

speed up the radio frequency communication access rate of a short-range communication system with low-frequency magnetic communication, and improve user satisfaction.

~~Herein disclosed is~~The present invention proposes a method for accessing radio frequency communication with low-frequency magnetic communication to solve the above technical problem, comprising:

Step a: a requesting party sends an activation request through a low-frequency channel, namely a low-frequency characteristic code, wherein said low-frequency characteristic code comprises a first random number generated by the requesting party;

Step b: a requested party receives the activation request through the low-frequency channel, generates an activation response message and sends the activation response message on a first radio frequency communication address through the radio frequency channel, wherein the activation response message comprises a second random number generated by the requested party and an identity identifier of the requested party;

Step c: the requesting party receives the activation response message on the first radio frequency communication address through the radio frequency channel and performs the verification, generates a connection request if the verification is passed, and sends the connection request on a second radio frequency communication address through the radio frequency channel, wherein the connection request comprises a third random number;

Step d: the requested party receives the connection request on the second radio frequency communication address through the radio frequency channel and performs the verification, generates a connection response message if the verification is passed, and sends the connection response message on the second radio frequency communication address through the radio frequency channel;

Step e: the requesting party receives the connection response message on the second radio frequency communication address through the radio frequency channel, verifies whether the access is successful, and trades with the requested party on the second radio frequency communication address through the radio frequency channel if the access is successful.

Furthermore, the above method may further have the following features: the length of said low-frequency characteristic code is shorter than or equal to 2 bytes.

Furthermore, the above method may further have the following features: said low-frequency characteristic code only comprises said first random number, and the length of said first random number is 1 byte.

Furthermore, the above method may further have the following features: said Step b comprises:

Step b1, the requested party receives the activation request through the low-frequency channel;

Step e3, the requesting party determines whether the access by the requested party is successful or not based on the status identifier of connection successful/failed in said connection response message, if the access fails, then this access process is terminated; otherwise, go to Step e4;

Step e4, the requesting party and the requested party conduct transactions on the second radio frequency communication address through the radio frequency channel.

Furthermore, the above method may further have the following features: in said Step e4, a session encryption key is used in said transactions.

Furthermore, the above method may further have the following features: said session encryption key is 8-bytes $RN1 || RN2 || RN3$ or 16-bytes $RN1 || RN2 || RN3 || \overline{RN1 || RN2 || RN3}$, wherein “||” represents concatenation and $\overline{RN1 || RN2 || RN3}$ is the bit-by-bit inversion of $RN1 || RN2 || RN3$.

According to one aspect, there is provided a method for accessing to radio frequency communication with low-frequency magnetic communication, comprising:

Step a: a requesting party, through a low-frequency channel, sends an activation request which is a low-frequency characteristic code, wherein said low-frequency characteristic code comprises a first random number generated by the requesting party, wherein the length of said low-frequency characteristic code is shorter than or equal to 2 bytes, and the length of said first random number is 1 byte;

Step b: a requested party receives the activation request through the low-frequency channel, generates an activation response message and sends the activation response message on a first radio frequency communication address through the radio frequency channel, wherein the activation response message comprises a second random number generated by the requested party and an identity identifier of the requested party;

Step c: the requesting party receives the activation response message on the first radio frequency communication address through the radio frequency channel and performs the verification, generates a connection request if the verification is passed, and sends the connection request on a second radio frequency communication address through the radio frequency channel, wherein the connection request comprises a third random number;

Step d: the requested party receives the connection request on the second radio frequency communication address through the radio frequency channel and performs the verification, generates a connection response message if the verification is passed, and sends the connection response message on the second radio frequency communication address through the radio frequency channel; and

Step e: the requesting party receives the connection response message on the second radio frequency communication address through the radio frequency channel, verifies whether a connection is successful, and trades with the requested party on the second radio frequency communication address through the radio frequency channel if the connection is successful.

The method for accessing radio frequency communication with low-frequency magnetic communication according to the present invention can speed up the radio frequency communication access rate of a short-range communication system with low-frequency magnetic communication and improve user satisfaction.

