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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

MEDTRONIC VASCULAR INC.,
et al.,

Plaintiffs,

No. C 06-1066 PJH

v.

**ORDER CONSTRUING
CLAIMS**

ADVANCED CARDIOVASCULAR
SYSTEMS, INC., et al.,

Defendants.

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On November 7, 2007, the parties' claim construction hearing to construe the disputed terms of U.S. Patent Nos. 6,858,037 (the "'037 patent") and 7,094,255 (the "'255 patent") pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996), came on before this court. Plaintiffs appeared through their counsel Richard S. Florsheim, Cynthia J. Franecki, and Kadie M. Jelenchick. Defendants and intervenor appeared through their counsel Gerald F. Ivey, Michael Morin, James R. Barney, Kurt L. Glitzenstein, and Elizabeth A. Brown. Having read the parties' papers and carefully considered their arguments and the relevant legal authority, the court hereby rules as follows.

BACKGROUND

Plaintiff Evysio Medical Devices ULC ("Evysio") is the assignee and owner of the '037 patent and the '255 patent. The various Medtronic Vascular plaintiff entities¹ ("Medtronic")(collectively "plaintiffs") are licensees and sub-licensees of Evysio's patents. The '037 and '255 patents are primarily directed at medical stenting devices for use in the

¹ The Medtronic entities include: Medtronic Vascular, Inc.; Medtronic USA, Inc.; Medtronic, Inc.; and Medtronic Vascular Galway, Ltd.

1 human coronary system.

2 On February 15, 2006, plaintiffs sued defendants Advanced Cardiovascular
3 Systems, Inc., Abbott Laboratories, and Abbott XYZ Corporation (collectively “Abbott” or
4 “defendants”) for infringement of both patents. See generally Second Amended and
5 Supplemental Complaint for Patent Infringement (“SAC”). On July 30, 2007, Boston
6 Scientific Corporation (“BSC” or “intervenor”) intervened in the action, seeking a declaratory
7 judgment of non-infringement. See generally Complaint in Intervention.

8 A. Background Technology

9 Medical stenting – or stent implantation – represents a critical development in the
10 treatment of coronary artery disease. Heart disease – which refers to the narrowing of
11 arteries around the heart, which in turn causes restricted bloodflow to the heart – is the
12 leading cause of death in the United States, with approximately 10 million American
13 sufferers. Stent implantation is but one of the treatment options available to sufferers, but
14 for those who qualify as good candidates for the procedure (e.g., patients with blockages of
15 the kind and type treatable with stenting), it is becoming one of the most promising forms of
16 treatment.

17 Stent implantation usually occurs in conjunction with balloon angioplasty. In a
18 balloon angioplasty procedure, a patient undergoes cardiac catheterization, which refers to
19 the process by which a catheter is inserted into the patient’s main arteries through the
20 patient’s groin area, and is directed by a doctor to the heart and its surrounding arteries.
21 The catheter is fitted with a small balloon, and when the catheter (and balloon) reaches the
22 intended blocked heart artery, the doctor directs the catheter through the blockage, at
23 which point the balloon is artificially inflated in order to compress the plaque that is blocking
24 the artery wall. This creates an improved area for blood flow. After the desired degree of
25 plaque compression is performed, the balloon is deflated and the balloon and catheter are
26 then withdrawn and removed.

27 Traditionally, balloon angioplasty was thought to be sufficient, as a stand alone
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1 procedure, to treat patients with blocked arteries. However, as balloon angioplasty became
2 common, the medical community began to notice and document incidences of restenosis.
3 Restenosis refers to the process by which treated arteries become blocked once again
4 (usually, with scar tissue that forms over the original area of plaque build-up), usually within
5 6 months of the original balloon angioplasty. The research indicates that restenosis occurs
6 in as high as 50% of patients who undergo angioplasty.

7 Stent implantation was developed as a way of reducing the incidence of restenosis
8 in patients with heart disease. The stent is a small, hollow, steel-based device that, like the
9 balloon, is capable of being expanded from a compressed state when placed inside arterial
10 walls. With stent implantation, a stent is fitted onto the balloon prior to the balloon
11 angioplasty. The balloon and stent are then inserted into a blocked artery by catheter
12 (pursuant to the usual angioplasty procedures), and the balloon is then artificially inflated.
13 The inflation of the balloon also serves to expand the stent into its hollow tubular shape,
14 which in turn both compresses the plaque along the artery walls, and shores up the artery
15 walls.

16 Since their development in the mid-eighties, stent design has come a long way. The
17 first generation of stents has given way to a second generation of stents, which improve
18 upon the deficiencies of the first. Generally speaking, however, in order to do an optimal
19 job, a well-designed stent must achieve the right balance of: flexibility, crimpability,
20 pressure, even expansion, and vessel conformity and strength.

21 B. The Patents

22 Plaintiff Evysio filed the '037 and '255 patents in 2002 and 2004, respectively. Both
23 patents cover stent designs. According to plaintiffs, these designs involve stents that are
24 laser cut from a tube, and are comprised of "undulating circumferential elements" joined
25 together by "longitudinal" members.

26 The '037 patent contains seventy-five claims, and the '255 patent contains twenty-
27 five. See attachments to Joint Claim Construction Statement.

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1 The parties now seek construction of eleven disputed terms and/or phrases, which
2 are contained throughout the numerous claims.

3 **DISCUSSION**

4 A. Legal Standard

5 In construing claims, the court must begin with an examination of the claim language
6 itself. The terms used in the claims are generally given their “ordinary and customary
7 meaning.” See Phillips v. AWH Corp., 415 F.3d 1303, 1312-13 (Fed. Cir. 2005); see also
8 Renishaw PLC v. Marposs Societa’ per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (“The
9 claims define the scope of the right to exclude; the claim construction inquiry, therefore,
10 begins and ends in all cases with the actual words of the claim.”). This ordinary and
11 customary meaning “is the meaning that the terms would have to a person of ordinary skill
12 in the art in question at the time of the invention...”. Phillips, 415 F.3d at 131. A patentee is
13 presumed to have intended the ordinary meaning of a claim term in the absence of an
14 express intent to the contrary. York Products, Inc. v. Central Tractor Farm & Family Ctr.,
15 99 F.3d 1568, 1572 (Fed. Cir. 1996).

16 Generally speaking, the words in a claim are to be interpreted “in light of the intrinsic
17 evidence of record, including the written description, the drawings, and the prosecution
18 history, if in evidence.” Teleflex, Inc. v. Ficos North Am. Corp., 299 F.3d 1313, 1324-25
19 (Fed. Cir. 2002) (citations omitted); see also Medrad, Inc. v. MRI Devices Corp., 401 F.3d
20 1313, 1319 (Fed. Cir. 2005)(court looks at “the ordinary meaning in the context of the
21 written description and the prosecution history”). “Such intrinsic evidence is the most
22 significant source of the legally operative meaning of disputed claim language.” Vitronics
23 Corp. v. Conceptoronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

24 With regard to the intrinsic evidence, the court’s examination begins, first, with the
25 claim language. See id. Specifically, “the context in which a claim is used in the asserted
26 claim can be highly instructive.” Phillips, 415 F.3d at 1314. As part of that context, the
27 court may also consider the other patent claims, both asserted and unasserted. Id. For
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1 example, as claim terms are normally used consistently throughout a patent, the usage of a
2 term in one claim may illuminate the meaning of the same term in other claims. Id. The
3 court may also consider differences between claims to guide in understanding the meaning
4 of particular claim terms.

