医疗设备销售合同

需方（甲方）：宁晋县中西医结合医院

供方（乙方）：国药乐仁堂石家庄医疗器械销售有限公司

甲乙双方根据《中华人民共和国民法典》，在平等互利、协商一致的基础上，就邢台市宁晋县公立医院防疫系统建设项目设备采购事项，一致同意订立如下条款。

第一条合同标的

1.1 乙方同意向甲方出售高端 64 排 128 层螺旋 CT 设备，甲方同意向乙方采购高端 64 排 128 层螺旋 CT 设备。

1.2 货物清单

名称	品牌、型号	数量	单位	单价（元）	合价（元）
高端 64 排 128 层螺旋 CT（X 射线计算机体层摄影设备）	品牌：通用电气，型号：Revolution Ace	1	台	7146000	7146000
投标总价（元）		大写：柒佰壹拾肆万陆仟元整 小写：7146000 元			

第二条质量要求、技术标准

2.1 乙方保证其提供的货物为全新的、未使用过的，符合国家规定的标准和质量要求，符合合同规定的质量、规格和性能要求。

2. 2 双方特别约定，货物应符合如下特殊要求_____。

第三条合同价款及支付方式

3. 1 本合同总价为（小写：7146000 元；大写：柒佰壹拾肆万陆仟元整）该价格包括货款、运输费、检测费、装卸费、验收费、利润、税金等全部费用。

3.2.1 支付方式:签订合同后付合同总价的 30%；设备安装调试结束，经验收合格支付到合同总价的 97%；余款作为质保金，质保期满，设备无质量问题无息支付剩余合同款。

3.2.2 乙方银行账号

招商银行股份有限公司石家庄广安支行

账户名称：国药乐仁堂石家庄医疗器械销售有限公司

账户号码：3119 0165 3210 802

第四条货物的包装

4.1 乙方所提供的货物均为出厂时原包装，应在装卸、运输、仓储过程中有足够的包装保护，能够防止货物受潮、生锈、被腐蚀、受冲撞以及其他不可预见的损坏。

4.2 该包装适合货物的安全运输并能保障货物的完整，能安全送达交货地，包装物不回收。

4.3 乙方随货附详细的装箱清单，在包装箱内必须附有相关文件及资料。

第五条交货时间、地点

5.1 交货时间：乙方接到甲方发货通知后 60 日历天交货。

5.2 交货地点：宁晋县中西医结合医院

5.3 收货单位：宁晋县中西医结合医院

5.4 乙方承担运输费用及保险费用。如果甲方变更交货时间或地点的，应在乙方发货前书面通知乙方，如果导致运费等增加的，增加的部分应由甲方承担。

第六条验收

6.1 甲方应在货物到达后在收货单上签字盖章并以书面形式通知乙方。

6.2 货到交货地点后双方应开箱清点检查验收，核对货物数量、规格、型号等是否符合本合同约定，货物是否有毁损等。

6.3 货物到交货地点后，验收合格即在验收报告上签字盖章；验收不合格的，甲方有权拒收，乙方应在 3 日内予以更换或补足。

6.4 如货物需要安装调试的，乙方应在接到甲方书面通知后十日内派人到现场安装。甲方应按相关行业标准进行验收，验收合格的即在验收报告上签字盖章；超过 15 日甲方还未验收的，视为验收合格。验收不合格的，乙方应尽快解决所存在的问题（包括更换货物等），并再次提交甲方验收。

6.5 如果一方对货物质量、安装调试等存在异议，另一方不认可的，可共同聘请相关机构进行检验或者按照本合同约定的争议解决方式处理。聘请相关机构进行检验的费用，由提出异议的一方预付，根据最终的结果由责任方承担。

第七条产权声明及风险转移

货物在送至交货地点并经甲方签收之前所发生的毁损、灭失等风险由乙方承担，之后发生的毁损、灭失等风险由甲方承担。

第八条培训、维修及售后服务

8.1 在安装结束后，乙方工程师或有关人员有义务对甲方操作人员进行现场维修、保养、操作培训，解答甲方人员提出的问题；应甲方要求，随时提供培训。

8.2 乙方保证其提供的货物享受原厂商提供的正规售后服务，并与原厂提供连带责任。

8.3 本合同约定的货物保修期限为 12 个月，自验收合格之日起开始计算。易耗品不在保修范围之内，因甲方使用、保管、保养不当或因非乙方责任所产生的系统损坏而发生的维修费用由甲方承担。如果甲方未经乙方授权人员同意对设备做了调整、改动或不妥当修理的，乙方提供有偿维修服务。

8.4 质保期内，因设备制造原因而发生的质量问题，乙方提供免费维修服务。

8.5 在质保期内，乙方在接到甲方保修电话后，在 2 小时内给予答复；如需去现场的，在 24 时间内派相关维修人员赶到现场进行维修，并在最短的时间内修复、解决。

第九条保密义务

9.1 甲方未经乙方同意，不得让第三方对机器进行开启、拆卸。

9.2 甲方对乙方的产品系统软件不得进行删改、拷贝或转让，甲方不得允许任何第三方查看、测试、删改、拷贝或利用本系统软件。

9.3 甲方应对乙方产品有关的技术和资料负有保密义务，不得向第三方泄露。

第十条违约责任

10.1 乙方保证甲方或使用方在使用该设备或其任何一部分时免受第三方提出侵权专利权、商标权或工业设计权等知识产权的起诉。

10.2 如乙方逾期交货，乙方应向甲方偿付逾期交货违约金。违约金为每逾期一天，按逾期部分货款的 0.01 %计算，甲方可从应付货款中抵扣。

10.3 甲方无理拒收、延期付款（有正当理由除外），应向乙方偿付拖欠款项的滞纳金，其金额为按逾期拖欠款的 0.01%计算。

10.4 上述违约金、滞纳金尚不能补偿对方损失的，双方有权向对方追索实际损失的赔偿金，最高限额为不能交货部分货款总值的 30%。

10.5 如因甲方延迟付款导致乙方迟延交货的，乙方有权相应顺延发货和装机时间，另如因甲方延退导致乙方所需采购原材料等上涨的，乙方有权根据上涨幅度重新议价。

10.6 如甲方无任何理由超过 15 天 时间还未付款的，乙方有权运回已发货物，并由甲方承担往返运费、运输保险费、装吊费、搬运费等一切费用；并有权根据情况，采取停止设备运行或其他措施，其所有后果均由甲方承担。

10.7 如甲方违约本合同第九条关于保密业务约定的，甲方应对乙方可能造成的损失承担相关赔偿责任。

第十一条不可抗力

11.1 本合同所称不可抗力，是指不能预见、不能避免且不能克服的客观情况，包括地震、台风、水灾、火灾、战争等或双方共同认可的其他情况。

10. 2 本合同任何一方因不可抗力不能履行或不能完全履行本合同义务时，应在不可抗力发生之日起的十四日内通知本合同另一方，并向另一方提供有当地公证机关或其他有权机构出具的不可抗力证明。

11.3 因不可抗力不能履行合同的，根据不可抗力的影响，部分或全部免除责任，但法律和本合同另有规定的除外。

第十二条争议解决方式

合同履行过程中发生任何纠纷，双方应本着友好协商的态度解决；协商不成的，双方一致同意提交乙方所在地人民法院提起诉讼。

第十三条其他事宜

13.1 经双方协商一致可解除、变更或修改本合同，未尽事宜双方另行协商签订书面补充协议。

13.2 本协议自双方盖章签字之日起生效。本协议一式四份，甲方三份，乙双一份，具有同等的法律效力。

13.3 本协议附件是本协议的重要组成部分，与本协议具体同等的法律效力。

13.4 本合同各项标题为方便阅读而设立，不得用于对合同条款的解释。

13.5 乙方负责协助甲方完成设备投入使用的各项行政审批手续和验收工作。

以下无正文内容。（盖章时请加盖骑缝章）

甲方：宁晋县中西医结合医院（盖章）　　乙方：国药乐仁堂石家庄医疗器械销售有限公司（盖章）

法定代表人 ：　　法定代表人：

（或授权代表人）　　（或授权代表人）

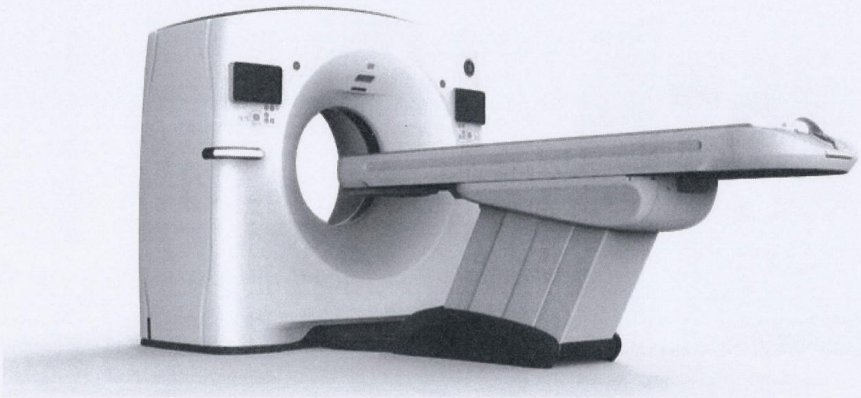
2021年 1 月 28 日　　2021年 1 月 28 日

Revolution Ace 砥柱版

全新后超高端平台 M 级高清 128 层 CT

Customer Quotation

GE Healthcare Rev. 1



GE CT 医疗事业部

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一、 Image Chain 核心硬件

1. Revolution Ace Main System Revolution Ace 主系统

Revolution Ace is the next generation Volume CT with Clarity Imaging Chain and ASiR -V. Clarity Imaging Chain consists of Clarity Detector, DAS, Performix™ 40 Plus X-ray Tube and ASiR-V reconstruction, and delivers high resolution imaging to meet various customer needs in real clinical situations. Clarity Imaging Chain delivers high spatial resolution, low noise, or less-artifact.

Ace 是 GE 公司移植了业内顶尖的后超高端 Revolution CT 多项先进技术而打造的新一代 128 层 CT，其全新打造的高清影像链集合了数字化视网膜探测器、高集成速采 DAS 系统、液态变频金属球管以及领先的 ASIR-V Revolution 自适应统计迭代重建平台，在使用更小的辐射剂量、将图像噪声伪影降到最低的前提下，实现图像质量的高清。

2. Xtream Tablet 智能数控平板

The Gantry is equipped with two 12-inch xtream tablets that synchronize the display and operation of the console so that operations before scanning can be done next to the patient.

在机架上配备了两块 12 寸智能数控平板，同步了主控台显示和操作，使得在扫描前的操作均可以在患者旁完成。

- Create New Patient or Emergency Patient exam, same with console.

  打开新患者或者急诊模式，与主控台同步
- Display gantry and table position information.

  显示机架和扫描床位置信息
- Display multiple system status.

  显示不同系统状态
- Display patient and exam information.

  显示患者和检查信息
- Display Patient ECG waveform.

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显示患者 ECG 波形

- Default Patient Positioning (DPP).

  显示患者默认位置信息

- Play movie.

  显示动画

3. Gantry System 机架系统

- Large 70cm gantry aperture with forward screen plane improves patient access and facilitates interventional procedures

  70 厘米机架孔径，方便病人和介入操作

- Laser alignment lights integrated in gantry enable external and internal patient positioning

  机架内设内、外激光定位灯

- Gantry design and slip ring geometry product scans speeds as fast as 0.35,0.4, 0.5,0.6, 0.7,0.8,0.9,1.0, 2.0 Seconds (360 degrees)

  0.35,0.4, 0.5,0.6,0.7,0.8,0.9,1.0,2.0 秒 360 度扫描

- Controller on both sides of front gantry

  机架控制面板位于机架前面左右两侧，共 2 块

- Compact geometry design best optimized X-Ray efficiency focus to detector:95cm;focus to isocenter:54cm

  优化机架设计，将 X 线效率最大化。焦点至探测器距离为 95cm，探测器至等中心距离为 54cm

4. Digital DOD Detector and DAS 数字化视网膜探测器及数据采集系统

- **40mm integrated detector**

  40mm 视网膜集成化探测器

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Clarity integrated detector used in it exhibits an absorption efficiency of 98%, and the has a stable output with long exposure to radiation and long term stability.

Clarity 极清视网膜探测器材质可以提供高达 98%的射线转化效率，并且具有在长期辐射下保持稳定的优良特性。

Digital Clarity detector has a stable output with long exposure to radiation and long-term stability. On the one hand, the Clarity detector decreases thermal noise and damage through digitalizing power supply system and reducing the heat generation by 90%. On the other hand, it minimizes radiation damage down to 0.1% by adding rare refractory metal.

数字化视网膜探测器在长期辐射线更加稳定。一方面，通过数字化探测器供电系统，使得探测器产热降低 90%，减少了热噪声和探测器热损伤；另一方面，在探测器中引入了稀有难熔金属，阻隔了电器元件中间的干扰，同时把辐射损伤降到最低至 0.1%

- **54,272 individual micropixel elements design**

  54,272 微像元技术

  GE's new Clarity detector use 54,272 individual micropixel elements design enables routine use of sub-millimeter slices without coverage compromise.

  GE 新一代的 Clarity 极清视网膜集成化探测器采用了 54,272 个探测器单元的微像元设计技术，使大范围扫描时也能常规获得亚毫米层厚的图像。

- **Clarity Data Acquisition System Clarity**

  极清集成化速采芯片技术

  The Clarity integrated detector and DAS features a new ultra low noise application-specic integrated circuit (ASIC). Elimination of all analog cables between the photodiode and the analog-to-converter reduces electronic noise by up to 44%. Minimized package and energy reduction: up to a 90% improvement. Clarity integrated DAS enables true 128-slice acquisition with an 8-to-1 miniaturization of conventional multi-slice technology, and a dramatic integrated technology of reduction in electronic noise for improved image quality at low dose and is capable of faster sampling rates.

最新的专业设计的 Clarity 极清探测器及超低噪声集成化速采芯片。无引线光电二级管及数模转换器的设计可以降低最高达 44%的电子噪声，并可将能耗降低 90%；Clarity 集成化速采芯片技术，大大降低了低剂量采集时的电子噪声，并使采集速度加快，实现了真正意义上的 128 层数据采集。

- **Visible Isotropic Resolution is up 0.28mm**

  0.28mm 可视空间分辨率

  High spatial resolution delivers unparalleled spatial resolution enabling the visualization of greater anatomical detail for assessment and diagnosis，such as coronary artery, stent, inner ear, bone detail, tiny vessel and so on.

