# Co-located, co-transmitting RF exposure evaluation
# No. 802396

The purpose of this permissive change filing is to demonstrate that general population RF exposure compliance requirements are met for a specific configuration of the manufacturer's WLAN module FCC ID: RYK-WL850R and a Bluetooth radio module FCC ID: QOQWT11, as installed in the GeoROG mobile display system manufactured by Svensk Byggnadsgeodesi AB or Leica Geosystems AG.

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## CALCULATIONS

The GeoROG mobile display contains two integrated radio modules, WLAN type Elcard RA8 and Bluetooth Bluegiga WT11-E. The radio modules have both been modified with a new antenna, Kinsun 6602303081-000 with an maximum antenna gain of +2 dBi. The manual specifies that the operator shall not be closer than (r) 0,2 m to the transmitting antennas.

A worst case calculation is as follows:

$$S = \frac{EIRP}{4 \times \pi \times r^2}$$

$S_{WLAN}$ = 126,7 mW/ ( 4 x π x $20^2$ ) = 0.025 mW/$cm^2$

$S_{BT}$ = 34,9 mW/ ( 4 x π x $20^2$ ) = 0.0069 mW/$cm^2$

The limit for General Population/Uncontrolled Exposure according to Supplement C to OET Bulletin 65 for power density at 2450 MHz is 1.0 mW/$cm^2$.

The sum of these power densities relative to the respective MPE limits is:

0.025 mW/$cm^2$/1 mW/$cm^2$ + 0.0069 mW/$cm^2$/1 mW/$cm^2$ = 0.0319, which is well below the relative MPE limit of 1.

Therefore, this configuration of radio modules, as installed in the GeoROG mobile display, meets the relevant MPE exposure limits when the final system is installed and used in accordance with the manufacturer's instructions.

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