Brief Description of the Drawings

Fig. 1 is a block diagram of the structure of the requesting party;

Fig. 2 is a block diagram of the structure of the requested party;

Fig. 3 is a flow chart of the method for accessing radio frequency communication with low-frequency magnetic communication according to an embodiment of the present invention.

Detailed Description of the Preferred Embodiments

The principles and features of the present invention will be described below with reference to the accompanying drawings. The embodiment is only to describe the present invention, and not to limit the scope of the present invention.

First, structures of the requesting party and the requested party in the system that employs the method for accessing radio frequency communication with low-frequency magnetic communication according to the present invention will be described. Fig. 1 is a block diagram of the structure of the requesting party. As shown in Fig. 1, the requesting party 100 comprises at least one first control module 101, at least one first radio frequency communication module 102, and at least one first low-frequency magnetic communication module 103. The first control module 101 is at least connected to one first radio frequency communication module 102 and at least one first low-frequency magnetic communication module 103. Fig. 2 is a block diagram of the structure of the requested party. As shown in Fig. 2, the requested party 200 comprises at least one second control module 201, at least one second radio frequency communication module

Claims

1. A method for accessing radio frequency communication with low-frequency magnetic communication, characterized in that it comprises:

5 Step a: a requesting party sends an activation request through a low-frequency channel, namely a low-frequency characteristic code, wherein said low-frequency characteristic code comprises a first random number generated by the requesting party;

10 Step b: a requested party receives the activation request through the low-frequency channel, generates an activation response message and sends the activation response message on a first radio frequency communication address through the radio frequency channel, wherein the activation response message comprises a second random number generated by the requested party and an identity identifier of the requested party;

15 Step c: the requesting party receives the activation response message on the first radio frequency communication address through the radio frequency channel and performs the verification, generates a connection request if the verification is passed, and sends the connection request on a second radio frequency communication address through the radio frequency channel, wherein the connection request comprises a third random number;

20 Step d: the requested party receives the connection request on the second radio frequency communication address through the radio frequency channel and performs the verification, generates a connection response message if the verification is passed, and sends the connection response message on the second radio frequency communication address through the radio frequency channel;

25 Step e: the requesting party receives the connection response message on the second radio frequency communication address through the radio frequency channel, verifies whether the access is successful, and trades with the requested party on the second radio frequency communication address through the radio frequency channel if the access is successful.

30 2. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 1, characterized in that the length of said low-frequency characteristic code is shorter than or equal to 2 bytes.

35 3. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 2, characterized in that said low-frequency characteristic code only comprises said first random number, and the length of said first random number is 1 byte.

40 4. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 1, characterized in that said Step b comprises:

Step b1, the requested party receives the activation request through the low-frequency channel;

Step b2, the requested party generates a second random number;

Step b3, the requested party calculates the frequency of the radio frequency communication according to the frequency calculation method predetermined by the two parties and based on the first random number in said activation request and the maximum number of frequency points supported by the radio frequency channel;

Step b4, the requested party calculates the first radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number;

Step b5, the requested party generates a first encryption identifier, said first encryption identifier containing the method to encrypt transaction sessions selected by the requested party and the supporting encryption algorithm;

Step b6, the requested party uses said second random number, the identity identifier of the requested party and said first encryption identifier as the encryption input, uses said first random number and second random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, and takes the first 4 bytes of the encryption result as the first check code;

Step b7, the requested party generates an activation response message, said activation response message comprising said second random number, the identity identifier of the requested party, the first encryption identifier and the first check code;

Step b8, the requested party sends said activation response message on the first radio frequency communication address at the calculated frequency of the radio frequency communication through the radio frequency channel.

5. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 4, characterized in that in said Step b2, the length of said second random number is 4 bytes.

6. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 4, characterized in that in said Step b3, said predetermined frequency calculation method is: with the maximum number of frequency points supported by the radio frequency channel as the mode, performing an operation to obtain remainder on said first random number, the obtained remainder corresponds to the numbering of the frequency used by the radio frequency communication, and said frequency of the radio frequency communication is obtained according to said numbering.

7. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 4, characterized in that in said Step b5, it means that there is no encryption when said first encryption identifier equals to 0, and it means that there is encryption and the encryption is performed with the algorithm identified by the first encryption identifier when said first encryption identifier does not equal to 0.

8. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 4, characterized in that in said Step b6, the encryption input is RN2||ID2||ALG1, and the encryption key is RN1||RN2, wherein "||" represents concatenation.

9. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 1, characterized in that said Step c comprises:

Step c1, the requesting party calculates the frequency of the radio frequency communication according to the frequency calculation method predetermined by the two parties and based on the first random number and the maximum number of frequency points supported by the radio frequency channel;

Step c2, the requesting party calculates the first radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number;

Step c3, the requesting party receives said activation response message on the first radio frequency communication address at the calculated frequency of the radio frequency communication through the radio frequency channel;

Step c4, the requesting party uses the second random number, the identity identifier of the requested party and said first encryption identifier in said activation response message as the encryption input, uses said first random number and second random number as the encryption key, adopts a predetermined algorithm to perform the encryption operation, takes the first 4 bytes of the encryption result as the first check code, and then compares said first check code with the first check code contained in said activation response message, if the two are identical, then the verification is passed, and go to Step c5; otherwise, the access is incorrect and this access process is terminated;

Step c5, the requesting party generates a third random number;

Step c6, the requesting party generates a second encryption identifier, said second encryption identifier containing the method to encrypt transaction sessions selected by the requesting party and the supporting encryption algorithm;

Step c7, the requesting party uses said third random number, the identity identifier of the requesting party and said second encryption identifier as the encryption input, uses said first

random number, second random number and third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, and takes the first 4 bytes of the encryption result as the second check code;

- 5 Step c8, the requesting party generates a connection request, said connection request containing said third random number, the identity identifier of the requesting party, the second encryption identifier and the second check code;

- 10 Step c9, the requesting party calculates the second radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number and second random number;

- 15 Step c10, the requesting party sends said connection request on the second radio frequency communication address at the frequency of the radio frequency communication through the radio frequency channel.

- 20 10. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 9, characterized in that in said Step c5, the length of said third random number is 3 bytes.

- 25 11. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 9, characterized in that in said Step c7, the encryption input is $RN3 || ID1 || ALG2$, and the encryption key is $RN1 || RN2 || RN3$, wherein " $||$ " represents concatenation.

- 30 12. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 9, characterized in that in said Step c9, said calculation method of the second radio frequency communication address is: with said first random number and second random number as input, performing a predetermined one-way function operation, and making all or a part of the obtained operational results as the second radio frequency communication address.

- 35 13. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 9, characterized in that in said Step c9, said calculation method of the second radio frequency communication address is: taking all or a part of $RN1 || RN2$ as the second radio frequency communication address, wherein " $||$ " represents concatenation.

- 40 14. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 1, characterized in that said Step d comprises:

Step d1, the requested party calculates the second radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number and second random number;

Step d2, the requested party receives said connection request on the second radio frequency communication address at the frequency of the radio frequency communication through the radio frequency channel;

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Step d3, the requested party uses the third random number, the identity identifier of the requesting party and the second encryption identifier in said connection request as the encryption input, uses said first random number, second random number and third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, takes the first 4 bytes of the encryption result as the second check code, and then compares said second check code with the second check code contained in said connection request, if the two are identical, then the verification is passed; otherwise, the verification is failed;

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Step d4, the requested party sets a status identifier of connection successful/failed according to the verification result of the second check code. If the second check code passes the verification, then said status identifier of connection successful/failed is set to connection successful, and go to Step d5; otherwise, said status identifier of connection successful/failed is set to connection failed, and go to Step d6;

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Step d5, the requested party generates a third encryption identifier, said third encryption identifier containing the method to encrypt transaction sessions finally selected by the requested party and the supporting encryption algorithm;

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Step d6, the requested party uses the third random number, the status identifier of connection successful/failed and the third encryption identifier as the encryption input, uses said first random number, second random number and third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, and takes the first 4 bytes of the encryption result as the third check code;

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Step d7, the requested party generates a connection response message, said connection response message containing the status identifier of connection successful/failed, the third encryption identifier and the third check code;

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Step d8, the requested party sends said connection response message on the second radio frequency communication address through the radio frequency channel.