5 Second, the claims “must [also] be read in view of the specification, of which they
6 are a part.” Id. at 1315. When the specification reveals a special definition given to a claim
7 term by the patentee that differs from the meaning it would otherwise possess, the
8 inventor’s lexicography governs. Id. at 1316. Indeed, the specification is to be viewed as
9 the “best source” for understanding a technical term, informed as needed by the
10 prosecution history. Id. at 1315. As the Federal Circuit stated in Phillips, the specification
11 is “the single best guide to the meaning of a disputed term,” and “acts as a dictionary when
12 it expressly defines terms used in the claims or when it defines terms by implication.” 415
13 F. 3d at 1321.

14 Limitations from the specification, such as from the preferred embodiment, cannot
15 be read into the claims absent an express intention to do so. Teleflex, 299 F.3d at 1326
16 (“The claims must be read in view of the specification, but limitations from the specification
17 are not to be read into the claims.”) (citations omitted); CCS Fitness, 288 F.3d at 1366 (“a
18 patentee need not describe in the specification every conceivable and possible future
19 embodiment of his invention.”); Altiris v. Symantec Corp., 318 F.3d 1363, 1372 (Fed. Cir.
20 2003) (“resort to the rest of the specification to define a claim term is only appropriate in
21 limited circumstances”). To protect against this, the court should not consult the intrinsic
22 evidence until after reviewing the claims in light of the ordinary meaning of the words
23 themselves. Texas Digital, 308 F.3d at 1204-05 (to act otherwise “invites a violation of our
24 precedent counseling against importing limitations into the claims”) (citations omitted).

25 Finally, as part of the intrinsic evidence analysis, the court “should also consider the
26 patent’s prosecution history, if it is in evidence.” Phillips, 415 F.3d at 1317. The court
27 should take into account, however, that the prosecution history “often lacks the clarity of the
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1 specification” and thus is of limited use for claim construction purposes. Id.

2 In most cases, claims can be resolved based on intrinsic evidence. See Vitronics,
3 90 F.3d at 1583. Only if an analysis of the intrinsic evidence fails to resolve any ambiguity
4 in the claim language may the court then rely on extrinsic evidence, such as expert and
5 inventor testimony, dictionaries, and learned treatises. See Vitronics, 90 F.3d at 1583 (“In
6 those cases where the public record unambiguously describes the scope of the patented
7 invention, reliance on any extrinsic evidence is improper”). However, the court generally
8 views extrinsic evidence as less reliable than the patent and its prosecution history in
9 determining how to read claim terms, and its consideration is within the court’s sound
10 discretion. See Phillips, 415 F.3d at 1318-19.

11 B. Construction of Disputed Terms and Phrases

12 The parties dispute construction of eleven different terms and phrases contained
13 within the claims of the ‘037 and ‘255 patents, each of which is addressed below.

14 Preliminarily, however, and as stated at the claim construction hearing, the court
15 notes that a large portion of defendants’ brief is devoted to issues that are improper for
16 consideration on claim construction. Notably, the first 10 pages of defendants’ answering
17 brief includes arguments that go to invalidity and infringement issues, all under the guise of
18 factual “background.” While some of the information is useful as background, however, the
19 majority is premature, and better suited to dispositive motion practice. Accordingly, the
20 court declines to consider it.

21 1. “tubular wall”

22 The phrase “tubular wall” is found in claims 1, 8-9, 12-13, 16-17, 20, 22, 29-30, 33-
23 34, 40-41, 43, 45-48, 52-53, and 55-75 of the ‘037 patent, and in claims 11-25 of the ‘255
24 patent. See Joint Statement, ‘037 and ‘255 Patents. Plaintiffs contend that “tubular wall”
25 should be construed to mean “a tube-shaped wall, formed from tubular starting material
26 rather than being formed from wires, a mesh coil or from a porous flat plate welded into a
27 tube shape.” Defendants and the intervenor contend that “tubular wall” should be
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1 construed to mean “having the form of a tube.”

2 As a preliminary matter, all sides concede that the phrase “tubular wall” cannot be
3 construed by looking at the claim language itself, since there is nothing in the claim
4 language that sheds any light as to what, precisely, is meant by a “tubular wall.” In support
5 of the ordinary meaning of “tubular wall,” therefore, plaintiffs argue that the phrase is
6 informed and defined by the language of the specification, while defendants and the
7 intervenor contend that the dictionary definition of the phrase should control.²

8 Beginning with the language of the specification, it never expressly defines the
9 phrase “tubular wall.” It does, however, provide helpful guidance. First, the specification
10 expressly states that “[t]he manner in which the present stent is manufactured is not
11 particularly restricted.” See Joint Statement, ‘037 Patent at 13:1-2. The specification then
12 goes on to explain that, while not particularly restricted, there *is* a preferred embodiment of
13 the claimed stent design that includes a preferred manufacturing mode. Specifically, the
14 specification states: “[p]referably, the stent is produced by laser cutting techniques applied
15 to a tubular starting material.” See id. at 13:2-4. Furthermore, “the preferred design of the
16 present stent is one of a tubular wall which is distinct from prior art wire mesh designs
17 wherein wire is conformed to the desired shape and welded in place.” See id. at 13:8-11.
18 From this, then, it is clear that the “tubular wall” claimed by the ‘037 and ‘255 Patents is not
19 restricted in its mode of manufacture, but that its preferred embodiment is one in which the
20 tubular wall is *not* made from wire mesh that is conformed to the desired shape and then
21 welded into place. What is not clear, however, is what the tubular wall *is*, or *from what* it is
22 actually made.

23 Absent any language that actually suggests the affirmative definition for “tubular
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25 ² While two different patents are at issue, the disputed terms and phrases before
26 the court are similarly worded in both patents, and the specification of both patents is
27 essentially identical. Accordingly, the parties generally rely on the ‘037 Patent for purposes
28 of construing the disputed claim language for both patents. The court accordingly does the
same for purposes of this order, unless expressly noted in connection with disputed terms that
pertain to the ‘255 Patent specifically.

1 wall,” the court will not read the above limitations, taken from a description of the preferred
2 embodiment of the claimed design, into the claim language itself. And since plaintiffs’
3 proposed construction does exactly that by lifting the specification’s description of the
4 preferred embodiment to the phrase at issue, their proposed construction is rejected. See,
5 e.g., Teleflex, Inc., 299 F.3d 1313, 1324-26 (Fed. Cir. 2002)(limitations from the
6 specification, such as from the preferred embodiment, cannot be read into the claims
7 absent an express intention to do so).

8 Moreover, plaintiffs’ proposed construction sets forth an additional qualifier – i.e.,
9 that a tubular wall cannot be formed from “a porous flat plate welded into a tube shape” –
10 that is not found in the patent specification. While plaintiffs assert that this language is
11 supported by prior art patents, specifically U.S. Patent Nos. 4,762,128 (the “‘128 Patent”)
12 and 5,591,197 (the “‘197 Patent” or “Orth Patent”), plaintiffs have failed to submit the ‘128
13 Patent for the court’s consideration. As for the ‘197 Patent, which plaintiffs did not submit
14 until after the hearing on claim construction, the section cited by plaintiffs therein fails to
15 provide clear support for their proposed construction. See ‘197 Patent at 7:8-15 (noting
16 that Figure 1 of the patent depicts a sheet of material which must be rolled into cylindrical
17 configuration with ends “welded” together, but omitting any reference to “porous flat
18 plate[s]”).

