

Groenlo, 23 September 2015

Declaration on radiation safety standard conformance

Return address: PO Box 6, 7140 AA Groenlo, The Netherlands

American Certification Body
Certification Department
6731 Whittier Avenue, Suite C110
McLean, Virginia 22101
USA

We, N.V. Nederlandsche Apparatenfabriek "Nedap", declare that the following product:

Description : Long-range vehicle identification tag operating on 433 MHz
FCC ID : CGDTAGULTI01
Manufacturer : N.V. Nederlandsche Apparatenfabriek "Nedap"
Brand : Nedap
Model : WINDOW TAG ULTIMATE

The measured field strength at 433 MHz is 80.42 dB μ V/m @ 3 m distance.

$$E_{lim} = 20 \times \log_{10}\left(\frac{\sqrt{30P_{lim}}}{d}\right) + 120$$

Where:

E_{lim} = electric field strength limit, in dB (μ V/m)
 P_{lim} = EIRP limit, in watts
 d = measurement distance, in meters

$$80.42 = 20 \log_{10}\left(\frac{\sqrt{30P_{lim}}}{3}\right) + 120 \gggg - 39.58 = 20 \log_{10}\left(\frac{\sqrt{30P_{lim}}}{3}\right) \gggg -1.979 = \log_{10}\left(\frac{\sqrt{30P_{lim}}}{3}\right)$$

$$0.016 = \frac{\sqrt{30P_{lim}}}{3} \gggg P_{lim} = 76 \mu W$$

has a rated RF power of 76 μ W, which means that the worst case prediction of power density (100% reflection) at 20 cm distance (worst case) can be calculated as follows:

$$S = \frac{EIRP}{4 * \pi * R^2} \quad (\text{power density without reflection})$$

$$S = \frac{2^{2*} EIRP}{4 * \pi * R^2} \quad (\text{power density with 100% reflection})$$

$$S = \frac{2^{2*} EIRP}{4 * \pi * R^2} = \frac{0.076mW}{\pi * (20cm)^2} = 0.06 \mu W/cm^2 \quad (\text{Limit} = 457 \mu W/cm^2)$$

NOTE: At 2.3 mm the limit value is exceeded.

Yours Sincerely
N.V. Nederlandsche Apparatenfabriek "Nedap"

Jacques A.M. Hulshof
Approval officer

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