

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

JSDQ MESH TECHNOLOGIES LLC,

Plaintiff,

v.

**ULTRA ELECTRONICS DEFENSE, INC.
and 3E TECHNOLOGIES
INTERNATIONAL, INC.,**

Defendants.

Case No.: 1:17-cv-00505-GMS

JURY TRIAL DEMANDED

AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff JSDQ Mesh Technologies LLC complains of Defendants Ultra Electronics Defense, Inc. and 3e Technologies International, Inc. as follows:

NATURE OF LAWSUIT

1. This is a claim for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

THE PARTIES

2. JSDQ Mesh Technologies LLC (“JSDQ”) is a Delaware limited liability company with its principal place of business at 401 Lake Avenue, Round Lake Beach, Illinois 60073.

3. JSDQ is the named assignee of, owns all right, title and interest in, and has standing to sue for infringement of United States Patent No. 7,286,828, entitled “Method of Call Routing and Connection,” which issued on October 23, 2007 (the “‘828 Patent”) (a true and correct copy is attached as Exhibit A); United States Patent No. 7,916,648, entitled “Method of Call Routing and Connection”, which issued on March 29, 2011 (the “‘648 Patent”) (a true and correct copy is attached as Exhibit B); United States Reissue Patent No. RE43,675, entitled “Wireless Radio Routing System,” which issued on September 18, 2012 (the “‘675 Patent”) (a true and correct copy

is attached as Exhibit C); and United States Reissue Patent No. RE44,607, entitled “Wireless Mesh Routing Method,” which issued on November 19, 2013 (the “607 Patent”) (a true and correct copy is attached as Exhibit D) (collectively, the “Patents-in-Suit”).

4. Based upon public information, Defendant Ultra Electronics Defense, Inc. (“Ultra”) is a Delaware corporation with a listed registered agent of The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801.

5. Based upon public information, Defendant 3e Technologies International, Inc. (“3eTI”) is a Maryland corporation with a principal place of business located at 9715 Key West Avenue, Suite 500, Rockville, Maryland 20850.

6. Based upon public information, Defendant 3eTI became a subsidiary of Defendant Ultra on or about February 2, 2011.

7. Defendants advertise products and services on a website located at <http://www.ultra-3eti.com>, which claims: “3eTI, an Ultra Electronics company, develops and implements machine-to-machine (M2M) cyber security solutions for industrial networks.”

8. Based upon public information, Defendant 3eTI obtained approval to use the trade name “Ultra Electronics, 3eTI” in or around 2014.

9. Defendants provide wireless networking products and services throughout the United States, with products and literature (including those supporting this Amended Complaint) regularly identified by the trade name “Ultra Electronics, 3eTI.”

10. Early discovery will enable JSDQ to identify Defendants’ relevant customers and assess any additional infringement thereby.

JURISDICTION AND VENUE

11. This Court has exclusive jurisdiction over the subject matter of this Amended Complaint under 28 U.S.C. §§ 1331 and 1338(a).

12. Personal jurisdiction over Defendants is proper in this Court because Defendant Ultra is a registered Delaware Corporation, and Defendant 3eTI has minimum contacts with the State of Delaware and has purposefully availed itself of the privileges of conducting business in the State of Delaware at least through its merger with (or acquisition by) Defendant Ultra and its regular identification as “Ultra Electronics, 3eTI”.

13. Venue in this judicial district is proper under 28 U.S.C. § 1400(b) and Defendants have consented to venue and/or waived any challenge to venue by filing their Rule 12(b)(6) motion to dismiss the original Complaint.

THE ACCUSED WIRELESS ROUTING SYSTEMS

14. Defendants have infringed the Patents-in-Suit through the manufacture, use, sale, offer for sale, advertisement, importation, shipment, distribution, service, installation and/or maintenance of Defendants’ wireless mesh networking products, services and solutions – including hardware (e.g., access points, antennas, etc.), software, and firmware components associated therewith (herein referred to as the “Accused Wireless Routing Systems”).