19 Accordingly, and for all the above reasons, the court declines to adopt plaintiffs’
20 proposed construction, and instead adopts defendants’ proposed construction and
21 construes “tubular wall” as: **“having the form of a tube.”**

22 2. “peaks and valleys”

23 The phrase “peaks and valleys” is found in claims 1, 8-9, 12-13, 16-17, 20, 22, 29-
24 30, 33-34, 40-41, 43, 45-48, 52-53, and 55-75 of the ‘037 patent, and in claims 11-25 of the
25 ‘255 patent. See Joint Statement, ‘037 and ‘255 Patents. Plaintiffs contend the phrase
26 should be construed to mean “[w]hen viewed in two dimensions, the upper surface of the
27 crest of the wave is the peak, the upper surface of the trough of the wave is the valley.”
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1 Defendants contend that the phrase should be construed to mean “when two slopes or
2 curves meet, the furthest projecting point or surface on the outside of that intersection is a
3 ‘peak’ and the furthest recessed point or surface on the inside of that intersection is a
4 ‘valley.’” The intervenor, for its part, contends that the phrase should be construed as “the
5 inside of an apex is a ‘valley’ and the outside of an apex is a ‘peak.’”³

6 The phrase “peaks and valleys” is not described in either the claim language or the
7 specification, although there is – as defendants point out – a limited mention of the term
8 “peak” in the specification. Specifically, in connection with a description of illustrated Figure
9 12c, which is discussed as a type of flexure means disposed in the “longitudinal struts” of
10 the claimed stent design, the specification states that Figure 12c may be considered “to be
11 an in line symmetric double peak.” See Joint Statement, ‘037 Patent at 11:47-49. Turning
12 to the illustration at issue, the “peak” looks to be the point at which two sloped lines meet
13 or, as defendants propose, the “furthest projecting point” at the place where two slopes
14 meet. This would-be support for defendants’ proposed construction falters, however,
15 because a closer look at the specification language discloses that the description of Figure
16 12c as “an in line symmetric double peak” is made in the context of the specification’s
17 general description of differing types of longitudinal struts – e.g., connectors – that form a
18 part of the claimed stent design. Yet the actual claim language makes clear that “peak,”
19 when construed in connection with the phrase “peaks and valleys,” is to be construed with
20 reference to circumferential members, not longitudinal struts. See id. at 14:39-41 (Claim 1
21 covers stents having a “circumferential portion comprising alternating peaks and valleys”).
22 Accordingly, the specification’s description of “peak” in connection with Figure 12c of the
23 patent is not all that relevant to the proper construction to be given the phrase “peak” as
24 used in the disputed phrase at issue. And defendants’ corresponding argument that Figure
25 12c therefore supports a construction of “peak” as “the furthest projecting point or surface”

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27 ³ Although the intervenor has proposed a differing construction from either plaintiffs
28 or defendants’, the intervenor’s claim construction brief does not include any argument in
support its particular construction.

1 on the outside of the intersection where “two slopes or curves meet,” is also unpersuasive.

2 Since neither the claim language nor the specification therefore shed any light on the
3 ordinary meaning of the phrase “peaks and valleys,” the court turns to the prosecution
4 history, which both parties rely on in support of their differing proposed constructions.
5 Plaintiffs note that the prosecution history of the ‘037 Patent indicates that the applicants
6 understood Figure 5 of the patent to depict “peaks and valleys,” as illustrated by the
7 undulating patterns of circumferential members in Figure 5. They also note that the ‘255
8 prosecution history indicates the same understanding of “peaks and valleys,” as depicted
9 by the figure drawing included by the applicants in their submissions to the examiner, and
10 Figures 2D and 3 of the prior art Orth Patent, which the applicants also relied on in
11 prosecution the ‘255 Patent. See Declaration of Kadie M. Jelenchick (“Jelenchick Decl.”),
12 Ex. E at AB0732124-25. According to plaintiffs, both Figure 5 of the ‘037 Patent and, all
13 the figure drawings relied on by the applicants in prosecution the ‘255 Patent all depict
14 undulations, or “waves,” in which the entire upper surface of the crest is a “peak,” and the
15 entire upper surface of the trough is a “valley.”

16 Defendants, for their part, also rely on Figure 5 of the ‘037 Patent, and the same
17 figure drawing disclosed by the applicants in the prosecution history of the ‘255 Patent, to
18 support their differing construction for “peaks and valleys.” Defendants contend that, as
19 disclosed therein, a “peak” is the “furthest projecting point” on the outside of the
20 intersection of two slopes, while the “valley” is the “furthest recessed point” on the inside of
21 same.

22 In the court’s view, however, neither of these arguments is especially compelling.
23 The court could find no support for plaintiffs’ proposed construction, which essentially adds,
24 without defining, new elements to the claim language – i.e., “crest” and “wave” – that are
25 nowhere found in the prosecution history, or in the claim language or specification, for that
26 matter. Moreover, Figure 5 of the patent, which plaintiffs assert depicts “peaks and
27 valleys,” does not, in the court’s view, actually depict any shapes that would necessarily
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1 qualify as “crests,” “troughs,” or “waves.” See, e.g., Merriam-Webster’s Collegiate
2 Dictionary 295, 1342, 1415 (11th Ed.). As for defendants’ proposed construction, the court
3 is not convinced that “peaks” and “valleys” must be construed as limited solely to the
4 furthest projecting or furthest recessed points on the outside and inside surfaces of the
5 claimed intersections. For as plaintiffs point out, Figure 10 of the ‘037 patent depicts
6 “valleys” that include a slightly raised point of connection where a connector meets the
7 valley. See Joint Statement, ‘037 Patent at Fig. 10. In other words, the valley appears
8 similar to a “w” shape, with the connector rising out of the valley to form that “w.”
9 Defendants’ proposed construction, however, is inconsistent with this depicted “valley,”
10 since there is no single furthest recessed point that can be located in the valley. Rather,
11 there are at least *two* furthest recessed points. Yet the prosecution history and claim
12 language indicates that even the “w” shaped valley is still a “valley.”

13 Forced to conclude, therefore, that neither of the parties’ proposed constructions is
14 accurate, the court must nonetheless construe the disputed phrase at issue. On balance,
15 the court finds that the construction of “peaks and valleys” that is most consistent with the
16 intrinsic evidence is as follows: **“the surface outside the point at which two slopes or
17 curves meet is the peak, and the surface inside the point at which two slopes or
18 curves meet is the valley.”** The court hereby adopts this construction.

19 In so doing, the court notes that it is reluctant to construe any disputed term in a
20 manner not proposed by either side. For that reason, the court will be amenable to
21 accepting a revised construction, jointly agreed upon by the parties, in place of the one
22 herein adopted. Should the parties wish to submit a jointly revised construction in place of
23 the present one adopted by the court, they are instructed to do so, via joint letter brief,
24 within 2 weeks of the date of this order.

