Biograph Vision VG76A
DICOM Conformance Statement

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Content

1. Introduction

1.1 Overview

This document is applicable to Siemens Biograph products using software PETsyngo VG76A.

PETsyngo is based on syngo, the common SW platform for Siemens medical devices, and on Somaris/7, the system software for CT products. The DICOM implementation is based on the DICOM 2011 standard [1].

This DICOM Conformance Statement describes PET specific extensions and specializations of the underlying CT software products. See the corresponding CT DICOM Conformance Statement [2].

1.2 Audience

This document is intended for hospital staff, health system integrators, hospital IT-managers, and software engineers. It is assumed that the reader is familiar with DICOM terminology.

1.3 Scope

This DICOM Conformance Statement applies to the following Siemens Biograph products:

Software Name	Siemens Product
PETsyngo VG76A	Biograph Vision

1.4 Acronyms and Abbreviations

- DICOM Digital Imaging and Communications in Medicine
- IOD DICOM Information Object Definition
- MWL Modality Worklist
- UID Unique Identifier
- VR Value Representation

1.5 References

[1] Digital Imaging and Communications in Medicine (DICOM), NEMA PS3.1-3.20, 2011

[2] syngo CT 2015 (VA48A) DICOM Conformance Statement, see www.siemens.com/DICOM

2. Extensions and Specializations

2.1 PETsyngo PET Attribute Interpretation

The following section describes attribute interpretations for PET images including mu maps. Mu maps are encoded in PET IOD.

This section is not intended to be a substitute for DICOM Standard documentation.

Name	Tag	Explanation
Implementation Class UID	(0002,0012)	Value: 1.3.12.2.1107.5.1.4
Implementation Version Name	(0002,0013)	Value: SIEMENS_S7VA48A
Image Type	(0008,0008)	For PET images: Value 1: ORIGINAL Value 2: PRIMARY Value 3: STRESS or REST for Cardiac images For PET topogram image: Value 1: ORIGINAL Value 2: PRIMARY Value 3: LOCALIZER Value 4: PET_TOPO For mu maps: Value 1: DERIVED Value 2: PRIMARY Value 3: AC_MAP For statistics image: Value 1: DERIVED Value 2: SECONDARY Value 3: OTHER For PET Patlak Slope Image: Value 1: ORIGINAL Value 2: PRIMARY Value 3: PATLAK SLOPE For PET Patlak Intercept Image: Value 1: ORIGINAL Value 2: PRIMARY Value 3: PATLAK INTERCEPT
SOP Class UID	(0008,0016)	Value: 1.2.840.10008.5.1.4.1.1.128
SOP Instance UID	(0008,0018)	As specified in DICOM standard Part 5 section 9 Unique Identifiers (UIDs)
Study Date	(0008,0020)	For existing studies their date and time entries are copied into the corresponding entries in a new

Name	Tag	Explanation
		image's header. If a new study is created the date and time entries from the first series of this new study will be used.
Study Time	(0008,0030)	See above
Series Date	(0008,0021)	The DATE to which images in this Series were decay corrected.
Series Time	(0008,0031)	The TIME to which images in this Series were decay corrected.
Acquisition Date	(0008,0022)	Acquisition Date and Time is defined as the real-world beginning of the accumulation of data which contribute to a particular image. Whole Body PET images belonging to the same bed position share the same acquisition date and time. In case of dynamic studies the acquisition time is different for different frames at the same bed position.
Acquisition Time	(0008,0032)	See above
Image (Content) Date	(0008,0023)	Image (Content) Date for PET images is set to the real-world date when the images are generated.
Image (Content) Time	(0008,0033)	Image (Content) Time for PET images is set to the real-world time when the images are generated.
Accession Number	(0008,0050)	Input entered from MWL or during patient registration. May be null-length.
Modality	(0008,0060)	Value: PT
Manufacturer	(0008,0070)	Value: SIEMENS
Institution Name	(0008,0080)	Hospital name read from configuration data or user input entered during patient registration or examination setup.
Institution Address	(0008,0081)	Hospital address read from configuration data. Default format is 4 lines containing Street, City, District and Country.
Referring Physician's Name	(0008,0090)	Input from MWL or entered during patient registration or examination setup. May be null-length.
Station Name	(0008,1010)	Station name as per site specific configuration.
Study Description	(0008,1030)	Is derived from information entered during patient registration or examination setup. Concatenated from Body Region and selected Scan Protocol name, separated by a "^".
Procedure Code Sequence	(0008,1032)	Used for Siemens internal processing
>Code Value	(0008,0100)	Used for Siemens internal processing
>Coding Scheme Designator	(0008,0102)	Used for Siemens internal processing
>Code Meaning	(0008,0104)	Used for Siemens internal processing
Performed Protocol Code Sequence	(0040,0260)	Used for Siemens internal processing
Code Value	(0008,0100)	Used for Siemens internal processing

