

SPIRE-JPL-DOC-002201

Materials and Processes List

SPIRE

JPL D-25725

REV B

1/05/04

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Reviewed by: _____
M. Knopp M&P Engineer

Declared Material List

Group 1:

SPIRE-BDA

Aluminum and

1	2	3	4	5	6	7			8	
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1		7.2	7.3	ESA App.
						C o r r	S C C			
1.001	7075-T7351	Al, 0.6Mg, 0.5Si,	AMS-QQ-A-225/9	MIL-C-5541 Class 3	1) BDA 2) Spacer	B	A	MSFC-HDBK-527	A	
1.002	7075-T7351	Al, 0.6Mg, 0.5Si,	AMS-QQ-A-250/12	MIL-C-5541 Class 3	1) BDA 2) Flexure	B	A	MSFC-HDBK-527	A	
2.001	6061-T6	Al, 1Mg, 0.6Si, 0.25Cu, 0.20Cr	AMS-QQ-A-250/11	MIL-C-5541 Class 3	1) BDA 2) Structural Elements	B	A	MSFC-HDBK-527	A	
2.002	6061-T651	Al, 1Mg, 0.6Si, 0.25Cu, 0.20Cr	AMS-QQ-A-200/8	MIL-C-5541 Class 3	1) BDA 2)Connector Shell	B	A	MSFC-HDBK-527	A	
2.003	6061-T651	Al, 1Mg, 0.6Si, 0.25Cu, 0.20Cr	AMS-QQ-A-200/8	Clean per JPL BS505146	1) BDA 2)Light Seal	B	A	MSFC-HDBK-527	A	
2.004	6061-T651	Al, 1Mg, 0.6Si, 0.25Cu, 0.20Cr	AMS-QQ-A-200/8	Clean per JPL BS505146	1) BDA 2)Filter Holder	B	A	MSFC-HDBK-527	A	
2.005	6061-T651	Al, 1Mg, 0.6Si, 0.25Cu, 0.20Cr	AMS-QQ-A-200/8	Clean per JPL BS505146	1)JFET Module 2)Lid	B	A	MSFC-HDBK-527	A	
2.006	6061-T651	Al, 1Mg, 0.6Si, 0.25Cu, 0.20Cr	AMS-QQ-A-200/8	MIL-C-5541 Class 3	1)JFET Module 2)Chassis	B	A	MSFC-HDBK-527	A	
	3 Al 99.9	Al			1) BDA 2)Wirebonds	B	A	MSFC-HDBK-527	A	

Declared Material List

Group 2: Copper & Copper Alloys

SPIRE-BDA

1	2	3	4	5	6	7			8		
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1			7.2	7.3	ESA App.
						C o r r	S C C	F l a m e			
1	C10100	99.99Cu			1)BDA 2)Wire conductor	A	A		MSFC-HDBK-527	A	
2.001	C10200	99.95Cu		Au plated	1)BDA 2)Feedhorns	A	A		MSFC-HDBK-527	A	
2.002	C10200	99.95Cu	2)ASTM B-298	Ag plated	1)BDA 2)Wire Braid	A	A		MSFC-HDBK-527	A	
3.001	C17200-TD04	98Cu, 1.9 Be	ASTM B194		1)Ring Assembly, BDA 2)Bushing	A	A		MSFC-HDBK-527	A	
3.002	C17200-TD04	98Cu, 1.9 Be	ASTM B194		1)S/LW, S/SW Assy. 2)Clip	A	A		MSFC-HDBK-527	A	
3.003	C17200-TD04	98Cu, 1.9 Be	ASTM B194		1)P/LW, P/MW, P/SW Asy 2)Detector Clip	A	A		MSFC-HDBK-527	A	
4	Cu, 99.999%	Cu		Annealed	1)BDA 2)Thermal Strap	A	A		MSFC-HDBK-527	A	

Declared Material List

Group 3: Nickel and Nickel Alloys

SPIRE-BDA

1	2	3	4	5	6	7			8		
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1			7.2	7.3	ESA App.
						C o r r	S C C	F l a m m g			
1.001	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)JFET 2) JFET Mount	B	A		MSFC-HDBK-527	A	
1.002	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed	1)Ring Assembly, BDA 2) Pin	B	A		MSFC-HDBK-527	A	
1.003	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)Ring Assembly, BDA 2)Housing	B	A		MSFC-HDBK-527	A	
1.004	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)Ring Assembly, BDA 2)Ring A, Top Ring Housing	B	A		MSFC-HDBK-527	A	
1.005	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)Ring Assembly, BDA 2)Bottom Ring Housing	B	A		MSFC-HDBK-527	A	
1.006	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)BDA 2)Spacer	B	A		MSFC-HDBK-527	A	
1.007	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)BDA 2)Clamp	B	A		MSFC-HDBK-527	A	
1.008	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed, Au plated	1)BDA 2)Cover Plate	B	A		MSFC-HDBK-527	A	
1.009	Invar 36	Fe, 36Ni	ASTM B753 Type 36	Annealed	1)BDA 2)Suspension components	B	A		MSFC-HDBK-527	A	

