## Rated Evaluation Criteria Table – lot 1 Magnetic Resonance Imaging:

*Refer to Section III Technical part- Technical Evaluation (ITB 32.4)- Technical Part Scoring Methodology: Rated Criteria.*

| Criterion | Weight of the criterion | 0–4 score Guidance |
|---|---|---|
| | | **0: not available or included** |
| **Magnet:** Boil-off rate: ( zero Helium MRI will receive better score) | **30** | Non-zero-boil magnet= 1<br>Zero-boil-off magnet (standard design) =2<br>Advanced zero-boil-off magnet with helium quantity < 1000 liters = 3<br>Zero helium ( no quench pipe)=4 |
| **Magnet Homogeneity:** specify the guaranteed homogeneity | | |
| ppm @ 10 cm DSV < 0.02, guaranteed: to specify | **2** | ≥ 0.03 ppm Below average / older generation= 1<br>< 0.02 – 0.03 ppm Average (vendor guaranteed)=2<br>< 0.015 – 0.02 ppm Above average / high-end systems=3<br>≤ 0.01 ppm Excellent / premium systems=4 |
| ppm @ 20 cm DSV < 0.08 ppm, guaranteed: to specify | **2** | ≥ 0.10 ppm Below average / older generation= 1<br>< 0.08 – 0.10 ppm Average (vendor guaranteed)=2<br>< 0.06 – 0.08 ppm Above average / high-end systems=3<br>≤ 0.05 ppm Excellent / premium systems=4 |
| ppm @ 30 cm DSV < 0. 2ppm, guaranteed: to specify | **2** | ≥ 0.25 ppm Below average / older generation= 1<br>< 0.2 – 0.25 ppm Average (vendor guaranteed)=2<br>< 0.15 – 0.2 ppm Above average / high-end systems=3<br>≤ 0.10 ppm Excellent / premium systems=4 |
| ppm @ 40 cm DSV ≤ 0.6 ppm, guaranteed: to specify | **2** | ≥ 0.8 ppm Below average / older generation= 1<br>< 0.6 – 0.8 ppm Average (vendor guaranteed)=2<br>< 0.4 – 0.6 ppm Above average / high-end systems=3<br>≤ 0.3 ppm Excellent / premium systems=4 |
| ppm @ 50 x 50 x 45 cm DSV ≤ 2 ppm, guaranteed: to specify | **2** | ≥ 2.5 ppm Below average / older generation= 1<br>< 2 – 2.5 ppm Average (vendor guaranteed)=2<br>< 1.5 – 2 ppm Above average / high-end systems=3<br>≤ 1.0 ppm Excellent / premium systems=4 |
| ppm @ 50 cm DSV ≤ 2 ppm, guaranteed: to specify | **2** | ≥ 2.5 ppm Below average / older generation= 1<br>< 2 – 2.5 ppm Average (vendor guaranteed)=2<br>< 1.5 – 2 ppm Above average / high-end systems=3<br>≤ 1.0 ppm Excellent / premium systems=4 |