Name	Tag	Explanation
Coding Scheme Designator	(0008,0102)	Used for Siemens internal processing
Code Meaning	(0008,0104)	Used for Siemens internal processing
Institutional Department Name	(0008,1040)	According to site configuration.
Performing Physician's Name	(0008,1050)	Input entered from MWL or during patient registration.
Operator's Name	(0008,1070)	According to user input.
Admitting Diagnoses Description	(0008,1080)	Input entered from MWL or during patient registration.
Series Description	(0008,103E)	Based on user input and configured appendix.
Manufacturer's Model Name	(0008,1090)	Biograph model name
Related Series Sequence	(0008,1250)	Reference to CT series used for attenuation correction Not filled for mu maps
>Study Instance UID	(0020,000D)	Instance UID of study to which the related CT series belongs
>Series Instance UID	(0020,000E)	Instance UID of related CT series
>Purpose of Reference Code Sequence	(0040,A170)	Describes the purpose for which the reference is made. Zero or more items may be present. When absent, implies that the reason for the reference is unknown. See 2.2 for supported purposes.
Patient's Name	(0010,0010)	Input from MWL or entered during patient registration or examination setup.
Patient ID	(0010,0020)	Input from MWL or entered or generated during patient registration or examination setup.
Patient's Birth Date	(0010,0030)	Input from MWL or entered during patient registration or examination setup. May be calculated from age.
Patient's Sex	(0010,0040)	Input from MWL or entered during patient registration or examination setup.
Patient's Age	(0010,1010)	Input from MWL or entered during patient registration or examination setup. May be calculated from Patient's Birth Date
Patient's Weight	(0010,1030)	Input from MWL or entered during patient registration or examination setup.
Body Part Examined	(0018,0015)	The Body Part Examined is directly entered by the operator.
Slice Thickness	(0018,0050)	Resulting slice thickness. It should be the same as the CT slice thickness if the PET reconstruction is configured to create PET image that matches CT slice location.
Device Serial Number	(0018,1000)	Serial number of the PET/CT system
Software Version(s)	(0018,1020)	PETsyngo software version. One or two values. If two values are present, the first value indicates the SW version in which the data were acquired; the second is the SW version in which the data have

Name	Tag	Explanation
		been reconstructed.
Protocol Name	(0018,1030)	Name of Scan Protocol selected during patient registration or examination setup
Trigger Time	(0018,1060)	For trigger gating: time interval in ms from start of trigger to the beginning of data acquisition for this image. For respiratory waveform gating: time offset of the start of the gate from the previous Inspiration Peak. These values are normalized across all the respiratory cycles.
Nominal Interval	(0018,1062)	Average duration of accepted beats or respirations Gated only.
Frame Time	(0018,1063)	Nominal duration per individual frame in ms. Gated only.
Framing Type	(0018,1064)	Value: PHASED Gated only.
Beat Rejection Flag	(0018,1080)	Value: Y for trigger gating, N for respiratory waveform gating Gated only.
Low R-R Value	(0018,1081)	For trigger gating: R-R interval lower limit for beat rejection. For respiratory waveform gating: lowest time interval between respiratory peaks Gated only.
High R-R Value	(0018,1082)	For trigger gating: R-R interval upper limit for beat rejection. For respiratory waveform gating: lowest time interval between respiratory peaks Gated only.
Intervals Acquired	(0018,1083)	Total number of accepted beats or respiratory cycles Gated only.
Intervals Rejected	(0018,1084)	Total number of rejected beats. Gated only.
Skip Beats	(0018,1086)	Number of skipped beats after a detected arrhythmia. Gated only.
Heart Rate	(0018,1088)	Average number of heart beats or respirations per minute for the collection period. This includes all accepted and rejected beats or respirations. Gated only.
Collimator Type	(0018,1181)	Value: NONE
Date of Last Calibration	(0018,1200)	Date of last Gantry Calibration / FOV Offset
Time of Last Calibration	(0018,1201)	Time of last Gantry Calibration / FOV Offset
Convolution Kernel	(0018,1210)	Filter type and parameters: XYZ Gauss<w>

