Exposure Calculation Report

Apple Inc
Model: A2737

In accordance with EN 62311, FCC CFR 47 Pt 1.1310, Health Canada Safety Code 6, Australia ARPANSA RPS No.3 and New Zealand NZS 2772.1

Prepared for: Apple Inc
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S Bennett	Director Of Test Operations	Authorised Signatory	30 September 2022

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

EXECUTIVE SUMMARY
The calculation of exposure for this product was found to be compliant at a minimum distance of 20 cm with EN 62311, FCC CFR 47 Pt.1.1310, Health Canada Safety Code 6, ARPANSA RPS No.3 and New Zealand NZS 2772.1 assuming continuous exposure of 6 minutes or more. If alternative antennas are used with greater gains, the distance must be recalculated.

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Annex A Regional Requirements **A.2**

1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A2737
Hardware Version(s)	REV 1.0
Software Version(s)	-
Specification/Issue/Date	• EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz) • FCC 47 CFR Part 1.1310: 2021 • ISED Canada: Health Canada Safety Code 6:2015 • Australia: ARPANSA Radiation Protection Series No.3:2002 • NZS 2772.1:1999 Radiofrequency fields, Maximum exposure levels, 3 kHz to 300 GHz
Order Number Date	540246998 01-July-2022
Related Document(s)	• Directive 2013/35/EU on minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields). • European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), Official Journal, L199, of 1999-7-30, p.59-70. • FCC 47 CFR Part 1.1307: 2021 • OET65:97 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields • IEEE C95.3:2002 IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to Such Fields, 100 kHz–300 GHz • RSS-102 Issue 5 Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All

Frequency Bands)

- AS/NZS 2772.2:2016 Radiofrequency fields, Part 2: principles and methods of measurement and computation, 3 kHz to 300 GHz

1.3 Brief Summary of Results

The wireless device described within this report was compliant with the restrictions related to human exposure to electromagnetic fields for both general public and worker/occupational exposures at the minimum compliance distances calculated.

The calculations shown in this report were made in accordance with the procedures specified in the applied test specification(s).

1.3.1 Configuration - Single Transmitter

Regional Requirement	RAT	Calculated RF exposure level at minimum compliance boundary of 0.2 m							
		S Power Density (W/m^2)		E Field (V/m)		H Field (A/m)		B Field (µT)	
		Result	Limit	Result	Limit	Result	Limit	Result	Limit
EN	Bluetooth	0.13	N/A	7.00	140.00	0.0186	N/A	0.0233	0.4500
EN	2.4 GHz WLAN	0.13	N/A	7.11	140.00	0.0189	N/A	0.0237	0.4500
EN	5 GHz WLAN	0.37	N/A	11.75	140.00	0.0312	N/A	0.0392	0.4500
FCC	Bluetooth	0.13	50.00	7.00	N/A	0.0186	N/A	0.0233	N/A
FCC	2.4 GHz WLAN	0.34	50.00	11.27	N/A	0.0299	N/A	0.0376	N/A
FCC	5 GHz WLAN	0.37	50.00	11.75	N/A	0.0312	N/A	0.0392	N/A
Canada	Bluetooth	0.13	31.64	7.00	109.21	0.0186	0.2897	0.0233	N/A
Canada	2.4 GHz WLAN	0.34	31.70	11.27	109.32	0.0299	0.2900	0.0376	N/A
Canada	5 GHz WLAN	0.37	46.46	11.75	132.34	0.0312	0.3511	0.0392	N/A
Australia	Bluetooth	0.13	50.00	7.00	137.00	0.0186	0.3640	0.0233	N/A
Australia	2.4 GHz WLAN	0.13	50.00	7.11	137.00	0.0189	0.3640	0.0237	N/A
Australia	5 GHz WLAN	0.37	50.00	11.75	137.00	0.0312	0.3640	0.0392	N/A
New Zealand	Bluetooth	0.13	50.00	7.00	137.00	0.0186	0.3600	0.0233	N/A
New Zealand	2.4 GHz WLAN	0.13	50.00	7.11	137.00	0.0189	0.3600	0.0237	N/A
New Zealand	5 GHz WLAN	0.37	50.00	11.75	137.00	0.0312	0.3600	0.0392	N/A

Table 2 – Worker/Occupational Exposure Results

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum of 0.2 m.

