United States District Court,
D. Delaware.

ABB AUTOMATION INC,
Plaintiff.
v.
SCHLUMBERGER RESOURCE MANAGEMENT SERVICES, INC,
Defendant.

No. Civ.A. 01-077-SLR

March 27, 2003.

MEMORANDUM ORDER

ROBINSON**, J.**

At Wilmington this 27th day of March, 2003, having heard oral argument and having reviewed papers submitted in connection therewith;

IT IS ORDERED that the disputed claim language in United States Patent Nos. 5,469,049; 5,631,554; 5,010,335; 4,509,128; and 4,697,180 as identified by the above referenced parties, shall be construed as follows, consistent with the tenets of claim construction set forth by the United States Court of Appeals for the Federal Circuit: FN1

FN1. The court notes that claim construction is not final until judgment is entered. The parties in the case at bar have provided no framework for the court to determine the proper claim construction. If, on a more developed record, the court finds the current claim construction to be in error, the claims will be re-construed accordingly.

A. The '049 and '554 Patents

Plaintiff argues that the numerous "logic for" claim elements in the '049 and '554 patents are means-plus-function clauses. The court begins with the rebuttable presumption that "logic for" is not a means-plus-function clause. *See* Watts v. XL Systems, Inc ., 232 F.3d 877, 880-81 (Fed.Cir.2000). The presumption that s. 112, paragraph 6 does not apply can be rebutted by showing that the claim limitation recites a function without reciting sufficient structure for performing that function. *See* id. at 880. Plaintiff asserts that "logic" does not recite specific structure. The court agrees. The court finds that "logic" does not recite sufficient structure to avoid means-plus-function analysis.

Each of the "logic for" claim limitations of the '049 and '554 patents relate to a processor programmed to perform a specific function. These claim limitations will be construed pursuant to the Federal Circuit's

guidance in WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339, 1349 (Fed.Cir.1999).

1. "Means for Ascertaining Current and Voltage Information from a Multi-phase Electrical System Metered Thereby."

Defendant argues that this preamble is not limiting and, therefore, does not need to be construed. This argument has no merit. The antecedent basis for the "said multi-phase electrical system" is within the preamble. The preamble is essential to understanding limitations in the claim body and, thus, limits the claim scope.

This claim limitation is in means-plus-function format. The claimed function is "ascertaining current and voltage information from a multi-phase electrical system." The corresponding structure is the voltage analog-to-digital converter 26, the current analog-to-digital converter 28, conventional current and voltage sensing elements and a processor programmed to ascertain current and voltage information from a multi-phase electrical system, and structural equivalents. ('049 patent, col. 4, l. 19-col. 5, l. 30)

2. "First Logic for Periodically Performing a Preselected Set of Diagnostic Tests on Said Multi-phase Electrical System and Recording Any Errors Detected Therefrom."

The claimed function is "periodically performing a preselected set of diagnostic tests on the multi-phase electrical system and recording any errors detected therefrom." The corresponding structure is a processor programmed to periodically perform a preselected set of diagnostic tests on the multi-phase electrical system and recording any errors detected therefrom, and structural equivalents. ('049 patent, col. 4, ll. 38-45; col. 5, ll. 23-30)

3. "Logic for Designating a Base Phasor, and Determining the Phase Angle theta For Each of the Phasors in Said Multi-phase Electrical System Relative to the Base Phasor."

This claim limitation is in means-plus-function format. The claimed function is "designating a base phasor, and determining the phase angle 0 for each of the phasors in the multi-phase electrical system relative to the base phasor." The corresponding structure is a processor programmed to designate a base phasor, and determining the phase angle (theta) for each of the phasors in the multi-phase electrical system relative to the base phasor, and structural equivalents. ('049 patent, col. 4, ll. 38-45; col. 5, ll. 23-30)

4. "Logic for Calculating for Each Phase a Voltage Phasor, a Current Phasor, and a Phase Angle for Each Voltage Phasor and Each Current Phasor Relative to a Selected Base Phasor."

