DECLARATION OF DR. STEPHEN HEPPE REGARDING '732 PATENT

1. I offer this Declaration on behalf of Petitioner Emerson, in regard to my opinions regarding the issues discussed herein.

I. Scope of Declaration, Summary of Opinion, and Background

2. I have been asked to provide my analysis and opinion regarding certain issues raised in the Patent Owner's Response and the Declaration of Dr. Almeroth.

3. I have previously provided information regarding my qualifications and experience, my opinion regarding the level of ordinary skill associated with the '732 Patent, and the meaning of certain claim terms used in the asserted claims. This information, and these opinions, are unchanged.

II. Opinions

4. Both Patent Owner ("PO") and Dr. Almeroth attempt to distinguish the '732 Patent over the prior art by, in part, distinguishing between "function code" and "address". See, e.g., PO Response pp. 21-27, Almeroth Declaration ¶¶ 128-143. As I understand the argument presented, it appears that PO and Dr. Almeroth associate the term "address", as used in the '732 Patent, with the address or ID of a transceiver. They argue that this is different from a "function code" as used in the '732 Patent, and therefore, a "function address" as used in the prior art

(e.g., Burchfiel or Kahn) cannot be the claimed "function code".

5. In my experience, persons of skill in the art sometimes use different terms to describe the same concept, and the ability of different researchers to describe a process in similar but not identical terms is well-understood.

6. Here, the linguistic and logical flaw (in the argument put forward by PO and Dr. Almeroth) due to treating language as inflexible is clear based on the simple fact that "address", as used in Burchfiel in relation to the function field, is not a "transceiver address". So it is immediately clear that the narrow definition of "address", as put forward by PO and Dr. Almeroth, is incorrect at least as it relates to Burchfiel.

7. Both "code" and "address" are general terms which can also substitute for "ID", "label", or "index" in some contexts. A POSITA will recognize compound terms such as e.g. "ID code", "memory address", "row/column address (index)", "function name", and "function label". All of these are "identifiers". In the '732 Patent, a "function code" is an identifier for a function such as "on/off", "temperature set", or "actual temperature". See, e.g., '732 Patent, FIG. 3D. Some functions may require an "argument" or "data field". For example, the "temperature set" function would typically require a data value, in addition to the

function code itself, to specify the desired temperature.[1] In operation, the function code may cause a processor to "branch" to a particular subset of code (associated with the indicated function), stored in a particular subset of memory, starting with a particular memory address. For example, a function code indicating "temperature set" might branch to a particular starting address in memory, which is the start of a subset of code which instructs the processor on how to actually set a temperature. In order to determine the proper starting address, the processor could compare the function code to a list of known function codes, the list indicating the starting addresses of particular subsets of software stored in memory. This is an example of "indirect addressing".

8. The '732 patent describes the "function code" as a code corresponding to an event that occurred, or a condition, or a function to be performed by a device or controller receiving the code. For example, the '732 patent states that a "[u]nique transmitter identification code 326 coupled with ***a function code for a smoke alarm on condition*** is formatted by data controller 324 for transformation into a RF signal …." *Id*., 9:46-50. In a similar vein, in the originating

[1] At least the "temperature set" and "actual temperature" functions, listed in FIG. 3D, require an auxiliary data field, since the unary codes 1 and 3 cannot specify one of a plurality of temperatures. The "on/off" and "air/heat" functions could be implemented as "toggles" to avoid the need for an auxiliary data field; however, a POSITA would recognize that this would require knowledge of "state" on the part of the commanding system. This could be avoided by including an auxiliary data field for these functions as well. The '732 Patent does not describe how any of these auxiliary data fields are to be supported.

transmitter/transceiver, the '732 patent explains that "[l]ookup table 325 may be provided to assign a given and unique function code for each button pressed." '732 at 9:11-13. The '732 patent also explains that, at the gateway, "[a]nother look up table may be used to associate function codes with the interpretation thereof. For example, a unique code may be associated by a look up table to identify functions such as test, temperature, smoke alarm active, security system breach, etc." *Id.*, 11:47-51. The look-up tables are stored in memory. *Id.*, 11:42-44.

9. In Burchfiel, the "function field" contains an "address" of a particular control process, which is a unique label, or ID, that "selects" the indicated process. Burchfiel, p. 247. I also addressed the use of a "function field" in relation to Burchfiel during my deposition (54:21 – 58:10). This is the same functionality as required in the '732 Patent for the "function code". Just as the "function codes" of the '732 differentiate various functions, and can be used as an index to select a particular function (e.g., in a lookup table), the "function field" of Burchfiel differentiates various functions, and can be used as an index or identifier to "select" a particular function.

10. Therefore, it is my opinion that the "address" provided by Burchfiel's "function field" satisfy the requirements of a "function code".

11. The PO, at pp. 25-26 of PO Response, states that Petitioner has failed to explain why one would have stored function codes in Kahn's radio or would

have modified Kahn's radio to transmit function codes. But, as a POSITA would understand, the reasoning is clear from the prior discussion. In regard to the first point (storing the function codes in memory), a POSITA would understand that the function code is simply a string of characters that has no meaning unless it can be interpreted. One obvious way to interpret a function code is to compare it with a list of known function codes which allows the processor to "select" the associated functionality (e.g., through indirect addressing to a particular subset of memory associated with the function). The function codes must be stored in memory so that the "incoming" function code can be compared to the known function codes (stored in memory) in order to support the functional selection (redirection or indirect addressing to specific software functionality).

12. As to the second point (transmitting function codes), if this is not already inherent in Kahn (i.e., since Kahn can report error conditions), it would have been obvious to a POSITA in view of Burchfiel. Burchfiel transmits a "function field" in order to select, e.g., a "command" process or a "measurement" process. Burchfiel at 247. It would have been obvious to a POSITA to transmit Burchfiel's "function fields" in order to control the devices to implement command or measurement processes, for example, in a selective manner.

13. The HART specifications provide additional information about function codes that can be exchanged between a master station (such as Kahn's

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