

SHINHUNG MST CO., LTD.

% Priscilla Chung Regulatory Affairs Consultant LK Consulting Group USA, Inc. 18881 Von Karman Ave. Suite 160 Irvine, California 92612 June 4, 2023

Re: K221752

Trade/Device Name: Stella Regulation Number: 21 CFR 872.3640 Regulation Name: Endosseous Dental Implant Regulatory Class: Class II Product Code: DZE, NHA Dated: February 28, 2023 Received: March 6, 2023

Dear Priscilla Chung:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at <a href="https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm">https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm</a> identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803) for devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see <a href="https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products">https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products</a>); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <u>https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems</u>.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (<u>https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance</u>) and CDRH Learn (<u>https://www.fda.gov/training-and-continuing-education/cdrh-learn</u>). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (<u>https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice</u>) for more information or contact DICE by email (<u>DICE@fda.hhs.gov</u>) or phone (1-800-638-2041 or 301-796-7100).

Sincerely, Andrew I. Steen -S

Andrew I. Steen Assistant Director DHT1B: Division of Dental and ENT Devices OHT1: Office of Ophthalmic, Anesthesia, Respiratory, ENT and Dental Devices Office of Product Evaluation and Quality Center for Devices and Radiological Health

Enclosure

## Indications for Use

510(k) Number (if known) K221752

**Device Name** Stella

#### Indications for Use (Describe)

The Stella is intended to be surgically placed in the upper or lower jawbone to provide support for prosthetic devices, such as artificial teeth, restoring the patient's chewing capabilities. The Stella is intended for delayed loading and immediate loading is possible when good primary stability is achieved and with appropriate occlusal loading.

The Stella Abutment is intended to be connected to the dental implant to retain the overdenture or partial denture.

| Type of Use (Select one or both, as applicable) |   |
|---|---|
| Rescription Use (Part 21 CFR 801 Subpart D)     | Over-The-Counter Use (21 CFR 801 Subpart C) |

#### CONTINUE ON A SEPARATE PAGE IF NEEDED.

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### **510(k) Summary** (K221752)

This summary of 510(K) information is being submitted in accordance with requirements of 21 CFR Part 807.92.

Date: 6/02/2023

#### 1. Submitter

SHINHUNG MST CO., LTD.110-2, Donghwagondan-ro, Munmak-eup,Wonju-si, Gangwon-do, Republic of Korea, 26365

Tel: +82-33-730-1901

## 2. U.S Agent/Contact Person

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#### 3. Device

- Trade Name: Stella
- Common Name: Dental Implant System
- Classification Name: Endosseous Dental Implant
- Product Code: DZE, NHA
- Classification regulation: 21CFR 872.3640

#### 4. Predicate Device:

SSII/III SA Fixture by OSSTEM Implant Co., Ltd. (K120847) Luna Dental Implant System by SHINHUNG MST CO., LTD. (K123155 / K160106)

#### 5. Description:

Stella is a dental implant fixture that is implanted in the jawbone to support and maintain prosthetic restoration teeth or dentures in case of partial or total loss of teeth as a material for dental surgery. The fixture is made of titanium (ASTM F67, Grade 4), and the retention area is surface treated by spraying with Al2O3 (alumina) powder and then

pickling to roughen the surface.

The system incudes Healing Abutment, Simple Abutment, Duo Abutment, Contour Abutment, Angled Abutment, and Temporary Abutment.

#### 6. Indication for use:

The Stella is intended to be surgically placed in the upper or lower jawbone to provide support for prosthetic devices, such as artificial teeth, restoring the patient's chewing capabilities. The Stella is intended for delayed loading and immediate loading is possible when good primary stability is achieved and with appropriate occlusal loading. The Stella Abutment is intended to be connected to the dental implant to retain the overdenture or partial denture.

