

MPE/RF EXPOSURE REPORT

FROM



Evaluation of: Alereon Inc.–Camouflage (AL5955),
Commander (AL5930) and Combat (AL5934)

To: FCC CFR 47 Part 1.1310

Report Serial No.: ALER01-U2 MPE Rev A

This report supersedes: NONE

Applicant: Alereon Inc.
10800 Pecan Park Blvd, STE 100
Austin, TX 78750
USA

Product Function: UWB Module with Parallel/Serial USB
interface

Issue Date: 12th December 2018

This Report is Issued Under the Authority of:

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MAXIMUM PERMISSABLE EXPOSURE

Calculations for Maximum Permissible Exposure Levels

$$\text{Power Density} = P_d \text{ (mW/cm}^2\text{)} = \text{EIRP}/(4*\pi*d^2)$$

$$\text{EIRP} = P * G$$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

$$\text{Numeric Gain} = 10 \wedge (\text{G (dBi)}/10)$$

The calculations in the table below use the highest conducted power values specified for the EUT. These calculations represent worst case in terms of the exposure levels. As the 3 units use the same RF Chipset with the same antenna, the MPE values are the same for each unit tested. Only one MPE value is reported.

Maximum Permissible Exposure

| Freq. Band (MHz) | Ant Gain (dBi) | Numeric Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Calculated Power Density (mW/cm ²) @ 20cm | Power Density Limit (mW/cm ²) | Min Calculated safe distance for Limit (cm) |
|------------------|----------------|------------------------|-------------------------|------------------------|-------------------------------------------------------|-------------------------------------------|---------------------------------------------|
| 3168.0 – 8976.0 | 0.2 | 1.05 | -41.5 | 7.05E-05 | 1.47E-08 | 1.0 | 0.00 |

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Specification - Maximum Permissible Exposure Limits

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|----------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposure | | | | |
| 0.3-3.0 | 614 | 1.63 | *100 | 6 |
| 3.0-30 | 1842/f | 4.89/f | *900/f ² | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1,500 | -- | -- | f/300 | 6 |
| 1,500-100,000 | -- | -- | 5 | 6 |
| (B) 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 ² | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1,500 | -- | -- | f/1500 | 30 |
| 1,500-100,000 | -- | -- | 1.0 | 30 |

f = frequency in MHz * = Plane-wave equivalent power density

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