25 3. “flexure member”

26 The phrase “flexure member” is found in claims 1, 8, 9, 12-13, 16-17, 22, 29-30, 33-
27 34, 40-41, 43, 45-48, 52-53, and 55-75 of the ‘037 patent, and in claims 11-25 of the ‘255
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1 patent. See Joint Statement, '037 and '255 Patents. Plaintiffs contend that the phrase
2 should be construed to mean "part of a longitudinal portion that provides flexibility."
3 Defendants (and the intervenor) contend that the phrase should be construed to mean "a
4 lateral section of a flexure means, where a flexure means is a combination identified in the
5 patent for facilitating substantially complementary extension and compression."

6 Neither party disputes that the phrase "flexure member" is absent from the patents'
7 specification. Plaintiffs contend, however, that the phrase should be construed with
8 reference to its ordinary dictionary definition, while defendants contend that the phrase
9 should be construed in the context of the specification's language describing "flexure
10 means," since a flexure member should be viewed as part of the general flexure means
11 described in the specification. Defendants' arguments are at first blush appealing;
12 however, a close review of the claim language and the specification suggests that plaintiffs
13 have proposed the better construction.

14 Beginning with the claim language, the '037 patent covers a stent design that is
15 comprised in part of "longitudinal portion[s] having a flexure member...". See, e.g., Joint
16 Statement, '037 Patent at 14:50. These flexure members, when viewed in two dimensions,
17 can be "non-sinusoidal and arcuate," or "U-shaped." Id. at 14:5-52, 15:40-42. The '255
18 patent, for its part, covers a stent design that is similarly comprised in part of a "plurality of
19 longitudinal portions having a single flexure member...". See, e.g., Joint Statement, '255
20 Patent at 15:29-34. The flexure members are described as "U-shape[d]." Id. From the
21 claim language set forth in both patents, therefore, the court can discern that a "flexure
22 member" is part of a "longitudinal portion" and can be "non-sinusoidal and arcuate," or "U-
23 shaped." In other words, the term "member," in reference to the phrase "flexure member,"
24 is expressed by the claim language as part of a longitudinal portion.

25 Although it provides some guidance as to how the "member" portion of the phrase
26 "flexure member" should be construed, however – i.e., by noting that a flexure member
27 forms a part of a "longitudinal portion[s]" – the claim language provides no further insight as
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1 to how the “flexure” portion of the phrase should be construed. Nor does the specification.
2 Indeed, the specification never even mentions the phrase “flexure member.” Given this,
3 and the fact that neither party urges the court to refer to or rely on the prosecution history
4 for further elucidation, plaintiffs correctly urge the court to rely on the ordinary meaning of
5 the phrase “flexure,” as informed by its dictionary definition. See Vitronics, 90 F.3d at 1583
6 (reliance on extrinsic evidence, such as dictionaries, and learned treatises appropriate,
7 where intrinsic evidence fails to resolve ambiguity in claim language). Turning to the
8 dictionary definition, “flexure” is defined as the ability to flex, or to turn, bend, or fold. See
9 Merriam-Webster’s Collegiate Dictionary 479 (11th ed. 2003). Accordingly, plaintiffs’
10 proposed construction of “flexure member” as “part of a longitudinal portion that provides
11 flexibility” is consistent with the ordinary meaning of the phrase at issue, as disclosed by
12 the relevant intrinsic and extrinsic evidence.

13 Moreover, defendants’ contrary arguments in support of its proposed construction
14 are unconvincing. They correctly note that, while the specification does not expressly refer
15 to a “flexure member,” it does refer to “flexure means.” Based on this, they contend that a
16 “flexure member” is part of a “flexure means,” not part of a “longitudinal portion.” However,
17 there are two fundamental errors in defendants’ approach.

18 First, as plaintiffs point out, the term “flexure means” is not a part of the actual claim
19 language, whereas “longitudinal portion” is. Therefore, to define “flexure member” with
20 reference to “flexure means” instead of “longitudinal portion” would improperly import a
21 limitation from the specification into the claim language. See, e.g., Teleflex, Inc. v. Ficosa
22 North Am. Corp., 299 F.3d 1313, 1324-26 (Fed. Cir. 2002)(“The claims must be read in
23 view of the specification, but limitations from the specification are not to be read into the
24 claims.”).

25 Second, and more importantly, the specification’s description of “flexure means”
26 actually seems to support *plaintiffs’* proposed construction, rather than defendants’. The
27 specification, for example, states that the claimed design is a tubular wall comprised in part
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1 of “a series of longitudinal struts disposed substantially parallel to the longitudinal axis of
2 the stent, *each of the longitudinal struts comprising flexure means* for substantially
3 complementary extension and compression of a diametrically opposed pair of the
4 longitudinal struts...”. See Joint Statement, ‘037 Patent at 3:21-29 (emphasis added). In
5 other words, the specification describes “flexure means” as the longitudinal struts
6 themselves, which struts achieve complementary extension and compression with respect
7 to diametrically opposed struts. Id. The specification then goes on to state: the “specific
8 shape of the flexure means disposed in the longitudinal strut is not particularly restricted
9 provided that it confers lateral flexibility” by allowing “substantially complementary
10 extension and compression.” Id. at 3:57-62. In the court’s view, the specification therefore
11 indicates that it is the shape *of the overall flexure means disposed in the longitudinal struts*
12 that must confer lateral flexibility by allowing for opposing struts in the same horizontal
13 plane or in different horizontal planes, to extend and compress. See id. at 3:57-66. In
14 other words, it is the longitudinal struts – which in turn constitute flexure means – that must
15 confer flexibility through substantially complementary extension and compression. And
16 since the actual claim language at issue indicates that a “flexure member” is part of a
17 “longitudinal portion,” it follows from this that “flexure members,” as lesser parts of the
18 longitudinal portions, are not themselves required to provide for such extension and
19 compression.

20 In sum, the court finds that defendants’ (and the intervenor’s) proposed construction
21 is at odds with the intrinsic evidence, while plaintiffs’ proposed construction is consistent
22 with it. Accordingly, the court adopts plaintiffs’ proposed construction of “flexure member,”
23 and construes it as: **“part of a longitudinal portion that provides flexibility.”**

24 4. “non-sinusoidal”

25 This phrase is found in the ‘037 patent only, in claims 1, 8-9, 12-13, 16-17, 20, 22,
26 29-30, 33-34, 40-41, 43, 45-48, 52-53, and 55-75. See Joint Statement, ‘037 Patent.
27 Plaintiffs contend that the proper construction to be given “non-sinusoidal” is “not S-
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1 shaped," while defendants and the intervenor all contend that the phrase should be
2 construed to mean "not forming a continuously curved shape consisting of a pair of joined,
3 opposed curved sections wherein each curved section has an arc of approximately 180
4 degrees or greater."

