August 5, 2007
RE: Andrew Corporation
FCC ID: BCR-RPT-ION5BD
After a review of the submitted information, I have a few comments on the above referenced Application. Depending on your responses, kindly understand there may be additional comments.

1) For the 2 uploaded block diagrams, one received was actually a manual. From reviewing the file names and confidentiality letter we are missing the following file: “Block diagram IONM90_ 17P.pdf”. Please provide.

Please find the required file attached.

2) Generally the FCC desires to see top and bottom of all boards for internal photographs. It appears that most boards are only provided for one side. Please review.

The boards all have only one side with components and traces. The reverse side connects directly to heat sink to prevent the boards from over heating so there are no components or traces.

3) Due to internal structure, it is uncertain if all RF internal photographs have been provided. First impression and comparing to the manual suggests photographs may only be for the extension unit. Please explain, confirm, or update as necessary.

Please find revised internal and external photo files with the photos appropriately labeled.

4) FYI….In the future, kindly consider labeling the various internal photographs to make review simplier.

Please find revised internal and external photo files with the photos appropriately labeled

5) The FCC ID on the label, cover letters, etc. provided (BCR-IONM5BD) does not match the information given on the 731 form (BCR-RPT-IONM5BD), information uploaded to our site, test report, etc. It seems there is a mis-match of information throughout the filing. Please correct.

The correct FCC ID is BRC-IONM5BD. A revised application form is provided.

6) IC labeling expects the model to match as certified. The label does not appear to contain “IONM80/9/17/19”. The test report and operational description suggests that maybe 3 separate models under the 1 ID should be listed. If so, please clarify which IC listing specifications go with which model. Please review.

There should be two models for IC (IONM80/19 and IONM9/17). This is congruent with the two physical units that are active devices.

7) Information (i.e. operational description, etc) suggests the 935 – 941 MHz is an EU band only for GSM. Please explain and/or justify use of this band in the U.S. and if necessary adjust the application as appropriate (i.e. test report, 731 form, etc.). May this is intended for FM emissions only in U.S.?

The 935 – 941 MHz band is a licensed band under FCC Part 90, Subpart S and the channels are Industrial/Business and SMR Pool allocations. There are no restrictions on the type of emissions authorized in this band. iDEN modulation (QAM) is usually used in this band, hence the DXW.

8) It is unsure if the 1900 MHz TX schematics (other than control board) have been provided. Please review.

Please find the schematics for the 1900 MHz band rf circuits attached.

9) It appears that the extension and coupler units are partially contained in separate enclosures. Note that this application will only be valid for the particular loaded system (i.e. one main unit, one extension unit, and one combining unit) as defined in this application. It appears that the labeling of the individual units may be more appropriate and give greater flexability without relabeling. Does the applicant understand this? For instance, FCC guidance cites the following which would appear to apply to the extension unit:
- active interface unit
a) amplifies uplink signal from ***host unit*** for transmit by donor antenna
b) attenuates downlink from donor antenna
c) coax cable connection between ***host*** and ***active interface unit***
d) usually has separate FCC ID; in some cases could be combined/included with ***host*** as one enclosure and Single or multiple FCC IDs – One FCC ID per transmitter enclosure or rack, not per system. Generally, if one FCC ID is being used, this would assume that all units are always paired together. Depopulation (i.e. removal of the extension unit) is not necessarily covered. Additionally, since these are in separate enclosures, it would seem that 2 FCC ID's would be applicable (one for each active unit). See attached guidance for more detail. Please explain and/or correct as necessary.

We believe that these units should be approved together since they always operate and are installed as a system. If the extension unit bands are not used then they would simply not be installed but this would in no way effect the operation of the main unit because the main unit determines that an extension unit is not present and will not route 900/1700 band rf signals that it may detect at its optical input.

We believe that the extension unit would not require its own FCC ID number since it cannot operate without the main unit. The extension unit does not contain any means of converting optical signals to rf signals without being connected to the main unit. Further these units are marketed and sold together as one solution.

10) Generally these types of applications include the following in the grant notes: "Part of RF Distribution System which includes FCC ID: XXXXXX, FCC ID: YYYYYY and/or FCC ID: ZZZZZZ". Please comment and provide appropriate information necessary for this (i.e. .

See (9) above

11) Please include appropriate exhibit or correspondence showing applicant was informed that boosters must meet all criteria stated in Sections 90.219 and 22.383 for related booster/inbuilding operations.

Please find enclosed correspondence.

12) Part 90 appears to only allow transmission from 935 – 940 (ref Part 2, 90), not 941 as cited on the 731 form. Note that Narrow Band Part 24 PCS does fall from 940 – 941 MHz, but the report does not appear to support this. Please explain.

The correct band should be 935 – 940 MHz as per Part 90, Subpart S. The Form 731 has been corrected.

13) Please justify use of DXW in the 935 – 941 MHz band.

The band should be 935 – 940 MHz. There is no restriction against non-voice signals in these bands. There are situations where DXW is allowed by the Commission. This is a matter that is addressed in the service provider's operating license.

14) It appears that a plot is missing around Figure 35 – 36.

Please find a revised test report.

15) Part 24 for Plot 79 requires 1 MHz RBW. Please review.

Please find a revised test report

16) Plot 80 appears to show a spur in excess of the limits. Please review.

The emission in the plot was not above the limit as it appears. There was random noise in the test setup that caused this. Please see the revised test report.

17) For power, it is not fully understood how composite power affects output power. I.E. is output power total composite per band, or total composite of all bands. Given the operational description, this appear to be composite per band. If it is total composite power of all bands, how is this control accomplished given 2 separate units and/or separate circuits for each band.

RF power output is the composite rf output power at each individual rf output connector. This corresponds to the composite power in each band as listed on the Form 731. The rf exposure is addressed when the device is installed in accordance with the operating license of the service provider. The rf power output is controlled by the Main RF Unit via the installation and maintenance software. These settings are set by installation engineers and can only be accessed with a password.

18) Manual and operational description appears to be showing output power should be about 1 – 1.5 dB higher than measured. Please review.

The manual and the operational description rate the output power before the combiner. Measurements were made with the combiner in the rf chain, thus the measured rf power is slightly lower in some cases due to combiner losses. Measurements were taken at the combiner output since this is the configuration that would be used.

19) Please provide an appropriate RF exposure exhibit for this application. Be sure to consider 17 &18) above during calculations. Please note that 17 dBi cited in the manual and composite power of 20 Watts per band would appear to require > 4 meters specified.

The rf exposure is addressed at the time of licensing for this device as identified on page 2 of the User/Installer manual. The rf antennas are mounted on a fixed outdoor structure (a tower) in a restricted access area. The service provider must make a separate filing to FCC for RF Exposure.

20) Please explain maximum RF power given in the IC report of 10 Watts (page 7)

This was a typographical error. Please find a corrected test report.

21) FYI..Many plots in IC are labeled 20 dB, but are really 26 dB plots.

The difference between the 20 dB and 26 dB bandwidths was found to be insignificant so the 26 dB bandwidth was presented as worst-case rather than repeating the graphs.

22) Manual doesn't appear to contain all information require by RSS-131 section 5.3. Please review.

Please find revised manuals that include the required information.