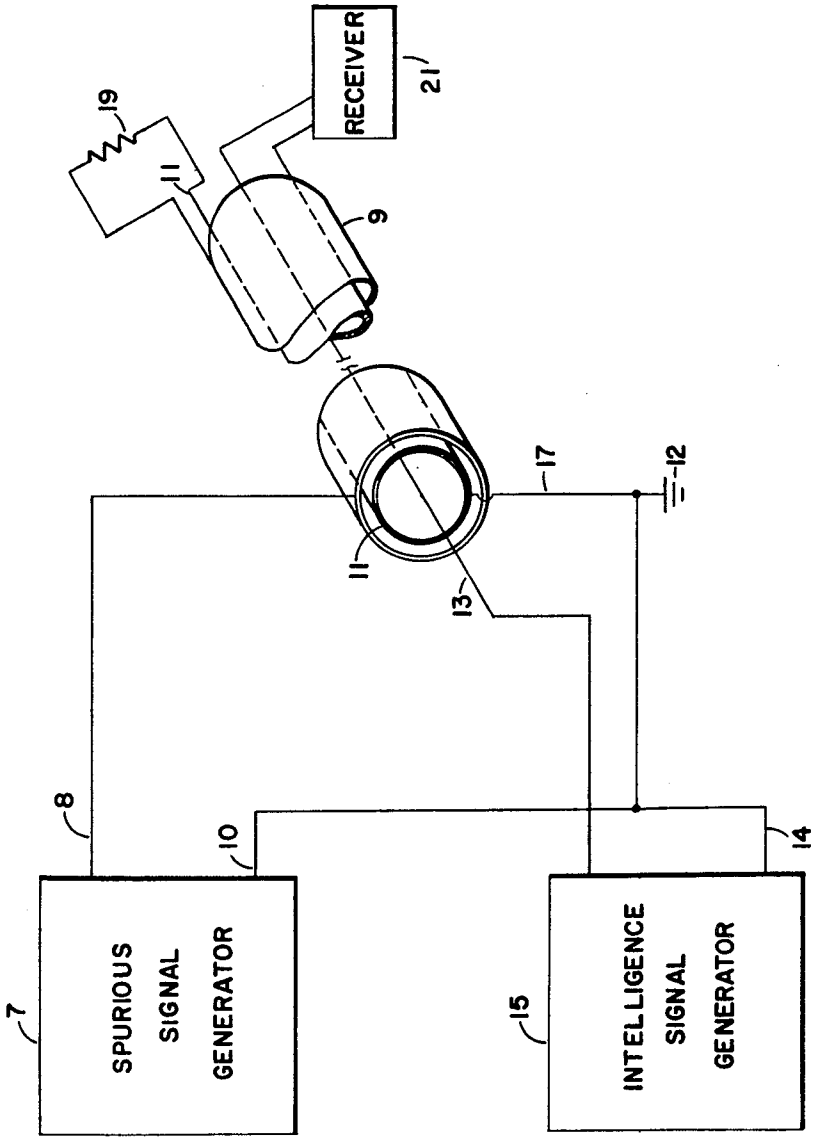
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COAXIAL CABLE RADIATION PREVENTION DEVICE UTILIZING A MASKING SPURIOUS SIGNAL GENERATOR

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COAXIAL CABLE RADIATION PREVENTION DEVICE UTILIZING A MASKING SPURIOUS SIGNAL GENERATOR

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The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment of any royalty thereon.

This invention relates to a device for counter-acting electromagnetic radiation and method and more particularly to a device and method for counter-acting electromagnetic radiation from coaxial cables.

When coaxial cables are used for the transmission of classified or sensitive information it is the usual practice to employ a type of cable having two or more shields, rather than the customary single shield. Despite this additional shielding, some electromagnetic radiation (or field) appears, external to the cable itself. Although this radiation is generally in the order of tenths of a microvolt, a suitable and sufficiently sensitive detection device may be placed in close proximity to the cable and recover information which is being transmitted by means of the coaxial cable.

