UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FieldComm Group,
Petitioner,

v.

Sipco, LLC,
Patent Owner.

Patent No. 7,697,492

Issue Date: April 13, 2010

Title: Systems And Methods For Monitoring And Controlling Remote Devices

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PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT 7,697,492 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.100 ET SEQ.

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TABLE OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 7,697,492 (issued April 13, 2010), *Systems And Methods For Monitoring And Controlling Remote Devices.*
1002	Kantronics KPC-3 – Users Guide, 1997 ("Kantronics")
1003	AX.25 Amateur Packet-Radio Link-Layer Protocol, Version 2.0, October 1984 ("AX.25 Protocol")
1004	U.S. Patent No. 5,279,305 to Zimmerman, *et al.* ("Zimmerman")
1005	Expert Declaration of Fred Goldstein ("Expert Decl.")
1006	Claim Construction Opinion Filed July 30, 2012 in the case of *SIPCO, LLC v. ABB, INC., et al,* Civil Action No. 6:11-CV-0048 LED-JDL.
1007	Presentation Re: Inter Partes Review of U.S. Patent No. 7,697,492
1008	Curriculum Vitae of Fred Goldstein

I. COMPLIANCE WITH REQUIREMENTS FOR A PETITION FOR *INTER* PARTES REVIEW

A. Notice of Real Party in Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), notice is hereby given that the real parties-in-interest in this petition are FieldComm Group ("Petitioner") and HART Communication Foundation.

B. Notice of Related Matters

U.S. Patent No. 7,697,492 (the '492 Patent) (Ex. 1001) are asserted against the following parties: *Emerson Electric Co. et al v. SIPCO LLC et al*, No 1:13-CV-02528 (N.D. Ga, July 31, 2013); *SIPCO, LLC v. Comcast Corp. et al*, No 9:11-CV-80999 (S.D. Fl, Sept. 6, 2011); *SIPCO, LLC v. ADT Security Services et al*, No 9:11-CV-80521 (S.D. Fl, May 6, 2011); *SIPCO, LLC v. Control4 Corp. et al*, No 1:11-CV-00612 (N.D. Ga, Feb. 28, 2011); *SIPCO, LLC v. ABB et al*, No 6:11-CV-00048 (E.D. Tx, Jan. 31, 2011); *SIPCO, LLC v. Energate, Inc. et al*, No 6:10-CV-00533 (E.D. Tx, Oct. 7, 2010); *Siemens Industry, Inc v. SIPCO, LLC.*, 1:10-CV-02478 (N.D. Ga, Aug. 9, 2010); *SIPCO, LLC v. Control4 Corp. et al*, No 6:10-CV-00249 (E.D. Tx, May 11, 2010); *SIPCO, LLC v. Amazon.com, Inc. et al*, No 2:08-CV-00359 (E.D. Tx, Sept. 19, 2008)

Petitioner is also seeking *inter partes* review of related U.S. Patent No. 6,437,692 and U.S. Patent No. 7,103,511 which are to similar technologies. If instituted, Petitioner requests that each of the related *inter* partes review proceedings be assigned to the same Board for administrative efficiency.

C. Notice of Lead and Backup Counsel

Pursuant to 37 C.F.R. §§ 42.8(b)(3), (b)(4), and 42.10(a), Petitioner designates the following lead and backup counsel:

Lead Counsel	Backup Counsel
Alfred Zaher (Reg. No. 42,248) alfred.zaher@novakdruce.com NOVAK DRUCE CONNOLLY BOVE + QUIGG LLP Two Logan Square 100 North 18th Street Suite 300 Philadelphia, PA 19103 Telephone: 215.825.5220 Fax: 215.825.5219	Jay Guliano (Reg. No. 41,810) Jay.guiliano@novakdruce.com Ryan Murphy (Reg. No. 66,285) ryan.murphy@novakdruce.com NOVAK DRUCE CONNOLLY BOVE + QUIGG LLP 1875 I (Eye) Street, N.W. Eleventh Floor Washington, D.C. 20006 Telephone: 202.331.7111 Fax: 202.293.6229 Gerald Thomas (Reg. No. 64,464) gerald.thomas@novakdruce.com NOVAK DRUCE CONNOLLY BOVE + QUIGG LLP 555 Mission Street Thirty-Fourth Floor San Francisco, CA 94105 Telephone: 415.814.6161 Fax: 415.814.6165

D. Service Information

Petitioner consents to service by e-mail to the following address: 492FieldCommIPR@novakdruce.com.

E. Grounds for Standing

Petitioner certifies under 37 C.F.R. § 42.104(a) that the patent for which review is requested is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in the petition.

F. Statement of Precise Relief Requested

Petitioner respectfully requests that claims 1-4 and 6-25 of U.S. Patent No. 7,697,492 ("the '492 patent") (Ex. 1001) be cancelled based on the following grounds of unpatentability, explained in detail below.

Ground 1 – Claims 1-4, 6, 8-11, 13-22, and 24-25 are rendered obvious under § 103 by Kantronics in view of AX.25 Protocol.

Ground 2 – Claims 7, 12, and 23 are rendered obvious under § 103 by Kantronics in view of AX.25 Protocol and Zimmerman.

II. RELEVANT INFORMATION CONCERNING THE CONTESTED PATENT

A. Person of Ordinary Skill in the Art

A person of ordinary skill in the art in the field of the '492 patent is a person who has, through formal education or extensive practical experience, the equivalent of a Bachelor's Degree in Electrical Engineering and 2-3 years of experience in using, making, or selling radio communications or computer network systems. *See* Expert Decl. ¶6.

B. Claim Construction

A claim in *inter partes* review is given the "broadest reasonable construction in light of the specification" See 37 C.F.R. § 42.100(b); *see also In re ICON Health and Fitness, Inc.* 496 F.3d 1374, 1379 (Fed. Cir. 2007). For the purposes of this proceeding, the claim terms are presumed to take on their broadest reasonable interpretation in light of the specification. Petitioner provides a more detailed explanation of the broadest reasonable interpretation of certain terms present in the challenged claims in the subsections below. The constructions set forth below are provided for the purposes of this *inter partes* review only and may be different than constructions proposed in litigation forums using a different standard.

1. "scalable address"

The term "scalable address" has been construed as **an address that has a variable size based on the size and complexity of the system** in the Claim Construction Opinion filed July 30, 2012 in the case of *SIPCO, LLC v. ABB, INC., et al,* Civil Action No. 6:11-CV-0048 LED-JDL, and Petitioner hereby agrees with this construction. Ex. 1001, '492 patent, 9:60-61; and Ex. 1006, Claim Construction Order at p. 20.

2. "command indicator"

The term "command indicator" should be construed as **data that indicates a command**. '492 patent, Claim 1.

III. OVERVIEW OF THE '492 PATENT

A. Brief Description

The '492 patent is directed to a system and method for monitoring and controlling remote devices comprising sensors and actuators. '492 patent, Abstract.

Each remote device includes a receiver address, a command code, and a data value within a data message. Further, each remote device includes a controller and a transceiver configured to send and receive these wireless signals. Each remote device is configured to send a message comprising the receiver address, the command code, and the data value via the transceiver other remote devices.

These remote devices may also include sensors associated with the transceivers to detect a condition and output a data signal to the transceiver. Additionally, the remote devices may also include an actuator associated with the transceivers to activate a device.

B. Prosecution History of the '492 Patent

The '492 patent was filed on June 23, 2005. In an Office Action mailed May 2, 2008, claims 15-20 were rejected under 35 U.S.C. 101 for being directed to non-statutory subject matter, and claims 1-13 were rejected under the doctrine of double patenting over claims 1-3, 5-7, 9, 10, 37, 41, and 43 of U. S. Patent No.

6,914,893. Additionally, claims 1, 3, 6, 8, 10, and 13 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 7,227,927 to Benekyk. Claim 14 was objected to as being dependent upon a rejected base claim.

In a Response, on November 2, 2008, the applicant filed a terminal disclaimer to disclaim the terminal part of the statutory term which extends beyond the expiration date of the full statutory term of the prior patent, U.S. Patent No. 6,914,893. Additionally, the applicant amended claims 1, 2, 8, and 10-13; cancelled claims 14-20; and added new claims 21-32. The amended claims added language directed to transceivers and controllers to overcome the prior art rejections. In response, on February 10, 2009, the Office approved the terminal disclaimer, and followed up with a Notice of Allowance on April 8, 2009.

IV. SPECIFIC GROUNDS FOR PETITION

The challenged claims are unpatentable for the reasons set forth in detail below, per 37 C.F.R. § 42.104(b)(4)–(5).

Kantronics was published in 1997 and therefore constitutes prior art under 35 U.S.C. § 102. Kantronics discloses a system for remote data collection, assembly, and storage by way of a packet radio station that includes a transceiver, a terminal node controller (i.e. “TNC”), and a general purpose computer. Kantronics at p. 18. AX.25 Protocol was published in 1984 and therefore constitutes prior art under 35 U.S.C. § 102. AX.25 Protocol discloses the design and use of amateur packet-radio systems in order to ensure link-layer compatibility between stations. AX.25 Protocol at p. ii.

