CLAIMS

1.- A method for determining a set of frequencies which may be used in a frequency plane, for the transmission of information between at least two radio transceivers (10) of a same network operating with frequency hopping, the method comprising:

- a step (120) for initially determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value below a comparison threshold (S1, S2),

- at least one step (210, 220) for monitoring first and second portions of the frequency plane, the first monitored portion including the set of the frequencies which may be used, determined at the end of the previous determination step, the second monitored portion including frequencies not belonging to the set of the frequencies which may be used, determined at the end of the previous determination step, and

- at least one step (230) for subsequently determining a new set of frequencies which may be used associated with said monitored portion, each frequency of the new set having a variable quantity with a value below the comparison threshold (S1, S2) associated with the subsequent determination step (230),

the monitoring step (210, 220) and the subsequent determination step (230) being performed automatically by a transceiver,

characterized in that the subsequent determination step associated with the first monitored portion has a first comparison threshold (S1) and in that the subsequent determination step associated with the second monitored portion has a second comparison threshold (S2) with a value distinct from that of the first comparison threshold (S1).

2.- The method according to claim 1, wherein the second comparison threshold (S2) has a value below that of the first comparison threshold (S1).

3.- The method according to claim 1 or 2, wherein a frequency of the first monitored portion is suppressed from the new set of frequencies which may be used only when the value of its variable quantity is greater than the first threshold (S1) during a plurality of successive measurements, preferably during three successive measurements.

4.- The method according to any of the preceding claims, wherein a frequency of the second monitored portion is added to the new set of frequencies which may be used only when the value of its variable quantity is less than the second threshold (S2) during a plurality of successive measurements, preferably during three successive measurements.

5.- The method according to any of the preceding claims, wherein the variable quantity is the noise level associated with a respective frequency.

6.- The method according to any of the preceding claims, wherein the frequency plane is a predetermined frequency plane.

7.- The method according to any of the preceding claims, wherein each set of frequencies, which may be used, includes a predetermined minimum number (N_{min}) of frequencies, the value of the comparison threshold (S1, S2) being variable.

8.- The method according to any of the preceding claims, the network comprising a master transceiver of the synchronization between the transceivers (10) of the network, the method in which the monitoring step (210, 220) and the subsequent determination step (230) are carried out by the master transceiver of the synchronization.

9.- A method for transmitting information between at least two radio transceivers (10) of a same network operating with frequency hopping, characterized in that it comprises the following steps:

- determining (120, 230) with a transceiver, a set of frequencies, which may be used, in a frequency plane according to a method in accordance with any of the preceding claims,

- transmitting (130, 240) with said transceiver, the set of frequencies which may be used, determined beforehand to the other transceivers (10) of the network, the set of frequencies which may be used being regularly transmitted, and

- transmitting data (140, 250|) with frequency hopping between transceivers (10) on the set of the frequencies which may be used, transmitted to all the transceivers of the network.

10.- The transmission method according to claim 9, wherein the set of frequencies which may be used is transmitted at the end of each subsequent determination (230) of a new set of frequencies which may be used.

11.- The transmission method according to claim 9 or 10, the frequency used for the transmission of the information being retained during a step (42), and changing from one step (42) to the other according to a frequency changing law, wherein the frequency changing law is determined for the next step (42) by randomly drawing a frequency from the set of the frequencies of the frequency plane, wherein if the drawn frequency belongs to the set of frequencies which may be used, then the frequency drawn is the frequency used for transmitting the information during the next step (42), and in which, if the drawn frequency does not belong to the set of the frequencies which may be used, then the frequency used for transmitting the information during the next step (42) is randomly drawn from the set of the frequencies which may be used.

12.- A device (30) for determining a set of frequencies which may be used in a frequency plane, for transmitting information between at least two radio transceivers (10) of a same network operating with frequency hopping, the device (30) comprising:

- means (32) for initially determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value less than a comparison threshold (S1, S2),

- means (34) for monitoring first and second portions of the frequency plane, the first monitored portion including the set of frequencies which may be used determined at the end of the preceding determination step, the second monitored portion including frequencies not belonging to the preceding set of frequencies which may be used, and

- means (36) for subsequently determining a new set of frequencies which may be used, associated with said monitored portions, each frequency of the new set having a variable quantity with a value less than the comparison threshold (S1, S2),

the monitoring means (34), respectively the subsequent determination means (36) being able to carry out automatically the monitoring (210, 220) of said portion, respectively the subsequent determination (230) of the new set of frequencies which may be used,

characterized in that the subsequent determination means (36) include a first comparison threshold (S1) associated with the first monitored portion and a second comparison threshold (S2) associated with the second monitored portion, with a value distinct from that of the first comparison threshold (S1).

13.- A transmission network able to operate with frequency hopping in a frequency plane and including a plurality of radio transceivers (10) characterized in that at least one transceiver includes a determination device according to claim 12.

CLAIMS

1. The method according to claim 2, wherein the second comparison threshold has a value below that of the first comparison threshold.