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| ppm @ 55x55x50 cm: Typical to specify | **2** | ≥ 8 ppm Below average / older generation= 1<br>< 5 – 8 ppm Average (vendor guaranteed)=2<br>< 3– 5 ppm Above average / high-end systems=3<br>≤ 3 ppm Excellent / premium systems=4 |
| Max FOV: to specify | **2** | Max FOV ≤ 40 cm Below average / limited coverage= 1<br>Max FOV > 40 – 45 cm Average (standard coverage)= 2<br>Max FOV > 45 – < 50 cm Above average / wide coverage= 3<br>Max FOV ≥ 50 cm Excellent / full-body & large patient use= 4 |
| **Receiver:** | | |
| Number of system independent receiver channels that can be used simultaneously in one single scan in one FOV must be at least 64 Channel | **4** | 32 channels Below average / entry-level system = 1<br>64 channels Average / standard system capability = 2<br>128 channels Above average / high-performance analog system= 3<br>Digital, channel independent Excellent / top-tier, parallel digital design= 4 |
| Possibility to upgrade to higher number of channels: to specify | **4** | Not upgradable, Fixed configuration / entry-level system= 1<br>Upgradable up to 64 channels, Limited upgrade path=2<br>Upgradable up to 128 channels, Good scalability=3<br>Upgradable to 128+ channels or to digital independent, Excellent / future-ready architecture= 4 |
| **Imaging Resolution:** | | |
| Min. FOV x,y,z (cm) ≤ 5 cm | **1** | > 8 cm Below average / limited resolution capabilities=1<br>> 5 cm – ≤ 8 cm Average / acceptable for general imaging=2<br>> 3 cm – ≤ 5 cm Above average / suitable for small structure scans=3<br>≤ 3 cm Excellent / high-resolution specialty imaging=4 |
| Max. FOV x,y,z (cm) ≥ 50 x 50 x 45, Specify all | **5** | < 45 x 45 x 40 cm Below average / limited coverage=1<br>≥ 45 x 45 x 40 – < 50 x 50 x 45 cm Average / standard body imaging range=2<br>≥ 50 x 50 x 45 – < 55 x 55 x 50 cm Above average / large-patient & whole-body imagin=3<br>≥ 55 x 55 x 50 cm Excellent / extended FOV for full coverage imaging= 4 |
| Max. image matrix in x,y directions ≥ 1024 x 1024. 2048x2048 (option) | **1** | ≤ 512 × 512 Below average / limited spatial resolution = 1<br>> 512 × 512 – < 1024 × 1024 Average / standard resolution=2<br>≥ 1024 × 1024 Above average / high- |

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| | | resolution imaging =3<br>≥ 2048 × 2048 Excellent / ultra-high resolution capability = 4 |
| Highest pixel resolution (mm): to specify | **1** | ≥ 0.5 mm (≥ 500 µm) Below average / standard clinical imaging=1<br>> 0.1 mm – < 0.5 mm (100–499 µm) Average / common in most MRI applications=2<br>> 0.005 mm – ≤ 0.1 mm (5–100 µm) Above average / high-resolution imaging =3<br>≤ 0.005 mm (≤ 5 µm) Excellent / ultra-high resolution=5 |
| Min. 2D slice thickness (mm) < 0.8 mm | **1** | ≥ 1.0 mm Below average / limited resolution=1<br>≥ 0.8 – < 1.0 mm Average / standard clinical imaging=2<br>≥ 0.5 – < 0.8 mm Above average / high-resolution capability=3<br>< 0.5 mm Excellent / ultra-high-resolution (neuro, MSK, etc.)=4 |
| Min. 3D slice thickness (mm) ≤ 0.1 mm | **1** | > 0.2 mm Below average / limited isotropic resolution=1<br>> 0.1 – ≤ 0.2 mm Average / standard 3D resolution=2<br>> 0.05 – ≤ 0.1 mm Above average / high-res 3D imaging (neuro, MSK)=3<br>≤ 0.05 mm Excellent / ultra-high-resolution 3D (research-grade)=4 |
| **Power Consumption:** | | |
| System off (kW): to specify | **1** | > 10 kW Below average / high energy consumption=1<br>> 7 – 10 kW Average / typical for older or standard systems=2<br>> 3 – ≤ 7 kW Above average / efficient system=3<br>≤ 3 kW Excellent / low power standby or true off mode design=4 |
| Highest average power (kW): to specify | **1** | > 22 kW Below average / high power usage=1<br>> 17 – 22 kW Average / typical system power=2<br>> 10 – ≤ 17 kW Above average / optimized power efficiency=3<br>≤ 10 kW Excellent / low-consumption, eco-friendly system design=4 |
| **Display Monitor:** | | |
| No. of monitors: Dual monitor for parralel work (live exam and post-processing) | **1** | Single monitor, basic display, Below average / limited workflow flexibility=1<br>Single monitor with toggled dual-function (not parallel) Average / acceptable performance=2<br>Dual monitors, not fully parallel (e.g., mirrored or extended screen only) Above average =3<br>Dual monitors with full parallel function (live |