Regional Requirement	RAT	Calculated RF exposure level at minimum compliance boundary of 0.2 m							
		S Power Density (W/m^2)		E Field (V/m)		H Field (A/m)		B Field (µT)	
		Result	Limit	Result	Limit	Result	Limit	Result	Limit
EN	Bluetooth	0.13	10.00	7.00	61.00	0.0186	0.1600	0.0233	0.2000
EN	2.4 GHz WLAN	0.13	10.00	7.11	61.00	0.0189	0.1600	0.0237	0.2000
EN	5 GHz WLAN	0.37	10.00	11.75	61.00	0.0312	0.1600	0.0392	0.2000
FCC	Bluetooth	0.13	10.00	7.00	N/A	0.0186	N/A	0.0233	N/A
FCC	2.4 GHz WLAN	0.34	10.00	11.27	N/A	0.0299	N/A	0.0376	N/A
FCC	5 GHz WLAN	0.37	10.00	11.75	N/A	0.0312	N/A	0.0392	N/A
Canada	Bluetooth	0.13	5.35	7.00	44.91	0.0186	0.1191	0.0233	N/A
Canada	2.4 GHz WLAN	0.34	5.37	11.27	44.97	0.0299	0.1193	0.0376	N/A
Canada	5 GHz WLAN	0.37	9.05	11.75	58.40	0.0312	0.1549	0.0392	N/A
Australia	Bluetooth	0.13	10.00	7.00	61.40	0.0186	0.1630	0.0233	N/A
Australia	2.4 GHz WLAN	0.13	10.00	7.11	61.40	0.0189	0.1630	0.0237	N/A
Australia	5 GHz WLAN	0.37	10.00	11.75	61.40	0.0312	0.1630	0.0392	N/A
New Zealand	Bluetooth	0.13	10.00	7.00	61.00	0.0186	0.1600	0.0233	N/A
New Zealand	2.4 GHz WLAN	0.13	10.00	7.11	61.00	0.0189	0.1600	0.0237	N/A
New Zealand	5 GHz WLAN	0.37	10.00	11.75	61.00	0.0312	0.1600	0.0392	N/A

Table 3 – General Public Exposure Results

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum of 0.2 m.

1.3.2 Configuration - Multiple Transmitters

Regional Requirement	Combination of RAT	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
		S Power Density	E Field	H Field	B Field
		Summation for simultaneous exposure value to be <1			
EN	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	N/A	0.0184	N/A	0.0198
EN	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	N/A	0.0163	N/A	0.0175
FCC	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0265	N/A	N/A	N/A
FCC	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0170	N/A	N/A	N/A
Canada	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0347	0.0347	0.0347	N/A
Canada	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0196	0.0196	0.0196	N/A
Australia	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0191	0.0192	0.0191	N/A
Australia	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0013	0.0013	0.0013	N/A
New Zealand	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0191	0.0192	0.0195	N/A
New Zealand	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0170	0.0170	0.0173	N/A

Table 4 – Worker/Occupational Exposure Results

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum of 0.2 m.

Regional Requirement	Combination of RAT	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
		S Power Density	E Field	H Field	B Field
		Summation for simultaneous exposure value to be <1			
EN	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0955	0.0968	0.0990	0.1000
EN	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0848	0.0859	0.0878	0.0888
FCC	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.1326	N/A	N/A	N/A
FCC	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0848	N/A	N/A	N/A
Canada	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.1934	0.1934	0.1934	N/A
Canada	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.1042	0.1042	0.1042	N/A
Australia	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0955	0.0955	0.0954	N/A
Australia	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0848	0.0848	0.0846	N/A
New Zealand	Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)	0.0955	0.0968	0.0990	N/A
New Zealand	Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)	0.0848	0.0859	0.0878	N/A

Table 5 – General Public Exposure Results

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum of 0.2 m.

