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# Report On

RF Exposure Assessment of the Siemens AG MSN65-W1-M12-E2  
802.11 a/b/g/n Wi-Fi Access Point.

FCC ID: LYHMSN65V1

IC: 267AA-MSN65V1



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TÜV SÜD Product Service, Octagon House, Concorde Way, Segensworth North,  
Fareham, Hampshire, United Kingdom, PO15 5RL  
Tel: +44 (0) 1489 558100. Website: [www.tuv-sud.co.uk](http://www.tuv-sud.co.uk)

**REPORT ON**

RF Exposure Assessment of the Siemens AG MSN65-W1-M12-E2  
802.11 a/b/g/n Wi-Fi Access Point.

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**PREPARED FOR**

Siemens AG  
76181  
Karlsruhe  
Germany

**PREPARED BY**

A handwritten signature in black ink that reads 'David Guyett-Smith'.

**David Guyett-Smith**  
Chief Safety Engineer - Technical Solutions

**APPROVED BY**

A handwritten signature in blue ink that reads 'Ryan Henley'.

**Ryan Henley**  
Authorised Signatory

**DATED**

29 June 2017



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## **SECTION 1**

### **REPORT SUMMARY**

RF Exposure Assessment of the  
Siemens AG MSN65-W1-M12-E2 802.11 a/b/g/n Wi-Fi Access Point.



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## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the RF Exposure Assessment of the Siemens Karlsruhe MSN65-W1-M12-E2 802.11 a/b/g/n Wi-Fi Access Point. EUT can be operated in either Master or Client mode depending on firmware configuration. EUT supports 20 MHz and 40 MHz bandwidths and 2x2 MIMO data rates (MCS0-7 and MCS 8-15), to the requirements of the applied test specifications.

Objective	To perform RF Exposure Assessment to determine the Equipment Under Test's (EUT's) compliance of the applied rules.
Applicant	Siemens Karlsruhe
Manufacturer	Siemens AG
Manufacturing Description	802.11 a/b/g/n Wi-Fi Access Point. EUT can be operated in either Master or Client mode depending on firmware configuration. EUT supports 20 MHz and 40 MHz bandwidths and 2x2 MIMO data rates (MCS0-7 and MCS 8-15).
Model Number(s)	MSN65-W1-M12-E2
Test Specification/Issue/Date	EN 62311:2008 CFR 47 Pt1.1310 (2016) Health Canada Safety Code 6 ARPANSA Radiation Protection Series No.3



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## 1.2 REGIONAL REQUIREMENTS

The table below shows the regional requirements that are referenced in this test report. A full list of the requirements is shown in Annex A.

Report Reference	Regional Requirement
EU	EN 62311:2008
FCC	CFR 47 Pt1.1310 (2016)
IC	Health Canada Safety Code 6
AUS	ARPANSA Radiation Protection Series No.3



### 1.3 PRODUCT INFORMATION

#### 1.3.1 Technical Description

The Equipment under test was a Siemens Karlsruhe MSN65-W1-M12-E2 802.11 a/b/g/n Wi-Fi Access Point. EUT can be operated in either Master or Client mode depending on firmware configuration. EUT supports 20 MHz and 40 MHz bandwidths and 2x2 MIMO data rates (MCS0-7 and MCS 8-15). A full technical description can be found in the manufacturer's documentation.

All reported calculations were carried out on the relevant information supplied for the MSN65-W1-M12-E2 802.11 a/b/g/n Wi-Fi Access Point to demonstrate compliance with the applied test specification(s). The sample assessed was found to comply with the requirements of the applied rules.

#### 1.3.2 Supported Features

The following radio access technologies and frequency bands are supported by the equipment under test.

Radio Access Technology	2.4 GHz WLAN
	5 GHz WLAN
Frequency Band	2400
	5000

#### 1.3.3 Antennas

The following antennas are supported by the equipment under test.

No.	Model	Gain (dBi)
1	ANT795-4MX	2
2	ANT792-6MN	6
3	ANT795-6DC	9
4	ANT795-6MT	6
5	ANT793-6DG	9
6	ANT793-8DK	14.2

#### 1.3.4 EUT Configurations

- 2.4 GHz - ANT795-4MX
- 2.4 GHz - ANT792-6MN
- 2.4 GHz - ANT795-6DC
- 5 GHz - ANT795-6MT
- 5 GHz - ANT793-6DG
- 5 GHz - ANT793-8DK



## 1.4 BRIEF SUMMARY OF RESULTS

The wireless device described within this report has been shown to be capable of compliance with the basic restrictions related to human exposure to electromagnetic fields for both General Public and Occupational. The calculations shown in this report were made in accordance with the procedures specified in the applied test specification(s).

