CLAIMS

1. A wide-open receiver (4) comprising:

• a plurality of goniometric channels (41) each intended to be coupled with a respective antenna (5) to receive a respective incoming radiofrequency signal, and operable to obtain, on the basis of the respective incoming radiofrequency signal, a respective first video signal indicative of a power of said respective incoming radiofrequency signal, and a respective second video signal (*Y*) based on said respective first video signal; and

• processing means (44) operable to detect, on the basis of the second video signals (*Y*), one or more pulsed signal(s) present in one or more of the incoming radiofrequency signal(s);

the wide-open receiver (4) being characterized:

• by further comprising a continuous-wave-protected channel (43) operable to receive a combined radiofrequency signal (*C*) based on the incoming radiofrequency signals received by all the goniometric channels (41), and to obtain, on the basis of the combined radiofrequency signal (*C*), a continuous-wave-free radiofrequency signal which is free of a continuous wave signal present in one or more of the incoming radiofrequency signal(s), and a validation video signal (*S*) on the basis of said continuous-wave-free radiofrequency signal;

• in that the processing means (44) are operable to estimate a continuous wave power on the basis of the second

video signals (*Y*) and of the validation video signal (*S*); and

in that each goniometric channel (41) is operable to remove, on the basis of the estimated continuous wave power, a continuous wave video signal contribution from the respective first video signal thereby obtaining a respective intermediate video signal, and to obtain the respective second video signal (*Y*) based on said respective intermediate video signal.

2. The wide-open receiver of claim 1, wherein the processing means (44) are operable to identify, on the basis of the validation video signal (*S*), values of the second video signals (*Y*) valid for continuous wave power estimation, and to estimate the continuous wave power only on the basis of the values of the second video signals (*Y*) identified as valid.

3. The wide-open receiver of claim 2, wherein, for each time instant, the corresponding values of the second video signals (*Y*) are identified by the processing means (44) as valid for continuous wave power estimation if no pulsed signal is detected by the processing means (44) on the basis of a corresponding value of the validation video signal (*S*).

4. The wide-open receiver according to any preceding claim, wherein the continuous-wave-protected channel (43) comprises filtering means (431) operable to filter out the continuous wave signal from the combined radiofrequency

signal (*C*) thereby obtaining the continuous-wave-free radiofrequency signal.

5. The wide-open receiver of claim 4, wherein the filtering means (431) are tunable so as to filter out the continuous wave signal from the combined radiofrequency signal (*C*) thereby obtaining the continuous-wave-free radiofrequency signal.

6. The wide-open receiver according to claim 4 or 5, wherein the filtering means (431) comprise a plurality of selectively-switchable notch filters (431a) each configured to filter out a respective radiofrequency band.

7. The wide-open receiver of claim 6, wherein the selectively-switchable notch filters (431a) are selectively-switchable Yttrium Iron Garnet (YIG) filters.

8. The wide-open receiver according to any preceding claim, further comprising an instantaneous frequency measurement unit (432) operable to determine a frequency (*f*) of the continuous wave signal, and wherein the continuous-wave-protected channel (43) is operable to obtain the continuous-wave-free radiofrequency signal also on the basis of the frequency (*f*) determined by the instantaneous frequency measurement unit (432).

9. The wide-open receiver of claim 8 when depending on any claim 4-7, wherein the filtering means (431) are operable to filter out from the combined radiofrequency signal (*C*) a radiofrequency band including the frequency (*f*) determined by the instantaneous frequency measurement

unit (432).

10. The wide-open receiver according to claim 8 or 9, wherein the continuous-wave-protected channel (43) comprises the instantaneous frequency measurement unit (432).

11. The wide-open receiver according to any claim 8-10, wherein the instantaneous frequency measurement unit (432) is an interferometer.

12. The wide-open receiver according to any preceding claim, further comprising a combining unit (42) coupled with the goniometric channels (41) and with the continuous-wave-protected channel (43), and operable to obtain the combined radiofrequency signal (*C*) based on the incoming radiofrequency signals received by all the goniometric channels (41) and to provide the continuous-wave-protected channel with said combined radiofrequency signal (*C*).

13. The wide-open receiver according to any preceding claim, wherein each goniometric channel (41) comprises a respective offset unit (413) operable to compensate the respective first video signal on the basis of the estimated continuous wave power thereby obtaining the respective intermediate video signal.

14. The wide-open receiver of claim 13, wherein the processing means (44) are operable to generate an offset video signal (*O*) based on the estimated continuous wave power; and wherein each offset unit (413) is coupled with the processing means (44) to receive the offset video

signal (*O*), and is operable to compensate the respective first video signal on the basis of the offset video signal (*O*).

15. The wide-open receiver of claim 14, wherein each offset unit (413) is operable to subtract the offset video signal (*O*) from the respective first video signal thereby obtaining the respective intermediate video signal.

16. The wide-open receiver according to claim 14 or 15, wherein each goniometric channel (41) further comprises:

- a respective first square-law detector (412) operable to obtain the respective first video signal based on the respective incoming radiofrequency signal, and coupled with the respective offset unit (413) to provide it with the respective first video signal; and
- a respective first amplifier (414) coupled with the respective offset unit (413) to receive the respective intermediate video signal, and operable to amplify said respective intermediate video signal according to a given amplification function thereby obtaining the respective second video signal (*Y*);

wherein the continuous-wave-protected channel (43) comprises:

- a second square-law detector (434) operable to obtain a third video signal based on the continuous-wave-free radiofrequency signal, which third video signal is indicative of a power of the continuous-wave-free radiofrequency signal; and

• a second amplifier (435) coupled with the second square-law detector (434) to receive the third video signal, and operable to amplify said third video signal according to said given amplification function thereby obtaining the validation video signal (*S*);

and wherein the processing means (44) are operable to generate the offset video signal (*O*) by applying to the estimated continuous wave power an attenuation function inverse of the given amplification function.