1.4 Product Information

1.4.1 Technical Description

The equipment under test was an Apple TV Set Top Box with Bluetooth® and IEEE 802.11 a/b/g/n/ac/ax Wi-Fi capabilities in the 2.4GHz and 5GHz bands.

1.4.2 Transmitter Description

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

Radio Access Technology	Core	Frequency Band (MHz)	Minimum Frequency (MHz)	Output Power (dBm)	Duty Cycle (%)
Bluetooth (SISO)	0	2400-2483.5	2402	16.0	100
Bluetooth (SISO)	1	2400-2483.5	2402	16.0	100
Bluetooth (SISO)	2	2400-2483.5	2402	16.0	100
Bluetooth (TxBF)	0 and 1	2400-2483.5	2402	16.0	100
2.4 GHz WLAN (SISO)	0	2400-2483.5	2412	18.5	100
2.4 GHz WLAN (SISO)	1	2400-2483.5	2412	18.5	100
2.4 GHz WLAN (2x2 MIMO)	0 and 1	2400-2483.5	2412	18.5	100
5 GHz WLAN (SISO)	0	5150 - 5850	5180	20.0	100
5 GHz WLAN (SISO)	1	5150 - 5850	5180	20.0	100
5 GHz WLAN (2x2 MIMO)	0 and 1	5150 - 5850	5180	20.0	100

Table 6 – Transmitter Description- EN / Australia / New Zealand

Note: Transmitter power includes upper bounds of uncertainty therefore maximum values are used in accordance with Section 2.5.

Radio Access Technology	Core	Frequency Band (MHz)	Minimum Frequency (MHz)	Output Power (dBm)	Duty Cycle (%)
Bluetooth (SISO)	0	2400-2483.5	2402	16.0	100
Bluetooth (SISO)	1	2400-2483.5	2402	16.0	100
Bluetooth (SISO)	2	2400-2483.5	2402	16.0	100
Bluetooth (TxBF)	0 and 1	2400-2483.5	2402	16.0	100
2.4 GHz WLAN (SISO)	0	2400-2483.5	2412	22.5	100
2.4 GHz WLAN (SISO)	1	2400-2483.5	2412	22.5	100
2.4 GHz WLAN (2x2 MIMO)	0 and 1	2400-2483.5	2412	22.5	100
5 GHz WLAN (SISO)	0	5150 - 5850	5180	20.0	100
5 GHz WLAN (SISO)	1	5150 - 5850	5180	20.0	100
5 GHz WLAN (2x2 MIMO)	0 and 1	5150 - 5850	5180	20.0	100

Table 7 – Transmitter Description- FCC / Canada

Note: Transmitter power includes upper bounds of uncertainty therefore maximum values are used in accordance with Section 2.5.

1.4.3 Antenna Description

The following antennas are supported by the equipment under test.

Radio Access Technology	Antenna Model	Gain (dBi)	Antenna length (cm)	Minimum Separation Distance (cm)
BT Core 0	Not Specified	-1.02	3	20
BT Core 1	Not Specified	-0.21	3	20
BT Core 2	Not Specified	2.15	3	20
2.4 GHz WLAN Core 0	Not Specified	-0.21	3	20
2.4 GHz WLAN Core 1	Not Specified	-1.02	3	20
5 GHz WLAN Core 0	Not Specified	2.37	3	20
5 GHz WLAN Core 1	Not Specified	2.65	3	20

Table 8 – Antenna description

In the case of more than one type of antenna being supported by the equipment, the calculation is based on the maximum of the antenna gains. If other antennas can be used that have greater gains, the minimum separation distances will need to be recalculated.

Note: Antenna gain includes upper bounds of uncertainty therefore maximum values are used in accordance with Section 2.5.

1.4.4 Equipment Configuration

Simultaneous transmission for the following configurations;

Scenario 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)

Scenario 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)

Note: MIMO operation was confirmed as worst case compared to single antenna SISO operation.

2 Assessment Details

2.1 Assessment Method

The assessment method is by calculation of the power density S, electric field strength E, magnetic field strength H or magnetic flux density B.

