

**RF EXPOSURE INFORMATION****Arc Mobile Control Adapter**

HW version: 1.0

SW version: 1.0

Version 1.0 Draft

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**Kemppi Oy**

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## 1 MPE limit for uncontrolled exposure at prediction frequency

For Bluetooth 1 mW/cm<sup>2</sup> , frequency range 1.5 – 100 GHz

For NFC 
$$S = \frac{180}{f[\text{MHz}]^2} = \frac{180}{13.56^2} = 0.98 \mu\text{W}/\text{cm}^2$$
 , frequency 13.56 MHz

Reference to OET Bulletin 65, ed. 97-01, page 73

Appendix A, Table 1, B, page 67

(B) Limits for General Population/Uncontrolled Exposure

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## 2 Prediction of MPE limit at a given distance for Bluetooth

### 2.1 Power density

Product category "Mobile device"

$$S = \frac{EIRP}{4\pi r^2}$$

where

EIRP	9.5 dBm = 8.9 mW
Prediction distance r	0.20 m
Time averaging	100 %
Prediction frequency	2450 MHz
Power density at prediction frequency	0.018 W/m <sup>2</sup>
	equals to <b>0.0018 mW/cm<sup>2</sup></b>

MPE limit for uncontrolled exposure	1 mW/cm <sup>2</sup>
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### 2.2 Duty cycle and duty factor

According to manufacturer's test specification:

	Duty cycle	Duty factor
Basic rate	77.93 %	1.08 dB
EDR	77.87 %	1.09 dB

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### 3 Prediction of MPE limit at a given distance for NFC

#### 3.1 Power density

$$S = \frac{EIRP}{4\pi r^2}$$

where

EIRP		4.9 dBμA/m@10m
	equals to	-28.4 dBm
	equals to	0.0015 mW
Prediction distance r		0.20 m
Time averaging		100 %
Prediction frequency		13.56 MHz
Power density at prediction frequency		2.98 μW/m <sup>2</sup>
	equals to	<b>0.298 nW/cm<sup>2</sup></b>

MPE limit for uncontrolled exposure		97.9 μW/cm <sup>2</sup>
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#### 3.2 E/H field strength

H-field strength		4.9 dBμA/m@10m
	equals to	<b>1.8 μA/m</b>
E-field strength		56.4 dBμV/m@10m
	equals to	<b>661 μV/m</b>

Prediction frequency		13.56 MHz
Time averaging		100%

MPE limit for uncontrolled exposure		
H-field limit = 2.19/f =		162 mA/m
E-field limit = 824/f =		60.8 V/m

Reference to OET Bulletin 65, ed. 97-01, page 73

Appendix A, Table 1, B, page 67

(B) Limits for General Population/Uncontrolled Exposure

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