Paper No., Page No.	First Author	Part No.	Type	Manufacture	Data		Total Ionizing Dose				Single Event Effects							Displacement Damage		Facilities	Standard	Environment
					Terrestrial	Flight	Co60	ELDRS	Protons	Electrons	SEU	SET	SEFI	SEL	SEB	SEGR	Dose Rate	Protons	Neutrons			
10, pp. 1-11	D. Nichols	80C286	Microprocessor	Harris	√						√			√							√	
		7C801	Microprocessor	Cypress Semiconductor	√									√								
		R3000A	Microprocessor	Integrated Device Technologies	√						√			√								
		80960MX	Microprocessor	Intel	√									√								
		L64811	Microprocessor	LSI Logic	√						√			√								
		L64730	Microprocessor	LSI Logic	√									√								
		Mongoose R3000	Microprocessor	LSI Logic	√						√			√								
		R3000A	Microprocessor	LSI Logic	√						√			√								
		R33000HC	Microprocessor	LSI Logic	√						√			√								
		90C801	Microprocessor	Matra	√						√			√								
		PR3400	Microprocessor	Performance Semicinductor	√						√			√								
		PR3400A	Microprocessor	Performance Semicinductor	√						√			√								
		887020	Microprocessor	Thomson Military & Space	√						√			√								
		Alpha	Microprocessor	Digital Equipment Corporation	√									√								
		AM65C30	Controller	Advanced Micro Devices	√									√								
		AMAS2901	Controller	General Electric	√						√			√								
		82C527	CAN Microcontroller	Intel	√						√			√								
		87C51FB	Microprocessor	Intel	√						√			√								
		87C51FC	Microprocessor	Intel	√						√			√								
		RH80C51FC	Microprocessor	UTMC	√						√			√								
		68HCS705	Microprocessor	Motorola	√									√								
		87C552	Microprocessor	Signetics	√									√								
		82380	DMA Controller	Intel	√						√			√								
		53C90	SCSI Controller	National Cash Register	√						√			√								
		SM320E15	Digital Signal Processor	Texas Instruments	√									√								
		SMJ27C128-25	16K x 8 EEPROM	Texas Instruments	√									√								
		320C30	Digital Signal Processor	Texas Instruments	√						√			√								
		TMS320C50	Digital Signal Processor	Texas Instruments	√						√			√								
		7C802	Coprocessor	Cypress Semiconductor	√									√								
		7C804	Coprocessor	Cypress Semiconductor	√									√								
		L64801	Integer Unit	LSI Logic	√						√			√								
		L64804	Floating Point Unit	LSI Logic	√						√			√								
		L64814	Floating Point Unit	LSI Logic	√						√			√								
		90C602	Coprocessor	Matra	√						√			√								
		74FTC163374PV	Register	Integrated Device Technologies	√						√			√								
		F100331	D type Flip Flop	National Semiconductor	√						√			√								
		F100336	Counter/Shift Register	National Semiconductor	√						√			√								
		TLC555	Timer	Texas Instruments	√									√								
		HS506RH	Analog Multiplexer	Harris	√									√								
		54ACTQ245	Transceiver	National Semiconductor	√									√								
		CY7C249-30DM	FIFO	Cypress Semiconductor	√						√			√								
		72017	512 x 9 FIFIO	Integrated Device Technologies	√						√			√								
		7203L40D8	2K x 9 FIFO	Integrated Device Technologies	√						√			√								
		7203ERP	2K x 9 FIFO	Integrated Device Technologies	√						√			√								
		7204	4K x 9 FIFIO	Integrated Device Technologies	√						√			√								
		CY7C199	SRAM	Cypress Semiconductor	√						√			√								
		HM1-65162-2	SRAM	Harris	√						√			√								
		HC6364	SRAM	Honeywell	√						√			√								