The calculation uses the spherical model applicable under far field conditions and also radiating near field conditions where applicable (see Section 2.4).

$$S = E \times H = \frac{E^2}{\eta} = H^2 \times \eta = \frac{P \times G_i}{4 \times \pi \times r^2}$$

Where:
η - Impedance of free space (377 ohm in far field)
P – Average transmitter power W (P_{av} = P_{max} x Duty Cycle)
G_i – Antenna gain ratio relative to isotropic
r – Separation distance m

The magnetic flux density is related to the magnetic field strength by a constant:

$$B = \mu_o \times H$$

Where:
μ_o – Permeability of free space 4 x π E-7 H/m

This assessment assumes that exposure is continuous for 6 minutes or more in accordance with the averaging time required by the exposure standards at the stated minimum compliance boundary separation distance. Exposures of less than 6 minutes at other separation distances are not addressed by this report.

This assessment method of RF exposure is applicable to separation distances of 20 cm or more beyond the reactive near field boundary. Separation distances of less than 20 cm require a Specific Absorption Rate (SAR) assessment.

The reactive near field boundary and far field region boundary depend on the frequency and wavelength and also on the antenna dimension. The boundaries of the field regions are calculated in Section 2.4 to demonstrate the validity of using the spherical model.

The result is compared to the limits in Annex A to determine compliance or to calculate the required compliance distance. The calculation is based on the lowest frequency in each band as the most onerous requirement as the limits increase with frequency for frequencies above 10-50 MHz (dependent on region).

2.2 Individual Antenna Port Exposure Results

2.2.1 Calculation of Exposure at Specified Separation Distance

The frequencies shown in the tables below have been chosen based on the lowest possible frequency that the EUT can transmit. A full list of the regional requirements is shown in Annex A.

Regional Requirement	RAT	Calculated RF exposure level at minimum compliance boundary of 0.2 m							
		S Power Density (W/m^2)		E Field (V/m)		H Field (A/m)		B Field (µT)	
		Result	Limit	Result	Limit	Result	Limit	Result	Limit
EN	Bluetooth	0.13	N/A	7.00	140.00	0.0186	N/A	0.0233	0.4500
EN	2.4 GHz WLAN	0.13	N/A	7.11	140.00	0.0189	N/A	0.0237	0.4500
EN	5 GHz WLAN	0.37	N/A	11.75	140.00	0.0312	N/A	0.0392	0.4500
FCC	Bluetooth	0.13	50.00	7.00	N/A	0.0186	N/A	0.0233	N/A
FCC	2.4 GHz WLAN	0.34	50.00	11.27	N/A	0.0299	N/A	0.0376	N/A
FCC	5 GHz WLAN	0.37	50.00	11.75	N/A	0.0312	N/A	0.0392	N/A
Canada	Bluetooth	0.13	31.64	7.00	109.21	0.0186	0.2897	0.0233	N/A
Canada	2.4 GHz WLAN	0.34	31.70	11.27	109.32	0.0299	0.2900	0.0376	N/A
Canada	5 GHz WLAN	0.37	46.46	11.75	132.34	0.0312	0.3511	0.0392	N/A
Australia	Bluetooth	0.13	50.00	7.00	137.00	0.0186	0.3640	0.0233	N/A
Australia	2.4 GHz WLAN	0.13	50.00	7.11	137.00	0.0189	0.3640	0.0237	N/A
Australia	5 GHz WLAN	0.37	50.00	11.75	137.00	0.0312	0.3640	0.0392	N/A
New Zealand	Bluetooth	0.13	50.00	7.00	137.00	0.0186	0.3600	0.0233	N/A
New Zealand	2.4 GHz WLAN	0.13	50.00	7.11	137.00	0.0189	0.3600	0.0237	N/A
New Zealand	5 GHz WLAN	0.37	50.00	11.75	137.00	0.0312	0.3600	0.0392	N/A

