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Viareggio October 13th, 2020

Object: RF exposure info for R1270C - Quark Up - 500mW UHF RFID Ultra Compact Module
FCC ID: UVECAENRFID015

Prediction of Maximum Permissible Exposure (MPE) limit at a given distance has been performed according to Prediction Methods described in Section 2 of OET Bulletin 65, Edition 97-01.

$$\frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

MPE limit has been calculated according to General Population/Uncontrolled rules referring to the new configurations approved with Class II permissive change.

1) Antenna CAEN RFID P.N. WANT021XAUFL

Frequency (MHz)	902
MPE limit (mW/cm^2)	0.60
Maximum conducted power (mW)	500
Maximum conducted power (dBm)	27.0
Antenna gain (dBi)	0.73
Maximum EIRP (dBm)	27.7
Maximum EIRP (mW)	591.5
Prediction distance (cm)	20
Maximum power density at prediction distance (mW/cm^2)	0.118
Maximum antenna allowable gain (dBi)	7.81

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2) Antenna CAEN RFID P.N. WANT021XAUFL and RF switch Analog Devices P.N.HMC544AE (insertion loss 0.25dB typical).
The maximum RF conducted power has been assumed 26.75dBm including the insertion loss of the switch.

Frequency (MHz)	902
MPE limit (mW/cm^2)	0.60
Maximum conducted power (mW)	473
Maximum conducted power (dBm)	26.75
Antenna gain (dBi)	0.73
Maximum EIRP (dBm)	27.5
Maximum EIRP (mW)	560
Prediction distance (cm)	20
Maximum power density at prediction distance (mW/cm^2)	0.111
Maximum antenna allowable gain (dBi)	8.06

3) Antenna CAEN RFID P.N. WANT021XASMA and RF switch Analog Devices P.N.HMC544AE (insertion loss 0.25dB typical).
The maximum RF conducted power has been assumed 26.75dBm including the insertion loss of the switch.

Frequency (MHz)	902
MPE limit (mW/cm^2)	0.60
Maximum conducted power (mW)	473
Maximum conducted power (dBm)	26.75
Antenna gain (dBi)	0.73
Maximum EIRP (dBm)	27.5
Maximum EIRP (mW)	560
Prediction distance (cm)	20
Maximum power density at prediction distance (mW/cm^2)	0.111
Maximum antenna allowable gain (dBi)	8.06

4) Antenna CAEN RFID P.N. 7R1251IUNFAA

Frequency (MHz)	902
MPE limit (mW/cm^2)	0.60
Maximum conducted power (mW)	500
Maximum conducted power (dBm)	27.0
Antenna gain (dBi)	-8.0
Maximum EIRP (dBm)	19.0
Maximum EIRP (mW)	79.2
Prediction distance (cm)	20
Maximum power density at prediction distance (mW/cm^2)	0.016
Maximum antenna allowable gain (dBi)	7.81

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5) Antenna IER P.N. S33303A

Frequency (MHz)	902
MPE limit (mW/cm^2)	0.60
Maximum conducted power (mW)	500
Maximum conducted power (dBm)	27.0
Antenna gain (dBi)	-20.0
Maximum EIRP (dBm)	7.0
Maximum EIRP (mW)	5.0
Prediction distance (cm)	20
Maximum power density at prediction distance (mW/cm^2)	0.001
Maximum antenna allowable gain (dBi)	7.81