This claim limitation is in means-plus-function format. The claimed function is "calculating for each phase a voltage phasor, a current phasor, and a phase angle for each voltage phasor and each current phasor relative to a selected base phasor." The corresponding structure is a processor programmed to calculate for each phase a voltage phasor, a current phasor, and a phase angle for each voltage phasor and each current phasor relative to a selected base phasor, and structural equivalents. ('049 patent, col. 4, ll. 38-45; col. 5, ll. 23-30)

5. "Logic for Calculating for Each Phase a Voltage, a Current, and a Phase Angle for Each Voltage and Each Current for Each Phase Relative to a Preselected Base Phasor."

This claim limitation is in means-plus-function format. The claimed function is "calculating for each phase

a voltage, a current, and a phase angle for each voltage and each current for each phase relative to a preselected base phasor." The corresponding structure is a processor programmed to calculate for each phase a voltage, a current, and a phase angle for each voltage and each current for each phase relative to a preselected base phasor, and structural equivalents. ('049 patent, col. 4, ll. 38-45; col. 5, ll. 23-30)

6. "Logic for Periodically Measuring the Instantaneous RMS Current for Each Phase and Comparing it to a Predefined Current Value."

This claim limitation is in means-plus-function format. The claimed function is "periodically measuring the instantaneous RMS current for each phase and comparing it to a predefined current value." The corresponding structure is a processor programmed to periodically measure the instantaneous RMS current for each phase and comparing it to a predefined current value, and structural equivalents. ('049 patent, col. 4, ll. 38-45; col. 5, ll. 23-30)

7. "Logic for Automatically Periodically Performing a Preselected Test of Meter Checks and Recording Any Errors Detected Therefrom."

This claim limitation is in means-plus-function format. The claimed function is "automatically periodically performing a preselected test of meter checks and recording any errors detected therefrom." The corresponding structure is a processor programmed to automatically periodically perform a preselected test of meter checks and recording any errors detected therefrom, and structural equivalents. ('554 patent, col. 5, ll. 10-17; col. 5, 11. 60-67)

8. "Logic for Automatically Periodically Performing a Preselected Series of System Diagnostics Tests and Recording Any Results Which Exceed Predefined Thresholds."

This claim limitation is in means-plus-function format. The claimed function is "automatically periodically performing a preselected series of system diagnostics tests and recording any results which exceed predefined thresholds." The corresponding structure is a processor programmed to automatically periodically perform a preselected series of system diagnostics tests and recording any results which exceed predefined thresholds, and structural equivalents. ('554 patent, col. 5, 11. 10-17; col. 5, 11. 60-67)

9. "Logic for Automatically Determining the Type of Electrical Service in Which the Meter Is Installed."

This claim limitation is in means-plus-function format. The claimed function is "automatically determining the type of electrical service in which the meter is installed." The corresponding structure is a processor programmed to automatically determine the type of electrical service in which the meter is installed, and structural equivalents. ('554 patent, col. 5, 11. 10-17; col. 5, 11. 60-67)

10. "Logic for Automatically Determining the Type of Polyphase Electrical System in Which a Meter Including the System Checking and Troubleshooting Package Is Installed."

This claim limitation is in means-plus-function format. The claimed function is "automatically determining the type of polyphase electrical system in which a meter including the system checking and troubleshooting package is installed." The corresponding structure is a processor programmed to automatically determine the type of polyphase electrical system in which a meter including the system checking and troubleshooting package is installed, and structural equivalents. ('554 patent, col. 5, 11. 10-17; col. 5, 11. 60-67)

11. "Logic for Ascertaining Voltage Information from the Polyphase Electrical System Metered Thereby."

This claim limitation is in means-plus-function format. The claimed function is "ascertaining voltage information from the polyphase electrical system metered thereby." The corresponding structure is a processor programmed to ascertain voltage information from the polyphase electrical system metered thereby, and structural equivalents. ('554 patent, col. 5, 11. 10-17; col. 5, 11. 60-67)

12. "Periodically."

The court shall apply the ordinary definition of the word "periodically." Thus, the term "periodically" shall be construed to mean "taking place now and then; intermittent." FN2

FN2. *The American Heritage Dictionary,* 923 (second college edition 1982).

13. "Recording Any Errors."

The court shall apply the ordinary definition of the words "recording" and "any." The term "recording" means "to set down for preservation in writing or other permanent form." FN3 The term "any" means "the whole amount of; all." FN4 Thus, the phrase "recording any errors" means "to set down for preservation all errors."