Table 9 – Worker/Occupational Individual Transmitter Result

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

Regional Requirement	RAT	Calculated RF exposure level at minimum compliance boundary of 0.2 m							
		S Power Density (W/m^2)		E Field (V/m)		H Field (A/m)		B Field (µT)	
		Result	Limit	Result	Limit	Result	Limit	Result	Limit
EN	Bluetooth	0.13	10.00	7.00	61.00	0.0186	0.1600	0.0233	0.2000
EN	2.4 GHz WLAN	0.13	10.00	7.11	61.00	0.0189	0.1600	0.0237	0.2000
EN	5 GHz WLAN	0.37	10.00	11.75	61.00	0.0312	0.1600	0.0392	0.2000
FCC	Bluetooth	0.13	10.00	7.00	N/A	0.0186	N/A	0.0233	N/A
FCC	2.4 GHz WLAN	0.34	10.00	11.27	N/A	0.0299	N/A	0.0376	N/A
FCC	5 GHz WLAN	0.37	10.00	11.75	N/A	0.0312	N/A	0.0392	N/A
Canada	Bluetooth	0.13	5.35	7.00	44.91	0.0186	0.1191	0.0233	N/A
Canada	2.4 GHz WLAN	0.34	5.37	11.27	44.97	0.0299	0.1193	0.0376	N/A
Canada	5 GHz WLAN	0.37	9.05	11.75	58.40	0.0312	0.1549	0.0392	N/A
Australia	Bluetooth	0.13	10.00	7.00	61.40	0.0186	0.1630	0.0233	N/A
Australia	2.4 GHz WLAN	0.13	10.00	7.11	61.40	0.0189	0.1630	0.0237	N/A
Australia	5 GHz WLAN	0.37	10.00	11.75	61.40	0.0312	0.1630	0.0392	N/A
New Zealand	Bluetooth	0.13	10.00	7.00	61.00	0.0186	0.1600	0.0233	N/A
New Zealand	2.4 GHz WLAN	0.13	10.00	7.11	61.00	0.0189	0.1600	0.0237	N/A
New Zealand	5 GHz WLAN	0.37	10.00	11.75	61.00	0.0312	0.1600	0.0392	N/A

Table 10 – General Public Individual Transmitter Result

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

2.3 Combined Antenna Port RF Exposure Results

As the frequency of operation for each transmitter is not the same, in order to evaluate compliance with the limit which is dependent on frequency, the fractional exposure value is calculated: The calculated S power density is divided by the limit to get a fractional exposure value. The calculated E and H fields are divided by the limit and squared to get a fractional exposure value. The summation of the fractional RF exposure results for each transmitter provides the combined result. Any values less than one are compliant with the limit.

Calculations are made on an Excel spreadsheet and numbers may not add up exactly due to rounding.

2.3.1 Combination 1 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + 2.4GHz WLAN (2x2 MIMO on Core 0 & 1)

EN 62311:2008 specifies the method of summation in clause 8.3 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	N/A	0.0026	N/A	0.0028
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	N/A	0.0021	N/A	0.0023
0	5 GHz WLAN (2x2 MIMO)	5180.0	N/A	0.0066	N/A	0.0071
1	5 GHz WLAN (2x2 MIMO)	5180.0	N/A	0.0070	N/A	0.0076
		Summation	N/A	0.0184	N/A	0.0198

Table 11 – EN Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0134	0.0136	0.0139	0.0141
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0111	0.0113	0.0115	0.0117
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	0.0348	0.0356	0.0360
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	0.0371	0.0379	0.0383
		Summation	0.0955	0.0968	0.0990	0.1000

Table 12 – EN General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

FCC OET 65 specifies the method of summation in clause; Multiple-Transmitter Sites and Complex Environments; with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0067	N/A	N/A	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0056	N/A	N/A	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0069	N/A	N/A	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0073	N/A	N/A	N/A
		Summation	0.0265	N/A	N/A	N/A

Table 13 - FCC Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0337	N/A	N/A	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0280	N/A	N/A	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	N/A	N/A	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	N/A	N/A	N/A
		Summation	0.1326	N/A	N/A	N/A

Table 14 – FCC General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

CANADA Health Canada Safety Code 6 specifies the method of summation in clause 2.2.1 Note 6 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0106	0.0106	0.0106	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0088	0.0088	0.0088	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0074	0.0074	0.0074	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0079	0.0079	0.0079	N/A
		Summation	0.0347	0.0347	0.0347	N/A

