Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
		FPGAs											
	Note: Entries in **RED** indicate data added since the 1997 Compendium.												
JH	1020	2000 equiv. 2-input gates	CMOS/epi	ACT	25				Jan-91				Kinnison
HAR	3020	2000 equiv. 2-input gates	Rad Hard CMOS/SOI	HAR	100				May-93	>120			Harris Development Package
HAR	3090	9000 equiv. 2-input gates	Rad Hard CMOS/SOI	HAR	100				May-93	>120			Harris Development Package
SEI	**10009L**		**CMOS**	**GTF**					**Jan-97 Oct-96**	**7.7 to 12**	**3.0E-02**	**UCB TAM**	**Layton, et al, 98IEEE Wrkshp Rec., pg 170.**
MMS	1020 ??	2000 equiv. 2-input gates	CMOS/epi (1.2 µm. Feature)	ACT	24				Jul-93	0.76			Beaucour, 93IEEE Wrkshp Rec., pg 20.
CNES	1020A	2000 equiv. 2-input gates	CMOS/epi	TIX					Jan-92	>27			R. Ecoffet. D/C 9109. 547 logic modules, config. Antifuse.
CNES	1020A	2000 equiv. 2-input gates	CMOS/epi	TIX					Jan-92	>27			R. Ecoffet. D/C 9109. 547 logic modules, config. Antifuse.
JH	1020B	2000 equiv. 2-input gates	CMOS/epi	ACT	22								Kinnison. No latchup. Very similar to above.
JPL	1020B	2000 equiv. 2-input gates	CMOS/epi [TIX chip]	ACT					Dec-96 Nov-96	<<25	3.0E-05	TAM BNL	Swift: "TIX is very latchable."
GSFC	**3090A**	**9000 equiv. 2-input gates**	**CMOS**	**XIL**	**4 to 7**				**1996**	**4 to 7**		**BNL**	**LaBel, et al, EEE Links, Vol. 3, No. 1, pg 5, Mar 97 & 97IEEE Wrkshp Rec., pg14. Bit errors**
IBM	7256GC192-2	256 Flip-flops	CMOS	ALT					May-93				WP-2 (Jim Pollack). D/C 9249. Latchup rates given.
ARSP	A1010	1000 equiv. 2-input gates	CMOS/10 µm epi [2 µm feature]	ACT	25				Feb-90	>120			ACT I family; Feb 1990
ARSP	A1020	2000 equiv. 2-input gates	CMOS/10 µm epi [2 µm feature]	ACT	25				Feb-90	>120			ACT I family; Feb 1990
ARSP	A1020A	2000 equiv. 2-input gates	CMOS/epi [1.2 µm feature]	ACT	25				1994	>120			Koga, 94 SEE Symposium
ARSP	A1020B	2000 equiv. 2-input gates	CMOS/epi [1.0 µm feature]	ACT	~10	1.0E-03			1994	55	2.0E-05		Koga, 94 SEE Symposium. Matsushita dice. (for 200 F/Fs).
GSFC	A1020B	2000 equiv. 2-input gates	CMOS/epi [0.9 µm feature]	ACT	28		200			55		BNL	Katz, EEE Links, Nov., 96. "The only Actel device known to latchup."
JH	A1280	8000 equiv. 2-input gates	CMOS/epi (1.2 µm feature)	ACT	25	4.0E-05			Nov-93	>76			McKerracher (JH) & Katz (GSFC) - output latch/combinatorial logic
JH	A1280	8000 equiv. 2-input gates	CMOS/epi (1.2 µm feature)	ACT	5	4.0E-05			Nov-93	>76			McKerracher (JH) & Katz (GSFC) - output latch/sequential logic
ARSP	A1280	8000 equiv. 2-input gates	CMOS/epi (1.2 µm feature)	ACT	25				Dec-92	>120			Koga, 92IEEE TNS, No. 6, pg 1685. ACT II family. Combinatorial logic.
ARSP	A1280	8000 equiv. 2-input gates	CMOS/epi (1.2 µm feature)	ACT	5				Dec-92	>120			Koga, 92IEEE TNS, No. 6, pg 1685. ACT II family. Sequential logic.
ARSP/GSFC	A1280A	8000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	28				1993	>100			Koga. ACT II. Combinatorial logic.
ARSP/GSFC	A1280A	8000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	5				1993	>100			Koga. ACT II. Sequential logic.
ARSP/GSFC	A1280A	8000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	28		200		1993	>100		UCB.	SEDR. C = combinatorial logic. ARSP: 1993, GSFC:11/96
ARSP/GSFC	A1280A	8000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	5		800		1993	>100		UCB.	SEDR. S = sequential logic. ARSP: 1993, GSFC:11/96
ESA	A1280A	8000 equiv. 2-input gates	CMOS ACT2 [MAT chip] 1.0 µm	ACT	27	3.0E-06			Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. C-modules - All "0s".

