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ITALIA

STRIPLINE FOR IMMUNITY TESTS Mod. STPL-90

Description

The EMC-STPL striplines are designed for automotive immunity testing of components according to the standards ISO 11452-5 and SAE J1113-23. Striplines are a variation of TEM lines which allow an application of electromagnetic fields with a good homogeneity in the test volume.
The stripline is fixed on a table and it is easy to move. It is assembled on 2 joined table with foldable legs in order to reduce the occupied space when storage or during the transport. It is the only stripline on the market able to carry out test up to 1 GHz with excellent return loss. Manufactured in hot galvanized steel and aluminum with Alodine treatment and Teflon dielectric supports. The Striplines are available with 90 Ohm or 50 Ohm impedance.

Technical Specifications	STPL-90
Frequency range	DC to 1 GHz
Max. input power	1000W (200W with impedance adaptor)
Wave impedance	377 Ohm
Impedance	90 Ohm +/-< 6 Ohm
Typical VSWR	< 1.92
Return Loss	>10dB up to 1GHz
Connector type	N female 75 Ohm
Typical CW input power for 10V/m	1.1W (20dBm)
Net Power for 10V/m as computed according to ISO 11452-5	0.045W (16.5 dBm)
Voltage/Field strength relation	1V=6.67 V/m
Maximum field strength	500V/m
Field strength ripple	< +/- 2dB
Field homogeneity	About 2x0.37x0.05m (LxWxH)
Height of the septum	15cm over the Ground Plane.
Size (LxWxH)	350x90x90cm (service position)
Heigth of the table	80cm
Weight	Approx. 100Kg
Options	Filter box, Impedance adapter
	Dummy Load: 150W-250W-500W-1KW

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Usefull tool for monitoring the fieldstrength inside the stripline is the isotropic E-field meter i.e. EP-600 family sensor made by PMM Narda. The unit is connected via a fibre optical link to PC. For positioning of the EUT it is recommended a support of dielectric low density material, e.g. foam or polystirene plastics. This is placed to keep the EUT within 1/3 of the stripline heigth.

The power rating of 60W, which is sufficient for generating field strengths up to 500 V/m.

A high impedant RF-voltmeter with appropriate divider can be used to measure the cell-voltage on the stripline. The field strength inside the cell can be obtained by multiplying the voltage reading with factor 6.67 (adding 16.5 dB). In direct surrounding to the termination resistors an increase of field strength appears, therefore a minimum spacing of 30 cm between EUT and termination should be provided.

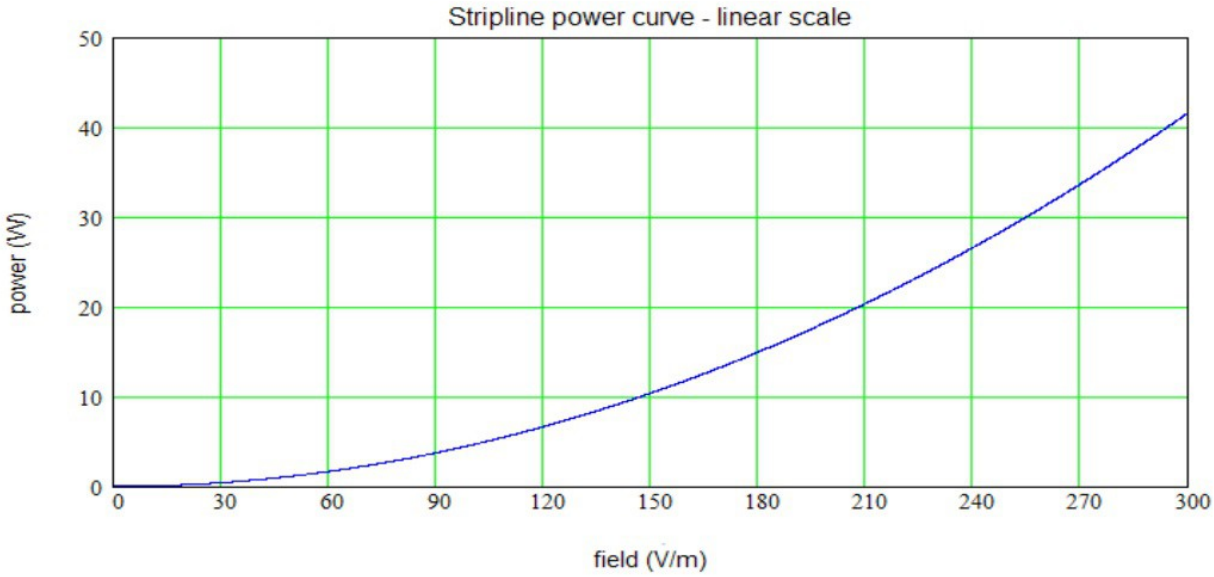
Safety Precautions:

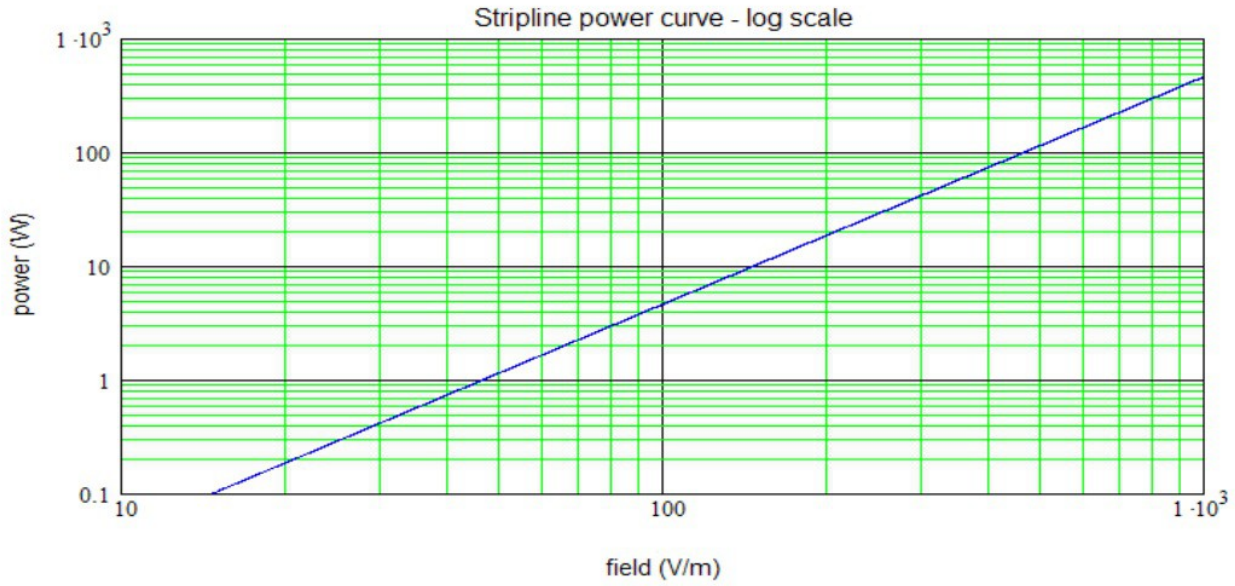
The termination resistors may reach high temperatures: a good air circulation must be provided in order to avoid excessive heating. Keep combustible material away from the termination, be aware of fire hazard!

The stripline and the termination resistors, may radiate electromagnetic fields when driven with high power, t Avoid to touch the line when energized and keep. Respect the safety standards for persons exposed to electromagnetic fields is a must.

Striplines – Typical power requirements

The following diagrams show the power requirements of the amplifiers for a VSWR of 1:4 (without modulation, no accessories and without computing the mismatch of the dummy load.
The calculated values are referred at the field in the centre of the test area. (For the STPL-90 the calculation doesn't take into account the losses of an optional impedance adapter from 50 to 90 Ohm).





Impedance adapter for 50 Ohm Striplines

Because the RF amplifier available on the market have an impedance of 50 Ohm, the direct connection to a 90 Ohm stripline cause a mismatch that can lead to dysfunction of some amplifiers. To avoid this problem we suggest an impedance adapter to normalize the impedance between the input of the stripline and the output of the amplifier.

Specifications

Type	**50/90 Matching Pad**
Frequency range	DC to 1GHz
Maximum input power	200 W
Input impedance	50 Ohm (N connector)
Output impedance	90 Ohm (N connector)
VSWR	Better than 1:1,3
Correction factor	2,5 dB
Weight	2 Kg

TERMINATION 90 Ohm

Specifications

Type	**90 Ohm Termination on Aluminium Heath sink**
Frequency range	DC to 3GHz
Maximum input power	Models with: 250W - 500W - 1000W
Input impedance	75 Ohm
Connectors	N female up to 250W, and 7/16" over.
VSWR	Better than 1:1,5
Size	150x200x100mm
Weight	3 Kg