Table 15 – CANADA Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0628	0.0628	0.0628	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0521	0.0521	0.0521	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0380	0.0380	0.0380	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0405	0.0405	0.0405	N/A
		Summation	0.1934	0.1934	0.1934	N/A

Table 16 – CANADA General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

AUSTRALIA ARPANSA Radiation Protection Series No.3 specifies the method of summation in clause 3.4 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0027	0.0027	0.0027	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0022	0.0022	0.0022	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0069	0.0069	0.0069	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0073	0.0074	0.0073	N/A
		Summation	0.0191	0.0192	0.0191	N/A

Table 17 – AUSTRALIA Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0134	0.0134	0.0134	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0111	0.0111	0.0111	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	0.0343	0.0343	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	0.0366	0.0366	N/A
		Summation	0.0955	0.0955	0.0954	N/A

Table 18 – AUSTRALIA General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

NEW ZEALAND NZS 2772 Part 1 specifies the method of summation in clause 7 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0027	0.0027	0.0027	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0022	0.0022	0.0023	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0069	0.0069	0.0070	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0073	0.0074	0.0075	N/A
		Summation	0.0191	0.0192	0.0195	N/A

Table 19 – NEW ZEALAND Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0134	0.0136	0.0139	N/A
1	2.4 GHz WLAN (2x2 MIMO)	2412.0	0.0111	0.0113	0.0115	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	0.0348	0.0356	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	0.0371	0.0379	N/A
		Summation	0.0955	0.0968	0.0990	N/A

Table 20 – NEW ZEALAND General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

2.3.2 Combination 2 - 5.0 GHz WLAN (2x2 MIMO on Core 0 & 1) + Bluetooth (2x2 MIMO on Core 0 & 1)

EN 62311:2008 specifies the method of summation in clause 8.3 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	N/A	0.0012	N/A	0.0013
1	Bluetooth (2x2 MIMO)	2402.0	N/A	0.0015	N/A	0.0016
0	5 GHz WLAN (2x2 MIMO)	5180.0	N/A	0.0066	N/A	0.0071
1	5 GHz WLAN (2x2 MIMO)	5180.0	N/A	0.0070	N/A	0.0076
		Summation	N/A	0.0163	N/A	0.0175

Table 21 – EN Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0063	0.0063	0.0065	0.0066
1	Bluetooth (2x2 MIMO)	2402.0	0.0075	0.0076	0.0078	0.0079
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	0.0348	0.0356	0.0360
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	0.0371	0.0379	0.0383
		Summation	0.0848	0.0859	0.0878	0.0888

Table 22 – EN General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

FCC OET 65 specifies the method of summation in clause; Multiple-Transmitter Sites and Complex Environments; with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0013	N/A	N/A	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0015	N/A	N/A	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0069	N/A	N/A	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0073	N/A	N/A	N/A
		Summation	0.0170	N/A	N/A	N/A

Table 23 - FCC Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0063	N/A	N/A	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0075	N/A	N/A	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	N/A	N/A	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	N/A	N/A	N/A
		Summation	0.0848	N/A	N/A	N/A

Table 24 – FCC General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

CANADA Health Canada Safety Code 6 specifies the method of summation in clause 2.2.1 Note 6 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0020	0.0020	0.0020	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0024	0.0024	0.0024	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0074	0.0074	0.0074	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0079	0.0079	0.0079	N/A
		Summation	0.0196	0.0196	0.0196	N/A

Table 25 – CANADA Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0117	0.0117	0.0117	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0141	0.0141	0.0141	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0380	0.0380	0.0380	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0405	0.0405	0.0405	N/A
		Summation	0.1042	0.1042	0.1042	N/A

Table 26 – CANADA General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m.

