

FW: Quanta Computer Inc., FCC ID:PZ5WM100, Assessment no:AN01T1724From: etcemi [etcemi@ms29.hinet.net]
Sent: Thursday, January 24, 2002 5:19 AM
To: Mike Kuo
Subject: Re: Quanta Computer Inc., FCC ID:PZ5WM100, Assessment no:AN01T1724

Hello! Mike,

Many thanks for your help.

First I would like to ask you a favor, the grantee code for Quanta is HFS, could you replace the grantee code of PZ5?

Please find our explanations below:

Question #1: There are four pairs of antenna to be used with this transmitter card. Please provide antenna specification for each antenna. Please make sure the information includes antenna type and antenna gain information.

ANS.: These antennas are dipole type, and therefore the antenna's gain will hardly exceed 3 dBi. If you can not accept this explanation, I will send you the specifications. Because of this only can be obtained from Antenna provider.

Question #2: Radiated emission tests were performed with transmitter card located outside the notebook computer. This test method is only applicable to transmitter module approval. Are you intended to apply for transmitter module approval or as transceiver card ?

ANS.: Sorry, would you advise the difference between these two approvals? My client is preferred to get approval for this MiniPCI card seperately, for this card will be used with many different brands of notebook, of course the ODM is Quanta.

Question #3: In accordance with user manual, the design specification for the transmitting power is 14dBm+/-1dB. However, the measured antenna conducted output power is 19.9dBm. Please explain the differences.

ANS.: Sorry for our omissions, there is a wrong setting with the instrument in the measurement. The correct output power measured is attached.

Question #4: Four pair of antennas are included in this filing. There is no antenna installation procedures provided in the user manual. Please explain who is the party going to install the antenna and what is the installation procedures.

ANS.: The RF MminPCI card will be installed by manufacturer only and will be built-in in specific inner place of a notebook. An end user is certainly not able to perform the installation of the antenna, so no instructions in the user's manual.

Question #5: For multiple antenna configuration, measurement must be performed on the highest gain antenna of each " type ". In other words, if multiple yagi, patch, and dish antennas are proposed, only the highest gain yagi, patch and dish must be tested. In addition, measurement should also be made on the lowest gain antenna, so that the EUT is operating at its highest available output power, in order to test for case radiation. In the test report to radiated emission tests, there is no information to indicate which antenna was used during the tests. Please examine your test procedure and configuration and provide additional test data.

ANS.: This RF MiniPCI card is unable to connect to high gain antenna, such as yagi, dish type, for use of the MiniPCI card is intended to install into a notebook. Antenna used with this MiniPCI card will only have a gain no more than 3 dBi, because the only available type is dipole under actual situation of tiny space, even they are different shapes. The difference is only on the length of connecting cable between antenna connector and antenna.

Question #6: Power output: when using spectrum analyzer to measure antenna conducted output power, the RBW needs to be greater than 6dB bandwidth. If the spectrum analyzer has a limitation of max. 3MHz RBW, you need to correct the reading by using $\text{reading} + 10 \log (6\text{dB BW}/\text{measurement BW})$.

ANS.: This measurement is with the function of Channel Power, the measurement bandwidth is 22 MHz, so this is wider than 6dB bandwidth of the EUT. This is also accepted by FCC engineer, Mr. Joe Dichoso, so please advise if you can not accept.

Question #7: The document titled principle operation does not provide enough information to justify that this device meets the definition of a direct sequence spread spectrum system. (See section 2.1). Please provide alternate principle operation document.

ANS.: Attached please find the information for DSSS.

Question #8: Page 12 of test report, the peak emission level at 2063MHz /Horizontal is 58.8dBuV/m - 3.2dB (correction factor)=55.6dBuV/m. This peak reading is over the average limit which is 54dBuV/m. Please provide average reading to show the compliance.

ANS.: The average value is 51.3 dBuV/m when the RBW and VBW of spectrum analyzer are 1MHz and 300Hz respectively.

Question #9: Radiated Measurements at Bandedge. Please perform additional radiated emission at bandedge with fundamental frequencies operate at Channel 1, 6 and 11.

ANS.: As FCC ever told me the measurement on bandedge was to investigate the compliance of permitted operational band, so only first channel and last channel have to be measured, right? Anyway if you require test data for channel 6, we will test it and send data to you. The test data is as follows:

Frequency (GHz)	Horizontal (dBuV/m)	Vertical (dBuV/m)
2.39928	63.8(Peak)/53.4(AV)	
72.0(Peak)/62.2(AV)		
2.48367	61.7(Peak)/50.7(AV)	
64.2(Peak)/51.7(AV)		

Emissions at Lower bandedge is obviously attenuated by more than 20dB from the peak fundamental, please check the plot of bandedge attached.

Question #10 : Request for confidentiality is checked on the TCB application form. Please provide a cover letter to indicate which document should be withheld from public disclosure.

ANS.: Attached please find the letter requesting confidentiality.

Question #11: What is the theoretical process gain? Chip/bit rate? Spread rate/data rate?

ANS.: The theoretical process gain is 10.41dB from Harris application note of AN9633 (Note.1).

$$PG=R_c/R_b(\text{dB})$$

By this definition of a system that has a data rate of 1Mbps and a chip rate (Rate of PN code) of 11Mcps will have a PG. of 10.41dB. This device uses 11 bit to spread the data. The PN sequence is named by barker code. The sequence is 11100010010, and Exclusive OR of the data and PN code. The spreading clock rate is 11Mcps. The measured data rate is 1Mbps.

Question #12: What was the BER chosen during processing gain measurement ?

ANS.: The BER rate is 10^{-5} .

Question #13: Please provide proposed FCC ID label format and location.

ANS.: Attached please find the FCC ID label.

Please check if you require any further information and please help advise the difference between Modular approval and Transceiver Card.

Thank you very much and regards,

K. C. Chen

ETC/EMC Department II

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

From: Mike Kuo

To: K. C. (E-mail)

Sent: Saturday, January 05, 2002 10:40 AM

Subject: FW: Quanta Computer Inc., FCC ID:PZ5WM100, Assessment no:AN01T1724

Dear K.C.:

Please forward to Joe Hsieh. Thanks !

Mike Kuo

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

From: Mike Kuo

Sent: Wednesday, January 02, 2002 5:14 PM

To: 'hsieh@etc.org.tw'

Subject: FW: Quanta Computer Inc., FCC ID:PZ5WM100, Assessment no:AN01T1724

