

TS-SPACE SYSTEMS

W W W . T S - S P A C E . C O . U K

**CLASS A/A/A AND B/A/A SOLAR
SIMULATORS
FROM TS-SPACE SYSTEMS**


solar awards
Winner 2010



TS-SPACE SYSTEMS, UNIT A5, ROSE BUSINESS ESTATE, MARLOW BOTTOM
BUCKS, SL7 3ND
TEL: (+44)1628 474040
FAX: (+44)1628 488485
EMAIL: INFO@TS-SPACE.CO.UK

• **CLASS A/A/A AND CLASS B/A/A: OVERVIEW**

FOR CUSTOMERS WHO DO NOT REQUIRE THE HIGH SPECTRAL MATCH OR SPECTRAL ZONE CONTROL AVAILABLE FROM OUR **UNISIM RANGE** OF SOLAR SIMULATORS, TS-SPACE SYSTEMS ALSO PRODUCES CLASS A/A/A AND CLASS B/A/A SOLAR SIMULATORS BASED ON METAL HALIDE SOURCES WHICH:

- PROVIDE HIGH OUTPUT
- ARE RELATIVELY CHEAP
- REQUIRE ONLY AIR COOLING
- ALLOW RAPID LAMP CHANGES
- (MOST IMPORTANTLY) PROVIDE HIGH STABILITY

OUR CLASS A/A/A AND B/A/A SYSTEMS, THEREFORE, PROVIDE THE SAME HIGH TEMPORAL STABILITY AND SIMPLE USABILITY OF OUR **UNISIM RANGE**.

SIMILARLY, THIS SERIES OF SIMULATORS IS ALSO AVAILABLE IN A RANGE OF BEAM SIZES AND ORIENTATIONS*.

	SIMULATED SPECTRUM	SPECTRAL MATCH (ASTM/IEC/JIS)	TEMPORAL STABILITY (ASTM/IEC/JIS)	SPATIAL UNIFORMITY (ASTM/IEC/JIS)	COLLIMATION (HALF-ANGLE)	ILLUMINATION (DIAMETER)
CLASS A/A/A	AM0 AND AM1.5	A/A/A	A/A/A +/- 0.03% (FOR 60MM BEAM) +/- 0.2% (FOR 100MM BEAM) +/- 0.5% (FOR 300MM BEAM)	A/A/A (+/- 2%)	2-3°	60MM 100MM 300MM
CLASS B/A/A	AM0 AND AM1.5	B/B/B	A/A/A +/- 0.03% (FOR 60MM BEAM) +/- 0.2% (FOR 100MM BEAM) +/- 0.5% (FOR 300MM BEAM)	A/A/A (+/- 2%)	2-3°	60MM 100MM 300MM

* PLEASE SPECIFY BEAM ORIENTATION WHEN REQUESTING A QUOTE

• **TEMPORAL STABILITY**

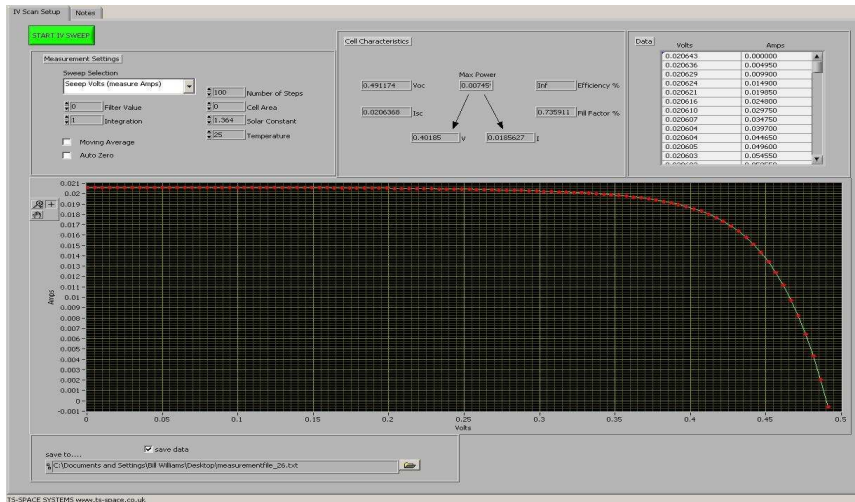
OUR METHOD OF DEFINING TEMPORAL STABILITY IS TO TAKE A NUMBER OF IV READINGS IN QUICK SUCCESSION, AND TO LOOK AT THE REPRODUCIBILITY OF THE VARIOUS PARAMETERS. BELOW IS SHOWN THE TYPICAL IV CURVE ACHIEVED WITH THESE SIMULATORS.

