CLAIMS

1. A compression device comprising:

an identifier determination circuit configured to determine a plurality of identifier values in a block, the plurality of identifier values comprising a first identifier value identifying a first communication terminal of a network, and a second identifier value identifying a second communication terminal of the network;

a differential determination circuit configured to determine a differential value based on a difference between the first identifier value and the second identifier value; and

a compressed string generation circuit configured to insert the differential value into a compressed string,

wherein the compressed string generation circuit is configured to insert into the compressed string an encode word length field with a value of 7, which indicate that the number of bits required for representing the block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value if data is not present in an access point operating in the network for one communication terminal of a plurality of communication terminals, wherein the one communication terminal is identified by one of the plurality of identifier values; and if data is present in the access point for the rest of the plurality of communication terminals identified by the rest of the plurality of identifier values,

wherein the sole differential value is determined based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

2. The compression device of claim 1, wherein for the first communication terminal data is present in an access point operating in the network; and wherein for the second communication terminal data is present in the access point.

~~3. The compression device of claim 2, wherein the compressed string generation circuit is further configured to insert into the compressed string an encode word length field indicating the number of bits required for representing the differential value.~~

43. The compression device of claim ~~3~~1 or 2, wherein the size of the encode word length field is 3 bits.

~~5. The compression device of claim 3, wherein the compressed string generation circuit is further configured to insert into the compressed string a length field indicating the length of the compressed string excluding the encode word length field and the length field.~~

64. The compression device of any one of claims ~~5~~1 to 3, wherein the size of the length field is 5 bits.

~~7. The compression device of claim 1,~~

~~wherein the identifier determination circuit is further configured to determine a plurality of identifier values in a block; and~~

~~wherein the compressed string generation circuit is configured to insert into the compressed string an encode word length field indicating that the number of bits required for representing the block is zero and a length field indicating that the length of the compressed string excluding the encode word length field and the length field is zero, if data is present in an access point operating in the network for each communication terminal of a plurality of communication terminals identified by the plurality of the identifier values.~~

~~8. The compression device of claim 1,~~

~~wherein the identifier determination circuit is further configured to determine a plurality of identifier values in a block; and~~

~~wherein the compressed string generation circuit is configured to insert into the compressed string an encode word length field with a value of 7, which may indicate that the number of bits required for representing the block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value if data is not present in an access point operating in the network for one communication terminal of a plurality of communication terminals, wherein the one communication terminal is identified by one of the plurality of identifier values; and if data is present in the access point for the rest of the plurality of communication terminals identified by the rest of the plurality of identifier values,~~

~~wherein the sole differential value is determined based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.~~

~~9. The compression device of claim 1,~~

~~wherein the identifier determination circuit is configured to determine a plurality of identifier values in a block; and~~

~~wherein the compressed string generation circuit is configured to insert into the compressed string a single identifier value of the plurality of identifier values if data is present in an access point operating in the network for one communication terminal of a plurality of communication terminals, wherein the one communication terminal is identified by the single identifier value; and if data is not present in the access point for the rest of the plurality of communication terminals identified by the rest of the plurality of identifier values.~~

~~10~~5. The compression device of any one of claims ~~2~~1 to 4,

wherein the ~~identifier determination circuit is further configured to determine~~plurality of identifier values further comprises a third identifier value identifying a third communication terminal of the network, wherein for the third communication terminal data is not present in the access point;

wherein the differential determination circuit is further configured to determine an interpolated differential value based on at least one of a difference between the third identifier value and the first identifier value, or a difference between the third identifier value and the second identifier value; and

wherein the compressed string generation circuit is further configured to insert the interpolated differential value and the third identifier value into the compressed string.

~~11~~6. The compression device of any one of claims ~~2~~1 to 4,

wherein the ~~identifier determination circuit is further configured to determine~~ plurality of identifier values further comprises a third identifier value identifying a third communication terminal of the network and a fourth identifier value identifying a fourth communication terminal of the network, wherein for each of the third communication terminal and the fourth communication terminal data is not present in the access point;

wherein the differential determination circuit is further configured to determine an interpolated differential value based on a difference between the third identifier value and the fourth identifier value; and

wherein the compressed string generation circuit is further configured to insert the interpolated differential value, the third identifier value and the fourth identifier value into the compressed string.

