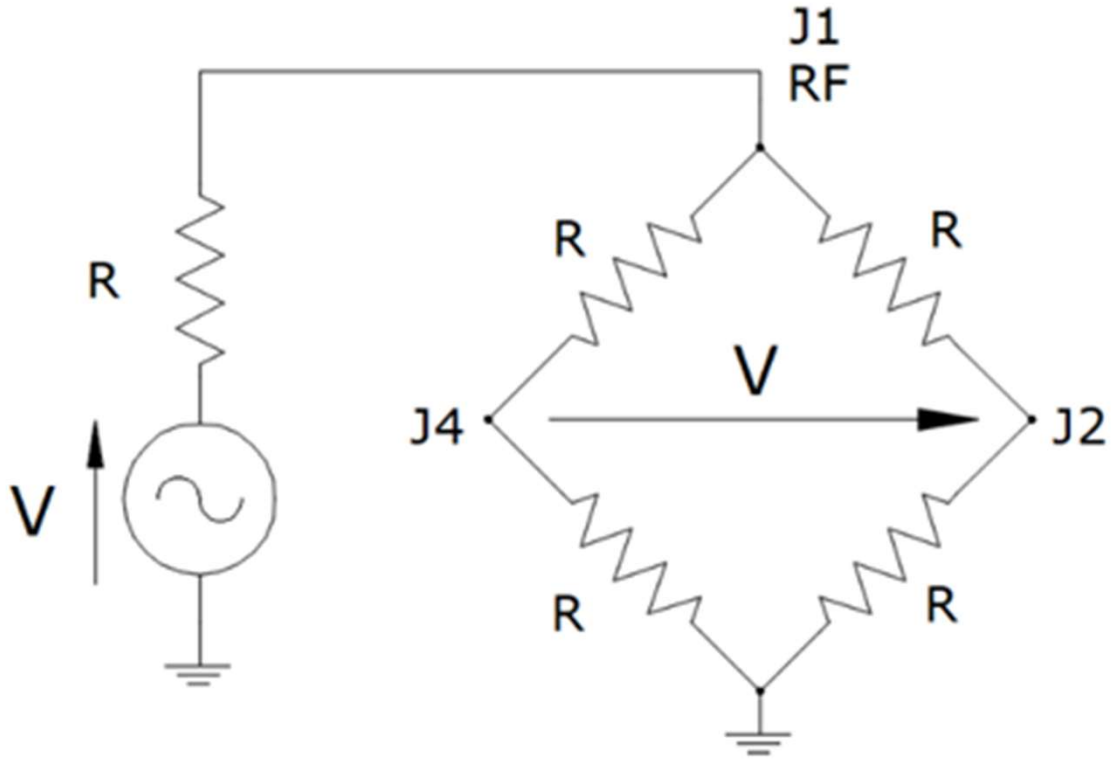
Ponte Riflettometrico

By iw2fnd Lucio

Introduzione teorica



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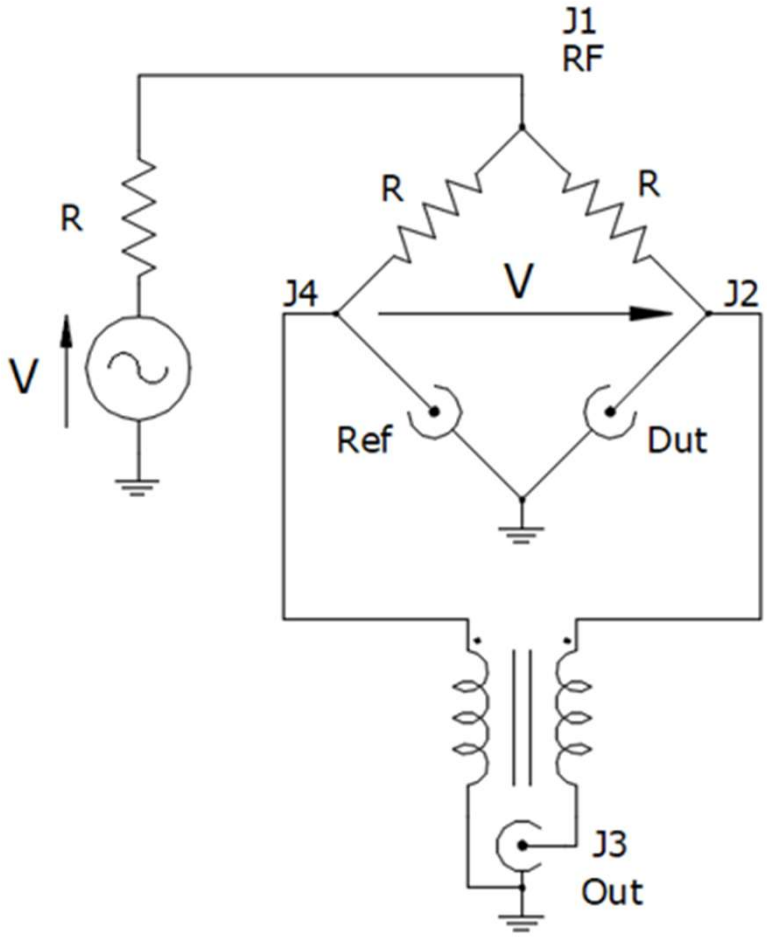

