ISO TC 22/SC 12

Date: 2014-03-11

ISO/TS 13499 - RED C : 2014 E

ISO/TC 22/SC 12/WG 3

Secreteriat: AFNOR

Road vehicles - Multimedia data exchange format for impact tests

Véhicules routiers — Format d'échange de données multimédia pour les essais de choc

Related electronic document C

Figures

— Version 1.6.1 —

Document type: Related electronic document
Document language: E

ISO MME Database 244 - Data Release 1.6.1

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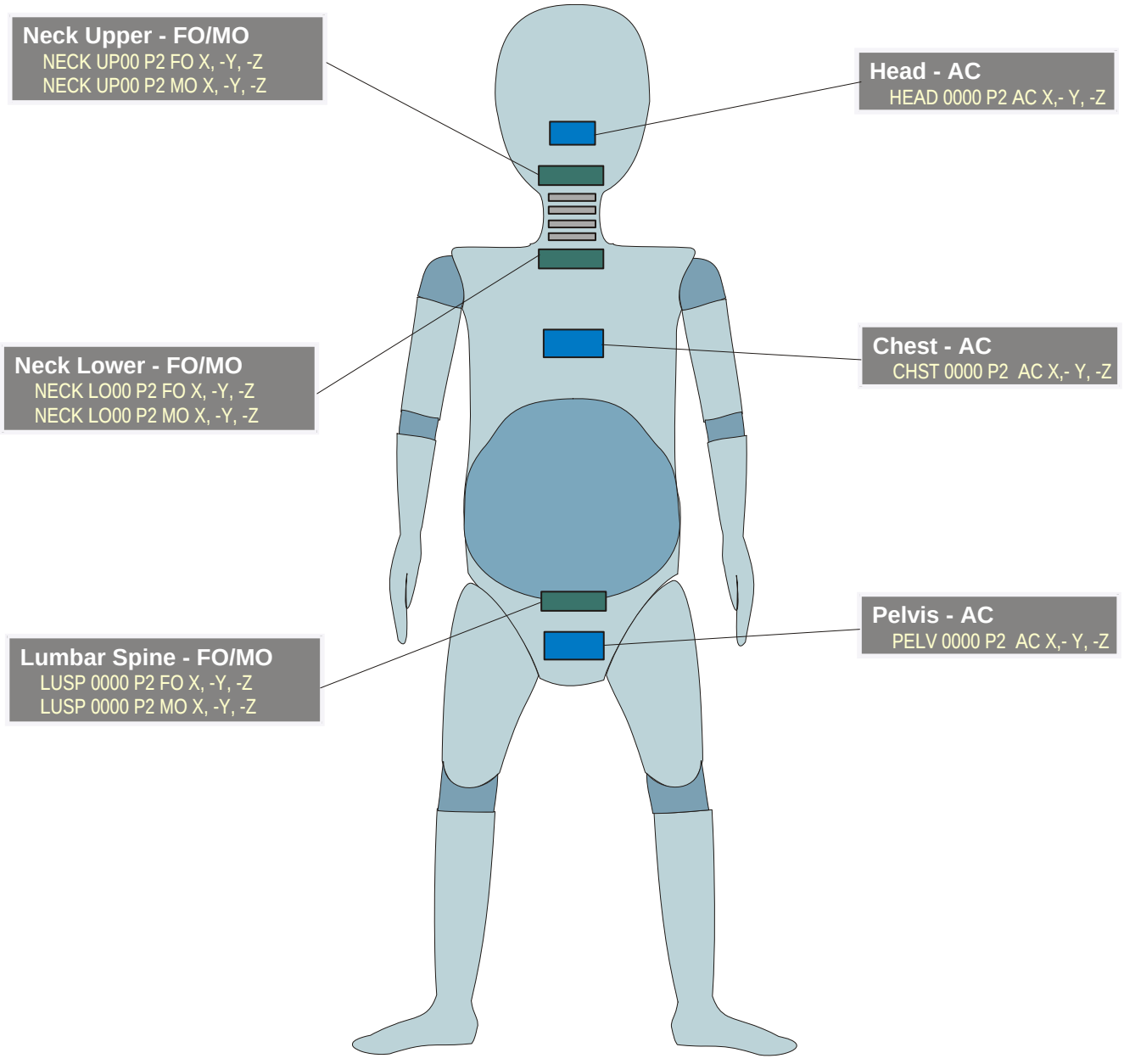
P2 TNO P 1½ year old

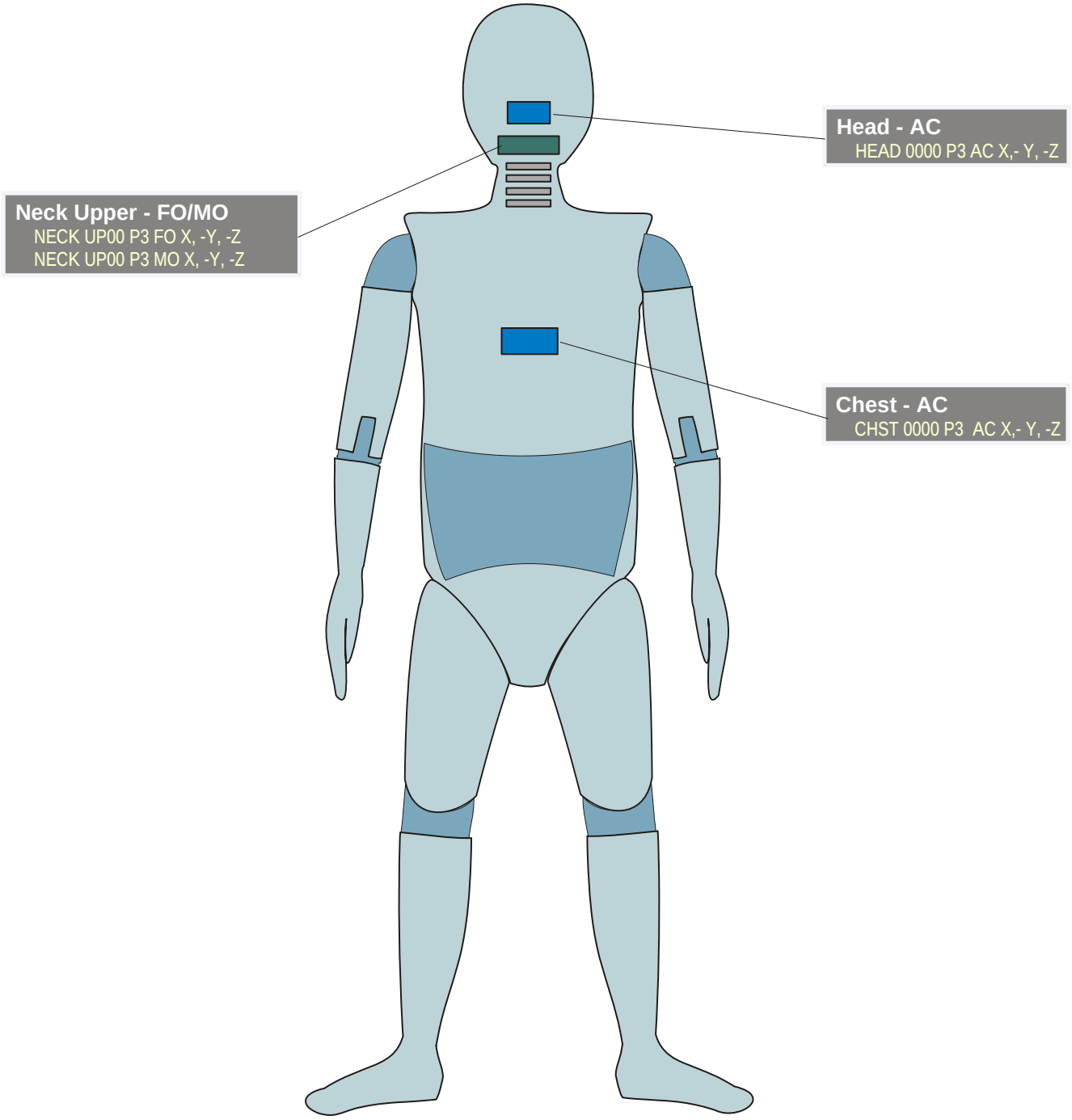
Valid since Version **1.1**



P2_1_11.wmf

P3 TNO P 3 year old

Valid since Version **1.1**

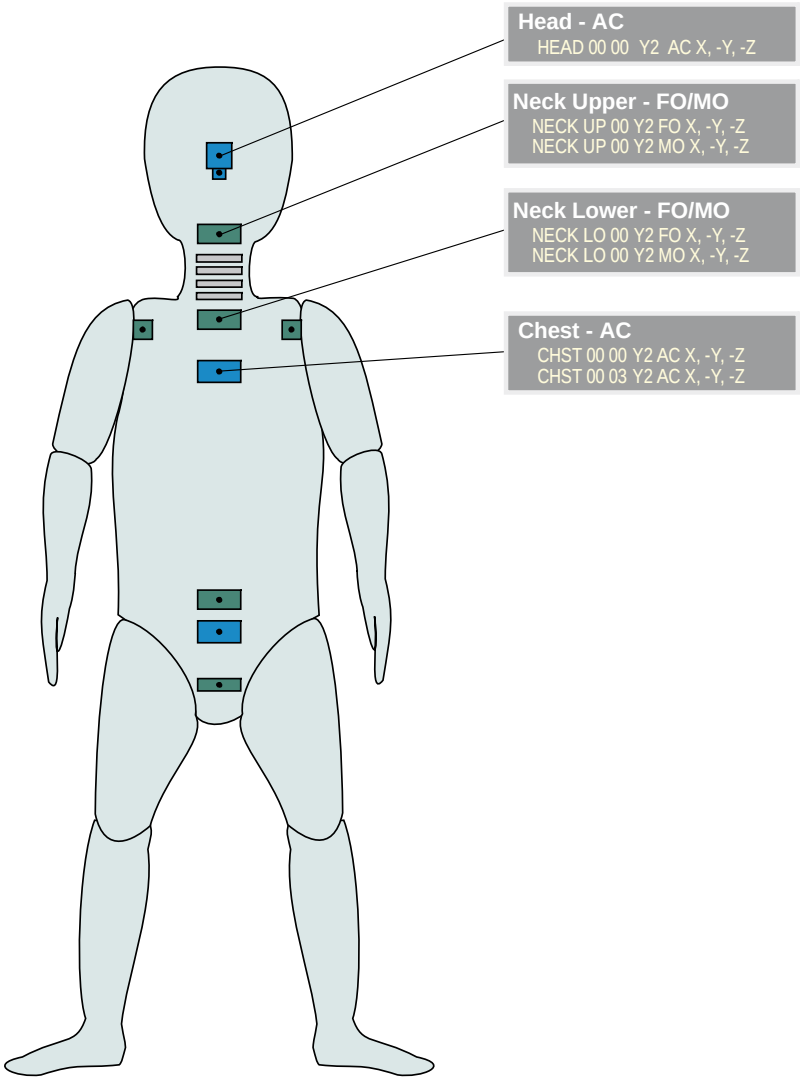


P3_1_11.WMF

Y2 CRABI 12 month old (1)

Valid since Version **1.6**

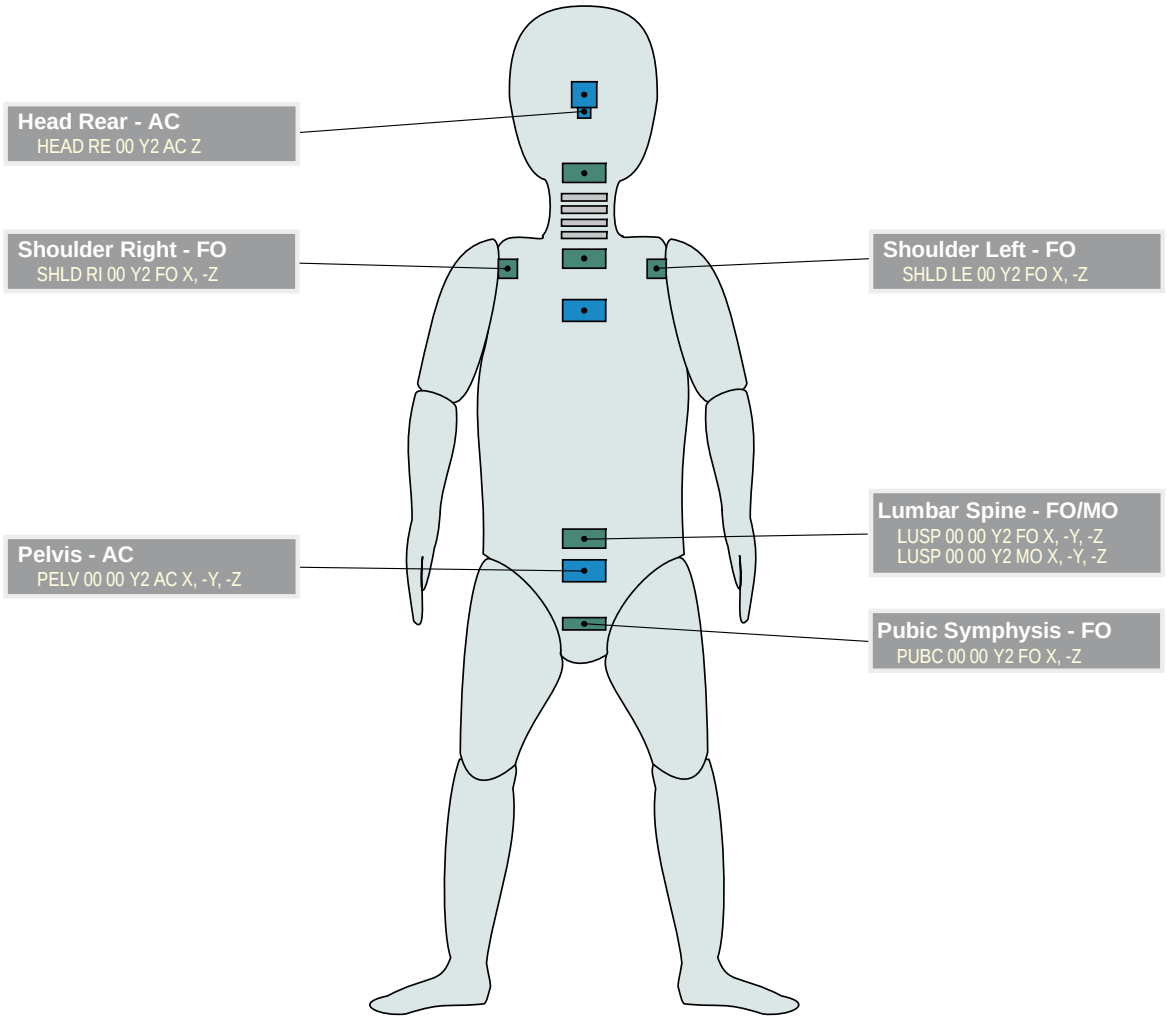
ISO/TS 13499 – RED C : 2010(E)
Y2, CRABI 12 Month Old Infant Dummy
Standard Instrumentation
2011-12-20



Y2 CRABI 12 month old (2)

Valid since Version **1.6**

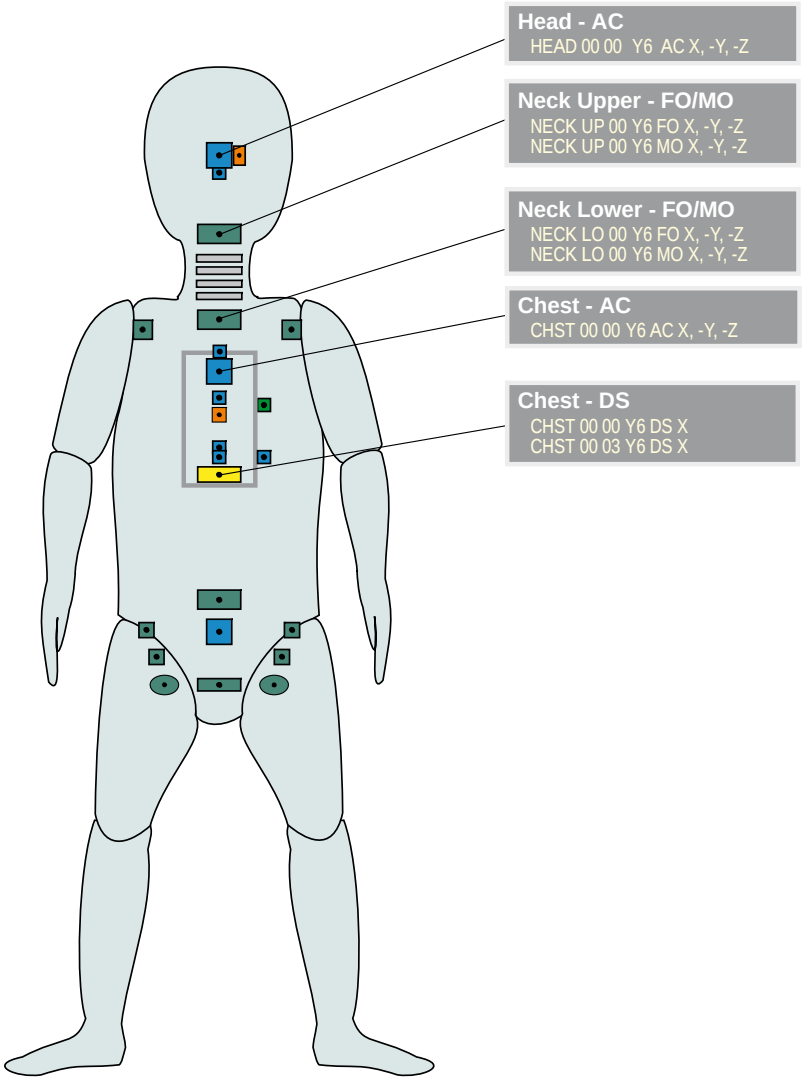
ISO/TS 13499 – RED C : 2010(E)
Y2, CRABI 12 Month Old Infant Dummy
Additional Instrumentation
2011-12-20



Y6 H III - 3 year old (1)

Valid since Version **1.6.1**
NPRM Level "A"

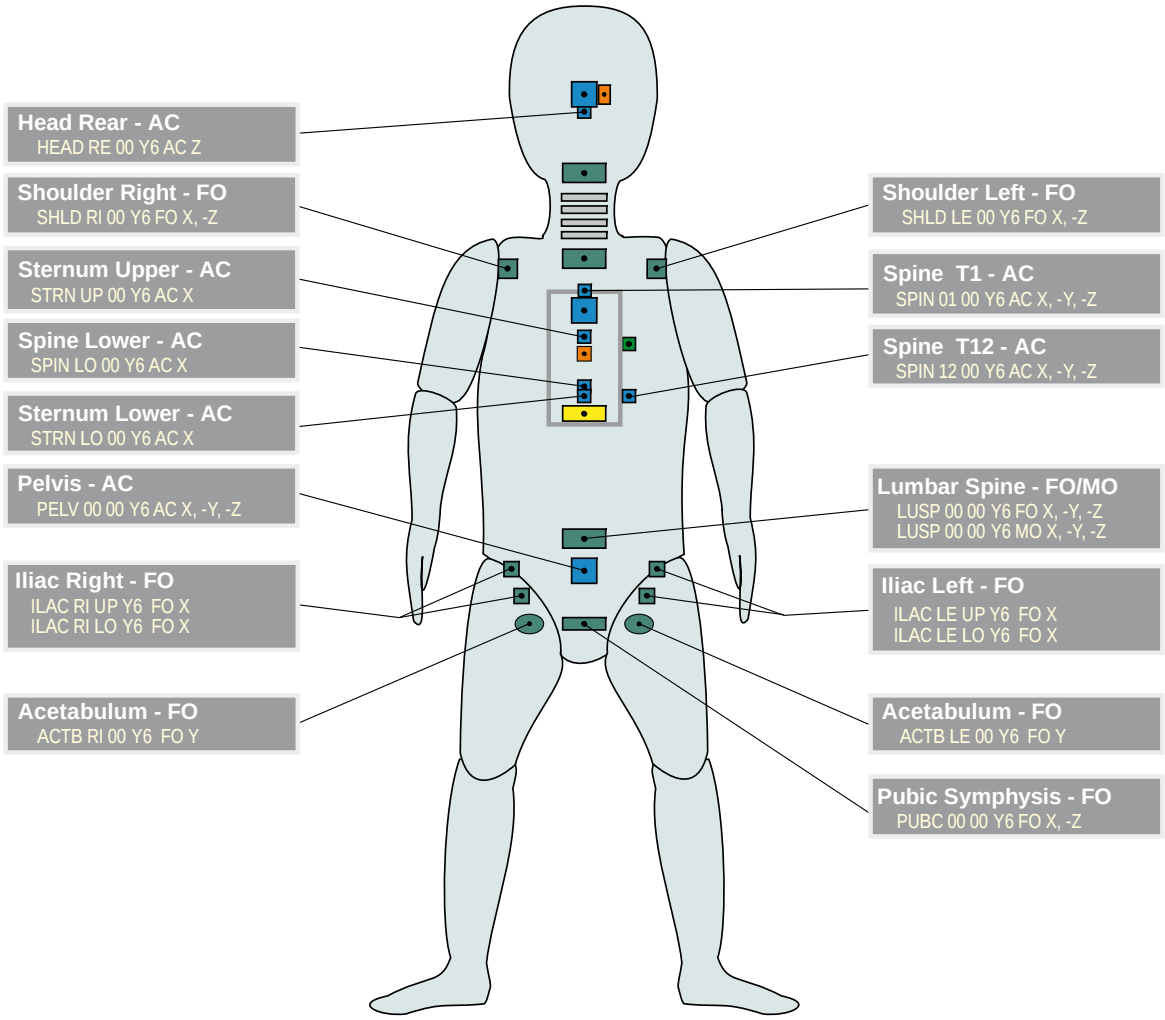
ISO/TS 13499 – RED C : 2010(E)
Y6, Hybrid III 3 Year Old Child Dummy
Standard Instrumentation
2013-07-10



Y6 H III - 3 year old (2)

Valid since Version **1.6.1**
NPRM Level "A"

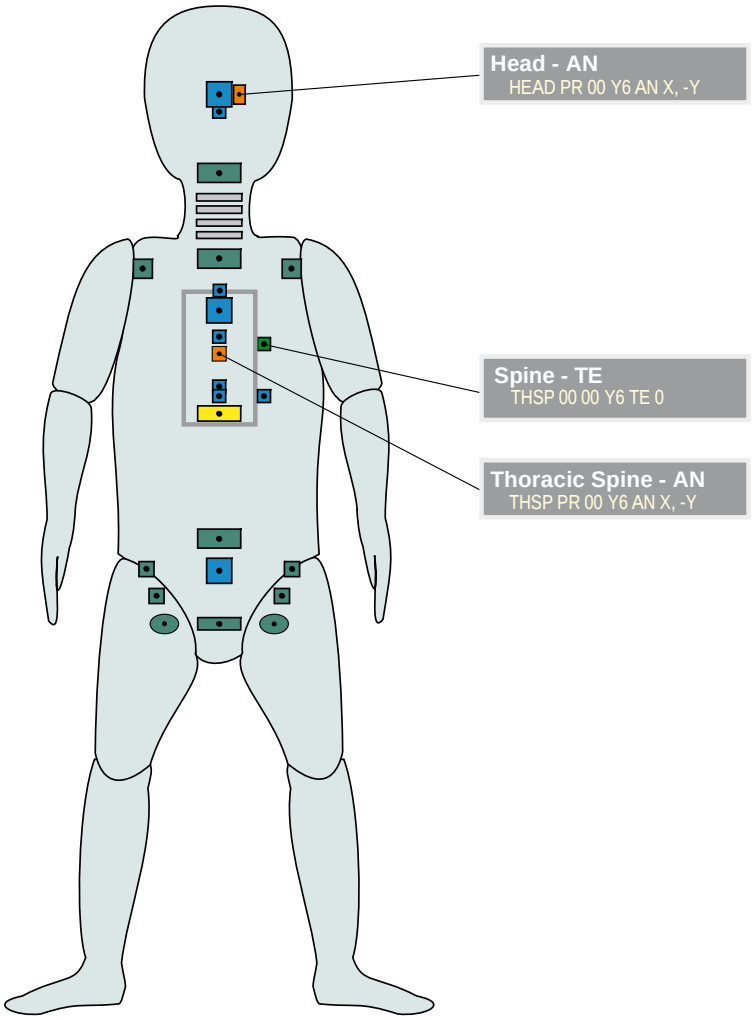
ISO/TS 13499 – RED C : 2010(E)
Y6, Hybrid III 3 Year Old Child Dummy
Additional Instrumentation
2013-07-10



Y6 H III - 3 year old (3)

Valid since Version **1.6.1**
NPRM Level "A"

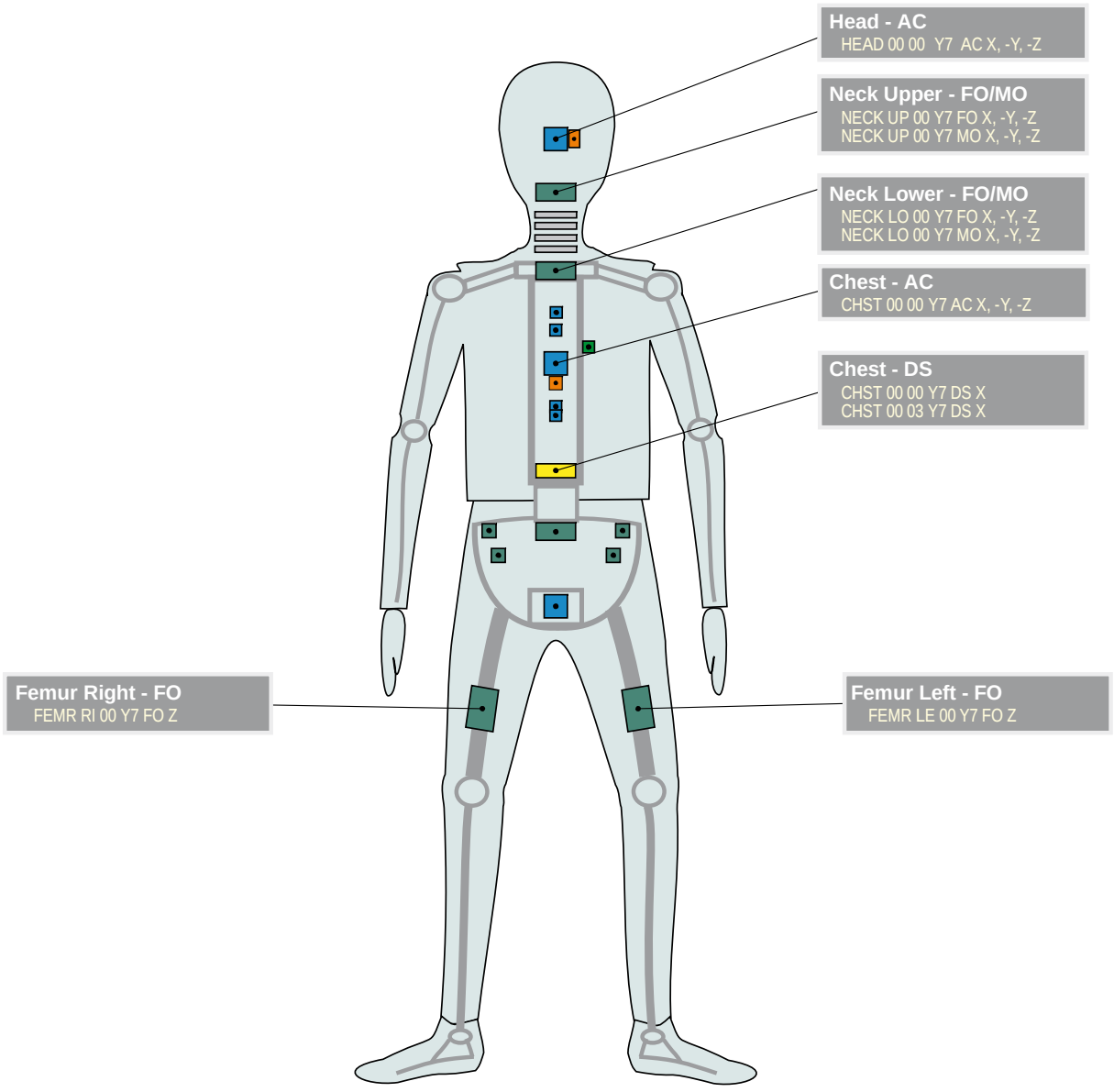
ISO/TS 13499 – RED C : 2010(E)
Y6, Hybrid III 3 Year Old Child Dummy
Static measurements, other channels
2013-07-10



Y7 H III - 6 year old (1)

Valid since Version **1.6.1**
NPRM Level "I"

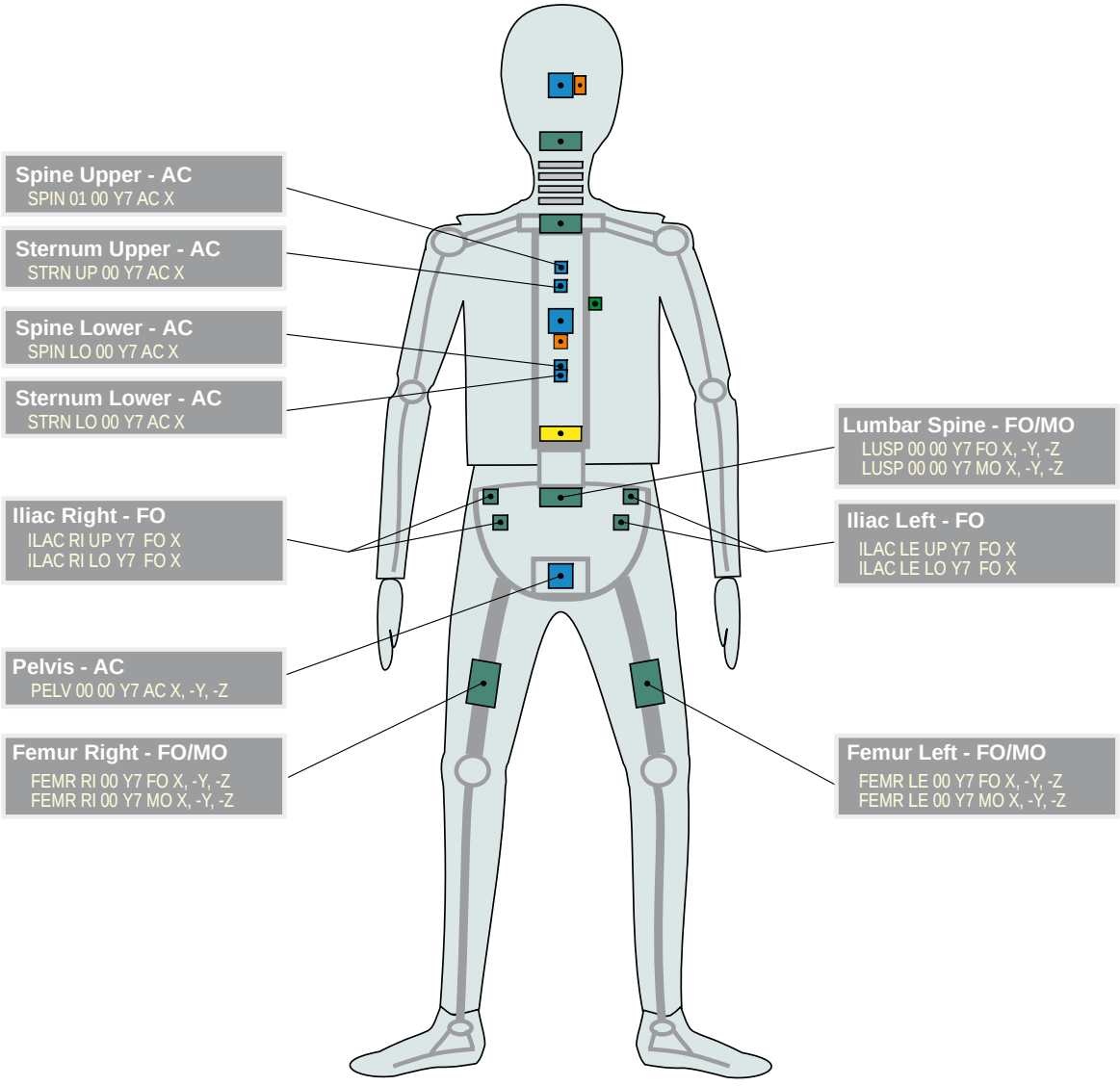
ISO/TS 13499 – RED C : 2010(E)
Y7, Hybrid III 6-Year Old Child Dummy
Standard Instrumentation
2013-04-10



