CLAIMS

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

at least one receiver system including:

at least one antenna receiving at least electromagnetic radiation emitted by said emitter and transforming said received electromagnetic radiation into an electric received signal;

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

a memory, coupled with said receiver, storing at least one signal characteristic relating to the radio signal transmitted by said emitter;

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

2. The system according to claim 1, wherein said memory further stores previously acquired signal samples.

3. The system according to claim 2, wherein said detector attempts to detect a signal relating to an emitter from at least one of said real-time received signal samples and from said previously acquired signal samples.

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

a signal characteristics determinator, coupled with said detector, receiving a detected signal from said detector and determining at least one new signal characteristic relating to relating to the radio signal transmitted by said emitter;

5. The receiver systems network according to claim 4, wherein said signal characteristics determinator is further coupled with said memory for storing said new determined signal characteristics in said memory.

6. The receiver system network according to claim 5, wherein said signal characteristics determinator further refines previously stored signal characteristics.

7. The system according to claim 1, wherein said at least one receiver system further includes a communications receiver, coupled with said memory, for receiving at least one other signal characteristic and for storing said received signal characteristic in said memory,

wherein said detector employs said received at least one other signal characteristics when detecting a signal.

8. The system according to claim 7, further including a plurality of other ones of said at least one receiver system,

wherein, said at least one receiver system receives said at least one other signal characteristic for at least one of said other ones of said at least one receiver system.

9. The system according to claim 7, wherein each receiver system further including:

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

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

10. The receiver systems network according to claim 9, wherein each said receiver systems includes an antenna coupled with said receiver and at least one communications antenna coupled with said communications receiver and with communications transmitter.

11. The receiver systems network according to claim 9, wherein each of said receiver systems further include another detector and another signal characteristics determinator, said another detector is coupled with said memory and with said another signal characteristics determinator,

wherein said detector attempts detects said real-time received signal samples and said another detector attempts to detects said previously acquired signal samples, and

wherein said another signal characteristics determinator receiving another detected signal from said another detector and determining at least one new signal characteristic relating to the radio signal transmitted by said emitter.

12. The receiver systems network according to claim 11, wherein said another signal characteristics determinator is further coupled with said communications transmitter, said communications transmitter

transmitting said new determined signal characteristics relating to said another detected signal to other ones of said receiver systems.

13. The receiver systems network 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.

14. The receiver systems network according to claim 1, wherein said receiver includes a direct sampler sampling said received electric signal.

15. The receiver systems network according to claim 1, wherein said receiver includes:

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

a local oscillator generating a reference signal;

a mixer, coupled with said front end and with said local oscillator, 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, sampling said down converted signal.

16. The receiver systems network according to claim 1, wherein said receiver stores said real-time sampled received signal in said memory.

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

18. A method for detecting an emitter by a receiver system comprising the procedures of:

acquiring a plurality of signal samples;

attempting to detect a signal relating to an emitter from at least real-time signal samples by employing at least one signal characteristic, said at least one signal characteristic.

19. The method according to claim 17, wherein said procedure 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.

20. The method according to claim 17, further including the procedures 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.

21. The method according to claim 12, 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;

CLAIMS

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

at least one receiver system including:

at least one antenna receiving at least electromagnetic radiation emitted by said emitter and transforming said received electromagnetic radiation into an electric received signal;

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

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

a detector, coupled with said receiver and with said memory, attempting 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 attempting 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, receiving a detected signal from said detector and determining 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 for storing said new determined signal characteristics in said memory.

4. The system according to claim 3, wherein said signal characteristics determinator further refines 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, for receiving at least one other signal characteristic and for storing said received signal characteristic in said memory,

wherein said detector employs said received at least one other signal characteristics 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 receives 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 including:

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

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

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

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

wherein said detector attempts detects said real-time received signal samples and said another detector attempts to detects said previously acquired signal samples, and

wherein said another signal characteristics determinator receiving another detected signal from said another detector and determining 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 transmitting 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 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 amplifying said received electric signal;

a local oscillator generating a reference signal;

a mixer, coupled with said front end and with said local oscillator, 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, sampling said down converted signal.

14. The system according to claim 1, wherein said receiver stores 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 procedures 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, and 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 procedure 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 procedures 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;