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**Cuffaro et al.**

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(54) **METHOD AND SYSTEM FOR MANAGING FREQUENCIES ALLOCATED TO A BASE STATION**

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(51) **Int. Cl.**<sup>7</sup> ..... **H04Q 7/20**

(52) **U.S. Cl.** ..... **455/450; 455/62; 455/452; 455/509**

(58) **Field of Search** ..... 455/446, 450, 455/451, 452, 453, 447, 509, 62

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*Primary Examiner*—William Trost

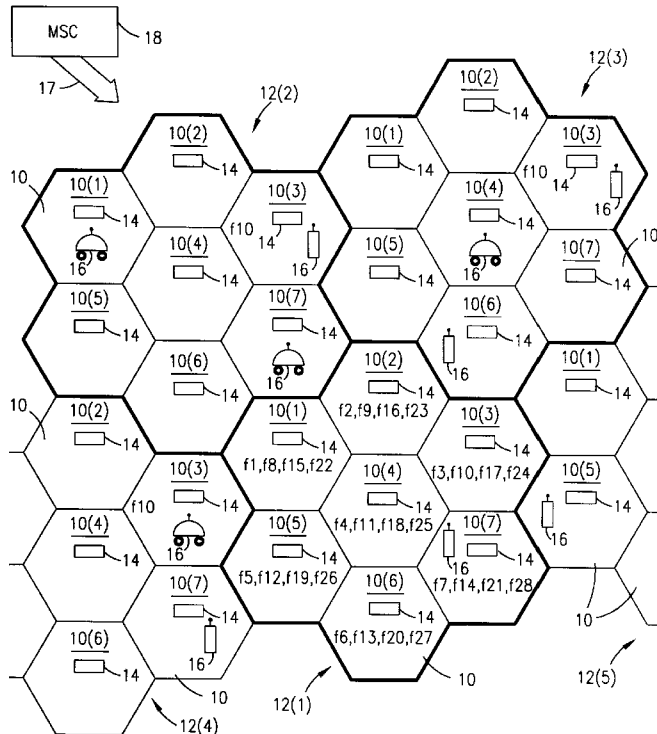
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(57) **ABSTRACT**

The present invention is a method and system for managing frequencies allocated to a cell within a cellular network to assign certain ones of those allocated frequencies for use by channel equipment within that cell. The method measures at least one quality metric for each of the allocated frequencies. At least one measured quality metric for the unassigned frequencies are compared against at least one quality metric for the assigned frequencies. An unassigned frequency is swapped for an assigned frequency based upon the comparison step. Additionally, a voting step is used to indicate that either the unassigned frequency or the assigned frequency has a higher signal quality for communication.

