

## RF EXPOSURE REPORT

OF

**Applicant:** Catapult Sports Pty Ltd  
75-83 High St, Prahran, Melbourne Victoria 3181 AUS

**Product Name:** Receiver/Anchor

**Brand Name:** Catapult

**Model No.:** VR7401

**Model Difference:** N/A

**Report Number:** ER/2019/50162

**FCC ID** 2ADAL-VR7401

**FCC Rule Part** Part 2.1091

**Issue Date:** Jul. 31, 2019

**Date of Test:** May 30, 2019 ~ Jun. 19, 2019

**Date of EUT Received:** May 30, 2019

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation in this report is in compliance with FCC Rules Part 2.

The test results of this report relate only to the tested sample identified in this report.

**Approved By:**

John Teh

**John Yeh / Assistant Manager**

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## Revision History

| Report Number | Revision | Description                            | Effected Page | Issue Date    | Revised By |
|---------------|----------|--|---------------|---------------|------------|
| ER/2019/50162 | Rev.00   | Initial creation of document           | All           | Jul. 02, 2019 | Elle Chang |
| ER/2019/50162 | Rev.01   | Revised conducted power and Added note | Page 8        | Jul. 31, 2019 | Elle Chang |

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## Table of Contents

|     |  |   |
|-----|--|---|
| 1   | DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)..... | 4 |
| 2   | FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE) .....   | 7 |
| 2.1 | FCC STANDARD APPLICABLE .....                  | 7 |
| 2.2 | POWER DENSITY CALCULATION (WORST CASE) .....   | 8 |

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## 1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

General:

|                   |   |  |
|-------------------|---|--|
| Product Name:     | Receiver/Anchor                             |  |
| Brand Name:       | Catapult                                    |  |
| Model No.:        | VR7401                                      |  |
| Hardware Version: | N/A   |  |
| Software Version: | N/A   |  |
| Power Supply:     | 3.7Vdc from Rechargeable Li-polymer Battery |  |
|                   | Battery:                                    | Model No.: 105085,<br>Supplier: XPOWER SOLUTION TECHNOLOGY |

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## Antenna Information:

| Antenna Type | Supplier       | Main / Aux | Antenna Part No. | Freq. (MHz) | Peak Antenna Gain (dBi) | Worst Antenna Gain |
|--------------|----------------|------------|------------------|-------------|-------------------------|--------------------|
| PCB          | catapultsports | Main       | KO-EM-24-P-044G  | 2.4GHz      | 4.79                    | V                  |

| Antenna Type | Supplier       | Main / Aux | Antenna Part No. | Frequency (MHz) | Peak Antenna Gain (dBi) | Worst Antenna Gain |
|--------------|----------------|------------|------------------|-----------------|-------------------------|--------------------|
| PCB          | catapultsports | Main       | KO-EM-24-P-044G  | 5150~5250       | <b>4.03</b>             | V                  |
|              |                |            |                  | 5725~5850       | 3.84                    |                    |

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### WLAN 2.4GHz:

| 802.11               | Freq. Range (MHz) | Channels  | Modulation Technology | Rated Power (P-burst) (dBm) | Worst Case |
|----------------------|-------------------|---|-----------------------|-----------------------------|------------|
| b/g/n_HT20<br>n_HT40 | 2412-2472         | 13  | DSSS & OFDM           | 13.89                       | V          |
| Modulation type:     |                   | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM |                       |                             |            |

### WLAN 5GHz (FCC):

| Wi-Fi           | Freq. Range (MHz) | Modulation Technology             | Max. Output Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | Worst Case |
|-----------------|-------------------|-----------------------------------|-------------------------|--------------------|------------|------------|
| 11a             | 5150~5250         | OFDM                              | 13.98                   | 4.03               | 18.01      | V          |
|                 | 5725~5850         |                                   | 13.97                   | 3.84               | 17.81      | V          |
| 11n<br>HT20     | 5150~5250         |                                   | 12.96                   | 4.03               | 16.99      |            |
|                 | 5725~5850         |                                   | 12.95                   | 3.84               | 16.79      |            |
| 11n<br>HT40     | 5150~5250         |                                   | 9.39                    | 4.03               | 13.42      |            |
|                 | 5725~5850         |                                   | 9.34                    | 3.84               | 13.18      |            |
| Modulation type |                   | 64QAM, 16QAM, QPSK, BPSK for OFDM |                         |                    |            |            |

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## 2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

| Frequency Range (MHz)                               | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Averaging Time (minute) |
|---|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| Limits for General Population/Uncontrolled Exposure |                               |                               |                                     |                         |
| 0.3-1.34  | 614                           | 1.63                          | *(100)                              | 30                      |
| 1.34-30   | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 30                      |
| 30-300  | 27.5                          | 0.073                         | 0.2                                 | 30                      |
| 300-1500  | /                             | /                             | f/1500                              | 30                      |
| 1500-15000  | /                             | /                             | 1.0                                 | 30                      |

f = frequency in MHz

\* = Plane-wave equipment power density

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## 2.2 Power Density Calculation (Worst Case)

| Operation Mode | Evaluation Frequency (MHz) | Operation Distance (cm) | Max. output Power (dBm) | Antenna Gain (dBi) | Max. output Power EIRP (mW) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Pass / Fail |
|----------------|----------------------------|-------------------------|-------------------------|--------------------|-----------------------------|-------------------------------------|-----------------------------|-------------|
| WLAN 2.4G      | 2442.00                    | 20                      | 13.89                   | 4.79               | 73.79                       | 0.015                               | 1.000                       | Pass        |
| WLAN 5G        | 5180.00                    | 20                      | 13.98                   | 4.03               | 63.24                       | 0.013                               | 1.000                       | Pass        |

**Note:** For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.

The 2.4GHz WLAN can not be simultaneous transmitting with both 5GHz WLAN and UWB.

*~ End of Report ~*

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