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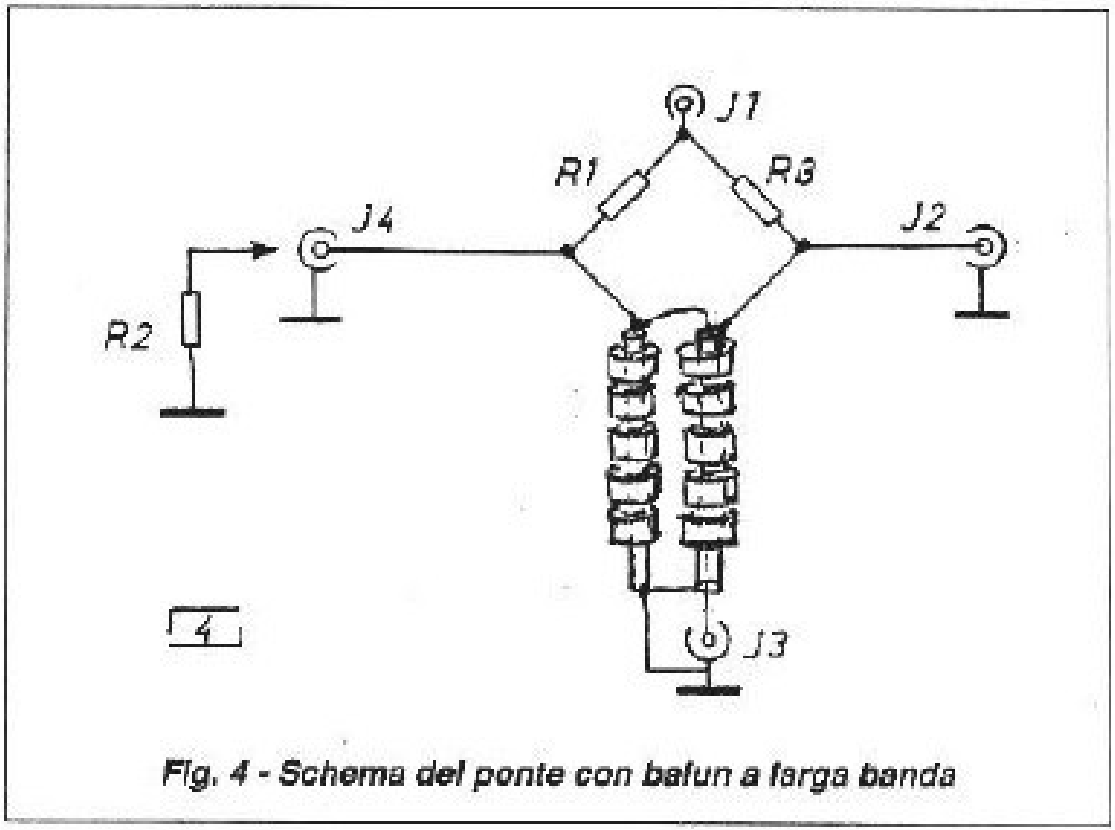

Fig. 4 - Schema del ponte con balun a larga banda

Immagine presa da Radio Rivista 5/88 pag. 44

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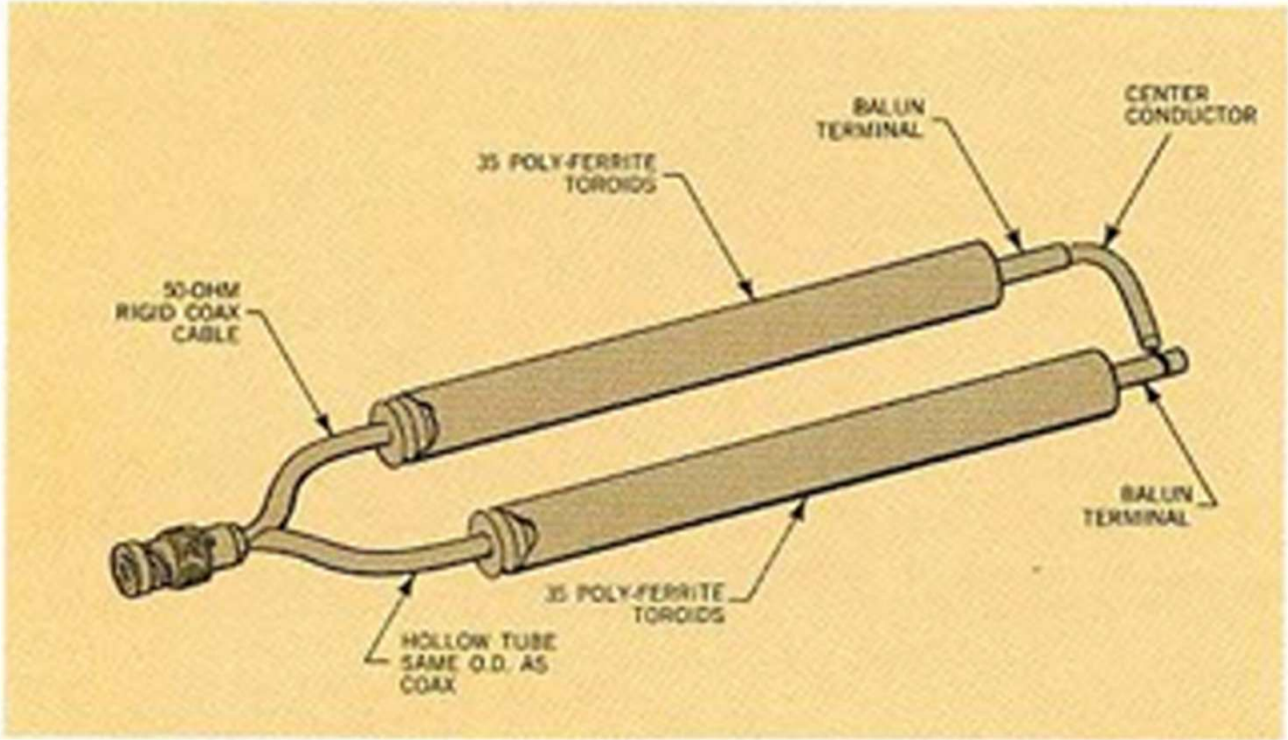

Fig. 10. Construction of a broadband balun.