Name	Tag	Explanation
		XYZ Hamm<w> XYZ Hann<w> XYZ Parz<w> XYZ BUTW<w>-<o> XYZ SHEP<w> XYZ BOX where <w> is the filter width (fwhm), and <o> is the filter order, e.g. XYZ BUTW5.00-1
Actual Frame Duration	(0018,1242)	Actual time elapsed during acquisition
Patient Position	(0018,5100)	As entered for scan. This value is set despite the use of the Patient Orientation Code Sequence (0054, 0410).
Study Instance UID	(0020,000D)	From MWL or created
Series Instance UID	(0020,000E)	From MWL or created
Study ID	(0020,0010)	From MWL or created
Series Number	(0020,0011)	Created
Acquisition Number	(0020,0012)	A combination of the scan range number within the examination and bed index. For example, for standard whole-body scans (Topo, Spiral CT range, PET range) , the acquisition number is set to 2 * 1000 + bed index
Instance Number	(0020,0013)	Created. The order of the Instance Number is not selectable by the user. The images will be numbered in the ascending order in the direction how they are acquired.
Image Position (Patient)	(0020,0032)	The x, y, z coordinates of the center of the first pixel in mm in the CT coordinate system. The coordinates are generated after the PET/CT FOV offset correction and hence may be used directly by PET/ CT image fusion applications.
Image Orientation (Patient)	(0020,0037)	Direction cosines of the first row and first column with respect to the patient.
Frame of Reference UID	(0020,0052)	Created
Position Reference Indicator	(0020,1040)	Null
Slice Location	(0020,1041)	Relative position of the intersection of the image slice with the z-axis in mm. This position is relative to the current reference point and corresponds to the table position. It is generated after the PET/CT FOV z-offset correction.
Image Comments	(0020,4000)	Concatenated string, separated by "^": - User input for comment - Blood Glucose information <BGL:value:units> - Gate definition for gated images - Frame description for dynamic images - Pass information for Summed WB Dynamic

Name	Tag	Explanation
		- CT series description for attenuation correction - /TF if transformation matrix was applied - /MAR if metal artefact correction was applied - Volume Scaling if Volume Scaling was applied - /Mu for mu maps
Samples per Pixel	(0028,0002)	Value: 1
Photometric Interpretation	(0028,0004)	Value: MONOCHROME2
Rows	(0028,0010)	Number of rows in the image
Columns	(0028,0011)	Number of columns in the image
Pixel Spacing	(0028,0030)	Physical distance in the patient between the center of each pixel, specified by a numeric pair - adjacent row spacing (delimiter) adjacent column spacing in mm.
Corrected Image	(0028,0051)	Terms used: DECY, ATTN, SCAT, DTIM, RAN, NORM, RADL, PGC Blank for mu maps
Bits Allocated	(0028,0100)	Value: 16
Bits Stored	(0028,0101)	Value: 16
High Bit	(0028,0102)	Value: 15
Pixel Representation	(0028,0103)	Value: 0 (unsigned) or 1 (signed) depending on minimum pixel value
Smallest Image Pixel Value	(0028,0106)	Calculated during image reconstruction.
Largest Image Pixel Value	(0028,0107)	Calculated during image reconstruction.
Window Center	(0028,1050)	Calculated during image reconstruction.
Window Width	(0028,1051)	Calculated during image reconstruction.
Rescale Intercept	(0028,1052)	Value: 0
Rescale Slope	(0028,1053)	Calculated during image reconstruction. Identical for all images in a frame if Volume Scaling is selected.
(Private data)	(0029,xxxx)	See section 0
Energy Window Range Sequence	(0054,0013)	Sequence containing one item describing the energy window used to acquire the PET image series.
>Energy Window Lower Limit	(0054,0014)	The lower limit of the energy window in keV.
>Energy Window Upper Limit	(0054,0015)	The upper limit of the energy window in keV.
Radiopharmaceutical Information Sequence	(0054,0016)	Sequence containing items describing the isotope information. Blank for mu maps
>Radiopharmaceutical Volume	(0018,1071)	Volume of administered radiopharmaceutical in cubic cm.
>Radiopharmaceutical Start Time	(0018,1072)	Time of start of injection (Since there is no attribute for the injection **date**, a day shift between start of injection and start of acquisition is encoded in the last 3 digits of the

