RE: Hyperlink Technologies

FCC ID: MYF-G11FNFPCX

The following is in response to the comments on the above referenced application.

1) Please confirm that this device will only be sold only as a complete system as shown within this application (DC Injector + PCMCIA Card + Amplifier). Note that currently amplifiers may only be approved as part of a system under Part 15.

We confirm that the system will only be sold in the configuration described in the test report.

2) Please provide higher resolution photographs of the internal PCMCIA Card. Additionally, please provide bottom internal photographs of the PCMCIA Card.

The internal photographs provided of the PCMCIA card were those filed with the commission when the PCMCIA card was originally certified (FCC ID: HZB-G11FNFPC), and thus should be sufficient. However, we have re-taken these photographs and uploaded a revised exhibit per your request.

3) Most PCMCIA cards have a simple driver interface for selection of channels, etc. It appears that the channel list for use with the device varies will depend on the antenna/configurations. Please explain how compliance of this device will meet 15.15(b) (i.e. what keeps a user from selection of channels 7 and 8 for configurations that should only allow channels 4-6).

A letter has been uploaded attesting that this system will only be installed with “password protected” access points. The end user will not have access to the passwords to change the settings on these systems.

4) Please explain why some higher gain antennas allow channels 4-8, while some lower gain antennas only allow channels 4-6. Note that any changes to this table will also affect the users manual.

For this system, the channels in which particular configurations comply are generally limited by the harmonic emissions in the restricted bands, and not by band-edge compliance (due to the large output filter used). Some antenna types exhibit stronger secondary resonances or unbalanced common mode emissions as they are not designed to operate at harmonic frequencies. Thus, it is not possible to directly correlate the antenna gain factors at the fundamental frequency with the magnitude of the emission at harmonics frequencies. The channel limitations stated in our filing are correct based on the extensive radiated emissions testing provided in this filing.

5) Reference to Section 15.247(b)(4)(iii) in the users manual appears incorrect. We believe this was likely intended to be 15.247(b)(3)(iii). Please verify and adjust as necessary.

Our apologies, in the 10–1–02 Edition of the FCC Rules the paragraphs 15.247(b)(3)(i,ii,iii) come after section 15.247(b)(4), which makes them appear to be subparts of 15.247(b)(4). We have corrected as necessary.

6) Please note that the FCC no longer desires that the safe distance for mobile devices be calculated in the RF exposure exhibit if the safe distance is < 20 cm, but instead prefers the power density results to be calculated and compared to the power density limit. Given the nature of this application it is convenient to leave the information provided, however please provide a separate table that also calculated power density @ 20 cm for the mobile devices and @ 1 meter for the fixed devices.

Updated Tables have been included in the updated RF exposure exhibit.

7) It is uncertain which power meter was used for the 802.11g testing. There has been some concern generated over the bandwidth of the sensors used for this measurement that affects its accuracy with OFDM modulations. The test report shows 2 power meters that may have been used. Please provide additional information regarding this issue.

For the 802.11g mode, the Pacific Measurements 1018B peak power meter was used. However, addressing concerns as to the input bandwidth and rise-time of the device we have determined that this peak power meter has an insufficient rise/fall time to accurately detect 802.11g mode signals. Per the power meter's user's manual and our own measurements, the input rise/fall time for the 1018B meter was determined to be on the order of 150-200 ns. Using a crystal detector (HP 8472A) we determined that the peak rise/fall time for the 802.11g signal is ~60 ns. Thus, the measurements made with the PM 1018B peak power meter were low.

The output power of each amplifier power setting, as well as the radio alone, was re-measured using the HP 8472A crystal detector compared with a the CW source. The individual amplifier output peak power levels were observed to increase. However, all configurations remain within the 1 Watt FCC/IC limit because of the insertion loss of the output filter that is used whenever the amplifiers are present. This filter insertion loss was not considered when the peak output power was first measured.

Thus, our updated test report indicates the new method of peak power measurement and the new, more accurate peak power output readings for the configurations listed. Additions have been made to the list of equipment used, and example plots of the 802.11b and 802.11g crystal detected waveforms are available upon request.

8) Please provide results of conducted emissions for the radio/laptop combination. Please note that each application must stand on its own. If results are provided from another application, please provide justification for this.

Certification for the PCMCIA radio, FCC ID: HZB-G11FNFPC, demonstrates that the FCC Class B line conducted emissions limits are met by the PCMCIA card and an associated computer. Please see section 6.4 of the updated test report exhibit for justification.

9) Plots shown in figure 6.17 suggest that the spectral density may not have been taken at the highest point in the passband of the fundamental. Please comment and/or provide new data as necessary.

The measured PSD amplitude in figure 6.17 is incorrect. However, observing the 6 dB bandwidth plot, figure 6.10, the peak emissions are no more than 3 dB above the measured emission. Since the measured emission has more than 11 dB of margin, the 6.17 plot still demonstrates PSD compliance.

10) Table 5.0 is not clear which configurations are which. Please color code this table differently.

An updated table in included in the updated test report exhibit.

11) Please explain if the rational of 6 dB was determined by observing bandedge, harmonics or both. Please note that the behavior of the bandedge does not necessarily dictate the same behavior for the harmonics.

The 6 dB of input attenuation was determined to be the level that gave the largest harmonic emissions from the amplifier. Because of the large output filter used in this system, band-edge emissions where not the limiting factor in selecting compliant systems for these configurations. In

fact, all configurations that use the output filter meet the band-edge emissions limits for all channels.

12) Although 6 dB of attenuation may have been used for restricted bands, please confirm if this same setting was used for bandedge.

6 dB of input attenuation was also used in testing band-edge compliance. See above for rationale.