15. Upon present information and belief, Defendants manufacture, use, sell, offer for sale, advertise, import, ship, distribute, service, install and/or maintain the following Accused Wireless Routing Systems: the AirGuard, EnergyGuard and VirtualFence wireless mesh network solutions and product lines, which include, but are not limited to, WiMesh Endpoints, WiMesh Access Points, iMesh Gateways, iMesh Sensor Nodes, EnergyGuard Appliances, VirtualFence Appliances, VirtualFence Video Servers and VirtualFence VPMS Kits.

16. Based upon public information, the foregoing products specifically include the following model numbers: 3e-523 (at least models A, M and N), 3e-525 (at least models A, N and V), 3e-527 (at least model A), 3e-543 (at least model A), 3e-545 (at least model A), 3e-723 (at least model A), 3e-733 (at least models A and B), 3e-735 (at least models CC and AC); however,

the Accused Wireless Routing Systems subject to this Amended Complaint necessarily include all substantively similar products and any predecessor and/or successor versions of the foregoing (during the relevant time period).

17. After adequate discovery, Plaintiff may seek leave to amend this Amended Complaint to include additional details of infringement, if any, by other products hereafter discovered to infringe the Patents-in-Suit.

OPERATION OF DEFENDANTS' PROPRIETARY ROUTING PROTOCOL IN THE ACCUSED WIRELESS ROUTING SYSTEMS BASED ON PUBLIC DOCUMENTS

18. The routing protocol incorporated into Defendants' Accused Wireless Routing Systems is, by its proprietary nature, not yet fully understood by JSDQ. However, JSDQ has been able to engage in a preliminary assessment of Defendants' Accused Wireless Routing Systems based on minimal publicly-available literature made available by Defendants.

19. Based on this publicly-available information – particularly Exhibit E, hereto, Defendant 3eTI literature from on or around 2008¹ – JSDQ understands Defendants' Accused Wireless Routing Systems (and proprietary routing protocol) to operate within the following parameters:

Overview

There are two types of nodes in 3eTI mesh networks, Root Node and Mesh Node. There can only be one Root Node in a given mesh network. The rest of the nodes are simply called Mesh Node.

Typically a Root Node should be where the wireless mesh network connects to the wired network, although this connection can be made through any Mesh Node in the network. Using Root Node to connect to the wired network gives the best performance.

¹ While additional documents further support JSDQ's understanding of the operation of Defendants' Accused Wireless Routing Systems, Exhibit E provides a concise, general framework sufficient to establish the likelihood of infringement of each of the asserted claims.

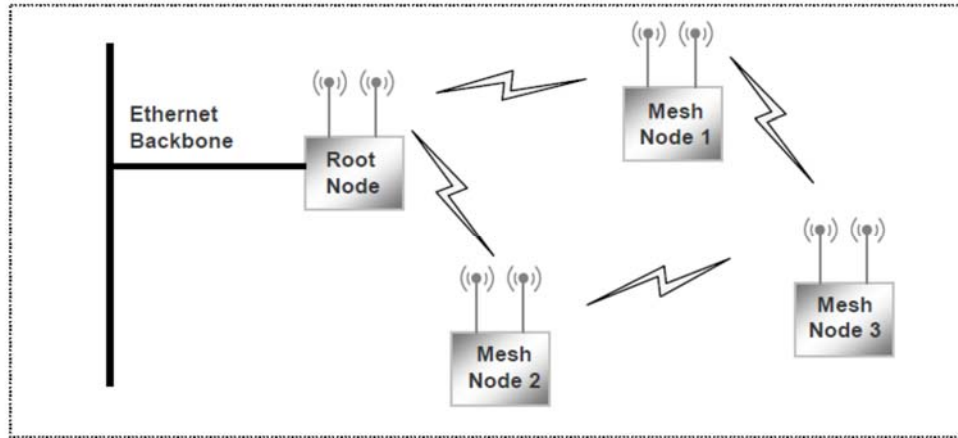


Figure 1, Backbone connection should be connected to the Root Node if possible

All Mesh Nodes in the mesh networks continually optimize its communication path by looking for the best path to the Root Node. See the “[Bridge Priority](#)” section for how to set a node as Root Node.