Name	Tag	Explanation
		injection time.)
>Radionuclide Total Dose	(0018,1074)	The radiopharmaceutical dose administered to the patient measured in Becquerel (Bq) at the Radiopharmaceutical Start Time
>Radionuclide Half Life	(0018,1075)	The radionuclide half life, in seconds, that was used in the correction of this image.
>Radionuclide Positron Fraction	(0018,1076)	The radionuclide positron fraction (fraction of decays that are by positron emission) that was used in the correction of this image, e.g. 0.97 for 18F.
>Radiopharmaceutical Start DateTime	(0018,1078)	Date and time of start of administration. The actual date and time of radiopharmaceutical administration to the patient for imaging purposes, using the same time base as Series Time (0008, 0031).
>Radiopharmaceutical Stop DateTime	(0018,1079)	Date and time of end of administration. The actual ending date and time of radiopharmaceutical administration to the patient for imaging purposes, using the same time base as Series Time (0008,0031).
>Radionuclide Code Sequence	(0054,0300)	Sequence that identifies the radionuclide. Only present for radionuclides defined in section 2.5
>>Code Value	(0008,0100)	See section 2.5
>>Coding Scheme Designator	(0008,0102)	See section 2.5
>>Code Meaning	(0008,0104)	See section 2.5
>Radiopharmaceutical	(0018,0031)	Name of the radiopharmaceutical
>Radiopharmaceutical Code Sequence	(0054,0304)	Sequence that identifies the radiopharmaceutical. Only present for radiopharmaceuticals defined in section 2.6
>>Code Value	(0008,0100)	See section 2.6
>>Coding Scheme Designator	(0008,0102)	See section 2.6
>>Code Meaning	(0008,0104)	See section 2.6
Number of R-R Intervals	(0054,0061)	Value: 1
Number of Time Slots	(0054,0071)	Number of gates (for gated)
Number of Slices	(0054,0081)	If PET slice location is configured to match CT slice location, this number is determined by the available number of CT slices within the PET scan range. Otherwise it is calculated based on bed positions or number of gates/frames, number of detector rings and overlap.
Number of Time Slices	(0054,0101)	Number of frames (for dynamic)
Patient Orientation Code Sequence	(0054,0410)	Sequence containing one item that describes the orientation of the patient with respect to gravity. Values: recumbent
>Patient Orientation Modifier Code Sequence	(0054,0412)	Sequence containing one item that modifies or enhances the orientation specified by Patient

Name	Tag	Explanation
		Orientation Code Sequence. Values: supine, prone, right lateral decubitus, left lateral decubitus
Patient Gantry Relationship Code Sequence	(0054,0414)	Sequence containing one item that describes the orientation of the patient with respect to the gantry. Values: head-first or feet-first.
Series Type	(0054,1000)	Value 1: WHOLE BODY, DYNAMIC or GATED Value 2: IMAGE
Units	(0054,1001)	BQML for quantitative, attenuation corrected images PROPCPS for non-quantitative, non attenuation corrected images 1CM for mu maps PCT for PET Patlak Intercept Image MGMINML or UMOLMINML or MLMINML for PET Patlak Slope Image
Counts Source	(0054,1002)	The primary source of counts. EMISSION for PET images TRANSMISSION for mu maps
Randoms Correction Method	(0054,1100)	Value: DLYD
Attenuation Correction Method	(0054,1101)	Value for attenuation corrected PET images: measured, name of used CT Series, calculated, CBAC (=Calculated Brain AC) Value for mu maps: measured, calculated
Decay Correction	(0054,1102)	The real-world event to which images in this Series were decay corrected. Value: START or ADMIN. START= acquisition start time ADMIN = radiopharmaceutical administration time This refers to the Series Date and Time, see (0008,0021) and (0008,0031) and private attribute (0071,1022) NONE for mu maps
Reconstruction Method	(0054,1103)	Values: Backprojection Backprojection+TOF OSEM2D <m>i<n>s OSEM3D <m>i<n>s OSEM3D+TOF <m>i<n>s PSF <m>i<n>s PSF+TOF <m>i<n>s Patlak