#### 7. Basis for Substantial Equivalence

#### **Comparison Chart**

| Device Name   | Subject Device   | Predicate Device   |   |
|---------------|--|--|---|
| Manufacturer  | SHINHUNG MST CO.,<br>LTD.  | Osstem Implant Co., Ltd.   | SHINHUNG MST CO.,<br>LTD.   |
| Device Name   | Stella   | SSII/III SA Fixture  | Luna Dental Implant<br>System   |
| Design        |  |  |   |
| 510(k) Number | K221752  | K120847  | K123155 / K160106   |
| Intended use  | The Stella is intended to be<br>surgically placed in the<br>upper or lower jawbone to<br>provide support for<br>prosthetic devices, such as<br>artificial teeth, restoring<br>the patient's chewing<br>capabilities. The Stella is<br>intended for delayed<br>loading and immediate<br>loading is possible when<br>good primary stability is<br>achieved and with<br>appropriate occlusal<br>loading.<br>The Stella Abutment is<br>intended to be connected<br>to the dental implant to<br>retain the overdenture or | ET/SS Implant System is<br>indicated for use in<br>partially or fully<br>edentulous mandibles and<br>maxillae, in support of<br>single or multiple-unit<br>restorations including;<br>cemented retained, screw<br>retained, or overdenture<br>restorations, and final or<br>temporary abutment<br>support for fixed<br>bridgework. It is intended<br>for delayed loading. The<br>abutment is intended for<br>use with a dental implant<br>fixture to provide support<br>for prosthetic restorations<br>such as crowns, bridges, or | The Luna Dental Implant<br>System is intended to be<br>surgically placed in the<br>bone of the upper or lower<br>jaw arches to provide<br>support for prosthetic<br>devices, such as artificial<br>teeth, and to restore the<br>patient's chewing function. |

Dental fixture

|                                  | partial denture.  | overdenture.   |   |
|----------------------------------|---|--|---|
| Structure                        | <ul> <li>Tissue level fixture</li> <li>Self tapping</li> <li>Internal Octagonal<br/>connection</li> <li>Taper body shape</li> </ul> | <ul> <li>Tissue level fixture</li> <li>Self tapping</li> <li>Internal Octagonal<br/>connection</li> <li>Straight / Taper body<br/>shape</li> </ul> | <ul> <li>Bone level fixture</li> <li>Self tapping</li> <li>Internal Hexagonal<br/>connection</li> <li>Taper body shape</li> </ul> |
| Platform<br>Diameter<br>(D) (mm) | 4.8, 6.0  | 4.8, 6.0   | 3.5, 4.0, 4.5, 5.0, 5.5, 6.0,<br>7.0  |
| Body Diameter<br>(D) (mm)        | 3.7, 4.2, 4.7, 5.2  | 3.5, 4.0, 4.5, 5.0, 6.0, 7.0   | 3.7, 4.2, 4.7, 5.2, 5.7, 6.0,<br>7.0  |
| Length (mm)                      | 7.0, 8.5, 10.0, 11.5, 13.0,<br>15.0   | 6.0, 7.0, 8.5, 10.0, 11.5, 13.0  | 7.0, 8.5, 10.0, 11.5, 13.0,<br>15.0   |
|                                  | *The following size<br>configurations are not<br>included.  | *The following size<br>configurations are not<br>included.   | *The following size<br>configurations are not<br>included.  |
|                                  | <ul> <li>• 4.8mm platform diameter</li> <li>x 3.7mm body diameter x</li> <li>7.0mm length.</li> </ul>                               | <ul> <li>• 4.8mm platform diameter</li> <li>x 3.5mm body diameter x</li> <li>7.0mm length.</li> </ul>  | <ul> <li>· 3.7mm body diameter x</li> <li>7.0mm length.</li> <li>· 5.7mm body diameter x</li> </ul>                               |
|                                  | • 4.8mm platform diameter<br>x 5.2mm body diameter x<br>all length.   | <ul> <li>• 4.8mm platform diameter</li> <li>x all body diameter x</li> <li>6.0mm length.</li> </ul>  | <ul> <li>5.7mm body diameter x</li> <li>15.0mm body diameter x</li> <li>15.0mm body diameter x</li> </ul>                         |
|                                  | • 6.0mm platform diameter<br>x 3.7 mm body diameter x<br>all length.  | · 4.8mm platform diameter<br>x 5.0mm body diameter x<br>all length.  | · 7.0mm body diameter x<br>15.0mm length.   |
|                                  | • 6.0mm platform diameter<br>x 4.2 mm body diameter x<br>all length.  | · 4.8mm platform diameter<br>x 6.0mm body diameter x<br>all length.  |   |
|                                  |   | · 4.8mm platform diameter<br>x 7.0mm body diameter x<br>all length.  |   |
|                                  |   | • 6.0mm platform diameter<br>x 3.5mm body diameter x<br>all length.  |   |
|                                  |   | <ul> <li>6.0mm platform diameter</li> <li>x 4.0mm body diameter x</li> <li>all length.</li> </ul>  |   |
|                                  |   | <ul> <li>6.0mm platform diameter</li> <li>x 4.5mm body diameter x</li> <li>6.0mm length.</li> </ul>  |   |
| Material                         | Pure Titanium Gr 4<br>(ASTM F67)  | Pure Titanium Gr 4<br>(ASTM F67)   | Pure Titanium Gr 4<br>(ASTM F67)  |
| Surface                          | S.L.A.  | S.L.A.   | S.L.A.  |
| Sterilization                    | Radiation Sterile   | Radiation Sterile  | Radiation Sterile   |

