

RESPONSE TO FCC

FCC ID: Z5W-105003

CFM #: EA618160

During submittal, I encountered some problems with the FCC web site and this may have caused some of the problems you have found. Please see our reply below:

1. Please correct the following filing errors: The document in the ID label exhibit is blank. The confidentiality request letter is submitted incorrectly to the external photos exhibit. Schematics, Test Report and Test Setup Photos all contain files belonging to other applications.

I have uploaded a correct label sample. I have also re-uploaded the confidentiality letter in the correct exhibit type. Upon review of the exhibits in the folder, there does seem to be duplicates; and some that don't belong to this model. I believe this was an error in the "system". As we are not able to make changes or remove documents, I believe this must be done on your end. Therefore, please see my comments below:

DOCUMENT TYPE	DOCUMENT FORMAT	DOCUMENT NAME	SIZE	REMOVE	KEEP	COMMENT
External Photos	Adobe Acrobat PDF	Confidentiality letter	326566	XXX		Uploaded as wrong exhibit type – re-uploaded correctly
ID Label/Location Info	Adobe Acrobat PDF	New Exhibit	0	XXX		Not sure what happened
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – Exciter	32473	XXX		Duplicate
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – Exciter	33406		XXX	Correct one for this filing
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – RFTL Switch	10168	XXX		Does not belong to DUT
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – RX Front End	22505	XXX		Does not belong to DUT
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – RX Synthesizer	16564	XXX		Does not belong to DUT
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – Power amplifier	20270	XXX		Duplicate
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – Power amplifier	14957		XXX	Correct one for this filing
RF Exposure Info	Adobe Acrobat PDF	MPE Declaration	99828		XXX	Correct
RF Exposure info	Adobe	MPE	99828	XXXX		Duplicate

	Acrobat PDF	declaration				
Schematics	Adobe Acrobat PDF	Schematic - Exciter	93475		XXX	Correct One for this filing
Schematics	Adobe Acrobat PDF	Schematic - Exciter	208767	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic - RX Board	54023	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic - RX Board	261539		XXX	Correct One for this filing
Schematics	Adobe Acrobat PDF	Schematic - Main Board	644570		XXX	Correct One for this filing
Schematics	Adobe Acrobat PDF	Schematic - Main Board	1115337	XXXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic - RFTL Switch	22822	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic - Power amplifier	40569		XXX	Correct One for this filing
Schematics	Adobe Acrobat PDF	Schematic - Power amplifier	44071	XXX		Does not belong to DUT
Test Report	Adobe Acrobat PDF	Test report	334584		XXX	Correct one for this filing
Test Report	Adobe Acrobat PDF	Test report	389162	XXX		Incorrect report for this filing
Test Set Up Photos	Adobe Acrobat PDF	Test set up photos	1143165	XXX		Duplicate - wrong photos for this filing
Test Set Up Photos	Adobe Acrobat PDF	Test set up photo	1392397		XXX	Correct One for this filing
Users Manual	Adobe Acrobat PDF	User Manual 2	1847332		XXX	Correct
Users Manual	Adobe Acrobat PDF	User Manual 2	1847332	XXX		Duplicate
Users Manual	Adobe Acrobat PDF	User Manual 1	2207069		XXX	Correct
Users Manual	Adobe Acrobat PDF	User Manual 1	2207069	XXX		Duplicate
Users Manual	Adobe Acrobat PDF	User Manual 3	2382870		XXX	Correct
Users Manual	Adobe	User Manual 3	2382870	XXX		Duplicate

	Acrobat PDF					
Users Manual	Adobe Acrobat PDF	User Manual 4	3153813		XXX	Correct
Users Manual	Adobe Acrobat PDF	User Manual 4	3153813	XXX		Duplicate
Users Manual	Adobe Acrobat PDF	Statements for user manual	237619		XXX	Correct
Users Manual	Adobe Acrobat PDF	User manual – warning statements	237619	XXX		Duplicate

2. 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.

We have uploaded a revised External photo exhibit and operational description exhibit.

3. 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.

We have uploaded a revised operational description and document with connectors identified.

4. 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.

We have uploaded a revised operational description.

5. 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.

We have uploaded a revised tune-up procedure exhibit and typical data sheet from the factory..

6. The frequency range listed on Form 731, 450-470 MHz, is incorrect or should have followed extended frequency listing procedure KDB 634817. Tetra downlink transmits on 460-470 MHz and test channels in the Part 90 EMC report are also limited to this range. 450-460 MHz is used by Tetra portable/mobile on the uplink.

We have submitted a frequency justification letter as some economies use a reverse band plan.

7. Part 90 EMC test report shows 12.6 W and 0.57 W output power without explaining what operation modes they are associated with.

**A new test report has been uploaded.**

8. 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.

**A new test report has been uploaded.**

9. A total of 16 emission designators are shown on Form 731, 8 are for 21 kHz necessary bandwidth and 8 for 20 kHz. 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.

**Please update the emission designators to be 20K0F1W and 21K0F1W.**

10. 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.

**An updated MPE analysis has been uploaded.**

11. In emission bandwidth tests, 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.**