

Guide to the 2008 IEEE Radiation Effects Data Workshop Record

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Abstract-- The 2008 Workshop Record has been reviewed and a table prepared to facilitate the search for radiation response data by part number, type, or effect.

I. INTRODUCTION

IN this paper a Guide to the 2008 Radiation Effects Data Workshop (REDW) Record is provided [1]. The Workshop Record (WR) published each year is a permanent archive of the REDW. It serves as a key source of radiation response data for the radiation effects community (REC). It also provides descriptions of radiation effects test facilities, standards, and environments. Although the record provides a cumulative index that can be used to locate papers based on author and title it is difficult to search for response data on a particular part number, type, or radiation effect. To simplify this search as an ongoing effort each year a table is prepared for that year's WR [2-4]. In this table the following information is provided for each paper:

- Cumulative Index Number
- Page number in Workshop Record
- Name of first author
- Part Number(s)
- Part Type(s)
- Manufacture(s)
- Data
 - Terrestrial or Flight
- Radiation Effect(s) Evaluated
 - Total Ionizing Dose
 - Co⁶⁰ High Dose Rate
 - Co⁶⁰ Low Dose Rate (ELDRS)
 - x-ray
 - pions
 - Protons
 - Electrons
 - Single Event Effects due to: heavy ions, protons, neutrons, and laser
 - Single Event Upset (SEU)
 - Single Event Transient (SET)
 - Single Event Functional Interrupt (SEFI)

- Single Event Latchup (SEL)
- Single Event Burnout (SEB)
- Single Event Gate Rupture (SEGR)
- Dose rate
- Displacement Damage
 - Protons
 - Neutrons
- Facilities
- Standard
- Environment
- Shielding

II. RESPONSE DATA SEARCH

This paper contains the Table for REDW 2008 in Table I. Tables for all WR's are available on the NSREC website <http://www.nsrec.com/redw/>. The tables are provided in Portable Document Format (pdf) and a search can simply be performed using capabilities built into the Adobe Acrobat software. 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 of the response data. Individual copies of the full papers are available online at IEEE Xplore®.

III. 2007 WORKSHOP RECORD SUMMARY

The 2008 Workshop Record has twenty-six high quality papers. It provides: radiation response data on a wide range of devices, circuits, and systems, test facilities descriptions, and a dosimetry standard.

IV. CONCLUSIONS

The Guide to the 2008 IEEE Radiation Effects Data Workshop provides an efficient way to search for response data on a particular part number, type, or radiation effect.

V. REFERENCES

- [1] 2008 IEEE Radiation Effects Data Workshop Record, J. Felix, Editor, New Jersey, IEEE, 2008.
- [2] D. Hiemstra, "Guide to the IEEE Radiation Effects Data Workshop Record," IEEE REDW, pp. 1-5, 2006.
- [3] D. Hiemstra, "Guide to the 2006 IEEE Radiation Effects Data Workshop Record," IEEE REDW, pp. 211-214, 2007.
- [4] D. Hiemstra, "Guide to the 2007 IEEE Radiation Effects Data Workshop Record," IEEE REDW, pp. 1-4, 2008.

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TABLE I (CONTINUED)
REDW 2008

