

# 强制检定证书



证书编号: JL2515003811

第 1 页, 共 3 页

|        |  |
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| 送检单位   | 深圳大学总医院                                    |
| 送检单位地址 | 桃源街道大学城学苑大道 1098 号                         |
| 计量器具名称 | 医用数字摄影 DR 系统 X 射线辐射源                       |
| 型号/规格  | uDR 370i                                   |
| 制造厂    | 上海联影                                       |
| 出厂编号   | 402020                                     |
| 设备管理编号 | 放射科  |
| 检定依据   | JJG1078-2012 医用数字摄影 (CR、DR) 系统 X 射线辐射源检定规程 |
| 检定结论   | 合格   |
| 检定日期   | 2025 年 08 月 21 日                           |

依据检定规程, 被检仪器检定周期不超过 12 个月

(证书专用章)

批准人:

李阳武

核验员:

胡泽科

检定员:

叶鸿伟

证书首页背面“重要声明”是证书的组成部分, 任何未包含“重要声明”内容的复制均为不完整复制。

计量检定机构地址: 广东省深圳市南山区龙珠大道 92 号

客户服务热线: 400-900-8999 E-Mail: kfzx@smq.com.cn

法定计量检定机构授权证书号: (粤)法计(2024)01002 号

社会公用计量标准证书号: [2016]深社量标深证字第 179 号

# 重 要 声 明

## Important statement

1. 本院(站)是由深圳市人民政府依据《中华人民共和国计量法》设立并由国家市场监督管理总局、广东省市场监督管理局依法授权的法定计量检定机构。

SMQ is a legal metrological verification institution established by the Shenzhen Municipal People's Government and authorized by the State Administration for Market Regulation and Guangdong Administration for Market Regulation according to *Metrology Law of the People's Republic of China*.

2. 本院(站)进行的检定、校准和检测均可溯源至国际单位制(SI)单位和/或社会公用计量标准。

All verifications, calibrations and tests made by SMQ are traceable to the International System of Units (SI) and/or social public measurement standards.

3. 如果要满足被校准仪器的技术指标,或者技术法规要求,在规定范围内适用,请在建议复校日期前校准。(适用于校准证书)

To ensure that the calibrated instrument is properly used under given conditions in compliance with technical specifications or regulations, please recalibrate it before the suggested date. (Applicable to calibration certificates)

4. 本证书/报告提供的结果仅对本次被检的计量器具有效。送检仪器及其信息和客户信息均由委托方提供,本院(站)不对仪器的真实性及信息的完整性和准确性负责。如果委托方在委托协议书中未注明送检仪器的信息,我院(站)将按照仪器上标明的实际信息出具证书/报告。

The results provided by the certificate/report are only valid for the measured instrument in this instance. The submitted instruments and their information, and information of the entrusting party are all provided by the entrusting party, and SMQ assumes no responsibility for authenticity of the instrument and completeness and accuracy of the information. If the entrusting party does not specify the information of the submitted instrument in the entrusting agreement, SMQ will issue the certificate/report based on the actual information marked on the instrument.

5. 除非特别说明,否则在证书/报告中作出与规程或规范的符合性声明时,本院(站)将不考虑不确定度的影响,根据测得值是否在规定限值范围内作出符合性判断。

Unless otherwise specified, when making statements of conformity to regulations or specifications in the certificate/report, SMQ will disregard the uncertainty and judge conformity basing on whether the measured values are within the specified limits.

6. 证书/报告中二维码具浏览和下载完整证书/报告功能,是应委托方选择所设,该二维码及其复制图能使任何人扫描获取完整的证书/报告电子版,本证书/报告持有人如需限制他人经该二维码获取证书/报告内容,应自行遮盖或消除证书/报告及其复制件所附二维码,我院(站)对委托方选择证书/报告二维码功能所致的信息泄露概不负责。(适用于附二维码证书/报告)