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Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
ESA	A1280A	8000 equiv. 2-input gates	CMOS ACT2 [MAT chip] 1.0 µm	ACT	10	1.5E-05			Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. S-modules - All "1s".
ESA	A1280A	8000 equiv. 2-input gates	CMOS ACT2 [MAT chip] 1.0 µm	ACT	15	3.0E-06			Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. I/O-module - All "1s".
GSFC	A1280A 3.6V	8000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT								BNL	Katz, EEE Links, Nov 96. No LU. No SEDR.
GSFC	A1280XL	8000 equiv. 2-input gates	CMOS/epi [0.6 & 0.8 µm.]	ACT								BNL	Katz, EEE Links, Nov 96. No LU. SEDR.
SAAB	**A1280XL 3.3 V**	**8000 equiv. 2-input gates**	**CMOS (0.6 µm)**	**ACT**	**5**			**3.5E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. S-module. D/C 9709.**
SAAB	**A1280XL 3.3 V**	**8000 equiv. 2-input gates**	**CMOS (0.6 µm)**	**ACT**	**5**			**2.5E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. I/O-module. D/C 9709.**
SAAB	**A1280XL 3.3 V**	**8000 equiv. 2-input gates**	**CMOS (0.6 µm)**	**ACT**	**20**			**2.0E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. C-module. D/C 9709.**
SAAB	**A1280XL 5.0 V**	**8000 equiv. 2-input gates**	**CMOS (0.6 µm)**	**ACT**	**10**			**2.5E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. S-module. D/C 9709.**
SAAB	**A1280XL 5.0 V**	**8000 equiv. 2-input gates**	**CMOS (0.6 µm)**	**ACT**	**10**			**2.0E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. I/O-module. D/C 9709.**
SAAB	**A1280XL 5.0 V**	**8000 equiv. 2-input gates**	**CMOS (0.6 µm)**	**ACT**	**28**			**8.0E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. C-module. D/C 9709.**
GSFC	A14100A	10000 equiv. 2-input gates	CMOS/epi?	ACT	21		100					BNL	Katz, EEE Links, Nov 96. C-module. No LU. SEDR.
GSFC	A14100A	10000 equiv. 2-input gates	CMOS/epi?	ACT	8							BNL	Katz, EEE Links, Nov 96. S-module and I/O. No LU. SEDR.
GSFC	**A14100A**	**10000 equiv. 2-input gates**	**CMOS/epi?**	**ACT**	**8**				**1996**	**>80**		**BNL**	**LaBel, et al, 97IEEE Wrkshp Rec. , pg 14. S- & I/O-module errors.**
GSFC	**A14100A**	**10000 equiv. 2-input gates**	**CMOS/epi?**	**ACT**	**21**				**1996**	**>80**		**BNL**	**LaBel, et al, 97IEEE Wrkshp Rec. , pg 14. C-module errors.**
GSFC	A1460A	6000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	21		100	2.0E-07				BNL	Katz, EEE Links, p17, July 96. No LU. SEDR. Proton upsets for C-module.
GSFC	A1460A	6000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	8			1.0E-06				BNL	Katz, EEE Links, p17, July 96. No LU. SEDR. Proton upsets for S- & I/O-modules.
ESA	A1460A	6000 equiv. 2-input gates	CMOS ACT3 [MAT chip](0.8 µm]	ACT	32	3.0E-06		1.5E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. Combinatorial logic - All "0s".
ESA	A1460A	6000 equiv. 2-input gates	CMOS ACT3 [MAT chip](0.8 µm]	ACT	8	1.5E-05		1.0E-05	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. Sequential logic - All "1s".
ESA	A1460A	6000 equiv. 2-input gates	CMOS ACT3 [MAT chip](0.8 µm]	ACT	10	2.0E-06		2.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. I/O-module.
GSFC	**A1460A**	**6000 equiv. 2-input gates**	**CMOS/epi (1.0 µm feature)**	**ACT**	**6 - 8**				**1996**	**>80**		**BNL**	**LaBel, et al, 97IEEE Wrkshp Rec. , pg 14. S- & I/O-module errors.**
GSFC	**A1460A**	**6000 equiv. 2-input gates**	**CMOS/epi (1.0 µm feature)**	**ACT**	**25 - 30**				**1996**	**>80**		**BNL**	**LaBel, et al, 97IEEE Wrkshp Rec. , pg 14. C-module errors.**
GSFC	A1460A 3.3V	6000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	~25			8.0E-07				BNL	Katz, EEE Links, p17, July 96. C-module.
GSFC	A1460A 3.3V	6000 equiv. 2-input gates	CMOS/epi (1.0 µm feature)	ACT	<6			2.0E-06				BNL	Katz, EEE Links, p17, July 96. S-module.
ESA	A1460A 3.3V	6000 equiv. 2-input gates	CMOS ACT3 [MAT chip](0.8 µm]	ACT	20	6.0E-06		3.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. Combinatorial logic - All "0s".
ESA	A1460A 3.3V	6000 equiv. 2-input gates	CMOS ACT3 [MAT chip](0.8 µm]	ACT	6	2.0E-05		2.0E-05	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. Sequential logic - All "1s".
ESA	A1460A 3.3V	6000 equiv. 2-input gates	CMOS ACT3 [MAT chip](0.8 µm]	ACT	8	7.0E-06		7.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. I/O.
GSFC	**A32140DX**	**14000 gates**	**CMOS, 3200DX family**	**ACT**					**1997**	**>75**		**BNL**	**Katz, EEE Links, Vol. 3, No. 3, Sep 97, pg 16.**

