



# RF EXPOSURE REPORT

**REPORT NO.:** SA140324E06  
**MODEL NO.:** IPC2100  
**FCC ID:** 2ABTEIPC2100  
**RECEIVED:** Mar. 24, 2014  
**TESTED:** June 13 to 19, 2014  
**ISSUED:** July 18, 2014

**APPLICANT:** Verizon Online LLC

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**ISSUED BY:** Bureau Veritas Consumer Products Services  
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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140324E06	Original release	July 18, 2014



## 1. CERTIFICATION

**PRODUCT:** FiOS™ IPC2100 IP Client  
**BRAND NAME:** Verizon  
**MODEL NO.:** IPC2100  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**APPLICANT:** Verizon Online LLC  
**TESTED DATE:** June 13 to 19, 2014  
**STANDARDS:** FCC Part 2 (Section 2.1091)  
FCC OET Bulletin 65, Supplement C (01-01)  
IEEE C95.1

The above equipment (Model: IPC2100) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** : Midoli Peng , **DATE:** July 18, 2014  
( Midoli Peng, Specialist )

**APPROVED BY** : May Chen , **DATE:** July 18, 2014  
( May Chen, Manager )

## 2. RF EXPOSURE LIMIT

### 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)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 3. MPE CALCULATION 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

### 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

Transmitter Circuit	Gain (dBi) (Include cable loss)	Frequency range (MHz)	Antenna Type	Connector Type
Chain (0) Right antenna	2.63	5150	PCB	i-pex
	2.81	5250		
	2.67	5350		
	1.88	5725		
	1.68	5825		
Chain (1) Front antenna	4.33	5150	PCB	i-pex
	4.22	5250		
	4.20	5350		
	3.40	5725		
	3.18	5825		
Chain (2) Left antenna	3.43	5150	PCB	i-pex
	3.41	5250		
	3.59	5350		
	4.76	5725		
	4.57	5825		
Note: For 1Tx mode will fix transmission on Chain (0).				

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

**For 15.247(5GHz)**

**Mode 1(1TX mode)**

**802.11a**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 - 5825	292.415	1.88	20	0.08969	1.00

**Mode 2(2TX / Beamforming Mode MCS0NSS1)**

**Mode 4 (2TX / CDD Mode)**

**802.11ac (VHT20)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 - 5825	362.438	7.12	20	0.37150	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

**802.11ac (VHT40)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5755 - 5795	321.141	7.12	20	0.32917	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

**802.11ac (VHT80)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5775	160.526	7.12	20	0.16454	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$



**Mode 3 (2TX / Beamforming Mode MCS0NSS2)**  
**Mode 5 (2TX / STBC Mode)**  
**Mode 6 (2TX / SDM)**  
**802.11ac (VHT20)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 - 5825	362.438	4.76	20	0.21576	1.00

**802.11ac (VHT40)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5755 - 5795	321.141	4.76	20	0.19117	1.00

**802.11ac (VHT80)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5775	160.526	4.76	20	0.09556	1.00



**Mode 7 (3TX / Beamforming Mode MCS0NSS1)  
Mode 10 (3TX / CDD Mode)**

**802.11ac (VHT20)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 - 5825	584.258	8.2	20	0.76795	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 8.2\text{dBi}$

**802.11ac (VHT40)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5755 - 5795	522.05	8.2	20	0.68619	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 8.2\text{dBi}$

**802.11ac (VHT80)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5775	243.894	8.2	20	0.32058	1.00

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 8.2\text{dBi}$

### Mode 8 (3TX / Beamforming Mode MCS0NSS2)

#### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 - 5825	584.258	6.52	20	0.52171	1.00

**NOTE:** Directional gain = maximum gain of antennas + 10 log(3/2) = 6.52dBi

#### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5755 - 5795	522.05	6.52	20	0.46616	1.00

**NOTE:** Directional gain = maximum gain of antennas + 10 log(3/2) = 6.52dBi

#### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5775	512.631	6.52	20	0.45775	1.00

**NOTE:** Directional gain = maximum gain of antennas + 10 log(3/2) = 6.52dBi

**Mode 9 (3TX / Beamforming Mode MCS0NSS3)**
**Mode 11 (3TX / STBC Mode)**
**Mode 12 (3TX / SDM)**
**802.11ac (VHT20)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 - 5825	584.258	4.76	20	0.34780	1.00