Y7 H III - 6 year old (2)

Valid since Version **1.6.1**
NPRM Level "I"

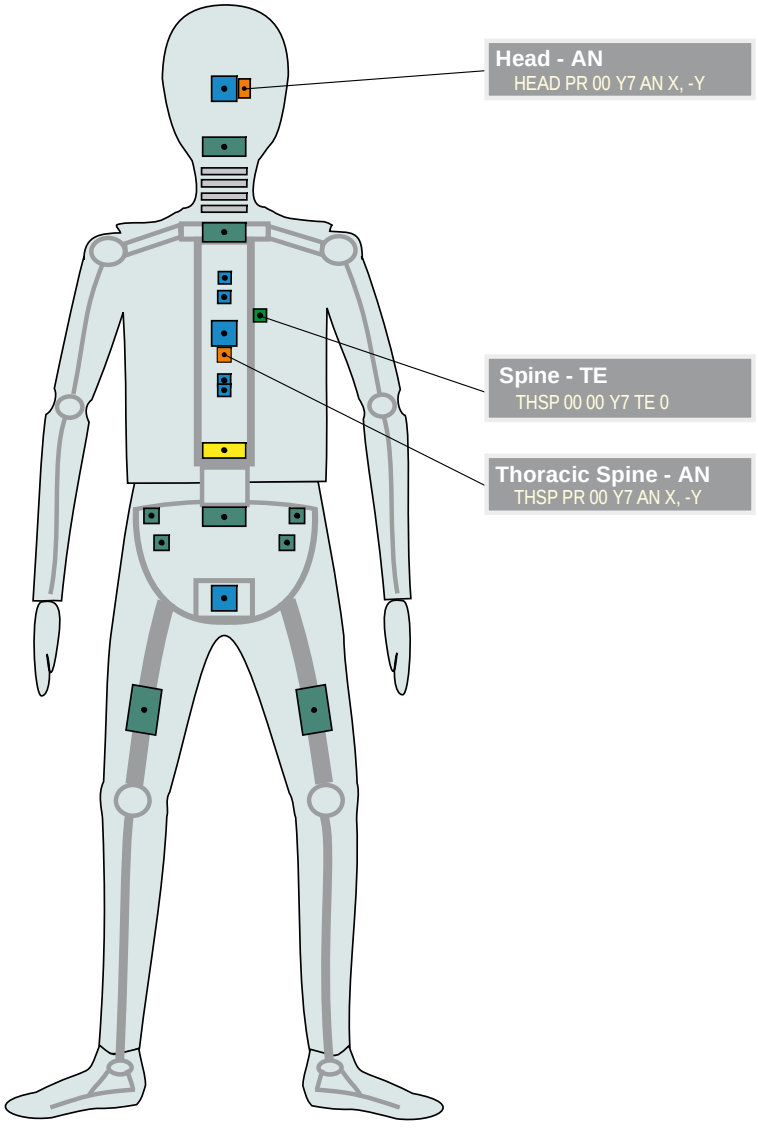
ISO/TS 13499 – RED C : 2010(E)
Y7, Hybrid III 6-Year Old Child Dummy
Additional Instrumentation
2013-04-10



Y7 H III - 6 year old (3)

Valid since Version **1.6.1**
NPRM Level "I"

ISO/TS 13499 – RED C : 2010(E)
Y7, Hybrid III 6-Year Old Child Dummy
Static measurements, other channels
2013-04-10

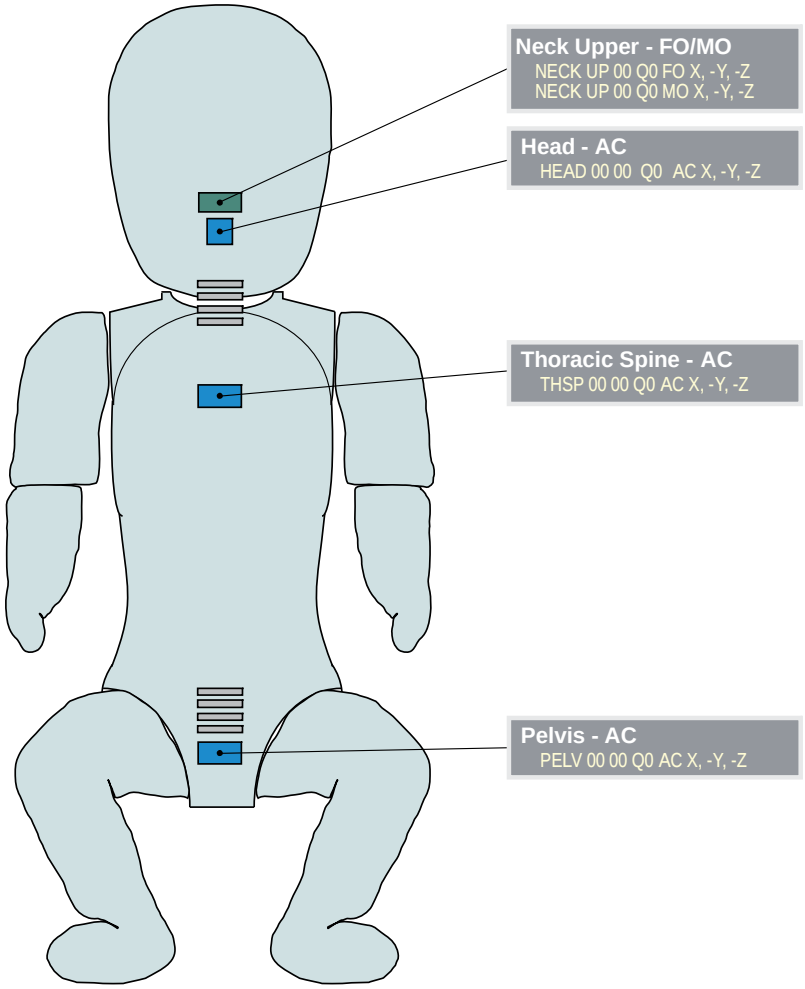


Q0 Q0 newborn

Valid since Version **1.6**

ISO/TS 13499 – RED C : 2012(E)
Q0, 6-week Old Infant Dummy

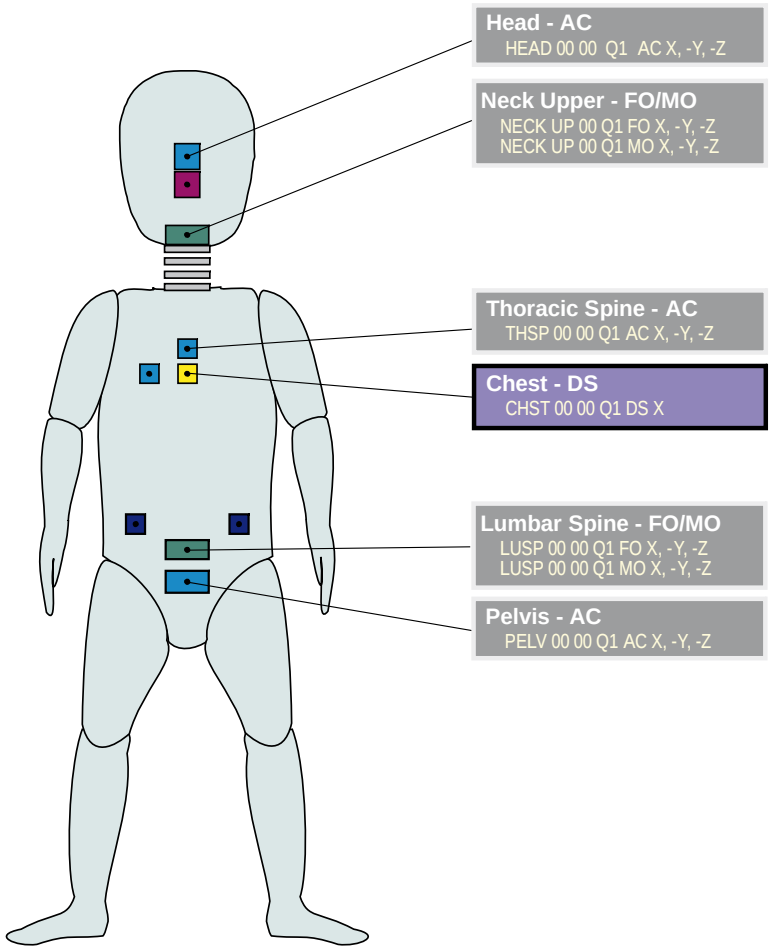
2012-01-24



Q1 Q1 (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q1, Advanced 1-year old Dummy
Standard Instrumentation
2013-02-14



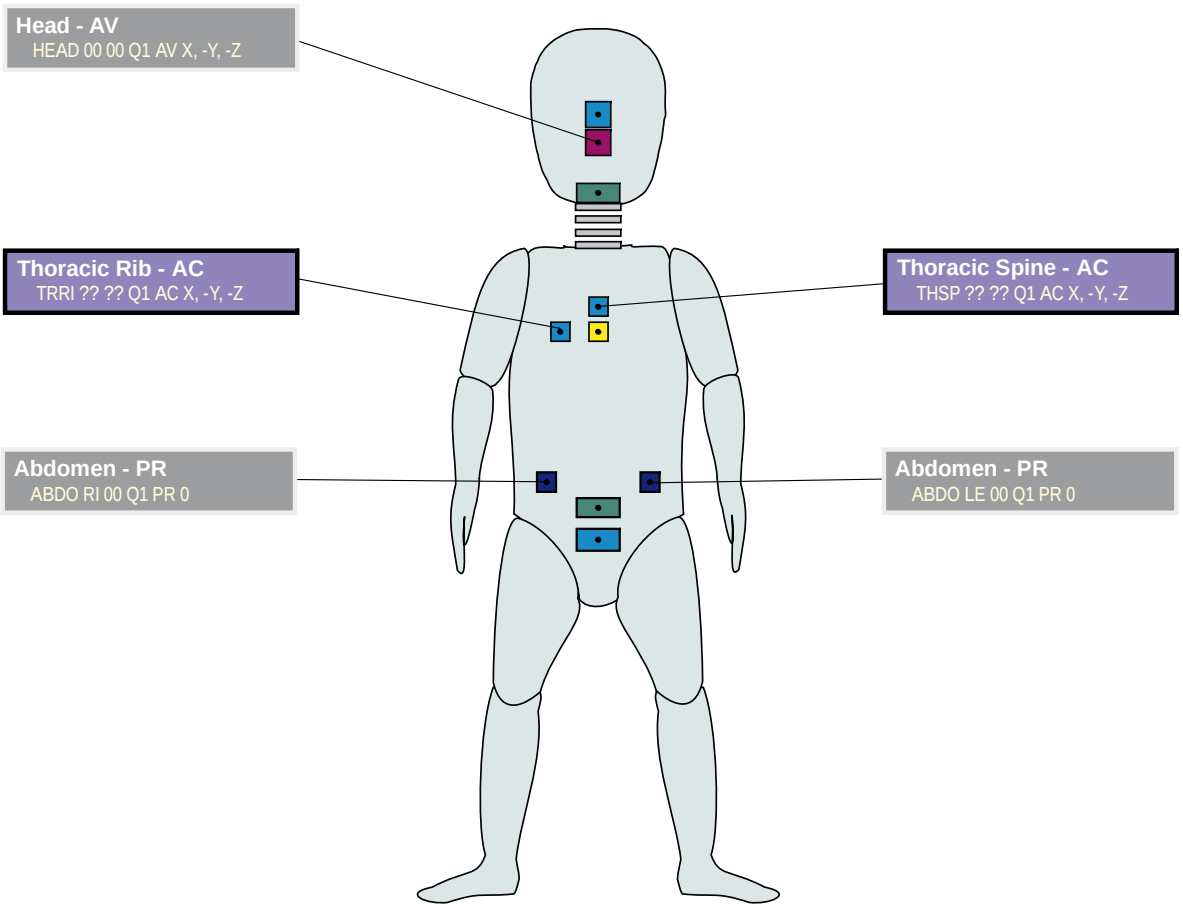
Frontal Impact

Note that sensor orientation is different for side impact configurations.
ISO Codes used must reflect the chosen orientation.
Left-hand side impact: CHST LE 00 Q1 DS Y.
Right-hand side impact: CHST RI 00 Q1 DS Y.

Q1 Q1 (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q1, Advanced 1-year old Dummy
Additional Instrumentation
2013-02-14

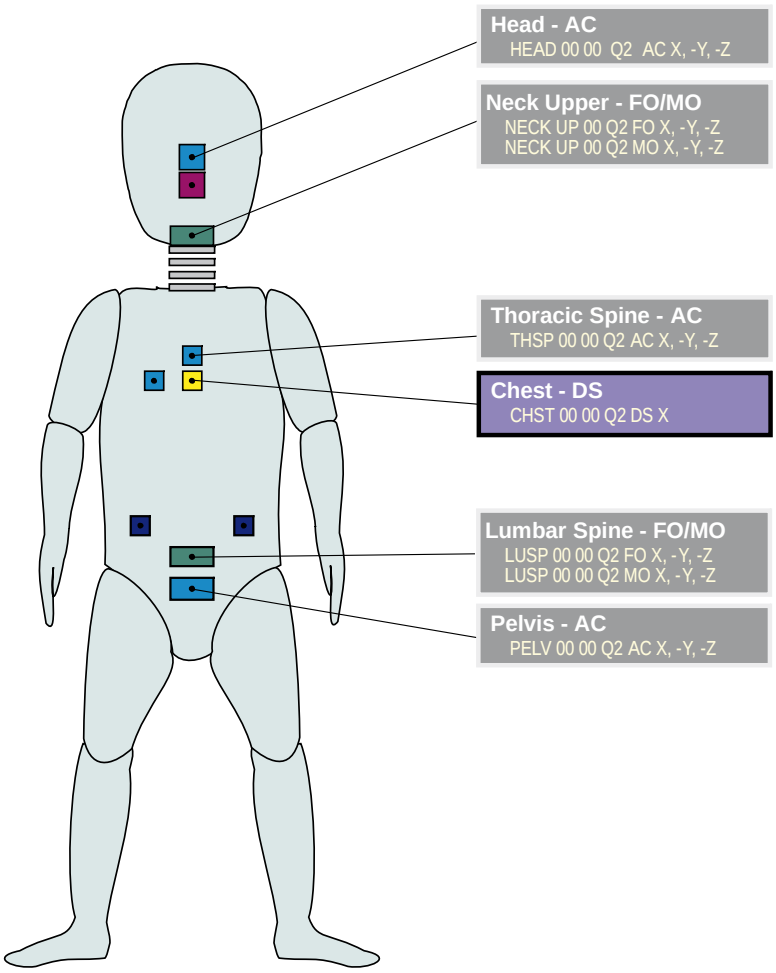


Note that sensor locations are not fixed: transducers are taped in position as required.
ISO Codes used must reflect the chosen position.
FL1 should reflect the side, LE or RI, for these channels, if used.

Q2 Q1 1/2 (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q2, Advanced 1.5-year old child dummy (Q1.5)
Standard Instrumentation
2013-02-14



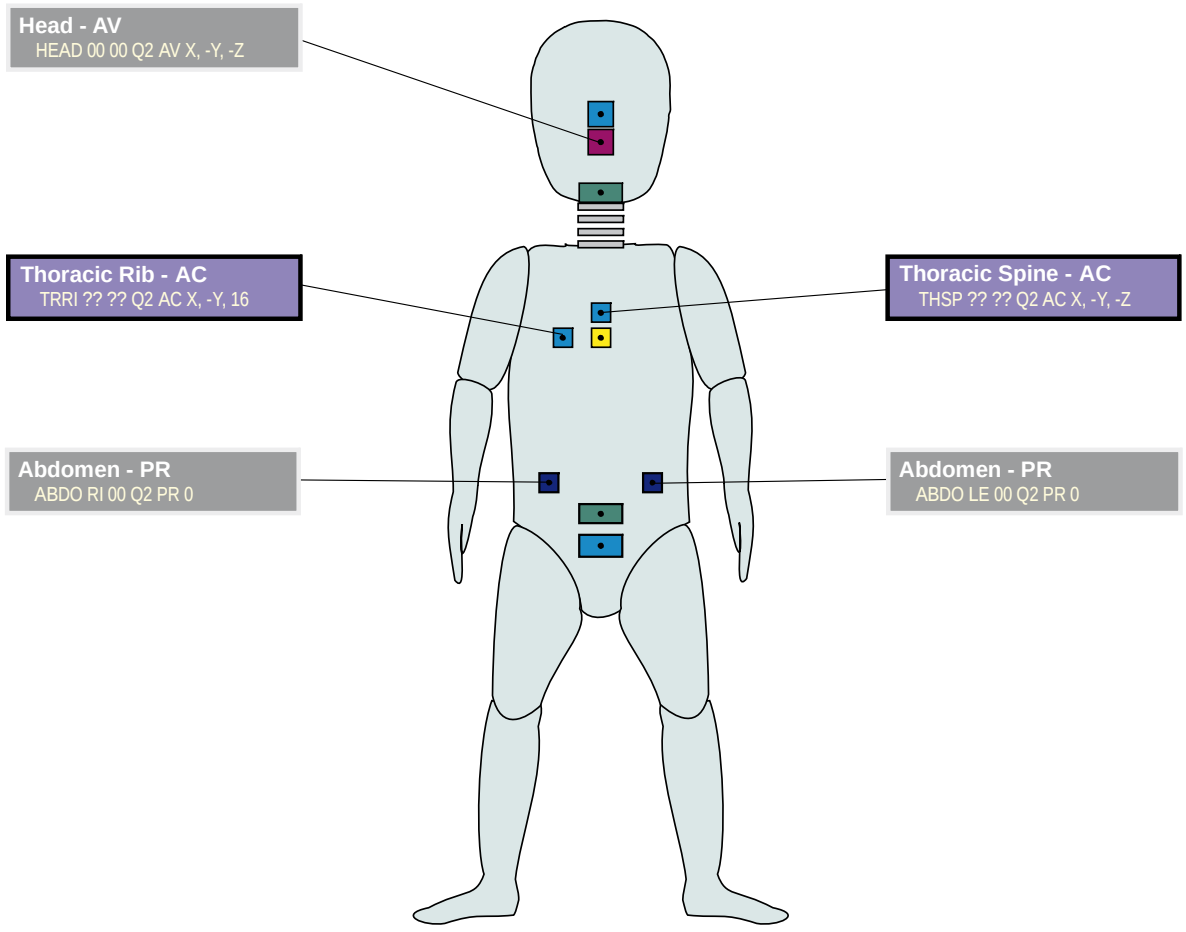
Frontal Impact

Note that sensor orientation is different for side impact configurations.
ISO Codes used must reflect the chosen orientation.
Left-hand side impact: CHST LE 00 Q2 DS Y.
Right-hand side impact: CHST RI 00 Q2 DS Y.

Q2 Q1 1/2 (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q2, Advanced 1.5-year old child dummy (Q1.5)
Additional Instrumentation
2013-02-14

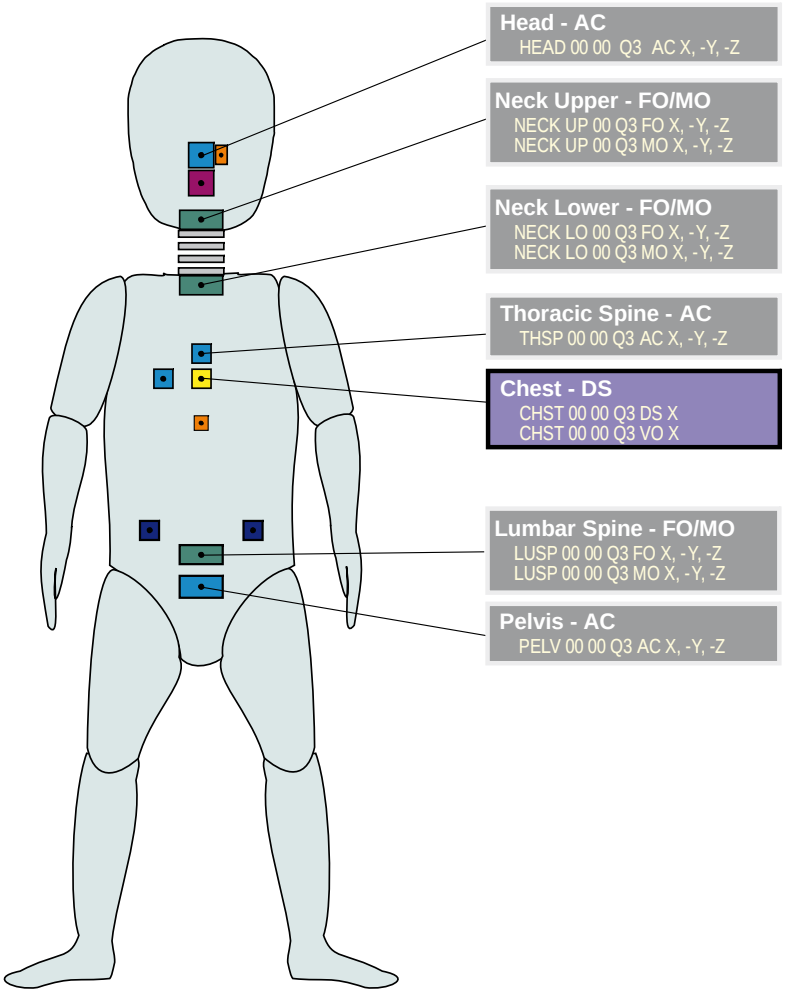


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q3 Q3 (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q3, Advanced 3-year old child dummy: frontal impact (Q3)
Standard Instrumentation
2013-03-05

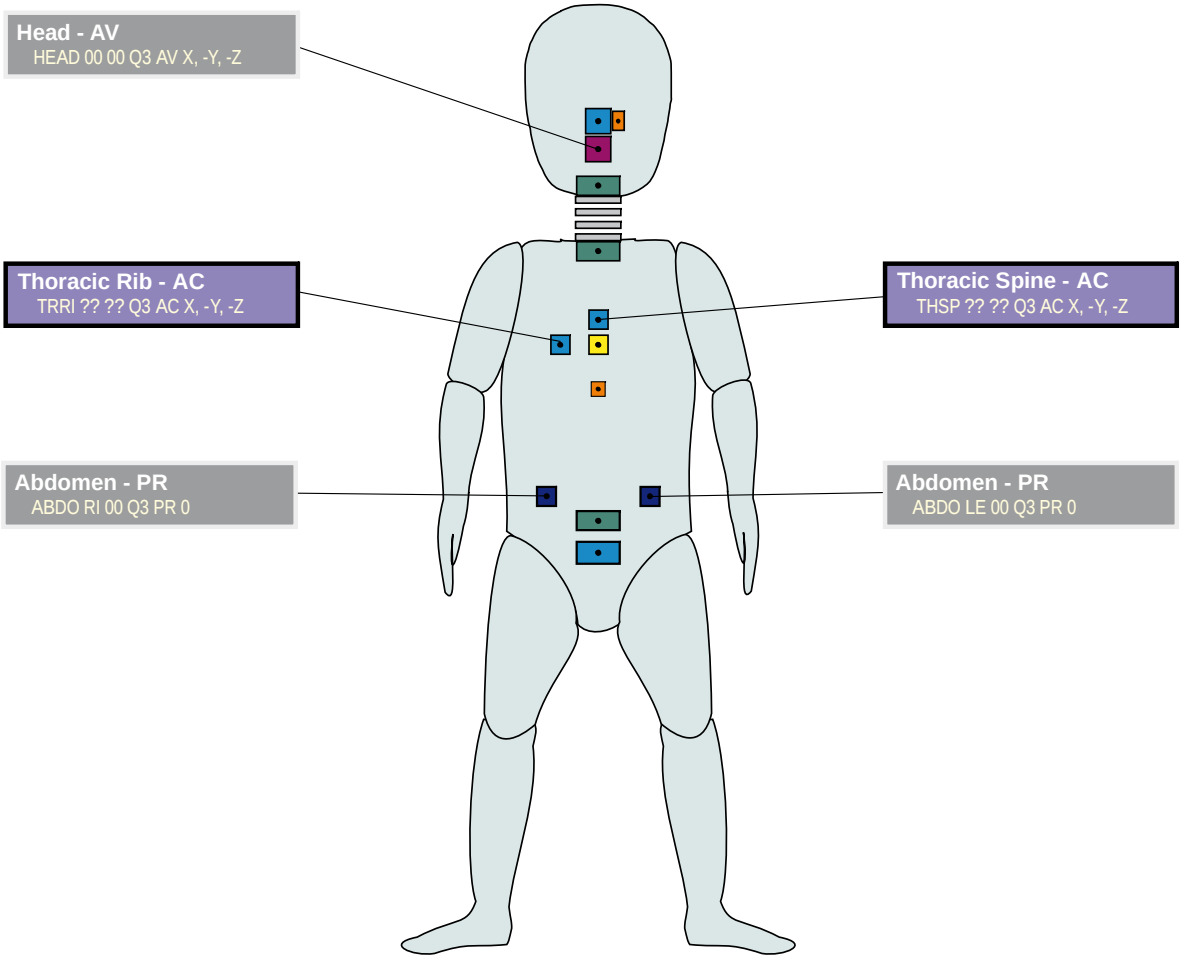


Note that the IR-TRACC device fitted to this dummy records a voltage.
It is more normal to exchange the displacement channel.

Q3 Q3 (2)

Valid since Version **1.6.1**

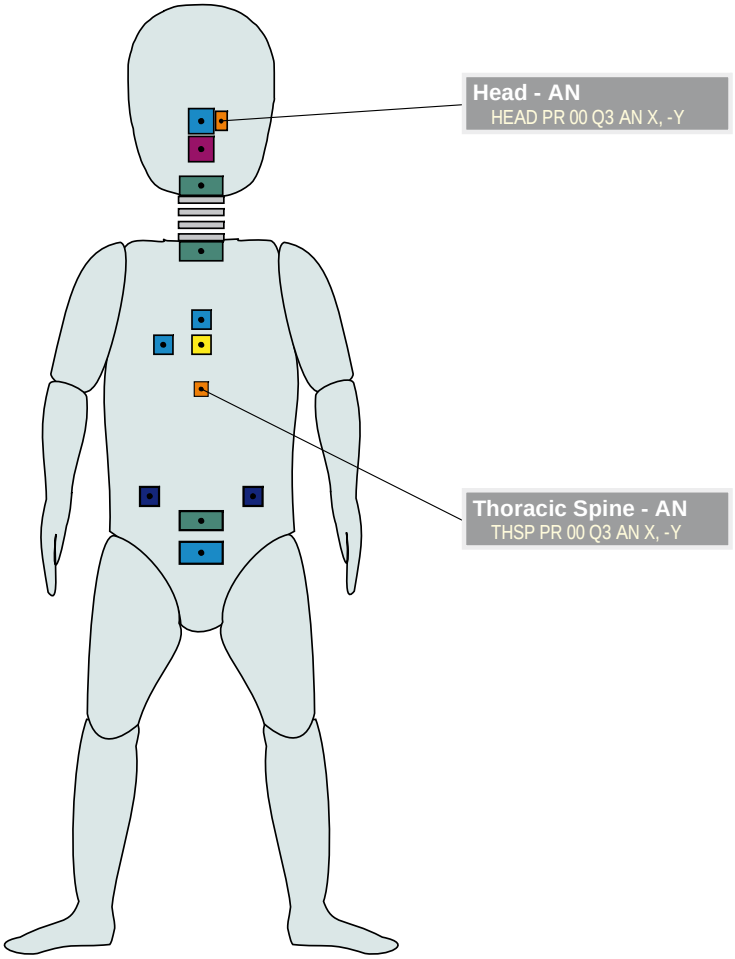
ISO/TS 13499 – RED C : 2012(E)
Q3, Advanced 3-year old child dummy: frontal impact (Q3)
Additional Instrumentation
2013-03-05



Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q3 **Q3 (3)** Valid since Version **1.6.1**

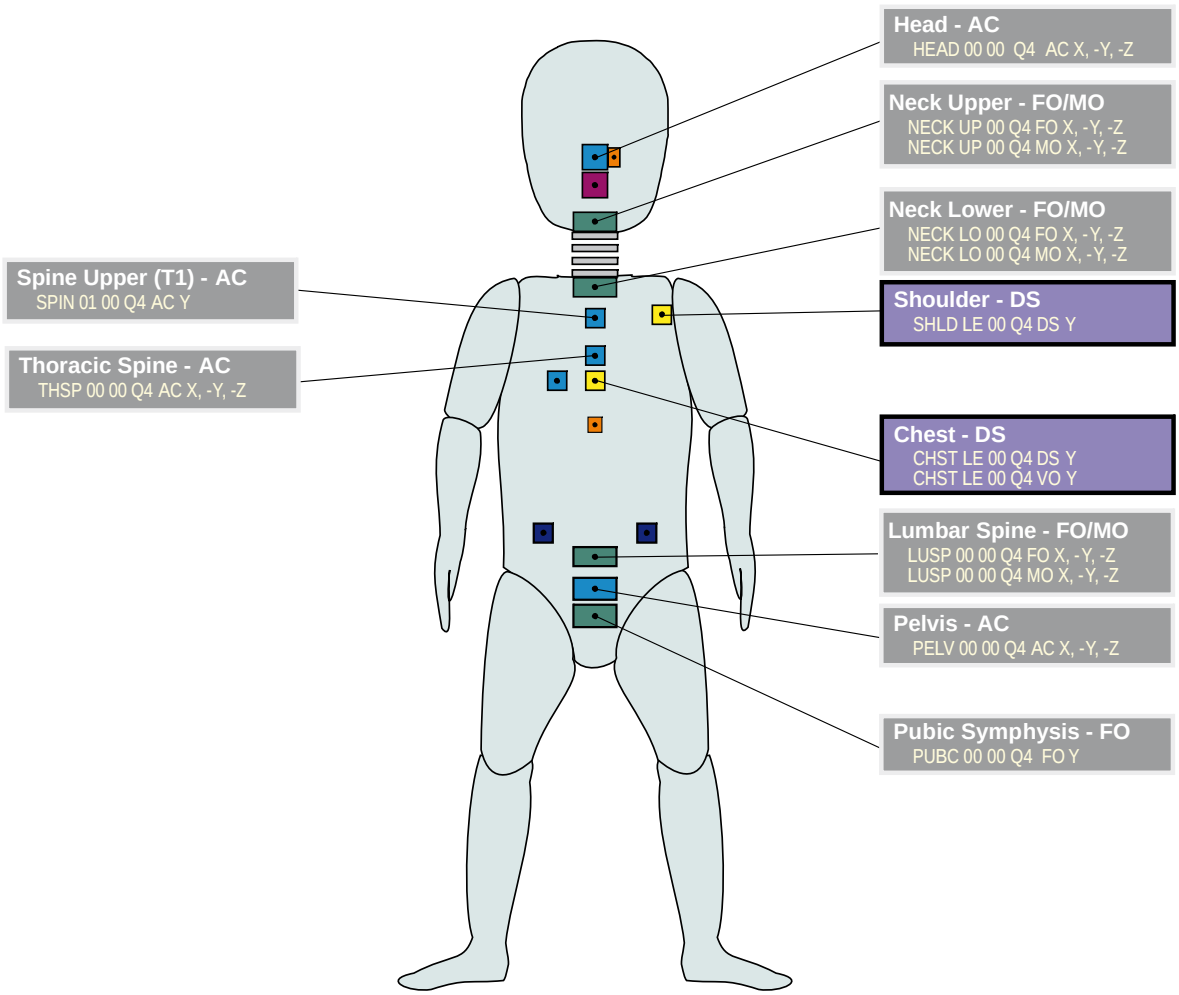
ISO/TS 13499 – RED C : 2012(E)
Q3, Advanced 3-year old child dummy: frontal impact (Q3)
Static measurements, other channels
2013-03-05



Q3s Q3s Side Impact (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Standard Instrumentation
2013-03-05



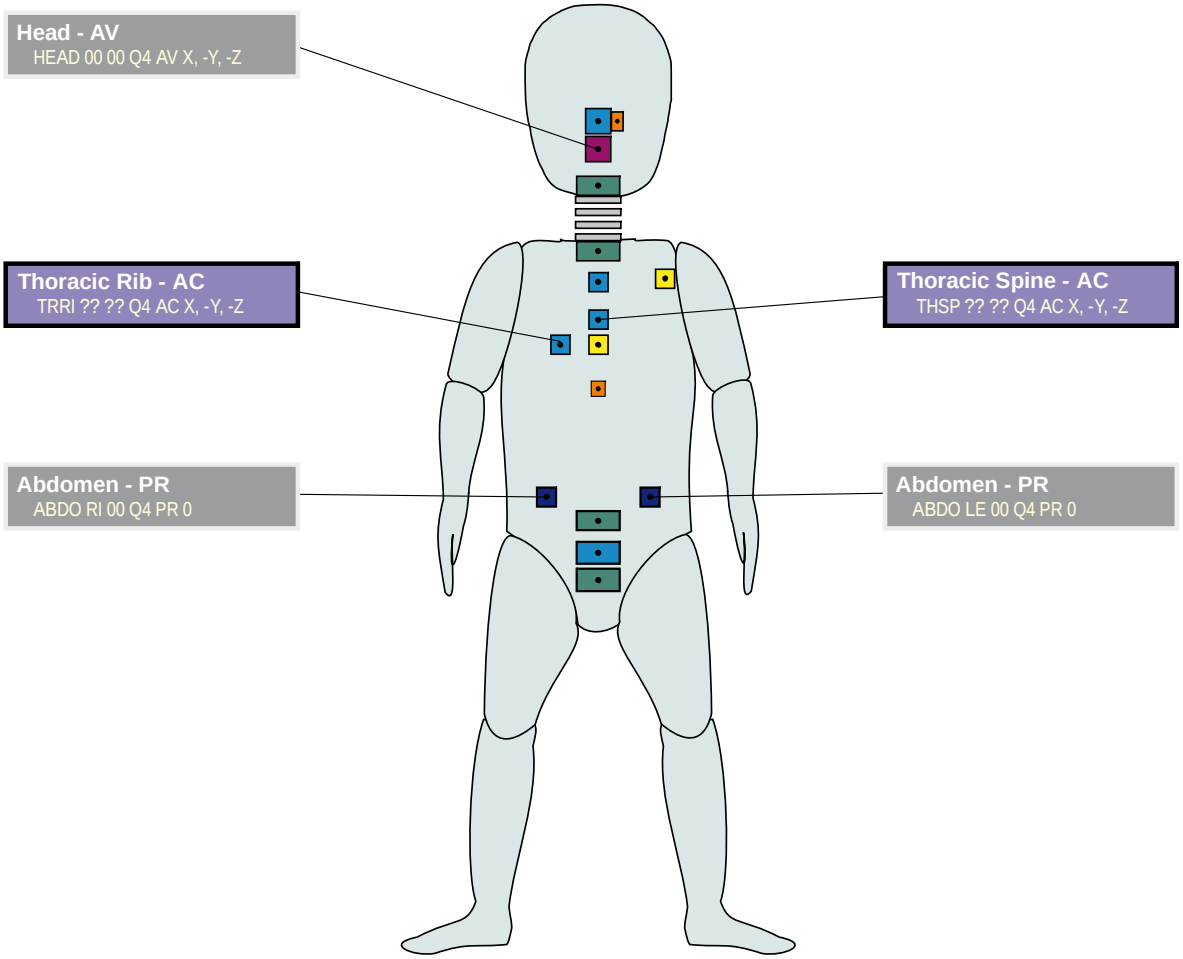
Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.
Note that the IR-TRACC device fitted to this dummy records a voltage.
It is more normal to exchange the displacement channel.