		HC6856	SRAM	Honeywell	√						√			√								
		TMS416400 Rev. B	DRAM	Texas Instruments	√						√			√								
		SMJ416400	DRAM	Texas Instruments	√						√			√								
		TCS117400FT-70	DRAM	Toshiba	√						√			√								
		TC117400J-6	DRAM	Toshiba	√						√			√								
		R29791	PROM	Raytheon	√						√			√								
		HS6654RH	PROM	Harris	√						√			√								
		28C256	EEPROM	Atmel	√						√			√								
		HN58C56P-25	EEPROM	Hitachi	√						√			√								
		HN58C256P-20	EEPROM	Hitachi	√						√			√								
		DPZ128X16AJ	Flash Memory	Hitachi	√						√			√								
		MEM8129	EEPROM	Hitachi	√						√			√								
		HN58C1001	EEPROM	Hitachi	√						√			√								
		FM1208S	EEPROM	Ramtron	√						√			√								
		KM29C010	EEPROM	Samsung	√						√			√								
		28C256	EEPROM	SEEQ Technology Inc	√						√			√								
		28C256A	EEPROM	SEEQ Technology Inc	√						√			√								
		28C256E	EEPROM	SEEQ Technology Inc	√						√			√								
		28C256-200	EEPROM	SEEQ Technology Inc	√						√			√								
		57C538-5001	EEPROM	SEEQ Technology Inc	√						√			√								
		28C010	EEPROM	SEEQ Technology Inc	√						√			√								
		CQ28C010	EEPROM	SEEQ Technology Inc	√									√								
		WE-512K8-150CX	EEPROM	SEEQ Technology Inc	√									√								
		SA3823	EEPROM	Westinghouse	√						√			√								
		5SC85	EEPROM	SEEQ Technology Inc	√						√			√								
		27C210	UVEPROM	Intel	√						√			√								
		1020	FPGA	Actel	√						√			√								
		A1020A	FPGA	Actel	√						√			√								
		A1020B	FPGA	Actel	√						√			√								
		A1280	FPGA	Actel	√						√			√								
		A1280A	FPGA	Actel	√						√			√								
		7258GC192-1	FPGA	Actel	√						√			√								
		CP20420	FPGA	Crosspoint	√						√			√								
		3020	FPGA	Harris	√						√			√								
		3090	FPGA	Harris	√						√			√								
		HR1080	Gate Array	Honeywell	√						√			√								
		HR2340	Gate Array	Honeywell	√						√			√								
		LCA200K	ASIC Process	LSI Logic	√						√			√								
		LCA100380	Process	LSI Logic	√						√			√								
		TPC1020	FPGA	Texas Instruments	√						√			√								
		UTER50K	Gate Array	UTMC	√						√			√								
		UTER75K	Gate Array	UTMC	√						√			√								
		RHCMOS2	Gate Array	IBM	√						√			√								
		BTVCMOS2	Gate Array	IBM	√						√			√								
		PAL16R8BBMJ/883B	Programmable Logic Array	Advanced Micro Devices	√						√			√								
		AT22V10	Programmable Logic Array	Atmel	√						√			√								
		TIBPAL22V10	Programmable Logic Array	Texas Instruments	√						√			√								
		22V10	Programmable Logic Array	Texas Instruments	√						√			√								
		16L8	Programmable Logic Array	Texas Instruments	√						√			√								
		TIBPAL16R8	Programmable Logic Array	Texas Instruments	√						√			√								
		EP610	Programmable Logic Device	Alterra	√									√								
		EP1810	Programmable Logic Device	Alterra	√						√			√								
		EPM5032	Programmable Logic Device	Alterra	√						√			√								
		CY-7C344	Programmable Logic Device	Cypress Semiconductor	√						√			√								
		1XD3-0701	RS Encoder	UTMC	√						√			√								
		ACS/IOU	1553 Interfcae	UTMC	√						√			√								
		IDT49C450	EDAC Controller	Integrated Device Technologies	√						√			√								
		Hot Rod Tx	Transceiver	Gazelle	√						√			√								
		Hot Rod Rx	Receiver	Gazelle	√						√			√								
		TAXI	Transceiver	Advanced Micro Devices	√									√								
		AX3411	1553B Transceiver	Aeroflex Labs	√						√			√								