AUSTRALIA ARPANSA Radiation Protection Series No.3 specifies the method of summation in clause 3.4 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0013	0.0013	0.0013	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0015	0.0015	0.0015	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0069	0.0069	0.0069	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0073	0.0074	0.0073	N/A
		Summation	0.0170	0.0170	0.0170	N/A

Table 27 – AUSTRALIA Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0063	0.0063	0.0063	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0075	0.0075	0.0075	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	0.0343	0.0343	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	0.0366	0.0366	N/A
		Summation	0.0848	0.0848	0.0846	N/A

Table 28 – AUSTRALIA General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

NEW ZEALAND NZS 2772 Part 1 specifies the method of summation in clause 7 with results as follows:

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0013	0.0013	0.0013	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0015	0.0015	0.0015	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0069	0.0069	0.0070	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0073	0.0074	0.0075	N/A
		Summation	0.0170	0.0170	0.0173	N/A

Table 29 – NEW ZEALAND Worker/Occupational Combined Exposure

The calculations show that the EUT complies with the worker/occupational exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

Core	RAT	Frequency (MHz)	Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit			
			S Power Density	E Field	H Field	B Field
			Summation for simultaneous exposure; value to be <1			
0	Bluetooth (2x2 MIMO)	2402.0	0.0063	0.0063	0.0065	N/A
1	Bluetooth (2x2 MIMO)	2402.0	0.0075	0.0076	0.0078	N/A
0	5 GHz WLAN (2x2 MIMO)	5180.0	0.0343	0.0348	0.0356	N/A
1	5 GHz WLAN (2x2 MIMO)	5180.0	0.0366	0.0371	0.0379	N/A
		Summation	0.0848	0.0859	0.0878	N/A

Table 30 – NEW ZEALAND General Public Combined Exposure

The calculations show that the EUT complies with the general public exposure levels described in in the listed specifications in Annex A at the point of investigation, a minimum distance of 0.2 m

2.4 Far Field Region Boundary Results

The far field region boundary calculation results are shown in Table 31 and Table 33

Near Field / Far Field Boundary (Ref: IEEE C95.3 Annex B.2, EN 62311 Annex A, AS/NZS 2772.2 Appendix B)			
RAT Name	Frequency MHz	Reactive Near Field Boundary (Wave Impedance Dependent)	Far Field Boundary (Antennas on axis)
		λ/4 (m)	$2D^2/\lambda$ (m)
BT Core 0	2402.0	0.0312	0.0144
BT Core 1	2402.0	0.0312	0.0144
BT Core 2	2402.0	0.0312	0.0144
2.4 GHz WLAN Core 0	2412.0	0.0311	0.0145
2.4 GHz WLAN Core 1	2412.0	0.0311	0.0145
5 GHz WLAN Core 0	5180.0	0.0145	0.0311
5 GHz WLAN Core 1	5180.0	0.0145	0.0311

Table 31 – Far Field Boundary (EN, AUSTRALIA, NEW-ZEALAND)

The compliance boundary of 0.2m is in the far field region and therefore, the approach described in section 2.1 is valid.

Field Region	Reactive Near Field Region	Radiating Near Field Region	Far Field Region
Maximum Boundary	< 0.0312 m	N/A	> 0.0312 m
Validity of Regions	Spherical model potential under-estimate: SAR / test assessment required	Spherical model over-estimate and conservative	Spherical model valid
Compliance Boundary Location	N/A	N/A	0.2 m

Table 32 – Assessment Method Validity

Near Field / Far Field Boundary (Ref: FCC 1.1307(b)(3)(i)(C), Technical Guide for Interpretation and Compliance Assessment of Health Canada's Radiofrequency Exposure Guidelines 7.1)			
RAT Name	Frequency MHz	Reactive Near Field Boundary (Wave Impedance Dependent)	Far Field Boundary (Antennas on axis)
		$\lambda/2\pi$ (m)	$2D^2/\lambda$ (m)
BT Core 0	2402.0	0.0199	0.0144
BT Core 1	2402.0	0.0199	0.0144
BT Core 2	2402.0	0.0199	0.0144
2.4 GHz WLAN Core 0	2412.0	0.0198	0.0145
2.4 GHz WLAN Core 1	2412.0	0.0198	0.0145
5 GHz WLAN Core 0	5180.0	0.0092	0.0311
5 GHz WLAN Core 1	5180.0	0.0092	0.0311

Table 33 – Far Field Boundary (FCC, CANADA)

The table below shows the maximum calculated near field / far field region boundaries.

The compliance boundary of 0.2 m is in the far field region and therefore, the approach described in section 2.1 is valid.

