注意：这是一个版本受控的文件，它的产生是GEX信息计划的一部分，该计划要求所有系列100的文件需要定期检查，以维持信息的最新性和连续性。恰当的技术备忘录用于提供信息细节并支撑产品数据表以及GEX推荐的操作程序，以及提供技术信息以支撑GEX的市场文件。

NOTICE: This document is version controlled and was produced as a part of the GEX Information Program which requires that all Series 100 documents be reviewed periodically to maintain currency and continuity of information. Appropriate Technical Memorandum are used to provide information detail in support of the Product Data Sheets as well as GEX Recommended Procedures and to provide technical information in support of GEX Marketing documents.

1.0 目的 PURPOSE

B3 辐射变色薄膜和由 B3 薄膜制成的 GEX B3 WINdose 及 DoseStix 剂量计对光谱波长为 340nm 或以上的光源暴露比较敏感或 容易受其影响。因为辐射剂量是基于吸光度的变化而被估算出来的，所以剂量计必须避免受到意外的正常的日光和 UV 光源的照射。没有足够的对这些光源的防护的剂量测量，由于间接的日光和紫外光源吸收，结果可能包含未知的颜色变化量。该程序文件描述了如何实施保护措施和测试方法以减轻或足够地保护 B3 薄膜剂量计免受日光和紫外光源的潜在照射。
B3 radiochromic film and GEX B3 WINdose and DoseStix dosimeters manufactured with B3 film are sensitive to or influenced by exposure from light sources with spectral wavelengths of 340 nm and above. Because radiation doses are estimated based on the change in absorbance, dosimeters must therefore be protected from inadvertent exposure to normal daylight or UV lighting sources. Dose measurements made without sufficient protection from these sources of light may contain an unknown quantity of color change absorbance from indirect daylight or UV sources. This procedure describes instruction to implement protective measures and test methods to mitigate or sufficiently protect B3 film dosimeters from potential exposure to daylight and UV light sources.

2.0 材料 MATERIALS

2.1 B3 辐射变色薄膜剂量计或 GEX B3 WINdose 或 DoseStix 剂量计
B3 Radiochromic film or GEX B3 WINdose or DoseStix dosimeters

2.2 Genesys 20 分光光度计，含剂量计支架
Genesys 20 spectrophotometer with dosimeter holder

2.4 紫外线防护材料
UV protection material

3.0 频率 FREQUENCY

3.1 紫外线防护措施首次安装之后
After initial installation of UV protective measures

3.2 按确定的时间间隔检测有效性
At determined intervals for monitoring effectiveness.

3.3 防紫外线滤膜更换之后（根据磨损情况按需更换）
After filter replacement. (As necessary due to normal wear)

4.0 步骤 PROCEDURE

4.1 获得并应用能够有效(≥99%)保护 B3 辐射变色薄膜免受日光和紫外光源照射的紫外防护过滤材料，包括辐照前和辐照后操作以及辐照过程本身。如果 B3 DoseStix 或 WINdose 剂量计是在其工厂密封包装里被辐照的，则没有必要验证辐照前的储存和操作区域，也不用验证辐照区以外的辐射加工场所，因为剂量计的包装本身能够保护 B3 剂量计免受日光和紫外光源的照射。
Obtain and apply UV protection filter material that can effectively shield (≥99%) B3 radiochromic film dosimeters from daylight or UV light sources during pre and post irradiation handling as well as during the radiation process itself. If B3 DoseStix or WINdose dosimeters are irradiated in their factory sealed packages, it is not necessary to verify the pre-irradiation storage and handling areas nor the radiation process areas outside the irradiation zone as the dosimeter packaging itself protects the B3 dosimeters from daylight and UV sources.

4.2 取得无包装的裸露的 B3 辐射变色薄膜剂量计，测量并记录他们的识别号以及它们的吸光度值。每个测量位置使用最少 3 片剂量计，以便确定每一个剂量计位置测量组的平均值、标准偏差和变异系数 CV。
Obtain unpackaged bare B3 radiochromic film dosimeters and measure and record their identification IDs and their optical absorbance values. Use a minimum of three replicates per dosimeter measurement location in order to determine an average, standard deviation and CV for each dosimeter location measurement set.

