RESPONSE TO FCC

FCC ID: Z5W-105002

CFM #: EA657517

Correspondence ID: 42198

1. The external photos and user's manual (P. 1-3) seem to suggest more than one device sharing the proposed FCC ID. If this is the case, please present a comparison table listing all differences between these models. Justification is required to support the claim that those models are electrically identical. On the other hand, if one of the devices is an external controller and unrelated to this FCC ID authorization application, the applicant is reminded that it cannot display the FCC ID.

   The FCC ID is for only one device; we have uploaded an updated External Photo exhibit. The BS421 contains all of the RF circuitry and the SB421 contains only an unintentional radiator. A revised operational description exhibit has been uploaded that explains both pieces functionality.

   2. Please describe the functionality of all external connectors (11 on the left and 7 on the right) shown on the external photos of the two devices mentioned in #1 above.

   A revised external photos and operational description exhibit has been uploaded that explains both pieces functionality.

   3. The Operational Description should present the EUT itself, not just the overall system, and typically should consist of description of all hardware subsystems, especially frequency determination and operating power circuitry, RF signal characteristics, electrical specification and supported features. The submitted operational description is missing the above information needed to understand the design and RF property of the EUT.

   A revised operational description exhibit has been uploaded that explains both pieces functionality.

   4. The Tune-up Procedure should discuss the range of adjustable operating power (by users or by installers) as well as the maximum power taking into account component variation during production. This information allows us to determine whether the design is capable of meeting compliance requirements in a mass produced unit.
   A revised tuning procedure exhibit has been uploaded.

   5. The frequency range listed on Form 731, 406.1-430 MHz, is incorrect or should have followed extended frequency listing procedure KDB 634817. Tetra downlink transmits on 420-430 MHz and test channels in the Part 90 EMC report are also limited to this range. 410-420 MHz is used by Tetra portable/mobile on the uplink.
   An extended frequency justification letter has been submitted.

   6. The three power levels listed on Form 731 - 12, 10.6 and 0.6 Watts, are not supported by the test report. Furthermore, test report shows 10.6 W and 0.6 W without explaining what operation modes they are associated with. Tetra is not known to have multiple air interface modes.

The 12.0 Watts is a typing error and should not have been on the 731 form. It should be 10.6 Watts. A new test report has been uploaded that contains a table with the power levels and the 2 modes.

7. The Part 90 test on RF power output appears to have the test procedure copied from that for a battery power device (mobile, portable or indoor base controller) and not applicable to the EUT, an outdoor base station. In addition, data on all 3 test channels should be presented instead of unspecified.
The test report was not changed from the template value to the correct description and has been corrected in the new uploaded report. .

8. A total of 15 emission designators are shown on Form 731, 8 are for 21 kHz necessary bandwidth and 7 for 20 kHz. Why 20 kHz has one less emission designator is a puzzle. Furthermore, it is really not necessary to have that many designators. The EUT, BS421, is a single carrier transmitter hence the designators associated with multi-carrier transmission should not be applicable. Also, when Tetra transmits a voice bit stream, there are in-band data/message bits; typically a combination designator suffices.

This was a typing error. The correct emission designators should be 20K0D1W and 21K0D1W. Thank you for the clarification.

9. The MPE analysis presented in Section 5.2.6 of the User's Manual is only applicable to EU standard. Please revise MPE analysis using FCC limit per OET-65. Furthermore, if multiple transmit antennas are supported by BS421, their combined effect should be considered. A list of all antennas and antenna gains should be provided.

We have uploaded an updated MPE analysis is included in the RF exposure report..

10. It is confusing to present 3 emission bandwidth plots all with different parameters. Both roll-off factors (0.35 and 0.2) for the RRC (Root-raised Cosine) filters should be shown on all three test channels. And the applicable emission mask should be Mask B because the sampling itself and the RRC filter act as low pass filters. The "assigned frequency" for the mask should be 20 kHz (per 90.209) for roll-off factor 0.2 or 22 kHz for roll-off factor 0.35 per FCC 11-63. Please revise test report.

A new test report has been uploaded.