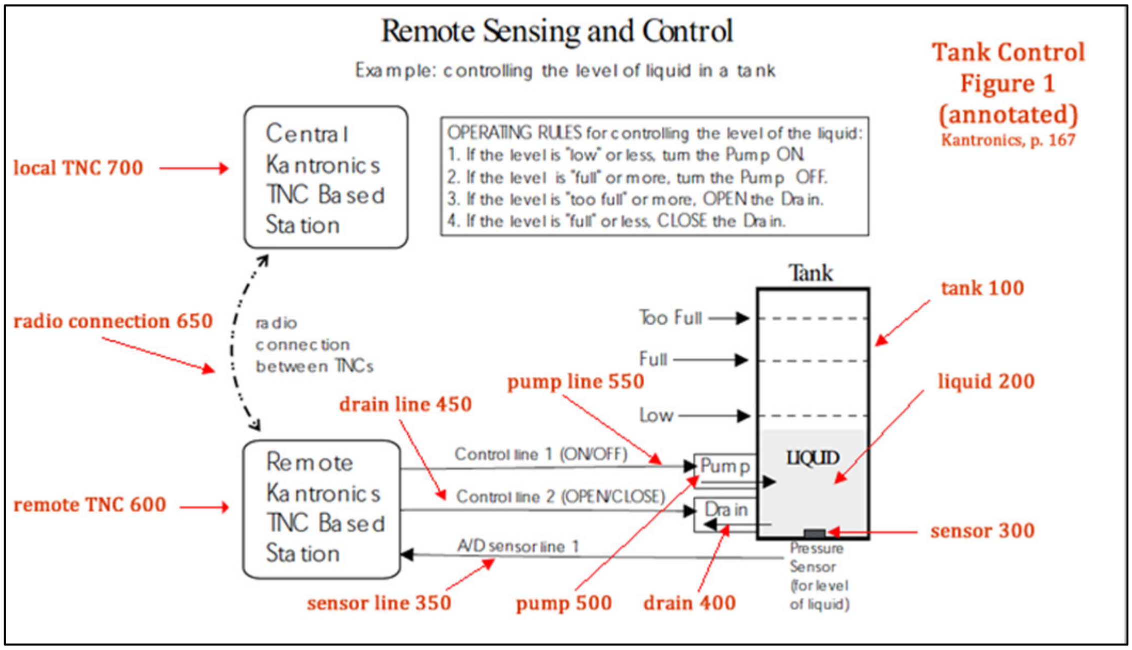
The Kantronics system is a "hardware and software design incorporating the AX.25 Level 2 Version 2 Packet protocol as adopted by the American Radio Relay League." Kantronics at copyright page. A person of ordinary skill in the art would have understood that a system integrating the Kantronics KP-3 Plus relies upon, is intended to use, and does implement the AX.25 Protocol, primarily because Kantronics provides that the hardware and software "incorporates" this protocol. Further, both references are also analogous art in the same field of endeavor because each discloses the use of a packet radio communication design for remote message delivery. *See* Expert Decl. at ¶¶10-15. The packet radio communication systems disclosed in Kantronics and AX.25 Protocol were readily combined to deliver stable and predictable remote communications using packet radio messages. *See* Expert Decl. at ¶¶10-15.

A. Kantronics in view of AX.25 Protocol Renders Obvious Claims 1-4, 6, 8-11, 13-22, and 24-25 of the '492 Patent

<u>Claim 1</u>

[1a] In a communication system to communicate command and sensed data between remote devices, the system comprising:

Kantronics discloses a system for communicating command signals and sensor data between remote devices.

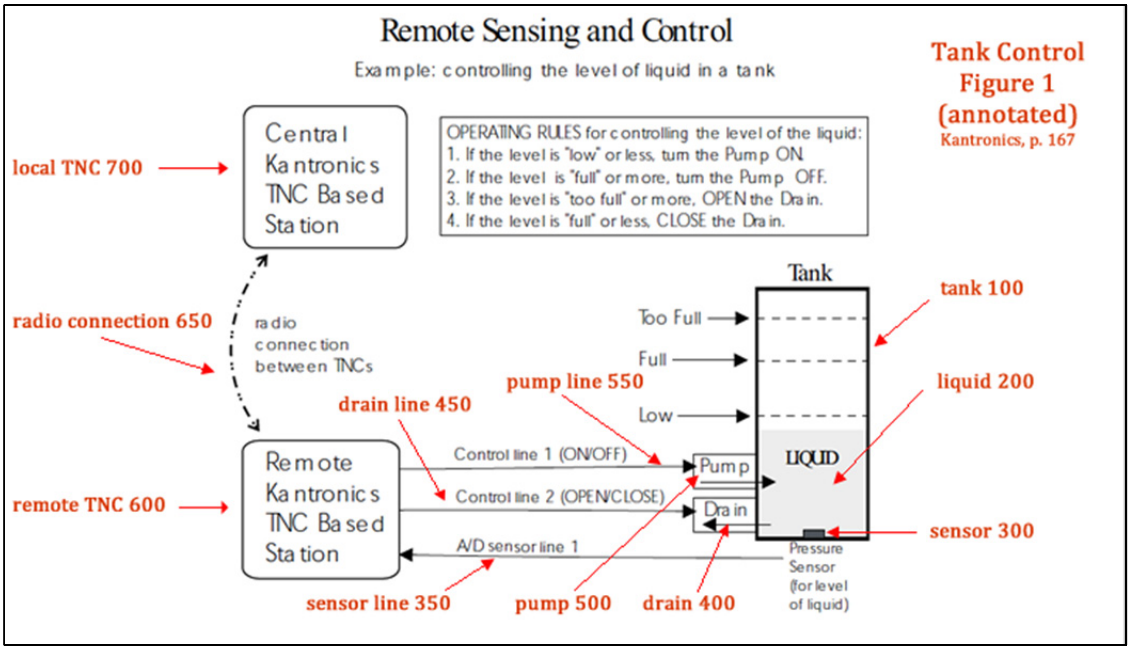


Kantronics at p. 167

As shown in Tank Control Figure 1 above (annotated from Kantronics at p. 167), remote TNC 600 and local TNC 700 communicate via radio connection 650. Remote TNC 600 sends command-based open/close and on/off signals via drain line 450 and pump line 550 to control the operation of tank 100. Sensor-based data is communicated from sensor 300 to remote TNC 600 via sensor line 350.

[1b] a receiver address comprising a scalable address of at least one remote device;

Kantronics discloses a remote device (remote TNC 600) as illustrated in annotated Tank Control Figure 1 below.



Kantronics at p. 167

Remote TNC 600 (remote device) includes a transceiver for handling AX.25 packet radio communications. Kantronics at p. 22. Specific packets, intended to be received by remote TNC 600, are communicated to it using the address of remote TNC 600. Kantronics at p. 22 (AX.25 packets exchanged between stations include "address information (i.e., to, from, via) and other control information"). The AX.25 Protocol specifies that "packet radio transmissions are sent in small blocks of data, called frames. Each frame is made up of several smaller groups, called fields" whereby the "address field is used to identify both the source of the frame and its destination." AX.25 Protocol at p. 2. An example frame is illustrated below. AX.25 Protocol at p. 6.

Frame

Octet	ASCII	Bin.Data	Hex Data
Flag		01111110	7E
A1	K	10010110	96
A2	8	01110000	70
A3	M	10011010	9A
A4	M	10011010	9A
A5	O	10011110	9E
A6	space	01000000	40
A7	SSID	11100000	E0
A8	W	10101110	AE
A9	B	10000100	84
A10	4	01101000	68
A11	J	10010100	94
A12	F	10001100	8C
A13	I	10010010	92
A14	SSID	01100001	61
Control	I	00111110	3E
PID	none	11110000	F0
FCS	part 1	XXXXXXXX	HH
FCS	part 2	XXXXXXXX	HH
Flag		01111110	7E
Bit position		76543210	

Fig. 3A -- Nonrepeater AX.25 frame

AX.25 Protocol at 6

Address Field

First
Octet Sent

Address Field of Frame	
Destination Address	Source Address
A1 A2 A3 A4 A5 A6 A7	A8 A9 A10 A11 A12 A13 A14

Fig. 2 -- Nonrepeater Address-Field Encoding

AX.25 Protocol at 5

Shown above, the address frame of Fig. 3A depicts a destination address of K8MMO (receiver address) in the destination field of octets A1 through A7. Because the destination address K8MMO is only 5 characters, octet A6 includes a space to pad the destination address. Addresses can vary in the number of characters used making them “scalable” as recited in claim 1. AX.25 at pp. 6-7 (if address “contains fewer than six characters, it should be padded with ASCII spaces between the last call sign character and the SSID octet”).

Alternatively, a person of ordinary skill in the art would know that scalable addresses were well known as far back as the 1980's in systems such as OSI. And it would be obvious to a person of ordinary skill in the art to modify AX.25 to include scalable addresses to use an address format other than call signs. *See* Expert Decl. ¶¶16-19.

[1c] a command indicator comprising a command code;

Kantronics discloses a command syntax for issuing commands. Kantronics at p. 178. The syntax includes a command name followed by command parameters. The combination of the command name and the command parameters corresponds to the recited "command indicator." The recited "command code" is the Kantronics command name. Generally, the command name specifies certain actions. Specifically, one particular command name "CTRL" "causes the KPC-3 Plus to activate the specified output line (A or B) to the radio port as indicated." Kantronics at p. 199. Further, "to pulse the A output (CTLA) 3 times, you would give the command 'CTRL A 3'. You may optionally specify the number of times to pulse the output (n), or to turn the output ON, or OFF." Kantronics at p. 199. Illustrated as a letter sequence below, the command syntax discloses the recited command indicator as an alphanumeric sequence that includes the command code "CTRL", a further command directive (*e.g.,* "A" or "B"), and additional command data (*e.g.,* "n," "ON," "OFF," or "LONG"):

```
CTRL [A | B] {n | ON | OFF | LONG} (n=1-20)
```

Kantronics at p. 199.