Immagine presa da HP Application Note 86 1/3/88 pag. 11

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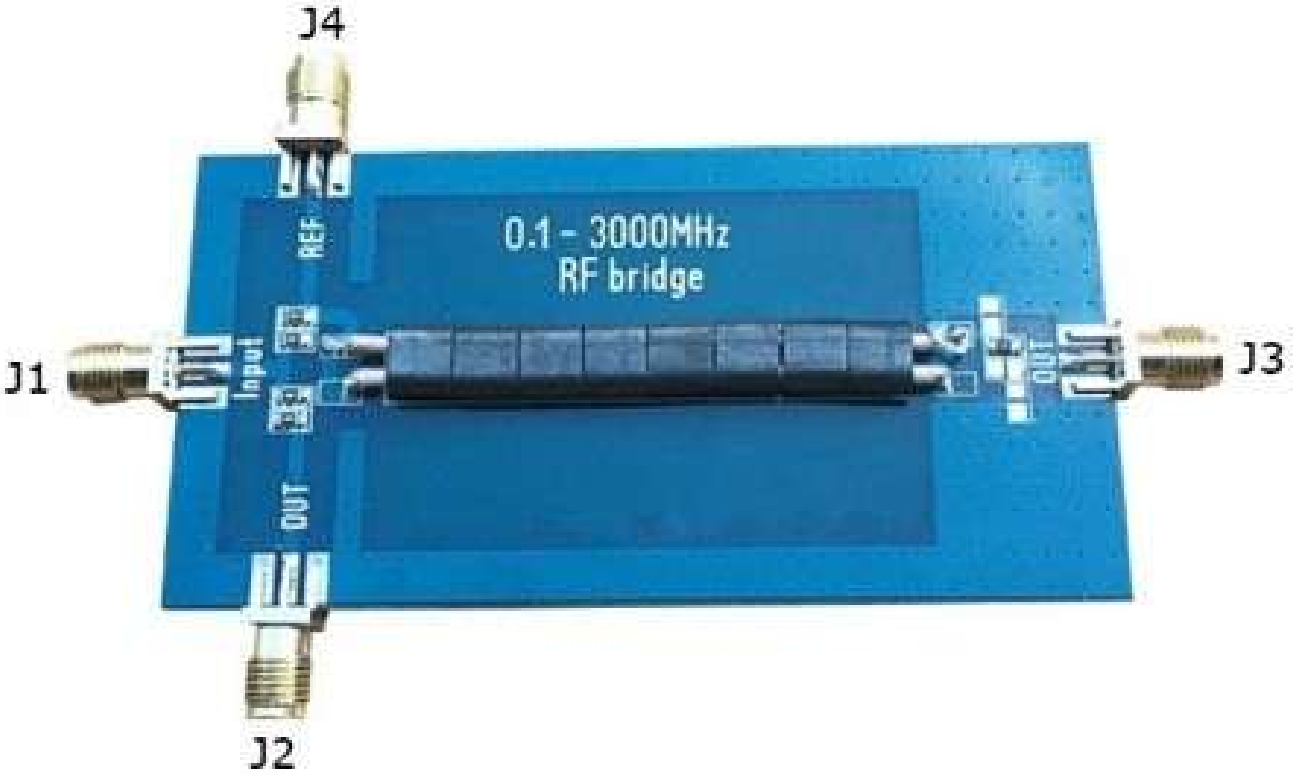

Immagine presa da Aliexpress

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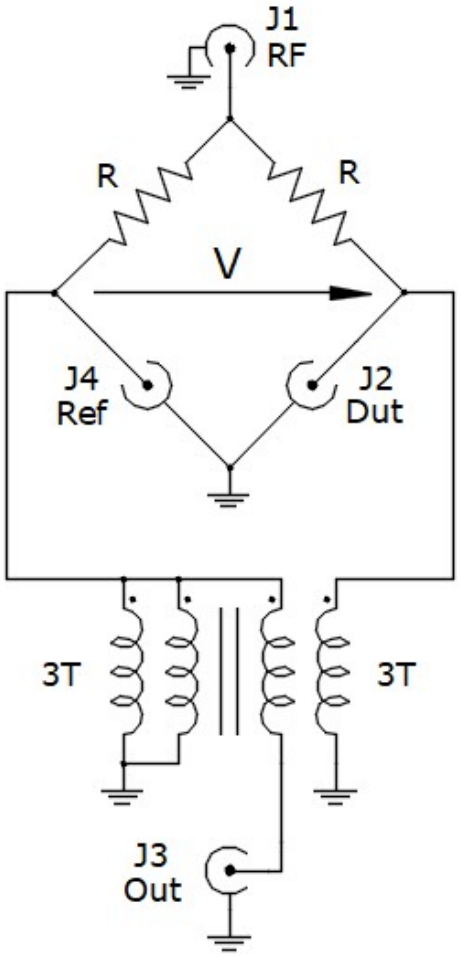
$$f_{min} = \frac{4 \cdot Z_0}{2\pi \cdot A_L \cdot sp^2} = \frac{200}{6{,}28 \cdot 7300 \cdot 9} = 484\ kHz$$

