

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

From: oetech@fccsun07w.fcc.gov [mailto:oetech@fccsun07w.fcc.gov]
Sent: Thursday, July 20, 2000 2:20 PM
To: Dana Wheeler
Subject:

To: Dana Wheeler, Harmonix Corporation
From: Joe Dichoso
jdichoso@fcc.gov
FCC Application Processing Branch

Re: FCC ID O2700000-30-30
Applicant: Harmonix Corporation
Correspondence Reference Number: 15204
731 Confirmation Number: EA97821
Date of Original E-Mail: 07/20/2000

[RESPONSE BY Harmonix Corporation]

We apologize for the confusion relating to the previously up-loaded files. Unfortunately, the agency we hired does not appear to know how to upload or file the documents under the proper categories. We requested remedies several times without success and now we must assume the uploading responsibility. We feel that we now know the accepted format and method of filing and hope this filing is done to your satisfaction. The new up-loaded and categorized versions of files are a dated suffix format with HXI prefix to facilitate identification.

- 1) The confidential request is vague and must list specific exhibits that are separate from non-confidential items. Test data cannot be held confidential. Internal photo's cannot be held confidential. Your request for "Any design or manufacturing technique." needs to be specific. Please submit a corrected confidential letter.

[RESPONSE BY Harmonix Corporation]

There was a confidential package submitted to our former agency. It was not up-loaded by ITS under the proper categories. Please refer to the "HXI-Request for Confidentiality FCC 000802.doc" file under Cover letters and confidentiality request.

- 2) Provide photo's of both sides of all circuit boards without any shielding.

[RESPONSE BY Harmonix Corporation]

The circuit board photos can be only taken through destructive disassembly of the tested products. Also, high frequency circuit boards reflect schematics and layout treatments of confidential techniques. Therefore these pictures are included in the "HXI-Circuit board Pix 000802.doc" file under the Schematics category.

- 3) The schematics are incomplete. Provide the complete schematics.

[RESPONSE BY Harmonix Corporation]

Please refer to the "HXI-Schematics 000802.doc" file under the Schematics category.

- 4) With regard to Section 15.255(b)2, indicate how the average power density measurement was calculated. This should be based on Section 15.255(b)5. ~~The average is based on the peak over the~~

~~actual time period during which transmission occurs.~~ Please explain. Provide time domain plot supporting average correction if the average is based on the worst case "on time" in 100 msec for pulsed emission.

[RESPONSE BY Harmonix Corporation]

Please refer to the 2.2 Modulation Characteristics of the "HXI-Detailed Description of Operation 000802.doc" file under the OPERATIONAL DESCRIPTION category.

- 5) From the plot of the emission on the lowest channel, it appears that the device operates in the 59-59.05 GHz band which is restricted to spurious emissions from publicly-accessible coordination channel. Please explain/correct accordingly, take into account the emission bandwidth of one of the three modulations that yields the widest emission.

[RESPONSE BY Harmonix Corporation]

The production coordinator was misinformed that the public coordination channel was removed from the Part 15.255 requirements. The unit was reconfigured at the factory and retested. Please refer to the Page 9 of 15.255 Operation in the band 59.0 – 64.0 GHz and the Page 41 2) *The device appears to operate in the 59 – 59.05 GHz restricted band.* of the "Harmonix_rev_7_28.doc" file under the Test Report category and to the 1.2 Reference Oscillator and Phase Locked Loop and Table 1 of the "HXI-Detailed Description of Operation 000802.doc" file under the OPERATIONAL DESCRIPTION category.

- 6) The output power must be measured pursuant to Section 15.255(e)2. Please remove the antenna and use a peak power meter. The output power measurements that were submitted were based on a field strength measurement with a 1 MHz RBW. Pursuant to Section 15.255(e)2, the peak output power measurement must use an RF detector that has a detection bandwidth that encompasses the 59-64 GHz band and that has a VBW of at least 10 MHz.

[RESPONSE BY Harmonix Corporation]

The Antenna is an integral part of the system assembly and a special adaptor is required to take a direct measurement of the power injected into the antenna. The peak power was retested and reported. Please refer to the Page 42 3) *Peak transmitter output power pursuant to 15.255(e)(2) of Annex A – Response to FCC Comments* of the "HXI-Detailed Description of Operation 000802.doc" file under the OPERATIONAL DESCRIPTION category.

- 7) The output power limit in Section 15.255(e) is based on the emission bandwidth. Provide emission bandwidth plots pursuant to Section 15.255(e)1, for all three modes of operation on a low, middle and high channel and calculate the appropriate output power for each modulation.

[RESPONSE BY Harmonix Corporation]

Please refer to the Page 43 4) *Emission bandwidth per 15.255(e)(1) of Annex A – Response to FCC Comments* of the "HXI-Detailed Description of Operation 000802.doc" file under the OPERATIONAL DESCRIPTION category.

- 8) The information supplied with regard to Section 15.255(i), does not clearly indicate compliance. Please indicate/verify how the device transmits the transmitter identification block within any 1 second interval of transmission. Describe the method of decoding the transmitter identification information for any

interested party. The information submitted did show that the FCC identifier was part of the information in the data block but what about the Manufacturer's serial number and 24 bytes of information to assist in contacting the operator? The exhibit "FCC letter re identification.doc" was unreadable. Check the format and resubmit it.

[RESPONSE BY Harmonix Corporation]

ID is contained in the cell or packet header. When the product is transmitting data, the header of the cell or packet exists. The header appears more than once a second. For ATM transmission a cell is 53bytes long at 156 Mbps (a header appears every 2.7 micro second). IP packets can be as long as 4096 bytes long (a header appears every 211 micro second). Thus as long as the Transmission is present, the encoded ID appears more than once a second. If transmission of a standard payload is not present, an SNMP or service packet appears every second. Manufacture's serial number does not appear in this scheme. The letter received from the FCC states that such serial number is not required for this radio. Please refer to the "HXI-Planned Implementation of FCC Identifier 000802.pdf" file under the ID Label category.

- 9) Provide a sample of the device, ONLY AFTER THE ABOVE IS SUBMITTED AND IS VERIFIED AS CORRECT THEREFORE THE SCHEDULED TIME TO SUBMIT THE DEVICE FOR TESTING ON July 27, 2000 may need to be rescheduled.

[RESPONSE BY Harmonix Corporation]

Thank you and acknowledged.

- 10) Indicate the dimensions of the 30 dBi patch antenna and the 38 dBi parabola antenna.

[RESPONSE BY Harmonix Corporation]

Please refer to the Figure 4, and Figure 5 of the "HXI-Detailed Description of Operation 000802.doc" file under the OPERATIONAL DESCRIPTION category.

The above is needed to determine whether measurements were made in the near field or far field so that the proper extrapolation factor is determined.

Please remove the third sentence in item 4 of the last e-mail, the average is based on the actual time period during which transmission occurs per Section 15.255(b)5 and not in a 100 msec time frame.

FYI The RF safety exhibit is pending. Any questions will be forwarded as soon as possible.