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| | | scan + post-processing) Excellent / efficient multitasking workflow=4 |
| Diagonal size (cm) ≥21 | **1** | < 19 cm Below average / small display, limited visibility=1<br>≥ 21 – < 24 cm Average / standard diagnostic monitor=2<br>≥ 24 – < 27 cm Above average / comfortable workspace=3<br>≥ 27 cm Excellent / wide, ergonomic, multi-use display=4 |
| Image display matrix: 4K | **2** | HD (≤ 1280 × 1024) =1<br>Full HD (1920 × 1080)=2<br>WQHD (2560 × 1440)=3<br>4K (3840 × 2160) or higher=4 |

## Rated Evaluation Criteria Table – Lot 2 Positron Emission Tomography PET Scan

*Refer to Section III Technical part- Technical Evaluation (ITB 32.4)- Technical Part Scoring Methodology: Rated Criteria.*

| Criterion | Weight of the criterion | 0–4 Score Guidance |
|---|---|---|
| | | **0 : not available or included** |
| PET crystal thickness should be between 2mm X 2mm X 14mm To 5mm X 5mm X 25mm | **6** | ≥ 4 × 4 × 20–25 mm Lower-resolution digital PET =1<br>~ 3.8 × 3.8 × 20 mm Average digital PET design=2<br>~ 3 × 3 × 15 mm Above average resolution with good timing performance=3<br>≤ 2.76 × 2.76 × 15 mm or smaller Excellent spatial resolution / high-end systems =4 |
| The geometric axial field of view. (FOV) as measured from the outer edges of the crystals must be ≥24 cm. | **4** | < 24 cm Below average / limited coverage and sensitivity =1<br>≥ 24 – < 30 cm Average / standard modern digital PET systems=2<br>≥ 30 – < 40 cm Above average / extended FOV for faster whole-body imaging=3<br>≥ 40 cm Excellent / long-axial FOV, ultra-fast scan=4 |
| The coincidence timing window must be ≤4ns | **5** | > 5 ns Below average / more randoms, lower timing discrimination=1<br>< 4 ns Average / acceptable for digital PET systems=2<br>≤ 3 ns-4 ns Above average / better random rejection and timing accuracy=3 |

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| | | ≤ 2 ns Excellent / very low noise, optimal Time-of-Flight reconstruction=4 |
| Time-of-Flight (TOF): Mandatory, with timing resolution ≤ 400 ps. | **4** | > 450 ps or TOF not supported Below average / outdated or limited localization accuracy=1<br>> 400 – ≤ 450 ps Average / acceptable TOF resolution =2<br>> 250 – ≤ 400 ps Above average / fast, accurate localization=3<br>≤ 250 ps xcellent / industry-leading TOF=4 |
| Axial & Transverse spatial resolution at 1 cm and 10 cm from the central of the gantry should be ≤3.5 mm FWHM | **4** | > 4.0 mm Below average / soft or less precise image detail=1<br>> 3.5 – ≤ 4.0 mm Average / acceptable clinical resolution=2<br>> 2.5 – ≤ 3.5 mm Above average / high-detail digital resolution=3<br>≤ 2.5 mm Excellent / top-tier precision=4 |
| NEMA System sensitivity must be ≥9 cps/KBq at center | **3** | < 9 cps/kBq Below average / less efficient photon detection=1<br>≥ 9 – < 16 cps/kBq Average / acceptable for clinical digital PET=2<br>≥ 16 – < 25 cps/kBq Above average / improved throughput and scan time=3<br>≥ 25 cps/kBq Excellent / ultra-high sensitivity |
| System energy resolution should be ≤13.0 % | **3** | > 13.0% Below average / poor scatter discrimination=1<br>> 11.0 – ≤ 13.0% Average=2<br>> 8.0 – ≤ 11.0% Above average / better image quality and scatter rejection=3<br>≤ 8.0% Excellent =4 |
| 3-D scatter fraction should be ≤39%. | **3** | > 39% Below average / higher noise and less accurate quantification=1<br>> 35% – ≤ 39% Average / acceptable performance=2<br>> 30% – ≤ 35% Above average / improved scatter rejection and image contrast=3<br>≤ 30% Excellent =4 |
| Peak NECR should be >90 Kcps: (@l3kBq/ml. specify the activity concentration for the peak NECR. | **3** | < 90 kcps Below average / reduced effective image quality at clinical doses=1<br>≥ 90 – < 120 kcps<br>Average / meets standard digital PET benchmarks @ 13 kBq/mL=2<br>≥ 120 – < 150 kcps Above average / improved SNR & faster scan capability=3<br>≥ 150 kcps Excellent / ultra-high NECR performance, =4 |
| **CT System Specifications:** | | |
| Detector Rows: ≥ 32. | **4** | Detector Rows: ≥ 32. Below average / basic coverage, limited temporal resolution=1<br>≥ 32 – < 64 Average / standard for most PET/CT scanners=2<br>≥ 64 – < 128 Above average / fast acquisition, better anatomical detail=3<br>≥ 128 Excellent= 4 |

