

*Components tested for total dose  
(La Casaccia, ENEA – 30 krad)*

Component	Part Number	Manufacturer	Failure
Analog switch	ADG719	Analog Devices	
CAN Controller	SJA1000N	Philips	
CAN Driver	PCF82C250N	Philips	
CAN Driver	PCF82C251N	Philips	
CPLD	ispLSI2032-80LJ44	Lattice	
Current sensor	LM3812-7.0	National	
Current sensor	LM3813-1.0	National	
DAC	AD8840	Analog Devices	
DAC	AD7303	Analog Devices	
DAC	AD5320	Analog Devices	
Dig. Isolat.	ISO150	Bur Brown	
Zener	BZX285C5V1	Philips	
Zener	BZX285C12	Philips	
Zener	BZX285C15	Philips	
Zener	UDZ5.6B	Rhom	
Zener	UDZ12B	Rhom	
Zener	UDZ15B	Rhom	
Diode	1N5817	Motorola	
Diode	1N5822RL	Motorola	
Diode	ES2B	Vishay	
Diode	LL4148	Philips	*
Diode	MBR1545CT	Motorola	
Diode	MBR3045PT	Motorola	
Diode	MBRB2515L	Motorola	*
Diode	MURS120T3	Motorola	
Diode	BAS16	Siemens	
Diode	BAS21	Siemens	
Diode	BAS21	Siemens	
Diode	BAS16	Siemens	
Diode	31DQ06	Inter. Rectf.	
Diode	PBYL1025	Philips	
Diode	90SQ045	Inter. Rectf.	
Diode	10BQ040	Inter. Rectf.	
Diode	1SS353	Rhom	
Schottky Diode	BAT64	Siemens	
Schottky Diode	HSMS2803	HP	

Component	Part Number	Manufacturer	Failure
DSP	ADSP-2187L	Analog Devices	
DSP	ADSP-2185L	Analog Devices	
DSP	ADSP-2189MBST-266	Analog Devices	
Flash EEPROM	Am29F010-120	AMD	
Isolator	ISO508	Burr-Brown	
Isolator	ISO518	Burr-Brown	
Isolator	ISO422	Burr-Brown	
Linear Regulator	LM2941T	National	
Linear Regulator	LP2952IN	National	
Linear Regulator	TPS76701QD	Texas	*
Linear Regulator	LM2940CT-5.0	National	
Linear Regulator	LM2991T	National	
Linear Regulator	LX8941CP	Linfinity	
Linear Regulator	LX8940CP	Linfinity	
Linear Regulator	LX8586A(6A)	Linfinity	
MOS N-channel	MTD20N06HD	Motorola	
MOS N-channel	SI4810DY	Vishay	
MOS N-channel	FDS9936A	Fairchild	
MOS N-channel	FDS6680A	Fairchild	
MOS N-channel	FDS6612A	Fairchild	
MOS N-channel	FDS6690A	Fairchild	
MOS N-channel	SUP60N06	Vishay	
MOS N-channel	SI4466DY	Vishay	
MOS N-channel	IRF540	Inter. Rectf.	
MOS N-channel	IRF640	Inter. Rectf.	
MOS N-channel	IRF740	Inter. Rectf.	
MOS P-channel	NDP6020P	Motorola	
Operational	LT1014DN	Linear Tech	*
Operational	OP471G	Analog Devices	
Operational	LF347BN	National	
Operational	LM6142AIN	National	
Operational	LT1366CN8	Linear Tech	
Operational	OP17GZ	Analog Devices	
Operational	OP249AZ	Analog Devices	
Operational	OP42G	Analog Devices	
Operational	AD713BQ	Analog Devices	
Optocoupler	PC905Y	Sharp	
Optocoupler	MOC207	Siemens	
Optocoupler	SFH6186-5	HP	

Component	Part Number	Manufacturer	Failure
Linear regulator 100V	S9001	CAEN	
Temperature sensor	DS1820	Dallas	
Bipolar Transistor	MMBTA42	Motorola	
Bipolar Transistor	MMBTA92	Motorola	
Bipolar Transistor	2N5401	Motorola	
Bipolar Transistor	2N5551	Motorola	
Bipolar Transistor	BD433	Philips	
Bipolar Transistor	BD434	Philips	
Bipolar Transistor	MJD200	Motorola	
Bipolar Transistor	MJD210	Motorola	
Bipolar Transistor	MJE340	Motorola	
Bipolar Transistor	MJE350	Motorola	
Bipolar Transistor	MMBT3904LT1	Motorola	
Bipolar Transistor	MMBT3906LT1	Motorola	
Voltage Ref.	LM185H-1.2	National	
Voltage Ref.	LM4040CIM3-10.0	National	
Voltage Ref.	LM4040BIM3-5.0	National	
CMOS	DS90LV027A	National	
CMOS	DS90LV028A	National	
CMOS	DS90LV047A	National	
CMOS	DS90LV048A	National	
Oscillator	CX03M 25 MHz	Statek	
Oscillator	CX03M 40 MHz	Statek	
Temperature sensor	AD590	Analog Devices	
B field sensor	BH203	Bell	
Linear regulator	LX8941	Linfinity	* (30 krad)

*Components tested for SEU/SEL*

Component	Part Number	Manufacturer	Test session	Permanent damage
Digital Coupler	ADuM1100	Analog Devices	GSI 2000	
VA-chip	VA 32 old	Ideas	GSI 2000	
VA-chip	VA 32 new	Ideas	GSI 2000	
PGA	QL12×16BL	QuickLogic	GSI 2000	
FPGA	54SX32	Actel	GSI 2000	
Flash Memory	M25P10	ST	Dubna 2001	
Mosfet P channel	IRFR5305	Digi-key	Dubna 2001	
Transistor array	MMPQ3906	Fairchild	Dubna 2001	
Quad Comparator	LM239	National	Dubna 2001	
Optocoupler	OLS303-SB	Isolink	Dubna 2001	
Shunt regulator	TL431	Fairchild	Dubna 2001	
Mosfet N channel	SUB60N06-18	Vishay	Dubna 2001	
PWM controller	UC2843AD8	Texas	Dubna 2001	
BJT NPN	FZT605	Zetex	Dubna 2001	
Mosfet N channel	MTD20N06HD	ON	Dubna 2001	★
Mosfet N channel	IRFR3910	I.R.	Dubna 2002	
Mosfet N channel	IRFZ44ES	I.R.	Dubna 2002	
Mosfet N channel	HUF76629D3S	Intersil	Dubna 2002	
Mosfet N channel	SPB11N60S5	Infineon	Dubna 2002	
Mosfet N channel	SPB20N60S5E3045	Infineon	Dubna 2002	
Mosfet N channel	IRFR18N15D	I.R.	Dubna 2002	
Mosfet N channel	IRFR2407	I.R.	Dubna 2002	
Mosfet N channel	IRFR13N15	I.R.	Dubna 2002	
Mosfet N channel	IRFR15N20	I.R.	Dubna 2002	
Mosfet N channel	SPD30N08S2L-21	Infineon	Dubna 2002	
Mosfet N channel	SPD30N08S2-22	Infineon	Dubna 2002	
Mosfet N channel	MTD20N06HD	Motorola	Dubna 2002	
Mosfet N channel	RFP40N10	Intersil	Dubna 2002	
Mosfet N channel	HUF76619D3S	Intersil	Dubna 2002	