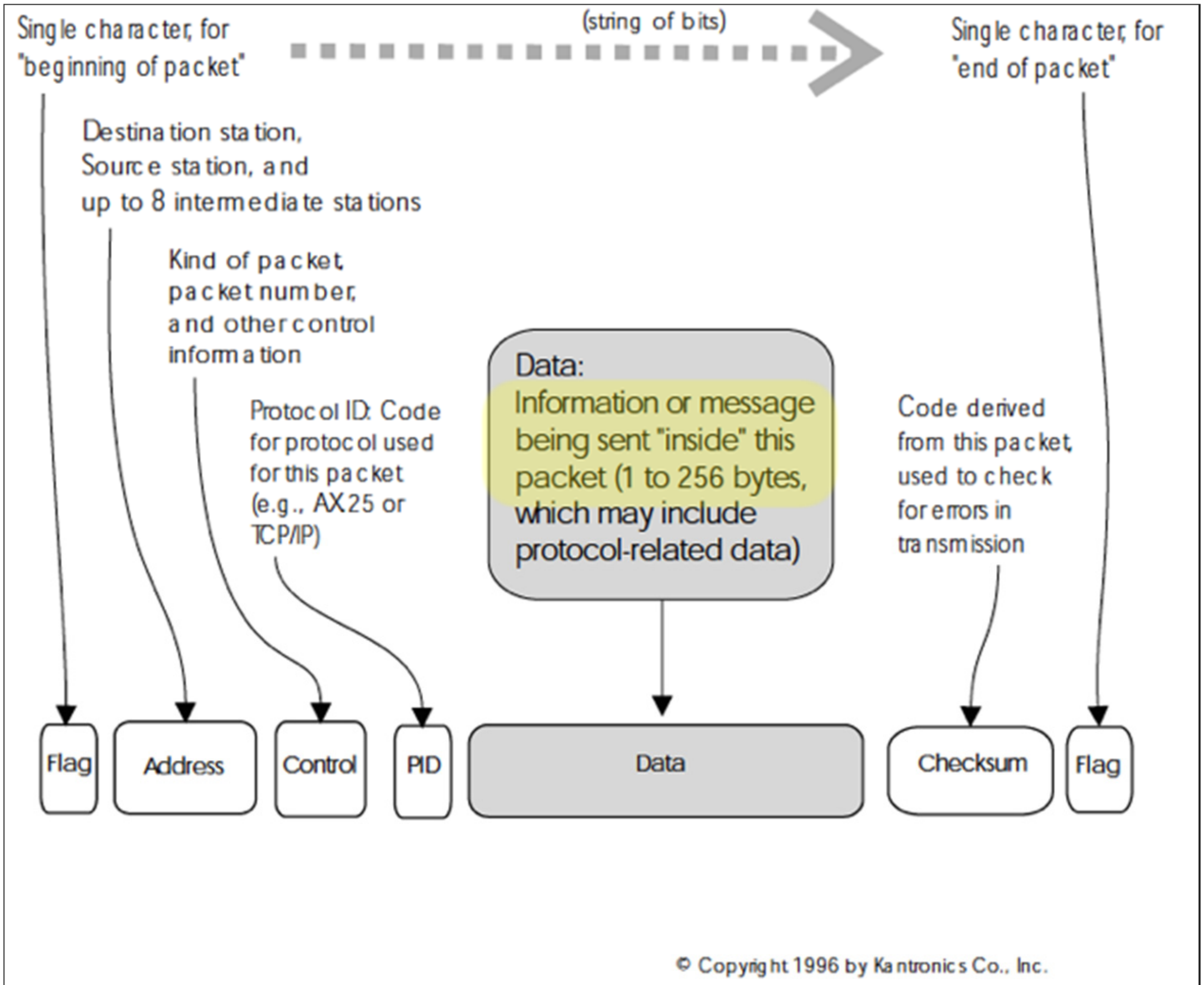
Alternatively, the AX.25 Protocol discloses a command indicator (*e.g.,* "control field bit") comprising a command code (*e.g.,* "control fields"). AX.25 Protocol at pp. 12-13. Specifically, the "control field is responsible for identifying the type of frame being sent, and is also used to convey commands and responses from one end of the link to the other in order to maintain proper link control." AX.25 Protocol at p. 10. Wherein, "Fig. 5 shows the basic format of the field associated with these types of frames." AX.25 Protocol at p. 10.

Control-Field Type	Control-Field Bits 7 6 5	4	3 2	1 0
I Frame	N(R)	P	N(S)	0
S Frame	N(R)	P/F	S S	0 1
U Frame	M M M	P/F	M M	1 1

Fig. 5 -- Control-field formats

AX.25 Protocol at p. 10.

[1d] a data value comprising a scalable message;



The Organization of an AX.25 Connected Information Packet

Kantronics at p. 27.

In the figure above, a data message, scalable from 1 to 256 bytes, is part of the information packet exchanged between TNC stations. As addressed previously, Kantronics discloses data that includes values (*e.g.,* "n," "ON," "OFF," or "LONG") shown below:

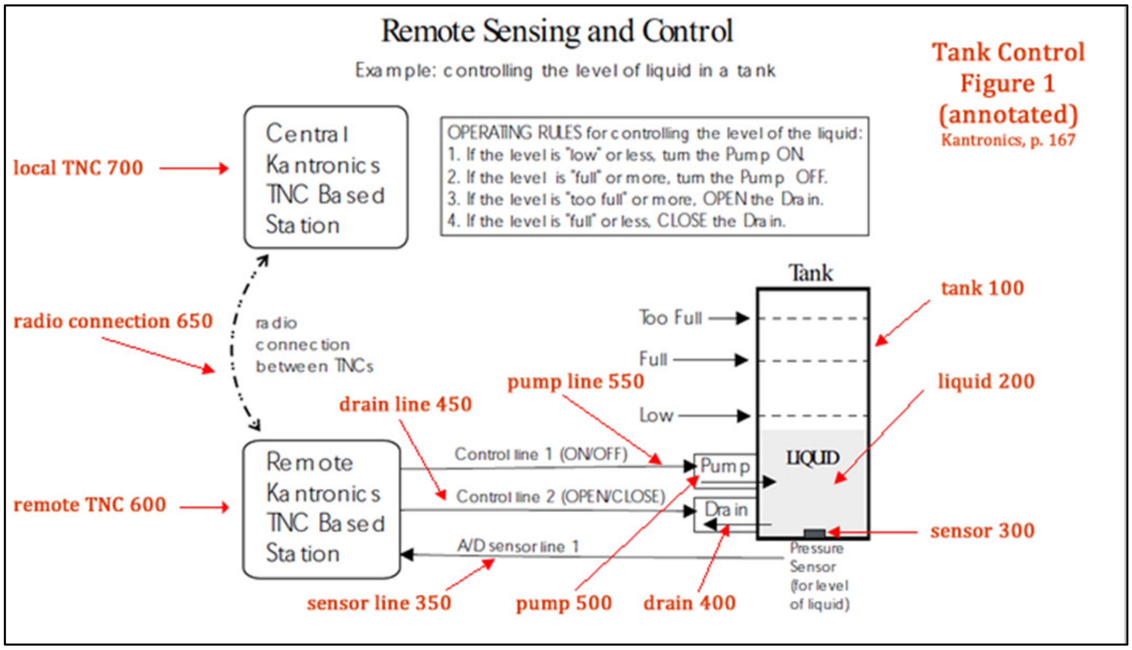
```
CTRL [A | B] {n | ON | OFF | LONG} (n=1-20)
```

Kantronics at p. 199.

Specifically, a user "may optionally specify the number of times to pulse the output (n), or to turn the output ON, or OFF." Kantronics at p. 199. The AX.25 protocol describes how the data field, denoted as a data message in Kantronics, "is used to convey user data from one end of the link to the other." AX.25 Protocol at p. 3. The Data field "can be up to 256 octets long, and shall contain an integral number of octets" and is therefore scalable. AX.25 Protocol at p. 3.

[1e] and a controller associated with a remote wireless device comprising a transceiver configured to send and receive wireless signals,

Kantronics discloses a controller associated with a remote wireless device (local TNC 700) as illustrated in annotated Tank Control Figure 1 below:

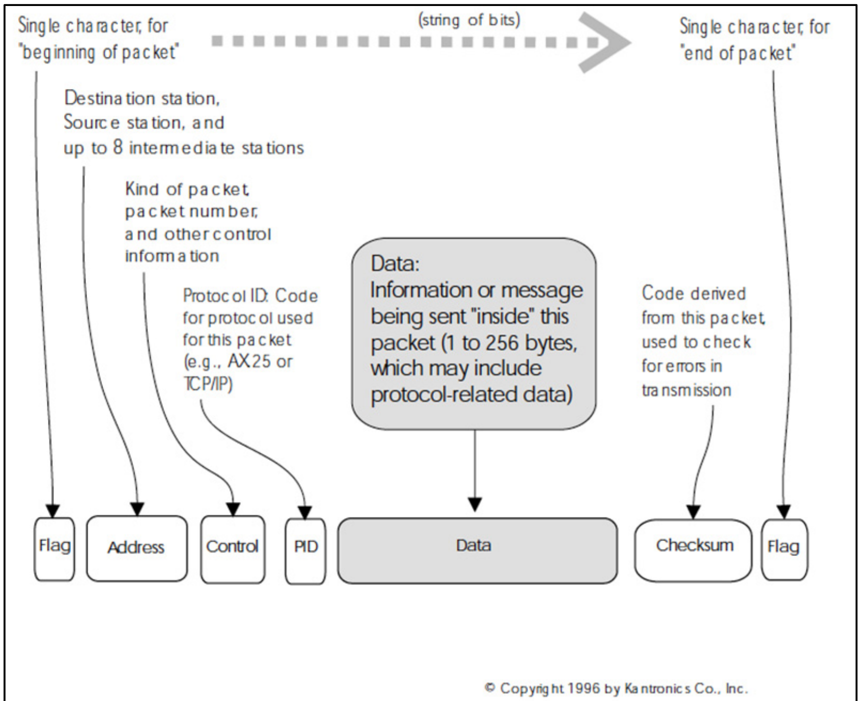


Kantronics at p. 167

Further, the remote wireless device (remote TNC 700) includes a transceiver that communicates via wireless signals, illustrated as radio connection 650 in the figure above. Kantronics at pp. 19 and 167. Specifically, the "transceiver: (1) sends and receives radio signals to and from your antenna and (2) passes audio signals back and forth between itself and the TNC." Kantronics at p. 19.

[1f] the remote device configured to send a preformatted message comprising the receiver address, a command indicator, and the data value via the transceiver to at least one other remote device.

Kantronics discloses that a TNC station communicates wirelessly with other TNC stations using AX.25 messages.



The Organization of an AX.25 Connected Information Packet

Kantronics at p. 27.

As shown in the figure above, the destination TNC station address (receiver address) is included in the packet. As part of the information packet, a data message is also delivered to the destination TNC station.