		AX3453	1553B Transceiver	Aeroflex Labs	√						√			√								
		DDC63125	1553B Transceiver	Data Devices Corporation	√						√			√								
		74FTC163245PV	Transceiver	Integrated Device Technologies	√						√			√								
		LTC485	RS485 Transceiver	Linear Technology	√									√								
		CT1487D	1553B Transceiver	Marconi Electroinic Devices	√						√			√								
		CT2521	1553B Transceiver	Marconi Electroinic Devices	√						√			√								
		NH1500	1553B Transceiver	National Semiconductor	√						√			√								
		NH1529	1553B Transceiver	National Semiconductor	√						√			√								
		FC1553821	1553B Transceiver	Silicon Transistor Corporation	√						√			√								
		UTMC63M125	1553B Transceiver	UTMC	√						√			√								
		UT63M125	1553B Transceiver	UTMC	√						√			√								
		M63147	1553B Transceiver	UTMC	√						√			√								
		AD8001	Operational Amplifier	Analog Devices	√						√			√								
		HS3530RH	Operational Amplifier	Harris	√						√			√								
		LM108	Operational Amplifier	Motorola	√						√			√								
		LM108	Operational Amplifier	National Semiconductor	√						√											
		LM124	Operational Amplifier	National Semiconductor	√									√								
		LM158	Operational Amplifier	National Semiconductor	√									√								
		LM218H	Operational Amplifier	National Semiconductor	√									√								
		LM108AH	Operational Amplifier	National Semiconductor	√						√			√								
		OP05	Operational Amplifier	Precision Monolithics	√						√			√								
		OP07AJ	Operational Amplifier	Precision Monolithics	√						√			√								
		OP15	Operational Amplifier	Precision Monolithics	√						√			√								
		OP97	Operational Amplifier	Precision Monolithics	√									√								
		SMP11	Operational Amplifier	Precision Monolithics	√									√								
		EL2243	Operational Amplifier	Elantec	√						√			√								
		PA10	Power Operational Amplifier	APEX	√									√								
		AD524	Operational Amplifier	Analog Devices	√						√			√								
		LM120H-12/883C	Voltage Regulator	National Semiconductor	√									√								
		LM117H	Voltage Regulator	National Semiconductor	√									√								
		LM136AH	Voltage Regulator	National Semiconductor	√									√								
		LP2951	Voltage Regulator	National Semiconductor	√						√			√								
		REF02-373J	Volatge Reference	National Semiconductor	√									√								
		SE5521F	Signal Conditioner	Signetics	√									√								
		LM111	Voltage Comparator	Motorola	√						√			√								
		LM111H	Voltage Comparator	National Semiconductor	√						√			√								
		LM119	Voltage Comparator	National Semiconductor	√									√								
		LM193H	Voltage Comparator	National Semiconductor	√									√								
		LM139	Voltage Comparator	National Semiconductor	√									√								
		LM139A	Voltage Comparator	National Semiconductor	√									√								
		IDAQ7318	Laser Driver	Hewlett Packard	√						√			√								
		88C20	Differntial Receiver	National Semiconductor	√						√			√								
		88C30	Differential Driver	National Semiconductor	√						√			√								
		TSC4429	Differential Driver	MOSFET Driver	√									√								
		D469A	Power Driver	Power Driver	√									√								
		MIC4420	Driver	Power Driver	√									√								
		HS26C31	Differential Driver	Harris	√						√			√								
		HS2632	Differntial Receiver	Harris	√						√			√								
		26C31	Differential Driver	National Semiconductor	√									√								