- ALL READINGS TAKEN ON A KEITHLEY 2420

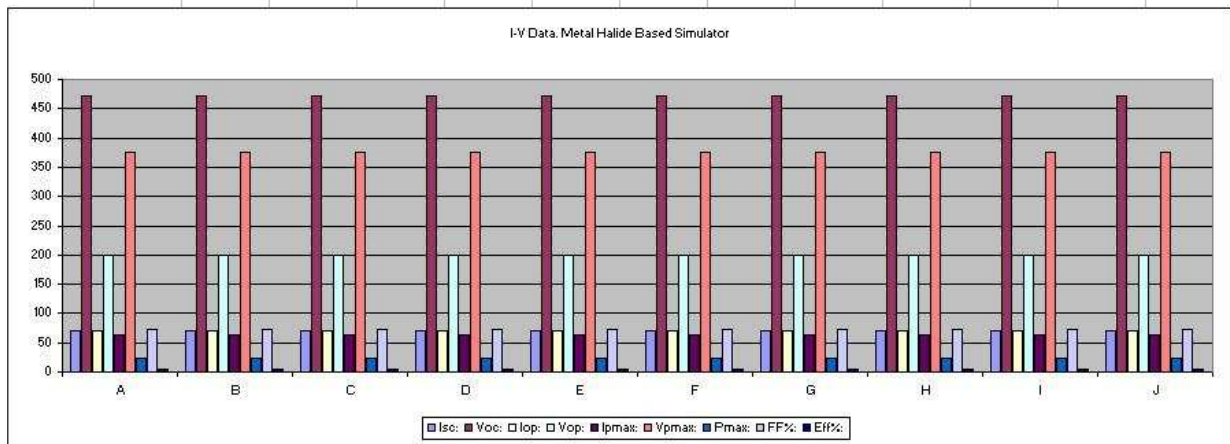
- INTEGRATION TIME 20MSEC

- FILTER 0

- TIME FOR A 100 POINT PLOT IS A FEW SECONDS (WITH INTEGRATION REDUCED TO 0.2MSEC, A 100 POINT IV SWEEP WILL TAKE **1.6 SECONDS**)