The quality of a link is quantified by the signal strength between the two nodes. Therefore, the signal strengths distribution in the network determines the formation of the mesh network.

For example, in the following 4-node network, Mesh Node 3 will reach the Root Node via Mesh Node 1 because the path quality of (90%+100%) is better than (50%+100%).

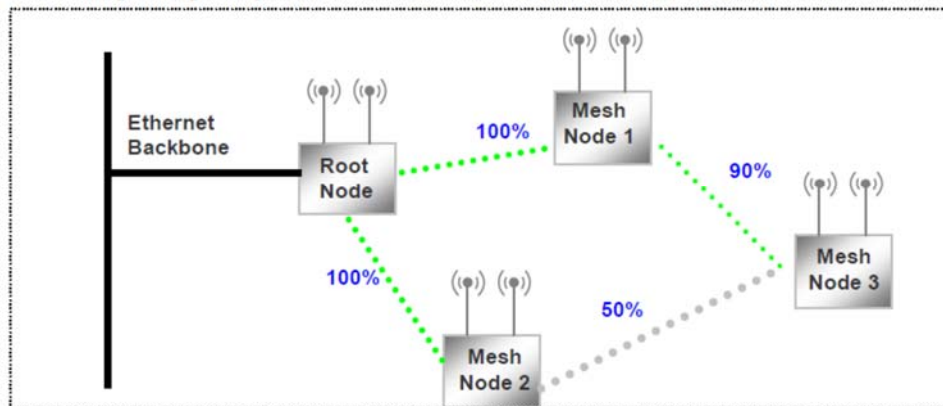


Figure 2, An example of 4-node mesh network and its active topology

Now if Mesh Node 3 moves away from the Mesh Node 1 and its connection to Mesh Node 2 becomes better than to Mesh Node 1, the system will automatically start using Mesh Node 2 for Mesh Node 3 to reach the root node.

Now consider the following case where Mesh Node 3 has a direct link to the Root Node.

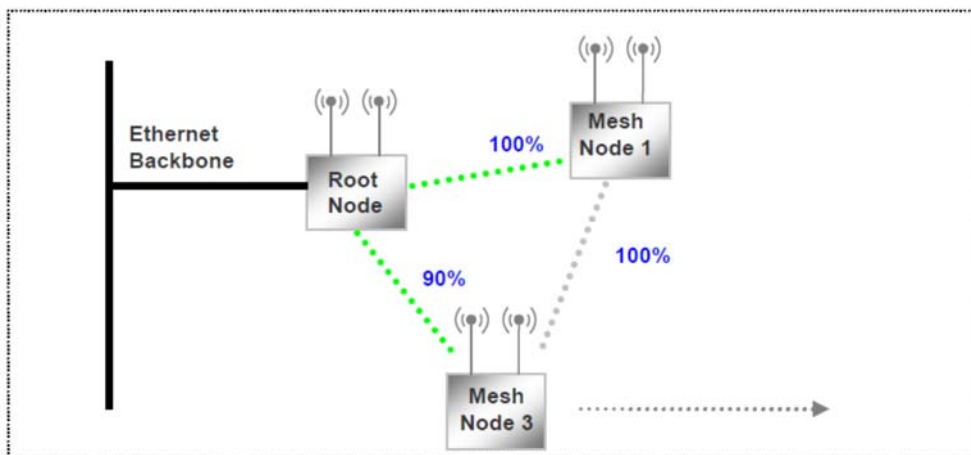


Figure 3, An example of 3-node mesh network with a mobile mesh node

In this case, Mesh Node 3 will go directly to the Root Node instead of going through Mesh Node 1.

Now consider that Mesh Node 3 starts moving away from the Root Node but still maintains a good connection with Mesh Node 1, when will Mesh Node 3 start using Mesh Node 1 to get to the Root Node instead of using it possibly poor connection to go direct to the Root Node? Now it is a good time for us to examine the underlying rules that determines the mesh topology.