Field Region	Reactive Near Field Region	Radiating Near Field Region	Far Field Region
Maximum Boundary	< 0.0199 m	N/A	> 0.0311 m
Validity of Regions	Spherical model potential under-estimate: SAR / test assessment required	Spherical model over-estimate and conservative	Spherical model valid
Compliance Boundary Location	N/A	N/A	0.2 m

Table 34 – Assessment Method Validity

2.5 Uncertainty

The basic computation formulas presented in section 2.1 are conservative formulas for the estimation of RF field strength or power density.

No uncertainty estimations are required when using these formulas but there is clear guidance on where and when these formulas are applicable. For the estimate of S, E or H to be conservative, the transmitter power P and antenna gain G_i values shall be the upper bounds of uncertainty therefore maximum values are used.

The spherical formula is valid under far field conditions which are established in section 2.4.

ANNEX A

REGIONAL REQUIREMENTS

Frequency Range (MHz)	Power Density (W/m^2)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Magnetic Flux Density (µT)
0.1 - 1	-	610	N/A	2/f
1 - 10	-	610/f	N/A	2/f
10 - 400		61	N/A	0.2
400 - 2000		3*f^0.5	N/A	1E-2*f^0.5
2000 - 6000		140	N/A	0.45
6000 - 300000	50	140	N/A	0.45

Table A.1 – EN: Action levels in Directive 2013/35/EU Annex III Table B1 Worker/Occupational Limits

Frequency Range (MHz)	Power Density (W/m^2)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Magnetic Flux Density (µT)
0.003 - 0.15	-	87	5	6.25
0.15 - 1	-	87	0.73/f	0.92/f
1 - 10	-	87/f^0.5	0.73/f	0.92/f
10 - 400	2	28	0.073	0.092
400 - 2000	f/200	1.375*f^0.5	0.0037*f^0.5	0.0046*f^0.5
2000 - 300000	10	61	0.16	0.2

Table A.2 – EN: Council Recommendation 1999/519/EC Annex II Table 1 General Public Limits

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

Table A.3 – FCC CFR 47 Pt.1.1310 Worker/Occupational Limits

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

Table A.4 – FCC CFR 47 Pt.1.1310 General Public Limits

Note 1: The calculations and limits presented in this report for power density are in units of W/m^2. The conversion factor is; 1 mW/cm^2 = 10 W/m^2.

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

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

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

Table A.6 – Health Canada Safety Code 6 General Public Limits

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

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

Frequency Range (MHz)	Power Density (W/m^2)	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^0.5	0.729/f
10 - 400	2	27.4	0.0729
400 - 2000	f/200	1.37*f^0.5	0.00364*f^0.5
2000 - 300000	10	61.4	0.163

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

Frequency Range	Power Density (W/m^2)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0 - 1 Hz	-	-	1.63*10^5
1 - 8 Hz	-	20000	1.63*10^5/f^2
8 - 5 Hz	-	20000	2*10^4/f
0.025 - 0.82 kHz	-	500/f	20/f
0.82 - 65 kHz	-	610	24.4
0.065 - 1 MHz	-	610	1.6/f
1 - 10 MHz	-	610/f	1.6/f
10 - 400 MHz	10	61	0.16
400 - 2000 MHz	f/40	3*f^0.5	0.008*f^0.5
2000 - 300000 MHz	50	137	0.36

Table A.9 – NZS 2772 Part 1 Worker/Occupational Limits

Frequency Range	Power Density (W/m^2)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0 - 1 Hz	-	-	3.2*10^4
1 - 8 Hz	-	10000	3.2*10^4/f^2
8 - 5 Hz	-	10000	4000/f
0.025 - 0.8 kHz	-	250/f	4/f
0.8 - 3 kHz	-	250/f	5
3 - 150 kHz	-	87	5
0.15 - 1 MHz	-	87	0.73/f
1 - 10 MHz	-	87/f^0.5	0.73/f
10 - 400 MHz	2	87/f^0.5	0.073
400 - 2000 MHz	f/200	28	0.0037*f^0.5
2000 - 300000 MHz	10		0.16

Table A.10 – NZS 2772 Part 1 General Public Limits