Declared Material List

Group 6:

Stainless

SPIRE-BDA

1	2	3	4	5	6	7			8	
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1		7.2	7.3	ESA App.
						C o r r C	S l i f t a m g	F o o f t g	Justification for Approval	
1.001	303	Fe, 18Cr, 9Ni+ S or Se	AMS 5738	Passivated	1) Middle Ring, BDA 2) Structure components	A	A	MSFC-HDBK-527	A	
1.002	303	Fe, 18Cr, 9Ni+ S or Se	AMS 5738	Passivated	1)BDA 2) Capstan Type 1	A	A	MSFC-HDBK-527	A	
1.003	303	Fe, 18Cr, 9Ni+ S or Se	AMS 5738	Passivated	1)BDA 2) Capstan Type 2	A	A	MSFC-HDBK-527	A	
1.004	303	Fe, 18Cr, 9Ni+ S or Se	AMS 5738	Passivated	1)BDA 2) Alignment Pin	A	A	MSFC-HDBK-527	A	
1.005	303	Fe, 18Cr, 9Ni+ S or Se	AMS 5640	Passivated	1)BDA 2)Pin, Shoulder	A	A	MSFC-HDBK-527	A	
2	302, Full Hard	Fe, 18 Cr, 8Ni	AMS 5906	Passivated	1) BDA 2) Spring Washer	A	A	MSFC-HDBK-527	A	
3.001	A286	Fe, 25Ni, 15Cr, 2Ti, 1.5 Mn, 1.3 Mo, 0.3V	AMS 5732	Passivated	1) Middle Ring, BDA 2) Structure components	A	A	MSFC-HDBK-527	A	
3.002	A286	Fe, 25Ni, 15Cr, 2Ti, 1.5 Mn, 1.3 Mo, 0.3V	AMS 5737	Passivated	1) Middle Ring, BDA 2) Snubber	A	A	MSFC-HDBK-527	A	

Declared Material List

Group 7:

Fillers

SPIRE-BDA

1	2	3	4	5	6	7			8
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1	7.2	7.3	ESA App.
						C o r r C	S l i f a m g	F i l t e r i n g	
1	Indium	In, 99.9%	1) ESPI	Soldering per JPL D-8208	1)BDA 2)Solder	A	A	MSFC-HDBK-527	A
2	Sn63	Sn 63% Pb 37%	2)QQ-S-571	Soldering per JPL D-8208	1)BDA 2)Solder	A	N	MSFC-HDBK-527 Used on all projects	A

**Declared Material List
Group 8: Misc.**

SPIRE-BDA

Metallic

1	2	3	4	5	6	7			8	
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1		7.2	7.3	ESA App.
						C o r r	S C C	F l a m e	O f a m e	

1	Au, 99.9%	Au, 99.9%	2) JPL BS518425		1)BDA 2)Bond Wire	A	A	MSFC-HDBK-527	A	
								Material is contained between layers of polyimide in flex cable assembly. Cables have gone through qualification program for SPIRE.		
2	Constantan	55Cu, 45Ni	2) ASTM B267, Alloy 5B		1)BDA Assembly 2)Flex Cable Conductor	NA	NA		A	

Declared Material List

Group 10:

Adhesives- Coatings

SPIRE-BDA

1	2	3	4	5	6	7			8		
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1			7.2	7.3	ESA App.
						C	S	F			
						o	r	r			

2	Stycast 2850 FT/24LV	Epoxy, 2 part	1) Emmerson Cumig	CURE 2 HRS @65C	1) BDA 2) Die Attach		P	NASA-RP-1124	A
3	EC 2216 Armstrong	Epoxy, 2 part	1)3M 2)BS502533	Air Cure	1) JFET Module 2) Fastener Staking		P	MSFC-HDBK-527	A
4	C7/W	Epoxy, 2 part	1)Armstrong 2) JPL D-8208	Air Cure, 1:1mix	1)BDA 2)Via Fill		P	NASA-RP-1124	A
5	TRA-Bond 2101	Epoxy, 2 part	1)Tra-Con		1)BDA 2)Module Bonding		F		A

TML is above limit at 1.88%.
VCM is well below
acceptable limit at 0.01%.
The use of this material has
been reviewed with the
Contamination Control
Engineer and is acceptable
based on the small usage
amount (<<1g of material)
and the fact that the
hardware will undergo a
thermal vacuum bakeout.

