European RF Exposure Declaration

In case no RF exposure evaluation or SAR testing was performed, this form should be submitted.
To: The Notified Body

We, **(company name):** Ocean Sigal Ltd.

Address: Unit 4, Ocivan Way, Margate, CT9 4NN, United Kingdom

declare that our brand(s): ..... **Type designation(s) (model(s)):** ATA100, AISLink CA2

submitted by means of this application, is/are in compliance with the RF exposure requirements as mandated by the laws of the European Union laid down in directive 2014/53/EU and corresponding permissible exposure limits laid down in council recommendation 1999/519/EC.

The average equivalent isotropic radiated power is the average conducted output power of the transmitter, incorporating the maximum antenna gain and duty cycle. For this device, the following values were obtained[1]:

P (conducted, mW) = 5000 mW **Duty cycle (δ , %) =** 0.5 % **Max. Antenna gain =** 3 **dBi**
P (average, eirp, mW) = ...mW

Please select one of the two boxes and complete the empty lines:

☐ **1.** According to the above calculation, the P (average, eirp, mW) is less than 20mW and therefore the product is deemed to comply with ☐ EN50371 or ☐ EN 62479

☒ **2.** This device is a NOT a portable device, but a mobile device, and meets the human exposure requirements according to: ☐ EN50385/EN50383 for radio base stations and fixed terminal stations, **or**
☒ EN62311 for electronic and electrical equipment.

Method used:

a. The maximum permissible exposure (MPE) is calculated (**far-field**) by Friis' formula **P(average, eirp, mW)*(4 π *d²)⁻¹** (power density).
At user distance **d =** 20 **cm**, the power density is 0.01 **mW/cm²**.
The **limit specified** for the ☒ general public or ☐ occupational workers ***(tick what is applicable)*** at frequency **f=** 162 **MHz** is 2 **mW/cm²**.

OR

b. The actual calculated **E-field strength** is 6.3 **V/m.**
The limit for the applicable frequency 162 **MHz** is 28 **V/m**

Hence, this device is emitting under the specified limit and therefore in compliance with the RF exposure requirements.

Name + surname of applicant (or authorized representative): David Sheekey

Date: 22/01/2020
Phone / Fax: +44 (0)1843 282930
E-mail: David.sheekey@oceansignal.com
Signature: D C Sheekey

1) if more than one simultaneous transmit signal, calculate the collective power on a separate form.

Calculation of average power for SAR Evaluation.

	Tx time(s)	Tx/minute	Duty Cycle
AIS Transmissions:	0.026 s	12	0.53%

AIS transmissions are in the band 156.000 MHz to 162.025 MHz. From this we can calculate the power flux as follows, assuming a typical antenna gain of 3dBi and a safe distance of 0.2 metres

Power Flux	$S = PG(\Theta,\Phi)/4\pi r^2$	*0.1056 W/sq m* 0.01 mW/sq cm
E Field	$E = (30PG(\Theta,\Phi)^{½}/r$	6.31 V/m
H Field	$H = E/\eta_0$	0.017 A/m

WiFi transmissions:

From module test report by TA Technology (Shanghai) Co.., Ltd, report number RXA1503-0042MPE01 the maximum radiated power in the 802.11b, 802.11g and 802.11n bands is 322 mW, including contribution of the 1.58dBi antenna gain. At a safe distance of 0.2 metres, the power flux is lower than the requirement of 1mW/cm^2).

Power Flux	$S = PG(\Theta,\Phi)/4\pi r^2$	*0.5725 W/sq m* 0.06 mW/sq cm
E Field	$E = (30PG(\Theta,\Phi)^{½}/r$	14.69 V/m
H Field	$H = E/\eta_0$	0.039 A/m