  高空间分辨率提供业界最高的空间分辨率用于精细解剖结构的成像和诊断，诸如冠状动脉、支架、内耳、细小骨性结构、微小血管的成像从此变得轻而易举。

5. ASiR-V Platform 后超高端低剂量迭代重建平台

Revolution ASiR-V Platform

Revolution ASiR-V 平台

- ASiR™ -V platform, inherited from the ultra-premium CT of GE- Revolution CT, is the newest technology in GE's family of industry-leading iterative reconstruction techniques. With Revolution ASiR-V Platform, it achieves highest resolution with 0.28mm and 16lp/cm at 10%MTF. ASiR-V allows healthcare providers to lower dose up to 82% as compared to standard filtered back-projection (FBP) reconstruction at the same image quality

  ASiR™-V 平台是源自于 GE 最新后超高端 Revolution CT 的业内领先的新一代图像采集及重建平台，实现了业内最高空间分辨率 0.28mm 和 16lp/cm MTF10%。 ASiR-V 相较于滤波反投影算法，可以在图像质量一致的前提下将剂量最大降低 82%

- ASiR-V enhances the noise modeling of ASiR in two ways: 1) ASiR-V performs sophisticated statistical modeling of the projection samples by taking into account of the confidence of each projection measurement in the reconstruction process; and 2) ASiR-V incorporates the user's

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special clinical needs, such as enhanced spatial resolution, into the statistical treatment of the samples.

ASiR-V 相较上一代 ASiR 算法有如下两个方面对噪声模型进行了改进：1）ASiR-V 通过在先进的系统噪声统计模型中所考虑的因素包括数据采集系统中的重建过程中各种投影采样；2）ASiR-V 整合了医师在临床上各种特殊的临床需求加入到采样的统计算法中，如增强的空间分辨率

- Reduced streak artifacts due to better handling of photon-starvation with its unique adaptive restoration algorithm.

  通过自适应复原算法更好地解决了光子饥饿效应，从而减少条状伪影

- Evidence of ASiR-V dose benefit and image quality improvement

  ASiR-V 在射线剂量控制及图像质量提高上优越的表现：

- ASiR-V reduces dose up to 82% relative to FBP at the same image quality

  在保证图像质量一致下，相较于 FBP 算法，ASiR-V 可以将剂量降低 82%

- ASiR-V improves low-contrast detectability relative to FBP up to 135% at the same dose.

  在相同的剂量条件下，相较于 FBP 算法，ASiR-V 可以将低密度对比度提高 135%

6. 128 Slices Conjugated Acquisition 128 层共轭采集

The CT system has the ability to acquire 128 unique rows of projections (scan data) in one gantry rotation when the scanner operates in the axial mode and helical mode. Taking advantage of the improved sampling density resulting from the conjugate projection samples and utilizing 128 rows of projection information to perform conjugate reconstruction enables an improved z-spatial resolution and a better visualization of small phantom objects.

CT 系统在轴位扫描和螺旋扫描模式下，具有在一周机架旋转过程中获得 128 层独特的投影数据采集的能力。通过充分利用共轭投影采样数据提高采样密度，以及使用 128 层投影信息来进行共轭重建，能够使 z 轴方向的空间分辨率得以改善，并且更好地在视觉上分辨更加细小的模具物体。

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7. Performix 40 Plus Vari-frequency Tube

Performix 40 液态微焦球管

Performix™ 40 plus Vari-frequency tube with 12 um gap Liquid gallium alloy in bearing, reduce shifting of spots, increase the stability and accuracy of x-ray. With Vari-frequency technology tube rotates under variable speed, decrease the friction. All the technology are goodness of tube life.

Performix™ 40 液态金属球管采用 GE 专利 12 微米液态金属镓替代传统机械轴承，大大提高射线稳定性，降低了焦点偏移，同时减少了球管旋转的摩擦和消耗，提高了系统的稳定性，延长球管寿命。

- Dual Focal Spots of 0.7(W)x0.6(L) and 0.9(W)x0.9(L)

  双焦点为：0.7x0.6 和 0.9x0.9

- The maximum anode heat capacity : 5.0 MJ (7.0MHU)

  球管阳极热容量：7MHu

  等效球管阳极热容量（with ASiR-V）：39MHu

- Anode heat dissipation: 1070 KHU/min (13.2kW)

  阳极散热率：1070KHu/min

- Electron collector reduces energy deposited onto the target from backscattered electrons up to 32%，and reduces off-focal radiation

  电子束滤过器可降低 32%散射的电子束，降低病人辐射剂量；同时可减少阳极靶面的热负荷，延长球管寿命。

8. High Voltage Generator：72KW 高压发生器：72KW

- Advanced generator technology delivers 72kW and the peak mA 560mA. Support faster rotation speeds for more than just the heart.

  72kW 变频高压发生器匹配 Performix 40 液态金属球管可提供 560 毫安输出。满足快速

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扫描和心脏成像。

- Equivalent power with ASiR-V: 400kW

  等效功率（with ASiR-V）：400kW

- mA Range is 10 to 560mA in 5mA Increments; Selection of 80, 100, 120, 140 kVp Increments; Enabling One to Tailor Scan Parameters to Accommodate Patient Size, Density of Anatomy, and Exam Protocol to Provide Consistent Image Quality Across a Broad Range of Clinical Procedures Broad Range of Clinical Procedures

  毫安范围 10-560 毫安，每 5 毫安的增减值；电压选择为 80, 100, 120, 140kVp

9. Patient Table 扫描床

- A 500 lb. (227kg) Maximum Patient Load for Unsurpassed Clinical Utility and Safety. Table Incrementation Accuracy of +/- 0.25mm. Allows Precise Patient Positioning for Thin Slice Scanning and Produces More Accurate Repeat Studies

  最大承重 500 磅，进床精度＋/-0.25mm

- Horizontal Range：1745mm

  水平范围：1745mm

- Low vertical position as 43cm is convenient to pediatric and disable patients.

  床最低位置可达 43cm，方便儿童和行动不便的患者上下床

- Faster motion with smooth acceleration and deceleration as demanded by next generation Volume CT scanners

  快速平滑加速或减速移动

- True vertical motion, without translation in z, improves patient positioning and productivity for biopsies

  垂直升降，以提高病人摆位和穿刺的准确性

- Table and Gantry Controls Located on Both Sides of Gantry for Elevation and Cradle incrementation. Foot Pedals on Both Sides of Table for Fast Elevation Cradle Position Controlled from Operator/s Console for Prescribed Scans

  床及机架控制在机架两侧，并有双侧脚踏开关

- Table Automatically Re-Centers on Scan Plane with Changes in Vertical Position

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床可自动回位

- Cradle Speed Max Horizontal Speeds: 175mm/s

  水平最快移动速度 175mm/s

- Cradle home button

  控制台可一键退床

10. Smart Operator's Console 智能系统控制台

- His Newly Designed Interface is so intuitive, it seems Like Second Nature to the User.

  人性化的操作界面。

- Entirely Protocol Driven with Only Two Screens to Complete Patient Set-Up. Utilizes Either Graphic Depiction or Simply Type in a Protocol Number. Flexible Editing Tools Allow Easy Tailoring of Exams to Each Patient, with Virtually no Restrictions.

  仅用两屏可完成全部参数设置，使用者可选择图形标记操作，亦可键入所选择的程序号码。所有的参数可灵活地任意设定、修改。

- Complete Simultaneity During Scan Acquisition with all Display Analysis Capabilities, Even with MPR, MPVR, and Viewing of Other Patients.

  可实现扫描,重建及图像分析的完全并行处理,包括 MPR ,MPVR 重建和观察其他病人图像均可同时进行

Exam Rx

检查设置

- View/Edit Wizard Intuitively Adjusts Parameters that are Dependent Upon One Another in response to Operator-Initiated Changes and are Then Highlighted for Quick Review. If Changes are Incompatible，the Operator is Alerted.

  直观地显示各个参数选择的关联情况，当某一参数被改变时，其它的相关参数会自动调整并给出提示；当参数的改变不恰当时，操作台会发出警告。

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- DynaPlan Plus Display Graphically Illustrates Each Patient's Scan Status in Real-Time.

  实时显示病人扫描状态

- Protocol Pro Software Manager Allows You to Establish a Protocol for the Complete Exam, Including Acquisition, Autofilming, Autovoice, Autostore, and Autotransfer/ Networking on a Per Patient Basis.

  可对每个病人预设包括采集，自动拍片，自动语音，自动存储，自动网络传输等各种参数。

- Patient Scheduler Allows Users to Enter Patient Data in Advance and Select Protocols so when the Patient Arrives the Information is Ready to go.

  病人计划系统可在病人到来前设置完全部参数

- Trauma ID Allows Scanning to be Completed First, Then Entry of the Correct Patient Name and Pertinent Data when Obtained.

  对于外伤昏迷患者，可先扫描病人，再输入病人参数。

- Image Display and Processing Speeds Remain Consistent Regardless of Other Processes Running Simultaneously.

  并行处理其它任务时，图像处理速度不变。

- Prospective Multiple Reconstructions Prospectively Prescribe Multiple Algorithms for Any Exams that Require More Than One Reconstruction Algorithm. Set it up in the Protocol and it is Automatically Taken Care of, Even if You Need Different FOV.

  可自动处理不同重建算法不同 FOV 的图像

- Eight (8) AutoView Layouts Vary from a Single 1024 or 768 Image, to Four 512 Images. The Current Exam May be Viewed and Filmed While Viewing and/or Manipulating a Previous Patient's Exam Without Disruption.

  8 种输出模式：可显示 1 幅 1024 或 768 矩阵的图像，亦可显示 4 幅 512 矩阵的图像。在对当前病人观察、照相的同时,分析以前病人的图像。

- Advanced Image Analysis Such as Real-Time Multi-Planar Reformation, and Multi-Projection Volume Reconstruction (MPVR) are Standard.

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高级图像分析如 MPR，MPVR 是标准配置。

- Advanced Image Display Includes Cine Display, Multiple Image Layouts, Pan Zoom, Image Scroll, Cross Reference and Magnifying Glass. Manipulating a Previous Patient's Exam Without Disruption.

  高级显示包括电影，多组图像显示，放大，图像翻转，注释，图像修改等。可同时观察、分析以前病人的图像。

Scan Feature

扫描特点

- The Operator Has the Option to Retrospectively Decompose the Original Raw Data Set and Reconstruct Addition Images at Any of the Defined Nominal Image Thicknesses Available for a Given Table Speed And Scan Mode

  可对已扫描图像(Raw Data)再进行改变层厚的图像重建

- Axial Scan: Axial Multi-slice Modes; Acquires Axial Scans in Sets of Up to 128 Contiguous Images in One 360 Degree Rotation

  轴向扫描: 多层轴向扫描，每 360 度扫描可获得 128 层 0.625mm 图像

- Helical Modes: Extended Helical Scanning Provides Multiple 360 Degree Scans With No Interscan Delay. Scans May be Acquired With (Helical-Type) or Without (Cine-Type) Simultaneous Table Incrementation

  螺旋扫描方式：螺旋扫描可提供 360 度连续扫描,扫描时床可连续移动(螺旋状态), 床也可不移动 (电影状态)。

- 128 Slices per Rotation allowed to produce while Full Coverage Acquisition. Double image data can be acquired while apply conjugate ray construction mode

  用共轭采集法全宽采集时可获得每圈 128 层图像。

- Auto Scanning Mode 自动扫描状态

- Auto Voice with Pre-Set and User-Defined Messages 用户自定义自动语音

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- Biopsy Mode for Simplified Interventional Scanning 介入扫描方式

I. Scan Parameters Can be Changed Flexibly 扫描参数可灵活改变

- Scan Thickness of 0.625,1.25, 2.5,3.75, 5.0mm

  层厚 0.625,1.25, 2.5,3.75, 5.0mm

  Helical, Cine, and Axial Scans May be Prescribed Prospectively from ScoutView

  可在定位片上预设螺旋扫描，电影扫描，普通扫描

- Full Simultaneity Allows all Processes Including Image Reconstruction, Concurrent with Continuous Scanning

  扫描可与其它操作同时进行

- Prospective of Retrospective Reconstruction Can be Prescribed Every 0.1mm

  重建层厚可 0.1mm 增减

II. Image Networking 图像网络

DICOM Conformance Standards DICOM 标准协议

- DICOM 3.0 Storage Service Class : Service Class User (SCU) for image send; Service Class Provider (SCP) for image receive

  应用 DICOM3.0 协议进行图像存储

- DICOM 3.0 Query/Retrieve Service

  DICOM 3.0 图像的传输和接收

- DICOM Print

  DICOM 协议打印功能

- DICOM 3.0 MOD Media Service Class

  DICOM 3.0 MOD 存储功能

- DICOM 3.0 Storage Commitment Class Push

III. LCD Monitor for console 19 inch LCD 监视器

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Two 19" LCD monitor, 1280x1024 resolution 双 19" 液晶显示器，分辨率 1280x1024

IV. Operator Manuals and QC Phantoms 操作手册及质控水模

- Introductory Workbook Provides an Overview of CT

  CT 工作手册 (CD)

- Scan and Display Guide Provide an Easy Guide CD to the System Operation(CD)

  扫描及图像操作(CD)

- Complete Operator's Manual Divided Into Easy to Use Reference Volumes (CD)

  操作员手册(CD)

- Quality Control Phantoms

  质控水模

二、 Scan Advantage 扫描优势

1. Smart MAR 原始数据空间智能去金属伪影技术

Smart Metal Artifact Reduction technique can reduce metal artifact in raw data space.

智能去金属伪影技术通过原始数据空间运算去除金属伪影

Smart MAR helps reducing photon starvation, beam hardening and streak artifacts caused by metal in the body, such as hip implants, which may offer radiographer clearer images around the implant.

智能去金属伪影技术能够帮助减少由体内金属植入物（如人工关节等）带来的 X 射线光子饥渴效应、射线硬化效应以及条状伪影，使植入物周围的图像更加清晰，不至于掩盖周围组织细节。

2. High Pitch Helical 大螺距扫描

We can achieve 1.531 ultra-large pitch scan, which can achieve extremely fast whole body scan, less than 2s for full lung scan, and less than 3s for 100cm wide scan, which can help with high throughput and emergency.

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可实现 1.531 的超大螺距扫描，可以实现极速全身扫描，全肺扫描不足 2s，100cm 大范围扫描少于 3s，为大流通量和急诊提供帮助。

3. 120s Helical Scan 120s 连续螺旋扫描

Continuous spiral scan time is an important indicator to measure the ability of the tube to work continuously. It can achieve continuous scanning for up to 120s

连续螺旋扫描时间是衡量球管持续工作能力的重要指标。可以实现最大 120s 的连续扫描

4. 1024*1024 reconstruction 1024*1024 超高分辨率成像技术

It can provide1024 x 1024 image reconstruction matrices display all of the high-resolution data acquired in applications, such as inner ear, spine and high-resolution lung imaging. As resolution increases, larger matrices are required to display the full resolution for the reconstructed field of view.