Q3s Q3s Side Impact (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Additional Instrumentation
2013-03-05

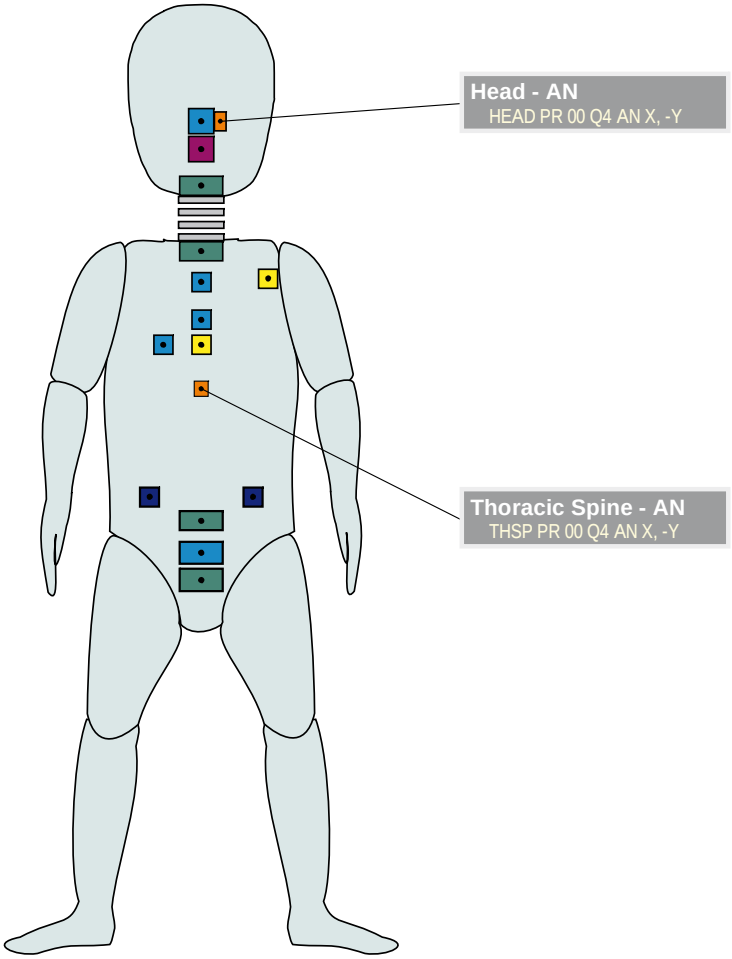


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q3s Q3s Side Impact (3)

Valid since Version **1.6.1**

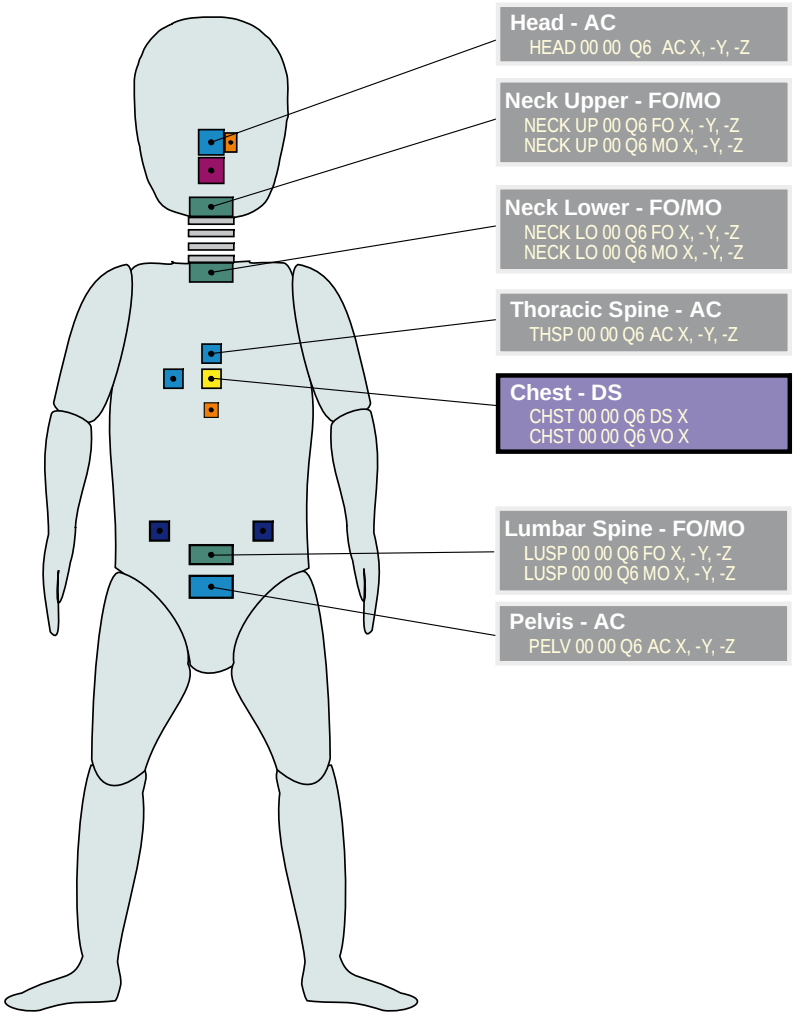
ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Static measurements, other channels
2013-03-05



Q6 Q6 (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q6, Advanced 6-year old child dummy
Standard Instrumentation
2013-03-05



Frontal Impact

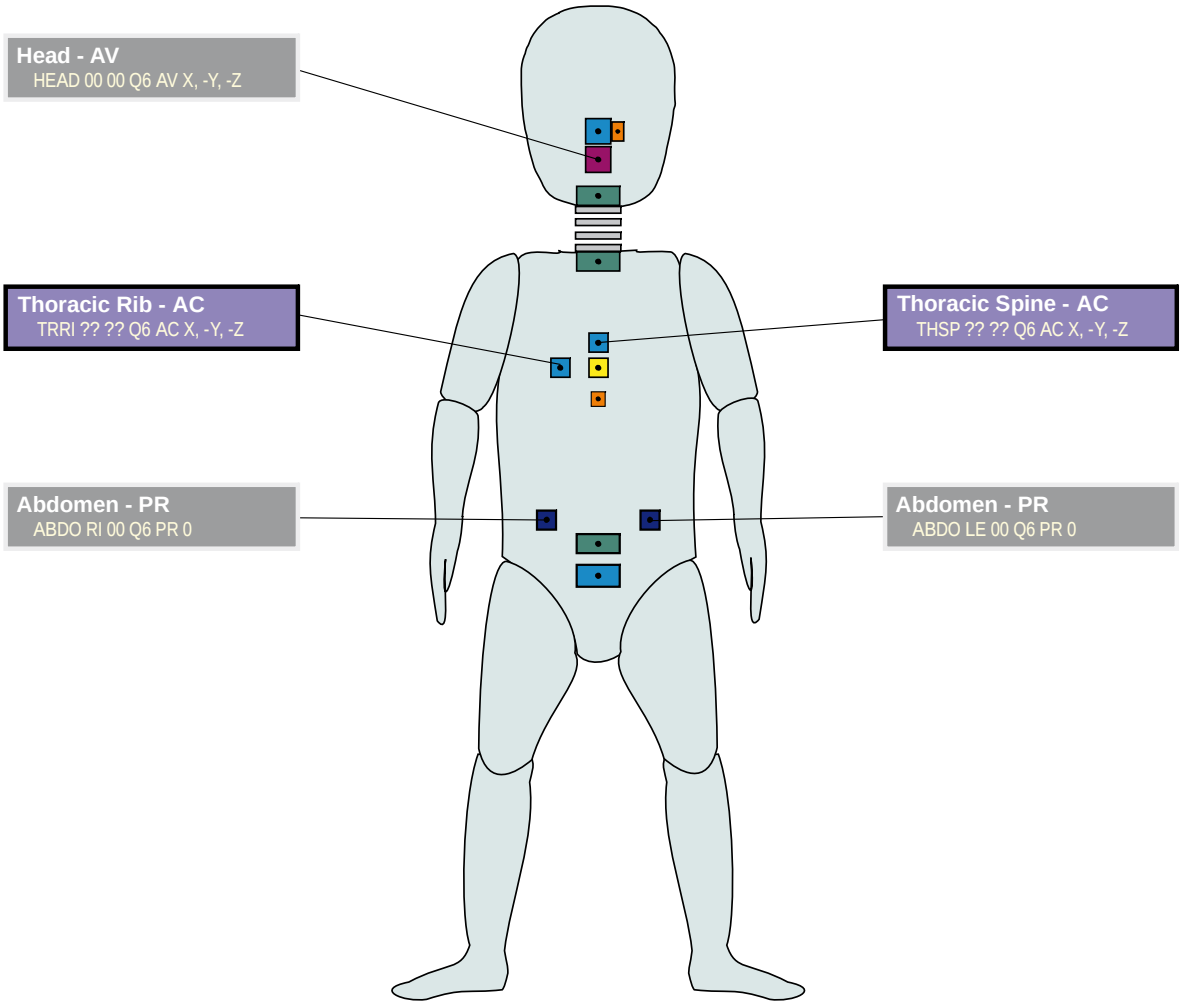
Note that sensor orientation is different for side impact configurations.
ISO Codes used must reflect the chosen orientation.
Left-hand side impact: CHST LE 00 Q6 DS Y and CHST LE 00 Q6 VO Y.
Right-hand side impact: CHST RI 00 Q6 DS Y and CHST RI 00 Q6 VO Y..

Note that the IR-TRACC device fitted to this dummy records a voltage.
It is more normal to exchange the displacement channel.

Q6 Q6 (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
Q6, Advanced 6-year old child dummy
Additional Instrumentation
2013-03-05

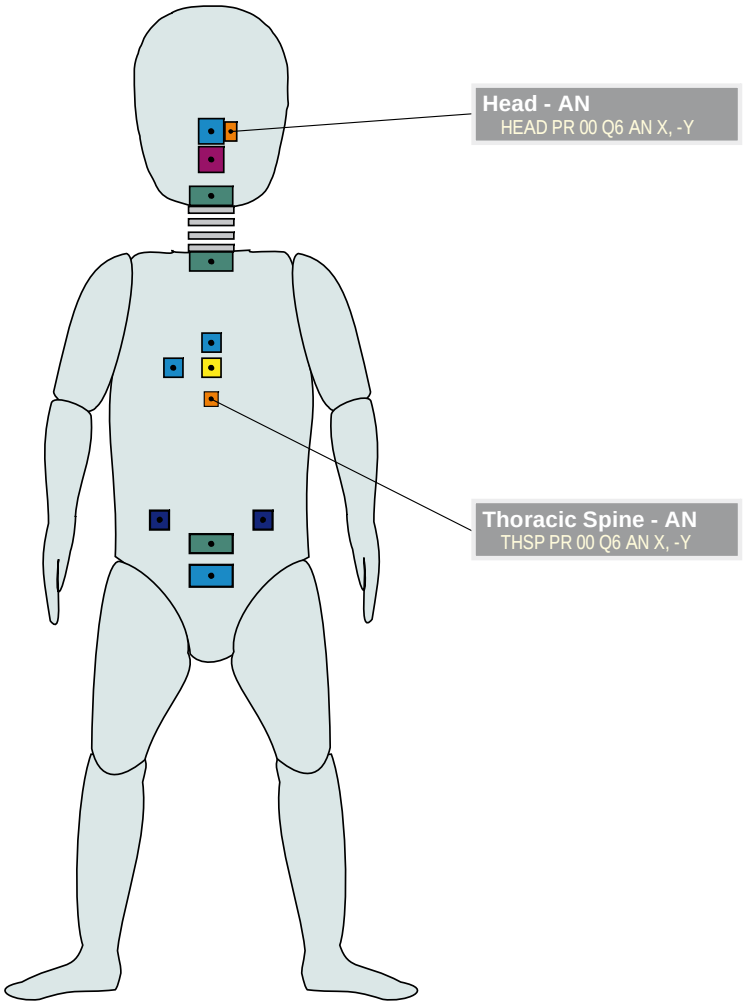


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q6 Q6 (3)

Valid since Version **1.6.1**

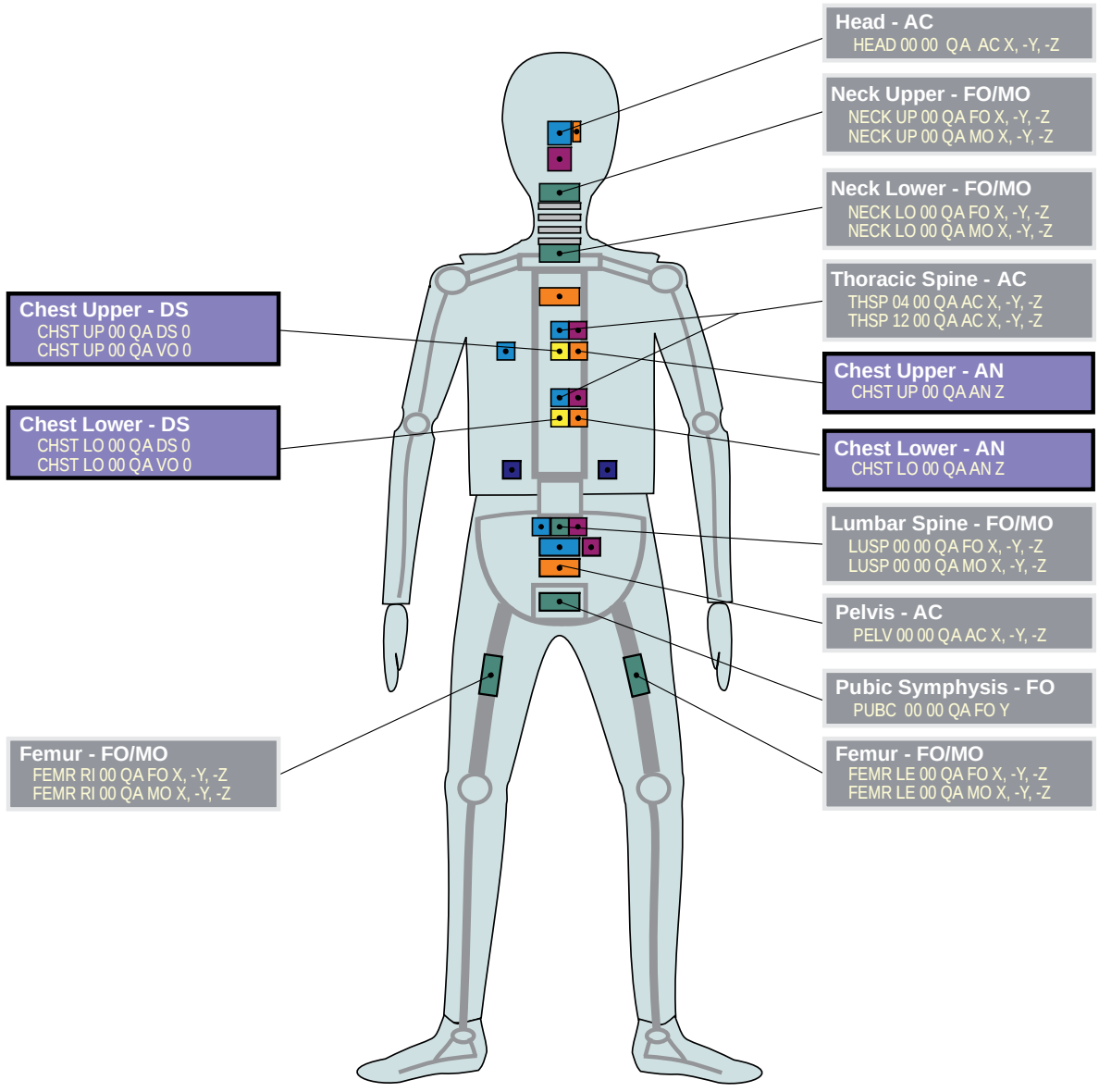
ISO/TS 13499 – RED C : 2012(E)
Q6, Advanced 6-year old child dummy
Static measurements, other channels
2013-03-05



Q10 Q10 (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2010(E)
QA, Advanced 10-year old child dummy
Standard Instrumentation
2014-03-07



Frontal Impact

Note that sensor orientation is different for side impact configurations. ISO Codes used must reflect the chosen orientation.

Left-hand side impact: CHST LE UP QA DS 0, CHST LE UP QA VO 0, CHST LE LO QA DS 0, CHST LE LO QA VO 0, CHST LE UP QA AN Z and CHST LE LO QA AN Z .

Right-hand side impact: CHST RI UP QA DS 0, CHST RI UP QA VO 0, CHST RI LO QA DS 0, CHST RI LO QA VO 0, CHST RI UP QA AN Z and CHST RI LO QA AN Z .

Note that the IR-TRACC device fitted to this dummy records a voltage.
It is more normal to exchange the displacement channel.

ISO-QA_20140307

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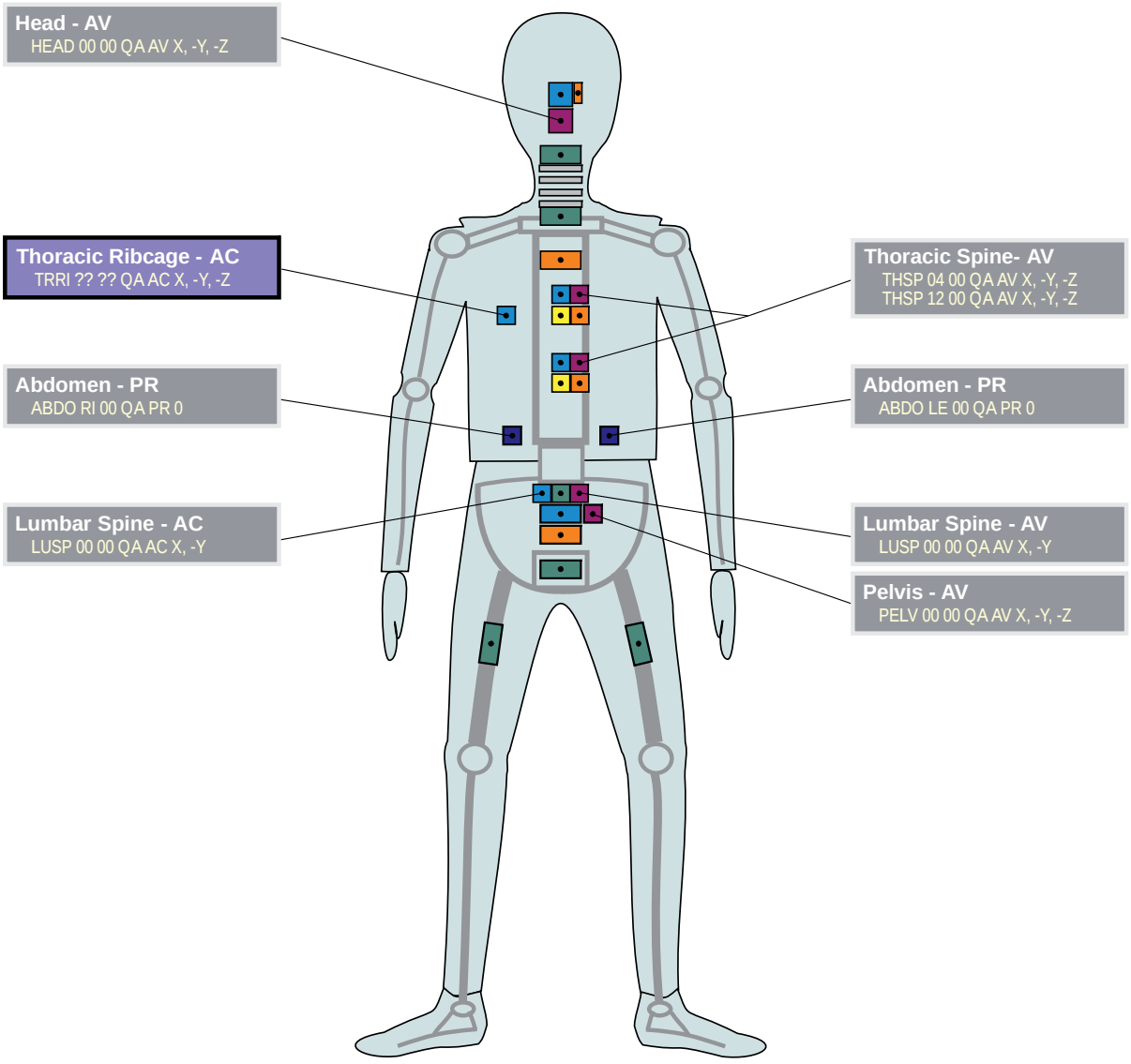
ISO_QA_1_161_20140307.EMF

-> Q10 <- 1 of 3

Q10 Q10 (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2010(E)
QA, Advanced 10-year old child dummy
Additional Instrumentation
2014-03-07

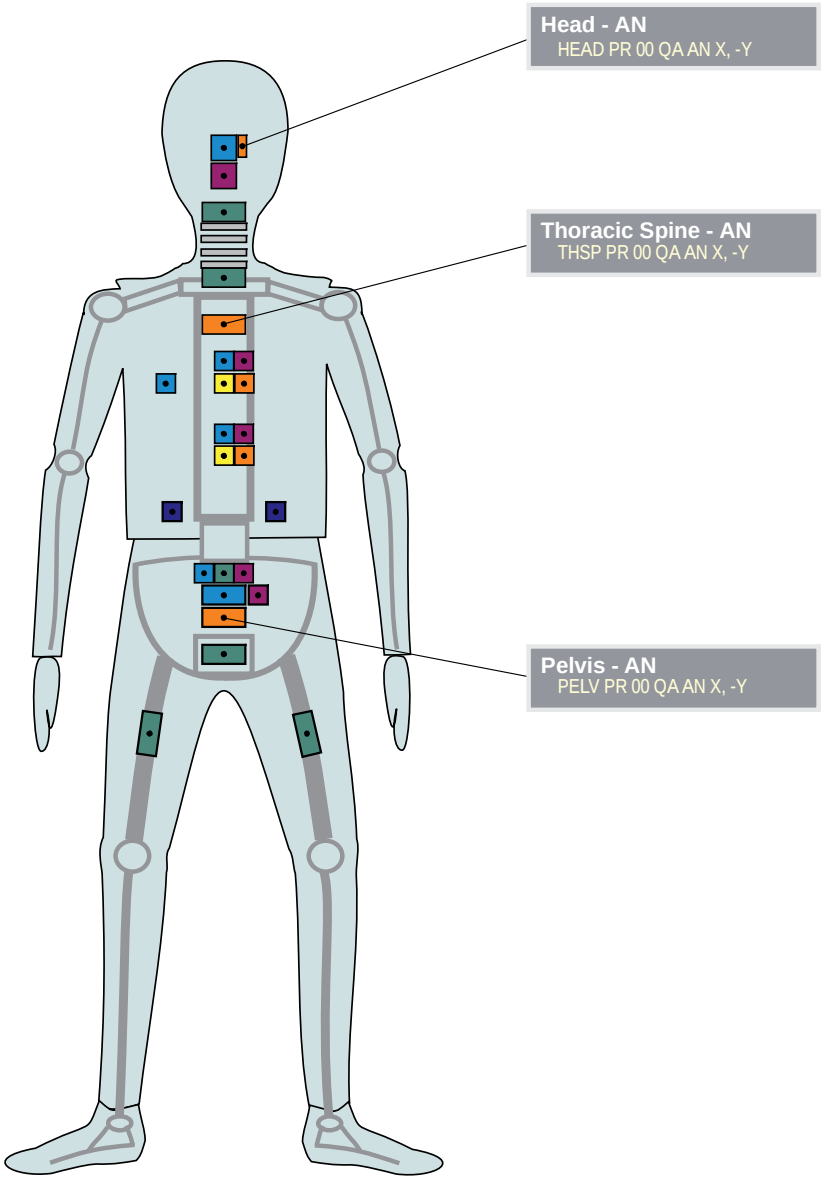


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q10 Q10 (3)

Valid since Version **1.6.1**

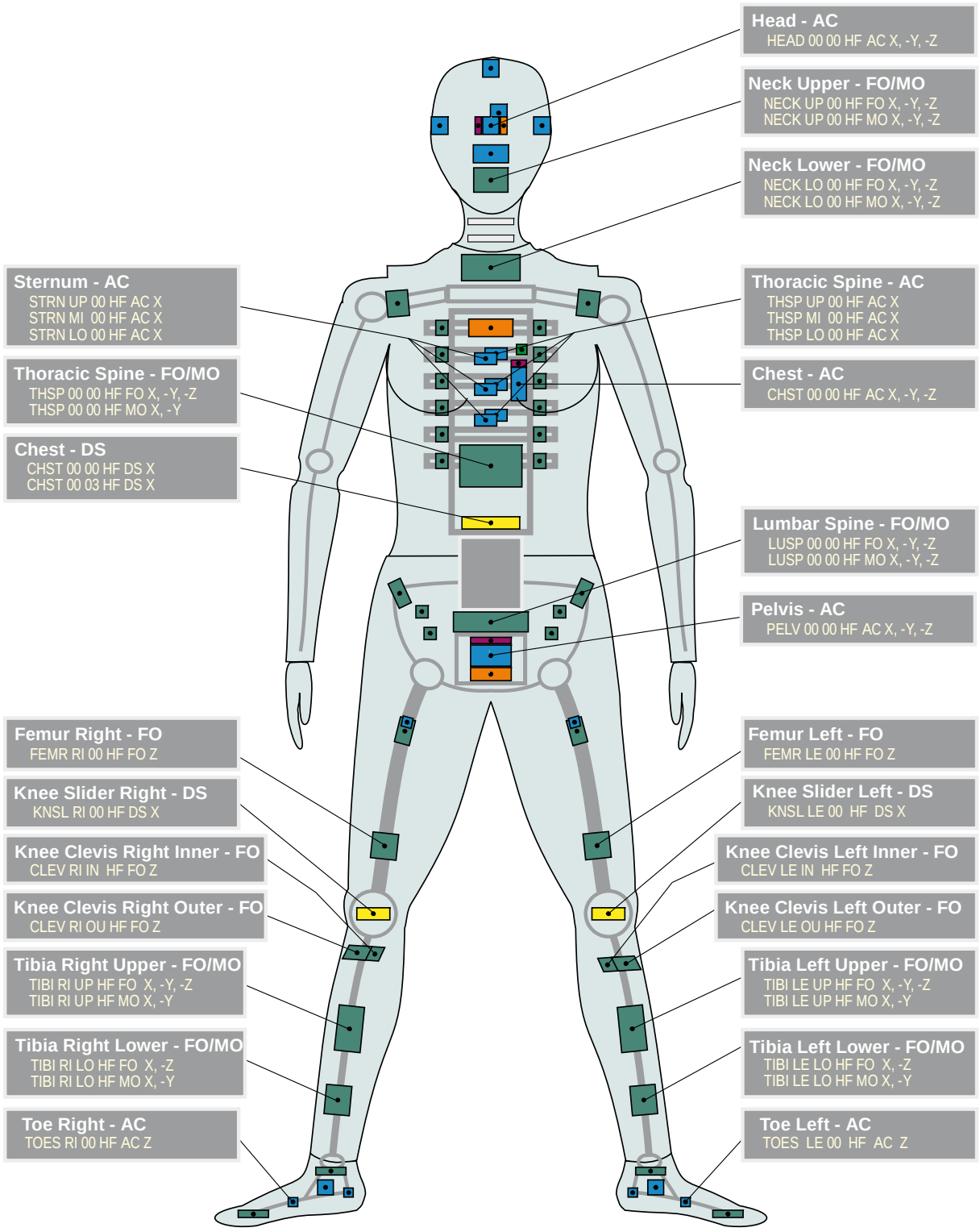
ISO/TS 13499 – RED C : 2010(E)
QA, Advanced 10-year old child dummy
Static measurements, other channels
2014-03-07



HF Hybrid III 5% Female (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
HF, Hybrid III 5% female
Standard Instrumentation
2013-04-10



ISO-HF_20130410

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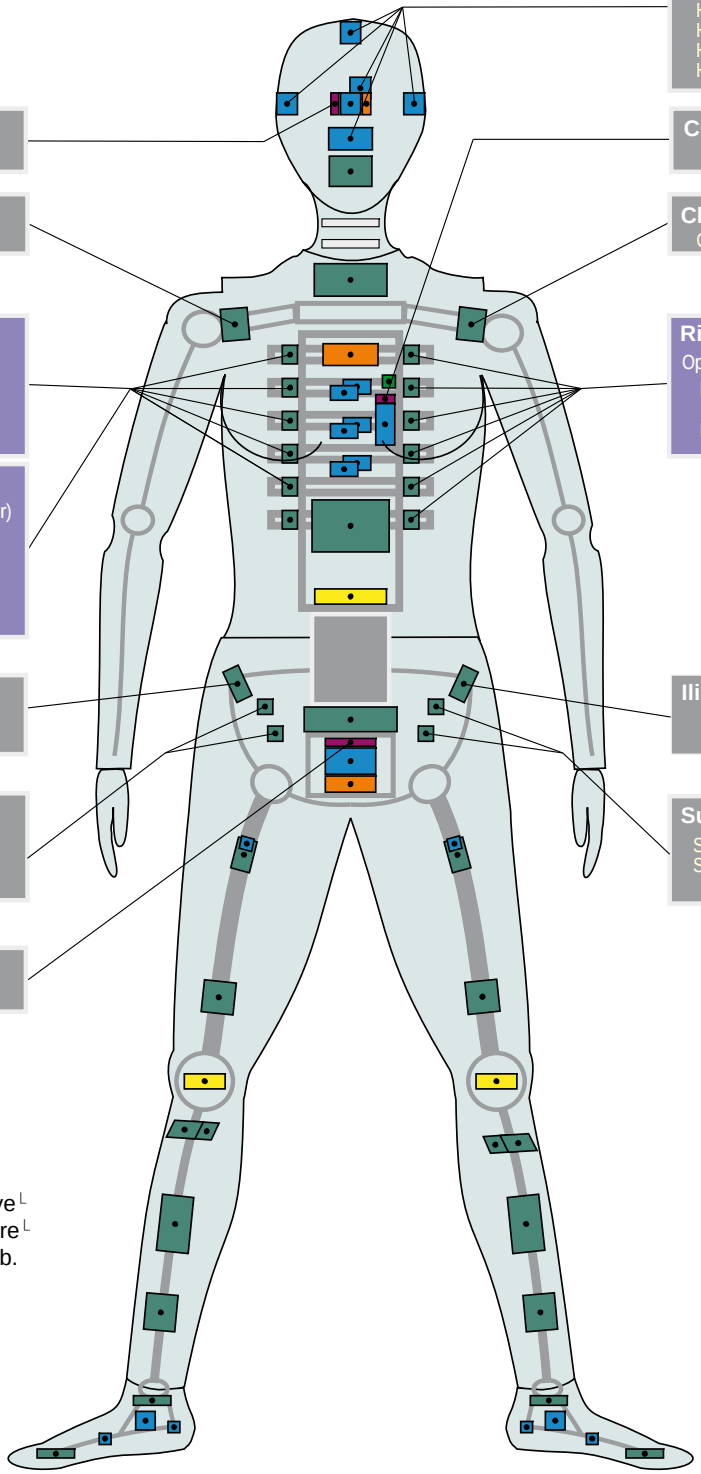
ISO_HF_1_161_20130410.EMF

-> HF <- 1 of 5

HF Hybrid III 5% Female (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
HF, Hybrid III 5% female
Additional Instrumentation - Head, Torso and Pelvis
2013-04-10



Head - AC
HEAD LE 00 HF AC X, -Y, -Z
HEAD RI 00 HF AC X, -Y, -Z
HEAD UP 00 HF AC X, -Y, -Z
HEAD FR 00 HF AC X, -Y, -Z
HEAD RE 00 HF AC X, -Y, -Z

Head - AV
HEAD 00 00 HF AV X, -Y, -Z

Chest - AV
CHST 00 00 HF AV X, -Y, -Z

Clavicle Right - FO
CLAV RI 00 HF FO X, -Z

Clavicle Left - FO
CLAV LE 00 HF FO X, -Z

Ribs Right - FO
Option A (Denton transducer)
RIBS RI 01 HF FO X
...
RIBS RI 06 HF FO X

Ribs Left - FO
Option A (Denton transducer)
RIBS LE 01 HF FO X
...
RIBS LE 06 HF FO X

Ribs - FO/MO
Option B (Humanetics transducer)
RIBS 01 00 HF FO X, -Y, -Z
RIBS 01 00 HF MO Y
...
RIBS 06 00 HF FO X, -Y, -Z
RIBS 06 00 HF MO Y

Iliac - FO/MO
ILAC RI 00 HF FO X
ILAC RI 00 HF MO Y

Iliac - FO/MO
ILAC LE 00 HF FO X
ILAC LE 00 HF MO Y

Submarining Right - FO
SUMA RI UP HF FO X
SUMA RI LO HF FO X

Submarining Left - FO
SUMA LE UP HF FO X
SUMA LE LO HF FO X

Pelvis- AV
PELV 00 00 HF AV X, -Y, -Z

Note that two alterative loadcell assemblies are available for the HF rib.

