Daily Mail .com

Science & Tech

Pentagon plans for 'doomsday' artillery shell containing an electromagnetic pulse weapon powerful enough to cripple an entire city's electronics revealed

- Pentagon is calling for a 'non-kinetic effects' weapon for 155mm projectiles
- Would be an electromagnetic pulse artillery shell that could wipe out electronics
- It would destroy electronic infrastructure without physically causing damage

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PUBLISHED: 11:59 EST, 18 January 2017 | **UPDATED**: 12:03 EST, 18 January 2017

The US Department of Defense is developing a powerful new weapon that could cripple an entire city without directly hurting anyone.

A recent solicitation from the Pentagon calls for a non-explosive electromagnetic pulse artillery shell capable of wiping out 'a wide range of electronics, critical infrastructure, and computer-based systems.'

The non-kinetic system would first be incorporated into a 155mm projectile and later scaled down to enable the use of multiple shells, allowing for devastating electronic attacks that are delivered by standard munition but cause no physical damage.

A solicitation from the Pentagon calls for a non-explosive electromagnetic pulse artillery shell capable of wiping out 'a wide range of electronics, critical infrastructure, and computer-based systems.' It would fit into a 155mm artillery piece, like the M777 Howitzer, pictured

HOW EMP WORKS

EMP, or electromagnetic pulse weapons use missiles equipped with an electromagnetic pulse cannon.

This uses a super-powerful microwave oven to generate a concentrated beam of energy.

The energy causes voltage surges in electronic equipment, rendering them useless before surge protectors have the chance to react.

The aim is to destroy an enemy's command, control, communication and computing, surveillance and intelligence capabilities without hurting people or infrastructure.

According to the solicitation, the weapon will be designed to be cost-effective and precise, launching the non-kinetic effects (NKE) from a close range to limit the affected area.

Essentially, such a weapon would render the target's entire electronic infrastructure useless.

The DoD will first develop a prototype weapon for the 155mm projectile, with the ultimate plan to create a 'ruggedized, hardened electronics subsystem.'

During the development process, the report says they'll also be exploring and demonstrating different ways to carry out non-kinetic attacks, and testing the system's capabilities in the field.

'Extensive use of wireless RF networking for critical infrastructure and communications systems provides an alternative attack vector for the neutralization of an adversary's underlying industrial, civil, and communications infrastructure without the destruction of the hardware associated with those systems,' the solicitation states.

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'Advances in munitions-based microelectronics and power technologies make possible the implementation of non-kinetic cyber and electromagnetic 'or electronic warfare (EW)' attacks that could be delivered via artillery launched munitions.

'The precision delivery of the non-kinetic effects (NKE) electronics payload close to the target allows low power operation which limits the geographical extent of impacted systems, and reduces the overall impact on the electromagnetic spectrum.'

The new development comes more than a year after a report warned that America is falling behind in the development of critical electromagnetic weapons that some say could wipe out 90 percent of its population.

The Center for Strategic and Budgetary Assessments says the technology is 'one of the most critical operational domains in modern warfare.'However, it concluded 'unfortunately, 'failed to keep pace' is an appropriate description of the Department of Defense's (DoD) investments in EMS warfare capabilities over the last generation.

The report, 'Winning the Airwaves: Regaining America's Dominance in the Electromagnetic Spectrum', added the technology will become as revolutionary as smartphones.

'In the same way that smartphones and the Internet are redefining how the world shares, shops, learns, and works, the development and fielding of advanced sensors and networking technologies will enable militaries to gain significant new advantages over competitors that fail to keep pace,' it says.

BOEING'S 'CHAMP' WEAPON

In 2012, aircraft manufacturer Boeing successfully tested the weapon on a one-hour flight during which it knocked out the computers of an entire military compound.

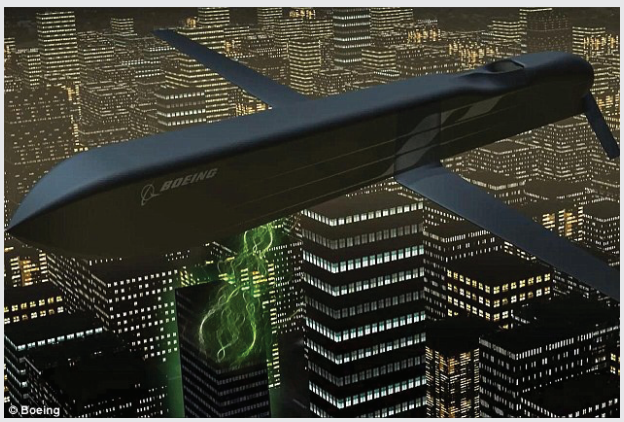
During Boeing's experiment, the missile flew low over the Utah Test and Training Range, discharging electromagnetic pulses on to seven targets, permanently shutting down their electronics.

Boeing said that the test was so successful even the camera recording it was disabled.

Although the project is shrouded in secrecy, experts believe the missile is equipped with an electromagnetic pulse cannon.

This uses a super-powerful microwave oven to generate a concentrated beam of energy which causes voltage surges in electronic equipment, rendering them useless before surge protectors have the chance to react.

Boeing's CHAMP takes out enemy electronics with pulse.



Pictured is Boeing's Champ, or Counter-electronics High-powered microwave Advanced Missile Project, one of the EMP weapons that is under construction

The EMP-shielding concrete could be applied in a spray-on technique that would allow for cost-effective retrofitting

THE CONCRETE THAT COULD SHIELD AGAINST EMP ATTACKS

Engineers at the University of Nebraska-Lincoln have developed a type of concrete that could act as a shield against 'doomsday' electromagnetic pulse attacks.

The conductive concrete both absorbs and reflects electromagnetic waves to protect the electronics inside, and the creators say it could be used in new structures or applied through a spray-on method to retrofit existing buildings.

The researchers created a concrete that conducts electricity, replacing some of the standard concrete materials with magnetite.

The concrete also includes carbon and metal components, enhancing its absorbing abilities and allowing it to reflect as well.

The new concrete is now available for commercialization, and the team has joined with ABC Group in a research agreement for a new patent-pending pending product that would work with a shotcrete construction method, a spray-on technique that would allow for cost-effective retrofitting.