TABLE 8 : BULKHEAD INTERFACE - POWER A6J1A & A6J1B CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A	ANTENNA POWER (38.5 V DC NOM)
B	ANTENNA POWER RETURN
C	NOT CONNECTED
D	115 V AC KRFU POWER (FROM AIRCRAFT)
E	IMU POWER (24 V DC NOMINAL)
F	IMU POWER RETURN
G	NOT CONNECTED
H	115 V AC KRFU POWER RETURN

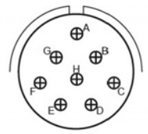


TABLE 10 : OAE FMA A5P1 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A	ANTENNA POWER (38.5 V DC NOM)
B	ANTENNA POWER RETURN
C	FMA CHASSIS GROUND
D	NOT CONNECTED

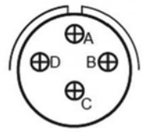


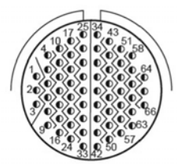
TABLE 11 : OAE FMA A5P3 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
1	RS422: IMU TO KANDU DATA HI
2	RS422: IMU TO KANDU DATA LO
3	RS422: KANDU TO IMU DATA HI
4	RS422: KANDU TO IMU DATA LO
5	IMU POWER (24 V DC NOMINAL)
6	IMU POWER RETURN
7	TAIL SECTOR MUTE
8	TAIL SECTOR MUTE RETURN
9	NOT CONNECTED
10	NOT CONNECTED
11	NOT CONNECTED
12	NOT CONNECTED
13	NOT CONNECTED

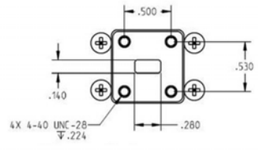
TABLE 12 : OAE FMA A5P2 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
1	PIESD ETHERNET EN2 FMA TO KANDU+
2	PIESD ETHERNET EN2 FMA TO KANDU-
3	PIESD ETHERNET EN2 KANDU TO FMA+
4	PIESD ETHERNET EN2 KANDU TO FMA-
5	RS422: KANDU TO FMA DATA HI
6	RS422: KANDU TO FMA DATA LO
7	RS422: FMA TO KANDU DATA HI
8	RS422: FMA TO KANDU DATA LO
9	SIGNAL GROUND
10	NOT CONNECTED
11	NOT CONNECTED
12	NOT CONNECTED
13	NOT CONNECTED

CONTACT LEGEND, EXCEPT KANDU J4 (QUADRAX INTERFACE) AND MODMAN (ARINC 600 CONTACTS)

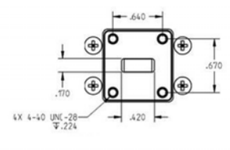
16 AWG 20 AWG 22D AWG

TABLE 9 : BULKHEAD INTERFACE - CONTROL A6J2A & A6J2B CONNECTOR PIN ASSIGNMENTS FOR KRFU INSTALLED OUTSIDE PRESSURIZED AREA			
PIN NO	PIN DESIGNATION	PIN NO	PIN DESIGNATION
1	NOT CONNECTED	34	PIESD ETHERNET EN2 FMA TO KANDU-
2	NOT CONNECTED	35	PIESD ETHERNET EN2 KANDU TO FMA-
3	NOT CONNECTED	36	NOT CONNECTED
4	NOT CONNECTED	37	RS422: KRFU RESET HI
5	NOT CONNECTED	38	RS422: KRFU RESET LO
6	NOT CONNECTED	39	RS422: KRFU TO KANDU DATA HI
7	NOT CONNECTED	40	RS422: KRFU TO KANDU DATA LO
8	NOT CONNECTED	41	RS422: KRFU TX FILTER SELECT HI
9	NOT CONNECTED	42	RS422: KRFU TX FILTER SELECT LO
10	NOT CONNECTED	43	NOT CONNECTED
11	NOT CONNECTED	44	NOT CONNECTED
12	NOT CONNECTED	45	RS422: IMU TO KANDU DATA HI
13	NOT CONNECTED	46	RS422: IMU TO KANDU DATA LO
14	NOT CONNECTED	47	RS422: KANDU TO IMU DATA HI
15	NOT CONNECTED	48	NOT CONNECTED
16	NOT CONNECTED	49	NOT CONNECTED
17	NOT CONNECTED	50	NOT CONNECTED
18	NOT CONNECTED	51	RS422: KANDU TO FMA DATA HI
19	NOT CONNECTED	52	RS422: KANDU TO FMA DATA LO
20	NOT CONNECTED	53	NOT CONNECTED
21	NOT CONNECTED	54	RS422: KANDU TO IMU DATA LO
22	NOT CONNECTED	55	NOT CONNECTED
23	SIGNAL GROUND	56	NOT CONNECTED
24	DISCRETE SIGNAL GROUND	57	NOT CONNECTED
25	PIESD ETHERNET EN2 KANDU TO FMA+	58	NOT CONNECTED
26	PIESD ETHERNET EN2 FMA TO KANDU+	59	RS422: FMA TO KANDU DATA HI
27	NOT CONNECTED	60	RS422: FMA TO KANDU DATA LO
28	RS422: KRFU KEYLINE TX ON HI	61	NOT CONNECTED
29	RS422: KRFU KEYLINE TX ON LO	62	NOT CONNECTED
30	NOT CONNECTED	63	NOT CONNECTED
31	NOT CONNECTED	64	RS422: KANDU TO KRFU DATA HI
32	TAIL SECTOR MUTE	65	RS422: KANDU TO KRFU DATA LO
33	TAIL SECTOR MUTE RETURN	66	NOT CONNECTED

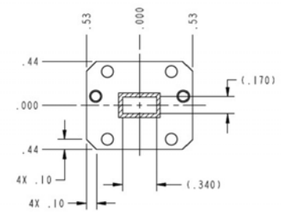




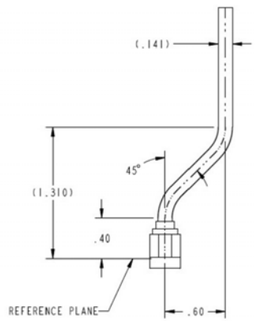
MATING FACE OF KRFU A4J3
(DIMENSIONS ARE IN INCHES)



MATING FACE OF KRFU A4J4
(DIMENSION ARE IN INCHES)



MATING FACE OF OAE-FMA A5J5
(DIMENSIONS ARE IN INCHES)



OAE-FMA A5J4 CONNECTOR
(DIMENSIONS ARE IN INCHES)

ID-621901 E90401047-8-F

Figure 4-36. (Sheet 8 of 8) JetWave™ System Interconnect Diagram - FMA (KRFU Outside Aircraft Fuselage), (90401047-1, REV F)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Draft as of 31 May 2017

NOTES, UNLESS OTHERWISE SPECIFIED:

1. ALL CABLING SHOULD BE IN ACCORDANCE EITHER WITH *SAE AS50881: WIRING AEROSPACE VEHICLE STANDARD* OR AS PER AIRFRAME MANUFACTURER'S REQUIREMENTS.

2. WIRE RECOMMENDATIONS:

   (A) RECOMMENDED TO USE SHIELDED TWISTED PAIR/QUADRAX WIRE FOR LRU CONTROL AND SIGNAL INTERCONNECT.

   (B) RECOMMENDED TO USE ARINC 664 COMPLIANT STAR QUAD CABLE FOR ETHERNET INTERFACES TERMINATING ON QUADRAX RECEPTACLES. FOR BOEING 737 PLATFORMS, RECOMMENDED TO USE BMS13-72T03C04G024 OR EQUIVALENT.

   (C) GXA LRU QUADRAX TERMINATIONS ARE WITH PIN TYPE CONTACTS.

   (D) ETHERNET STAR QUAD WIRE TERMINATIONS SHOULD NOT DISTORT NATURAL WIRE TWIST.

   (E) NO WIRES ARE TO BE LEFT EXPOSED OUTSIDE (TO THE REAR) OF QUADRAX CONTACT SHELL.

   (F) APN TO MODMAN INTERCONNECT CABLE SHALL USE ARINC 664 COMPLIANT 2 SHIELDED TWISTED PAIR 24AWG (OR AEROSPACE GRADE SHIELDED CAT 5/CATE 5E MINIMUM). PART NO ECS 922404 OR EQUIVALENT.

   (G) FOR BOEING 737 PLATFORM, RECOMMENDED TO USE BMS13-48 OR EQUIVALENT FOR ARINC 429 WIRE INTERFACES.

3. UNLESS OTHERWISE STATED, THE BONDING RESISTANCE SHOULD NOT EXCEED 0.0025 Ω.

4. THE CHARACTERISTIC IMPEDANCE OF RS422 QUADRAX CABLES SHOULD MATCH RS422 DIFFERENTIAL SIGNAL TERMINAL IMPEDANCE REQUIREMENT OF 121 Ω±27%. ALL FOUR WIRES (TWO PAIR) OF A GIVEN QUADRAX MAY BE USED WHERE REQUIRED. RECOMMENDED TO USE ONLY DIAGONALLY OPPOSITE WIRES WITHIN A QUADRAX CABLE FOR EACH DIFFERENTIAL PAIR TO MINIMIZE CROSSTALK. IF THERE IS AN UNUSED PAIR, IT SHOULD BE TERMINATED WITH END CAPS.

5. MATING PLUGS SHOULD BE NICKEL-PLATED ALUMINUM, NICKEL PLATED COMPOSITE OR STAINLESS STEEL.

6. RF COAXIAL RECEPTACLES AND MATING CONNECTORS SHOULD BE NICKEL-PLATED BRASS.

7. ETHERNET INTERFACE

   (A) 10/100 MBPS (MEGA BITS PER SECOND) ETHERNET AND GIGABIT ETHERNET INTERFACES ARE PROVISIONED IN THE THREE VLAN TAGGED ISOLATED DOMAINS (LABELING OPTIONAL)

      (i) PASSENGER OWNED DEVICES DOMAIN (PODD),

      (ii) PASSENGER INFORMATION AND ENTERTAINMENT SERVICES DOMAIN (PIESD) AND

      (iii) AIRLINE INFORMATION SERVICES DOMAIN (AISD).

   (B) ALL THE ETHERNET INTERFACES OPERATE ON 10/100 MBPS AUTO NEGOTIATED EXCEPT PIESD ETHERNET EN3 & PIESD ETHERNET EN2.

   (C) EN2 ETHERNET INTERFACE OPERATES AT 10 MBPS FULL DUPLEX.

   (D) EN3 ETHERNET INTERFACE OPERATES AT 10 MBPS AUTO NEGOTIATED FULL DUPLEX.

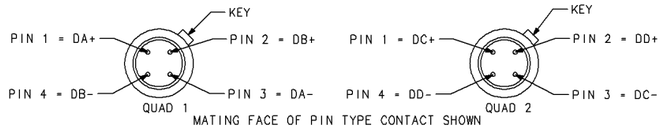
8. ALL CABLE SHIELDS, INCLUDING ETHERNET SHIELDS, SIGNAL AND POWER WIRE SHIELD AND OVERBRAID SHOULD BE TERMINATED TO A CONNECTOR EMI BACKSHELL WITH METAL BAND OR GROUNDING POINT DETERMINED BY THE AIRFRAME MANUFACTURER.

9. ALL SHIELDED TWISTED PAIR WIRE FOR ETHERNET INTERFACE SHOULD BE OF 100±15 Ω CONTROLLED IMPEDANCE.

10. ETHERNET CABLING RECOMMENDATIONS

   (A) STAR QUAD CABLES SHOULD BE USED FOR GIGABIT ETHERNET INTERCONNECTIONS. RECOMMENDED PIN DEFINITION AND COLOR SCHEME IS SHOWN BELOW.

LRU SIDE QUADRAX PIN DEFINITION FOR 1000 BASE T ETHERNET



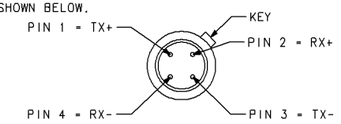
MATING FACE OF PIN TYPE CONTACT SHOWN

COLOR CODE FOR POINT TO POINT 1000BASE T ETHERNET CONFIGURATION					
PRIMARY LRU SIGNAL	WIRE COLOUR	PERIPHERAL LRU SIGNAL	PRIMARY LRU SIGNAL	WIRE COLOUR	PERIPHERAL LRU SIGNAL
DA+	QUAD 1 - RED	DB+	DC+	QUAD 2 - RED	DD+
DA-	QUAD 1 - BLUE	DB-	DC-	QUAD 2 - BLUE	DD-
DB+	QUAD 1 - YELLOW	DA+	DD+	QUAD 2 - YELLOW	DC+
DB-	QUAD 1 - GREEN	DA-	DD-	QUAD 2 - GREEN	DC-

10. (B) GIGABIT ETHERNET INTERFACES AG1, PG1 AND EG1 SUPPORT 1000BASE-T (IEEE 802.3AB).

    (C) SHIELDED TWISTED PAIR (2-PAIR) CABLES SHOULD BE USED FOR 10/100 MBPS ETHERNET INTERCONNECTIONS. RECOMMENDED PIN DEFINITIONS AND COLOR SCHEME IS SHOWN BELOW.

COLOR CODE FOR POINT TO POINT 10/100 BASE T ETHERNET WIRING		
PRIMARY LRU SIGNAL	WIRE COLOR	PERIPHERAL LRU SIGNAL
TX +	RED	RX +
TX -	BLUE	RX -
RX +	YELLOW	TX +
RX -	GREEN	TX -



MATING FACE OF PIN TYPE CONTACT SHOWN

11. IF COAX CABLE ASSEMBLY

   (A) RECOMMENDED TO USE BOEING BMS13-65 TYPE 0J OR EQUIVALENT FOR TX-IF AND RX-IF COAXIAL CABLE ASSEMBLY BETWEEN MODMAN A1J1-C AND THE KRFU A4J5 & A4J6.

   (B) STRAIN RELIEF HEAT SHRINK SLEEVING OF LENGTH 0.5" +/- 0.05" SHOULD BE PROVIDED TO PREVENT STRESS CONCENTRATION AT TX-IF AND RX-IF CABLE TERMINATIONS.

   (C) OVERBRAID/SLEEVE JACKETING SHOULD BE USED FOR PROTECTION OF WIRING BETWEEN BULKHEAD INTERFACE AND KRFU A4J5/A4J6. OVERBRAID MAY BE CONNECTED VIA CONNECTOR SHIELD/HOUSING OR DIRECTLY TO HOUSING. OVERBRAID MAY BE CONNECTED VIA CONNECTOR SHIELD / HOUSING OR DIRECTLY TO HOUSING.

   (D) COAXIAL CABLE WITH FOLLOWING SPECIFICATIONS RECOMMENDED FOR TX-IF AND RX-IF INTERCONNECTION BETWEEN MODMAN AND KRFU.
      (i) THE MINIMUM CABLE INSERTION LOSS SHOULD BE 11 dB AT 950 MHz.
      (ii) THE MAXIMUM CABLE INSERTION LOSS SHOULD NOT EXCEED 18 dB AT 1450 MHz AND 21.2 dB AT 1950 MHz.
      (iii) THE NOMINAL CHARACTERISTIC IMPEDANCE : 50 Ω ± 2 Ω AT IF (950-1950 MHz) AND REFERENCE (50 MHz) FREQUENCIES.
      (iv) MAXIMUM VOLTAGE STANDING WAVE RATIO (VSWR), AS MEASURED AGAINST 50 OHMS : 1.5:1 FROM 10 MHz TO 6 GHz.
      (v) THE ISOLATION BETWEEN THE TX-IF CABLE AND THE RX-IF CABLE SHOULD BE A MINIMUM OF 120 dB AT 2150 MHz.
      (vi) POWER HANDLING CAPABILITY : +5 dBM AT IF AND REFERENCE FREQUENCY RANGE (950-1950 MHz).
      (vii) CABLE RUN ATTENUATION AT 50 MHz SHOULD NOT EXCEED 3.1 dB.
      (viii) THE VARIATION IN CABLE LOSS BETWEEN TX-IF AND RX-IF COAX CABLES SHOULD NOT EXCEED 1 dB AT 1450 MHz.

   (E) TX-IF CABLE SHOULD BE BLUE BANDED NEAR TNC/N TYPE CONNECTOR ENDS.
   RX-IF CABLE SHOULD BE GREEN BANDED NEAR TNC CONNECTOR ENDS.

   (F) RECOMMENDED TO INSTALL AN ATTENUATOR IN THE IF TRANSMIT PATH AND AN ATTENUATOR-EQUALIZER IN THE IF RECEIVE PATH TO ACHIEVE THE REQUIRED ATTENUATION IN THE TRANSMIT AND RECEIVE IF INTERFACES BETWEEN MODMAN AND KRFU LRU's. THE ATTENUATOR AND ATTENUATOR-EQUALIZER ARE PASSIVE DEVICES. ATTENUATORS AND ATTENUATOR-EQUALIZER ARE PART OF WIRE HARNESS AND ARE SEPARATELY SPECIFIED BY HONEYWELL.

12. LRU POWER AND SIGNAL INTERFACE

   (A) GXA MODMAN, KANDU AND KRFU OPERATE ON AIRCRAFT POWER SUPPLY OF 115 VAC POWER (100 VRMS TO 122 VRMS WITH FREQUENCY RANGE OF MINIMUM 360 Hz TO 800 Hz (NORMAL)). GXA FMA OPERATES ON 24 VDC & 38.5 VDC VOLTAGE GENERATED BY KANDU.

   (B) GXA DISCRETE SIGNALS ELECTRICAL SPECIFICATIONS ARE IN ACCORDANCE WITH ARINC SPECIFICATION 791/763 SECTION 2.9.6. AND 2.9.7, WITH MAXIMUM CONTROL VOLTAGE NOT EXCEEDING +36 VDC, GROUND (VALID) STATE DEFINED AS LESS THAN 3.5 VDC AND OPEN (INVALID) STATE DEFINED AS VOLTAGE LEVEL BETWEEN 18.5 TO 36 VDC OR RESISTANCE BETWEEN PIN AND AIRFRAME DC GROUND GREATER THAN 100 KΩ. THE MAXIMUM CURRENT FLOW IN THE STEADY STATE 'GROUND' STATE NOT TO EXCEED 20 MA.

   (C) GXA KANDU LRU SUPPORTS TWO A429 RECEIVE ONLY INTERFACES. IRS A429 INTERFACE OPERATE ON HIGH SPEED AND AIRCRAFT STATE A429 INTERFACE IS CONFIGURABLE TO OPERATE ON BOTH HIGH AND LOW SPEEDS.

13. EMPTY CAVITY CONTACTS ARE INSTALLED BUT NO ELECTRICAL CONNECTIONS.

(CONTINUED SHEET 2)

ID-625891 E90405210-1-D

Figure 4-37. (Sheet 1 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Draft as of 31 May 2017

NOTES (CONTINUED FROM SHEET 1):

14 THE FOLLOWING SYMBOLS ARE USED IN THE INTERCONNECTION DIAGRAM.

(A) DENOTES TWISTED PAIR (TP). (B) DENOTES SHIELDED TWISTED PAIR (STP).(C) DENOTES BULKHEAD INTERFACE.

(D) DENOTES OVERBRAID. (E) DENOTES QUADRAX TERMINATION WITH STAR QUAD WIRING. (F) DENOTES QUADRAX CABLE.

(G) DENOTES CHASSIS/SIGNAL GROUND. (H) DENOTES POWER CABLE. (I) DENOTES RECTANGULAR WAVEGUIDE.

(J) DENOTES FLEX/TWIST WAVEGUIDE. (K) DENOTES SINGLE SHIELDED WIRE. (L) DENOTES COAXIAL CABLE.

(M) DENOTES SPLICE. N) >&< DENOTES DATA FLOW IN RESPECTIVE DIRECTIONS (O)< >DENOTES BIDIRECTIONAL FLOW.

(P) DENOTES CABLE DISCONNECTS END A IDENTIFIES CONNECTOR ROTATION OF WIRE WITH CLOCKWISE ROTATION : RED - GREEN - BLUE - YELLOW

END B IDENTIFIES CONNECTOR ROTATION OF WIRE WITH CLOCKWISE ROTATION : RED - YELLOW - BLUE - GREEN

15 AIRPLANE PERSONALITY MODULE (APM)

(A) CABLE LENGTH BETWEEN MODMAN AND APM SHOULD NOT EXCEED 3 METERS.

(B) APM RECEPTACLE A2J1 IS MIL-DTL-38999/20FB35PN, SERIES III, SHELL SIZE 11 (B) WITH INSERT 11-35 (13 PIN). MATES WITH D38999/26FB35SN OR EQUIVALENT.

(C) APM DC BONDING RESISTANCE SHOULD NOT EXCEED 2.5 mΩ.

(D) APM CAN OPERATE WITHOUT THE NEED OF ANY FORCED AIR COOLING.

(E) APM SHOULD BE BONDED TO THE MOUNTING LOCATION BY MEANS OF STRUCTURE (FASTENERS) OR ADDITIONAL BONDING STRAP.

(F) APM A2 J1 CONTACT ASSIGNMENTS SHOWN IN TABLE 1(SHEET 8).

16 MODEM MANAGER (MODMAN)

(A) LRU TO BE MOUNTED ONLY IN AN ARINC 600 TRAY WITH MATCHING CONNECTOR SCHEME.

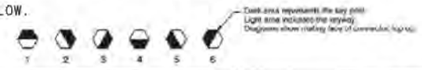
(B) THE MODMAN USES A STANDARD ARINC SPECIFICATION 600, SIZE 2 CONNECTOR. MATES WITH RADIALL NSXN2B875S00 OR EQUIVALENT. THIS SINGLE RECEPTACLE INCLUDES THREE SEPARATE INSERTS (MODMAN A1J1-A, MODMAN A1J1-B, AND MODMAN A1J1-C).
(i) MODMAN A1J1-A : ARRANGEMENT Q11, SHELL SIZE 2 (11X SIZE 8 QUADRAX CAVITIES)CONNECTOR.
(ii) MODMAN A1J1-B : ARRANGEMENT 12QQ2, SHELL SIZE 2 (118X #22 CONTACTS, 2 SIZE 8 QUADRAX CAVITIES) CONNECTOR.
(iii) MODMAN A1J1-C : ARRANGEMENT 12F5C2, SHELL SIZE 2 (4X #12 CONTACTS, 1X #16 CONTACT, 5X SIZE 16 OPTICAL CAVITIES, 2X SIZE 5 COAX CAVITIES). OPTICAL INTERFACES ARE NOT USED.

(C) MODMAN BONDING SHOULD BE ACHIEVED THROUGH THE MOUNTING STRUCTURE.

(D) DC BONDING RESISTANCE SHOULD NOT EXCEED 2.5 mΩ.

(E) MODMAN A1J1 CONNECTOR CONTACT ASSIGNMENTS SHOWN ON SHEET 6.

(F) MODMAN KEYING IS AS SHOWN BELOW.



	Receptacle (Modman)			Plug (Rack)		
Position	Left Post	Center Post	Right Post	Left Post	Center Post	Right Post
52	6	3	1	4	2	5

(G) RECOMMEND TO USE OVERBRAID BETWEEN MODMAN INSERTS P23-A, P23-B AND EE BAY DISCONNECT.

17. KA-BAND AIRCRAFT NETWORKING DATA UNIT (KANDU)

(A) KANDU RECEPTACLE A3J1 IS MIL-DTL-38999/20FD19PN, SERIES III, FLANGE MOUNT RECEPTACLE, INSERT 15-19, NORMAL KEYING, WITH 19 PIN-TYPE CONTACTS OF SIZE 20 AWG. MATES WITH D38999/26FD19SN FOR AIRCRAFT INTERFACE.

17 KA-BAND AIRCRAFT NETWORKING DATA UNIT (KANDU)(CONTINUED)

(B) KANDU RECEPTACLE A3J2 IS MIL-DTL-38999/20FC4SN, SERIES III, FLANGE MOUNT RECEPTACLE, INSERT 13-4, NORMAL KEYING, WITH 4 SOCKET-TYPE CONTACTS OF SIZE 16 AWG. MATES WITH D38999/26FC4PN FOR POWER OUTPUT.

(C) KANDU RECEPTACLE A3J3 IS MIL-DTL-38999/20FG35PN, SERIES III, FLANGE MOUNT RECEPTACLE, INSERT 21-35, NORMAL KEYING, WITH 79 PIN-TYPE CONTACTS OF SIZE 22 AWG. MATES WITH D38999/26FG35SN FOR CONTROL INTERFACE.

(D) KANDU RECEPTACLE A3J4 IS TVP00RGQF-21-75P (AMPHENOL)/ EQUIVALENT. MATES WITH TV06RQF-21-75S(AMPHENOL) OR EQUIVALENT FOR ETHERNET INTERFACE.

(E) THE 16 AWG WIRE ROUTING FOR THE INTERCONNECTION BETWEEN THE KANDU A3J2 AND THE OAE-FMA A4P1 SHOULD NOT CAUSE THE ROUND TRIP WIRING INTERCONNECTION RESISTANCE TO EXCEED 0.326 Ω. FOR ANTENNA POWER DURING NORMAL OPERATION, THE MAXIMUM STEADY STATE POWER CONSUMPTION DURING NORMAL FMA ANTENNA OPERATION IS 135 WATTS.

(F) KANDU SHOULD BE BONDED TO THE MOUNTING BRACKET BY MEANS OF MOUNTING STRUCTURE (FASTENERS), KANDU A3J1-A OR ADDITIONAL BONDING STRAPS.

(G) KANDU CONNECTOR CONTACT ASSIGNMENTS SHOWN IN TABLES 2, 3, 4 AND 5 (SHEET 8).

18 BULKHEAD INTERFACE

(A) RECOMMEND TO LABEL KANDU BULKHEAD INTERFACE CONTROL CONNECTOR AS BI-CONTROL.

(B) RECOMMEND TO LABEL KANDU BULKHEAD INTERFACE POWER CONNECTOR AS BI-POWER.

(C) RECOMMEND TO LABEL IF-TX BULKHEAD INTERFACE CONNECTOR IN BLUE.

(D) RECOMMEND TO LABEL IF-RX BULKHEAD INTERFACE CONNECTOR IN GREEN.

19 KA-BAND RADIO FREQUENCY UNIT (KRFU)

(A) KRFU RECEPTACLE A4J1 IS MIL-DTL-38999/20FC4PN, SERIES III, FLANGE MOUNT RECEPTACLE, INSERT 13-4, NORMAL KEYING, WITH 4 PIN-TYPE CONTACTS OF SIZE 16 AWG. MATES WITH D38999/26FC4SN FOR POWER INPUT.

(B) KRFU RECEPTACLE A4J2 IS MIL-DTL-38999/20FC35PN, SERIES III, FLANGE MOUNT RECEPTACLE, INSERT 13-35, NORMAL KEYING, WITH 22 PIN-TYPE CONTACTS OF SIZE 22 AWG. MATES WITH D38999/26FC35SN FOR CONTROL INTERFACE.

(C) KRFU RECEPTACLE A4J3 IS WR28 WAVEGUIDE, M3922/54-003. MATES WITH M3922/59-005 THROUGH HOLE FLANGE TYPE WR-28 WAVEGUIDE FLANGE PER MIL-DTL-3922/54 (UG599/U) [0.112-40 UNC-2B] FOR RF TX INTERFACE. REFER TO SDIM FOR SEMI-RIGID, FLEXIBLE WAVEGUIDE COMPONENTS AND RF PLUMBING DETAILS.

(D) KRFU RECEPTACLE A4J4 IS WR42 WAVEGUIDE, M3922/54-001. MATES WITH M3922/59-003 THROUGH HOLE FLANGE TYPE WR42 WAVEGUIDE FLANGE PER MIL-DTL-3922/54 (UG595/U) [0.112-40 UNC-2B] FOR RF RX INTERFACE.

(E) RECOMMENDED TO USE WR42 TO 2.92 MM WAVEGUIDE TO COAX ADAPTER AT KRFU A4J4 END.

(F) KRFU RECEPTACLE A4J5 IS TNC FEMALE PER MIL C-87104/2. MATES WITH TNC MALE PER MIL-C-87104/2 FOR TX-IF INTERFACE (LABELED BLUE).

(G) KRFU RECEPTACLE A4J6 IS TNC FEMALE PER MIL C-87104/2. MATES WITH TNC MALE PER MIL-C-87104/2 FOR RX-IF INTERFACE (LABELED GREEN).

(H) STRAIN RELIEF HEAT SHRINK SLEEVING OF LENGTH 0.5"±0.05" SHOULD BE PROVIDED TO PREVENT STRESS CONCENTRATION AT COAX CABLE TERMINATIONS. RECOMMEND TO USE BLUE COLOR CABLE SHRINK FOR THE TX-IF COAX CABLE AND GREEN COLOR CABLE SHRINK FOR THE RX-IF COAX CABLE.

(I) THE TRANSMITTER FREQUENCY RANGE OF OPERATION : 29 GHz TO 30 GHz.

(J) KRFU POWER AND CONTROL CONNECTOR CONTACT ASSIGNMENTS SHOWN IN TABLES 6 AND 7 (SHEET 8).

(K) KRFU SHOULD BE BONDED TO THE ADAPTOR PLATE BY MEANS OF MOUNTING STRUCTURE (FASTENERS) OR ADDITIONAL BONDING STRAPS.

(CONTINUED SHEET 3)

ID-625892 E90405210-2-D

Figure 4-37. (Sheet 2 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Draft as of 31 May 2017

NOTES (CONTINUED FROM SHEET 2):

20 OUTSIDE ANTENNA EQUIPMENT - FUSELAGE MOUNT ANTENNA (OAE-FMA)

OAE-FMA CONNECTORS A5P1, A5P2 AND A5P3 ARE PENDENT TYPE PLUGS.

(A) OAE-FMA POWER CONNECTOR A5P1 IS MIL-DTL-38999 SERIES III, PLUG, INSERT 13-4/26FC4PN,
4 PIN-TYPE CONTACTS OF SIZE 16 AWG.
MATES WITH MIL-DTL-38999/20FC4SN.

(B) OAE-FMA CONTROL CONNECTOR A5P2 IS MIL-DTL-38999 SERIES III, PLUG, INSERT 11-35/26FB35PN,
13 PIN-TYPE CONTACTS OF SIZE 22 AWG.
MATES WITH MIL-DTL-38999/20FB35SN.

(C) OAE-FMA IMU CONNECTOR A5P3 IS MIL-DTL-38999 SERIES III, PLUG, INSERT 11-35/26FB35PA,
13 PIN-TYPE CONTACTS OF SIZE 22 AWG.
MATES WITH MIL-DTL-38999/20FB35SA.

(D) OAE-FMA RECEPTACLE OAE-FMA A5J5 IS WR34 WAVEGUIDE.
REFER TO SDIM FOR WAVEGUIDE PLUMBING AND FLANGE DETAILS.

(E) OAE-FMA RECEPTACLE OAE-FMA A5J4 IS 2.92 MM COAX FEMALE. MATES WITH 2.92 MM MALE CONNECTOR.

(F) OAE-FMA POWER AND CONTROL CONNECTOR CONTACT ASSIGNMENTS SHOWN IN TABLES 8, 9 AND 10 (SHEET 9).

(G) RESISTANCE FROM FMA BASE MOUNTING RING BONDING MEASUREMENT POINT TO ADAPTOR PLATE GROUNDING POINT SHOULD NOT
EXCEED 2.5 mΩ.

(H) THE FMA SHOULD BE BONDED TO THE ADAPTOR PLATE BY MEANS OF MOUNTING STRUCTURE (FASTENERS) OR ADDITIONAL
BONDING STRAPS.

21. WIRING HARNESS AND LRU INTERCONNECT OUTSIDE AIRCRAFT FUSELAGE

(A) COAXIAL CABLE WITH FOLLOWING SPECIFICATIONS RECOMMENDED FOR RECEIVE PATH INTERCONNECTION BETWEEN
KRFU A4J4 AND OAE-FMA A5J4
(i) THE FREQUENCY RANGE OF OPERATION : 19.2 GHz TO 21.2 GHz.
(ii) THE NOMINAL CHARACTERISTIC IMPEDANCE : 50 Ω.

(B) THE TRANSMIT AND RECEIVE INTERCONNECT ASSEMBLIES BETWEEN KRFU AND OAE-FMA SHOULD HAVE VSWR BETTER THAN OR EQUAL
TO 1.5:1 OVER FREQUENCY RANGE OF OPERATION.

(C) THE TRANSMIT PATH INTERCONNECT LOSSES BETWEEN THE OAE-FMA AND KRFU SHOULD NOT EXCEED 1.5 dB.

(D) THE RECEIVE PATH INTERCONNECT LOSSES BETWEEN THE OAE-FMA AND KRFU SHOULD NOT EXCEED 2.9 dB.

(E) FOR B787 PLATFORM, IF INTERCONNECTS BETWEEN THE BULKHEAD INTERFACE AND THE KRFU IS THROUGH THE HONEYWELL
BOEING 787 RX-IF COAX CABLE KIT AND TX-IF COAX CABLE KIT. POWER AND CONTROL INTERCONNECT BETWEEN THE
BULKHEAD INTERFACE AND THE OAE-FMA THROUGH THE HONEYWELL BOEING 787 RADOME HYDRA CABLE POWER AND CONTROL KIT.

(F) WIRING HARNESS AND WAVEGUIDE BETWEEN BULKHEAD INTERFACE, OAE-FMA AND KRFU SHOULD BE SECURED TO THE ANTENNA MOUNT.

(G) RECOMMENDED TO INTERFACE CONNECTOR PLUGS FOR OAE-FMA POWER, OAE-FMA CONTROL AND OAE-IMU/TAIL SWITCH CONNECTOR
WITH SOCKET TYPE WIRING HARNESS RECEPTACLES MOUNTED FIRMLY TO THE ADAPTOR PLATE.

(H) RECOMMENDED TO PROVIDE CONSIDERATION FOR MOISTURE CONTROL IN RF INTERCONNECT, IF NEED BE FOR SPECIFIC AIRCRAFT
CONFIGURATION FOR WAVEGUIDE INTERCONNECT BETWEEN KRFU AND OAE-FMA. REFER TO SDIM FOR DETAILS.

(I) HONEYWELL BOEING 787 RF-TX WAVEGUIDE INTERCONNECT KIT IS WITH WR28 SIZE FLANGE TO INTERFACE WITH KRFU AND WR34 SIZE FLANGE
TO INTERFACE WITH OAE FMA.

(J) COAX TO WR42 ADAPTER IS BUILT INTO THE FLANGE TO BE ATTACHED TO KRFU.

(K) WIRING OF TAIL SECTOR MUTE SWITCH IS OPTIONAL. INSTALLER MAY FINALIZE TAIL SECTOR MUTE SWITCH WIRING IN CONSULTATION WITH BOEING
BASED ON SAFETY ASSESSMENT OF SUSCEPTIBILITY OF EQUIPMENT IN THE TAIL TO RF RADIATION IN THE 29-30GHZ RANGE .

(L) FOR B737 PLATFORM, IF INTERCONNECTS BETWEEN THE BULKHEAD INTERFACE AND THE KRFU IS THROUGH THE HONEYWELL
BOEING 737 RX-IF COAX CABLE KIT AND TX-IF COAX CABLE KIT. POWER AND CONTROL INTERCONNECT BETWEEN THE
BULKHEAD INTERFACE AND THE OAE-FMA THROUGH THE HONEYWELL BOEING 737 RADOME HYDRA CABLE POWER AND CONTROL KIT.

22 RECOMMENDED TO PROVIDE WIRE ROUTE SEGREGATION BETWEEN RF, POWER, AND CONTROL SIGNALS WHILE WIRING OUTSIDE AIRCRAFT.

23. IT IS RECOMMENDED NOT TO USE 'NOT CONNECTED' PINS IDENTIFIED IN THE INTERCONNECTION DIAGRAM FOR ANY OTHER PURPOSE.
HONEYWELL TO BE CONSULTED FOR ANY SUCH REQUIREMENTS.