ISO-HF_20130410

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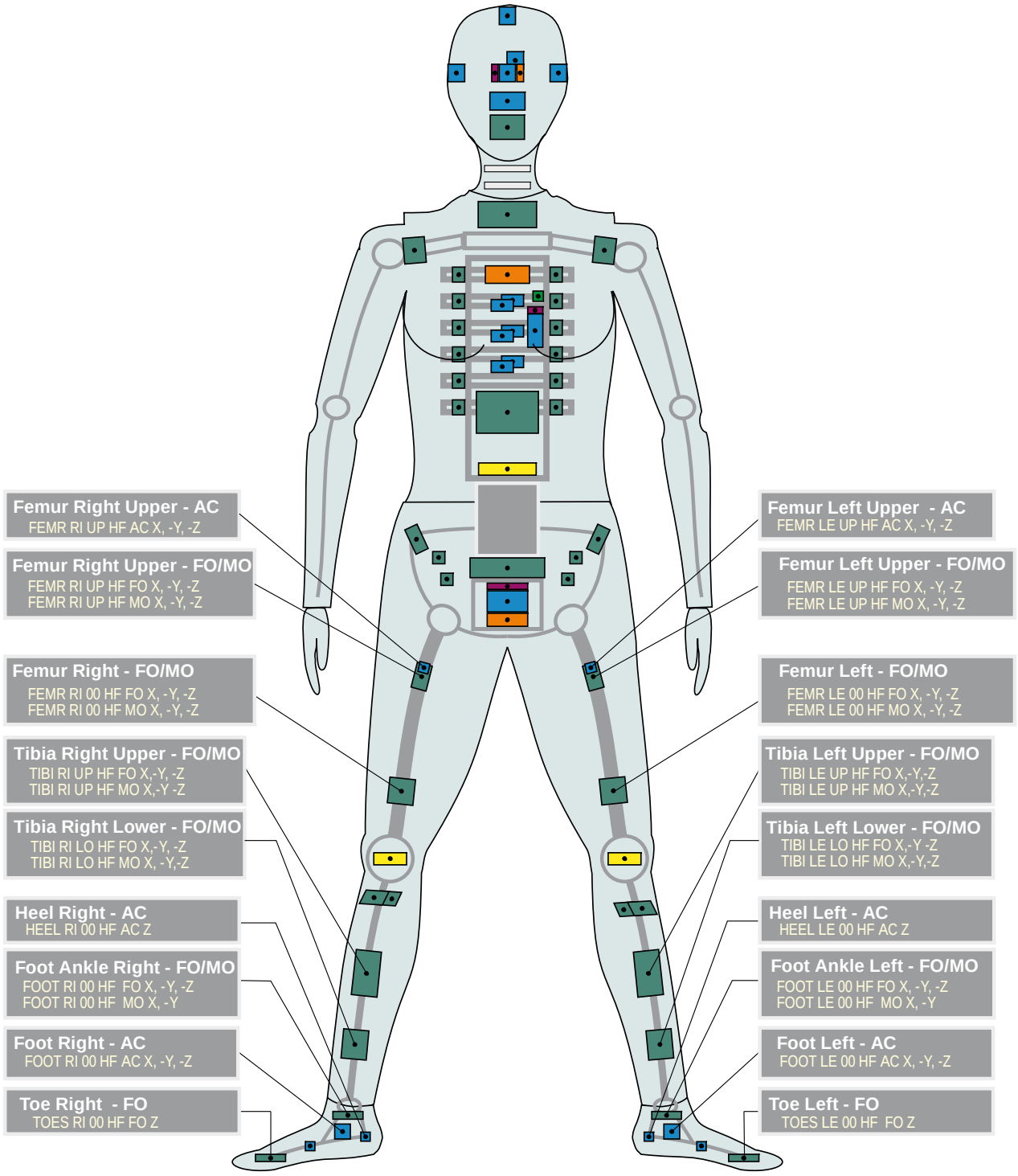
HF Hybrid III 5% Female (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
HF, Hybrid III 5% female
Additional Instrumentation - Legs
2013-04-10



ISO-HF_20130410

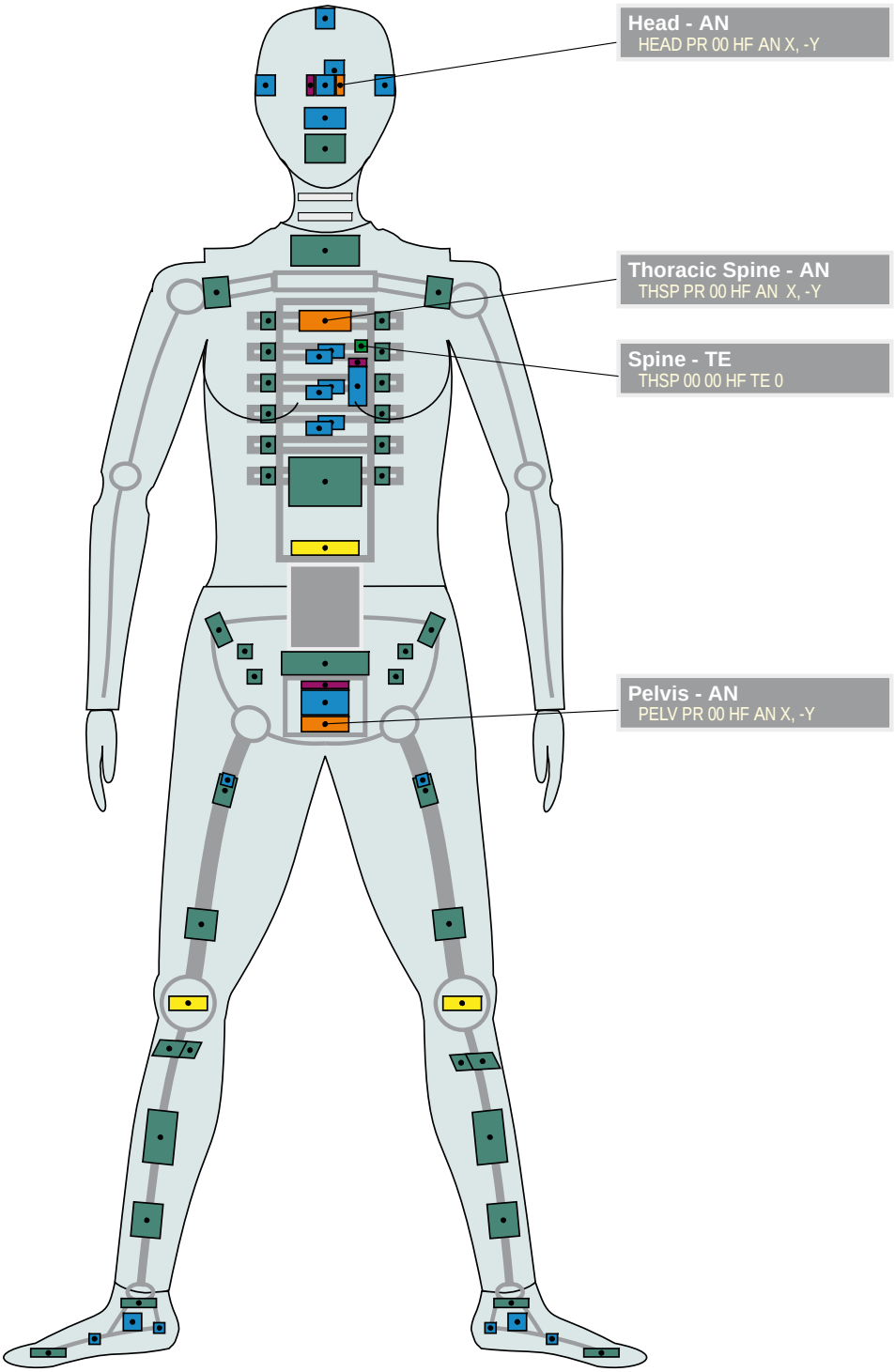
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_HF_3_161_20130410.EMF

HF Hybrid III 5% Female (4)

Valid since Version **1.6.1**

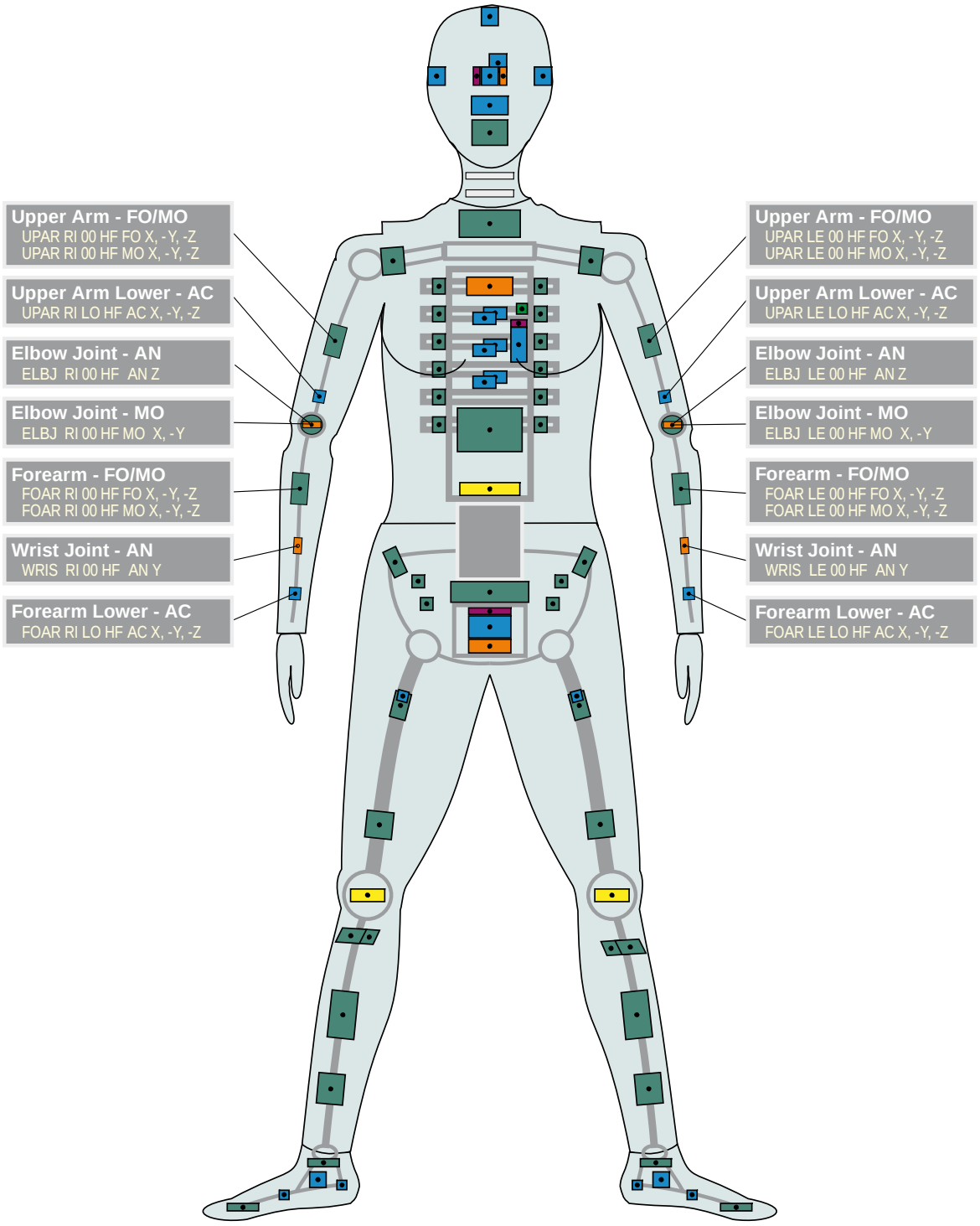
ISO/TS 13499 – RED C : 2012(E)
HF, Hybrid III 5% female
Static measurements, other channels
2013-04-10



HF Hybrid III 5% Female (5)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
HF, Hybrid III 5% female
Additional Instrumentation: Instrumented arm
2013-04-10



ISO-HF_20130410

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

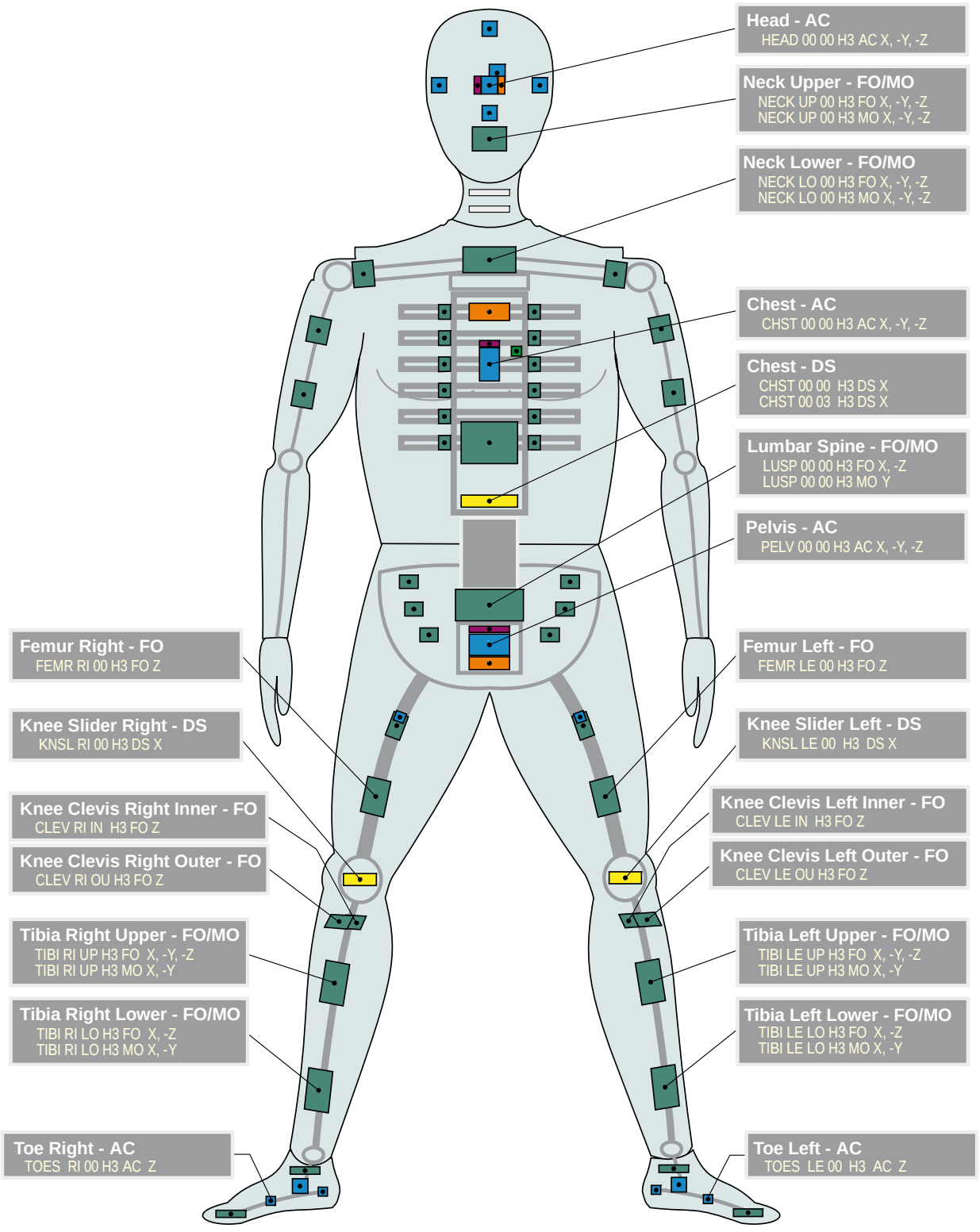
ISO_HF_5_161_20130410.EMF

-> HF <- 5 of 5

H3 Hybrid III 50% Male (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
H3, Hybrid III 50% male
Standard Instrumentation
2013-04-10



ISO-H3_20130410

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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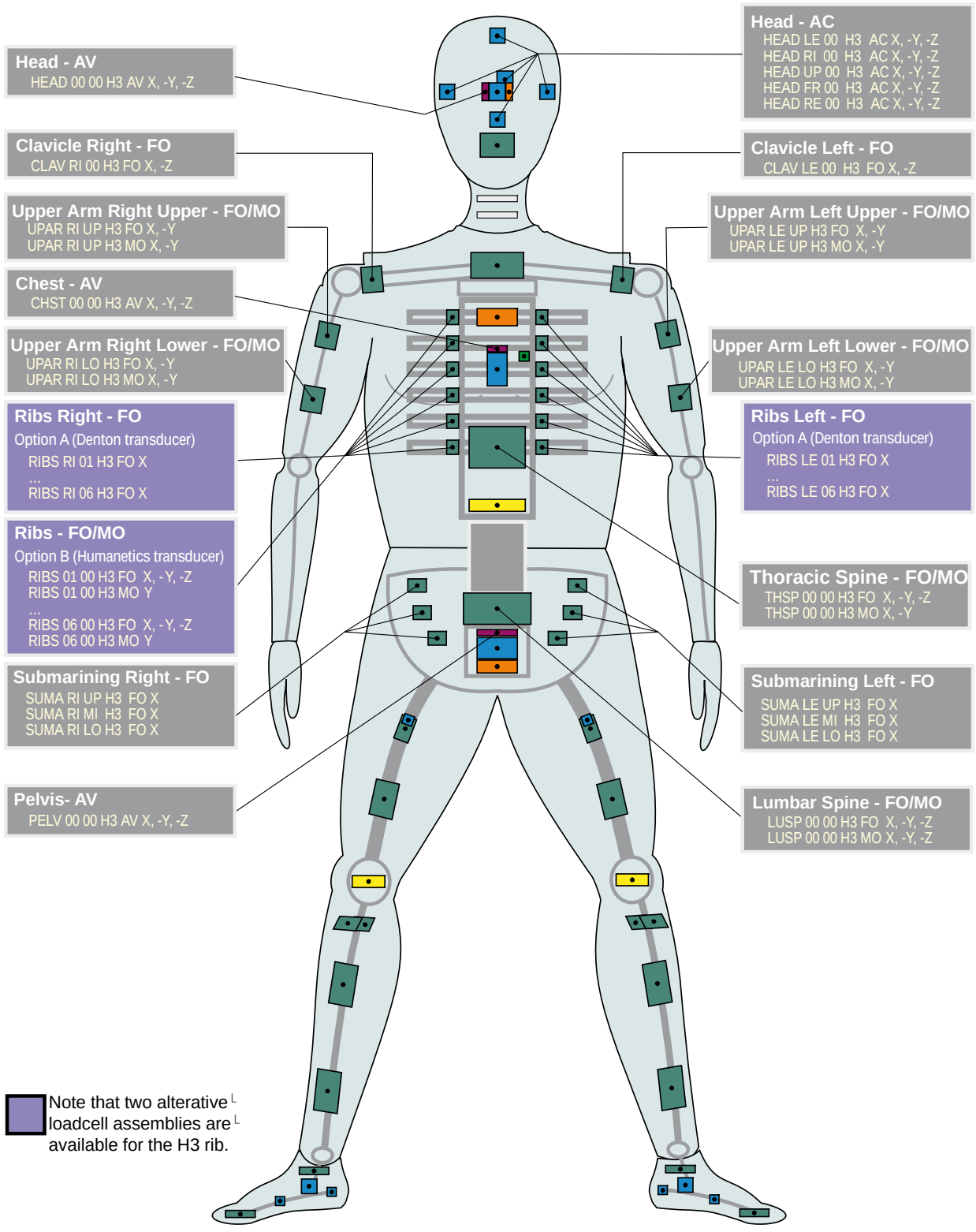
ISO_H3_1_161_20130410.EMF

-> H3 <- 1 of 4

H3 Hybrid III 50% Male (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
H3, Hybrid III 50% male
Additional Instrumentation - Head, Torso and Pelvis
2013-04-10



ISO-H3_20130410

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

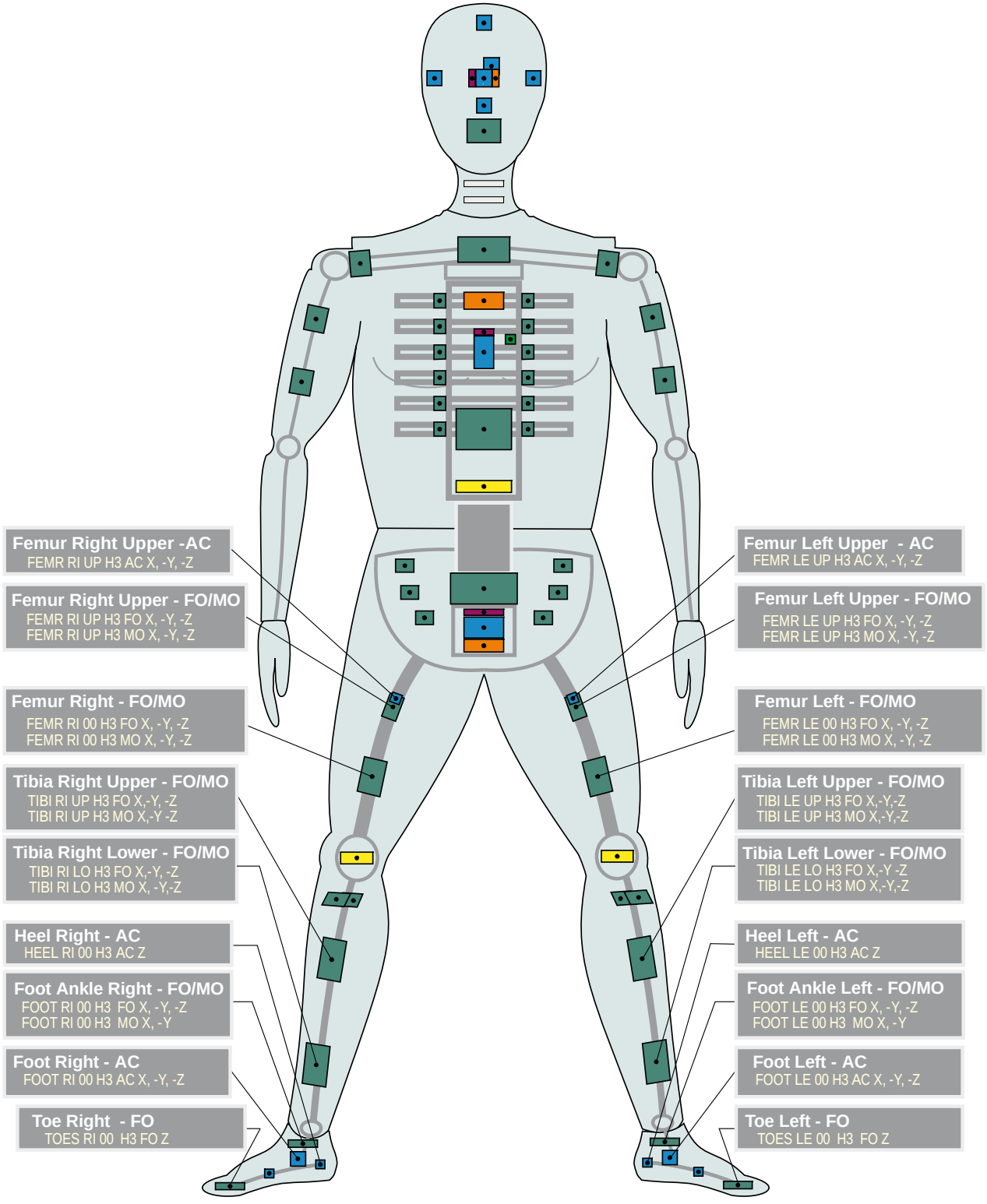
ISO_H3_2_161_20130410.EMF

-> H3 <- 2 of 4

H3 Hybrid III 50% Male (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
H3, Hybrid III 50% male
Additional Instrumentation - Legs
2013-04-10



ISO-H3_20130410

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

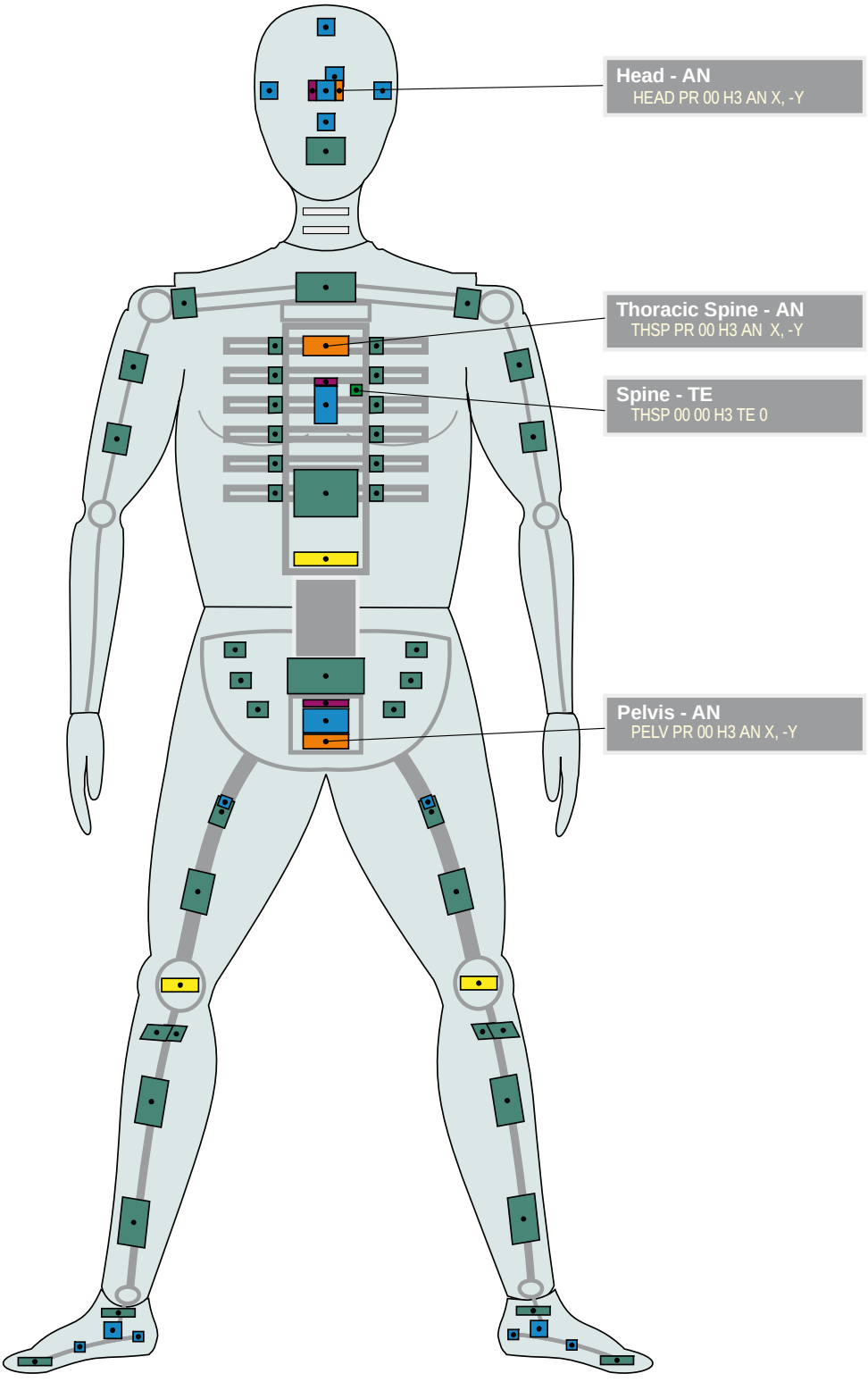
ISO_H3_3_161_20130410.EMF

-> H3 <- 3 of 4

H3 Hybrid III 50% Male (4)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
H3, Hybrid III 50% male
Static measurements, other channels
2013-04-10



ISO-H3_20130410

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_H3_4_161_20130410.EMF

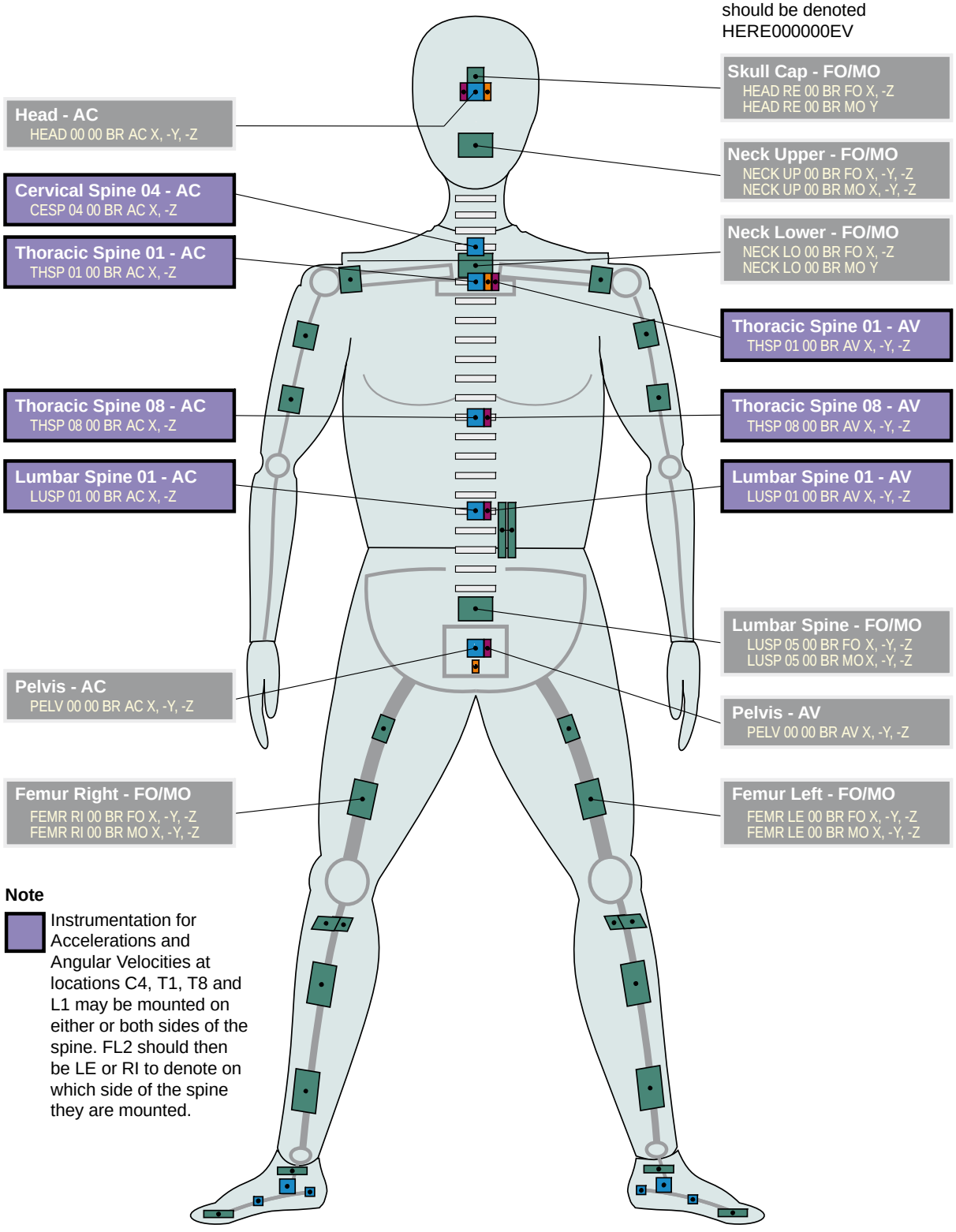
-> H3 <- 4 of 4

BR BioRID (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Standard Instrumentation
2013-07-10

Note
The Skull Cap to Headrest contact event (not shown) should be denoted HERE000000EV



Note

Instrumentation for Accelerations and Angular Velocities at locations C4, T1, T8 and L1 may be mounted on either or both sides of the spine. FL2 should then be LE or RI to denote on which side of the spine they are mounted.