FN3. *The American Heritage Dictionary,* 1034 (second college edition 1982).

FN4. *The American Heritage Dictionary,* 117 (second college edition 1982).

14. "Cross Phase Check."

As defined in the patent, the term "cross phase check" means "to check for voltage from one phase being incorrectly wired to the current from a different phase." ('049 patent, col. 6, 11. 38-42)

15. "Display Means for Displaying the Error Messages Identifying Any Errors Discovered in Said Multi-phase Electrical System Diagnostic Tests Performed During a Predefined Period.

This claim limitation is in means-plus-function format. The claimed function is "displaying the error messages identifying any errors discovered in the multi-phase electrical system diagnostic tests performed during a predefined period." The corresponding structure is a liquid crystal display, and structural equivalents. ('049 patent, col. 4, 11. 52-53)

16. "Display Means for Displaying Error Messages Identifying One or More Errors Discovered as a Result of the Meter Checks Performed During a Predefined Period."

This claim limitation is in means-plus-function format. The claimed function is "displaying error messages identifying one or more errors discovered as a result of the meter checks performed during a predefined

period." The corresponding structure is a liquid crystal display, and structural equivalents. ('554 patent, col. 5, 11. 23-24)

17. "Display Means for Displaying Diagnostic Messages Identifying Any Errors Discovered as a Result of the System Diagnostics Tests Performed During a Predefined Period."

This claim limitation is in means-plus-function format. The claimed function is "displaying diagnostic messages identifying any errors discovered as a result of the system diagnostics tests performed during a predefined period." The corresponding structure is a liquid crystal display, and structural equivalents. ('554 patent, col. 5, 11. 23-24)

B. The '335 Patent

1. "Systems"

The court shall apply the ordinary definition of the word "system" in the relevant art. The term "system" shall be construed to mean "an integrated assemblage of hardware and/or software elements operating together to accomplish a prescribed end purpose." FN5

FN5. *The Illustrated Dictionary of Electronics* (7th ed.1997).

2. "Multiplexor"

The court shall apply the ordinary definition of the word "multiplexor" in the relevant art. The term "multiplexor" shall be construed to mean "a device that allows the interleaving of two or more signals to a single line." FN6

FN6. *IEEE Standard Dictionary of Electrical and Electronics Terms,* 430 (2d ed.1978); *see also* F. Hill & G. Peterson, *Introduction to Switching Theory & Logical Design* 196 (3d ed.1981) (a multiplexor "select[s] one of several inputs to connect to a single output line."); M. Mano, *Digital Design* 173 (2d ed. 1991) ("A digital multiplexor is a combinational circuit that selects binary information from one of many input lines and directs it to a single output line.").

3. "Timing Means Responsive to Actuation of [S]aid Magnetic Reed Switch for Switching Said Multiplexer Circuit to Select the Data Lines of Said Selected One of Said Electronic Systems for a Predetermined Time Period ... [and] is operative to Switch Back to a Default One of Said Electronic Systems after Expiration of Said Predetermined Time Period."

4. "Timing Means Responsive to Actuation of Said Magnetic Reed Switch for Switching Said Multiplexer Circuit to Select the Data Lines of Said Selected One of Said Electronic Systems for a Predetermined Time Period, and Thereafter to Switch Back to a Default One of Said Electronic Systems after Expiration of Said Predetermined Time Period."

These claim limitations are in means-plus-function format. The claimed function is "switching the multiplexer circuit to select the data lines of the selected one of the electronic systems for a predetermined time period, and thereafter to switch back to a default one of the electronic systems after expiration of the

predetermined time period." The timing means must be responsive to actuation of the magnetic reed switch. The corresponding structure is a Monostable/Timer circuit, and structural equivalents. ('335 patent, col. 2, 11. 48-50)

C. The '128 Patent

Many of the means-plus-function claim limitations in the '128 patent relate to a microprocessor programmed to perform a specific function. These claim limitations will be construed pursuant to the Federal Circuit's guidance in WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339, 1349 (Fed.Cir.1999).

1. Computing Means: "Means, Responsive to Power Consumed from Said Mains, for Computing Values of Electrical-power Demand over a Succession of Demand-monitoring Intervals."

