FCC

February 24, 2012

RE: FCC ID: SK6XI-N300, Correspondence Numbers: 41193 and 41195

Attention: Stan Lyles

Please find our responses to your comments on this application below:

1) If not already in this or the original filing under this FCC ID, please explain how compliance for the following 15.212(a)(vi)(A) rule provision is addressed, and/or revise exhibit(s) accordingly where appropriate. 15.212(a)(vi)(A) If using a permanently affixed label, the modular transmitter must be labeled with its own FCC identification number, and, if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. ...

> Response: In the original filing for the SK6XI-N300, a label exhibit was uploaded showing compliance with the labeling requirements of 15.212.
>
> In reviewing the original filing documents, there doesn't appear to be an exhibit that demonstrates that the end product will be properly labeled, as the module(s) will not be visible.
>
> See uploaded "XR6000 labels.pdf" file.

2) Further to item 1), if not already in this or the original filing under this FCC ID, please explain how compliance for FCC ID labeling is addressed for all supported combination variations of SK6XI-N300 and SK6XI-N450 devices, and/or revise exhibit(s) accordingly where appropriate.

> Response: To be clear, the host system, XR6000 in this case, will not have both SK6XI-N300 and SK6XI-N450 modules installed at the same time. The original grants do not mention collocation with the other module. The grants only address collocation of the multiple of the same module within a host device.
>
> Per the question regarding the label, please refer to the label exhibit uploaded in response to question #1.

3) If not already in the filing, please explain how compliance for the following 15.31(h) rule provision is addressed, and/or revise exhibit(s) accordingly where appropriate. 15.31(h) ... If an intentional radiator incorporates more than one antenna or other radiating source and these radiating sources are designed to emit at the same time, measurements of conducted and radiated emissions shall be performed with all radiating sources that are to be employed emitting. ...

Response: The approval for this device is a modular approval, not a product approval. Therefore, all measurements were performed with one module operating to show compliance of the module. The module is not capable of transmitting 2.4GHz and 5GHz at the same time.

In order to reduce test time, radiated spurious emissions tests were performed with multiple radios operating, as noted in the test reports.

4) Further to item 3), if not already in this or the original filing under this FCC ID, please explain compliance for how test-with-all-antennas-radiating is addressed for all supported combination variations of SK6XI-N300 and SK6XI-N450 devices, and/or revise exhibit(s) accordingly where appropriate.

Response: As mentioned in question 2, a host system XR4000 (from original filing) or XR6000 (this C2PC) cannot have both SK6XI-N300 and SK6XI-N450 modules installed at the same time.

5) The basic op. desc. exhibit in the original FCC ID is for model "XR-4000"; as we understand 16-module versions are model "XR-6/7000". Consistent with 2.907(a), please submit suitably updated op. desc. exhibit(s).

Response: Refer to “XI-N300 XI-N450 Operational Description R1.3”

6) Given that EMC and radio-parameter testing was done with modules installed in host-product configuration(s), if not already in this or the original the filing under this FCC ID, please explain how compliance for the following 2.1033(b)(7) rule provision is addressed, and/or revise exhibit(s) accordingly where appropriate to show multi-module chassis assembly (16 modules for the configuration of this filing) and exterior FCC ID label. 2.1033(b)(7) A sufficient number of photographs to clearly show the exterior appearance, the construction, the component placement on the chassis, and the chassis assembly. The exterior views shall show the overall appearance, the antenna used with the device (if any), the controls available to the user, and the required identification label in sufficient detail so that the name and FCC identifier can be read.

Response: Photographs of the module were provided for the original certification. It is our understanding that photographs of the host system for a modular approval are not required. Photographs of the XR4000 (up to 8 radio host of the original filing) were not requested during the original certification.

Internal and external photographs of the XR6000 host system have been uploaded for your reference.

7) The confid. request letter in this filing dated 7/27/2011 mentions "theory of operation"; however the single exhibit submitted under Form-731 "12 Operational Description" in this filing is a six-page document with heading "Xirrus Arrays Co-location ..." and which appears to be duplicate of pages 5 to 8 in the non-confidential Form-731 "11 RF Exposure Info" (same document is in this filing and in the original filing under this FCC ID). Pending response for item 5) of this corresp., confid. cover letter may need revision accordingly to identify specific exhibits which are requesting and qualify for confid.

Response: The documents uploaded as Operational Description “Attestation – Power Reduction 2x2.pdf” was included in the original filing. It was included as part of this C2PC for reference only. Since a revised operational description has been uploaded per comment 5 above, the request for confidentiality is still appropriate.

8) MPE estimate exhibit includes text: "Note: When compared to the 3x3 radio module that might be co-located with the 2x2 module, the 3x3 module has higher eirp than the 2x2 radio and so the MPE values for a host system containing both modules would use the 3x3 MPE values as a conservative estimate for the rf exposure hazard." It is unclear whether and how the MPE analysis in this filing has addressed this mix of "N300" and "N450" devices; please explain and/or revise all associated parts of filing where appropriate to clarify.

Response: A revised MPE Calculation has been uploaded. As stated in response to comment 1. The 2x2 and 3x3 modules will not be co-located in the same host device. This was addressed in comments for the original approval, but the MPE calculation was not updated at that time.

9) To support EIRP and MPE estimations, please provide details how nominal bare-element and/or in-situ antenna gain values of 2 dBi in 2.4 GHz band and 4 dBi in 5 GHz band are obtained.

Response: Refer to “XRant_FCC_2450.pdf” and “XRant_FCC_5150.pdf”

10) Page 4 of the MPE estimate and "aggregate power" exhibit includes the text: "Additional information is provided to show how the total output power with multiple radios operating in a band is still compliant with the limits." It is unclear whether and how that analysis in pages 4 to 8 remains applicable for host product populated with 16 radios, and including mix of "N300" and "N450" radios. Please explain and/or revise all associated parts of filing where appropriate to clarify.

Response: The information is still valid. As the number of radios in the host increased, there is still a limit on the number of non-overlapping channels available in any one band. For example, in the 2.4GHz band, there is a maximum of 3 non-overlapping 20MHz channels. The worse case condition is the 5470-5725MHz band, where there is 8 non-overlapping channels. The original MPE and aggregate power address this condition.

As stated in previous responses to comments, the 2x2 and 3x3 radio modules cannot be co-located in the same host device.

Regards,

Mark Hill
Staff Engineer

Uploaded Files:
XR6000 Labels
XI-N300 XI-N450 Operational Description R1.3
XR6000 external photographs
XR6000 internal photographs
Revised MPE calculation
Antenna Information