

# SHYCOCAN™

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Functional Field Mapping

Range of Effectiveness

Image Credit: Eureka Forbes

AUGUST 31<sup>ST</sup>, 2020

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# Functional Field Mapping of the Range of Effectiveness of SHYCOCAN

The device Scalene Hypercharge Corona Canon (or SHYCOCAN), is designed for active containment of the Corona family of viruses, one or more of its strains is a pandemic today. There is an urgent need for simple and sensitive methodology to prevent mass outbreaks and spread of present Coronavirus COVID-19 and its subsequent wave. More than half a million people have already lost their lives and more than a 25 million have already been infected.

As we understand today, COVID-19 is spread by droplets or aerosols caused by cough, sneeze, vomiting etc. and through physical contact and contaminated clothing, tissue paper, used masks etc. Knowledge of aerosol transmission mechanisms are limited for most pathogens, although spread by aerosol is an important transmission route for many pathogens including COVID-19, it has been reported that the virus has already attained the air borne supremacy. Coronaviruses (CoVs), is an enveloped positive-sense-Negative seeking mRNA virus, which are characterized by club-like spikes that project from their surface, an unusually large RNA genome, with a unique replication strategy. The attack mechanism starts with the initial attachment of the virion to the host cell; it is initiated by interactions between the S-protein and its receptor. The sites of receptor binding domains (RBD) within the S1 region of a coronavirus S-protein vary depending on the virus. The S-protein/receptor interaction is the primary determinant for a coronavirus to infect a host species and governs the tissue tropism of the virus. However, the end result is the fusion and release of the viral genome into the cytoplasm.

The Equipment under test (EUT) is based on the principle of Photon Mediated Electron Emitter or PMEE. Scalene developed this special metal super alloy as part of another project and was patented in November 2017. PMEE happens when the super alloy (VIKUR M20) is excited by extremely high voltage and specific frequency with precision geometry, it produces low energy photons under normal temperature and pressure. This leads to bulk electron emission caused by the absorption of a photon (in simple terms), and it is referred to as stimulated photo-electron emission.

On the other hand, photo-electron emission most commonly happens not to atoms in the air but to bulk materials. In this case, the atoms at the material surface are struck by photons and emit photoelectrons. However, these atoms do not become ions. Instead, they get electrons from the rest of the material (and eventually from the ground plane) and remain electrically neutral. Therefore, photoelectron emission for bulk materials has nothing to do with room or air ionization.

Furthermore, in most bulk materials, some electrons (the ones that takes the least amount of photon energy to be emitted) are not considered as belonging to specific atoms. Instead, their presence is extended within the bulk, or over the surface. Such consideration makes Photon Mediated Electron Emission (PMEE) farther away from ionization. If the energy of the photon is below that of the ionizing potential, it is absorbed by other bulk atoms and will release secondary electrons as well. If the energy of the photon exceeds the ionizing potential, the atom struck by the photon can release one or more

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electron and additional photons depending on the photon kinetic energy levels. The additional photon will strike more atoms, and this will result in a chain reaction, whereby producing a cloud of electrons that would inhibit every spike protein of every corona virus around.

## Indication of Use

The device Scalene Hypercharge Corona Canon (SHYCOCAN) is intended to be used in an industrial / commercial environment and is designed for active containment by attenuation of Corona family of viruses. SHYCOCAN operates on a 110/240V - 50/60 Hz to generate extra high tension at a switching frequency of 15 to 20 KHz that delivers the necessary signals to a photon mediated electrons emitters (PMEE), that produces Low energy photons enough to eject high velocity electrons that binds with the negative seeking S-protein RBD of Corona family of viruses thus reducing infectivity and protect the environment from air and surface borne transmission of Corona family of viruses uninfected individuals. The Device utilizes viable biological components in the corona family of viruses for its intended purpose (Example: S- protein of the viral Spine).

## Field Mapping

### Purpose:

Functional Field mapping of the EUT was considered essential to determine the effective Area, distance and Volume covered by the device effectively for its designated Indication of use.

### Test Method:

A suitable and large enough real time use location was chosen for the field mapping. The aim was to count the electron density within the area. We here used a method to count the electrons by counting all electrons as they pass through a circuit. The measuring protocol consists of two parts, one an array of small tunnel junctions in which the electrons line up as a train due to the Coulomb blockade [1], and second, a Single-Electron-Transistor (SET) [2,3], which is able to detect each electron that passes by, this was amplified and coupled to an oscilloscope, that measures the number of electrons per second that passes through the detection circuit, that is counted as a frequency and converted to a voltage.