|      | This product has the same intended use as the predicate device, and its main purpose is   |
|------|---|
|      | to restore the masticatory function by implanting it in the toothless areas of the upper  |
|      | and lower jaws. It is a non-submerged fixture identical to Osstem's SSII/III SA Fixture   |
|      | (K120847), and there is a groove for self-tapping at the end of the body. The diameter    |
|      | of the platform is the same as that of the Osstem. The diameter of the body is similar to |
|      | that of the Osstem, and the safety of the 3.7mm diameter has been proven in the Luna      |
|      | Dental Implant System. In addition, it was confirmed that there was no strength           |
| S.E. | problem through the fatigue test on the fixture diameter 3.7mm. The length of the         |
|      | product is within the range of the length of the Osstem product. The connection to the    |
|      | abutment is also made of an internal octagonal structure. The raw material was made       |
|      | of Pure Titanium Grade 4 (ASTM F67) in the same way as the predicate device, and          |
|      | the surface treatment was SA-treated. It is manufactured through the same raw             |
|      | materials and manufacturing process as our previously licensed Luna Dental Implant        |
|      | Systems (K123155 / K160106). Sterilization is also provided through gamma sterilization.  |

### • Abutment

| Device Name            | Subject Device            | Predicate Device   |   |
|------------------------|---------------------------|--|---|
| Manufacturer           | SHINHUNG MST CO.,<br>LTD. | Osstem Implant Co., Ltd.   | SHINHUNG MST CO.,<br>LTD.   |
| Device Name            | Healing Abutment          | Healing Abutment   | Healing Abutment  |
| Design                 |                           |  |   |
| 510(k) Number          | K221752                   | K120847  | K123155   |
| Diameter (mm)          | 4.8, 6.0                  | 4.8, 6.0   | 4.0, 4.5, 5.0, 6.0  |
| Gingiva Height<br>(mm) | 2.0, 3.0, 4.0             | <ul> <li>2.0, 3.0, 4.0, 5.0</li> <li>*The following size configurations are not included.</li> <li>• 6.0mm diameter x 2.0mm Gingiva height.</li> </ul> | <ul> <li>2.0, 3.0, 4.0, 5.0, 6.0</li> <li>*The following size configurations are not included.</li> <li>• 6.0mm diameter x 6.0mm Gingiva height.</li> </ul> |
| Material               | Pure Titanium Gr 4        | Titanium Alloy Ti-6Al-4V   | Pure Titanium Gr 4  |

|               | (ASTM F67)   | (ASTM F136)  | (ASTM F67)   |
|---------------|--|--|--|
| Sterilization | Radiation Sterile  | Radiation Sterile  | Radiation Sterile  |
| S.E.          | Healing Abutment is a product<br>superstructure. This product<br>size within the product size in<br>manufactured with Pure Tita<br>the same material as our pre<br>(K123155). It is gamma-ster | act that is used temporarily be<br>has the same purpose as the p<br>range of Osstem. Unlike Osste<br>mium Grade 4 (ASTM F67), a<br>viously approved product, Lun<br>ilized and provided to the use | fore installing a permanent<br>oredicate device and has a<br>em's, the raw material was<br>and was manufactured with<br>na Dental Implant System<br>r. |