24 RECOMMENDED TO PROVIDE SHIELD GROUNDING FOR THE POWER AND SIGNAL WIRE BOUNDS OUTSIDE THE AIRCRAFT.

25 RECOMMENDED TO PROVIDE SHIELD GROUNDING FOR THE CONNECTORS OUTSIDE THE AIRCRAFT.

ID-625893 E90405210-3-D

Figure 4-37. (Sheet 3 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

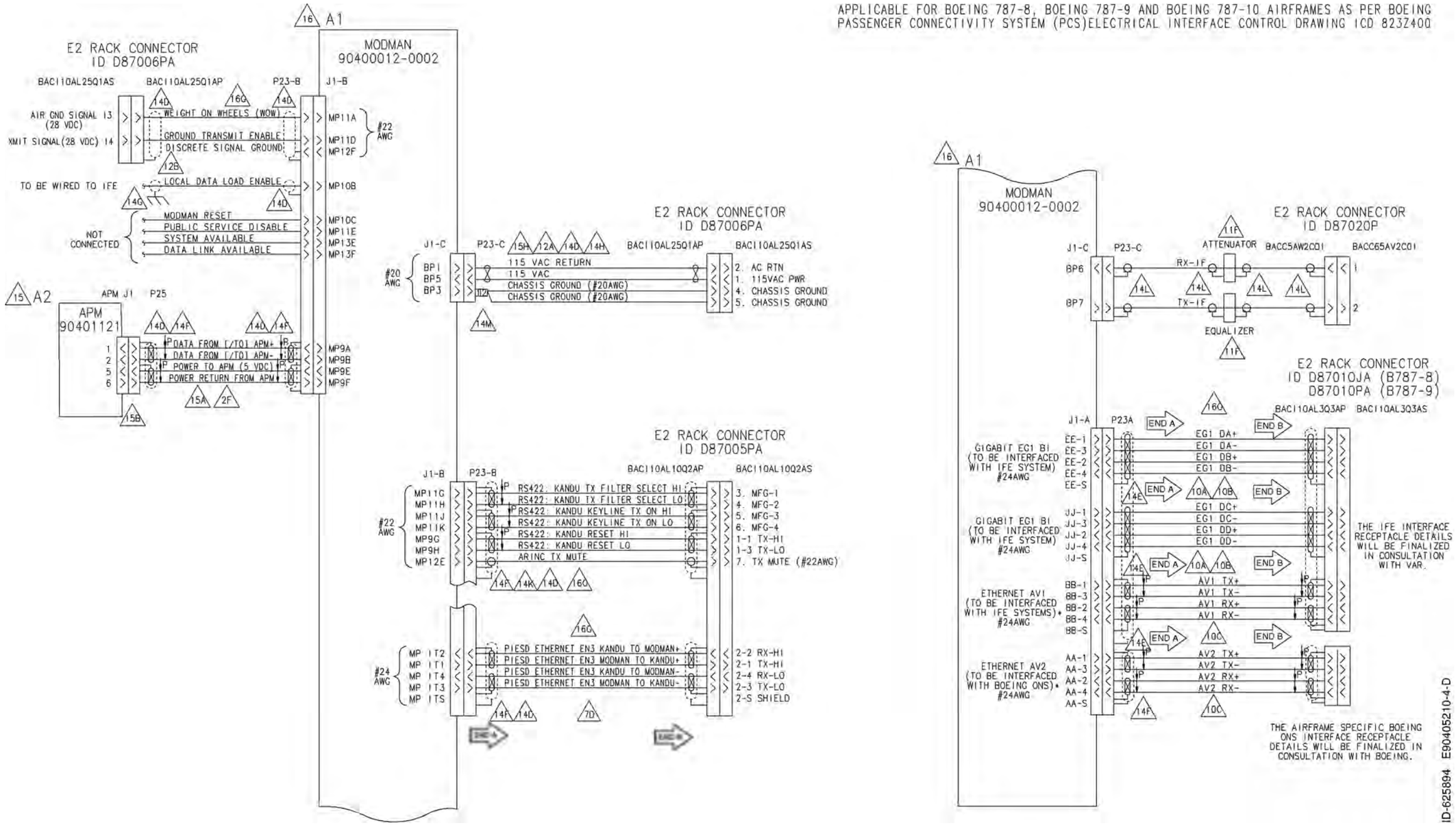


Figure 4-37. (Sheet 4 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

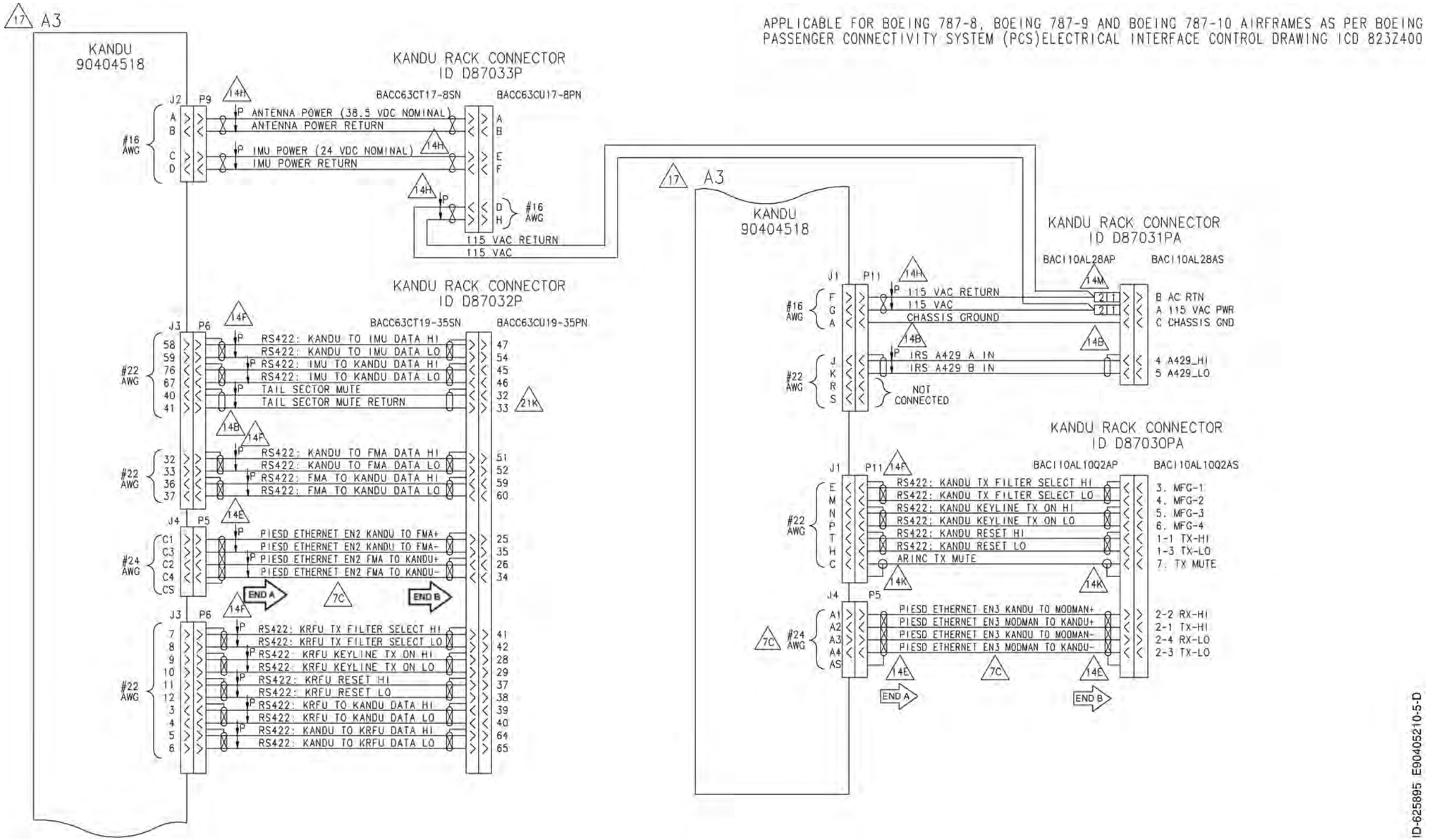
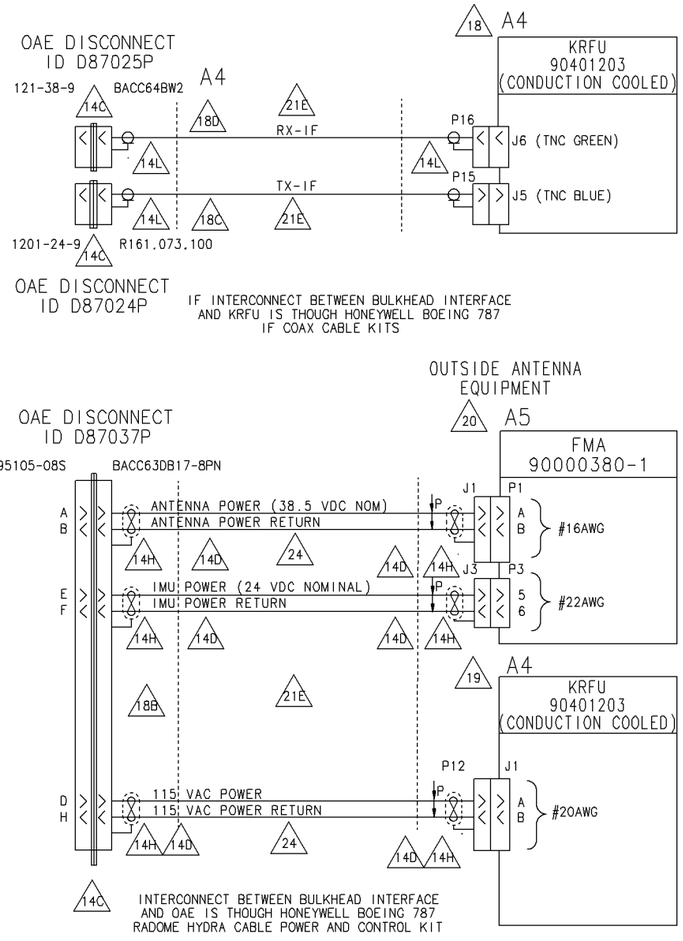
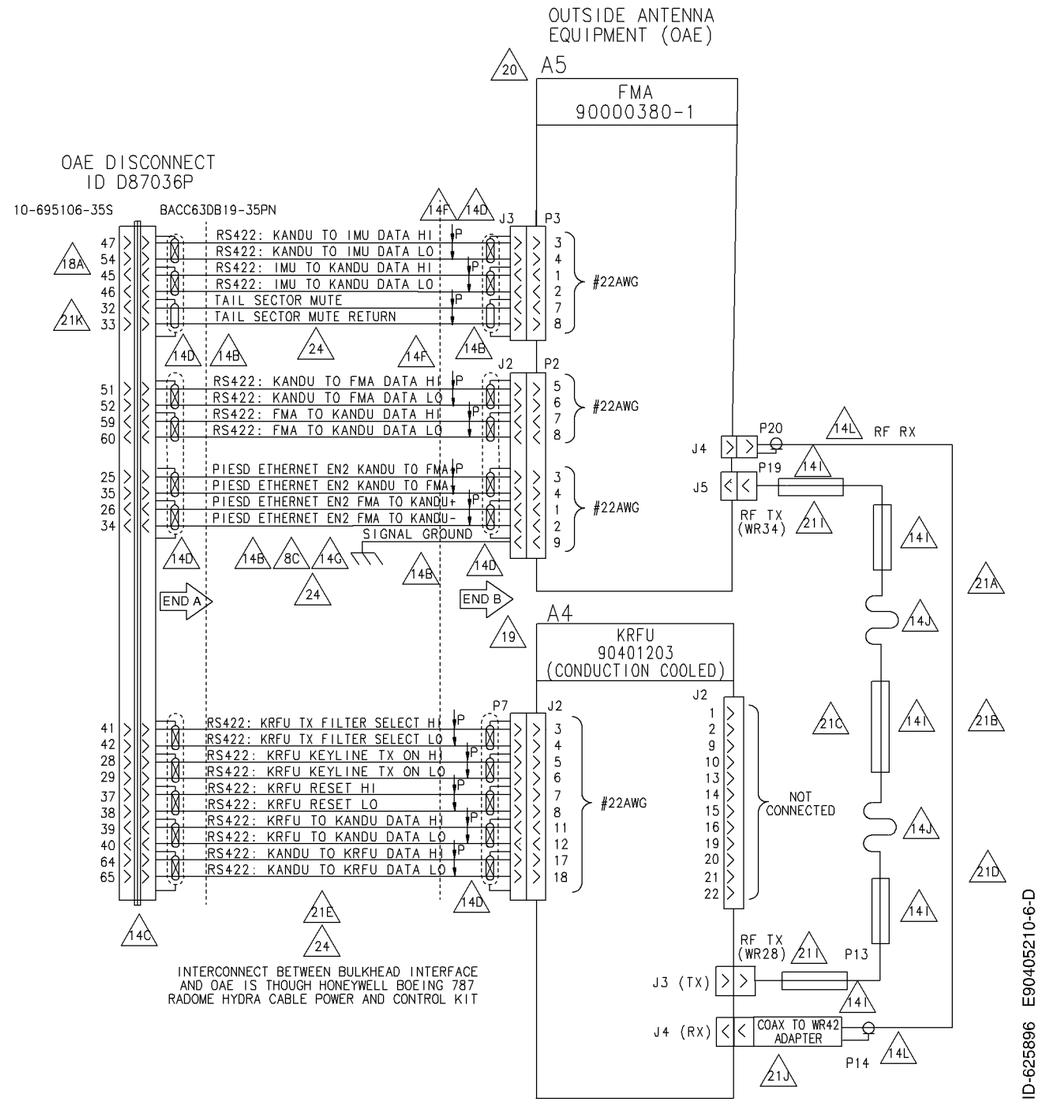


Figure 4-37. (Sheet 5 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.



APPLICABLE FOR BOEING 787-8, BOEING 787-9 AND BOEING 787-10 AIRFRAMES AS PER BOEING PASSENGER CONNECTIVITY SYSTEM (PCS)ELECTRICAL INTERFACE CONTROL DRAWING ICD 823Z400



ID-625896 E90405210-6-D

Figure 4-37. (Sheet 6 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

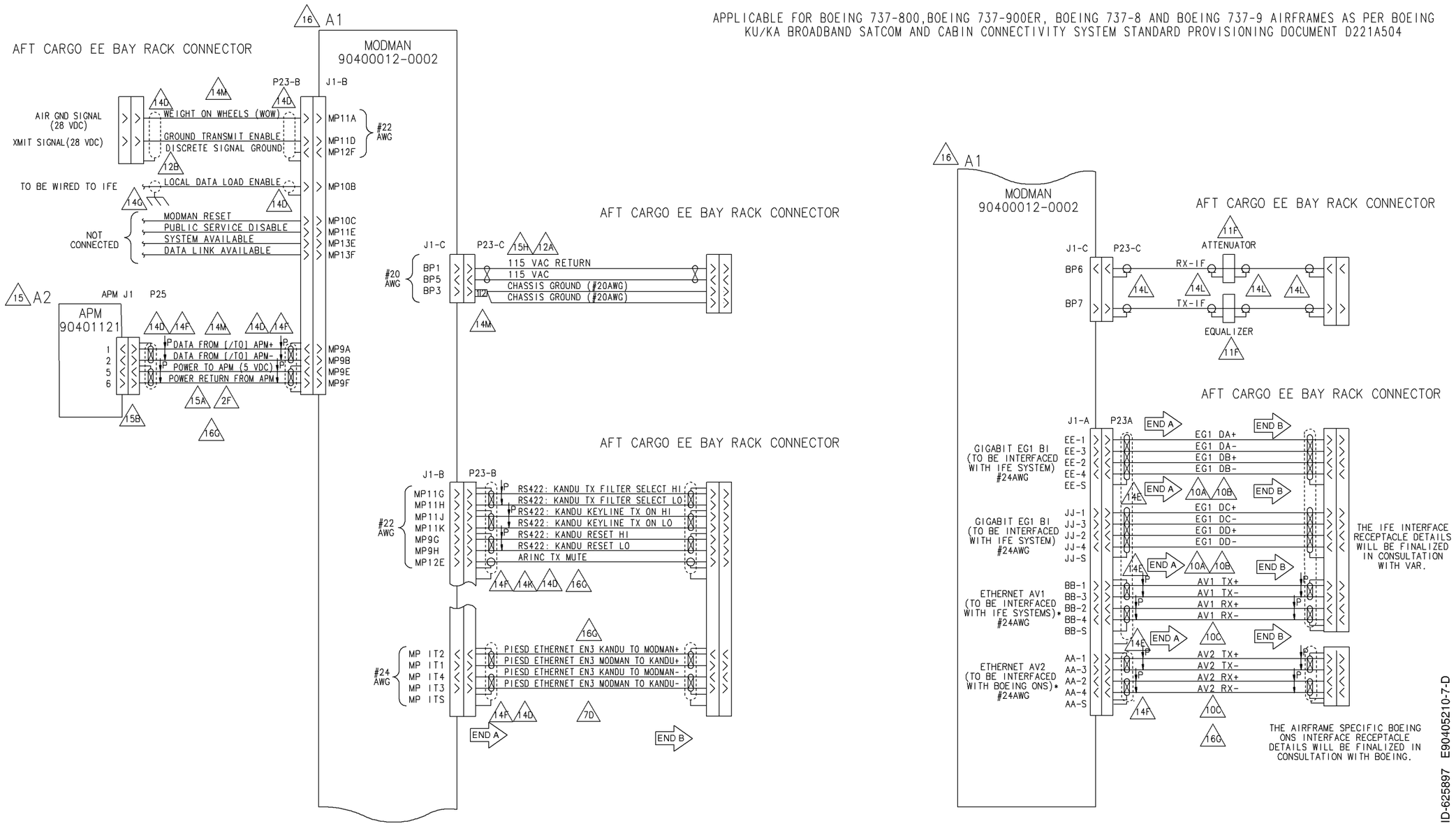


Figure 4-37. (Sheet 7 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

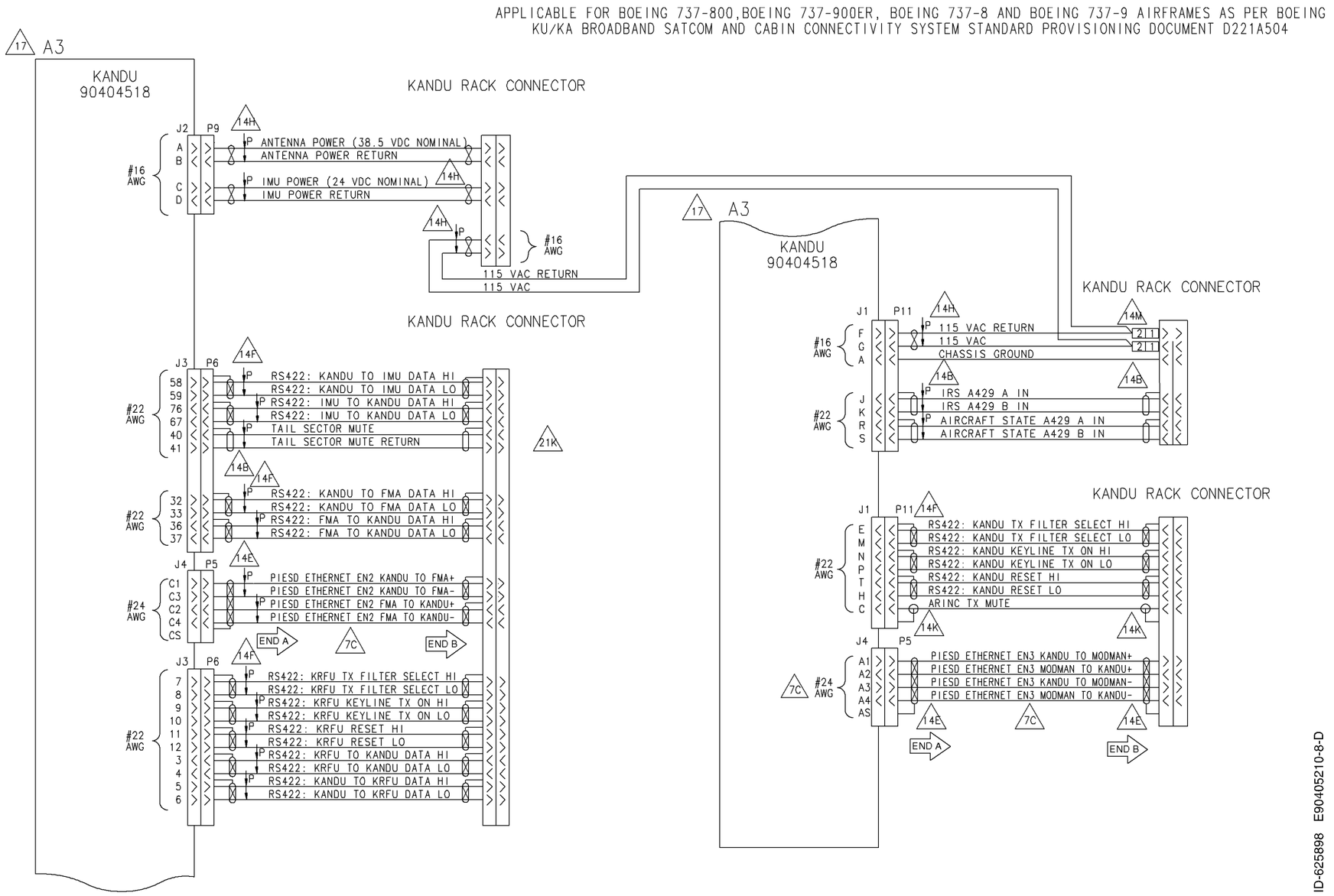


Figure 4-37. (Sheet 8 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

APPLICABLE FOR BOEING 737-800,BOEING 737-900ER, BOEING 737-8 AND BOEING 737-9 AIRFRAMES AS PER BOEING KU/KA BROADBAND SATCOM AND CABIN CONNECTIVITY SYSTEM STANDARD PROVISIONING DOCUMENT D221A504

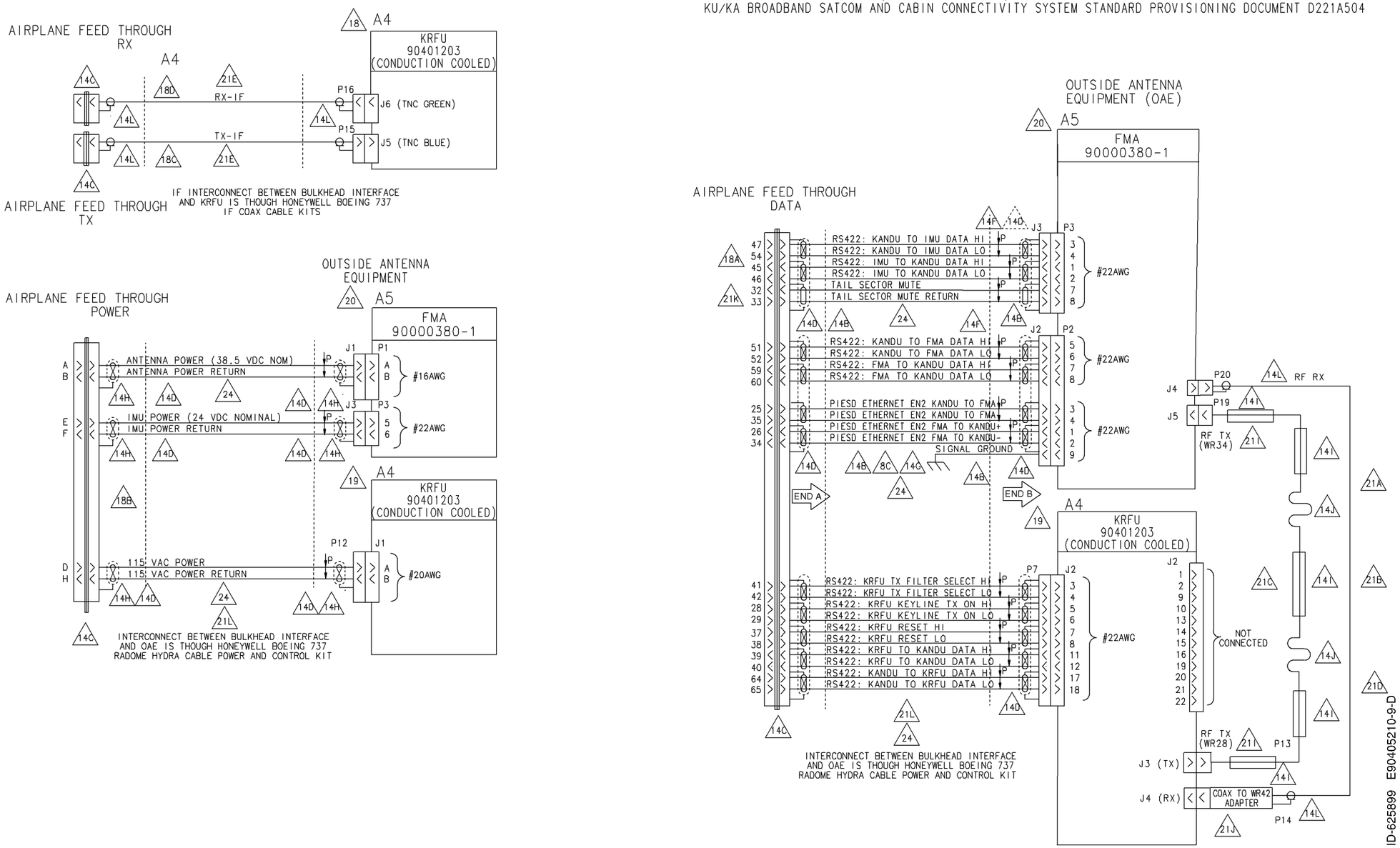
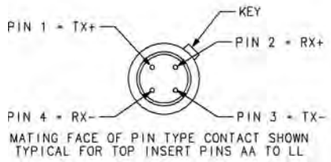
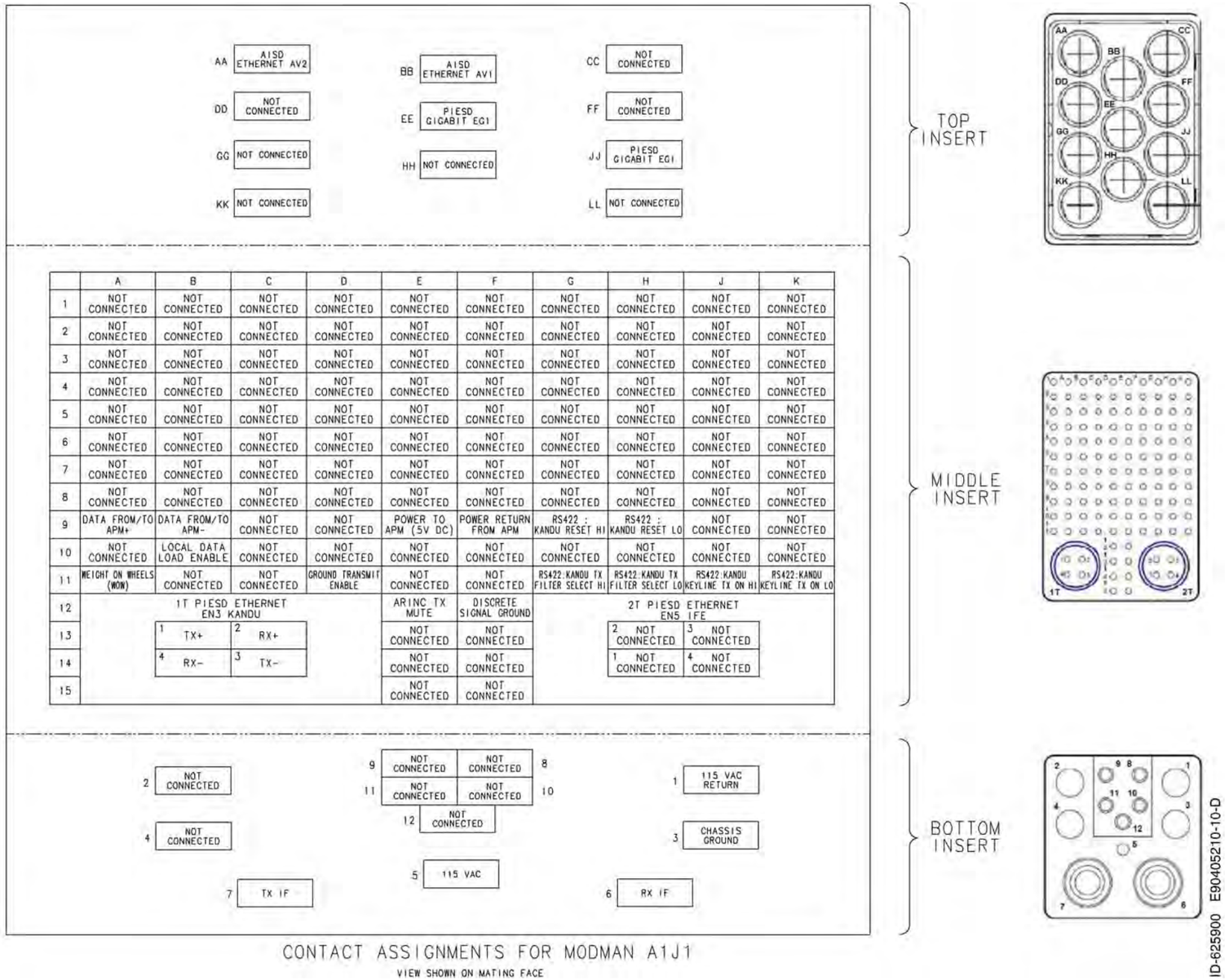


Figure 4-37. (Sheet 9 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Draft as of 31 May 2017





	A	B	C	D	E	F	G	H	J	K
1	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
2	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
3	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
4	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
5	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
6	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
7	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
8	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
9	DATA FROM/TO APM+	DATA FROM/TO APM-	NOT CONNECTED	NOT CONNECTED	POWER TO APM (5V DC)	POWER RETURN FROM APM	RS422 : KANDU RESET HI	RS422 : KANDU RESET LO	NOT CONNECTED	NOT CONNECTED
10	NOT CONNECTED	LOCAL DATA LOAD ENABLE	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
11	WEIGHT ON WHEELS (WOW)	NOT CONNECTED	NOT CONNECTED	GROUND TRANSMIT ENABLE	NOT CONNECTED	NOT CONNECTED	RS422:KANDU TX FILTER SELECT HI	RS422:KANDU TX FILTER SELECT LO	RS422:KANDU KEYLINE TX ON HI	RS422:KANDU KEYLINE TX ON LO
12	1T PIESD ETHERNET EN3 KANDU				ARINC TX MUTE	DISCRETE SIGNAL GROUND	2T PIESD ETHERNET EN5 IFE			
13	1 TX+	2 RX+			NOT CONNECTED	NOT CONNECTED	2 NOT CONNECTED	3 NOT CONNECTED		
14	4 RX-	3 TX-			NOT CONNECTED	NOT CONNECTED	1 NOT CONNECTED	4 NOT CONNECTED		
15					NOT CONNECTED	NOT CONNECTED				

CONTACT ASSIGNMENTS FOR MODMAN A1J1
VIEW SHOWN ON MATING FACE

Figure 4-37. (Sheet 10 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

TABLE 1 : APM A2J1 CONNECTOR PIN ASSIGNMENTS	
PIN NUMBER	SIGNAL NAME
1	DATA FROM [/TO] APM +
2	DATA FROM [/TO] APM -
3	NOT CONNECTED
4	NOT CONNECTED
5	POWER TO APM (5 V DC)
6	POWER RETURN FROM APM
7-13	NOT CONNECTED

TABLE 2: KANDU A3J1 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A	CHASSIS GROUND
B	DISCRETE SIGNAL GROUND
C	ARINC TX MUTE
D	KANDU TX CONTROL ANALOG DISCRETE
E	RS422: KANDU TX FILTER SELECT HI
F	115 V AC RETURN
G	115 V AC
H	RS422: KANDU RESET LO
J	IRS A429 A IN
K	IRS A429 B IN
L	NOT CONNECTED
M	RS422: KANDU TX FILTER SELECT LO
N	RS422: KANDU KEYLINE TX ON HI
P	RS422: KANDU KEYLINE TX ON LO
R	AIRCRAFT STATE A429 A IN
S	AIRCRAFT STATE A429 B IN
T	RS422: KANDU RESET HI
U	NOT CONNECTED
V	NOT CONNECTED

TABLE 3: KANDU A3J2 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A	ANTENNA POWER (38.5 V DC NOMINAL)
B	ANTENNA POWER RETURN
C	IMU POWER (24 V DC NOMINAL)
D	IMU POWER RETURN

CONTACT LEGEND, EXCEPT KANDU J4 (QUADRAX INTERFACE) AND MODMAN (ARINC 600 CONTACTS)

16 AWG 20 AWG 22D AWG

TABLE 4 : KANDU A3J3 CONNECTOR PIN ASSIGNMENTS			
PIN NO	PIN DESIGNATION	PIN NO	PIN DESIGNATION
1	NOT CONNECTED	41	TAIL SECTOR MUTE RETURN
2	NOT CONNECTED	42	NOT CONNECTED
3	RS422: KRFU TO KANDU DATA HI	43	NOT CONNECTED
4	RS422: KRFU TO KANDU DATA LO	44	NOT CONNECTED
5	RS422: KANDU TO KRFU DATA HI	45	NOT CONNECTED
6	RS422: KANDU TO KRFU DATA LO	46	NOT CONNECTED
7	RS422: KRFU TX FILTER SELECT HI	47	NOT CONNECTED
8	RS422: KRFU TX FILTER SELECT LO	48	NOT CONNECTED
9	RS422: KRFU KEYLINE TX ON HI	49	NOT CONNECTED
10	RS422: KRFU KEYLINE TX ON LO	50	NOT CONNECTED
11	RS422: KRFU RESET HI	51	NOT CONNECTED
12	RS422: KRFU RESET LO	52	NOT CONNECTED
13	NOT CONNECTED	53	NOT CONNECTED
14	NOT CONNECTED	54	NOT CONNECTED
15	NOT CONNECTED	55	NOT CONNECTED
16	NOT CONNECTED	56	NOT CONNECTED
17	NOT CONNECTED	57	NOT CONNECTED
18	NOT CONNECTED	58	RS422: KANDU TO IMU DATA HI
19	NOT CONNECTED	59	RS422: KANDU TO IMU DATA LO
20	NOT CONNECTED	60	NOT CONNECTED
21	NOT CONNECTED	61	NOT CONNECTED
22	NOT CONNECTED	62	NOT CONNECTED
23	NOT CONNECTED	63	NOT CONNECTED
24	NOT CONNECTED	64	NOT CONNECTED
25	NOT CONNECTED	65	NOT CONNECTED
26	NOT CONNECTED	66	NOT CONNECTED
27	NOT CONNECTED	67	RS422: IMU TO KANDU DATA LO
28	NOT CONNECTED	68	NOT CONNECTED
29	NOT CONNECTED	69	NOT CONNECTED
30	NOT CONNECTED	70	NOT CONNECTED
31	NOT CONNECTED	71	NOT CONNECTED
32	RS422: KANDU TO FMA DATA HI	72	NOT CONNECTED
33	RS422: KANDU TO FMA DATA LO	73	NOT CONNECTED
34	NOT CONNECTED	74	NOT CONNECTED
35	NOT CONNECTED	75	NOT CONNECTED
36	RS422: FMA TO KANDU DATA HI	76	RS422: IMU TO KANDU DATA HI
37	RS422: FMA TO KANDU DATA LO	77	NOT CONNECTED
38	NOT CONNECTED	78	NOT CONNECTED
39	NOT CONNECTED	79	NOT CONNECTED
40	TAIL SECTOR MUTE		

TABLE 5 : KANDU A3J4 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A-1	PIESD ETHERNET EN3 KANDU TO MODMAN+
A-3	PIESD ETHERNET EN3 KANDU TO MODMAN-
A-2	PIESD ETHERNET EN3 MODMAN TO KANDU+
A-4	PIESD ETHERNET EN3 MODMAN TO KANDU-
A-S	PIESD ETHERNET EN3 SHIELD
B-1	NOT CONNECTED
B-3	NOT CONNECTED
B-2	NOT CONNECTED
B-4	NOT CONNECTED
B-S	NOT CONNECTED
C-1	PIESD ETHERNET EN2 KANDU TO FMA+
C-3	PIESD ETHERNET EN2 KANDU TO FMA-
C-2	PIESD ETHERNET EN2 FMA TO KANDU+
C-4	PIESD ETHERNET EN2 FMA TO KANDU-
C-S	PIESD ETHERNET EN2 SHIELD
D-1	NOT CONNECTED
D-3	NOT CONNECTED
D-2	NOT CONNECTED
D-4	NOT CONNECTED
D-S	NOT CONNECTED

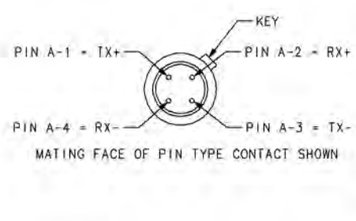


TABLE 6 : KRFU A4J1 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A	115 V AC POWER
B	115 V AC POWER RETURN
C	NOT CONNECTED
D	NOT CONNECTED

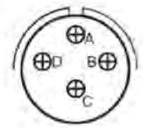


TABLE 7 : KRFU A4J2 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
1	NOT CONNECTED
2	NOT CONNECTED
3	RS422 : KRFU TX FILTER SELECT HI
4	RS422 : KRFU TX FILTER SELECT LO
5	RS422 : KRFU KEYLINE TX ON HI
6	RS422 : KRFU KEYLINE TX ON LO
7	RS422 : KRFU RESET HI
8	RS422 : KRFU RESET LO
9	NOT CONNECTED
10	NOT CONNECTED
11	RS422 : KRFU TO KANDU DATA HI
12	RS422 : KRFU TO KANDU DATA LO
13	NOT CONNECTED
14	NOT CONNECTED
15	NOT CONNECTED
16	NOT CONNECTED
17	RS422 : KANDU TO KRFU DATA HI
18	RS422 : KANDU TO KRFU DATA LO
19	NOT CONNECTED
20	NOT CONNECTED
21	NOT CONNECTED
22	NOT CONNECTED

ID-625901 E90405210-11-D

Figure 4-37. (Sheet 11 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D)

© Honeywell International Inc. Do not copy without express permission of Honeywell.

TABLE 8 : OAE FMA A5P1 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
A	ANTENNA POWER (38.5 V DC NOM)
B	ANTENNA POWER RETURN
C	NOT CONNECTED
D	NOT CONNECTED

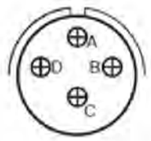


TABLE 9 : OAE FMA A5P3 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
1	RS422: IMU TO KANDU DATA HI
2	RS422: IMU TO KANDU DATA LO
3	RS422: KANDU TO IMU DATA HI
4	RS422: KANDU TO IMU DATA LO
5	IMU POWER (24 V DC NOMINAL)
6	IMU POWER RETURN
7	TAIL SECTOR MUTE
8	TAIL SECTOR MUTE RETURN
9	NOT CONNECTED
10	NOT CONNECTED
11	NOT CONNECTED
12	NOT CONNECTED
13	NOT CONNECTED

TABLE 10 : OAE FMA A5P2 CONNECTOR PIN ASSIGNMENTS	
PIN NO	PIN DESIGNATION
1	PIESD ETHERNET EN2 FMA TO KANDU+
2	PIESD ETHERNET EN2 FMA TO KANDU-
3	PIESD ETHERNET EN2 KANDU TO FMA+
4	PIESD ETHERNET EN2 KANDU TO FMA-
5	RS422: KANDU TO FMA DATA HI
6	RS422: KANDU TO FMA DATA LO
7	RS422: FMA TO KANDU DATA HI
8	RS422: FMA TO KANDU DATA LO
9	SIGNAL GROUND
10	NOT CONNECTED
11	NOT CONNECTED
12	NOT CONNECTED
13	NOT CONNECTED

TABLE 11 : AIRCRAFT FEED THROUGH - POWER CONNECTOR PIN ASSIGNMENTS FOR B737 PLATFORMS	
PIN NO	PIN DESIGNATION
A	ANTENNA POWER (38.5 V DC NOM)
B	ANTENNA POWER RETURN
C	NOT CONNECTED
D	115 V AC KRFU POWER (FROM AIRCRAFT)
E	IMU POWER (24 V DC NOMINAL)
F	IMU POWER RETURN
G	NOT CONNECTED
H	115 V AC KRFU POWER RETURN

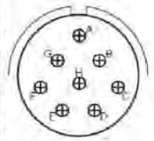
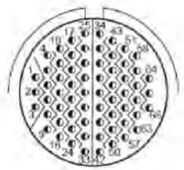
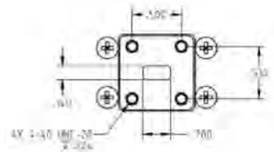


TABLE 12 : AIRCRAFT FEED THROUGH - DATA CONNECTOR PIN ASSIGNMENTS FOR B 737 PLATFORMS			
PIN NO	PIN DESIGNATION	PIN NO	PIN DESIGNATION
1	NOT CONNECTED	34	PIESD ETHERNET EN2 FMA TO KANDU-
2	NOT CONNECTED	35	PIESD ETHERNET EN2 KANDU TO FMA-
3	NOT CONNECTED	36	NOT CONNECTED
4	NOT CONNECTED	37	RS422: KRFU RESET HI
5	NOT CONNECTED	38	RS422: KRFU RESET LO
6	NOT CONNECTED	39	RS422: KRFU TO KANDU DATA HI
7	NOT CONNECTED	40	RS422: KRFU TO KANDU DATA LO
8	NOT CONNECTED	41	RS422: KRFU TX FILTER SELECT HI
9	NOT CONNECTED	42	RS422: KRFU TX FILTER SELECT LO
10	NOT CONNECTED	43	NOT CONNECTED
11	NOT CONNECTED	44	NOT CONNECTED
12	NOT CONNECTED	45	RS422: IMU TO KANDU DATA HI
13	NOT CONNECTED	46	RS422: IMU TO KANDU DATA LO
14	NOT CONNECTED	47	RS422: KANDU TO IMU DATA HI
15	NOT CONNECTED	48	NOT CONNECTED
16	NOT CONNECTED	49	NOT CONNECTED
17	NOT CONNECTED	50	NOT CONNECTED
18	NOT CONNECTED	51	RS422: KANDU TO FMA DATA HI
19	NOT CONNECTED	52	RS422: KANDU TO FMA DATA LO
20	NOT CONNECTED	53	NOT CONNECTED
21	NOT CONNECTED	54	RS422: KANDU TO IMU DATA LO
22	NOT CONNECTED	55	NOT CONNECTED
23	SIGNAL GROUND	56	NOT CONNECTED
24	DISCRETE SIGNAL GROUND	57	NOT CONNECTED
25	PIESD ETHERNET EN2 KANDU TO FMA+	58	NOT CONNECTED
26	PIESD ETHERNET EN2 FMA TO KANDU+	59	RS422: FMA TO KANDU DATA HI
27	NOT CONNECTED	60	RS422: FMA TO KANDU DATA LO
28	RS422: KRFU KEYLINE TX ON HI	61	NOT CONNECTED
29	RS422: KRFU KEYLINE TX ON LO	62	NOT CONNECTED
30	NOT CONNECTED	63	NOT CONNECTED
31	NOT CONNECTED	64	RS422: KANDU TO KRFU DATA HI
32	TAIL SECTOR MUTE	65	RS422: KANDU TO KRFU DATA LO
33	TAIL SECTOR MUTE RETURN	66	NOT CONNECTED

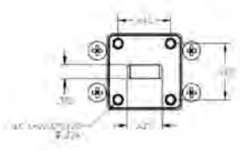


CONTACT LEGEND, EXCEPT KANDU J4 (QUADRAX INTERFACE) AND MODMAN (ARINC 600 CONTACTS)

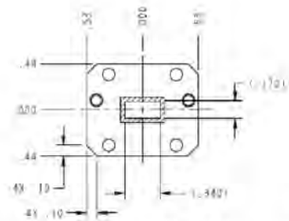
16 AWG 20 AWG 22D AWG



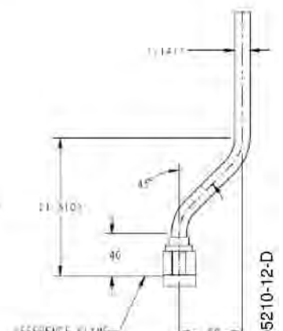
MATING FACE OF KRFU A4J3
(DIMENSIONS ARE IN INCHES)



MATING FACE OF KRFU A4J4
(DIMENSION ARE IN INCHES)



MATING FACE OF OAE-FMA A5J5
(DIMENSIONS ARE IN INCHES)



OAE-FMA A5J4 CONNECTOR
(DIMENSIONS ARE IN INCHES)

ID-625902 E90405210-12-D

Figure 4-37. (Sheet 11 of 12) Alternative KRFU Outside Aircraft Fuselage Configuration (90405210, REV D

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Draft as of 31 May 2017

Blank Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

SECTION 5

SOFTWARE CONFIGURATION

5.1 ARINC 615A Software Data Load Process

A. Introduction

As a minimum, APM system configuration files need to be loaded onto the JETWAVE™ system.

The JetWave™ LRUs are preloaded with a full software load and there may be a need to perform a field data load under normal conditions during installation. If a new software release is desired by means of a Service Bulletin, or if all of the LRUs are not at the same software release level, then a new data load will be required.

On completion of physical installation and interconnection of JetWave™ LRUs in the aircraft, it is to be verified that the appropriate version of the JetWave™ LRU operational data and APM configuration file is data loaded onto the JetWave™ LRUs.

Whenever an LRU is exchanged in a JETWAVE™ System, confirmation is required to make sure that the replacement LRU contains software that is compatible with the software configuration of the other boxes. The software upgrade procedures must be rerun for that particular LRU each time an LRU is replaced, to make sure there is compatibility within the JETWAVE™ System.

The JETWAVE™ System does not allow for any mix of Honeywell and non-Honeywell furnished LRUs.

The JetWave™ LRU operational data files are available from the Honeywell Portal. The software data load can be carried out when the data load files are issued separately along with Service Bulletins for any in-service system updates.

Only Honeywell approved software is loadable onto JetWave™ LRUs.

This section of the document supplies information on how to accomplish ARINC 615A data loading of JetWave™ system in the field.

The data loading of JetWave™ system is done while the aircraft is on ground. During the data load, there will not be any RF transmission.

B. System Requirements

For data load, the data loader is to be interfaced with Modman through the ARINC 600 Modman AV1 Ethernet port unless APM configuration does specify other port / IPs settings. The AES JetWave™ Modman is designed to enter into data load mode when the discrete signal interface for Data load Enable is asserted (grounded) by ARINC 615A compliant data loading utility. The discrete input electrical specification is in accordance with the specification in ARINC 763 Section 2.9.6.

It is recommended that the Modman AV1 Maintenance port and Modman Data Load Enable discrete interface be wired for JetWave™ AES data load and AES log extraction.

An ARINC 615A compliant data loading utility is recommended to be used for JetWave™ AES data loading. The data loading software-based utility may be hosted on a PC architecture device such

© Honeywell International Inc. Do not copy without express permission of Honeywell.

as an Electronic Flight Bag (EFB) or other portable computing device, an on-board portable device, or an avionics device. Since the Aircraft loading procedures can vary due to different type of uploading means, it is recommended to refer to the appropriate Aircraft Maintenance Manual before attempting data loading of JetWave™ AES system.

C. Overview

This section contains the instructions for data loading of JetWave™ software to any of the JetWave™ LRUs through the Ethernet interface maintenance port of Modman. Data loading of JetWave™ system can be performed while:

- JetWave™ system is in normal operation
- During system initialization
- When in AES Critical Fault Mode.

The maintenance operator is responsible for determining which loads are presented to the JetWave™ AES system through the Modman for data load. JetWave™ AES system in turn will determine the files required to meet the data load request.

The JetWave™ AES system data loading of all LRUs including uploading of the AES configuration data can be performed through Modman. For data load purpose, Modman acts as a gateway to JetWave™ LRUs and LRUs themselves do the data load. It is not recommended to attempt field data loading JetWave™ LRUs other than through the Modman.

The system configuration files are stored in nonvolatile memory in the APM and does not lose its contents due to loss of APM power.

Upon transfer of the loaded software, the Modman makes sure that the software presented by the data loader has been loaded correctly before responding that the load is complete and will report part numbers of the loaded software.

For illustration purposes, snap shots of the AIT make F-SIM-LDR ARINC 615A data loader simulator are included within this document.

(1) Parts Needed:

- Data load files from the Honeywell Portal.
- ARINC 615A compliant data. The JetWave™ AES system software is loaded through the Modman loader.

NOTE: The JetWave™ AES loadable software part, part number varies for each release.

(2) System Software/Database Updates

Under normal circumstances, time required to carry out data load operation of all JetWave™ AES LRUs can be performed within a total time of between 1.0 and 2.25 hours. This includes the Modman, KANDU, and antenna. Installation for the FMA takes significantly less time than for the TMA.

The data sets as shown in Table 5-1 can be transferred through the data load port of the Modman.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 5-1. Data Sets

LRU	Data Set	Transfer Process
Modman	JetWave™ Modman LRU Operational file	Upload only
APM	APM configuration file	Upload only through the Modman
KANDU	JetWave™ KANDU LRU operational file	Upload only through the Modman
KRFU	JetWave™ KRFU LRU operational file	Upload only through the Modman
OAE-FMA or OAE-TMA	JetWave™ OAE LRU operational file	Upload only through the Modman

In the above listing, upload is defined as the transfer of a data set from the ARINC 615A data loader and a download is defined as the transfer of a data set from Modman to the ARINC 615A data loader. For JetWave™ AES LRUs where data download operation is not supported, the system will return 0x1002 status code.

