

Russian Breakthrough Reported In Radio Telescopes And Electromagnetic Weapons

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Global Research, May 15, 2007

RIA Novosti 15 May 2007

Region: [Russia and FSU](#)

Theme: [Militarization and WMD](#)

MOSCOW. (Yury Zaitsev for RIA Novosti) – A group of Russian scientists from Tomsk, Yekaterinburg, Nizhny Novgorod and Moscow have developed a series of unique compact generators capable of producing high-energy pulses of hundreds and even thousands of megawatts.

This compares with the capacity of a major Soviet hydropower station on the Dnieper or an energy unit at a modern nuclear power plant. The new generators are sources of electromagnetic radiation rather than electricity. Their main feature is a capacity to produce enormous power in a matter of nanoseconds. The impulses can be generated with a very high frequency.

Vice President of the Russian Academy of Sciences (RAS) Gennady Mesyats recalled that the first high-current electron accelerators were developed in the U.S.S.R. in the 1960s. Ten years later, Soviet scientists learnt to generate powerful microwave nanosecond pulses. The current generators have no counterparts in the world. In effect, Russian scientists have made a breakthrough in what is called relativist high-precision electronics.

The pulse is primarily of interest for fundamental research. Reporting these results to the RAS Presidium at the beginning of this year, scientists emphasized that sources with super radiation effects can be broadly used in long-range high-resolution impulse-based radiolocation and in studies of non-thermal impact of powerful electromagnetic fields on radio electronic components and different biological species.

Super-powerful pulse generators can test the reliability of radio electronic devices and the immunity of energy facilities to different impacts. They can imitate the interference caused by a lightning and even by a nuclear blast. Their tiny size and unique physical properties make their sphere of application extremely wide.

The electromagnetic pulse (EMP) is a product of a nuclear explosion. It puts out of action even those electronic control systems that have withstood the shockwave and reduces expensive smart weapons to scrap metal. There are different ways of generating electromagnetic pulses – for example, it can be produced by explosion-induced pressure on a magnetic field.

Physicist Andrei Sakharov was the first to propose using this principle in a bomb in the 1950s. Today, records in the size of an induced magnetic field, maximum current and properties of such “radiators” belong to Russian scientists. They surpass foreign counterparts by 10 times. Depending on what facilities the EMP is directed at, the damage

radius can be from several hundred meters to kilometers. Without creating a shock wave and inflicting visible damage, it destroys all enemy electronic equipment. Moreover, unlike electronic countermeasures, electromagnetic weapons are capable of damaging radio electronic components even if they are switched off.

At present, the infrastructure and troops of many countries are stuffed with electronic equipment. It will be the main target for electromagnetic weapons. The destructive effect is produced by the high acceleration of the magnetic and electrical components of the EMP. They induce voltage changes ranging from 100 volts to 10,000 volts in circuit networks and terminals of radio electronic equipment. The ensuing massive sparking of cable jackets, their contact to frame and the ground, and breakdowns in connectors put the equipment out of action and lead to fires and explosions. To understand this effect better, it is enough to imagine what will happen to your TV-set if there is a power surge – it will simply melt.

The Americans were the first to use such weapons in combat, for instance in Yugoslavia. Some analysts believe that electromagnetic bombs would have given the United States a vital advantage in the early stages of the war in Iraq. They could have disabled not only Baghdad's control and communications systems, but also electronic components of missiles, even those located in deep bunkers. But the U.S. command chose not to use electromagnetic bombs for fear that they might disrupt its own radio electronic equipment in the area.

Today, many countries have electromagnetic weapons. Military experts predict a victory in future wars to those who will be ahead in electromagnetic radiation. In many cases, not only the military-industrial complexes but also different civilian organizations, research institutes and universities conduct studies in this field, thereby increasing the threat of radio electronic terrorism. For example, a broadband high-energy and compact wave source is sold without any restrictions. In several fractions of a second, it can burn down all electronic equipment at an electric power station, substation or control tower.

A short intensive pulse can instantly paralyze data bases, financial centers and industrial equipment.

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