~~12~~7. The compression device of any one of claims ~~2~~1 to 6, further comprising an arranging circuit configured to arrange the first identifier value and the second identifier value in a predetermined order.

~~13~~8. The compression device of claim ~~10~~7,

~~wherein the identifier determination circuit is configured to determine a plurality of identifier values;~~

wherein the arranging circuit is configured to arrange the plurality of identifier values in the predetermined order; and

wherein ~~the plurality of identifier values comprises~~ the first identifier value and the second identifier value ~~which~~ are not arranged at a start position of the predetermined order.

~~14~~9. The compression device of claim ~~13~~8, wherein the plurality of identifier values comprises a start identifier value which is arranged at the start position of the predetermined order, wherein the differential determination circuit is configured to determine a start differential value based on a difference between the start identifier value and a reference value.

~~15~~10. The compression device of claim ~~14~~9, wherein the reference value is a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

~~16~~11. The compression device of claim ~~15~~10, wherein the block offset value is a floor function of the start identifier value divided by the block length.

~~17~~12. The compression device of any one of claims ~~2~~1 to 11, wherein the compressed string generation circuit is further configured to insert a padding bit into the compressed string.

~~18~~13. A compression method comprising:

determining a plurality of identifier values in a block, the plurality of identifier values comprising a first identifier value identifying a first communication terminal of a network, and a second identifier value identifying a second communication terminal of the network;

determining a differential value based on a difference between the first identifier value and the second identifier value; and

inserting the differential value into a compressed string,

wherein said inserting the differential value into a compress string comprises:

inserting into the compressed string an encode word length field with a value of 7, which indicate that the number of bits required for representing the block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value if data is not present in an access point operating in the network for one communication terminal of a plurality of communication terminals, wherein the one communication terminal is identified by one of the plurality of identifier values; and if data is present in the access point for the rest of the plurality of communication terminals identified by the rest of the plurality of identifier values,

wherein the sole differential value is determined based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

~~19~~14. A decompression device comprising:

a compressed string receiver configured to receive a compressed string comprising a differential value, wherein the differential value is based on a difference between a first identifier value identifying a first communication terminal of a network, and a second identifier value identifying a second communication terminal of the network;

a retrieving circuit configured to determine the differential value from the compressed string; and

an identifier generating circuit configured to determine the first identifier value and the second identifier value based on the differential value,

wherein the compressed string receiver is further configured to receive a compressed string comprising an encode word length field with a value of 7 indicating that the number of bits required for representing a block is 8, a length field indicating that

the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value; and

wherein the identifier generating circuit is further configured to determine a plurality of identifier values based on the encode word length field, the length field and the sole differential value,

wherein the sole differential value is based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

~~20~~15. The decompression device of claim ~~19~~14, wherein for the first communication terminal data is present in an access point operating in the network; and wherein for the second communication terminal data is present in the access point.

~~21. The decompression device of claim 19,~~

~~wherein the compressed string receiver is further configured to receive a compressed string comprising an encode word length field indicating that the number of bits required for representing a block is zero, and a length field indicating that the length of the compressed string excluding the encode word length field and the length field is zero; and~~

~~wherein the identifier generating circuit is further configured to determine a plurality of identifier values based on the encode word length field and the length field.~~

~~22. The decompression device of claim 19,~~

~~wherein the compressed string receiver is further configured to receive a compressed string comprising an encode word length field with a value of 7 indicating that the number of bits required for representing a block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value; and~~

~~wherein the identifier generating circuit is further configured to determine a plurality of identifier values based on the encode word length field, the length field and the sole differential value,~~

~~wherein the sole differential value is based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.~~

~~23. The decompression device of claim 19,~~

~~wherein the compressed string receiver is further configured to receive a compressed string comprising a single identifier value; and~~

~~wherein the identifier generating circuit is further configured to determine a plurality of identifier values based on the single identifier value.~~

~~24~~16. The decompression device of claim ~~20~~14 or 15, ~~wherein the compressed string receiver is further configured to receive a compressed string comprising an encode word length field indicating the number of bits required for representing the differential value, a length field indicating the length of the compressed string excluding the encode word length field and the length field; and wherein the decompression device~~ further ~~comprises~~comprising a termination determining circuit configured to determine whether either the number of bits in the compressed string left for decompression is smaller than the encode word length field, or the differential value is zero.