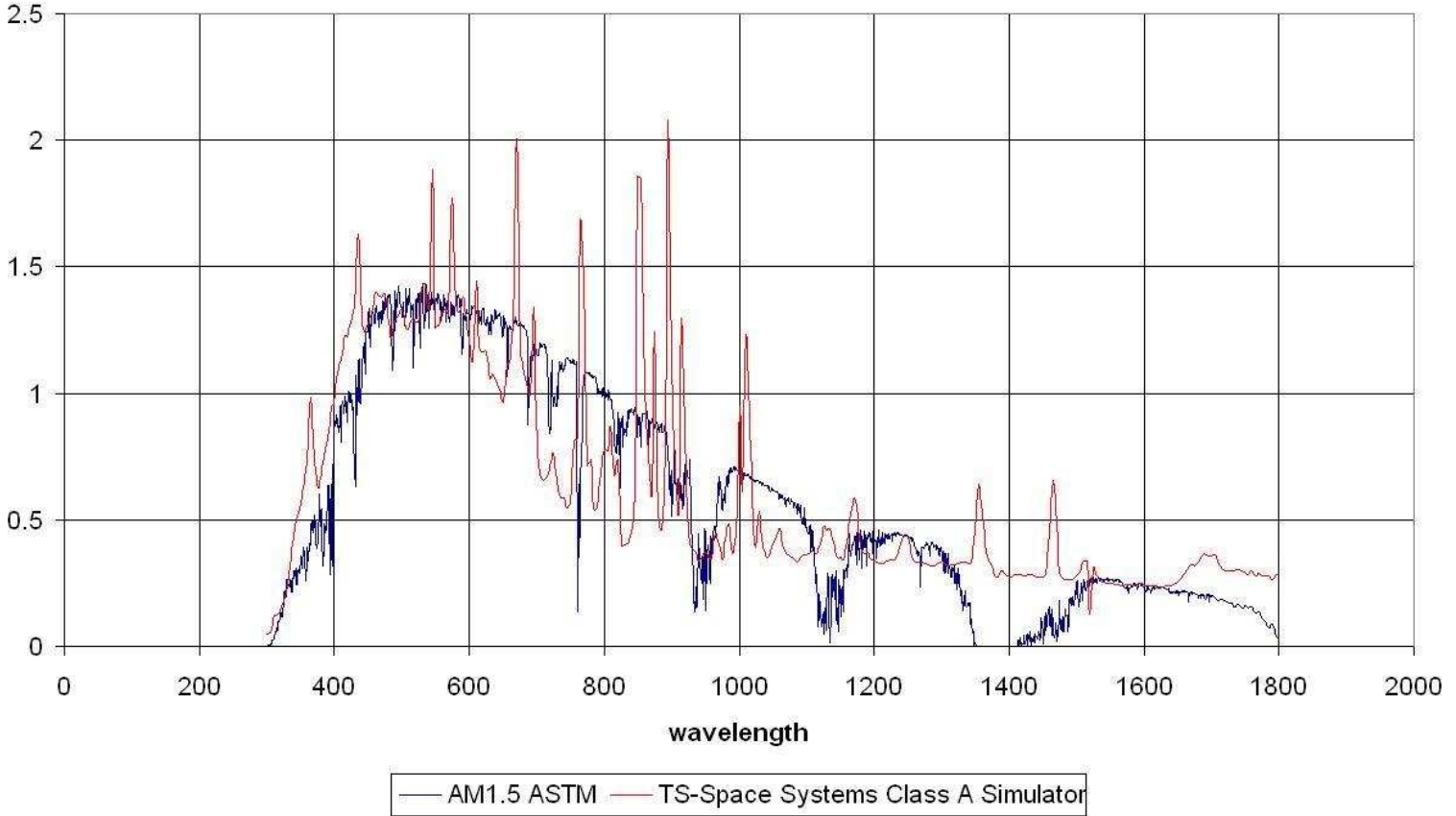


Test	A	B	C	D	E	F	G	H	I	J	Mean	%Min	%Max
Isc:	69.9	69.88	69.86	69.86	69.81	69.9	69.74	69.73	69.88	69.83	69.839	0.15	0.15
Voc:	471.3	471.17	471.3	471.35	471.67	471.59	471.59	471.78	471.8	471.6	471.515	0.073	0.056
Iop:	69.8	69.72	69.7	69.71	69.67	69.71	69.63	69.6	69.71	69.66	69.691	0.13	0.04
Vop:	200	200	200	200	200	200	200	200	200	200	200	0	0
Ipmax:	64.25	64.24	64.28	64.24	64.32	64.23	64.24	64.28	64.26	64.3	64.264	0.037	0.087
Vpmax:	376	376	376	376	376	376	376	376	376	376	376	0	0
Pmax:	24.16	24.15	24.17	24.15	24.18	24.15	24.15	24.17	24.16	24.18	24.162	0.05	0.07
FF%:	73.33	73.36	73.4	73.35	73.44	73.44	73.44	73.47	73.28	73.42	73.376	0.14	0.13
Eff%:	4.46	4.46	4.47	4.46	4.47	4.46	4.46	4.47	4.46	4.47	4.464	0.09	0.1