| Device Name         | Subject Device  | Predicate Device                        |   |
|---------------------|---|---|---|
| Manufacturer        | SHINHUNG MST CO.,<br>LTD.   | Osstem Implant Co., Ltd.                | SHINHUNG MST CO.,<br>LTD.               |
| Device Name         | Simple Abutment   | Solid Abutment                          | Simple Abutment                         |
| Design              |   |   |   |
| 510(k) Number       | K221752   | K120847                                 | K123155                                 |
| Diameter (mm)       | 4.8, 6.0  | 4.8, 6.0                                | 4.1, 4.6, 5.1, 6.1                      |
| Post Height<br>(mm) | 4.0, 5.5, 7.0   | 4.0, 5.5, 7.0                           | 4.0, 5.5, 7.0                           |
| Material            | Titanium Alloy Ti-6Al-4V<br>(ASTM F136)   | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) |
| Sterilization       | User sterile  | User sterile                            | User sterile                            |
| S.E.                | Simple abutments can be used in both anterior and posterior areas of the mouth for cement retained crown and bridge restorations. This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device. In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. Our previously approved product, Luna Dental Implant System (k123155), uses the same raw materials as the applied product, but only a part of it is coated with TiN. However, the whole is not coated with TiN, and it can be seen that the portion with TiN coating is the worst case in terms of biocompatibility. Thus, the safety of the raw material is demonstrated. This product is sterilized by the user by the method described in the user manual. |   |   |

| Device Name  | Subject Device            | Predicate Device         |                           |
|--------------|---------------------------|--------------------------|---------------------------|
| Manufacturer | SHINHUNG MST CO.,<br>LTD. | Osstem Implant Co., Ltd. | SHINHUNG MST CO.,<br>LTD. |
| Device Name  | Duo Abutment              | ComOcta Abutment         | Duo Abutment              |

| Design              |   |   |                                  |
|---------------------|---|---|----------------------------------|
| 510(k) Number       | K221752   | K120847                                 | K123155                          |
| Diameter (mm)       | 4.8, 6.0  | 4.8, 6.0                                | 4.6, 5.1, 6.1                    |
| Post Height<br>(mm) | 4.0, 5.5, 7.0   | 4.0, 5.5, 7.0                           | 4.0, 5.5, 7.0                    |
| Material            | Pure Titanium Gr 4<br>(ASTM F67)  | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) | Pure Titanium Gr 4<br>(ASTM F67) |
| Sterilization       | User sterile  | User sterile                            | User sterile                     |
| S.E.                | Duo abutment can be used in both anterior and posterior areas of the mouth for cement retained crown and bridge restorations. This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device. In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. Our previously approved product, Luna Dental Implant System (k123155), uses the same raw materials as the applied product, but only a part of it is coated with TiN. However, the whole is not coated with TiN, and it can be seen that the portion with TiN coating is the worst case in terms of biocompatibility. Thus, the safety of the raw material is demonstrated. This product is sterilized by the user by the method described in the user manual. |   |                                  |

| Device Name            | Subject Device   | Predicate Device                        |                                  |
|------------------------|--|---|----------------------------------|
| Manufacturer           | SHINHUNG MST CO.,<br>LTD.  | Osstem Implant Co., Ltd.                | SHINHUNG MST CO.,<br>LTD.        |
| Device Name            | Contour Abutment   | ComOcta Milling<br>Abutment             | Contour Abutment                 |
| Design                 |  |   |                                  |
| 510(k) Number          | K221752  | K120847                                 | K123155                          |
| Diameter (mm)          | 5.5, 6.7   | 4.8, 6.0                                | 4.1, 5.6                         |
| Gingiva Height<br>(mm) | 2.0, 4.0   | 2.0                                     | 1.5, 3.0                         |
| Material               | Pure Titanium Gr 4<br>(ASTM F67)   | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) | Pure Titanium Gr 4<br>(ASTM F67) |
| Sterilization          | User sterile   | User sterile                            | User sterile                     |
| S.E.                   | This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device (K123155). In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. Our previously approved product, Luna Dental Implant System (k123155), uses the same raw materials as the applied product, but only a part of it is coated with TiN. However, the whole is not coated with TiN, and it |   |                                  |

can be seen that the portion with TiN coating is the worst case in terms of biocompatibility. Thus, the safety of the raw material is demonstrated. This product is sterilized by the user by the method described in the user manual.

