## CLAIMS

1. A radio base station apparatus that reports SRS (Sounding Reference Signal) transmission control information to a mobile terminal apparatus and controls transmission of an SRS by the mobile terminal apparatus, the radio base station apparatus comprising:

an SRS setting section configured to select bit information to report to the mobile terminal apparatus, from a table having bit information to indicate not to trigger the SRS and bit information to indicate to trigger the SRS using a default SRS parameter; and

a reporting section configured to report the bit information for the mobile terminal apparatus using a downlink control channel.

2. The radio base station apparatus according to claim 1, wherein the SRS setting section selects information related to an SRS parameter to set in the table based on a communication condition of the mobile terminal apparatus.

3. The radio base station apparatus according to claim 1, wherein the default SRS parameter is reported by RRC (Radio Resource Control) signaling.

4. The radio base station apparatus according to claim 1, wherein the reporting section includes and reports the bit information in DCI formats of the downlink control channel, to the mobile terminal apparatus.

5. The radio base station apparatus according to claim 4, wherein, in the DCI formats, at least a first DCI format and a second DCI format, in which information related to the SRS is defined, are set, and common SRS transmission content is shared between tables corresponding respectively to the first DCI format and the second DCI format.

6. The radio base station apparatus according to claim 4, wherein the DCI formats, in which the information related to the SRS is defined, are an uplink scheduling grant or a downlink scheduling grant.

7. The radio base station apparatus according to claim 4, wherein: at least two tables, between which the number of bits differs, are set in the DCI formats, in which the information related to the SRS is defined;

selection information of the default SRS

parameter to be reported in advance as part of the information related to the SRS parameter, is set in a table of a smaller number of bits;

a difference from the default SRS parameter to be reported in advance as the part of the information related to the SRS parameter, is set in a table of a larger number of bits; and

one of the table of the smaller number of bits and the table of the larger number of bits is selected based on a predetermined condition.

8. A mobile terminal apparatus that transmits an SRS based on SRS transmission control information reported from a radio base station apparatus, the mobile terminal apparatus comprising:

a receiving section configured to receive bit information to indicate not to trigger the SRS and bit information to indicate to trigger the SRS using a default SRS parameter;

a downlink control channel receiving section configured to specify SRS transmission content based on the bit information; and

an SRS transmission setting section configured to control SRS transmission based on the specified SRS transmission content.

9. The mobile terminal apparatus according to claim 8, wherein: the SRS transmission setting section transmits an aperiodic SRS to the radio base station apparatus based on the SRS transmission control information reported from the radio base station apparatus, and also transmits a periodic SRS to the radio base station apparatus in a predetermined period; and

when transmission timings of the aperiodic SRS and the periodic SRS overlap in a same subframe, the aperiodic SRS is transmitted preferentially.

10. The mobile terminal apparatus according to claim 8, wherein: the SRS transmission setting section transmits an aperiodic SRS to the radio base station apparatus based on the SRS transmission control information reported from the radio base station apparatus, and also transmits a periodic SRS to the radio base station apparatus in a predetermined period; and

transmission timings of the aperiodic SRS and the periodic SRS are set in different subframes.

11. A radio communication method for reporting SRS

transmission control information from a radio base station apparatus to a mobile terminal apparatus and controlling transmission of an SRS by the mobile terminal apparatus, the radio communication method comprising, at the radio base station apparatus, the steps of:

selecting bit information to report to the mobile terminal apparatus, from a table having bit information to indicate not to trigger the SRS and bit information to indicate to trigger the SRS using a default SRS parameter; and

reporting the predetermined bit information for the mobile terminal apparatus using a downlink control channel.

12. The radio communication method according to claim 11, wherein the radio base station apparatus selects information related to an SRS parameter to set in the table based on a communication condition of the mobile terminal apparatus.

13. The radio communication method according to claim 11, wherein the radio base station apparatus includes and reports the bit information in an uplink scheduling grant or a downlink scheduling grant, to

the mobile terminal apparatus.

14. The radio communication method according to claim 11, wherein the mobile terminal apparatus transmits an aperiodic SRS to the radio base station apparatus based on the SRS transmission control information reported from the radio base station apparatus, and also transmits a periodic SRS to the radio base station apparatus in a predetermined period; and

when transmission timings of the aperiodic SRS and the periodic SRS overlap in a same subframe, the aperiodic SRS is transmitted preferentially.

