

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MERCEDES-BENZ USA, LLC,
Petitioner

v.

NEO WIRELESS, LLC
Patent Owner

Case (to be assigned)
U.S. Patent No. 10,965,512

**PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 10,965,512
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§42.100 *et seq.***

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| 1. A POSA would have been motivated to combine Kim and Tong | 18 |
| 2. Independent Claim 1..... | 23 |

| | | |
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| (a) | [1.P]: An orthogonal frequency division multiple access (OFDMA)-compatible base station that uses subcarriers in a frequency domain and time slots in a time domain, the OFDMA-compatible base station comprising:..... | 23 |
| (b) | [1.1] a plurality of antennas; and a transmitter operably coupled to the plurality of antennas; | 24 |
| (c) | [1.2] the transmitter configured to: insert first pilots of a first type onto a first plurality of subcarriers, wherein the first pilots are cell-specific pilots; and..... | 25 |
| (d) | [1.3] insert data and second pilots of a second type onto a second plurality of subcarriers;..... | 28 |
| (e) | [1.4] wherein at least some subcarriers of the first plurality of subcarriers or the second plurality of subcarriers are beam-formed; and | 33 |
| (f) | [1.5] the plurality of antennas configured to transmit the first plurality of subcarriers and the second plurality of subcarriers in at least one of the time slots;..... | 34 |
| (g) | [1.6] wherein the second type is different than the first type and wherein the first pilots do not interfere with the second pilots. | 36 |
| 3. | Independent Claim 8 | 37 |
| (a) | [8.P] A method performed by an orthogonal frequency division multiple access (OFDMA)- compatible base station that uses subcarriers in a frequency domain and time slots in a time domain, the method comprising:..... | 37 |
| (b) | [8.1] inserting, by the OFDMA-compatible base station, first pilots of a first type onto a first plurality of subcarriers, wherein the first pilots are cell-specific pilots; | 37 |
| (c) | [8.2] inserting, by the OFDMA-compatible base station, data and second pilots of a second type onto a second plurality of subcarriers;..... | 38 |
| (d) | [8.3] wherein at least some subcarriers of the first plurality of subcarriers or the second plurality of subcarriers are beam-formed; and | 38 |
| (e) | [8.4] transmitting, by the OFDMA-compatible base | |

| | | |
|-----|---|----|
| | station, the first plurality of subcarriers and the second plurality of subcarriers in at least one of the time slots using a plurality of antennas;..... | 38 |
| (f) | [8.5] wherein the second type is different than the first type and wherein the first pilots do not interfere with the second pilots. | 38 |
| 4. | Independent Claim 15 | 39 |
| (a) | [15.P] An orthogonal frequency division multiple access (OFDMA)-compatible mobile station that uses subcarriers in a frequency domain and time slots in a time domain, the OFDMA-compatible mobile station comprising: | 39 |
| (b) | [15.1] at least one antenna; and a receiver; and | 39 |
| (c) | [15.2] the at least one antenna and the receiver are configured to: receive first pilots of a first type on a first plurality of subcarriers, wherein the first pilots are cell-specific pilots; and | 40 |
| (d) | [15.3] receive second pilots of a second type and data on a second plurality of subcarriers, wherein the first plurality of subcarriers and the second plurality of subcarriers are received in at least one of the time slots; | 41 |
| (e) | [15.4] wherein at least some subcarriers of the first plurality of subcarriers or the second plurality of subcarriers are beam-formed; and | 41 |
| (f) | [15.5] the receiver is further configured to: recover the data using channel estimates from at least the second pilots; and..... | 41 |
| (g) | [15.6] recover cell-specific information using the cell-specific pilots; | 44 |
| (h) | [15.7] wherein the second type is different than the first type and wherein the first pilots do not interfere with the second pilots. | 45 |
| 5. | Independent Claim 23 | 45 |
| (a) | [23.P] A method performed by an orthogonal frequency division multiple access (OFDMA)- compatible mobile | |

| | | |
|-----------|---|----|
| | station that uses subcarriers in a frequency domain and time slots in a time domain, the method comprising:..... | 45 |
| (b) | [23.1] receiving first pilots of a first type on a first plurality of subcarriers, wherein the first pilots are cell-specific pilots; | 45 |
| (c) | [23.2] receiving second pilots of a second type and data on a second plurality of subcarriers, wherein the first plurality of subcarriers and the second plurality of subcarriers are received in at least one of the time slots; | 45 |
| (d) | [23.3] wherein at least some subcarriers of the first plurality of subcarriers or the second plurality of subcarriers are beam-formed; | 46 |
| (e) | [23.4] recovering the data using channel estimates from at least the second pilots; and | 46 |
| (f) | [23.5] recovering cell-specific information using the cell-specific pilots; | 46 |
| (g) | [23.6] wherein the second type is different than the | 46 |
| 6. | Claims 2, 9, 16, and 24 | 46 |
| 7. | Claims 3, 10, 17, and 25 | 47 |
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| 11. | Claims 7 and 14..... | 51 |
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| B. | Ground 2: The combination of Ketchum and Li renders obvious claims 1, 3, 4, 6-8, 10, 11, 13-15, 17, 18, 20, 22, 23, 25, 26, 28, and 30 | 53 |
| 2. | Independent Claim 1. | 56 |
| (a) | [1.P]: An orthogonal frequency division multiple access (OFDMA)-compatible base station that uses subcarriers in a frequency domain and time slots in a time domain, the OFDMA-compatible base station comprising:..... | 56 |

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