| Device Name   | Subject Device  | Predicate Device                        | Predicate Device                 |  |
|---------------|---|---|----------------------------------|--|
| Manufacturer  | SHINHUNG MST CO.,<br>LTD.   | Osstem Implant Co., Ltd.                | SHINHUNG MST CO.,<br>LTD.        |  |
| Device Name   | Angled Abutment   | ComOcta Angled<br>Abutment              | Angled Abutment                  |  |
| Design        |   |   |                                  |  |
| 510(k) Number | K221752   | K120847                                 | K123155 / K160106                |  |
| Angle (°)     | 15, 20  | 15, 20                                  | 15, 25                           |  |
| Diameter(mm)  | 3.7, 4.8  | 4.8, 6.0                                | 4.6, 5.6                         |  |
| Material      | Pure Titanium Gr 4<br>(ASTM F67)  | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) | Pure Titanium Gr 4<br>(ASTM F67) |  |
| Sterilization | User sterile  | User sterile                            | User sterile                     |  |
| S.E.          | This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device (K123155). In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. Our previously approved product, Luna Dental Implant System (k123155), uses the same raw materials as the applied product, but only a part of it is coated with TiN. However, the whole is not coated with TiN, and it can be seen that the portion with TiN coating is the worst case in terms of biocompatibility. Thus, the safety of the raw material is demonstrated. This product is sterilized by the user by the method described in the user manual. |   |                                  |  |

| Device Name   | Subject Device            | Predicate Device              |                           |
|---------------|---------------------------|-------------------------------|---------------------------|
| Manufacturer  | SHINHUNG MST CO.,<br>LTD. | Osstem Implant Co., Ltd.      | SHINHUNG MST CO.,<br>LTD. |
| Device Name   | Temporary Abutment        | ComOcta Temporary<br>Abutment | Temporary Abutment        |
| Design        |                           |                               |                           |
| 510(k) Number | K221752                   | K120847                       | K123155                   |
| Diameter (mm) | 5.3, 6.5                  | 4.8, 6.0                      | 4.1, 4.6                  |

| Gingiva Height<br>(mm) | 1.0   | 0, 2.0                                  | 1.0, 3.0   |
|------------------------|---|---|--|
| Length (mm)            | 12.25, 13.55  | 10.0, 12.0                              | 12.5, 12.6, 14.5, 14.6                                       |
|                        |   |   | *The following size<br>configurations are not<br>included.   |
|                        |   |   | · 4.1mm diameter x all<br>gingiva height x 12.5mm<br>length. |
|                        |   |   | · 4.1mm diameter x all<br>gingiva height x 14.5mm<br>length. |
|                        |   |   | · 4.6mm diameter x all<br>gingiva height x 12.6mm<br>length. |
|                        |   |   | · 4.6mm diameter x all<br>gingiva height x 14.6mm<br>length. |
| Material               | Pure Titanium Gr 4<br>(ASTM F67)  | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) | Pure Titanium Gr 4<br>(ASTM F67)                             |
| Sterilization          | User sterile  | User sterile                            | User sterile   |
| S.E.                   | This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device (K123155). In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. Our previously approved product, Luna Dental Implant System (k123155), uses the same raw materials as the applied product, but only a part of it is coated with TiN. However, the whole is not coated with TiN, and it can be seen that the portion with TiN coating is the worst case in terms of biocompatibility. Thus, the safety of the raw material is demonstrated. This product is sterilized by the user by the method described in the user manual. |   |  |

#### Screw

| Device Name   | Subject Device                   | Predicate Device                 |                                  |
|---------------|----------------------------------|----------------------------------|----------------------------------|
| Manufacturer  | SHINHUNG MST CO.,<br>LTD.        | Osstem Implant Co., Ltd.         | SHINHUNG MST CO.,<br>LTD.        |
| Device Name   | Cover Screw                      | Cover Screw                      | Cover Screw                      |
| Design        | P                                |                                  |                                  |
| 510(k) Number | K221752                          | K120847                          | K123155                          |
| Material      | Pure Titanium Gr 4<br>(ASTM F67) | Pure Titanium Gr 4<br>(ASTM F67) | Pure Titanium Gr 4<br>(ASTM F67) |
| Length (mm)   | 7.3                              | 6.45                             | 5.3, 5.95                        |
| Diameter (mm) | 6.15                             | 4.8, 6.0                         | 2.84, 3.37                       |

| Sterilization | Radiation Sterile   | Radiation Sterile  | Radiation Sterile  |
|---------------|---|--|--|
| S.E.          | This product has the same puproduct size range of Ossten (K123155). In addition, it is our Luna Dental Implant Systems described in the user manual | Trpose as the predicate device<br>a. The raw material is the sam<br>manufactured through the sam<br>stem. This product is sterilized | and has a size within the<br>e as the predicate device<br>ne manufacturing process as<br>l by the user by the method |