### Mapping:

In the field area, the survey setup was made, by clear ground markings, measurements of physical distances from the EUT was made. First the angle of dispersion was determined and was 160 degrees. The measurements were done at specific distance and at different heights of the measurement area.

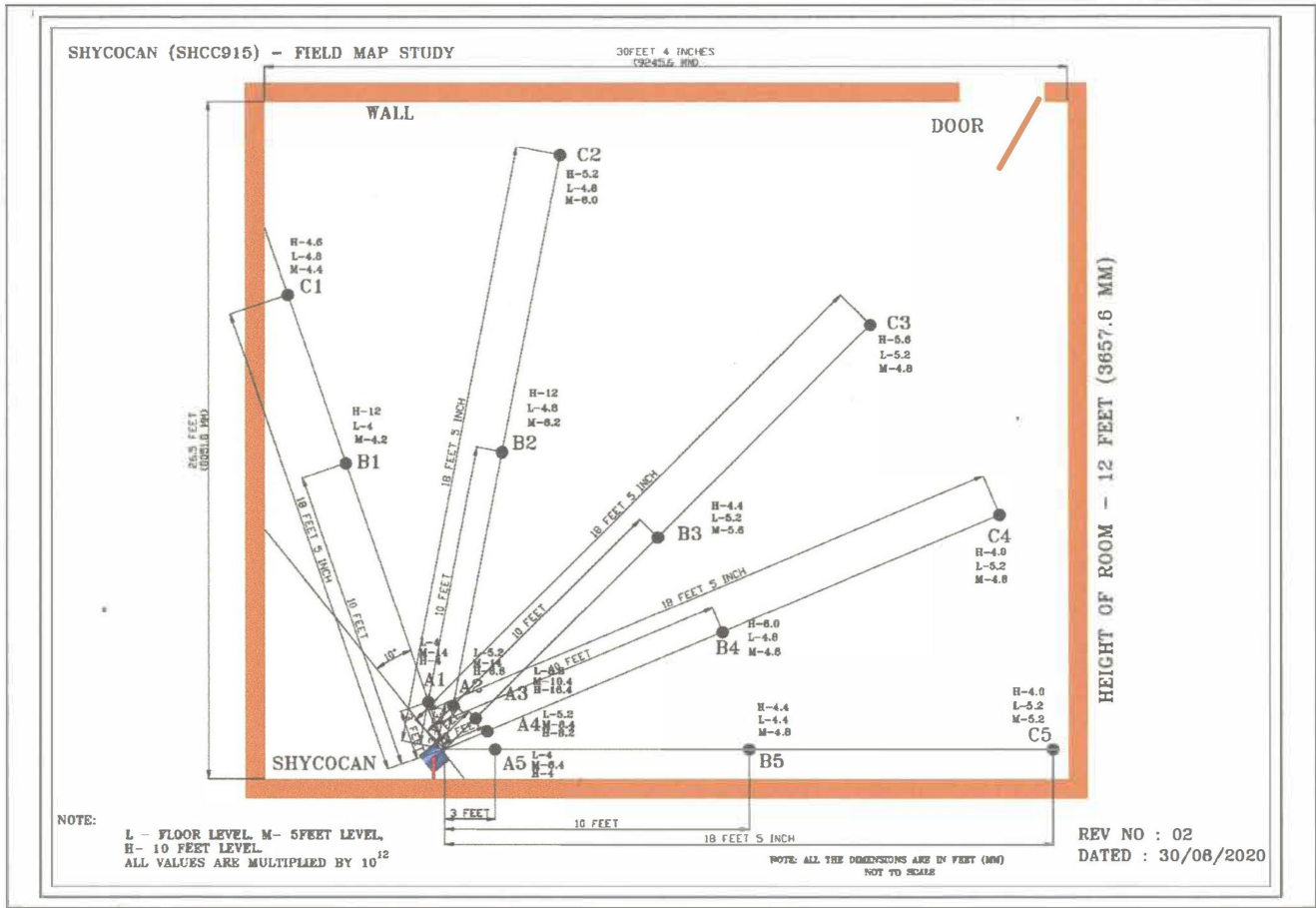


Fig.1 Electron Density correlated with distance.