The ARINC 665 data load package includes *.LUM files for each of JetWave™ LRUs. This along with LOADS.LUM and FILES.LUM are assembled to form a 665 package which include a manifest file as a compressed file format. The ARINC 665 data load set for the JetWave™ system comprises of:

- LOADS.LUM: Describes the loads that the data load device carries, one or more.
- FILES.LUM: Lists all the files, excluding itself, on the data load.
- *.LUH is the load part index file that LOADS.LUM points to.
- *.LUP is the data file which contains compressed software image/images and manifest files.

During the data loading process, the respective LRU unzips the file and extracts the manifest file and the images. Each LRU identifies the part for itself from the manifest file.

The .LUP files that follow are included as part of ARINC665 data load file for different AES LRUs.

- Modman operational data
- AES configuration data
- KRFU operational image
- KANDU operational image
- OAE-TMA operational image
- OAE- FMA operational image.

NOTE: More than one CONFIG sub parts may be present in a configuration load, one per AES configuration file type.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

For the ARINC 615A data load operations, an A615A target connection must be defined. Target connection defines a TFTP client on the Modman and TFTP server on the data loader that will be used for file transfer.

D. Procedure (AIT Flight Simulyzer v3.0.0)

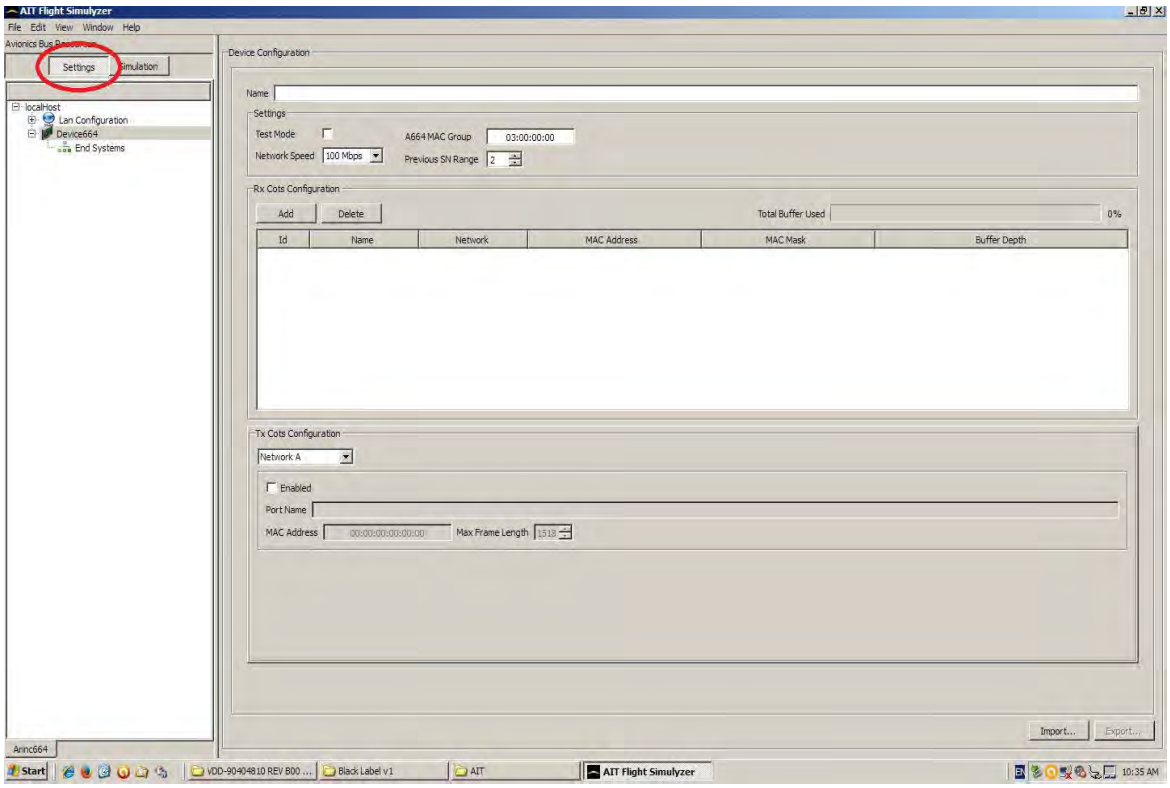
(1) Refer to the latest revision of SBs JETWAVE-23-0001, JETWAVE-23-0002, and JETWAVE-23-0003 or later SB for the software upload procedures.

(2) Setup

NOTE: These setup steps must be run each time the Data Loader application is closed and opened again.

(a) Open the AIT 'Flight Simulyzer' application.

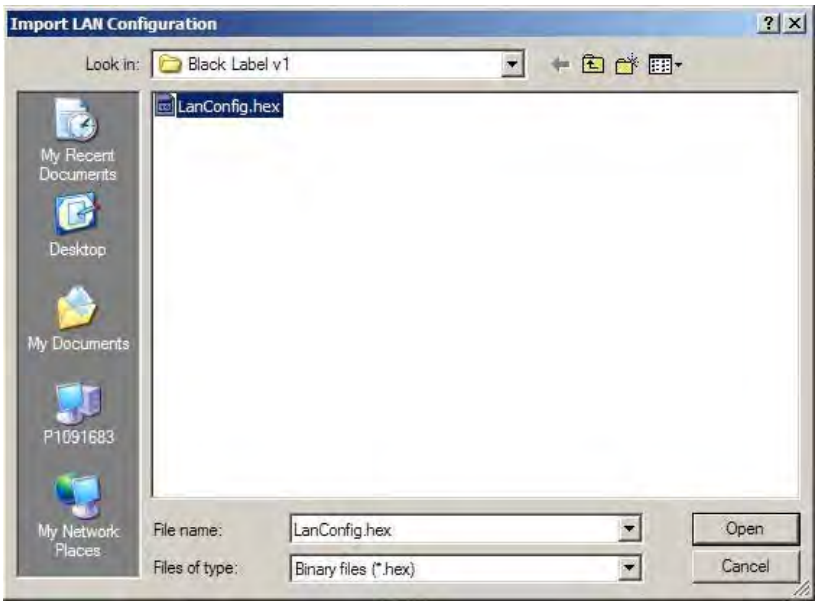
(b) Select the "Settings" button on the left side of the screen.



© Honeywell International Inc. Do not copy without express permission of Honeywell.

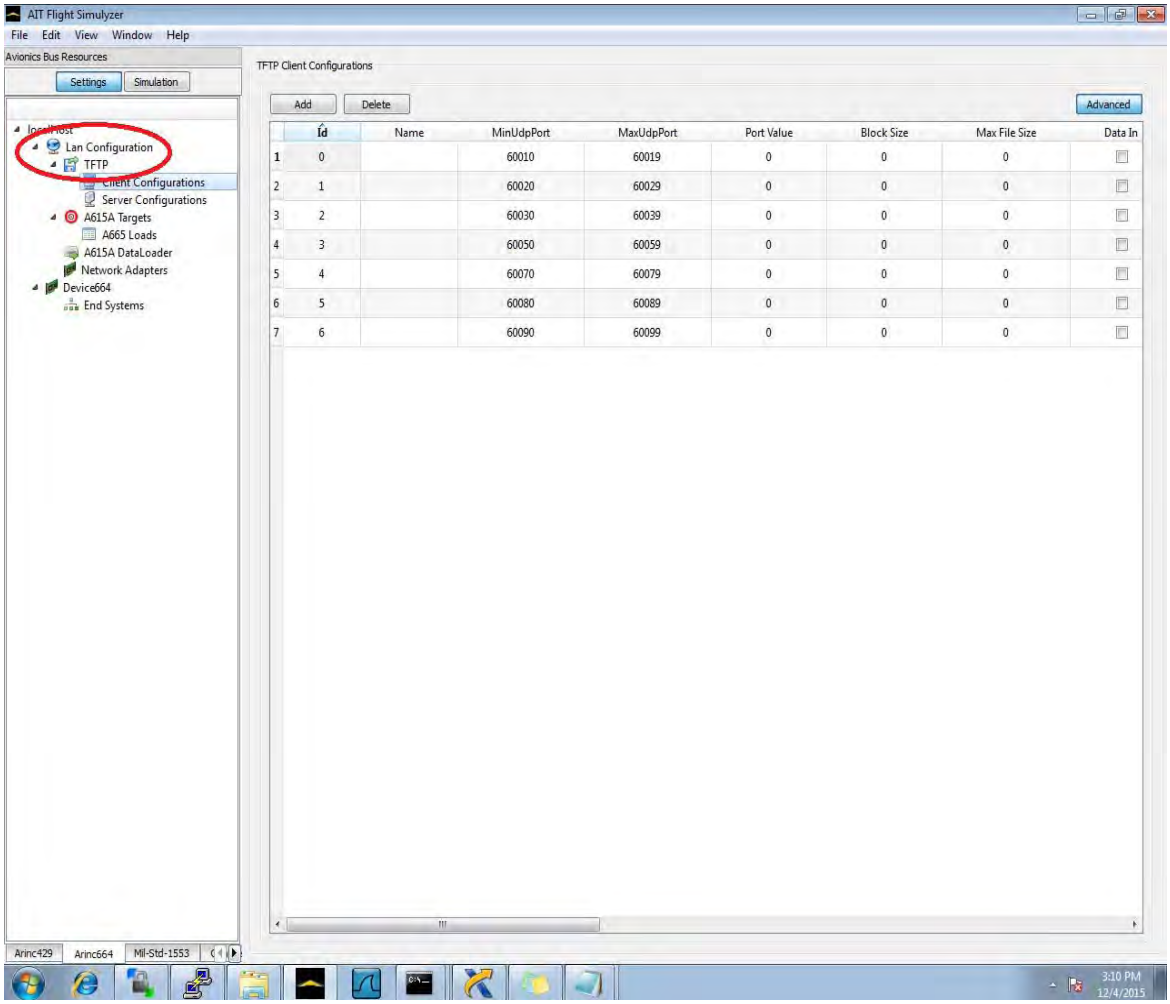
(c) Right click “Lan Configuration” and select “Import HostLan Configuration…”

(d) Browse to the “LanConfig.hex” file and select “Open”. (This file needs to be present by the installer on the data loader computer.)



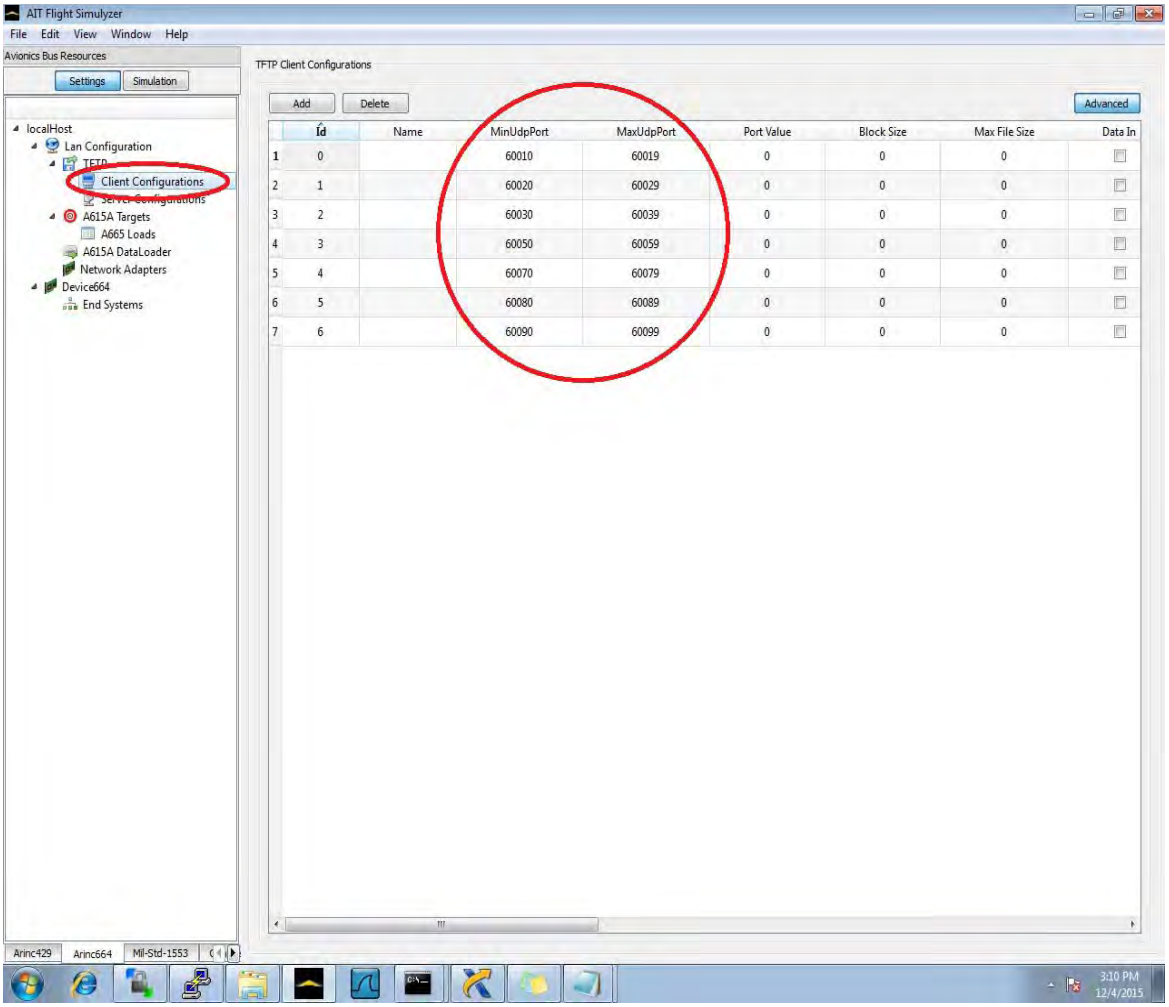
© Honeywell International Inc. Do not copy without express permission of Honeywell.

(e) Expand “Lan Configurations” and then also expand “TFTP” on the left side of the screen.



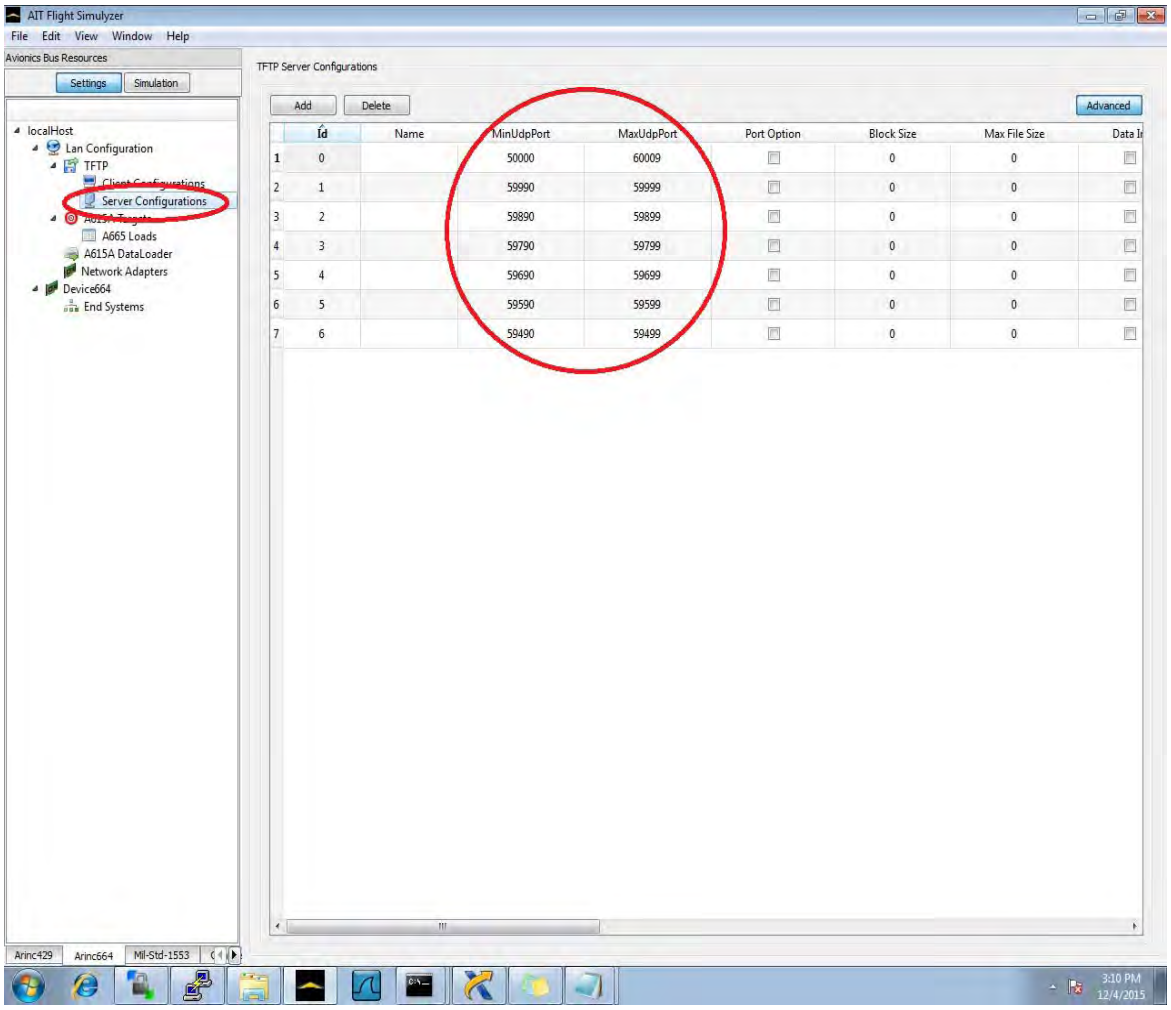
© Honeywell International Inc. Do not copy without express permission of Honeywell.

(f) Select “Client Configurations” on the left side of the screen and verify the settings appear as in the screenshot below.



© Honeywell International Inc. Do not copy without express permission of Honeywell.

(g) Select “Server Configurations” on the left side of the screen and verify the settings appear as in the screenshot below.



(3) Data-loading GXA with the AIT Flight Simulyzer Software

NOTE: Replace “<LRU NAME>” below with the LRU to be loaded.

(a) Power on the system.

(b) Wait until the Modman front panel LEDs (‘POWER’ and ‘STATUS’) are both solid green in color. This would indicate the system is in “Normal Operation” mode. If the MM does not get to a solid green color, then that should be investigated before the SW upload process begins.

(c) Make sure that the ‘Data Load Enable’ discrete is set to the ‘Enabled’ state.

(d) On the installers data load PC, open a web browser and in the location bar enter IP address 172.29.55.1, hit enter. This will open the AES GUI as shown in the figure below.

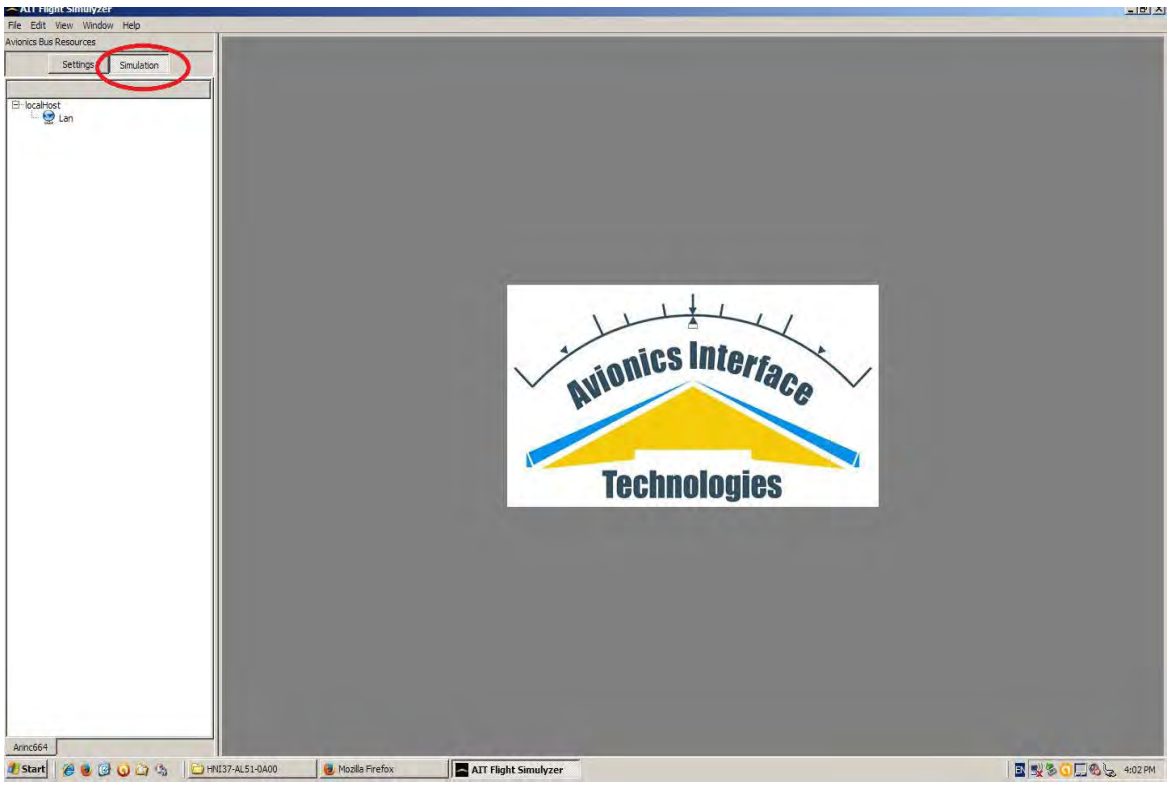
© Honeywell International Inc. Do not copy without express permission of Honeywell.

Log in and view the system status info at the top of the GUI window. At the GUI login, the username is "User" and there is no password.

(e) Wait until all of the LRUs indicate a status of “OK” before continuing, to ensure the system has booted up fully. Should the GX system come up in “Init” mode or “Critical Fault” mode, the data loader process may still be performed to update the software if the cause was known to be related to the previous version software. Otherwise, the system fault should be investigated and a “Normal Operation” state restored.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

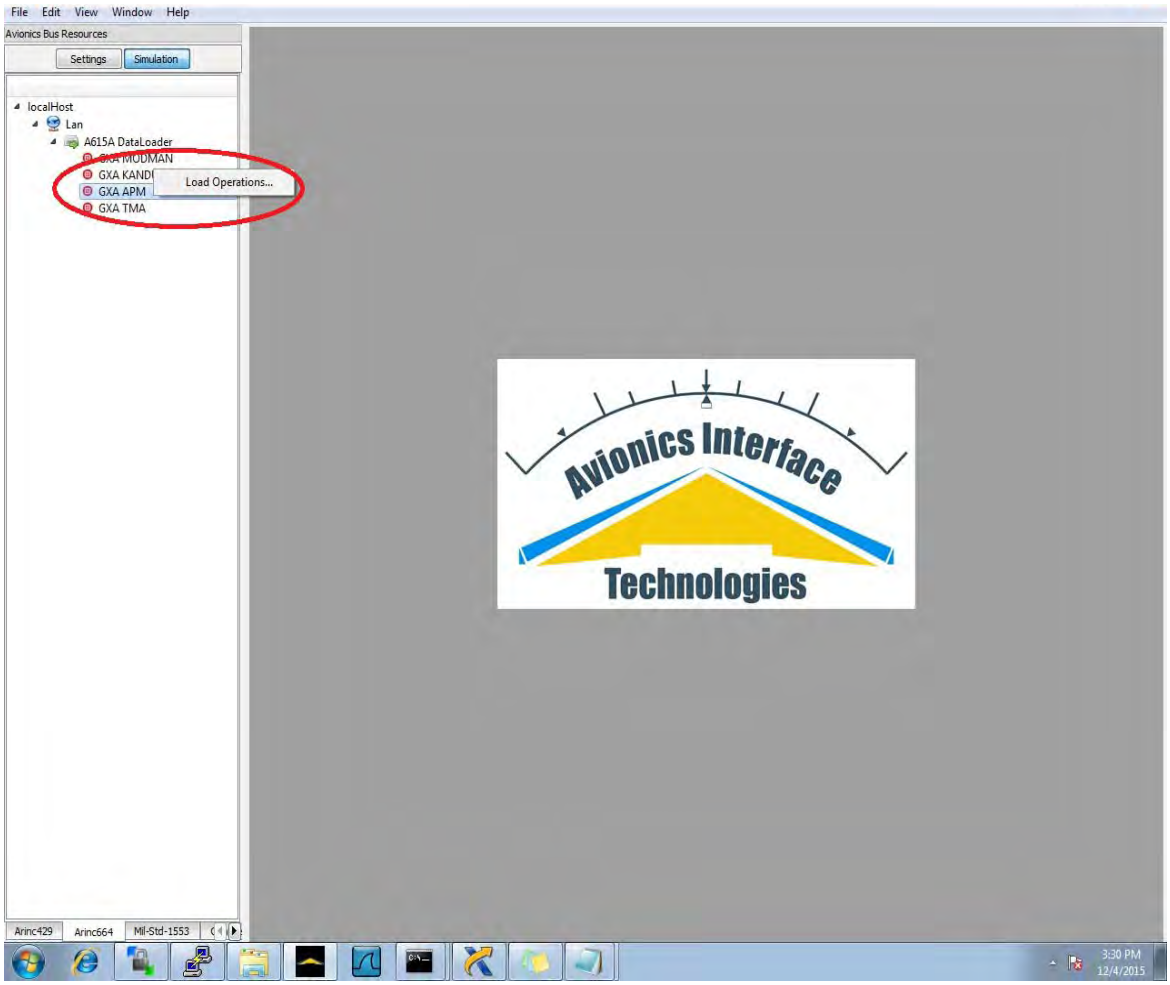
(f) In the AIT ‘Flight Simulyzer’ application, select the “Simulation” button on the left side of the screen.



© Honeywell International Inc. Do not copy without express permission of Honeywell.

(g) The LRU name (i.e. 'GXA <LRU NAME>') should now be visible in the left side window pane under "A615A Data Loader".

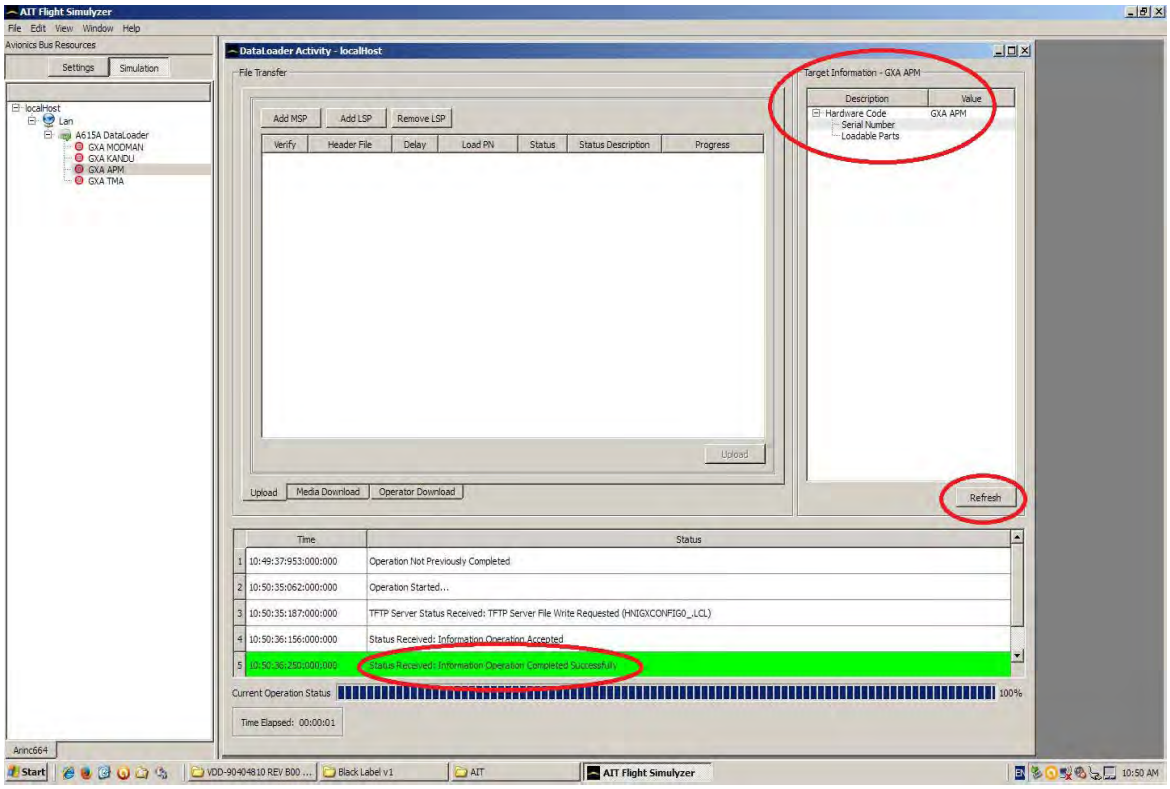
(h) Right click the LRU name ('GXA <LRU NAME>') on the left side window pane and select "Load Operations…"



© Honeywell International Inc. Do not copy without express permission of Honeywell.

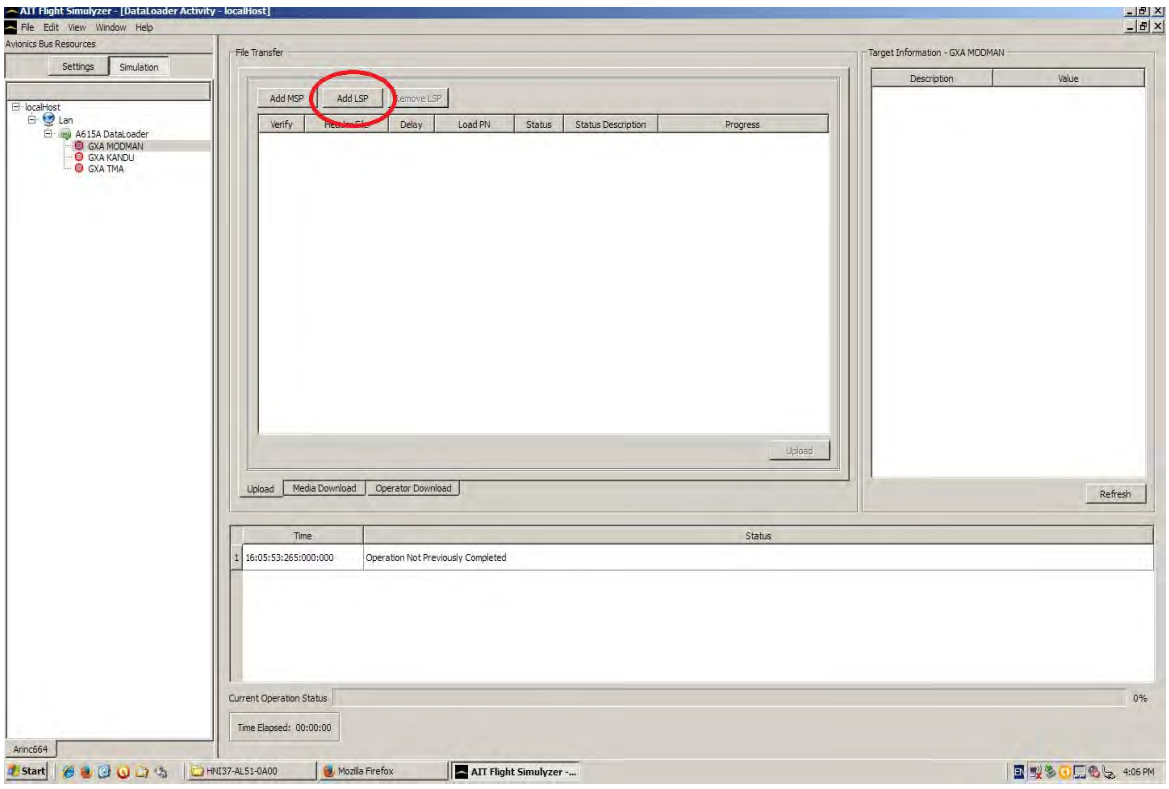
(i) Select the “Refresh” button near the bottom right part of the screen.

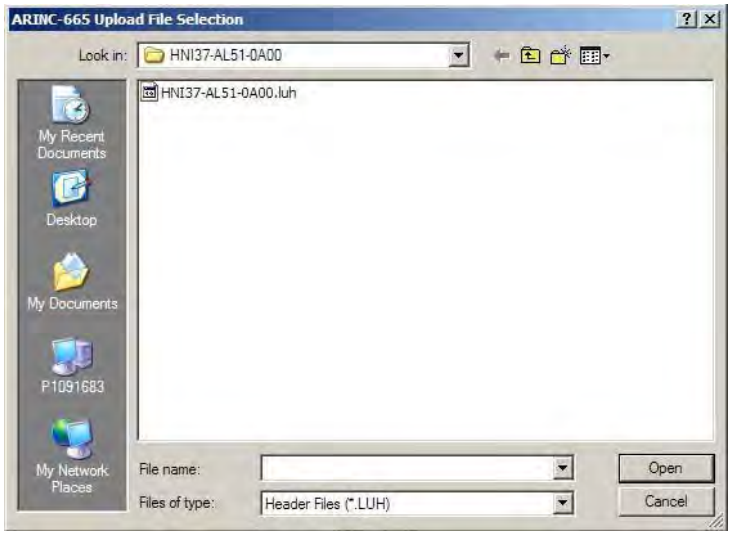
(j) Verify that the “Target Information” for the LRU appears on the right side of the screen. This will ensure communication between the 615A Data Loader and the Modman.



© Honeywell International Inc. Do not copy without express permission of Honeywell.

(k) Select “Add LSP…” and browse to the .luh file in the 665 data load package for the LRU, select it and click “Open”.

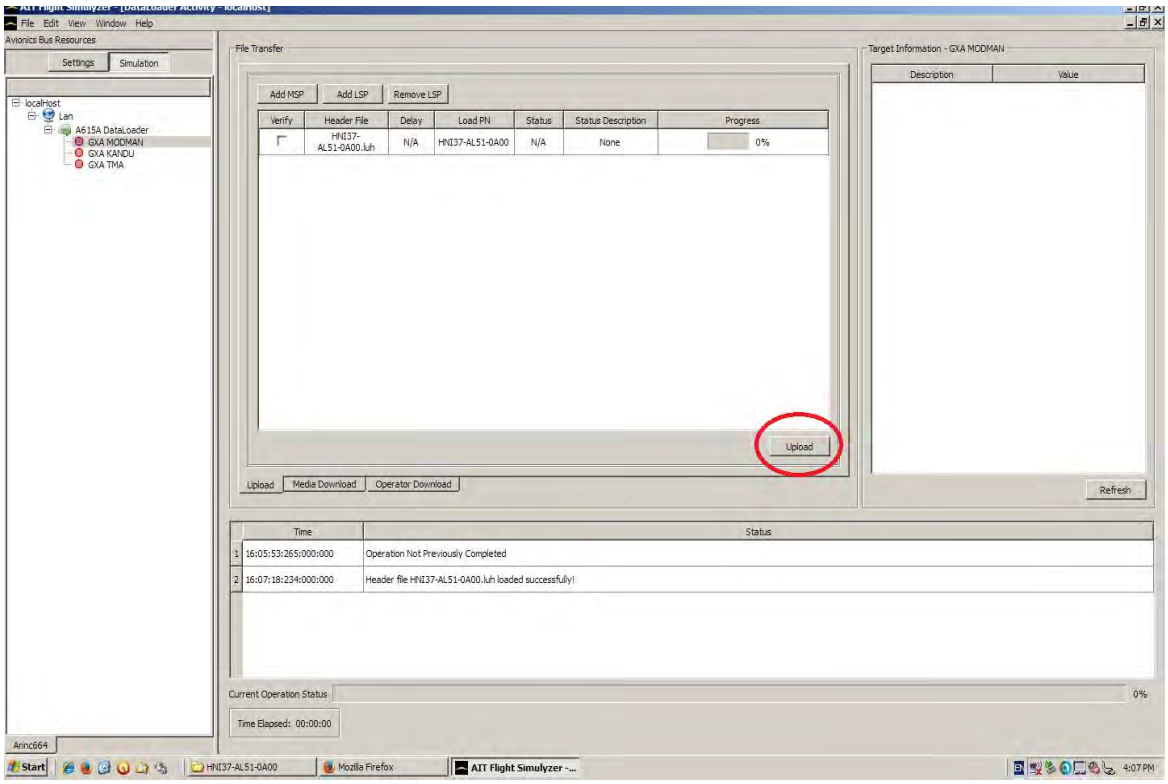




© Honeywell International Inc. Do not copy without express permission of Honeywell.

(l) The package should now be visible in the “File Transfer” window.

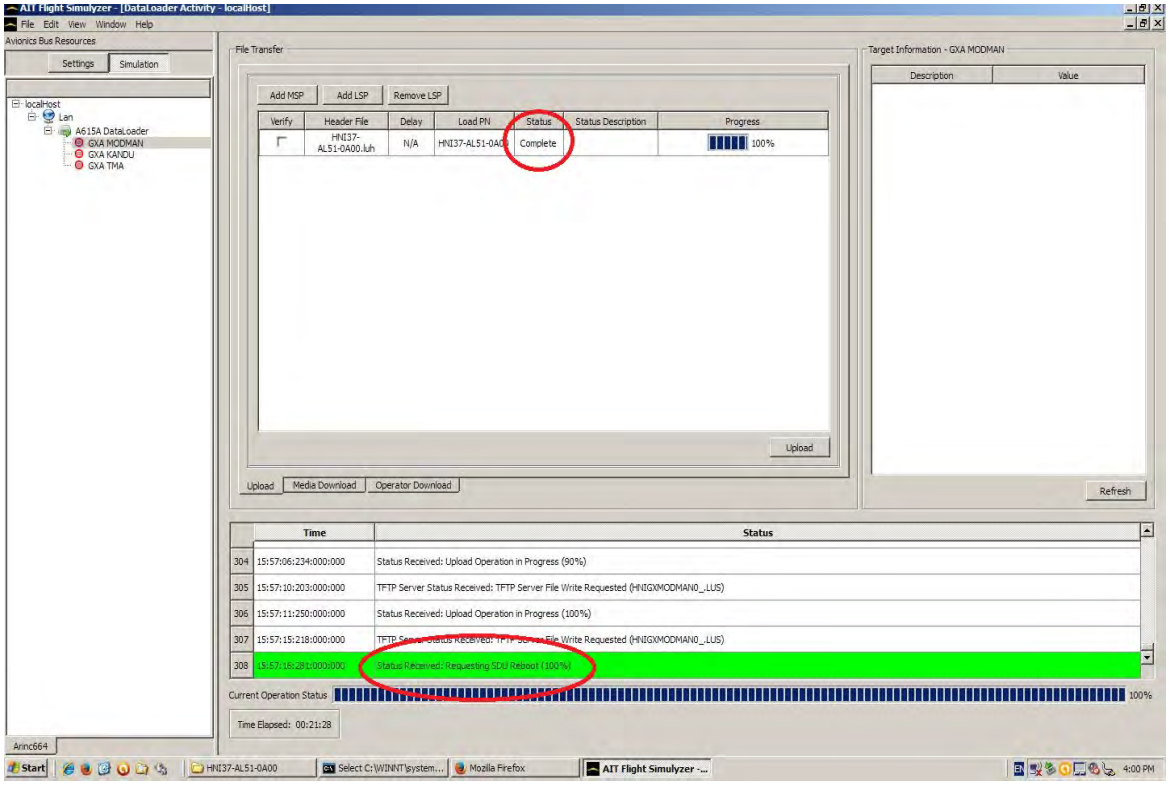
(m) Select the “Upload” button when ready to begin the transfer to the LRU.



(n) When complete, the “Status” heading in the “File Transfer” window will indicate “Complete” and a green status bar at the bottom of the screen will indicate “Data load

© Honeywell International Inc. Do not copy without express permission of Honeywell.

has completed successfully. Once all LRUs are updated, de-assert the data load discrete to reset the system (100%)".



(o) If loading additional software, again execute the steps above starting with Step (h).

(p) Once all software upgrades are completed, toggle the 'Data Load Enable' discrete to the 'Disabled' state. This will cause a system reboot.

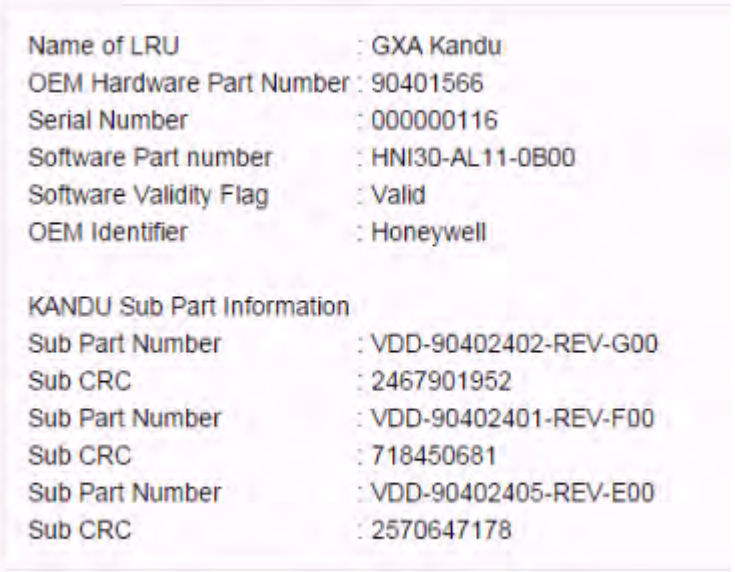
(q) On the data load PC, using a web browser (preferably Firefox or Chrome), point to IP address '172.29.55.1' in the browser to open the AES GUI as shown below. Log in and view the system status info at the top of the GUI window. At the GUI login, the username is "User" and there is no password.

(r) Each LRU can be checked by selecting the respective LRU name under "Version & Manufacturing Information".

(s) Each LRU page will have the hardware part and serial numbers, as well as the software part numbering information and CRCs for each sub part. This information should match

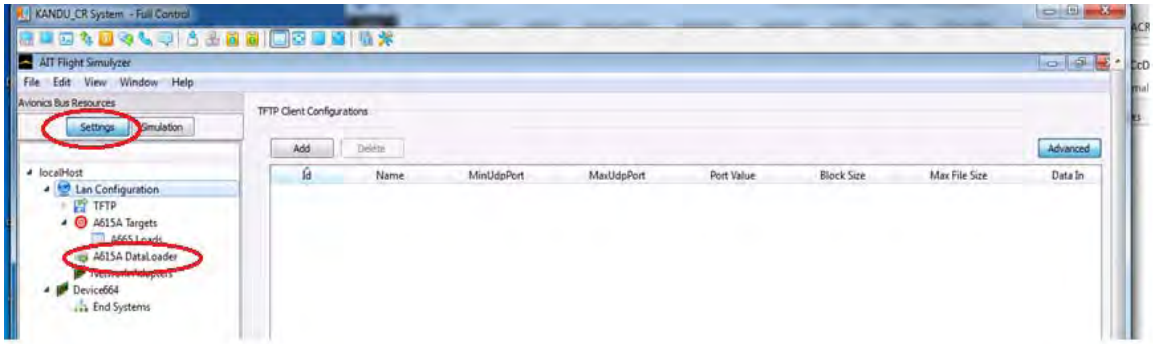
© Honeywell International Inc. Do not copy without express permission of Honeywell.

the VDDs which were loaded. For details on the software versions, refer to the applicable SB.