Illustrated as a letter sequence below, the syntax for a command delivered as part of a data message includes the recited command code "CTRL", a further command directive (*e.g.,* "A" or "B"), and additional command data (*e.g.,* "n," "ON," "OFF," or "LONG"):

```
CTRL [A | B] {n | ON | OFF | LONG} (n=1-20)
```

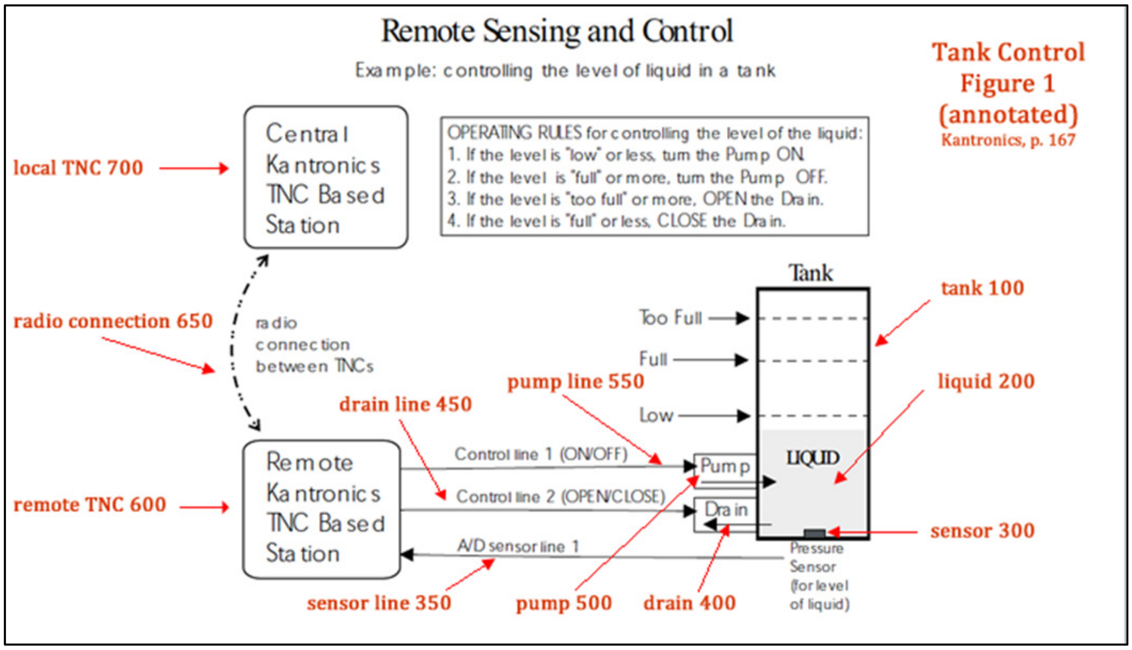
Kantronics at p. 199. The additional command data corresponds to the recited "data value."

Additionally, Kantronics discloses packets comprising "information indicating who the packet is from, who it is to, any relay stations needed to get to the destination and some control information." Kantronics at p. 101. Therefore, the packet (i.e. preformatted message) includes the data value (*e.g.,* "the message itself"), the receiver address (*e.g.*, "information indicating who the packet is from" or "who it is to") and a command indicator (*e.g.,* "control information"). Kantronics at p. 101.

Claim 2

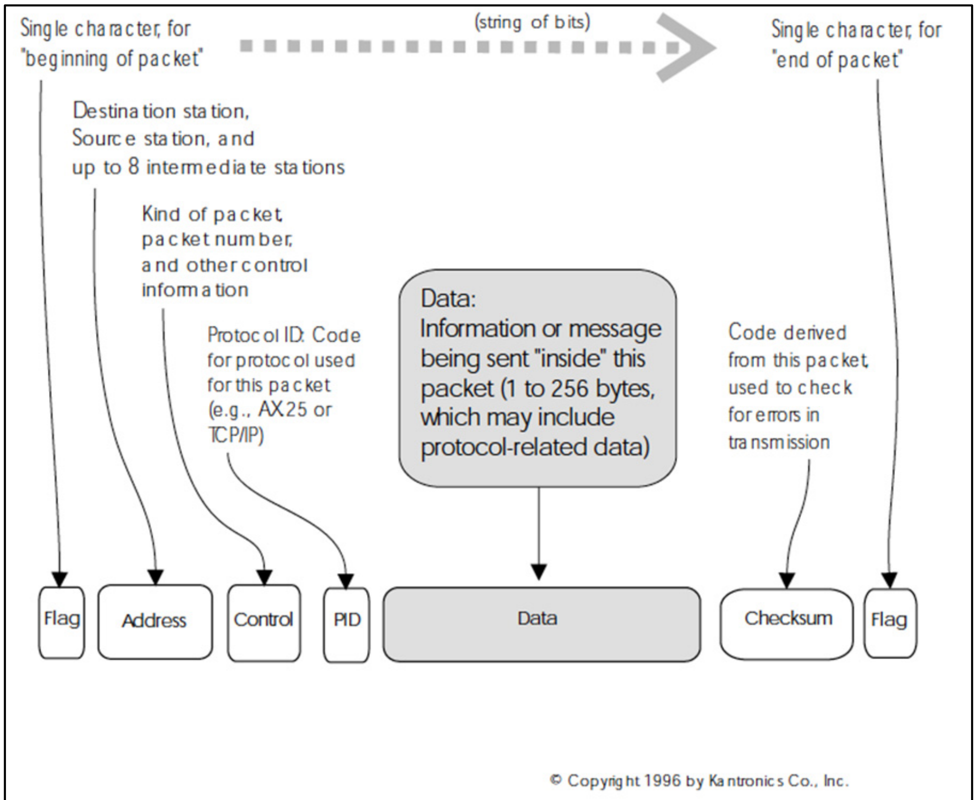
[2a] The system of claim 1, further comprising: a plurality of transceivers each having a unique address,

Kantronics discloses a plurality of transceivers (local TNC 700 and remote TNC 600) as illustrated in annotated Tank Control Figure 1 below.



Kantronics at p. 167

Kantronics discloses that a local TNC station 700 communicates with remote TNC 600 using AX.25 messages, as shown in the figure below.



The Organization of an AX.25 Connected Information Packet

Kantronics at p. 27.

The figure discloses addresses for the sending and receiving TNC stations (destination and source station addresses) to discriminate among different devices within the packet radio network.

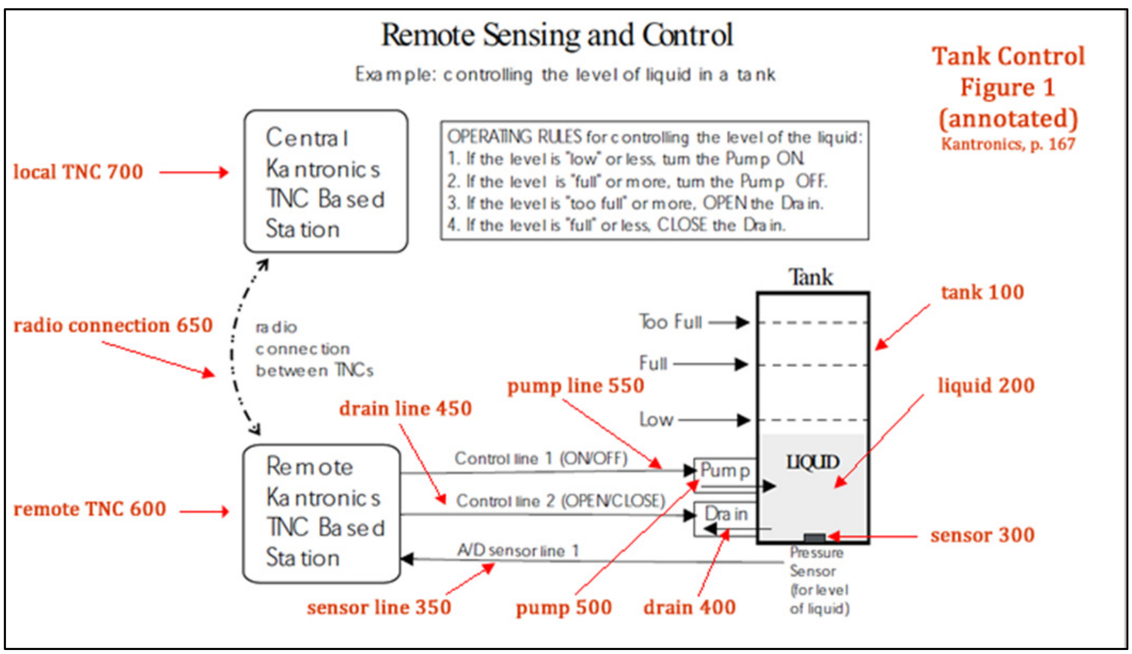
A person of ordinary skill in the art would understand that each of these transceiver addresses is unique in order to properly route the packet from the source to the destination. *See* Expert Decl. ¶20.

[2b] the transceiver being one of the plurality of transceivers;

Kantronics discloses that a user "can use two (or more) packet radio stations, each containing a Kantronics TNC, to implement remote sensing and/or remote control." Kantronics at p. 101.