ISO-BR_20130710

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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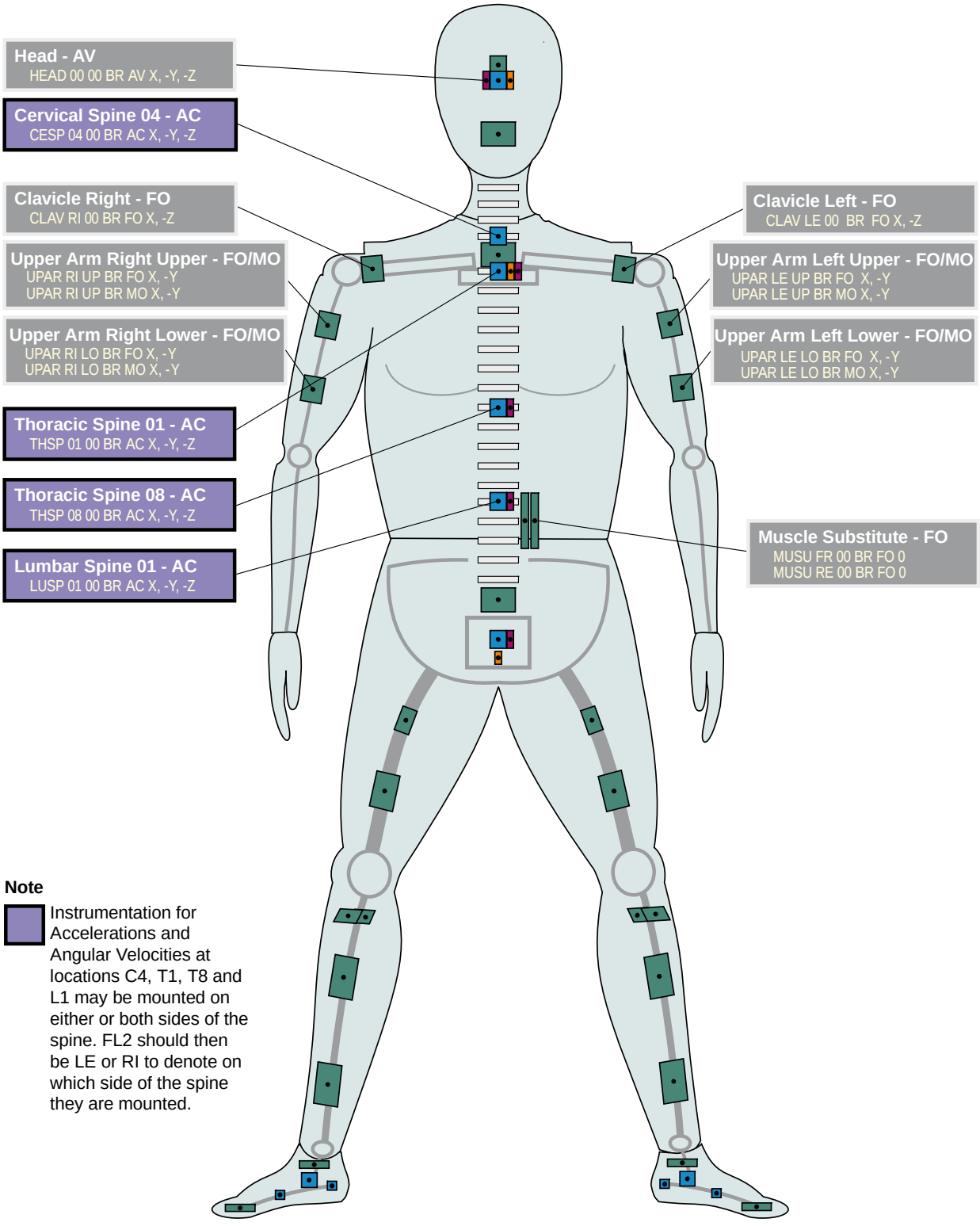
ISO_BR_1_161_20130710.EMF

-> BR <- 1 of 4

BR BioRID (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Additional Instrumentation - Upper Torso
2013-07-10



Note

Instrumentation for Accelerations and Angular Velocities at locations C4, T1, T8 and L1 may be mounted on either or both sides of the spine. FL2 should then be LE or RI to denote on which side of the spine they are mounted.

ISO-BR_20130710

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

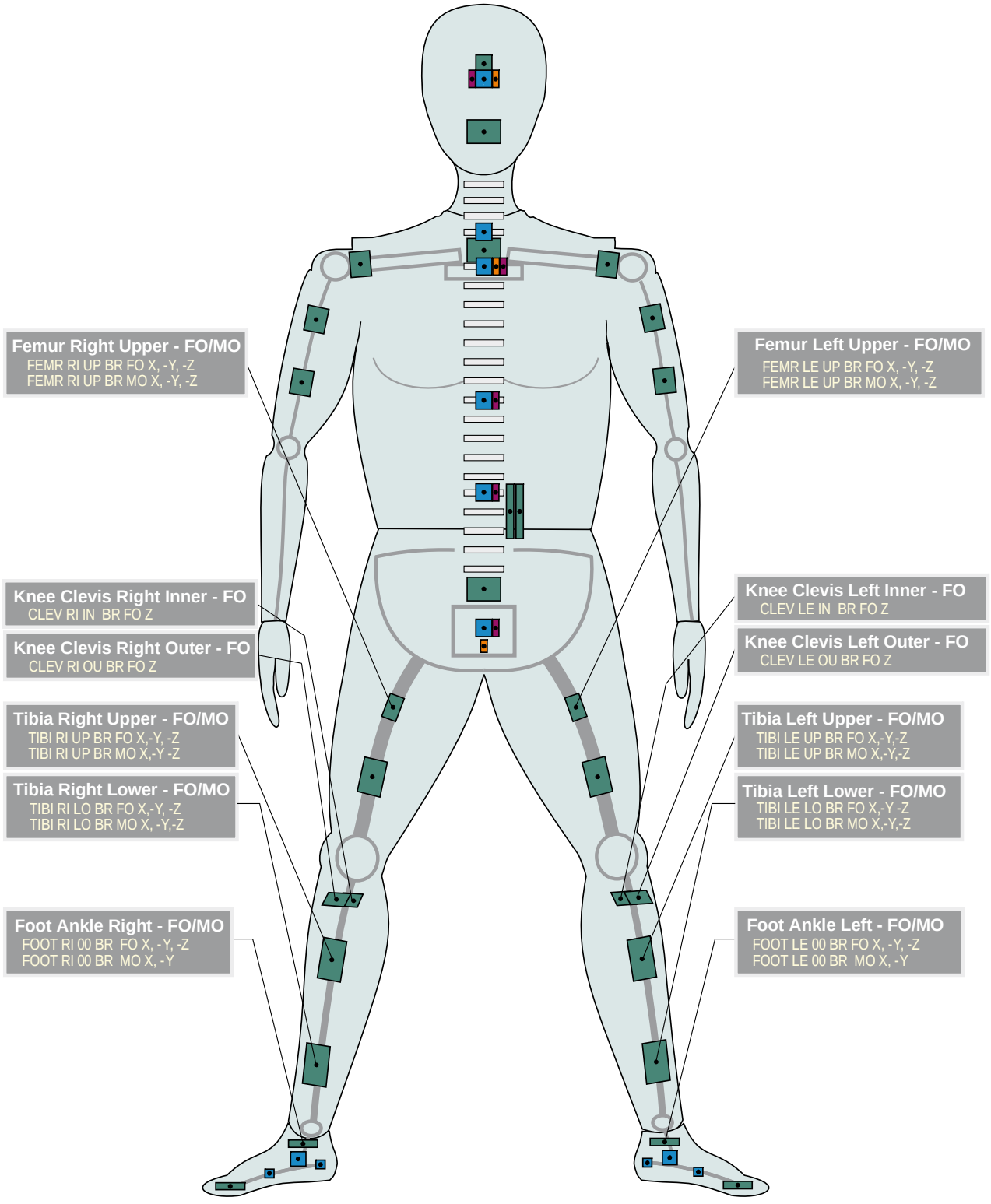
ISO_BR_2_161_20130710.EMF

-> BR <- 2 of 4

BR BioRID (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Additional Instrumentation - Legs
2013-07-10



ISO-BR_20130710

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

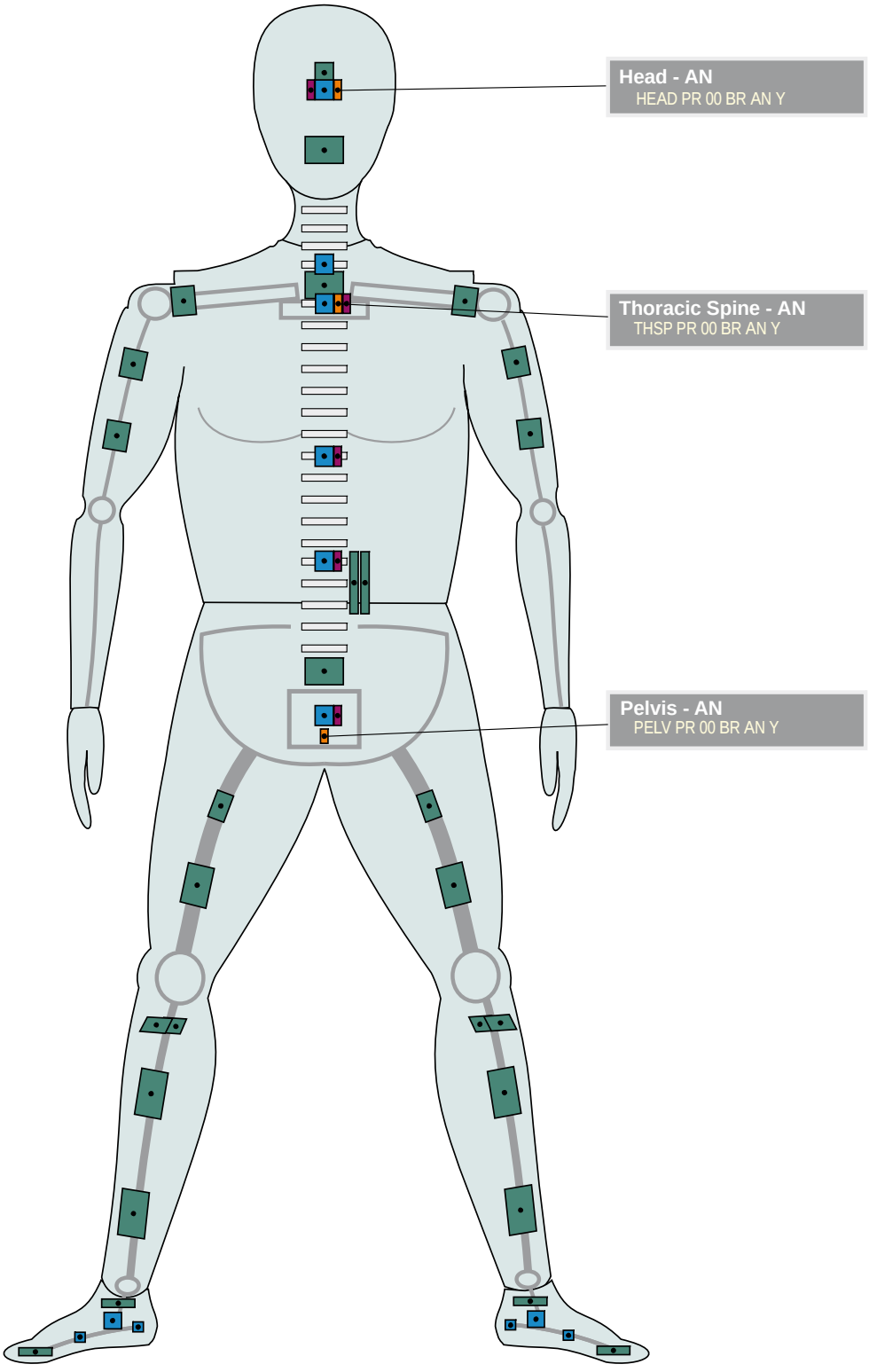
ISO_BR_3_161_20130710.EMF

-> BR <- 3 of 4

BR BioRID (4)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Static measurements, other channels
2013-07-10



ISO-BR_20130710

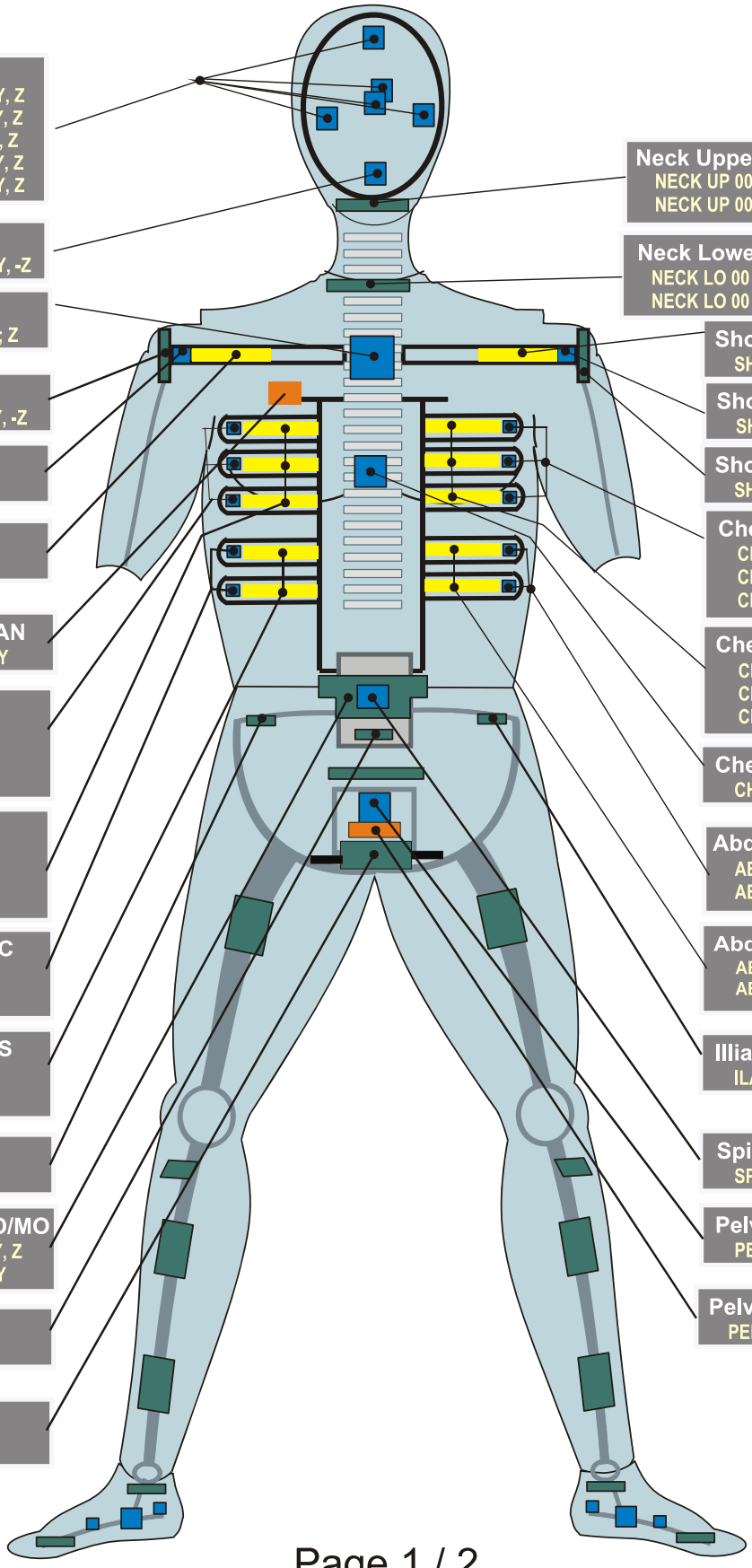
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_BR_4_161_20130710.EMF

-> BR <- 4 of 4

BS Bio-SID

Valid since Version **1.3**



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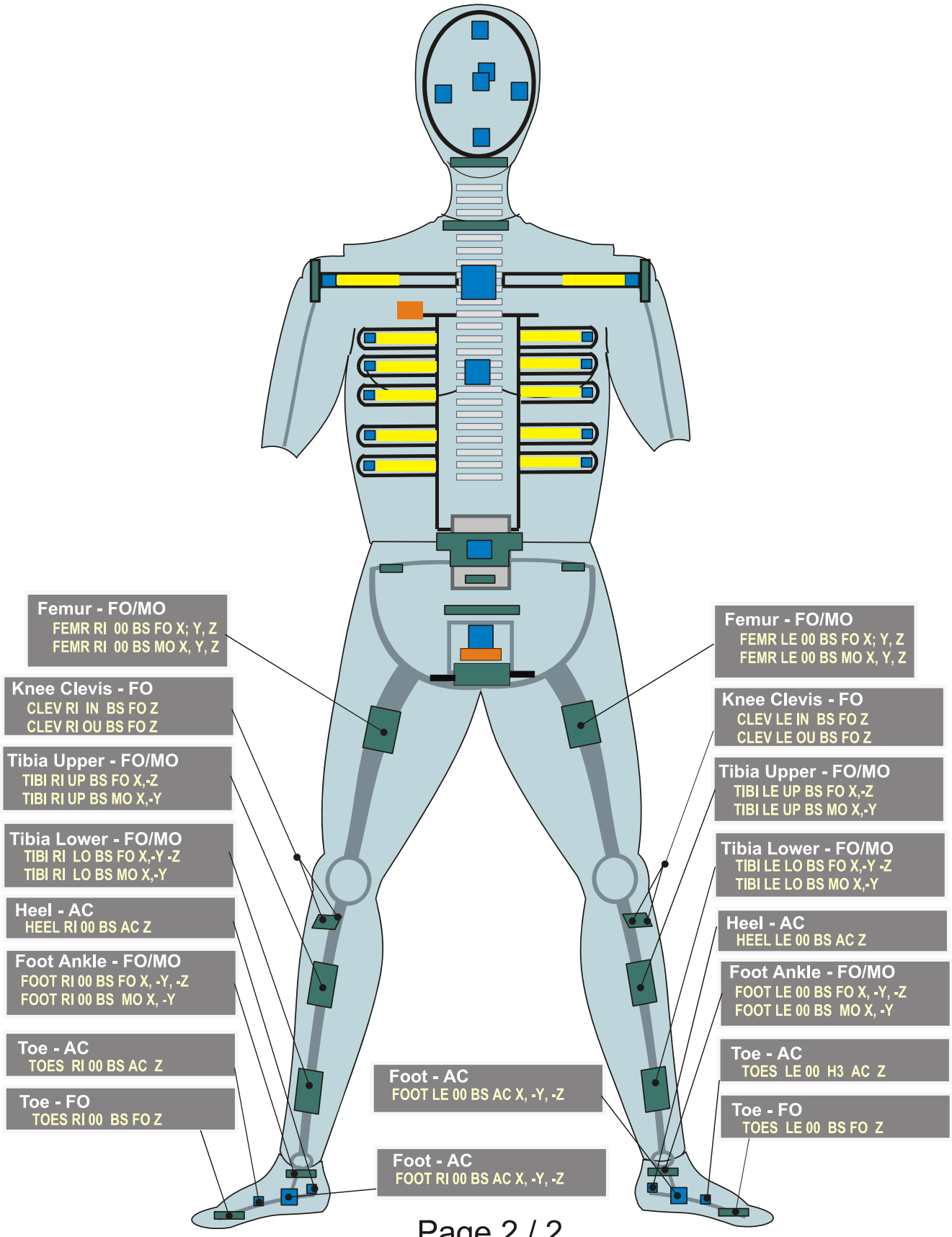
BS_1_13.WMF

-> BS <- 1 of 2

BS **Bio-SID**

Valid since Version **1.3**

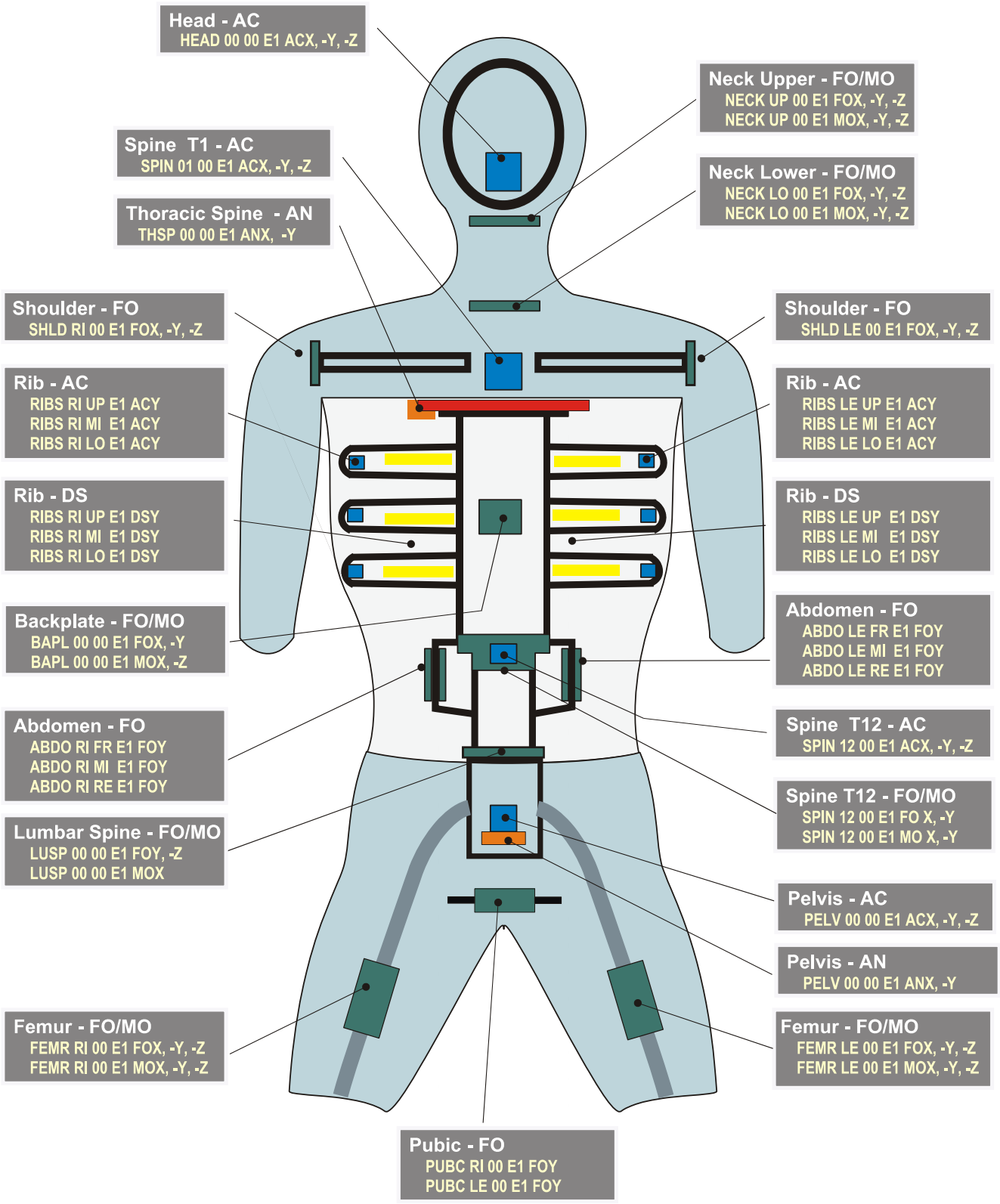


BS_2_13.WMF

-> BS <- 2 of 2

E1 EuroSID I

Valid since Version **1.2**



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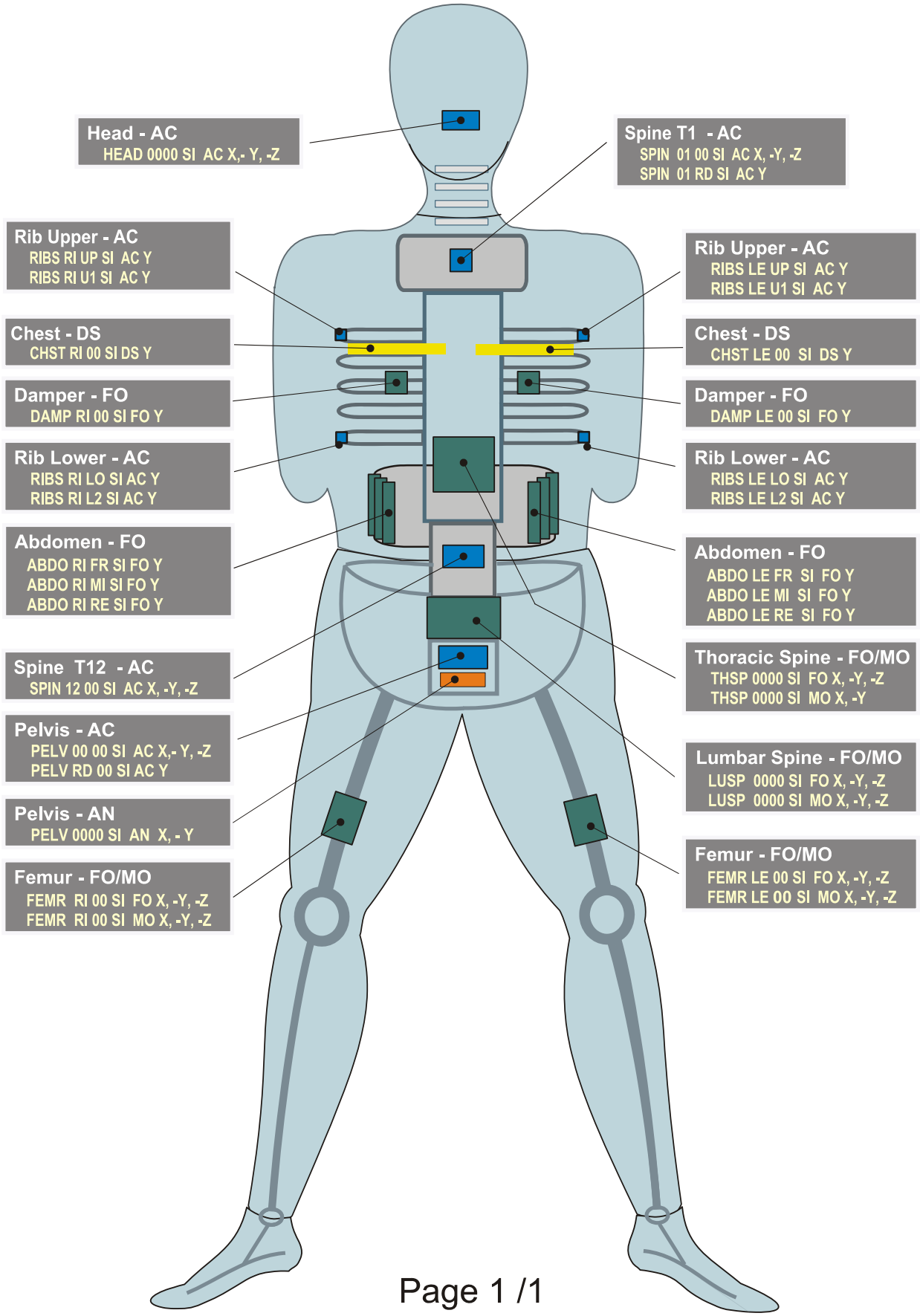
E1_1_12.WMF

-> E1 <- 1 of 1

SI **US SID**

Valid since Version **1.2**



Page 1 /1

SI_1_12.WMF

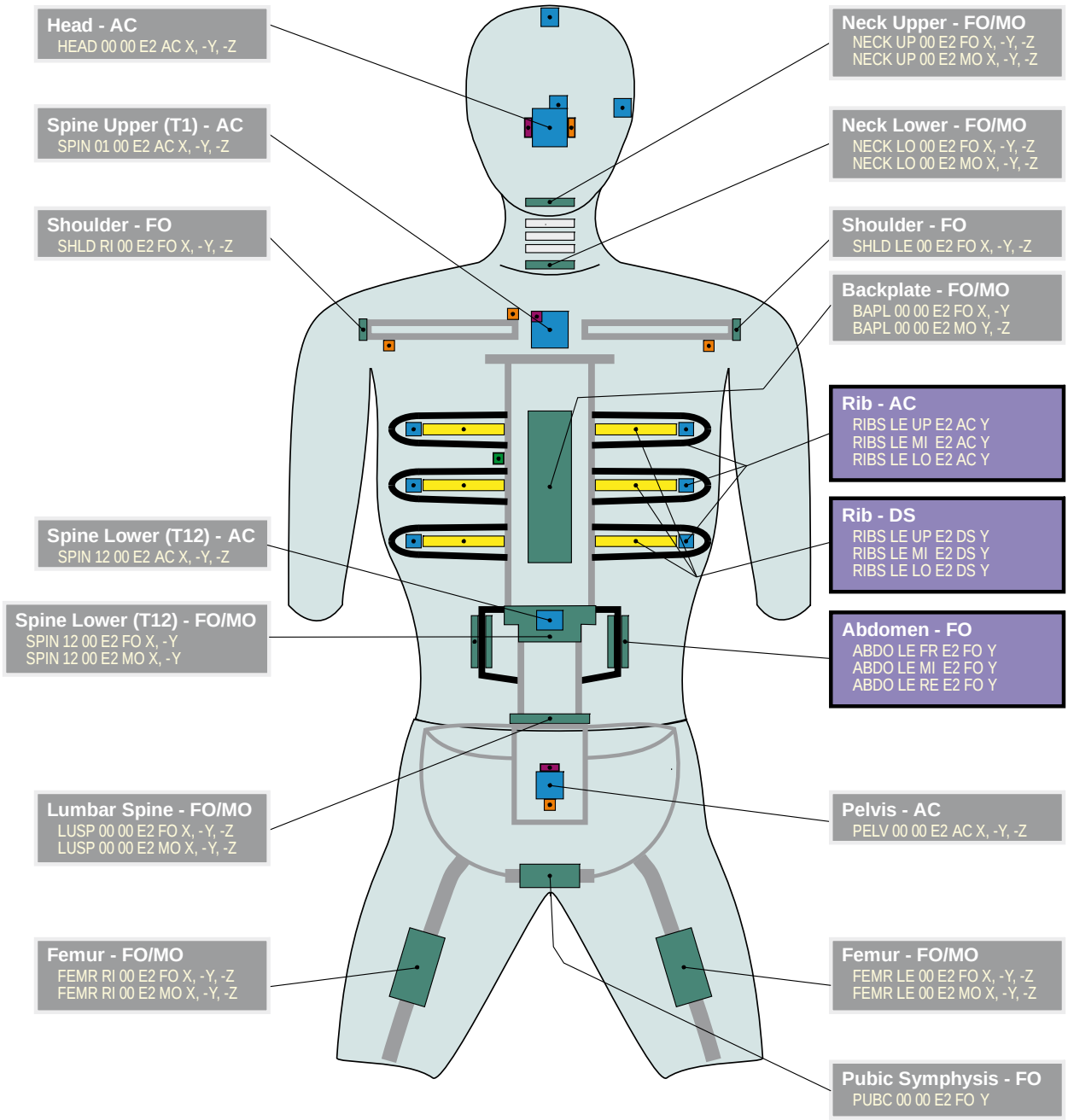
-> SI <- 1 of 1

E2+ER ES-2 & ES-2re (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
E2, ES-2 dummy
ER, ES2 Dummy with Rib Extension
Standard Instrumentation
2013-04-10

Note: For ER dummy, FL3 will read ER



Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.