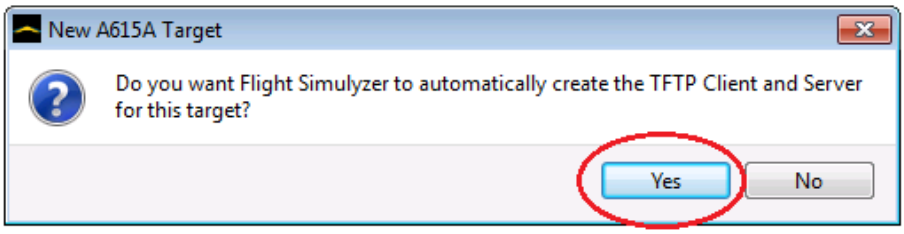


E. A615 LanConfig.Hex File Creation and Settings

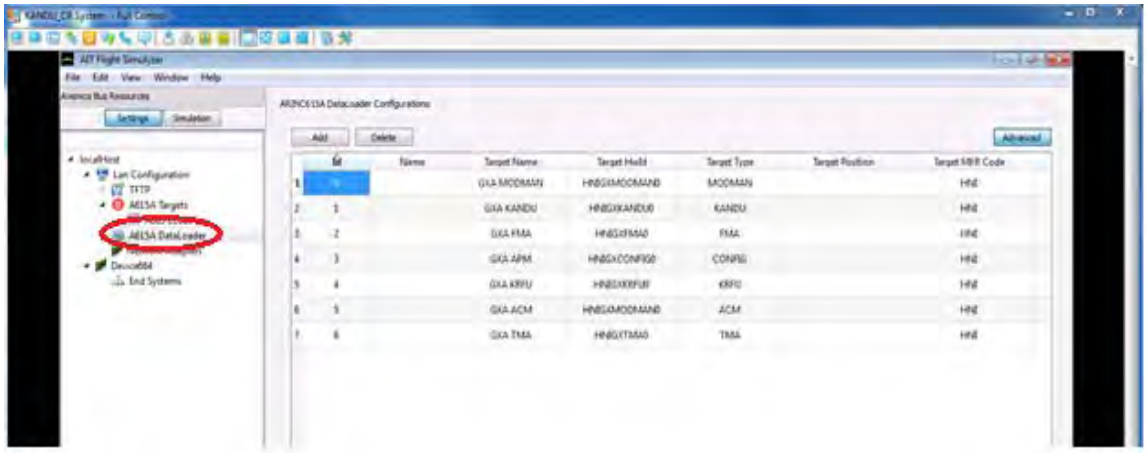
(1) Open the AIT Flight Simulyzer Tool and select the 'Settings' pushbutton. Under the local host tree, select the "A615A DataLoader". Select "ADD" to add the seven entries as shown in Step (b). Each time you select "ADD," you will be prompted to automatically create a TFTP Client and Server for each target. Select "Yes".

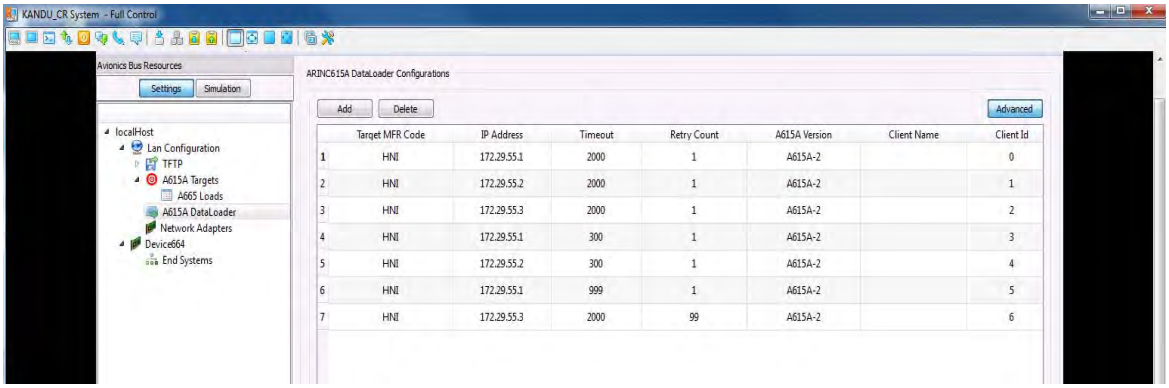


© Honeywell International Inc. Do not copy without express permission of Honeywell.

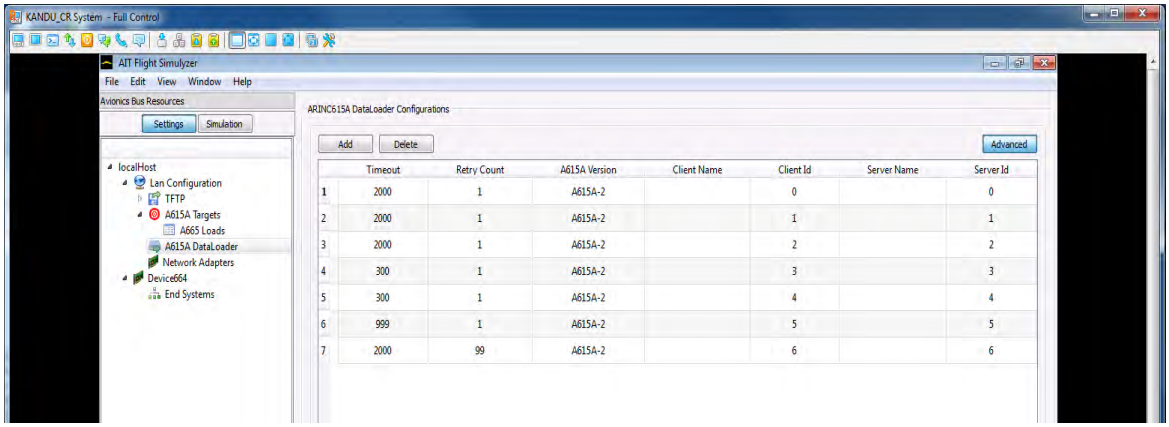


(2) Enter all the A615A DataLoader settings as shown in the following screenshots.

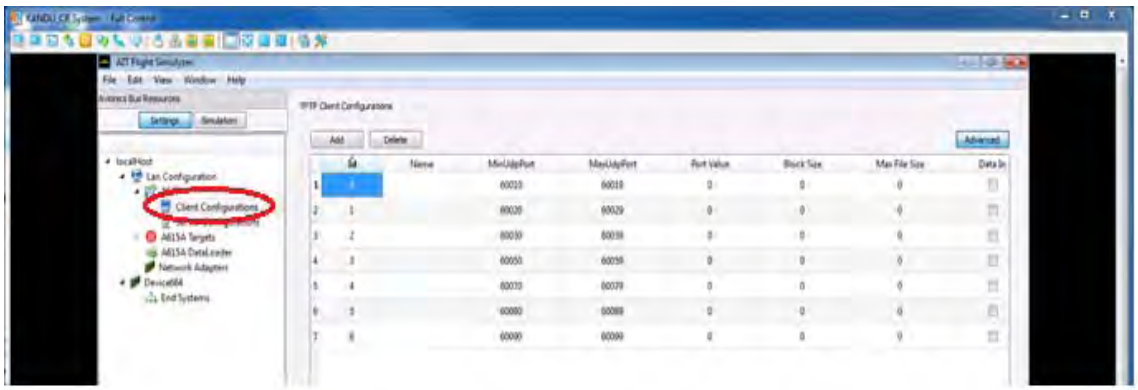


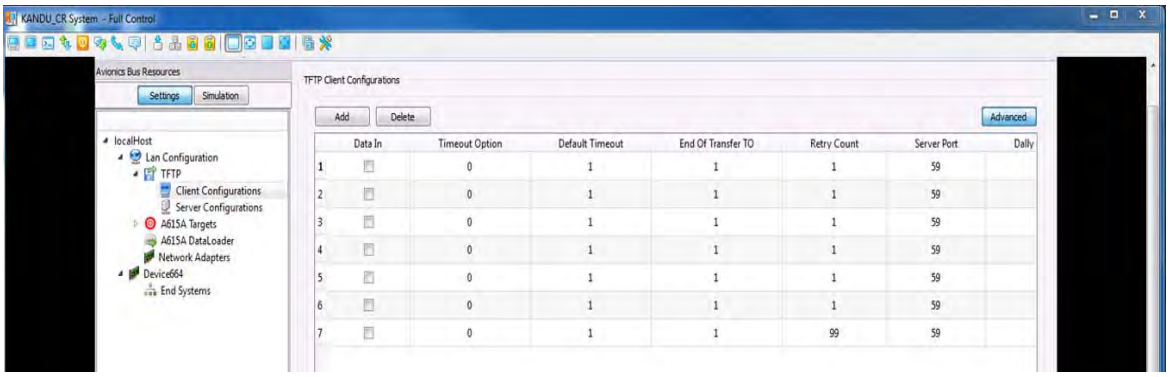


© Honeywell International Inc. Do not copy without express permission of Honeywell.

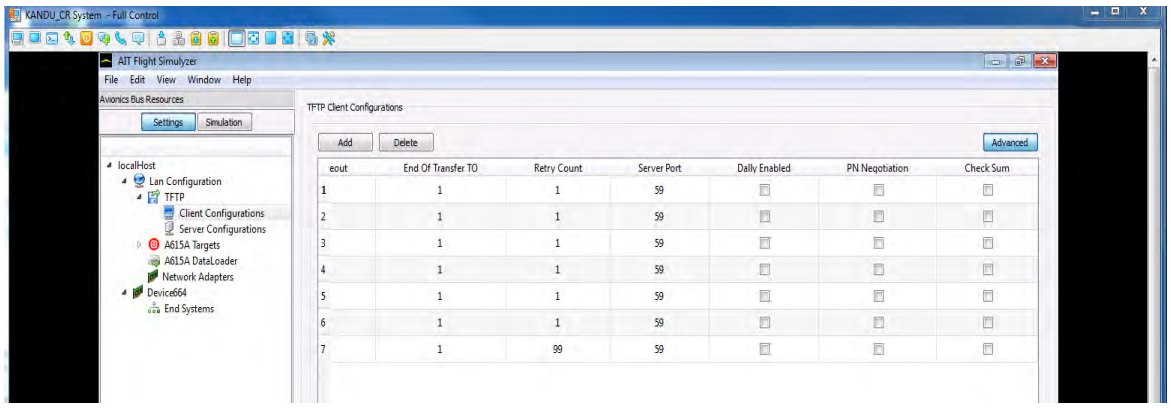


(3) In the Local Host Tree, select " Lan Configuration", "TFTP", "Client Configurations". Enter the settings as shown in the following screenshots.

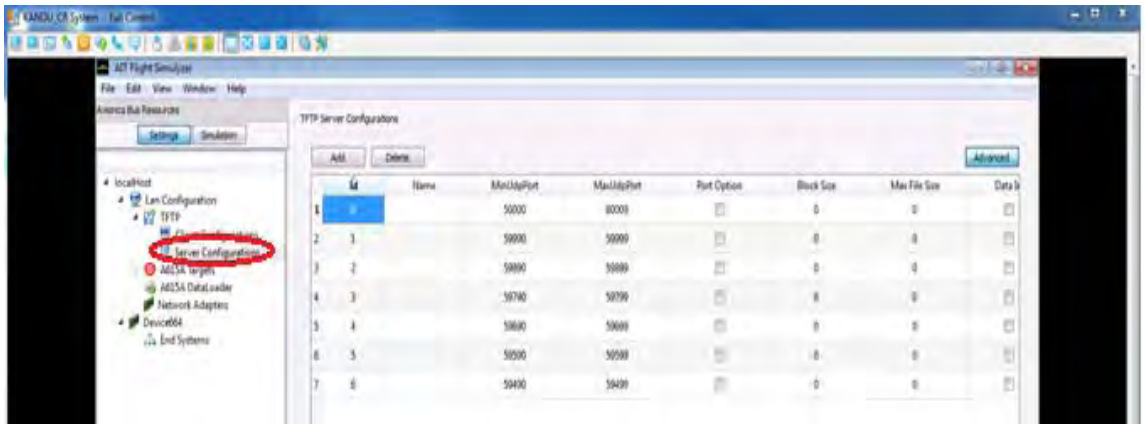


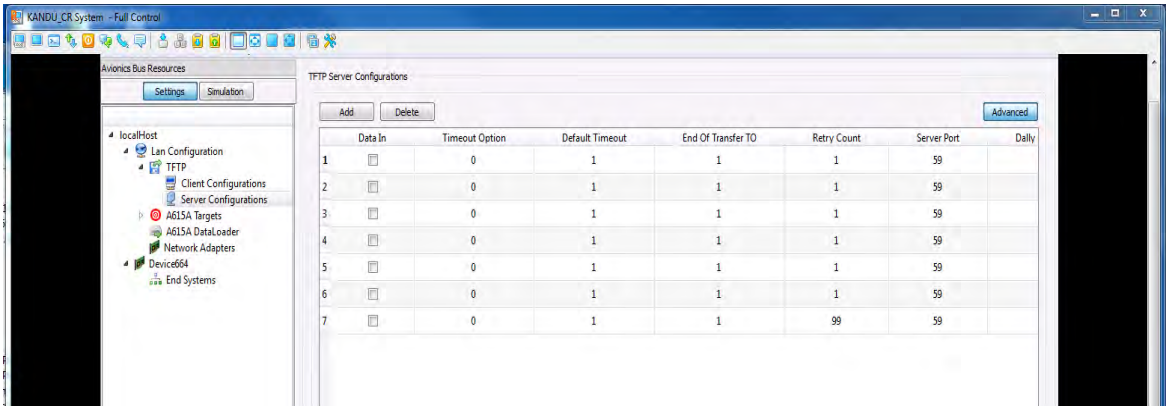


© Honeywell International Inc. Do not copy without express permission of Honeywell.

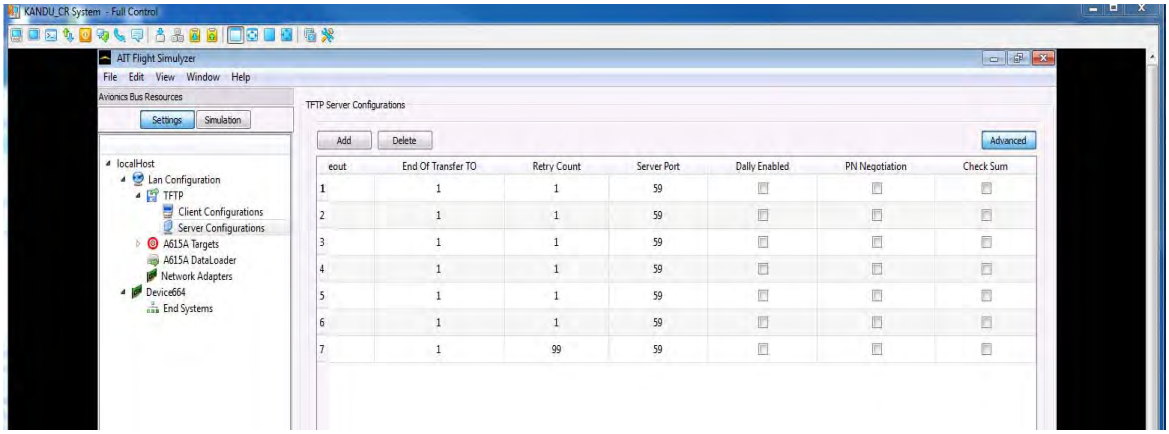


(4) In the Local Host Tree, select " Lan Configuration", "TFTP", "Server Configurations". Enter the settings as shown in the following screenshots.

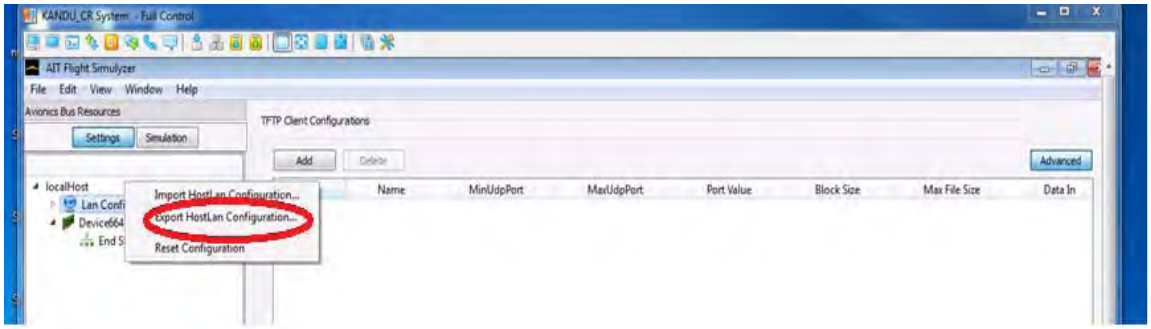




© Honeywell International Inc. Do not copy without express permission of Honeywell.



(5) Once all settings have been entered, select “LAN Configuration” from the tree and right click, “Export HostLan Configuration to a file.” Save to a folder and name the file LanConfig.hex.



(6) This configuration file can now be loaded anytime you want to run a data load.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

SECTION 6

SYSTEM COMMISSIONING

6.1 Provisioning of User Services

Within the JetWave™ system, the Modman LRU is responsible for bringing Inmarsat satellite network IP access to onboard users through In-flight Entertainment Systems or through Onboard Network Systems. The Modman LRU coordinates with the Inmarsat Satellite Access Station (SAS) for modulation, demodulation, power control, terminal authentication, configuration, IP communication, QoS aspects and initiating tracking and beam switching for the JetWave™ system.

The commencement of RF transmission and reception of the JetWave™ system during normal operation is as follows:

- Satellite Search: The JetWave™ system is looking for the satellite in the closest longitude proximity. In this state, the JetWave™ system does not transmit.
- The Global Signaling Channel is used by the Inmarsat GX network to inform the JetWave™ system terminal of the current satellite configurations and location. Inmarsat satellite generates a global beam which illuminates the entire service region in the satellite's footprint. Global Signaling Channel makes the frequencies and locations of each spot beam known to the JetWave™ system and allows automatic network configuration and rapid network log-in.
- Data Communication: The JetWave™ system is logged into the network, and is sending and receiving data. In the data communication state, the JetWave™ system may be switched from one data carrier to another. This can occur for either load balancing reasons, or because of the JetWave™ system moved into a different spot beam. During this transition, the JetWave™ system continues transmitting normally. At some point, depending on the aircraft movements, directed satellite handover is used when the JetWave™ system needs to switch between the satellites. The antenna re-pointing is required. The frequency band of the transmissions shifts and the KANDU will track on the new carrier. During this satellite transition, there will be a momentary disruption to the IP data connectivity.

Inmarsat GX Aviation services operate as a managed subscription service model and the services are provisioned through various Value Added Resellers/Distribution partners. To provision the user services, the Airline Operator need to associate the JetWave™ system with any of the Value Added Resellers or Distribution Partners and subscribe to the desired Service Subscription Package services. The following is the current list of Value Added Resellers for AT&R market and Distribution Partners for BGA market:

NOTE: The list of Distribution Partners is correct at the time of publishing but may change.

- Distribution Partners:
  - GoGo

© Honeywell International Inc. Do not copy without express permission of Honeywell.

- Satcom1/GoDirect
- Satcom Direct
- SITA OnAir
- Thales
- ARINC Direct

The actual throughputs achieved by the GXA terminal are dependent on the Operator subscription. Each subscription will have a defined Committed Information Rate which is the minimum throughput guaranteed to each subscriber. The delivered services will be able to exceed those CIRs where the resources allow up to defined Maximum Information Rate. All instantaneous demand will be matched to provisioned CIRs for 95% of the time for every priority level before any remaining bandwidth is allocated to satisfy any provisioned Maximum Information Rates.

The user connectivity is provided by the Modman LRU of the JetWave™ system. The Modman traffic ports to which these user devices get connected is configurable through the ground based NMS of the Value Added Resellers/Distribution Partners of Inmarsat GX network. The configuration by the VLAN may be managed over the air by the VAR. This is utilized to dynamically optimize network operations. The updates do not adversely affect system safety, nor operational capabilities and does not impact flight crew workload.

This over the air configuration functionality supports the ARINC 791 domain segregation and other VAR/DP requirements. In addition, the VAR/DPs may also gather statistics on the user domain ports of the JetWave™ system for reporting at their NMS.

On initial power-up of the system, after uploading the JetWave™ system configuration files and entering the aircraft Tail Number, the JetWave™ system first gets associated to the Inmarsat network and the system is associated to the appropriate VAR/DP network, where the Service Level Agreements, the aircraft Tail Number and the pre-assigned JetWave™ system terminal ids are linked for billing and service.

A. Product Support Services

(1) Customer Support Overview

The JetWave™ system is manufactured by Honeywell as sole supplier of Inmarsat GX Aviation equipment. Honeywell manufactures and sells this hardware to end customers, as well as to VARs and DPs.

(2) Customer Support Contacts:

If you purchased your JetWave™ hardware from any of the Inmarsat GX Aviation VARs/DPs, please contact their customer support phone number for all JetWave™ installation, integration, configuration, service activation, and troubleshooting issues.

If, however, you purchased your JetWave™ hardware directly from Honeywell, please contact Honeywell Customer Support according to the information provided at the time of your JetWave™ system activation.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

B. Terminal Activation

(1) To activate the terminal with your service provider you need to provide the ACM TPK.

(2) The TPK is written on the test report document delivered with the MODMAN.

(3) The TPK may be viewed using the MODMAN GUI.

6.2 Certification and Approvals

All antenna installations must obtain the approval of the appropriate government air/radio authority, such as the FAA, EASA, or Transport Canada. Contact the authorities when you begin planning your communication system in order to minimize approval and certification issues.

All system configurations are subject to Inmarsat type approval. New configurations (changes to inter-LRU wiring losses, radome and/or IRS data sources) are subject to re-evaluation and must be coordinated through Honeywell.

6.3 Post Installation System Checkout Procedures

A. General Overview

This section supplies the information required to determine the operational readiness of the JetWave™ system, made up of the Modman, APM, KRFU, KANDU, and OAE FMA or OAE TMA.

The installed LRUs require operational and diagnostic testing for one of the reasons listed below:

- Operational verification tests that verify the operational readiness of the unit after installation on an aircraft.
- Fault verification and diagnostics to verify that a fault exists and produce system reports for trouble shooting purposes
- Operational verification of repairs that verify the operational readiness of units that have been repaired before re-installation on an aircraft.

B. System Health and Configuration

This section describes the AES System configuration setting to be carried out on completion of LRU installation activities for updating the aircraft tail number.

Aircraft tail number is the unique identifier used by the Inmarsat system to identify the user aircraft within the network. The aircraft ID file contains aircraft identity information as follows (columns are Item, LRU, Data):

To update the aircraft tail number in AES system, maintenance level access is required through the web based GUI. Refer to Accessing the Maintenance Interface on page 7-1.

The GUI AES status summary screen lets the maintainer navigate to all applicable options. At the maintenance level, the Other Information & Control has an option to display/update the current Aircraft ID stored in the AES Configuration data. Refer to Figure 6-1 to change the AES aircraft ID information.

To just view the aircraft tail number information, the user level can be used.

At the GUI login, the username is "User" and there is no password.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

The GUI AES status summary screen lets the user navigate to all applicable options. At the User level, the Other Information & Control has an option to display the current Aircraft ID stored in the AES Configuration data. Refer to Figure 6-1 for the AES aircraft ID information page.

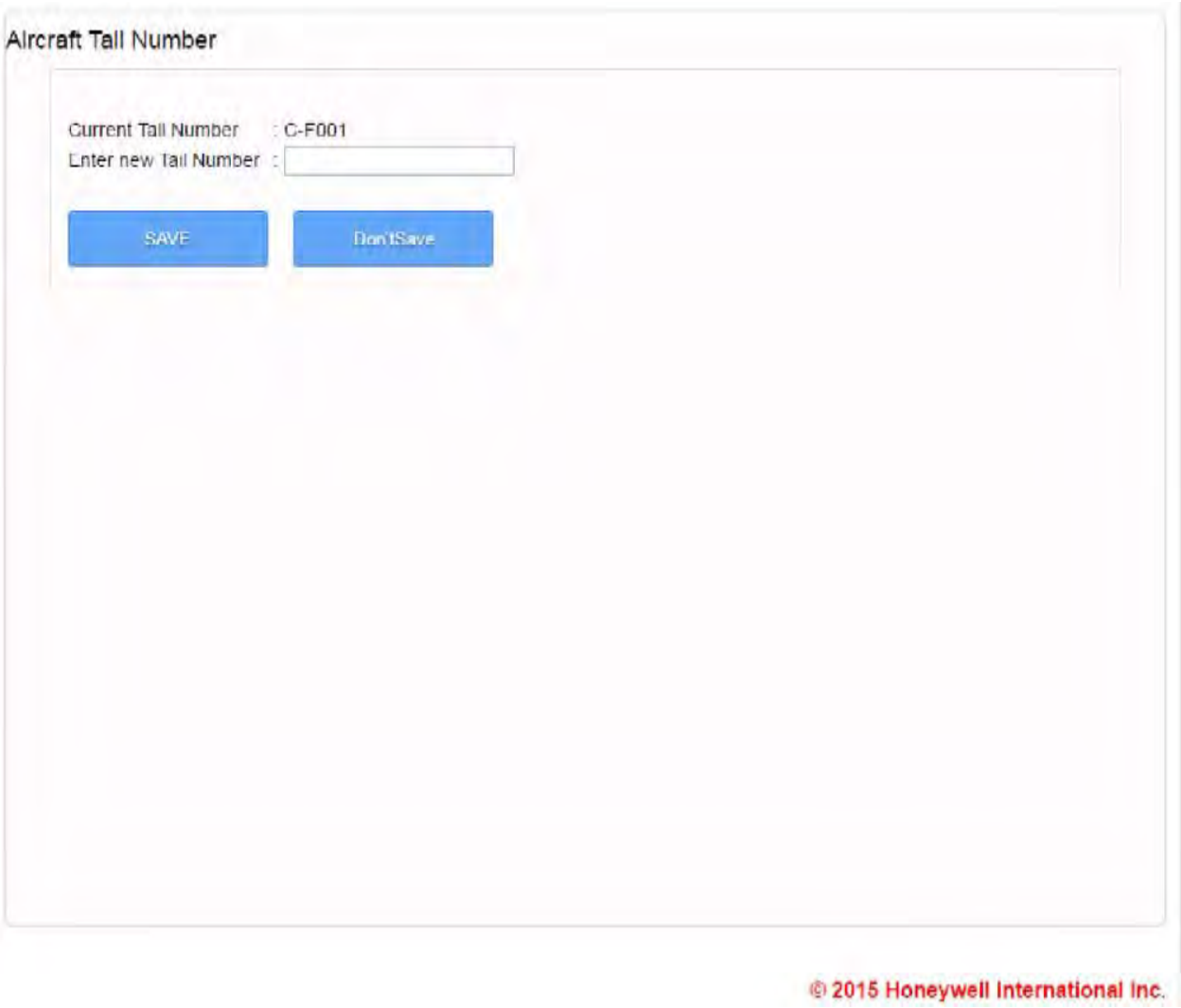


Figure 6-1. Aircraft ID Display/Update Information Page

The JetWave™ system LRUs are shipped with the operational software preloaded. Refer to SECTION 5 SOFTWARE CONFIGURATION to verify that all of the LRUs are at the same software level, or if a software upgrade is required for any of the LRUs.

Make sure that the JetWave™ LRUs are wired and all the receptacles are connected in accordance with applicable interconnection diagram.

Power up the JetWave™ LRUs, close applicable aircraft circuit breakers to supply power. After 5 minutes, check the Modman front panel for the Modman status.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

There are two LEDs on the front panel of Modman. One is for the power and the second one is for status. Use Table 6-1 to identify the current operating mode of Modman with the power LED indicating powered up status.

Table 6-1. Modman LED Status Indications

Status LED	Mode
Off	No electrical power/electrical power is supplied but prior to boot.
Flash green at a minimum of 10 seconds	Modman initialization
On - green	Modman in normal operation
On - red	Modman in Fault Mode

On completion of AES system installation activities, the installer can view and make sure that the JetWave™ LRUs status, AES configuration settings, discrete input and output status, and antenna alignment status through the GUI as described in this section.

Once the Modman is powered up, the JetWave™ GUI page can be accessed. The JetWave™ system GUI service is supported on AV1 10/100 Base T Ethernet interface. The Modman static IP address assigned is 172.29.55.1 and the port number for the AES GUI service is 80. The laptop's Ethernet port will need to be configured with a static IP address of 172.29.55.x, where x is 10 or above.

Connect a laptop to the AV1 port of Modman through aircraft Ethernet interface. It is recommended to use a laptop computer with the following minimum requirements:

- Intel i5 CPU
- 8 GB of RAM
- At least 500 MB of available hard drive space
- An available 10/100/1000 Ethernet interface
- Windows 7 operating system.

On any of the Internet browser (Internet Explorer 8 compatible), enter 172.29.55.1 in the address bar. Login page will be presented as the root page, allowing entry of the user name and password. Figure 6-2 shows the login page.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Figure 6-2. AES GUI Login Page

(a) The GUI is configured to have the login accounts that follow:

- User interface with Username: “User” and Password: empty (no) password
- Maintenance interface with Username: “Maintenance” and Password: “Earthbound”.

On successful login, the AES Home page screen is shown. Refer to Figure 6-3.

The information supplied on the AES Home page is as follows:

- Network status
- Ground status
- Mute Reason
- Link start and end time
- Heath status of the system LRUs.

The GUI AES Home page screen, as shown in Figure 6-3, lets the operator navigate to all applicable options depending on the access level.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Figure 6-3. AES Home and Status Info Page

View and verify the AES configuration data, navigate to the "Configuration Files" information pages under the other information and control menu.

The typical configuration file information page is shown in Figure 6-4. To view and make sure that the AES configuration settings are current, click the AES configuration file to display.

The configuration data should be verified by going to the APM page in the Version and Manufacturing Information menu and verifying the part numbers for the APM configuration data

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Figure 6-4. View Configuration Files Page

To view the health status of the JetWave™ system, navigate to the “AES Summary and Link Status” under the Health Statuses menu on the left.

This will allow you to view and make sure of the health status of the JetWave™ system.

The AES summary and interlink status are shown in Figure 6-5.

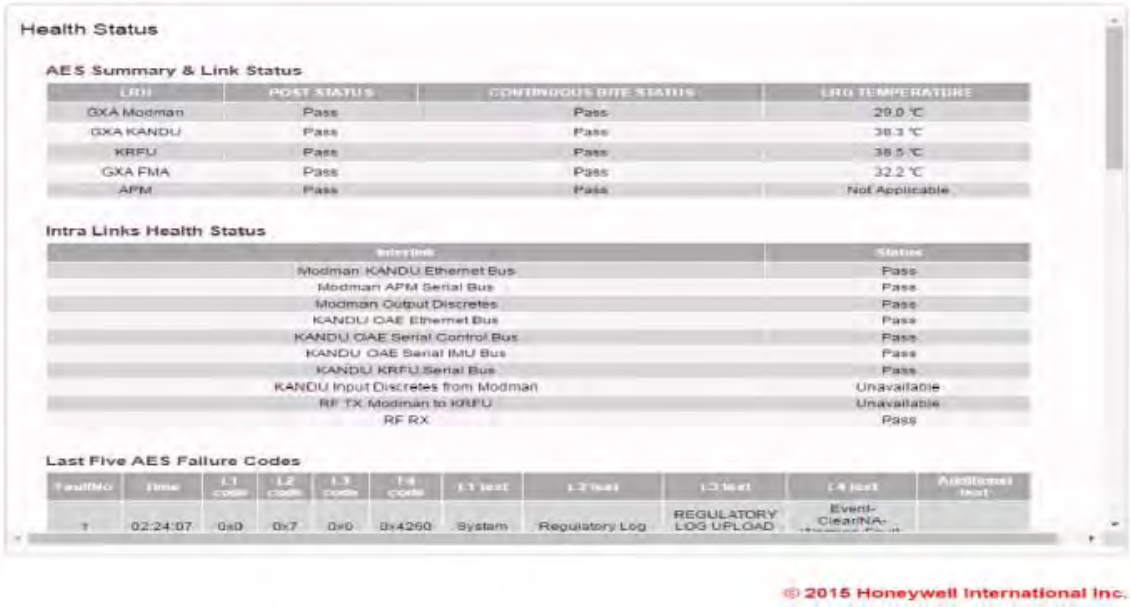


Figure 6-5. Health Statuses (excerpt), AES Summary and Link Statuses

© Honeywell International Inc. Do not copy without express permission of Honeywell.

To see the AES LRUs hardware and software version and part number, navigate to the Version and Manufacturing Information menu. Figure 6-6 shows the typical Modman Version and Manufacturing Information page.
Make sure the version and manufacturing information are current for all the LRUs.

NOTE: Follow appropriate Jetwave Service Bulletin reference to validate the SW currently installed on the Jetwave system.

Figure 6-6. AES Modman and Manufacturing Information Page

Update the aircraft tail number, navigate to the “Aircraft Tail Number” page under the other information and control menu. The aircraft tail number page is shown in Figure 6-7.

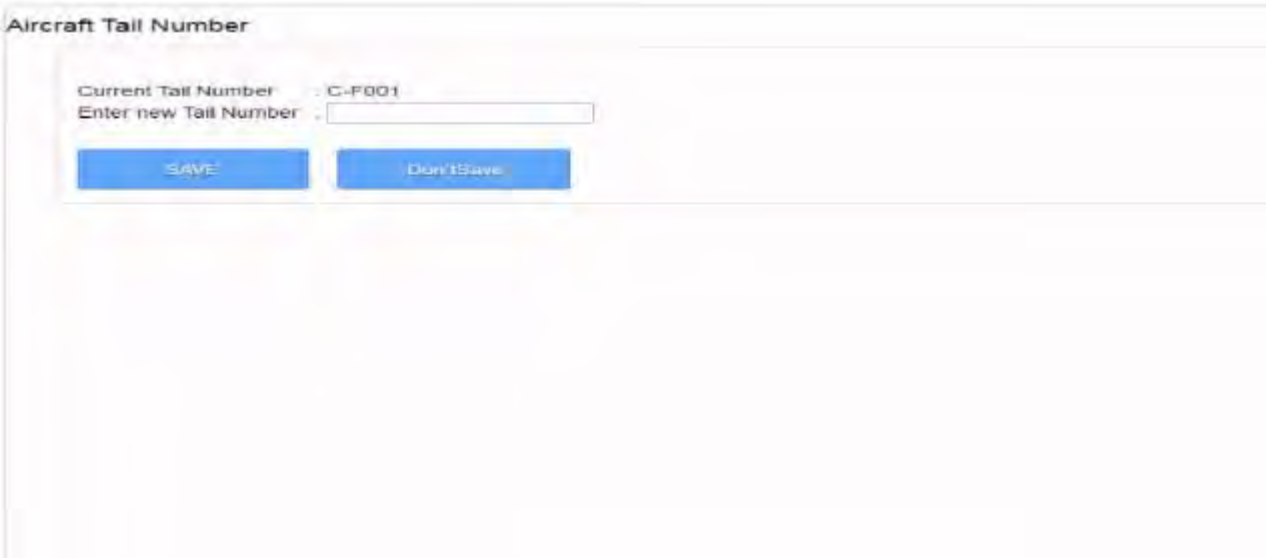


Figure 6-7. Aircraft Tail Number Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

C. Discrete Input Testing

(1) If wired, activate the Modman Reset by toggling Modman reset switch on the JetWave™ AES control panel.

(2) If the Modman Reset is not wired, then reset the system from the GUI.

(3) Monitor the Modman ”power” and “status” LEDs flash continuously.

(4) Toggle the Modman Reset switch on the Satcom test panel to the open/non-grounded position.

(5) Monitor the “status” LED on the front of the Modman, progresses from red color to steady state green as seen during initial power-on.

(6) Check for the Aircraft Tail number page and make sure that the aircraft tail number page is updated with the aircraft Tail number.

Navigate to the AES Summary and Link Status page and scroll down to see the ARINC 791 Discrete input and output state of the JetWave™ system. Refer to Figure 6-8.

For illustration, the figure that follows shows the AES discrete signal state. Use the wired aircraft interfaces to toggle and see if the applicable discrete are asserted or de-asserted.

Arinc 791

Discrete IO	I/O	State
WOW Functionality	Input	Asserted
Local Data Load Enable	Input	De-Asserted
TX Control	Input	De-Asserted
Public Service Disable	Input	De-Asserted
Ground Transmit Enable	Input	Asserted
Data Link Available	Output	De-Asserted
System Available	Output	Asserted

ID-635499

Figure 6-8. Discrete I/O State

D. ARINC 429 Input Interface Testing

For the operation of the JetWave™ system, the aircraft must have a functional IRS providing ARINC 429 labels to the KANDU. Functional IRS is interfaced with the KANDU through Receive only ARINC 429 interface through which the required ARINC 429 labels as defined in the APM configuration file are made available.

Navigate to the Link Status page and scroll down to see the aircraft status. Refer to Figure 6-9.

NOTE: GUI displays roll, pitch, and yaw information in the Aircraft Summary and Link status page. The aircraft yaw information is calculated from True Heading and True Track ARINC 429 labels from the aircraft. If True Track label is not configured, yaw value in the GUI page will indicate as “Unavailable”. There will be no other effects if True Track is not configured, other than that GUI status.

This page will be updated with current latitude and longitude position of the aircraft.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Once the JetWave™ system starts receiving the valid navigational input from aircraft IRS system, make sure that the values are correct as compared to the aircraft navigational system outputs.

Figure 6-9. Aircraft Statuses

E. Manual Steering of the Antenna

To do a commanded test to manually steer the antenna, navigate to "Manual Antenna Steering" under the commanded test menu. Monitor the antenna movement in accordance with the commanded test fed through the GUI tool. Refer to Figure 6-10.

NOTE: In order to see the antenna movement, the radome can be removed. If it is an OAE-TMA, Honeywell recommends manually steering the TMA through the GUI to a safe antenna orientation position before removal. Consult aircraft specific SDIM for detailed instructions.

NOTE: New Radomes should be checked for any possible interference with normal Antenna movement prior to activation. This can be accomplished many ways using manually steering the Antenna with the Radome/Tail Cap lightly attached to structure. Placing masking tape along critical paths inside the Radome and looking for breaks in the tape after test and removal is one method of detecting interference.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Figure 6-10. Manual Antenna Steering

F. System Available (Cockpit Control Panel) Output

Once the JetWave™ system is powered up, monitor the “System Available” status discrete. Make sure that the discrete state agrees with the discrete output in the GUI. Refer to Figure 6-11.

6.4 Cable Calibration

The Modman will not transmit until it has been calibrated, with the transmit cable calibration. After the AES is physically installed and connected, the Modman will automatically initiate cable calibration during start-up.

Cable calibration initiates automatically during the initial system commissioning process or after Modman or KRFU replacement. Cable calibration must be initiated using a GUI commanded test after Tx IF cable manipulation, connector re-seating and cable replacement.

The transmit cable calibration calibrates the terminal to allow accurate control of transmitter power, taking into account IF output loss, cable loss, and KRFU (BUC) performance. During calibration, the power amp of the BUC is disabled.

When calibration is completed successfully, the ACM proceeds to its configured mode of operation as if it had been restarted. When commissioning is not completed successfully, either due to an error condition or a user cancellation, the ACM enters an inactive state.

Cable Calibration is available through the GUI Commanded Test - Calibrate Transmit Cable. The Cable Calibration procedure only takes up to 15 minutes to perform.

To maintain a fully optimized Jetwave system, it is recommended to perform a single cable calibration in the 20 year service life, at around 8,000 to 12,000 hours of operation. This optimization will minimize minor effects of device aging in the transmit chain, and can be performed conveniently using the GUI to

© Honeywell International Inc. Do not copy without express permission of Honeywell.

initiate the "Calibrate Transmit Cable" commanded test. The recommendation is not mandatory and Jetwave will continue to operate at a high level of performance over the service life.

To maintain a fully optimized Jetwave system, it is recommended to perform a single cable calibration in the 20 year service life, at around 8,000 to 12,000 hours of operation. This optimization will minimize minor effects of device aging in the transmit chain, and may be performed conveniently using the GUI to initiate the "Calibrate Transmit Cable" commanded test. The recommendation is not mandatory and Jetwave will continue to operate at a high level of performance over the service life.

Figure 6-11. Calibrate Transmit Cable Status Page

6.5 TMA and FMA Antenna Alignment Procedure

A. Antenna Assembly Orientation

For the JetWave™ system to point to the servicing satellite correctly, it is important to align the antenna assembly after installation or replacement. The TMA/FMA assembly has a built in IMU and its orientation must be aligned with respect to the principal axes of the aircraft which is determined through aircraft IRS.

(1) To do the automatic antenna alignment calibration, aircraft should have a functional IRS, interfaced with the KANDU through A429 interface, and should have the required ARINC 429 labels as defined in the APM configuration file.

(2) During the physical installation, the IMU principal axes of the TMA/FMA must be aligned with those of the aircraft within ± 1° on the pitch, roll, and yaw axis. The installation offsets, are then calculated by the KANDU automatically from data received from the aircraft Inertial Navigational System, the TMA/FMA IMU assembly and the satellite signal.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(3) It is required to do the automatic antenna alignment calibration with the Radome installed. The antenna alignment process can be initiated through the GUI interface. The JetWave™ system GUI service is supported on AV1 10/100 Base T Ethernet interfaces (AV1 being default configuration, ports may vary depending on specific APM configuration).

(4) Automatic Antenna Alignment

The antenna alignment should be performed only after completion of system power up. The health status of each LRU should be checked on the GUI, and there should be no display of system muting. Only then should the Initiate button be pressed on the Antenna Alignment GUI page. The JetWave™ system GUI service is supported on AV1 and AG1 10/100 Base T Ethernet interfaces.

(5) On any Internet browser (Internet Explorer 8 compatible), enter 172.29.55.1 in the address bar. The Login page appears. Figure 6-12 shows the Login page.

Figure 6-12. GUI Login Page

(6) Enter the username and password below to access the maintenance interface.

- Username: "Maintenance" and Password: "Earthbound".