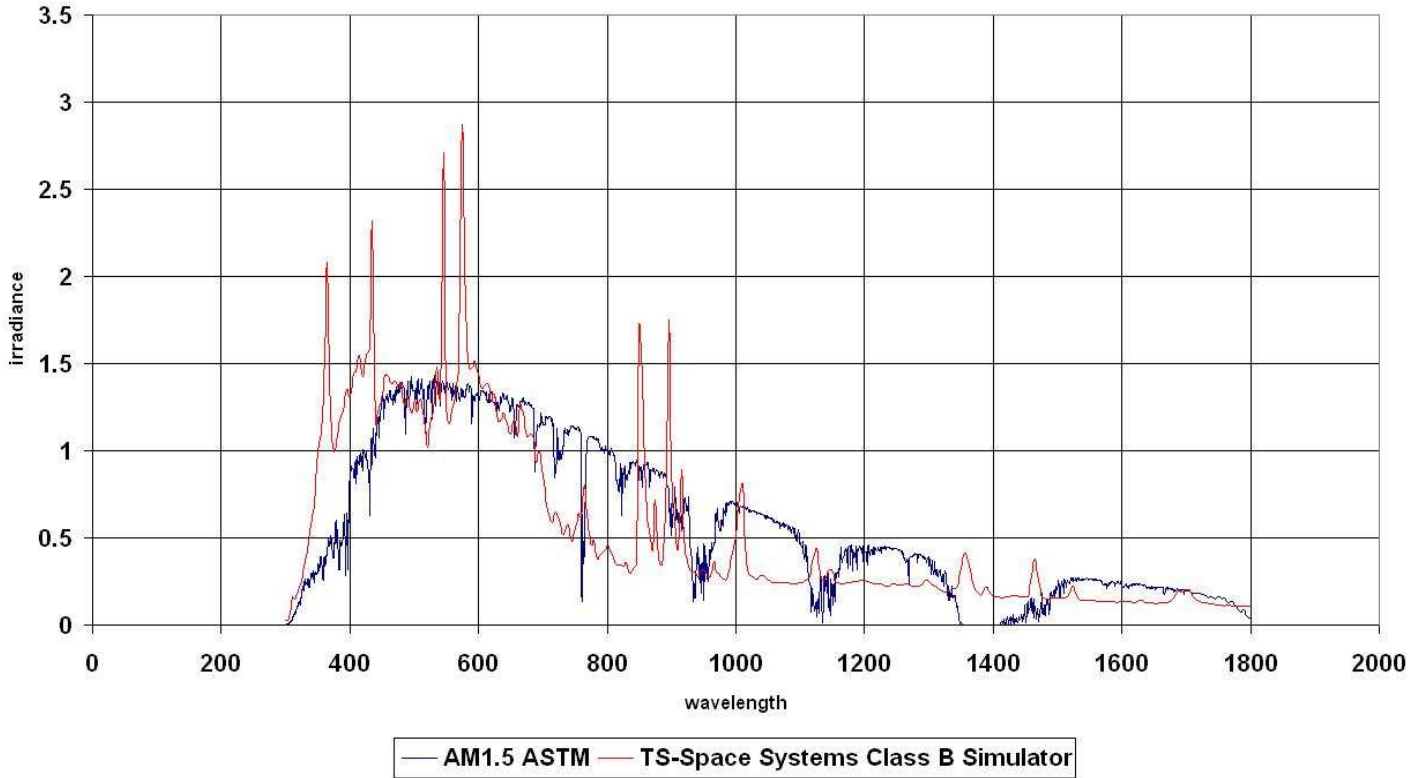
• SPECTRUM

TS-Space Systems: Class A Simulator Spectrum



Band	AM.15 %distribution	TS-Space Systems Class A Simulator	% distribution	Class Rating	Class A Upper Limit	Class A Lower Limit
400-500	18.4	58702.9725	19.9495877	19.9495877	23	13.8
500-600	19.9	62203.575	21.13923064	21.13923064	24.875	14.925
600-700	18.4	53417.4975	18.15337462	18.15337462	23	13.8
700-800	14.9	34709.72	11.79573323	11.79573323	18.625	11.175
800-900	12.5	39715.535	13.4969068	13.4969068	15.625	9.375
900-1100	15.9	45507.27	15.46516701	15.46516701	19.875	11.925

TS-Space Systems: Class B Simulator Spectrum



Band	AM.15 % distribution	TS-Space Systems Class B Simulator	% distribution	Class Rating	Class B Upper Limit	Class B Lower Limit
400-500	18.4	204124	23.12736798	23.12736798	25.76	11.04
500-600	19.9	196678	22.28373185	22.28373185	27.86	11.94
600-700	18.4	161747	18.32602922	18.32602922	25.76	11.04
700-800	14.9	80913	9.167489984	9.167489984	20.86	8.94
800-900	12.5	125354	14.20268114	14.20268114	17.5	7.5
900-1100	15.9	113788	12.89224661	12.89224661	22.26	9.54

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