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# MPE REPORT

for

Shandong Mingwah Aohan Smart Tech Co., Ltd.

UHF RFID Reader and Writer

Model No.:MS-9601H, MS-9801H, MS-9211H, MS-9814H

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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 <sup>2</sup> )	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0 .....	614	1.63	*(100)	6
3-30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300 .....	61.4	0.163	1.0	6
300-1500 .....	.....	.....	<u>f/300</u>	6
1500-100,000 .....	.....	.....	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 <sup>2</sup> )	30
30-300 .....	27.5	0.073	0.2	30
300-1500 .....	.....	.....	<u>f/1500</u>	30
1500-100,000 .....	.....	.....	1.0	30

Note 1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully Aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provide he or she is made aware of the potential for exposure.

Note 2. General population/uncontrolled exposure apply in situations in which the general public may be exposed or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

## RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in OET Bulletin 65 is used in the calculation.

Equation from OET Bulletin 65, Edition 97-01 is:

$$S = PG / 4\pi R^2$$

Where: S=power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P=power input to the antenna (in appropriate units, e.g. mW)

G=power gain of the antenna in the direction or interest relative to an isotropic radiator.

R=distance to the center of radiation of the antenna (appropriate unit, e.g., cm)

$$R=20\text{cm}, \pi=3.1416$$

Frequency (MHz)	Conduct Power (dBm/mW)	Gain of antenna (dBi)	Test Result (mW/cm <sup>2</sup> )	Limit Value (mW/cm <sup>2</sup> )
902.5	20.88/122	7	0.1699	1

Note: For mobile or fixed location transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

**Result: Pass**