Name	Tag	Explanation
Scatter Correction Method	(0054,1105)	Set if Scatter correction was applied. Values: Model-based, relative scatter scaling Model-based, absolute scatter scaling
Axial Acceptance	(0054,1200)	The maximum detector ring difference instead of angle in degrees.
Axial Mash	(0054,1201)	Number of adjacent axial lines of response mashed together
Frame Reference Time	(0054,1300)	Time offset from the series time in ms. This value is different for images acquired in different bed positions or dynamic frames, but is the same for all gates.
Decay Factor	(0054,1321)	The decay factor that was used to scale this image. The measured activity is corrected back to the reference time (0054,1102) with the following factor: $e^{\lambda(t_{start}-t_{reference})}\frac{\lambda T_{frame}}{1-e^{-\lambda T_{frame}}}$ with $\lambda=\frac{\ln 2}{T_{1/2}}$ where t_{start} is the frame start time, $t_{reference}$ the reference time, T_{frame} the frame duration, and $T_{1/2}$ the half life time of the radionuclide, see (0018,1075)
Dose Calibration Factor	(0054,1322)	A factor that was used to scale this image from ECAT counts/sec to Bq/ml using a dose calibrator. The value is 1 if normalization was not applied.
Scatter Fraction Factor	(0054,1323)	An estimate of the fraction of acquired counts that were due to scatter and were corrected in this image. The value shall be 0 if no scatter correction was applied.
Image Index	(0054,1330)	An encoded index identifying the position of the image within the PET series which is viewed as a multi-dimensional array. Used for sorting of PET images (whole body, dynamic, gated)
Pixel Data	(7FE0,0010)	

2.2 Supported Purposes of Reference Code Sequence

The following table shows supported purposes of Reference Code Sequence (see tag word 0040,A170 in section 2.1):

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	122401	Same Anatomy (indicating that the referenced CT series is used for slice matching)
SRT	122403	For Attenuation Correction (indicating that the referenced CT series is used for attenuation correction)

2.3 Private PET Image Attributes

The following private attributes are defined for PET images:

Name	Tag	VR	Explanation
SIEMENS MED PT	(0071,0010)		
>Registration Matrix UID	(0071,1021)	UI	UID of Registration matrix between PET and CT images
>Decay Correction DateTime	(0071,1022)	DT	The date and time to which the image was decay corrected. Also refer to (0054,1102)
>Registration Matrix	(0071,1023)	FD	16 float values describing the 4x4 registration matrix from CT to PET
>Table Motion	(0071,1024)	CS	DYNAMIC for CBM, STATIC for Step and Shoot
SIEMENS MED PT MU MAP	(0071,001x)		
>SOP Class of Source	(0071,1001)	UI	For mu maps: 1.2.840.10008.5.1.4.1.1.2 for CT based mu maps 1.2.840.10008.5.1.4.1.1.128 for PET based mu maps
>Related Mu Map Series	(0071,1102)	UI	For PET images: DICOM UID of the mu map series which is used for attenuation correction of the PET images
>Lumped Constant	(0071,1025)		For PET Patlak Images: The lumped constant (LC) used to convert an FDG metabolism to glucose metabolism.

2.4 PET Extensions of Non-Image Object

PETsyngo uses the following defined terms for Image Type (0008,0008):

- Value 1: ORIGINAL, DERIVED
- Value 2: PRIMARY
- Value 3: PET_CALIBRATION, PETCT_SPL, PET_LISTMODE, PET_EM_SINOGRAM, PET_PHYSIO, PET_REPLAY_PARAM, PET_COUNTRATE
- Value 4: CARDIAC, RESPIRATORY, PET_PHYSIO_MFL

The following table lists the PETsyngo non-image types and the corresponding values.