提供独有的超高分辨数据采集及影像重建技术，提供 1024x1024 矩阵重建，能够清晰显示更多的微小组织细节，如内耳，脊柱及肺的超高分辨扫描

三、 Smart Scan 智慧扫描

1. Organ Based Adaptive Intensity Modulation System 器官适形调强系统

The adaptive intensity modulation is a new system for CT scanner which uses GE patented SmartBowtieTM technology to reduce X-ray dosage and optimize X-ray quality.

器官适形调强系统是一个 GE 专利的 SmartBowtie 新系统，用于降低 X 射线剂量和优化质量。

It constructs with new expensive and rare materials, such as Titanium, tantalum, allied with aluminum, copper, graphite etc.

应用了由钛、铝、钽、 铜、石墨等材料等组成的独有的钛合金调强系统。

Based on the application of organs, there are 8 groups modulation system, 3 for head, 3 for cardiac, 2 for body, it can adjust automatically by protocols. Total tube dosage will decrease around 10%, X-ray radiation will drop 20%, but image quality will be improved simultaneously

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根据不同器官调节的需要，整机共有 8 组系统（头部 3 个、心脏 3 个、体部 2 个）,根据不同的参数自动调节。临床中可使球管曝光剂量降低约 10%， X 线辐射剂量下降 20%，与此同时图像质量会相应提高。

2. 3D Modulation 3D 自动毫安技术

Easily personalize dose protocols and minimize dose for every patient – large and small.

简便的扫描剂量调节程序，在保证图像质量的前提下，能将任何体形病人的扫描剂量最小化。

During the scan, real-time, 3D dose modulation helps deliver consistent image quality because it automatically accounts for the changing dimensions of patient's anatomy.

通过自动地精确识别病人的形体曲线变化，三维自动毫安功能能在扫描同时实时调节扫描剂量保证了图像质量的一致性。

3. Smart Breath 智能呼吸导航系统

The gantry with built-in breathing lights and goal oriented count down display improves patient breath hold compliance and avoid retakes.

机架上设有呼吸指示灯和倒计时显示，以额外的图形指示进行呼吸控制，以提高呼吸控制的准确性，减少重扫率。

4. SmartBeam 智能射线优化

Provides sophisticated hardware and software that optimizes x-ray beam filtration independently for body and head applications.20-30% reduction in mAs for Body studies. Helical coverage extended 20-30% with same image quality.

提供硬件及软件，对头部和体部采用不同滤波器以得到最有效的 X 射线。提高 X 射线利用率,在维持图像质量不变下,减 少 20-30%mAs 扫描剂量.螺旋能力提高 20-30%

5. SmartPrep Contrast-Tracking 智能造影剂跟踪功能

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Contrast Monitoring. A Complex Software Design in Combination with the Fast Reconstruction Option that Provides Monitoring of Contrast Enhancement during the Contrast Injection. Providing More Accurate Determination of When to Begin Helical Acquisitions. Provides Both Visual and Quantitative Assessment of Contrast Dynamics. Reduces Patient-to-Patient Variability and Consistently Optimizes Exam.

在注射造影剂的同时,动态监测造影剂在感兴趣区变化过程，提供精确扫描延迟时间,从而决定扫描开始时间,无需试验注射造影剂. 提供视觉及定量的控制方式,减少病人间的个体差异,获得稳定的图像质量。

6. Dynamic Z-axis tracking　动态智能射线追踪技术

Dynamic Z-axis tracking provides automatic and continuous correction of the x-ray beam position to block unused x-ray at the beginning and end of a helical scan to reduce unnecessary radiation.

动态智能射线追踪技术在螺旋扫描模式下 通过对扫描起始段及终止段的x射线束进行连续、智能化地位置校正，来屏蔽对于成像无效的射线，从而降低无谓的射线辐射。

7. SmartEnergy Saving 智能觉醒技术

With SmartEnergy Saving Mode activated, GE's scanner is designed to reduce electricity consumption for operation and ambient cooling by more than 33,000kWh per machine annually, an energy savings of more than 60%. "Fast Calibration" could reduce calibration time by 33%

配备的智能觉醒技术可以智能地降低运行和待机时的电能消耗，工作时间与非工作时间采用不同运行模式，非工作时间自动进入“休眠”低碳模式，CT 机“觉醒”前自动进行探测器预热及整机启动准备。节能效率达到 60%，启动及校正时间缩短 33%

8. One-click Emergency Workflow　一键式急诊流程

It has dedicated UIF for emergency cases to start examination quickly.

专为急诊病人设计，一键式设置，快速扫描，节省急诊病人的检查时间。

9. Smart Navigation System for Kids 儿童趣味导航系统

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It meets the needs of different patients, especially to pediatric patients. The Smart Navigation system can pre-display the process of scan, which will make patient know what will happen during the scan. And the system also can play Cartoon to Children patient, which will relieve the nervous of children.

GE 的设计考虑了不同患者的需要，特别针对儿科的应用进行了优化。儿童趣味导航系统可以在扫描开始之前播放扫描演示过程，让患者提前了解扫描过程；同时扫描过程中还可播放儿童趣味动画，缓解儿童患者的紧张情绪。

10. Color Coding for Kids 儿童彩色编码系统

Winner of a national heroes Award from the emergency Medical Services for Children, provide pediatric scan protocols based on the Broselow-LutenTM Pediatric system.

获得美国急救医学颁发的 Hero Award，提供在 Broselow-LutenTM 儿童系统中的儿童专用的扫描菜单

This color coding system is in corporated into the protocol selection on the operate console and is designed to facilitate pediatric emergency and reduce medical error.

儿童彩色编码该系统编码技术同扫描序列相配合用于儿童急诊和避免医疗事故。

11. Smart Tools 智能操作程序工具包

- The SmartTools Software Designed to Increase CT Productivity 30-50% by automating every step of the complete exam. This Allows the User to focus on Providing better patient care while The CT performs all of the tasks necessary to complete an exam including multiple Scan Series, Multiple Reconstructions, multiple Films, SmartSlice, Image Decomposition, Image Archiving, and Image Networking.

  GE 智能工具(Smart Tools)可使 CT 扫描机进行 25 项功能同步处理，提高 CT 流通量 30-50%。

- All of the Scans Needed to Complete the Exam including Axials, Helicals or Both, Autovoice, Autoarchive , AutoFilm , etc.

  25 项功能包括扫描，重建，自动语音，自动存储，自动摄片，自动传输等等。

12. In-room Start 直接启动装置

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Enables start of scan at the gantry and includes a countdown display to x-ray on.

可在扫描室内直接启动扫描，并带有倒计时显示装置。

13. Cradle Home 主控台一键出床键

14. Real Time Recon 实时图像重建

Realtime Direct 3D Gives the Customer the Ability to Automatically Reconstruct 3D Images as Part of the Protocol, Bringing Simultaneity to Applications that Formerly Required a Workstation. Interactive Review Feature Brings a Glimpse into the Future of Reading Volumetric Data Sets. Reconstruction speed is as fast as 55fps.

实时直接三维重建技术可以使用户直接得到自动重建的三维图像，使这种以前需要工作站后处理得到的图像可在扫描同时直接得到；这种交互成像的功能将容积数据的阅片带入新的境界。重建速度高达 55 幅/秒。

四、 Cardiac Function 心脏成像

1. CardIQ Snapshot 超快速心脏成像软件包

CardIQ SnapShot Option is an Integrated Cardiovascular Image Acquisition and Reconstruction Option for GE""s LightSpeed Multi-slice CT Scanners. The CardIQ SnapShot Software can be Used to Acquire ECG Gated CT Images of Heart Cardiac Anatomy Imaging and Various Other Applications that Require Improved Temporal Resolution to Reduce Heart Motion Effects. It is Designed to Produce Optimized Cardiac CT Images with Minimum Cardiac Motion Effects.

超快速心脏成像功能包是 GE 专利的用于心脏成像和重建的功能包，可明显提高时间分辨率以减少心脏的运动伪影。

The Different Cardiac Imaging Methods Give Users the Options of Balancing Scan Coverage Speeds, Image Quality and Temporal Resolution. The Selection of Specific Imaging Mode will be Based on User's Clinical Application Requirement. Once a Specific Imaging Mode is Selected, Helical Pitch and/or Gantry Rotation Speed will be Automatically Selected for Optimal Scan Coverage and Image Quality.

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这项最新的心脏成像技术目的是使心脏成像的范围、图像质量及时间分辨率达到最佳统一，其可根据用户选定的心脏成像模式，自动选择螺距和扫描速度以获得最佳的扫描范围和图像质量。

2. Cardiac Toolkit 高级心脏工具包

ECG modulation is for cardiac applications, prospective ECG dose modulation automatically adjusts the mA to minimize the patient's exposure to X-rays – reducing dose during systolic phases of the cardiac cycle. This provides the clearest images and allows to reducing dose primarily in the systolic phases of the cardiac cycle – yet gives enough power to obtain quality images for functional analysis

ECG 自动毫安功能是在心脏收缩期，自动降低毫安输出，将病人的辐射剂量最小化。在保证图像质量的前提下，降低了病人的受线剂量，又满足了临床需求

Cardiac bowtie is a dedicated part to increase cardiac imaging quality, and will reduce up to 50% dose

专为提高心脏扫描图像而设计的心脏滤线器,可在心脏扫描过程中智能的降低扫描剂量

Cardiac image filter together with cardiac bowtie is an additional software to increase edge to smooth image filter flexibility in reconstruction which save up to 50% dosage.

和心脏滤线器一起,心脏过滤技术通过专利算法,滤过图像噪声,提高心脏扫描图像,并节约最多 50%的受线剂量

ECG Waveform on the console is an additional option to allow users to visualize the ECG waveform directly on the CT scanner console during the scan. The waveform data can be viewed to determine where prospectively-created images are located with respect to the heart cycle to better understand motion artifacts like blurring or mis-registration.

控制台 ECG 实时监测在扫描过程中观察心电图的波动，帮助前瞻性地选择最佳成像期相及了解运动伪影的形成原因

3. SmartScore Pro Acquisition Software on OC

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控制台心脏钙化积分采集

SmartScore Pro is an ultra fast cardiac images acquisition package,it offers the interface of smartscore mode cardiac scanning,implement the operator console embedded control, it can execute prospective trigger for heart scanning.

SmartScore Pro 心脏钙化积分扫描采集软件实现具体的操作扫描界面，同时可以进行前门控方式的定时触发扫描，拥有钙化积分等特殊方式的心脏采集。

4. ECG Trace on OC Software 控制台心电图形选件

This option can acquire ECG trace from the ECG monitor, and displays the ECG trace on operator console.

此选件可以获取从心电图仪传输来的心电图信号，并将其显示在操作控制台上。

5. Cardiac Enhancement Filter 心脏增强过滤组件

This option can enhance the cardiac image quality, reduce the noise caused by cardiac mode scanning,it offers different level of adjustment, and gets different image filter effects.

此组件可以增强心脏图像质量，降低由于心脏扫描方式引起的图像噪声，它分为不同的调节级别，可以获得不同的过滤调节效果。

6. ECG Waveform on the console 心电图操作台一体化

ECG Waveform on the console is an additional option to allow users to visualize the ECG waveform directly on the CT scanner console during the scan. The waveform data can be viewed to determine where prospectively-created images are located with respect to the heart cycle to better understand motion artifacts like blurring or mis-registration.

控制台 ECG 实时监测在扫描过程中观察心电图的波动 ,帮助前瞻性地选择最佳成像期相及了解运动伪影的形成原因。控制台上可以储存心电信息并可以将数据输出。

7. Cardiac& Resp Gating HW 心电门控

8. ECG Monitor 心电图监护仪

9. ECG Editor 心电编辑技术

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The technique is used for editing abnormal ECG by moving, deleting or inserting the trigger wave, to improve the cardiac imaging effectively,even cardiac arrythmia such as ventricular premature beats. You can also measure the duration between two R waves.

专用于心律失常的图像编辑技术，通过删除、添加或者调整异常激发波的位置，极大地改善心脏成像成功率，也可以测量两个心电波之间的时间间隔从而定量观察心律失常的程度。

五、 Advance Application 高级应用

1. Volume Analysis on OC CT 主机三维容积重建软件包

- **3D Presentation Modes 3D 演示模式**

  Bone, Soft Tissue, Angio and Maxium Intensity Projection(MIP), Minum Intensity Projection(MinIP), SSD, Raysum, Cut and Remove, Integral, Coloration and MultiPle Light Sources

  骨，表面，软组织，血管，最大最小密度投影，表面三维重建，透明技术，模拟手术刀，积分重建，加伪彩及多种光源

- **3D Object Manipulations 3D 操作**

  Disarticulation, Dynamic Thresholding. Morophological Operayions, Surface Extraction and Volume Analysis

  关节分离，动态域值，表面及容积分析

- **3D Advanced Processing Features 3D 高级影像处理**

  3D Image Addition, Subtraction, Surface Erosion, Surface dilitation

  图像迭加,剪影，表面融合

- **Resolution Modes**

  Standard and High Resolution

  有标准和高分辨两种显示状态

- **Manipulation**

  Dynamic Rotation in any Direction via Mouse, Movie Mode for Continuous Rotation of 3D Model, Cut Plane Allows Access to Internal Structures by Gradually Shaving Away Overlying Anatomy and Batch Filming

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3D 图像任意方向旋转和观察

- **Analysis Features 图像分析**

  Measure Distance, Measure Angle, Locate Image, Inverse Video, Filtering. 3D Paging, Image Annotation

  测量,反转,滤波，3D 电影，图像注释

- **3D Imaging of Vascular Structure 3D 血管**

  3D Imaging of Vascular Structure is a standard Feature of This 3D Package. It can be Accomplished by Utilizing any of Above Features, the Most Common Being MIP, Summation, Integral and Surface

  3D 血管是 3D 软件包的标准件,可完成以上所有功能

- **CT/MR Analysis CT/MR 分析软件**

2. Volume Rendering on OC CT 主机容积再现重建软件

Volume Rendering Software, Builds on the Fundamental Capabilities of the 3D Analysis Platform which provides a Full Complement of Input/Output Functionality as well as Many Useful Analysis Tools. Using Adjustable Transparency, this Software can Display All Tissue From Anterior to Posterior with Density-based Shading and Full Color. This Allows Visibility of Small Detailed Structures and Enhances the Presentation of Spatial Relationships in Many Situations, i.e., CT Angiography.

多域值容积再现技术是在 3D 分析软件平台的基本功能上提供了一个完善的高级功能。通过可调节的透明功能，该软件可用不同的密度阴影和全色彩，从前至后显示所有的组织。在许多情况下，它可显示小的精细结构并强化其空间关系，如 CT 血管造影。

Models Viewed with Volume Rendering are Selected and Built Using Fast Preset Rendering Protocols. The user may Choose From One of the Standard Presets or From Any Number of User-defined Presets Which have been Saved. From the Advantage Workstation Browser, the User is Able to Select the Exam Series and Render an Image in Three Easy Mouse `Clicks'. Yet, the

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User has Complete Flexibility to Adjust Various Parameters to Demonstrate a Specific Area of Interest.

