

RF EXPOSURE

1. Regulation

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter.

Limits for Maximum Permissible Exposure: RF exposure is calculated.

Frequency Range	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [mW/cm ²]	Averaging Time [minute]
Limits for General Population / Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	*(100)	30
1.34 ~ 30	824/f	2.19/f	*(180/f ²)	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1 500	/	/	f/1 500	30
1 500 ~ 15 000	/	/	1	30

f=frequency in MHz, *= plane-wave equivalent power density

MPE (Maximum Permissible Exposure) Prediction

Predication of MPE limit at a given distance: Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2 \quad (\Rightarrow R = \sqrt{PG/4\pi S})$$

S = power density [mW/cm²]

P = Power input to antenna [mW]

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna [cm]

2. RF Exposure Compliance Issue

The information should be included in the user's manual:

This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

MPE Calculations : Bluetooth (BDR)

- Frequency Range : 2 402 MHz ~ 2 480 MHz
- Measured RF Output Power : 1.00 dBm
- Target Power & Tolerance 0.85 dBm & $\pm$ 1.00 dB
(Maximum : 1.85 dBm & Minimum : -0.15 dBm)
- Maximum Peak Antenna Gain : -0.56 dBi
- Maximum Output Power for the Calculation : 1.85 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>1.85</u> dBm + <u>-0.56</u> dBi = <u>1.29</u> dBm = <u>1.35</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = <u>1.35</u> / (4 X 20 ² X π) = <u>0.000 268</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : Bluetooth (EDR)

- Frequency Range : 2 402 MHz ~ 2 480 MHz
- Measured RF Output Power : 0.41 dBm
- Target Power & Tolerance -0.50 dBm & $\pm$ 1.00 dB
(Maximum : 0.50 dBm & Minimum : -1.50 dBm)
- Maximum Peak Antenna Gain : -0.56 dBi
- Maximum Output Power for the Calculation : 0.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>0.50</u> dBm + <u>-0.56</u> dBi = <u>-0.06</u> dBm = <u>0.99</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 0.99 / (4 X 20² X π) = <u>0.000 196</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11b

- Frequency Range : 2 412 MHz ~ 2 462 MHz
- Measured RF Output Power : 18.89 dBm
- Target Power & Tolerance 18.50 dBm & $\pm$ 1.00 dB
(Maximum : 19.50 dBm & Minimum : 17.50 dBm)
- Maximum Peak Antenna Gain : -0.56 dBi
- Maximum Output Power for the Calculation : 19.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>19.50</u> dBm + <u>-0.56</u> dBi = <u>18.94</u> dBm = <u>78.34</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 78.34 / (4 X 20² X π) = <u>0.015 586</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11g

- Frequency Range : 2 412 MHz ~ 2 462 MHz
- Measured RF Output Power : 18.95 dBm
- Target Power & Tolerance 18.50 dBm & $\pm$ 1.00 dB
(Maximum : 19.50 dBm & Minimum : 17.50 dBm)
- Maximum Peak Antenna Gain : -0.56 dBi
- Maximum Output Power for the Calculation : 19.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>19.50</u> dBm + <u>-0.56</u> dBi = <u>18.94</u> dBm = <u>78.34</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 78.34 / (4 X 20 ² X π) = <u>0.015 586</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT20

- Frequency Range : 2 412 MHz ~ 2 462 MHz
- Measured RF Output Power : 18.93 dBm
- Target Power & Tolerance 18.50 dBm & $\pm$ 1.00 dB
(Maximum : 19.50 dBm & Minimum : 17.50 dBm)
- Maximum Peak Antenna Gain : -0.56 dBi
- Maximum Output Power for the Calculation : 19.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>19.50</u> dBm + <u>-0.56</u> dBi = <u>18.94</u> dBm = <u>78.34</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 78.34 / (4 X 20 ² X π) = <u>0.015 586</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11a (UNII-1)

- Frequency Range : 5 180 MHz ~ 5 240 MHz
- Measured RF Output Power : 10.45 dBm
- Target Power & Tolerance 10.00 dBm & $\pm$ 1.00 dB
(Maximum : 11.00 dBm & Minimum : 9.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 11.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>11.00</u> dBm + <u>0.00</u> dBi = <u>11.00</u> dBm = <u>12.59</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 12.59 / (4 X 20 ² X π) = <u>0.002 505</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11a (UNII-2A)

