

## OCCLUSAL RADIOGRAPHY

The basic principle of the occlusal technique is to place a larger size film (3 x 2 1/4 inches or 51/2 x 71/2 mm) between the occlusal surfaces of the teeth in the plane of occlusion. The sensitive side of the film is facing the x-ray beam. The beam is directed through the jaw to be examined towards the film. The film is stabilized by having the patient bite gently on the film packet.

Advantages of these views include:

1. the size of the film allows larger segments of the jaw (maxilla/mandible) to be examined
2. for use when patients are unable to open mouths wide enough for periapical radiographs or for other reasons such as trismus or pain, etc...
3. to determine the location of objects in all three dimensions
4. to locate roots, supernumerary, unerupted, and impacted teeth (canines, third molars)
5. to localize foreign bodies in the jaw
6. to localize stones in the ducts of salivary glands
7. to visualize and evaluate integrity of the anterior, medial, and lateral outlines of the maxillary sinus
8. to locate the nature, extent, and displacement of fractures of the mandible and maxilla
9. to determine presence and extent of pathoses, such as cysts, osteomyelitis, and malignancies

There are six different occlusal views. A simplified overview of these views follow:

	<b>ANTERIOR (STANDARD) CROSS-SECTIONAL</b>	<b>LATERAL RIGHT/LEFT CROSS-SECTIONAL</b>	<b>ANTERIOR TOPOGRAPHICAL</b>
MAXILLARY	This film affords an excellent view of the palate. The technique applied is similar to the maxillary anterior topographical occlusal view. However, in order to include more of the palate on the film, a steeper vertical angulation is necessary	This film depicts palatal roots of molar teeth. It may also be used to locate foreign bodies in the otherwise healthy antrum.	This film allows for examination of the structures in the anterior region of the palate. Most parameters are similar to the maxillary anterior cross-sectional view except for the vertical angulation and the point of entry on the central ray.
MANDIBULAR	(Submentovertex). This film affords views of the buccal and lingual aspects of the mandible as well as the location of sialoliths and foreign bodies in the floor of the mouth.	This film affords views of the buccal and lingual aspects of the right or left posterior body of the mandible as well as the location of sialoliths and foreign bodies in the floor of the mouth	This view should show the <u>anterior</u> mandible from the alveolar crest to the inferior border

**Pedo (child) Patient: Use size 2 (periapical) film since small children may not be able to accommodate the larger occlusal film in their mouths**

### OCCLUSAL RADIOGRAPHY - MAXILLA

	<b>STANDARD CROSS-SECTIONAL (ANTERIOR)</b>	<b>LATERAL RIGHT/LEFT CROSS-SECTIONAL</b>	<b>ANTERIOR TOPOGRAPHICAL</b>
Head Position	Mid-sagittal plane vertical, occlusal plane parallel to floor	Mid-sagittal plane vertical, occlusal plane parallel to floor	Mid-sagittal plane vertical, occlusal plane parallel to floor
Film Position	("Dot" to anterior) sensitive side-up. Long dimension of film extends across mouth. Anterior edge extends 2-3 mm beyond labial surfaces of maxillary teeth	Emulsion side up. Film positioned diagonally in the mouth with one of the long edges of the packet lying parallel to and extending ¼" (10mm) lateral to the buccal cusps of the posterior teeth	("Dot" to anterior) sensitive side-up. Long dimension of film extends across mouth. Anterior edge extends 2-3 mm beyond labial surfaces of maxillary teeth
Vertical Angulation	+ 65-70degrees (pointed downward).	Approximately + 60 degrees, (pointed downward).	+ 55 degrees (downward). (dependant on bisecting angle technique)
Horizontal Angulation	At right angles to buccal plane of central incisors central ray follows mid sagittal plane and is directed through interproximal contacts of central incisors	At right angles to the buccal plane of molars, premolars or cuspids (beam 'opens' the contacts) depending on clinical situation	At right angles to buccal plane of central incisors central ray follows mid sagittal plane and is directed through interproximal contacts of central incisors
CR Point of Entry	Bridge of nose. Directed toward the film's center	Dropping a vertical line from the following points along the ala-tragus line: lateral canthus – molars mid pupil – premolars medial canthus – cuspid	Approximately ½" above the tip of the nose, but directed towards center of film

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### OCCLUSAL RADIOGRAPHY - MANDIBLE

	<b>STANDARD CROSS-SECTIONAL (ANTERIOR)</b>	<b>LATERAL RIGHT/LEFT CROSS-SECTIONAL</b>	<b>ANTERIOR TOPOGRAPHICAL</b>
Head Position	Tilt as far back as comfort will allow. Keep mid-sagittal plane perpendicular to the floor. (i.e., vertical)	Tilt as far back as comfort will allow. Keep mid-sagittal plane perpendicular to the floor. (i.e., vertical)	Tilted back to a comfortable position. Keep mid-sagittal plane perpendicular to the floor. (i.e., vertical)
Film Position	Emulsion side down; 'Dot' towards anterior. Short or long dimension across the mouth, depending on width and length of the patient's arch	Long dimension running front to back of mouth. The lateral edge is 10 mm lateral to the buccal cusps of the posterior teeth	Emulsion side facing mandibular teeth. Long dimension across the mouth
Vertical Angulation	Direct CR perpendicular the plane of the film, towards the film center	Central ray perpendicular to the film plane	Determined by bisecting angle principles: <u>Guide Rules:</u> With the head tilted back, align the occlusal plane 45 degrees to the floor. Then rotate the tube head so that the vertical angle reads -10 degrees. This positioning should approximate the bisected angle between the film and long axis of the incisor teeth. Visually confirm this positioning
Horizontal Angulation	CR follows the mid sagittal plane and perpendicular to film	Set central ray perpendicular to film, then direct beam 5 - 10 degrees towards midline, approximating long axis of molars	CR follows the mid-sagittal line and through the interproximal contacts of the incisors
CR Point of Entry	Along the mid-sagittal plane 3.0 cm below chin. Move the beam about 2" (5 cm) away from the skin surface under the jaw to avoid cone cutting	Directed toward center of film	Just below the apices of the mandibular teeth, or about ¼" (10 mm) above the tip of chin, along the mid line of the chin. Aim at film's center

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