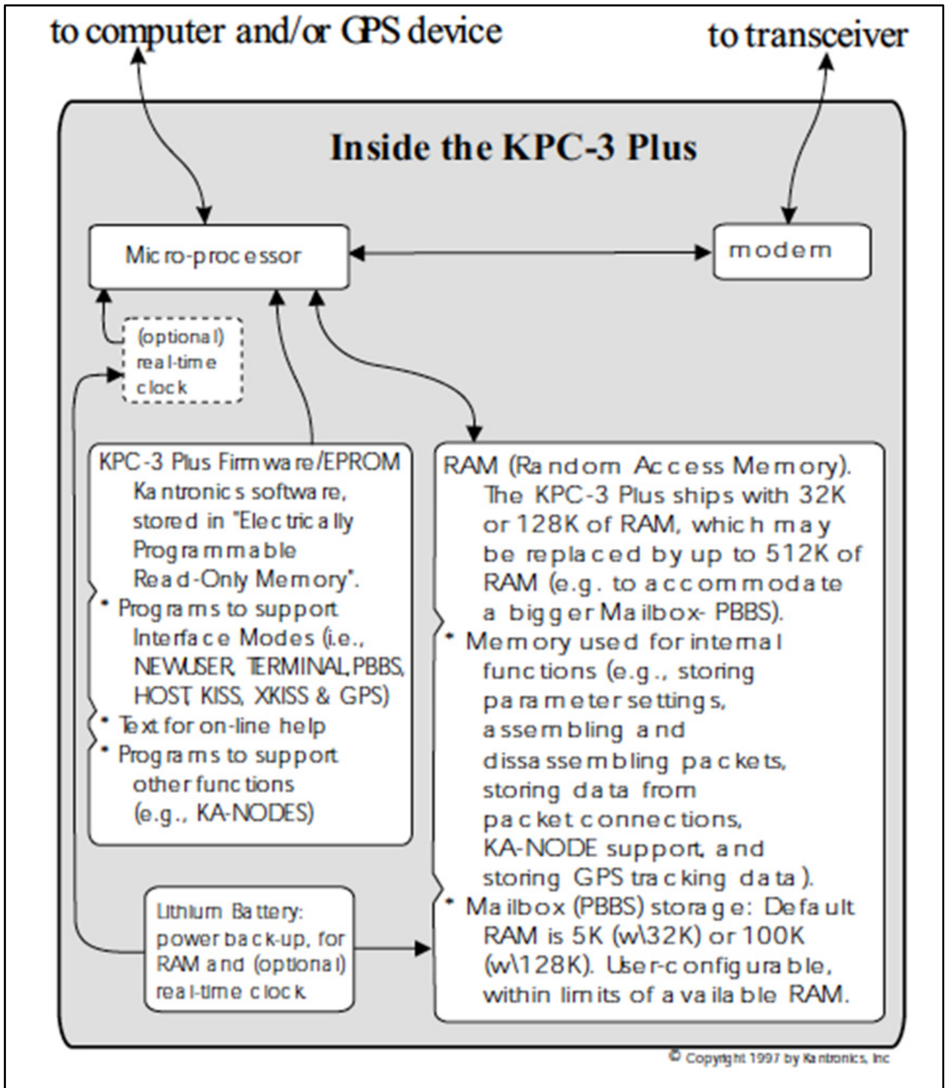
[2c] a plurality of controllers associated with each the controller associated with at least one of the transceivers,

Kantronics discloses a plurality of devices (remote TNC 600 and local TNC 700) that include controllers as illustrated in annotated Tank Control Figure 1 below:



Kantronics at p. 167

As further illustrated below, remote TNC 600 and local TNC 700 include a micro-processor (controller) to control device operations.



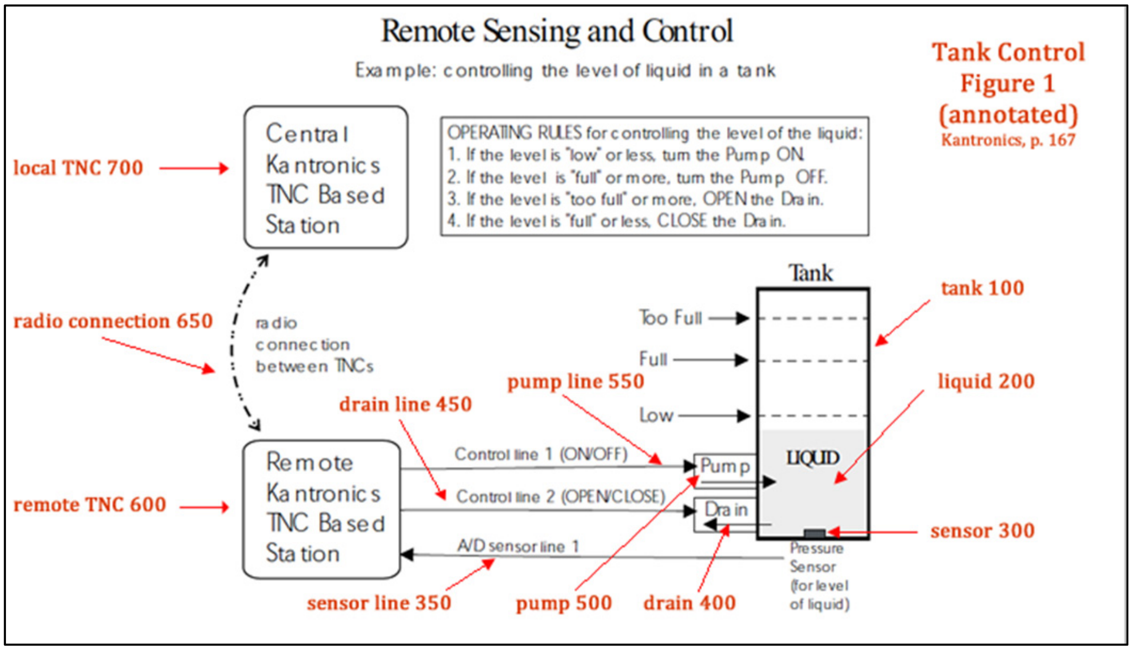
Inside a TNC — the KPC-3 Plus

Kantronics at p. 30

Also depicted above, the micro-processor (controller) is connected to a transceiver.

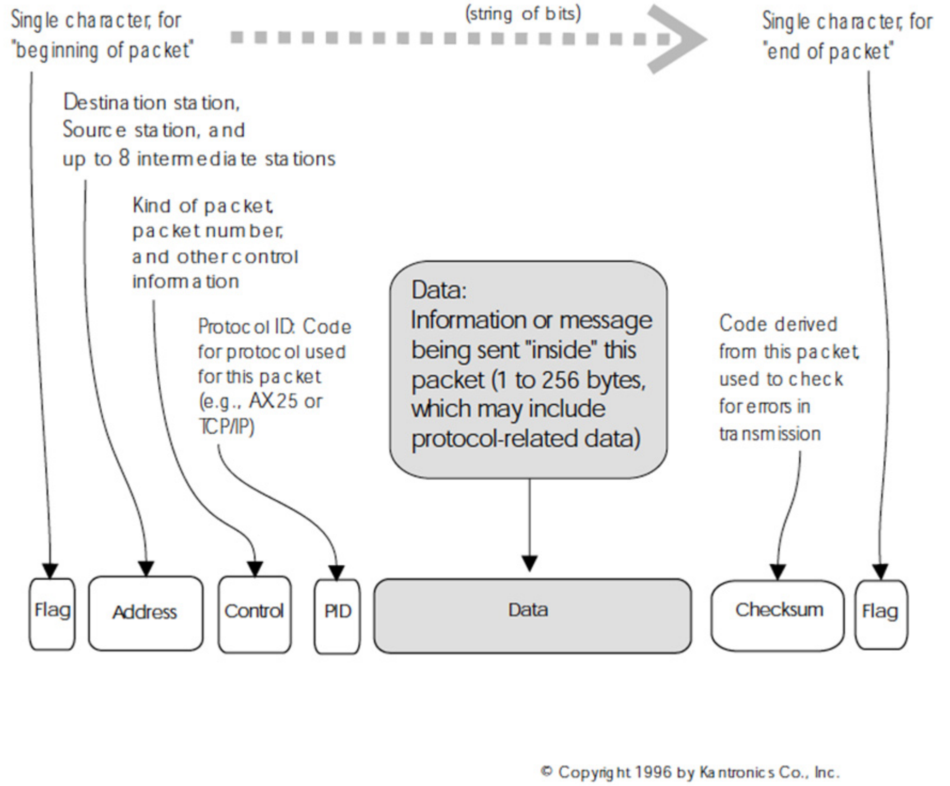
[2d] the controller being in communication with at least one other transceiver with a preformatted message,

As illustrated below, Kantronics discloses that local TNC 700, via its micro-processor and transceiver, communicates with another transceiver and micro-processor (of remote TNC 600).



Kantronics at p. 167

Kantronics discloses that the communication uses AX.25 message packets (preformatted message), as shown in the figure below.



The Organization of an AX.25 Connected Information Packet

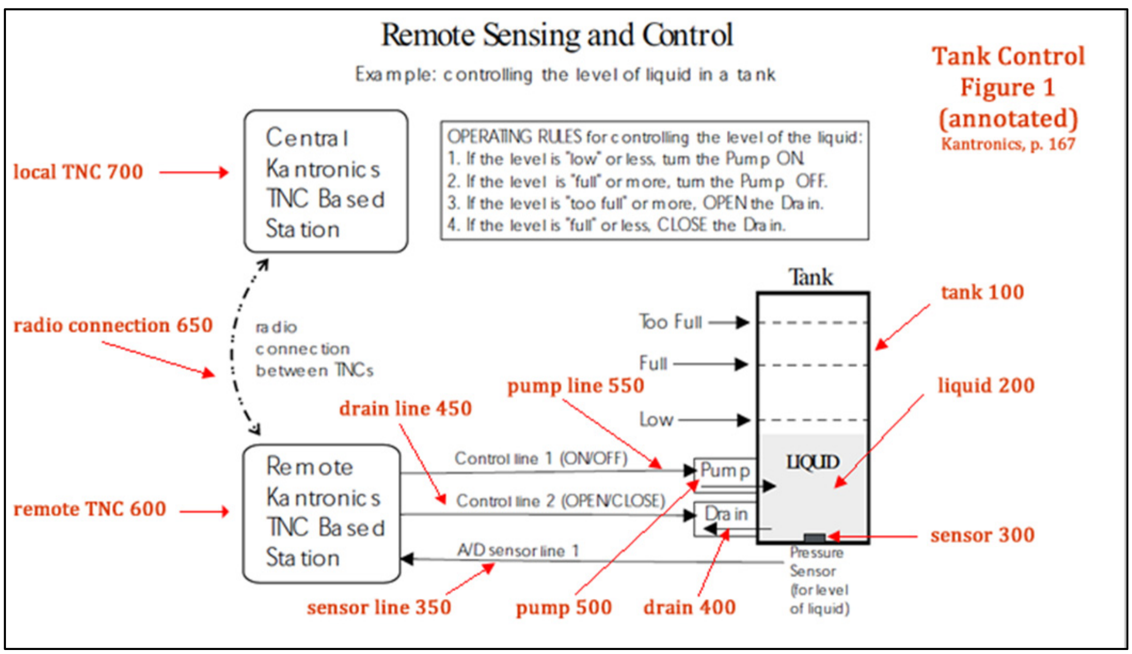
Kantronics at p. 27.