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Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
SAAB	**A32140DX 3.3 V**	**14000 gates**	**CMOS, 3200DX family**	**ACT**	**5**			**3.0E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. S-module. D/C 9703.**
SAAB	**A32140DX 3.3 V**	**14000 gates**	**CMOS, 3200DX family**	**ACT**	**5**			**2.5E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. I/O-module. D/C 9703.**
SAAB	**A32140DX 3.3 V**	**14000 gates**	**CMOS, 3200DX family**	**ACT**	**15**			**2.0E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. C-module. D/C 9703.**
SAAB	**A32140DX 5.0 V**	**14000 gates**	**CMOS, 3200DX family**	**ACT**	**10**			**2.0E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. S-module. D/C 9703.**
SAAB	**A32140DX 5.0 V**	**14000 gates**	**CMOS, 3200DX family**	**ACT**	**2**			**2.0E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. I/O-module. D/C 9703.**
SAAB	**A32140DX 5.0 V**	**14000 gates**	**CMOS, 3200DX family**	**ACT**	**30**			**8.0E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. C-module. D/C 9703.**
GSFC	**A32200DX**	**20000 gates**	**CMOS, 3200DX family**	**ACT**					**1997**	**11**	**1.5E-05**	**BNL**	**Katz, EEE Links, Vol. 3, No. 3, Sep 97, pg 16. No saturation @ LET = 52.**
GSFC	AT6002-JC		CMOS/epi 0.8 µm feature	ATM	7 - 8				1996	11 to 11.4		BNL	Katz, EEE Links; LaBel, et al, 96 IEEE Wrkshp Rec., pg 19.
GSFC	ATT2C04-2 ORCA	3500 -4300 equiv. Gates	CMOS 0.5 µm feature	ATT	<7.9					<7.9		BNL	Katz, EEE Links, p17, July 96 & LaBel, et al, 96IEEE Wrkshp Rec., pg 19. Configuration mode.
GSFC	ATT2C04-2 ORCA	3500 -4300 equiv. Gates	CMOS 0.5 µm feature	ATT	>10							BNL	Katz, EEE Links, p17, July 96 & LaBel, et al, 96IEEE Wrkshp Rec., pg 19. Data programmed in.
GSFC	**CLAy-31**	**3134 equiv. Gates**	**RAM-based GaAs.**	**NSC**	**5**					**>90**		**BNL**	**LaBel, et al, 97IEEE Workshop Rec., pg 14. Data errors.**
GSFC	**CLAy-31**	**3134 equiv. Gates**	**RAM-based GaAs.**	**NSC**	**11**					**>90**		**BNL**	**LaBel, et al, 97IEEE Wrkshp Rec. , pg 14. Reconfiguration/snapback errors.**
GSFC	CLAy-31	3134 equiv. Gates	RAM-based GaAs.	NSC	5			7.0E-08		>60		BNL?	Katz, EEE Links, Nov 96. SER = SEU in the configuration cell.
GSFC	CLAy-31	3134 equiv. Gates	RAM-based GaAs.	NSC	5			8.0E-07	1996	>90		BNL?	Katz, EEE Links, Nov 96. Data programmed in.
GSFC	CP20420	4245 equiv. 2-input gates	CMOS	CPT	~12.5				1994	>15 <27		BNL	LaBel, et al, 94IEEE Wrkshp Rec., pg 64.
GSFC	**KJ911**		**Rad-hard, 2 µm epi (3.0 V)**	**LMA**	**18.8**	**~1.5E-06**			**'96-'97**			**BNL**	**Katz, EEE Links, Vol. 3, No. 2, Jun 97, pg 24.**
GSFC	**MKJ911**		**CMOS, 10 µm epi (3.0 V)**	**MAT**	**13.2**	**3.0E-06**			**'96-'97**			**BNL**	**Katz, EEE Links, Vol. 3, No. 2, Jun 97, pg 24.**
GSFC	**MKJ911**		**CMOS, 10 µm epi (3.3 V)**	**MAT**	**18.8**	**~1.5E-06**			**'96-'97**			**BNL**	**Katz, EEE Links, Vol. 3, No. 2, Jun 97, pg 24.**
GSFC	**QYH580 LPGA**	**35000 gates (3.3 V)**	**Bulk CMOS, 0.8 µm features**	**YAM**	**~37**	**2.0E-06**			**Feb-97**	**>70**		**BNL**	**Katz, et al, EEE Links, Vol. 3, No. 2, Jun 97, pg 21.**
GSFC	**QYH580 LPGA**	**35000 gates (5.0 V)**	**Bulk CMOS, 0.8 µm features**	**YAM**	**~37**	**no sat.**			**Feb-97**	**~67**	**4.0E-05**	**BNL**	**Katz, et al, EEE Links, Vol. 3, No. 2, Jun 97, pg 21. LU X-section @ LET = 78. LU @ 60 with 5.5 V.**
GSFC	RH1020	2000 equiv. 2-input gates	CMOS/epi [1.0 µm feature]	ACT								BNL	Katz, EEE Links, Nov 96. No LU. SEDR.
GSFC	RH1280	8000 equiv. 2-input gates	CMOS/epi [Rad Hard]	ACT	22			8.0E-06				BNL	Katz, EEE Links, Nov 96. No LU. SEDR . Proton upsets for C-module.
GSFC	RH1280	8000 equiv. 2-input gates	CMOS/epi [Rad Hard]	ACT	3			9.0E-06				BNL	Katz, EEE Links, Nov 96. No LU. SEDR . Proton upsets for S-module.
ESA	RH1280	8000 equiv. 2-input gates	CMOS/epi [Rad Hard Loral 0.8 µm]	ACT	27	1.7E-06		1.7E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. C-module - All "0s".
ESA	RH1280	8000 equiv. 2-input gates	CMOS/epi [Rad Hard Loral 0.8 µm]	ACT	10	6.0E-06		6.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. S-module - All "1s".
ESA	RH1280	8000 equiv. 2-input gates	CMOS/epi [Rad Hard Loral 0.8 µm]	ACT	15	1.0E-06		1.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. I/O - All "1s".
GSFC	RH1280	8000 equiv. 2-input gates	CMOS 0.8 µm. feature	LFS	22			8.0E-06				BNL?	Katz, EEE Links, p 17, July 1996. C-module.

