The Nebraska Center for Excellence in Electronics
4740 Discovery Drive
Lincoln, NE 68521
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RF Exposure

Applicant: Appareo Systems, LLC
Device: Stratus ESG

Reference: CFR 47 FCC Part 1.1310

Description: Measurements taken direct from antenna port.

All measurements were peak power measurements were taken from NCEE Labs test report R20151016-21-01

Limits: Maximum exposure limits from CFR 47, FCC Part 1.1310:

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

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Table 2 - Calculations according to CFR 47, Part 1.1310, Table 1(B)

Occupational/Controlled	0
General Population/uncontrolled	1

Transmitter	Frequency	Antenna Gain	Power (conducted)	Peak Power Density	Duty Cycle	Average Power Density	Limit at specified distance	% of limit	Total
	MHz	numeric al	mW	mW/cm^2	On time/off time	mW/cm^2	mW/cm^2		
1	1090	1	308320.00	27.28	0.021	0.57	0.73	78.82%	78.82%
								TOTAL	78.82%

Distance	30	cm	PASS?	YES

Average power is used to compare to limit

Calculations

The power density is calculated as shown below:

S = (P x G)/(4 x π x d^2) – used to calculate exposure at 20 cm

d = √(S/(P x G) x 4 X π) – used to calculate minimum distance to meet limits

S= power density
P = transmitter conducted power (in mW)
G = antenna numeric gain (used 1 for EIRP)
D = distance to radiation center (20 cm)

Notes: The minimum separation distance was defined as the closest point from the transmitting antenna to any part of the body or extremity of a user or bystander.

This equipment is not intended to be operated by hand. The antenna will be located outside of an aircraft while the user is inside the aircraft. It is expected that a 100cm separation will be maintained at all times.

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