~~25~~17. The decompression device of claim ~~24~~16, wherein the termination determining circuit is further configured to inform the retrieving circuit and the identifier generating circuit to terminate decompression if it is has been determined that either the number of bits in the compressed string left for decompression is smaller than the encode word length field, or the differential value is zero.

~~26~~18. The decompression device of any one of claims ~~19~~14 to 17, wherein the decompression device is configured to determine whether the compressed string is a last block of a traffic indicator map information element; and wherein the decompression device is configured to derive the number of identifier values based on block offset values in a block and block offset values in a subsequent block if it has been determined that the compressed string is not the last block.

~~27~~19. The decompression device of any one of claims ~~19~~14 to 17, wherein the decompression device is configured to determine whether the compressed string is a last block of a traffic indicator map information element; and wherein the decompression device is configured to derive the number of identifier values based on an offset value and a page length field if it has been determined that the compressed string is the last block.

~~28~~20. The decompression device of any one of claims ~~20~~14 to 19,

wherein the compressed string comprises a sequence of differential values;

wherein the identifier generating circuit is configured to determine a start identifier value, which is arranged at a start position of a plurality of identifier values arranged in a predetermined order, based on a sum of a differential value which is first in the sequence and a reference value, wherein the plurality of identifier values is identified with a plurality of communication terminals of the network, wherein the start identifier value is not the first identifier value, and wherein the start identifier value is not the second identifier value.

~~29~~21. The decompression device of claim ~~28~~20, wherein the reference value is a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

~~30~~22. The decompression device of claim ~~29~~21, wherein the block offset value is a floor function of the start identifier value divided by the block length.

CLAIMS

1. A compression device comprising:

an identifier determination circuit configured to determine a plurality of identifier values in a block, the plurality of identifier values comprising a first identifier value identifying a first communication terminal of a network, and a second identifier value identifying a second communication terminal of the network;

a differential determination circuit configured to determine a differential value based on a difference between the first identifier value and the second identifier value; and

a compressed string generation circuit configured to insert the differential value into a compressed string,

wherein the compressed string generation circuit is configured to insert into the compressed string an encode word length field with a value of 7, which indicate that the number of bits required for representing the block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value if data is not present in an access point operating in the network for one communication terminal of a plurality of communication terminals, wherein the one communication terminal is identified by one of the plurality of identifier values; and if data is present in the access point for the rest of the plurality of communication terminals identified by the rest of the plurality of identifier values,

wherein the sole differential value is determined based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

2. The compression device of claim 1, wherein for the first communication terminal data is present in an access point operating in the network; and wherein for the second communication terminal data is present in the access point.

3. The compression device of claim 1 or 2, wherein the size of the encode word length field is 3 bits.

4. The compression device of any one of claims 1 to 3, wherein the size of the length field is 5 bits.

5. The compression device of any one of claims 1 to 4,

wherein the plurality of identifier values further comprises a third identifier value identifying a third communication terminal of the network, wherein for the third communication terminal data is not present in the access point;

wherein the differential determination circuit is further configured to determine an interpolated differential value based on at least one of a difference between the third identifier value and the first identifier value, or a difference between the third identifier value and the second identifier value; and

wherein the compressed string generation circuit is further configured to insert the interpolated differential value and the third identifier value into the compressed string.

6. The compression device of any one of claims 1 to 4,

wherein the plurality of identifier values further comprises a third identifier value identifying a third communication terminal of the network and a fourth identifier value identifying a fourth communication terminal of the network, wherein for each of the third communication terminal and the fourth communication terminal data is not present in the access point;

wherein the differential determination circuit is further configured to determine an interpolated differential value based on a difference between the third identifier value and the fourth identifier value; and

wherein the compressed string generation circuit is further configured to insert the interpolated differential value, the third identifier value and the fourth identifier value into the compressed string.

7. The compression device of any one of claims 1 to 6, further comprising an arranging circuit configured to arrange the first identifier value and the second identifier value in a predetermined order.