Mesh Routing Rules

First we classify links by the RSSI values in the following:

RSSI Quality	Link Type
100%	A
60% - 100%	B
45% - 60%	C
30% - 45%	D
<30%	E

Then the following rules govern which mesh path is chosen:

A >B >2A >C >3A >2B >4A >3B >5A >4B >D >2C >3C >4C >2D >3D >4D >E

Where X > Y means X is preferred over Y, and nX means n hops of links with link type X.

Other mesh combinations will be automatically calculated based on these rules by the system.

Now let's go back to the last example. According the above routing rules, Mesh Node 3 will start using Mesh Node 1 as a relay once its connection to the Root Node drops to type B and its connection Mesh Node 1 remains type A.

Therefore, it should be stressed that every Mesh Node optimizes its path by looking for the best path to the Root Node, not necessarily to the neighbor node with the best link quality.

Site Survey

Site survey should always be performed prior to any wireless equipment installation. Site survey should include, at the minimum, the following steps:

1. RF spectrum analysis on 2.40-2.49 GHz band and 5.7-5.9 GHz to detect any potential RF interference. Strong interference sources should be dealt with (removed or avoided) before an installation.
2. Use a point-to-point 2-node mesh setup in various locations to quantify the RF propagation ability in this particular environment. Received Signal Strength Indicator (RSSI) can serve as one indicator of the RF environment. TCP/IP throughput testing and UDP/IP throughput and packet drop rate testing should be conducted in all selected locations to quantify the quality of the environment.
3. Site survey should be conducted when the environment system is operating so that maximum possible interference is measured and considered.

Antenna

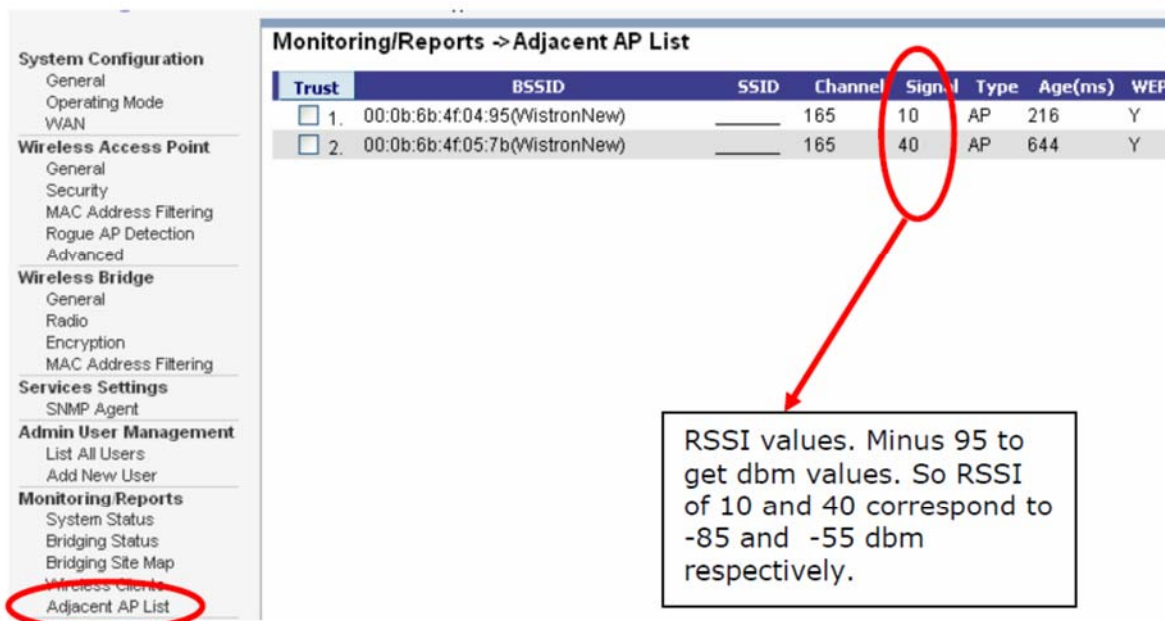
Antenna Type

Depending on the site survey result and the specifics of the installed environment, proper antenna type (omni-directional vs. directional, low-gain vs. high gain, etc) should be selected. Antennas play critical roles in the setup and operation of wireless mesh systems, just like any other wireless systems.