This claim limitation is in means-plus-function format. The claimed function is "computing values of electrical-power demand over a succession of demand-monitoring intervals." The computing means must be responsive to power consumed from the mains. The corresponding structure is a microprocessor and the corresponding structure of the sensing means, defining means, accumulating means and generating means, and structural equivalents. ('128 patent, col. 86, 11. 35-51)

2. Sensing Means: "Sensing Means for Providing Pulses at a Rate Substantially Proportional to Consumption of Electrical Energy in Said Mains."

This claim limitation is in means-plus-function format. The claimed function is "providing pulses at a rate substantially proportional to consumption of electrical energy in the mains." The corresponding structure is the optoelectronic pulse generator 148 acting in concert with the eddy-current induction motor 166, and structural equivalents. ('128 patent, col. 8, 11.31-32; '128 patent, fig. 1)

3. Defining Means: "Means for Defining Said Succession of Demand-monitoring Intervals in Accordance with the Frequency of the Alternating-current Mains."

This claim limitation is in means-plus-function format. The claimed function is "defining the succession of demand-monitoring intervals in accordance with the frequency of the alternating-current mains." This means-plus-function clause relates to a microprocessor programmed to perform a specific function. The corresponding structure is a circuit comprised of the microprocessor 100 and the nonvolatile read/write memory 152 programmed to define the succession of demand-monitoring intervals in accordance with the frequency of the alternating-current mains, and structural equivalents. ('128 patent, col. 5, 11. 30-35; col. 11, 11. 50-55)

4. Accumulating Means: "Means, Responsive to Said Sensing Means and Said Defining Means, for Accumulating Said Pulses Generated During Each Said Demand-monitoring Interval."

This claim limitation is in means-plus-function format. The claimed function is "accumulating the pulses generated during each demand-monitoring interval." The means must be responsive to the sensing means and the defining means. This means-plus-function clause relates to a microprocessor programmed to perform a specific function. The corresponding structure is a microprocessor and associated memory programmed to accumulate the pulses generated during each demand-monitoring interval, and structural equivalents.

5. Generating Means: "Means, Responsive to Said Accumulating Means, for Generating Said Demand-monitoring Interval Values of Electrical-power Demand."

This claim limitation is in means-plus-function format. The claimed function is "generating the demand-monitoring interval values of electrical-power demand." The means must be responsive to the accumulating means. This means-plus-function clause relates to a microprocessor programmed to perform a specific function. The corresponding structure is the microprocessor 100 programmed to generate the demand-monitoring interval values of electrical-power demand, and structural equivalents.

6. Determining Means: "Means, Responsive to Said Computing Means, for Determining a Maximum Demand-monitoring Interval Value of the Electrical-power Demand."

This claim limitation is in means-plus-function format. The claimed function is "determining a maximum demand-monitoring interval value of the electrical-power demand." The means must be responsive to the computing means. This means-plus-function clause relates to a microprocessor programmed to perform a specific function. The corresponding structure is the microprocessor 100 programmed to determine a maximum demand-monitoring interval value of the electrical-power demand, and structural equivalents.

7. Nonvolatile Read/Write Memory Means: "Nonvolatile Read/write Memory Means, Responsive to Said Determining Means, for Storing Said Maximum Demand-monitoring Interval Value Even When Said Memory Means Is Deenergized."

This claim limitation is in means-plus-function format. The claimed function is "storing the maximum demand-monitoring interval value even when the memory means is deenergized." The means must be responsive to the determining means. The '128 patent requires subroutine 1100 to be "followed when data is to be read from or written into nonvolatile read/write memory 152[.]" ('128 patent, col. 25, 11. 35-37) Subroutine 1100 is shown in figure 11. The corresponding structure is the nonvolatile memory 152 and the microprocessor 100 programmed with the logic in figure 11, and structural equivalents.

8. "First Pulse Generating Means, Responsive to Power Consumed from Said Mains, for Generating First Pulses at a Rate Substantially Proportional to Consumption of Electrical Energy from Said Mains."

This claim limitation is in means-plus-function format. The claimed function is "generating first pulses at a rate substantially proportional to consumption of electrical energy from the mains." The means must be responsive to power consumed from the mains. The corresponding structure is the optoelectronic pulse generator 148 acting in concert with the eddy-current induction motor 166, and structural equivalents. ('128 patent, col. 8, 11. 31-32; '128 patent, fig. 1)

9. "Second Pulse Generating Means for Generating Second Pulses at a Rate in Accordance with the Frequency of the Alternating-current Mains."

