Envisat-1	TOTAL DOSE RADIATION TEST PLAN No. PO-PL-TLG-PL-2024	Issue: 1 Rev.: Date: 19/12/94 Page: 1/5

SCC Component No.: SIL0800601B		Component Designation: AD584SH	Irradiation Spec. No.: PO-PL-TLG-PL-0500 Iss. 2
Gen. Spec.: SCC 9000 8 C Det. Spec.: TL-SIL-08-006 1 Amend.:		Evaluation: - Acceptance Wafer: - Acceptance Lot: X	Project/Programme: ENVISAT-1
Family/Group: 08/21	Technology: BIPOLAR	Functional Assignment: PROGRAMM. VOLTAGE REFERENCE	Package: TO-99
Manuf.Name: ANALOG DEVICES Address: U.S.A.		Test House: TECNOLOGICA Address: MADRID (SPAIN)	Origin. Name: TECNOLOGICA Address: SEVILLA (SPAIN)
Radiation Source: Cobalt-60 Facility Name: CIEMAT Address: MADRID (SPAIN)		Sample Size: 5 Irradiation Devices: 4 Control Devices: 1	Level of Interest: 10 to 20 KRads(Si)

EXPERIMENTAL STEPS	1	2	3	4	5	6	7	8
PROCESS	Irrad.	Irrad.	Irrad.	Irrad.	Ann.	Ann.		
Dose [KRad (Si)]	5	5	10	10	--	--		
Cumulative Dose [KRad(Si)]	5	10	20	30	--	--		
Dose Rate [KRad(Si)/Hr]	20	20	20	20	--	--		
Exposure Time (Hr)	0.25	0.25	0.5	0.5	24	168		
Temperature (°C)	25	25	25	25	25	25		

Irradiation Conditions:	Irradiation Measurements Interval:	Annealing Conditions:
Biased: X Unbiased: - Test Circuit: Figure 1	Remote Test: - In situ Test: X	Biased: X Unbiased: - Test Circuit: Figure 1

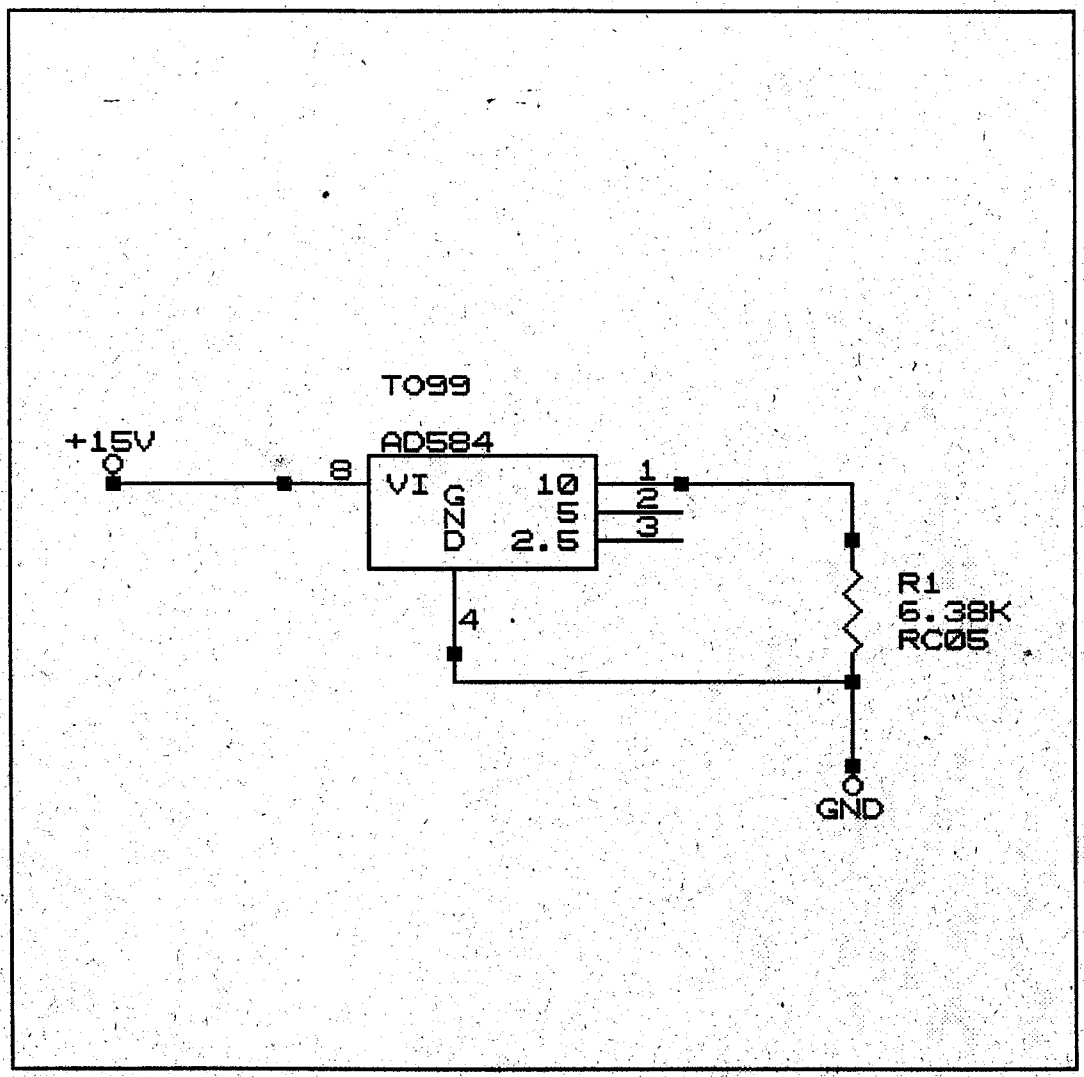
Electrical parameters to be tested:

Quiescent Current (I_{CC}), Output Voltage Error (V_{OUT1}), Load Regulation (VR_{LOAD1}), Line regulation (VR_{LINE1}).

Dist.: RB
HP
B. Johlander
(QCA)

Prepared by: J. A. VAQUERO Date: 19/12/94 Signature: [signature]	Checked by: J. M. VALVERDE Date: 21/12/94 Signature: [signature]	Approved by: I. ALARCON Date: 21/12/94 Signature: [signature]

FIGURE 1.-TEST CIRCUIT



IRRADIATION TEST SEQUENCE

Test Step	Description	Requirements
1	Sample serialization	
2	Initial Electrical Measurements	Per Table A herein.
3	Set-up of Test	Verify bias circuit for all test samples.
4	Irradiation Exposure	Verify radiation dose rate and position in the chamber to achieve required dose. Verify and witness duration of exposure to achieve required dose.
5	Intermediate Electrical Measurements	Test per Table B herein. Read & Record. Test to be performed immediately upon removal from chamber. Disconnect bias immediately after leaving irradiation chamber. Maximum interval between two consecutive exposures to be 2 hours.
6 to 14	Repeat Set-Up / Exposure / Electrical Measurements up to Total Dose of 30 KRad(Si)	Repeat steps 3, 4 and 5 for a total of 4 cycles up to the Total Dose of 30 KRad(Si) at cumulative dose: 5, 10, 20 and 30 Krads.
15	Annealing 24 hours at Room Temperature	Within 2 hour after the last irradiation step, the device shall be biased according to the circuit of Figure 1 and placed during 24 hours in a chamber at 25°C.
16	Electrical Measurements	After the first annealing period, bias shall be disconnected, and electrical measurements per Table B herein taken (Read & Record).
17	Annealing 168 hours at Room Temperature	Within 1 hour after the first annealing, the devices shall be biased according to the circuit of Figure 1 and placed during 24 hours in a chamber at 25°C.
18	Electrical Measurements	After the second annealing period, bias shall be disconnected, and electrical measurements per Table A herein taken (Read & Record).
19	Test Report	

TABLE A - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE BEFORE AND ON COMPLETION OF IRRADIATION TESTING

No.	CHARACTERISTIC	Symbol	883 TEST METHOD	TEST CONDITIONS (Note 1)	LIMITS		UNIT
					MIN	MAX	
1	Quiescent Current	I_{CC}	N/A	V_{IN} = 15V	-	1.0	mA
2	Output Voltage	V_{OUT1}	N/A	V_{IN} = 15V, I_{OUT} = 0	9.97	10.03	V
3	Load Regulation Error	VR_{LOAD1}	N/A	V_{IN} = 15V, $0<I_{OUT}<5mA$	-2.5	2.5	mV
4	Line Regulation Error	VR_{LINE1}	N/A	$12.5V<V_{IN}<30V$, I_{OUT} = 0	-8.75	8.75	mV

TABLE B - ELECTRICAL MEASUREMENTS AT INTERMEDIATE POINTS OF IRRADIATION TESTING (note 1)

No.	CHARACTERISTIC	Symbol	883 TEST METHOD	TEST CONDITIONS (Note 1)	LIMITS		UNI
					MIN	MAX	
2	Output Voltage	V_{OUT1}	N/A	V_{IN} = 15V, I_{OUT} = 0	9.95	10.05	V
3	Load Regulation Error	VR_{LOAD1}	N/A	V_{IN} = 15V, 0<I_{OUT}<5mA	-50	50	mV
4	Line Regulation Error	VR_{LINE1}	N/A	12.5V<V_{IN}<30V, I_{OUT} = 0	-20	20	mV

Note 1 : Other measurements as per table A