B. Positioning of Aircraft for Antenna Alignment

(1) On the GUI Calibrate Antenna Alignment page, as shown in Figure 6-13, the current location of aircraft in terms of latitude and longitude is indicated along with the selection of the servicing Geo stationary satellite used for the antenna alignment.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

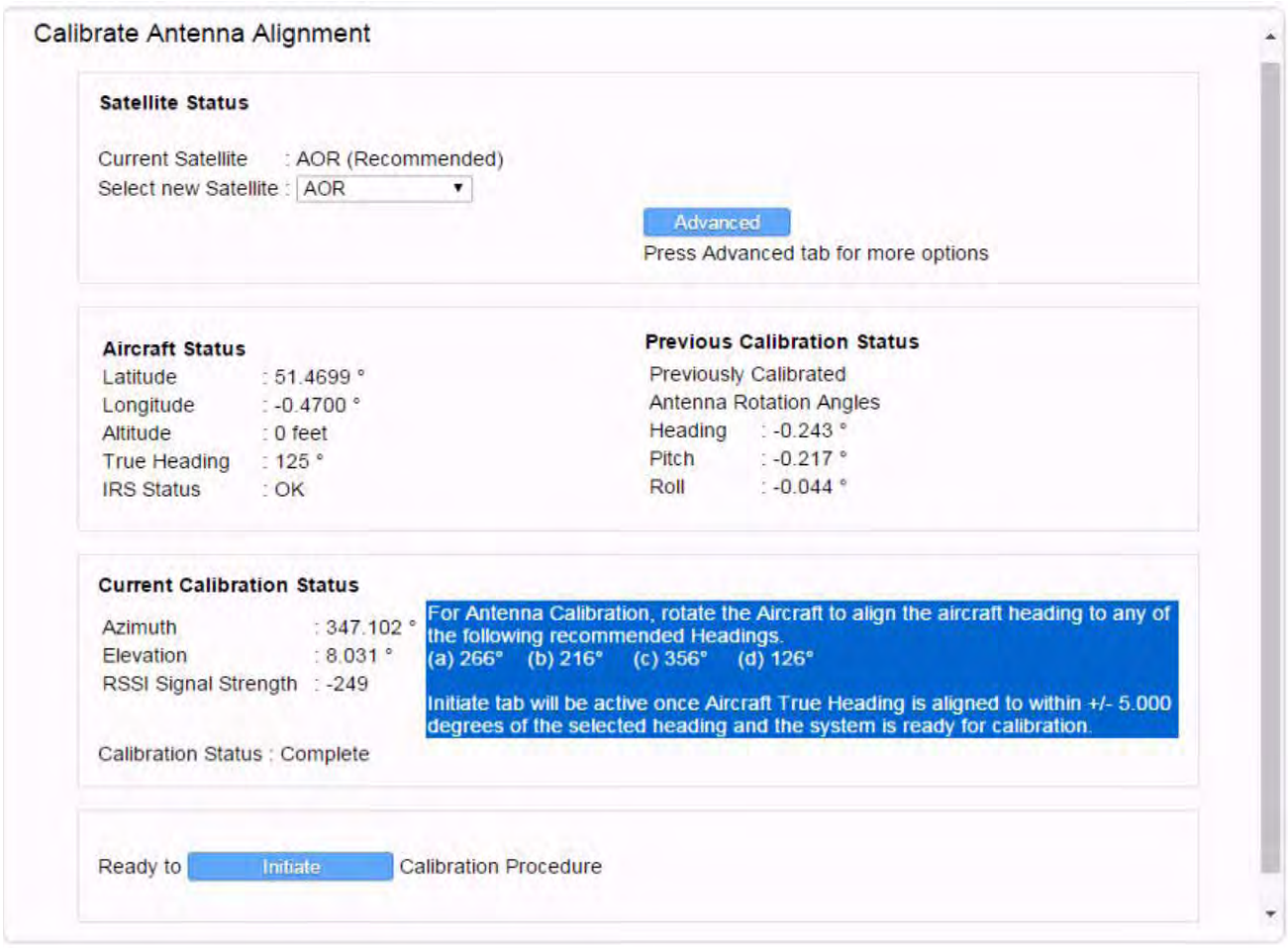


Figure 6-13. GUI Calibrate Antenna Alignment Page

(2) For the automatic antenna alignment calibration, it is recommended to tow and put the aircraft in an open area away from aircraft hangars such that there is clear visibility to the open sky with the true heading (not magnetic heading) of the aircraft pointed in one of four recommended aircraft true heading values displayed on the GUI antenna calibration page.

(3) The automatic antenna alignment calibration can be carried out at up to four different aircraft headings. Out of the available headings, it is required to do only one automatic alignment calibration while the aircraft true heading is toward one of the preferred directions.

NOTE: The values displayed in Figure 6-14 will change depending on the location and attitude of the aircraft.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(4) The recommended values are dependent on the radome and these values are calculated by the KANDU based on the input from the aircraft IRS and the selected satellite coordinates and the APM configuration data. The Auto Alignment application automatically presents the four true headings to the operator when a target satellite is selected from the “recommended” target which is also location dependent. There is a recommended tolerance range for these headings which is dependent on the radome and configured in the APM configuration data.The chosen recommended true headings are used so that the radome has consistent performance (i.e. no large changes in curvature) over the area being used during alignment.

NOTE: It is advised not to do the automatic antenna alignment during rains with heavily clouded sky.

(a) The antenna alignment should be performed only after completion of system power up. The health status of each LRU should be checked on the GUI, and there should be no display of system muting due to Initialization. Only then should the Initiate button be pressed on the Antenna Alignment GUI page.

(b) The JetWave™ system uses the following input parameters during the antenna alignment procedure:

- Aircraft IRS data
- OAE IMU data
- RSSI as reported from the Modman.

(c) The GUI page indicates the status of the aircraft. In order to proceed with the antenna calibration process, all LRUs of the JetWave™ system need to be powered up with aircraft IRS system functioning and providing valid inputs. The GUI page indicates the IRS status.

(d) Once the aircraft is aligned to within the tolerance range of any of the recommended aircraft heading, the grayed out on the “Initiate” button will be changed, indicating the system readiness to commence the antenna alignment process.

(e) The GUI Antenna Alignment Calibration progress status bar is shown in Figure 6-14.

(f) On successful completion of the antenna calibration, the status changes to “Aligned”.

NOTE: If for some reason the Calibration procedure fails, the operator will be given the opportunity to repeat the procedure. This may require several attempts to finalize and confirm the offsets.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

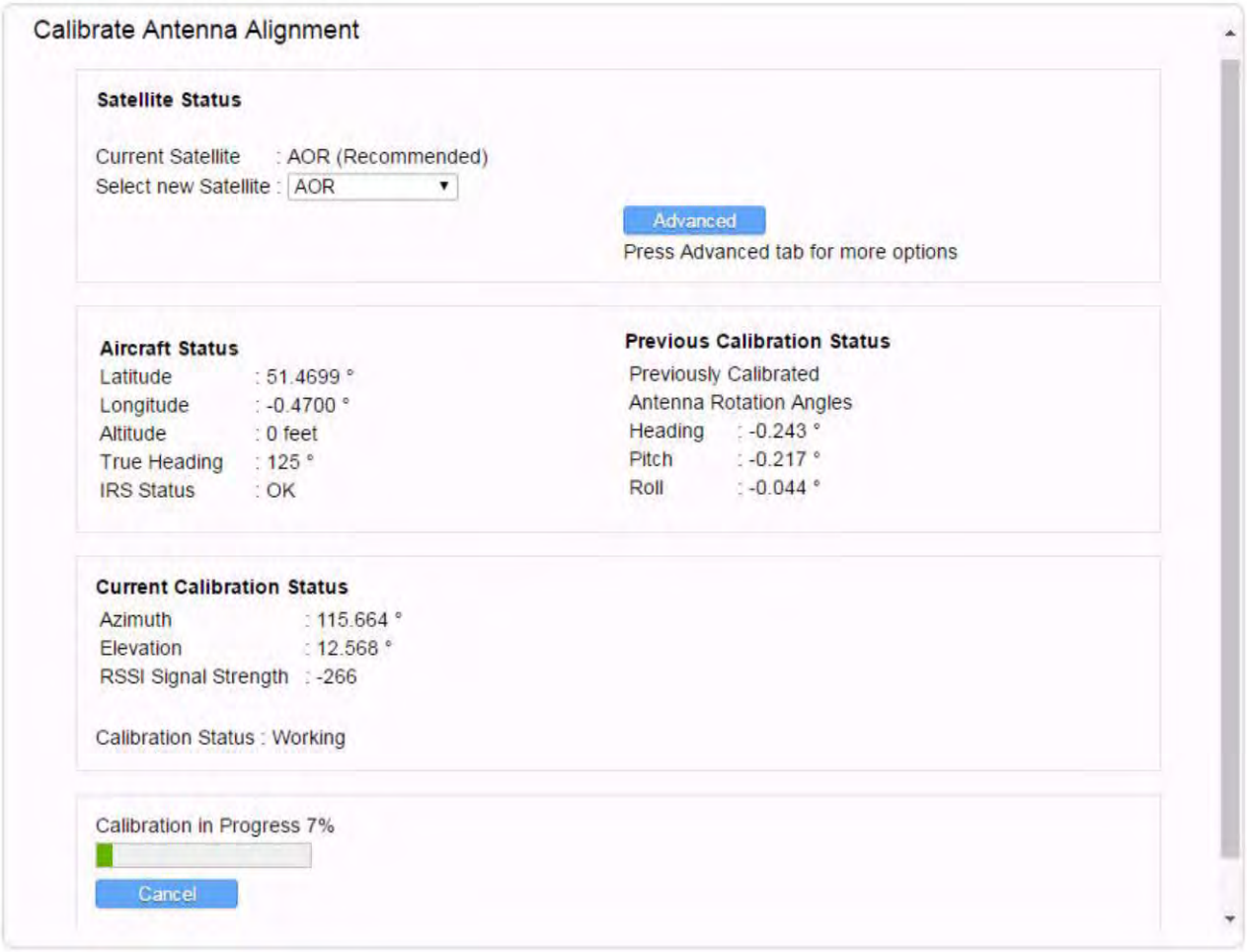


Figure 6-14. GUI Antenna Alignment Calibration Page Extract

6.6 On-ground Testing and Commissioning

NOTE: There are restrictions to testing the JetWave™ system for the commissioning process. Each country has its own restrictions to on-ground testing and transmission. Verify regulations before testing the system. Particular attention must be observed the first time the system is turned on and able to transmit. At this point the system will download a map detailing the areas where transmission is and is not allowed. This map will take effect on the next power-up.

A. Testing and Commissioning Process with Restrictions

(1) The JetWave™ system under normal operating conditions mutes transmit and also disables the modem when the Air/Ground status in "On Ground".

(2) The Air/Ground status will be set to "Air" when one of the conditions that follow are met (otherwise the Air/Ground status will be set to "On Ground"):

- IF AES Configuration System KANDU Ground Speed is being received from the KANDU (Refer to SRS1525), and it has been received with non NULL valve, and is indicating a ground speed of greater than 50 knots, or

© Honeywell International Inc. Do not copy without express permission of Honeywell.

- If AES Configuration System wow is configured to be connected and it is indicating it is in the air.

(3) Ground transmission can be enabled by asserting the ground transmit enable discrete of the JetWave™ system.

(a) The ground operation depends on location and country of aircraft registration.

(b) The reason for restrictions on transmission from the current aircraft location can be accessed through the GUI Home page under text display “Reasons for Transmission Mute”.

(4) For the testing and commissioning process, the aircraft must be positioned so as to have a clear line of sight to the satellite.

(5) To control the transmission of the terminal within certain locations and at different heights, the terminal stores and uses a geographical map. The map indicates regions around the globe where the terminal may legally transmit. The map is provided by Inmarsat and requested by the terminal when it first enters the network. The terminal will retrieve the map file from the Inmarsat server using the FTP protocol over the management VLAN. Make sure that this ground test procedure is being performed in a location that permits operation on the ground for the terminal's configured geographic map.

B. Data Link Available (Control Panel) Output

Once the network connectivity is achieved, the “Datalink Available” discrete output on the ARINC 791 page will be asserted.

To see the “Datalink Available” discrete output, navigate to the AES Summary and Link Status page and scroll down to see the ARINC 791 page and make sure the discrete output status is asserted, Refer to the Discrete I/O state page Figure 6-8.

Make sure the “Datalink Available” status is indicated in the control panel.

6.7 Final System Checkout

A. Network Status

Navigate to the AES Summary and Link Status page and scroll down to see the Network status of the JetWave™ system.

An example of an AES network status is shown in Figure 6-15.

Make sure that the network connectivity is in accordance with the aircraft configuration plan.

With the use of another laptop, make sure that there is network connectivity on each active port once the data link available output is available.

Begin a two way (Rx and Tx) video conference call with a tool such as Microsoft Lync or Skype. Make sure that there is availability of the uninterrupted data connectivity. Monitor the Kilobytes sent and received fields on the home page.

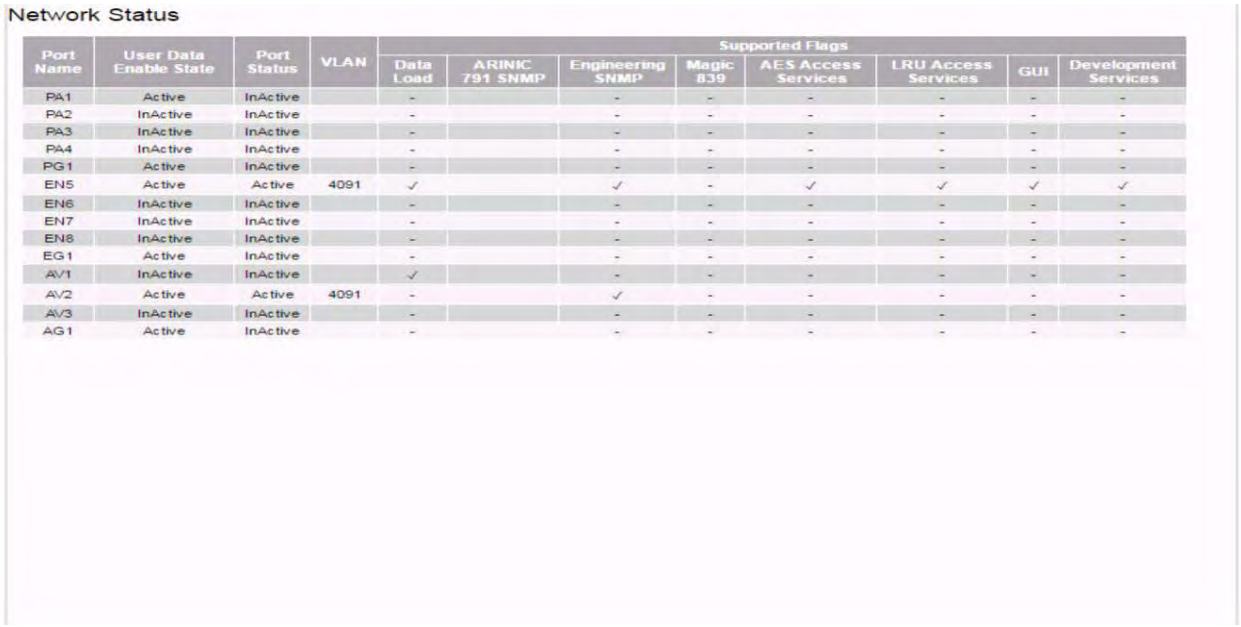
While the JetWave™ system is up and connectivity to the internet is established, move the aircraft around in a circular 360 degree pattern (no faster than 3° per second).

© Honeywell International Inc. Do not copy without express permission of Honeywell.

NOTE: Based on the geographical location, surrounding obstructions, etc., the 360 degree connectivity access can be limited.

Verify that the connectivity remains available through the 360-degree turn by monitoring the datalink status discrete.

Connect to each of the configured Ethernet ports to make sure there is data connectivity.


Network Status

Port Name	User Data Enable State	Port Status	VLAN	Supported Flags							
				Data Load	ARINC 791 SNMP	Engineering SNMP	Magic 839	AES Access Services	LRU Access Services	GUI	Development Services
PA1	Active	InActive		-		-	-	-	-	-	-
PA2	InActive	InActive		-		-	-	-	-	-	-
PA3	InActive	InActive		-		-	-	-	-	-	-
PA4	InActive	InActive		-		-	-	-	-	-	-
PG1	Active	InActive		-		-	-	-	-	-	-
EN5	Active	Active	4091	✓		✓	-	✓	✓	✓	✓
EN6	InActive	InActive		-		-	-	-	-	-	-
EN7	InActive	InActive		-		-	-	-	-	-	-
EN8	InActive	InActive		-		-	-	-	-	-	-
EG1	Active	InActive		-		-	-	-	-	-	-
AV1	InActive	InActive		✓		-	-	-	-	-	-
AV2	Active	Active	4091	-		✓	-	-	-	-	-
AV3	InActive	InActive		-		-	-	-	-	-	-
AG1	Active	InActive		-		-	-	-	-	-	-

Figure 6-15. Network Statuses

B. EMC Interference to Other Systems

(1) Power up the system and let it acquire to the network.

(2) Begin a two way (Rx and Tx) video conference call with a tool such as Microsoft Lync or Skype.

(3) Test the functioning of other systems with antennas installed adjacent to the FMA or TMA and observe for any mutual interference.

(4) Monitor the link signal quality C/N and E_b/N_o parameters. These parameters are found under Aircraft Statuses as part of the AES Summary and Link Status page. Refer to Figure 6-9.

(5) In case of any RF interference, there will be significant variation of the C/N and E_b/N_o parameters.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Blank Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

SECTION 7

TROUBLESHOOTING

7.1 Post-installation Troubleshooting

This section supplies troubleshooting procedures for the JetWave™ system. Airline maintenance engineers can troubleshoot the JetWave™ system on the ground, with the health status information and Fault Details and Isolation assistance displayed on the AES GUI.

Only qualified avionics personnel who are knowledgeable in the technical and safety issues related to the troubleshooting of aircraft communications equipment should do the troubleshooting.

7.2 Accessing the Maintenance Interface

(1) For maintenance activities, the JetWave™ system can be accessed through a GUI.

(2) The GUI service is supported on AV1 and AG1 10/100 Base T Ethernet interface.

NOTE: Once the configuration file is loaded, the ports where the GUI are available can be different.

(3) The Modman static IP assigned is 172.29.55.1 and the port number for the AES GUI service is port 80.

NOTE: This port is configured by the AES configuration user port services support information.

(4) On any of the Internet browsers (Internet Explorer 8 compatible), open the link "index.html".

(5) Login page will be shown as the root page, for you to enter the user name and password. Refer to Figure 7-1 for the screen-shot of the login page.

Figure 7-1. AES GUI Login Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(6) Use the applicable login account with well defined password in the login page for accessing the interface level required. The login for the maintenance interface and user interface is as follows:

- Access maintenance interface with Username: “Maintenance” and Password: “Earthbound”.
- Access the user interface with Username: “User” and no password.

(7) User may press Log out button to log out. Upon logging off, log in page will be presented by default. Figure 7-2 shows the log out page.

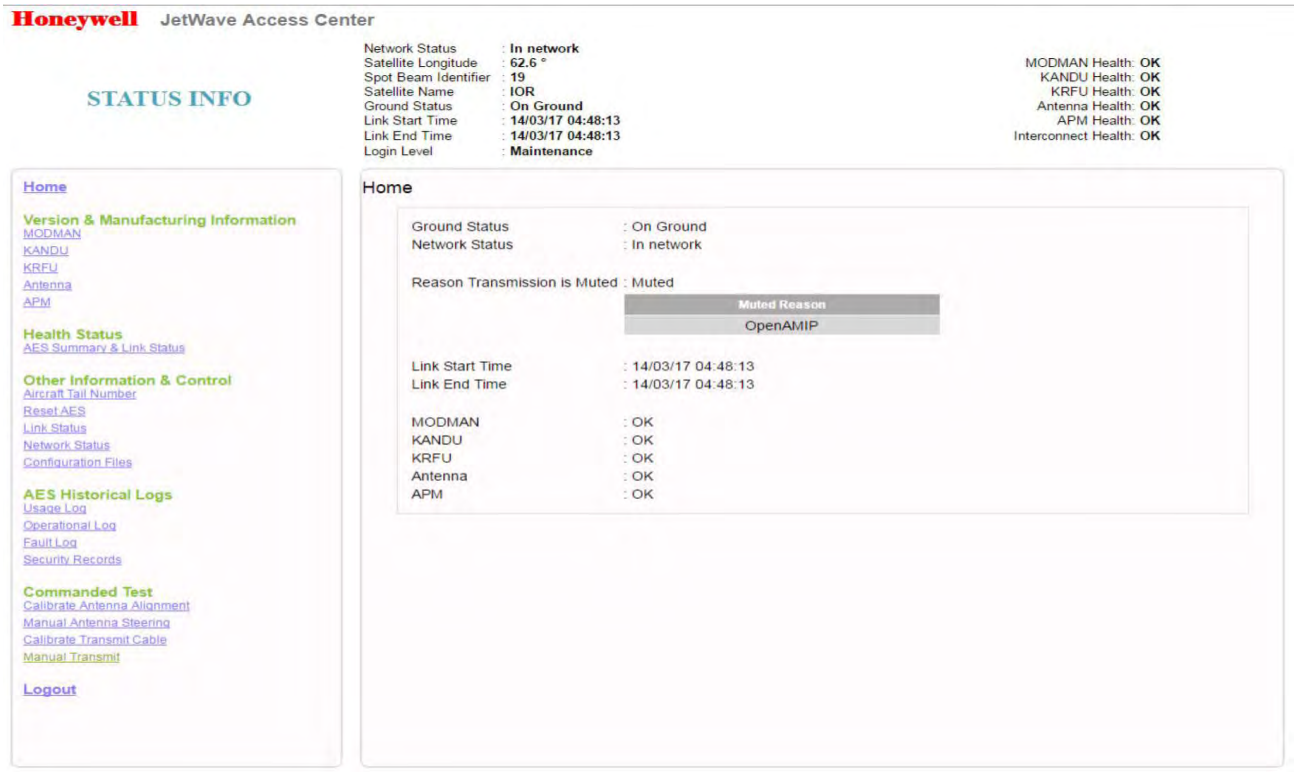


Figure 7-2. JetWave™ Logout Page

A. Checking Status Information

(1) The health status of the JetWave™ system can be monitored by selecting AES Summary and Link Status under the Health Status pane menu. Figure 7-3 shows the GUI page listing the health status of JetWave™ system LRUs.

NOTE: The Health Status page does not automaticaly refresh.

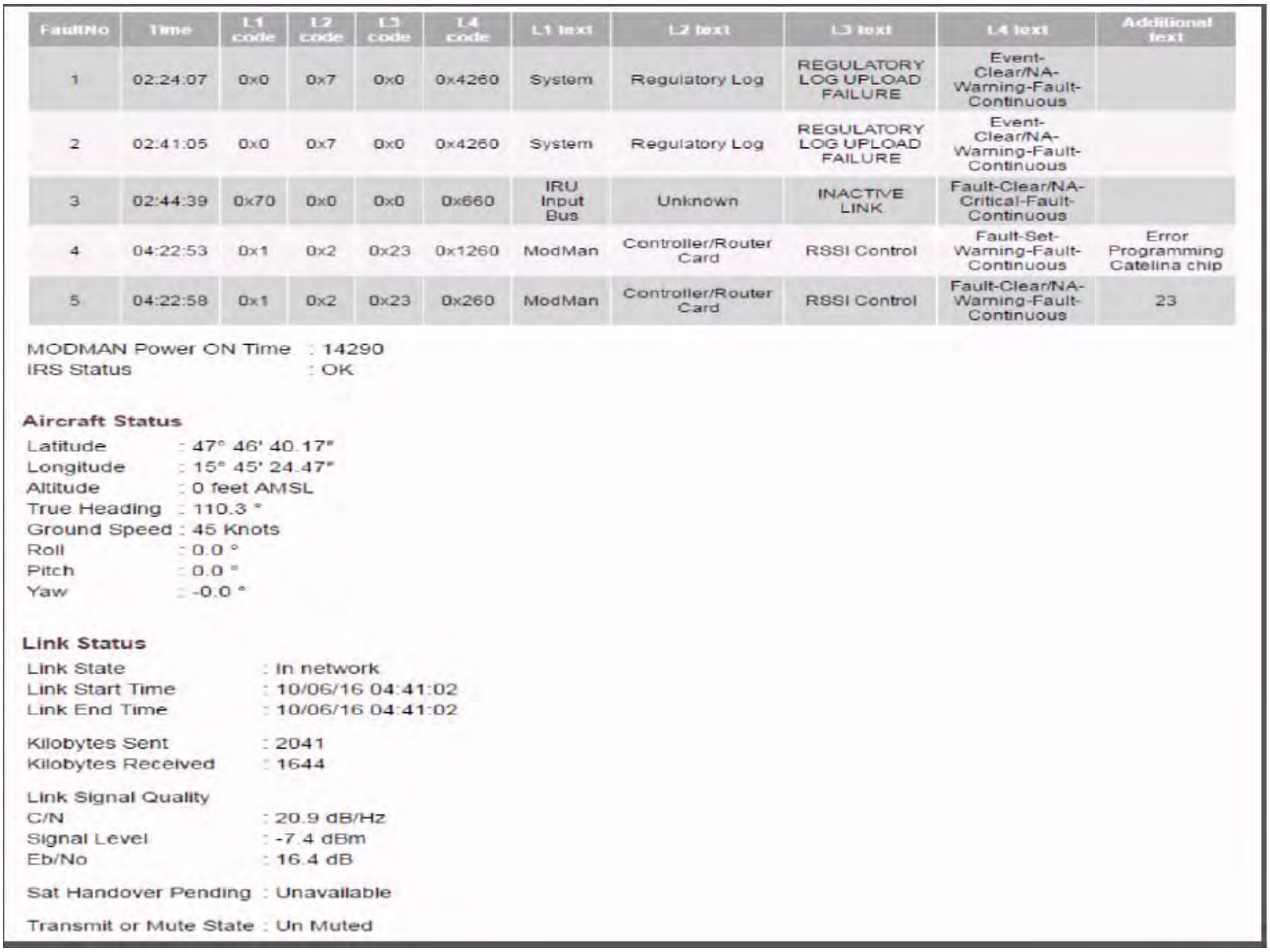
(a) In the health status page, the GUI lists the last five AES failure codes.

(b) The JetWave™ system will enter into critical fault mode when a critical LRU fault is encountered or the AES Configuration data is missing or invalid.

(c) The JetWave™ system will be back to normal operation mode only when all the LRU critical faults are removed, receiving valid navigation information, and a valid AES

© Honeywell International Inc. Do not copy without express permission of Honeywell.

configuration data is supplied. Figure 7-3 shows the AES Summary and Link Status page.



FaultNo	Time	L1 code	L2 code	L3 code	L4 code	L1 text	L2 text	L3 text	L4 text	Additional text
1	02:24:07	0x0	0x7	0x0	0x4260	System	Regulatory Log	REGULATORY LOG UPLOAD FAILURE	Event-Clear/NA-Warning-Fault-Continuous	
2	02:41:05	0x0	0x7	0x0	0x4260	System	Regulatory Log	REGULATORY LOG UPLOAD FAILURE	Event-Clear/NA-Warning-Fault-Continuous	
3	02:44:39	0x70	0x0	0x0	0x660	IRU Input Bus	Unknown	INACTIVE LINK	Fault-Clear/NA-Critical-Fault-Continuous	
4	04:22:53	0x1	0x2	0x23	0x1260	ModMan	Controller/Router Card	RSSI Control	Fault-Set-Warning-Fault-Continuous	Error Programming Catelina chip
5	04:22:58	0x1	0x2	0x23	0x260	ModMan	Controller/Router Card	RSSI Control	Fault-Clear/NA-Warning-Fault-Continuous	23

MODMAN Power ON Time : 14290
IRS Status : OK

Aircraft Status

Latitude : 47° 46' 40.17"
Longitude : 15° 45' 24.47"
Altitude : 0 feet AMSL
True Heading : 110.3 °
Ground Speed : 45 Knots
Roll : 0.0 °
Pitch : 0.0 °
Yaw : -0.0 °

Link Status

Link State : In network
Link Start Time : 10/06/16 04:41:02
Link End Time : 10/06/16 04:41:02

Kilobytes Sent : 2041
Kilobytes Received : 1644

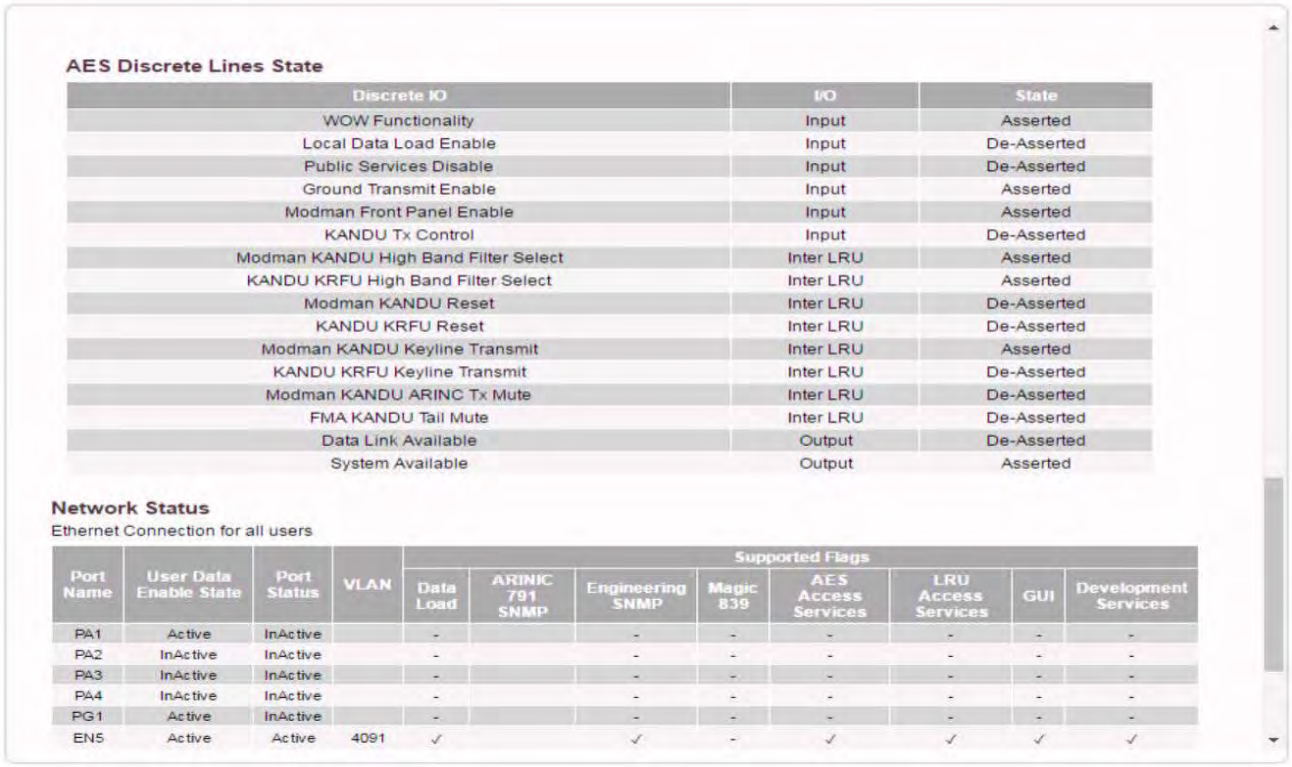
Link Signal Quality
C/N : 20.9 dB/Hz
Signal Level : -7.4 dBm
Eb/No : 16.4 dB

Sat Handover Pending : Unavailable

Transmit or Mute State : Un Muted

Figure 7-3. JetWave™ Summary and Link Status (Sheet 1 of 2)

© Honeywell International Inc. Do not copy without express permission of Honeywell.



AES Discrete Lines State

Discrete IO	I/O	State
WOW Functionality	Input	Asserted
Local Data Load Enable	Input	De-Asserted
Public Services Disable	Input	De-Asserted
Ground Transmit Enable	Input	Asserted
Modman Front Panel Enable	Input	Asserted
KANDU Tx Control	Input	De-Asserted
Modman KANDU High Band Filter Select	Inter LRU	Asserted
KANDU KRFU High Band Filter Select	Inter LRU	Asserted
Modman KANDU Reset	Inter LRU	De-Asserted
KANDU KRFU Reset	Inter LRU	De-Asserted
Modman KANDU Keyline Transmit	Inter LRU	Asserted
KANDU KRFU Keyline Transmit	Inter LRU	De-Asserted
Modman KANDU ARINC Tx Mute	Inter LRU	De-Asserted
FMA KANDU Tail Mute	Inter LRU	De-Asserted
Data Link Available	Output	De-Asserted
System Available	Output	Asserted

Network Status

Ethernet Connection for all users

Port Name	User Data Enable State	Port Status	VLAN	Supported Flags							
				Data Load	ARINC 791 SNMP	Engineering SNMP	Magic 839	AES Access Services	LRU Access Services	GUI	Development Services
PA1	Active	InActive		-		-	-	-	-	-	-
PA2	InActive	InActive		-		-	-	-	-	-	-
PA3	InActive	InActive		-		-	-	-	-	-	-
PA4	InActive	InActive		-		-	-	-	-	-	-
PG1	Active	InActive		-		-	-	-	-	-	-
EN5	Active	Active	4091	✓		✓	-	✓	✓	✓	✓

Figure 7-3. JetWave™ Summary and Link Status (Sheet 2 of 2)

(2) The JetWave™ system status can be viewed through the GUI. Refer to AES system status verification section on page 6-3 for description.SUmmary and link status

B. Downloading LRU Logs

(1) To view the historical fault logs, under the AES historical logs pane, select the "Fault Log". A screenshot of fault log page is shown in Figure 7-4.

NOTE: The JetWave™ System Usage log and the Operational log can be downloaded through GUI with User access level. For downloading the JetWave™ System Fault log and the Security records, the system must be accessed through the Maintenance access level on the GUI.

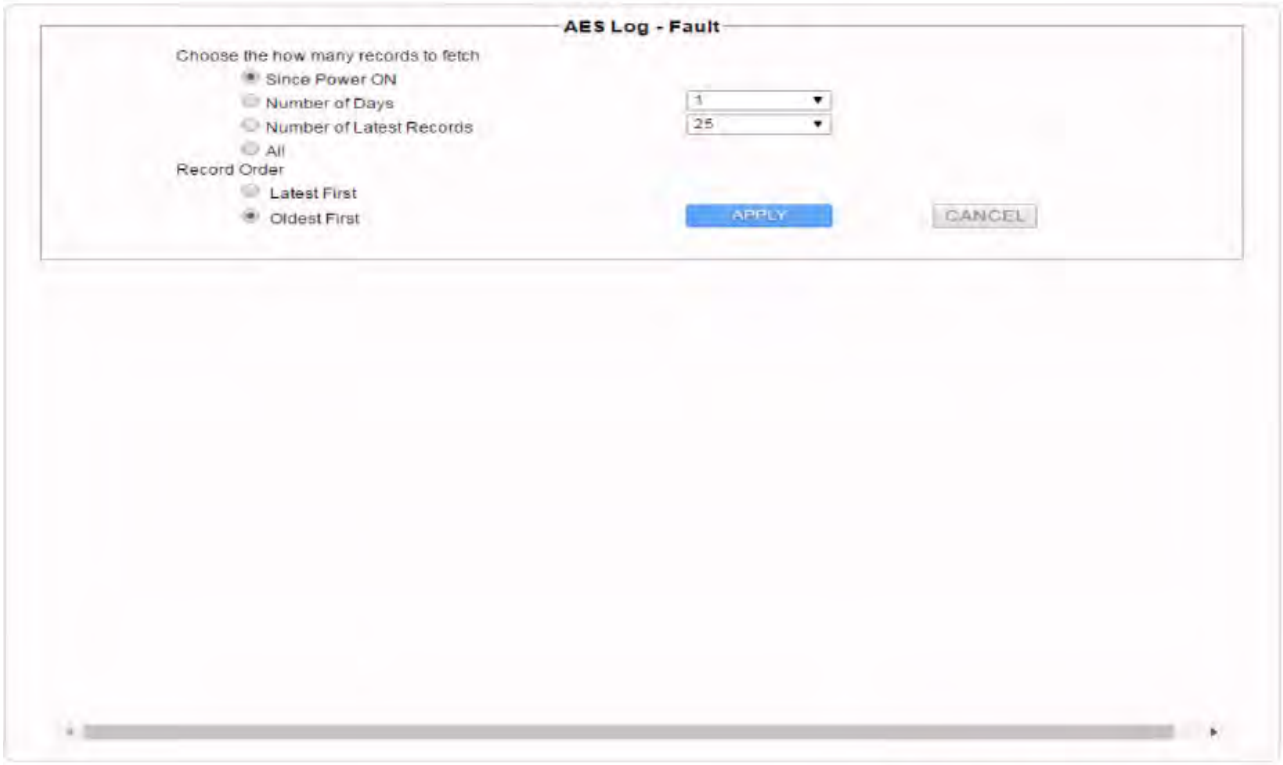
(2) The log files can be viewed a number of ways. You can choose how many records as follows:

- Since power on
- Number of days and select actual number of days from the dropdown (not reconmended)
- Number of latest records and select the number of records form the dropdown

(3) Select the record order by clicking on latest first or oldest first.

(4) Select the Apply button.

© Honeywell International Inc. Do not copy without express permission of Honeywell.



© 2015 Honeywell International Inc.

Figure 7-4. JetWave™ Fault Log Download Configuration Page

(5) The fault log contains the details that follow:

- LRU POST and BITE fault codes
- Watch dog reset events
- Software exception events
- LRU Recorded Temperature, if available
- LRU Recorded Time, if available
- LRU Antenna pointing information, if applicable
- Fault count.

Refer to Figure 7-5 for an example of a viewable fault log.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

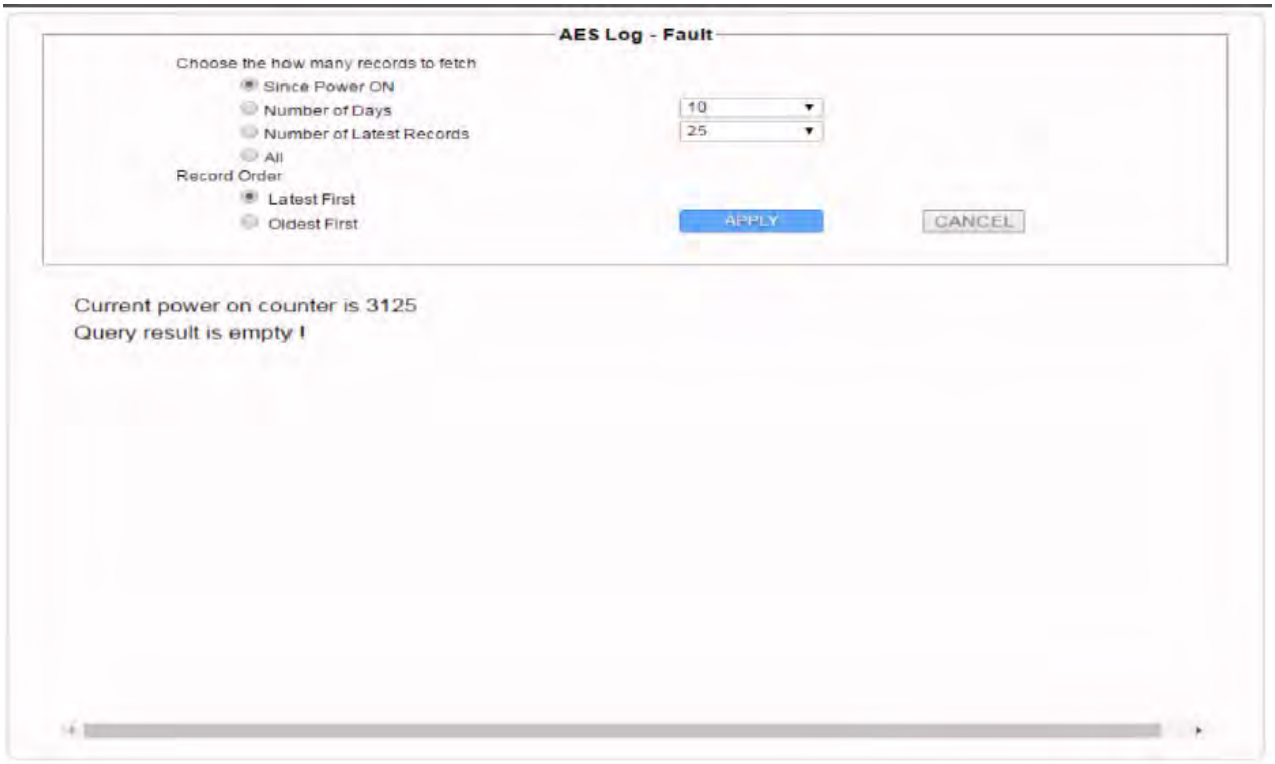


Figure 7-5. JetWave™ Fault Log Data

(6) To download the fault log data for analysis and trouble shooting, press the “Download” button. The window as shown in Figure 7-6 will come into view. Save to the computer to open and view the fault log.

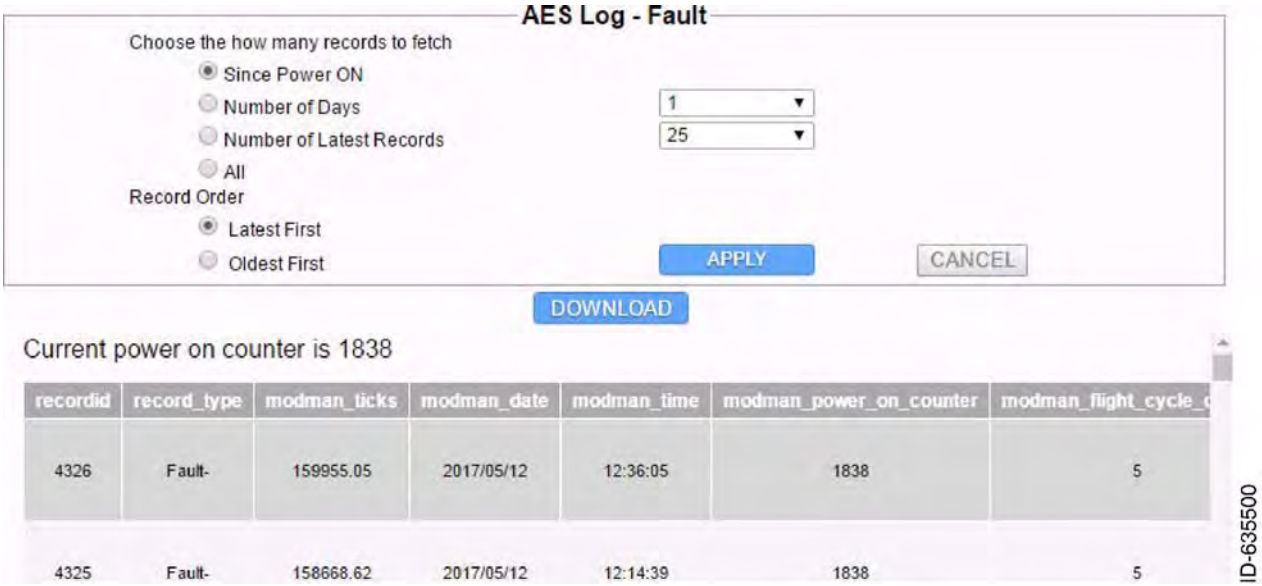


Figure 7-6. JetWave™ Fault Log Download Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

C. System Data Load Failure

(1) Make sure that the system is configured for ground operation.