[2e] the preformatted message having at least one scalable field;

Kantronics, in the figure immediately above, shows that the "Data" field is scalable from 1 to 256 bytes. Kantronics at p. 27. Further, the AX.25 Protocol discloses that "packet radio transmissions are sent in small blocks of data, called frames. Each frame is made up of several smaller groups, called fields." AX.25 Protocol at p. 2. Within each frame, the "information field is used to convey user data from one end of the link to the other." AX.25 Protocol at p. 3. The information field "can be up to 256 octets long, and shall contain an integral number of octets" and is therefore scalable. AX.25 Protocol at p. 3.

[2f] at least one sensor associated with at least one of the transceivers to detect a condition and output a data signal to the transceiver;

Kantronics discloses a sensor (sensor 300 of tank 100) associated with one of the transceivers (of remote TNC 600) to detect a condition and output a data signal to the transceiver of remote TNC 600 as illustrated in the annotated figure below:

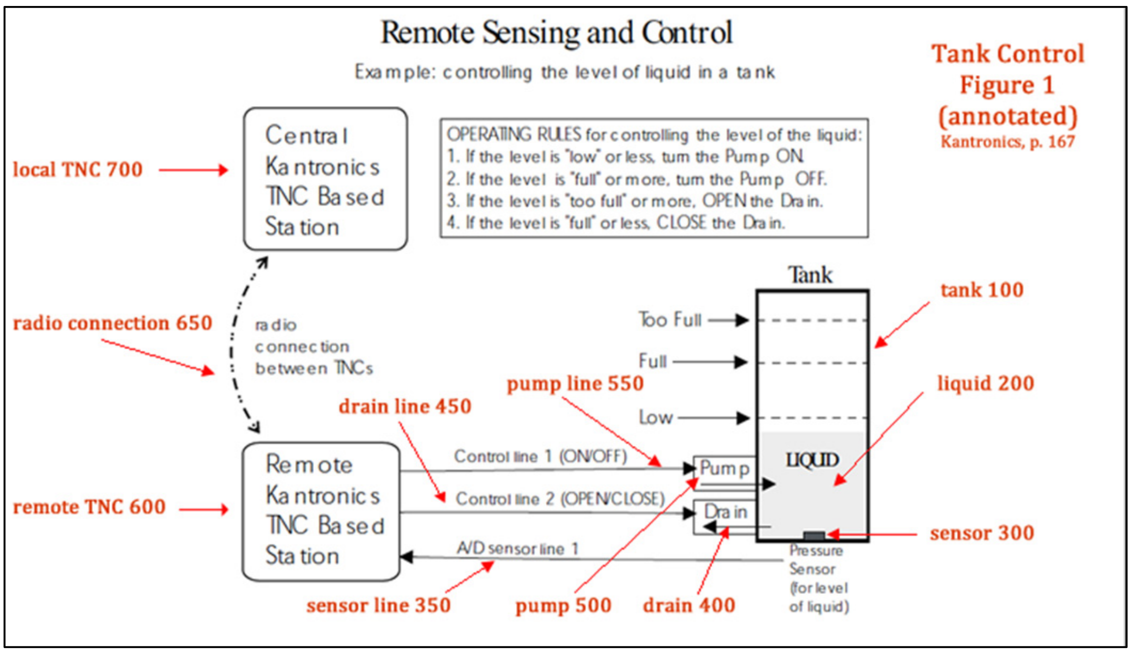


Kantronics at p. 167

The recited data signal is delivered via sensor line 350 to remote TNC 600 (and its included transceiver). Kantronics at p. 167. Specifically, a user "can use two (or more) packet radio stations, each containing a Kantronics TNC, to implement remote sensing and/or remote control." Kantronics at p. 166. Further, the "[d]ata can be gathered from a remote site by connecting to MYREMOTE and then issuing the ANALOG command." Kantronics at p. 185.

[2g] and at least one actuator associated with at least one of the transceivers to activate a device.

Kantronics discloses an actuator (pump 500 and drain 400) associated with one of the transceivers (remote TNC 600) to activate a device as illustrated in the annotated figure below:



Kantronics at p. 167

Additionally, a user "can use two (or more) packet radio stations, each containing a Kantronics TNC, to implement remote sensing and/or remote control." Kantronics at p. 166. Specifically, "to pulse the A output (CTLA) 3 times, you would give the command 'CTRL A 3'. You may optionally specify the number of times to pulse the output (n), or to turn the output ON, or OFF." Kantronics at p. 199.

Claim 3

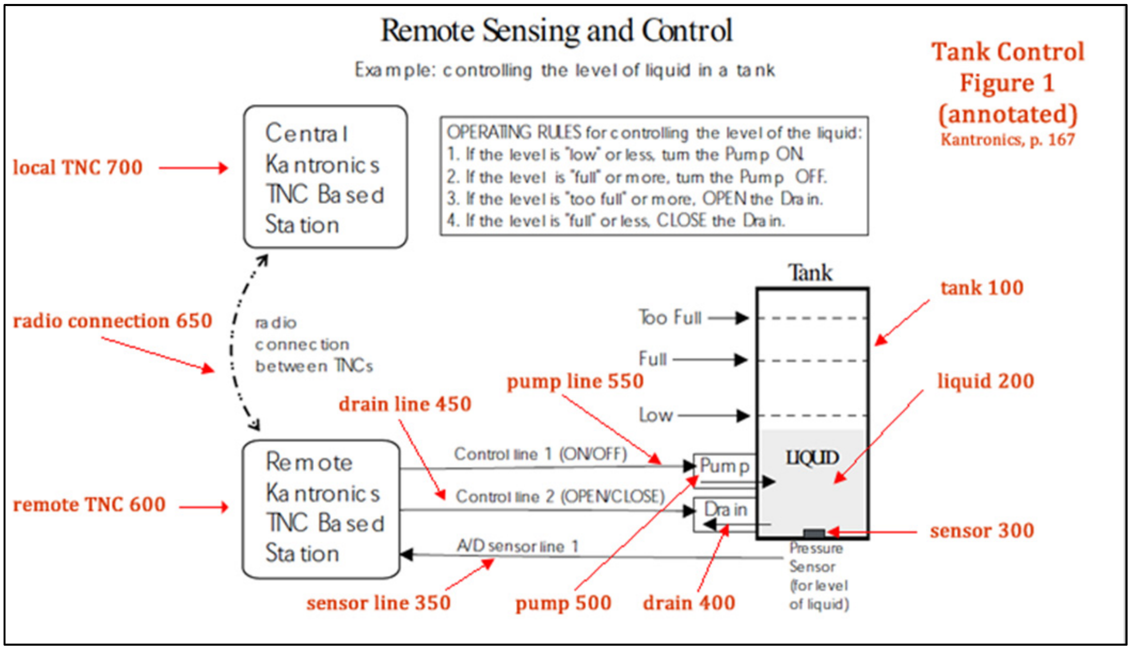
[3] The system of claim 1, wherein the controller sends the preformatted message via an associated transceiver, and at least one transceiver sends the preformatted response message.

Kantronics discloses that local and remote TNC stations communicate wirelessly using AX.25 message packets (preformatted messages) received via their respective transceivers. Kantronics at pp. 27, 167. Further, the AX.25 Protocol discloses the sending of a preformatted message and the returned response via preformatted response message in the form of a "return acknowledgement." AX.25 Protocol at p. 10. Specifically, "various timers (see 2.4.7. below) may have to be adjusted to accommodate the additional delays encountered when a frame must pass through a multiple-repeater chain and the return acknowledgement must travel through the same path before reaching the source device." AX.25 Protocol at p. 10.

Claim 4

[4a] The system of claim 1, wherein at least one transceiver receives the preformatted message requesting sensed data,

Kantronics discloses, for purposes of remote sensing and control, that local TNC 700 sends a message via radio connection 650 to remote TNC 600, as illustrated in the annotated figure below:



Kantronics at p. 167

Kantronics further discloses a specific control command so that a user can "use the ANALOG command to gather and report the status of one or two analog input lines in the remote TNC." Kantronics at p. 166. As described previously in connection with claim 1, the TNC-based stations communicate using AX.25 message packets. As part of the message packet, a data message is also delivered to the destination TNC station.

Illustrated as a letter sequence below, the syntax for a command delivered as part of a data message includes A command code "ANALOG":

ANALOG

Kantronics at p. 184. The ANALOG command code, sent by message packet from local TNC 700, to remote TNC 600 is a request to retrieve sensed data about tank 100 via sensor 300.

Additionally, "packet radio transmissions are sent in small blocks of data, called frames. Each frame is made up of several smaller groups, called fields." AX.25 Protocol at p. 2. Therefore, a person of ordinary skill in the art would understand that the transceiver receives a formatted message requesting sensed data in the form of the "ANALOG command." *See* Expert Decl. ¶¶21-24.

[4b] confirms the receiver address as its own unique address,

Each Kantronics TNC confirms whether a destination address in a received message is addressed to it. AX.25 at p. 5 ("address sequence provides the receivers of frames time to check the destination address subfield to see if the frame is addressed to them while the rest of the frame is being received.) Each frame is made up of several smaller groups, called fields" wherein the "address field is used to identify both the source of the frame and its destination." AX.25 Protocol at p. 2.

[4c] receives a sensed data signal,

Kantronics discloses that "single port and multi-port TNCs contain an 8 bit A/D converter and additional circuitry that converts the analog voltage presented at two specified inputs into digital values from 0 to 255." Kantronics at p. 166. Therefore, the transceiver that is forming the packet receives a sensed data signal (*e.g.,* "analog voltage presented at two specified inputs"). Kantronics at p. 166.

