

FLUKE®

Biomedical

Nuclear Associates 37-001

TEL-ALIGN™ Teletherapy Alignment Gauge

Users Manual

March 2005

Manual No. 37-001-1 Rev. 2

©2004, 2005 Fluke Corporation, All rights reserved. Printed in U.S.A.

All product names are trademarks of their respective companies

**Fluke Biomedical
Radiation Management Services**

6045 Cochran Road
Cleveland, Ohio 44139
440.498.2564

www.flukebiomedical.com/rms

Table of Contents

Section 1:	Introduction.....	1-1
1.1	Introduction	1-1
1.2	Equipment Required	1-1
1.3	Test Procedure	1-1
1.4	Evaluation	1-1
1.5	Evaluation Results	1-2

(Blank page)

Section 1

Introduction

1.1 Introduction

Precise radiation therapy requires treatment geometry that is accurate and reproducible. Since machine parameters can easily become misaligned, they should be checked frequently. The TEL-ALIGN™ Teletherapy Alignment Gauge* permits a quick check of these parameters and facilitates the adjustment of those which require realignment. It is especially useful in an overall QA program.

1.2 Equipment Required

The TEL-ALIGN consists of a rectangular plastic base, 17 cm x 16 cm x 5 cm, with a removable vertical scale, 18 cm high. The base is placed on the treatment table and leveled, using the adjusting pads and the circular bubble level. The upper surface of the base contains lead markers that form a square (10 cm x 10 cm) for visualization on film. A crosshair in the center of the square lines up with two additional sets of crosshairs, one on each outer edge of the base.

- a. TEL-ALIGN Teletherapy Alignment Gauge
- b. Ready-Pack Localization Film

1.3 Test Procedure

- A. Place the central axis of the gantry in a vertical position. Set all angles (head rotation, gantry, collimator and treatment couch at 0° position.
- B. Set a 10 cm x 10 cm field size at isocenter.
- C. Place the TEL-ALIGN base plate on the Mylar portion of the table. Position and level the plate symmetrically with the 10 cm x 10 cm light field.
- D. Position the top surface of the TEL-ALIGN at the isocenter distance.

1.4 Evaluation

- A. Optical Distance Indicator (ODI)
Place the vertical ODI scale on the base plate. The coincidence of the machine's ODI scale can then be checked with the TEL-ALIGN scale. The vertical scale can then be removed.
- B. Collimator
Field size and crosshairs should coincide with the TEL-ALIGN, indicating proper alignment. The symmetry of the collimator jaws, the alignment of the crosshairs, and angle indicators can be checked at 90° increments by rotating the collimator.

*Designed and developed by the Medical Physics Department, Memorial Sloan Kettering Hospital, New York, NY 10021.

C. Head Rotation and Pitch

By exercising these motions and returning to the zero settings, the accuracy of the zero indicator or interlock can be demonstrated by observing the coincidence of the machine crosshairs with the TEL-ALIGN.

D. Isocenter

By rotating the gantry from 0° to 90°, 180° and 270°, any variation of coincidence can be tracked by the projection of the crosshairs and corresponding crosses on the TEL-ALIGN.

E. Side Lights and/or Back Pointer

Projection and intersection of the corresponding crosses at 0°, 90°, 180° and 270° will demonstrate alignment.

F. Light Field vs. Radiation Field

Ready-pack film is placed under the TEL-ALIGN gauge, and an appropriate exposure is given. The coincidence of the radiation field edges, with the embedded lead markers in the gauge, can then be verified on the developed film.

1.5 Evaluation Results

The allowed tolerance for alignment of the above parameters is usually of the order of 1-2 mm. However, the manufacturer's specifications should be consulted for a specific machine. When the tests demonstrate misalignment, adjustments can be made to the unit with the TEL-ALIGN in position on the table.

(Blank page)

**Fluke Biomedical
Radiation Management Services**

6045 Cochran Road
Cleveland, Ohio 44139
440.498.2564

www.flukebiomedical.com/rms