GE 的容积再现技术通过快速的预设模式方便地进行重建。用户可从标准的预设模式和用户自定义模式中任选一种，并从工作站的浏览窗中选择检查系列，只需用鼠标点击即可得到所需的容积再现图像。用户还可通过调节不同的参数来显示特殊的感兴趣区域。

3. Direct Multiple Planner Reconstruction 直接二维多平面重建功能

Direct MPR that enables the move from 2D review to prospective 3D image review of axial, sagittal, coronal and oblique planes...automatically

直接二维多平面重建功能在扫描同时自动获得相应的轴位、矢状位、冠状位和斜位平面的二维重建图像

4. Orthopedics toolkit 五官工具包

- **Inner ear imaging technique 内耳多功能成像技术**

  By high-resolution scan, inner ear is displayed in two and three-dimensional model. The structure and shape of the audition organ can be viewed elaborately by 3D and 2D.

  高分辨精细扫描，通过二维、三维得内耳多种显示模式，展示人体内最小骨骼得精细形态和解剖结构，更可揭示听器得组成全貌。

- **The whole-scene dental imaging 全景齿科成像**

  It shows the whole look of the teeth, utilized for making pre-operation projects, such as Dental Implants and Other Surgeries Involving the Maxilla and Mandible.. Creates: Cross-Referenced Composite Axial, Panorex, Oblique Planar Reformations of the Mandible and Maxilla, which show exactly the relationships between dental roots and dental grooves. It is a fast method to help dental repair and dental orthopedic operation.

  齿科成像工具，用于显示牙齿排列的整体情况，可进行牙齿种植术前的计划和包括上颌骨和下颌骨在内的其它手术，并生成轴位、曲面和斜面重建图像，进而显示牙冠、牙根、牙槽排列关系，为齿科矫畸和齿科修复提供快速准确的影像。

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5. Neuro toolkit 神经系统工具包

- **Cerebral hemorrhage measuring 脑出血测量工具**

  The cerebral shape with gyrus and fossa could be displayed very well. Using simulative scalpel and going through some depth, the inner situation of the cerebrum could be open out directly . You could autosegment the hemorrhage area and mark some kind of color on it. This software provide some methods to evaluate the haemorrhage volume of pre and post operation and help evaluate the effect of the treatment.

  可以显示脑组织的 3D 图像，脑沟回结构显示清晰，用不同颜色标记出血处不同时期的血液成分，并将出血提取出来，进行体积的计算。此方法能够快速准确地测量脑内血肿，精确测量血肿清除术前后血量改变，提高治疗评估效果。

- **Integral of Brains 脑表面积分分析**

  It shows cerebral fossa and gyrus clearly, and shows internal features below the surface of brains as well. It is useful to go to the position and display for cerebral lesions. Integral is a kind of 3D post-processing method. It means the pixel value is the sum of voxel value and a shallow depth below the displayed shadow point.

  通过脑组织表面积分分析功能不仅能够清晰显示脑组织的沟回结构，还可以显示脑表面下的脑组织特征，可用于对脑内的病变进行快速的定位和显示。脑组织表面积积分是一种 3D 的后处理方法，它的原理是其像素值显示表面点下阴影深度的体素和。

6. Consistent Start Angle 自校准头颈减影技术

Consistent Start Angle controls the tube angle of X-ray exposure start. This helps to reduce mis-registration artifacts in Subtraction CTA.

自校准头颈减影技术可以在减影检查中，自动对焦球管的起始位置，有助于消除减影 CTA 中产生的错配伪影

7. Pulmonary Function Toolkit 智能肺功能工具包

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- **Pulmonary emphysema evaluation 肺气肿评估工具**

  Utilized to evaluate the existence of pulmonary emphysema and the grades. Quantify emphysema pre and post treatment to evaluate the effect of the treatment. To draw the contour of the lungs and get their volume, according to the CT value in the graph. From the graph, you will see the CT value, standard difference, area and volume. The lungs could be autosegmented using some fixed threshold. The images at lung window show that the regions within different CT value are marked at different kinds of colors.

  通过肺气肿测量工具，准确评价肺气肿的存在及程度，为临床提供影像诊断依据，并可进行随访。通过下述方法进行定量测定：自动划定肺的轮廓将 CT 值显示于图表中，提供肺组织平均 CT 值、标准差，以及肺气肿区域的面积及体积，可以在在肺窗图像上对肺气肿区域标记特定的颜色以便显示

- **Lung nodule analysis 肺小结节评估**

  The 3D lung nodule could be segmented utilized this software. The software could auto-identify and highlight the nodules and shows its shape and volume. Using the postprocessing methods such as MIP, MPR and Navigator, you could analyze the details of the nodules, to differentiate the nodules and the vessels, to identify the relationship between the nodule and the vessel, even though measure the diameter and the volume of the nodules. The result could be recorded for follow-up.

  通过肺小结节评估工具，可以提取肺小结节的 3D 形态，并准确测量结节容积。可采用最大密度投影、多平面重建、高级容积漫游等重建技术对结节数据进行分析，多平面重建技术可对小结节与血管断面进行鉴别诊断；结节自动旋转 MPR，可通过不同视角提示结节与支气管及临近血管的关系；独特的评估软件可进行肺结节直径，容积，CT 值的准确测量，上次检查资料可进行存储，与本次检查进行对比分析。

8. Abdominal Toolkit 腹腔器官工具包

- **Measurement of hepatic volume 肝体积测量工具**

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Using add-structure function to get the whole liver or partial hepatic segments, which are 3DVR images , and then using volume-measurement tool to get the volume of whole or partial hepatic segments. The method is used to diagnose hepatic cirrhosis and evaluate the degree of cirrhosis. And it is used to evaluate the state before hepatic surgery.

使用增加组织的方法可以将整个肝脏或者部分肝段的形态提取出来,得到3DVR的肝脏图像，通过修减工具可以对肝脏的形态进行修改，最后通过体积测量工具将整肝或者部分肝段的体积计算出来。该工具可用于肝硬化的诊断及评价硬化的程度，还可用于肝移植术前的评估。

- **Diagnosing mode of hepatic three phases 肝脏三期诊断模式**

Using this model to load 3 phases of abdominal images at the same time, and then to view arterial phase, portal vein phase and venous phase to diagnose the same slices. You will identify the degree and the manner of enhancement for some hepatic lesion at arterial phase, portal vein phase and venous phase. It is also used to determine the nature of hepatic disease and to evaluate the hepatic supplying blood system before operation.

同时将肝脏扫描三个期相的图像显示出来，可以是 2D 也可以是 3D 图像，并且可以对同一个层面不同时相的图像进行同时观察，同时翻动图像，看到病变强化程度和强化方式由动脉期到门脉期到静脉期的变化过程，有助于肝脏病变的定性诊断，得到的肝脏动脉、门静脉和肝静脉的融合图像可以对肝移植术前肝脏供血系统进行评估。

- **Celiac fat tissue calculating 腹腔脂肪测量软件**

Using the function, you will see how the celiac fat tissue distributes, how the fat tissue accumulates and how the fatty components are in the liver. The profile shows the CT value along 3D trace drew by your hands. The histogram shows the distribution of CT value in a range of area or volume. Using the function, you will calculate the axial area and volume of fat tissue to show the change of pre and post operation.

通过腹腔脂肪测量工具，可以测量腹腔内脂肪分布、累积情况和程度以及肝脏等脏器内脂肪沉积程度，准确地反映人体肥胖危害的风险度。用户可以使用轮廓图和直方图进行测量。轮

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廓图通过描记 3D 痕迹（轮廓）来显示脂肪组织的 CT 值。柱状图可根据脂肪成分的 CT 值来表示其分布并得到累积的情况和程度，可以用来评价手术前后的脂肪变化等.

9. Vessel Toolkit 血管成像工具包

- **CT Angiography technique CT 血管造影术**

  By combine with CT contrast technique, CT scan can display vessel structure and pathology. The vessel can be auto select and auto vessel and VR fusion. The tools can display clearly all vessel of all organs

  通过 CT 增强技术与薄层、快速扫描技术的结合，自动血管探寻和 VR 融合，清晰显示全身各部位血管细节和解剖变异。

- **Transparent technique in vessel imaging 血管透明技术**

  Using unique transparent template, by Zero-click operation, this software can display lesions inside and outside the vessel, such as calcified plaque, aneurysm and so on. It provide a valid method for vividly demonstrating the disease of vessel.

  独特血管透明专有模板，零键式操作，可透视观察血管内外及血管壁病变，例如观察血管壁钙化、夹层动脉瘤的内膜片等，为真实再现血管病变提供值得信赖的临床信息。

10. Skeleton Toolkit 骨骼系统工具包

- **Skeleton internal fixation fluoroscopy technique 骨骼内固定支架透视技术**

  Follow-up of the skeleton internal fixation. The advanced technique of fluoroscopy and anti-metal artifact can be applied for the Zero-click operation for skeleton internal fixation to display location and relation with fixation bracket and bone.

  内固定术后随访，采用透视技术和全新金属抑制技术，通过零键式操作，可以清楚显示内固定钉的情况以及与周围骨骼的关系、位置等。

- **Orthopedic Plastic Operation evaluation 骨科畸形矫正评估**

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Multi-planar images are shown the fine anatomic structure and extension of lesion, through 2D and/or 3D reconstruction of axial image of congenital orthopedic-arthral disease. The retro-recon images and reference images can be synchronized shown on the same screen, including 3D image, axial, coronal, and sagittal image. Multiple on-line measurement tools are available to measure the diameter, cross-section area (regular or irregular), angle, length, and volume of the lesion. This tool provides an accurate pre-operational measurement and post-surgical evaluation.

对于骨关节畸形的 2D/3D 重建后，多方位显示病变的细节、范围，3D 重建图像和横断位、冠状位、矢状位和任意斜位图像同屏显示。在线提供定量测量工具，包括畸形骨关节的直径、截面积（规则或不规则截面）、角度、长度、容积。为术前计划，术后随访提供准确的测量工具和疗效评估。

11. Navigator on OC　CT 主机内窥镜功能

GE Realtime Navigator is a real-time 3D reconstruction mode including Flythrough sequence.It used in vessels, bronches, gladder, middle Ear and so on, It can be easy-to-use, autoorientation, and auto-Detector.

GE 实时内窥镜包括"飞行技术"为快速实时内窥镜重建, CT 内窥镜技术包括气管,血管,胆道,鼻窦, 胃肠道等器官 (中耳及脊髓腔等)的模拟 CT 内窥镜, 且具有自动定位及自动探测技术.

Navigator Software Creates 3D Surface Rendered Images of Hollow Structures and Allows the user to Navigate or "Fly Through" Them. May Also be Used in a Virtual Microscopy Mode to Fly Around the Outside of Structures.

内窥镜软件采用三维技术显示空腔脏器内部结构, 并采用"飞行技术"的导航功能,显示内部结构的同时,能显示外部结构,具有外窥镜功能.

12. Virtual Image Visualization　仿真造影成像术

- **Virtual double contrast radiography in digestive tract examination**

  虚拟双重消化道造影

  The appearances of the normal wall, the location, size and morphology of lesions in the colon can be well demonstrated with transparent imaging and surface shading display technique. By virtual

endoscopy, normal colorectal walls and lesions of carcinoma can also be well displayed. This software provide a new methods to detect and diagnose the alimentary canal disease.

利用透明成像法及表面重建法示结肠的大体结构，癌肿的累及范围及特征性的“苹果核”征，虚拟内镜法示病灶表面形态并肠腔狭窄程度，全方位再现消化道的大体形态以及粘膜的病理改变（包括肿瘤、息肉、憩室），操作安全、便捷，为消化道疾病的诊断提供一种全新的影像学手段。

- **CT Urolography CT 尿路造影**

Routine CT urolography can be performed after delay scan of enhanced abdomen exam. Bilateral nephri-pyel, ureter and bladder can be shown on 2D MIP and 3D VR recon-images. The recon-image can be rotated to observe the location, size and peripheral changes of the lesion, including the dilated ureter and/or fill defect in bladder. Using virtual endoscopy can help observe the lesion surface, panorama image can not only demonstrate the changes in endo-lumen and lumen, but also show those of surroundings. It helps evaluate the lesion base, range and extension of invasion, the observation to improve tumor grading and pre-surgical planning.

腹部增强后的延迟扫描可进行常规的 CT 尿路造影。通过 2D MIP、3D VR 图像重建可再现双侧的肾盂、输尿管和膀胱，任意角度的旋转可全方位的观察病灶的部位、大小和周边改变，输尿管和/或肾盂的扩张，及/或膀胱内的充盈缺损。虚拟的腔道内窥镜可逼真观察膀胱内壁和输尿管内壁占位性病变的表面，全景视图还可以同时显示管腔内、管壁和管腔外的情况，综合评价肿瘤性病灶显示基底部的形态，病灶侵润的深度和范围等，辅助判断肿瘤的分期，帮助进行术前的计划制订。

- **Dynamic display of anatomy 彩色透视解剖图谱**

Using unique volume rendering and adjustable transparency, this software can display different issue from anterior to posterior dynamically. This allows visibility of small detailed structures deep in body and relationships with adjacent tissue, thus provide rich clinical information for

precise diagnosis.

通过独特的 VR 多域值重建法，操作简单，轻松实现“骨肉分离”的动态效果，自由显示不同组织层次及组织结构，观察病变与周围组织的毗邻关系，为精确定位诊断提供丰富的临床信息.

13. Biopsy 穿刺定位软件

Using scan acquisition on the console, with the laser system in the gantry, the lesion for biopsy could be exactly positioned. You could choose the scan direction and the slice numbers that you need to scan. The slice thickness and scan interval could be setup before scanning. The software also could work companied with the function of autovoice and the function of autofilm . It is a very useful tool for routine biopsy.

BIOPSY（活检软件）利用快捷方便的扫描程序和机架双定位激光灯，可以精确定位穿刺部位。Biopsy（活检软件）操作方便，扫描前可以选择所需采集图像的数量，自定义扫描的方向，选择高于、等于、低于参考点的定位方式，改变扫描层厚和/ 或间隔时间。Biopsy（活检软件）对于常规的活检非常有用。在使用活检软件之前，可以设置不同的扫描类型，轴扫或螺旋扫。Biopsy 可以与自动语音和自动照相结合。

六、 Other Accessories 其他附件

1. Gantry Accessory I/F Kit 机架附件接口组件

2. PACS/HIS/RIS ConnecPro. Option 医院影像网络联结系统

ConnectPro Enables a Direct Connection Between the Facilities Hospital (HIS) or Radiology (RIS) Information System. Simplifies and Eliminates Errors in Patient Data Entry

可直接连接医院（HIS）和放射科（RIS）信息系统。简化了病人数据的输入，消除输入错误

3. 2TB High Speed Hard Disk 海量高速存储硬盘

Additional 1TB high speed hard disk on Turbo platform for more scan data storage.