		26C32	Differntial Receiver	National Semiconductor	√									√								
		DG201	Analog Switch	Harris	√									√								
		DG201	Analog Switch	Siliconix	√									√								
		DG507AAK/883	Analog Switch	Siliconix	√									√								
		CA3338AD	8 bit DAC	Harris	√						√			√								
		DAC08AQ	8 bit DAC	Precision Monolithics	√						√			√								
		AD565	8 bit DAC	Analog Devices	√									√								
		AD7545AKN	8 bit DAC	Analog Devices	√						√			√								
		HAR7574KN	8 bit DAC	Harris	√									√								
		MX7545TQ	8 bit DAC	Maxim	√						√			√								
		MP7545TD/883	8 bit DAC	Micro Power Systems	√						√			√								
		MP7645TD/883	8 bit DAC	Micro Power Systems	√						√			√								
		7820RP/372	8 bit ADC	Micro Power Systems	√									√								
		TDC1048	8 bit ADC	TRW	√						√			√								
		AD9048	8 bit ADC	Analog Devices	√						√			√								
		HS9008RH	8 bit ADC	Harris	√						√			√								
		AD1671JD	12 bit ADC	Analog Devices	√									√								
		AD7541ATQ/883B	12 bit ADC	Analog Devices	√									√								
		AD7870	12 bit ADC	Analog Devices	√									√								
		AD7878	12 bit ADC	Analog Devices	√						√			√								
		AD42961	12 bit ADC	Analog Devices	√						√			√								
		RBC-12	12 bit ADC	Analog Devices	√						√			√								
		HI574	12 bit ADC	Harris	√						√			√								
		SPT7922	12 bit ADC	Signal Processing	√						√			√								
		HS5212	12 bit ADC	Sipex	√						√			√								
		HS5214	12 bit ADC	Sipex	√						√			√								
		SP574AU/B	12 bit ADC	Sipex	√									√								
		AD6768D	16 bit ADC	Analog Devices	√						√			√								

		AD677	16 bit ADC	Analog Devices	√						√			√								
		ADS7805	16 bit ADC	Analog Devices	√									√								
		CS5327	16 bit ADC	Crystal Semiconductor	√						√			√								
		MAX195	16 bit ADC	Maxim	√									√								
		HS9576RH	16 bit ADC	Sipex	√						√			√								
		ART2815T	DC-DC converter	Advanced Analog	√						√			√								
		ATW28XX	DC-DC converter	Advanced Analog	√									√								
		MFL2815D	DC-DC converter	Interpoint	√						√			√								
		MFL2815S	DC-DC converter	Interpoint	√						√			√								
		MFL2812S	DC-DC converter	Interpoint	√						√			√								
		MFL2805S	DC-DC converter	Interpoint	√						√			√								
		2690R-D15F	DC-DC converter	Modular Devices Inc.	√						√			√								
		AHE2815DF/CH-5LV	DC-DC converter	Advanced Analog	√						√			√								
		AHE2815D/HB	DC-DC converter	Advanced Analog	√						√			√								
		SP6908	Phase Locked Loop	General Electric	√						√											
		MC145148P2	Phase Locked Loop	Motorola	√						√			√								
		WD3392A	SCSI Controller	Western Digital Corporation	√						√			√								
		ADS10C100J100	Controller	Western Digital Corporation	√						√			√								
		SSP21110-025	Solid State Power Controller	Data Devices Corporation	√									√								
		HS2420	Sample and Hold	Harris	√						√			√								
		DON688	Silicon Controlled Rectifier	Solid State Device	√						√			√								
		D1777A	Silicon Controlled Rectifier	Solid State Device	√						√			√								
		EMXO	Oscillator	Bal Efatrom	√						√			√								
		HFD3801-002	Fiber Optic Receiver	Honeywell	√						√											
		HFE4811-013	Fiber Optic Transmitter	Honeywell	√						√											
		ODL200TX	Fiber Optic Receiver	AT&T	√						√			√								
		ODL200REC	Fiber Optic Transmitter	AT&T	√						√			√								
