

3/3/2022

Federal Communications Commission
Office of Engineering and Technology
Laboratory Division

**Part 15 Subpart E U-NII 5.9 GHz
Questions and Answers**

Q1. What are the different types of devices that can be certified for 5.9 GHz U-NII use?

A1. Device types are as follows.

Indoor Access Point – an access point that operates in the lower U-NII-3 band, 5.850-5.895 GHz, is supplied power from a wired connection, has an integrated antenna, is not battery powered, and does not have a weatherized enclosure.

Client Device – a U-NII device whose transmissions are generally under the control of an access point and is not capable of initiating a network.

Subordinate Device – a device that operates in the lower U-NII-3 band, 5.850-5.895 GHz, band under the control of an Indoor Access Point, is supplied power from a wired connection, has an integrated antenna, is not battery powered, does not have a weatherized enclosure, and does not have a direct connection to the internet.

Q2. Is modular approval allowed for these devices?

A2. Yes, except for Subordinate devices.

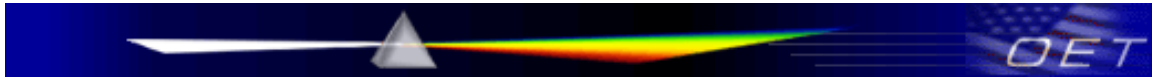
Q3. Can a Client device directly connect to another Client device?

A3. No. Direct Client to Client communications is prohibited.

Q4. Can the new 5.9 GHz band be added to an existing NII grant under the same FCC ID?

A4. Yes. If hardware or enclosure changes have not been made, and the existing device meets the new requirements, A Class II Permissive Change (C2PC) maybe performed. The device will be restricted to indoor use only even if other bands allow outdoor use. In addition, the device would already have to have an integrated antenna.

Q5. How does one determine if an enclosure is not weatherized?



3/3/2022

A5. There are many factors in determining if an indoor device meets the requirement of not having a weatherized enclosure. Clearly if the enclosure has openings to vent heat it is not weatherized. The IP rating of a device could potentially be used. For example, if a device has been certified for IP 65 there is a good chance that the device can be used outdoors. However, test labs and TCBs shall review the user's manual and other documentation to verify that the device cannot be used outdoors and that the intent of the requirement is met.

Q6. If a 160 MHz channel spans both U-NII-3 and U-NII-4 is the power limited to 36 dBm EIRP?

A6. Yes. This contrasts with two separate channels operating in U-NII-3 and U-NII-4 where each individual channel may operate with 36 dBm EIRP. This guidance also applies to PSD limits as well.

Q7. When a device is operating in U-NII-4 how are OOB and spurious emissions measured?

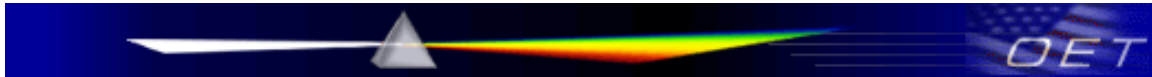
A7. When operating in U-NII-4, OOB and spurious emissions are to be measured outside of the 5725-5895 MHz band. Below 5725 MHz the -27 dBm EIRP is measured with a Peak detector and above 5895 MHz it is measured with an RMS detector. If the -27 dBm EIRP limit is met with a Peak detector retesting with an RMS detector is not required.

Q8. What detector is used for measuring fundamental emissions?

A8. For measuring fundamental emissions such as power and power spectral density an RMS detector shall be used.

Q9. Is there a limit on the conducted power for a device transmitting in U-NII-4?

A9. The power limit is 36 dBm EIRP. There is no limit on the conducted power as long as the EIRP is limited 36 dBm EIRP.



3/3/2022

Q10. How is the U-NII-4 device power listed on the grant?

