CLAIMS

1. A system for detecting signals emitted by an emitter, said system comprising:

at least one receiver system including:

at least one antenna configured to receive electromagnetic radiation emitted by said emitter and to transform said received electromagnetic radiation into an electric received signal;

a receiver, coupled with said at least one antenna, said receiver configured to sample said electric received signal to produce real-time received signal samples;

a memory, coupled with said receiver, configured to store at least one signal characteristic relating to the radio signal transmitted by said emitter, said memory further configured to store previously acquired signal samples;

a detector, coupled with said receiver and with said memory, configured to attempt to detect a signal relating to an emitter from said real-time received signal samples, by employing said at least one stored signal characteristic relating to the radio signal transmitted by said emitter, said detector further configured to attempt to detect a signal relating to an emitter from said previously acquired signals samples at least according to at least one new signal characteristic, thereby improving the signal to noise ratio of said receiver system.

2. The system according to claim 1, wherein said at least one receiver system further includes:

a signal characteristics determinator, coupled with said detector, configured to receive a detected signal from said detector and to determine said at least one new signal characteristic relating to the radio signal transmitted by said emitter.

3. The system according to claim 2, wherein said signal characteristics determinator is further coupled with said memory and configured to store said new determined signal characteristics in said memory.

4. The system according to claim 3, wherein said signal characteristics determinator is further configured to refine previously stored signal characteristics.

5. The system according to claim 1, wherein said at least one receiver system further includes a communications receiver, coupled with said memory, configured to receive at least one other signal characteristic and to store said received signal characteristic in said memory,

wherein said detector is further configured to employ said received at least one other signal characteristic when detecting a signal.

6. The system according to claim 5, further including a plurality of other ones of said at least one receiver system,

wherein, said at least one receiver system is configured to receive said at least one other signal characteristic for at least one of said other ones of said at least one receiver system.

7. The system according to claim 5, wherein each receiver system further includes:

a communications transmitter, coupled with said signal characteristics determinator, configured to transmit said at least one new signal characteristic to other ones of said receiver systems; and

wherein, said other ones of said receiver systems are configured to employ said at least one new signal characteristic for detecting signals received thereby.

8. The system according to claim 7, wherein each of said receiver systems includes an antenna coupled with said receiver and at least one communications antenna coupled with said communications receiver and with said communications transmitter.

9. The system according to claim 7, wherein each of said receiver systems further includes another detector and another signal characteristics determinator, said another detector being coupled with said memory and with said another signal characteristics determinator,

wherein said detector is configured to attempt to detect said real-time received signal samples and said another detector is configured to attempt to detect said previously acquired signal samples, and

wherein said another signal characteristics determinator is configured to receive another detected signal from said another detector and to determine at least one new signal characteristic relating to the radio signal transmitted by said emitter.

10. The system according to claim 9, wherein said another signal characteristics determinator is further coupled with said communications transmitter, said communications transmitter being configured to transmit said new determined signal characteristics relating to said another detected signal to other ones of said receiver systems.

11. The system according to claim 1, wherein said stored signal characteristics are at least one of:

frequency;

phase;

matched filter mask;

pulse width;

the intra-pulse modulation scheme;

inter-pulse modulation scheme;

pulse repetition interval; and

scan repetition interval.

12. The system according to claim 1, wherein said receiver includes a direct sampler for sampling said received electric signal.

13. The system according to claim 1, wherein said receiver includes:

a front end, coupled with said at least one antenna, at least for said received electric signal;

a local oscillator for generating a reference signal;

a mixer, coupled with said front end and with said local oscillator, for multiplying the amplified received electric signal with said reference signal to down convert the frequency of said amplified received electric signal; and

an analog to digital converter, coupled with said mixer and with said detector, for sampling said down converted signal.

14. The system according to claim 1, wherein said receiver is configured to store said real-time sampled received signal in said memory.

15. The system according to claim 1, wherein said at least one signal characteristic is uploaded to said memory.

16. A method for detecting an emitter by a receiver system comprising the steps of:

acquiring a plurality of signal samples;

attempting to detect a signal relating to an emitter from real-time signal samples by employing at least one signal characteristic, characterised by further comprising the step of attempting to detect a

signal relating to an emitter from previously acquired signal samples at least according to at least one new signal characteristic.

17. The method according to claim 16, wherein said step of attempting to detect a signal relating to an emitter further includes detecting a signal relating to an emitter from previously acquired signal samples, by employing said at least one signal characteristic relating to the radio signal transmitted by said emitter.

18. The method according to claim 16, further including the steps of:

determining at least one new emitter signal characteristic; and

transmitting the determined at least one new signal characteristic to other receiver systems,

wherein, said other receiver systems employ said new detected signal characteristics for detecting received signals thereby.

19. The method according to claim 16, wherein said signal characteristics are at least one of:

frequency;

phase;

matched filter mask;

pulse width;

the intra-pulse modulation scheme;

inter-pulse modulation scheme;

pulse repetition interval; and

scan repetition interval.