2TB 海量高速存储硬盘，使系统可以存储更多的原始数据。

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4. **Gantry Rear Raceway 机架背侧电缆槽**

5. **Table Convenience Kit 托盘组件**

6. **Coronal Head Holder 冠状头托**

7. **Straps Auto Trattino 牵拉带**

8. **Catheter Bag Holder 输液袋固定器**

9. **Long Body Strap 长身体固定带**

10. **Gantry Dolly 机架台车**

11. **Table Dolly 扫描床台车**

12. **Long Cable 系统电缆**

13. **CT table 扫描桌**

14. **CT Chair 扫描椅**

15. **CD/DVD 光驱**

16. **VT table Protection Pad 扫描床防撞减震系统**

17. **Power Box 电源扩展箱**

Power box is used to provide connector for electric power and network connection for options

为选配设备提供电源和网络接入口,支持安装视频放大器及其电源，信号线连接

18. **Power Distribution System with Stabilizing Functionality**

有稳压功能的电源分配系统

The system supplies different power for the whole CT scanner system, it inputs 380 V alternating current, keeps the voltage stabilizing to valid scale.

电源分配和稳压系统为整个 CT 系统提供电源分配和稳压作用，接受 380 伏交流电输入，并且将其稳定在系统需要的电压范围。

Transform 380V AC to 115V AC to the gantry, table and console, 440V AC to rotation motor, 600V DC to slip ring.

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转换电压到 115 伏以供应机架、扫描床和控制台电力，转换成 440 伏交流电到旋转电机以驱动机架旋转，转换成 600 伏直流电供应滑环系统。

19. Data Export on Operator Console 控制台数据转换输出功能

Data Export on console is a tool to convert clinical images into PC-friendly formats like .jpeg, .mpeg, and .avi from the image browser, creating more flexible report creation for both referring physicians and patients. Images data can be archived to standard removable media, including CD-ROM and DVD.

控制台数据输出可将 DICOM 临床图像转换并传输成其他可移动存储的格式，如 jpeg, mpeg, avi 等格式。

较大的帮助。

七、 Advance Option 高级配置选配

1. AW4.7 VolumeShare Workstation AW4.7 全景工作站

- AW 4.7 workstation is a world's first dedicated CT focused applications. This workstation features state of the art 64-bit technology that allows processing of up to 5K images in a single dataset ... thin-slice CT data, for example. With significant improvements in workflow processes and clinical features that will increase your productivity, AW 4.7 could elevate your practice to a whole new level.

AW 4.7 工作站是专业从事于 CT 后处理分析的全新专业工作站。配备全新硬件和 64 位运算操作系统，充分利用六核处理器的优势，使其操作更加简便、功能更加强大。

AW 4.7 includes capabilities that help reduce operating costs, improve departmental productivity, and increase diagnostic confidence. The workstation features state of the art 64-bit technology that allows it to process up to 5000 images in a single data set. This enables more accurate diagnosis using thin slice CT data. The key benefits include:

AW 4.7 能够有效地降低运行成本，提高科室的工作效率，提高诊断信心。该工作站基于 64

位计算机技术，能够在一次处理 5000 幅图像，帮助操作者做出更加精确的诊断，其主要优势有：

Fast access to information you need

快速提取所需信息

With its ability to integrate with your RIS and automatically fetch priors from your archive on exam arrival, AW 4.7 provides you fast access to all the information and applications you need to diagnose quickly across multiple modality images.

将 AW 4.7 连接到 RIS 上，它能够自动地提取存档。帮助操作者迅速提取各种所需信息和图像，并调用相应应用软件包，以便操作者迅速做出诊断。

Efficient workflow to optimize productivity

高效地工作流程 提高科室工作效率

AW 4.7 optimizes your productivity by automating many tasks in the background that would otherwise take much of your time. Optional productivity package performs background pre-processing based on configured rules and loads up to 8 sessions ahead of time to allow instant access. Dynamic load allows additional exams to be loaded in the middle of post processing. It also enables you to collaborate with other physicians by marking Key Images and easily send them to multiple destinations using the End Review feature. In addition, VolumeShare 4 automates sending any out put generated from using Volume Viewer applications to configured hosts.

AW 4.7 能够自动地在后台完成处理，从而为操作者节约很多宝贵时间。多任务处理平台可以在后台中根据预设的规则和流程，同时处理最多 8 个病例，大幅度提高工作效率。自动加载功能可以在后处理进行的过程中加载更多的图像。关键图像功能可以使多个操作者共同对图像进行诊断。End Review 功能可以将处理完的图像在多个目的地之间传送。

Large portfolio of advanced applications

更多先进的后处理软件包

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AW 4.7 has a large portfolio of applications to address your needs across multiple modalities and care areas. Care areas supported include vascular, cardiology, oncology, radiotherapy, neurology, and women's health.

AW 4.7 拥有大量的后处理软件包来满足您各种各样的临床需求。

AW4.7 工作站的硬件配置

HP Z4G4 Workstation

HP Z4G4 工作站

HELiOS 6 operating system

Intel W-2135 @ 3.7 GHz 6 Core Xeon Processors w/8.25MB Cache & 2666Mhz

32GB Memory. Four-channel 2 × 16GB DIMM

NVIDIA® Quadro® P620 2GB Graphics card, Pascal GPU Design

1 x 256GB SSD for OS and Apps. 256G

2*512GB SSD Hard disc in RAID-0 for images cache

Cache, which is subject to overhead can store approximately:

8,300,000 2562 uncompressed images OR

1,900,000 5122 uncompressed images OR

475,000 10242 uncompressed images OR

100,000 2048 x 2560 uncompressed images

Internal DVD Writer drive for read/write of DICOM CD/DVD media, read/write of Data Export CD/DVD data and service use (DVD Install)

Integrated dual Ethernet 10/100/1000 Mbit/s Port.

1 USB QWERTY (or regional) Keyboard and Mouse

Optional serial port kit for Interventional applications

HP Z4G4 工作站

HELiOS 6 操作系统

英特尔六核 W-2135 3.7 GHz 主频中央处理器

32GB 内存。四通道 2×16GB 双列直插式存储模块

NVIDIA Quadro P620 高清显卡，2G 显存, Pascal GPU 架构

256GB 超高速固态硬盘，用于操作系统和后处理应用软件包

RAID-0 卷 1TB 超高速固态硬盘，用于图像数据存储

1TB 的图像存储空间可以以下方式使用：

- 8,300,000 2562 幅未压缩图像或
- 1,900,000 5122 幅未压缩图像或
- 475,000 10242 幅未压缩图像或
- 100,000 2048 x 2560 幅未压缩图像

内置式 DVD 刻录光驱可用于 DICOM 标准图像的 CD/DVD 媒介的读写、导出的 CD/DVD 数据的读写和维修服务用途（DVD 安装）。

集成式 10/100/1000 M 以太网双端口

1 USB QWERTY (or regional) Keyboard and Mouse 1 个 USB 标准键盘（或区域键盘）或鼠标

对于血管机应用程序，可选串行端口工具

AW4.7 工作流程优化平台

Post fetch 图像信息智能搜索平台

AW 4.7 can be configured to automatically retrieve prior and related DICOM exams from you DICOM archive system. The system supports configuring one DICOM host to be queried for related priors. This can be triggered by arrival of new exam on the workstation from network or supported media as well as context synchronization through RIS connection.

AW 4.7 能够自动地根据病人信息从 PACS 系统中调用 DICOM 图像。这个平台可以使一个 DICOM 主服务器来搜索 PACS 网络上的相关信息。每当新的检查从网络、DVD 数据盘、USB 硬盘或者 RIS 的共享系统中到达 AW 4.7 上之后，这个平台就会自动启动，去搜索与之关联的其他历史检查和图像。

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AutoLaunch and One touch protocols

多任务自动处理和零键工作流

AW 4.7 with productivity package option gives access to Instantaneous Exam Display of exams that are automatically Launched and Preloaded.

多任务自动处理和零键工作流 可以使 AW 4.7 具备迅速显示扫描结果并自动地运行和加载相关检查。

This feature gives the ability to automatically load in memory cases that are transferred to the AW. A single click in the AutoLaunch window raises instantly the Volume Viewer protocol that has been automatically launched. Interaction with the data is immediately possible as data are preloaded and ready to read. AutoLaunch is compatible with CT, MR and PET single volume protocols of Volume Viewer.

这一功能能够自动在内存中加载 AW 中存储的病例数据，在后台中进行处理，只要单击 AutoLaunch，正在后台内存中进行处理的病例就会立即显示。

The productivity package option requires dual screen configuration and is not compatible with older versions of AW hardware.

此功能需要最新 AW 4.7 双屏配置，且不兼容旧版本的 AW 硬件

By default exams AutoLaunch in Reformat protocol, but using One-Touch links provide the ability to Autolaunch the best protocol for each exam.

在每次扫描中可以利用 One-Touch 功能，定义 AutoLaunch 所启动的最佳处理软件包

AutoLaunch is compatible with CT, MR and PET single volume protocols of Volume Viewer.

AutoLaunch 能够兼容 CT、MR 和 PET 的 Volume Viewer 协议。

One-Touch protocols allow the operator to define an entire Application or a Review Layout protocol that automatically launches based upon DICOM image acquisition elements. An intuitive user interface in the Protocol launcher provides easy configuration of One Touch links clicking the hand icon.

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One-Touch 使操作者可以自定义整个的应用程序和浏览界面，它可以自动地加载 DICOM 图像。在直观的用户界面中点击手形的图标即可加载协议。

When combined with optional packages AutoBone Xpress, CardIQ Xpress Elite and CardIQFunction Xpress, AutoLaunch package will also give access to the Automatic Preprocessing of the data. Raising exams present in the AutoLaunch window will give instantaneous access to the processed data:

当系统中装有 AutoBone Xpress，CardIQ Xpress Elite 和 CardIQFunction Xpress 可选软件包时，AutoLaunch 软件包将会对数据数据进行全自动预处理。在 AutoLaunch 窗口中，可以迅速提取相关数据和图像。

RIS Connection

放射科信息管理系统自动连接功能

AW 4.7 supports integration with RIS systems (windows OS only) through a command line synchronization interface or through CCOW. This allows a RIS system to automatically select an exam on the AW by passing the patient id, study UID or accession number. Combined with the softswitch ability that allows controlling the RIS system remotely from AW, this allows a RIS driven workflow to be used on the workstation. For more information on the command line interface, please refer to AW RIS integration and configuration.

AW 4.7 能够与 RIS 系统连接。连接建立之后，RIS 系统可以自动选择 AW 上的检查，调用病人信息、检查序列号、病例号等等。Softswitch 功能可以使 AW 能够远程控制 RIS 系统，这样就能够在工作站上对 RIS 进行控制。

Support for Key Image Notes

关键图像注释功能

AW 4.7 supports IHE Key Image Notes profile. This allows the user to mark certain images in 2D or 3D Viewer as key images with specific tags. The key images are displayed as a separate series in the exam list and can be easily accessed or sent to a PACS that supports IHE KIN profile. Uses for this feature include tagging specific images for reporting, teaching or for any other purposes

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and retrieving images quickly later.

AW 4.7 支持 IHE 关键图像注释功能，这使得用户能够任意地对某些感兴趣的 2D 或 3D 图像用标签进行标记和注释，也可以加以文字记录。这些关键图像显示为一个独立的序列，并能够在 PACS 网络中轻松地传输和调用。这样就能够标记特定的图像，以便今后在写报告、教学等情况下进行调取。

End Review 功能

The AW 4.7 comes with a new workflow-enhancing feature - "End Review". This enables automation of routine tasks done at the end of reviewing each exam on the AW with just one click. In addition, the "End Review" flag in the patient list allows for exams to be marked as "Done" after post processing using the End Review feature. The user can configure "End Review" button to perform one or several of the following actions

AW 4.7 具有一个新的工作流程加速功能工具：End Review。操作者在审阅完成每个检查之后，AW 4.7 可以自动做一些定义的、常规的任务，并在结束这些任务的时候，自动在病人列表中标示为 Done。操作者可以定义 End Review 来完成以下操作：

Print the pages as prepared in the Filmer to the default printer (DICOM, Postscript) with an option to automatically save and clear the Filmer after printing is done. Also supports saving electronic films.

自动胶片打印、自动保存和清除内存，并支持电子胶片存储

Automatically push the entire exam or only the series created on the AW to one or more remote hosts and save the filmer results (Structured Reports, Electronic Films) to the local DICOM database.

自动地向一台或多台主机传输全部或者某些特定序列，并将结构化报告和电子胶片等存储到本地数据库。

Remote Network Host Management

远程网络主机管理功能

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The AW 4.7 Patient List conveniently provides a control panel for selecting a remote host or destination for network transfer. Specific Icons are used to signal different types of devices (acquisition, post processing, PACS, etc.) accessible by the station via the network.

在网络传输方面，AW 4.7 设置了便捷的控制面板，方便选择远程主机或图像传输目的地。并且能够用特定的图标标记通过网络连接到工作站上各种设备。

Dragging a Patient, Exam, Series or Image(s) to the remote host icon will start a network transfer to the remote host. A remote browser can be activated to display detailed exam information from the remote host, including filtering of the remote data if supported.

将患者、扫描、序列或者图像到拖拽到主机图标，即会启动到远程主机的传输。远程浏览器将被激活，用来显示远程主机上详细的扫描信息，包括滤过远程数据。

External USB DICOM media

支持 USB DICOM 存储设备

AW 4.7 allows external USB disks to be used as DICOM storage media. The USB disk is treated similar to a CD / DVD and can be accessed for reading and writing through the media button. The maximum number of images stored on the USB media is restricted to 300,000 across all exams. For other limitations, please refer to the release notes for AW 4.7.

AW 4.7 支持支持 USB DICOM 存储设备的读写，它的最多可以存储 300,000 张图像。

DICOM CD/DVD/USB Creation Tool

全新创建 DICOM 数据工具

AW 4.7 includes a flexible DICOM Media Creation Tool designed to offer greater flexibility. The media can be any supported CD / DVD or USB storage device.

AW 4.7 具备 全新创建 DICOM 数据工具，支持的 CD/DVD 或者 USB 存储装置。

Any selected data (exam, series, images) can be added with a simple drag-and-drop to a pre-mastering window.

所有被选择的数据（扫描、序列、图像）都可以经过拖拽方式轻松地添加到控制窗口

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CD/DVD usage (percentage) is shown prior to launching actual writing process.

自动显示 CD/DVD 的可用数据空间（百分比）

The CD/DVD Composer is capable of managing jobs for large amount of data. If the size is greater than the content of a single CD/DVD, the operator will be prompted for additional Media.

在刻录 CD 和 DVD 的时候，如果数据过大，操作界面会自动提示加入更多的存储工具。

The CD/DVD Drive operates at speeds up to 12X depending on CD media and 4X depending on DVD media.