A10. The power for a U-NII-4 device shall be listed as EIRP. It is understood that for a device operating across multiple U-NII bands, power will be listed in terms of conducted and EIRP power. For instance, a device operating in U-NII-1 through U-NII-3 will be listed as conducted power and U-NII-4 will be listed as EIRP. The grant notes should state as such. A channel that spans across U-NII-3 and U-NII-4 is considered to be operating in U-NII-4 and only needs to be listed once on form 731.

Q10. How is a 160 MHz channel that spans both U-NII-3 and U-NII-4 listed on the grant?

A10.. A 160 MHz channel that spans both U-NII-3 & U-NII-4 (or any other channel that spans both bands) is considered to be operating in U-NII-4 and listed only once on form 731.

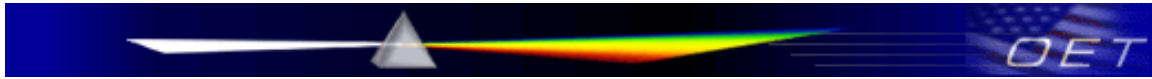
Q12: What reference bandwidth should be used when making PSD measurements pursuant to 15.407(a)(12) in the U-NII-4 band?

A12: For a U-NII-4 channel or a channel that spans U-NII-3 & U-NII-4, the power spectral density is measured with a reference bandwidth of 1 MHz. Narrower resolution bandwidth maybe used, provided that the measured power is integrated over the full reference bandwidth.

Q13: 15.407 (b) (5) (ii) specifies that for a client device, all emissions at or above 5.895 GHz shall not exceed an EIRP of -5 dBm/MHz and shall decrease linearly to an EIRP of -27 dBm/MHz at or above 5.925 GHz. Due to steep band mask requirement in the immediate 1 MHz outside the band edge, is using a 100 kHz measurement bandwidth (instead of 1 MHz measurement bandwidth) allowed.

A13: Unwanted band-edge emissions may be measured using the integration method as described in KDB Publication 789033 3. d) (ii). Emissions below 5.725 GHz should be measured using peak-detection while emission above 5.895 GHz should be measured using average detection.

Q14: What are the indoor only labelling requirements for indoor access points and subordinate devices operating on UNII-4 or UNII 3-4 Span channels..



3/3/2022

A14: The following series of questions addresses the various options allowed or not allowed.

- a) Q: Can I label my product "indoor use only" instead of "FCC regulations restrict the operation of this device to indoor use only"?

A: Yes, see 291074 D01 UNII 4 publication.

- b) Q: Can I use a C2PC to add the UNII-4 band and update field units under the same FCC ID by following publication 594280 D01 Software Configuration Control?

A1: Yes, if the field units are labeled as indoor only or initially granted with e-labeling (see item c below).

A2: No, If the field units are not labeled as indoor only or were not initially granted with e-labeling. You can apply for an expedited waiver with justification; see item f below.

- c) Q: Can I use e-labeling to meet: 47 CFR 15.407(d) Indoor only.

A: Based on 47 CFR 2.935 any warning statements or other information that the Commission's rules would otherwise require to be shown on a physical label can use an e-label. Note, A description of how to find the e-label information must be included in the user manual in the manual exhibit required for equipment certification.

- d) Q: Can I do C2PC to change from physical labeling to e-labeling for new production units?

A: Yes, if you meet 2.935(a) for e-labeling (display or companion device) and 2.935 (b) for providing instruction material. The application for equipment authorization must include a copy of the instructions.

- e) Q: Can I do C2PC to change from physical labeling to e-labeling and do a field upgrade (push following publication 594280 D01 Software Configuration Control)?

A: No, since you cannot meet 2.935 in its entirety, precisely 2.935 (b), which requires instruction material to be provided at the time of purchase or installation. You can apply for an expedited waiver with justification. See item f below.

- f) Q: For devices that cannot meet the labeling requirements, what is the procedure to file for a waiver?.

A: Follow the procedure in Publication 502150- What are the requirements for an equipment authorization under a waiver.