

CLAIMS

1. A method of wireless communications by a base station, comprising:
mapping a portion of at least one of a physical broadcast channel (PBCH) or a beamformed reference signal (BRS) to tones of a symbol of a subframe, via a same set of tones independent of system bandwidth; and
transmitting the at least one of the PBCH or BRS in the symbol according to the mapping.
2. The method of claim 1, wherein the mapping comprises at least one of:
mapping tones of the symbol from a first center tone to tones at a lower frequency; or
mapping tones of the symbol from a second center tone to tones at a higher frequency.
3. The method of claim 2, wherein the first and second center tones define a boundary of a set of tones used for transmitting one or more synchronization signals.
4. The method of claim 1, wherein the mapping comprises:
mapping the coded bits to a common set of tones for a first system bandwidth and a second system bandwidth greater than the first bandwidth; and
mapping, for the second system bandwidth, a repeated portion of the coded bits or additional coded bits to a set of tones not included in the first bandwidth.
5. The method of claim 1, wherein:
the mapping comprises mapping a portion of a PBCH to tones of the symbol of the subframe; and
the method further comprises transmitting BRS in tones of the symbol, each BRS transmitted in a different direction.
6. The method of claim 1, wherein:
the at least one of the PBCH or BRS is transmitted in every symbol of the subframe.

7. The method of claim 6, where the base station transmits the at least one of the PBCH or BRS in different directions in different symbols of the synchronization subframe.
8. The method of claim 1, wherein the coded bits of the at least one of the PBCH or BRS are mapped over a fixed number of resources across multiple subframes.
9. The method of claim, wherein:
 - the mapping comprises mapping coded bits of one period of PBCH transmission to a plurality of segments; and
 - for each segment, coded bits of that segment are mapped to a fixed starting offset regardless of available resource for the transmission.
10. The method of claim 1, wherein:
 - the mapping comprises mapping a portion of coded bits of a BRS to tones of a symbol of the subframe;
 - the sequence of bits of BRS are mapped per resource block (RB), each RB occupying a fixed number of tones.
11. A method of wireless communications by a user equipment, comprising:
 - determining a mapping of portion of coded bits of at least one of a physical broadcast channel (PBCH) or a beamformed reference signals (BRS) to tones of a symbol of a subframe that are a same set of tones independent of system bandwidth; and
 - monitoring for the at least one of the PBCH or BRS in the symbol according to the mapping.
12. The method of claim 11, wherein the mapping comprises at least one of:
 - a mapping of tones of the symbol from a first center tone to tones at a lower frequency; or
 - a mapping of tones of the symbol from a second center tone to tones at a higher frequency.
13. The method of claim 12, wherein the first and second center tones define a boundary of a set of tones used for transmitting one or more synchronization signals.

14. The method of claim 11, wherein the mapping comprises:
 - a mapping of the coded bits to a common set of tones for a first system bandwidth and a second system bandwidth greater than the first bandwidth; and
 - a mapping, for the second system bandwidth, of a repeated portion of the coded bits or additional coded bits to a set of tones not included in the first bandwidth.
15. The method of claim 11, wherein:
 - the mapping comprises a mapping of a portion of a PBCH to tones of the symbol of the subframe; and
 - the method further comprises monitoring for BRS in tones of the symbol.
16. The method of claim 11, wherein:
 - the at least one of the PBCH or BRS is monitored for in every symbol of the subframe.
17. The method of claim 11, wherein the coded bits of the at least one of the PBCH or BRS are mapped over a fixed number of resources across multiple subframes.
18. The method of claim 11, wherein:
 - the mapping comprises a mapping of coded bits of one period of PBCH transmission to a plurality of segments; and
 - for each segment, coded bits of that segment are mapped to a fixed starting offset regardless of available resource for the transmission.
19. The method of claim 1, wherein:
 - the mapping comprises a mapping of a portion of coded bits of a BRS to tones of a symbol of the subframe;
 - the portion of the coded bits of the BRS are mapped per resource block (RB), each RB occupying a fixed number of tones.
20. An apparatus for wireless communications by a base station, comprising:

means for mapping a portion of at least one of a physical broadcast channel (PBCH) or a beamformed reference signal (BRS) to tones of a symbol of a subframe, via a same set of tones independent of system bandwidth; and

means for transmitting the at least one of the PBCH or BRS in the symbol according to the mapping.

21. An apparatus for wireless communications by a user equipment, comprising:
means for determining a mapping of portion of coded bits of at least one of a physical broadcast channel (PBCH) or a beamformed reference signals (BRS) to tones of a symbol of a subframe that are a same set of tones independent of system bandwidth; and

means for monitoring for the at least one of the PBCH or BRS in the symbol according to the mapping.

22. An apparatus for wireless communications by a base station, comprising:
at least one processor configured to map a portion of at least one of a physical broadcast channel (PBCH) or a beamformed reference signal (BRS) to tones of a symbol of a subframe, via a same set of tones independent of system bandwidth;
a transmitter configured to transmit the at least one of the PBCH or BRS in the symbol according to the mapping; and
a memory coupled with the at least one processor.

23. An apparatus for wireless communications by a user equipment, comprising:
at least one processor configured to determine a mapping of portion of coded bits of at least one of a physical broadcast channel (PBCH) or a beamformed reference signals (BRS) to tones of a symbol of a subframe that are a same set of tones independent of system bandwidth;
a receiver configured to monitor for the at least one of the PBCH or BRS in the symbol according to the mapping; and
a memory coupled with the at least one processor.

24. A computer program having instructions stored thereon for:

mapping a portion of at least one of a physical broadcast channel (PBCH) or a beamformed reference signal (BRS) to tones of a symbol of a subframe, via a same set of tones independent of system bandwidth; and

transmitting the at least one of the PBCH or BRS in the symbol according to the mapping.

25. A computer program having instructions stored thereon for:

determining a mapping of portion of coded bits of at least one of a physical broadcast channel (PBCH) or a beamformed reference signals (BRS) to tones of a symbol of a subframe that are a same set of tones independent of system bandwidth; and

monitoring for the at least one of the PBCH or BRS in the symbol according to the mapping.