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Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
GSFC	RH1280	8000 equiv. 2-input gates	CMOS 0.8 µm. feature	LFS	3			9.0E-06				BNL?	Katz, EEE Links, p 17, July 1996. S-module.
ESA	RH1280 3.3V	8000 equiv. 2-input gates	CMOS/epi [Rad Hard Loral 0.8 µm]	ACT	15	4.0E-06		1.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. C-module - All "0s".
ESA	RH1280 3.3V	8000 equiv. 2-input gates	CMOS/epi [Rad Hard Loral 0.8 µm]	ACT	6	1.0E-05		1.0E-05	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. S-module - All "1s".
ESA	RH1280 3.3V	8000 equiv. 2-input gates	CMOS/epi [Rad Hard Loral 0.8 µm]	ACT	10	2.0E-06		2.0E-06	Sep-96	>120		BNL	Mattsson, ESA Rept SE/REP/0047/K. I/O - All "1s".
SAAB	**RH1280 3.3 V**	**8000 equiv. 2-input gates**	**CMOS/epi [Rad Hard LMA 0.8 µm]**	**ACT**	**25**			**8.0E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. C-module. D/C 9617.**
SAAB	**RH1280 3.3 V**	**8000 equiv. 2-input gates**	**CMOS/epi [Rad Hard LMA 0.8 µm]**	**ACT**	**8**			**2.0E-06**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. S- & I/O-modules. D/C 9617.**
SAAB	**RH1280 5.0 V**	**8000 equiv. 2-input gates**	**CMOS/epi [Rad Hard LMA 0.8 µm]**	**ACT**	**30**			**4.5E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. C-module. D/C 9617.**
SAAB	**RH1280 5.0 V**	**8000 equiv. 2-input gates**	**CMOS/epi [Rad Hard LMA 0.8 µm]**	**ACT**	**10**			**1.5E-07**	**1997**	**>110**		**CYC**	**Mattsson, et al, SAAB Doc. SE/REP/0078/K, 10/97. S- & I/O-modules. D/C 9617.**
MMS	TPC1020	2000 equiv. 2-input gates	CMOS/epi (1.2 µm feature)	TIX	20				Jul-93	>76			Beaucour, 93IEEE Wrkshp Rec., pg 20.
CNES	XC2064	1200 equiv. 2-input gates	CMOS/bulk	XIL	6	2.0E-02			1990	12.7	2.5E-04		Chapuis. Actel family.
CNES	XC3042	4200 equiv. 2-input gates	CMOS/bulk	XIL	6	3.0E-02			1990	<12.7	1.2E-03		Chapuis. Actel family.
GE	XC3090-70	9000 equiv. 2-input gates	CMOS/bulk	XIL					Jul-92	5	5.0E-03		DC9110 & 9045.
GSFC	XC3090A	9000 equiv. input gates	CMOS/bulk	XIL	4 - 7				1996	4 to 7		BNL	Katz, EEE Links, p 17, July, 1996 & LaBel, et al, 96 IEEE Wrkshp Rec., pg 19.
LMC	**XC4036XL**	**36K equiv. Gates**	**CMOS/7µm epi, 0.35µm feat. 3.3 V**	**XIL**	**<15**				**1997**	**>100**		**BNL**	**Lum, LMC Tech Memo TM26-98. 125° C. Upsets mainly in "basement" (control) logic.**

