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Cheng et al.

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(54)	METHOD AND SYSTEM FOR DYNAMIC
	DOWNLINK POWER CONTROL IN A
	TIME-DIVISION, MULTIPLEX WIRELESS
	SYSTEM

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Int. Cl.⁷ H04B 7/00; H04Q 7/20 (51)

U.S. Cl. 455/522; 455/67.1; 455/450; 455/436; 370/331; 370/318

Field of Search 455/522, 422,

455/450, 436, 437, 439, 13.4, 67.1, 67.4; 370/331, 329, 318, 321

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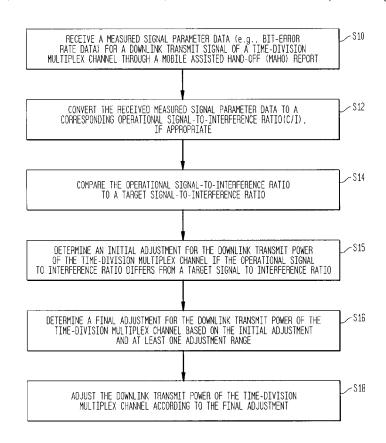
^{*} cited by examiner

Primary Examiner—Edward F. Urban Assistant Examiner-Marceau Milord

ABSTRACT

A method for controlling downlink power in a time-division multiplex wireless system may provide different downlink transmit signal powers to different time-division multiplex channels of a single carrier. A base station receives a measured signal parameter data for a downlink transmit signal of a time-division multiplex channel. The base station determines an initial adjustment for the downlink transmit signal power of the time division multiplex channel if the measured signal parameter data differs from a target signal parameter data. The base station determines a revised adjustment for the downlink transmit power of the time division multiplex channel based on the initial adjustment and at least one adjustment range as appropriate to achieve synchronization of the demodulation of the downlink transmit signal.

21 Claims, 8 Drawing Sheets





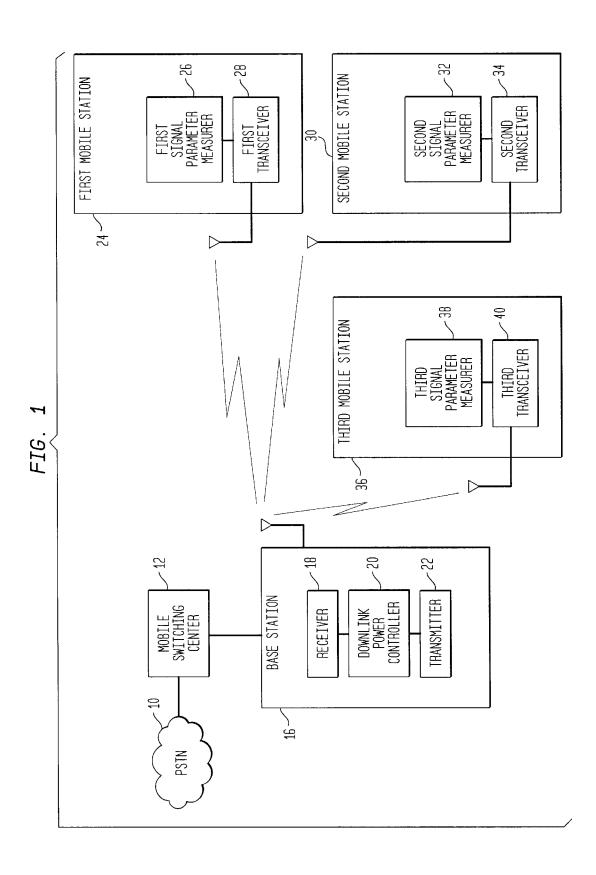




FIG. 2

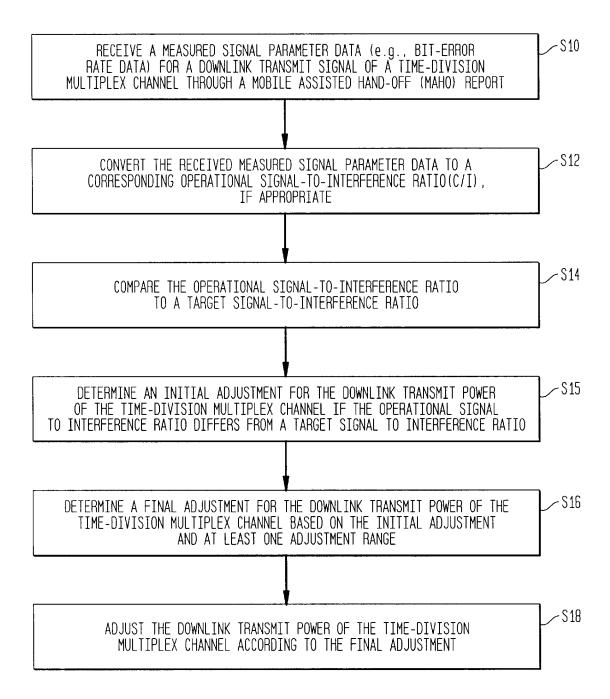




FIG. 3

BIT PATTERN	BER INTERVAL (%)	APPROXIMATE C/I (dB)
000	0.01>BER	40
001	0.1>BER>=0.01	35
010	0.5>BER>=0.1	26
011	1.0>BER>=0.5	21
100	2.0>BER>=1.0	18
101	4.0>BER>=2.0	15
110	8.0>BER>=4.0	12
111	BER>=0.0	10

FIG. 4 DETERMINE THE INITIAL PROPOSED POWERS OF EACH TIME--S26 DIVISION MULTIPLEX CHANNEL ASSOCIATED WITH A CARRIER BASED ON AT LEAST ONE TARGET SIGNAL-TO-INTERFERENCE GOAL -S28 DETERMINE A MAXIMUM INITIAL PROPOSED POWER AMONG THE TIME-DIVISION MULTIPLEX CHANNELS ASSOCIATED WITH THE CARRIER -S30 ESTABLISH A REFERENCE RANGE WITH AN UPPER LIMIT SET EQUAL TO THE MAXIMUM INITIAL PROPOSED POWER AND A LOWER LIMIT HAVING A CERTAIN OFFSET FROM THE UPPER LIMIT -832 IS A REMAINING CHANNEL OF THE CARRIER YES WITH A LOWER INITIAL PROPOSED POWER THAN THE MAXIMUM PROPOSED POWER WITHIN THE REFERENCE RANGE? NO S34 SET THE FINAL PROPOSED POWER FOR THE REMAINING CHANNEL EQUAL TO THE LOWER LIMIT SET THE FINAL PROPOSED POWER FOR THE REMAINING CHANNEL EQUAL TO THE INITIAL PROPOSED POWER FOR THE REMAINING CHANNEL WITHIN THE REFERENCE RANGE -836 ~S38 HAVE ALL OF THE CHANNELS OF THE CARRIER BEEN NO CONSIDERED FOR COMPLIANCE WITH THE ADJUSTMENT RANGE? YES \$40 END ADJUSTMENT TUNING CYCLE



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