提供 CD 12 速刻录和 DVD 4 速刻录。

Database Management

数据管理工具

The AW 4.7 uses a high-performance database management system. The database classifies the data according to the patient folder description of the DICOM standard, with Patient/Exam-Study/Series-Sequence/Images.

AW 4.7 具有高效的数据库管理系统。数据库按照患者 DICOM 格式文件的描述对数据进行分类。

Auto Delete： automatically deletes images on a first-in-first-out (FIFO) basis; can be toggled on/off.

能够自动删除即存即取的图像；这项功能可以选择开/关。

Lock Exam： prevents specified exam from being deleted.

可以防止特定的扫描信息被删除。

The permanent display of available disk space facilitates easy disk management.

实时显示可用的存储空间，可以轻松地对磁盘进行管理。

A patient anonymization tool can be used to modify DICOM elements to protect patient information.

匿名工具可以用来修改 DICOM 信息，以便保护患者信息。

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Preference Management

使用者习惯管理工具

AW 4.7 provides a tool to exchange preferences across workstations or users. Preferences shared include filmer layouts, Volume Viewer custom protocols, Viewer preferences. It also allows the option of designating one of the AW's on the network as a preference management server or using a standard USB flash drive to share preferences.

AW 4.7 提供了使用者习惯管理工具，可以使同一个使用习惯应用在不同的工作站和用户之间。

AW4.7 Filmer System

胶片打印系统

The Filmer is an important tool that enhances the efficiency of the review station for the radiologist. It is integrated within the AW 4.7 environment and offers enhanced flexibility to perform all filming and exporting tasks.

AW 4.7 胶片打印系统（简称 Filmer）是一个重要的工具用于提高放射科医师的图像浏览效率，同时提供强大的灵活性来实现打印胶片和图像输出任务。

The Filmer is available in two modes, the mini Filmer and the full-screen mode, which allows full customization and film layout template creation.

Filmer 有 2 种模式，微型 Filmer 模式及全屏模式，能够生成定制模式及胶片排列模板。

The Filmer contains three key mechanisms to offer unprecedented flexibility:

Filmer 包含 3 个关键的功能，来实现高度的灵活性。

Free Format Filming

无格式限制的打印

DICOM Structured Reporting (SR)

Data Export (HTML/PDF and JPEG/PNG/MPEG/AVI/QTVR)

数据输出（HTML/PDF 和 JPEG/PNG/MPEG/AVI/QTVR）

The Filmer also enables easy extraction of significant images from any of the AW Application

Filmer 能够实现将重要图像从任意 AW 程序中轻松的调出

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Images may be individually filmed manually via “drag and drop” to the on-screen Filmer or using the F1 Keystroke

可以通过拖放的方式或 F1，将图像独立的放入桌面的 Filmer 窗口。

Multiple Image formatting allows filming of multiple images in a single page frame using the F2 keystroke.

通过 F2，可以打印多张胶片

Film MID allows multiple images to single frame of the filmer and is available through the F3 keystroke.

通过 F3，可以 MID 打印多张胶片

Batch Filming is also supported from the applications that provide that capability (Print Series in the Viewer, Batch Film Protocols in Volume Viewer**).

支持批量打印功能

Communication between applications and the Filmer is done through the use of the mini Filmer with a minimized footprint, which provides the following services:

应用程序和 Filmer 之间的互动，通过 Mini Filmer 来实现。

The Filmer has a very flexible Edit Mode, where images on the film can be easily added, manipulated, formatted or deleted. Images can contain text and graphics from measurements and user annotation, and may be window/leveled, magnified, flipped, rotated or cine. Additional user annotation may be added to the image in edit mode.

Filmer 具备很好的编辑模式，在该模式下，电影中的图像可以被添加、操作、格式化和删除。图像可以包含测量和医生注释中的文字和图片，可以被 window/leveled、放大、flipped、旋转和生成电影。此外 ，在编辑模式下医生的注释也可以添加到图像中。

The Preview Mode will display the film, as it would be printed or exported, taking into account the layout applied to each page of the film and the compression level specified for non-DICOM exporting (JPEG/PNG and MPEG/AVI, QTVR).

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Preview Mode 能够显示图像，图像也可以被打印和传输，图像还可以被压缩成非 DICOM 格式来传输（JPEG/PNG/MPEG/QTVR）

Printing 打印

Network DICOM Print (B&W and Color) is included in AW 4.7 支持网络 DICOM 打印（支持黑白和彩色）

Network PostScript capability (B&W and Color) is included in AW 4.7 for supported printers.支持网络 PostScript 功能

For PostScript and DICOM Printers, any printing format created in the Filmer is supported, (non-square matrix formats, for instance for rectangular images (CT Run-offs).支持各种尺寸

Exporting 输出

The Filmer provides export capabilities of any electronic film to DICOM SR, PDF/HTML and JPEG/PNG/MPEG/AVI/QTVR format. Data Export is totally integrated in the Filmer, thus providing the entire image processing tools needed to perform multimedia image export. Its simplicity is reflected in the different export mechanisms available: CD/DVD removable media, USB flash drive or network HTTP and FTP protocols. It is intended for publishing and communication, not for diagnostic purposes. Non-DICOM data can be also saved on a multi-session CD/DVD using the Filmer tool.

2. Chinese keyboard for Advanced Workstation 工作站中文键盘

3. 3D Preprocessing Platform 三维前处理平台

Automatic Preloading and Preprocessing for real-time review. Images from both single and multiphase data are automatically preloaded into the autolaunch area and preprocessed for real-time review (such as 3D VR, Vessel analysis, etc).

系统可自动调用病人数据至内存中，在进入病人图像处理模式前进行三维前处理，最终可以做到病人 3D 图像的实时浏览（如 3D VR 像、血管分析像等）

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No waste of time to Load or process the images, which may reach less time per exam: 40% faster

处理图像时无需浪费时间等待，可使每个病例处理速度加快 40%。

4. Volume Analysis for Advanced Workstation CT 工作站三维容积重建软件包

3D Presentation Modes 3D 演示模式

Bone, Soft Tissue, Angio and Maxium Intensity Projection(MIP), Minum Intensity Projection(MinIP), SSD, Raysum, Cut and Remove, Integral, Coloration and MultiPle Light Sources

骨，表面，软组织，血管，最大最小密度投影，表面三维重建，透明技术，模拟手术刀，积分重建，加伪彩及多种光源

3D Object Manipulations 3D 操作

Disarticulation, Dynamic Thresholding. Morophological Operayions, Surface Extraction and Volume Analysis

关节分离，动态域值，表面及容积分析

3D Advanced Processing Features 3D 高级影像处理

3D Image Addition, Subtraction, Surface Erosion, Surface dilatation

图像迭加,剪影，表面融合

Resolution Modes

Standard and High Resolution

有标准和高分辨两种显示状态

Manipulation

Dynamic Rotation in any Direction via Mouse, Movie Mode for Continuous Rotation of 3D Model, Cut Plane Allows Access to Internal Structures by Gradually Shaving Away Overlying Anatomy and Batch Filming

3D 图像任意方向旋转和观察

Analysis Features 图像分析

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Measure Distance, Measure Angle, Locate Image, Inverse Video, Filtering. 3D Paging, Image Annotation

测量,反转,滤波，3D 电影，图像注释

3D Imaging of Vascular Structure　3D 血管

3D Imaging of Vascular Structure is a standard Feature of This 3D Package. It can be Accomplished by Utilizing any of Above Features, the Most Common Being MIP, Summation, Integral and Surface

3D 血管是 3D 软件包的标准件,可完成以上所有功能

CT/MR Analysis　CT/MR 分析软件

5. Volume Rendering for Advanced Workstation 工作站容积再现重建软件

Volume Rendering Software for Advantage Workstation 4.1, Builds on the Fundamental Capabilities of the 3D Analysis Platform which Provides a Full Complement of Input/Output Functionality as well as Many Useful Analysis Tools.　Using Adjustable Transparency, this Software can Display All Tissue From Anterior to Posterior with Density-based Shading and Full Color. This Allows Visibility of Small Detailed Structures and Enhances the Presentation of Spatial Relationships in Many Situations, i.e., CT Angiography.

多域值容积再现技术是在 3D 分析软件平台的基本功能上提供了一个完善的高级功能。通过可调节的透明功能，该软件可用不同的密度阴影和全色彩，从前至后显示所有的组织。在许多情况下，它可显示小的精细结构并强化其空间关系，如 CT 血管造影。

Models Viewed with Volume Rendering are Selected and Built Using Fast Preset Rendering Protocols. The user may Choose From One of the Standard Presets or From Any Number of User-defined Presets Which have been Saved. From the Advantage Workstation Browser, the User is Able to Select the Exam Series and Render an Image in Three Easy Mouse `Clicks'. Yet, the User has Complete Flexibility to Adjust Various Parameters to Demonstrate a Specific Area of Interest.

GE 的容积再现技术通过快速的预设模式方便地进行重建。用户可从标准的预设模式和用户

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自定义模式中任选一种，并从工作站的浏览窗中选择检查系列，只需用鼠标点击即可得到所需的容积再现图像。用户还可通过调节不同的参数来显示特殊的感兴趣区域。

6. Navigator for Advanced Workstation　工作站内窥镜功能

GE Realtime Navigator is a real-time 3D reconstruction mode including Flythrough sequence.It used in vessels, bronches, gladder, middle Ear and so on, It can be easy-to-use, autoorientation, and auto-Detector.

GE 实时内窥镜包括“飞行技术”为快速实时内窥镜重建, CT 内窥镜技术包括气管,血管,胆道,鼻窦, 胃肠道等器官 (中耳及脊髓腔等)的模拟 CT 内窥镜, 且具有自动定位及自动探测技术.

Navigator Software Creates 3D Surface Rendered Images of Hollow Structures and Allows the user to Navigate or "Fly Through" Them. May Also be Used in a Virtual Microscopy Mode to Fly Around the Outside of Structures.

内窥镜软件采用三维技术显示空腔脏器内部结构, 并采用”飞行技术”的导航功能,显示内部结构的同时,能显示外部结构,具有外窥镜功能.

7. CardIQ XPress Reveal　高级心脏直通车功能包增强版

CardIQ XPress Elite Analysis Options is an Integrated Post Processing Image Analysis Software Dedicated for the Application of Cardiovascular Imaging, It can be Used to Effectively Display, Reformat and Analyze 2D or 3D Cardiac CT Images for Qualitative or Quantitative Assessment of Heart Anatomy and Coronary Artery Vessels.

心脏直通车功能包为 GE 专利的用于心血管图像高级后处理分析的功能包，可对心脏形态学及冠脉的二维、三维图像进行定性及定量的测量分析、重建及显示。

The Operator has a Variety of Different 2D, 3D or Reformatted Images to Choose From to Perform Analysis and Measurements　with Zero-click process mode. They Include: Display of Coronary Vessel Trees, 2D and 3D Rendering of Single or Multiple Coronary Artery Vessels,

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Automatic Tracking of Coronary Vessels and Reformation of Cross-sectional Cardiac Images into Images Along Short or Long Axis the Heart.

通过“零键式”操作模式，该功能包可以得到多种形式的二维、三维重建图像进行心血管的分析和测量，包括：显示冠状动脉树，单支或多支冠脉的二维及三维重建，冠脉自动跟踪技术，以及多平面的心脏短轴重建和长轴重建。

3D coronary vessel tree subtract provides advanced selective vessel subtract mode to show far distal small branch and guarantee high subtract successful rate

3D 冠状动脉树提取提供了方便灵活的选择性血管提取模式，以显示远端细小分支，并确保更高的提取成功率

One of the Critical Components for an Effective Cardiac CT Application is a Fully Integrated Post-Processing and Analysis Tool Tailored to Cardiac Images. The CardIQ Analysis Option is Designed to Provide and Easy-to-Use and Time-Effective Means for Cardiovascular Imaging Application.

心血管高级后处理功能包的目的是为用户提供准确、快速、简便、全面的心血管图像后处理应用。增强版特殊功能： 冠脉中心线自动跟踪；Plaq ID 钙化斑块、软斑块和不稳定斑块鉴别分析；冠脉与心肌灌注图像融合。

Color transparent view 心脏彩色透视观察

Color transparent View merges vessel tree to heart chambers. It is able to modify transparency separately, shows single or multi-chamber. It generates movie loops with cut-plane capability.

心脏透视观察将心脏冠状动脉树和心腔相融合，可自行调节不同解剖结构的透明度，从而单独观察单心腔或多个心腔。可生成多层面多角度的电影观察。

Cardiac Vessel Analysis 冠脉血管分析

Cardiac vessel analysis is a tool to reformat and analyze 2D or 3D Cardiac CT Images for quantitative assessment of heart anatomy and coronary artery vessels, including ROI diameter, section area, length, stenosis volume and vessel angle.

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冠脉血管分析提供了定量测量的工具，分析包括冠脉感兴趣点的直径、截面积、长度、狭窄容积和血管角度等

8. Coronary IVUS Analysis　类血管内超声

IVUS is one of the most important tool to analyze the vessel, and looked as the golden standard to exam the construction of vessel, but it is expensive and invasive, IVUS-like view is a creation to help clinic much, it can analyze the vessel wall, display the details for doctors.

血管内超声(IVUS)是近年来分析冠脉管壁的重要工具，并被认为是分析血管壁的金标准，但因为创伤大，费用高而很难普及。类血管内超声分析功能是 AW4.7 的一项重要突破，它可以实现类似血管内超声的管壁横断面分析；

Muti-ways to display the pathologic changes, including calcium, soft plaque, thrombus.

多种方式更多的呈现管壁变化情况，包括钙化、软斑块，血栓等病理改变；

It can work together with 3D reconstruction interactively, help to decide the calcium, inner vessel and non-calcium changes, and the changes of vessel movement.

容积重建三维图象交互显示，有助于更好的确定钙化病变，腔内成像以及非钙化斑块导致的管腔狭窄和室壁运动障碍；

9. Coronary Color Coding for Plaque　冠脉斑块彩色编码

It is a tool to precisely analyze plaque characterization. With user deposited adjustable region of interest, it generates automatic color coding to CT housefield number, center-line tracked color review with adaptable multi-level color scale. It provides a detail report on volume and size measurements of plaque. Plaque analysis tools to understand the morphology of the plaque.

用户可自定义感兴趣的冠脉节段，软件根据 CT 值的不同范围给予不同的颜色标记，提高肉眼的分辨能力，同时智能化地分辨不同的斑块成分，用户可根据具体情况自行定义色谱和 CT 范围，并可同时生成有关斑块容积、大小和百分比的报告.

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10. Myocardia Relative Perfusion　心肌相对灌注

Relative Perfusion can differentiate high/low density in different colors, which can help to diagnose the ischemic heart disease.

