



MPE/RF EXPOSURE TEST REPORT

FCC CFR 47 Part 1.1310

Report No.: ALER02 MPE Rev A

Company: Alereon Inc.

Model Name: AL5932 Catapult

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To: FCC CFR 47 Part 1.1310

Test Report Serial No.: ALER02 MPE Rev A

This report supersedes: NONE

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

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This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com



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1. MAXIMUM PERMISSIBLE 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 together with the lowest antenna gain specified for the EUT. These calculations represent worst case in terms of the exposure levels.

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 @ 1mW/cm ²	Calculated Power Density (mW/cm ²) @ Safe Distance
3100-10600	0.00	1.00	-41.3	7.41E-05	1.5E-08	1.00	2.43E-03	1.00

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification - Maximum Permissible Exposure Limits

The Limit is defined in Table 1 of FCC §1.1310.

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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