



08 May 2019

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To whom it may concern,

This letter is in reference to the FCC/IC certification of the product VIPHIBTGPS (henceforth referred to as Seadoo). The Seadoo is a variant of another previously certified product. This previous product, VIPHI2BT (henceforth referred to as Spyder), has a few differences which are outlined below.

The VIPHI2BT was originally granted FCC/IC certification on 1/16/2018.

The Seadoo has the following added features:

- GPS functionality
- HW Generation G07 (Spyder certified with G06)

The Seadoo has the following removed features:

- 1 of 2 BT chips
- FM functionality
- Digital outputs

The differences between the G06 and the G07 HW generation is outlined below:

- 5V0 regulator output resistor values changed to tune output to exactly 5V
- Display backlight feedback resistors changed to provide more accurate feedback current reading
- Diode on analog input 1 removed because component was leaking current. Fuel level can now be more accurately read at low fuel levels
- Diodes on digital sense changed to 5V1, this allows for greater range of currents to be read by feedback loop
- 5V0 output changed to having a dedicated regulator to reduce stress on the system
- Snubber circuit implemented on low side switches to reduce noise



- High side switches 2 and 3 were changed to a different part number in the same family, this allows for a higher current reading on the ADC channels
- High side switch 1 IC was changed to match switch 2 and 3
- Light sensor resistor value change, allows for full range of lux before op-amp saturation
- CAN termination resistor added to PCB (was previously external on vehicle)
- 1kOhm pull up resistor was added in audio mute signal, this holds off the signal high during the off state

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Because we have added a GPS chip to the Seadoo variant, we have performed all previous EMC/Radio testing over to ensure that the Seadoo continues to be representative and applicable to the requested standards. Our customer EMC reports can be made available if requested.

If there are any other questions on this topic, please feel free to contact me.

Yours sincerely,

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