This claim limitation is in means-plus-function format. The claimed function is "generating second pulses at a rate in accordance with the frequency of the alternating-current mains." The corresponding structure is the power supply 156, and structural equivalents. ('128 patent, col. 9, 11. 49-59)

10. "Microprocessor Means, Coupled to Said First and Second Pulse-generating Means, for Defining

Successive Demand-monitoring Intervals, for Calculating a Numerical Value Indicative of the Power Demand Made During Each Successive Demand-monitoring Interval, and for Determining a Maximum Numerical Value Indicative of the Power Demand."

This claim limitation is in means-plus-function format. The claimed function is "defining successive demand-monitoring intervals, for calculating a numerical value indicative of the power demand made during each successive demand-monitoring interval, and for determining a maximum numerical value indicative of the power demand." This means-plus-function clause relates to a microprocessor programmed to perform a specific function. The corresponding structure is a circuit comprised of the microprocessor 100 and the nonvolatile read/write memory 152 programmed to define successive demand-monitoring intervals, for calculating a numerical value indicative of the power demand made during each successive demand-monitoring interval, and for determining a maximum numerical value indicative of the power demand, and structural equivalents. ('128 patent, col. 5, 11. 30-35; col. 11, 11. 50-55)

11. Pulse-initiator Means, Coupled to Said Microprocessor Means, for Providing Energy Pulses at a Rate Proportional to Each of Said Numerical Values.

This claim limitation is in means-plus-function format. The claimed function is "providing energy pulses at a rate proportional to each of the numerical values." This means-plus-function clause relates to a microprocessor programmed to perform a specific function. The corresponding structure is the microprocessor 100 programmed to provide energy pulses at a rate proportional to each of the numerical values, and structural equivalents.

12. Nonvolatile Read/write Memory Means, Coupled to Said Microprocessor Means, for Storing, Even When Deenergized, Said Maximum Numerical Value.

This claim limitation is in means-plus-function format. The claimed function is "storing, even when deenergized, the maximum numerical value." The '128 patent requires subroutine 1100 to be "followed when data is to be read from or written into nonvolatile read/write memory 152[.]" ('128 patent, col. 25, 11. 35-37) Subroutine 1100 is shown in figure 11. The corresponding structure is nonvolatile 152 and the microprocessor 100 programmed with the logic in figure 11, and structural equivalents.

D. The '180 Patent

1. A System for Accumulating Energy Demand Data from an Electricity Meter.

The court finds this preamble is not limiting and, thus, no construction is required.

2. Memory Means for Storing Demand Data Accumulated During Predetermined Time Intervals.

This claim limitation is in means-plus-function format. The claimed function is "storing demand data accumulated during predetermined time intervals." The corresponding structure is random access memory associated with a microprocessor or separate memory chips, and structural equivalents. ('180 patent, col. 6, ln. 64-col. 7, ln. 10)

3. Means for Transmitting Stored Demand Data from Said Memory Means to a Central Computer over a Telephone Line at Periodic Time Intervals.

This claim limitation is in means-plus-function format. The claimed function is "transmitting stored demand

data from the memory means to a central computer over a telephone line at periodic time intervals." The corresponding structure is the modem 56 controlled by the microprocessor 38, and structural equivalents. ('180 patent, col. 7, 11. 33-39)

4. Command Means for Receiving Control Commands from a Central Computer over Said Telephone Line, Said Command Means Comprising Telephone Ring Detecting Means for Detecting a Ringing Condition on Said Telephone Line, and Means Responsive to Said Ringing Condition for Answering Said Telephone Line Only after Said Ringing Condition Has Continued for a Predetermined Length of Time.

This claim limitation is in means-plus-function format. The claimed function is "(1) receiving control commands from a central computer over the telephone line; (2) detecting a ringing condition on the telephone line; and (3) answering the telephone line only after the ringing condition has continued for a predetermined length of time." The corresponding structure is a telephone modem providing a ring detect output and the microcomputer 38 programmed with the logic in figure 11, and structural equivalents. ('180 patent, col. 15, ln. 39-col. 16 ln. 48)

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