

REV.	DESCRIPTION	DATE	OPERATOR	DRAWN	CHECK
0	Emission	2013-02-27	S. Silvestri	S. Silvestri	

IMPULSE TEST

All the exposed conductive parts are connected to the metal frame of the tested resistor.

The rated impulse withstand voltage were set to 8 kV comply to EN 50124-1 (Uni 10 kV according to spec 2854DT § 4.3.1; PD4 according to spec 2854DT § 3).

The test voltage shall be applied:

- between all the terminals of the circuit connected together and the frame

Result: *Passed* *Not passed*

<i>Instrumentation used</i>	<i>Type</i>	<i>Firm</i>	<i>Model</i>	<i>Serial no.</i>	<i>Expiring date</i>
<i>Voltage Divider</i>	R1-400	AME	2096	21112010	25/11/2020
<i>Data logger</i>	TDS22	Tektronix	P5100	22012008	08/02/2020

Introduction

The impulse test were performed through a 400 kV – 4 Stages – 5kJ apparatus made by the Italian firm A.M.E. of Bagnara di Romagna.

It consists of a 4 x 100 kV stages impulse generators. 4 capacitors, 1 for each stage, are charged to the nominal voltage. After charging the capacitors to the nominal value, the gap through the semi-spheres is reduced till creating a spark and the wanted pulse across the test object.

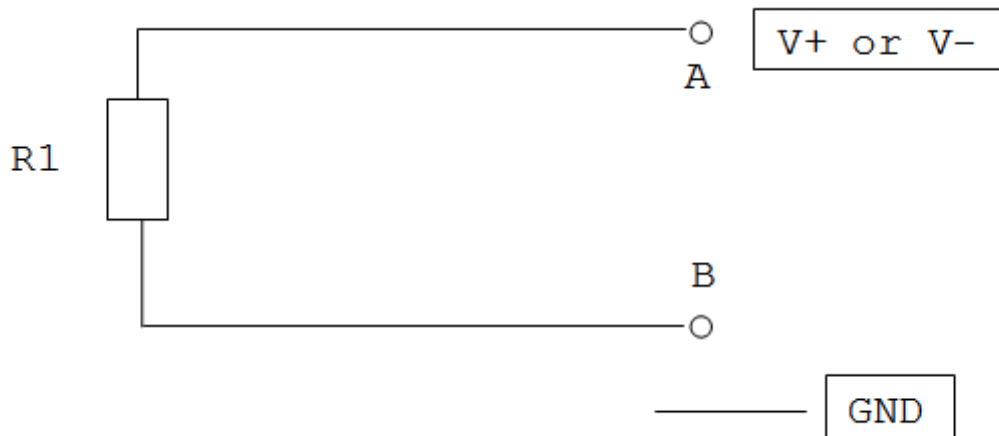
The stages can be connected in series, increasing the final voltage at constant energy or in parallel, reducing the max voltage, but increasing the energy of the pulse.

Some front and tail resistors are mounted in the circuit in order to modify the front time of the pulse and the half value one. Front resistor was 200 Ohm and Tail resistor was 175 Ohm (2 resistor of 350 Ohm in parallel).