**802.11ac (VHT40)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5755 - 5795	522.05	4.76	20	0.31077	1.00

**802.11ac (VHT80)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5775	512.631	4.76	20	0.30516	1.00

**For 15.407**  
**Mode 1(1TX mode)**

**802.11a**

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	41.115	2.63	20	0.01499	1.00
5260 - 5320	80.91	2.63	20	0.03074	1.00
5500 -5580 & 5660 - 5720	214.289	2.81	20	0.06572	1.00

## Mode 2(2TX / Beamforming Mode MCS0NSS1)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	39.803	6.9	20	0.03878	1.00
5260 - 5320	36.945	6.92	20	0.03616	1.00
5500 -5580 & 5660 - 5720	163.364	7.12	20	0.16745	1.00

- NOTE:**
1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.9\text{dBi}$
  2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.92\text{dBi}$
  2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	39.295	6.9	20	0.03829	1.00
5270-5310	51.182	6.92	20	0.05010	1.00
5510 - 5550 & 5670- 5710	153.137	7.12	20	0.15697	1.00

- NOTE:**
1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.9\text{dBi}$
  2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.92\text{dBi}$
  2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	39.497	6.9	20	0.03849	1.00
5290	48.905	6.92	20	0.04787	1.00
5530, 5690	131.45	7.12	20	0.13474	1.00

- NOTE:**
1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.9\text{dBi}$
  2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.92\text{dBi}$
  2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

**Mode 3 (2TX / Beamforming Mode MCS0NSS2)  
Mode 6 (2TX / STBC Mode)**

**802.11ac (VHT20)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	48.37	4.33	20	0.02608	1.00
5260 - 5320	36.945	4.22	20	0.01942	1.00
5500 -5580 & 5660 - 5720	163.364	4.76	20	0.09725	1.00

**802.11ac (VHT40)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	45.908	4.33	20	0.02475	1.00
5270-5310	51.182	4.22	20	0.02691	1.00
5510 - 5550 & 5670- 5710	173.303	4.76	20	0.10317	1.00

**802.11ac (VHT80)**

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	47.335	4.33	20	0.02552	1.00
5290	48.905	4.22	20	0.02571	1.00
5530, 5690	156.239	4.76	20	0.09301	1.00

## Mode 4 (2TX / CDD Mode)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	39.803	6.9	20	0.03878	1.00
5260 - 5320	36.945	6.92	20	0.03616	1.00
5500 -5580 & 5660 - 5720	163.364	7.12	20	0.16745	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.9\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.92\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	45.908	6.9	20	0.04473	1.00
5270-5310	51.182	6.92	20	0.05010	1.00
5510 - 5550 & 5670- 5710	173.303	7.12	20	0.17761	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.9\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.92\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	47.335	6.9	20	0.04612	1.00
5290	48.905	6.92	20	0.04787	1.00
5530, 5690	156.239	7.12	20	0.16015	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.9\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.92\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.12\text{dBi}$

## Mode 5 (2TX / STBC Mode)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	48.37	4.33	20	0.02608	1.00
5260 - 5320	72.224	4.22	20	0.03797	1.00
5500 -5580 & 5660 - 5720	216.399	4.76	20	0.12882	1.00

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	45.908	4.33	20	0.02475	1.00
5270-5310	129.068	4.22	20	0.06785	1.00
5510 - 5550 & 5670- 5710	192.345	4.76	20	0.11450	1.00

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	47.335	4.33	20	0.02552	1.00
5290	45.615	4.22	20	0.02398	1.00
5530, 5690	156.239	4.76	20	0.09301	1.00



## Mode 7 (3TX / Beamforming Mode MCS0NSS1)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	27.869	8.26	20	0.03714	1.00
5260 - 5320	48.282	8.33	20	0.06539	1.00
5500 -5580 & 5660 - 5720	146.81	8.20	20	0.19297	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.26\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.33\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.20\text{dBi}$

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	27.252	8.26	20	0.03632	1.00
5270-5310	58.66	8.33	20	0.07945	1.00
5510 - 5550 & 5670- 5710	142.322	8.20	20	0.18707	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.26\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.33\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.20\text{dBi}$

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	28.288	8.26	20	0.03770	1.00
5290	68.681	8.33	20	0.09302	1.00
5530, 5690	86.99	8.20	20	0.11434	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.26\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.33\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.20\text{dBi}$

