
Technician Question Pool

July 2022 to June 2026

The MORE Project

<http://n2re.org/m-o-r-e-project>



Electrical Safety

No-Nonsense pages 74 - 76

RF Hazards and Radiation Exposure

Over-exposure to radio waves can also be a safety hazard. When using as little as 50 watts, you may be required to perform an RF exposure evaluation for your amateur radio station, even though VHF and UHF radio signals are non-ionizing radiation.



TOC01

What type of radiation are radio signals?

- A. Gamma radiation
- B. Ionizing radiation
- C. Alpha radiation
- D. Non-ionizing radiation



ES3 Q1 of 12

TOC01

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- B. Ionizing radiation
- C. Alpha radiation
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TOC12

How does RF radiation differ from ionizing radiation (radioactivity)?

- A. RF radiation does not have sufficient energy to cause chemical changes in cells and damage DNA
- B. RF radiation can only be detected with an RF dosimeter
- C. RF radiation is limited in range to a few feet
- D. RF radiation is perfectly safe



TOC12

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- B. RF radiation can only be detected with an RF dosimeter
- C. RF radiation is limited in range to a few feet
- D. RF radiation is perfectly safe



TOC13

Who is responsible for ensuring that no person is exposed to RF energy above the FCC exposure limits?

- A. The FCC
- B. The station licensee
- C. Anyone who is near an antenna
- D. The local zoning board



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TOC06

Which of the following is an acceptable method to determine whether your station complies with FCC RF exposure regulations?

- A. By calculation based on FCC OET Bulletin 65
- B. By calculation based on computer modeling
- C. By measurement of field strength using calibrated equipment
- D. All of these choices are correct



TOC06

Which of the following is an acceptable method to determine whether your station complies with FCC RF exposure regulations?

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- B. By calculation based on computer modeling
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- D. All of these choices are correct**



TOC11

What is the definition of duty cycle during the averaging time for RF exposure?

- A. The difference between the lowest power output and the highest power output of a transmitter
- B. The difference between the PEP and average power output of a transmitter
- C. The percentage of time that a transmitter is transmitting
- D. The percentage of time that a transmitter is not transmitting



ES3 Q5 of 12

TOC11

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TOC10

Why is duty cycle one of the factors used to determine safe RF radiation exposure levels?

- A. It affects the average exposure to radiation
- B. It affects the peak exposure to radiation
- C. It takes into account the antenna feed line loss
- D. It takes into account the thermal effects of the final amplifier



TOC10

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TOC03

How does the allowable power density for RF safety change if duty cycle changes from 100 percent to 50 percent?

- A. It increases by a factor of 3
- B. It decreases by 50 percent
- C. It increases by a factor of 2
- D. There is no adjustment allowed for lower duty cycle



TOC03

How does the allowable power density for RF safety change if duty cycle changes from 100 percent to 50 percent?

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- B. It decreases by 50 percent
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TOC05

Why do exposure limits vary with frequency?

- A. Lower frequency RF fields have more energy than higher frequency fields
- B. Lower frequency RF fields do not penetrate the human body
- C. Higher frequency RF fields are transient in nature
- D. The human body absorbs more RF energy at some frequencies than at others



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TOC02

At which of the following frequencies does maximum permissible exposure have the lowest value?

- A. 3.5 MHz
- B. 50 MHz
- C. 440 MHz
- D. 1296 MHz



TOC02

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- B. 50 MHz**
- C. 440 MHz
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TOC04

What factors affect the RF exposure of people near an amateur station antenna?

- A. Frequency and power level of the RF field
- B. Distance from the antenna to a person
- C. Radiation pattern of the antenna
- D. All of these choices are correct



ES3 Q10 of 12

TOC04

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- A. Frequency and power level of the RF field
- B. Distance from the antenna to a person
- C. Radiation pattern of the antenna
- D. All of these choices are correct**



TOC08

Which of the following actions can reduce exposure to RF radiation?

- A. Relocate antennas
- B. Relocate the transmitter
- C. Increase the duty cycle
- D. All of these choices are correct



ES3 Q11 of 12

TOC08

Which of the following actions can reduce exposure to RF radiation?

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- B. Relocate the transmitter
- C. Increase the duty cycle
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TOC09

How can you make sure your station stays in compliance with RF safety regulations?

- A. By informing the FCC of any changes made in your station
- B. By re-evaluating the station whenever an item in the transmitter or antenna system is changed
- C. By making sure your antennas have low SWR
- D. All of these choices are correct



ES3 Q12 of 12

TOC09

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- B. By re-evaluating the station whenever an item in the transmitter or antenna system is changed**
- C. By making sure your antennas have low SWR
- D. All of these choices are correct





A non-profit initiative by the IEEE and ARDC to increase the numbers of youth (12-18) and non-males in Amateur Radio. Participants earn FCC licenses and receive free 2-way radios.

For MORE information: n2re.org/m-o-r-e-project
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