



CB-7.2.1 – Technical Review RT Form

FCC ID: 2AD9D-AXIS5GTX

IC ID: N/A

CT Project: P1510015

From: Shawn McMillen

Date: 3/20/15

Revised 05-15-2015 by SM

1--The block diagram is missing the clock and/or processor speeds as well as the supply voltages.

Tom: 5/7/15 – Provided.

Please provide the clock speed for the processor in the block diagram

Tom: 5/18/15 There is no processor on the RF module. This is a RF module only. It will not work without the Encoder PCB attached to it via ribbon cable.

2--The RF shield on the Module needs to be removed and photos provided of the components underneath.

Tom: 5/15/15 – Provided.

3--If this EUT is seeking modular approval the modular approval check sheet needs to be provided.

Tom: 3/25/15 – Provided.

4--On page 9 of the manual it states that there is a 450MHz camera control antenna however this frequency was not addressed. Also on page 11 the photo shows two RF connectors in close proximity. If this device is intended for additional radios then besides the additional radio testing necessary, simultaneous operation may need to be addressed.

Tom: 3/25/15 - Edited, please check for error.

5--The user's manual does not address RF exposure. In addition if this device is intended for portable use conditions the SAR and/or any SAR exemptions will need to be addressed.

Tom: 3/25/15 – Added SAR.

This has not been addressed. If this device is intended to be used in portable configurations then fixed/mobile maximum permissible exposure cannot be used to assess this device. It will need to be determined if this device is exempt from routine SAR evaluation. Please see KDB 447498 for SAR exemptions based on separation distances from the antenna to the end user.

Tom: 5/18/15 Working on this.

5/27/15 - Please see attached our operators manual and look at page 18.

SAR/RF exposure is not related to EMC standards. Safety with respect to EN is equipment safety and not human exposure. May I suggest a conference call to discuss.

Tom: Fixed.

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6--The manual states that this device can be installed in an aircraft. The filing does not address airborne usage and rule part 87 has not been considered. We have contacted FCC about this to see if it is possible, feedback to follow shortly...

Tom: 3/25/15 - Removed.

7--On the cover page and throughout the EMC report it reads that the frequency range is 5.5-5.8GHz. However the report does not support testing below 5725MHz and in addition frequencies below 5725MHz are DFS and additional considerations need to be addressed for operations in those bands.

Alex: Test Report has been revised. This was a template issue .

The EMC report lists the frequency range 5.5 – 5.8GHz in a couple of areas. The device cannot be approved for the 5.5GHz band since additional testing and certifications will be required. Please amend.

Alex: 5/18/15 Test report was not filed properly, please check again.

8--The antenna data sheets need to be provided for this application.

Tom: Provided.

9--Please note that per the occupied bandwidth measurement guidance the span of the spectrum being investigated should be $1.5 \times$ the bandwidth of the carrier. Some of the plots provided and not in agreement with this. This is FYI and future filing and no action is necessary for this application

FYI Alex: Noted

10--The limit line from 30-1000Mhz provided in the radiated emissions data is incorrect.

Alex: Please disregard limit line as it is for reference only. Worst case emissions are well below the lowest amplitude limit of 49.5 dBuV.

11--There are three bandwidths available for use with this product however the radiated data appears to have only enough information provided to cover one of those bandwidths.

Alex: All bandwidths were investigated with the worst case being reported. This has been stated in the test report.

12--The test data provided seems to show that conducted measurements were performed in lieu of radiated for the 15.209 requirements. However the report does not indicated if the radiated was done into a load. Also the test report does not address how the spectrum offsets were determined to account for antenna gain of the EUT. In addition the spectrum analyzer offset settings are different for the broad sweeps versus the narrow sweeps.

Alex: It is documented within the Radiated Emissions block diagram and the conducted emissions test procedure that radiated into a load was completed.

The offsets are different because outside 20% of the carrier the antenna gain need only be 2 dBi instead of the maximum gain of 6dBi.

Antenna offset example has been added to the test report under conducted emissions test procedure.

13--The 15.407 requirement is that the emissions adjacent to the 5.8GHz UNI-3 band be attenuated to -17dB/MHz at the band edges and -27dBm/MHz at 10 MHz out. The data provided seems to only be enough to support one of the bandwidths available.

Alex: All three bandwidths are accounted for starting at page 27 and ending at page 33

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14--The test results summary on page 9 of the EMC report does not have a status for the results of the RF exposure. Please update.

Alex: The test report has been updated.

15--There are no test setup photos provided with this application.

DW: Provided.

CT -

Response by:

Submitted by:

Date:

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