$$f_{Max} = \frac{30 \cdot 0{,}95}{l} = \frac{28{,}5}{0{,}048} = 593\ MHz$$



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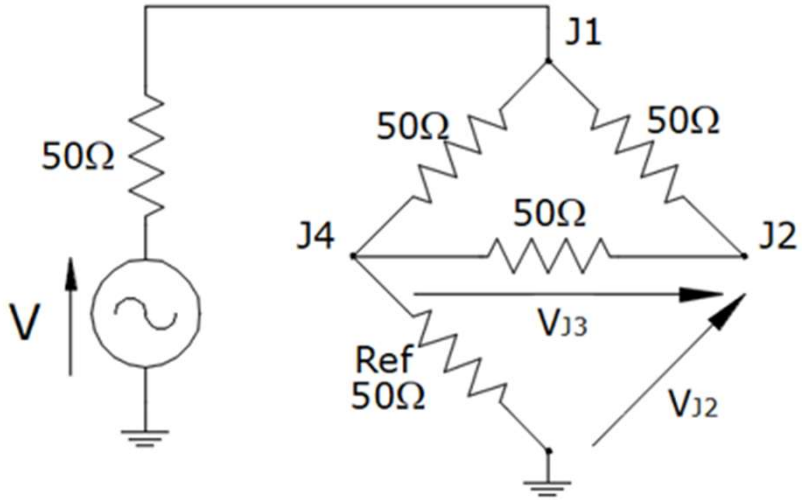

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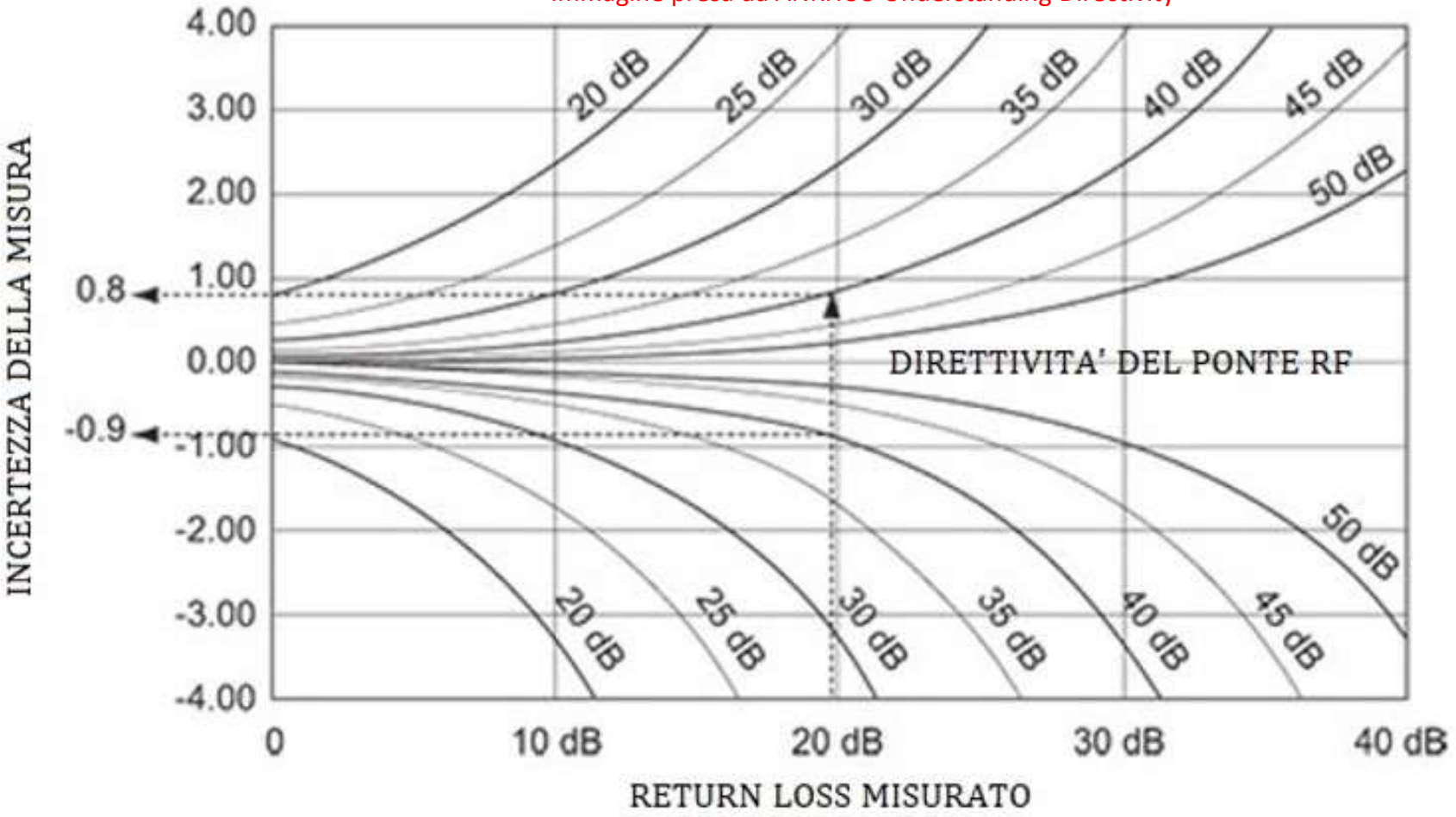
Immagine presa da ANRITSU Understanding Directivity



