Rhein Tech Laboratories, Inc.
360 Herndon Parkway
Suite. 1400
Herndon, VA 20170
http://www.rheintech.com

Client: VEGA Grieshaber KG
Model: VEGAPULS 69
FCC ID: O6QPS60XW1
Standard: Part 15C
Project #: 2014196

Appendix A: RF Exposure Compliance FCC Rules and Regulations Part 1.1307, 1.1310, 2.1091, 2.1093

1. General Information

Environment: General Population/Uncontrolled Exposure
Device category: Level Probing Radar
Modulation Type/Mode: Pulsed Radar

2. Operating Configurations and Test Conditions

Antenna Type	Highest Gain Antenna Used (dBi)	Numeric Gain	Highest 50 MHz EIRP Power (Watt)	Highest 50 MHz ERP Power (Watt)
Plastic	33.8	2400	0.575	0.00024

3. MPE Calculation

The maximum distance from the antenna at which MPE is met or exceeded, is calculated from the equation relating field strength E in V/m, transmit power P in Watts, transmit antenna numeric gain G, and separation distance in meters. The limit for general population/uncontrolled exposure from 1500-100000 MHz is 1mW/cm^2 or 10W/m^2. The Electric field generated for a 1 mW/cm^2 exposure (S) is calculated as follows:

$$S = \frac{E^2}{Z} \quad \text{or} \quad E = \sqrt{S \cdot Z} = \sqrt{10 \cdot 377} = 61.4 \text{ V/m}$$

where:
S = Power density (W/m)
E = Electric field (V/m)
Z = Impedance of free space (377 ohms)

MPE Calculation solving for distance (d):

$$E = \frac{\sqrt{30 \cdot P \cdot G}}{d} \quad \text{or} \quad d = \frac{\sqrt{30 \cdot P \cdot G}}{E} = \frac{\sqrt{30 \cdot 2.4E^{-4} \cdot 2400}}{61.4} = 0.07m$$

where:
E = Electric field (V/m)
P = Power (W)
G = Antenna numeric gain
d = distance (m)

Separation Distance = 7 cm

Additionally, the power density at 20 cm is: $S = \frac{E(V/m)^2}{377} \div 10 = 0.21mW/cm^2$

4. Conclusion

The device complies with the MPE requirements by providing a safe separation distance between the antenna, including any radiating structure, and any persons.