

# Guide to the 2007 IEEE Radiation Effects Data Workshop Record

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**Abstract-- The 2007 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 2007 Radiation Effects Data Workshop (REDW) Record is provide [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 [2,3]. 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
    - Co<sup>60</sup> High Dose Rate
    - Co<sup>60</sup> 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 2007 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 2007 Workshop Record has thirty-nine high quality papers (the largest number of papers published to date). It provides: radiation response data on a wide range of devices, circuits, and systems, test facilities descriptions, environment data, and spacecraft charging effects.

## IV. CONCLUSIONS

The Guide to the 2007 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] 2007 IEEE Radiation Effects Data Workshop Record, C. Poivey, Editor, New Jersey, IEEE, 2007.
- [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.

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TABLE I (CONTINUED)  
REDW 2007

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	Neutrons
26. pp. 153-161	M. O'Bryan	Eclipse	Shift Register	Aeroflex	√						√H,P												
		RTAX-S	FPGA	Actel	√						√H,P												
		LX25, Virtex IV	FPGA	Xilinx	√								√H	√H,P									
		XC4VFx60	FPGA	Xilinx	√								√H	√H									
		AT22V10	Programmable Logic Array	Cypress	√						√H			√H									
		RH137H	Voltage Regulator	Linear Technology	√							√H											
		TPS76710	Voltage Regulator	Texas Instruments	√							√H		√H									
		TPS73601	Voltage Regulator	Texas Instruments	√							√H		√H									
		SAT8605R	Voltage Regulator	SatCon Electronics	√							√H		√H									
		RH1013	Operational Amplifier	Linear Technology	√							√H	√H										
		MAX997	Voltage Comparator	Maxim	√							√H		√H									
		RHFL4913	Low Dropout Voltage Regulator	ST Microelectronics	√							√H	√H	√H									
		ACT8601	Voltage Regulator	Aeroflex	√							√H	√H	√H									
		TL431	Programmable Shunt Regulator	Texas Instruments	√							√H	√H	√H									
		LMH6702	Operational Amplifier	National Semiconductor	√							√H	√H	√H									
		RH1499	Operational Amplifier	Linear Technology	√							√H	√H	√H									
		AD549	Operational Amplifier	Analog Devices	√							√H	√H	√H									
		HCPL625K	Optocoupler	Agilent Technologies	√							√P											
		HCPL-6751	Power MOSFET Optocoupler	Agilent Technologies	√							√P											
		NAND01GW3B2ANGE	1 Gbit Flash	ST Microelectronics	√							√H,P		√H,P									
		K9F4G08U0A	4 Gbit Flash	Samsung	√							√H		√H									
		KH41G0X38	1 Gbit DDR SDRAM	Samsung	√							√H		√H									
		TLK2711	Transceiver	Texas Instruments	√							√H		√H	√H								
		SHD85202	Power MOSFET Driver	Sensitron	√									√H									
			53111	Power MOSFET Optocoupler	Micropac	√							√H,P	√H		√H							
		MSAFX11P50A	Power MOSFET	Microsemi	√											√H							
		OMH3075S	Hall Effect Sensor	Optek Technology	√								√H	√H									
		TGL4302	Voltage Variable Attenuator MMIC	Triquint	√								√H	√H									
		2N2222	NPN Bipolar Transistor	Microsemi	√								√H	√H									
		27. pp. 162-166	J. Lintz	Pass3	Single Board Computer RHPPC	Honeywell	√						√H,P										
28. pp. 167-171	G. Allen	2VP40 Virtex-II	FPGA, PPC Core	Xilinx	√						√H,P												
		VHFx60 Virtex IV	FPGA, PPC Core	Xilinx	√						√H,P												
29. pp. 172-176	A. Vera	XC4VFX12	FPGA	Xilinx	√																		
30. pp. 177-184	H. Quinn	XC5VLX50	FPGA	Xilinx	√						√H,P												
31. pp. 185-188	J. Tausch	Prototype	SRAM		√									√N									
32. pp. 189-193	J. Tausch	S2SF10664A-00	64Mbit NROM Flash	Spansion	√		√N				√N		√N	√N									
		S29NS-N-00	128Mbit NROM Flash	Spansion	√		√N				√N		√N	√N									
		S30MS-P-00	16Mbit NROM Flash	Spansion	√		√N				√N		√N	√N									
33. pp. 194-198	D. Nguyen	MT29F608AAA	4Gbit Flash	Samsung	√		√																
		K9F4608U0A	4Gbit Flash	Hynix	√		√																
		HY27UF08462M	4Gbit Flash	Micron	√		√																
		MR2A16A512KB	4Gbit Flash	Freescale	√		√																
34. pp. 199-203	R. Koga	MT46V64M16-75A	1Gbit DDR SDRAM	Micron	√						√H,P												
		K4H1G0438M-TCB0	1Gbit DDR SDRAM	Samsung	√						√H,P												
		K4T1G164QA-ZCD5	1Gbit DDR SDRAM	Samsung	√						√H,P												
		K4H510838B-TCB3	512Mbit DDR SDRAM	Samsung	√						√H,P												
		K4T510830C-ZCD5	512Mbit DDR SDRAM	Samsung	√						√H,P												
		HYB18T512800BF-3F	512Mbit DDR SDRAM	Qimonda	√						√H,P												
35. pp. 204-207	R. Lawrence	MT48LC128MA2	512Mbit SDRAM	Micron	√		√				√H,P		√H,P	√H									
		EDSS10A48TA-75I	512Mbit SDRAM	Elpida	√		√				√H,P		√H,P	√H									
36. pp. 208-210	D. Hiemstra	MT48LC4M32B2TG-6	128Mbit SDRAM	Micron	√		√P				√P												
37. pp. 211-214	D. Hiemstra	Guide to the Radiation	Effects Data Workshop 2006																				
38. pp. 215-220	D. Hansen	Test Structure	7HP SiGe HBT Transistor	IBM	√		√																
39. pp. 221-225	T. Oldham	K9F4608U0A	4Gbit Flash	Samsung	√		√				√H		√H										

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