5 All parties agree that the term "sinusoidal" can be defined with reference to the '037
6 Patent specification, and that the term "non-sinusoidal" should therefore be construed with
7 reference to the same. Turning, then, to the language of the specification, it is immediately
8 apparent that it expressly and continuously refers to the term "sinusoidal" as "s-shaped."
9 See, e.g., Joint Statement, '037 Patent at 4:17-18 ("A particularly preferred embodiment of
10 the flexure means comprises a sinusoidal or S-shaped section"); id. at 4:20, 28 (repeatedly
11 referring to the "sinusoidal or S-shaped" portions of the claimed design); id. at 10:48-50;
12 10:60-63 (describing illustrated depictions of "sinusoidal (or S-shaped)" portions of figures 9
13 and 10). This constant referral to "s-shaped" and to "sinusoidal" in the alternative, is a
14 strong indication that "sinusoidal" is meant by the patent authors to be synonymous with "s-
15 shape." By extension, therefore, plaintiffs' argument that "non-sinusoidal" should be
16 construed as "not s-shaped" makes sense.

17 Defendants' and the intervenor's proposed construction, by contrast, is ultimately
18 unpersuasive. They contend that, while the specification generally defines "sinusoidal" to
19 mean "s-shape," it goes further than this, and specifically requires that the claimed
20 "sinusoidal" elements be comprised of "joined [or adjoined] curved sections." See Joint
21 Statement, '037 Patent at 4:39-41 ("the sinusoidal or S-shaped portion may be comprised
22 of a pair of joined curved sections wherein each curved section has an arc of about 180°");
23 4:45-47 ("Alternatively, the sinusoidal or S-shaped portion may be comprised of a pair of
24 joined curved sections wherein each curved section has an arc of greater than 180°");
25 4:48-51; 10:49-52; 10:66-11:1. This supports, in defendants' and the intervenor's view, the
26 notion that the claimed "sinusoidal" elements must be comprised of a pair of joined curved
27 sections, which must furthermore be continuously curved – as supported by both the
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1 dictionary definition of the word “adjoined,” and the rules of mathematics.

2 The language that defendants rely on for their argument, however, specifically refers
3 to alternative *possible* embodiments of the “sinusoidal or S-shaped portions” that are
4 claimed. See id. at 4:39-52 (noting that “the sinusoidal or S-shaped portion *may be*
5 *comprised of* a pair of joined curved sections ... [each with an arc of about 180°]” and
6 “[a]lternatively... *may be comprised of* a pair of joined curved sections ... [each with an arc
7 of greater than 180°]”)(emphasis added). These alternative embodiments are described in
8 the specification subsequent to the specification’s unequivocal statement that, while the
9 sinusoidal or S-shaped portion is “not particularly restricted,” it “generally takes the form of
10 an ‘S.’” Id. at 4:35-39. Thus, the only unequivocal statement to be gleaned from this
11 language is that, while a “sinusoidal” portion of the claimed element *may be* comprised of
12 pairs of joined curved sections consisting of arcs of about or greater than 180°, the
13 sinusoidal portion will *always* generally take the form of an S.

14 Defendants and the intervenor respond to this by noting that the specification,
15 properly read, actually limits all possible embodiments of the “sinusoidal or S-shaped
16 portion” covered by the claims of the ‘037 Patent to the two alternative embodiments
17 specifically described therein, see id. at 4:39-52. As such, *all* disclosed embodiments that
18 contain “sinusoidal” elements *must be* comprised of joined curved sections – a limitation
19 that only defendants’ and the intervenor’s construction recognizes.

20 Even assuming this to be the case, however, defendants’ and the intervenor’s
21 construction still includes a limitation for which the court can find no support in the
22 specification – i.e., the requirement that sinusoidal be construed as “continuously curved,”
23 and that “non-sinusoidal” therefore be construed in part to mean “not forming a
24 continuously curved shape.” Defendants and the intervenor claim that the “continuously
25 curved” requirement follows naturally from applying the dictionary definition to the
26 specification’s requirement that sinusoidal elements be comprised of “joined curved
27 sections,” or “adjoined curved sections.” See id. at 4:39-52; 10:48-50; 10:67. However,
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1 neither party points to anything in the specification language itself that either supports this
 2 limitation, or in some other way suggests that the limitation should be read into the meaning
 3 of “sinusoidal.” Indeed, the court could find no mention of the phrase “continuously curved”
 4 anywhere in the relevant specification language at all. Without any support for the claimed
 5 limitation, the court will not voluntarily read it into the claim language itself.⁴ See, e.g.,
 6 Phillips, 415 F.3d at 1323.

7 In sum, therefore, and for the above reasons, the court finds plaintiff’s proposed
 8 construction to be more consistent with the intrinsic evidence of the ‘037 Patent.
 9 Accordingly, the court hereby adopts plaintiff’s proposed construction, and construes “non
 10 sinusoidal” to mean: “**not S-shaped.**”

11 5. “arcuate”

12 This phrase is found in claims 1, 8-9, 12-13, 16-17, 20, 22, 29-30, 33-34, 40-41, 43,
 13 45-48, 52-53, and 55-75 of the ‘037 patent, and in claim 11 of the ‘255 patent. See Joint
 14 Statement, ‘037 and ‘255 Patents. Originally, plaintiffs contended that “arcuate” should be
 15 construed to mean “comprising a shape curved in the form of a bow,” defendants
 16 contended that the phrase should be construed to mean “comprising a shape bent or
 17 curved in the form of a bow,” and the intervenor contended that the phrase should mean
 18 “deviating from the axis of the longitudinal portion.”

19 At the hearing on claim construction, however, the court indicated to the parties that
 20 it was likely to adopt plaintiffs’ proposed construction, with a slight modification adding
 21 defendants’ proposed term “bent.” In view of the similarities between the court’s likely
 22 construction and the parties’ proposed constructions, the court requested that the parties
 23 attempt to reach agreement as to a jointly proposed construction. On November 12 and

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 25 ⁴ Defendants’ and the intervenor appear to have chosen the phrase “continuously
 26 curved” in order to clarify that the phrase “sinusoidal” cannot include straight sections, a point
 27 with which plaintiffs take issue. This particular issue, however, need not specifically be
 28 resolved by the court. Plaintiffs’ proposed construction of “not S-shaped” contemplates only
 that sinusoidal shall “generally take the form of an S.” As such, *regardless* whether any portion
 of a design contains a straight section or not, it will not qualify as sinusoidal if it does not
 generally take the form of an S.

1 13, the parties wrote separately to the court, indicating that they were unable to reach a
2 compromise. Plaintiffs therefore now propose that the court construe “arcuate” as
3 “comprising a shape bent in the form of a bow or curved in the form of a bow.” Defendants,
4 for their part, continue to propose that the court construe the phrase as “comprising a
5 shape bent or curved in the form of a bow.”

6 The court is completely flummoxed as to why, now that plaintiffs’ proposed
7 construction includes the term “bent,” the parties have been unable – and more likely, have
8 refused – to reach agreement on a proposed construction. The present constructions
9 before the court are substantively indistinguishable, and any difference between the two is
10 semantic – as demonstrated by the fact that defendants’ only objection to plaintiffs’ new
11 construction is that it “restates” defendants’ proposed construction “in a longer, more
12 convoluted way.” As such, the parties’ continued dispute calls to mind the classic phrase
13 “you say tomato, I say tomahto,” and warrants no greater analysis than this mainstream
14 observation, and certainly no more of the court’s time.