		9407	Register	Fairchild Semiconductor	√																	
		9407	Register	Fairchild Semiconductor	√																	
		L29C520	Register	Linear Technology	√									√								
		LTC1064	Low Pass Filter	Linear Technology	√									√								
		SQR5053	Code	SOREP	√									√								
		AD2S80	Resolver to Digital Converter	Analog Devices	√						√			√								
		HSRD1056	Resolver to Digital Converter	Natel	√						√			√								
8, pp. 12-32	K. LaBel	A1280A	FPFA	Actel	√									√							√	
		HN58C1001	EEPROM	Hitachi	√									√								
		28C256	EEPROM	SEEQ	√									√								
		AD524	Instrumentation Amplifier	Analog Devices	√							√		√								
		AD565	DAC	Analog Devices	√						√			√								
		HS5212	12 bit ADC	Hybrid Systems	√						√			√								
		7820RP/372	ADC	Space Electronics Inc.	√									√								
		DAC08AQ	8 bit DAC	Precision Monolithics	√						√			√								
		SSP21110-025	Power Controller	Data Devices Corporation	√						√			√								
		2690R-D15F	DC-DC converter	Modular Devices Inc.	√						√			√								
		AHE2815	DC-DC converter	Advanced Analog	√						√											
		MFL2805S	DC-DC converter	Interpoint	√						√			√								
		MFL2812S	DC-DC converter	Interpoint	√						√			√								
		MFL2815D	DC-DC converter	Interpoint	√						√			√								
		MFL2815S	DC-DC converter	Interpoint	√						√			√								
		LM119	Voltage Comparator	National Semiconductor	√									√								
		LM139A	Voltage Comparator	National Semiconductor	√									√								
		LM139	Voltage Comparator	National Semiconductor	√									√								
		LM108AH	Operational Amplifier	Precision Monolithics	√							√		√								
		LM124	Operational Amplifier	National Semiconductor	√									√								
		LM158	Operational Amplifier	National Semiconductor	√									√								
		OP07AJ	Operational Amplifier	Precision Monolithics	√							√		√								
		OP97	Operational Amplifier	Precision Monolithics	√									√								
		PA10	Operational Amplifier	Apex	√									√								
		SMP11	Operational Amplifier	Precision Monolithics	√									√								
		SE5521F	Signal Conditioner	SGN	√									√								
		LM117H	Voltage Regulator	National Semiconductor	√									√								
		LM120H	Voltage Regulator	National Semiconductor	√									√								
		LM136AH	Voltage Regulator	National Semiconductor	√									√								
		LP2951	Voltage Regulator	National Semiconductor	√									√								
		REF-02-373J	Voltage Reference	Precision Monolithics	√									√								
		8116400-60PJ	16 Mbit DRAM	Fujitsu	√									√								
		HM5117400RR7	16 Mbit DRAM	Hitachi	√						√											
		KM44C4000	16 Mbit DRAM	Samsung	√						√			√								
		MCM516400J60	16 Mbit DRAM	Motorola	√						√											
		MCM517400J60	16 Mbit DRAM	Motorola	√						√											
		MT4CM4B1DW	16 Mbit DRAM	Micron	√						√			√								
		TC5117400FT-70	16 Mbit DRAM	Toshiba	√						√			√								
		70324	Dual Port RAM	IDT	√									√								
		70V25	Dual Port SRAM	IDT	√						√			√								
		7201T	9x512 FIFO	IDT	√						√			√								
		7203ERP	9 x 2048 bit FIFO	IDT	√						√			√								
		7203L40DB	9 x 2048 bit FIFO	IDT	√						√			√								
		7204	9 x 4096 bit FIFO	IDT	√						√			√								
		80386-20	Microprocessor	Intel	√						√			√								
		80386DX-25	Microprocessor	Intel	√									√								
		82380-20/B	Integrated Peripheral	Intel	√						√			√								
