

August 19, 2003

RE: Netgear Incorporated  
FCC ID: PY3ME103

After a review of the submitted information, I have a few comments on the above referenced Application.

1) It appears that the AC/DC adapter may contain a ferrite on this cable. Please confirm.

*The device does not include a ferrite. The test lab performed radiated and conducted tests with and without the ferrites. Please refer to the letter of explanation from Sporton. Test configuration photos reflecting the configuration with photographs have been uploaded to the ATCB website.*

2) FYI, For purposes of MPE, all devices meet 20 cm mobile requirements. The manufacturer may specify further distances (i.e. 25 cm and 50 cm as given in the RF exposure exhibits) if they wish. However for purposes of the grant, all meet the mobile 20 cm requirement and will be listed this way.

*This is noted. The User's Manual details a separation distance of 20cm for all antennas.*

3) Please provide photographs of each of the 12 proposed antennas.

*There are 12 antennas in this application. Files containing the specifications for each antenna have been uploaded to the ATCB website.*

4) It is not clear if all connections (access point, cables, Antennas) are non-standard connectors. These must all be non-standard unless the system is professionally installed. Please comment.

*All connectors on the ME103 are reverse SMA connectors. All antennas use either reverse SMA male connectors (and so can connect directly to the rf output of the ME103), reverse SMA female connectors (which require the use of a cable to connect between the amplifier and the antenna) or reverse N connectors.*

5) The FCC has normally required that the highest gain antenna of each type be tested. It appears that for the Triband antenna, only the lower gain model may have been tested. Please explain.

*The antennas selected for testing were the highest gain of each type. The higher gain tri-band, being an omni-directional antenna, is considered to have been covered by the tests performed on the high gain omni antenna. Additionally, the test report indicates that all configurations were pre-tested to determine the worst-case configurations.*

*Further support for the configurations tested is the fact that there was little energy radiated at the harmonics of the fundamental signal and the highest signal level was at the band edges, which is directly related to antenna gain.*

6) Only the radiated test configuration photographs were provided as a separate exhibit. Please provide the conducted emissions photographs as well.

*AC conducted emissions photographs have been included in a revised test configuration photographs file.*

7) The test report appears to show data and plots up to 5 GHz. Please confirm that the device was scanned up to approximately 25 GHz. Note that from the plots provided, it appears that there may not have been the necessary dynamic range to make measurements above 5 GHz. Please explain.

*Sporton (the test facility) confirmed that the radiated spurious emissions were investigated to 26GHz by using the antenna in close proximity to the device under test (thereby avoiding the noise floor/dynamic range limitations you mention). No significant signals were observed above the second harmonic. Sporton has provided a letter attesting to this fact.*

8) It appears that some of the patch antennas may have been tested with the antennas laying down, which may not allow proper measurement for spurious emissions that may be emitted from the main beam width of the antenna. Note that the highest fundamental measured was for the 5 dBi antenna. It is expected that the highest fundamental would normally occur for the highest gain antenna. Please comment. Note that this fact could affect the band edge and spurious emissions measured.

*The system has been re-tested with the antennas correctly configured. The test report has been updated and the test configuration photographs revised.*

9) The average emission for Horizontal on the second harmonics (page 130 of 154 of the test report) is only reported for peak emissions. Enough information is not shown to show compliance with the average emissions requirement.

*The test report has been updated.*

10) It appears that the data on page 145 of 154 for the 5 dBi Ceiling antenna is backwards. In other words, by matching the band edge data with the previous spurious data, the low channel data is listed as Channel 11 and the High channel data as Channel 01 in the band edge tables. This also means that the results are miscalculated for the band edge based on the delta measurements used since the incorrect delta is applied to both band edges.

*The test report has been updated.*

11) The delta measurements used for the bandedge do not appear to match those used in the tables. It appears that for the low channel, a delta measurement is 41.14 dB, while the table used 49.6 dB. For the high channel, a delta measurement is shown of 49.19 dB, while the tables use 48.74. Please explain.

*The test report has been updated.*

12) Power meters listed in the test report appear to be out of calibration (page 155). Please explain.

*The test report has been updated.*

13) It is not certain if any antenna required minimum cable lengths or if certain antennas have a fixed cable length attached. All the radiated test photographs appear to show a cable between the antenna and the access point, while the RF exposure does not list any cables for most antennas. Note that the FCC expects the maximum transmit power with minimum loss per antenna to be tested. Therefore it is expected that the lengths tested are the minimum for those configurations (and others of like antennas with lower gain). Please provide further information regarding this issue. If minimum cables are necessary, what keeps the end user (since this does not appear to be professionally installed) from eliminating these cables?

*The antennas that connect via cable to the device are provided with either a reverse SMA or reverse N connector. Those with a reverse N connector are also provided with a reverse SMA to reverse N adapter. By providing the antennas in this way it is ensured that at least a 1.5m cable (the shortest available cable provided by Netgear) is used between antenna and Access Point for configurations that require a minimum cable length.*

*Antennas that can connect directly to the Access Point have a reverse male SMA connector to allow them to connect directly. Some antennas consist of the antenna plus integral cable assembly.*

14) Please provide a users manual for this system that includes proper FCC statements and RF exposure conditions.

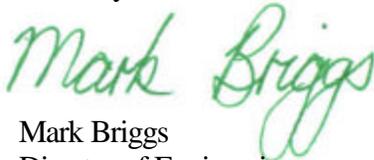
*The original manual contained the appropriate warning statement for 20cm minimum separation on page 38 of 49 and has been uploaded to support this request for a Permissive Change.*

The following files have been uploaded to the ATCB website:

- Response.pdf
- ME103 user's guide.pdf
- Test Lab Issues Response.pdf
- F341403-01-Wireless Access Point.pdf
- Test Configuration Pictures (Revised).pdf
- antenna specs Part 1a (Omni).pdf
- antenna specs Part 1b (Omni).pdf
- antenna specs Part 1c (Omni).pdf
- antenna specs Part 2 (Ceiling Antenna).pdf
- antenna specs Part 3 (Panel Antennas).pdf

If you have any additional questions please contact us at [doc@elliottlabs.com](mailto:doc@elliottlabs.com)

Sincerely,



Mark Briggs  
Director of Engineering