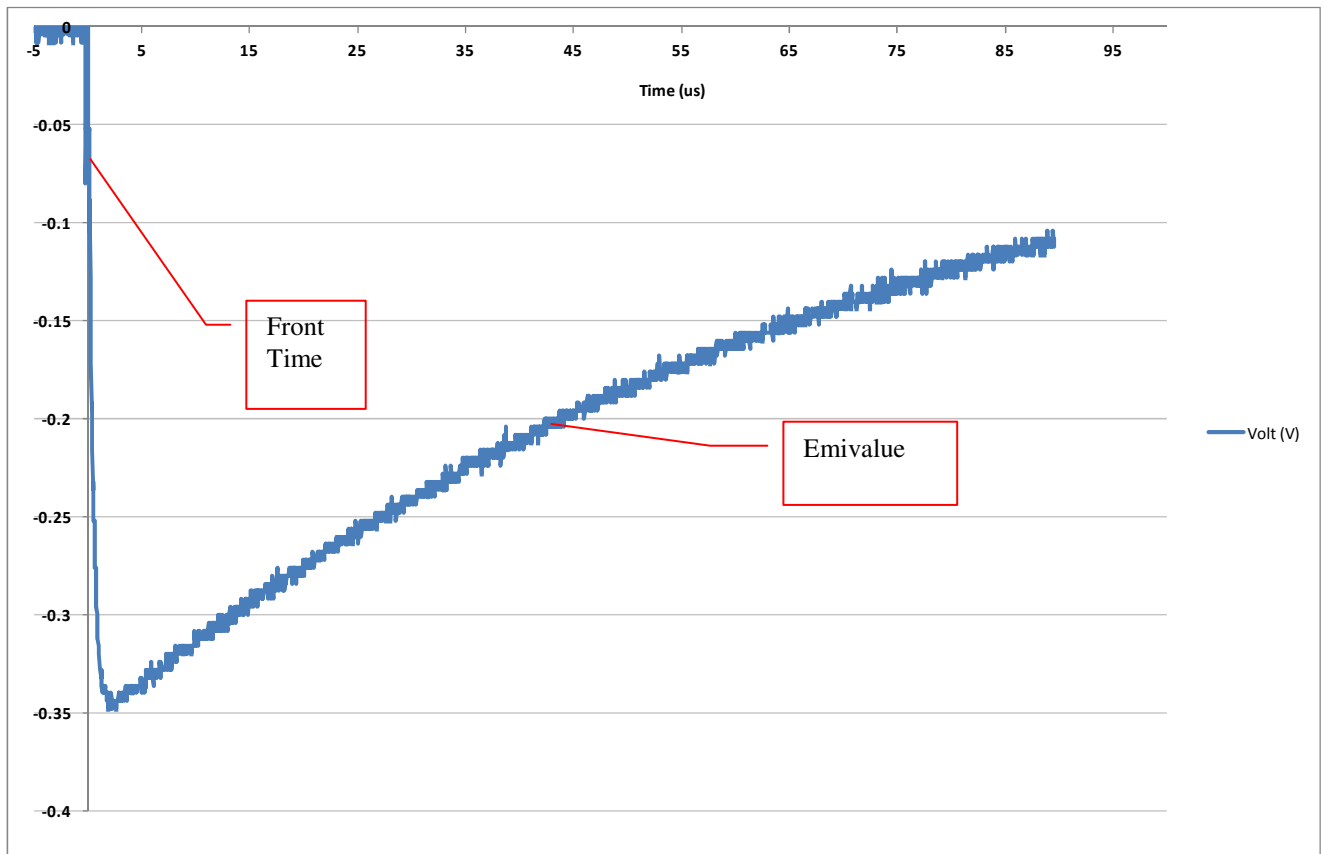
Through a voltage divider connected to an oscilloscope it is possible to recorder the pulse ($k_{divisor} = 12952 V_{generator} / V_{scope}$).

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Connection scheme



Peak pulse	Theoretical value	Measured value
<i>Front Time</i>	1.2 +/- 0.30 μ sec	0.72 * 1.67 = 1.20 μ sec
<i>Time to half value</i>	50 +/- 10 μ sec	52 μ sec



Discharge	100% Peak pulse number	Scope Peak Measured Voltage (V)	Impulse Peak voltage (kV)	
NO	1 negative	0.612	7.9	
NO	2 negative	0.612	7.9	
NO	3 negative	0.612	7.9	

NO	1 positive	0.624	8	<p>Tek Acq Complete M Pos: 33.60µs CURSORI Tipo Ampiezza Sorgente CH3 ΔV 620mV Cursore 1 624mV Cursore 2 4.00mV M 10.0µs CH3 / 148mV CH3 100mV/div 27-Feb.-13 17:34 <10Hz</p>
NO	2 positive	0.604	8	<p>Tek Acq Complete M Pos: 33.60µs CURSORI Tipo Ampiezza Sorgente CH3 ΔV 600mV Cursore 1 604mV Cursore 2 4.00mV M 10.0µs CH3 / 148mV CH3 100mV/div 27-Feb.-13 17:35 <10Hz</p>
NO	3 positive	0.620	8	<p>Tek Acq Complete M Pos: 33.60µs CURSORI Tipo Ampiezza Sorgente CH3 ΔV 612mV Cursore 1 620mV Cursore 2 8.00mV M 10.0µs CH3 / 148mV CH3 100mV/div 27-Feb.-13 17:36 <10Hz</p>