Description	0008,0008 Value 1	0008,0008 Value 2	0008,0008 Value 3	0008,0008 Value 4
Sinogram data	ORIGINAL	PRIMARY	PET_EM_SINOGRAM	none
Listmode data	ORIGINAL	PRIMARY	PET_LISTMODE	none or CARDIAC or RESPIRATORY
Attenuation correction data	DERIVED	PRIMARY	none	none
Norm data	ORIGINAL	PRIMARY	PET_CALIBRATION	none
Protocol data	ORIGINAL	PRIMARY	PETCT_SPL	none
Physiological data	ORIGINAL	PRIMARY	PET_PHYSIO	CARDIAC or RESPIRATORY Or PET_PHYSIO_MFL
Replay parameters	ORIGINAL	PRIMARY	PET_REPLAY_PARAM	none
Count Rate Data	ORIGINAL	PRIMARY	PET_COUNTRATE	none
PET TAC Data	ORIGINAL	PRIMARY	PET_TAC_IF	none

2.5 Supported Radionuclides

The following table shows for which radionuclides the Radionuclide Code Sequence is provided (see tag word 0054,0300 in section 2.1):

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	C-111A1	^18^Fluorine
SRT	C-159A2	^82^Rubidium
SRT	C-107A1	^13^Nitrogen
SRT	C-105A1	^11^Carbon
SRT	C-128A2	^68^Germanium
SRT	C-155A1	^22^Sodium
SRT	C-1018C	^14^Oxygen
SRT	C-B1038	^15^Oxygen
SRT	C-127A4	^60^Copper
SRT	C-127A1	^61^Copper
SRT	C-127A5	^62^Copper
SRT	C-127A2	^64^Copper
SRT	C-131A1	^66^Gallium
SRT	C-131A3	^68^Gallium
SRT	C-113A1	^75^Bromine
SRT	C-113A2	^76^Bromine
SRT	C-113A3	^77^Bromine
SRT	C-114A5	^124^Iodine
SRT	C-135A4	^38^Potassium
SRT	C-149A1	^52^Manganese
SRT	C-163AA	^94m^Technetium
SRT	C-166A2	^45^Titanium
SRT	C-162A3	^86^Yttrium
SRT	C-141A1	^62^Zinc
DCM	126600	^44^Scandium
DCM	126605	^43^Scandium
DCM	126602	^70^Arsenic
SRT	C-115A2	^72^Arsenic
SRT	C-116A2	^72^Selenium
DCM	126603	^90^Niobium
DCM	126606	^152^Terbium
SRT	C-130A1	^52^Iron

DCM	126601	^51^Manganese
SRT	C-162A7	^90^Yttrium
SRT	C-168A4	^89^Zirconium

2.6 Supported Radiopharmaceuticals

The following table shows for which radiopharmaceuticals the Radiopharmaceuticals Code Sequence is provided (see tag word 0054,0304 in section 2.1):

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	C-B1043	Acetate C^11^
SRT	C-B103C	Ammonia N^13^
SRT	C-B07DB	ATSM Cu^64^
SRT	C-B07DC	Butanol O^15^
SRT	C-B103B	Carbon dioxide O^15^
SRT	C-B1045	Carbon monoxide C^11^
SRT	C-B103A	Carbon monoxide O^15^
SRT	C-B103F	Carfentanil C^11^
SRT	C-B07DD	EDTA Ga^68^
SRT	C-B07DE	Flumazenil C^11^
SRT	C-B07DF	Flumazenil F^18^
SRT	C-B07E0	Fluorethyltyrosin F^18^
SRT	C-B1031	Fluorodeoxyglucose F^18^
SRT	C-B07E1	Fluoromisonidazole F^18^
SRT	C-B07E2	Fluoromethane F^18^
SRT	C-B07E3	Fluorouracil F^18^
SRT	C-B07E4	Fluorobenzothiazole F^18^
SRT	C-B1034	Fluoro-L-dopa F^18^
SRT	C-B1046	Germanium Ge^68^
SRT	C-B103D	Glutamate N^13^
SRT	C-B07E5	Mespiperone C^11^
SRT	C-B103E	Methionine C^11^
SRT	C-B07E6	Monoclonal antibody I^124^
SRT	C-B1038	Oxygen O^15^
SRT	C-B1039	Oxygen-water O^15^
SRT	C-B1044	Palmitate C^11^
SRT	C-B07E7	PTSM Cu^62^
SRT	C-B1042	Raclopride C^11^
SRT	C-B1037	Rubidium chloride Rb^82^
SRT	C-B1032	Sodium fluoride F^18^
SRT	C-B07E8	Sodium iodide I^124^
SRT	C-B1047	Sodium Na^22^