Declared Material List

Group 11: Tapes

SPIRE-BDA

1	2	3	4	5	6	7			8	
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1		7.2	7.3	ESA App.
						C o r r	S C C	F l a m m	O f a c t g	

1	Fluorglas 2342-1R	Tape, kapton, Acrylic Adhesive	1) Fluorn		1)BDA 2)Insulation		P	GSC20623	A
2	Pyralux LF	Tape, Polyimide	1)Dupont 2)IPC-FC-232	Thermal vacuum bakeout	1)BDA Flex Cable 2)Cable Insulation		P	NASA-RP-1124	A
3	Dacron	Tape, Lacing	1)Gudebrod 2)ST12013	Thermal vacuum bakeout	1)BDA 2)Cable Tie		P	NASA-RP-1124	A

Declared Material List

SPIRE-BDA

Group 12: Inks

1	2	3	4	5	6	7			8
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1	7.2	7.3	ESA App.
						C o r r	S C C	F l a m e	
1	A	Ink, Epoxy	2) BS502673		1)BDA 2)Part Identification		Used on all projects. Small amount of material used. Use reviewed with Contamination Control Engineer.	A	

Declared Material List
Group 14:
Potting
Compounds

SPIRE-BDA

1	2	3	4	5	6	7			8
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1	7.2	7.3	ESA App.
						C o r r	S C C	F l a m e	

1	Stycast 2850FT/24LV	Epoxy	2)BS502660	7 Day cure at 25°C	1) BDA 2)Cable Potting	P	GSC25705	A	
2	CV2510	Silicone	2)BS514364	7 Day cure at 25°C	1)BDA 2)Cable Potting	P	NASA-RP-1124	A	

Declared Material List
Group 15:
Reinforced
Plastics

SPIRE-BDA

1	2	3	4	5	6	7			8
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1	7.2	7.3	ESA App.
						C o r r	S C C	F l a m e	
1	B-Stage Polyimide/ Glass	Polyimide/Glass	2)IPC-4101/41 IPC-4101/42	Gold Plating pads per MIL-G- 45204	1)JFET Module 2)PWB		NASA-RP-1124 Used on past flight projects	A	A

Declared Material List

Group 16: Elastomers

SPIRE-BDA

1	2	3	4	5	6	7			8		
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1		7.2	7.3	ESA App.	
						C o r r	S i l i c o n e r g	F l u o r i n e r e n c e	O f f i c e r e n c e		Justification for Approval
1	Chromerics EMI Gasket	CHO-SEAL 1215	1) PARKER HANNIFIN CORP		1)BDA Asembly 2)EMI Gasket			A	NASA-RP-1124	A	

1 Chromerics EMI Gasket CHO-SEAL 1215 1) PARKER HANNIFIN CORP 1)BDA Asembly 2)EMI Gasket A NASA-RP-1124 A

Declared Material List
Group 18:
Thermoset
Plastics

SPIRE-BDA

1	2	3	4	5	6	7			8
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1	7.2	7.3	ESA App.
						C o r r C m g	S l i f u a f t m g	Justification for Approval	
1	Vespel SP-1	Polyimide	1)Dupont 2)BS502655		1)BDA 2)Spacer	P	NASA-RP-1124	A	
2	Vespel SP-3	Polyimide	1)Dupont 2)BS505776		1)BDA 2)Snubber	P	NASA-RP-1124	A	

Declared Material List

Group 19: Misc. Non- Metallic

SPIRE-BDA

1	2	3	4	5	6	7			8	
Item No	Commercial Identification	Chemical Nature and Type of Product	Procurement Information 1) Supplier 2) Specification	Summary of Processing Parameters	1) Location 2) Application	7.1		7.2	7.3	ESA App.
						C o r r	S C C	F l a m m	O f a c t g	
1	Kevlar 29, 3000 Denier	Aramid Fiber	1)Dupont	Thermal stabilization processes	1)BDA 2)Suspension Assembly			Approval Pending Outgassing testing		
2	Kynar	Polyvinylidene Fluoride	2)MIL-I-23053		1)BDA 2)Cable Assemblies		P		A	