[4d] formats the sensed data signal into scalable byte segments,

AX.25 Protocol discloses that "packet radio transmissions are sent in small blocks of data, called frames. Each frame is made up of several smaller groups, called fields." AX.25 Protocol at p. 2. Within each frame, the "information field is used to convey user data from one end of the link to the other." AX.25 Protocol at p. 3. The information field "can be up to 256 octets long, and shall contain an integral number of octets" and is therefore scalable. AX.25 Protocol at p. 3.

First
Bit Sent

Flag	Address	Control	PID	Info.	FCS	Flag
01111110	112/560 Bits	8 Bits	8 Bits	N*8 Bits	16 Bits	01111110

Fig. 1B -- Information frame construction

AX.25 Protocol at p. 2.

Alternatively, Kantronics discloses that "single port and multi-port TNCs contain an 8 bit A/D converter and additional circuitry that converts the analog voltage presented at two specified inputs into digital values from 0 to 255." Kantronics at p. 166. Further, "each of the 8 A-to-D lines will have a voltage value somewhere in the range of 0 - 5 VDC. Instead of reporting voltages, the ANALOG command returns a decimal number in the range of 0 - 255 for each line. Each decimal value corresponds to a voltage input." Kantronics at p. 184. As such, the data signal is scaled from a value of "0 - 5 VDC" to "a decimal number in the range of 0 – 255."

Therefore, the transceiver formats (*e.g.*, "converts the analog voltage presented at two specified inputs into digital values") the sensed data signal (*e.g.,* "voltage value") into scalable byte segments. Wherein, the byte segments may be considered "scalable" because either (1) the information data field "can be up to 256 octets long," or (2) the data signal is scaled from a value of "0 - 5 VDC" to "a decimal number in the range of 0 – 255."

[4e] determines the number of segments required to contain the sensed data signal,

Kantronics discloses that "entering the ANALOG command returns a string of 8 values, based on the current voltage readings from 8 A-to-D lines." Kantronics at p. 184. Wherein, the "response is in the following form: AN0 / AN1 / AN2 / AN3 / AN4 / AN5 / AN6 / AN7." Kantronics at p. 184. Specifically, in the liquid tank example provided in the Kantronics reference, "AN0, input (0), reports a decimal number" and "AN1, input (1), reports a decimal number," but "AN2, is not used" and "AN3, is not used." Further, in "the KPC-3 Plus, only the first two values are relevant to the user" but "several other lines could be used for special purposes." Kantronics at p. 184. Therefore, if the liquid tank example disclosed in Kantronics was expanded to provide outputs on the "several other lines," a person of ordinary skill in the art would understand that the transceiver would determine the number of segments required to contain the sensed data signal in order to transmit the additional sensor data.

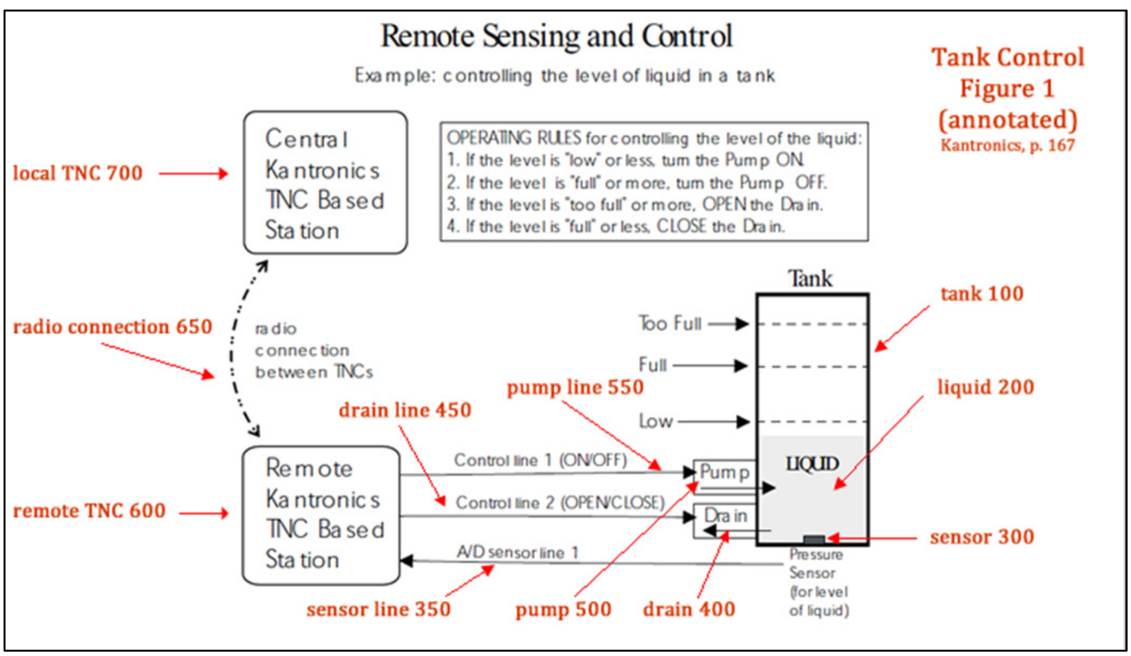
[4f] and generates and transmits the preformatted response message comprising at least one packet.

Kantronics discloses that the "response is in the following form: AN0 / AN1 / AN2 / AN3 / AN4 / AN5 / AN6 / AN7." Kantronics at p. 184. Wherein, "AN0, input (0), reports a decimal number in the range of (0-255), representing the current DC voltage of an external input read from either pin 4 on the Radio Port or from pin 18 on the Serial Port, depending on the current setting of jumper J8" and "AN1, input (1), reports a decimal number in the range of (0-255), representing the current DC voltage of external input read from either pin 8 on the Radio Port or from pin 11 on the Serial Port, depending on the current setting of jumper J10." Kantronics at pp. 184-185. Further, "entering the ANALOG command returns a string of 8 values, based on the current voltage readings from 8 A-to-D lines." Kantronics at p. 184. Therefore, a person of ordinary skill in the art would understand that the "return" generates and transmits the preformatted response (*e.g.,* "the following form: AN0 / AN1 / AN2 / AN3 / AN4 / AN5 / AN6 / AN7") message comprising at least one packet. *See* Expert Decl. ¶¶21-25.

Claim 6

[6] The system of claim 1, wherein each remote device is adapted to transmit and receive radio frequency transmissions to and from at least one other transceiver.

Kantronics discloses that the each remote device (local TNC 700 or remote TNC 600) is adapted to transmit and receive radio frequency transmissions (radio connection 650) to and from at least one other transceiver as illustrated in annotated the figure below:



Kantronics at p. 167

Claims 8-11, 13-22, and 24-25

Claims 8-11, 13-22, and 24-25	**Prior Art Disclosure**
Claim 8	
[8a] A method of communicating command and sensed data between remote wireless devices, the method comprising:	*See* [1a] analysis above.
[8b] providing a receiver to receive at least one message;	*See* [1b] analysis above.
[8c] wherein the message has a packet that comprises a command indicator comprising a command code, a scalable data value comprising a scalable message, and an error detector that is a redundancy check error detector;	*See* [1c], [1d], and [3] analysis above. "CRC -- Cyclic Redundancy Check, a mathematical operation in which the results are sent with a transmission block to enable receiving stations to check the integrity of the data. (Reference ISO 3309 Annex.)" AX.25 Protocol at p. 31. "In packet radio, an Amateur Radio station that receives frames, tests their integrity by performing a cyclic redundancy check, and (if the CRC is good) retransmits the frame without readdressing." AX.25 Protocol at p. 33.
[8d] and providing a controller to determine if at least one received message is a duplicate message and determining a location from which the duplicate message originated.	"With version 1, the entire packet is retransmitted (with the same frame number) to station B and this continues until station A receives an acknowledgment from station B. This acknowledgment can take two basic forms. The first time station B receives frame 3 he will send an acknowledgment of the form "ready to receive frame 4" <rr4>. If this acknowledgment is sent, and station A did not receive it, station A will again send frame 3. Since station B already received frame 3, he would acknowledge it with the form "I've already got that frame, send me number 4" <rej4>. This is also known as Reject Frame sent." Kantronics at p. 110.

Claim 9	
[9] The method of claim 8, further comprising providing at least one remote wireless communication device, wherein at least one of the devices comprise geographically remote transceivers adapted to transmit and receive the at least one message using radio frequency transmissions.	*See* [1e], [2f], and [6] analysis above.
Claim 10	
[10a] The method of claim 8, further comprising providing at least one remote wireless communication device, wherein at least one of the devices has a unique address	*See* [1b], [1e], and [2a] analysis above.
[10b] and the packet further comprises at least one scalable address field to contain the unique address for at least one device.	*See* [1b] analysis above.
Claim 11	
[11] The method of claim 8, further comprising providing an actuator associated with at least one of the remote devices, the actuator configured to	*See* [2c] and [2g] analysis above.

actuate in response to the command code.	
Claim 13	
[13] The method of claim 8, further comprising determining if an error exists in a packet of the at least one message.	*See* [8c] analysis above.
Claim 14	
[14a] A wireless communication device for use in a communication system to communicate command and sensed data between remote wireless communication devices, the wireless communication device comprising:	*See* [1a] and [1e] analysis above.
[14b] a transceiver configured to send and receive wireless communications;	*See* [1e] analysis above.
[14c] and a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message,	*See* [1e] and [1f] analysis above.
[14d] the controller further configured to format a message comprising a receiver address comprising a scalable address of at	*See* [1b] and [1f] analysis above.

least one remote wireless device;	
[14e] a command indicator comprising a command code;	*See* [1c] analysis above.
[14f] a data value comprising a scalable message.	*See* [1d] analysis above.
Claim 15	
[15] The wireless communication device of claim 14, further comprising at least one sensor configured to detect a condition and output a signal to the controller.	*See* [2f] analysis above.
Claim 16	
[16] The wireless communication device of claim 14, wherein the controller is further configured to determine if at least one received message is a duplicate message and determine a location from which the duplicate message originated.	*See* [8d] analysis above.
Claim 17	
[17] The wireless communication device of claim 14, further comprising at least one actuator configured to implement an action corresponding to the command code.	*See* [2g] analysis above.

