



**Table of Contents**

I. Introduction..... 1

II. Disputed Terms..... 1

    A. Color Scanning Patents..... 1

        1. “scanning system configured to provide depth data” (claim 1 - ’228, ’456, and ’207 patents) ..... 1

        2. “imaging system configured to provide two-dimensional color image data” (claim 1 - ’228, ’456, and ’207 patents) ..... 2

        3. “processor configured to associate the depth data with the color image data” (claim 1 - ’228, ’456, and ’207 patents) ..... 2

        4. “first illumination means for providing the set of three or more, differently-colored illumination radiations” (claim 10 - ’228 patent) ..... 2

        5. “confocal imaging techniques” (claim 4 - ’228, ’456, and ’207 patents)..... 3

        6. “spot specific position” (claim 11 - ’228 patent)..... 3

        7. “image gathering member” (claims 1, 7, and 12 - ’433 patent)..... 3

        8. “selectively map the image data to the depth data” (Claim 12 - ’433 Patent)..... 4

    B. Dental Modeling Patents..... 5

        1. “[derive from the received data/obtaining in a computer] a digital model of a patient’s dentition, including a dental model representing the patient’s teeth at a set of initial positions and a gingival model representing gum tissue surrounding the teeth” (claim 1 - ’470, ’931 patents)..... 5

        2. “[derive/deriving in the computer] from the digital model an expected deformation of the gum tissue as teeth move from the initial positions to another set of positions” (claim 1 - ’470, ’931 patents)..... 6

### Table of Abbreviations

Term(s)	Abbreviation
3Shape A/S 3Shape TRIOS A/S 3Shape Inc.	“3Shape” or “Respondent(s)” individually and collectively
Align Technology, Inc.	“Align” or “Complainant”
U.S. Patent No. 6,685,470	’470 Patent
U.S. Patent No. 6,948,931	’931 Patent
U.S. Patent No. 8,363,228	’228 Patent
U.S. Patent No. 8,451,456	’456 Patent
U.S. Patent No. 8,675,207	’207 Patent
U.S. Patent No. 9,101,433	’433 Patent
:	[Patent Column Number]:[Patent Line Number]
35 U.S.C. §112¶6	§112¶6

## I. INTRODUCTION

Pursuant to Ground Rule 7.1 and the Procedural Schedule, Complainant Align Technology, Inc. (“Align”) and Respondents 3Shape A/S, 3Shape Trios A/S, and 3Shape Inc. (collectively, “3Shape”) (together, the “Parties”), hereby submit their Joint Agreed and Disputed Claim Constructions. As the Parties have not come to any agreed constructions, the following identifies only the disputed terms and their proposed constructions.

## II. DISPUTED TERMS

### A. Color Scanning Patents

#### 1. “scanning system configured to provide depth data” (claim 1 - '228, '456, and '207 patents)

Align	3Shape
<p>This term does not invoke §112(6).</p> <p>The plain and ordinary meaning is “a 3D scanner that scans in the optical axis (z) direction to provide depth data.”</p> <p>But if given means-plus-function treatment:</p> <p><b>Structure:</b> Scanning optics to provide depth Z values for an array range of X-Y points along the surface of the object. <i>See, e.g.</i>, '228 patent at 12:60-65; FIGS. 1 (elements 31, 41), 4A (elements 31, 41), 8 (elements 31, 41), 11 (elements 31, 41)</p> <p><b>Function:</b> providing depth data by scanning</p>	<p>The limitation “scanning system configured to provide depth data” is subject to §112¶6.</p> <p><b>Structure:</b> illumination source optically coupled to a grating or microlens array and confocal optics to generate an array of light beams that generates illumination spots on the surface of an object, an image sensor optically coupled to receive each of the returned light beams through a pinhole array and a corresponding single pixel in an image sensor, and a processor programmed to measure the maximum intensity of the returned light beams.<sup>1</sup> (<i>See, e.g.</i>, '228 patent, FIG. 4A and associated description.)</p> <p><b>Function:</b> providing depth data separately obtained from two-dimensional color image data</p>

<sup>1</sup> The parties appear to dispute the meaning of the term “hand-held device.” 3Shape previously identified the term for construction, but to narrow claim construction issues before the ALJ it withdrew this term from construction. However, 3Shape maintains a written description defense with regards to this limitation. Both parties reserve their rights to address this term in the context of this written description defense.

2. “imaging system configured to provide two-dimensional color image data” (claim 1 - ’228, ’456, and ’207 patents)

Align	3Shape
<p>This term does not invoke §112(6).</p> <p>The plain and ordinary meaning is “an image sensor or detector that is configured to provide two-dimensional color image data.”</p> <p>But if given means-plus-function treatment:</p> <p><b>Structure:</b> See, e.g., ’228 patent at 12:65-13:2, 15:66-17:3; FIGs. 1 (element 60), 4A (element 60), 8 (element 60), 11 (element 60)</p> <p><b>Function:</b> providing two-dimensional color image data</p>	<p>The limitation “imaging system configured to provide two-dimensional color image data” is subject to §112¶6.</p> <p><b>Structure:</b> an illumination source that generates at least three different colored light sources to illuminate the surface of an object, and an image sensor optically coupled to receive light from the illumination source reflected from the surface of the object. (See, e.g., ’228 patent, FIG. 4A and associated description.)</p> <p><b>Function:</b> providing two-dimensional color image data separately obtained from the depth data</p>

3. “processor configured to associate the depth data with the color image data” (claim 1 - ’228, ’456, and ’207 patents)

Align	3Shape
<p>This term does not invoke §112(6).</p> <p>The plain and ordinary meaning is “one or more electronic circuits which perform operations on data to associate the depth data with the color image data.”</p> <p>But if given means-plus-function treatment:</p> <p><b>Structure:</b> See, e.g., ’228 patent at 13:20-14:35; FIGS. 1 (element 24), 4A (element 24)</p> <p><b>Function:</b> associating the depth data with the color image data</p>	<p>The limitation “processor configured to associate the depth data with the color image data” is subject to §112¶6.</p> <p><b>Structure:</b> software, firmware, and/or hardware programmed to map the color image data to the depth data. (See, e.g., ’228 patent FIG. 2C, 13:20-62)</p> <p><b>Function:</b> map depth data with the separately obtained color image data</p>

4. “first illumination means for providing the set of three or more, differently-colored illumination radiations” (claim 10 - ’228 patent)

Align	3Shape
<p>This term does not invoke §112(6).</p>	<p>The limitation “first illumination means for</p>

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