相对灌注用不同颜色标示显示心肌高/低密度区域，有助于缺血性心脏病的诊断

Ability to adjust sensitivity for detecting hyper/hypo dense tissue

可以调节组织高/低密度的敏感性噪声滤过技术

Ability to filter out noise in the image for enhanced lesion detection

加强病灶探查功能高低密度灌注区域的定量测量有助于探查各种心肌疾病。

Some reports said the coincidence is over 90% compared with isotopic exam.

有文献报道称与和同位素比较其符合率高达 90%以上。

11. Color Transparent View　心脏彩色透视观察

Color transparent View merges vessel tree to heart chambers. It is able to modify transparency separately, shows single or multi-chamber. It generates movie loops with cut-plane capability.

心脏彩色透视观察将冠状动脉树、主动脉根部和四个心腔相融合，并可分别调节这些解剖结构的透明度，从而观察单心腔、多个心腔、或者和大血管之间的解剖关系，对于血管转位、先天性心脏病、室壁瘤等疾病具有很好的辅助诊断功能。

12. 3D Coronary Vessel Tree Subtract　3D 自动冠脉树提取

The Operator has a Variety of Different 2D, 3D or Reformatted Images to Choose From to Perform Analysis and Measurements with Zero-click process mode. They Include: Display of Coronary Vessel Trees, 2D and 3D Rendering of Single or Multiple Coronary Artery Vessels, Automatic Tracking of Coronary Vessels and Reformation of Cross-sectional Cardiac Images into Images Along Short or Long Axis the Heart. 3D coronary vessel tree subtract provides advanced selective vessel subtract mode to show far distal small branch and guarantee high subtract successful rate.

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通过“零键式”操作模式，只需要将光标放在血管上，软件会自动生成冠脉树的图像，而不需要从心脏的图像上进行修剪和清除，3D 冠状动脉树提取提供了方便灵活的选择性血管提取模式，以显示远端细小分支，并确保更高的提取成功率。

13. Cardiac Image Filter　　心脏扫描过滤技术

Cardiac image filter together with cardiac bowtie is an additional software to increase edge to smooth image filter flexibility in reconstruction which save up to 50% dosage.

和心脏滤线器一起,心脏过滤技术通过专利算法,滤过图像噪声,提高心脏扫描图像,并节约最多 50%的受线剂量

14. SmartScore 4.0　　钙化积分软件包

SmartScore Software is Designed for Computing Coronary Artery Calcification Scores from a Single-breathhold Helical Scan. Includes the New SmartScore 4.0 Software for the AW with the New Patient Report.

主要用于对心脏冠状动脉的钙化进行评分。包括 SmartScore 4.0 软件及报告系统。

15. Fast Stroke 快速脑卒中分析包

FastStroke provides a comprehensive workflow solution for reviewing stroke workup images with exceptional flexibility, simplicity and performance. It is a streamlined approach that smartly adapts to your scan practices and allows you to review and post-process all your images simultaneously.

FastStroke 提供了一种用全面的工作流解决方案，能够以极佳的灵活性、便易性与高性能水平回看中风诊断检查影像。这是一种优化后方案，可以智能适应您的扫描实践并让您同时回看并后处理您所有的影像。

The application provides quick loading and clinically relevant organization of all the scanned series, which are synchronized and displayed in a manner that enables you to review, efficiently and with high confidence.

该应用程序提供了快速载入临床相关机构所有已扫描系列的功能，让您能够以一种高效且自信的方式回看、同步并显示所有扫描系列信息。

FastStroke also provides ColorViz to aid in the visualization of the timing of collateral vessels using the mCTA series.

FastStroke 也提供有 ColorViz 帮助对使用 mCTA 系列的侧支血管时间情况可视化成像。

FastStroke has full integration with CT Perfusion 4D to provide automatic neuro perfusion analysis as part of the workflow.

FastStroke 能够与 CT Perfusion 4D 完全集成，作为工作流的一部分提供自动神经灌注分析功能。

Streamlined Workflow

工作流程线性优化

The FastStroke application simplifies the loading, display and review of the multiple series that are commonly acquired as part of the acute stroke workup in CT.

This streamlined approach is able to automatically categorize a series and display it using the desired layouts with the appropriate post processing. Each series is displayed in a logical order with the review steps laid out in a consistent manner to increase reading efficiency and develop a standardized approach to diagnosing and triaging acute stroke patients.

FastStroke 应用程序可以简化多个系列的载入、显示与回看，这些工作通常是 CT 中急性中风诊断检查的一部分。

这种优化后方式能够自动对一个系列进行分类并使用有适当后处理的目标布局显示系列情况。按照以一致方式部署的回看步骤以一个逻辑顺序显示每个系列，提高读图效率并开发一套标准化方法对急性中风患者进行诊断并分类。

Non-Contrast CT

平扫 CT

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The first step available in the FastStroke application allows the user to review the non-contrast head CT, automatically displayed in fixed reformatted planes.

应用程序中提供的第一步就允许用户回看在修复后重构平面中自动显示的无造影剂头部 CT。

Head and Neck CTA

头颈 CTA

The second step of the application allows for review of the head and neck CT Angiogram, in reformatted views.

应用程序的第二步允许在重构视图中回看头部与颈部 CT 血管造影图。

Collaterals

侧枝循环查看

The Collaterals step uses a smart layout feature that adjusts the layout to accommodate up to 6 mCTA phases simultaneously.

All the phases will automatically be synchronized and displayed in a thick 2D MIP at optimized WW/WL settings, to help the user with the review and comparison.

侧枝循环步骤使用一种智能布局功能，可以调整布局同时适应多达 6 个 mCTA 相位。

可以在优化后窗宽/窗位设置中在一个密集 2D MIP 中自动同步并显示所有相位，帮助用户进行审查和比较。

The Collaterals view provides a single viewing screen to see all passes and assist in identifying the location of lesions and the immediate state of the collateral flow.

侧支循环视图了提供了一个单一查看屏幕，可以看到所有血管通路并帮助识别病变位置和侧支血流的即时状态。

ColorViz 侧枝循环彩色 VR 增强

ColorViz is an innovative tool that takes each pass from the mCTA acquisition, collapses it into a single display and color codes the timing of the vascular enhancement.

All of the information within the mCTA can now be efficiently visualized according to the arrival order of the vascular enhancement, providing an easy method to determine when collateral vessels enhance, if at all.

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ColorViz 是一种创新型工具，可以获取从 mCTA 采集得到的所有血管通路，将其折叠成为一个单一显示结果并对血管增强时间情况进行颜色编码。

现在可以根据血管增强的到达顺序对 mCTA 内的所有信息进行高效可视化处理，提供一种简单方法确定测试血管增强时间。

16. AUTOBONE XPRESS　高级自动融骨直通车功能包

AutoBone XPress is the next generation analyzing tool for clinical doctors,it is an exclusive image analysis software package that facilitates segmentation of bony structures from abdominal and extremity CT Angiography data. AutoBone clinical Benefits: Facilitates vessel feature visualization through Zero-click segmentation of bony structures .

高级自动融骨直通车功能包是新一代的临床分析软件， 临床意义：通过“零键式”骨分离技术，简便快捷地显示血管结构。

Operator productivity benefits include:

Decreased time to first clinically relevant image.Identification and segmentation of bony structures providing a quick 3D MIP overview of vascular structures, for not only abdominal and run-off vessel, but circle of Willis and carotid artery.Synchronized viewports enabling fast confirmation of results. The resulting VR image can be manipulated to view vessels only, or transparent bone can be restored for landmarks.

高效率的操作模式：

快速后处理操作模式，缩短第一幅临床图像的时间；识别和分离骨组织，快速显示 3D MIP 血管图像；对腹部、下肢血管和头颈部血管均实现“零键式”提取重建，实时视窗同步重建；VR 图像可仅显示血管或显示透明骨，可用作骨性定位.

17. VESSELIQ XPRESS 高级血管直通车功能包

VesselIQ XPress is a Highly Automated Software processing package for the Advantage Workstation (AW) Platform. It is an Additional Tool for the Analysis of 3D Angiography Data Providing a Number of Display, Measurement and Batch Filming/Archive Features to Study

User-Selected Vessels Which Include Stenosis Analysis; Pre/Post Stent Planning Procedures and Directional Vessel Tortuosity Visualization.

高级血管直通车功能包是在工作站平台（AW）上的高度自动化后处理软件包。它是三维血管造影数据分析的辅助工具，提供显示、测量、和照相/储存批处理功能来研究用户选择的血管，包括狭窄分析、支架放置前/后计划和显示血管扭曲方向。

Clinical Benefits：This Package Provides Enhanced Analysis of Vascular Features. Decreased Operator Dependence: This Software Eliminates the Need for the Operator to Manually Identify the Center of the Vessel. Automated Batch Filming and the Ability to Rotate Around a Vessel, Reduces the Risk of Overlooking Vascular Structures. Quantitative Information on User-Selected Vessel Segments, Aids in the Proper Selection of Prosthesis. Distances to Bifurcations or Other Landmarks are Critical for Clinical Decisions. Provide A Single Report Provides a Complete 3D Context, Measurements Cross-References and 3D Views.

临床价值：该软件包提供血管结构的高级分析。降低操作者的工作繁琐性——该软件无需操作者手动定义血管中心；自动批处理照相和绕血管旋转的能力，减少血管结构被忽略的风险。对用户选择的血管节段提供量化信息有助于进行正确的血管修复，其至分叉处或其它标记处的距离对临床决策意义重大。并提供一份可提供完整的血管 3D 前后关系、参考横断面的测量和 3D 图像的报告。

18. Synchronized CT Digital Subtraction Angiography 类血管剪影（类 DSA）

It comes from a combination of accurately controlling system, chips and electricity automatization, and makes the table move at 0.001mm, and gantry rotate at 0.1s.It is a perfect matching from gantry rotation and table movement. By CTSA, the bone will be cut away completely on cerebral and cervical CTA.

通过精确的控制系统、芯片设计以及电器自动化部分，使扫描床速步进精确到千分位，机架

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旋转部分步进精确到 0.1s，从而实现旋转和床进的完美匹配，给临床应用拓展了极大空间，实现了头颈部 CTA 同步数字减影技术，去骨不留任何痕迹。

19. Integrated Registration 高级融合软件包

Integrated Registration provides you with the capability to align and fuse two volumetric acquisitions from either the same or different acquisition modalities. With it, you can easily compare 3D anatomical images from CT, MR with PET, SPECT, and X-ray angiography for a comprehensive analysis.

Integrated Registration is available on VolumeShare 7, a multi-modality advanced visualization workflow solution that helps to enhance diagnostic precision and productivity. It provides you with a streamlined workflow to combine and display images from any two of the five major modalities (CT, MR, PET, SPECT, and X-ray angiography), aimed at improving your ability to provide more clinically relevant diagnostic information, and improving surgical and treatment planning.

高级融合软件包使得您可以对齐和融合两次来自相同或不同采集机型的体积配准。采用 Integrated Registration ,您可以轻松地将来自 CT、MR 的 3D 解剖图像与来自 PET、SPECT 和 X 射线血管造影机的图像进行对比，从而进行全面的分析。

Registration 融合配准

- With Integrated Registration, you can employ four rigid registration methods:
- Automatic registration based on “mutual information” and “matching boundaries” for CT, MR, PET, or XA. (SPECT can only be registered using manual and landmark registration).
- Automatic regional registration, which can be run by defining an ROI upon which the registration methods (listed in #1 above) are applied only within the designated boundaries.
- Interactive manual registration, which, in real time, conveys translation and rotation made to the alignment of one data set to the second data set. This method can be used with all modality pair combinations.

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- Landmark registration, which is based on manual definition of common points between the two data sets. This method can be used with all modality pair combinations.
- You can combine these four methods to achieve optimal results. The methods allow registration of volumes with linear FOV rescaling and 6 degrees of freedom (translation and rotation).

  采用 Integrated Registration，您可以采用 4 种刚性配准方法：

  用于 CT、MR、PET 或 XA 的基于“交互信息”和“匹配边界”的自动配准。（SPECT 仅可通过手动和标记配准方法进行配准）。
- 可以通过界定出配准方法（如上述#1 所列）仅在指定的边界内适用的 ROI 运行的自动区域配准。
- 交互手动配准将平移和转动模式实时表达为一个数据集与第二数据集的对齐。该方法可用于所有机型对组合。
- 基于手动界定两个数据集间共同点的标记配准。该方法可用于所有机型对组合。
- 您可以将这 4 种方法组合起来实现最佳的结果。采用该方法，体积配准的 FOV 尺寸线性改变，且有 6 个自由度（平移和转动）。

Non-rigid automatic registration can be employed for CT to CT data sets only. The non-rigid transformation of the CT series can then be propagated to any other MR, PET, SPECT, or XA series.

非刚性自动配准仅可用于 CT 与 CT 数据集。CT 序列的非刚性转换可以扩展到任何其它的 MR、PET、SPECT 或 XA 序列。

Global registrations are possible for both rigid and non-rigid registrations. Rigid registration also benefits from regionally optimized registration using an ROI.

Multiple series acquired in the same exam (i.e. with the same frame of reference) are grouped together and registration that is applied to one series of the group is automatically propagated to other series of the same group by default. You can manually group or ungroup series if desired. Propagation will then be applied to manually grouped series while ungrouped series may be registered independent of their original group. Use manual ungrouping specifically to independently register series of one identical exam during which the patient has moved.

The Center, Reset, and Undo/Redo options improve productivity during the registration process.

刚性和非刚性配准均可进行全局配准。刚性配准还得益于采用 ROI 的区域优化配准。

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同一检查（即相同的参照系）中采集的多个序列组合成一个组，用于该组一个序列的配准在默认情况下自动扩展到该组其它序列。若需要，您可以手动组合或取消分组。然后将扩展用于手动分组的序列，取消分组的序列的配准与其原始组无关。在患者移动时，专门采用人工取消分组，来独立配准同一检查的序列。

在配准过程中，Center（中心）、Reset（重置）、Undo/Redo（取消/恢复）选项提高了生产率。

Visualization 可视化

You can apply dedicated display modes to fused views during your review by the below methods: Windows,Tiles,Fused,Inversed fused,Threshold,Swipe.

You can create 2D, 3D fused, and hybrid 2D/3D fused views with a simple drag and drop method.

Save the layouts you define for personalized display of registration results.

