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November 1, 2017

Federal Communications Commission  
Authorization and Evaluation Division  
7435 Oakland Mills Road  
Columbia, MD 21046

ATTN: OET Department

PER: 47 FCC Class II Permissive change for FCC ID: K6KA781  
(Original Grant Date: 06/07/2010)

Dear Sir or Madam:

EMS Technologies Canada Ltd. is submitting an application for Class II Permissive Change to the A781 Satcom Transceivers;

Rockwell Product Description	Rockwell Part number	Honeywell Product Description	HON Product #	FCC ID
SDU 2200	270-3143-101	A781-100 SDU	1394-A-1100	K6KA781
	270-3143-102	A781-300 SDU	1394-A-2100	
	270-3143-103	A781-310 SDU	1394-A-3100	
	270-3143-040	A781-320 SDU	1394-A-5100	

The commission on 06/07/2010 originally certified this product under FCC ID: K6KA781.

There are hardware modifications made to the applying High Power Amplifier Module P/N1394-F-1140.

The changes filed under this application are:

**Power Amplifier Sub-Assembly Changes as follows;**

- BLF6G15L-40RN Ampleon LDMOS 40W device to BLF642 Ampleon LDMOS 35W device. The replacement device is qualified to DO-160.
- PTFA161501E Infineon LDMOS 150W device to PTFB181702FC Infineon LDMOS 170W device. The replacement device is qualified to DO-160.
- Tantalum Capacitors (Qty: 7) to Tantalum Capacitors (Qty: 7). Tantalum capacitors in the biasing network of the FET devices (item 1 and 2) are changed to resolve a reliability issue at +85degC. The replacement capacitor come from the same family and has a max voltage rating of 63V vs 50V.
- Power Amplifier Mechanical Housing to accommodate thicker and narrower size of the replacement devices identified in item 1 and 2 of this table. The HPA module form and fit has not changed.
- Substrate Layout to realize the matching circuits for replacement devices shown in item 1 and 2

of this table. No change to substrate type, stack up and copper coverage of layout. Less than 0.5% change in signal plane and no change in ground plane. All changes are enclosed in a laser welded faraday enclosure. No changes to the I/O circuitry.

- Miscellaneous Components with 5 surface mount ceramic caps are added and another 4 ceramic caps have location changes. All new capacitors come from the same manufacturer and were qualified to DO-160.

## 2. Hybrid Driver Sub-Assembly Changes

- TGF4250 GaAs device to TGF2021-02 GaAs device. The replacement device is qualified to DO-160.
- HMC424 6-bit attenuator by Hittite to HMC424A 6-bit attenuator by Analog Devices. Not an obsolete part but Hittite Microwave is now Analog devices. Exact same device now supplied by ADI.
- MA47416-132 Pin Diode by MACOM to APD2220-000 Pin Diode by Skyworks. (Note: Alpha originally manufactured this component; renamed to Skyworks Solutions after the Alpha Industries/Conexant merger). The replacement pin diode having a higher rating of -65degC replaces current diode rated for -55degC.
- Removed Thermistor, it was used because the Old GaAs FET (Item 1) had variable current bias over temperature. The new GaAs FET has a fixed current bias over temperature and makes the thermistor redundant. The Thermistor was used in parallel with a fixed resistor, so thermistor removal did not leave open (unterminated) traces.

Please contact me if you have any questions or need further information regarding this application.

Sincerely,



Dennis Teske  
Director Engineering  
EMS Technologies Canada Ltd.

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