(2) Make sure that the local data load enable switch is closed.

(3) Make sure that the ARINC 615A data loader is connected to the correct port:

NOTE: Port AV1 is by default the Modman Maintenance Port, but this may have been modified by the APM configuration loaded.

D. System Reset

The JetWave™ system can be reset with any of the methods that follow:

- GUI
- Through the SNMP
- By grounding the Modman Reset Pin (MP10C).

NOTE: The maintenance technician can attempt to cycle power to the Modman in case the system fails to respond to the reset. If the problem persists, the respective AES sub assembly needs to be replaced. The operator's JetWave Customer Support can be contacted for further support.

E. Electrical and Mechanical Inspection and Check

Periodic inspections of the mechanical and electrical interfaces of the JetWave™ AES OAE assembly and LRUs to the aircraft should be completed as defined by the governing airworthiness body (such as Transport Canada, the FAA, or the JAA) Instructions for Continued Airworthiness for the installation.

For the general guidelines, refer to Visual Inspection and Check and Scheduled Maintenance and Inspections sections.

F. Visual Inspection and Check

Do the procedures that follow to examine the JetWave™ AES OAE assembly and LRUs after installation of the unit onto the aircraft. Follow all approved safety standards and practices during the inspection.

WARNING: FAILURE TO DISCONNECT CIRCUIT BREAKERS CAN LEAD TO INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT.

(1) Disconnect all circuit breakers to the JetWave™ AES OAE assembly, LRUs and associated systems.

(2) Visually examine the FMA or TMA radome for any damage or defects. Please refer to the radome supplier’s Structural Repair Manual (SRM) for the specific radome inspection and damage repair instructions.

NOTE: Saint Gobain SRM-100 is applicable to all radomes. FMA radome, PN SCD-90401395-01, is covered specifically by Saint Gobain SRM-5249 structural repair manual.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

G. JetWave™ System Fault Codes

(1) BITE Philosophy

(a) Description

1 The JetWave™ AES consists of the Modman, KANDU, KRFU, TMA or FMA LRUs, plus the APM.

2 The APM is a simple memory device with no software and performs no BITE by itself. Any BITE required for the APM is performed by the Modman. The APM is not shown in these diagrams.

3 The BITE system divides the responsibility for BITE and historical logs in a BITE hierarchy as illustrated in Figure 7-7.

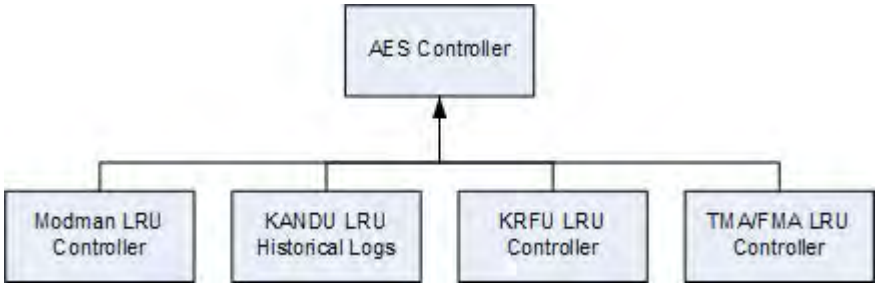


Figure 7-7. Bite Hierarchy

4 In charge of the JetWave™ system is the AES controller. This controller is in charge of the LRUs of the JetWave™ system, and it:

- Maintains the overall state of the AES system
- Controls the initialization and operation of the system
- Generates BITE events applicable to the system level
- Records BITE events reported by a LRU and itself in an AES historical log.

5 Each LRU has a LRU controller that:

- Maintains the state of the LRU
- Generates BITE events applicable to the LRU
- Sends relevant BITE events to the AES controller (for the AES controller to make a decision on overall AES state, and for it to record in its AES historical log).

6 The diagram that follows is a detailed description of how the AES controller, the LRU controllers, the historical logs, and the means of access to those logs interact. Refer to Figure 7-8.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

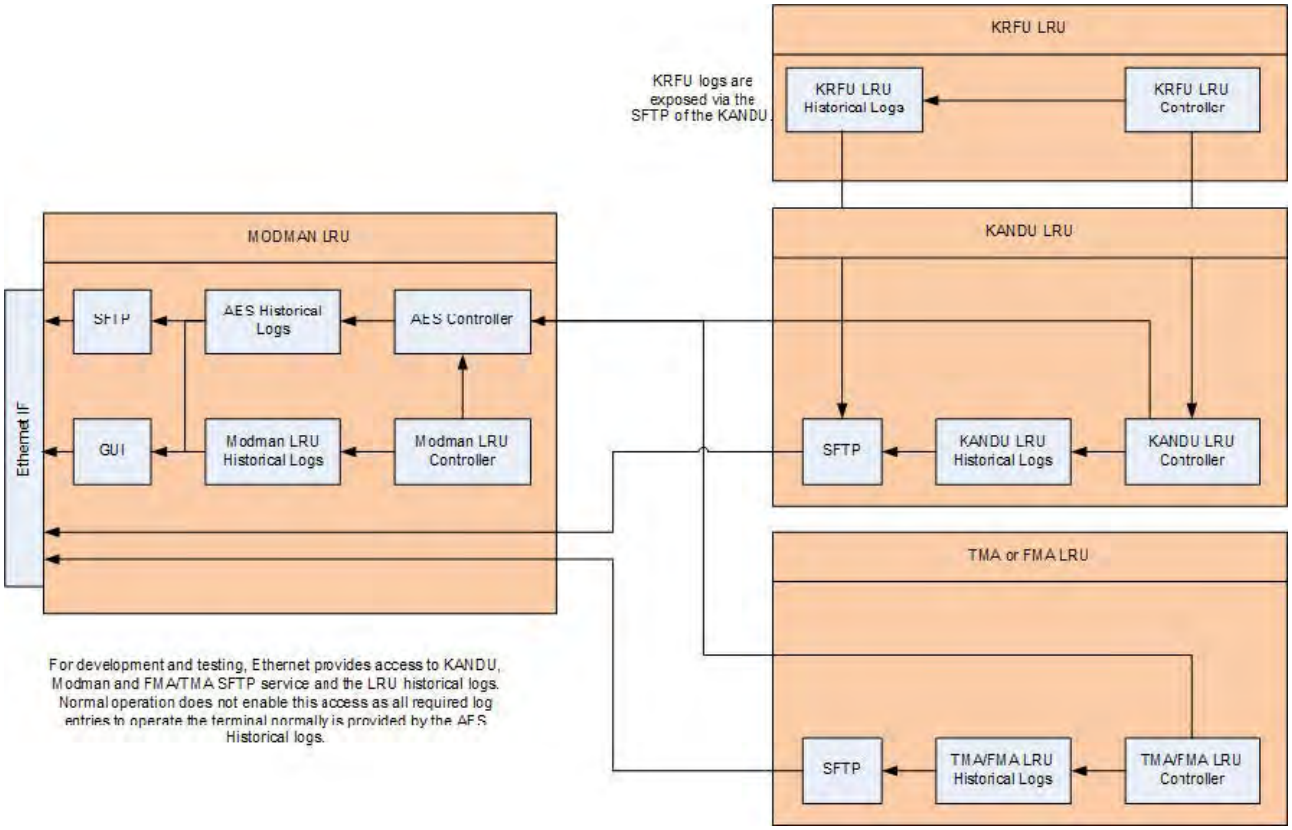


Figure 7-8. AES and LRU Controller Interaction

7 The AES Controller resides in the Modman LRU.

8 Each LRU Controller monitors the LRU for BITE events. BITE events are classified into two categories:

- Faults: These are BITE events which have a SET state (occurring) or CLEAR state (fault has disappeared).
- Events: These are BITE events which occur but do not have a set or clear state.

9 The LRU records the BITE event into a specific LRU log, dependent on the type of fault or event.

NOTE: Not all BITE events indicate an error situation. BITE events are also used for storing significant events in the historical logs, either on the LRU or in the AES controller, or for informing the AES controller of important system wide information.

10 BITE events are sent to the AES controller. The AES controller may react to an event by changing the overall state of the AES system. Actions include disabling the system, rebooting the system, etc.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

11 The AES controller has a sub-part called the AES controller fault and event handler which is in charge of responding to BITE events reported by the AES controller or a LRU controller.

12 The AES controller has its own historical logs which allow it to record events about the whole system.

13 Included on the diagram are the Secure File Transport Protocol (SFTP) services and the GUI services which allow the users to access the AES and LRU historical logs.

- AES controller logs are available from the Modman LRU GUI or SFTP service, accessible through one of the Ethernet connections on the Modman.
- Modman LRU logs are available from the Modman LRU SFTP service, accessible through one of the Ethernet connections on the Modman.
- KANDU LRU Logs and KRFU LRU Logs are available from the KANDU LRU SFTP service, accessible through one of the Ethernet connections on the Modman.
- TMA/FMA LRU Logs are available from the TMA/FMA LRU SFTP service, accessible through one of the Ethernet connections on the Modman.

14 The LRU and AES remember information about BITE events that have occurred, in both non-volatile memory and volatile memory.

15 The historical logs are kept by the LRU and AES controller.

16 Each BITE event is described by an LRU code, encoded in three numbers (L1, L2 and L3) to uniquely identify the event.

17 Section 5 has more details on the format of this LRU code system.

18 The BITE events themselves have a description of the L1 thru L3 code and the additional text to be used for that event.

19 Each BITE event is also associated with a reaction table which describes the confirmation actions, and event actions, the LRU should take when this BITE event occurs. For events that are reported to the AES controller, there is a reaction table describing what the AES controller should do when the event is reported to it.

(a) Status Memory

1 The AES Controller remembers the following information:

- The AES Controller maintains an overall mode of operational state, of UNKNOWN (Default), DATA LOAD, CRITICAL FAULT, COMMANDED MODE, OPERATIONAL MODE.
- The AES controller maintains an overall service state, of AVAILABLE (default) or UNAVAILABLE. This service state, when set to UNAVAILABLE, disables user service and transmission.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

- For each unique L1 thru L3 code, maintained across reset/power down, it records if the code has occurred (SET), cleared after occurring (CLEAR), or never seen (NO_ERROR).
- For each unique L1 thru L3 code, maintained across reset/power down, it records the number of occurrences and the time of the last occurrence.
- For every link in the system, it records the status: UNKNOWN (default after power on), DISABLED, INACTIVE, NO_LAYER_1 (when applicable), HIGH_PACKET_LOSS, ACTIVE (normal). It also records the time of the last report, and the long term link status: NOFAULT, FAULT.
- For every ARINC 429 label the AES accepts on a per LRU basis, it records the status: DISABLED, UNKNOWN (default after power on), ACTIVE, SSMERROR, MISSING.
- For every input discrete the AES LRUs possesses, it records the status: UNKNOWN (default after power on), ASSERTED, DEASSERTED.
- For every temperature sensor on every LRU the AES controller records its status: NORMAL (default after power on), WARNING, CRITICAL.
- For the Modman, KRFU, KANDU, TMA, FMA the AES controller records it overall hardware state: NORMAL (default after power on), WARNING, FAILED.
- The AES controller maintains in memory the mute state of each LRU, and the reason for mute. Default is “INITIALIZATION”.

2 The LRUs remember the following information:

- For each unique L1 thru L3 code, maintained across reset/power down, it records if the code has occurred (SET), cleared after occurring (CLEAR), or never seen (NO_ERROR).
- For each unique L1-L3 code, maintained across reset/power down, it records the number of occurrences and the time of the last occurrence.
- For every link the LRU has, it records the status: UNKNOWN (default after power on), DISABLED, INACTIVE, NO_LAYER_1 (when applicable), HIGH_PACKET_LOSS, ACTIVE (normal). It also records if the link is causing a mute of the system.
- For every ARINC 429 label the LRU understands, it records the status: DISABLED, UNKNOWN (default after power on), ACTIVE, SSMERROR, MISSING. It also records if the label is causing a mute of the system.
- For every input discrete the LRU possesses, it records the status: ASSERTED, DEASSERTED.
- The LRU maintains in memory the reason, if any, for muting.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(2) LRU Codes

BITE event information is encoded by the LRUs in three values. The values are named L1 thru L3:

- L1 denotes the LRU or interface (generated by an LRU on its behalf) which is generating the event
- L2 denotes the Shop Replaceable Module within an LRU for a event relating to an LRU, or for interfaces it denotes a particular part of the interface which is generating the event.
- L3 further defines the unique event that occurred.

Each fault or event also has an additional text field which can carry additional information helpful to understand the fault or event that happened.

The combination of L1 thru L3 alone uniquely identifies a BITE event in the system.

(3) L1 Codes

(a) The event L1 code uses two hexadecimal digits to identify a LRU or an interface within an AES LRU, coded as follows:

Table 7-1. L1 Codes

Group	L1 Code	L1 Description
System	0x 00	System The L1 code of 00 shall be used if the LRU is unknown or if the error is applicable to a system level, such as an invalid or unknown system configuration error, or a system event not specific to an LRU.
AES	0x 01	Modman
	0x 02	KRFU
	0x 03	TMA
	0x 04	FMA
	0x 05	APM
	0x 06	KANDU

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-1. L1 Codes (Continued)

Group	L1 Code	L1 Description
Intra-system Interconnect	0x 20	Modman KANDU Ethernet bus
	0x 21	Modman APM serial bus
	0x 23	Modman input discretes from LRU
	0x 24	Modman output discretes
	0x 30	KANDU OAE Ethernet Bus
	0x 31	KANDU OAE Serial Control Bus
	0x 32	KANDU OAE serial IMU bus
	0x 33	KANDU KRFU serial bus
	0x 34	KANDU input discretes from OAE
	0x 35	KANDU input discretes from Modman
	0x 36	KANDU input discretes from KRFU
	0x 41	KRFU input discretes from KANDU
	0x B0	RF TX Modman to KRFU
	0x B1	RF TX KRFU to OAE
	0x B2	RF RX
Aircraft Interconnect	0x 70	IRU input bus
	0x 71	Aircraft state input bus
	0x 72	Modman aircraft discrete input
	0x 73	KANDU aircraft discrete input
AISD Network	0x 80	AISD Network: Ethernet AG1
	0x 81	AISD Network: Ethernet AV1
	0x 82	AISD Network: Ethernet AV2
	0x 83	AISD Network: Ethernet AV3
PIESD Network	0x 88	PIESD Network: Ethernet EG1
	0x 89	PIESD Network: Ethernet EN5
	0x 8A	PIESD Network: Ethernet EN6
	0x 8B	PIESD Network: Ethernet EN7
	0x 8C	PIESD Network: Ethernet EN8

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-1. L1 Codes (Continued)

Group	L1 Code	L1 Description
PODD Network	0x 90	PODD Network: Ethernet PG1
	0x 91	PODD Network: Ethernet PA1
	0x 92	PODD Network: Ethernet PA2
	0x 93	PODD Network: Ethernet PA3
	0x 94	PODD Network: Ethernet PA4

NOTE: All other codes not explicitly stated are spare.

(4) L2 Codes

(a) The event L2 code uses two hexadecimal digits to identify a shop-replaceable module within an AES LRU, coded as follows:

Table 7-2. L2 Codes – Module Within an AES LRU

L1	L2 Code	L2 Description
System (00)	0x 00	Unknown
	0x 01	Mode
	0x 02	AES menu access level
	0x 03	Configuration
	0x 04	AES SFTP
	0x 05	SNMP engineering
	0x 06	SNMP ARINC 791
	0x 07	Regulatory logs
	0x 08	Information events
Modman (01)	0x 00	Unknown
	0x 01	ACM
	0x 02	Controller/Router
	0x 03	Power supply unit
	0x 04	Backplane
	0x FA	Operational information
	0x FB	IP security
	0x FC	Reset
	0x FD	Software configuration
	0x FE	Software runtime

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-2. L2 Codes – Module Within an AES LRU (Continued)

L1	L2 Code	L2 Description
Modman (01)	0x FF	Temperature
KRFU (02)	0x 00	Unknown
	0x 01	Power supply unit
	0x 02	Block up converter
	0x 04	Power amplifier
	0x 05	Monitor and control
	0x 07	Fan
	0x 08	Failed on start-up
	0x 2A	BDC
	0x FA	Operational information
	0x FC	Reset
	0x FD	Software configuration
	0x FE	Software runtime
	0x FF	Temperature
TMA (03) FMA (04)	0x 00	Unknown or not applicable
	0x 02	Inertial measurement unit
	0x 03	Low noise amplifier
	0x 04	Motors and sensors
	0x 05	Position control unit
	0x 06	Power supply unit
	0x 0B	MDU
	0x 0C	R2D
	0x FA	Operational information
	0x FB	IP security (FMA only)
	0x FC	Reset
	0x FD	Software configuration
	0x FE	Software runtime
	0x FF	Temperature
APM (05)	0x FA	Operational information
	0x FD	Software configuration

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-2. L2 Codes – Module Within an AES LRU (Continued)

L1	L2 Code	L2 Description
KANDU (06)	0x 00	Unknown or not applicable
	0x 01	ASC
	0x 02	Power supply unit
	0x 11	ASC BITE EMIFA
	0x 12	ASC BITE A429 IRS
	0x 13	ASC BITE A429 AUX
	0x 14	ASC BITE Ethernet switch
	0x FA	Operational information
	0x FB	IP security
	0x FC	Reset
	0x FD	Software configuration
	0x FE	Software runtime
	0x FF	Temperature

(b) The event L2 code further identifies specific inter LRU interfaces, coded as follows:

Table 7-3. L2 Codes – Inter LRU Interfaces

L1	L2 Code	L2 Description
Modman KANDU Ethernet bus (20)	0x 01	Modman input
	0x 02	KANDU input
Modman APM Serial Bus (21)	0x 01	Modman input
Modman Input discretes from KANDU (23)	0x 00	Unknown
Modman Output: Discrete from Modman (24)	0x 01	Reset
	0x 02	ARINC TX mute
	0x 03	Filter select
	0x 04	Keyline transmit
	0x 05	System available
	0x 06	Data link available
KANDU OAE Ethernet Bus (30)	0x 01	KANDU input
	0x 02	OAE input

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-3. L2 Codes – Inter LRU Interfaces (Continued)

L1	L2 Code	L2 Description
KANDU OAE Serial Control Bus (31)	0x 01	KANDU input
	0x 02	OAE input
KANDU OAE Serial IMU Bus (32)	0x 01	KANDU input
	0x 02	OAE input
KANDU KRFU Serial Bus (33)	0x 01	KANDU input
	0x 02	KRFU input
KANDU Input: Discrete from OAE (34)	0x 01	FMA TX mute input
KANDU Input: Discrete from Modman (35)	0x 01	Reset
	0x 02	ARINC TX mute
	0x 03	Filter select
	0x 04	TX Mute
KANDU Input: Discrete from KRFU (36)	0x 00	Unknown
KRFU Input: Discrete from KANDU (41)	0x 01	Reset
	0x 02	KRFU TX mute
	0x 03	Filter select
RF TX Modman to KRFU (B0)	0x 00	Unknown
RF TX KRFU to OAE (B1)	0x 00	Unknown
RF RX(B2)	0x 00	Unknown

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(c) The event L2 code further identifies ARINC 429 and ARINC 791 discrete interfaces, coded as follows:

Table 7-4. L2 Codes – ARINC Discrete Interfaces

L1	L2 Code	L2 Description
IRU Input Bus (70) Aircraft state Bus (71)	0x 00	Unknown
	0x 01	Pitch angle label
	0x 02	Roll angle label
	0x 03	Pitch rate label
	0x 04	Roll rate label
	0x 05	Yaw rate label
	0x 06	Body longitudinal acceleration
	0x 07	Body vertical acceleration
	0x 08	True heading label
IRU Input Bus (70) Aircraft state Bus (71)	0x 09	Body lateral acceleration
	0x 11	Latitude label
	0x 12	Longitude label
	0x 13	Altitude
	0x 14	Vertical velocity
	0x 15	N-S velocity
	0x 16	E-W velocity
	0x 21	Horizontal stabilization
	0x 31	Time label
	0x 32	Date label
	0x 41	Flight phase label
	0x 42	MLG ground condition
	0x 80	GNSS sensor status word
	0x 81	IRS discrete word #1

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-4. L2 Codes – ARINC Discrete Interfaces

L1	L2 Code	L2 Description
Modman Aircraft Discrete Input (72)	0x 06	WOW
	0x 07	Cell TX OK
	0x 08	Ground transmit enable
	0x 09	Public services disable
	0x 0A	Remote manager
	0x 0B	Cooling available
	0x 0C	Local data load
KANDU Aircraft Discrete Input (73)	0x 0C	TX control

(d) The event L2 code further identifies user interfaces, coded as follows

Table 7-5. L2 Codes – User Interface

L1	L2 Code	L2 Description
AISD Network: Ethernet AG1 (80) AISD Network: Ethernet AV1 (81) AISD Network: Ethernet AV2 (82) AISD Network: Ethernet AV3 (83) PIESD Network: Ethernet EG1 (88) PIESD Network: Ethernet EN5 (89) PIESD Network: Ethernet EN6 (8A) PIESD Network: Ethernet EN7 (8B) PIESD Network: Ethernet EN8 (8C) PODD Network: Ethernet PG1 (90) PODD Network: Ethernet PA1 (91) PODD Network: Ethernet PA2 (92) PODD Network: Ethernet PA3 (93) PODD Network: Ethernet PA4 (94)	0x 01	Modman input

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(5) L3 Codes

(a) The L3 code is four hexadecimal digits, used to uniquely identify the fault or event against an L1, L2 code pair.

(b) Each LRU defines their own L3 codes. These are given in the fault table, refer to Table 7-6.

Table 7-6. L3 Codes

L1	L2	L3 Code	L3 Description	Repair Action
System (00)	Unknown (00)	0x 0001	OAE not pointed correctly	Try a manual point and see if it works.
	Mode (01)	0x 0000	Critical fault mode entry	- Info events - Recording what happened in the LRU. - If it is a warning, It is info only.
		0x 0001	Data Load mode entry	
		0x 0002	Commanded mode entry	
		0x 0003	Normal mode entry	
	AES menu access level (02)	0x 0000	Maintenance	
		0x 0001	Factory	
		0x 0002	Engineering	
		0x 0021	Log clearance AES operational historical log	
		0x 0022	Log clearance AES fault historical log	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
System (00)	AES menu access level (02)	0x 0023	Log clearance AES usage historical log	- Info events - Recording what happened in the LRU. - If it is a warning, it is info only.
	Configuration (03)	0x 0000	Tail number missing	Use the AES Menu interface at maintenance level to enter the valid tail number of the aircraft
		0x 0001	Configuration file missing	- First fit: Data load the configuration data to the Modman LRU with the 615A data loading process. - After operational: Replace the APM LRU (presume it is defective since the APM should not forget an APM file), do the first fit operation again.
		0x 0002	Inter LRU SW incompatibility	Verify versions of SW with the GUI or AES menu tool on all LRUs and replace with correctly configured set of SW.
		0x 0003	Geographical map missing	NO ACTION – this will be updated when the system is in operation.
		0x 0004	Configuration file in APM missing	- First fit: Data load the configuration data to the Modman LRU with the 615A data loading process. - After operational: Replace the APM LRU (presume it is defective since the APM should not forget an APM file), do the first fit operation again.
	AES SFTP (04)	0x 0000	Maintenance	- Info events - Recording what happened in the LRU. - If it is a warning, it is info only.
		0x 0001	Factory	
		0x 0002	Engineering	
	SNMP Engineering (05)	0x 0000	Maintenance	
		0x 0001	Factory	
		0x 0002	Engineering	
		0x 0021	Log clearance AES operational historical log	
		0x 0022	Log clearance AES fault historical log	
		0x 0023	Log clearance AES usage historical log	
	SNMP ARINC 791 (06)	0x 0000	Maintenance	
		0x 0001	Factory	
		0x 0002	Engineering	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
System (00)	Regulatory Log (07)	0x 0000	Regulatory log upload failure	NO ACTION –System will continue to try and upload the file as directed by the regulatory log requirements on frequency of upload attempts.
		0x 0001	Reg log full	NO ACTION –System will continue to try and upload the file as directed by the regulatory log requirements on frequency of upload attempts. User data traffic will be disabled until the log is successfully uploaded.
	Information Events (08)	0x 0000	User service enabled	NO ACTION: - This is AES Information Event
		0x 0001	User service disabled	NO ACTION: - Will recover next time
		0x 0002	Geographic map stored	NO ACTION: - This is information event
		0x 0003	Geographic map download failed	NO ACTION: - Will recover next system power cycle.
		0x 0004	Aircraft on ground	NO ACTION: - This is Information Event
		0x 0005	Aircraft in air	NO ACTION: - This is Information Event
		0x 0006	AES in network	NO ACTION: - This is Information Event
		0x 0007	AES out of network	NO ACTION: - This is Information Event
		0x 0008	AES network operating parameters	NO ACTION: - This is Information Event
	Software Runtime (FE)	0x 0000	No Comms with OAE – KANDU OK	No action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0001	System POST Event	
		0x 0002	LRU Comms Established	
		0x 0003	LRU Comms Not Established	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Unknown (00)	0x 0000	Mute state	Info events - Recording what happened in the LRU.
		0x 0011	LRU menu access - maintenance	
		0x 0012	LRU menu access - factory	
		0x 0013	LRU menu access - engineering	
		0x 0014	LRU SFTP access - maintenance	
		0x 0015	LRU SFTP access - factory	
		0x 0016	LRU SFTP access - engineering	
		0x 0021	Log clearance LRU operational	
		0x 0022	Log clearance LRU fault	
	ACM (01)	0x 0001	ACM not responding	Hardware faults and events: - Replace the Modman.
		0x 0002	ACM BIST fault	
		0x 0003	ACM over temp	
	Controller/router (02)	0x 0001	DSP Fault	
		0x 0002	Ethernet Main Switch	
		0x 0003	Ethernet PODD Switch	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Controller/router (02)	0x 0004	Ethernet PIES Switch	Hardware faults and events: - Replace the Modman.
		0x 0005	Ethernet AISD Switch	
		0x 0006	Down converter	
		0x 0007	NOR flash	
		0x 0008	NAND flash	
		0x 0009	A429 driver	
		0x 000B	Reset control I/O	
		0x 000C	Board config I/O	
		0x 000D	Ethernet FP PHY	
		0x 000E	Ethernet ACM PHY	
		0x 000F	Ethernet EN3 PHY	
		0x 0010	Ethernet Server PHY	
		0x 0011	Ethernet AV1 PHY	
		0x 0012	Ethernet AV2 PHY	
		0x 0013	Ethernet AV3 PHY	
		0x 0014	Ethernet AG1 PHY	
		0x 0015	Ethernet EN5 PHY	
		0x 0016	Ethernet EN6 PHY	
		0x 0017	Ethernet EN7 PHY	
		0x 0018	Ethernet EN8 PHY	
		0x 0019	Ethernet EG1 PHY	
		0x 001A	Ethernet PA1 PHY	
		0x 001B	Ethernet PA2 PHY	
		0x 001C	Ethernet PA3 PHY	
		0x 001D	Ethernet PA4 PHY	
		0x 001E	Ethernet PG1 PHY	
		0x 001F	MM & ACD ETH link status IO	
		0x 0020	PIES/PODD ETH link status IO	
		0x 0021	BITE status inputs IO	
		0x 0022	Server card in/out IO	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Controller /router (02)	0x 0023	RSSI control in/out IO	Hardware faults and events: - Replace the Modman.
		0x 0024	Unique ID chip	
		0x 0030	5V ISO good - power fail	
		0x 0031	12V ISO good - power fail	
		0x 0032	1V2 AR power good - power fail	
		0x 0033	APM power good - power fail	
		0x 0034	RSSI VDD power good - power fail	
		0X0035	RSSI +1V3 power good - power fail	
	Power supply unit (03)	0x 0001	PSU input power fail	
		0x 0002	PSU good power fail	
	Backplane (04)	0x 0001	ACM 18V power good	
	Operational information (FA)	0x 0000	Mode Transition	Info events - Recording what happened in the LRU.
		0x 0001	Parameter	
		0x 0002	Operational event	
		0x 0004	Connect event	
		0x 0005	Disconnect event	
		0x 0006	User Bytes passed	
		0x 000A	Standard electronic information	
		0x 000B	Honeywell electronic information	
		0x 000C	Subassembly information	
	IP security (FB)	0x 0000	Critical IP events	NO ACTION:- This is information event.
		0x 0001	Warning IP security events	NO ACTION:- This is information event.
		0x 0020	Configuration fault	Use correct network configuration
	Reset (FC)	0x 0000	Power Cycle	Info events - Recording what happened in the LRU.
		0x 0001	Watchdog	
		0x 0002	Software Command	
		0x 0003	Reset Pin	Info events - Recording what happened in the LRU.
		0x 0004	SW exception	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Software configuration (FD)	0x 0001	HW SW compatibility	Reload compatible software with the A615A data loading process.
		0x 0002	LRU SW compatibility	
		0x 0003	Configuration parameter missing	Reload the configuration data with the A615A data loading process.
		0x 0004	Primary image corruption warning	- Reboot the LRU after 10 minutes of power application. - If not, then reloading of software is required to load a fresh image.
		0x 0005	No valid image	Reload compatible software with the A615A data loading process.
		0x 0006	LRU PRI-SEC image mismatch	- Reboot the LRU after 10 minutes of power application. - If not, then a reloading of software is required to load a fresh image.
		0x 0007	Data load	Info events - Recording what happened in the LRU.
		0x 0008	Data loader connect	
		0x 0009	Data loader disconnect	
		0x 000A	Operating image list	
		0x 000B	Secondary image corruption warning	Perform a system reset.
		0X 0040	VLAN MAPPING TO SPECIFIC PORTS DISALLOWED	NO ACTION - It is info only. This warning gets generated if the mapping ordered by the ACM fails due to the configuration data.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Software runtime (FE)	0x 0000	Heartbeat failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occured, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occured, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0001	GENERAL module failure	
		0x 0006	Application Controller Database Invalid	
		0x 0007	Application Not Present	
		0x 0008	Application Unable to Start	
		0x 0009	Application fails during monitoring	
		0x 000A	Base Application Construction failure	
		0x 000B	Base Application Initialization failure	
		0x 000C	Base Application runtime warning	
		0x 000D	Base Application runtime failure	
		0x 000E	F&E DB fails to open	
		0x 000F	F&E DB invalid	
		0x 0010	F&E ODB fails to open	
		0x 0011	F&E code unknown	
		0x 0012	F&E Networking error	
		0x 0013	F&E Bite Action Error	
		0x 0014	F&E Persistent DB fails to open	
		0x 0015	F&E Persistent Store Write Error	
		0x 0016	F&E Bite Action Inhibit	
		0x 0017	Data Loader TFTP timeout	
		0x 0018	Data Loader out of memory	
		0x 0019	Data Loader Load Installer missing	
		0x 001A	Data Loader Load Installer memory error	
		0x 001B	Data Loader primary image corruption	
		0x 001C	Data Loader incompatible image	
		0x 001D	ICC unable to load driver Missing KANDU Information - Ground	
		0x 0020	Speed	
		0x 0021	File System Full	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Software runtime (FE)	0x 0022	ACM Load Installer - comms failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0023	ACM Load Installer - package rejected	
		0x 0024	ACM Load Installer - package activation failure	
		0x 0025	ACM Load Installer - package activation successful	
		0x 0026	AES Controller unable to open well known socket	
		0x 0027	AES Controller network resource limitation - socket	
		0x 0028	AES Controller server network resource limitation - buffer	
		0x 0029	Switch fabric could not be configured for data load	
		0x 002A	ACM Manager Data Request	
		0x 002B	Maint MIB Invalid data	
		0x 002C	Maint MIB data not in correct format	
		0x 002D	Maint MIB data not in correct format	
		0x 002E	Network SNMP agent Database Invalid	
		0x 002F	Network SNMP No NSC response	
		0x 0030	Network SNMP - no valid data	
		0x 0031	ACM Power Transition	
		0x 0032	DNS Fails named lookup	
		0x 0033	Network switch control error	
		0x 0034	RSSI Engine Lock status changed	
		0x 0035	RSSI Engine Sampling fault	
		0x 0036	RSSI Engine Internal software fault	
		0x 0050	C/R Post Time Out	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman (01)	Software runtime (FE)	0x 0800	MES client registration fails	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0801	MES client publish fail due to attempted blocking send	
		0x 0802	MES server unable to open well known socket	
		0x 0803	MES server network resource limitation - socket	
		0x 0804	MES server network resource limitation - buffer	
		0x 0805	MES server message ID map corruption	
		0x 0806	MES Client receives non-subscribed message	
		0x 0807	MES proxy database invalid	
		0x 0808	MES proxy cannot remotely subscribe	
		0x 0809	EUI data missing	
		0x 080A	ACM General Error	
		0x 080B	APM Client - Data not available	
		0x 080C	APM Client - Data validated	
		0x 080D	APM Client - Data not validated	
		0x 080E	RSSI Manager unable to open well known socket	
	Temperature (FF)	0x 0001	C/R temperature sensor	If it is a warning, It is info only. - If it is critical, the LRU will shut down functionally: The LRU is not correctly installed or there can be a fault in the box generating the heat.
		0x 0002	PSU temperature sensor	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KRFU (02)	Unknown (00)	0x 0000	Mute state	Info events - Recording what happened in the LRU.
		0x 0001	Primary power interruption	
	Power supply (01)	0x 0002	Power supply internal fault	Hardware faults and events: - Replace the KRFU
	Block up converter (02)	0x 0001	BUC lockloss: Transmit BITE status	
		0x 0002	BUC lockloss: Transmit BITE status	
	Power amplifier (04)	0x 0002	PA overdriven: Transmit BITE status	
	Monitor and control (05)	0x 0001	Flash fault	
		0x 0002	RAM fault	
		0x 0003	Watchdog reset	
	BDC (2A)	0x 0001	BITE status	
		0x 0002	BDC lockloss: Receive	It is info only. KRFU recovered from the loss of KANDU heartbeats.
	Operational information (FA)	0x 000A	Standard electronic information	Info events - Recording what happened in the LRU.
		0x 000B	Honeywell electronic information	
	Reset (FC)	0x 0001	Watchdog	
		0x 0002	Software command	
		0x 0004	SW exception	
		0x 0005	Power cycle or Reset pin	
	Software configuration (FD)	0x 0001	HW SW compatibility	Reload compatible software with the A615A data loading process.
		0x 0004	Primary image corruption warning	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, then reloading of software is required to load a fresh image
		0x 0006	LRU PRI-SEC image mismatch	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, then reloading of software is required to load a fresh image