SRT	C-B1033	Spiperone F^18^
SRT	C-B1036	Thymidine (FLT)F^18^
DCM	126713	2FA F^18^
DCM	126700	ATSM Cu^60^
DCM	126701	ATSM Cu^61^
DCM	126702	ATSM Cu^62^
DCM	126516	Bevacizumab ^89^Zr
DCM	126513	Cetuximab ^89^Zr
DCM	126703	Choline C^11^
DCM	126517	cG250-F(ab')(2) ^89^Zr
DCM	126715	CLR1404 I^124^
DCM	126515	cU36 ^89^Zr
DCM	126520	Df-CD45 ^89^Zr
DCM	126519	E4G10 ^89^Zr
UMLS	C2713594	Edotreotide Ga^68^
DCM	126704	Fallypride C^11^
DCM	126705	Fallypride F^18^
DCM	126706	FLB 457 C^11^
DCM	126503	Flubatine F^18^
DCM	126501	Florbetaben F^18^
SRT	C-E0269	Florbetapir F^18^
SRT	C-E0265	Fluciclatide F^18^
SRT	C-E026A	Fluciclovine F^18^
UMLS	C1831937	Fluoroestradiol (FES) F^18^
UMLS	C1541539	Fluoroetanidazole F^18^
SRT	C-E0273	Fluorocholine F^18^
UMLS	C2934038	Fluoropropyl-dihydrotetrabenazine (DTBZ) F^18^
DCM	126707	Fluorotriopride F^18^
SRT	C-E0267	Flutemetamol F^18^
DCM	126709	Glutamine C^11^
DCM	126711	Glutamine F^18^
UMLS	C2981788	ISO-1 F^18^
DCM	126514	J591 ^89^Zr
DCM	126510	Monoclonal Antibody (mAb) ^64^Cu
DCM	126511	Monoclonal Antibody (mAb) ^89^Zr
DCM	126714	Nifene F^18^
DCM	126500	Pittsburgh compound B C^11^
DCM	126518	R1507 ^89^Zr
DCM	126502	T807 F^18^
DCM	126512	Trastuzumab ^89^Zr
UMLS	C1742831	tyrosine-3-octreotate Ga^68^

DCM	126752	28H1 ^89^Zr
DCM	126751	7D12 ^89^Zr
DCM	126750	7E11 ^89^Zr
DCM	126729	AGN-150998 ^89^Zr
DCM	126754	Anti-B220 ^89^Zr
DCM	126722	Benralizumab ^89^Zr
DCM	126727	Blinatumomab ^89^Zr
DCM	126735	Brentuximab ^89^Zr
DCM	126746	cMAb U36 ^89^Zr
DCM	126762	Df-[FK](2) ^89^Zr
DCM	126763	Df-[FK](2)-3PEG(4) ^89^Zr
DCM	126760	Df-FK ^89^Zr
DCM	126761	Df-FK-PEG(3) ^89^Zr
DCM	126747	DN30 ^89^Zr
DCM	126732	Ecromeximab ^89^Zr
DCM	126748	Fresolimumab ^89^Zr
DCM	126731	GA201 ^89^Zr
DCM	126724	Glembatumumab vedotin ^89^Zr
DCM	126740	Margetuximab ^89^Zr
DCM	126730	MEDI-551 ^89^Zr
DCM	126738	Mogamulizumab ^89^Zr
DCM	126753	Nanocolloidal albumin ^89^Zr
DCM	126721	Obinituzimab ^89^Zr
DCM	126723	Ocaratuzumab ^89^Zr
DCM	126736	Panitumumab ^89^Zr
DCM	126728	Pegdinetanib ^89^Zr
DCM	126725	Pinatuzumab vedotin ^89^Zr
DCM	126726	Polatuzumab vedotin ^89^Zr
DCM	126742	Ranibizumab ^89^Zr
DCM	126737	Rituximab ^89^Zr
DCM	126755	RO5323441 ^89^Zr
DCM	126756	RO542908 ^89^Zr
DCM	126733	Roledumab ^89^Zr
DCM	126741	SAR3419 ^89^Zr
DCM	126749	TRC105 ^89^Zr
DCM	126739	Ublituximab ^89^Zr
DCM	126734	XmAb5574 ^89^Zr

2.7 Merge Multi CT tool

The following section describes attribute interpretations for CT images generated by Merge Multi CT tool.

Multiple CT series are merged into one (Result Series) that is used for attenuation correction during creation of PET images.