4.3 将剂量计组放置在操作无包装和无保护的剂量计的场所，比如计量测量室，试验区域或计量分布准备场所，记录它们的特定位置和开始时间。
Place the dosimeter sets recording their specific locations and start times at sites where unpackaged and unprotected dosimeters are handled such as the dose measurement room, laboratory area or the dosimeter dose map preparation areas.

4.4 在它们已经开敞搁置并暴露于典型光源、达到 B3 薄膜剂量计在无保护的状态下暴露于潜在光源预计的最长时间后，取回、测量并记录剂量计的吸光度。这应该包含，在首次测量之后，如果剂量计需要被重新测量或调查而暴露于光源的额外时间。
Retrieve, measure and record the absorbances of the dosimeters after they have been left open and exposed to the typical light sources they would see for the

maximum time period in which B3 film dosimeters are expected to remain unprotected from potential light sources. This should include additional time where dosimeters would be exposed to light sources in the event a dosimeter would need to be re-measured or investigated after their initial measurement.

4.5 该测试至少每年重复一次，以验证光源防护的有效性。
This test is repeated at least once per year to verify effectiveness of the light source protection.

4.6 作为预防维护计划的一部分，灯固定架上或窗户上的任何紫外防护薄膜或薄片，可能需要按预先确定的时间间隔定期更换。
Any UV protective films or sheeting in light fixtures or on windows may be replaced at predetermined intervals as part of a preventative maintenance program.

注意：在更换灯泡或其它可能影响滤光材料位置的维护活动之后，检查灯防护薄膜材料没有离开它原来的位置。
CAUTION: Verify that the light protective film material is not dislodged or moved from its original position following a change of light bulb or other maintenance activity that can affect the filter material location.

4.7 分析 Analysis.

4.7.1 取每一组剂量计测量值的平均值，并与其最初的剂量计组平均值比较
Average each set of dosimeter measurements and compare the average against the prior or initial dosimeter set average.

4.7.2 当未经辐照的吸光度值增加不超过 0.002 A 时，则表明光源保护效果确认成功。
Successful qualification of the light protection effectiveness is observed when the unirradiated absorbance does not increase by more than 0.002 A.

4.7.3 可接受的暴露时间水平由用户自行确定，如果能够获得每个单位时间的吸光率的话，剂量计暴露于紫外条件区域的最大时间限制也就可以确立了。
An acceptable level of time exposure is user dependent and a maximum limit for dosimeter exposure to the area UV conditions can be established if any rate per unit time is detected.

4.8 如同常规，辐射变色剂量计不应该被暴露于光源超过测量所必要的时间。搁在测量区域的剂量计可以用纸或其它遮光物覆盖以避免不必要的光源暴露。
As a general practice, radiochromic dosimeters should not be exposed to light sources for longer time periods than are necessary for measurement. Dosimeters

that will be left in the measurement area can be covered with paper or other light protective layer to prevent unnecessary exposure to light sources.

5.0 修订历史 REVISION HISTORY

日期 **Date**	版本 **Revision**	变化描述 **Change Description**
07/27/07	C	修改了文件的标题 Changed title of the document 3.2改进了语言描述 3.2 modified language 4.5增加了确定的有效性测试的频率为最短1年 4.5 added a defined frequency for effectiveness testing at 1 year minimum 增加了4.6以鼓励滤光材料前瞻性的更换以及关于更换灯泡和可能的影响的警告 Added 4.6 to encourage proactive replacement of filter material and cautionary statement about changing of light bulbs and possible impacts 4.7.2改进了接受标准语言描述 4.7.2 modified acceptance criteria language 4.7.3改进了称述以允许用户确定可接受的剂量计暴露时间限制，如果发现并验证了任何增加。 4.7.3 modified statement to allow user to define acceptable time limits for the exposure of dosimeters if any increase is found and verified.