Configuration	Required Compliance Boundary (m)	
	Occupational	General Population
ANT795-4MX	0.2	0.2
ANT792-6MN	0.2	0.2
ANT795-6DC	0.2	0.2
ANT795-6MT	0.2	0.2
ANT793-6DG	0.2	0.2
ANT793-8DK	0.2	0.2

**Table 1 – Compliance Boundary Results**

### 1.4.1 Configuration 1 - ANT795-4MX

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.0792	50.0000	5.4643	137.0000	0.0145	0.3600
FCC*	0.0079	5.0000	N/A	N/A	N/A	N/A
IC	0.0792	31.7019	5.4643	109.3249	0.0145	0.2900
AUS	0.0792	50.0000	5.4643	137.0000	0.0145	0.3640

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 2 – Occupational Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.0792	10.0000	5.4643	61.0000	0.0145	0.1600
FCC*	0.0079	1.0000	N/A	N/A	N/A	N/A
IC	0.0792	5.3660	5.4643	44.9743	0.0145	0.1193
AUS	0.0792	10.0000	5.4643	61.4000	0.0145	0.1630

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 3 – General Population Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.





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**1.4.2 Configuration 2 - ANT792-6MN**

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.1989	50.0000	8.6603	137.0000	0.0230	0.3600
FCC*	0.0199	5.0000	N/A	N/A	N/A	N/A
IC	0.1989	31.7019	8.6603	109.3249	0.0230	0.2900
AUS	0.1989	50.0000	8.6603	137.0000	0.0230	0.3640

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 4 – Occupational Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.1989	10.0000	8.6603	61.0000	0.0230	0.1600
FCC*	0.0199	1.0000	N/A	N/A	N/A	N/A
IC	0.1989	5.3660	8.6603	44.9743	0.0230	0.1193
AUS	0.1989	10.0000	8.6603	61.4000	0.0230	0.1630

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 5 – General Population Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.



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### 1.4.3 Configuration 3 - ANT795-6DC

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.1989	50.0000	8.6603	137.0000	0.0230	0.3600
FCC*	0.0199	5.0000	N/A	N/A	N/A	N/A
IC	0.1989	31.7019	8.6603	109.3249	0.0230	0.2900
AUS	0.1989	50.0000	8.6603	137.0000	0.0230	0.3640

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 6 – Occupational Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.1989	10.0000	8.6603	61.0000	0.0230	0.1600
FCC*	0.0199	1.0000	N/A	N/A	N/A	N/A
IC	0.1989	5.3660	8.6603	44.9743	0.0230	0.1193
AUS	0.1989	10.0000	8.6603	61.4000	0.0230	0.1630

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 7 – General Population Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.



**1.4.4 Configuration 4 - ANT795-6MT**

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.7920	50.0000	17.2795	137.0000	0.0458	0.3600
FCC*	0.0792	5.0000	N/A	N/A	N/A	N/A
IC	0.7920	46.4581	17.2795	132.3448	0.0458	0.3511
AUS	0.7920	50.0000	17.2795	137.0000	0.0458	0.3640

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 8 – Occupational Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.7920	10.0000	17.2795	61.0000	0.0458	0.1600
FCC*	0.0792	1.0000	N/A	N/A	N/A	N/A
IC	0.7920	9.0471	17.2795	58.3973	0.0458	0.1549
AUS	0.7920	10.0000	17.2795	61.4000	0.0458	0.1630

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 9 – General Population Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.



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### 1.4.5 Configuration 5 - ANT793-6DG

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.7920	50.0000	17.2795	137.0000	0.0458	0.3600
FCC*	0.0792	5.0000	N/A	N/A	N/A	N/A
IC	0.7920	46.4581	17.2795	132.3448	0.0458	0.3511
AUS	0.7920	50.0000	17.2795	137.0000	0.0458	0.3640

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 10 – Occupational Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	0.7920	10.0000	17.2795	61.0000	0.0458	0.1600
FCC*	0.0792	1.0000	N/A	N/A	N/A	N/A
IC	0.7920	9.0471	17.2795	58.3973	0.0458	0.1549
AUS	0.7920	10.0000	17.2795	61.4000	0.0458	0.1630

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 11 – General Population Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.



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**1.4.6 Configuration 6 - ANT793-8DK**

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	1.3144	50.0000	22.2603	137.0000	0.0590	0.3600
FCC*	0.1314	5.0000	N/A	N/A	N/A	N/A
IC	1.3144	46.4581	22.2603	132.3448	0.0590	0.3511
AUS	1.3144	50.0000	22.2603	137.0000	0.0590	0.3640

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 12 – Occupational Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.