8. The compression device of claim 7,

wherein the arranging circuit is configured to arrange the plurality of identifier values in the predetermined order; and

wherein the first identifier value and the second identifier value are not arranged at a start position of the predetermined order.

9. The compression device of claim 8, wherein the plurality of identifier values comprises a start identifier value which is arranged at the start position of the predetermined order, wherein the differential determination circuit is configured to determine a start differential value based on a difference between the start identifier value and a reference value.

10. The compression device of claim 9, wherein the reference value is a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

11. The compression device of claim 10, wherein the block offset value is a floor function of the start identifier value divided by the block length.

12. The compression device of any one of claims 1 to 11, wherein the compressed string generation circuit is further configured to insert a padding bit into the compressed string.

13. A compression method comprising:

determining a plurality of identifier values in a block, the plurality of identifier values comprising a first identifier value identifying a first communication terminal of a network, and a second identifier value identifying a second communication terminal of the network;

determining a differential value based on a difference between the first identifier value and the second identifier value; and

inserting the differential value into a compressed string,

wherein said inserting the differential value into a compress string comprises:

inserting into the compressed string an encode word length field with a value of 7, which indicate that the number of bits required for representing the block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value if data is not present in an access point operating in the network for one communication terminal of a plurality of communication terminals, wherein the one communication terminal is identified by one of the plurality of identifier values; and if data is present in the access point for the rest of the plurality of communication terminals identified by the rest of the plurality of identifier values,

wherein the sole differential value is determined based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

14. A decompression device comprising:

a compressed string receiver configured to receive a compressed string comprising a differential value, wherein the differential value is based on a difference between a first identifier value identifying a first communication terminal of a network, and a second identifier value identifying a second communication terminal of the network;

a retrieving circuit configured to determine the differential value from the compressed string; and

an identifier generating circuit configured to determine the first identifier value and the second identifier value based on the differential value,

wherein the compressed string receiver is further configured to receive a compressed string comprising an encode word length field with a value of 7 indicating that the number of bits required for representing a block is 8, a length field indicating that the length of the compressed string excluding the encode word length field and the length field is 1, and a sole differential value; and

wherein the identifier generating circuit is further configured to determine a plurality of identifier values based on the encode word length field, the length field and the sole differential value,

wherein the sole differential value is based on a difference between the one of the plurality of communication terminals and a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

15. The decompression device of claim 14, wherein for the first communication terminal data is present in an access point operating in the network; and wherein for the second communication terminal data is present in the access point.

16. The decompression device of claim 14 or 15, further comprising a termination determining circuit configured to determine whether either the number of bits in the compressed string left for decompression is smaller than the encode word length field, or the differential value is zero.

17. The decompression device of claim 16, wherein the termination determining circuit is further configured to inform the retrieving circuit and the identifier generating circuit to terminate decompression if it is has been determined that either the number of

bits in the compressed string left for decompression is smaller than the encode word length field, or the differential value is zero.

18. The decompression device of any one of claims 14 to 17, wherein the decompression device is configured to determine whether the compressed string is a last block of a traffic indicator map information element; and wherein the decompression device is configured to derive the number of identifier values based on block offset values in a block and block offset values in a subsequent block if it has been determined that the compressed string is not the last block.

19. The decompression device of any one of claims 14 to 17, wherein the decompression device is configured to determine whether the compressed string is a last block of a traffic indicator map information element; and wherein the decompression device is configured to derive the number of identifier values based on an offset value and a page length field if it has been determined that the compressed string is the last block.

20. The decompression device of any one of claims 14 to 19,

wherein the compressed string comprises a sequence of differential values;

wherein the identifier generating circuit is configured to determine a start identifier value, which is arranged at a start position of a plurality of identifier values arranged in a predetermined order, based on a sum of a differential value which is first in the sequence and a reference value, wherein the plurality of identifier values is identified with a plurality of communication terminals of the network, wherein the start identifier value is not the first identifier value, and wherein the start identifier value is not the second identifier value.

21. The decompression device of claim 20, wherein the reference value is a sum of two factors, wherein the first factor is a product of a page index value and a page length, and the second factor is a product of a block offset value and a block length.

22. The decompression device of claim 21, wherein the block offset value is a floor function of the start identifier value divided by the block length.