Paper No., Page No.	First Author	Part No.	Type	Manufacture	Data		Total Ionizing Dose, X-ray, P-pions		Single Event Effects, H-heavy ion, P-proton, L-laser, N-neutrons				Displacement Damage		Facilities	Standard	Environment	Shielding		
					Terrestrial	Flight	C660	Protons	Electrons	SEU	SET	SEFI	SEL	SEB					SEGR	Dose Rate
4, pp. 21-30 (cont'd)	G. Allen	CG54HC14046	Phased Locked Loop	Texas Instruments	√															
		CDCV885	Phased Locked Loop Clock	Texas Instruments	√															
		CY22392	Phased Locked Loop Clock	Cypress	√															
		X9C503	8 bit DAC	Xicor	√															
		AD8420	12 bit DAC	Analog Devices	√															
		AD7541	12 bit DAC	Harris	√															
		AD7245A	12 bit DAC	Analog Devices	√															
		MAX539	12 bit DAC	Maxim	√															
		LTC1595	16 bit ADC	Linear Technology	√															
		AD768	16 bit ADC	Analog Devices	√															
		LTC1650	16 bit ADC	Linear Technology	√															
		ADSP-2100	Digital Signal Processor	Analog Devices	√															
		ADSP-BF533	Digital Signal Processor	Analog Devices	√															
		Stratix-II	FPGA	Altera	√															
		Pro-ASIC Plus	FPGA	Actel	√															
		Virtex-II	FPGA	Xilinx	√						√H		√H	√H						
		Virex-4	FPGA	Xilinx	√						√H		√H	√H						
		UT63M147	1553 Transceiver	Aeroflex	√															
		28C1LV31	Differential Driver	Intersil	√							√H								
		SN55LBC174	Differential Driver	Texas Instruments	√							√H								
		26CLV32RH	Differential Receiver	Intersil	√							√H								
		26CT32RH	Differential Receiver	Intersil	√							√H								
		SN55LBC175	Differential Receiver	Texas Instruments	√							√H								
		SEN-5588	Power MOSFET Driver	Sensitron	√															
		LTC1157	Power MOSFET Driver	Linear Technology	√															
		TC4423	Power MOSFET Driver	Microchip	√															
		NCS7508	Logic	Fairchild	√															
		CDCV304	Clock Buffer	Texas Instruments	√															
		SN54LVTH244	Octal Buffer	Texas Instruments	√															
		CY23FS08	Failsafe	Cypress	√															
		PPC750	Microprocessor	IBM	√							√H								
		PPC750	Microprocessor	IBM	√							√H								
		XPC750	Microprocessor	Motorola	√							√H								
		XPC750	Microprocessor	Motorola	√							√H								
		PPC7455	Microprocessor	Motorola	√							√H								
		PPC7455	Microprocessor	Motorola	√							√H								
		PPC750FX	Microprocessor	IBM	√							√H								
		PPC750FX	Microprocessor	IBM	√							√H								
		PPC7457	Microprocessor	Motorola	√							√H								
		PPC7447	Microprocessor	Motorola	√							√H								
		PPC7448	Microprocessor	Motorola	√							√H								
		SPARCTSC695F	Microprocessor	Atmel	√							√H								
		X9C503	Digital Potentiometer	Xicor	√															
		AD7750	Voltage to Frequency Converter	Analog Devices	√															
		LTC1387	RS-232/485 Transceiver	Linear Technology	√															
		ADV7183B	SDTV Video Decoder	Analog Devices	√															
		LTC1772	DC-DC Converter	Linear Technology	√															
		MAX708	µP Supervisory Circuit	Maxim	√															
		ADuM1404	Digital Isolator	Analog Devices	√															
		ADT7461A	Digital Thermometer	Analog Devices	√															
		DS1631	Digital Thermometer	Maxim	√															
		TSS902E	Viterbi Decoder	Atmel	√															
		ID172V36110	FIFO	Integrated Device Technology	√															
		OMH3040	Hall Effect Sensor	Optek	√							√H								
		AD9858	Direct Digital Synthesizer	Analog Devices	√							√H								
		PSD4256G6V	Memory	ST Microelectronics	√															
		AT28256AN	EEPROM	Atmel	√															
		MT29F2G08AABWP	Flash	Micron	√							√H		√H						
		MT29F4G08AAAWP	Flash	Micron	√							√H		√H						
		HY27UF084G2B	Flash	Hynix	√							√H		√H						
			2 Gbit Flash	ST Microelectronics	√							√H		√H						
			1 Gbit Flash	Samsung	√							√H		√H						
			2 Gbit Flash	Samsung	√							√H		√H						
			4 Gbit Flash	Samsung	√							√H		√H						
			1 Gbit Flash	Intel	√							√H		√H						
			256 Mbit Flash	StrataFlash	√									√H						
		S29JL0643	Flash	Spansion	√							√H		√H						
		S29JL0644	Flash	Spansion	√							√H		√H						
		K9F2G08UOM	Flash	Samsung	√							√H								
		K9F2G08UOM	Flash	Samsung	√							√H								
		LTC2052	Operational Amplifier	Linear Technology	√															
		LTC2052	Operational Amplifier	Linear Technology	√															

