

# RF Exposure Evaluation Declaration

Product Name : Mimosa C5c  
Trade Name : *mimosa*  
Model No. : C5c  
FCC ID. : 2ABZJ-100-00018

Applicant : Mimosa Networks

Address : 469 El Camino Real, Suite 100 Santa Clara,  
CA 95050, USA

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## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### 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> )	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

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

Where

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

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

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product	Mimosa C5c
Test Mode	Transmit_Dish antenna
Test Condition	RF Exposure Evaluation

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 30.25dBi or 1059.25 in linear scale.

#### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180	1.8750	0.39512
44	5220	3.3729	0.71077
48	5240	1.8365	0.38701

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
38	5190	1.8707	0.39421
46	5230	2.1478	0.45261

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
42	5210	3.5075	0.73914

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

Product	Mimosa C5c
Test Mode	Transmit_Dish antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 30.25dBi or 1059.25 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
52	5260	0.3998	0.08425
60	5300	0.4112	0.08665
64	5320	0.3873	0.08162

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
54	5270	0.9005	0.18976
62	5310	0.8964	0.18890

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
48	5290	0.9249	0.19490

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

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### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 30.25dBi or 1059.25 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
100	5500	0.3990	0.08408
116	5580	0.3622	0.07633
140	5700	0.5902	0.12437

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
102	5510	0.3917	0.08254
110	5550	0.3681	0.07757
134	5670	0.4285	0.09030

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
106	5530	0.3917	0.08254

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

Product	Mimosa C5c
Test Mode	Transmit _ Dish Antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 30.25dBi or 1059.25 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745	3.5563	0.74942
157	5785	3.5075	0.73914
165	5825	3.5481	0.74769

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
151	5755	3.4514	0.72732
159	5795	3.5645	0.75115

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
155	5775	3.4198	0.72066

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

Product	Mimosa C5c
Test Mode	Transmit_Dipole antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 2.5dBi or 1.78 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180	138.9953	0.04922
44	5220	334.1950	0.11834
48	5240	330.3695	0.11699

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
38	5190	78.7046	0.02787
46	5230	310.4560	0.10994

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
42	5210	64.5654	0.02286

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

Product	Mimosa C5c
Test Mode	Transmit_Dipole antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 2.5dBi or 1.78 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
52	5260	147.6726	0.05229
60	5300	153.1440	0.05423
64	5320	154.8817	0.05485

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
54	5270	209.7974	0.07429
62	5310	140.3137	0.04969

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
48	5290	106.7087	0.03779

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.



Product	Mimosa C5c
Test Mode	Transmit_Dipole antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 2.5dBi or 1.78 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
100	5500	122.4616	0.04337
116	5580	117.7606	0.04170
140	5700	119.9499	0.04248

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
102	5510	125.6030	0.04448
110	5550	177.4189	0.06283
134	5670	138.0384	0.04888

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
106	5530	112.2018	0.03973

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

Product	Mimosa C5c
Test Mode	Transmit _ Dipole Antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 2.5dBi or 1.78 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745	436.5158	0.15458
157	5785	472.0630	0.16717
165	5825	510.5050	0.18078

IEEE 802.11 ac(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
151	5755	383.7072	0.13588
159	5795	519.9960	0.18414

IEEE 802.11 ac(80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
155	5775	160.3245	0.05677

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

Product	Mimosa C5c
Test Mode	Transmit _ Dish Antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 26dBi or 398.11 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
190	4950	0.8110	0.06423
193	4965	0.8110	0.06423
196	4980	0.8395	0.06649

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.

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Test Mode	Transmit _ Dipole Antenna
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber are 2.5dBi or 1.78 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 ac(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
190	4950	71.7960	0.02542
193	4965	69.1831	0.02450
196	4980	67.7018	0.02397

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.