Antenna Positioning

Study has shown that the 5.8GHz band is particularly sensitive to the positioning of antennas. Lab testing has shown that a simple tilt of the receiving antenna can vary the received signal strength by up to 14dbm. Therefore, carefully positioning the mesh antennas during deployment can make a big difference in the performance of the mesh network.

Mesh Node has a built-in tool to report the received signal strength of all wireless devices it can hear. The tool is called “Adjacent AP List”, accessible via the web management console. Below is a screenshot of the tool:



Trust	BSSID	SSID	Channel	Signal	Type	Age(ms)	WEP
<input type="checkbox"/> 1.	00:0b:6b:4f:04:95(WistronNew)		165	10	AP	216	Y
<input type="checkbox"/> 2.	00:0b:6b:4f:05:7b(WistronNew)		165	40	AP	644	Y

RSSI values. Minus 95 to get dbm values. So RSSI of 10 and 40 correspond to -85 and -55 dbm respectively.

Figure 4, Mesh Node’s built-in site-survey tool indicates RSSI of neighbor mesh nodes

Mesh Link RSSI Threshold

The RSSI threshold value is checked when a node tries to establish a link with another node. Both nodes will check the RSSI of its partner against its configured threshold value. If the RSSI is lower than the threshold value in either side, the link between them will not be established.

The proper RSSI threshold should guarantee 2-4 links on each node.

INFRINGEMENT BY DEFENDANTS

INFRINGEMENT OF UNITED STATES PATENT NO. 7,286,828

20. JSDQ realleges and incorporates by reference paragraphs 1 through 19, inclusive, as though fully set forth herein.

21. Defendants directly infringed at least independent method claims 47, 56 and 68 of the ‘828 Patent (prior to its expiration).

Claim 47

22. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, provided a radio communication route among a plurality of individual nodes capable of distribution arbitrarily relative to each other, said nodes being controllable independent of a central computer separate from said nodes, in accordance with the limitations of claim 47 of the '828 Patent.

23. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, performed each of the limitations of claim 47 of the '828 Patent by:

- (a) establishing radio links between pairs of said nodes using radio signals transmitted from each said node and received by other said nodes without regard to the relative locations of said nodes of said pair, wherein at least some of said radio signals include associated routing messages including an actual radio parameter of said radio signals (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (b) storing said routing messages received by each said node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (c) selecting a said routing message associated with a preferred said radio link using said actual radio parameter of said received radio signals (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (d) deleting at least some of said other stored routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);

- (e) modifying said selected routing message (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (f) retransmitting said modified routing message (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and
- (g) assembling said preferred radio links into a radio communication route between an originating node and a destination node, said route including plural said radio links (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

Claim 56

24. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, provided a radio communication route among a plurality of individual nodes capable of distribution arbitrarily relative to each other, said nodes being controllable independent of a central computer separate from said nodes, in accordance with the limitations of claim 56 of the '828 Patent.

25. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, performed each of the limitations of claim 56 of the '828 Patent by:

- (a) establishing radio links between pairs of said nodes using radio signals transmitted from each said node and received by other said nodes without regard to the relative locations of said nodes of said pair, at least some of said radio signals including routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);

- (b) storing said routing messages received by each said node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (c) selecting a said routing message associated with a preferred said radio link using a parameter of said routing messages in said received radio signals (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (d) modifying said selected routing message (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (e) deleting at least some of said other stored routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (f) retransmitting said modified routing message (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (g) assembling said preferred radio links into an optimum radio communication route between an originating node and a destination node, said route including plural said radio links (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and
- (h) changing said route between said originating node and said destination node only when a condition of the route changes (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

Claim 68

26. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, provided a wireless communication route having a plurality of individual routing

nodes distributed to form a mesh of said routing nodes throughout an area covered by a wireless communication system, in accordance with the limitations of claim 68 of the '828 Patent.