		82380-16	Integrated Peripheral	Intel	√									√								
		80387	Microprocessor	Intel	√						√			√								
		80486DX-33	Microprocessor	Intel	√						√			√								
		80486DX2-66	Microprocessor	Intel	√						√			√								
		49C460	EDAC Controller	IDT	√						√			√								
		74FCT163374	16 bit Register	IDT	√						√			√								
		74FCT163245	16 bit Transceiver	IDT	√						√			√								
		HR2340	Test Metal	Honeywell	√						√			√								
		MIC4427	MOSFET Driver	Micrel	√									√								
12, pp. 33-38	E. Normand		ARINC 429 Receiver, 3.3V	US2	√						√			√								
			ARINC 429 Receiver, 5.0V	US2	√						√			√								
			ARINC 429 Receiver, 5.0V	AMI	√									√								
		CGD3302	Gate Array	Fijitsu	√									√								
		LCA100K	Gate Array	LSI Logic	√									√								
		LCA200K	Gate Array	LSI Logic	√									√								
4, pp. 39-41	S. Buchner	GAPDETECT	Custom		√						√											
7, pp.42-49	R. Harboe-Sorensen	8116100-60JP	16 Mbit DRAM	Fujitsu	√		√				√											
		HM5116100Z8	16 Mbit DRAM	Hitachi	√		√				√											
		HM5116600Z8	16 Mbit DRAM	Hitachi	√		√				√											
		HM5116400AS6	16 Mbit DRAM	Hitachi	√		√				√											
		IBM401070804	16 Mbit DRAM	IBM	√		√				√											
		63F9221	16 Mbit DRAM	IBM	√		√				√											
		MT4C4M4B1DW	16 Mbit DRAM	Micron	√		√				√			√								
		MT4C40004	16 Mbit DRAM	Micron	√		√				√			√								
		D4216100V-70	16 Mbit DRAM	NEC	√		√				√											
		KM41C16000J-B	16 Mbit DRAM	Samsung	√		√				√											
		KM41C16000J-7	16 Mbit DRAM	Samsung	√		√				√											
		KM44C4000J-6	16 Mbit DRAM	Samsung	√		√				√											
		TMS416400A	16 Mbit DRAM	Texas Instruments	√		√				√			√								
		TC5116400J-60	16 Mbit DRAM	Toshiba	√		√				√											
		TC5116400 FT-60	16 Mbit DRAM	Toshiba	√		√				√											
17, pp. 50-54	M. Skipper	MIC4427	CCD Clock Driver	Micrel	√		√							√								
2, pp. 55-59	J. Bensoussan	UC1806	Pulse Width Modulator	Unitrode	√		√					√		√								
15, pp. 60-63	D. Shaw	80C186	Microprocessor	Intel	√		√															
		80C186	Microprocessor	Advanced Micro Devices	√		√															
14, pp. 64-70	M. Regula	1750	Microprocessor, PACE	Westinghouse	√		√															
		1753	Memory Management Unit	Westinghouse	√		√															
		1754	Processor Interface Controller	Westinghouse	√		√															
16, pp. 71-77	L. Silvermann	TL 431	Voltage Reference	Motorola	√		√															
		REF-43	Voltage Reference	Precision Monolithics	√		√															
		1N5404	Schottky Diode	Motorola	√		√															
		CLC404	Operational Amplifier	Comlinear	√		√															
		Custom	Logarithmic Amplifier	Rockwell International	√		√															
13, pp. 78-84	A. Pawlikiewicz	ACUTE	Complimentary Bipolar Process	UTMC	√		√															
12, pp. 85-89	T. Corbiere	MHS	0.85 µm CMOS process	Matra	√		√															
3, pp. 90-90	D. Brautigam		CRRES Electron Model																			√
6, pp. 91-92	G. Ginet		PL-GEOSpace Dynamic Model																			√
11, pp. 93-98	E. Nolting		Phoenix, X-ray facility																		√	
9, pp. 99-103	J. Miller		Casino, X-ray facility																		√	
1, pp. 104-106	H. Andrews		Chalk River, heavy ion facility																		√	

Once the paper(s) with the response data required has been located it is the radiation effects engineer's responsibility to perform a detailed review to establish applicability.