It is generally impractical, if not impossible, to further reduce this unwanted radiation to a level which would not permit an intercept of the transmitted information. A means has been devised, which constitutes my invention, to transmit an external radiating interfering signal using the outer and inner shields of a dual shield coaxial cable which will override or swamp the radiated intelligence signal, making it impossible to recover information radiated from the intelligence signal which is transmitted on the inner conductor and inner shield.

It is therefore an object of this invention to provide a device for preventing the interception of radiated intelligence from a dual shield coaxial cable.

Another object of this invention is to provide a method for counter-acting electromagnetic radiation from a dual shield coaxial cable.

A further object of this invention is to provide an extremely simple method of securing secrecy on a dual shield coaxial cable.

According to the present invention, the foregoing and other objects are attained by connecting a spurious signal generator across the outer and inner shields of a dual shield coaxial cable that has an intelligence signal being transmitted on the inner conductor of the cable. The amplitude of the spurious signal generator is adjusted to such a value that the level of radiation of the interfering signal from the spurious signal generator will be in the order of several magnitudes greater than the level of radiation of the intelligence signal through the outer shield of the cable.

The above and other features of the invention will be described in the following detailed description taken in conjunction with the drawing which is a schematic diagram according to the invention.

As shown in the drawing a spurious signal generator 7, whose output signal contains a high percentage of harmonics, such as that contained in white waves, random noise, square waves or pulsating D.C., is connected via conductor 8 to outer shield 9 of a first end of the coaxial cable and the ground terminal of generator 7 is connected via conductor 10 to ground 12. The inner shield 11 of the first end of the coaxial cable is connected to ground 12 via conductor 17. In order to provide a closed circuit, the outer shield 9 is connected to the inner shield 11 through the load impedance 19 at the second end of the coaxial cable. The impedance of load 19 is matched to the output impedance of generator 7. An intelligence signal generator 15 is connected to the inner conductor 13 at the first end of the coaxial cable and the ground terminal of the intelligence generator 15 is connected to ground 12 via conductor 14. The inner conductor and inner shield of the second end of said coaxial cable is electrically connected to receiver 21. The output of the spurious signal generator 7 is adjusted to such a value that the field produced around the outer shield of the cable is in the order of several magnitudes greater than the field produced due to the radiation of an intelligence signal being transmitted on the inner conductor and inner shield of the cable, thus making it impossible to obtain intelligence by means of a pickup device placed in the field around the outside of the cable.

It is the intention of the inventor not to be limited by the detailed description of the device in the aforegoing specification but to be awarded the full breadth of his discovery as defined in the subjoined claims.

The following invention is claimed:

1. A device for counter-acting electromagnetic radiation from a coaxial cable comprising a dual shield coaxial cable having an inner conductor, an outer shield and an inner shield; an intelligence signal generator having first and second output terminals; means connecting the first output terminal to said inner conductor at one end of the cable; means connecting the second output terminal to the inner shield at said one end of the cable; receiver means connected to other end of said cable between said inner conductor and said inner shield so as to receive an intelligence signal output from said intelligence signal generator; said intelligence signal having a given frequency range; a second signal generator which has a signal output which produces an interfering signal concentrated in a frequency which spans the frequency range of the intelligence signal, about said outer shield and is spurious with respect to said intelligence signal output; said second generator having two outputs which are connected between the inner and outer shields at said one end of the cable; and a dissipative impedance means connected at the other end of the cable between said inner and outer shields, whereby said spurious signal is transmitted on said outer shield of said coaxial cable and causes a radiating electromagnetic field around the periphery of said cable so as to swamp out any escaping signal from the intelligence signal.

2. A device for counter-acting electromagnetic radiation from a coaxial cable as set forth in claim 1, wherein the value of the field produced around the cable by the spurious signal is in the order of several times the value of the field produced by the intelligence signal.

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