

### **FCC Correspondence Item**

1.) Please explain and justify selection of G1W as the only emission designator. On page 6 of test report two modulation methods were described under Section 4.3.14.

2.) Please submit only SDU output power measurement. Your data shows the SDU output power with 20W and 40W HPA's.

3.) Please clarify on page 6 of test report Section 4.3.14 list A-BPSK up to 2400 bps and on page 24 shows Occupied Bandwidth modulation rate of 10.5 kbps. Please submit plots for 2400 bps A-BPSK.

4.) Please redo conducted spurious emission plots on pages 48 thru 55 and pages 61 thru 68. VBW setting on these plots should be equal or greater than 4 KHz per Section 87.139.

5.) Please indicate how the test set up of the individual SDU was determined to be representative of operation in a complete system. Please provide details.

### **Honeywell Response and/or reconciliation plan**

After further review it was determined that the correct designation should be G7W. The FCC test report will be modified (and resubmitted) to reflect this correction. Plus, only one modulation method will be mentioned.

Since the SD-700 is a new box in a multi-box system, it was tested to show that it operates within the existing system and is capable of putting out levels sufficient to drive the HPAs at the specified system output requirements. This corresponds to either 20 or 40 Watts (depending on the HPA). The SDU will always transmit through an HPA, therefore the output power of the SDU can be regarded as simply the output of one stage in the transmit line-up. This test configuration not only evaluated power level but also demonstrates correct occupied bandwidth, conducted spurious, intermodulation, and transmit mask measurements. The maximum output level at the SD-700 was included for information, but is not considered to be the appropriate output for most of the tests, except as noted in the Test Report and again in item 5 below.

The report does in fact contain plots for every channel type that is generated by the SD-700. Data rates used in the SDU are; 600, 1200, 8400, 10500, and 21000. A-BPSK is used for the 600 and 1200 rates; A-QPSK is used for the 8400, 10500, and 21000 rates. Note: 2400 bps is not generated by the SD-700.

A 1 kHz VBW was used to reduce the displayed noise floor on the spectrum analyzer to a level that allowed good visibility of spurs at and below the specified limit. Increasing the VBW from 1 kHz to 10 kHz (the next available bandwidth on the HP8563E above 3 kHz) has no significant effect on discreet spur levels or on those that might contain the C21k modulation used on the transmitted carrier during these spurious measurements. Using a VBW of 4 kHz or greater would not significantly change the measurement results.

The SD-700 was installed in a test tray with connectors and wire harness, all of which are similar to those normally used for aircraft installations. For those tests requiring a system-like setup (e.g., those mentioned in item 2 above) the SD-700 was connected to the HPAs (and the DLNA) by means of the usual cables and wiring harnesses. The setup used in these cases was similar to that used in SD-700 qualification testing for the FAA. The only tests conducted on the SD-700 alone were frequency stability (which is

dependent solely on the SD-700) and radiated emissions which is a measure of the integrity of the SD-700 packaging and cabling. The stand-alone emissions testing of the SD-700 was proposed to Frank Coperich of the FCC and was approved in an e-mail from him dated 12/14/00.

6.) Page 80 of test report levels are too high for the frequency at 250 MHz and 300 MHz. Also, Page 82 of test report frequency at 750 MHz to 1000 MHz exceeds the limit.

The report from M. Flom Associates states that, "This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules."

The Class A Radiated Limits @ 10 meters are:

30 - 88 MHz: 90 microvolts/meter

88 - 216 MHz: 150 microvolts/meter

216 - 960 MHz: 210 microvolts/meter

Above 960 MHz: 300 microvolts/meter

The levels that are "too high" per item 6 are:

250 MHz: 72.61 microvolts/meter @ 10 meters

300 MHz: 91.52 microvolts/meter @ 10 meters

In the range of 750 to 960 MHz: 89.33 microvolts/meter @ 10 meters (max level in that range)

In the range of 960 to 1000 MHz: 134.59 microvolts/meter @ 10 meters (max level in that range)

Basis on this clarification the FCC is requested to re-evaluate the test data to determine compliance.

7.) Please submit 10 harmonic measurement.

Harmonic measurements are included in the spurious measurements that go out to 18 GHz. The 10th harmonic is 16.605 GHz when transmitting at the upper edge of the transmit band.

Paragraph 2.1057 specifies the frequency spectrum to be investigated for the spurious emissions tests described in paragraphs 2.1051 and 2.1053. For devices operating below 10 GHz, emissions measurements are made from the lowest RF signal generated up to the 10th harmonic or 40 GHz, whichever is lower. Since the 10th harmonic of our highest transmit frequency is 16.605 GHz and since we measured spurious emissions up to 18 GHz, the FCC is requested to re-evaluate this issue.

8.) Please use Substitution Method for radiated spurious emission.

As of February 2001, the FCC requires that the field-strength measurement in paragraph 2.1053 be determined using the “substitution method”. All testing for the SD-700 was conducted prior to this change in test method. For this reason Honeywell requests acceptance of this earlier test method.

9.) For Emission Mask plots on pages 97 and 104. Please clarify this with similar issues from question 3 above.

See item 3 above.

10.) Please explain what modulation was used for channel type P10.5k on page 104 of test report. Please indicate is the modulation BPSK or QPSK.

See item 3 above.

11.) Your request for confidentiality letter has 18 schematics. Exhibit 5 shows 17 schematics, MCA SDU I/O Module Schematic A1/81771/W DFA is missing from exhibit. Please clarify.

The indicated schematic was overlooked in the original submittal package. This schematic has since been uploaded.

12.) Please send copy of FAA reply letter.

Assuming that this is referring to a response to the FAA “Letter of Intent”, a reply letter from the FAA was never provided. Per regulation Title 47, Part 87, Section 147(d), the purpose of the “Letter of Intent” is to inform the FAA of the applicant intent to file for FCC certification within the allocated RF spectrum. Per the same regulation 21 days is allowed for the activity. If no comments or objections are raised during this time then the FCC type certification should move forward from this point. Based on this understanding of the regulations the FCC is requested to either clarify this request, or accept this subject application without FAA response.