PD = Power Density in W/m^2

Pout = Output power in W

G = Gain of antenna

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

Antenna

| Technology | BLE | 3.59 MHz |
|--------------|----------------------|---------------------------------------|
| Antenna type | Ceramic chip antenna | Magnetic Ferrite bar/copper coil type |
| Antenna gain | 0.5 dBi | -- |

Calculation results

| Technology | Frequency (MHz) | Max power (mW) | Antenna gain (numeric) | Distance (cm) | Power density (W/m^2) | Limit (W/m^2) | MPE ratio | MPE ratio limit |
|------------|-----------------|----------------|------------------------|---------------|---------------------------|-------------------|----------------------|-----------------|
| BLE | 2400-2483.5 | 0.62 | 0.07 | 2 | 1.37 | 38 | 0.036 | ≤ 1.0 |
| 3.59 MHz | 3.59 | -- | -- | 2 | 2.65×10^{-8} | 0.5 | 5.3×10^{-8} | ≤ 1.0 |

Combined MPE ratio gives:

$$0.036 + 5.3 \times 10^{-8} = 0.036 \leq 1.0$$

1.5 Summary

Since the SAR testing for all device orientations apply SAR test exclusion per KDB 447498, SAR testing for this device is not required.