The QR code in the certificate/report has the function of browsing and downloading the complete certificate/report, which is set according to the choice of the entrusting party. The QR code and its copy enable anyone who scan it to obtain the complete electronic version of the certificate/report. If the owner of this certificate/report needs to restrict others from obtaining the content of the certificate/report through the QR code, he should cover or remove the QR code attached to the certificate/report and its copies by himself. SMQ assumes no responsibility for the information leakage caused by the entrusting party's choice of the certificate/report QR code function. (This clause applies to certificate/report with QR code)

7. 证书/报告无检定员/校准员、核验员、批准人签字,或涂改,或未盖本院证书/报告专用章及骑缝章无效。未经本院(站)许可,不得部分复印、摘用或篡改本证书/报告的内容;复印证书/报告未重新加盖本院(站)证书/报告专用章无效。

Certificates/reports without the signature of verifier/calibrator, reviewer or authorized approver, or with alterations without authorization, or without the dedicated certificate/report seal or across-page seal are invalid. Copying or excerpting portion of, or altering the content of the certificate/report is not permitted without the written authorization of SMQ. Copies being not re-stamped with the dedicated certificate/report seal are invalid.

8. 只申领电子证书/报告时,相关内容和效力以电子证书/报告为准;电子证书/报告和纸质证书/报告同时申领时,电子证书/报告仅作为纸质证书/报告的副本,相关内容和效力以同编号纸质证书/报告为准。

When electronic certificate/report is only applied for, the content and validity shall be based on the electronic certificate/report. When both electronic and paper certificate/report are simultaneously applied for, the electronic certificate/report shall serve solely as copy of the paper certificate/report, and the content and validity shall be based on the paper certificate/report with the same number.

9. 证书/报告更改后,发出的电子版证书/报告、证书/报告的扫描件及传真件将不被追回,委托方有义务将更改后的证书/报告提供给使用原证书/报告的相关方。

When the certificate/report is revised, SMQ is not responsible for recalling the issued electronic version, scanned copies, and faxed copies of the certificate/report. The entrusting party has the obligation to provide the revised certificate/report to the relevant parties using the original certificate/report.

10. 委托方不得擅自使用测量结果进行不当宣传。如果委托方滥用或者违法使用证书/报告,导致侵犯第三方权益或造成第三方损失的,本院(站)不承担任何责任。如果因委托方不合理使用证书/报告,导致本院(站)遭受损失的,委托方应当赔偿本院(站)所遭受的所有损失,包括但不限于赔偿款、诉讼费、律师费、交通费、公证费等。

The entrusting party should not use the measurement results for improper publicity. In the event that the entrusting party abuses or illegally uses the certificate/report, thereby resulting in infringement of rights and interests of a third-party or causing losses to a third party, SMQ shall not assume any responsibility. In the event that the unreasonable use of the certificate/report by the entrusting party causes losses to SMQ, the entrusting party shall compensate SMQ for all losses incurred, including but not limited to compensation fees, litigation costs, attorney fees, transportation expenses, and notarization fees.

投诉和证书/报告真伪查询电话及邮箱:400-900-8999, [complaint@smq.com.cn](mailto:complaint@smq.com.cn)

Complaint and Certificate/Report Authenticity Inquiry Phone Number and Email: 400-900-8999, [complaint@smq.com.cn](mailto:complaint@smq.com.cn)

强制检定证书

证书编号：JL2515003811

第 2 页，共 3 页

检定用主要计量标准装置信息

| 名称                                     | 测量范围  | 不确定度/准确度等级/<br>最大允许误差                                 | 计量标准考核证书号               | 有效期至       |
|--|---|---|-------------------------|------------|
| 医用数字摄影<br>(CR、DR)系统 X<br>射线辐射源检定<br>装置 | 空气比释动能率：<br>( $6\times 10^{-5}\sim 1$ )<br>Gy/min 管电压：<br>(50~150) kV | 空气比释动能率： $U_{rel}=3.0\%$ ( $K=2$ ) 管电压：MPE: $\pm 2\%$ | [2016]粤量标鹏法证字第<br>179 号 | 2028-11-27 |