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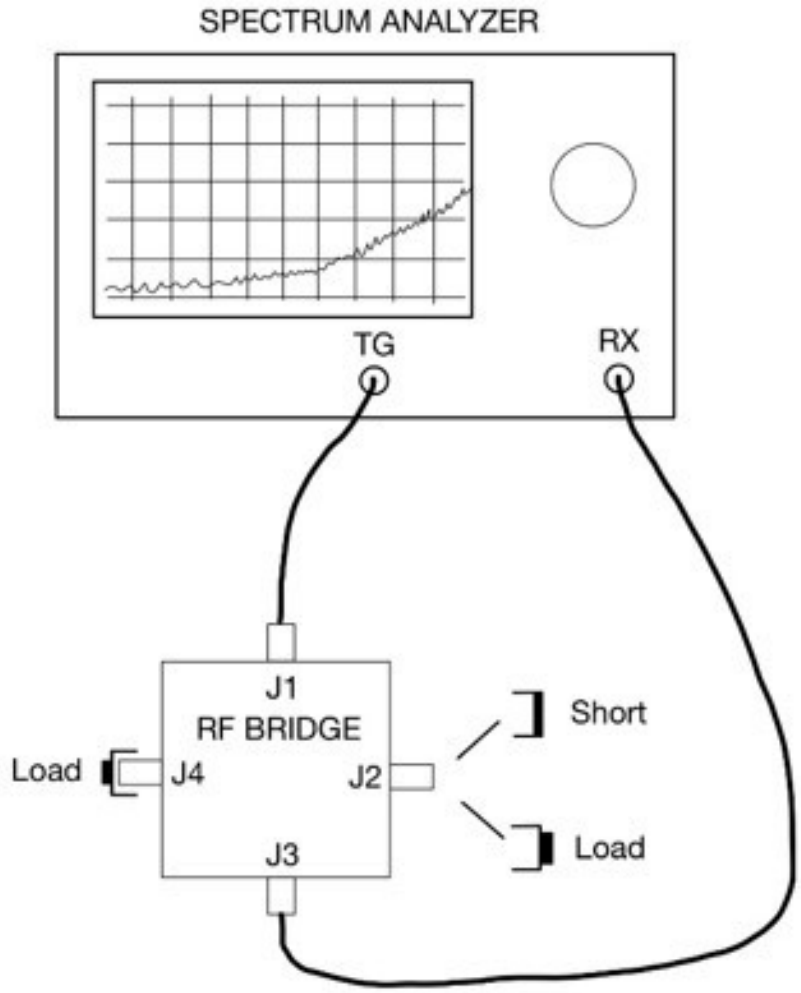
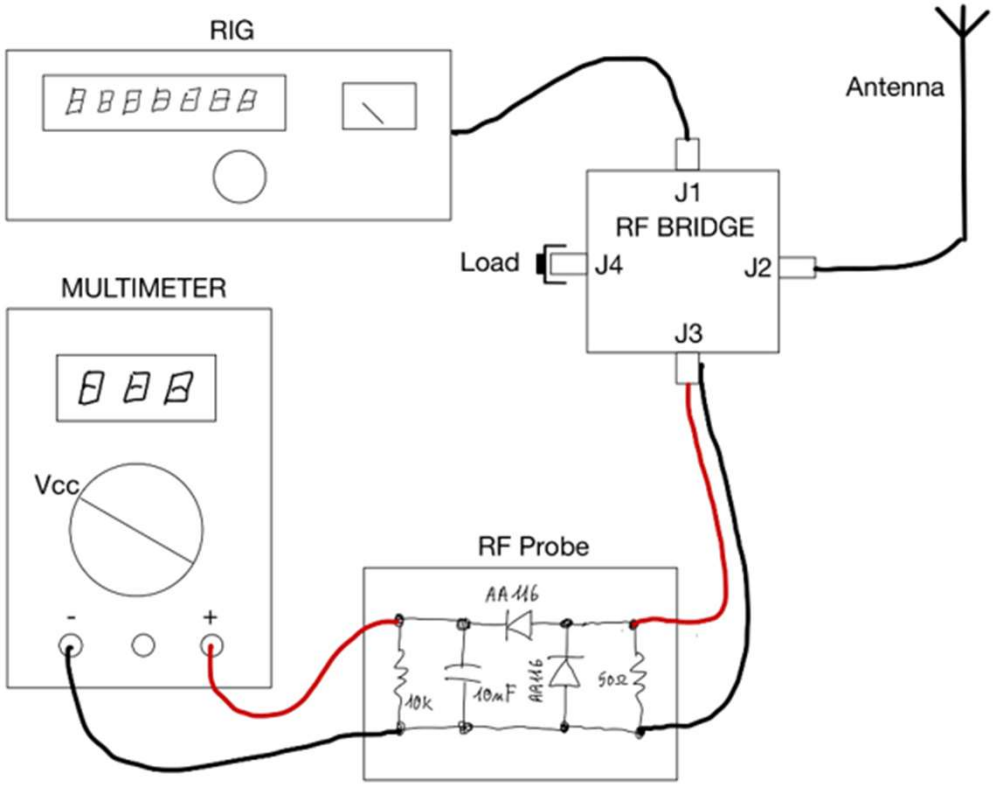