17. The wide-open receiver of claim 16, wherein the first amplifiers (414) and the second amplifier (435) are logarithmic amplifiers.

18. An electronic Support Measure (ESM) system comprising the wide-open receiver (4) as claimed in any preceding claim.

19. A radar warning system comprising the wide-open receiver (4) as claimed in any claim 1-17.

CLAIMS:

1. Wide-open receiver (4) comprising:

a plurality of goniometric channels (41) each intended to be coupled with a respective antenna (5) to receive a respective incoming radiofrequency signal, and operable to obtain, on the basis of the respective incoming radiofrequency signal, a respective first video signal indicative of a power of said respective incoming radiofrequency signal, and a respective second video signal (Y) based on said respective first video signal; and

processing means (44) operable to detect, on the basis of the second video signals (Y), one or more pulsed signals present in one or more of the incoming radiofrequency signals;

the wide-open receiver (4) being characterized:

by further comprising a continuous-wave-protected channel (43), which

- is operable to receive a combined radiofrequency signal (C) based on the incoming radiofrequency signals received by all the goniometric channels (41),

- comprises filtering means (431) operable to filter out, from the combined radiofrequency signal (C), a continuous wave signal present in one or more of the incoming radiofrequency signals thereby obtaining a continuous-wave-free radiofrequency signal which is free of said continuous wave signal, and

- is operable to obtain a validation video signal (S) on the basis of said continuous-wave-free radiofrequency signal;

in that the processing means (44) are operable to estimate a continuous wave power on the basis of the second video signals (Y) and of the validation video signal (S); and

in that each goniometric channel (41) is operable to remove, on the basis of the estimated continuous wave power, a continuous wave video signal contribution from the respective first video signal thereby obtaining a respective intermediate video signal, and to obtain the respective second video signal (Y) based on said respective intermediate video signal.

2. The wide-open receiver of claim 1, wherein the processing means (44) are operable to identify, on the basis of the validation video signal (S), values of the second video signals (Y) valid for continuous wave power estimation, and to estimate the continuous wave power only on the basis of the values of the second video signals (Y) identified as valid.

3. The wide-open receiver of claim 2, wherein, for each time instant, the corresponding values of the second video signals (Y) are identified by the processing means (44) as valid for continuous wave power estimation if no pulsed signal is detected by the processing means (44) on the basis of a corresponding value of the validation video signal (S).

4. The wide-open receiver according to any preceding claim, wherein the filtering means (431) are tunable so as to filter out the continuous wave signal from the combined radiofrequency signal (C) thereby obtaining the continuous-wave-free radiofrequency signal.

5. The wide-open receiver of claim 4, wherein the filtering means (431) comprise a plurality of selectively-switchable notch filters (431a) each configured to filter out a respective radiofrequency band.

6. The wide-open receiver according to any preceding claim, further comprising an instantaneous frequency measurement unit (432) operable to determine a frequency (f) of the continuous wave signal, and wherein the filtering means (431) are operable to filter out, from the combined radiofrequency signal (C), a radiofrequency band including the frequency (f) determined by the instantaneous frequency measurement unit (432).

7. The wide-open receiver of claim 6, wherein the instantaneous frequency measurement unit (432) is an interferometer.

8. The wide-open receiver according to any preceding claim, further comprising a combining unit (42) coupled with the goniometric channels (41) and with the continuous-wave-protected channel (43), and operable to obtain the combined radiofrequency signal (C) based on the incoming radiofrequency signals received by all the goniometric channels (41) and to provide the continuous-wave-protected channel with said combined radiofrequency signal (C).

9. The wide-open receiver according to any preceding claim, wherein each goniometric channel (41) comprises a respective offset unit (413) operable to compensate the respective first video signal on the basis of the estimated continuous wave power thereby obtaining the respective intermediate video signal.

10. The wide-open receiver of claim 9, wherein the processing means (44) are operable to generate an offset video signal (O) based on the estimated continuous wave power; and wherein each offset unit (413) is coupled with the processing means (44) to receive the offset video signal (O), and is operable to compensate the respective first video signal on the basis of the offset video signal (O).

11. The wide-open receiver of claim 10, wherein each offset unit (413) is operable to subtract the offset video signal (O) from the respective first video signal thereby obtaining the respective intermediate video signal.

12. The wide-open receiver according to claim 10 or 11, wherein each goniometric channel (41) further comprises:

a respective first square-law detector (412) operable to obtain the respective first video signal based on the respective incoming radiofrequency signal, and coupled with the respective offset unit (413) to provide it with the respective first video signal; and

a respective first amplifier (414) coupled with the respective offset unit (413) to receive the respective intermediate video signal, and operable to amplify said respective intermediate video signal according to a given amplification function thereby obtaining the respective second video signal (Y);

wherein the continuous-wave-protected channel (43) comprises:

a second square-law detector (434) operable to obtain a third video signal based on the continuous-wave-free radiofrequency signal, which third video signal is indicative of a power of the continuous-wave-free radiofrequency signal; and

a second amplifier (435) coupled with the second square-law detector (434) to receive the third video signal, and operable to amplify said third video signal according to said given amplification function thereby obtaining the validation video signal (S);

and wherein the processing means (44) are operable to generate the offset video signal (O) by applying to the estimated continuous wave power an attenuation function inverse of the given amplification function.

13. The wide-open receiver of claim 12, wherein the first amplifiers (414) and the second amplifier (435) are logarithmic amplifiers.

14. An electronic Support Measure (ESM) system comprising the wide-open receiver (4) claimed in any preceding claim.

15. A radar warning system comprising the wide-open receiver (4) claimed in any claim 1-13.