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KRFU (02)	Software configuration (FD)	0x 0007	Data load	Info events - Recording what happened in the LRU.
		0x 000A	Operating image list	
		0x 0008	Data loader connected	
		0x 0009	Data loader disconnected	
		0x 000B	Secondary image corruption warning	A reloading of software is required to load a fresh image.
	Software runtime (FE)	0x 0000	KRFU - KANDU Heartbeat failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0001	KANDU - KRFU heartbeat failure	
	Temperature (FF)	0x 0001	KRFU main temperature sensor	- If is a warning, it is for info only. - If it is critical the LRU will shut down functionally: suggest the LRU is not correctly installed or there can be a fault in the box generating the heat.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
TMA (03)	Unknown (00)	0x 0001	Primary power interruption	Info events - Recording what happened in the LRU.
		0x 0011	LRU menu access - maintenance	
		0x 0012	LRU menu access - factory	
		0x 0013	LRU menu access - engineering	
		0x 0014	LRU SFTP access - maintenance	
		0x 0015	LRU SFTP access - factory	
		0x 0016	LRU SFTP access - engineering	
		0x 0021	Log clearance LRU operational	
		0x 0022	Log clearance LRU fault	
	Inertial Measurement Unit (02)	0x 0001	No response	Replace the TMA
	LNA (03)	0x 0001	LNA current	Hardware faults and events: - Replace the TMA. NOTE: Before removing the Tail Mount Radome, Honeywell recommends manually steering the TMA through GUI to a safe antenna orientation position. The TMA parking position is included in the AES System Configuration File, which can be accessed through the GUI web interface and by navigating to Configuration File page. Consult aircraft specific SDIM for detailed instructions.
	Motor and sensors (04)	0x 0001	AZ sensor detection	
		0x 0002	EL INIT sensor detection	
		0x 0003	EL LIMIT sensor detection	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
TMA (03)	Position control unit (05)	0x 0001	DSP fault	Hardware faults and events: - Replace the TMA. NOTE: Before removing the Tail Mount Radome, Honeywell recommends manually steering the TMA through GUI to a safe antenna orientation position. The TMA parking position is included in the AES System Configuration File, which can be accessed through the GUI web interface and by navigating to Configuration File page. Consult aircraft specific SDIM for detailed instructions.
		0x 0002	AZ motor current draw	
		0x 0003	El motor current draw	
		0x 0004	Initialization incomplete	
	PSU (06)	0x 0003	OMAP PWR 3.3V: Out-of Spec	
		0x 0004	OMAP PWR 5V: Out-of Spec	
		0x 0005	MOT PWR 12V: Out-of Spec	
		0x 0006	LNA PWR 12V: Out-of Spec	
	Operational information (FA)	0x 0000	Mode transition	Info events - Recording what happened in the LRU
		0x 0001	Parameter	
		0x 0002	Event	
		0x 000A	Standard electronic information	
		0x 000B	Honeywell electronic information	
		0x 000C	Subassembly information	
	IP Security (FB)	0x 0000	IP Security event	Use well defined port and IP Address
	Reset (FC)	0x 0000	Power cycle	Info events - Recording what happened in the LRU
		0x 0001	Watchdog	
		0x 0002	Software command	
		0x 0004	SW exception	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
TMA (03)	Software Configuration (FD)	0x 0001	HW SW compatibility	Reload compatible software with the A615A data loading process.
		0x 0002	LRU SW compatibility	
		0x 0003	Configuration parameter missing	Reload the configuration data with the A615A data loading process.
		0x 0004	Primary image corruption warning	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, then reloading of software is required to load a fresh image.
		0x 0006	TMA PRI-SEC image mismatch	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, then reloading of software is required to load a fresh image.
		0x 0007	Data load	Info events:- Recording what happened in the LRU.
		0x 0008	Data loader connect	
		0x 0009	Data loader disconnect	
		0x 000A	Operating image list	
		0x 000B	Secondary image corruption warning	A reloading software is required to load a fresh image.
	Software runtime (FE)	0x 0000	Heartbeat failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0001	DSP task timeout	
		0x 0002	ARM-DSP communication	
		0x 0003	DSP task timeout	
		0x 0004	ARM-DSP COMMUNICATION	
		0x 0005	Application Controller Database Invalid	
		0x 0006	Application Not Present	
		0x 0007	Application Unable to Start	
		0x 0008	Application fails during monitoring	
		0x 0009	Application fails during monitoring	
		0x 000A	Base Application Construction failure	
		0x 000B	Base Application Initialization failure	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
TMA (03)	Software runtime (FE)	0x 000C	Base Application runtime warning	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 000D	Base Application runtime failure	
		0x 000E	F&E DB fails to open	
		0x 000F	F&E DB invalid	
		0x 0010	F&E ODB fails to open	
		0x 0011	F&E code unknown	
		0x 0012	F&E Networking error	
		0x 0013	F&E Bite Action error	
		0x 0014	F&E Persistent DB fails to open	
		0x 0015	F&E Persistent Store Write error	
		0x 0016	F&E Bite Action inhibit	
		0x 0017	Data Loader TFTP timeout	
		0x 0018	Data Loader out of memory	
		0x 0019	Data Loader Load installer missing	
		0x 001A	Data Loader Load installer memory error	
		0x 001B	Data Loader primary image corruption	
		0x 001C	Data Loader incompatible image	
		0x 001D	ICC unable to load driver	
		0x 001E	Inter LRU serial comms overrun	
		0x 001F	Tunnel interface errors	
		0x 0021	Alignment - fail to open file	
		0x 0022	Alignment - empty file	
		0x 0023	Alignment - corrupt file	
		0x 0024	Alignment - write file	
		0x 0025	Configuration Data Manager ICC open failure	
		0x 0026	Configuration Data Manager Database not consistent	
		0x 0027	TMA Controller ICC open failure	
		0x 002A	DSP Manager Data Manager ICC open failure	
		0x 002B	DSP Manager Task's stopped	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
TMA (03)	Software runtime (FE)	0x 002C	DSP Manager heartbeat failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 002D	OAE Configuration Data Manager incompatible version data	
		0x 002E	DSP Application Manager unable to allocate resources	
		0x 0046	Unable to allocate ICC transmit buffer	
		0x 0047	IP Tunnel driver - fails to initialize	
		0x 0048	Tunnel Driver ICC open failure	
		0x 0049	Unable to configure routing to ASC	
		0x 004A	TMA/KANDU network configuration conflict	
		0x 0050	Post Timeout	
		0x 0800	MES client registration fails	
		0x 0801	MES client publish fail due to attempted blocking send	
		0x 0802	MES server unable to open well known socket	
		0x 0803	MES server network resource limitation - socket	
		0x 0804	MES server network resource limitation - buffer	
		0x 0805	MES server message ID map corruption	
		0x 0806	MES client receives non-subscribed message	
		0x 0807	MES proxy database invalid	
		0x 0808	MES proxy cannot remotely subscribe	
		0x 0809	EUI data missing	
		0x 080A	ACM General Error	
		0x 080B	APM Client - Data not available	
		0x 080C	APM Client - Data validated	
		0x 080D	APM Client - Data not validated	
		0x 080E	RSSI Manager unable to open well known socket	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
TMA (03)	Temperature (FF)	0x 0001	Motor driver circuit	- If is a warning, it is for info only. - If it is critical, the LRU shut itself down functionally: suggest the LRU is not correctly installed or a subassembly in the LRU may be generating too much heat.
		0x 0002	Ambient	
FMA (04)	Unknown (00)	0x 0001	Enter shed load	Info events - Recording what happened in the LRU.
		0x 0002	Exit shed load	
		0x 0011	LRU menu access - maintenance	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
FMA (04)	Unknown (00)	0x 0012	LRU menu access - factory	Info events - Recording what happened in the LRU
		0x 0013	LRU menu access - engineering	
		0x 0014	LRU SFTP access - maintenance	
	Unknown (00)	0x 0015	LRU SFTP access - factory	Info events - Recording what happened in the LRU
		0x 0016	LRU SFTP access - engineering	
		0x 0021	Log clearance LRU operational	
		0x 0022	Log clearance LRU fault	
		0x 0081	Azimuth home find fail	Hardware faults and events: - Replace the FMA.
		0x 0082	Elevation home find fail	
		0x 0085	Ice breaker AZ	
		0x 0086	Ice breaker EL	
		0x 0087	Azimuth axis out of band	
		0x 0088	Elevation axis out of band	
	Inertial measurement unit (02)	0x 0001	No response	Replace the FMA
	Position control unit (05)	0x 0001	DSP fault	Hardware faults and events: - Replace the FMA.
		0x 0081	1.2V voltage	
		0x 0082	1.5V voltage	
		0x 0083	1.8V voltage	
		0x 0084	3.3V voltage	
		0x 0085	5V positive voltage	
		0x 0086	1.2V current	
		0x 0087	1.5V current	
		0x 0088	1.8V current	
		0x 0089	3.3V current	
		0x 008A	5V positive current	
	PSU (06)	0x 0003	PSU low power detected	
		0x 0004	PSU low power not detected	
		0x 0005	PSU LNA current event	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
FMA (04)	MDU (0B)	0x 0001	1.25V voltage	Hardware faults and events: - Replace the FMA .
		0x 0002	1.5V voltage	
		0x 0003	3.3V voltage	
		0x 0004	12V positive voltage	
		0x 0005	12V negative voltage	
		0x 0006	38.5V voltage	
		0x 0007	1.5V current	
		0x 0008	3.3V current	
		0x 0009	12V positive current	
		0x 000A	12V negative current	
		0x 000B	Serial communications failure	
		0x 000C	Azimuth motor current	
		0x 000D	Elevation motor current	
		0x 000E	Serial communications failure	
		0x 000F	Azimuth axis low temperature high current failed	
		0x 0010	Elevation axis low temperature high current	
	R2D (0C)	0x 0001	1.5V voltage	
		0x 0002	3.3V voltage	
		0x 0003	5V digital voltage	
		0x 0004	5V positive voltage	
		0x 0005	5V negative voltage	
		0x 0006	12V positive voltage	
		0x 0007	12V negative voltage	
		0x 0008	1.5V current	
		0x 0009	3.3V current	
		0x 000A	12V positive current	
		0x 000B	12V negative current	
		0x 000F	Serial communications failure	
		0x 0010	CCA initialization failed	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
FMA (04)	R2D (0C)	0x 0011	Azimuth axis resolver reading error	Hardware faults and events: - Replace the FMA
		0x 0012	Elevation axis resolver reading error	
	Operational information (FA)	0x 0000	Mode transition	Info events - Recording what happened in the LRU
		0x 0001	Parameter	
		0x 0002	Event	
		0x 000A	Standard electronic information	
		0x 000B	Honeywell electronic information	
		0x 000C	Subassembly information	
	IP security (FB)	0x 0000	IP security event	
	Reset (FC)	0x 0000	Power cycle	
		0x 0001	Watchdog	
		0x 0002	Software command	
		0x 0003	RESET PIN	
		0x 0004	SW exception	
	Software configuration (FD)	0x 0001	HW SW Compatibility	Reload compatible software with the A615A data loading process.
		0x 0002	LRU SW Compatibility	
		0x 0003	Configuration parameter missing	Reload the configuration data with the A615A data loading process.
		0x 0004	Primary image corruption warning	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, then reloading of software is required to load a fresh image.
		0x 0006	LRU PRI-SEC image mismatch	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, then reloading of software is required to load a fresh image.
		0x 0007	Data load	Info events- Recording what happened in the LRU.
		0x 0008	Data loader connect	
		0x 0009	Data loader disconnect	
		0x 000A	Operating image list	
FMA (04)	Software configuration (FD)	0x 000B	Secondary image corruption warning	A reloading of software is required to load a fresh image.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
FMA (04)	Software runtime (FE)	0x 0000	Heartbeat failure	Software events: - Critical, will cause the unit to reset. -Warning, then the event was unexpected, and may cause shortened life but does not stop current function. -Info, recording what happened in the LRU. (For software faults there is no reason to return box.)
		0x 0001	General Module Failure	
		0x 0006	Application Controller Database Invalid	
		0x 0007	Application Not Present	
		0x 0008	Application Unable to Start	
		0x 0009	Application fails during monitoring	
		0x 000A	Base Application Construction failure	
		0x 000B	Base Application Initialization	
		0x 000C	Base Application runtime warning	
		0x 000D	Base Application runtime failure	
		0x 000E	F&E DB fails to open	
		0x 000F	F&E DB invalid	
		0x 0010	F&E ODB fails to open	
		0x 0011	F&E code unknown	
		0x 0012	F&E Networking error	
		0x 0013	F&E Bite Action error	
		0x 0014	F&E Persistent DB fails to open	
		0x 0015	F&E Persistent Store Write error	
		0x 0016	F&E Bite Action Inhibit	
		0x 0017	Data Loader TFTP timeout	
		0x 0018	Data Loader out of memory	
		0x 0019	Data Loader Load installer missing	
		0x 001A	Data Loader Load Installer memory error	
		0x 001B	Data Loader primary image corruption error	
		0x 001C	Data Loader incompatible image	
		0x 001D	ICC unable to load driver	
		0x 0020	File System Full	
		0x 0021	Alignment - fail to open file	
		0x 0022	Alignment - empty file	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
FMA (04)	Software runtime (FE)	0x 0023	Alignment - corrupt file	Software events: - Critical, will cause the unit to reset. -Warning, then the event was unexpected, and may cause shortened life but does not stop current function. -Info, recording what happened in the LRU. (For software faults there is no reason to return box.)
		0x 0024	Alignment - write fail	
		0x 0026	Configuration Data Manager ICC open failure	
		0x 0027	Configuration Data Manager Database not consistent	
		0x 0028	FMA Controller ICC open failure	
		0x 002A	DSP Manager Data Manager ICC open failure	
		0x 002B	DSP Manager Task's stopped	
		0x 002C	DSP Manager heartbeat failure	
		0x 002D	OAE Configuration Data Manager incompatible version data	
		0x 002E	DSP Application Manager unable to allocate resources	
		0x 0050	Post Timeout	
		0x 0800	MES client registration fails	
		0x 0801	MES client publish fail due to attempted blocking send	
		0x 0802	MES server unable to open well known socket	
		0x 0803	MES server network resource limitation - socket	
		0x 0804	MES server network resource limitation - buffer	
		0x 0805	MES server message ID map corruption	
		0x 0806	MES Client receives non-subscribed message	
		0x 0807	MES Proxy database invalid	
		0x 0808	MES Proxy cannot remotely subscribe	
		0x 0809	EUI data missing	
		0x 080A	ACM General Error	
		0x 080B	APM Client - Data not available	
		0x 080C	APM Client - Data validated	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
FMA (04)	Software runtime (FE)	0x 080D	APM Client - Data not validated	Software events: - Critical, will cause the unit to reset. -Warning, then the event was unexpected, and may cause shortened life but does not stop current function. -Info, recording what happened in the LRU. (For software faults there is no reason to return box.)
		0x 080E	RSSI Manager unable to open well known socket	
	Temperature (FF)	0x 0001	PCU CCA	- If is a warning, it is for info only. - If it is critical the LRU will shut down functionally: suggest the LRU is not correctly installed or a subassembly in the LRU may be generating too much heat.
		0x 0004	R2D CCA	
		0x 0005	MDU CCA	
		0x 0006	Azimuth Motor	
		0x 0007	Elevation Motor	
APM (05)	Software configuration (FD)	0x 0007	Data load	Info events - Recording what happened in the LRU
		0x 0008	Data loader connected	
		0x 0009	Data loader disconnected	
	Operational information (FA)	0x 000A	Standard electronic information	
		0x 000B	Honeywell electronic information	
KANDU (06)	Unknown (00)	0x 0000	Mute State	
		0x 0001	Primary power interruption	
		0x 0011	LRU menu access - maintenance	
		0x 0012	LRU menu access - factory	
		0x 0013	LRU menu access - engineering	
		0x 0014	LRU SFTP access - maintenance	
		0x 0015	LRU SFTP access - factory	
		0x 0016	LRU SFTP access - engineering	
		0x 0021	Log clearance LRU operational	
		0x 0022	Log clearance LRU fault	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)	ASC (01)	0x 0001	DSP fault	Hardware faults and events: - Replace the KANDU.
		0x 0020	ASC 1.2 V: Out-of-spec	
		0x 0021	ASC 1.5 V: Out-of-spec	
		0x 0022	ASC 1.8 V: Out-of-spec	
		0x 0023	ASC 2.5 V: Out-of-spec	
		0x 0024	ASC 3.3 V: Out-of-spec	
		0x 0025	ASC 5.0 V: Out-of-spec	
		0x 0026	ASC 12 V input: Out-of-spec	
		0x 0027	ASC 1.2 V current: Out-of-spec	
		0x 0028	ASC 1.5 V current: Out-of-spec	
		0x 0029	ASC 1.8 V current: Out-of-spec	
		0x 002A	ASC 2.5 V current: Out-of-spec	
		0x 002B	ASC 3.3 V current: Out-of-spec	
		0x 002C	ASC 5 V current: Out-of-spec	
	Power supply unit (02)	0x 0000	Power supply out of regulation	
	ASC BITE EMIFA (11)	0x 0000	EMIFA unresponsive	
		0x 0001	EMIFA incorrect data	
		0x 0002	EMIFA OK	
		0x 0003	EEPROM unresponsive	
		0x 0004	EEPROM Incorrect Data	
		0x 0005	EEPROM OK	
	ASC BITE A429 IRS (12)	0x 0000	ARINC 429 IRS post unresponsive	
		0x 0001	ARINC 429 IRS incorrect data	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)	ASC BITE A429 IRS (12)	0x 0002	ARINC 429 IRS post OK	Hardware faults and events: - Replace the KANDU.
	ASC BITE A429 AUX (13)	0x 0000	ARINC 429 AUX post unresponsive	
		0x 0001	ARINC 429 AUX incorrect data	
		0x 0002	ARINC 429 AUX post OK	
	ASC BITE Ethernet switch (14)	0x 0000	Ethernet MDIO unresponsive	
		0x 0001	Ethernet MDIO unexpected data	
		0x 0002	Ethernet MDIO OK	
	Temperature Multiple LRU (F9)	0x 0001 thru 0x 007F	Unique per temperature sensor with LRU	
	Operational information (FA)	0x 0000	Mode Transition	Info events - Recording what happened in the LRU.
		0x 0001	Parameter	
		0x 0002	Event	
		0x 000A	Standard electronic information	
		0x 000B	Honeywell electronic information	
		0x 000C	Subassembly information	
		0x 0080	Auto Alignment Pass	
		0x 0081	Auto Alignment Start	
		0x 0082	Auto Alignment Fail Incorrect Modes	
		0x 0083	Auto Alignment in Progress	
		0x 0084	Auto Alignment Solution Check Pass	
		0x 0085	Auto Alignment Solution Check Fail - Heading	
		0x 0086	Auto Alignment Solution Check Fail - Pitch	
		0x 0087	Auto Alignment Solution Check Fail - Roll	
		0x 0088	Auto Alignment Solution Check Fail - RF%	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)		0x 0089	Auto Alignment CCW Check	Info events - Recording what happened in the LRU
		0x 008A	Auto Alignment CW Check	
		0x 008B	Auto Alignment Check Fail	
		0x 008C	Auto Alignment Fail - Sensor Fail	
		0x 008D	Auto Alignment Fail - OAE Comms Fail	
		0x 008E	Auto Alignment Fail - Init Physical Lock Fail	
		0x 008F	Auto Alignment Fail - Init RF Lock Fail	
		0x 0090	Auto Alignment Fail - In Progress Physical Lock Fail	
		0x 0091	Auto Alignment Fail - In Progress RF Lock Fail	
	IP security (FB)	0x 0000	IP security event	Use well defined port and IP Address
	Reset (FC)	0x 0001	Watchdog	Info events - Recording what happened in the LRU.
		0x 0002	Software command	
		0x 0004	SW exception	
		0x 0005	Power cycle or reset pin	
	Software configuration (FD)	0x 0001	HW SW Compatibility	Reload compatible software with the A615A data loading process.
		0x 0002	LRU SW Compatibility	
		0x 0003	Configuration parameter missing	Reload the configuration data with the A615A data loading process.
		0x 0004	Primary image corruption warning	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, reloading of software is required to load a fresh image.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)	Software configuration (FD)	0x 0006	LRU PRI-SEC image mismatch	- Reboot the LRU to load valid primary image and check if fault goes away. - If not, reloading of software is required to load a fresh image.
		0x 0007	Data load	Info events - Recording what happened in the LRU
		0x 0008	Data loader connect	
		0x 0009	Data loader disconnect	
		0x 000A	Operating image list	
		0x 000B	Secondary image corruption warning	A reloading of software is required to load a fresh image.
		0x 0080	No valid alignment data	Reload the configuration data with the A615A data loading process.
	Software runtime (FE)	0x 0000	Heartbeat failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0001	GENERAL Module failure	
		0x 0002	RSSI Failure	
		0x 0003	OPEN Amip failure	
		0x 0004	Pointing failure	
		0x 0006	Application Controller Database Invalid	
		0x 0007	Application not Present	
		0x 0008	Application Unable to Start	
		0x 0009	Application fails during monitoring	
		0x 000A	Base Application Construction failure	
		0x 000B	Base Application Initialization failure	
		0x 000C	Base Application runtime warning	
		0x 000D	Base Application runtime failure	
		0x 000E	F&E DB fails to open	
		0x 000F	F&E DB invalid	
		0x 0010	F&E ODB fails to open	
		0x 0011	F&E code unknown	
		0x 0012	F&E Networking error	
		0x 0013	F&E Bite Action Error	
		0x 0014	F&E Persistent DB fails to open	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)	Software runtime (FE)	0x 0015	F&E Persistent Store Write error	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0016	F&E Bite Action Inhibit	
		0x 0017	Data Loader TFTP timeout	
		0x 0018	Data Loader out of memory	
		0x 0019	Data Loader Load Installer missing	
		0x 001A	Data Loader Load installer memory error	
		0x 001B	Data Loader primary image corruption	
		0x 001C	Data Loader incompatible image	
		0x 001D	ICC unable to load driver	
		0x 001E	Inter LRU serial comms overrun	
		0x 001F	Tunnel interface errors	
		0x 0020	FILE SYSTEM FULL	
		0x 0021	Aircraft Info Server – CVT register access failed	
		0x 0022	Aircraft Info Server –no messages from DSP	
		0x 0023	Aircraft Info Server ICC open failure	
		0x 0024	Antenna Control Status - Configured for no OAE	
		0x 0025	Antenna Control Status – Configured for manual pointing	
		0x 0026	Antenna Control Status ICC open failure	
		0x 0027	Configuration Data Manager ICC open failure	
		0x 0028	Configuration Data Manager Database not consistent	
		0x 0029	Configuration Data Manager OAE Alignment store no response	
		0x 002A	Configuration Data Manager OAE Alignment store not consistent	
		0x 002B	DSP Manager Data Manager ICC open failure	
		0x 002C	DSP Manager Task's stopped	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)	Software runtime (FE)	0x 0031	DSP Manager heartbeat failure	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0032	RSSI Manager ICC open failure	
		0x 0033	RSSI Manager Loss of UDP messages	
		0x 0034	Open AMIP unable to open well known socket	
		0x 0035	Open AMIP resource limitation – buffer	
		0x 0036	Open AMIP Find protocol error	
		0x 0037	Open AMIP Target satellite change	
		0x 0038	Open AMIP Antenna Lock Status	
		0x 0039	Open BMIP unable to open well known socket	
		0x 003A	Open BMIP resource limitation – buffer	
		0x 003B	Open BMIP No Calibration file available0x	
		0x 003C	Open BMIP Kermit file transmit failure	
		0x 003D	Open BMIP Calibration started	
		0x 003E	Open BMIP RFM Error response	
		0x 003F	RFM Load installer – loss of comms	
		0x 0040	RFM Load installer – KRFU dataload rejected	
		0x 0041	RFM Manager ICC open failure	
		0x 0042	RFM Manager – Calibration file retrieval failure	
		0x 0043	ARINC Navigation Input Configuration	
		0x 0044	ASC Configuration Data Manager incompatible version data	
		0x 0045	DSP Application Manager unable to allocate resources	
		0x 0046	Unable to allocate ICC transmit buffer	
		0x 0047	Loss of RSSI data	
		0x 0048	Loss of RSSI data	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU (06)	Software runtime (FE)	0x 0049	IP Tunnel driver – fails to initialize	No Action required, software faults and events are dealt with by criticality in the following manner: -Critical: An unrecoverable software error has occurred, the system will reset in order to recover. -Warning: An unexpected but recoverable software error has occurred, the system will continue normal operation. -Information: Recording information related to software execution within the LRU.
		0x 0050	Tunnel Driver ICC open failure	
		0x 004A	Unable to configure routing to TMA	
		0x 004B	KANDU /TMA network configuration conflict	
		0x 0050	KANDU Post Time Out	
		0x 0800	MES client registration fails	
		0x 0801	MES client publish fail due to attempted blocking send	
		0x 0802	MES server unable to open well known socket0	
		0x 0803	MES server network resource limitation - socket	
		0x 0804	MES server network resource limitation – buffer	
		0x 0805	MES server message ID map corruption	
		0x 0806	MES Client receives non-subscribed message	
		0x 0807	MES proxy database Invalid0x	
		0x 0808	MES Proxy cannot remotely subscribe	
		0x 0809	EUI data missing	
		0x 080A	ACM General Error0x	
		0x 080B	APM Client – Data not available	
		0x 080C	APM Client – Data validated	
		0x 080D	APM Client – Data not validated	
		0x 080E	RSSI Manager unable to open well known socket	
	Temperature (FF)	0x 0001	ASC main temperature sensor	- If is a warning, it is for info only. - If it is critical the LRU will shut down functionally: suggest the LRU is not correctly installed or a subassembly in the LRU may be generating too much heat.
		0x 0002	KANDU PSU remote temperature	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman KANDU Ethernet bus (20)	Modman input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
Modman KANDU Ethernet bus (20)	KANDU input (02)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
Modman APM Serial Bus (21)	Modman input (01)	0x 0001	APM serial inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0003	APM serial normal	System is good.
GPS Input (22)	Time label (31)	0 x 0001	Missing	
		0x 0002	SSM FT	
		0x 0003	SSM FW	
		0x 0004	SSM FW	
		0x 0005	SSM NO (normal operation)	
	GNSS sensor status word	0x 0000	Self test mode	
		0x 0001	Initialization mode	
		0x 0002	Acquisition mode	
		0x 0003	Navigation mode	
		0x 0004	Altitude aiding mode	
		0x 0007	Fault	
		0x 0008	Missing	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman Output: Discretes from Modman (24)	Reset (01)	0x 0002	Input output mismatch	Modman fault
	ARINC TX Mute (02)	0x 0002	Input output mismatch	Modman fault
		0x 0003	Modman/KANDU input output mismatch	Modman/KRFU wiring fault
	Filter Select (03)	0x 0002	Input output mismatch	Modman fault
		0x 0003	Modman/KANDU input output mismatch	Modman/KRFU wiring fault
	Keyline Transmit (04)	0x 0002	Input output mismatch	Modman fault
		0x 0003	Modman/KANDU input output mismatch	
	System available (05)	0x 0002	Input output mismatch	Modman fault
	Data link available (06)	0x 0002	Input output mismatch	Modman fault
KANDU OAE Ethernet Bus (30)	KANDU input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
KANDU OAE Ethernet Bus (30)	KANDU input (01)	0x 0003	Ethernet normal	System is good.
	OAE input (02)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU OAE Serial Control Bus (31)	KANDU input (01)	0x 0001	Serial Inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0002	Serial High packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Serial Normal	System is good.
	OAE input (02)	0x 0001	Serial Inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0002	Serial High packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Serial Normal	System is good.
KANDU OAE Serial IMU Bus (32)	KANDU input (01)	0x 0001	Serial Inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0002	Serial High packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Serial Normal	System is good.
	OAE input (02)	0x 0001	Serial Inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0002	Serial High packet loss	There is an intermittent wiring problem or hardware fault.
KANDU OAE Serial IMU Bus (32)	OAE input (02)	0x 0003	Serial Normal	System is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KANDU KRFU Serial Bus (33)	KANDU input (01)	0x 0001	Serial Inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0002	Serial High packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Serial Normal	System is good.
	KRFU input (02)	0x 0001	Serial Inactive	Is a warning that no traffic has been seen on the bus: - Far end is not talking. - Wiring problem. - Input problem.
		0x 0002	Serial High packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Serial Normal	System is good.
KANDU Input: Discretes from OAE (34)	FMA transmit mute (01)	0x 0001	Mute line not asserting at 180	Check the FMA, FMA to KANDU wiring and the KANDU
		0x 0002	Mute line asserting at 0	
KANDU Input: Discretes from Modman (35)	Reset (01)	0x 0000	Asserted	System interconnect: Is a Debug aid to allow maintainer or installer to see inputs on various boxes on system interconnect. If not working correctly: - Check cables. - Check TX LRU. - Check RX LRU.
		0x 0001	De-asserted	
		0x 0002	KANDU reset of KRFR Reset	
	ARINC TX mute (02)	0x 0000	Asserted	
		0x 0001	De-asserted	
	Filter Select (03)	0x 0000	Asserted	
		0x 0001	De-asserted	
	TX Mute (04)	0x 0000	Asserted	
		0x 0001	De-asserted	
KRFU Input Discrete from KANDU (41)	Reset (01)	0x 0000	Asserted	
		0x 0001	De-asserted	
	KRFU TX mute (02)	0x 0000	Asserted	
		0x 0001	De-asserted	
		0x 0003	KRFU not muted during system test	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
KRFU Input Discrete from KANDU (41)	Filter Select (03)	0x 0000	Asserted	System interconnect: Is a Debug aid to allow maintainer or installer to see inputs on various boxes on system interconnect. If not working correctly: - Check cables. - Check TX LRU. - Check RX LRU.
		0x 0001	De-asserted	
		0x 0004	Line not responding on KRU	
IRU Input Bus (70)	Unknown (00)	0x 0000	Inactive link	Aircraft Interconnect. Means no labels on the bus: - Check wiring - Check source - Check KANDU and Modman.
	Pitch angle label (01)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Roll angle label (02)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Pitch rate label (03)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Pitch rate label (03)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Roll rate label (04)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Roll rate label (04)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Yaw rate label (05)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Body longitudinal acceleration (06)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
	Body longitudinal acceleration (06)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body vertical acceleration (07)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Body vertical acceleration (07)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work.If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	True heading label (08)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	True heading label (08)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body lateral acceleration (09)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Latitude label (11)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Longitude label (12)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Longitude label (12)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Altitude (13)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work.If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Altitude (13)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Vertical velocity (14)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	N-S velocity (15)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	E-W velocity (16)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	E-W velocity (16)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Horizontal stabilization (21)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Horizontal stabilization (21)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Time label (31)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Date label (32)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Flight phase (41)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	Flight phase (41)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	MLG ground condition (42)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
IRU Input Bus (70)	MLG ground condition (42)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Ground speed (43)	0x 0001	Missing	
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body Pitch Acceleration (50)	0x 0001	Missing	
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body Roll Acceleration (51)	0x 0001	Missing	
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body Yaw Acceleration (52)	0x 0001	Missing	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	GNSS sensor status word (80)	0x 0000	Self test mode	Will be available in future revision
		0x 0001	Initialization mode	
		0x 0002	Acquisition mode	
		0x 0003	Navigational mode	
		0x 0004	Attitude aiding mode	
		0x 0007	Fault	
		0x 0008	Missing	
	IRS discrete word (81)	0x 0000	Align Mode/Not Ready	Will be available in future revision
		0x 0001	Revisionary Attitude Mode	
		0x 0002	Normal Mode	
		0x 0008	Missing	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Unknown (00)	0x 0000	Inactive link	Aircraft Interconnect. Means we see no labels on the bus: - Check wiring - Check source - Check KANDU and Modman.
	Pitch angle label (01)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Pitch angle label (01)	0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Roll angle label (02)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Pitch rate label (03)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Roll rate label (04)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Roll rate label (04)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Yaw rate label (05)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Yaw rate label (05)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body longitudinal acceleration (06)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Body vertical acceleration (07)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	True heading label (08)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	True heading label (08)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Body lateral acceleration (09)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Body lateral acceleration (09	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
	Latitude label (11)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Longitude label (12)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Longitude label (12)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Altitude (13)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Altitude (13)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Vertical velocity (14)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	N-S velocity (15)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	E-W velocity (16)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	E-W velocity (16)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
	Horizontal stabilization (21)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Horizontal stabilization (21)	0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Time label (31)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Date label (32)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	Flight phase (41)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Flight phase (41)	0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.
	MLG ground condition (42)	0x 0001	Missing	Expected label is not there: - Make sure that the system configuration expects the correct label. - Check aircraft system is supplying the correct label on the bus. If fault is critical, the system will not work. If fault is a warning, the label is expected but not there, the system will continue to operate.
		0x 0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x 0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Ground Speed (43)	0x0001	Missing	
		0x0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0005	SSM NO	Normal operation, system is good.
	Body Pitch Acceleration (50)	0x0001	Missing	
		0x0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0005	SSM NO	Normal operation, system is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Aircraft State Input Bus (71)	Body Yaw Acceleration (52)	0x0001	Missing	
		0x0002	SSM FT	Expected label is in functional test: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0003	SSM NCD	Expected label is in no computed data: This is expected, but is recorded as a debug aid. If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0004	SSM FW	Expected label is in failure warning: If a fault is critical, the system will not work. If the fault is a warning, the label is expected but not there, system will continue to operate.
		0x0005	SSM NO	Normal operation, system is good.
	GNSS sensor status word (80)	0x 0000	Self test mode	Will be available in future revision
		0x 0001	Initialization mode	
		0x 0002	Acquisition mode	
		0x 0003	Navigational (normal) mode	
		0x 0004	Altitude aiding mode	
		0x 0007	Fault	
		0x 0008	Missing	
	IRS discrete word (81)	0x 0000	Align Mode/Not Ready	Will be available in future revision.
		0x 0001	Revisionary Attitude Mode	
		0x 0002	Normal Mode	
		0x 0008	Missing	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
Modman Aircraft Discrete Input (72)	WOW (06)	0x 0000	Asserted	Aircraft interconnect: This is an aid to installation. Lets the installer and/or maintainer check the system to see the state of the lines coming into it. - If not tracking, -- Check the interconnect and what is driving it. -- Check the KANDU or Modman for error on input not working.
		0x 0001	De-asserted	
	Ground transmit enable (08)	0x 0000	Asserted	
		0x 0001	De-asserted	
	Public Svr disable (09)	0x 0000	Asserted	
		0x 0001	De-asserted	
	Local data load (0C)	0x 0000	Asserted	
		0x 0001	De-asserted	
KANDU Aircraft Discrete Input (73)	TX control (0C)	0x 0000	Asserted	Aircraft interconnect: This is an aid to installation. Lets the installer and/or maintainer check the system to see the state of the lines coming into it. - If not tracking, -- Check the interconnect and what is driving it. -- Check the KANDU or Modman for error on input not working.
		0x 0001	De-asserted	
AISD Network: Ethernet AG1 (80)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
AISD Network: Ethernet AV1 (81)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
AISD Network: Ethernet AV2 (82)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
AISD Network: Ethernet AV3 (83)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PIESD Network: Ethernet EG1 (88)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PIESD Network: Ethernr5 et EN5 (89)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
PIESD Network: Ethernet EN6 (8A)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PIESD Network: Ethernet EN7 (8B)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PIESD Network: Ethernet EN8 (8C)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PODD Network: Ethernet PG1 (90)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
PODD Network: Ethernet PA1 (91)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PODD Network: Ethernet PA2 (92)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PODD Network: Ethernet PA3 (93)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.
PODD Network: Ethernet PA4 (94)	Modman Input (01)	0x 0000	Ethernet no layer 1	Indicates nothing is connected: - Check wiring between boxes. - Check TX box is operating. - Check RX box is operating.
		0x 0001	Ethernet no traffic	Is a warning that no traffic has been seen on the bus, but layer 1 is established so a physical link exists.
		0x 0002	Ethernet high packet loss	There is an intermittent wiring problem or hardware fault.
		0x 0003	Ethernet normal	System is good.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 7-6. L3 Codes (Continued)

L1	L2	L3 Code	L3 Description	Repair Action
RF TX Modman to KRFU (B0)	Unknown (00)	0x 0001	TX IF	Check the interconnecting RF connection between the Modman and KRFU LRUs.
		0x 0002	50 MHz Ref	
RF TX KRFU to OAE (B1)	Unknown (00)	0x 0001	TX Ka Band	Check the interconnecting RF connection between the KRFU and OAE LRUs.
RF RX (B2)	Unknown (00)	0x 0001	RX cabling	Check the interconnecting RF connection between the effected LRUs.
		0x 0002	Global beam lock	TBD

7.3 System Fails Post-Installation Checks

(1) To make sure that the system is correctly installed, do as follows:

(a) Make sure that the APM has been correctly configured and loaded. Refer to ARINC ARINC 615A Software Data Load Process and this section to access the GUI to check that the correct APM version is installed.

(b) Make sure that all the LRUs and connections have been correctly installed.

1 Do continuity checks on wiring, validate communication cabling for Tx, Rx signal integrity via cable analyzers, test RF cables with specialized RF cable testers, and do power on and ground checks with LRUs disconnected for the check.

(c) Make sure that all LRUs power up and report "OK" status.

1 System status can be viewed at the AES Home and Status Info Page Figure 6-3.

(d) Make sure that the cable calibration procedure has been done. Refer to Cable Calibration on page 6-12.

(e) Make sure that the navigation data is correct and that the antenna alignment has been done.

(f) Check for system internal interconnect faults. Refer to JetWave™ System Fault Codes on page 7-8.

(g) Make sure the system is connected correctly to the navigation busses, check the system for No traffic faults on the A429 ports. If No traffic faults are received, do as follows:

1 Check wiring and or make sure that the APM is configured for how the system is wired.

(h) Check the system for User port Ethernet No layer 1 faults. If faults are received, do as follows:

1 Check the APM for correct configuration.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

2 Make sure that the connecting equipment is operating correctly.

3 Check the wiring.

(i) Make sure that the system has the correct software loaded. The GUI screen has a Software Validity Flag, which if it is clear, then ALL system software is OK. If so, do as follows:

1 Check for LRU software errors.

2 Check for LRU hardware/software incompatibilities.

3 Validate the system has the correct overall software load by validating the software version of each LRU that matches with the expected system configuration. Valid system configurations are defined for each Black Label software release and communicated via the service bulletin process.

7.4 Incorrect Navigation Data

(1) If the system is reporting labels missing, do as follows:

(a) Check that the APM is configured to have correct labels on the correct bus.

(b) Make sure that the labels are present on the bus.

(2) If the system is reporting an incorrect label status on the bus (FW, NCD, FT), do as follows:

(a) Wait for equipment providing the labels to report Normal Operation.

7.5 System Will Not Connect to the Network

(1) View the AES Home and Status Info Page Figure 6-3 to see reason transmission is muted and address the reasons.

(2) If the Radome is not installed, visually make sure that the Antenna is pointing toward the proper I-5 Satellite for the region.

(3) Make sure the system is not limited by geographical restraints.

The system can only transmit in authorized areas and will report if it cannot transmit for this reason.

(4) Make sure you have clear line of sight to the satellite.

(5) Make sure the system has been activated by the ISP. Activation should be checked by contacting the ISP provider to ensure service is active before commencing with testing.

(6) Make sure that the system is not configured for data loading. The system will not transmit while the local data enable input is closed to ground.

7.6 Connectivity of Each Ethernet Port

NOTE: The JetWave™ system configuration files can be updated in the field. Honeywell can create a new system configuration file if needed. On completion of AES system installation activities, the installer can view and verify the AES configuration settings through the GUI as described in this section.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

To view and verify the AES system configuration, a web based GUI is supplied. The JetWave™ Ethernet configuration data can be viewed and verified by navigating to the “Contents of Aircraft Services Configuration Files” page from “Configuration Files” under the Other Information & Control menu. Figure 6-4 shows the typical configuration file Information page.

The network status and the VLAN ID can be viewed as shown in Figure 6-11.

The IP address assigned can be viewed by pressing the “Display” tab of the Contents of Aircraft Configuration File as shown in Figure 7-9.

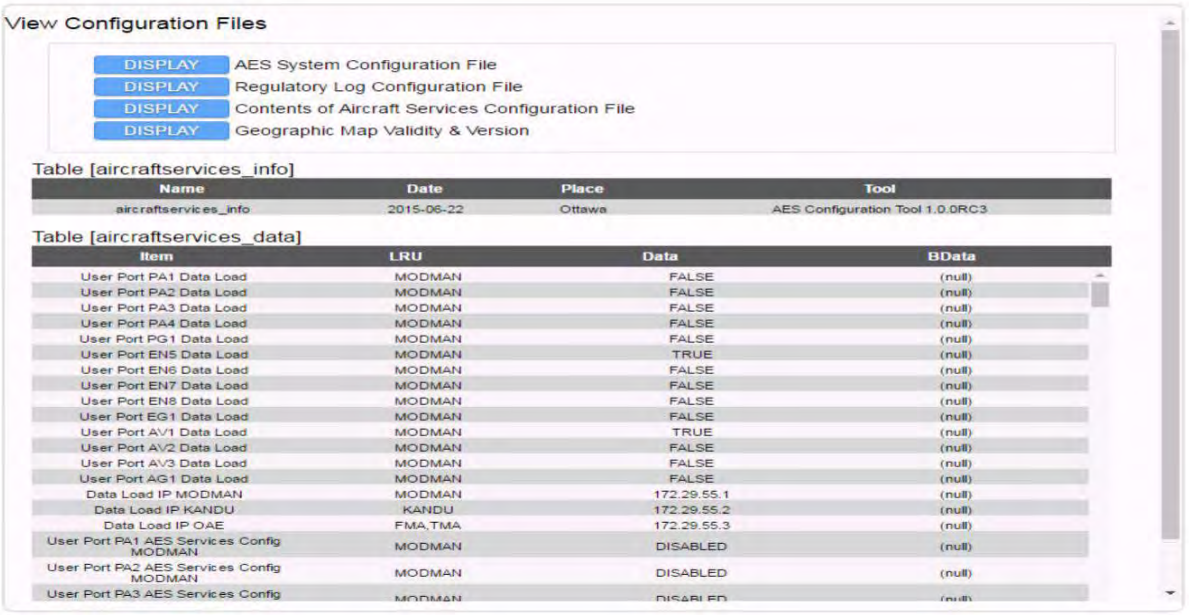


Figure 7-9. Contents of Aircraft Services Configuration File

There are a number of functions that an Ethernet port can support namely, data traffic, data loading, GUI, AES logs extraction (maintenance function) and status/control (through the SNMP).

The terminal can be configured to indicate whether an Ethernet port supports traffic, data loading, SNMP, etc, such as port PA1 configured for engineering SNMP and AES access services. Refer to Figure 7-9. It contains the parameters that follow:

- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 data load
- Data Load IP Modman
- Data Load IP KANDU
- Data Load IP OAE
- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 AES services config Modman
- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 AES services config KANDU
- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 AES services config OAE

© Honeywell International Inc. Do not copy without express permission of Honeywell.

- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 AES services IP Modman
- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 AES services IP KANDU
- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 AES services IP OAE
- User Port AES services IP subnet
- User Port PA1/2/3/4/PG1/EN5/6/7/8/EG1/AV1/2/3/AG1 traffic services
- User Port IP filter 1 thru 150.

Once the items have been loaded into the APM the Modman reads the APM once at power-on and passes the appropriate data to the relevant LRU or uses the information locally.

(1) If the Ethernet port is not active, do as follows:

(a) Check the APM settings, as follows:

1 Make sure that the port is enabled.

2 Check system errors.

3 Check for system reporting No layer 1 or No traffic faults.

(b) Is the device connecting to it operating correctly? If so, check the wiring.

(2) It there is poor performance on one port only, do as follows:

(a) Check for port reporting high packet loss. If so, check wiring and verify that there is traffic.

(3) If not supplying access to the correct services, do as follows:

(a) Make sure the APM is configured for the correct services.

(b) Make sure the APM is configured to access the correct VLANs.

Check with the service provider to make sure that the VLANs have been correctly configured for the terminal.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Blank Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

SECTION 8

MAINTENANCE AND REPAIR

8.1 Maintenance Requirements

(1) The maintenance-free design of the JetWave™ AES system does not require field maintenance to maintain airworthiness.

(2) Maintenance of the JetWave™ AES system is limited to replacement of LRUs on verified failure.

(3) OAE do not require field maintenance, such as lubrication of moving parts.

(4) If functional problems occur, the BITE can identify the faulty JetWave™ AES LRU and the Modman collates this information which can be accessed through the GUI provided. Refer to BITE Philosophy on page 7-8 of this document for information on how to access the BITE data.

If replacement of an LRU is deemed necessary, in consultation with the customer's authorized JetWave product support, It is strongly recommended that all repairs be performed only at the Honeywell authorized facility.

Only qualified technical personnel, familiar with avionics systems, should perform the test procedures provided in this document. Before performing any test or fault isolation procedures, read the safety advisories.

- Remove the primary AC power delivered to the KANDU via aircraft circuit breaker. This will power down the KANDU, including the 38.5 VDC and the 24 VDC power supply to the FMA or TMA.
- Wait 1 minute following the removal of power to KANDU before attempting cable disconnect from FMA or TMA, or any physical contact with the FMA or TMA.
- Disconnect FMA or TMA Plug P1 and measure the voltage across Pin A and Pin B using a voltmeter (38.5 VDC voltage line). The measurement should not exceed 1 VDC.
- Disconnect FMA or TMA Plug P3 and measure the voltage across Pin 5 and Pin 6 using a voltmeter (24 VDC voltage line). The measurement should not exceed 1 VDC.

8.2 Continued Airworthiness, FAR 25.1529

The sections that follow supply instructions for continued airworthiness for the JetWave™ AES system. The sections that follow are supplied in response to Federal Aviation Regulation 25.1529, Instructions for Continued Airworthiness.

8.3 Airworthiness Limitations

(1) Installation of the JetWave™ AES OAE assembly and LRUs on an aircraft by supplemental type certificate (STC) or Form 337 obligates the aircraft operator to include the maintenance information supplied by this manual in the operator’s Aircraft Maintenance manual and the operator’s Aircraft Scheduled Maintenance Program.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(2) It is recommended that this section be appended to the Airplane Maintenance Manuals. The information contained herein supplements the Airplane Maintenance Manuals in areas covered by the JetWave™ AES FMA/TMA installation.

(3) It is recommended to consult basic Airplane Maintenance Manuals for limitations and procedures not contained in this supplement. The inspections and airworthiness limitations specified in this section are FAA approved.

(4) Aircraft Manufacturers may also impose return to service criteria on installed aircraft equipment after lightning or bird strike events. This section and the sections that follow specifies the inspections and other maintenance required under sections 433.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

Initial and recurring inspections of the JetWave™ AES OAE assembly and LRUs and its associated provisions are required. Specific inspection intervals are contained in Table 8-1.

8.4 General Instructions for Inspection

This section provides general instructions for the inspection of the JetWave™ AES OAE assembly and LRUs.

(1) Gain access to the installation location on the fuselage for fuselage mount antenna assembly or to the top of the aircraft vertical stabilizer in the case of tail mount antenna assembly

(2) Clean all visible surfaces of the antenna, radome assembly, and base plate.

(3) Do the inspections and checks presented in Electrical and Mechanical Inspection and Check.

(4) Remove the primary AC power delivered to the KANDU via aircraft circuit breaker. This will power down the KANDU, including the 38.5 VDC and the 24 VDC power supply to the FMA/TMA.

(5) Wait 1 minute following the removal of power to KANDU before attempting cable disconnect from FMA/TMA, or any physical contact with the FMA/TMA.

(6) In case of FMA, disconnect FMA Plug P1 and measure the voltage across Pin A and Pin B using a voltmeter (38.5 VDC voltage line). The measurement should not exceed 1 VDC.

(7) In case of TMA, disconnect TMA Plug P22 and measure the voltage across Pin G and Pin H using a voltmeter (38.5 VDC voltage line). The measurement should not exceed 1 VDC.

(8) In case of FMA, disconnect FMA Plug P3 and measure the voltage across Pin 5 and Pin 6 using a voltmeter (24 VDC voltage line). The measurement should not exceed 1 VDC.

(9) In case of TMA, disconnect TMA Plug P22 and measure the voltage across Pin U and Pin V (TMA) using a voltmeter (24 VDC voltage line). The measurement should not exceed 1 VDC.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

8.5 Electrical and Mechanical Inspection and Check

Periodic inspections of the mechanical and electrical interfaces of the JetWave™ AES OAE assembly and LRUs to the aircraft should be completed as defined by the governing airworthiness body (such as Transport Canada, the FAA, or the JAA) Instructions for Continued Airworthiness for the installation.

For the general guidelines refer to Visual Inspection and Check and Scheduled Maintenance and Inspections sections.

8.6 Instructions for Continued Airworthiness

This section supplies the special instructions and maintenance requirements for continued airworthiness of the JetWave™ AES subsystems.

JetWave™ AES OAE assembly and LRUs are considered “On-Condition” units. No additional or routine maintenance is required for the on-condition JetWave™ AES OAE assembly and LRUs.

If a JetWave™ AES OAE assembly or an LRU is inoperative, do as follows:

(a) Collar applicable switches and circuit breakers

(b) Secure cables and wiring

(c) Remove the unit

(d) Placard the JetWave™ AES LRU and associated items as “inoperative” in accordance with the Aircraft Maintenance Manual (AMM)

(e) Before flight, do as follows:

(f) Record the removal of the unit in the aircraft log book

(g) Revise the equipment list. Refer to section 91.213 of the FAR or the aircraft’s Minimum Equipment List (MEL)

(h) Revise the weight and balance data as applicable.

(i) In case of Modman replacement, the VAR/DP needs to be notified so that the system is recommissioned to the new terminal ID.

JetWave™ AES system LRUs are not field-repairable. Return the faulty LRU(s) to the Honeywell authorized facility for repair.

Install repaired or replacement LRUs on the aircraft in accordance with the installation instructions supplied in this manual. Refer to ARINC 615A Software Data Load Process on page 5-1 for instructions on how to bring the repaired or replacement LRU up to current software release.

Make sure that all repaired units operate correctly before you approve them for return to service, with the operational verification tests and procedures provided in this SDIM. Approval for return to service must be entered in the logbook as required by section 43.9 of the FAR.

Enter the approval for return to service in the appropriate logbook as required by FAR Section 43.9.