Misurare il RL col Ponte Riflettometrico

$$\rho = 10^{-\frac{RL}{20}}$$

$$VSWR = \frac{1+\rho}{1-\rho}$$



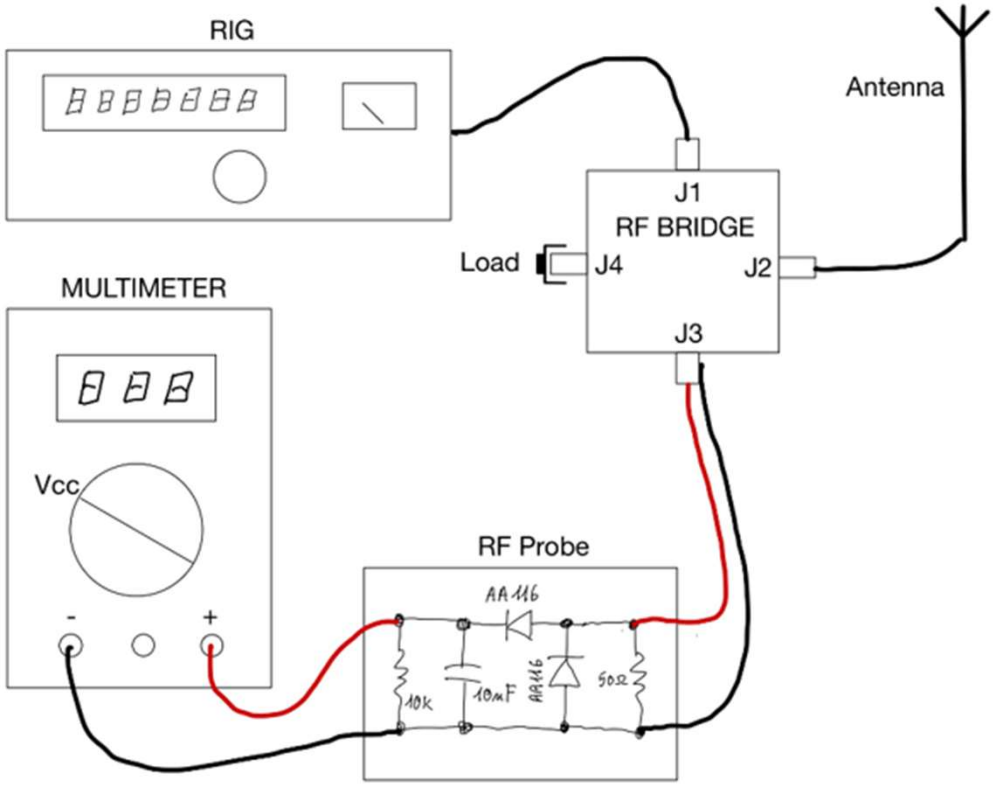
Misurare il RL col Ponte Riflettometrico

