TO: Joseph Dichoso, FCC Laboratory

FROM: Randy Clark, CKC Laboratory

RE: Coordination of grant of certification for Navini transmitter.

This memo is to coordinate with you an application that CKC is prepared to grant for a new Navini phased array, point-to-point base station transmitter, the TTA (Tower Top Amp – "TTA Chassis") base station. It is a variation of the Navini 2.4 GHz transmitter that received FCC Certification on June 13, 2003 (PL6-ISM-BTS-R1 – the "Combo Chassis").

At a meeting at the FCC Laboratory on May 23, 2003, between you, Richard Fabina, Dr. Rashmi Doshi and Terry G. Mahn and Robert J. Ungar, representing Navini, Mr. Mahn and Mr. Ungar were advised that the TTA base station could be approved by a TCB with prior coordination between the TCB and the FCC Laboratory. Accordingly, I am sending this memo describing how the TTA base station transmitter differs from the already certificated base station transmitter and how it was tested.

The two base station types, the Combo Chassis and TTA Chassis, are product implementations of the same adaptive beam-forming technology and provide the same radiated power levels. Both products are functionally equivalent.

The primary difference between the two transmitters is the electrical and physical partitioning of the RF converter and final amplification components. In the Combo Chassis transmitter, RF conversion and final power amplification took place in a single multi-function module located in the tower base equipment. Its tower top equipment consisted of antennas, calibration circuits, and receive side low noise amplification.

In contrast, the TTA Chassis transmitter has physically separated the functions of RF conversion and final amplification into two circuit cards. RF conversion continues to take place in the tower base equipment, while final amplification takes place in the tower top.

The rationale for this change is primarily economic. The TTA Chassis transmitter changes result in many operator valued improvements including longer distance separation between tower base and tower top, smaller physical footprint, less weight, less DC power consumption, faster installation and lower price.

In accordance with procedures previously approved by OET, the TTA Chassis base station has been tested as follows:

- The total antenna gain per transmitter was computed as the sum of (a) the actual gain of the antenna used (12dBi), and (b) the beamforming gain (18dBi) of the system determined by the formula 20log10 N, where N is the number of transmitters in the array.

- The peak output power for each transmitter was reduced per Section 15.247(b)(3)(i) based on the total antenna gain, however a "phase coherence loss" correction factor of 2 dB for the 8 transmitter array was subtracted from this reduction.
- Accordingly, the peak output power of each transmitter in the beamforming array was reduced as follows:

Total antenna gain (12 + 18)	= 30 dB
Free gain per 15.247(b)(3)	= -6 dB
Gain subject to power reduction	= 24 dB
Power reduction per 15.247(b)(3)(i)	= 8 dB
Correction for coherence loss	= -2dB
Total reduction in transmitter power	= 6 dB

Based on our review of the test report of the TTA Chassis base station, it was tested according to the above procedures and fully complies with the Commission's rules. As noted above, we are prepared to issue a grant of certification and await your reply.