**34 Claims, 6 Drawing Sheets**



**Marvell Semiconductor, Inc.**  
**MediaTek Inc.**  
**MediaTek USA, Inc.**

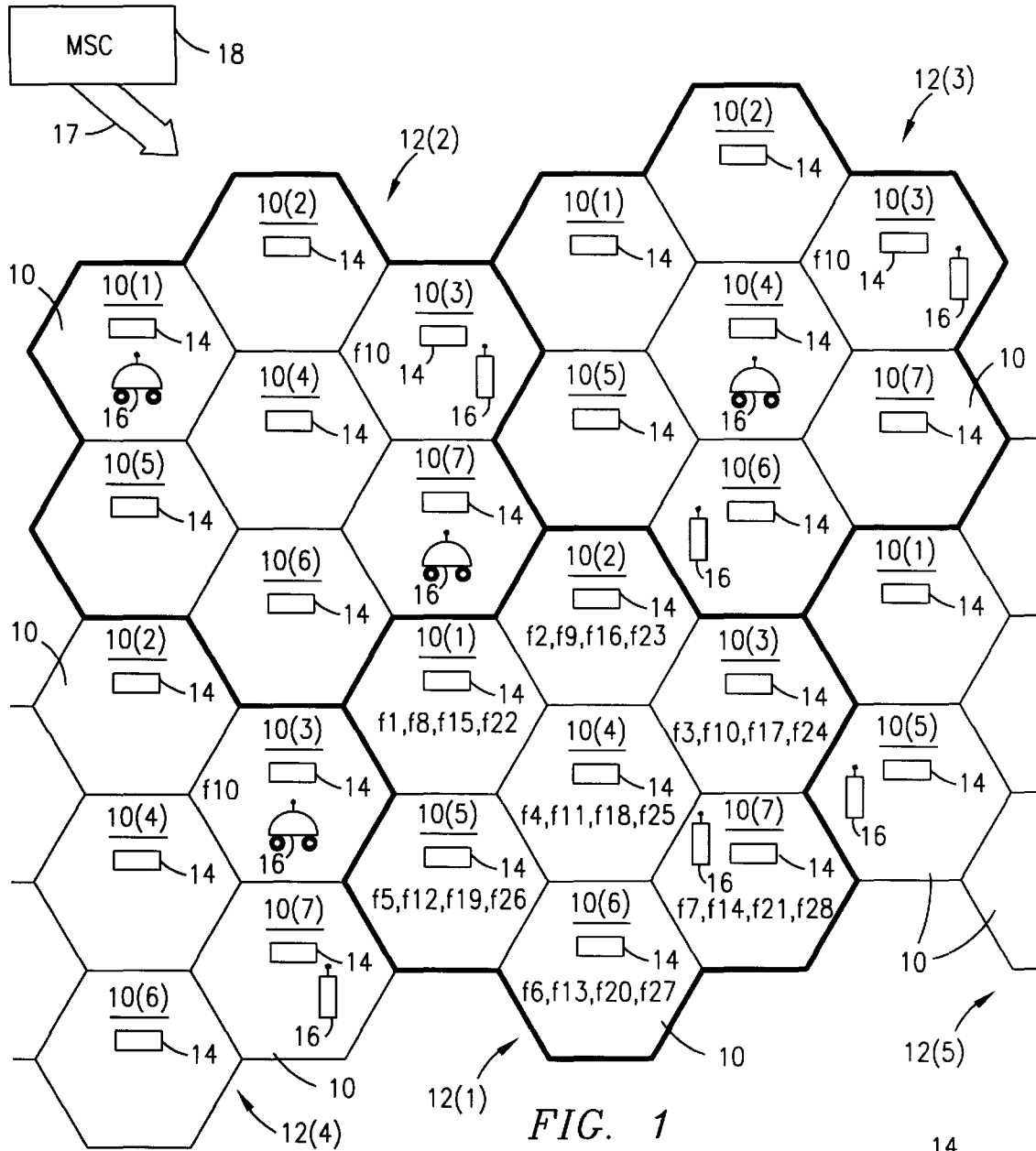


FIG. 1

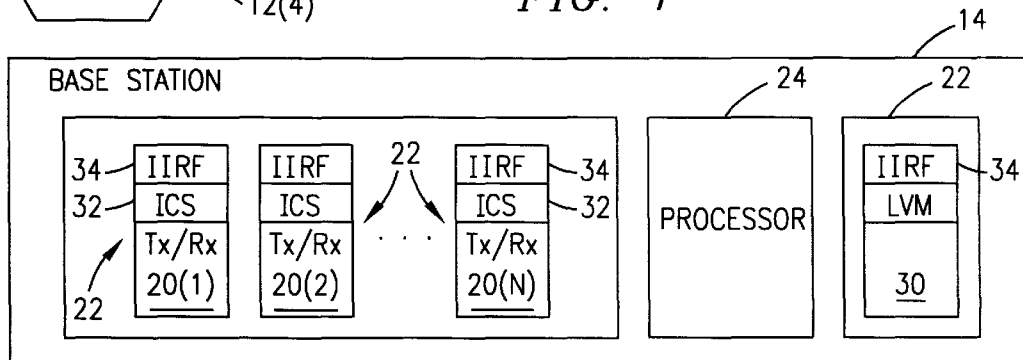


FIG. 2

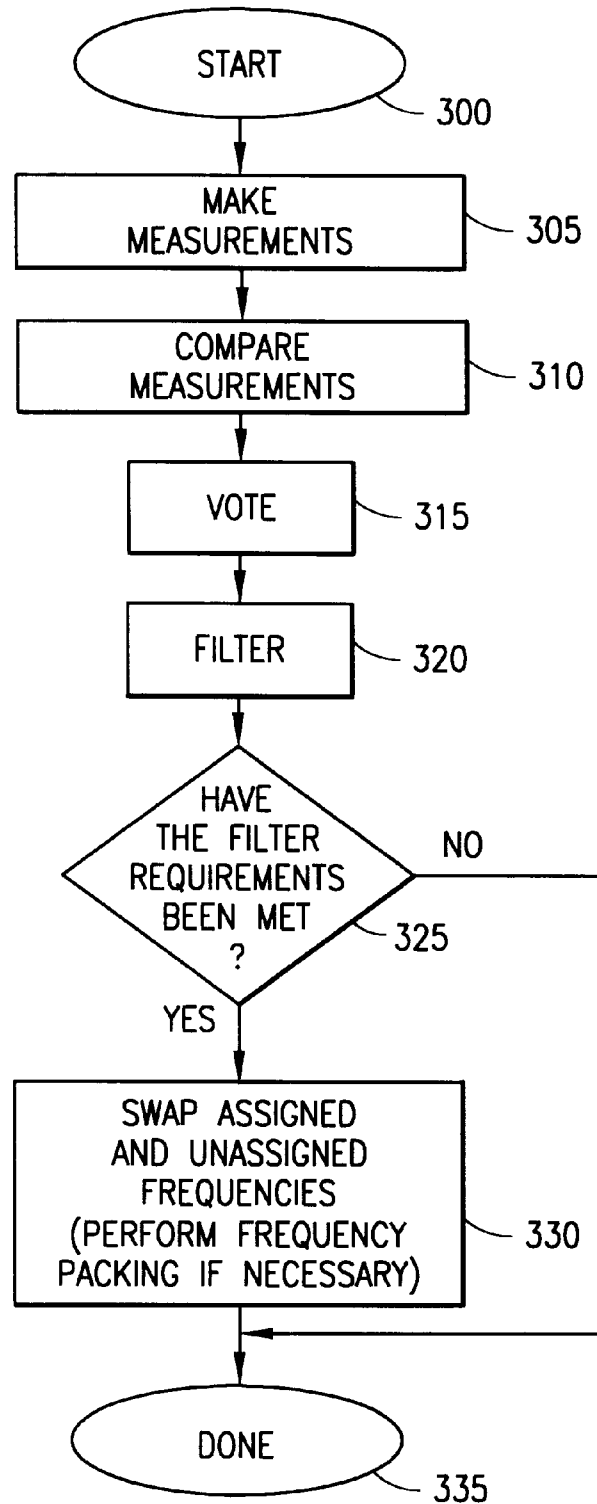


FIG. 3

400 FREQUENCY	405 INTERFERENCE (dBm)	410 USE	415 ASSIGNED
F1		USED	ASSIGNED
F8		USED	ASSIGNED
F15	-117	IDLE	ASSIGNED
F22	-106	IDLE	ASSIGNED
F29	-110		UNASSIGNED
F36	-105		UNASSIGNED
F43	-118		UNASSIGNED
F50	-95		UNASSIGNED

*FIG. 4*

		USED		510 IDLE	
ASSIGNED		F1	F8	F15	F22 ← 505
UNASSIGNED					
F29				-1	+1
F36				-1	-1
515 → F43				-1	+1
F50				-1	-1

500 ↑

Note: +3dB hysteresis added to each unassigned interference measurement before voting

**FIG. 5A**

		F1	F8	F15	F22 ← 505
ASSIGNED					
UNASSIGNED					
F29		+2	-6	+2	-4
F36		-8	-8	-6	-6
515 → F43		+6	+6	+8	+6
F50		-8	-8	-6	-4

500 ↑

**FIG. 5B**

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