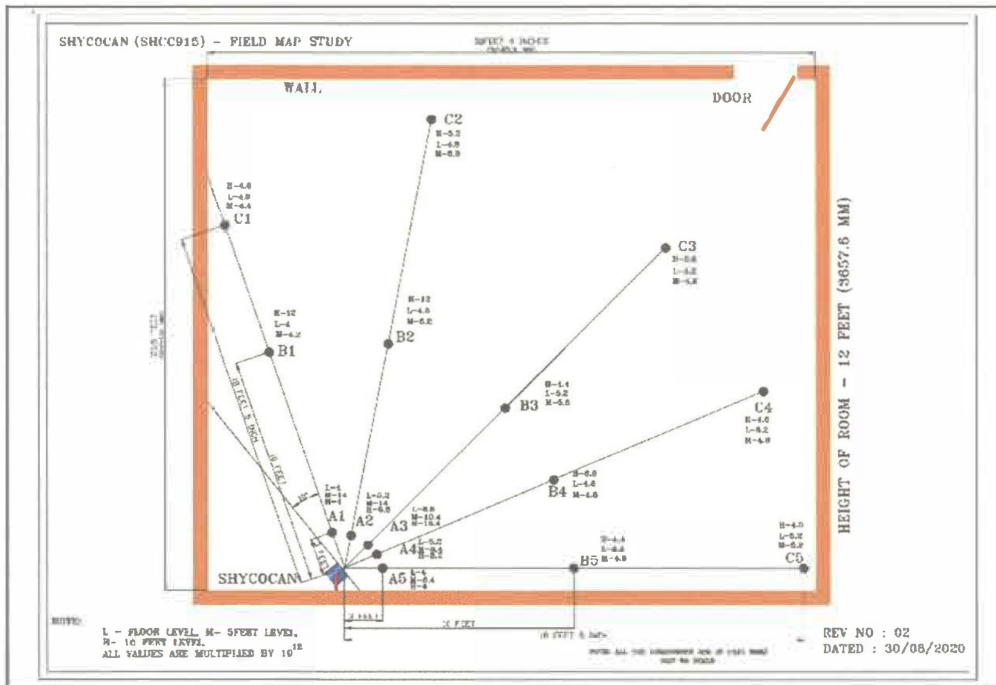
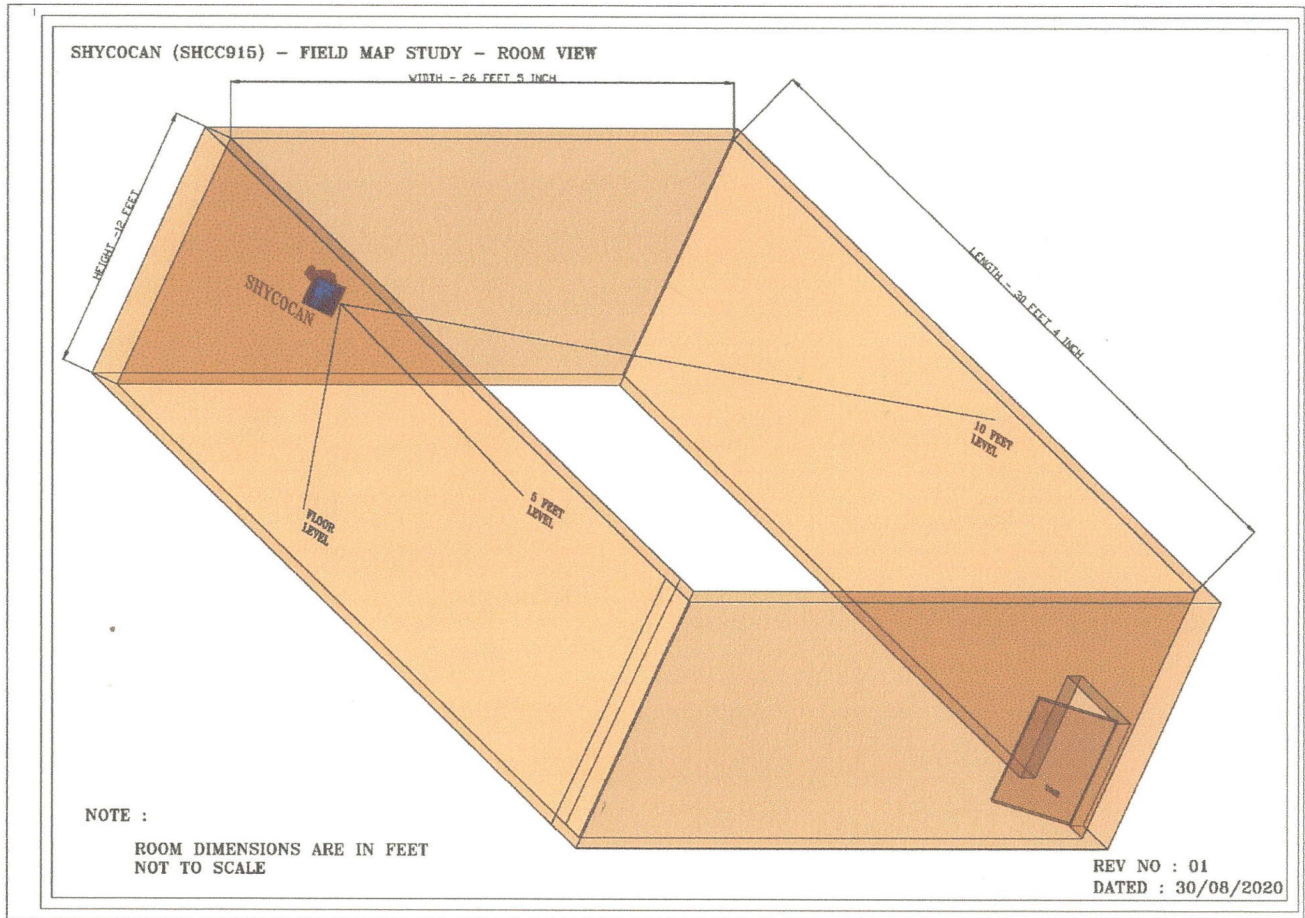