15. The radio communication method according to claim 11, wherein the mobile terminal apparatus transmits an aperiodic SRS to the radio base station apparatus based on the SRS transmission control information reported from the radio base station apparatus, and also transmits a periodic SRS to the radio base station apparatus in a predetermined period; and

transmission timings of the aperiodic SRS and the periodic SRS are set in different subframes.

16. A radio communication system comprising:

a radio base station apparatus comprising:

an SRS setting section configured to select bit information to report to a mobile terminal apparatus, from a table having bit information to indicate not to trigger an SRS (Sounding Reference Signal) and bit information to indicate to trigger the SRS using a default SRS parameter; and

a reporting section configured to report the bit information for the mobile terminal apparatus using a downlink control channel; and

a mobile terminal apparatus comprising:

a receiving section configured to receive the bit information;

a downlink control channel receiving section configured to specify SRS transmission content based on the bit information; and

an SRS transmission setting section configured to control SRS transmission based on the specified SRS transmission content.

CLAIMS

1. A radio base station apparatus that controls transmission of an aperiodic SRS (Sounding Reference Signal) by a mobile terminal apparatus, the radio base station apparatus comprising:

an SRS setting section configured to select a specific bit information piece to report to the mobile terminal apparatus, from a table having a bit information piece to indicate not to trigger the aperiodic SRS and a plurality of bit information pieces each to indicate to transmit the aperiodic SRS using a predetermined default SRS parameter,

wherein the radio base station apparatus reports, to the mobile terminal apparatus, the predetermined default SRS parameter by higher layers and the specific bit information piece by a downlink control channel.

2. The radio base station apparatus according to claim 1, wherein the specific bit information piece is included in a DCI format of the downlink control channel and reported to the mobile terminal apparatus.

3. The radio base station apparatus according to claim 2, wherein the DCI format comprises at least a first DCI format and a second DCI format set therein, and the default SRS parameter is common to tables corresponding respectively to the first DCI format and the second DCI format.

4. The radio base station apparatus according to claim 2, wherein the DCI format is an uplink scheduling grant or a downlink scheduling grant.

5. The radio base station apparatus according to claim 2, wherein at least two tables, between which the number of bits differs, are set in the DCI format, in which selection information of the predetermined default SRS parameter is set in a table of a smaller number of bits, a difference from the predetermined default SRS parameter is set in a table of a larger number of bits, and one of the table of the smaller number of bits and the table of the larger number of bits is selected based on a predetermined condition.

6. A mobile terminal apparatus that transmits an aperiodic SRS (Sounding Reference Signal), the mobile

terminal apparatus comprising:

a receiving section configured to receive a specific bit information piece selected from a table having a bit information piece to indicate not to trigger the aperiodic SRS and a plurality of bit information pieces each to indicate to transmit the aperiodic SRS using a predetermined default SRS parameter; and

an SRS transmission setting section configured to control transmission of the aperiodic SRS based on the specific bit information piece and the predetermined default SRS parameter reported by higher layers.

7. A radio communication method for controlling transmission of an aperiodic SRS (Sounding Reference Signal) by a mobile terminal apparatus, the radio communication method comprising the steps of:

in a radio base station apparatus,

selecting a specific bit information piece to report to the mobile terminal apparatus, from a table having a bit information piece to indicate not to trigger the aperiodic SRS and a plurality of bit information pieces each to indicate to transmit the aperiodic SRS using a predetermined default SRS

parameter; and

reporting, to the mobile terminal apparatus, the specific bit information piece by a downlink control channel and the predetermined default SRS parameter by higher layers; and

in the mobile terminal apparatus,

controlling the transmission of the aperiodic SRS based on the specific bit information piece and the predetermined default SRS parameter.

8. The radio communication method according to claim 7, wherein the radio base station apparatus includes and reports the specific bit information piece in an uplink scheduling grant or a downlink scheduling grant, to the mobile terminal apparatus.

9. A radio communication system for controlling transmission of an aperiodic SRS (Sounding Reference Signal) by a mobile terminal apparatus, comprising:

a radio base station apparatus having an SRS setting section configured to select a specific bit information piece to report to the mobile terminal apparatus, from a table having a bit information piece to indicate not to trigger the aperiodic SRS and a plurality of bit information pieces each to

indicate to transmit the aperiodic SRS using a predetermined default SRS parameter, the radio base station apparatus reporting, to the mobile terminal apparatus, the specific bit information piece by a downlink control channel and the predetermined default SRS parameter by higher layers; and

the mobile terminal apparatus having

a receiving section configured to receive the specific bit information piece; and

an SRS transmission setting section configured to control transmission of the aperiodic SRS based on the specific bit information piece and the predetermined default SRS parameter reported by higher layers.