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15. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 14, characterized in that in said Step d6, the encryption input is RN3||SFF||ALG3, and the encryption key is RN1||RN2||RN3, wherein "||" represents concatenation.

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16. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 1, characterized in that said Step e comprises:

Step e1, the requesting party receives said connection response message on the second radio frequency communication address through the radio frequency channel;

Step e2, the requesting party uses the third random number, the status identifier of connection successful/failed and the third encryption identifier in said connection response message as the encryption input, uses said first random number, second random number and third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, takes the first 4 bytes of the encryption result as the third check code, and then compares said third check code with the third check code contained in said connection response message, if the two are identical, then the verification is passed, and go to Step e3; otherwise, the verification is failed and this access process is terminated;

Step e3, the requesting party determines whether the access by the requested party is successful or not based on the status identifier of connection successful/failed in said connection response message, if the access fails, then this access process is terminated; otherwise, go to Step e4;

Step e4, the requesting party and the requested party conduct transactions on the second radio frequency communication address through the radio frequency channel.

17. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 1, characterized in that in said Step e4, a session encryption key is used in said transactions.

18. The method for accessing radio frequency communication with low-frequency magnetic communication as set forth in Claim 17, characterized in that said session encryption key is 8-bytes $RN1 || RN2 || RN3$ or 16-bytes $RN1 || RN2 || RN3 || \overline{RN1 || RN2 || RN3}$, wherein " $||$ " represents concatenation and $\overline{RN1 || RN2 || RN3}$ is the bit-by-bit inversion of $RN1 || RN2 || RN3$.

CLAIMS:

1. A method for accessing to radio frequency communication with low-frequency magnetic communication, comprising:

Step a: a requesting party, through a low-frequency channel, sends an activation request which is a low-frequency characteristic code, wherein said low-frequency characteristic code comprises a first random number generated by the requesting party, wherein the length of said low-frequency characteristic code is shorter than or equal to 2 bytes, and the length of said first random number is 1 byte;

Step b: a requested party receives the activation request through the low-frequency channel, generates an activation response message and sends the activation response message on a first radio frequency communication address through the radio frequency channel, wherein the activation response message comprises a second random number generated by the requested party and an identity identifier of the requested party;

Step c: the requesting party receives the activation response message on the first radio frequency communication address through the radio frequency channel and performs the verification, generates a connection request if the verification is passed, and sends the connection request on a second radio frequency communication address through the radio frequency channel, wherein the connection request comprises a third random number;

Step d: the requested party receives the connection request on the second radio frequency communication address through the radio frequency channel and performs the verification, generates a connection response message if the verification is passed, and sends the connection response message on the second radio frequency communication address through the radio frequency channel; and

Step e: the requesting party receives the connection response message on the second radio frequency communication address through the radio frequency channel, verifies whether a connection is successful, and trades with the requested party on the second radio frequency communication address through the radio frequency channel if the connection is successful.

2. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 1, wherein said low-frequency characteristic code only comprises said first random number.

3. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 1, wherein said Step b comprises:

Step b1, the requested party receives the activation request through the low-frequency channel;

Step b2, the requested party generates the second random number;

Step b3, the requested party calculates the frequency of the radio frequency communication according to a frequency calculation method predetermined by the two parties and based on the first random number in said activation request and a maximum number of frequency points supported by the radio frequency channel;

Step b4, the requested party calculates the first radio frequency communication address according to an address calculation method predetermined by the two parties and based on the first random number;

Step b5, the requested party generates a first encryption identifier, said first encryption identifier containing a method to encrypt transaction sessions selected by the requested party and an encryption algorithm supported by the requested party;

Step b6, the requested party uses said second random number, the identity identifier of the requested party and said first encryption identifier as an encryption input, uses said first random number and said second random number as an encryption key, adopts a predetermined encryption algorithm to perform an encryption operation, and takes the first 4 bytes of the encryption result as a first check code;

Step b7, the requested party generates said activation response message, said activation response message comprising said second random number, the identity identifier of the requested party, the first encryption identifier and the first check code; and

Step b8, the requested party sends said activation response message on the first radio frequency communication address using the calculated frequency of the radio frequency communication through the radio frequency channel.

4. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 3, wherein in said Step b2, the length of said second random number is 4 bytes.

5. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 3, wherein in said Step b3, said predetermined frequency calculation method comprises: with the maximum number of frequency points supported by the radio frequency channel as a mode, performing an operation to obtain remainder on said first random number, the obtained remainder corresponds to the numbering of the frequency used by the radio frequency communication, and said frequency of the radio frequency communication is obtained according to said numbering.

6. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 3, wherein in said Step b5, there is no encryption when said first encryption identifier equals to 0, and there is encryption and the encryption is performed with an algorithm identified by the first encryption identifier when said first encryption identifier does not equal to 0.

7. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 3, wherein in said Step b6, the encryption input is $RN2\parallel ID2\parallel ALG1$, and the encryption key is $RN1\parallel RN2$, wherein " $\parallel$ " represents concatenation, $RN2$ is said second random number, $ID2$ is said identity identifier of the requested party, $ALG1$ is said first encryption identifier, and $RN1$ is said first random number.

8. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 3, wherein said Step c comprises:

Step c1, the requesting party calculates the frequency of the radio frequency communication according to the frequency calculation method predetermined by the two parties and based on the first random number and the maximum number of frequency points supported by the radio frequency channel;

Step c2, the requesting party calculates the first radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number;

Step c3, the requesting party receives said activation response message on the first radio frequency communication address using the calculated frequency of the radio frequency communication through the radio frequency channel;

Step c4, the requesting party uses the second random number, the identity identifier of the requested party and said first encryption identifier in said activation response message as the encryption input, uses said first random number and said second random number as the encryption key, adopts a predetermined algorithm to perform the encryption operation, takes the first 4 bytes of the encryption result as a first check code, and compares said first check code with the first check code contained in said activation response message;

Step c5, if the first check code is not identical with the first check code contained in said activation response message, the access is incorrect and the access process is terminated; and if the first check code is identical with the first check code contained in said activation response message, the verification is passed and the requesting party generates the third random number;

Step c6, the requesting party generates a second encryption identifier, said second encryption identifier containing a method to encrypt transaction sessions selected by the requesting party and an encryption algorithm supported by the requesting party;

Step c7, the requesting party uses said third random number, the identity identifier of the requesting party and said second encryption identifier as the encryption input, uses said first random number, said second random number and said third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, and takes the first 4 bytes of the encryption result as a second check code;

Step c8, the requesting party generates said connection request, said connection request containing said third random number, the identity identifier of the requesting party, the second encryption identifier and the second check code;

Step c9, the requesting party calculates the second radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number and the second random number; and

Step c10, the requesting party sends said connection request on the second radio frequency communication address at the frequency of the radio frequency communication through the radio frequency channel.

9. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 8, wherein in said Step c5, the length of said third random number is 3 bytes.

10. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 8, wherein in said Step c7, the encryption input is $RN3 \parallel ID1 \parallel ALG2$, and the encryption key is $RN1 \parallel RN2 \parallel RN3$, wherein “ $\parallel$ ” represents concatenation, $RN3$ is said third random number, $ID1$ is said identity identifier of the requesting party, $ALG2$ is said second encryption identifier, $RN1$ is said first random number, and $RN2$ is said second random number.

11. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 8, wherein in said Step c9, said calculation method of the second radio frequency communication address comprises: with said first random number and second random number as input, performing a predetermined one-way function operation, and making all or a part of the obtained operational results as the second radio frequency communication address.

12. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 8, wherein in said Step c9, said calculation method of the second radio frequency communication address comprises: taking all or a part of $RN1 \parallel RN2$ as the second radio frequency communication address, wherein “ $\parallel$ ” represents concatenation, $RN1$ is said first random number, and $RN2$ is said second random number.

13. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 3 or 8, wherein said Step d comprises:

Step d1, the requested party calculates the second radio frequency communication address according to the address calculation method predetermined by the two parties and based on the first random number and the second random number;

Step d2, the requested party receives said connection request on the second radio frequency communication address at the frequency of the radio frequency communication through the radio frequency channel;

Step d3, the requested party uses the third random number, the identity identifier of the requesting party and the second encryption identifier in said connection request as the encryption input, uses said first random number, said second random number and said third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, takes the first 4 bytes of the encryption result as the second check code, and compares said second check code with the second check code contained in said connection request, if the two are identical, the verification is passed; otherwise, the verification is failed;

Step d4, the requested party sets a status identifier of connection successful/failed according to the verification result of the second check code; if the second check code passes the verification, said status identifier of connection successful/failed is set to connection successful; otherwise, said status identifier of connection successful/failed is set to connection failed;

Step d5, the requested party generates a third encryption identifier, said third encryption identifier containing a method to encrypt transaction sessions finally selected by the requested party and an encryption algorithm supported by the requested party;

Step d6, the requested party uses the third random number, the status identifier of connection successful/failed and the third encryption identifier as the encryption input, uses said first random number, said second random number and said third random number as the encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, and takes the first 4 bytes of the encryption result as a third check code;

Step d7, the requested party generates a connection response message, said connection response message containing the status identifier of connection successful/failed, the third encryption identifier and the third check code; and

Step d8, the requested party sends said connection response message on the second radio frequency communication address through the radio frequency channel.

14. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 13, wherein in said Step d6, the encryption input is $RN3 \parallel SFF \parallel ALG3$, and the encryption key is $RN1 \parallel RN2 \parallel RN3$, wherein “ $\parallel$ ” represents concatenation, $RN3$ is said third random number, SFF is said status identifier of connection successful/failed, $ALG3$ is said third encryption identifier, $RN1$ is said first random number, and $RN2$ is said second random number.

15. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 1, wherein said Step e comprises:

Step e1, the requesting party receives said connection response message on the second radio frequency communication address through the radio frequency channel;

Step e2, the requesting party uses the third random number, a status identifier of connection successful/failed and a third encryption identifier in said connection response message as an encryption input, uses said first random number, said second random number and said third random number as an encryption key, adopts a predetermined encryption algorithm to perform the encryption operation, takes the first 4 bytes of the encryption result as a third check code, and compares said third check code with a third check code contained in said connection response message;

Step e3, if the third check code is not identical with the third check code contained in said connection response message, the verification is failed and the access process is terminated; and if the third check code is identical with the third check code contained in said connection response message, the requesting party determines whether the connection by the requested party is successful or not based on the status identifier of connection successful/failed in said connection response message;

Step e4, if the connection by the requested party is not successful, the connection process is terminated; and if the connection by the requested party is successful, the requesting party and the requested party conduct transactions on the second radio frequency communication address through the radio frequency channel.

16. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 15, wherein in said Step e4, a session encryption key is used in said transactions.

17. The method for accessing to radio frequency communication with low-frequency magnetic communication as set forth in claim 16, wherein said session encryption key is 8-bytes $RN1 \parallel RN2 \parallel RN3$ or 16-bytes $RN1 \parallel RN2 \parallel RN3 \parallel \underline{RN1 \parallel RN2 \parallel RN3}$, wherein “ $\parallel$ ” represents concatenation, $\underline{RN1 \parallel RN2 \parallel RN3}$ is the bit-by-bit inversion of $RN1 \parallel RN2 \parallel RN3$, $RN1$ is said first random number, $RN2$ is said second random number, and $RN3$ is said third random number.