The series level attributes are copied from the original CT series that contains the image with the lowest (most negative) Slice Location (0020, 1041) value.

The image level attributes are copied from the source CT image.
Following attributes are updated, changed or removed relative to the original CT image:

Name	Tag	Explanation
Series Description	(0008, 103E)	Supplied by user
Body Part Examined	(0018, 0015)	Removed
Series Number	(0020, 0011)	Set in range 0-500, the lowest unused number
Image Type	(0008, 0008)	Value 1 set to DERIVED
Image Date (Content Date)	(0008, 0023)	Current date when result image is created
Image Time (Content Time)	(0008, 0033	Current time when result image is created
Image Number (Instance Number)	(0020, 0013)	Craniocaudal: Image order increases with increase of Z-position of image slice. Caudocranial: Image order decreases with increase of Z-position of image slice
Source Image Sequence	(0008, 2112)	SOP - 1.2.840.10008.5.1.4.1.1.2 SOP Instance - UID of the CT series (original one) that slice is generated from
Reference Image Sequence	(0008, 1140)	Removed if set
Derivation Description	(0008, 2111)	Set to: MULTI CT FOR AC
Image Comment	(0020, 4000)	Image comment from the original image (1st slice), appended series description from the original CT series that slice is generated from. ^ is used as delimiter
Largest Image Pixel Value	(0028, 0107)	Removed if set
Smallest Image Pixel Value	(0028, 0106)	Removed if set
Slice Thickness	(0018, 0050)	Supplied by user
Image Position Patient	(0020, 0032)	Replaced the 3rd value in the array, a new calculated z-position
KVP	(0018,0060)	Read from the source CT image.
Scan Options	(0018,0022)	Removed if set
Data Collection Diameter	(0018,0090)	Removed if set
Data Collection Center	(0018,9313)	Removed if set

Name	Tag	Explanation
Reconstruction Diameter	(0018,1100)	Read from the source CT image.
Reconstruction Target Center (Patient)	(0018,9318)	Removed if set
Distance Source to Detector	(0018,1110)	Removed if set
Distance Source to Patient	(0018,1111)	Removed if set
Gantry/Detector Tilt	(0018,1120)	Removed if set
Table Height	(0018,1130)	Read from the source CT image.
Rotation Direction	(0018,1140)	Removed if set
Exposure Time	(0018,1150)	Removed if set
X-Ray Tube Current	(0018,1151)	Removed if set
Exposure	(0018,1152)	Removed if set
Exposure in uAs	(0018,1153)	Removed if set
Filter Type	(0018,1160)	Removed if set
Generator Power	(0018,1170)	Removed if set
Focal Spots	(0018,1190)	Removed if set
Convolution Kernel	(0018,1210)	Removed if set
Revolution Time	(0018,9305)	Removed if set
Single Collimation Width	(0018,9306)	Removed if set
Total Collimation Width	(0018,9307)	Removed if set
Table Speed	(0018,9309)	Removed if set
Table Feed per Rotation	(0018,9310)	Removed if set
Spiral Pitch Factor	(0018,9311)	Removed if set
Exposure Modulation Type	(0018,9323)	Removed if set
Estimated Dose Saving	(0018,9324)	Removed if set
CTDIvol	(0018,9345)	Removed if set
CTDI Phantom Type Code Sequence	(0018,9346)	Removed if set
Calcium Scoring Mass Factor Patient	(0018,9351)	Removed if set
Calcium Scoring Mass Factor Device	(0018,9352)	Removed if set
Energy Weighting Factor	(0018,9353)	Removed if set
CT Additional X-Ray Source Sequence	(0018,9360)	Removed if set
Isocenter Position	(300A,012C)	Removed if set

CE
0086

This device bears a CE mark in accordance with the provisions of Council Directive 93/42/EEC of June 14, 1993 concerning medical devices and the Council Directive 2011/65/EU of June 08, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

The CE marking applies only to Medical Devices which have been put on the market according to the aforementioned EC Directives.

Unauthorized changes to this product are not covered by the CE mark and the related Declaration of Conformity.

The original language of this document is English.

Date of Issue: 2019-05

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Material No. 11366456.01
Published by Siemens Healthcare GmbH / Print No. MI-VIS.621.11.01.02 / © Siemens Healthcare GmbH, 2019