Weather Radar MRL-5

MRL-5

MRL-5 (**M**eteorological **R**adio**L**ocator, kyrillisch: **М**етеорологический **Р**адио**Л**окатор МРЛ) is dual wavelength radar operating in S-Band (horizontal polarized) and X-Band (vertical polarized). The radar is intended for tropical and subtropical climates.

It is a classical, non-coherent pulse radar with a magnetron per frequency band. In the S-band the antenna works as a Cassegrain antenna with a diameter of 4.5 m. The auxiliary mirror of the Cassegrain antenna has a diameter of 1.5 m and works also as main reflector for the X-band.

The **MRL-4** (X-band) and **MRL-6** (S-band) variants each use only one frequency range. Like the MRL-5, they were used for severe weather warning.



Figure 1: MRL-5

ООО «Электромаш» Горький (Нижний Новгород)

Specifications		
frequency:	9 595 ±15 MHz (X-Band)	2 950 ±15 MHz (S-Band)
pulse repetition time (PRT):		
pulse repetition frequency (PRF):	250 ... 1 000 Hz	
pulsewidth (τ):	1 or 2 µs	
receive time:		
dead time:		
peak power:	250 kW	800 kW
average power:		
instrumented range:	300 km	
range resolution:		
accuracy:		
beamwidth:	0.5°	1.5°
hits per scan:		
antenna rotation:	0 ... 6 min^{-1}	
MTBCF:	5000 hrs	1000 hrs
MTTR:		

Figure S1. MRL-5 Specification

Source: https://www.radartutorial.eu/19.kartei/10.weather/karte034.en.html



Figure S2. MRL-5 installed at Phu Lien Observatory

Source:
https://thuonghieuvietnoitieng.com/dai-thien-van-phu-lien-dai-khi-tuong-thuy-van-tren-100-nam-tuoi-tai-hai-phong