ISO-E2_20130410

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_E2_1_161_20130410.EMF

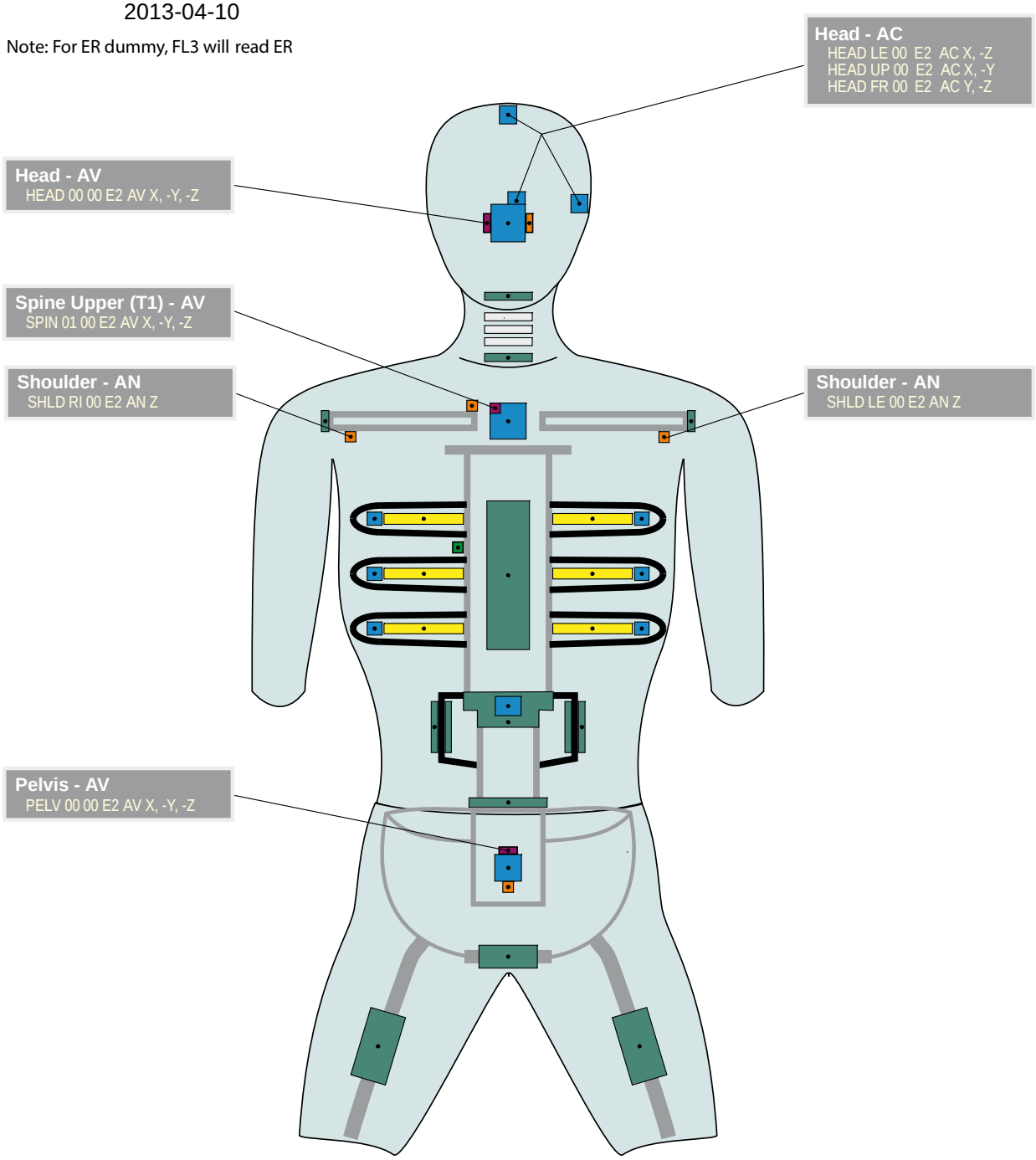
-> E2+ER <- 1 of 3

E2+ER ES-2 & ES-2re (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
E2, ES-2 dummy
ER, ES2 Dummy with Rib Extension
Additional Instrumentation
2013-04-10

Note: For ER dummy, FL3 will read ER

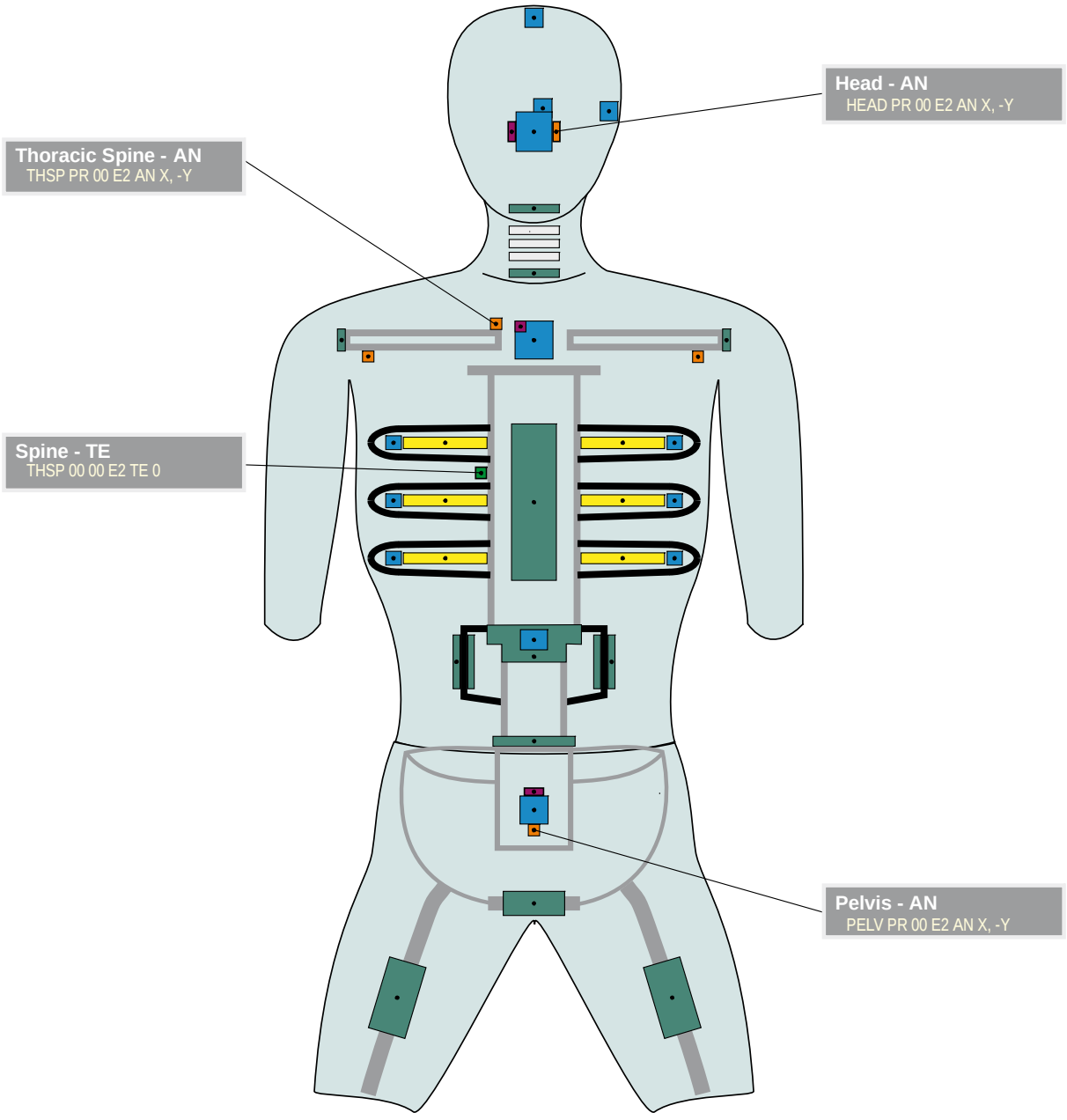


E2+ER ES-2 & ES-2re (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
E2, ES-2 dummy
ER, ES2 Dummy with Rib Extension
Static measurements, other channels
2013-04-10

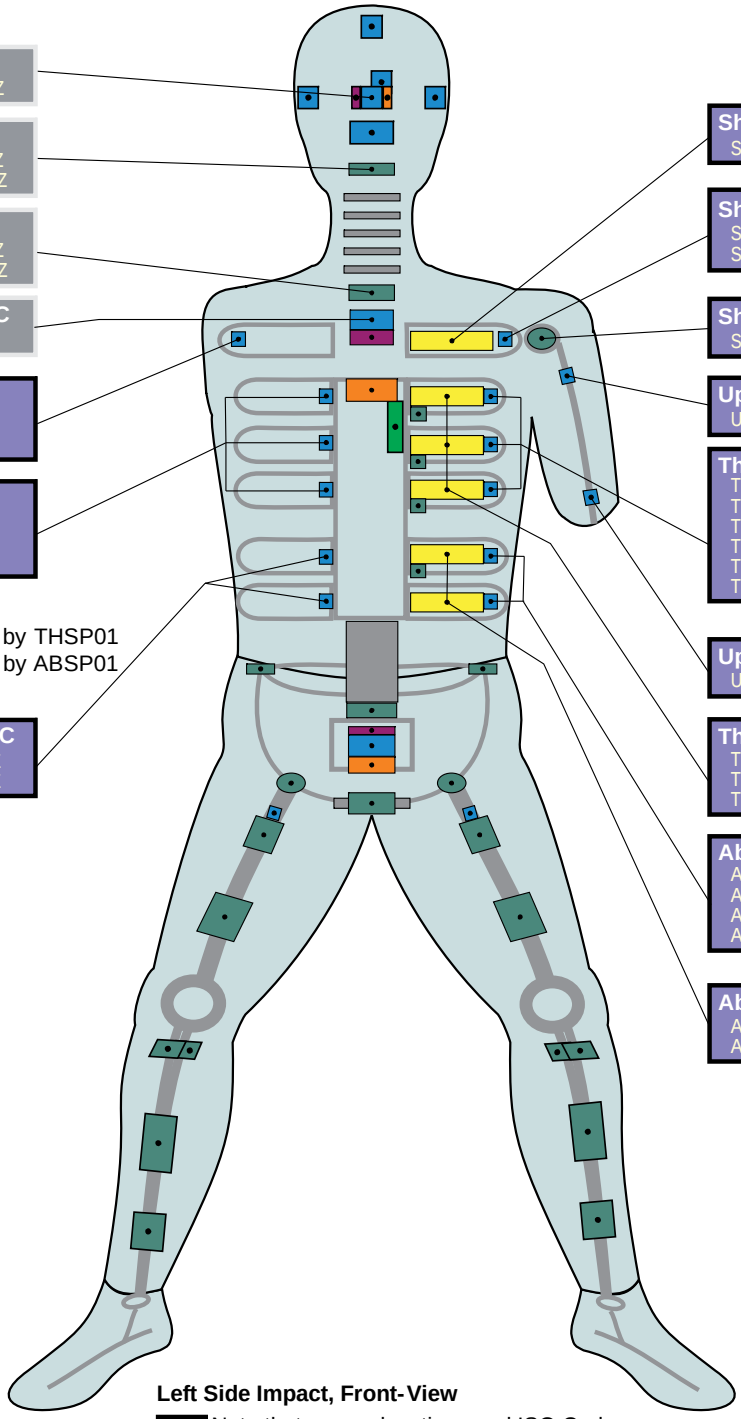
Note: For ER dummy, FL3 will read ER



S2 SID IIs (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
S2, SID IIs
Standard Instrumentation (upper body)
2013-04-09



Head - AC
HEAD 00 00 S2 AC X, -Y, -Z

Neck Upper - FO/MO
NECK UP 00 S2 FO X, -Y, -Z
NECK UP 00 S2 MO X, -Y, -Z

Neck Lower - FO/MO
NECK LO 00 S2 FO X, -Y, -Z
NECK LO 00 S2 MO X, -Y, -Z

Spine Upper (T1) - AC
SPIN 01 00 S2 AC X, -Y, -Z

Shoulder Rib - AC
SHRI 00 RI S2 AC X, -Y, -Z
SHRI 00 R1 S2 AC X, -Y, -Z

Thoracic Spine - AC
THSP 01 RI S2 AC X, -Y, -Z
THSP 02 RI S2 AC X, -Y, -Z
THSP 03 RI S2 AC X, -Y, -Z

Note: [L]
Spine T04 is measured by THSP01
Spine T12 is measured by ABSP01

Abdominal Spine - AC
ABSP 01 RI S2 AC X, -Y, -Z
ABSP 02 RI S2 AC X, -Y, -Z

Shoulder Rib - DS
SHRI 00 LE S2 DS Y

Shoulder Rib - AC
SHRI 00 LE S2 AC X, -Y, -Z
SHRI 00 L1 S2 AC X, -Y, -Z

Shoulder - FO
SHLD LE 00 S2 FO X, -Y, -Z

Upper Arm Upper-AC
UPAR LE UP S2 AC X, -Y, -Z

Thoracic Rib - AC
TRRI 01 LE S2 AC X, -Y, -Z
TRRI 01 L1 S2 AC X, -Y, -Z
TRRI 02 LE S2 AC X, -Y, -Z
TRRI 02 L1 S2 AC X, -Y, -Z
TRRI 03 LE S2 AC X, -Y, -Z
TRRI 03 L1 S2 AC X, -Y, -Z

Upper Arm Lower - AC
UPAR LE LO S2 AC X, Y, Z

Thoracic Rib - DS
TRRI 01 LE S2 DS Y
TRRI 02 LE S2 DS Y
TRRI 03 LE S2 DS Y

Abdominal Rib - AC
ABRI 01 LE S2 AC X, -Y, -Z
ABRI 01 L1 S2 AC X, -Y, -Z
ABRI 02 LE S2 AC X, -Y, -Z
ABRI 02 L1 S2 AC X, -Y, -Z

Abdominal Rib - DS
ABRI 01 LE S2 DS Y
ABRI 02 LE S2 DS Y

Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.

ISO-S2_20140409

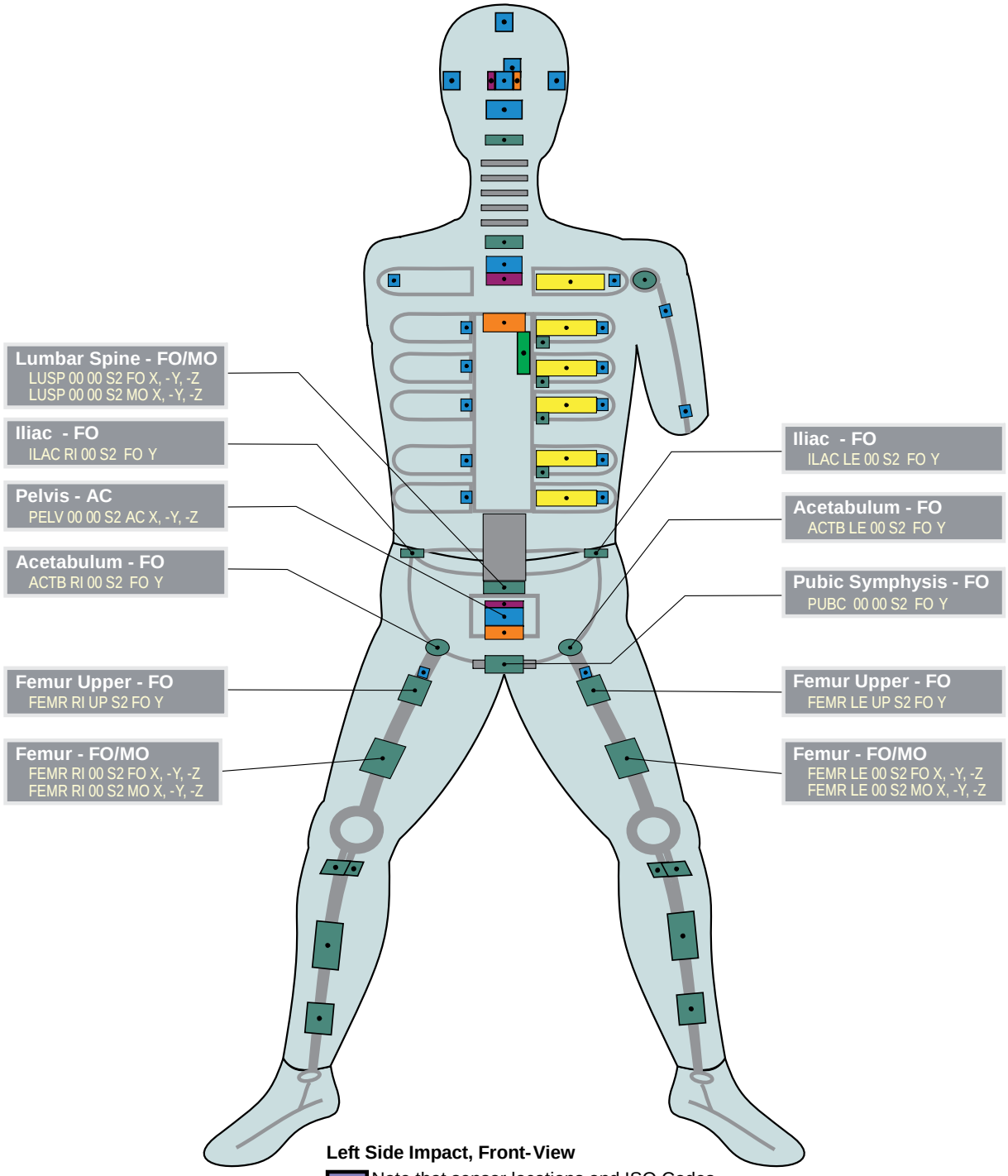
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force [L]
Maintained by Paul Wellicome, MIRA Ltd.

ISO_S2_1_161_20140409.EMF

S2 SID IIs (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
S2, SID IIs
Standard Instrumentation (lower body)
2013-04-09



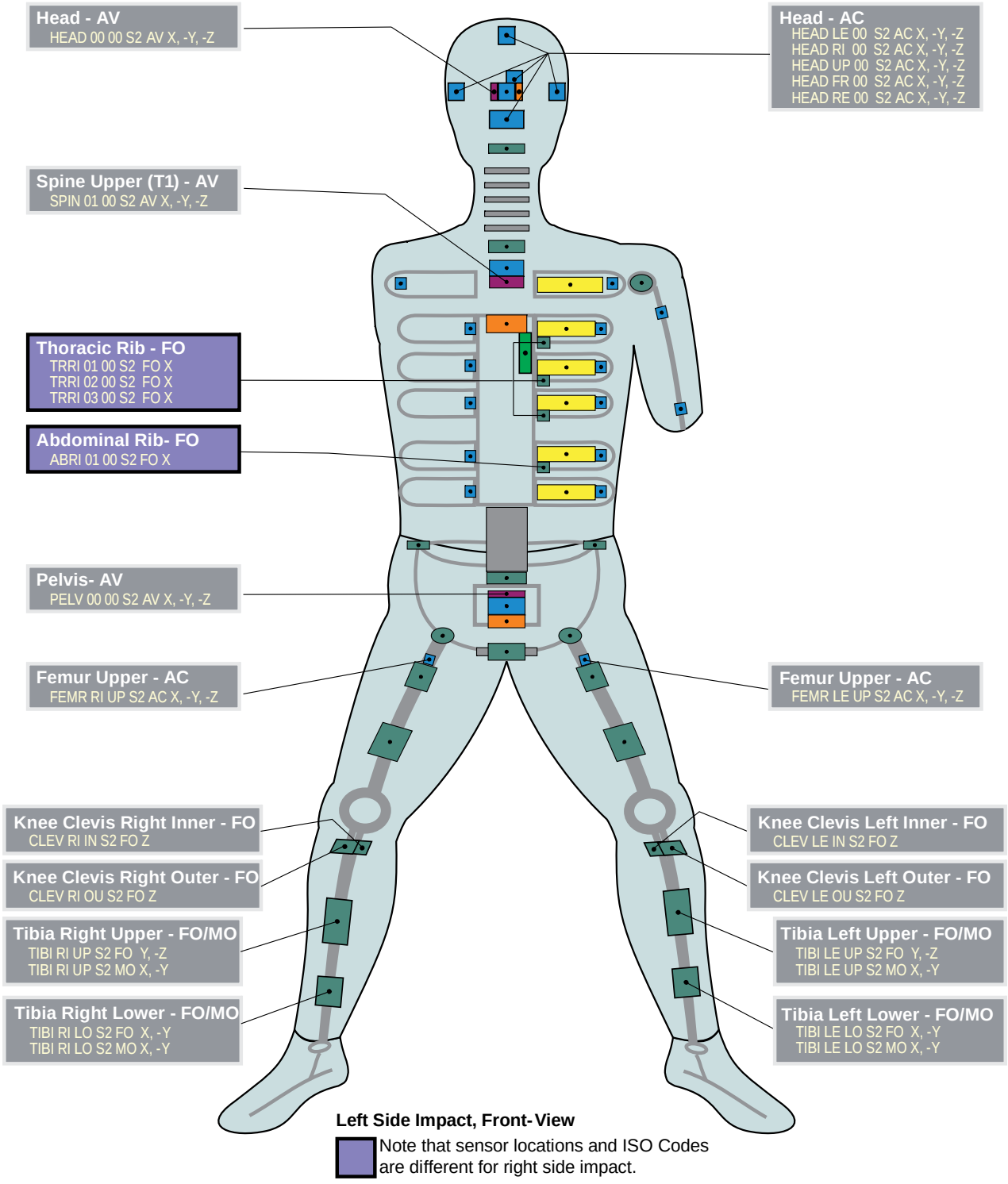
Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.

S2 SID IIs (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
S2, SID IIs
Additional Instrumentation
2013-04-09



Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.

ISO-S2_20140409

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

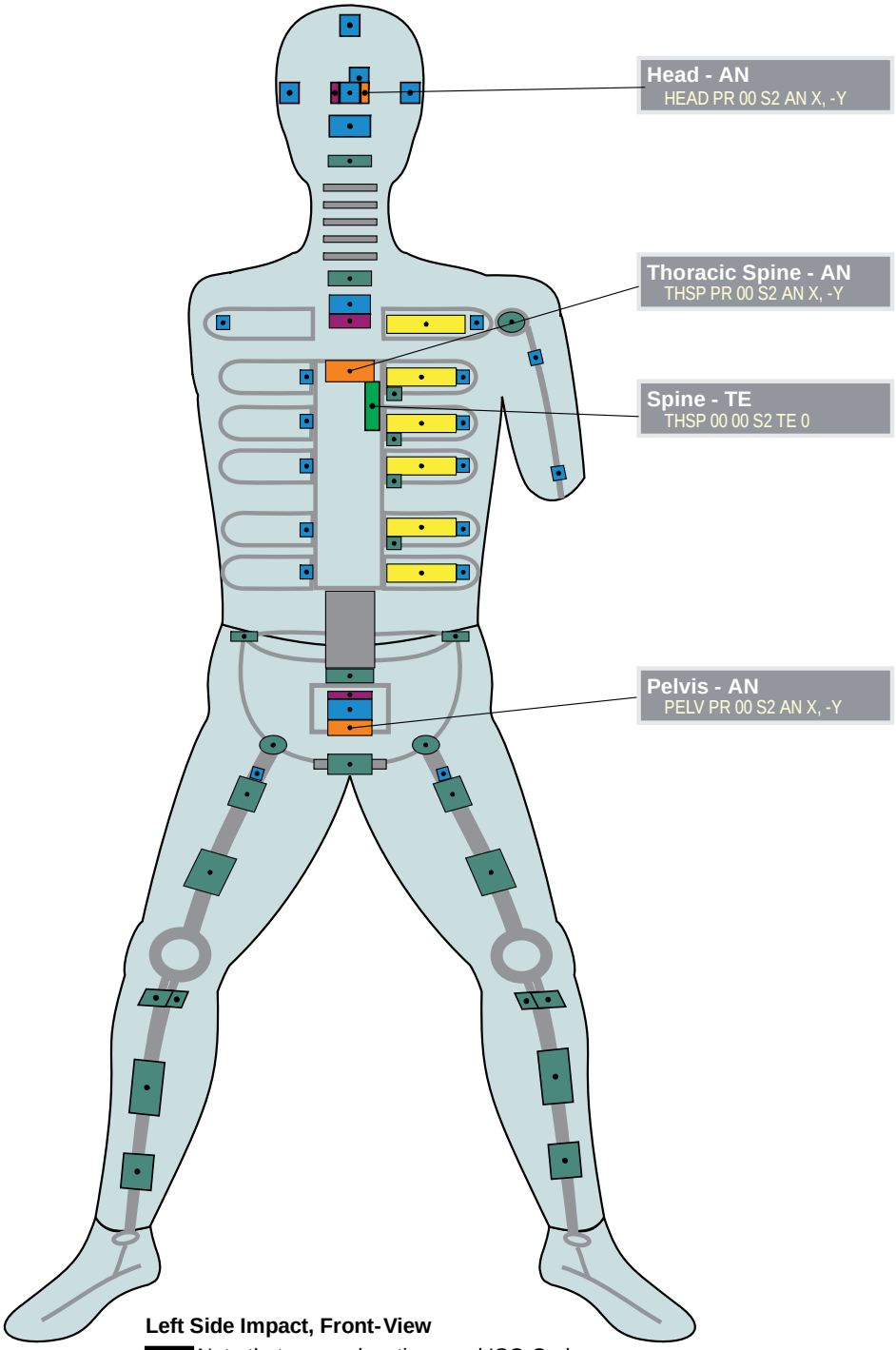
ISO_S2_3_161_20140409.EMF

-> S2 <- 3 of 5

S2 SID IIs (4)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
S2, SID IIs
Static measurements, other channels
2013-04-09



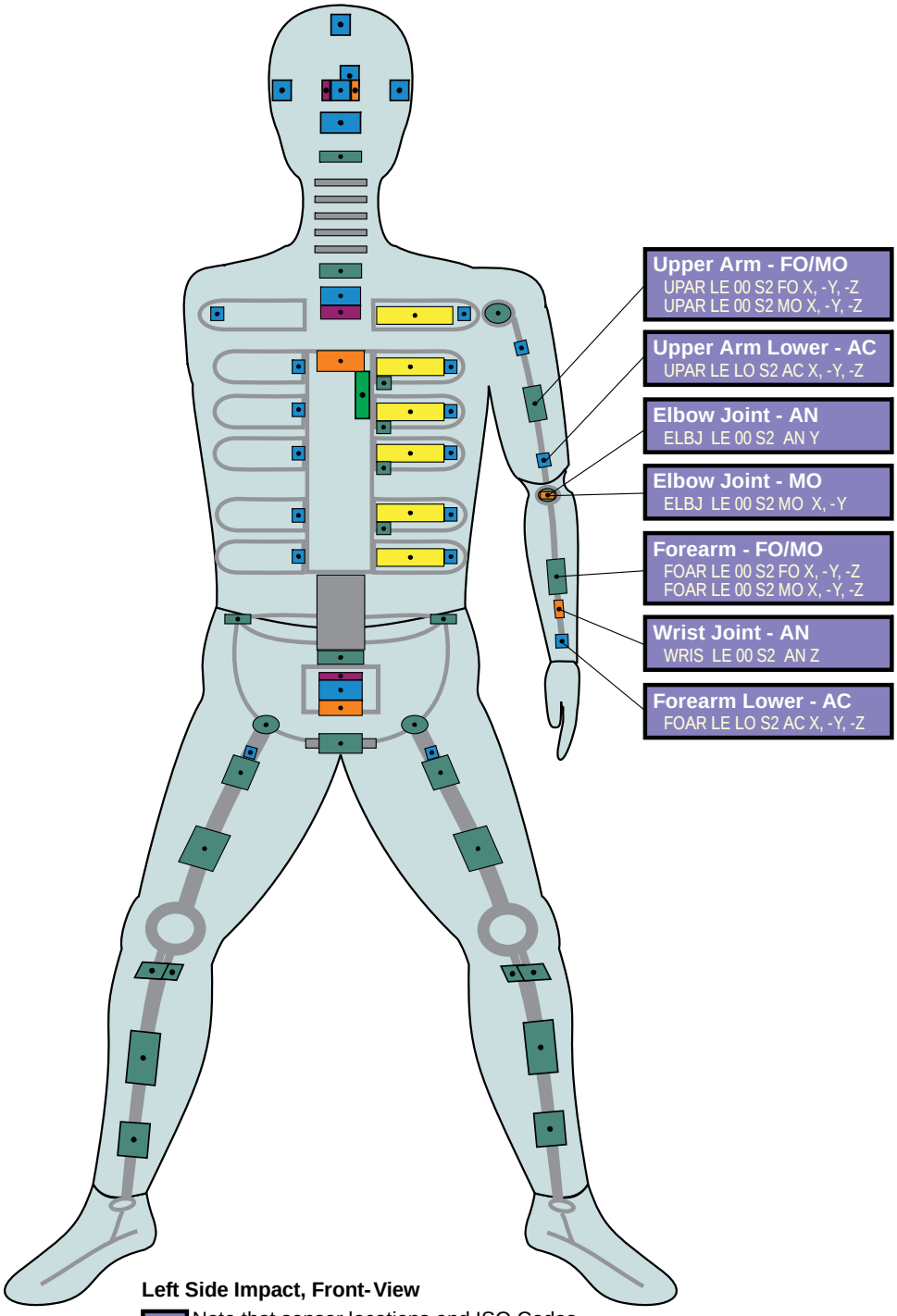
Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.