$$\rho = 10^{-\frac{RL}{20}}$$

$$VSWR = \frac{1+\rho}{1-\rho}$$

$$\rho = \frac{V_{Ant}}{V_{Open}}$$

$$RL = -20\ \log(\rho)$$

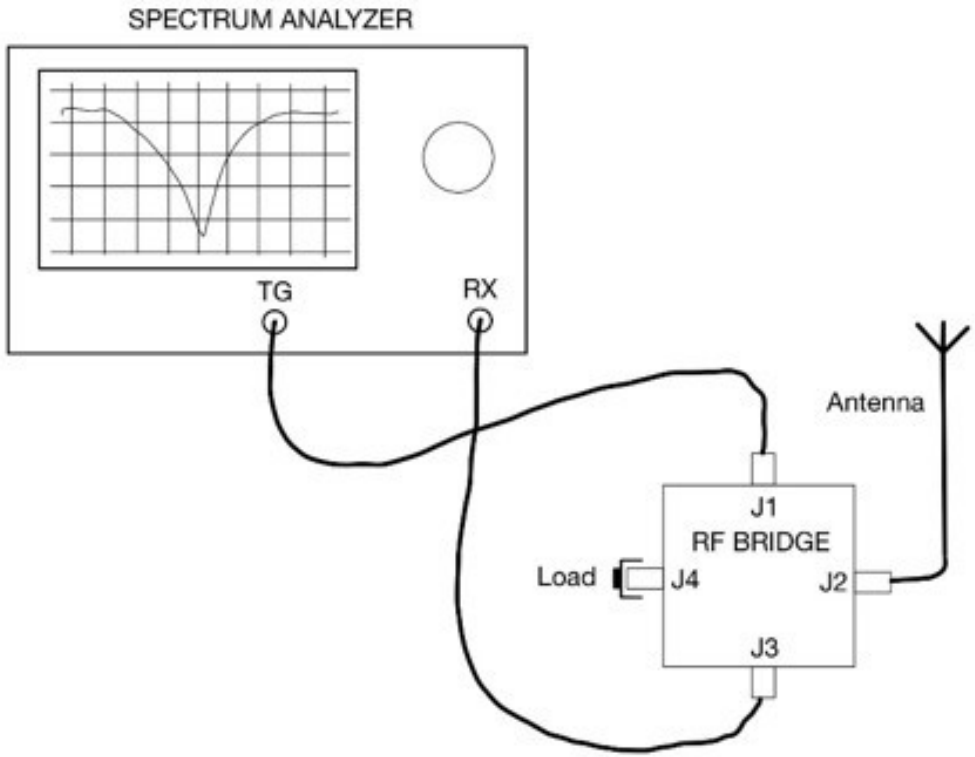


Misurare il RL col Ponte Riflettometrico

$$RL = -\rho_{dB}$$

$$\rho = 10^{\left(\frac{\rho_{dB}}{20}\right)}$$

$$VSWR = \frac{1+\rho}{1-\rho}$$

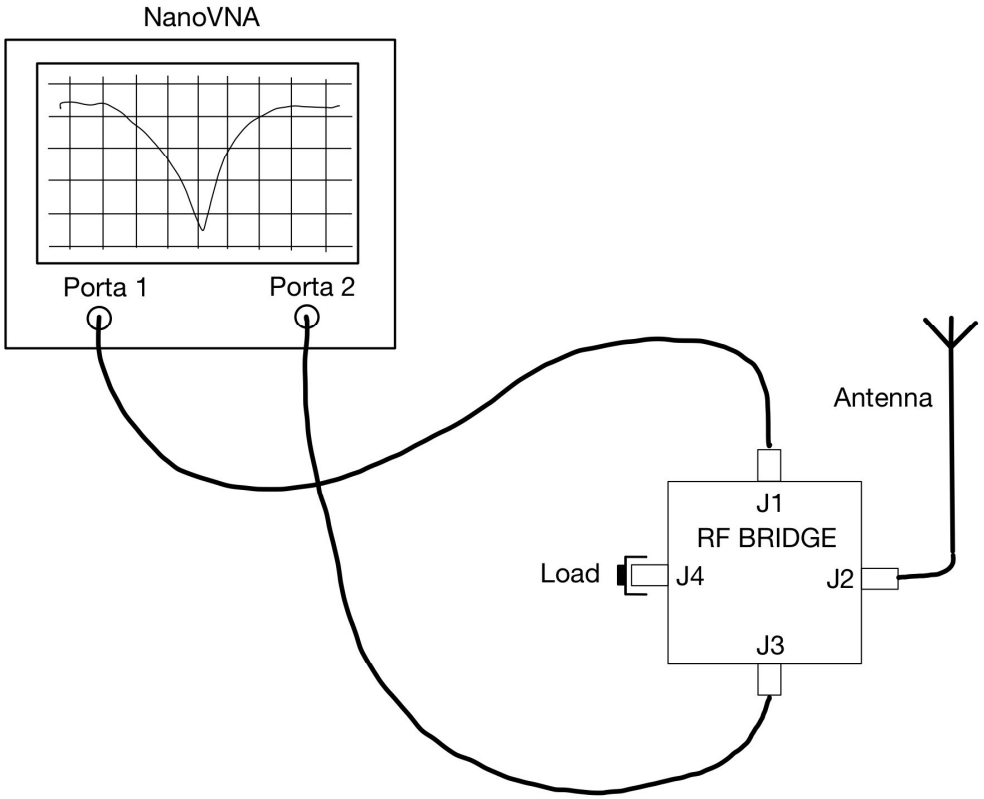


Misurare il RL col Ponte Riflettometrico

$$RL = -S21$$

$$\rho = 10^{\left(\frac{S21}{20}\right)}$$

$$VSWR = \frac{1+\rho}{1-\rho}$$



Misurare il modulo dell'impedenza d'ingresso

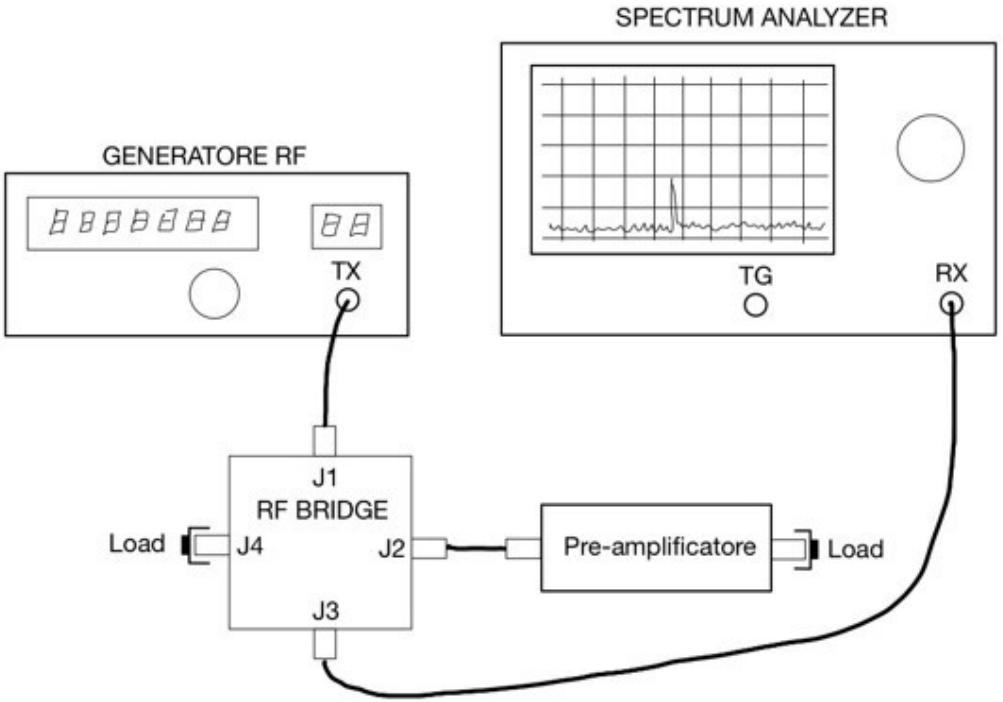
$$RL = dB_{Max} - dB_{min}$$