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REDW 2008

Paper No., Page No.	First Author	Part No.	Type	Manufacture	Data		Total Ionizing Dose, X-ray, P-pions			Single Event Effects, H-heavy ion, P-proton, L-laser, N-neutrons				Displacement Damage		Facilities	Standard	Environment	Shielding			
					Terrestrial	Flight	Co60	ELDRS	Protons	Electrons	SEU	SET	SEFI	SEL	SEB					SEGR	Dose Rate	Protons
4. pp. 21-30 (cont'd)	G. Allen	LMC6035	Operational Amplifier	National Semiconductor	√																	
		LMC6482	Operational Amplifier	National Semiconductor	√																	
		OP220	Operational Amplifier	Analog Devices	√							√H										
		OP27	Operational Amplifier	Analog Devices	√							√H										
		RH108AW	Operational Amplifier	Linear Technology	√							√H										
		TLC27M4	Operational Amplifier	Texas Instruments	√																	
		LMC6484	Operational Amplifier	National Semiconductor	√																	
		6N134	Optocoupler	Agilent Technologies	√																	
		HCPL-6260	Optocoupler	Agilent Technologies	√																	
		UT80S12K9	SRAM	Aeroflex	√							√H	√H									
		UT8CR512K32	SRAM	Aeroflex	√							√H			√H							
		WMS128K8	SRAM	White Electronics	√							√H			√H							
		HY57V654020B	SDRAM	Hyundia	√							√H			√H							
		K4S510432M	SDRAM	Samsung	√							√H			√H							
		MT48LC128M4A2	SDRAM	Micron	√							√H			√H							
		MT48LC16M16A	SDRAM	Micron	√										√H							
		AD790	Voltage Comparator	Analog Devices	√										√H							
		CMP401	Voltage Comparator	Analog Devices	√										√H							
		LM119	Voltage Comparator	National Semiconductor	√										√H							
		LM139	Voltage Comparator	National Semiconductor	√										√H							
		LM185	Voltage Reference	National Semiconductor	√										√H							
		LM2941	Voltage Regulator	National Semiconductor	√										√H							
		HS-117RH	Voltage Regulator	Intersil	√										√H							
		LM117	Voltage Regulator	National Semiconductor	√										√H							
		LM117HVH	Voltage Regulator	National Semiconductor	√										√H							
		LM137	Voltage Regulator	National Semiconductor	√										√H							
		RH1085	Voltage Regulator	Linear Technology	√										√H							
		LT1C3413	DC-DC Converter	Linear Technology	√										√H							
		MSK5920-1.5RH	Voltage Regulator	MS Kennedy	√										√H							
		MSK5920-2.5RH	Voltage Regulator	MS Kennedy	√										√H							
5. pp. 31-37	T. Oldham	MT29F4G08AAAWP	4 Gbit Flash	Micron	√						√H			√H								
		HY27UF084G2M	4 Gbit Flash	Hynix	√						√H			√H								
		K9F4G08U0A	4 Gbit Flash	Samsung	√						√H			√H								
6. pp. 38-41	H. Schmidt	K9F8G08U0M	8 Gbit Flash	Samsung	√						√H			√H								
		K9F4G08U0A	4 Gbit Flash	Samsung	√						√H			√H								
		NAND04GW3B2B	4 Gbit Flash	STMicroelectronics	√						√H			√H								
7. pp. 42-46	R. Ladbury	K9F8G08U0M	8 Gbit Flash	Samsung	√						√H			√H								
		MT29F4G08AAA	4 Gbit Flash	Micron	√						√H			√H								
		K4T1G044QAGC-ZCDS	4 Gbit Flash	Samsung	√						√H,P			√H,P	√H							
8. pp. 47-52	L. Scheick	EDE1104AB-50E	4 Gbit Flash	Elipida	√						√H,P			√H,P	√H							
		MT47H128M8HQ-3E	4 Gbit Flash	Micron	√						√H			√H	√H							
		256 Mbit SDRAM	256 Mbit SDRAM	Samsung	√									√H								
9. pp. 53-57	T. Miyahira	256 Mbit SDRAM	256 Mbit SDRAM	Toshiba	√								√H									
		LTIC1419	Linear Technology	√										√H								
		55LBC174	Texas Instruments	√										√H								
10. pp. 58-63	F. Irom	55LBC175	Texas Instruments	√										√H								
		CD54HC14046	Texas Instruments	√										√H								
		HI-507	Intersil	√										√H								
		ISL43110	Intersil	√										√H								
		UT63M147	Aeroflex	√										√H								
		54LVTH244	Texas Instruments	√										√H								
		ADuM1401	Analog Devices	√										√H								
		HS-26CLV32RH	Differential Receiver	Intersil	√									√H								
		HS-26CLV31RH	Differential Driver	Intersil	√									√H								
		HS-26CT32RH	Differential Receiver	Intersil	√									√H								
11. pp. 64-68	S. Seehra	HS-26CT32RH	Differential Driver	Intersil	√								√H									
		55LBC175	Differential Receiver	Texas Instruments	√									√H								
		55LBC174	Differential Driver	Texas Instruments	√									√H								
12. pp. 69-75	R. Koga	MC100EL32	ECL Logic	ON Semiconductor	√								√H									
		MC100EP52	ECL Logic	ON Semiconductor	√									√H								
		NB100LVEP91	ECL Logic	ON Semiconductor	√									√H								
13. pp. 76-81	R. Lawrence	MC100EP142	ECL Logic	ON Semiconductor	√								√H									
		TLK2711	Transceiver	Texas Instruments	√									√H								
		Test Structure	Gate Oxide 90nm		√										√H							
14. pp. 82-84	D. Adams	NC93590	Analog Multiplexer	Northrop Grumman	√																	
		Test Structure	Phase Locked Loop	Aeroflex	√																	
15. pp. 85-89	C. Hafer	Test Structure	Phase Locked Loop	Aeroflex	√																	
16. pp. 90-93	A. Vera	XC5VLX50T	FPGA	Xilinx	√								√H									
17. pp. 94-97	A. Manuzzato	XC3S200	FPGA	Xilinx	√								√H									
18. pp. 98-105	G. Swift	XOR4VXS55	FPGA	Xilinx	√								√H									
		XOR4VFX60	FPGA	Xilinx	√								√H									
		XOR4VFX140	FPGA	Xilinx	√								√H									
		XOR4VLX200	FPGA	Xilinx	√							√H			√H							

TABLE I (CONTINUED)
REDW 2008

