

## 5.7 Maximum Permissible Exposure (MPE)

For test instruments and accessories used see section 6 Part **CPC 3**.

### 5.7.1 Description of the test location

Test location: AREA4

### 5.7.2 Photo documentation of the test set-up



### 5.7.3 Applicable standard

According to FCC Part 15 Subpart 15.407 (f): U-NII devices are subject to the radio frequency radiation exposure requirements specified in §§ 1.1307 (b), 2.1091 and 2.1093 of this chapter, as appropriate.

The test methods used comply with ANSI/IEEE C95.1-1992, "IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz".

This test report shows the compliance with the limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and the criteria to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in FCC 1.1307(b).

### 5.7.4 Description of Measurement

The maximum total power input to the antenna has been measured conducted as described in clause 5.3 of this document. Through the Friis transmission formula, the known maximum gain of the antenna and the maximum power can be calculated the MPE in a defined distance away from the product.

Friis transmission formula: 
$$P_d = \frac{P_{out} * G}{4 * \pi * r^2}$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna (linear scale)

r = distance between antenna and observation point [cm]

The EUT is according to FCC Rules 47CFR 2.1093(b) no portable device. The EUT is designed to be used that radiating structures are outside of 20 cm of the body of the user. (r = 20 cm)

### 5.7.5 Compliance regarding co-location and co-transmission

The EUT as client supports the DFS and therefore the RDF function of a master-device. If there would be any co-location or co-transmission issue a channel move to a non occupied channel happens controlled by the master-device.

### 5.7.6 Test result

Standard 802.11a

**Worst case:** Antenna ANT795-6DN with an antenna gain of 9 dBi, Power setting: -6

Channel No.	Frequency	Max power output at antenna EIRP		Antenna gain	Power density	Limit of power density
	[MHz]	[dBm]	[mW]	[dBi]	[mW/cm <sup>2</sup> ]	[mW/cm <sup>2</sup> ]
36	5180	22.9	194	9	0.039	1.0
48	5240	20.9	123	9	0.025	1.0

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]
<b>(B) Limits for General Population / Uncontrolled Exposure</b>				
0.3 – 3.0	614	1.63	100	30
3.0 – 30	824/f	2.19/f	180/ f <sup>2</sup>	30
30 - 300	27.5	0.073	0.2	30
300-1500	---	---	f/1500	30
<b>1500-100000</b>	---	---	<b>1.0</b>	<b>30</b>

f = Frequency in MHz

The requirements are **FULFILLED**.

**Remarks:** \_\_\_\_\_