检定用主要标准器信息

| 名称                  | 测量范围   | 不确定度/准确度等级/<br>最大允许误差                                   | 设备编号       | 证书号/<br>溯源单位                       | 有效期至       |
|---------------------|--|---|------------|------------------------------------|------------|
| 医用诊断 X 射线<br>辐射源检测仪 | 空气比释动能率：<br>( $6\times 10^{-5}\sim 1$ )Gy/min<br>管电压：(50~<br>150) kV | 空气比释动能率： $U_{rel}=3.0\%$ ( $K=2$ )<br>管电压：MPE $\pm 2\%$ | SB6342     | 校准字第<br>20250410<br>5518 号/<br>中测院 | 2026-04-17 |
| 医用诊断 X 射线<br>辐射源检测仪 | 空气比释动能率：<br>( $6\times 10^{-5}\sim 1$ )Gy/min<br>管电压：(50~<br>150) kV | 空气比释动能率： $U_{rel}=3.0\%$ ( $K=2$ )<br>管电压：MPE $\pm 2\%$ | SB6342     | 校准字第<br>20250410<br>7908 号/<br>中测院 | 2026-04-17 |
| 光野与照射野一<br>致性测试卡    | (0~100)mm  | 最小分度值 $\leq 2$ mm                                       | SB14205/02 | 校准字第<br>20240200<br>5438 号/<br>中测院 | 2027-02-06 |
| 分辨力测试卡              | (6~50) Lp/cm   | MPE: $\pm 10\%$   | SB14205/03 | 校准字第<br>20240200<br>5438 号/<br>中测院 | 2027-02-06 |
| CR/DR 综合检测<br>模体    | 低对比度分辨力<br>:(0.35~16)%   | 厚度 MPE: $\pm 0.05$ mm                                   | SB14205/01 | 校准字第<br>20240200<br>5438 号/<br>中测院 | 2027-02-06 |

附加说明

委托日期：2025 年 08 月 21 日  
检定地点：客户现场门诊楼 1 楼放射科  
环境条件：温度 25.8℃ 相对湿度 54.5%

## 检定结果

证书编号: JL2515003811

第 3 页, 共 3 页

1. 辐射输出的空气比释动能: (条件: SID 100cm, 70kV, 10mAs)

$$K = 0.32 \text{ mGy}$$

技术要求: 在规定的条件下, 辐射输出的空气比释动能应不大于10mGy。

2. 辐射输出的重复性: (条件: SID 100cm, 70kV, 10mAs)

辐射输出的重复性: 0.2%

技术要求: 在规定的条件下, 辐射输出的空气比释动能重复性不大于10%。

3. 辐射输出的质: (条件: SID 100cm, 70kV, 10mAs)

$$\text{HVL} = 2.9 \text{ mmAl}$$

技术要求: 管电压70kV时, 半值层应不小于2.1mmAl。

4. 空间分辨力: (条件: SID 100cm, 70kV, 10mAs)

空间分辨力: 34 Lp/cm

技术要求: 首次检定应满足出厂的技术指标。后续检定和使用中的CR、DR不小于20 Lp/cm。

5. 低对比度分辨力: (条件: SID 100cm, 70kV, 10mAs)

低对比度分辨力: 0.75%

技术要求: 首次检定应满足出厂的技术指标。后续检定和使用中的CR、DR不大于2.2%。

6. 光野与照射野一致性: (条件: SID 100cm, 50kV, 10mAs)

| 位置   | 偏差    |
|------|-------|
| 横轴偏差 | 10 mm |
| 纵轴偏差 | 4 mm  |

技术要求: 光野与照射野之间的偏差不应超过所选SID的2.0%。

7. X射线管电压

| 管电压标称值 (kV) | 相对偏差  |
|-------------|-------|
| 60          | 0.2%  |
| 80          | -0.2% |
| 100         | -1.6% |

技术要求: 在工作范围内, X射线管电压的相对偏差不超过±10%。

附注:

- 空气比释动能测量结果的扩展不确定度:  $U_{\text{rel}} = 7.0\%$ ,  $k = 2$ ;
- 本证书给出的扩展不确定度依据JJF 1059.1-2012《测量不确定度评定与表示》评定。