Claim 18	
[18] The device of claim 14, wherein the transceiver comprises a unique transceiver address to distinguish the transceiver from other transceivers.	*See* [2a] analysis above.
Claim 19	
[19a] In a system for communicating commands and sensed data between remote devices comprising a communications device for communicating commands and sensed data, the communications device comprising:	*See* [1a] analysis above.
[19b] a transceiver operatively configured to be in communication with at least one other of a plurality of transceivers,	*See* [1e], [1f], and [2b] analysis above.
[19c] wherein the transceiver has a unique address, wherein the unique address identities the individual transceiver,	*See* [2a] analysis above.
[19d] wherein the transceiver is geographically remote from the other of the plurality of transceivers,	*See* [2b] analysis above.
[19e] wherein each	*See* [1f] analysis above.

transceiver communicates with each of the other transceivers via preformatted messages;	
[19f] a controller configured to be in communication with the transceiver, the controller configured to provide preformatted messages for communication;	*See* [1e] and [1f] analysis above.
[19g] wherein the preformatted messages comprises at least one packet,	*See* [1f] and [4f] analysis above.
[19h] wherein the packet comprises: a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;	*See* [1b] and [4b] analysis above.
[19i] sender address comprising the unique address of the sending transceiver;	*See* [1b], [2a], and [4b] analysis above.
[19j] a command indicator comprising a command code;	*See* [1c] analysis above.
[19k] at least one data value comprising a scalable message;	*See* [1d] analysis above.
[19l] and an error detector comprising a redundancy check error detector;	*See* [8c] analysis above.
[19m] and wherein the	*See* [1f], [2d], and [3] analysis above.

controller is configured to interact with the transceiver to send preformatted command messages.	
Claim 20	
[20] The communications device of claim 19, further comprising a sensor operatively configured to detect a condition and output a sensed data signal that corresponds to the condition to the transceiver.	*See* [2f] analysis above.
Claim 21	
[21a] The communications device of claim 20, wherein the transceiver is configured to receive a preformatted command message requesting sensed data,	*See* [4a] analysis above.
[21b] confirms the receiver address as its own unique address,	*See* [4b] analysis above.
[21c] receives the sensed data signal,	*See* [4c] analysis above.
[21d] formats the sensed data signal into scalable byte segments,	*See* [4d] analysis above.
[21e] determines a number of segments required to contain the sensed data signal,	*See* [4e] analysis above.

[21f] and generates and transmits the preformatted response message comprising at least one packet.	*See* [4f] analysis above.
Claim 22	
[22a] In a system for controlling geographically diverse devices from a central location, a communications device comprising:	*See* [1a] analysis above.
[22b] means for dynamically sending and receiving messages, wherein the sent messages comprise commands and the received messages comprise responses to the commands,	*See* [1c], [1f], and [3] analysis above.
[22c] wherein the message comprises at least one means for packeting a message;	*See* [4f] analysis above.
[22d] a means for communicating information, the communicating means comprising:	*See* [1a], [1e], and [6] analysis above.
[22e] means for receiving messages;	*See* [1e], [4a], [4c], and [6] analysis above.
[22f] means for preparing responses to the received message;	*See* [3] analysis above.
[22g] and means for	*See* [3] analysis above.

sending the response message;	
[22h] wherein each communicating means has a unique identifying address;	*See* [1b], [2a], and [4b] analysis above.
[22i] and wherein the packeting means comprises: [22j] means for identifying intended recipients;	*See* [4b] and [4f] analysis above.
[22k] means for identifying a sender;	*See* [4b] and [4f] analysis above.
[22l] means for indicating a command;	*See* [3] analysis above.
[22m] means for data transfer;	*See* [1d], [1f], and [2f] analysis above.
[22n] means for indicating potential error;	*See* [8c] analysis above.
[22o] means for indicating a byte length of a packet;	*See* [1d], [4d], and [4e] analysis above.
[22p] means for indicating a total number of packets in a message;	*See* [1d], [4d], and [4e] analysis above.
[22q] means for identifying a message;	*See* [4b] and [4f] analysis above.
[22r] means for alerting a recipient to an incoming packet;	*See* [4f] analysis above.
[22s] and means for indicating an end of a packet.	*See* [1d], [4d], and [4e] analysis above.

Claim 24	
[24] The communication device of claim 23, wherein the means for indicating potential error is configured to detect if an error exists in a packet or a number of packets of at least one message.	*See* [8c] and [8d] analysis above.
Claim 25	
[25a] A wireless communication device for use in a communication system to communicate a number of commands and sensed data between remote wireless communication devices, the wireless communication device comprising:	*See* [1a] analysis above.
[25b] a transceiver configured to send and receive wireless communications;	*See* [1e] analysis above.
[25c] and a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message,	*See* [1e] and [1f] analysis above.
[25d] the controller further configured to reformat a message comprising a receiver	*See* [1b] and [1f] analysis above.

address comprising a scalable address of at least one remote wireless device;	
[25e] a command indicator comprising a command code;	*See* [1c] analysis above.
[25f] a data value comprising a scalable message.	*See* [1d] analysis above.

B. Kantronics in view of AX.25 Protocol and Zimmerman Renders Obvious Claims 7, 12, and 23 of the '492 Patent

As discussed above, both Kantronics and AX.25 Protocol constitute prior art under 35 U.S.C. § 102 and are readily combinable to deliver stable and predictable remote communications using packet radio messages. *See* Expert Decl. at ¶¶10-15. Further, Zimmerman was filed on August 6, 1992 and issued January 18, 1994, and therefore also constitutes prior art under 35 U.S.C. § 102.

Like Kantronics, Zimmerman discloses a sensor that communicates wirelessly with a computer to transmit data. Zimmerman at Abstract. Therefore, both references disclose a system for communicating signals and sensor data between remote devices and can be readily combined to yield predictable results. Further, both references are also analogous art in the same field of endeavor because each discloses the use of a communicating sensed data from a sensor to a computer via a wireless network protocol. *See* Expert Decl. at ¶¶32-33. The communication systems disclosed in Kantronics and Zimmerman are readily combinable to deliver stable and predictable remote communications of sensed data. *See* Expert Decl. at ¶¶32-33.

<u>Claim 7</u>

[7] The system of claim 1, wherein the preformatted message comprises Manchester encoding.

Kantronics/AX.25 Protocol discloses the system of claim 1. See above.

Manchester encoding is a notoriously well-known encoding protocol. *See* Expert Decl. ¶¶26-34. Zimmerman discloses the use of Manchester encoding/decoding as illustrated in figure 1 below:

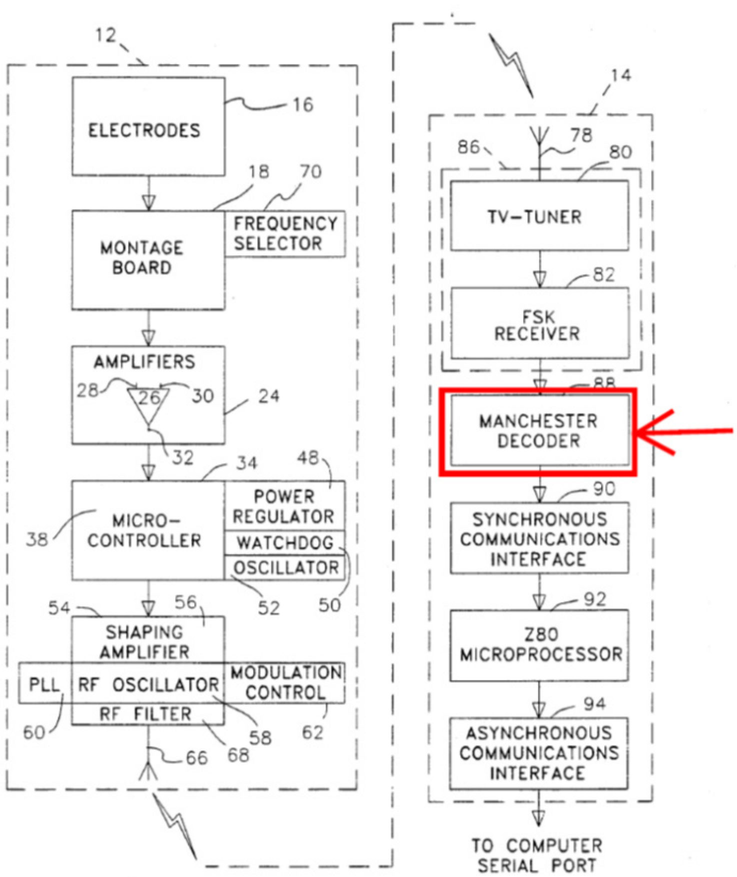


Fig. 1

Zimmerman at FIG. 1.

Specifically, Zimmerman discloses an "electroencephalograph system for telemetrically transmitting data to a selected receiver, said data being detected by a plurality of sensors selectively attached to a subject in a selected arrangement." Zimmerman at Claim 1. The system includes "processing means for converting said data into a selected digital code suitable for telemetric transmission, said selected digital code being Manchester code." Zimmerman at Claim 1.

<u>Claims 12 and 23</u>

Claims 12 and 23	Prior Art Disclosure
Claim 12	
[12] The method of claim 8, further comprising sending at least one message via Manchester type encoding.	*See* [7] analysis above.
Claim 23	
[23] The communications device of claim 21, wherein the means for communicating information is further configured to encode messages via Manchester encoding.	*See* [7] analysis above.

V. **CONCLUSION**

For the foregoing reasons, Petitioner respectfully requests that the *inter partes* review of the '492 patent be instituted as the Petition establishes a reasonable likelihood of prevailing with respect to the challenged claims. Petitioner further respectfully requests that Claims 1-4 and 6-25 be cancelled as unpatentable under 35 U.S.C. § 318(b).

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the Petition together with all exhibits has been electronically served on the Patent Owner's attorneys via First Class Mail on the 2nd day of February, 2015 at the following addresses:

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