S2 SID IIs (5)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
S2, SID IIs
Additional Instrumentation: Instrumented arm
2013-04-09



Left Side Impact, Front-View

Note that sensor locations and ISO Codes are different for right side impact.

ISO-S2_20140409

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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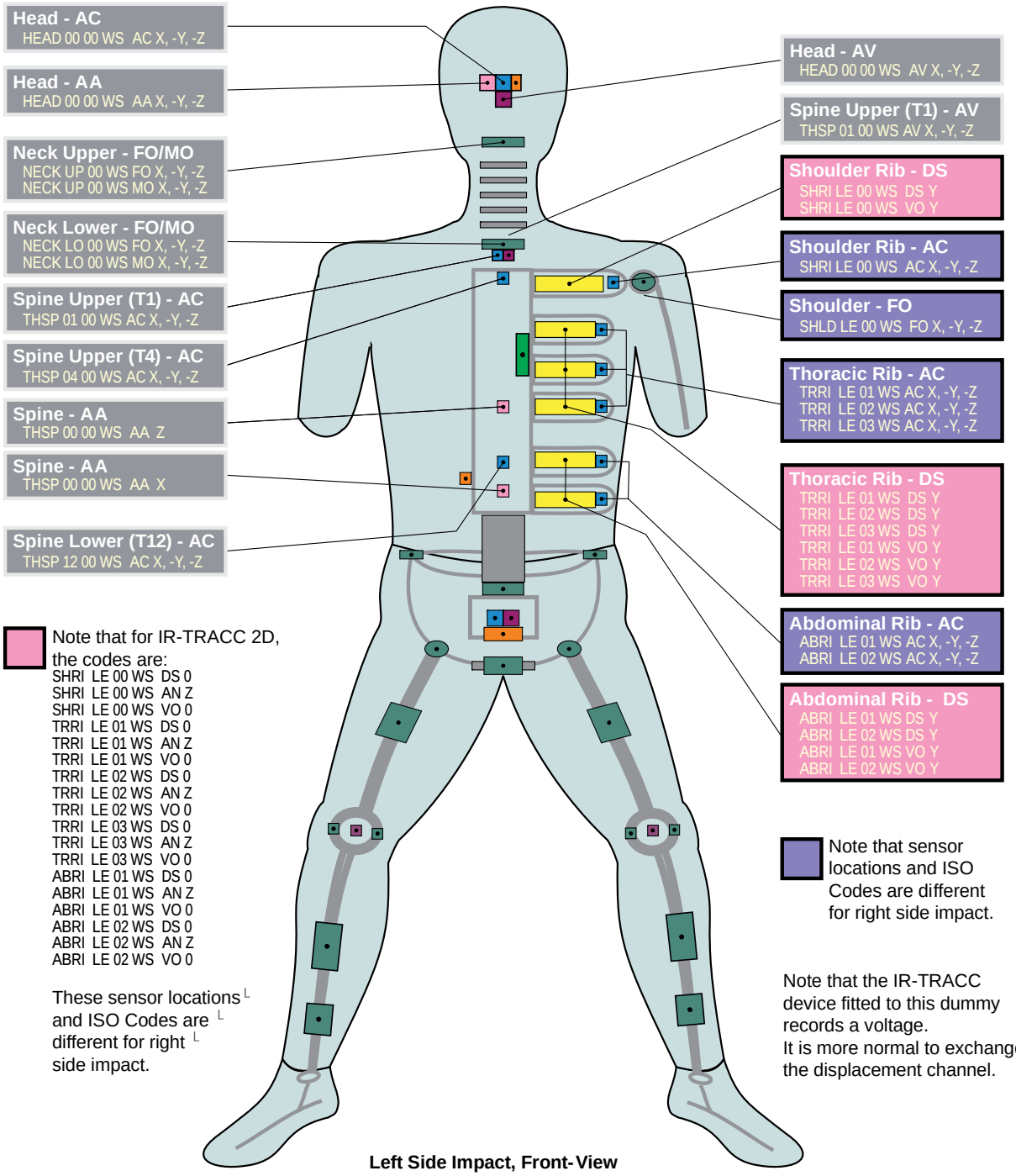
ISO_S2_5_161_20140409.EMF

-> S2 <- 5 of 5

WS WorldSID (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Standard Instrumentation (upper body)
2014-03-10



Left Side Impact, Front-View

ISO-WS_20140310

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

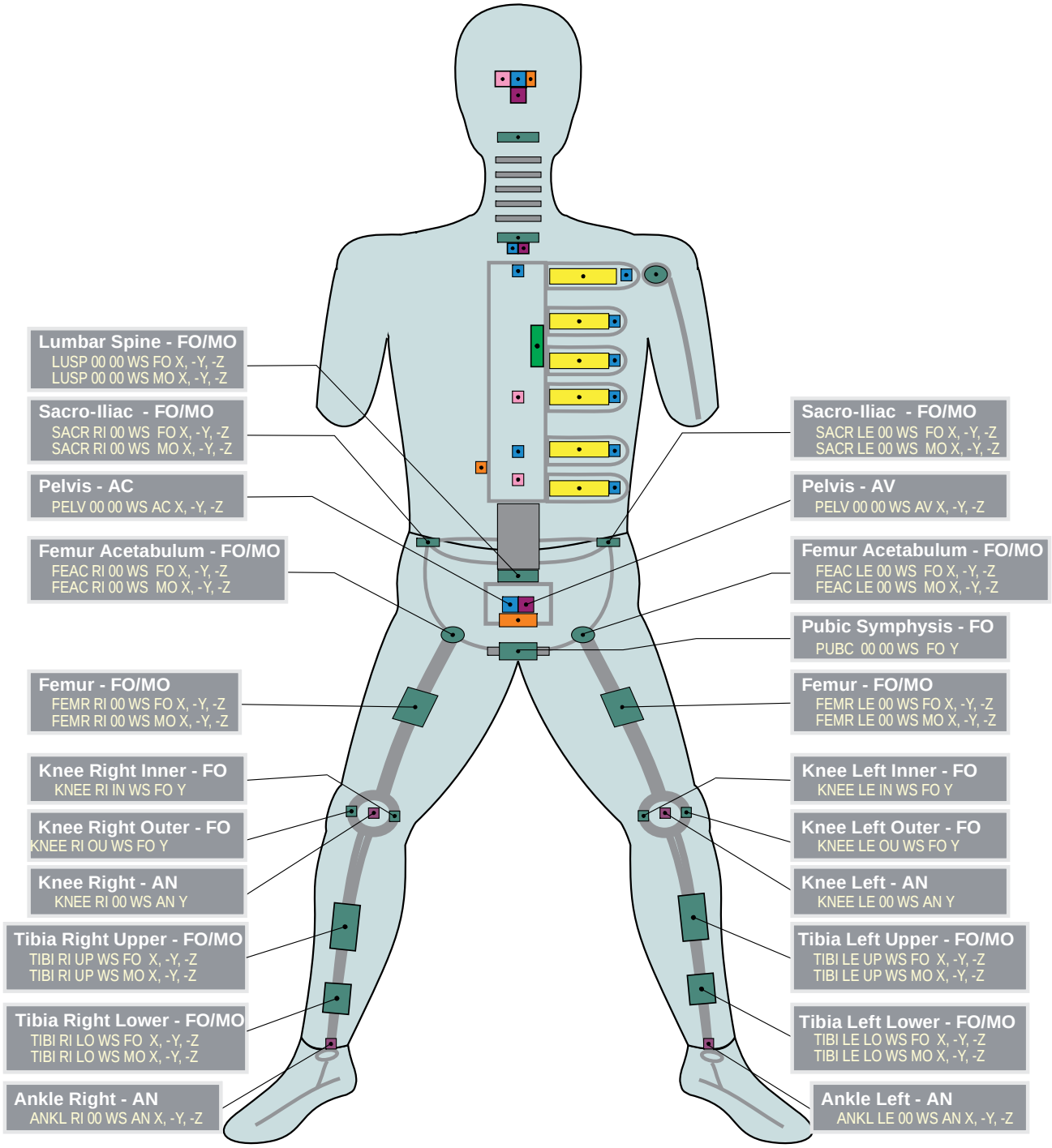
ISO_WS_1_161_20140310.EMF

-> WS <- 1 of 4

WS WorldSID (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Standard Instrumentation (lower body)
2014-03-10



ISO-WS_20140310

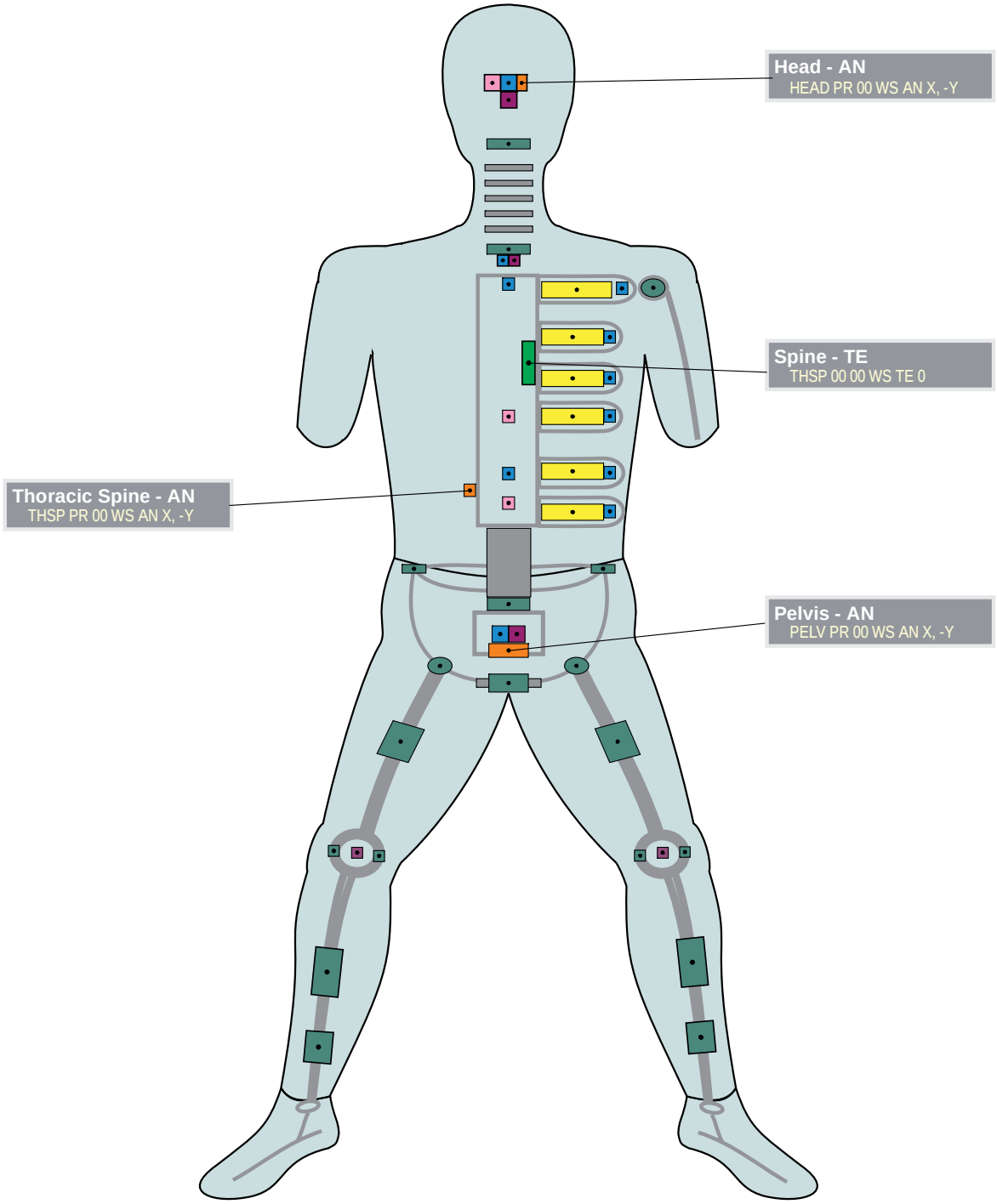
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_WS_2_161_20140310.EMF

WS WorldSID (3)

Valid since Version **1.6.1**

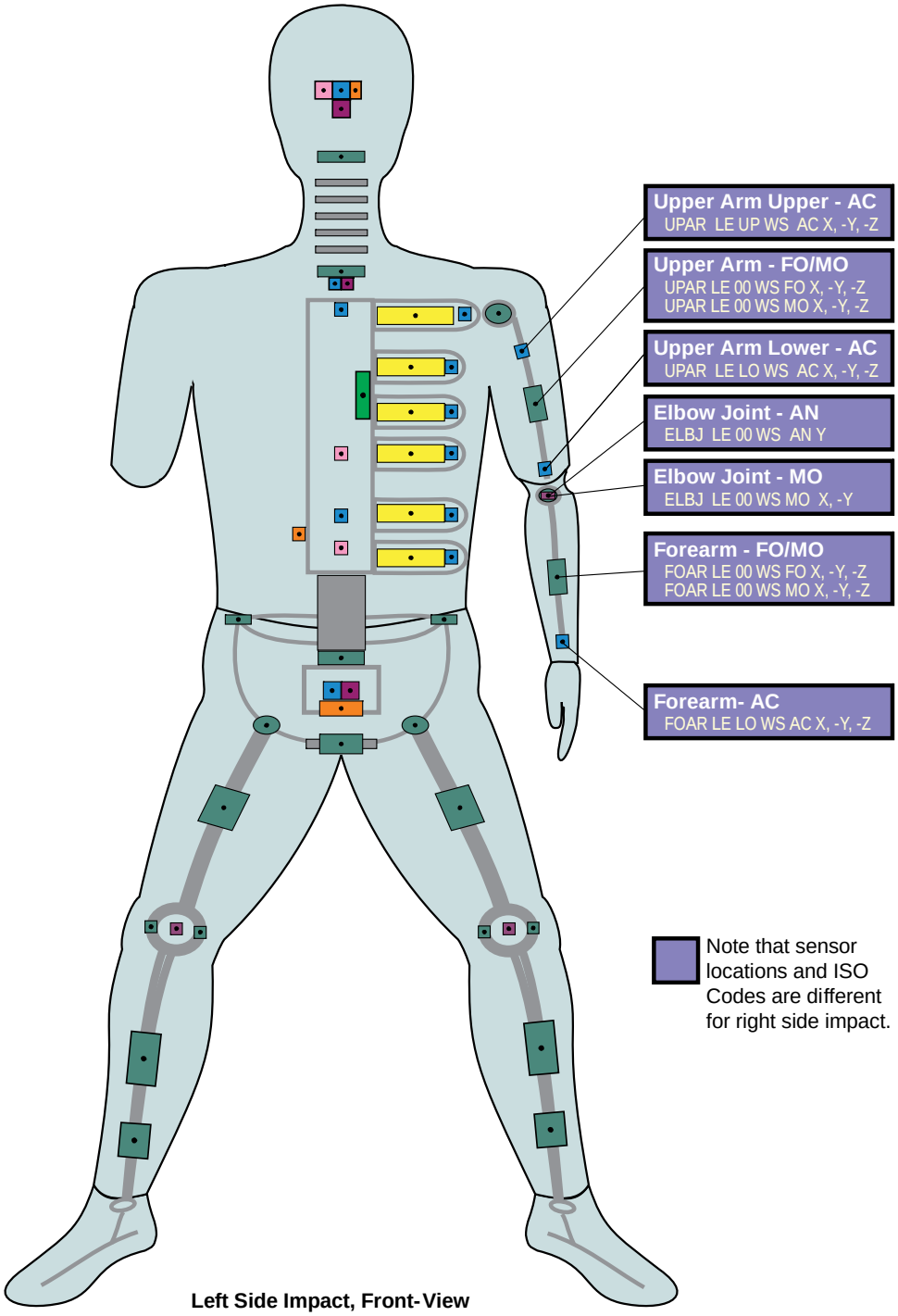
ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Static measurements, other channels
2014-03-10



WS WorldSID (4)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Additional Instrumentation: Instrumented arm
2014-03-10



Left Side Impact, Front-View

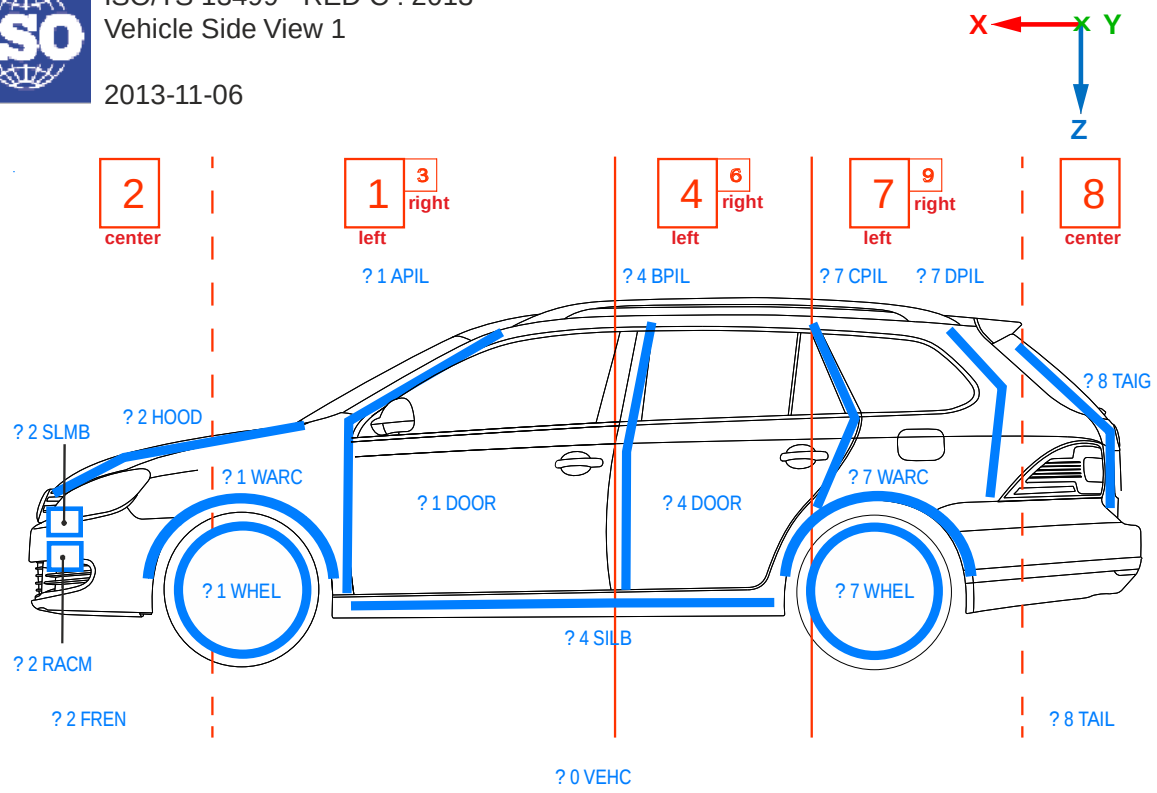
VEH_S1 Vehicle left side

Valid since Version **1.6.1**

A,B,C,D-pillar, wheel, door, sillbeam, hood, tailgate, vehicle, frontend, tail, wheelarch ...

ISO/TS 13499 - RED C : 2013
Vehicle Side View 1

2013-11-06



picture only from the left side of the vehicle

? 1 APIL	A-Pillar left	? 1 DOOR	Door front left
? 3 APIL	A-Pillar right	? 3 DOOR	Door front right
? 4 BPIL	B-Pillar left	? 4 DOOR	Door rear left
? 6 BPIL	B-Pillar right	? 6 DOOR	Door rear right
? 7 CPIL	C-Pillar left		
? 9 CPIL	C-Pillar right	? 2 HOOD	Hood
? 7 DPIL	D-Pillar left	? 8 TAIG	Tailgate
? 9 DPIL	D-Pillar right		
		? 0 VEHC	Vehicle
? 4 SILB	Sill Beam left	? 2 FREN	Frontend
? 6 SILB	Sill Beam right	? 8 TAIL	Tail
		? 2 SLMB	Slam Beam
? 1 WHEL	Wheel front left	? 2 RACM	Radiator Cross Member
? 3 WHEL	Wheel front right		
? 7 WHEL	Wheel rear left		
? 9 WHEL	Wheel rear right		
? 1 WARC	Wheel Arch front left		
? 3 WARC	Wheel Arch front right		
? 7 WARC	Wheel Arch rear left		
? 9 WARC	Wheel Arch rear right		

ISO_VEH_16R1

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Peter Derpmann-Hagenström, Volkswagen AG

ISO_VEH_S1_161_20131106.EMF

-> VEH_S1 <- 1 of 7

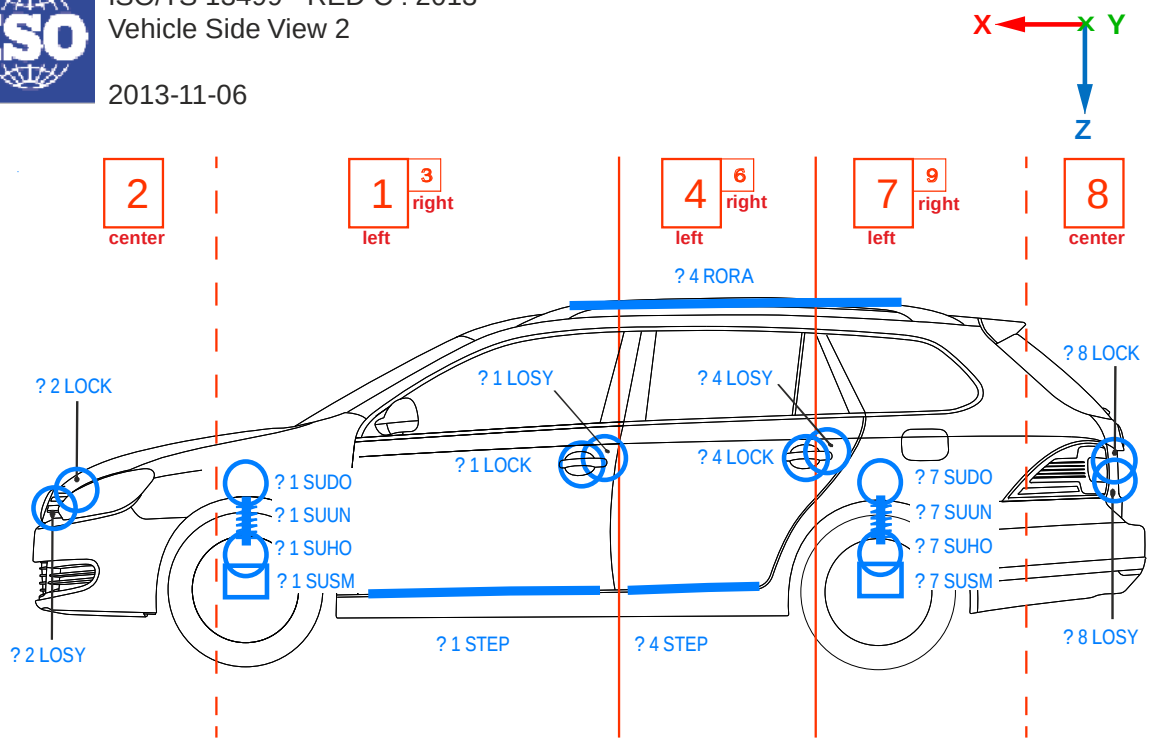
VEH_S2 Vehicle left side

Valid since Version **1.6.1**

lock, locking system, roof rack, step, suspension, ...

ISO/TS 13499 - RED C : 2013
Vehicle Side View 2

2013-11-06



picture only from the left side of the vehicle

? 1 LOSY	Locking System front left	? 1 SUDO	Suspension Dome front left
? 3 LOSY	Locking System front right	? 3 SUDO	Suspension Dome front right
? 4 LOSY	Locking System rear left	? 7 SUDO	Suspension Dome rear left
? 6 LOSY	Locking System rear right	? 9 SUDO	Suspension Dome rear right
? 2 LOSY	Locking System front		
? 8 LOSY	Locking System rear	? 1 SUUN	Suspension Unit front left
		? 3 SUUN	Suspension Unit front right
? 1 LOCK	Lock front left	? 7 SUUN	Suspension Unit rear left
? 3 LOCK	Lock front right	? 9 SUUN	Suspension Unit rear right
? 4 LOCK	Lock rear left		
? 6 LOCK	Lock rear right	? 1 SUHO	Suspen. Housing front left
? 2 LOCK	Lock front	? 3 SUHO	Suspen. Housing front right
? 8 LOCK	Lock rear	? 7 SUHO	Suspen. Housing rear left
		? 9 SUHO	Suspen. Housing rear right
? 4 RORA	Roof Rack left		
? 6 RORA	Roof Rack right	? 1 SUSM	Suspension Mount front left
		? 3 SUSM	Suspension Mount front right
? 1 STEP	Step front left	? 7 SUSM	Suspension Mount rear left
? 3 STEP	Step front right	? 9 SUSM	Suspension Mount rear right
? 4 STEP	Step rear left		
? 7 STEP	Step rear right		

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ISO_VEH_S2_161_20131106.EMF

-> VEH_S2 <- 2 of 7

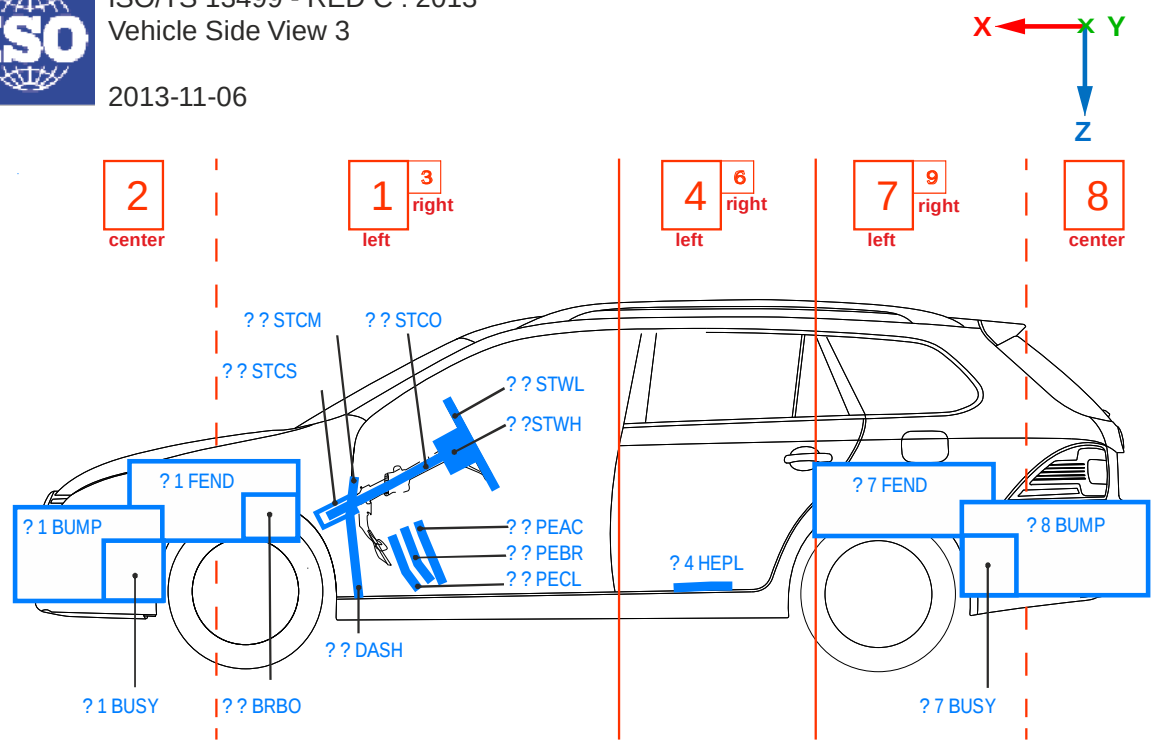
VEH_S3 Vehicle left side, open

Valid since Version **1.6.1**

left side open; steering wheel, pedals

ISO/TS 13499 - RED C : 2013
Vehicle Side View 3

2013-11-06



picture only from the left side of the vehicle

? ? STWL	Steering Wheel	? 1 FEND	Fender front left
? ? STWH	Steering Wheel Hub	? 3 FEND	Fender front right
? ? STCO	Steering Column	? 7 FEND	Fender rear left
? ? STCM	Steering Column Mount	? 9 FEND	Fender rear right
? ? STCS	Steering Column Suspension		
		? 2 BUMP	Bumper front
? ? DASH	Dash Panel	? 8 BUMP	Bumper rear
? ? PEAC	Pedal Accelerator	? 1 BUSY	Bumper System front left
? ? PEBR	Pedal Brake	? 3 BUSY	Bumper System front right
? ? PECL	Pedal Clutch	? 7 BUSY	Bumper System rear left
? ? BRBO	Brake Booster	? 9 BUSY	Bumper System rear right
		? 4 HEPL	Heel Plate left
		? 6 HEPL	Heel Plate right

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ISO_VEH_S3_161_20131106.EMF

-> VEH_S3 <- 3 of 7

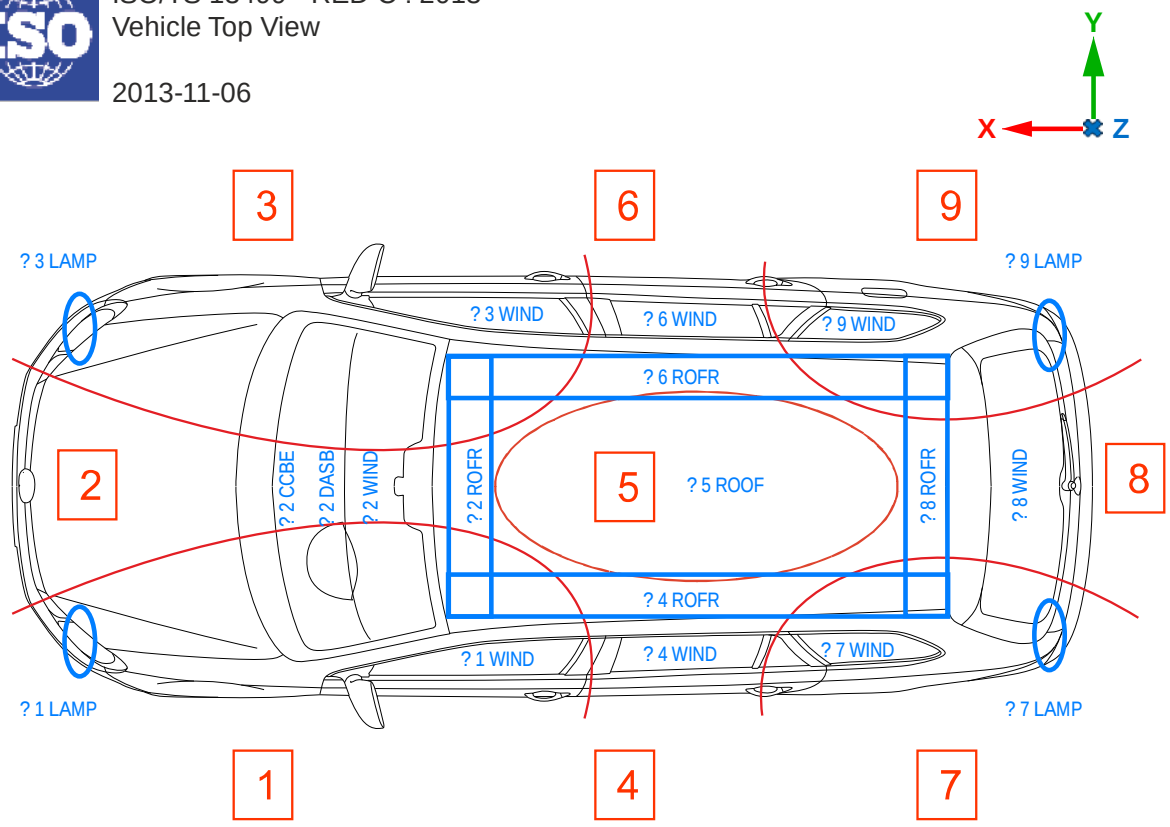
VEH_T1 Vehicle top

Valid since Version **1.6.1**

window, roof, roof frame, lamp, ...

