

## Mike Kuo

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**From:** Claire Hoque  
**Sent:** September 22 日 2003 年 Monday 4:49 PM  
**To:** Mike Kuo  
**Cc:** Michael Heckrotte  
**Subject:** RE: question#3 of TCB questions for Cisco FCC ID:LDK102049, AN03T3231(03U2181)  
**Importance:** High

-----Original Message-----

**From:** Michael Heckrotte  
**Sent:** Thursday, September 18, 2003 1:57 PM  
**To:** Mike Kuo; Claire Hoque  
**Cc:** Barbara Judge; Jim Nicholson (E-mail)  
**Subject:** RE: question#3 of TCB questions for FCC ID:LDK102049, AN03T3231(03U2181)

Mike,

The Cisco AIR-MP21G-A-K9 module may be used with the following antennas:

| Antenna Type                      | Model Number     | Gain dBi | MPE cm | Mode of Operation   |
|-----------------------------------|------------------|----------|--------|---------------------|
| Yagi                              | AIR-ANT2410Y-R   | 10       | 12.5   | Point to Multipoint |
| Patch                             | AIR-ANT3549      | 8.5      | 10.5   | Point to Multipoint |
| Patch                             | AIR-ANT2012      | 6.5      | 8.4    | Point to Multipoint |
| Patch                             | AIR-ANT1729      | 6.0      | 7.9    | Point to Multipoint |
| Omni                              | AIR-ANT2506      | 5        | 7.0    | Omnidirectional     |
| Omni                              | AIR-ANT3213      | 5        | 7.0    | Omnidirectional     |
| Omni                              | AIR-ANT1728      | 5        | 7.0    | Omnidirectional     |
| Omni                              | Maxrad MUF24005  | 5        | 7.0    | Omnidirectional     |
| Omni                              | Maxrad MAXC24005 | 5        | 7.0    | Omnidirectional     |
| Patch                             | AIR-ANT3195      | 3        | 5.6    | Point to Multipoint |
| Dipole                            | AIR-ANT4941      | 2.2      | 5.1    | Omnidirectional     |
| Two Dipoles (Diversity Operation) | Two AIR-ANT4941  | 2.2      | 5.1    | Omnidirectional     |
| Omni                              | AIR-ANT3551      | 2.2      | 5.1    | Omnidirectional     |
| Omni                              | AIR-ANT5959      | 2.0      | 5.0    | Omnidirectional     |

Thanks,  
Mike

-----Original Message-----

**From:** Mike Kuo  
**Sent:** Thursday, September 18, 2003 9:43 AM  
**To:** Claire Hoque  
**Cc:** Michael Heckrotte  
**Subject:** RE: question#3 of TCB questions for FCC ID:LDK102049, AN03T3231(03U2181)

Hi Clarie :

Since some of antennas listed in the user manual are not necessary applicable to this device. Please provide an antenna list that will be used with this radio.

Best Regards

9/24/2003

Mike Kuo

-----Original Message-----

**From:** Claire Hoque

**Sent:** Thursday, September 18, 2003 9:52 AM

**To:** Mike Kuo

**Cc:** Michael Heckrotte

**Subject:** question#3 of TCB questions for FCC ID:LDK102049, AN03T3231(03U2181)

**Importance:** High

Hi Mike,

Pls kindly read Jim's updated reply regarding question#3, and let us know if you could accept his explanation. If there are no further questions, pls issue the grant ASAP.

Thanks,

Claire Hoque

-----Original Message-----

**From:** Jim Nicholson [mailto:jimnicho@cisco.com]

**Sent:** Thursday, September 18, 2003 7:47 AM

**To:** 'Claire Hoque'

**Subject:** RE: TCB questions for FCC ID:LDK102049, AN03T3231(03U2181)

Claire,

Regarding my response below for Question #3, the Orion radio for which we are applying for approval is an 802.11g radio. In the manual on the page you describe, I notice the 802.11g column does not reference an antenna with gain higher than 10 dBi. That being the case, I don't think a change is required to this section. The prior transmitter I referenced is covered under the 802.11b column.