2. A method for determining a set of frequencies which may be used in a frequency plane, for the transmission of information between at least two radio transceivers of a same network operating with frequency hopping, the method comprising:

determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value below a comparison threshold;

monitoring first and second portions of the frequency plane, the first monitored portion including the set of the frequencies which may be used, determined at the end of the previous determination step, the second monitored portion including frequencies

not belonging to the set of the frequencies which may be used, determined at the end of the previous determination step; and

subsequently determining a new set of frequencies which may be used associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value below a comparison threshold associated with this subsequent determination step,

wherein a step of monitoring the first and second portions and the subsequent determination step are performed automatically by a transceiver,

wherein the subsequent determination step associated with the first monitored portion has a first comparison threshold and in that the subsequent determination step associated with the second monitored portion has a second comparison threshold with a value distinct from that of the first comparison threshold,

wherein a frequency of the first monitored portion is suppressed from the new set of frequencies which may be used only when the value of its variable quantity is greater than the first threshold during a plurality of successive measurements.

3. A method for determining a set of frequencies which may be used in a frequency plane, for the transmission of information between at least two radio transceivers of a same network operating with frequency hopping, the method comprising:

determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value below a comparison threshold;

monitoring first and second portions of the frequency plane, the first monitored portion including the set of the frequencies which may be used, determined at the end of the previous determination step, the second monitored portion including frequencies not belonging to the set of the frequencies which may be used, determined at the end of the previous determination step; and

subsequently determining a new set of frequencies which may be used associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value below a comparison threshold associated with this subsequent determination step,

wherein a step of monitoring the first and second portions and the subsequent determination step are performed automatically by a transceiver,

wherein the subsequent determination step associated with the first monitored portion has a first comparison threshold and in that the subsequent determination step associated with the second monitored portion has a second comparison threshold with a value distinct from that of the first comparison threshold,

wherein a frequency of the second monitored portion is added to the new set of frequencies which may be used only when the value of its variable quantity is less than the second threshold during a plurality of successive measurements

4. The method according to claim 2, wherein the variable quantity is the noise level associated with a respective frequency.

5. The method according to claim 2, wherein the frequency plane is a predetermined frequency plane.

6. The method according to claim 2, wherein each set of frequencies, which may be used, includes a predetermined minimum number of frequencies, the value of the comparison threshold being variable.

7. A method for determining a set of frequencies which may be used in a frequency plane, for the transmission of information between at least two radio transceivers of a same network operating with frequency hopping, the method comprising:

determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value below a comparison threshold;

monitoring first and second portions of the frequency plane, the first monitored portion including the set of the frequencies which may be used, determined at the end of the previous determination step, the second monitored portion including frequencies not belonging to the set of the frequencies which may be used, determined at the end of the previous determination step; and

subsequently determining a new set of frequencies which may be used associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value below a comparison threshold associated with this subsequent determination step,

wherein a step of monitoring the first and second portions and the subsequent determination step are performed automatically by a transceiver,

wherein the subsequent determination step associated with the first monitored portion has a first comparison threshold and in that the subsequent determination step

associated with the second monitored portion has a second comparison threshold with a value distinct from that of the first comparison threshold,

the network comprising a master transceiver of the synchronization between the transceivers of the network, the method in which the monitoring step and the subsequent determination step are carried out by the master transceiver of the synchronization.

8. A method for determining a set of frequencies which may be used in a frequency plane, for the transmission of information between at least two radio transceivers of a same network operating with frequency hopping, the method comprising:

determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value below a comparison threshold;

monitoring first and second portions of the frequency plane, the first monitored portion including the set of the frequencies which may be used, determined at the end of the previous determination step, the second monitored portion including frequencies not belonging to the set of the frequencies which may be used, determined at the end of the previous determination step; and

subsequently determining a new set of frequencies which may be used associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value below a comparison threshold associated with this subsequent determination step,

wherein a step of monitoring the first and second portions and the subsequent determination step are performed automatically by a transceiver,

wherein the subsequent determination step associated with the first monitored portion has a first comparison threshold and in that the subsequent determination step associated with the second monitored portion has a second comparison threshold with a value distinct from that of the first comparison threshold;

transmitting with said transceiver, the set of frequencies which may be used, determined beforehand to the other transceivers of the network, the set of frequencies which may be used being regularly transmitted; and

transmitting data with frequency hopping between transceivers on the set of the frequencies which may be used, transmitted to all the transceivers of the network.

9. The transmission method according to claim 8, wherein the set of frequencies which may be used is transmitted at the end of each subsequent determination of a new set of frequencies which may be used.

10. The transmission method according to claim 8, the frequency used for the transmission of the information being retained during a step, and changing from one step to the other according to a frequency changing law,

wherein the frequency changing law is determined for a next step by randomly drawing a frequency from the set of the frequencies of the frequency plane,

wherein if the drawn frequency belongs to the set of frequencies which may be used, then the frequency drawn is the frequency used for transmitting the information during the next step,

wherein if the drawn frequency does not belong to the set of the frequencies which may be used, then the frequency used for transmitting the information during the next step is randomly drawn from the set of the frequencies which may be used.

11. A transmission network able to operate with frequency hopping in a frequency plane and including a plurality of radio transceivers wherein at least one transceiver includes a determination device according to claim 12.