27. The Accused Wireless Routing Systems, as manufactured, sold, offered for sale, used, installed and/or maintained by Defendants, performed each of the limitations of claim 68 of the '828 Patent by:

- (a) establishing wireless links between pairs of said routing nodes using wireless signals transmitted from each said routing node and received by other said routing nodes without regard to the relative locations of said routing nodes of said pair, at least some of said wireless signals including routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (b) storing said routing messages received by each said node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (c) selecting a said routing message associated with a preferred said wireless link using a parameter of said received wireless signals (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (d) modifying said selected routing message (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (e) deleting at least some of said other stored routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (f) retransmitting said modified routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and
- (g) assembling said preferred wireless links into an optimum wireless communication route between a remote routing node and a destination routing node, said route including

plural said wireless links (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

28. Defendants' Accused Wireless Systems likely infringed at least dependent claim 48 of the '828 Patent (prior to its expiration), as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

29. Defendants' Accused Wireless Systems likely infringed at least dependent claim 52 of the '828 Patent (prior to its expiration), as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

30. Defendants' Accused Wireless Systems likely infringed at least dependent claim 57 of the '828 Patent (prior to its expiration), as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

31. Defendants' Accused Wireless Systems likely infringed at least dependent claim 59 of the '828 Patent (prior to its expiration), as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

32. Defendants' Accused Wireless Systems likely infringed at least dependent claim 69 of the '828 Patent (prior to its expiration), as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

33. Defendants' Accused Wireless Systems likely infringed at least dependent claim 70 of the '828 Patent (prior to its expiration), as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

34. After adequate discovery, JSDQ reserves the right to assert allegations of infringement of additional claims of the '828 Patent.

35. To the extent required by law, JSDQ has complied with the provisions of 35 U.S.C. § 287.

36. Defendants' direct infringement as described above injured JSDQ and JSDQ is entitled to recover damages adequate to compensate it for such infringement, but in no event less than a reasonable royalty.

INFRINGEMENT OF UNITED STATES PATENT NO. 7,916,648

37. JSDQ realleges and incorporates by reference paragraphs 1 through 19, inclusive, as though fully set forth herein.

38. Defendants directly infringed at least independent method claims 29 and 36 of the '648 Patent (prior to its expiration).

Claim 29

39. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, provided a radio communication route among individual nodes capable of distribution arbitrarily relative to each other, in accordance with the limitations of claim 29 of the '648 Patent.

40. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, performed each of the limitations of claim 29 of the '684 Patent by:

- (a) establishing radio links between pairs of said nodes using radio signals transmitted from one said node and received directly by other said nodes without regard to the relative locations of said nodes of said pair transmitting and receiving said signals (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);

- (b) measuring values of a radio parameter of radio signals received by a said node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (c) transmitting from at least two of said nodes radio signals with associated routing messages, wherein said routing message from each of said two nodes identifies a multilink route segment to another said node and includes a value of a radio parameter related to a condition of said route segment (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (d) selecting at a said node receiving said radio signals a preferred said multi-link route segment, wherein said selection is based on the measured values of said radio parameter of said received radio signals and the values of said radio parameter included with said routing messages in said received radio signals (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (e) transmitting from said selecting node a radio signal with a routing message identifying said selecting node and said preferred route segment (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and
- (f) assembling a radio communication route between an originating node and a destination node, said route being assembled by computers in a plurality of said nodes independently of any computer separate from said nodes in said route, and said route including at least one said preferred multi-link route segment (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

Claim 36

41. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by, created a radio communications route comprising multiple radio links between a plurality of pairs of nodes capable of distribution arbitrarily relative to each other, in accordance with the limitations of claim 36 of the '648 Patent.

42. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by, performed each of the limitations of claim 36 of the '684 Patent by:

- (a) receiving at a said node at least two radio signals including routing messages transmitted from other said nodes, said signals being received at said node directly from said nodes transmitting said signals without regard to the relative locations of said node receiving said signals and said nodes transmitting said signals, wherein said routing message from each said node has content (i) identifying at least one preferred multi-link route segment to another said node, (ii) including the number of said radio links in said route segment, and (iii) including at least one value of a radio parameter of radio signals associated with said radio links in said route segment (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (b) measuring at said receiving node values of said radio parameter associated with at least some of said radio signals received by said receiving node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);

- (c) storing at said receiving node said measured values of said radio parameter and said routing messages associated with said measured values (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (d) selecting at a said node receiving said routing messages a preferred said route segment, wherein said selection is based on the measured values of said radio parameter of said received radio signals and the stored values of said radio parameter (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (e) transmitting from said selecting node a routing message identifying said preferred route segment (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and
- (f) assembling a radio communication route between an originating node and a destination node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

43. Defendants' Accused Wireless Systems likely infringed at least dependent claim 37 of the '648 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

44. Defendants' Accused Wireless Systems likely infringed at least dependent claim 38 of the '648 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

45. Defendants' Accused Wireless Systems likely infringed at least dependent claim 40 of the '648 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*.

46. After adequate discovery, JSDQ reserves the right to assert allegations of infringement of additional claims of the '648 Patent.

47. To the extent required by law, JSDQ has complied with the provisions of 35 U.S.C. § 287.

48. Defendants' direct infringement as described above injured JSDQ and JSDQ is entitled to recover damages adequate to compensate it for such infringement, but in no event less than a reasonable royalty.

INFRINGEMENT OF UNITED STATES REISSUE PATENT NO. RE 43,675

49. JSDQ realleges and incorporates by reference paragraphs 1 through 19, inclusive, as though fully set forth herein.

50. Defendants directly infringed, and continue to infringe, at least independent method claim 15 of the '675 Patent.

Claim 15

51. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by, provide a radio communication route among individual nodes capable of distribution arbitrarily relative to each other, in accordance with the limitations of claim 15 of the '675 Patent.

52. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by, perform each of the limitations of claim 15 of the '675 Patent by:

- (a) establishing radio links between respective pairs of said nodes, at least one said node using a directional radio signal transmitted from said node and received directly by another said node without regard to the relative locations of said nodes (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);

- (b) measuring a value of a radio parameter of a said directional radio signal received by at least one said node (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (c) transmitting from said at least one node a radio signal with an associated routing message based on at least one measured value of the radio parameter (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and
- (d) assembling a radio communication route between an originating node and a destination node, said route being assembled by computers in a plurality of said nodes using routing messages received by said nodes, wherein said computers in said nodes assemble said route independently of any computer separate from said nodes in said route, and said route includes at least one route segment with a said node transmitting a directional radio signal (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

53. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 17 of the '675 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

54. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 18 of the '675 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

55. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 19 of the '675 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

56. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 20 of the '675 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

57. After adequate discovery, JSDQ reserves the right to assert allegations of infringement of additional claims of the '675 Patent.

58. To the extent required by law, JSDQ has complied with the provisions of 35 U.S.C. § 287.

59. Defendants' infringement as described above has injured JSDQ and will continue to injure JSDQ as long as such infringement continues. JSDQ is entitled to recover damages adequate to compensate it for such infringement, but in no event less than a reasonable royalty.

60. In the event Defendants continue their infringing activities after the filing of the original Complaint (or continued their infringing activities after other notice), Plaintiff reserves the right to assert a claim for indirect infringement.

61. In the event Defendants continue their infringing activities after the filing of the original Complaint (or continued their infringing activities after other notice) and, thus, with knowledge that there is at least an objectively high likelihood that its actions constitute infringement of the '675 Patent, this case will be beyond the norm and subject to discretionary enhancement of damages under 35 U.S.C. § 284 and/or attorneys' fees and costs under 35 U.S.C. §§ 285.

INFRINGEMENT OF UNITED STATES REISSUE PATENT NO. RE 44,607

62. JSDQ realleges and incorporates by reference paragraphs 1 through 19, inclusive, as though fully set forth herein.

63. Defendants directly infringed, and continue to infringe, at least independent method claim 3 of the '607 Patent.

Claim 3

64. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, provide at least two radio communication routes among individual nodes capable of distribution arbitrarily relative to each other, in accordance with the limitations of claim 3 of the '607 Patent.

65. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, perform each of the limitations of claim 3 of the '607 Patent by:

- (a) establishing radio links between respective pairs of said nodes using radio signals transmitted from said nodes and received by other said nodes, wherein at least some of said radio signals include routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (b) using a directional radio signal transmitted from one said node in a directional link and received directly by the other said node in said directional link (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (c) measuring a parameter of radio signals received by at least some of said nodes (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);
- (d) transmitting from at least some of said nodes radio signals with associated routing messages based on said measured parameter (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and

(e) assembling radio communication routes between at least two originating nodes and at least one destination node, wherein computers in a plurality of said nodes use routing messages received by said nodes to assemble said routes independently of any computer separate from said nodes in said routes and without regard to the relative locations of said nodes in a said route, both said routes including at least one said directional link (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

Claim 11

66. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, provide at least two radio communication routes among individual nodes capable of distribution arbitrarily relative to each other, in accordance with the limitations of claim 11 of the '607 Patent.

67. The Accused Wireless Routing Systems, as manufactured, used, sold, offered for sale, advertised, imported, shipped, distributed, serviced, installed and/or maintained by Defendants, perform each of the limitations of claim 11 of the '607 Patent by:

(a) establishing radio links between respective pairs of said nodes using radio signals transmitted from said nodes and received by other said nodes, wherein at least some of said radio signals include routing messages (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*);

(b) using a directional radio signal transmitted from at least one said node in a directional link and received directly by the other said node in said directional link (as

evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*); and

(c) assembling radio communication routes between at least two originating nodes and at least one destination node, said routes being assembled by computers in a plurality of said nodes using routing messages received by said nodes, wherein said computers in said nodes assemble said routes independently of any computer separate from said nodes in said routes without regard to the relative locations of said nodes in a said route said originating nodes simultaneously receive communication signals from different originating remotes, and both said routes include at least one said directional link (as evidenced by, *inter alia*, Defendants' literature at Exhibit E, discussed at Paragraph 19, *supra*).

68. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 5 of the '607 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

69. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 6 of the '607 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

70. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 7 of the '607 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

71. Defendants' Accused Wireless Systems likely infringed, and continue to infringe, at least dependent claim 16 of the '607 Patent, as evidenced by, *inter alia*, Defendants' literature at Exhibit E, Paragraph 19, *supra*.

72. After adequate discovery, JSDQ reserves the right to assert allegations of infringement of additional claims of the '607 Patent.

73. To the extent required by law, JSDQ has complied with the provisions of 35 U.S.C. § 287.

74. Defendants' infringement as described above has injured JSDQ and will continue to injure JSDQ as long as such infringement continues. JSDQ is entitled to recover damages adequate to compensate it for such infringement, but in no event less than a reasonable royalty.

75. In the event Defendants continue their infringing activities after the filing of the original Complaint (or continued their infringing activities after other notice), Plaintiff reserves the right to assert a claim for indirect infringement.

76. In the event Defendants continue their infringing activities after the filing of the original Complaint (or continued their infringing activities after other notice) and, thus, with knowledge that there is at least an objectively high likelihood that its actions constitute infringement of the '675 Patent, this case will be beyond the norm and subject to discretionary enhancement of damages under 35 U.S.C. § 284 and/or attorneys' fees and costs under 35 U.S.C. §§ 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff JSDQ Mesh Technologies LLC respectfully requests this Court to enter judgment against Defendants Ultra Electronics Defense, Inc. and 3e Technologies International, Inc., jointly and severally – and against each of their subsidiaries, predecessors, successors, parents, affiliates, officers, directors, agents, servants, employees, and all persons in active concert or participation with them – granting the following relief:

A. The entry of judgment in favor of Plaintiff and against Defendants;

B. An award of damages against Defendants adequate to compensate Plaintiff for the infringement that has occurred, but in no event less than a reasonable royalty as permitted by 35 U.S.C. § 284, together with prejudgment interest from the date the infringement began; and

C. Such other relief to which Plaintiff is entitled under the law and any other and further relief that this Court or a jury may deem just and proper.

JURY DEMAND

Plaintiff demands a trial on all issues presented in this Amended Complaint.

Dated: December 4, 2017

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Respectfully submitted,

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