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USER OPERATION AND MAINTENANCE MANUAL

REFLECTOMETER 26-40 GHz
Part No. RMM-26/40H

1st Edition
June 2008

Table of Contents.

1. INTRODUCTION.

This instruction manual contains information on installation and operation of the 26-40GHz sweep reflectometer.

1.1 General Description.

26-40 GHz sweep reflectometer is intended for measuring the density profile of the edge plasmas, the electron temperature profile and its fluctuations.

Base principle of operation is an effect of total reflection RF signal by layer plasma with critical density.

2. SPECIFICATIONS.

2.1 Electrical Specifications.

1.	Operating Frequency	26-40 GHz;
2.	Output power	150 mW (typ)
3.	Control voltage	0 - +10V;
4.	Sensitivity of detector	3000-3500 mV/mW;
5.	Input LNA gain	18-20 dB;
6.	Min Sweep Time	1 ms;
7.	Accuracy setting	20 MHz;
8.	Antenna gain	20 dB;
9.	Control connectors	BNC;
10.	RF connectors	UG-599/U, WR-28;
11.	AC Power	220 VAC;

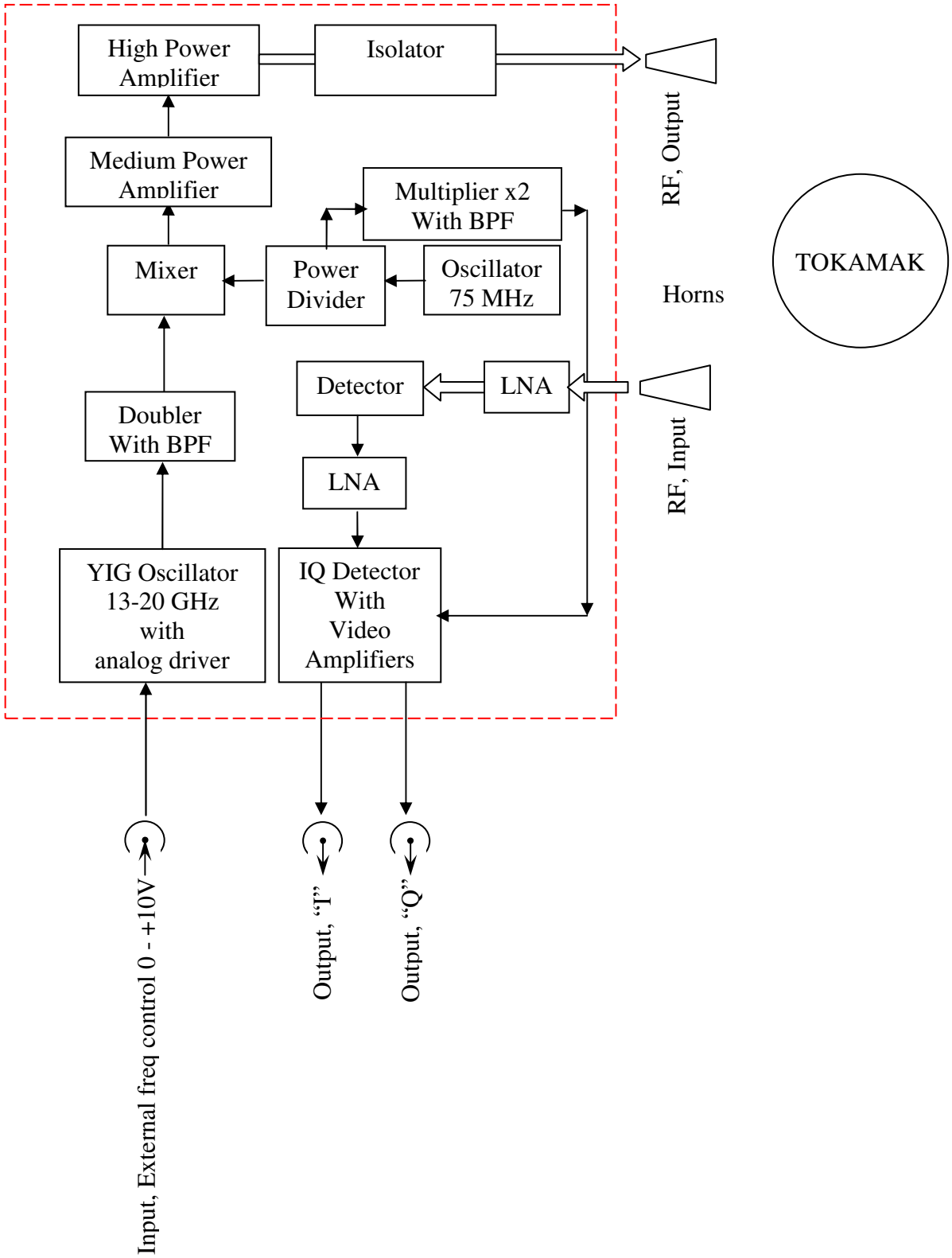
Reflectometer

12.	IF Frequency	150 MHz;
13.	Time Resolution	1 μs;

2.2 Mechanical Specifications.

14.	Size	470x160x250 mm;
15.	Weight	11 kg.

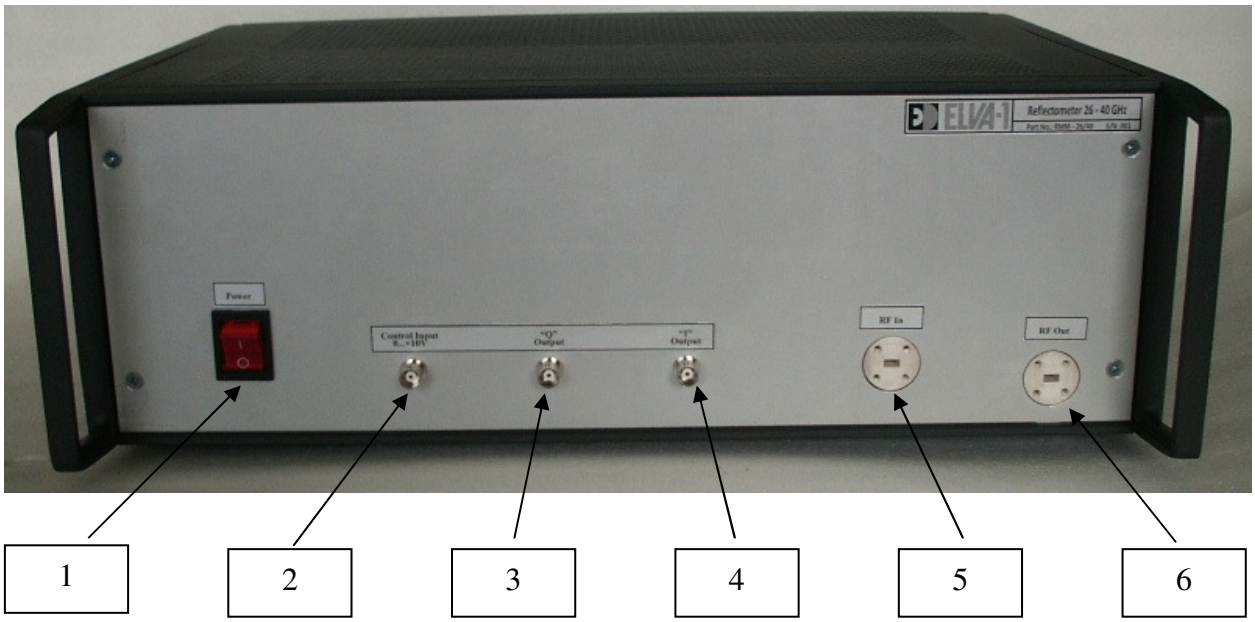
2.3 Block-diagram of the interferometer.



Picture No1. Block-Diagram of the reflectometer.

2. 4 Front panel.

Disposition of the plugs and knobs on the front panel of the reflectometer is the following:

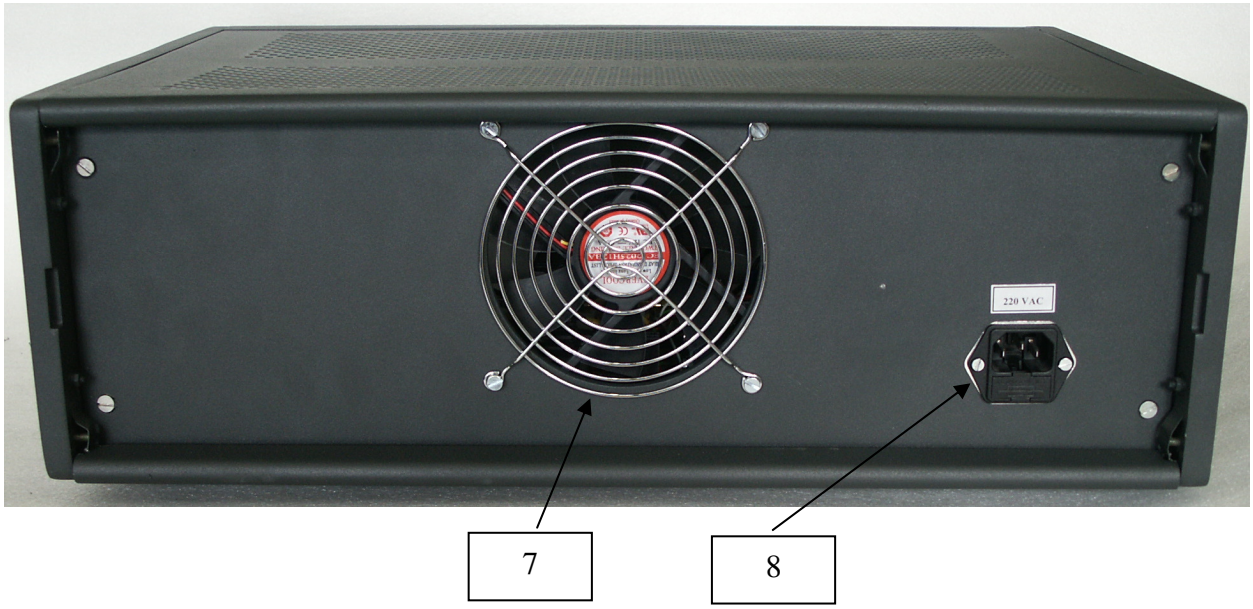


Picture No2. Front panel of the reflectometer.

1. Power switch;
2. Input for frequency control, 0 …+10V (BNC);
3. Output “Q” (BNC);
4. Output “I” (BNC);
5. RF input (UG-599/U, WR-28);
6. RF output (UG-599/U, WR-28);

2. 5 Rear panel.

Disposition of the plugs on the rear panel of the reflectometer is the following:



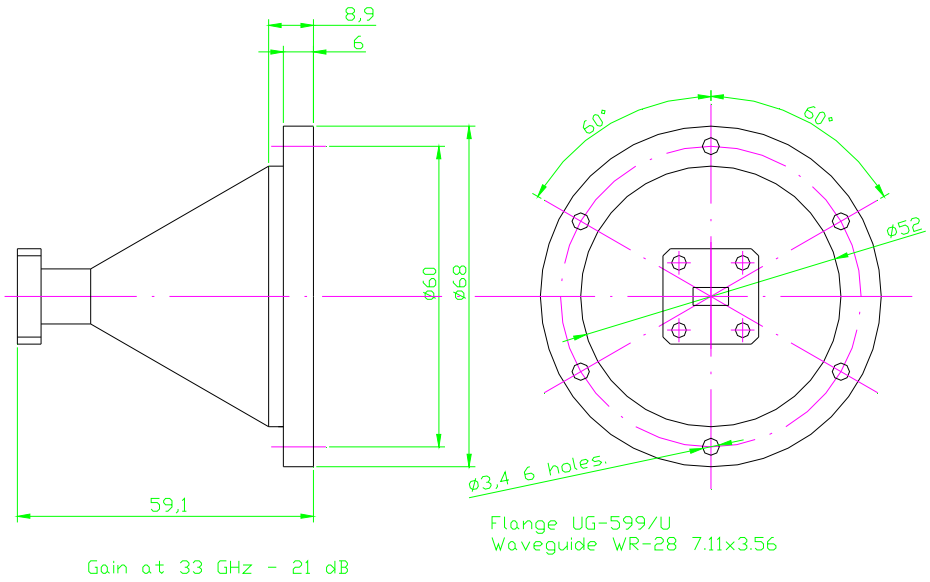
Picture No3. Rear panel of the reflectometer.

7. Fan;
8. Power plug with fuse, 220 VAC.

3. INSTALLATION.

3. 1 Assembly procedure.

The reflectometer is completed with two antennas HLA-28 (Elva-1, Ltd). The picture of antenna is presented below.



Picture No4. Antenna HLA-28.

After installation antennas near TOKAMAK window connect antennas by WR-28 waveguides. Remember: isolate film should be installed on input / output of the reflectometer. Then connect external voltage source (0…+10 V) to the frequency control input (2). The system is ready for using and can be switched ON by power switch (1).

Operation frequency is controlled by external voltage. Measured data is presented in 4.1.

4. MEASURED DATA.

4.1 Output frequency and power vs. control voltage.