在查看过程中，您可以将专用显示模式用于融合视图：

- 窗口——配准检查的可调查看窗口可以在参考检查任何位置移动，并显示移动检查的相应部分。
- 片段——所选的视图被细分为四个“片段”，在 3D 光标处汇合。两个片段显示参考检查区域，两个显示移动检查的相应区域。
- 融合——移动检查与参考检查以可调的融合比例组合
- 反转融合——移动检查以颠倒的线性灰度级和可调的融合比例显示在参考检查上方。
- 阈值——在被覆盖检查顶部以低阈值显示覆盖检查，均采用可调融合比例。
- 滑动——交互式地将图形垂直分为两部分：被覆盖检查在一侧，融合检查在另一侧。

您可以采用简单的拖放方法创建 2D、3D 融合、2D/3D 混合融合视图。保存您为个性化显示配准结果而定义的布局。

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20. Dual Energy 双能工具包

GE's protocol management is improved with addition feature, which allows easy configuration

Axial or helical scans of the same anatomy at two different X-Ray energies(80KV/140KV)。The additional acquired dual energy can be post-processed on console or AW to gain additional clinical information in the diagnose of gout and removal metal artifacts

采用 rotate-rotate 的方式，对于同一部位采用 80KV 和 140KV 两种能量进行扫描，从而解析出能量数据，能过进行结石成分分析、去除金属伪影和去除硬化伪影，帮助临床提供更多参考信息

21. LUNG VCAR 高级肺结节分析软件包

Lung VCAR based on the Volume Computer Aided Reading (VCAR), is the next generation of functionality that offers reader flexibility and performance unlike any other CT Lung Analysis package ever introduced. Other key functionalities designed to provide the user with a complete reading workflow solution.

Lung VCAR 不同与其他肺结节分析软件， 是基于 VCAR 技术平台之上的，对肺结节的检出，诊断以及工作流程都有明显的提高。

Leading the development of highly innovative, low dose clinical solutions for the assessment of lung nodules in high risk patients.

创新的低剂量扫描肺结节评估软件，尤其适用于肺部肿瘤高危人群的普查。

Automated vessel and wall subtraction for clean nodule profiling. Automatically links the current nodule with all past exams of the same nodule. Analysis nodule volume, growth and doubling time, relationship with surrounding vessels and bronchi.

在发现肺结节后，将肺结节独立分离，定量分析结节的容积、成份、密度及倍增时间，评估结节的良恶性，同时可自动与同一病例所有以前检查的数据自动链接。

Digital Contrast Agent(DCA)

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数字造影剂

The new digital contrast agent feature automatically visualizes and highlights abnormal and potentially cancerous pulmonary solid nodules. This new and robust feature compliments are clinicians read for more precise and in-formed diagnostic decisions.

数字造影剂能自动筛选并突出显示异常和潜在恶性的肺实质性结节病灶。能帮助操作者快速、有效地浏览，以进一步诊断。

This feature helps clinicians confirm the presence or absence of suspicious lung lesions that range in size from 2 to 10mm.

此功能可帮助发现直径 2 到 10 毫米的可疑肺结节。

All nodule type segmentation

分离所有性质结节。

Segments solid, non-solid and partial solid nodules from the surrounding lung tissue, including from vessels or pleu-ral wall.

从周围肺组织，包括周围血管或胸壁，分离实质性结节，非实质性结节和部分实质性结节。

Lung nodule analysis

肺小结节评估

The 3D lung nodule could be segmented utilized this software. The software could auto-identify and highlight the nodules and shows its shape and volume. Using the postprocessing methods such as MIP, MPR and Navigator, you could analyze the details of the nodules, to differentiate the nodules and the vessels, to identify the relationship be-tween the nodule and the vessel, even though measure the diameter and the volume of the nodules. The result could be recorded for follow-up.

通过肺小结节评估工具，可以提取肺小结节的 3D 形态，并准确测量结节容积。可采用最大密度投影、多平面重建、高级容积漫游等重建技术对结节数据进行分析，多平面重建技术可对小结节与血管断面进行鉴别诊断；结节自动旋转 MPR，可通过不同视角提示结节与支气

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管及临近血管的关系；独特的评估软件可进行自动的肺结节直径，容积，CT 值的准确测量，上次检查资料可进行存储，与本次检查进行对比分析。

Automatic Lung Segmentation

自动肺组织提取重建

Automatically segments both the right and left lungs. Segmentation of the lungs reduces the visual distractions as-sociated with anatomy not of interest when evaluating for lung nodules. The total lung volume is captured in the patient report.

软件自动提取并重建左肺和右肺，剔除肺组织以外的附带结构。在病人报告中显示肺容积。

X-Reference/Correlation Bar

X 线胸片定位

Provides a quick reference for the user to localize a nodules global location when reading 2D axial images. The x-reference bar is synchronized to review and analysis layouts for immediate screen refresh when deposited at any location or on any anatomy.

自动生成 2D 胸片位的重建图像以对应在横断位上发现的病灶，并加以标示和定位。胸片图能与横断位图像自动链接，以显示部位和周围结构。

22. Multi-phase Fusion　多期相融合技术

It is a new technique in the field of computer, and it has already been used in CT. By multi-phase fusion, hepatic artery system , portal system and hepatic vein system could be diagnosed at the same time. It is helpful for evaluation the vessel systems before and after hepatic transplantation .

融合技术是计算机领域的一项最先进的技术，现应用在 CT 技术层面，它不仅可以把同一时相不同的组织进行融合，从而识别不同的组织，提高诊断率，而且还可以将不同时相的图像进行融合，如肝脏三期血管图像，进而全面展现肝脏的血供系统的解剖关系，提供给临床医生更广阔的视野，对于肝移植等术前准备、术后复查都提供了更多的诊断信息。

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23. Perfusion 4D multi-Organ　多器官灌注分析软件包

GE's Perfusion 4D Multi-Organ is a fast, easy-to-use automated software for analyzing CT Perfusion images related to stroke and tumor angiogenesis. Its simple user interface and fully automated perfusion post-processing make it easy for you to diagnose quickly and accurately – and make treatment decisions more confidently.

GE leverages its deconvolution expertise, with its innovative delay corrected algorithm. Perfusion 4D takes perfusion assessment to the next level, with a new Smart Map that creates noise-reduced functional maps while preserving functional detail.

GE 的 Perfusion 4D Multi-Organ（多器官）是一种快速、易于使用的自动化软件，用于分析与中风和肿瘤血管生成的 GE 灌注图像。它具有简单的用户界面和全自动的灌注后处理，在快速准确诊断中易于上手——并使治疗决策更有信心。

GE 利用其去卷积专长和创新性延迟校正算法。Perfusion 4D 将灌注评估带入了更高的水平，使用新的 Smart Map 可创建降低噪声的功能图，同时保留功能性细节。

Features

- Visualize all information in true volumetric form with the ability to employ all the volumetric-based image analysis tools in the AW Volume Viewer.
- Smart Maps using the intelligent 4D noise suppression algorithm improves functional map image quality in the presence of noise.
- Streamlined tissue classification and visualization incorporates thresholding of selected functional maps.

Productivity enhancements include:

- Automated vessel detection
- Progressive functional maps computations
- Volumetric visualization of functional maps
- Access from anywhere using AW Server.
- Time stamps on functional maps and Regions of interest (ROIs).

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- Interactive large vessels exclusion.

- **Many basic features, including the ability to:**

- Process double phase acquisition data.
- Create 4D Regions of interest (ROIs).
- Display Regions of interest (ROI) statistical information.
- Display averaged time intensity information of the Regions of interest (ROI).
- Simultaneously review any number of functional maps.
- Customize protocols
- Save parameters.

- **Includes these CT post-processing protocols:**

- Brain stroke
- Brain tumor
- Body tumor
- Liver perfusion
- Pancreas perfusion
- Prostate perfusion
- Kidney perfusion
- Soft tissue perfusion
- Spleen perfusion
- Bone perfusion

- **Functional maps:**

- Regional cerebral blood volume
- Regional cerebral blood flow
- Regional mean transit time

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- Contrast arrival delay
- Transit time to peak of impulse residue function
- Capillary permeability surface area
- Base image
- Average image

特性

- 以真实的体积形式对所有信息进行可视化，能够采用 AW Volume Viewer 中所有以体积为基础的图像分析工具。
- Smart Maps（智能图）使用智能化 4D 噪声抑制算法，在存在噪声时，改善功能图的图像质量。
- 优化组织分类和可视化，集成 **BV** 和 Tmax、MTT 或血流量的阈值。
- **效率提高，包括：**
  - 自动化血管探测
  - 进展性功能图计算
  - 功能图的体积可视化
  - 使用 AW 服务器随时随地访问
- **许多基础功能，包括能够：**
  - 处理双向为采集数据。
  - 创建 4D 兴趣区
  - 显示兴趣区的统计信息。
  - 显示兴趣区的平均时间强度信息。
  - 同时查看任意数量的功能图。

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- 定制方案。
- 保存参数。

- **完全集成化 CT 脑中风方案，执行以下算法步骤：**
- 图像配准
- 骨骼移除
- 动脉输入
- 静脉输出
- 快速预增强/首次增强后图像
- 最终设置和计算

- **完全集成化 CT 脑肿瘤方案。**
- 功能图
- 区域性脑血容量
- 区域性脑血流量
- 区域平均通过时间
- 造影剂抵达延迟
- 脉冲剩余函数到达峰值的通过时间
- 毛细管通透性表面积
- 基础影像
- 平均图像

24. Liver Perfusion　肝灌注功能包

Software for liver perfusion. Aid in the assessment of extent and type of perfusion, blood volume , which be, for example, related for liver tumor (original or metastatic), or tumor angiogenesis and

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the treatment of tumor.

软件应用于肝脏灌注成像。

Quantitive analysis index: blood volume, blood flow, mean transition time.

定量分析灌注相关的各种指标：血流量（rBV）、血流速（rBF）、平均通过时间（MTT），综合评估灌注的范围和类型、血液容积，主要应用于肝脏肿瘤的早期确诊、早期发现转移的肿瘤病灶、肿瘤新生血管的评估和化疗、手术治疗疗效的评估，肿瘤复发的确诊等

25. Hepatic Artery Factor Quantitative Analysis 肝动脉供血指数定量分析

HAF (Hepatic Artery Fraction) is a quantitative index which indicate the hepatic artery amount in total blood flow to liver tissue. For HAF, may be used for differential diagnosis of hepatic cancer or metastatic tumor.

肝动脉指数定量分析：定量分析肝动脉供血占肝组织总供血（包括门静脉）的百分比，临床上可用于原发性肝癌、肝转移瘤的鉴别诊断。

26. Cerebral Ischemic Penumbra Analysis 脑缺血半暗带功能包

Tissue Classification analyses the tissues affected by an ischemic stroke and differentiate the penumbra area that can recover from dead tissue.

脑中风组织分类分析可评估缺血性脑中风，并区别可恢复的半暗带区域和脑梗死组织。

Tissue Classification segments the ischemic region into two areas according to the thresholds define for Blood Volume and Blood Flow maps: Low Blood Volume Ischemic Area and Normal Blood Volume Ischemic Area.

组织分类分析依据血容量和血流速的阈值定义来把脑缺血组织分为两类：低血容量脑缺血和正常血容量脑缺血。

Software can segment the Grey & White Matter on the Average image using related threshold settings.

软件能够应用相应的阈值设定来区分脑灰、白质。

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Exclude large vessels from functional maps automatically based on the advanced settings of software.

通过软件高级设置可在灌注功能图中自动排除大血管。

27. Body Tumor Perfusion 体部肿瘤灌注功能包

Software for liver perfusion. Aid in the assessment of extent and type of perfusion, blood volume , which be, for example, related for body tumor, or tumor angiogenesis and the treatment of tumor.

软件应用于体部灌注成像。

Quantitive analysis index: blood volume, blood flow, mean transition time.

定量分析灌注相关的各种指标：血流量（rBV）、血流速（rBF）、平均通过时间（MTT），综合评估灌注的范围和类型、血液容积，主要应用于体部肿瘤的早期确诊、早期发现转移的肿瘤病灶、肿瘤新生血管的评估和化疗、手术治疗疗效的评估，肿瘤复发的确诊等。

28. Permeability Map 毛细血管通透性定量分析

Permeability analysis: measure of flux of contrast agent leaking from vessels to interstitial space for differentiation diagnosis of tumor.

毛细血管通透性（PS 图）：定量分析从血管渗出至组织间隙的造影剂的多少，用于肿瘤的良恶性鉴别。

29. AutoSelect 自动循迹导航功能

AutoSelect is an exclusive image analysis software package that facilitates segmentation of target object from adjacent structure, such as bony structures from abdominal and extremity CT Angiography data, region of interest tissue seperated from surrounding organ. AutoSelect removed structures are contoured in native and reformatted images for perfect control, it automatically navigates the target object contour and trace the CT density to remove from other

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tissue. Clinical Benefits: Facilitates vessel feature visualization through segmentation of bony structures, facilitates region of interested tissue through segmentation of adjacent organ.

自动循迹导航技术是一项高级的图像处理技术，能够自动识别并分离目标结构，包括：通过骨分离技术，简便快捷地显示血管结构；通过软组织识别，将感兴趣区从周围器官中提取分离出来，等等。该技术智能导航，自动跟踪和识别结构的轮廓，同时根据 CT 值自动跟踪勾画目标结构，并可以截取分离。

Operator Productivity Benefits Include:

高效率的操作模式：

- Decreased time to first clinically relevant image.
- Identification and segmentation of bony structures providing a quick 3D MIP overview of vascular structures.
- Identification and segmentation of target tissue providing a quick 3D MPVR overview of adjacent structures.
- Synchronized viewports enabling fast confirmation of results.
- Manipulate the structure the operator wants to add or remove until region growing segmentation gives the result wanted.
- Bone transparency can be adjusted manually from 0 to 100.
- Maintain good visualization of tissue while adding bone anatomical reference make it best tool for surgery planning
- 快速后处理操作模式，缩短第一幅临床图像的时间；
- 识别和分离骨组织，快速显示 3D MIP 血管图像；
- 识别和分离目标组织，快速显示并分离临近器官，显示 3D MPVR 重建图像
- 实时视窗同步重建；
- 操作者自主根据临床实际需要加/减组织
- 从 0－100 任意调节骨骼透明度
- 去除目标物后仍然可以回加骨骼作为解剖标志，辅助外科计划

Stroke VCAR (Volume Computer Assisted Reading) gives you a complete reading workflow solution for a comprehensive and robust analysis of hematoma and aneurysms. Hematoma

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assessment is done using semi-automated segmentation tools married with innovative interactive editing capability in the form of SmartMesh. Aneurysm assessment is done through an innovative user guided aneurysm segmentation and visualization. The program lets you generate a clear, concise clinical summary for sharing with referring physicians.

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中标通知书

国药乐仁堂石家庄医疗器械销售有限公司：

你方于 2020 年 12 月 30 日 所递交的 邢台市宁晋县公立医院防疫系统建设项目CT 的投标文件已被我方接受，被确定为中标人。

中 标 价：7146000.00 元

供货周期：签订合同后60日历天内供货安装完毕

质量标准： 合格

请你方在接到本通知书后的 30 日内到 宁晋县中西医结合医院 与我方签订合同。

招 标 人：宁晋县中西医结合医院 （盖单位章）

招标代理公司：全信项目管理咨询有限公司（盖单位章）

2021 年 01 月 06 日