

RESPONSE TO FCC

FCC ID: Z5W-104013

CFM #: EA749472

CORRESPONDENCE ID: 42215

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. A limited modular approval request letter is submitted. However, the modular equipment type is not checked on Form 731. Please clarify whether a modular grant is being requested.

The 731 form should have been marked YES in Item 8, and the modular type marked LIMITED SINGLE MODULAR APPROVAL. Please correct. Thank you.

2. If the EUT is applying for a limited single-modular transmitter grant, per KDB 996369 an OEM manual should be provided which outlines the host limitations as well as installation and use conditions. The FCC ID labeling guidelines given in Paragraph III(vii) of that KDB should be followed too.

An updated OEM manual has been uploaded. An enclosure document for the TR412 has been submitted as "Notice to Installers" and a new RF exposure exhibit

3. The modular approval request letter states that as a Part 90 licensed device it can use various antennas. This is incorrect. See KDB 996369 III(v), the maximum antenna gain shall be listed on the grant. Therefore, the maximum gain antenna for each applicable antenna type should be specified and tested. Antenna information should be also provided in the OEM manual and the user manual to guide antenna selection so that regulatory compliance is achieved. Per KDB 996369, the module grantee is responsible for full compliance. An exhibit has been included that includes host limitations and RF exposure.

4. A total of 10 emission designators are shown on Form 731, 6 are for 11 kHz necessary bandwidth and 4 for 16 kHz. Both bandwidths are not supported by the test report. Furthermore, please look into whether they can be consolidated. In addition, even though the controller may accommodate multiple transceiver modules, the emission designators listed on the grant should be for a single module only.

The wrong emission designators were entered on the 731 form. The correct emission designators should be: 20K0D1W, 21K0D1W

5. Please review all exhibits. There are files misplaced in wrong bins, files belonging to other devices, and duplicated file submission.

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
Parts List/Tune Up Info	Adobe Acrobat PDF	Parts List – Filter	13820	XXX		Does not belong to DUT
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 – Power Detector	8902	XXX		Does not belong to DUT
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – Power Amplifier	14968	XXX		Does not belong to DUT
Parts List/Tune Up info	Adobe Acrobat PDF	Parts List – Power Amplifier	20289		XXX	Correct one for this filing
RF Exposure Info	Adobe Acrobat PDF	MPE Declaration	99828		XXX	Correct
RF Exposure info	Adobe Acrobat PDF	MPE declaration	99828	XXXX		Duplicate
Schematics	Adobe Acrobat PDF	Schematic - Exciter	93475	XXXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic - Exciter	208767		XXX	Correct One for this filing
Schematics	Adobe Acrobat PDF	Schematic – RX Board	54023		XXX	Correct one for this filing
Schematics	Adobe Acrobat PDF	Schematic – RX Board	261539	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic – Power detector	20329	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic – rftl converter	42838	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic – Power amplifier	40569	XXX		Does not belong to DUT
Schematics	Adobe Acrobat PDF	Schematic – Power amplifier	44071		XXX	Correct one for this filing
Test Report	Adobe Acrobat PDF	Test report	294805	XXX		Incorrect report
Test Report	Adobe Acrobat PDF	Test report	388177		XXX	Correct one for this filing

Test Set Up Photos	Adobe Acrobat PDF	User Manual 4	3153813	XXX		Uploaded to wrong exhibit type
Test Set Up Photos	Adobe Acrobat PDF	Test set up photos	1150503	XXX		Duplicate – wrong photos for this filing
Test Set Up Photos	Adobe Acrobat PDF	Test set up photo	231032		XXX	Correct One for this filing
Users Manual	Adobe Acrobat PDF	User Manual 2	1847332		XXX	Correct
Users Manual	Adobe Acrobat PDF	User Manual 1	2207069		XXX	Correct
Users Manual	Adobe Acrobat PDF	User Manual 3	2382870		XXX	Correct
Users Manual	Adobe Acrobat PDF	User Manual 2	1847332	XXX		Duplicate
Users Manual	Adobe Acrobat PDF	User Manual 1	2207069	XXX		Duplicate
Users Manual	Adobe Acrobat PDF	User Manual 3	2382870	XXX		Duplicate
Users Manual	Adobe Acrobat PDF	User Manual 4	3153813		XXX	Correct
Users Manual	Adobe Acrobat PDF	Statements for user manual	237619		XXX	Correct
Users Manual	Adobe Acrobat PDF	User manual – warning statements	237619	XXX		Duplicate

6. 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.

7. 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 tuning procedure and included a data sheet that the factory generates for individual TR412's.\

8. Part 90 EMC test report shows 12 W and 0.5 W output power without explaining what operation modes they are associated with. Test data, including intermediate data if applicable, for all 3 test channels should be provided in the report.

A new test report has been uploaded.

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

A new MPE analysis has been uploaded as RF exposure report.

10. 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.