Regional Requirement	Calculated RF exposure level at compliance boundary of 0.2 m					
	S Field (W/m <sup>2</sup> )		E Field (V/m)		H Field (A/m)	
	Result	Limit	Result	Limit	Result	Limit
EU	1.3144	10.0000	22.2603	61.0000	0.0590	0.1600
FCC*	0.1314	1.0000	N/A	N/A	N/A	N/A
IC	1.3144	9.0471	22.2603	58.3973	0.0590	0.1549
AUS	1.3144	10.0000	22.2603	61.4000	0.0590	0.1630

\* Requirement and Result in mW/cm<sup>2</sup>

**Table 13 – General Population Results**

The calculations show that the EUT complies with the occupational exposure levels described in EN 62311:2008, CFR 47 Pt1.1310 (2016), Health Canada Safety Code 6 and ARPANSA Radiation Protection Series No.3 at the point of investigation, 0.2 m.



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## **SECTION 2**

### **TEST DETAILS**



## 2.1 RATIONALE FOR ASSESSMENT OF THE RF EXPOSURE

The aim of the assessment report is to evaluate the compliance boundary for a set of given input power(s) according to the basic restrictions (directly or indirectly via compliance with reference levels) related to human exposure to radio frequency electromagnetic fields.

The chosen assessment method to establish the compliance boundary in the far-field region is the reference method as defined in the relevant specifications.

The RF exposure assessment is based upon the following criteria:

The MSN65-W1-M12-E2 802.11 a/b/g/n Wi-Fi Access Point. The EUT can be operated in either Master or Client mode depending on firmware configuration. The EUT supports 20 MHz and 40 MHz bandwidths and 2x2 MIMO data rates (MCS0-7 and MCS 8-15). The EUT operates with the following transmitters active on the antenna ports shown in Section 1.3.3. For each transmitter, the Radio Access Technology (RAT), EIRP inclusive of antenna gain and duty cycle, gain of the antenna and lowest frequency of operation are shown as they contribute to the calculation of S Field, E field and H field values according to the following formulas.

Note: The total EIRP figure stated is based on the declared figure assuming it is a maximum total EIRP figure in a 2x2 MIMO transmitter configuration. No simultaneous transmission calculations have been shown assuming that the 2.4 GHz and 5 GHz transmitters cannot operate at the same time.

The power flux (S Field):

$$S = \frac{PG_{(\theta, \phi)}}{4\pi r^2}$$

The electric field strength (E Field):

$$E = \frac{\sqrt{30PG_{(\theta, \phi)}}}{r}$$

The magnetic field strength (H Field):

$$H = \frac{E}{\eta_0}$$

Where:

P = Average Power (W)

G = Antenna Gain (dBi)

r = Distance (cm) or (m)

$\eta_0 = 377$



## 2.2 TEST RESULT DETAILS

The frequencies shown in the tables below have been chosen based on the lowest possible frequency that the EUT can transmit.

### 2.2.1 Configuration 1 - ANT795-4MX

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	1	WLAN	0.040	100	2	2412	0.0792	5.4643	0.0145

**Table 14 – Occupational Transmitter Summary**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	1	WLAN	0.040	100	2	2412	0.0792	5.4643	0.0145

**Table 15 – General Population Transmitter Summary**

### 2.2.2 Configuration 2 - ANT792-6MN

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	2	WLAN	0.100	100	6	2412	0.1989	8.6603	0.0230

**Table 16 – Occupational Transmitter Summary**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	2	WLAN	0.100	100	6	2412	0.1989	8.6603	0.0230

**Table 17 – General Population Transmitter Summary**

### 2.2.3 Configuration 3 - ANT795-6DC

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	3	WLAN	0.100	100	9	2412	0.1989	8.6603	0.0230

**Table 18 – Occupational Transmitter Summary**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	3	WLAN	0.100	100	9	2412	0.1989	8.6603	0.0230

**Table 19 – General Population Transmitter Summary**





**2.2.4 Configuration 4 - ANT795-6MT**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	4	WLAN	0.398	100	6	5180	0.7920	17.2795	0.0458

**Table 20 – Occupational Transmitter Summary**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	4	WLAN	0.398	100	6	5180	0.7920	17.2795	0.0458

**Table 21 – General Population Transmitter Summary**

**2.2.5 Configuration 5 - ANT793-6DG**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	5	WLAN	0.398	100	9	5180	0.7920	17.2795	0.0458

**Table 22 – Occupational Transmitter Summary**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	5	WLAN	0.398	100	9	5180	0.7920	17.2795	0.0458

**Table 23 – General Population Transmitter Summary**

**2.2.6 Configuration 6 - ANT793-8DK**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	6	WLAN	0.661	100	14.2	5180	1.3144	22.2603	0.0590