15 In view of the fact that there is no substantive difference between the parties’ current
16 proposed constructions, the court chooses to adopt plaintiffs’ proposed construction and
17 hereby construes “arcuate” as: **“comprising a shape bent in the form of a bow or
18 curved in the form of a bow.”**

19 6. “[interposed between a pair of] straight strut portion[s] which is [are]
20 disposed parallel to a longitudinal axis of the stent”

21 This phrase is found in claims 22, 29-30, 33-34, 40-41, 43, 45-48, 52-53, and 55-75
22 of the ‘037 patent, and in claims 11-20 of the ‘255 patent. See Joint Statement, ‘037 and
23 ‘255 Patents. Plaintiffs contend that the phrase should be construed according to its
24 ordinary meaning, as currently set forth in the claim language. Accordingly, they propose
25 no alternative construction.

26 In their opposition and at the claim construction hearing, defendants conceded
27 plaintiffs’ argument that the phrase at issue should be construed according to its ordinary
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1 meaning. Defendants further indicated that they do not object to the court's adoption of
2 plaintiffs' proposed construction, in view of their concession.

3 Accordingly, the court finds that no construction of the phrase "[interposed between
4 a pair of] straight strut portion[s] which is [are] disposed parallel to a longitudinal axis of the
5 stent" is necessary. The ordinary meaning of the phrase shall control.

6 7. "polygon"

7 This phrase is found in claims 12, 33, 47, and 58-75 of the '037 patent, and in claims
8 13-14, and 19-25 of the '255 patent. See Joint Statement, '037 and '255 Patents.
9 Originally, plaintiffs contended that "polygon" should be construed to mean "a closed figure
10 made up of curved lines, straight lines, or a combination of curved and straight lines" and
11 defendants contended that the phrase should be construed to mean "a closed arrowhead
12 shape." As with the disputed phrase "arcuate," however, the court requested at the claim
13 construction hearing that the parties attempt to arrive at a jointly agreed upon construction,
14 in view of the court's inclination to adopt plaintiffs' proposed construction, modified to
15 include the term "arrowhead."

16 Unsurprisingly, the parties have not been able to agree upon a jointly proposed
17 construction. Plaintiffs now propose that "polygon" be construed as "a closed figure made
18 up of curved lines, straight lines, or a combination of curved and straight lines, for example,
19 a closed arrowhead shape." Defendants, by contrast, propose the following construction:
20 "a closed arrowhead shape made up of curved lines, straight lines, or a combination of
21 curved and straight lines."

22 On the whole, the court finds defendants' proposed construction more persuasive.
23 Beginning with the specification, it clearly describes "the present invention" as an
24 expandable stent that has a tubular wall, which in turn has a longitudinal axis and a porous
25 surface "defined by a plurality [of] intersecting members arranged to define a first repeating
26 pattern comprised of a polygon having a pair of side walls substantially parallel to the
27 longitudinal axis." See Joint Statement, '037 Patent at 5:5-12. Thus, a first repeating
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1 pattern is comprised of a *polygon* with side walls essentially parallel to the longitudinal axis.
2 Turning to the actual description of the various figure drawings of the patent, the
3 specification explains that a first repeating pattern – comprised of a polygon – might look
4 like the portion of Figure 1A that is labeled ‘A.’ See id. at 8:35-37 (“As illustrated and with
5 further reference to FIG. 1A, repeating pattern A is a polygon comprising a pair of side
6 walls 35, 40”). And viewing that portion labeled “A,” it is, in fact, a closed figure in the
7 shape of an arrowhead. Thus, the phrase “polygon” is referenced by the specification as a
8 closed figure in the shape of an arrowhead.

9 Moreover, defendants correctly note that the specification, in discussing all the
10 “illustrated embodiments” of the ‘037 patent, nearly all of which contain adjacent rows of
11 “repeating pattern A” and repeating pattern B, expressly describes those repeating patterns
12 as “polygons or ‘arrowheads.’” See id. at 8:58-60 (emphasis added). This implies, as
13 defendants propose, that polygon be construed to mean a “closed arrowhead shape.”

14 Plaintiffs correctly point out, however, that a polygon, as described in the patent, can
15 include curved flexure members, and sides that include a sinusoidal – or curved – shape.
16 For just as defendants rely on the description attached to the figure drawings of the patent,
17 which indicate that polygons are synonymous with arrowheads, those descriptions and
18 illustrations also indicate that the polygon shapes include curvatures. See id. at figures 5-
19 10; see also 4:26-28 (“polygon comprises the sinusoidal or S-shaped section”).

20 Defendants, moreover, do not appear to dispute this. See Joint Statement at p. 17
21 (defendants’ acknowledgment that “as used in the patents, a polygon can have curved
22 sides”).

23 In sum, while the intrinsic evidence supports construction of a “polygon” as a closed
24 “arrowhead” shape, it also makes clear that this shape can include “curved lines, straight
25 lines, or a combination of curved and straight lines.” Accordingly, the court adopts
26 defendants’ current proposed construction, which is most consistent with this
27 understanding, and construes “polygon” as: **“a closed arrowhead shape made up of**
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1 **curved lines, straight lines, or a combination of curved and straight lines.”**

2 8. “the longitudinal portions are aligned in a spaced relationship parallel
3 to a stent longitudinal axis”

4 This phrase is found in claims 13, 34, and 48 of the ‘037 patent, and in claim 22 of
5 the ‘255 patent. See Joint Statement, ‘037 and ‘255 Patents. Plaintiffs contend that “the
6 longitudinal portions are aligned in a spaced relationship parallel to a stent longitudinal
7 axis” should be construed to mean “the longitudinal portions are spaced from each other
8 along a line parallel to an imaginary straight line running lengthwise in the center of the
9 stent.” Defendants contend that the phrase should be construed to mean “the longitudinal
10 portions run substantially along the stent’s longitudinal axis and are spaced apart, e.g., as
11 shown in Figure 5.” The intervenor contends that the phrase should be construed to mean
12 “the longitudinal portions run substantially along the stent’s longitudinal axis and are
13 spaced apart.”

14 The claim language provides the first starting point. Beginning with claims 13 and
15 14, claim 13 covers a stent “wherein the longitudinal portions are aligned in a spaced
16 relationship parallel to a stent longitudinal axis.” Claim 14, by contrast, covers a stent
17 “wherein the longitudinal portions are aligned in an interconnected relationship parallel to a
18 stent longitudinal axis.” Both claims cover longitudinal portions aligned in relationships
19 parallel to the stent longitudinal axis. Claim 13 covers spaced relationships, however, while
20 claim 14 covers interconnected relationships.

21 The figure drawings of the ‘037 patent shed light on the difference between the two
22 types of relationships – both of which are parallel to the longitudinal axis. Figure 9, for
23 example, depicts an illustration of the spaced relationship. See Joint Statement, ‘037
24 Patent, Figure 9. Looking at this figure, it is apparent that the longitudinal connectors are
25 spaced apart from each other – with no interconnectors linking them consistently together –
26 on an axis that runs parallel to the length of the claimed stent design. Id. In Figures 8 and
27 10, by contrast, the longitudinal connectors are still spaced apart from each other along an
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1 axis running parallel to the length of the claimed stent design, but they are depicted as
2 linked consistently together by interconnectors. See id. at '037 Patent, Figures 8 and 10.
3 The remaining figures depicted in the patent can also be viewed from this vantage point.
4 Figure 5, for example, depicts an interconnected relationship, as understood in comparison
5 with Figures 8-10. Id. at '037 Patent, Figure 5.