12. A device for determining a set of frequencies which may be used in a frequency plane, for transmitting information between at least two radio transceivers of a same network operating with frequency hopping, the device comprising:

a mechanism for initially determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value less than a comparison threshold;

a mechanism for monitoring first and second portions of the frequency plane, the first monitored portion including the set of frequencies which may be used determined at the end of the preceding determination step, the second monitored portion including frequencies not belonging to the preceding set of frequencies which may be used; and

a mechanism for subsequently determining a new set of frequencies which may be used, associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value less than the comparison threshold,

the monitoring mechanism, respectively the subsequent determination mechanism being able to carry out automatically the monitoring of the first and second

portions, respectively the subsequent determination of the new set of frequencies which may be used,

wherein the subsequent determination mechanism includes a first comparison threshold associated with the first monitored portion and a second comparison threshold associated with the second monitored portion, with a value distinct from that of the first comparison threshold,

wherein a frequency of the first monitored portion is suppressed from the new set of frequencies which may be used only when the value of its variable quantity is greater than the first threshold during a plurality of successive measurements.

13. The transmission method according to claim 9 , the frequency used for the transmission of the information being retained during a step, and changing from one step to the other according to a frequency changing law,

wherein the frequency changing law is determined for a next step by randomly drawing a frequency from the set of the frequencies of the frequency plane,

wherein if the drawn frequency belongs to the set of frequencies which may be used, then the frequency drawn is the frequency used for transmitting the information during the next step,

wherein, if the drawn frequency does not belong to the set of the frequencies which may be used, then the frequency used for transmitting the information during the next step is randomly drawn from the set of the frequencies which may be used.

14. A device for determining a set of frequencies which may be used in a frequency plane, for transmitting information between at least two radio transceivers of a same network operating with frequency hopping, the device comprising:

a mechanism for initially determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value less than a comparison threshold;

a mechanism for monitoring first and second portions of the frequency plane, the first monitored portion including the set of frequencies which may be used determined at the end of the preceding determination step, the second monitored portion including frequencies not belonging to the preceding set of frequencies which may be used; and

a mechanism for subsequently determining a new set of frequencies which may be used, associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value less than the comparison threshold,

the monitoring mechanism, respectively the subsequent determination mechanism being able to carry out automatically the monitoring of the first and second portions, respectively the subsequent determination of the new set of frequencies which may be used,

wherein the subsequent determination mechanism includes a first comparison threshold associated with the first monitored portion and a second comparison threshold associated with the second monitored portion, with a value distinct from that of the first comparison threshold,

wherein a frequency of the second monitored portion is added to the new set of frequencies which may be used only when the value of its variable quantity is less than the second threshold during a plurality of successive measurements.

15. A device for determining a set of frequencies which may be used in a frequency plane, for transmitting information between at least two radio transceivers of a same network operating with frequency hopping, the device comprising:

a mechanism for initially determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value less than a comparison threshold;

a mechanism for monitoring first and second portions of the frequency plane, the first monitored portion including the set of frequencies which may be used determined at the end of the preceding determination step, the second monitored portion including frequencies not belonging to the preceding set of frequencies which may be used; and

a mechanism for subsequently determining a new set of frequencies which may be used, associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value less than the comparison threshold,

the monitoring mechanism, respectively the subsequent determination mechanism being able to carry out automatically the monitoring of the first and second portions, respectively the subsequent determination of the new set of frequencies which may be used;

wherein the subsequent determination mechanism includes a first comparison threshold associated with the first monitored portion and a second comparison threshold

associated with the second monitored portion, with a value distinct from that of the first comparison threshold,

the network comprising a master transceiver of the synchronization between the transceivers of the network, the monitoring mechanism and the subsequent determination mechanism are carried out by the master transceiver of the synchronization.

16. A device for determining a set of frequencies which may be used in a frequency plane, for transmitting information between at least two radio transceivers of a same network operating with frequency hopping, the device comprising:

a mechanism for initially determining an initial set of frequencies which may be used, each frequency of the initial set having a variable quantity with a value less than a comparison threshold;

a mechanism for monitoring first and second portions of the frequency plane, the first monitored portion including the set of frequencies which may be used determined at the end of the preceding determination step, the second monitored portion including frequencies not belonging to the preceding set of frequencies which may be used; and

a mechanism for subsequently determining a new set of frequencies which may be used, associated with at least one of the monitored portions, each frequency of the new set having a variable quantity with a value less than the comparison threshold,

the monitoring mechanism, respectively the subsequent determination mechanism being able to carry out automatically the monitoring of the first and second

portions, respectively the subsequent determination of the new set of frequencies which may be used,

wherein the subsequent determination mechanism includes a first comparison threshold associated with the first monitored portion and a second comparison threshold associated with the second monitored portion, with a value distinct from that of the first comparison threshold;

a mechanism for transmitting with said transceiver, the set of frequencies which may be used, determined beforehand to the other transceivers of the network, the set of frequencies which may be used being regularly transmitted; and

a mechanism for transmitting data with frequency hopping between transceivers on the set of the frequencies which may be used, transmitted to all the transceivers of the network.