

# Electromagnetic Pulse: Weapon of Today



In contemporary world we are surrounded by the most sophisticated technology having the capability of controlling and monitoring finance, electricity, travelling and communications. United States carried out its last above the surface nuclear test in the South Pacific in 1962 and world was exposed to deadly side effects of gamma rays that are electromagnetic pulse. In today's world possessing nuclear weapons other than deterring offensive enemy or self-defense is considered unnecessary. Now world is shifting to practical application of weapons for target engagement using hi-tech. Another product of hi-tech is Electromagnetic Pulse or EMP.

Electromagnetic Pulse is described as a weapon possibly intimidating to national security. EMP can be created by two traditional methods: microwave emission and overhead nuclear burst. High power microwave electromagnetic energy can be produced as a direct pulse via special electrical equipment

that transforms battery power into intense microwaves that are very damaging to electronics falling in much smaller area. Electromagnetic pulse is an instant electromagnetic field that is produced in the atmosphere by the radiation and power of a nuclear explosion. The damage to electrical equipment via EMP also covers wide area but it depends upon device's design and altitude of the burst. The obligatory contrivance for the production of EMP is ionization of air molecules by gamma rays generated from nuclear detonation.



**EMP AREA BY BURSTS AT 30, 120 and 300 MILES**

Gary Smith, "Electromagnetic Pulse Threats", testimony to House National Security Committee on July 16, 1997

Electromagnetic Pulse of high altitude and High Power Microwave technology have advanced to the extent where Electromagnetic bombs are becoming viable. EMP is not radioactive, as said, it is a pulse that is formed as a side effect of electromagnetic or nuclear bomb detonation. It is also claimed that EMP has no direct side effects on living organisms. It is mainly used to everlastingly or briefly inactivate electrical and electronic equipment because electromagnetic energy travels at the speed of light. Most of the electrical systems are controlled by semiconductors and they fail while becoming in contact with EMP. Failure of semiconductors can potentially terminate railway, industrial, phone, water and power system.

EMP has the ability to destroy or burn out specified path

range electronic equipment. EMP weapon has the ability to offer an edge in army combat and it can lead to very lethal affects in the battlefield. Developed EMP has range covering meters and kilometers. Reach of an EMP bomb depends upon its size and output power source. US Air Force Laboratory has developed an EMP called Counter-electronics High-powered Microwave Advanced Missile Project or CHAMP. CHAMP is capable of bursting high frequency energy destroying the adversary's data and electronic system. EMP can be a device as small that it can fit in a regular sized briefcase. These bombs are thought to be developed to deter or to defeat an enemy with any nuclear confrontation. The smallest EMP devices are powered by AA battery and have the ability to deprogram a circuitry in a computer system from 15 meters away. Electromagnetic pulse weapons are a lot larger in scale than microwave emission pulse. The technology used for microwave pulse is of such lower scale that non-state actors or organizations can acquire or make it to damage the computer devices.

Other States like Russia and China are also in a race of developing EMP weapons capable of destroying electronic equipment and systems. According to a Russian News Agency, TASS, the Russian EMP weapon, known as EMP Cannons, produces a high beam of electromagnetic pulse that can travel up to 10 km against aerial targets. TASS further explained that airborne targets can be destroyed from the range of 10 km because their electrical system burns down due to the heat and electromagnetic energy exposure. Russia aims to install EMP cannons in unmanned version of Russian sixth generation fighter jet because EMP cannons cannot be installed in an aircraft with a pilot due to the risk high EMP energy signals. USA has been accusing Russia for exposing several American soldiers and diplomats, inside and outside Russia, to electromagnetic waves silently. Many cases of sharp pain in head and throwing up have been reported which was later named "Havana Syndrome."

There are no compelling proofs that Russia is behind exposing American diplomats to such affects. USA is still adamant by comparing situations to 1953-79 when Soviets barraged US embassy in Moscow microwave radiation leaving American diplomat's white blood cells abnormal and many adverse health issues. USA claims that fire swept through the block right opposite to US embassy in Moscow and there were no radiations detected. By July of the same year, microwave radiations were detected again and another fire broke out in the same block. There are two explanations given by the USA that Russia has been using EMP as a weapon against them for years: one notion is that Russia has been using microwave to listen to American devise installed in the embassy or that they were used to freeze or burn out American electrical devise. Despite all the theories and accusations, it is not proved that Havana Syndrome is caused by electromagnetic energy radiations.

China has also been recently accused of using microwaves against Indian soldiers in the mountains range of Himalaya. The reports suggest that healthy Indian soldiers suddenly started feeling weak and violent vomiting. According to professor Jin Canrong at Renmin University in Beijing, China used microwave energy and exposed Indian soldiers to high frequency electromagnetic pulse which increased the heat in their body, leaving them feel vexed and irritated. By using that technique China turned the Himalayan hilltop into a giant microwave threatening the lives of Indians soldiers to be cooked alive from the inside. It made Indian solders to leave the premises of the hilltop unprotected for Chinese soldiers to occupy without even releasing a single bullet. India has dismissed the news by calling it "fake." It has also been reported that China has "first strike" capability to melt and burn down and entire US power grid with the use of EMP radiation.

It is believed that the effects of being exposed to EMP energy are not long lasting and wear off in a span of weeks. Though

EMP weapons require hi-tech and advanced power system, they are still less expensive than producing aircraft carriers, fifth generation fighter jets and nuclear bombs. EMP is not just a dream or a movie plot, it is a reality. EMP weapon can take down an entire State or a specific area by frying every electrical system and not shedding a drop of blood.