6 This understanding of the patent's figure drawings supports plaintiffs' construction of
7 the phrase at issue, because it requires – consistently with the drawings – that the
8 longitudinal portions of the claimed stent be “spaced from each other along a line parallel to
9 an imaginary straight line running lengthwise in the center of the stent” where the claim
10 language calls for a “spaced relationship.”

11 Defendants' proposed construction, by contrast, construes the phrase in question
12 expressly with reference to Figure 5. Since, as noted above, Figure 5 depicts an
13 interconnected relationship rather than a “spaced relationship” – as required by the claim
14 language at issue – it would be improper to limit the claim language to the interconnected
15 relationship depicted in Figure 5. Defendants rely on the prosecution history for their
16 construction. See McCauley Decl., Ex. 36 at AB0732736. However, a review of this
17 evidence does not provide any express support for defendants' construction. Indeed, it
18 does not appear from this citation that the applicants were expressly discussing this phrase
19 of the limitation, or the fact that the applicants intended figure 5 to represent the phrase at
20 issue.

21 In sum, then, and for the above reasons, the court adopts plaintiffs' proposed
22 construction and construes “the longitudinal portions are aligned in a spaced relationship
23 parallel to a stent longitudinal axis” as: **“the longitudinal portions are spaced from each
24 other along a line parallel to an imaginary straight line running lengthwise in the
25 center of the stent.”**

1 Statement, '037 Patent at 9:2-5 ("alternatively, more than three segments can be used to
2 define concave-shaped wall 50 and/or convex-shaped wall 60").

3 Moreover, the court is not persuaded by defendants' and the intervenor's contrary
4 arguments. First, while defendants rely on the prosecution history for support of their
5 arguments, the evidence they rely on does not, in the court's view, require that the claimed
6 polygon shape be expressly limited to convex and concave walls connecting pairs of side
7 walls, as defendants and the intervenor propose. Second, defendants' and the intervenor's
8 primary objection appears to be that, if plaintiffs' proposed construction is adopted, the
9 claims at issue will cover polygon shapes consisting of upper and lower walls that are
10 'undulating' – i.e., comprised of wave-like alternating apexes – on the premise that each
11 wall's 'undulation' includes *both* concave and convex elements. See Defs. Opp. Br. at
12 29:20-27. In defendants' and the intervenor's view, this would fly in the face of the intrinsic
13 evidence, since the claims limit the first wall to a single "concave" shape and the second
14 wall to a single "convex" shape. This argument is not particularly compelling, however, for
15 it is not immediately apparent to the court how plaintiffs' proposed construction – which
16 expressly requires "an apex" directed toward the interior of the polygon, and a second apex
17 directed away from the interior of the polygon – lends itself to the conclusion defendants'
18 suggest in view of the presence of multiple apexes depicted in defendants' depicted
19 "undulating" shape. At any rate, defendants' issue is more appropriate for the summary
20 judgment or trial stage of litigation, and ultimately, it is the province of the jury to determine
21 whether an accused device reads upon a claim limitation, as properly construed.

22 For these reasons, the court hereby adopts plaintiffs' proposed construction and
23 construes "the polygon further comprises a first wall having a concave shape and a second
24 wall having a convex shape" as: **"the polygon having a first wall with an apex directed
25 toward the interior of the polygon and a second wall, also with an apex, directed**
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1 away from the interior of the polygon.”⁵

2 10. “flat apex”

3 The phrase “flat apex” is found in claims 59-60, 62-63, 65-66, 68-69, 71-72, and 74-
4 75 of the ‘037 Patent, and claims 17, and 19-25 of the ‘255 Patent. Plaintiffs contend that
5 the phrase should be construed to mean “highest or uppermost surface that is horizontal or
6 nearly so without significant curvature or inclination and without noteworthy elevations or
7 depression,” while defendants and the intervenor contend that the phrase should be
8 construed to mean “an apex that is not curved or rounded.”

9 Preliminarily, neither party disputes that the ordinary meaning of “flat apex” should
10 control, even though they submit differing dictionary definitions of “flat.” Plaintiffs’ definition
11 construes “flat” as “horizontal or nearly so without significant curvature or inclination and
12 without noteworthy elevations or depression,” while defendants’ definitions construe “flat”
13 as a “horizontal face without a slope, tilt, or curvature,” or “without peaks or depressions.”
14 See Pls. Op. Br. at 30:9-16; Defs. Opp. Br. at 33:7-16. The parties’ critical dispute, based
15 on these definitions, is whether “flat” should be construed as allowing for any curvature.
16 Plaintiffs contend that a “flat apex” should be construed to allow for insignificant curvatures,
17 while defendants and the intervenor reject this contention. Given the differing definitions,
18 the court will look to the intrinsic evidence for guidance as to which ordinary meaning
19 should control.

20 Beginning first with the claim language, it clearly contrasts apexes that are “flat,”
21 from those that are “rounded.” Claim 68 of the ‘037 Patent, for example, covers a stent
22 design wherein “one of the first wall and the second wall has a flat apex and the other of
23 the first wall and second wall has a rounded apex.” See Joint Statement, ‘037 Patent at
24 18:34-36. It is obvious, therefore, that “flat” and “rounded,” described in opposition to each

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26 ⁵ Defendants have also argued that claims 17 and 18 of the ‘255 Patent should be
27 found void for indefiniteness, an argument that plaintiffs only summarily deal with. The court
28 would prefer the benefit of more complete briefing on the matter before rendering a
determination. Accordingly, the court defers consideration of this issue until the parties are
able to submit more complete arguments at the dispositive motion juncture.

1 other within the same claim, must have differing meanings. “Flat” cannot mean “rounded,”
2 and vice versa. And since neither party appears to dispute that “rounded” *would* be defined
3 to include curves, this implies that “flat” should be construed as neither curved nor rounded.

4 The specification language also describes “flat” in opposition to either “curved” or
5 “rounded,” further implying that a “flat apex” should be construed as one that is neither
6 curved nor rounded. See id. at 4:7-9 (noting that, in the “present invention,” the flexure
7 means comprises at least one lateral section, the “apex” of which “may be pointed,
8 rounded, or substantially flat”). Moreover, the specification goes on to describe, with
9 reference to the illustrated figures of the ‘037 Patent, what a “flat apex” looks like. In
10 discussing Figure 1A, for example, the specification notes that “segment 54 is a flat apex
11 and results in the provision of a pair of substantially square shoulders.” Id. at 8:46-48.
12 Turning to segment 54 on Figure 1A, it is depicted as a flat horizontal apex, with no
13 curvature, significant or otherwise. Similarly, in discussing the illustration of an apex
14 depicted in Figure 2, the specification states that “the flat apex in concave-shaped wall 150
15 has been modified such that it comprises a pair of substantially rounded shoulders.” See
16 id. at 9:35-38. Viewing Figure 2, segment 150 is still depicted as a flat horizontal apex,
17 without curvature. The difference, however, is that the shoulders on either *ends* of the
18 apex are now depicted as curved, or rounded. As illustrated, therefore, the presence of
19 curved or rounded *shoulders* in no way changes the depiction of a “flat apex” as having no
20 curvature, or rounding itself.