$$\rho = 10^{\left(\frac{-RL}{20}\right)}$$

$$|Z| = Z_0 \frac{1+\rho}{1-\rho}$$

oppure

$$|Z| = Z_0 \frac{1-\rho}{1+\rho}$$



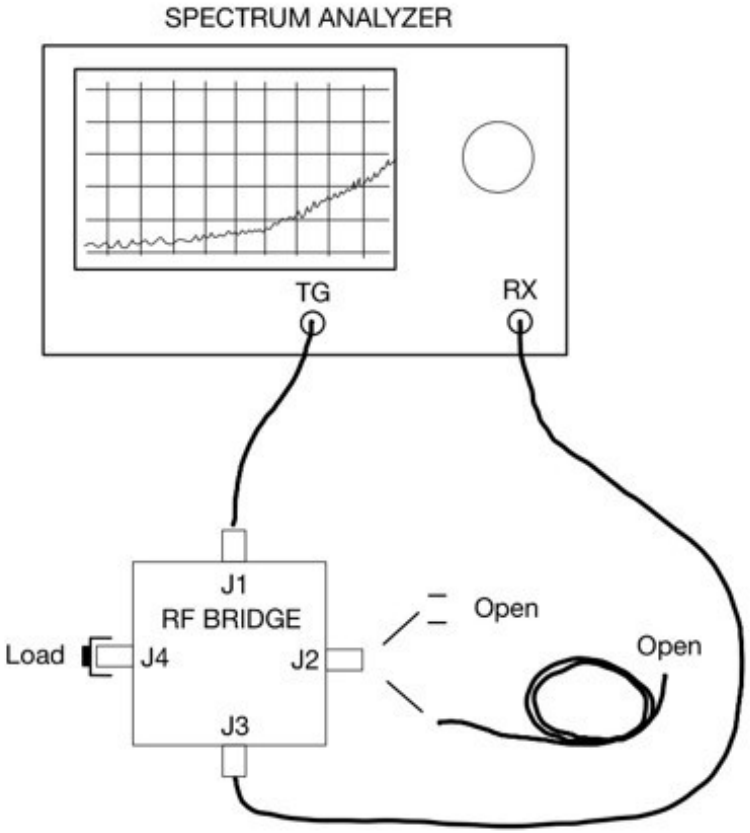
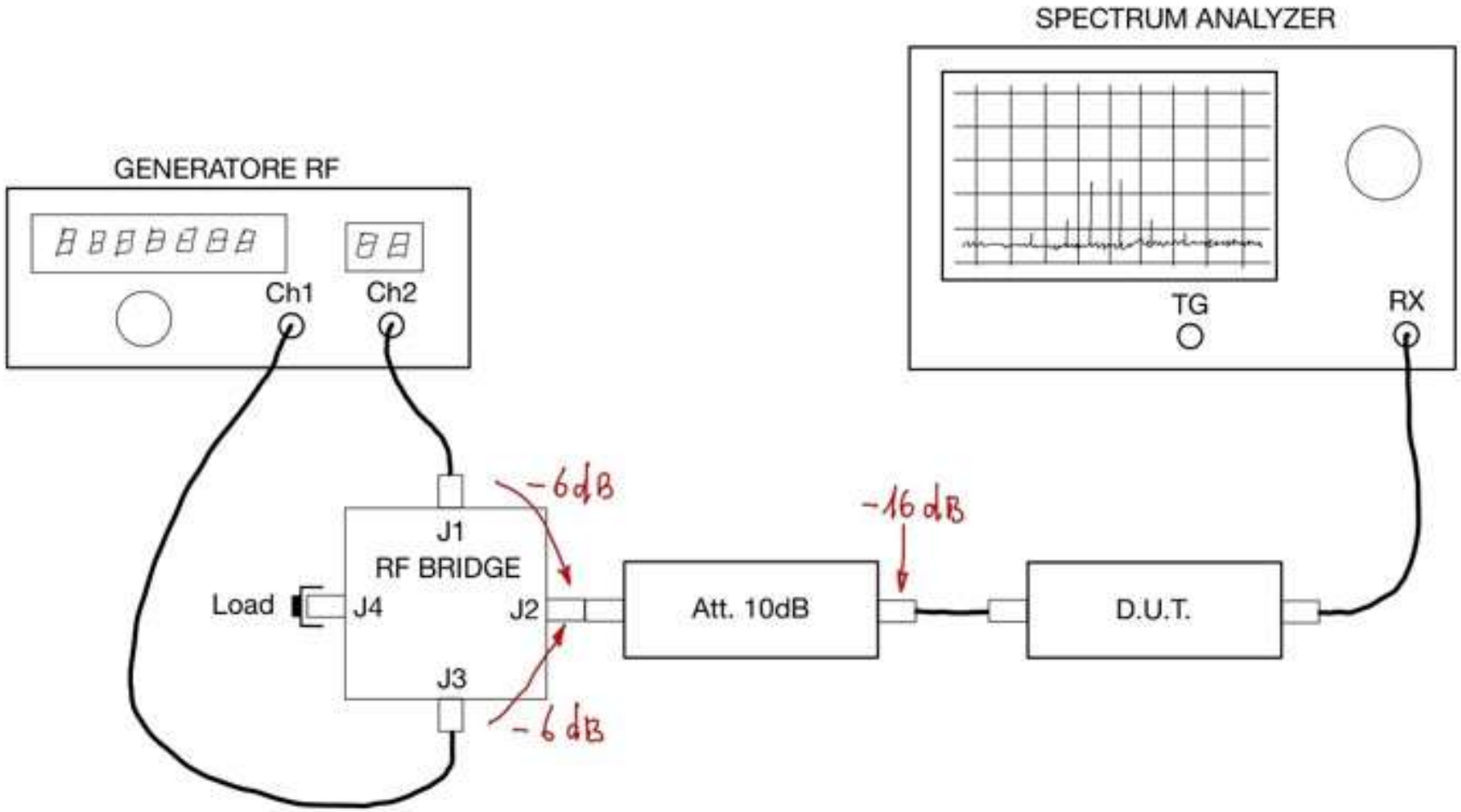
Misurare il modulo dell'impedenza d'ingresso

$$dBm = 10\log(20 \cdot V_{RMS}^2)$$

$$V_{RMS} = \sqrt{\frac{10^{\left(\frac{dBm}{10}\right)}}{20}}$$

S	Tensione in µV su 50 Ω	
	HF	VHF e UHF
0	0,098	0,010
1	0,195	0,020
2	0,391	0,039
3	0,781	0,078
5	1,563	0,156
4	3,125	0,313
6	6,25	0,625
7	12,5	1,25
8	25	2,5
9	50	5
20	500	50
40	5000	500
60	50000	5000

Misurare l’attenuazione di un cavo coassiale



Prove d’intermodulazione