Declared Mechanical Part List

SPIRE-BDA

Group 51: Spacing Parts

1	2	3	4	5	6		7	8		9
Item No	Commercial Identification	Type of Part	1) Manufacturer 2) Procurement Spec.	1) Elementary Function 2) Main Characteristics	6.1	6.2	1) Criticality 2) Reason/Control	8.1	8.2	ESA App.
					1) Location 2) Application	User Code		1) Justification for approval 2) Supplier Comments	Supplier Approval Status	
1	B0187-010	Washer, Belleville, CRES 302		1) Assembly 2) Spring Washer	1) BDA Middle Ring			MSFC-HDBK-527	A	
2	5720-1R-25	Washer, Phosphur Bronze		1) Assembly 2) Washer	1) BDA Middle Ring			1) MSFC-HDBK-527 2) Alloy C51000	A	
3	W00CE	Washer	1) J.I. Morris	1) Assembly	1) BDA Assembly			1) MSFC-HDBK-527 2) (CRES 303)	A	
4	MDP2-2	Pin, Dowel		1) Assembly	1) BDA Assembly			1) MSFC-HDBK-527 2) (CRES 300 series)	A	

Declared Mechanical Part List

SPIRE-BDA

Group 52: Connecting Parts

1	2	3	4	5	6		7	8		9
Item No	Commercial Identification	Type of Part	1) Manufacturer 2) Procurement Spec.	1) Elementary Function 2) Main Characteristics	6.1	6.2	1) Criticality 2) Reason/ Control	8.1	8.2	ESA App.
					1) Location 2) Application	User Code		1)Justification for approval 2) Supplier Comments	Supplier Approval Status	
1.001	KNCM 4x.7	Insert, Threaded, CRES A286	1)Keensert	1)Assembly	1)Light Seal, BDA			MSFC-HDBK-527 Used on past flight projects	A	
1.002	KNCM 4x.7	Insert, Threaded, CRES A286	1)Keensert	1)Assembly	1)JFET Housings			MSFC-HDBK-527 Used on past flight projects	A	
2	Screw, Socket Head	Fastener, CRES A286	2)STM12307	1)Assembly	1)JFET Housings			MSFC-HDBK-527 Used on past flight projects	A	
3	Stud-Lock	Stud, A286 CRES	2)ST12391	1)Assembly	1)JFET Housings			MSFC-HDBK-527 Used on past flight projects	A	
4	Nut	Nut, Selflocking A286	2) STM12304	1)Assembly	1)BDA Detector Array 2) Assembly			MSFC-HDBK-527 Used on past flight projects	A	
5	934-A2	Nut, M1.6, CRES 303		1)Assembly	1)Middle Ring Assembly			MSFC-HDBK-527 Used on past flight projects	A	
6	MS171432	Spring Pin	2)NASM171432	1)Assembly	1)Middle Ring Assembly			MSFC-HDBK-527 Used on past flight projects	A	

Declared Mechanical Part List

SPIRE-BDA

Group 52: Connecting Parts

1	2	3	4	5	6		7	8		9
Item No	Commercial Identification	Type of Part	1) Manufacturer 2) Procurement Spec.	1) Elementary Function 2) Main Characteristics	6.1	6.2	1) Criticality 2) Reason/Control	8.1	8.2	ESA App.
					1) Location 2) Application	User Code		1) Justification for approval 2) Supplier Comments	Supplier Approval Status	
7	NA0069	Fastener, A286	2)NA0069	1)Assembly	1)BDA			MSFC-HDBK-527 Used on past flight projects	A	
8	Nut, Hex	Nut, Hex, A286	2)MS21043	1)Assembly	1)BDA			MSFC-HDBK-527 Used on past flight projects	A	
9	MS24693	Screw, Machine Head	2)NASM24693	1)Assembly	1)BDA			MSFC-HDBK-527 Used on past flight projects	A	
10	NAS1351	Screw, Socket Head, Cap	2)NAS1351C00	1)Assembly	1)BDA			MSFC-HDBK-527 Used on past flight projects	A	
11	NAS671	Nut	2)NAS671C0	1)Assembly	1)BDA			MSFC-HDBK-527 Used on past flight projects	A	
12	1589332-1	Screw, Pan Head, A286		1)Assembly	1)Flex Cable, Center			MSFC-HDBK-527 Used on past flight projects	A	
13	TR-23081	Insert, Threaded, Locking, A286	1)Tridair	1)Assembly	1)BDA 2)Assembly			MSFC-HDBK-527 Used on past flight projects	A	