Add the scheduled maintenance tasks to the aircraft operator’s appropriate aircraft maintenance program as follows:

© Honeywell International Inc. Do not copy without express permission of Honeywell.

(a) Recommended periodic scheduled servicing tasks: None required.

(b) Recommended periodic inspections:

(c) Scheduled maintenance inspections supplied in Table 8-1 and in accordance the aircraft's inspection and maintenance schedule.

(d) Recommended periodic scheduled preventative maintenance tests (to determine system condition and/or latent failures): None required.

8.7 Visual Inspection and Check

Do the procedures that follow to examine the JetWave™ AES OAE assembly and LRUs after installation of the unit onto the aircraft. Follow all approved safety standards and practices during the inspection.

WARNING: FAILURE TO DISCONNECT CIRCUIT BREAKERS CAN LEAD TO INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT.

(1) Disconnect all circuit breakers to the JetWave™ AES OAE assembly, LRUs and associated systems.

(2) Visually examine the FMA or TMA radome for any damage or defects. Please refer to the radome supplier's Structural Repair Manual (SRM) for the specific radome inspection and damage repair instructions.

(e) Saint Gobain SRM-100 is applicable to all radomes. FMA radome, PN SCD-90401395-01, is covered specifically by Saint Gobain SRM-5249 structural repair manual.

8.8 Scheduled Maintenance and Inspections

(1) The JetWave™ AES system does not require routine maintenance for continued airworthiness.

(2) It is recommended to follow the Standard Practices Chapter of the Aircraft Maintenance Manual and do all required inspections and repairs. Refer to Table 8-1 for scheduled maintenance.

Table 8-1. Scheduled Maintenance

SI No.	Item	Interval	Potential Damage Inspection	Inspection
	Lightning diverters	In accordance with the aircraft inspection schedule and after flying in known conditions of lightning	Paint damage, structural damage, de-lamination	External visual
	Fuselage mount radome exterior, radome skirt exterior/tail mount radome exterior	In accordance with the aircraft inspection schedule and after flying in known conditions of lightning/hail.	Paint damage, structural damage, de-lamination, puncture, dark marks/streaking	External visual

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table 8-1. Scheduled Maintenance (Continued)

SI No.	Item	Interval	Potential Damage Inspection	Inspection
	Antenna interface mount	In accordance with the aircraft inspection schedule	Corrosion, loose, or missing fasteners	External visual
	OAE – FMA/TMA connectors	In accordance with the aircraft inspection schedule	Corrosion, loose, or missing connectors	External visual
	OAE-FMA/TMA grounding and bonding	In accordance with the aircraft inspection schedule	Non conform electrical bonding	External visual and 5 mΩ test
	OAE-FMA/TMA wiring	In accordance with the aircraft inspection schedule	Chafing, cracks in insulation, breaks	External visual
	KANDU connectors	In accordance with the aircraft inspection schedule	Corrosion, loose, or missing connectors	External visual
	KANDU grounding and bonding	In accordance with the aircraft inspection schedule	Non conform electrical bonding	External visual and 5 mΩ test
	Modman and APM connectors	In accordance with the aircraft inspection schedule	Corrosion, loose, or missing connectors	External visual
	Modman and APM grounding and bonding	In accordance with the aircraft inspection schedule	Non conform electrical bonding	External visual and 5 mΩ test

© Honeywell International Inc. Do not copy without express permission of Honeywell.

8.9 Unscheduled Maintenance

(1) Follow the Standard Practices Chapter of the Aircraft Maintenance Manual and do all the required inspections and repairs, as shown in Table 8-2.

Table 8-2. Unscheduled Maintenance

	Item	Potential Damage	Inspection
JetWave™ AES FMA OAE/TMA OAE	Heavy rain/hail	Paint erosion	External visual
	bird strike	Paint damage/radome puncture	External visual
JetWave™ AES system Failure	NA	NA	Removal

(2) JetWave™ AES system status can be viewed through the GUI. Refer to Checking Status Information section for description.

(3) On the Modman LRU the status indicator LED is on the Modman front panel. The various Modman status indications are shown in Table 8-3.

Table 8-3. Modman LED Status Indications

Status LED	Mode
Off	No electrical power/electrical power is applied but prior to boot.
Flash green at a minimum of 10 seconds	Modman initialization
On - green	Modman in normal operation
On - red	Modman in Fault Mode

Blank Page

8.10 Repair Requirements

(1) The BITE functionality of JetWave™ AES system can identify the faulty LRU in the case of any occurrence of functional problems and this can be accessed through Modman.

(2) In accordance with continued airworthiness instructions, if a JetWave™ AES system is inoperative, use Standard Practices Chapter of the Aircraft Maintenance Manual to:

- Remove the unit
- Secure cables and wiring
- Collar applicable switches and circuit breakers, and placard them as “inoperative”.

Before flight, revise the equipment list and weight and balance data as applicable, and record the removal of the unit in the log book. Refer to section 91.213 of the FAR or the aircraft’s minimum equipment list. All repairs must be done at the Honeywell factory.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

APPENDIX A

1. RTCA/DO-160G Environmental Characteristics

A. Modman

The following characteristics are taken from the core equipment qualification program and do not reflect any additional qualification conducted on a per installation basis.

Section	Condition	Category
4	Temperature and altitude	A1(V)
	NOTE: Below 5˚F (-15˚C), user services are not offered. Altitude for all units extended to 55,000 feet (16,764 m) during the qualification test. Overpressure 28.9 PSI (199 kPa), Decompression 6,000 to 55,000 (1828.8 to 16,764 m) in 2 seconds.	
5	Temperature variation	B
6	Humidity	B
7	Operational shocks and crash safety	B
8	Vibration	CAT S, CURVE B2
9	Explosive atmosphere	X - not required
10	Waterproofness	Y
11	Fluids specification	X - not required
12	Sand and dust	X - not required
13	Fungus resistance	F
14	Salt fog	X - not required
15	Magnetic effect	A
16	Power input	A (WF) HLPI
	NOTE: Extended low frequency operation to 320 Hz.	
17	Voltage spike	A
	NOTE: Extended to 1,000 volts.	
18	Audio frequency conducted susceptibility	K
	NOTE: Amplitude of applied signal to be 10% of nominal AC voltage.	
19	Induced signal susceptibility	ZW
	NOTE: Extended low frequency operations to 320 Hz.	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Condition	Category
20	Radio frequency susceptibility	RR (custom)
	NOTE: Radiated: Additional subjections SW: 0.4 to 8 GHz: 28 V/m (1 kHz square mod with greater than 90% depth switched on and off at 1 Hz rate and 50% duty cycle). PM: 0.4 to 8 GHz: 150 V/m (Pulse repetition frequency of 1 kHz and a duty cycle of 1%, switched on and off at 1 Hz rate and 50% duty cycle). Pulse width is 10 µsec (1% of 1 kHz). PM: 0.3 to 6 GHz: 20 V/m, (Pulse repetition frequency of 200 Hz and a duty cycle of 12.5%). Pulse width is 625 µsec (12.5% of 200Hz).	
21	Emissions of RF energy	M
22	Lightning induced transient susceptibility	A2K2L3
	NOTE: Modified to extend single stroke to waveform 3 level 3 and multi-stroke to waveform 4 level 2.	
23	Lightning direct effects	X - not required
24	Icing	X - not required
25	Electrostatic discharge	A
26	Fire, flammability	C - covers 14 CFR 25.853

© Honeywell International Inc. Do not copy without express permission of Honeywell.

B. APM

Section	Condition	Category
4	Temperature and altitude	A1(V)
	NOTE: Altitude test extended to 50,000 feet (15,240 m). Overpressure 28.9 PSI (199 kPa), Decompression 6,000 to 55,000 (1828.8 to 16,764 m) in 2 seconds.	
5	Temperature variation	B
6	Humidity	B
7	Operational shocks and crash safety	B
8	Vibration	CAT S, CURVE B2
9	Explosive atmosphere	X - not required
10	Waterproofness	Y
11	Fluid susceptibility	X - not required
12	Sand and dust	X - not required
13	Fungus resistance	F
14	Salt fog	X - not required
15	Magnetic effect	A
16	Power input	X - not required
17	Voltage spike	X - not required
18	Audio frequency conducted susceptibility	X - not required
19	Induced signal susceptibility	ZC
20	Radio frequency susceptibility	RR
21	Emissions of RF energy	M
22	Lightning induced transient susceptibility	A2K2L3
	NOTE: Modified to extend single stroke to waveform 3 level 3 and multi-stroke to waveform 4 level 2.	
23	Lightning direct effects	X - not required
24	Icing	X - not required
25	Electrostatic discharge	A
26	Fire, flammability	C - covers 14 CFR 25

© Honeywell International Inc. Do not copy without express permission of Honeywell.

C. KANDU

Section	Condition	Category
4	Temperature and altitude	D2
	NOTE: Altitude test extended to 51,000 feet (15,544.8 m). Overpressure 28.9 PSI (199 kPa), Decompression 6,000 to 55,000 (1,828.8 to 16,764.0 m).	
5	Temperature variation	A
6	Humidity	B
7	Operational shocks and crash safety	E and B
8	Vibration	CAT R, CURVE E CAT R, CURVE E1
	NOTE: The sinusoidal sweep rate not to exceed 0.5 octaves/minute.	
9	Explosive atmosphere	E
10	Waterproofness	Y and R
11	Fluid susceptibility	F
	NOTE: De-ice Ethylene Glycol, Hydraulic fluid phosphate ester AS1241 Type IV and V.	
12	Sand and dust	D
13	Fungus resistance	F
14	Salt fog	S
15	Magnetic effect	Z
16	Power input	A (WF) HZPI
	NOTE: Extended low frequency operation to 320 Hz. NOTE: Power factor – leading greater than 0.98.	
17	Voltage spike	A (modified to 1,000 volts)
18	Audio frequency conducted susceptibility	K (WF)
	NOTE: RMS amplitude of the audio signal extended to not less than 10% of the maximum normal AC input voltage and with a power source frequency of 320 Hz in addition to 360 Hz and 800 Hz.	
19	Induced signal susceptibility	CW
	NOTE: Extended low frequency operation to 320 Hz. NOTE: With current and distance modified to 50 A at a distance of 0.4 inch (10 mm) for section 19.3.1.	
20	Radio frequency susceptibility	RY
	NOTE: - 0.4 to 8 GHz: 150 V/m (Pulse repetition frequency of 1 kHz and a duty cycle of 1%, switched on and off at a 1 Hz rate and 50% duty cycle). Pulse width is 10 µsec (1% of 1 kHz). - 0.3 to 6 GHz: 20 V, (Pulse repetition frequency of 200 Hz and a duty cycle of 12.5%). Pulse width is 625 µsec (12.5% of 200 Hz).	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Condition	Category
21	Emissions of RF energy	Q
	NOTE: Extension of conducted emissions limits to 200 MHz at 20 dBµA and power line limits from 30 MHz to 108 MHz at 20 dBµA. Extension of radiated emissions to start at 45 dBµV/m at 150 kHz to 40 dBµV/m at 2 MHz, and at 30 dBµV/m at 2 MHz to 25 dBµV/m at 25 MHz, and at 25 dBµV/m at 25 MHz to 26.3 dBµV/m at 30 MHz, and at 36.3 dBµV/m at 30 MHz to 44.5 dBµV/m at 100 MHz. All conducted emissions limits, including interconnecting bundles limits, are set in accordance with Category Q power line limit levels.	
22	Lightning induced transient susceptibility	A3K3L3
	NOTE: Extended to include pin injection waveform 5A level 2.	
23	Lightning direct effects	X - not required
24	Icing	A
25	Electrostatic discharge	A
26	Fire, flammability	C - covers 14 CFR 25.853

© Honeywell International Inc. Do not copy without express permission of Honeywell.

D. KRFU

Section	Condition	Category
4	Temperature and altitude	D2
	NOTE: Altitude test extended to 51,000 feet (15,544.8 m). Overpressure 28.9 PSI (199 kPa), Decompression 6,000 to 55,000 (1,828.8 to 16,764.0 m).	
5	Temperature variation	A
6	Humidity	B
	NOTE: At least six spot checks required.	
7	Operational shocks and crash safety	E and B
8	Vibration	CAT R, CURVE E CAT R, CURVE E1
	NOTE: The sinusoidal sweep rate not to exceed 0.5 octaves/minute.	
9	Explosive atmosphere	E
10	Waterproofness	Y and R
11	Fluid susceptibility	F
	NOTE: Ethylene Glycol, Propylene Glycol, AEA Type 1, AEA Type 2.	
12	Sand and dust	D
13	Fungus resistance	F
14	Salt fog	S
15	Magnetic effect	Z
16	Power input	A (WF) HZPI
	NOTE: Extended low frequency operation to 320 Hz. NOTE: Power Factor – leading greater than 0.98.	
17	Voltage spike	A (modified to 1,000 volts)
18	Audio frequency conducted susceptibility	K (WF)
	NOTE: RMS amplitude of the audio signal extended to not less than 10% of the maximum normal AC input voltage and with a power source frequency of 320 Hz in addition to 360 Hz and 800 Hz.	
19	Induced signal susceptibility	CW
	NOTE: Extended low frequency operation to 320 Hz. NOTE: Section 19.3.1 performed with 50 A at a distance of 0.4 inch (10 mm).	
20	Radio frequency susceptibility	MY
	NOTEL: - 0.4 to 8 GHz: 150 V/m (Pulse repetition frequency of 1 kHz and a duty cycle of 1%, switched on and off at a 1 Hz rate and 50% duty cycle). Pulse width is 10 µsec (1% of 1 kHz). - 0.3 to 6 GHz: 20 V/m, (Pulse repetition frequency of 200 Hz and a duty cycle of 12.5%). Pulse width is 625 µsec (12.5% of 200 Hz).	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Condition	Category
21	Emissions of RF energy	P
	NOTE: Extension of conducted emissions limits to 200 MHz at 20 dBµA and power line limits from 30MHz to 108MHz at 20 dBµA. Extension of radiated emissions to start at 45 dBµV/m at 150 kHz to 40 dBµV/m at 2 MHz, and at 30 dBµV/m at 2 MHz to 25 dBµV/m at 25 MHz, and at 25 dBµV/m at 25 MHz to 26.3 dBµV/m at 30 MHz, and at 36.3 dBµV/m at 30 MHz to 44.5 dBµV/m at 100 MHz.	
22	Lightning induced transient susceptibility	A3K3L3
	NOTE: Extended to include pin injection waveform 5A level 2.	
23	Lightning direct effects	X - not required
24	Icing	A
25	Electrostatic discharge	A
26	Fire, flammability	C - covers 14 CFR 25.853

© Honeywell International Inc. Do not copy without express permission of Honeywell.

E. TMA

Section	Condition	Category
4	Temperature and altitude	F2
5	Temperature variation	A
6	Humidity	B
7	Operational shocks and crash safety	E
8	Vibration	CAT R, CURVE E CAT R, CURVE E1
9	Explosive atmosphere	E and H
10	Waterproofness	Y and W
11	Fluid susceptibility	F (de-icing fluids)
	NOTE: Ethylene Glycol.	
12	Sand and dust	D
13	Fungus resistance	F
14	Salt fog	S
15	Magnetic effect	A
16	Power input	X - not required
17	Voltage spike	A
	NOTE: Do DO-160G/17.0 on TMA with the KANDU attached as the UUT. The length of test cable between TMA and KANDU shall be 40 ft (12 m).	
18	Audio frequency conducted susceptibility	R
	NOTE: A. Frequency range from 324 Hz to 650 Hz. B. Do DO-160G/18.0 on TMA with the KANDU attached as the UUT. The length of test cable between TMA and KANDU shall be 40 ft (12 m).	
19	Induced signal susceptibility	ZC
20	Radio frequency susceptibility	YQ (custom)
	NOTE: Q (custom) only - SW/CW (un-modulated) signal Operational: 200V/m for 100 MHz to 12 GHz 0.1 V/m 12 GHz to 16.6 GHz No damage: 200V/m for 12 GHz to 16.6 GHz 0.1 V/m for 16.6 GHz to 18 GHz	
21	Emissions of RF energy	H
22	Lightning induced transient susceptibility	A3K3L3 modified
	NOTE: Pin Injection waveform 5A level 2. Single stroke WF 4, level 3 (extended to 300V/1000A), Multi-stroke WF4 level 3 (extended to 120V/400A 1st stroke, 75V/150A subsequent strokes), Extend WF5A level 3 (extended 120V/400A 1st stroke, 75V/150A subsequent strokes).	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Condition	Category
23	Lightning direct effects	X - not required
24	Icing	B
25	Electrostatic discharge	A
26	Fire, flammability	C - covers 4 CFR 25.853

© Honeywell International Inc. Do not copy without express permission of Honeywell.

F. FMA

Section	Condition	Category
4	Temperature and altitude	F2
	NOTE: Extended operating high to 194˚F (90˚C).	
5	Temperature variation	A
6	Humidity	B
	NOTE: At least six spot checks are required.	
7	Operational shocks and crash safety	B and E
8	Vibration	CAT S, CURVE C CAT R, CURVE C1
	NOTE: The sinusoidal sweep rate not to exceed 0.5 octaves/minute	
9	Explosive atmosphere	E
10	Waterproofness	Y and W
11	Fluid susceptibility - De-ice fluids only	F
12	Sand and dust	D
13	Fungus resistance	F
14	Salt fog	S
15	Magnetic effect	B
16	Power input	X - not required
17	Voltage spike	X - not required
18	Audio frequency conducted susceptibility	X - not required
19	Induced signal susceptibility	ZC
20	Radio frequency susceptibility	YQ
	NOTE: Q (custom) only - SW/CW (un-modulated) signal Operational: 200V/m for 100 MHz to 12 GHz 0.1 V/m 12 GHz to 16.6 GHz No damage: 200V/m for 12 GHz to 16.6 GHz 0.1 V/m for 16.6 GHz to 18 GHz	
21	Emissions of RF energy	H
	NOTE: Extension of conducted emissions limits to 200 MHz at 20 dBµA and power line limits from 30MHz to 152MHz at 20 dBµA. All conducted emissions limits, including interconnecting bundles limits, are set in accordance with Category H power line limit levels. Radiated emissions to start at 40 dBµV/m at 2 MHz to 35 dBµV/m at 25 MHz, and at 35 dBµV/m at 25 MHz to 44.6 dBµV/m at 100 MHz	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Condition	Category
22	Lightning induced transient susceptibility	A3K3L3
	NOTE: Pin Injection waveform 5A level 125V/125A and 400V/4A. Single stroke WF 4, level 3 (extended to 300V/1000A), Multi-stroke WF4 level 3 (extended to 120V/400A 1st stroke, 60V/120A subsequent strokes).	
23	Lightning direct effects	X - not required
24	Icing	B
25	Electrostatic discharge	A
26	Fire, flammability	C - covers 14 CFR 25.853

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Blank Page

© Honeywell International Inc. Do not copy without express permission of Honeywell.

APPENDIX B

NOTE: The JetWave™ LRU labels do contain data such as Software Part No., Software Version No. or Software Mod dots. To see the JetWave™LRUs hardware and software version and part number, navigate to the Version and Manufacturing Information menu on the GUI.

1. Aircraft Information Sheet

Owner	
Tail Number	
Serial Number	
Model/Type	

2. JetWave™ AES Subsystem Components

A. JetWave™ AES OAE - FMA/TMA Installation Information Sheet

Part Number	
Serial Number	
Hardware Revision	
Mod Status	

B. JetWave™ AES KANDU Installation Information Sheet

Part Number	
Serial Number	
Hardware Revision	
Mod Status	

C. JetWave™ AES KRFU Installation Information Sheet

Part Number	
Serial Number	
Hardware Revision	
Mod Status	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

D. JetWave™ AES Modman Installation Information Sheet

Part Number	
Serial Number	
Hardware Revision	
Mod Status	

E. JetWave™ AES APM Installation Information Sheet

Part Number	
Serial Number	
Hardware Revision	
Mod Status	

© Honeywell International Inc. Do not copy without express permission of Honeywell.

APPENDIX C

1. Installation Checklist

Aircraft Identification:			
	Name	Signature	Date
Installation/Checks completed by:			
Approved/Witnessed by:			

A. OAE-TMA Checklist

Section	Parameter	Item	NA	√	Value
A. Maintenance Panel	Applicability	If the system is not wired to another aircraft system, an installer provided maintenance panel is required.			
	Discrete output connections	System available (Modman MP13E) connected to a lamp			
		Data link available (Modman MP13F) connected to a lamp			
	Discrete input connections	Local data load enable (Modman MP10B) connected to a normally open switch			
		Ground transmit enable (Modman MP11D) connected to a normally open switch			
		Public service disable (Modman MP11E) connected to a normally open switch			
		Modman reset (Modman MP10C) connected to a normally open switch			
		Tx mute (KANDU J1D) connected to a normally open switch			
	Ethernet port connections	AV1 (Modman TP BB1 thru 4) connected to a RJ45 Ethernet connector			
	Additional electrical wiring	Electrically wire and interconnect in accordance with Figure 4-34.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
A. Modman	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-22.			
	Mounting tray	Install applicable 4-MCU tray, supplied by customer.			
	Clearance	Minimum 1 inch (25.4 mm) from top surface and 0.5 inch (12.7 mm) from all other surfaces			
	Electrical connector	ARINC 600 mating connector and pins, refer to Table 4-1. ARINC 600 Connectors			
		ARINC 600 polarized pins			
	Electrical bonding	Bonding, refer to page 4-3.			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-21 or Figure 4-22 and Figure 4-34.			
	Electrical RF coaxial	Equalizer in the TX path			
		TX path loss, refer to Table 4-2. Modman Cable Loss Values			
		Attenuator in the RX path			
		RX path loss, refer to Table 4-2. Modman Cable Loss Values			
NOTE: Input signal range: -79 to -5 dBm. Output signal range -30 to +5 dBm. Incross talk requirement: -25 dBc. Output cross talk requirement: -40 dBc.APM	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-21 and Figure 4-22.			
	Mounting	Can be installed in any orientation, refer to Figure 4-21 and Figure 4-22.			
		Use 0.164-32 UNC-2A corrosion resistant mounting fasteners. Do not exceed 25 in-lb (2.8 Nm) when you torque the screws.			
	Electrical bonding	Electrically bond in accordance with page 4-4.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
NOTE: Input signal range: -79 to -5 dBm. Output signal range -30 to +5 dBm. Incross talk requirement: -25 dBc. Output cross talk requirement: -40 dBc. (Cont)	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-24 and Figure 4-34.			
	Electrical wiring - APM to Modman	APM to Modman interconnect cable shall use ARINC 664 compliant 2 Shielded Twisted Pair 24 AWG (or Aerospace Grade Shielded Cat 5/Cat 5E Minimum). Part No. ECS 922404 or Equivalent, with a maximum length of 9.8 feet (3 m).			
4.3 KANDU	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-25 and Figure 4-26			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-25, Figure 4-26, and Figure 4-34.			
	Mounting	Install location of KANDU is airframe specific. KANDU could be installed in unpressurized area near the tail empennage of the aircraft or inside pressurized area of the aircraft. In case of KANDU install location is inside pressurized location, the KANDU to KRFU and KANDU to TMA interconnect may be routed through a Bulkhead Interface connector.			
	Electrical wiring - KANDU to TMA	Refer to JetWave™ System Internal LRU Installation, KANDU on page 4-8.			
	Electrical wiring - KANDU bulkhead interface	Refer to JetWave™ System Internal LRU Installation, KANDU on page 4-8.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
4.6 KRFU	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-27, Figure 4-28, or Figure 4-29 depending on configuration used.			
		Install the thermal pad in accordance with KRFU on page 4-16.			
		The KRFU is installed with the TMA, refer to OAE TMA Installation Procedure on page 4-30.			
		The KRFU feet are configured differently depending on the part number ordered. Make sure feet are in the correct configuration for the aircraft application.			
	Waveguide	Make sure the waveguide is connected before powering the KRFU.			
	Waveguide - KRFU to TMA	Connection must be WR28 for TX and coaxial cable for RX.			
		The TX interconnect path loss			
		The RX interconnect path loss			
		RX connection at the KRFU requires a WR42 to coax transition adapter at the KRFU J4			
	Electrical wiring	Electrically wire and interconnect in accordance with outline drawing Figure 4-27, Figure 4-28, or Figure 4-29 and interconnect drawing Figure 4-34.			
	Electrical bonding	Electrically bond in accordance with page 4-18.			
(b) OAE TMA Installation Procedure	Physical	Refer to OAE TMA Installation Procedure.			
	TMA mounting	Refer to OAE TMA Installation Procedure.			
	TMA interface mount brackets	Refer to OAE TMA Installation Procedure.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
(b) OAE TMA Installation Procedure (Cont)	TMA install	Refer to OAE TMA Installation Procedure.			
	TMA radome and radome fairing	Depending on the airframe, there may be a need to install radome fairing which adapts to the tail empennage of the aircraft, consult aircraft OEM.			
		Radome and fairing installation is aircraft specific. Refer to aircraft specific SDIM for details. NOTE: Before removing the Tail Mount Radome, Honeywell recommends manually steering the TMA to a safe antenna orientation position using the JetWave™ GUI. The TMA parking position is included in the AES System Configuration File, which can be accessed through the GUI web interface and by navigating to Configuration File page. Consult aircraft specific SDIM for detailed instructions.			
	TMA bonding	Electrically bond in accordance with Figure 4-30.			
	TMA alignment	Automatic alignment, manual alignment, or command, refer to TMA Alignment on page 2-23 and Inspection of Waveguide on page 4-43			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

B. A791 Based OAE-FMA with the AIM Checklist

Section	Parameter	Item	NA	√	Value
A. Maintenance Panel	Applicability	If the system is not wired to another aircraft system, an installer provided maintenance panel is required.			
	Discrete output connections	System available (Modman MP13E) connected to a lamp			
		Data link available (Modman MP13F) connected to a lamp			
	Discrete input connections	Local data load enable (Modman MP10B) connected to a normally open switch			
		Ground transmit enable (Modman MP11D) connected to a normally open switch			
		Public service disable (Modman MP11E) connected to a normally open switch			
		Modman reset (Modman MP10C) connected to a normally open switch			
		Tx mute (KANDU J1D) connected to a normally open switch			
	Ethernet port connections	AV1 (Modman TP BB1 thru 4) connected to a RJ45 Ethernet connector			
	Additional electrical wiring	Electrically wire and interconnect in accordance with Figure 4-35 thru Figure 4-37.			
A. Modman	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-21 or Figure 4-22.			
	Mounting tray	Install applicable 4-MCU tray, supplied by customer.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
A. Modman (Cont)	Clearance	Minimum 1 inch (25.4 mm) from top surface and 0.5 inch (12.7 mm) from all other surfaces			
	Electrical connector	ARINC 600 mating connector and pins, refer to Table 4-1. ARINC 600 Connectors			
		ARINC 600 polarized pins			
	Electrical bonding	Bonding, refer to page 4-3			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-21 or Figure 4-22 and Figure 4-35 thru Figure 4-37, depending on the configuration being used.			
	Electrical RF coaxial	Equalizer in the TX path			
		TX path loss, refer to Table 4-2. Modman Cable Loss Values			
		Attenuator in the RX path			
		RX path loss, refer to Table 4-2. Modman Cable Loss Values			
NOTE: Input signal range: -79 to -5 dBm. Output signal range -30 to +5 dBm. Incross talk requirement: -25 dBc. Output cross talk requirement: -40 dBc.APM	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-21 and Figure 4-22.			
	Mounting	Can be installed in any orientation. Refer Figure 4-21 and Figure 4-22.			
		Use 0.164-32 UNC-2A corrosion resistant mounting fasteners. Do not exceed 25 in-lb (2.8 Nm) when you torque the screws.			
	Electrical bonding	Electrically bond in accordance with page 4-4.			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-24 and Figure 4-35 thru Figure 4-37, depending on the configuration being used.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
NOTE: Input signal range: -79 to -5 dBm. Output signal range -30 to +5 dBm. Incross talk requirement: -25 dBc. Output cross talk requirement: -40 dBc. (Cont)	Electrical wiring - APM to Modman	APM to Modman interconnect cable shall use ARINC 664 compliant 2 Shielded Twisted Pair 24 AWG (or Aerospace Grade Shielded Cat 5/Cat 5E Minimum). Part No. ECS 922404 or Equivalent, with a maximum length of 9.8 feet (3 m).			
4.3 KANDU	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-25 or Figure 4-26.			
	Mounting	Install location of KANDU is airframe specific. The KANDU is installed inside a pressurized location, the KANDU to KRFU and KANDU to FMA interconnect are routed through a Bulkhead Interface connectors.			
	Electrical Wiring KANDU-FMA	Refer to JetWave™ System Internal LRU Installation, KANDU on page 4-8.			
4.6 KRFU	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-27, Figure 4-28, or Figure 4-29 depending on configuration used.			
		Install the thermal pad in accordance with KRFU on page 4-16.			
		The KRFU is installed with the FMA, refer to FMA Installation Procedure on page 4-24.			
		The KRFU feet are configured differently depending on the part number ordered. Make sure feet are in the correct configuration for the aircraft application.			
	Waveguide	Make sure the waveguide is connected before powering the KRFU.			
	Waveguide - KRFU to FMA	Connection must be WR28 for TX and coaxial cable for RX.			
		The TX interconnect path loss			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
4.6 KRFU (Cont)	Waveguide - KRFU to FMA (Cont)	The RX interconnect path loss			
		RX connection at the KRFU requires a WR42 to coax transition adapter at the KRFU J4.			
	Electrical wiring	Electrically wire and interconnect in accordance with outline drawing Figure 4-27, Figure 4-28, or Figure 4-29 and interconnect drawing Figure 4-35 or Figure 4-37, depending on the configuration being used.			
	Electrical bonding	Electrically bond in accordance with page 4-18.			
N. FMA Installation Procedure	Physical	Examine the FMA AIM for physical damage.			
		Examine the FMA assembly for physical damage.			
		Examine the radome for physical damage. Refer to Figure 4-32.			
		Environmental conditions, refer to Figure 4-31.			
	Positioning	The aircraft fuselage mount OAE must be mounted on the top of the fuselage.			
	FMA AIM	Refer to Fuselage Mount Antenna (If applicable) (8).			
	FMA Install	Refer to Fuselage Mount Antenna (If applicable) (8).			
	FMA radome	Attach the radome assembly onto the AIM.			
	FMA bonding	Electrically bond in accordance with page 4-16.			
	FMA alignment	Automatic alignment, manual alignment, or command, refer to FMA Alignment on page 2-39 and Inspection of Waveguide on page 4-43.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

C. Non-A791 Based OAE-FMA with the LAIM Checklist

Section	Parameter	Item	NA	√	Value
A. Maintenance Panel	Applicability	If the system is not wired to another aircraft system, an installer provided maintenance panel is required.			
	Discrete output connections	System available (Modman MP13E) connected to a lamp			
		Data link available (Modman MP13F) connected to a lamp			
	Discrete input connections	Local data load enable (Modman MP10B) connected to a normally open switch			
		Ground transmit enable (Modman MP11D) connected to a normally open switch			
		Public service disable (Modman MP11E) connected to a normally open switch			
		Modman reset (Modman MP10C) connected to a normally open switch			
		Tx mute (KANDU J1D) connected to a normally open switch			
	Ethernet port connections	AV1 (Modman TP BB1 thru 4) connected to a RJ45 Ethernet connector			
	Additional electrical wiring	Electrically wire and interconnect in accordance with Figure 4-35 thru Figure 4-37, depending on the configuration being used.			
A. Modman	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-21 or Figure 4-22.			
	Mounting tray	Install applicable 4-MCU tray, supplied by customer.			
	Clearance	Minimum 1 inch (25.4 mm) from top surface and 0.5 inch (12.7 mm) from all other surfaces.			
	Electrical connector	ARINC 600 mating connector and pins, refer to Table 4-1. ARINC 600 Connectors			
		ARINC 600 polarized pins			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
A. Modman (Cont)	Electrical bonding	Bonding, refer to page 4-3			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-21 or Figure 4-22 and Figure 4-35thru Figure 4-37, depending on the configuration being used.			
	Electrical RF coaxial	Equalizer in the TX path			
		TX path loss, refer to Table 4-2. Modman Cable Loss Values			
		Attenuator in the RX path			
		RX path loss, refer to Table 4-2. Modman Cable Loss Values			
NOTE: Input signal range: -79 to -5 dBm. Output signal range -30 to +5 dBm. Incross talk requirement: -25 dBc. Output cross talk requirement: -40 dBc.APM	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-21 and Figure 4-22.			
	Mounting	Can be installed in any orientation. Refer to Figure 4-21 and Figure 4-22.			
		Use 0.164-32 UNC-2A corrosion resistant mounting fasteners. Do not exceed 25 in-lb (2.8 Nm) when you torque the screws.			
	Electrical bonding	Electrically bond in accordance with page 4-4.			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-23 and Figure 4-35 thru Figure 4-37, depending on the configuration being used.			
	Electrical wiring - APM to Modman	APM to Modman interconnect cable shall use ARINC 664 compliant 2 Shielded Twisted Pair 24 AWG (or Aerospace Grade Shielded Cat 5/Cat 5E Minimum). Part No. ECS 922404 or Equivalent, with a maximum length of 9.8 feet (3 m).			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
4.3 KANDU	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-25 or Figure 4-26.			
	Electrical wiring	Electrically wire and interconnect in accordance with Figure 4-25 or Figure 4-26 and Figure 4-34, thru Figure 4-37, depending on the configuration being used.			
	Mounting	Install location of KANDU is airframe specific. The KANDU is installed inside a pressurized location, the KANDU to KRFU and KANDU to FMA interconnect are routed through a Bulkhead Interface connectors.			
	Electrical wiring - KANDU -FMA	Refer to KANDU (1).			
	Electrical bonding	Electrically bond in accordance with page 4-10.			
		KANDU bonding to the aircraft must be achieved through the mounting structure (fasteners) and KANDU A3J1-A.			
		The bulkhead interface connectors should be electrically bonded to the aircraft.			
4.6 KRFU	Physical	Examine for physical damage.			
		Environmental conditions, refer to Figure 4-27, Figure 4-28, or Figure 4-29 depending on configuration used.			
		Install the thermal pad in accordance with KRFU on page 4-16.			
		The KRFU is installed with the FMA. refer to FMA Installation Procedure on page 4-24.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
4.6 KRFU (Cont)	Physical (Cont)	The KRFU feet are configured differently depending on the part number ordered. Make sure feet are in the correct configuration for the aircraft application.			
	Waveguide	Make sure the waveguide is connected before powering the KRFU.			
	Waveguide - KRFU to FMA	Connection must be WR28 for TX and coaxial cable for RX.			
		The TX interconnect path loss			
		The RX interconnect path loss			
		RX connection at the KRFU requires a WR42 to coax transition adapter at the KRFU J4.			
	Electrical wiring	Electrically wire and interconnect in accordance with outline drawing Figure 4-27, Figure 4-28, or Figure 4-29 and interconnect drawing Figure 4-34 thru Figure 4-37, depending on the configuration being used.			
	Electrical bonding	Electrically bond in accordance with page 4-18.			
I. FMA Installation Procedure	Physical	Examine the FMA AIM for physical damage.			
		Examine the FMA assembly for physical damage.			
		Examine the radome for physical damage. Refer to Figure 4-32.			
		Environmental conditions, refer to Figure 4-31.			
	Positioning	The aircraft fuselage mount OAE must be mounted on the top of the fuselage for clear satellite communications.			
	FMA LAIM	Refer to Fuselage Mount Antenna (If applicable) (8).			
	Install radome skirt fairing	Install and attach the radome skirt fairing to fuselage with 39 fasteners.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Section	Parameter	Item	NA	√	Value
I. FMA Installation Procedure (Cont)	Install radome skirt fairing	Install and attach the radome skirt fairing to fuselage with 39 fasteners.			
	FMA install	Refer to Fuselage Mount Antenna (If applicable) (8).			
	FMA radome	Attach the radome assembly onto the radome skirt fairing.			
	FMA bonding	Electrically bond in accordance with page 4-16.			
	FMA alignment	Automatic alignment, manual alignment, or command, refer to FMA Alignment on page 2-39 and Inspection of Waveguide on page 4-43.			

© Honeywell International Inc. Do not copy without express permission of Honeywell.

APPENDIX D

1. List of Airframe Specific Information Required for JetWave™ System Configuration

A Honeywell proprietary configuration tool is used to generate the JetWave™ configuration files. Information as listed in the tables below is to be provided to Honeywell for generation of JetWave™ configuration files.

Table D-1. Value Added Reseller (VAR/DP)

Name of the Service Provider

Table D-2. Aircraft Information

Aircraft Model/Type	Tail Number	Serial Number	Expected Activation Date

Table D-3. Air Data Inertial Reference Unit/Multi Mode Receiver

ADIRU Part Number	MMR Part Number

Table D-4. ARINC 429 Labels

ARINC 429 Interface Speed			Interface Bus Speed		
ARINC 429 IRS Interface Bus Speed					
ARINC 429 Aircraft State Interface Bus Speed					
Label Number	**Label Name**	**Accuracy**	**Label Latency**	**Total Latency (Msec)**	**Minimum Transmission Rate (Msec)**	**Jitter**
314	True Heading					
125	UTC Time					
150	UTC Time					
260	Date					
254	Present Position – Latitude					
255	Present Position – Longitude					
261	Altitude					
132	True Heading					
175	Ground Speed					

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table D-4. ARINC 429 Labels (Continued)

ARINC 429 Interface Speed			**Interface Bus Speed**			
ARINC 429 IRS Interface Bus Speed						
ARINC 429 Aircraft State Interface Bus Speed						
Label Number	**Label Name**	**Accuracy**	**Label Latency**	**Total Latency (Msec)**	**Minimum Transmission Rate (Msec)**	**Jitter**
313	True Track					
315	Horizontal Stabilization					
324	Pitch Angle					
325	Roll Angle					
330	Yaw Rate					
326	Pitch Rate					
327	Roll Rate					
110	GNSS Latitude					
111	GNSS Longitude					
112	GNSS Ground Speed					
76	GNSS Altitude (MSL)					
270	IRS Discrete Status					
312	Ground speed					

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table D-5. Airframe Structural Blockage Information

Blockage Angle	Value in Degrees	Remarks
Blockage Angle a		Angle “a” is the angle between the horizontal plane where the antenna emitting point is located and outer tip of the Horizontal Tail Plane (HTP).
Blockage Angle b		Angle “b” is between horizontal plane where antenna emitting point is located and outer tip of wing (including vortex eliminators, if present).
Blockage Angle c		Angle “c” refers to the point of the wing, where an antenna radiating at -10-degrees elevation would find the wing’s leading edge.
Blockage Angle d		Angle “d” refers to the outer, aft-most tip of the wing (including vortex eliminators, if present).
Blockage Angle e		Angle “e” provides the azimuth range of the Vertical Tail Plane (VTP) region of blockage in its broadest case.
Blockage Angle f		Angle “f” is between the fuselage centerline and the outer, forward-most tip of the HTP.
Blockage Angle h		Angle “h” provides the Vertical Tail Plane (VTP) region of blockage in elevation from -10 degrees up.
Blockage Angle i		Angle “i” is between the horizontal plane where the antenna emitting point is located and upper, forward-most part of the fuselage.
Blockage Angle k		Angle “k” is the angle between the horizontal plane where the antenna emitting point is located and the aft-most tip of the HTP.
Blockage Angle m		Angle “m” is between the horizontal plane where the antenna emitting point is located and the HTP leading edge root (forward-most joint to fuselage).
Blockage Angle p		Angle “p” is from the emitter point to upper, aft-most wing tip (including vortex eliminators, if present).

© Honeywell International Inc. Do not copy without express permission of Honeywell.

NOTE:

- All zenith view (from above) angles, except for “e,” are measured from the aircraft longitudinal axis, being 0 degrees at the stern.
- All side view angles are measured from the aircraft longitudinal axis, being 0 degrees at the plane where the antenna emitter is located.

Refer to ARINC Characteristic 791 Mark I Aviation Ku-band and Ka-Band Satellite Communication System, Part 1- Physical Installation and Aircraft Interfaces for Aircraft blockage map parameters.

Table D-6. Weight on Wheels

Weight on Wheels Discrete Input Available	Y/N	Polarity of Weight on Wheels Discrete Signal

Table D-7. Ground Transmit Enable

Ground Transmit Enable Discrete	Y/N	Polarity of Ground Transmit Enable Discrete

Table D-8. ARINC Tx Mute and Tail Sector Mute Switch

ARINC Tx Mute Connected	Yes/No
Tail Sector Mute Switch Wired	**Yes/No**

Table D-9 ARINC791 Equipped

Y	N	Frame Number for Fittings 3 and 4	Frame Number

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table D-10. Modman Serial Number

Modman Serial Number	

Table D-11. Modman Ethernet Configuration Table

Modman Ethernet Interface	User OTA Traffic Enabled / Disabled	AES Services to be Enabled	Static IP / Local IP Address (Modman/KANDU/FMA or TMA)
AISD Ethernet AV1 10/100 Mbps		615A DL (Data Load) AESSFTP SNMP GUI	172.29.55.1/.2/.3
AISD Ethernet AV2 10/100 Mbps			
AISD Gigabit Ethernet AG1 10/100/1000 Mbps		615A DL (Data Load) AESSFTP SNMP GUI	172.29.55.1/.2/.3
PODD Ethernet PA1 10/100 Mbps			
PODD Ethernet PA2 10/100 Mbps			
PODD Ethernet PA3 10/100 Mbps			
PODD Ethernet PA4 10/100 Mbps			
PODD Gigabit Ethernet PG1 10/100/1000 Mbps			
PIESD Ethernet EN5 10/100 Mbps			
PIESD Ethernet EN6 10/100 Mbps			
PIESD Ethernet EN7 10/100 Mbps			
PIESD Ethernet EN8 10/100 Mbps			
PIESD Gigabit Ethernet EG1 10/100/1000 Mbps			

NOTE 1: When User OTA Traffic and any AES Services are enabled on the same port, then the Static IP addresses must be on a unique subnet per each distinct OTA SVN.

NOTE 2: The Static IP addresses are for internal AES services. The IP addresses for User OTA Traffic is configured in the provisioning gateway.

© Honeywell International Inc. Do not copy without express permission of Honeywell.

Table D-11. Modman Ethernet Configuration Table

NOTE 3: Select the appropriate AES services. AES services available are: (a) 615A DL (Data Load) (b) AESSFTP (c) SNMP and (d) GUI.

NOTE 4: The Static/local IP addresses shown are the default values the terminal uses until it has read a non-blank APM.

Table D-12. KRFU Location

Inside Cabin	Inside Radome

Table D-13. Antenna Location

Fuselage Mount	Tail Mount

Table D-14. Waveguide Manufacturer

Honeywell	Other	Manufacturer	Part Number
Y			
N			

Table D-15. Radome Manufacturer

Honeywell	Other	Manufacturer
Y		
N		

© Honeywell International Inc. Do not copy without express permission of Honeywell.