Given Imaging Ltd.

EMC EMISSION REPORT

APPENDIX A

MEASUREMENTS IN THE PHANTOM

Evaluation of the electromagnetic emission of the *Given® Video Capsule*

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PURPOSE

Special electromagnetic shielding fabric (Shiledex® Supra, from Less EMF Inc.) was incorporated into the Waist belt worn by the patient throughout the entire Capsule examination. This shielding suppresses the emitted radiation of the Capsule so that compliance with FCC limits is guaranteed. (Previous testing indicates that the Capsule complies in most instances, but the shielding ensures there are no transient emissions above the approved limit).

The purpose of this study was to determine the effects of wearing the Waist belt on emission levels of the Given capsule. In order to measure differences between the different environments in a deterministic, repeatable way, measurements in a special phantom were performed.

Measurements in the phantom

A special phantom was prepared to simulate propagation of the electromagnetic radiation in the body tissues. The phantom was prepared based on the "Simulated Biological Materials for Electromagnetic Radiation Absorption Studies" (G. Hartsgrove, A. Kraszewski, and A. Surowiec, Bioelectromagnetics 8:29-36, 1987).

The phantom had the shape of a bucket, and measurements were performed for the same capsule in the open air and in the phantom. Measurement set-up was the same as described in the main study (Figure 1A).

The Waist belt was placed on the phantom at different heights. The Waist belt resulted in suppression of the emitted signal by a differential of 7-10 dB below the test with no Recorder belt. The highest measurement appears in the Table 1A below.
Measurements with the phantom can be therefore summarized:

Type of measurement	Measurement [dB (μV/m)]	Margin relative to 46 dB(μV/m) FCC limit
Open air	54.7	-8.7
Inside phantom	39.1	6.9
Inside phantom with Recorder belt	32.1	13.9