| Device Name  | Subject Device            | Predicate Device         |                           |
|--------------|---------------------------|--------------------------|---------------------------|
| Manufacturer | SHINHUNG MST CO.,<br>LTD. | Osstem Implant Co., Ltd. | SHINHUNG MST CO.,<br>LTD. |
| Device Name  | Closing Screw             | Closing Screw            | Cover Screw               |

| Design        |  |                                  | Y                                |
|---------------|--|----------------------------------|----------------------------------|
| 510(k) Number | New device   | K120847                          | K123155                          |
| Material      | Pure Titanium Gr 4<br>(ASTM F67)   | Pure Titanium Gr 4<br>(ASTM F67) | Pure Titanium Gr 4<br>(ASTM F67) |
| Length (mm)   | 5.5  | 6.45                             | 5.3, 5.95                        |
| Diameter (mm) | 5.0  | 4.8, 6.0                         | 2.84, 3.37                       |
| Sterilization | Radiation Sterile  | Radiation Sterile                | Radiation Sterile                |
| S.E.          | This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device (K123155). In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. This product is sterilized by the user by the method described in the user manual. |                                  |                                  |

| Device Name   | Subject Device   | Predicate Device                        |   |
|---------------|--|---|---|
| Manufacturer  | SHINHUNG MST CO.,<br>LTD.  | Osstem Implant Co., Ltd.                | SHINHUNG MST CO.,<br>LTD.               |
| Device Name   | Abutment Screw   | Ti Screw                                |   |
| Design        |  |   |   |
| 510(k) Number | K221752  | K120847                                 | K123155                                 |
| Material      | Titanium Alloy Ti-6Al-4V<br>(ASTM F136)  | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) | Titanium Alloy Ti-6Al-4V<br>(ASTM F136) |
| Length (mm)   | 8.0  | 6.75                                    | 8.35, 8.7, 10.0                         |
| Diameter (mm) | 2.5  | 2.5                                     | 2.17, 2.32                              |
| Sterilization | User sterile   | User sterile                            | User sterile                            |
| S.E.          | This product has the same purpose as the predicate device and has a size within the product size range of Osstem. The raw material is the same as the predicate device (K123155). In addition, it is manufactured through the same manufacturing process as our Luna Dental Implant System. This product is sterilized by the user by the method described in the user manual. |   |   |

# 8. Non-Clinical Testing

- Fatigue test was performed in accordance with ISO 14801.
- The following tests were evaluated under the 510k mentioned below. These predicate devices are made by our company and the subject device is made of the same material

and goes through the same manufacturing processes.

- i SLA Surface treatment (K123155 and K160106)
- ii. Biocompatibility (K123155)
- iii. Shelf Life (K123155)
- iv. Sterilization (K123155)
  - 1. Gamma radiation method
  - 2. Moist Heat Method
- v. Packaging (K123155)
- Endotoxin/LAL testing will be conducted on every batch of the subject device.
- A non-clinical worst-case MRI review was conducted to evaluate the Stella in an MRI environment using scientific evidence and published literature (e.g., Woods, Terry O., Jana G. Delfino, and Sunder Rajan. "Assessment of Magnetically Induced Displacement Force and Torque on Metal Alloys Used in Medical Devices." Journal of Testing and Evaluation 49.2 (2019): 783-795). Titanium Grade 4 was assessed according to magnetic induction displacement force (ASTM F2052), magnetic induction torque (ASTM F2213), RF induction heating (ASTM F2182), and image artifact (ASTM F2119) by T. O. Woods et al. Based on that rationale, we have addressed parameters per FDA guidance "Testing and Labeling Medical Devices for Safety in the Magnetic Resonance (MR) Environment," including magnetic induced displacement force and torque.

#### 9. Conclusion

The subject devices and the predicate device have the same intended use and have the same technological characteristics.

Overall, the Stella has the following similarities to the predicate device:

- have the same intended use,
- use the same operating principle,
- incorporate similar design,
- incorporate the same material and the sterilization method
- similar fatigue testing results to the predicate devices in the market.

Based on the similarities, we conclude that the Stella is substantially equivalent to the predicate devices.