21 In sum, then, both the claim language and the specification support defendants’ and
22 the intervenor’s proposed construction that a flat apex is an apex that is neither curved nor
23 rounded, whether significantly or not.⁶ The court therefore adopts defendants’ and the
24 intervenor’s proposed construction and construes “flat apex” as: **“an apex that is not**
25 **curved or rounded.”**

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27 ⁶ The court declines to rely on the Declaration of Jeffrey Allen because the proper
28 construction can be determined here with reference to the intrinsic evidence – i.e., the claim
language and the specification.

1 11. “curved [curving] in a non-radial direction of the stent”

2 This phrase is found only in the ‘255 patent, specifically in claims 11-18, and 25.
3 See Joint Statement, ‘255 Patent. Plaintiffs contend that “curved [curving] in a non-radial
4 direction of the stent” should be construed to mean “curved or curving such that the
5 [arcuate U-shape or flexure member curved portion] does not extend substantially outside
6 the outer surface or inside the inner surface of the tubular wall.” Defendants contend that
7 the phrase should be construed to mean “curved in at least one direction other than the
8 radial direction.” The intervenor, by contrast, contends that the proposed construction
9 should be “curving along the tubular surface.”⁷

10 For support of their positions, plaintiffs rely on the prosecution history, while
11 defendants base their arguments on a practical application of directional concepts to the
12 claim language. Specifically, plaintiffs contend that the prosecution history of the ‘255
13 Patent reveals that the phrase at issue was included in order to distinguish the claimed
14 invention from the prior art Orth patent, which was directed to a stent that had connectors
15 projecting outside the outer surface of the tubular wall in order to keep the stent in place
16 against the blood vessel wall. The ‘255 Patent, by contrast, covers flexure members that
17 do not extend substantially outside or inside the surface of the tubular wall, and which
18 instead stay within the curved plane of the walls. For that reason, plaintiffs assert that their
19 proposed construction, which would construe flexure members curving “in a non-radial
20 direction of the stent” as flexure members that do not “extend substantially outside the
21 outer surface or inside the inner surface of the tubular wall,” is consistent with the
22 prosecution history.

23 Defendants, for their part, preliminarily define the three directions applicable to
24 cylindrical stents – the radial direction (i.e., extending away from the stent wall), the
25 longitudinal direction (i.e, extending along the stent’s length), and the circumferential

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27 ⁷ Although the intervenor has presented a differing proposed construction, the
28 intervenor’s supporting brief does not include argument regarding the particular proposed
 construction at issue.

1 direction (i.e., extending around the stent's circumference). From this premise, they argue
2 that "curving in a non-radial direction" of a stent must be construed to mean simply that a
3 stent's flexure members or connectors must curve in *at least* one non-radial direction. In
4 other words, as long as the connectors curve in a non-radial direction (e.g., the longitudinal
5 or circumferential direction), then the claim language is satisfied, regardless if the
6 connector *also* curves in a radial direction.

7 Given that neither party has squarely invoked reliance on either the claim language
8 or the specification, the court turns straight away to the prosecution history. A review of the
9 prosecution history reveals that the '255 Patent applicants, in traversing the patent
10 examiner's earlier prior art rejections regarding certain claims, represented to the examiner
11 that: (a) the flexure members claimed by the patent "comprise[] a curved shape, curved in a
12 plane of the pair of side walls"; (b) that "projecting barb 22" of figure 4A of the Orth patent
13 "does not curve in the plane of the pair of side walls"; and (c) that "projecting barb 22" of
14 figure 4A of the Orth patent "does not comprise a U-shape in a non-radial direction of the
15 stent," whereas the claimed flexure member does. See Jelenchik Decl., Ex. E at
16 AB0732126-27. Looking in turn at figure 4A of the Orth patent, and specifically at
17 "projecting barb 22" – labeled as element 22 on the figure – it is apparent that element 22
18 projects outside the stent walls – i.e, in a *radial* direction. See, e.g., U.S. Patent No.
19 5,591,197 ("Orth Patent"), Fig. 4A; see also id. at 8:52-56 (describing "projecting barb 22"
20 as "form[ing] radially outwardly").⁸ Comparing both Figure 4A of the Orth patent and the
21 prosecution history to the claim language, therefore, the logical conclusion to be reached is
22 that any outward (or inward) projection from the stent walls constitutes a curvature in a
23 radial direction. And since the claim language covers flexure members that extend in a
24 "non-radial direction," the claim language necessarily refers to flexure members that do not

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26 ⁸ The Orth Patent – along with other patents referenced by the parties – was not
27 originally submitted for the court's consideration in connection with the present motion. At the
28 hearing on the present matter, however, the court highlighted the parties' failure to include
relevant documentation, and plaintiffs thereafter submitted the Orth Patent and other prior art
references.

1 significantly project either outwardly or inwardly from the tubular walls of the stent. This is
2 so, regardless whatever other directions in which the flexure members are curved.
3 Defendants' proposed construction, which would cover stents with flexure members curved
4 in *both* the radial and non-radial directions, cannot be reconciled with the prosecution
5 history or the claim language.

6 Accordingly, the court hereby adopts plaintiffs' proposed construction, and construes
7 "curved [curving] in a non-radial direction of the stent" as: **"curved or curving such that**
8 **the [arcuate U-shape or flexure member curved portion] does not extend**
9 **substantially outside the outer surface or inside the inner surface of the tubular**
10 **wall."**

11 C. Conclusion

12 In accordance with the foregoing, and for the reasons discussed above, the court
13 construes the parties' disputed terms as follows:

- 14 1. "tubular wall" means "having the form of a tube."
- 15 2. "peaks and valleys" means "the surface outside the point at which two
16 slopes or curves meet is the peak, and the surface inside the point at which
17 two slopes or curves meet is the valley."
- 18 3. "flexure member" means "part of a longitudinal portion that provides
19 flexibility."
- 20 4. "non sinusoidal" means "not S-shaped."
- 21 5. "arcuate" means "comprising a shape bent in the form of a bow or curved in
22 the form of a bow."
- 23 6. No construction necessary.
- 24 7. "polygon" means "a closed arrowhead shape made up of curved lines,
25 straight lines, or a combination of curved and straight lines."
- 26 8. "the longitudinal portions are aligned in a spaced relationship parallel to a
27 stent longitudinal axis" means "the longitudinal portions are spaced from each
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other along a line parallel to an imaginary straight line running lengthwise in the center of the stent.”

9. “the polygon further comprises a first wall having a concave shape and a second wall having a convex shape” means “the polygon having a first wall with an apex directed toward the interior of the polygon and a second wall, also with an apex, directed away from the interior of the polygon.”

10. “flat apex” means “an apex that is not curved or rounded.”

11. “curved [curving] in a non-radial direction of the stent” means “curved or curving such that the [arcuate U-shape or flexure member curved portion] does not extend substantially outside the outer surface or inside the inner surface of the tubular wall.”

A further case management conference will be held on January 24, 2008, at 2:30 p.m. The parties are referred to this court’s standing order for patent cases, as to the contents of the joint case management statement.

IT IS SO ORDERED.

Dated: December 21, 2007



PHYLLIS J. HAMILTON
United States District Judge