



To: Mr. Tim Johnson, American TCB
From: David Waitt
Subject: FCCRVW2230 , IC: 332R-2230 Class II Permissive Change / Reassessment

Date: 27 January 2005

This letter addresses your compliance concerns regarding the IC application for the access point radio referenced above. If there are any questions or if additional information is required, please contact me at david@waitt.us

On behalf of Nortel,

A handwritten signature in black ink, appearing to read "David Waitt".

David Waitt

ATCB 1) Please provide a cover letter explaining the purpose of the Permissive Change application. Please be sure this include a comparison of the new antennas to the original antennas. Additionally, If necessary please justify which antennas were required for testing

Nortel: A cover letter has been uploaded which includes a complete 2.4 GHz antenna list and test justification.

ATCB 2) Please provide the complete list of antennas as referenced in your email.

Nortel: A cover letter has been uploaded which includes a complete 2.4 GHz antenna list and test justification.

ATCB 3) 1661 MHz on page 12 of the test report states this is a non-restricted band which is incorrect. Average measurements are also required for this frequency.

ATCB 4) 1700 MHz on page 13 of the test report states this is a non-restricted band which is incorrect. Average measurements are also required for this frequency.

ATCB 5) 2872 MHz on page 21 of the test report states this is a non-restricted band which is incorrect. Average measurements are also required for this frequency.

ATCB 6) 1698 MHz on page 22 of the test report states this is a non-restricted band which is incorrect. Average measurements are also required for this frequency.

ATCB 7) 2873 MHz on page 23 of the test report states this is a non-restricted band which is incorrect. Average measurements are also required for this frequency.

Nortel: The tables in the report have been corrected and the average data has been provided

ATCB 8) The Delta Measurement on page 33 for peak does not math the table information on page 25 & 26.

Nortel The tabular data in the report has been corrected.

ATCB 9) Please provide information regarding dual TX testing.

Nortel: An explanation of why "Dual Tx" testing is not necessary have been uploaded to the ATCB site.

ATCB 10) Please clarify maximum net gain for 5 GHz antennas for this application.

Nortel: The Cushcraft specification for the S5153 and S5703 antennas is listed as 5 dBi with 7 inches of cable. However the antenna is actually shipped with 36 inches of cable. This additional cable loss lowers the total gain of the antenna to 4.3 dBi according to Cushcraft. The report has been edited to indicate an antenna gain of 4.3 dBi net.

ATCB 11) Please check the results listed on page 6. Something appears inconsistent.

Nortel: The results and the results summary text have been revised.

ATCB 12) The spectral density in the 5.15 – 5.25 Band appears to have increased about 8 dB. Please explain.

Nortel: The current PSD measurements are correct and corroborated by a quick calculation.

The approximate occupied BW if the signal is 28MHz. This is 14.47dBmHz ($10 \cdot \text{LOG } 28 = 14.47$)

The approximate transmit power in the band is question is approximate $15\text{ dBm} / 28\text{ MHz BW}$. Adjusting this down to 1 MHz yields a calculated power spectral density of $15\text{ dBm} - 14.47\text{dB} = .53\text{dBm/MHz}$.

The measured result for 5180, where the transmit power is approximately 15 dBm is $.71\text{ dBm}$.

It is unknown at this time why the PSD was measured so low during the previous testing, however the RF power has been verified to be at the same level as was tested previously.

ATCB 13) Please explain the ISM limits on page 19. They limits appear to be 30 dB down, not 20 dB.

Nortel: According to the Presentation at the TBC Council meeting in October 2004, Mr. William Hurst's slides (#15 & 16 indicate that when an "average" RF power measurement is used, that the "Out of Band Emissions" NOT within a restricted band must be -30dBc rather than -20dBc . If this policy is being applied incorrectly in this case, please advise.

ATCB 14) The limits on page 19 do not all appear correct. Please review.

Nortel: The limit for the emission at 5312MHz has been corrected.

ATCB 15) Please explain why each antenna is only tested in their designed passband. What precludes these antennas from being used on the incorrect band? In other words, if the device may operate in either band and may use either internal or external antennas, what keeps the device from functioning on the UNII band for the ISM band antenna and vice-versa.

Nortel: Each of the antennas "Split Band" antennas have now been tested in their intended band of operation as well as their "Opposite band". Example, the low band antenna was tested in both, low and high 5 GHz bands.

ATCB 16) FYI....1125 MHz on page 19 of the test report states this is a non-restricted band which is incorrect. However, the peak measurement for this already meets the average limit.

ATCB 17) FYI....1200 MHz on page 20 of the test report states this is a non-restricted band which is incorrect. However, the peak measurement for this already meets the average limit.

the RSP Form.

Nortel: The tabular data in the report has been corrected to indicate that this is a peak measurement below the average limit