**Table 24 – Occupational Transmitter Summary**

Antenna Port	Tx No.	Ant No.	RAT	EIRP (W)	Duty Cycle (%)	Gain (dBi)	Frequency (MHz)	RF Exposure Level at compliance boundary of 0.2 m		
								S Field (W/m <sup>2</sup> )	E Field (V/m)	H Field (A/m)
1	1	6	WLAN	0.661	100	14.2	5180	1.3144	22.2603	0.0590

**Table 25 – General Population Transmitter Summary**



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## **SECTION 3**

### **DISCLAIMERS AND COPYRIGHT**



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### 3.1 DISCLAIMERS AND COPYRIGHT

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## **ANNEX A**

### **REGIONAL REQUIREMENTS**



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Frequency Range (MHz)	Power Density (W/m <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.065 - 1	-	610	1.6/f
1 - 10	-	610/f	1.6/f
10 - 400	10	61	0.162
400 - 2000	f/40	3*f <sup>0.5</sup>	0.008*f <sup>0.5</sup>
2000 - 300000	50	137	0.36

**Table A.1 – EN 62311:2008 Occupational Limits**

Frequency Range (MHz)	Power Density (W/m <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.003 - 0.15	-	87	5
0.15 - 1	-	87	0.73/f
1 - 10	-	87/f <sup>0.5</sup>	0.73/f
10 - 400	2	28	0.073
400 - 2000	f/200	1.375*f <sup>0.5</sup>	0.0037*f <sup>0.5</sup>
2000 - 300000	10	61	0.16

**Table A.2 – EN 62311:2008 General Population Limits**

Frequency Range (MHz)	S Field (mW/cm <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0 - 0.3	-	-	-
0.3 - 3	100	614	1.63
3 - 30	900/f <sup>2</sup>	1842/f	4.89/f
30 - 300	1	61.4	0.163
300 - 1500	f/300	-	-
1500 - 100000	5	-	-

**Table A.3 – CFR 47 Pt1.1310 (2016) Occupational Limits**

Frequency Range (MHz)	S Field (mW/cm <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0 - 0.3	-	-	-
0.3 - 3	100	614	1.63
3 - 30	180/f <sup>2</sup>	824/f	2.19/f
30 - 300	0.2	27.5	0.073
300 - 1500	f/1500	-	-
1500 - 100000	1	-	-

**Table A.4 – CFR 47 Pt1.1310 (2016) General Population Limits**

Frequency Range (MHz)	Power Density (W/m <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
10 - 20	10	61.4	0.163
20 - 48	44.72/f <sup>0.5</sup>	129.8/f <sup>0.25</sup>	0.3444/f <sup>0.25</sup>
48 - 100	6.455	49.33	0.1309
100 - 6000	0.6455*f <sup>0.5</sup>	15.60*f <sup>0.25</sup>	0.04138*f <sup>0.25</sup>
6000 - 150000	50	137	0.364

**Table A.5 – Health Canada Safety Code 6 Occupational Limits**

Frequency Range (MHz)	Power Density (W/m <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
10 - 20	2	27.46	0.0728
20 - 48	8.944/f <sup>0.5</sup>	58.07/f <sup>0.25</sup>	0.1540/f <sup>0.25</sup>
48 - 300	1.291	22.06	0.05852
300 - 6000	0.02619*f <sup>0.6834</sup>	3.142*f <sup>0.3417</sup>	0.008335*f <sup>0.3417</sup>
6000 - 15000	10	61.4	0.163

**Table A.6 – Health Canada Safety Code 6 General Population Limits**



Product Service

Frequency Range (MHz)	Power Density (W/m <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.1 - 1	-	614	1.63/f
1 - 10	1000/f <sup>2</sup>	614	1.63/f
10 - 400	10	61.4	0.163
400 - 2000	f/40	3.07*f <sup>0.5</sup>	0.00814*f <sup>0.5</sup>
2000 - 300000	50	137	0.364

**Table A.7 – ARPANSA Radiation Protection Series No.3 Occupational Limits**

Frequency Range (MHz)	Power Density (W/m <sup>2</sup> )	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.1 - 0.15	-	86.8	4.86
0.15 - 1	-	86.8	0.729/f
1 - 10	-	86.8/f <sup>0.5</sup>	0.729/f
10 - 400	2	27.4	0.0729
400 - 2000	f/200	1.37*f <sup>0.5</sup>	0.00364*f <sup>0.5</sup>
2000 - 300000	10	61.4	0.163

**Table A.8 – ARPANSA Radiation Protection Series No.3 General Population Limits**