Table 1A. Measurements with the phantom

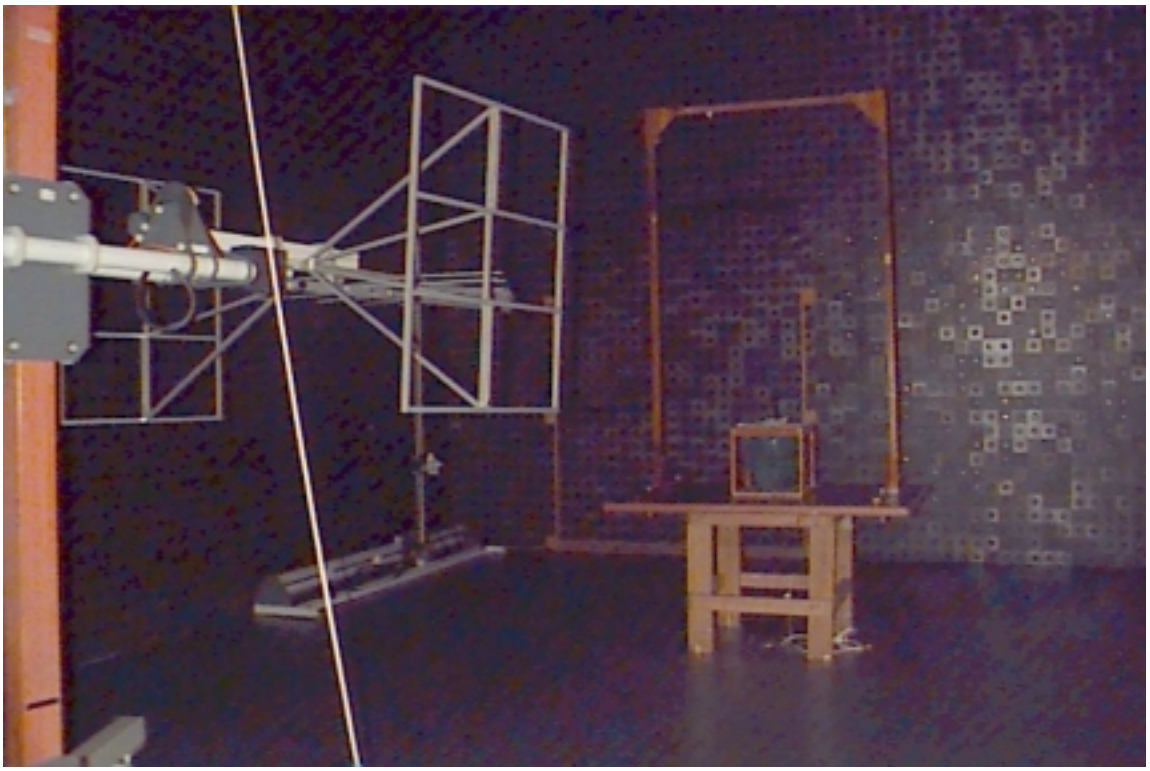

Figure 1A. Measurement setup. Phantom bucket is located on the rotating wooden table.

Figure 2A presents schematic description of influence of the Waist belt (with electromagnetic shielding material) on the measured emissions from the phantom.

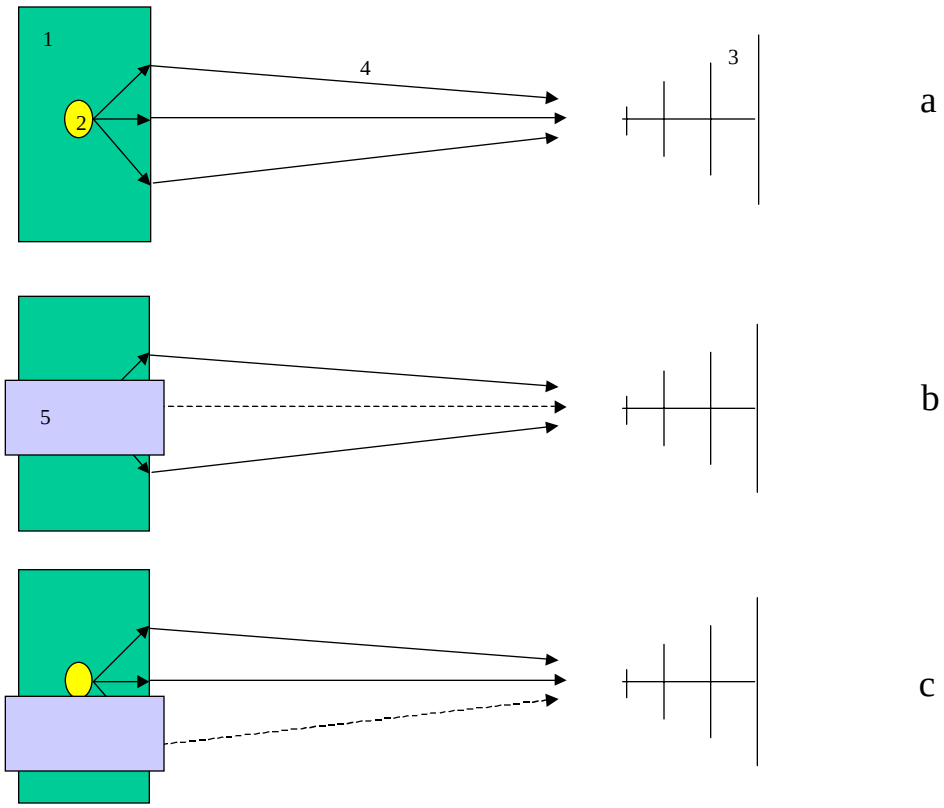

Figure 2. Capsule (2) is immersed in the phantom (1). Measuring antenna (3) is located at distance of 3m. a. Measurement of the emitted radiation with no Waist belt (shield). Emitted radiation pathes are shown (4). b, c. Waist belt (5) is added, obscuring some of the emitted radiation (shown as dashed line).