- Frequency Range : 5 260 MHz ~ 5 320 MHz
- Measured RF Output Power : 10.29 dBm
- Target Power & Tolerance 10.00 dBm & $\pm$ 1.00 dB
(Maximum : 11.00 dBm & Minimum : 9.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 11.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>11.00</u> dBm + <u>0.00</u> dBi = <u>11.00</u> dBm = <u>12.59</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 12.59 / (4 X 20 ² X π) = <u>0.002 505</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11a (UNII-2C)

- Frequency Range : 5 500 MHz ~ 5 700 MHz
- Measured RF Output Power : 10.85 dBm
- Target Power & Tolerance 9.50 dBm & $\pm$ 1.50 dB
(Maximum : 11.00 dBm & Minimum : 8.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 11.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>11.00</u> dBm + <u>0.00</u> dBi = <u>11.00</u> dBm = <u>12.59</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 12.59 / (4 X 20² X π) = <u>0.002 505</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11a (UNII-3)

- Frequency Range : 5 745 MHz ~ 5 805 MHz
- Measured RF Output Power : 8.11 dBm
- Target Power & Tolerance 7.50 dBm & $\pm$ 1.00 dB
(Maximum : 8.50 dBm & Minimum : 6.50 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 8.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>8.50</u> dBm + <u>0.00</u> dBi = <u>8.50</u> dBm = <u>7.08</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 7.08 / (4 X 20 ² X π) = <u>0.001 408</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT20 (UNII-1)

- Frequency Range : 5 180 MHz ~ 5 240 MHz
- Measured RF Output Power : 9.82 dBm
- Target Power & Tolerance 9.00 dBm & $\pm$ 1.00 dB
(Maximum : 10.00 dBm & Minimum : 8.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.00</u> dBm + <u>0.00</u> dBi = <u>10.00</u> dBm = <u>10.00</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 10.00 / (4 X 20 ² X π) = <u>0.001 989</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT20 (UNII-2A)

- Frequency Range : 5 260 MHz ~ 5 320 MHz
- Measured RF Output Power : 9.55 dBm
- Target Power & Tolerance 9.00 dBm & $\pm$ 1.00 dB
(Maximum : 10.00 dBm & Minimum : 8.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.00</u> dBm + <u>0.00</u> dBi = <u>10.00</u> dBm = <u>10.00</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 10.00 / (4 X 20 ² X π) = <u>0.001 989</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT20 (UNII-2C)

- Frequency Range : 5 500 MHz ~ 5 700 MHz
- Measured RF Output Power : 10.39 dBm
- Target Power & Tolerance 9.00 dBm & $\pm$ 1.50 dB
(Maximum : 10.50 dBm & Minimum : 7.50 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.50</u> dBm + <u>0.00</u> dBi = <u>10.50</u> dBm = <u>11.22</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 11.22 / (4 X 20² X π) = <u>0.002 232</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT20 (UNII-3)

- Frequency Range : 5 745 MHz ~ 5 805 MHz
- Measured RF Output Power : 7.65 dBm
- Target Power & Tolerance 7.00 dBm & $\pm$ 1.00 dB
(Maximum : 8.00 dBm & Minimum : 6.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 8.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>8.00</u> dBm + <u>0.00</u> dBi = <u>8.00</u> dBm = <u>6.31</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 6.31 / (4 X 20² X π) = <u>0.001 255</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT40 (UNII-1)

- Frequency Range : 5 190 MHz ~ 5 230 MHz
- Measured RF Output Power : 10.08 dBm
- Target Power & Tolerance 9.50 dBm & $\pm$ 1.00 dB
(Maximum : 10.50 dBm & Minimum : 8.50 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.50</u> dBm + <u>0.00</u> dBi = <u>10.50</u> dBm = <u>11.22</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 11.22 / (4 X 20² X π) = <u>0.002 232</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT40 (UNII-2A)

- Frequency Range : 5 270 MHz ~ 5 310 MHz
- Measured RF Output Power : 9.81 dBm
- Target Power & Tolerance 9.00 dBm & $\pm$ 1.00 dB
(Maximum : 10.00 dBm & Minimum : 8.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.00</u> dBm + <u>0.00</u> dBi = <u>10.00</u> dBm = <u>10.00</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R ² π) = 10.00 / (4 X 20 ² X π) = <u>0.001 989</u> mW/cm ²	- NOTE S : Maximum Power Density (mW/cm ²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT40 (UNII-2C)