Declared Mechanical Part List

SPIRE-BDA

Group 52: Connecting Parts

1	2	3	4	5	6		7	8		9
Item No	Commercial Identification	Type of Part	1) Manufacturer 2) Procurement Spec.	1) Elementary Function 2) Main Characteristics	6.1	6.2	1) Criticality 2) Reason/Control	8.1	8.2	ESA App.
					1) Location 2) Application	User Code		1) Justification for approval 2) Supplier Comments	Supplier Approval Status	

14	NA0068	Fastener, A286, Offset Cruciform	2)NA0068	1) Assembly	1)BDA 2)Assembly			MSFC-HDBK-527 Used on past flight projects	A
15	STM12308	Fastener, A286, Flat Head	2)STM12308N020 010	1)Assembly	1)BDA Detector Array 2) Assembly			MSFC-HDBK-527 Used on past flight projects	A

Declared Mechanical Part List

SPIRE-BDA

Group 54: Springs

1	2	3	4	5	6		7	8		9
Item No	Commercial Identification	Type of Part	1) Manufacturer 2) Procurement Spec.	1) Elementary Function 2) Main Characteristics	6		1) Criticality 2) Reason/Control	8		ESA App.
					6.1	6.2		8.1	8.2	
					1) Location 2) Application	User Code		1) Justification for approval 2) Supplier Comments	Supplier Approval Status	
1	C0057-008	Spring, Coil, Cres 302		1)Component Pre-load	1)BDA 2)Suspension Assy			MSFC-HDBK-527	A	

Declared Processes List

SPIRE-BDA

Group 1: Adhesive Bonding

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Processes Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	
1	Fastener Staking	JPL D-8208	Adhesive fastener staking	1)JFET Module 3)JFET Chassis		10,3		JPL Standard Process-Flight History	A	

Declared Processes List

SPIRE-BDA

Group 5: Cleaning

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Processes Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	

1	Solvent Cleaning	JPL FS505146	General cleaning of materials	1)BDA Assembly		Used on all metallics		Standard JPL Process	A	
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Declared Processes List

SPIRE-BDA

Group 8: Soldering

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Processes Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	
1	Soldering	D-8208	Component Soldering	1)BDA 3)JFET Module Board 4)Component Attach		7,1 7,2		JPL Standard Process-Flight History	A	

Declared Processes List

SPIRE-BDA

Group 9: Surface Treatments

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Processes Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	

						1,1		Standard		
	Conversion	MIL-C-5541 Class	Chromate	1)JFET		1,2.001		Process-		
1	Coating	3	conversion coating	3)JFET Housings 4)Surface Treatment		1,2.002		Flight History A		
						1,2.006				

Declared Processes List

SPIRE-BDA

Group 10: Plating

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Process Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	
1	Plating, Au	MIL-G-45304	Au plating on feedhorns	BDA Assemblies		2,2 3,1.001 3,1.003 3,1.004 3,1.005 3,1.006 3,1.007 3,1.008		Standard Process-Used on all flight projects	A	
2	Plating, Ni	QQ-N-290	Ni under plate for Au plating	BDA Assemblies		2,2 3,1.001 3,1.003 3,1.004 3,1.005 3,1.006 3,1.007 3,1.008		Standard Process-Used on all flight projects	A	

Declared Processes List

SPIRE-BDA

Group 13: Heat Treatment

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Process Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	
1	Annealing, Invar 36	JPL BS506336	Stabilization Anneal	1)JFET Module 2)JFET Mount		3,1.001 3,1.002 3,1.003 3,1.004		JPL Standard Process-Flight History	A	
2	Annealing, Cu	JPL 10209817	Thermal Anneal	1)BDA Assembly 3)P/LW, P/MW, P/SW		2,4		Standard annealing schedule for high purity copper alloys	A	

Declared Processes List

SPIRE-BDA

Group 16: Misc Processes

1	2	3	4	5	6	7	8	9		10
Item No	Process Identification	Associated Procedure	Processes Description	1) Subsystem code 2) Equipment code 3) Exact location 4) Use	User Code	Associated DML or DMPL item Number (group, item)	1) Criticality 2) Reason	9.1	9.2	ESA App.
								Justification for Approval	Supplier Approval Status	
1	Fastener Torquing	JPL ES517040	Fastener Installation	1)JFET Module 3)JFET Module assembly		52,2 52,3		JPL Standard Process- Flight History A		