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| Slices per Rotation: ≥ 64 slices. | **4** | < 64 Below average / slower scan speed and temporal resolution=1<br>≥ 64 – < 128 Average / sufficient for routine imaging=2<br>≥ 128 – < 256 Above average / faster acquisition, improved detail=3<br>≥ 256 Excellent / ultra-fast, cardiac-capable, whole-body in 1 rotation=4 |
| Z-coverage, Must be ≥20mm | **3** | < 20 mm Below average / slower coverage, limited scan efficiency=1<br>≥ 20 – < 40 mm Average / standard for routine PET/CT systems=2<br>≥ 40 – < 80 mm Above average / faster scan speed, better multi-organ coverage=3<br>≥ 80 mm Excellent / full-organ or whole-body coverage in one rotation=4 |
| Rotation Speed: ≤ 0.5 seconds ( for 360 degrees). | **3** | > 0.6 sec Below average / slower acquisitions, motion artifacts more likely=1<br>> 0.5 – ≤ 0.6 sec Average / standard scan speed in many PET/CT systems=2<br>> 0.3 – ≤ 0.5 sec Above average / fast rotation, suitable for general body imaging=3<br>≤ 0.3 sec Excellent / high-speed CT, cardiac-capable, minimal motion blur = 4 |
| Microprocessor controlled high frequency be ≥50 kW x-ray generator | **3** | < 50 kW Below average / limited power, may impact image quality in large patients=1<br>≥ 50 – < 80 kW Average / adequate for most routine imaging=2<br>≥ 80 – < 100 kW Above average / supports high-resolution, fast scans, larger patients=3<br>≥ 100 kW Excellent / robust system=4 |
| Tube Voltage: 70-140 kVp. | **3** | Fixed or narrow range (e.g., 120 kVp only) Below average / limited adaptability=1<br>70–140 kVp Average / standard for general clinical applications=2<br>70–140 kVp with automatic kV selection or dual energy prep<br>Above average / supports dose modulation and contrast optimization=3<br>70–140 kVp with dual-source or spectral imaging Excellent / full diagnostic flexibility=4 |
| Anode heat storage capacity of 5.0 MHU or more | **4** | < 5.0 MHU Below average=1<br>≥ 5.0 – < 7.0 MHU Average / standard for routine clinical use=2<br>≥ 7.0 – < 8.0 MHU Above average / supports longer scans, multi-phase, or larger patients=3<br>≥ 8.0 MHU Excellent =4 |
| Tube Current of 20-420 mA | **3** | < 20 – 350 mA Below average =1<br>20 – 420 mA Average / suitable for standard patient sizes and routine scans=2<br>20 – 600 mA Above average / high image quality and flexibility=3<br>≥ 20 – 800+ mA Excellent / optimal dose control, excellent for obese & fast imaging=4 |

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| Automatic self-testing system | **4** | No self-testing or fully manual checks Below average / outdated, manual quality control required=1<br>Basic automated startup check only Average / partial automation, still needs manual calibration=2<br>Daily self-test with auto-calibration support Above average / streamlined workflow, reduced user dependency=3<br>Fully integrated self-diagnostic & calibration system Excellent / proactive error detection, minimum downtime, fully automated=4 |
| Display FOV must be ≥50cm | **4** | < 50 cm Below average / limited view for large patients or full anatomy=1<br>≥ 50 – < 60 cm Average / sufficient for routine whole-body and oncology imaging=2<br>≥ 60 – < 70 cm Above average / extended coverage with better context for large anatomy=3<br>≥ 70 cm Excellent / full-body and bariatric imaging capability |