Let me know if this will fly.

Thanks,

jim

-----Original Message-----

**From:** Jim Nicholson [mailto:jimnicho@cisco.com]

**Sent:** Wednesday, September 17, 2003 7:29 AM

**To:** 'Claire Hoque'

**Subject:** RE: TCB questions for FCC ID:LDK102049, AN03T3231(03U2181)

Claire,

Please see my comments in line below.

Thanks,

Jim

-----Original Message-----

**From:** Claire Hoque [mailto:choque@CCSEMC.com]

**Sent:** Tuesday, September 16, 2003 7:46 PM

**To:** 'jimnicho@cisco.com'

**Subject:** TCB questions for FCC ID:LDK102049, AN03T3231(03U2181)

Hi Jim,

Here are TCB questions for FCC ID:LDK102049, AN03T3231(03U2181). Michael Heckrotte has helped to give us some explanation(as attached).

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9/24/2003

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Question #1: Based upon the antenna information given in Appendix B of user manual, Part No:AIR-ANT2012 is Spatial diversity antenna type with 6.5dBi gain. There is no test data for this type of antenna. Please provide your justification why this antenna is excluded from investigation.

[JN] AIR-ANT2012 is a spatial diversity antenna in that there are two patch antennas in one package for diversity purposes. This 6.5 dBi patch antenna is covered by the testing of AIR-ANT3549 8.5 dBi patch antenna.

Question #2: Part No:AIR-ANT3195 is listed in Appendix B but the test report did not list this antenna. Please confirm will this antenna be used with this transmitter.

[JN] AIR-ANT3195 is not planned to be used with this transmitter, though there is no harm in including it in the approval.

Question #3: Appendix B-6 of user manual mentioned three of antennas shall be installed to provide 2 meter separation distance to all users. One of antenna ( AIR-ANT1949 ) was not tested during final compliance tests. Per the antenna list in Appendix B-3, AIR-ANT1949 is yagi antenna with 13.5 dBi gain which is higher than AIR-ANT2410Y-R yagi-directional with 10dBi gain. Please provide your justification to state the reason that AIR -ANT1949 was not selected during final compliance tests.

[JN] We will modify the Appendix B-6 and B-3. This manual covers a prior transmitter for this platform as well, and the higher gain antennas apply to the prior transmitter only. The transmitter being approved under LDK102049 does not support antennas with gain higher than 10 dBi.

Question #4: Please confirm AIR-ANT24120, AIR-ANT4121 and AIR-ANT1949 antennas will require professional installation.

[JN] AIR-ANT24120, AIR-ANT4121, and AIR-ANT1949 will not be used with the transmitter being approved under LDK102049 (see response to #3 above).

Question #5: B-4 of user manual, please delete 2.1093 reference information from RF exposure compliance statement. This module can only be used as mobile device per section 2.1091 of FCC rules. 2.1093 is designed for portable device which is not applicable to this device.

[JN] We will make this change.

Question #6: Please confirm that this radio with 2.2dBi antenna gain will be co-located with 5GHz Radio module ( FCC ID:LDK102045 ). No other 2.4GHz radio antenna will be co-located with 5GHz radio.

[JN] Only the 2.2 dBi antenna will be located within 20 cm of the 5 GHz antennas. All other 2.4 GHz antennas will be located at least 20 dm away from the 5 GHz antennas.

Question #7: Please confirm that this 2.4GHz radio will only be installed in CISCO Access Point. When this radio is sold as upgrade module, this radio can only be installed in CISCO access point due to the special screws on the access point.

[JN] This radio module is intended for use only in Cisco Access Points. The software will prohibit the module from working in another device.

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Pls reply ASAP.

Thanks,

Claire