- Frequency Range : 5 510 MHz ~ 5 670 MHz
- Measured RF Output Power : 10.62 dBm
- Target Power & Tolerance 9.70 dBm & $\pm$ 1.00 dB
(Maximum : 10.70 dBm & Minimum : 8.70 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.70 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.70</u> dBm + <u>0.00</u> dBi = <u>10.70</u> dBm = <u>11.75</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 11.75 / (4 X 20² X π) = <u>0.002 337</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11n_HT40 (UNII-3)

- Frequency Range : 5.755 MHz ~ 5.795 MHz
- Measured RF Output Power : 7.72 dBm
- Target Power & Tolerance 7.00 dBm & $\pm$ 1.00 dB
(Maximum : 8.00 dBm & Minimum : 6.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 8.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>8.00</u> dBm + <u>0.00</u> dBi = <u>8.00</u> dBm = <u>6.31</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 6.31 / (4 X 20² X π) = <u>0.001 255</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11ac_VHT80 (UNII-1)

- Frequency Range : 5 210 MHz
- Measured RF Output Power : 9.02 dBm
- Target Power & Tolerance 8.50 dBm & $\pm$ 1.00 dB
(Maximum : 9.50 dBm & Minimum : 7.50 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 9.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>9.50</u> dBm + <u>0.00</u> dBi = <u>9.50</u> dBm = <u>8.91</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 8.91 / (4 X 20² X π) = <u>0.001 773</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11ac_VHT80 (UNII-2A)

- Frequency Range : 5 290 MHz
- Measured RF Output Power : 9.22 dBm
- Target Power & Tolerance 8.50 dBm & $\pm$ 1.00 dB
(Maximum : 9.50 dBm & Minimum : 7.50 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 9.50 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>9.50</u> dBm + <u>0.00</u> dBi = <u>9.50</u> dBm = <u>8.91</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 8.91 / (4 X 20² X π) = <u>0.001 773</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11ac_VHT80 (UNII-2C)

- Frequency Range : 5 530 MHz
- Measured RF Output Power : 9.90 dBm
- Target Power & Tolerance 9.00 dBm & $\pm$ 1.00 dB
(Maximum : 10.00 dBm & Minimum : 8.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 10.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>10.00</u> dBm + <u>0.00</u> dBi = <u>10.00</u> dBm = <u>10.00</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 10.00 / (4 X 20² X π) = <u>0.001 989</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : 802.11ac_VHT80 (UNII-3)

- Frequency Range : 5.775 MHz
- Measured RF Output Power : 7.20 dBm
- Target Power & Tolerance 7.00 dBm & $\pm$ 1.00 dB
(Maximum : 8.00 dBm & Minimum : 6.00 dBm)
- Maximum Peak Antenna Gain : 0.00 dBi
- Maximum Output Power for the Calculation : 8.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = <u>8.00</u> dBm + <u>0.00</u> dBi = <u>8.00</u> dBm = <u>6.31</u> mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)
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Power Density at the specific separation

- S = EIRP / (4 X R²π) = 6.31 / (4 X 20² X π) = <u>0.001 255</u> mW/cm²	- NOTE S : Maximum Power Density (mW/cm²) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (<u>20</u> cm)
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MPE Calculations : Bluetooth + WLAN 2G + WLAN 5G

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

Simultaneous MPE for Bluetooth and Wi-Fi

802.11b + 802.11a + Bluetooth (BDR)

- Total (%) = $ \begin{aligned} & [802.11b \text{ Result(mW/cm}^2) / \text{Limit(mW/cm}^2)] + \\ & [802.11a \text{ Result(mW/cm}^2) / \text{Limit(mW/cm}^2)] + \\ & [\text{BDR Result(mW/cm}^2) / \text{Limit(mW/cm}^2)] * 100 \\ & = [\underline{0.015\ 586} / 1] + \\ & \quad [\underline{0.002\ 505} / 1] + \\ & \quad [\underline{0.000\ 268} / 1] * 100 \\ & = \underline{1.585} \% \end{aligned} $	- NOTE 802.11b + 802.11a + Bluetooth (BDR) WLAN 802.11b = <u>0.015 586</u> mW/cm² WLAN 802.11a = <u>0.002 505</u> mW/cm² Bluetooth(BDR) = <u>0.000 268</u> mW/cm² Distance to the center of the radiation of the antenna (<u>20</u> cm) Limit : ≤ 100 %
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