## Mode 8 (3TX / Beamforming Mode MCS0NSS2)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	44.598	6.09	20	0.03606	1.00
5260 - 5320	48.282	5.98	20	0.03806	1.00
5500 -5580 & 5660 - 5720	218.359	6.52	20	0.19494	1.00

- NOTE:**
- Band1 : Directional gain = maximum gain of antennas + 10 log(3/2) = 6.09dBi
  - Band2 : Directional gain = maximum gain of antennas + 10 log(3/2) = 5.98dBi
  - Band3 : Directional gain = maximum gain of antennas + 10 log(3/2) = 6.52dBi

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	47.159	6.09	20	0.03813	1.00
5270-5310	58.66	5.98	20	0.04625	1.00
5510 - 5550 & 5670- 5710	218.608	6.52	20	0.19516	1.00

- NOTE:**
- Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3]$  = 8.26dBi
  - Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3]$  = 8.33dBi
  - Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3]$  = 8.20dBi

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	48.238	6.09	20	0.03900	1.00
5290	68.681	5.98	20	0.05415	1.00
5530, 5690	86.99	6.52	20	0.07766	1.00

- NOTE:**
- Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3]$  = 8.26dBi
  - Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3]$  = 8.33dBi
  - Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3]$  = 8.20dBi

### Mode 9 (3TX / Beamforming Mode MCS0NSS3)

#### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	44.598	4.33	20	0.02405	1.00
5260 - 5320	48.282	4.22	20	0.02538	1.00
5500 -5580 & 5660 - 5720	218.359	4.76	20	0.12999	1.00

#### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	47.159	4.33	20	0.02543	1.00
5270-5310	58.66	4.22	20	0.03084	1.00
5510 - 5550 & 5670- 5710	248.898	4.76	20	0.14817	1.00

#### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	48.238	4.33	20	0.02601	1.00
5290	68.681	4.22	20	0.03610	1.00
5530, 5690	152.951	4.76	20	0.09105	1.00

## Mode 10 (3TX / CDD Mode)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	27.869	8.26	20	0.03714	1.00
5260 - 5320	48.282	8.33	20	0.06539	1.00
5500 -5580 & 5660 - 5720	146.81	8.20	20	0.19297	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.26\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.33\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.20\text{dBi}$

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	47.159	8.26	20	0.06285	1.00
5270-5310	58.66	8.33	20	0.07945	1.00
5510 - 5550 & 5670- 5710	248.898	8.20	20	0.32715	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.26\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.33\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.20\text{dBi}$

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	48.238	8.26	20	0.06429	1.00
5290	68.681	8.33	20	0.09302	1.00
5530, 5690	152.951	8.20	20	0.20104	1.00

**NOTE:** 1. Band1 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.26\text{dBi}$   
 2. Band2 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.33\text{dBi}$   
 2. Band3 : Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 + 10^{G3/20})^2 / 3] = 8.20\text{dBi}$

## Mode 11 (3TX / STBC Mode)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	44.598	4.33	20	0.02405	1.00
5260 - 5320	101.462	4.22	20	0.05334	1.00
5500 -5580 & 5660 - 5720	218.359	4.76	20	0.12999	1.00

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	47.159	4.33	20	0.02543	1.00
5270-5310	125.125	4.22	20	0.06578	1.00
5510 - 5550 & 5670- 5710	237.924	4.76	20	0.14163	1.00

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	48.238	4.33	20	0.02601	1.00
5290	111.946	4.22	20	0.05885	1.00
5530, 5690	142.967	4.76	20	0.08511	1.00

## Mode 12 (3TX / SDM)

### 802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 - 5240	44.598	4.33	20	0.02405	1.00
5260 - 5320	48.282	4.22	20	0.02538	1.00
5500 -5580 & 5660 - 5720	218.359	4.76	20	0.12999	1.00

### 802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190-5230	47.159	4.33	20	0.02543	1.00
5270-5310	58.66	4.22	20	0.03084	1.00
5510 - 5550 & 5670- 5710	248.898	4.76	20	0.14817	1.00

### 802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5210	48.238	4.33	20	0.02601	1.00
5290	68.681	4.22	20	0.03610	1.00
5530, 5690	152.951	4.76	20	0.09105	1.00

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