Fig.2 Electron emission at different points.



**Fig.3 Detection at different heights.**



**Test Setup**



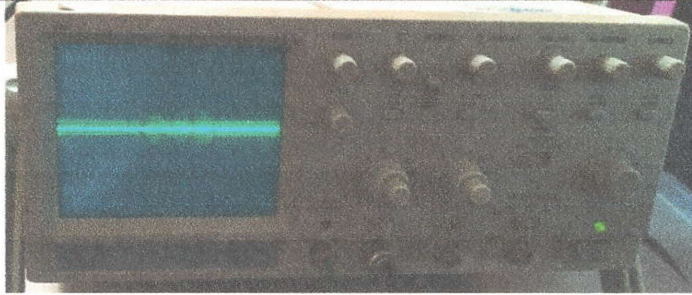
**Preparation**



Detection at Mid-Level



Detection at roof level



Ambient Signal



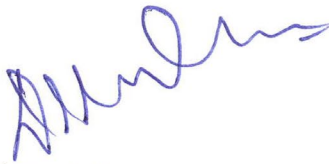
Active Signal

Location (refer map)	Distance from EUT	Floor level (E) x 10 <sup>12</sup>	5 feet above (E) x 10 <sup>12</sup>	10 feet above (E) x 10 <sup>12</sup>
A1	3 FEET	4.0	14.0	4.0
A2	3 FEET	5.2	14.0	6.6
A3	3 FEET	8.8	10.4	16.4
A4	3 FEET	5.2	8.4	8.2
A5	3 FEET	4.0	6.4	4.0
B1	10 FEET	4.0	4.2	12.0
B2	10 FEET	4.8	6.2	12.0
B3	10 FEET	5.2	5.6	4.4
B4	10 FEET	4.8	4.8	6.0
B5	10 FEET	4.4	4.8	4.4

C1	18.5 FEET	4.8	4.4	4.6
C2	18.5 FEET	4.8	6.0	5.2
C3	18.5 FEET	5.2	4.8	5.6
C4	18.5 FEET	5.2	4.8	4.0
C5	18.5 FEET	5.2	5.2	4.0

**Conclusion:**

From this study, it can be seen that the effective electron density in the area of measurement is sufficient ( $2.0 \times 10^{12}$  is the cutoff) for the indication of the EUT use. The size of the measurement site was 12 ft x 26 ft x 30 ft. which is equal to 9360 cubic feet. Considering the cutoff electron density, the device (EUT-SHYCOCAN-SHCC915) would be effective within a volume of 10,000 cubic feet.



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**Reference:**

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- [2] K. K. Likharev, IEEE Trans. Magn. MAG-23, 1142 (1986).
- [3] T. A. Fulton and G. J. Dolan, Phys. Rev. Lett. 59, 109 (1987).