Legend

Manufacturers: ACT - Actel Corp; ALT - Altera; ATM - Atmel; ATT - American Telephone and Telegraph; CPT - Crosspoint; GTF - Gatefield; LFS -Lockheed Federal Systems; MAT - Matsushita; NSC - National Semiconductor;
TIX - Texas Instruments;YAM - Yamaha; XIL - Xilinx Corp

Test Organizations

ARSP - Aerospace Corp., El Segundo, CA
CNES - Centre National d'etudes Spatiales, Toulouse, France
ESA - European Space Agency, Noordwijk, Netherlands
GE - General Electic, Valley Forge, PA
GSFC - Goddard Space Flight Center, Greenbelt, MD
HAR - Harris Corp, Melbourne, FL
HON - Honeywell Space Systems, Clearwater, FL
IBM - IBM Federal Systems Division, Manassas, VA
JH - Johns Hopkins Applied Physics Lab, Laurel, MD
LMC- Lockheed-Martin Corp, Sunnyvale, CA
MHS - Matra Harris Semiconductor, France
MMS - Matra Marconi Space, France
NRL - Naval Research Laboratory, Washington, DC
Saab - Ericsson Saab Avionics AB, Linköping, Sweden
SEI - Space Electronics, Inc, San Diego, CA

Radiation Test Facilities

BNL - Tandem Van de Graaff, Brookhaven National Laboratories, Long Island, NY
CYC - CYCLONE, Université Catholique de Louvain-la-Neuve, Belgium
IUCF - Indiana University Cyclotron Facility, Bloomington, IN
TAM - Texas A&M University Cyclotron Institute, College Station, TX
TSL - The Svedberg Laboratory, Uppsala, Sweden
UCB - 88-inch Cyclotron, University of California, Berkeley, CA
UCD - University of California at Davis, Crocker Nuclear Laboratory, Davis, CA