ISO/TS 13499 - RED C : 2013
Vehicle Top View

2013-11-06



? 1 WIND	Window front left	? 5 ROOF	Roof
? 2 WIND	Window front		
? 3 WIND	Window front right	? 2 ROFR	Roof Frame front
? 4 WIND	Window middle left	? 4 ROFR	Roof Frame left
? 6 WIND	Window middle right	? 6 ROFR	Roof Frame right
? 7 WIND	Window rear left	? 8 ROFR	Roof Frame rear
? 8 WIND	Window rear		
? 9 WIND	Window rear right	Below the windscreen	
		? 2 DASB	Dash Board
? 1 LAMP	Headlamp left	? 2 CCBE	Cross Car Beam
? 3 LAMP	Headlamp right		
? 7 LAMP	Taillight left		
? 9 LAMP	Taillight right		

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ISO_VEH_T1_161_20131106.EMF

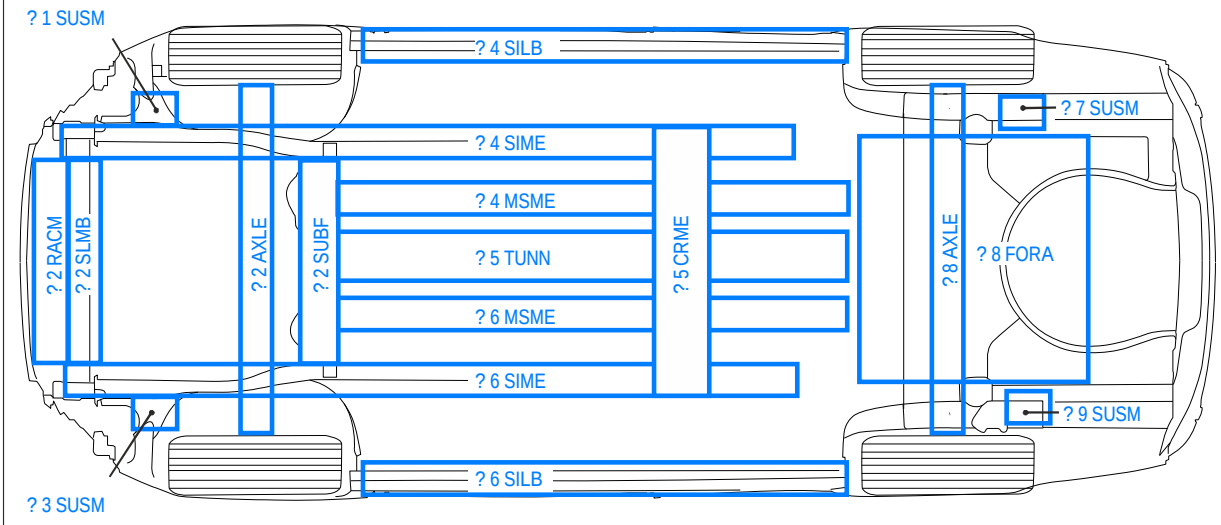
-> VEH_T1 <- 4 of 7

VEH_B1 Vehicle bottom

Valid since Version **1.6.1**

side and cross members, suspension, axle, ...

ISO/TS 13499 - RED C : 2013
Vehicle Bottom View 1
Structure Elements
2013-11-06



? 2 AXLE Axle front
? 8 AXLE Axle rear
? 8 FORA Floor over Rear Axle

? 2 RACM Radiator Cross Member
? 2 SLMB Slam Beam
? 2 SUBF Subframe
? 1 SUSM Suspension Mount front left
? 3 SUSM Suspension Mount front right
? 7 SUSM Suspension Mount rear left
? 9 SUSM Suspension Mount rear right
? 5 CRME Cross Member

? 4 SILB Sill Beam left
? 6 SILB Sill Beam right
? 4 SIME Side Member left
? 6 SIME Side Member right
? 4 MSME Main Side Member left
? 6 MSME Main Side Member right
? 5 TUNN Tunnel

General Main Location
? ? FRAM Frame

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ISO_VEH_B1_161_20131106.EMF

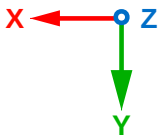
-> VEH_B1 <- 5 of 7

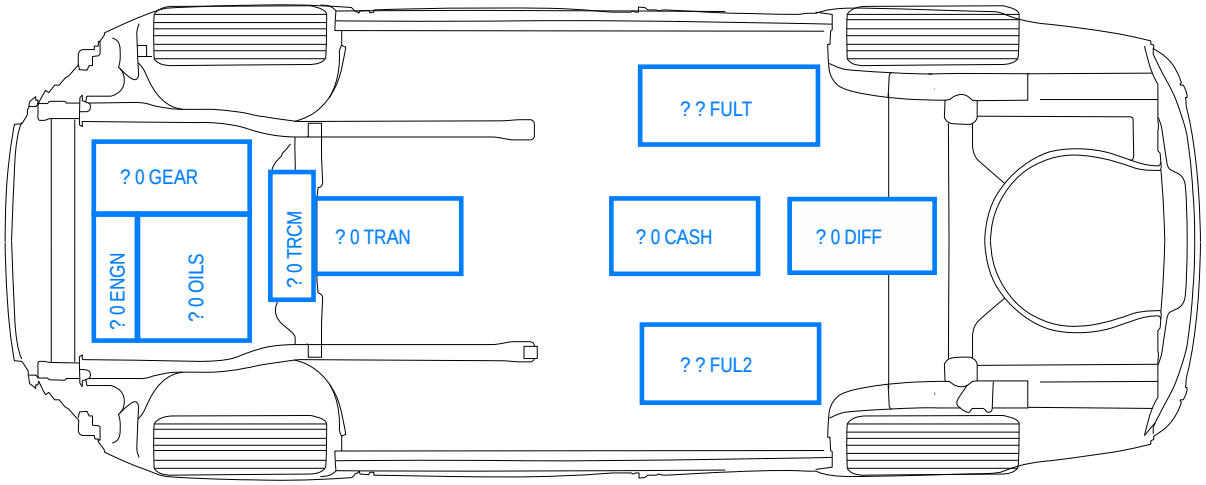
VEH_B2 Vehicle bottom

Valid since Version **1.6.1**

engine, transmission, fuel tank, electrical components,

ISO/TS 13499 - RED C : 2013
Vehicle Bottom View 2
Traction Elements
2013-11-06





? 0 ENGN Engine
? 0 GEAR Gearbox
? 0 OILS Oil Sump
? 0 TRCM Transmission Cross Member
? 0 TRAN Transmission
? 0 DIFF Differential
? 0 CASH Cardan Shaft

? ? FULT Fuel Tank
? ? FUL2 Second Fuel Tank

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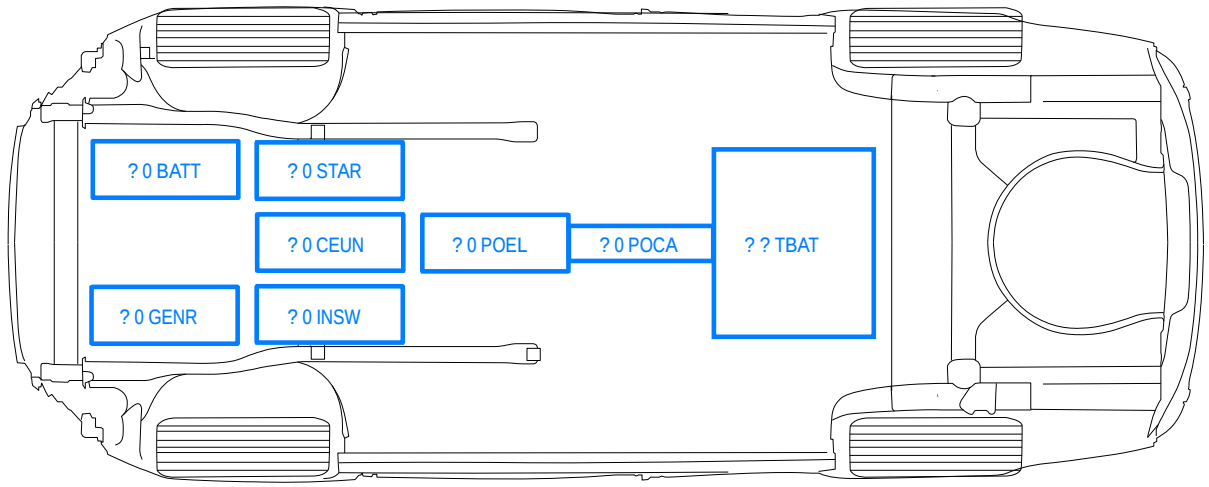
VEH_B3 Vehicle bottom

Valid since Version **1.6.1**

electric elements

ISO/TS 13499 - RED C : 2013
Vehicle Bottom View 3
Electric Elements
2013-11-06



? 0 BATT Battery
? 0 GENR Generator
? 0 STAR Starter
? 0 INSW Inertia Switch
? 0 CEUN Central Unit

? 0 POEL Power Electronics
? 0 POCA Power Cable
? ? TBAT Traction Battery

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ISO_VEH_B3_161_20131106.EMF

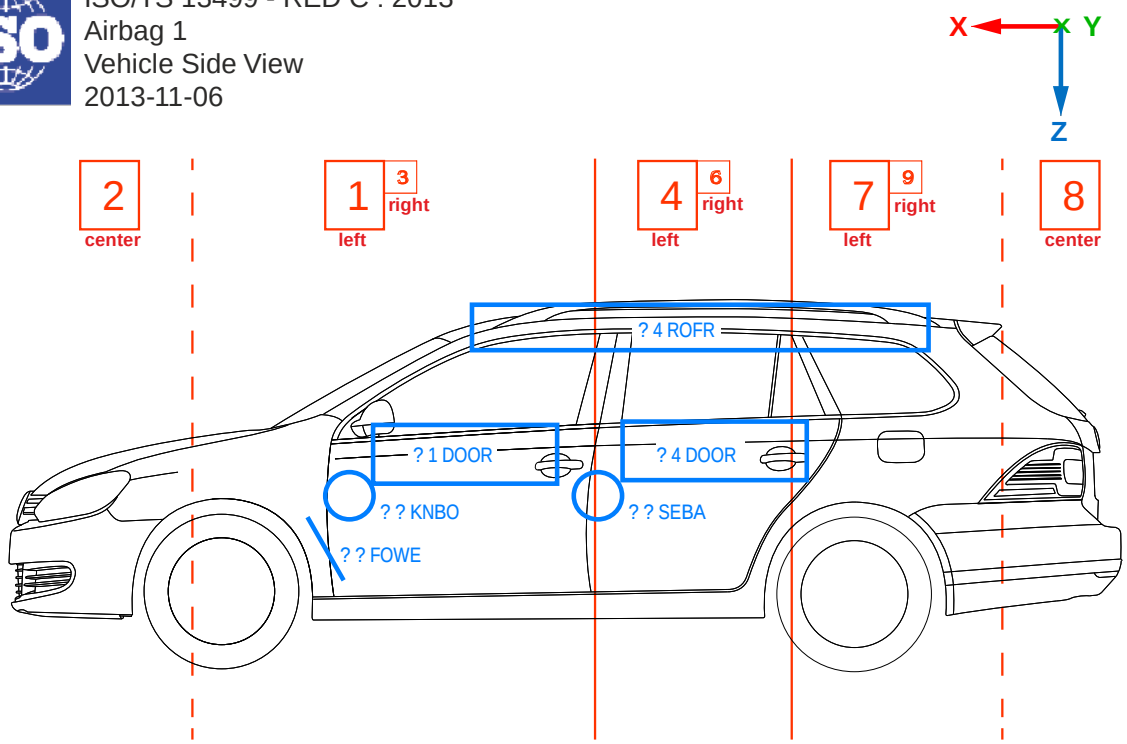
-> VEH_B3 <- 7 of 7

AIRB Airbag (1)

Valid since Version **1.6.1**

door, knee, footwell, roof frame airbags

ISO/TS 13499 - RED C : 2013
Airbag 1
Vehicle Side View
2013-11-06



picture only from the left side of the vehicle

General Main Locations

? ? AIRB ???? ??	Airbag
? ? ABSE ???? ??	Airbag Sensor

Frontal Airbags

? ? KNBO ???? AF	Knee Bolster Airbag
? ? KNBO ???? GF	Knee Bolster Generator
? ? SEBA ???? AF	Seat Back Knee Airbag
? ? SEBA ???? GF	Seat Back Knee Generator
? ? FOWE ???? AF	Footwell Airbag
? ? FOWE ???? GF	Footwell Generator

Side Airbags

? ? DOOR ???? AS	Door Side Airbag
? ? DOOR ???? GS	Door Side Generator

Head Airbags

? ? DOOR ???? AH	Door Head Airbag
? ? DOOR ???? GH	Door Head Generator
? ? ROFR ???? AH	Roof Frame Head Airbag
? ? ROFR ???? GH	Roof Frame Head Generator

ISO_AIRB_16R1

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ISO_AIRB_1_161_20131106.EMF

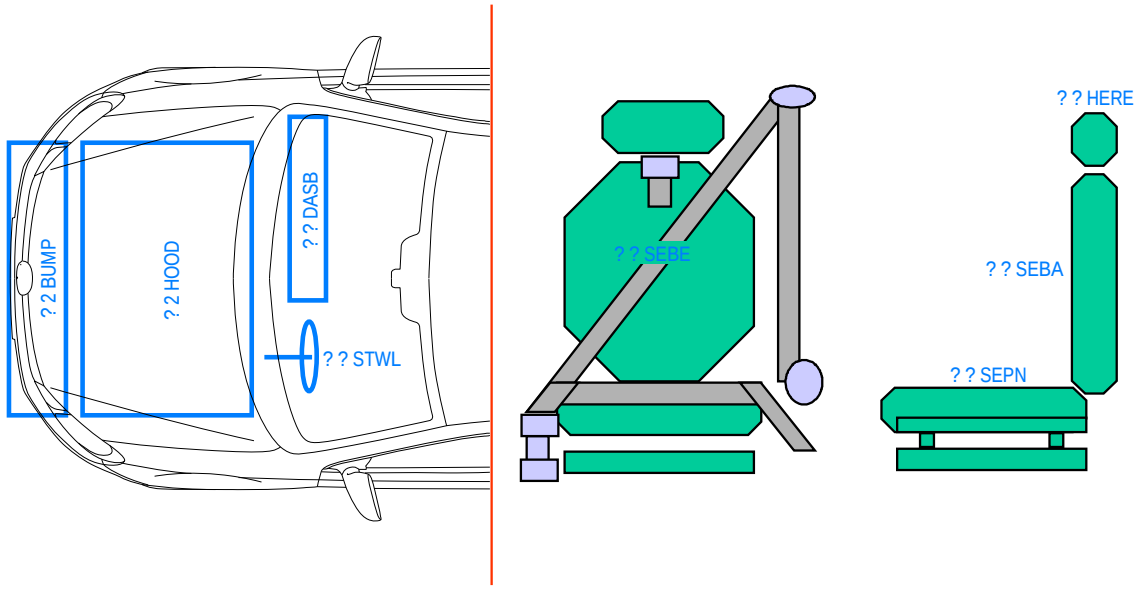
-> AIRB <- 1 of 2

AIRB Airbag (2)

Valid since Version **1.6.1**

external, seat related airbags

ISO/TS 13499 - RED C : 2013
Airbag 2
Vehicle Top View and Seat
2013-11-06



Frontal Airbags
? ? STWL ???? AF Steering Wheel Airbag
? ? STWL ???? GF Steering Wheel Gen.
? ? DASB ???? AF Dashboard Airbag
? ? DASB ???? GF Dashboard Generator

Pedestrian Airbags
? 2 BUMP ???? AP Bumper Airbag
? 2 BUMP ???? GP Bumper Generator
? 2 HOOD ???? AP Hood Airbag
? 2 HOOD ???? GP Hood Generator

Frontal Airbags
? ? SEBE ???? AF Seat Belt Airbag
? ? SEBE ???? GF Seat Belt Generator

Side Airbags
? ? SEPN ???? AS Seat Pan Airbag
? ? SEPN ???? GS Seat Pan Generator
? ? SEBA ???? AS Seat Back Airbag
? ? SEBA ???? GS Seat Back Generator

Rear Airbags
? ? HERE ???? AR Head Restraint Airbag
? ? HERE ???? GR Head Restraint Gen.

ISO_AIRB_16R1

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ISO_AIRB_2_161_20131106.EMF

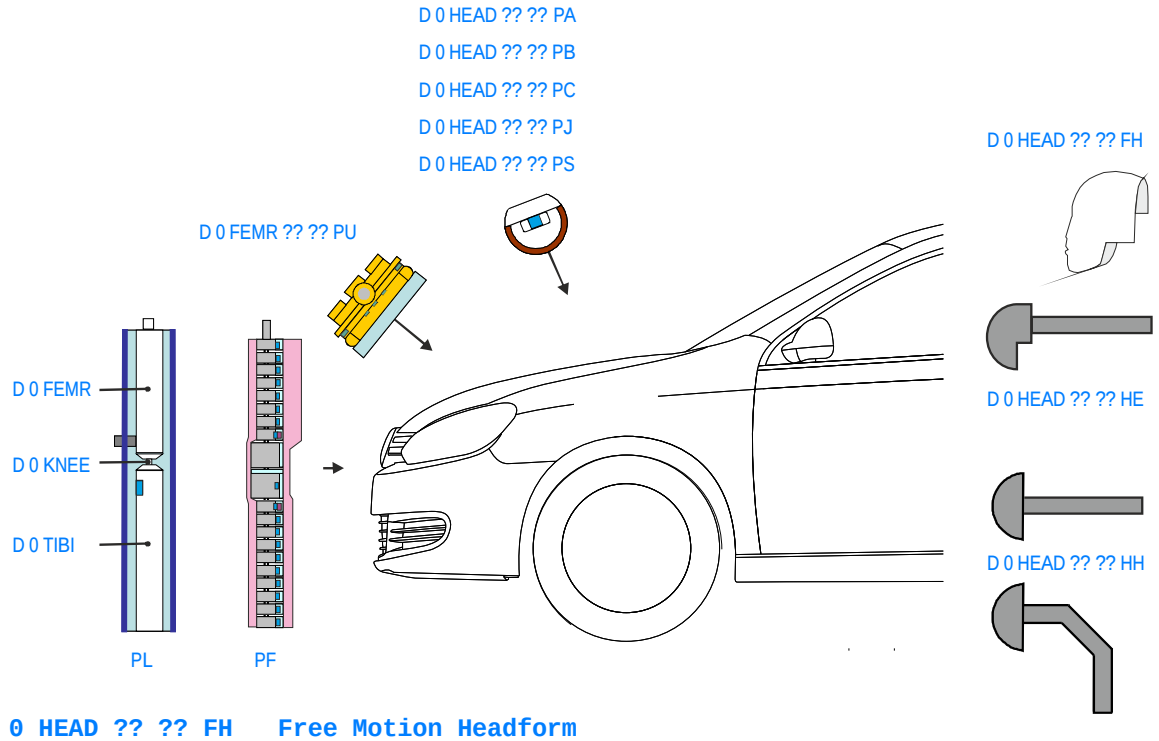
-> AIRB <- 2 of 2

IMP_1 Impactors: vehicle front end

Valid since Version **1.6.1**

impactors overview

ISO/TS 13499 - RED C : 2013
Impactors
Overview
2013-11-06



D 0 HEAD ?? ?? FH	**Free Motion Headform**
D 0 HEAD ?? ?? HE	**Headform (e.g. Ejection Mitigation)**
D 0 HEAD ?? ?? HH	**Hemisphere Headform (e.g. FMVSS201,FMVSS202a,ECE-R17,ECE-R21,GTR7)**
D 0 HEAD ?? ?? PA	**Adult Headform**
D 0 HEAD ?? ?? PB	**ACEA Headform**
D 0 HEAD ?? ?? PC	**Child Headform**
D 0 HEAD ?? ?? PJ	**JARI Headform**
D 0 HEAD ?? ?? PS	**JARI Child Headform**
D 0 FEMR ?? ?? PU	**Upper Legform Pedestrian Impactor**
D 0 FEMR ?? ?? PL	**Legform Pedestrian Impactor (upper leg)**
D 0 KNEE ?? ?? PL	**Legform Pedestrian Impactor (knee region)**
D 0 TIBI ?? ?? PL	**Legform Pedestrian Impactor (lower leg)**
D 0 FEMR ?? ?? PF	**Flexible Legform Impactor (upper leg)**
D 0 KNEE ?? ?? PF	**Flexible Legform Impactor (knee region)**
D 0 TIBI ?? ?? PF	**Flexible Legform Impactor (lower leg)**

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ISO_IMP_1_161_20131106.EMF

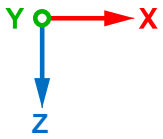
-> IMP_1 <- 1 of 4

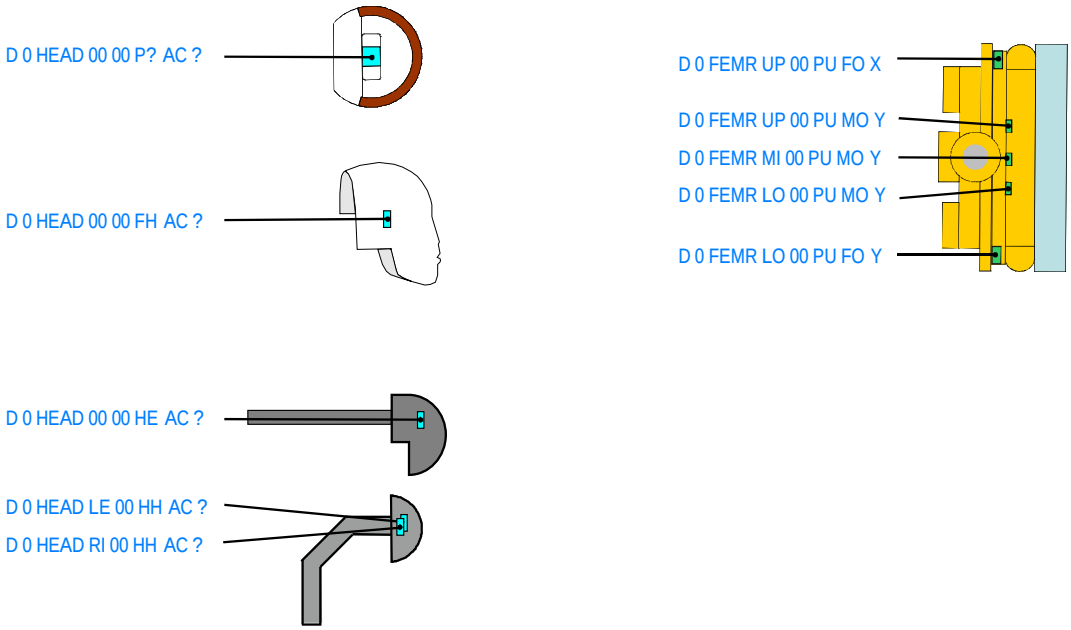
IMP_2 Impactors: head, upper legform

Valid since Version **1.6.1**

headforms and upper legform impactor

ISO/TS 13499 - RED C : 2013
Impactors
Headforms and Upper Legform Impactor
2013-11-06





D 0 HEAD 00 00 FH AC X ?	Free Motion Headform Acceleration X	transducer
D 0 HEAD 00 00 FH AC Y ?	Free Motion Headform Acceleration Y	transducer
D 0 HEAD 00 00 FH AC Z ?	Free Motion Headform Acceleration Z	transducer
D 0 HEAD ?? 00 H? AC X ?	(Hemisphere) Headform Acceleration X	transducer
D 0 HEAD ?? 00 H? AC Y ?	(Hemisphere) Headform Acceleration Y	transducer
D 0 HEAD ?? 00 H? AC Z ?	(Hemisphere) Headform Acceleration Z	transducer
D 0 HEAD 00 00 P? AC X ?	Pedestrian Headform Acceleration X	transducer
D 0 HEAD 00 00 P? AC Y ?	Pedestrian Headform Acceleration Y	transducer
D 0 HEAD 00 00 P? AC Z ?	Pedestrian Headform Acceleration Z	transducer
D 0 HEAD 00 ?? ?? DS X V	Position X	filmanalysis
D 0 HEAD 00 ?? ?? DS Y V	Position Y	filmanalysis
D 0 HEAD 00 ?? ?? DS Z V	Position Z	filmanalysis
D 0 HEAD 00 ?? ?? AN X V	Rotation around X Axis	filmanalysis
D 0 HEAD 00 ?? ?? AN Y V	Rotation around Y Axis	filmanalysis
D 0 HEAD 00 ?? ?? AN Z V	Rotation around Z Axis	filmanalysis
D 0 FEMR UP 00 PU FO X ?	Upper Shear Force X	transducer
D 0 FEMR LO 00 PU FO X ?	Lower Shear Force X	transducer
D 0 FEMR UP 00 PU MO Y ?	Upper Bending Moment Y	transducer
D 0 FEMR MI 00 PU MO Y ?	Middle Bending Moment Y	transducer
D 0 FEMR LO 00 PU MO Y ?	Lower Bending Moment Y	transducer

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ISO_IMP_2_161_20131106.EMF

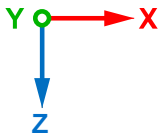
-> IMP_2 <- 2 of 4

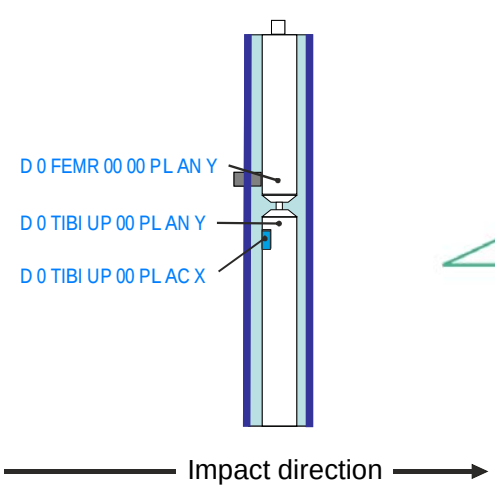
IMP_3 Impactors: legform

Valid since Version **1.6.1**

pedestrian legform impactor

ISO/TS 13499 - RED C : 2013
Impactors
Pedestrian Legform Impactor
2013-11-06





D 0 TIBI UP 00 PL AC X ?	Tibia Acceleration X	transducer
D 0 TIBI UP 00 PL AN Y ?	Bending Angle Tibia Y	transducer
D 0 FEMR 00 00 PL AN Y ?	Bending Angle Femur Y	transducer
D 0 KNEE 00 00 PL AN Y ?	Bending Angle effective Y	calculation
D 0 KNEE 00 00 PL DS X ?	Shear Displacement X	calculation

negative shear displacement values if tibia is retained against femur

D 0 FEMR 00 OR PL DS X V	Position X	filmanalysis
D 0 FEMR 00 OR PL DS Y V	Position Y	filmanalysis
D 0 FEMR 00 OR PL DS Z V	Position Z	filmanalysis
D 0 FEMR 00 OR PL AN X V	Orientation in lateral Plane YZ	filmanalysis
D 0 FEMR 00 OR PL AN Y V	Orientation in longitudinal Plane XZ	filmanalysis
D 0 FEMR 00 OR PL AN Z V	Orientation in horizontal Plane XY	filmanalysis

D 0 TIBI UP 00 PL DS X ?	Indentation at Hit Point X	calculation

For compatibility to existing data the impact direction for this impactor defines the X coordinate of the local system.

ISO_IMP_16R1

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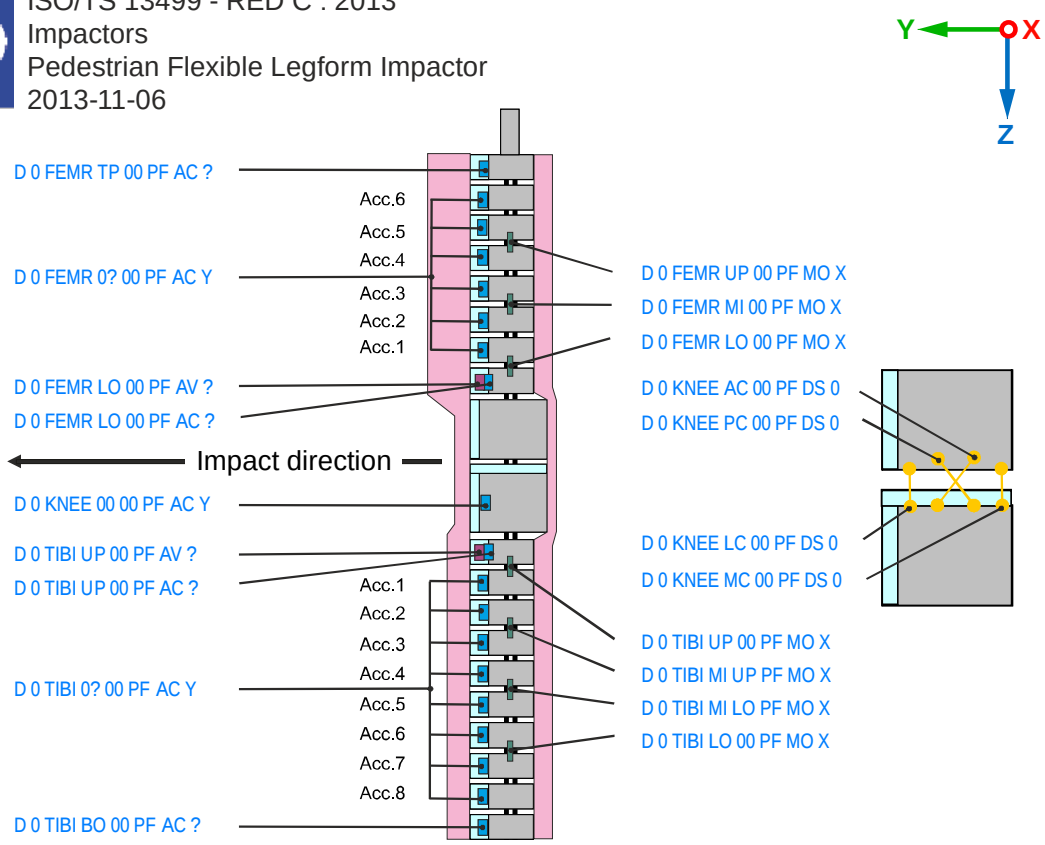
IMP_4 Impactors: flexpli-legform

Valid since Version **1.6.1**

pedestrian flexible legform impactor

ISO/TS 13499 - RED C : 2013
Impactors
Pedestrian Flexible Legform Impactor
2013-11-06



D0FEMRUP00PFMOX	Femur Up Moment X
D0FEMRMI00PFMOX	Femur Mi Moment X
D0FEMRLO00PFMOX	Femur Lo Moment X
D0KNEELC00PFDS0	Knee LCL Elongation
D0KNEEAC00PFDS0	Knee ACL Elongation
D0KNEEPC00PFDS0	Knee PCL Elongation
D0KNEEMC00PFDS0	Knee MCL Elongation
D0TIBIUP00PFMOX	Tibia Up Moment X
D0TIBIMIUPPFMOX	Tibia Mi Up Mom X
D0TIBIMILOPFMOX	Tibia Mi Lo Mom X
D0TIBILO00PFMOX	Tibia Lo Moment X
D0FEMRTP00PFACX	Femur Top Acc X
D0FEMRTP00PFACY	Femur Top Acc Y
D0FEMRTP00PFACZ	Femur Top Acc Z
D0FEMR0600PFACY	Femur Seg 6 Acc Y
D0FEMR0500PFACY	Femur Seg 5 Acc Y
D0FEMR0400PFACY	Femur Seg 4 Acc Y
D0FEMR0300PFACY	Femur Seg 3 Acc Y
D0FEMR0200PFACY	Femur Seg 2 Acc Y
D0FEMR0100PFACY	Femur Seg 1 Acc Y

D0FEMRLO00PFACX	Femur Lo Acc X
D0FEMRLO00PFACY	Femur Lo Acc Y
D0FEMRLO00PFACZ	Femur Lo Acc Z
D0FEMRLO00PFAVX	Femur Lo Ang Vel X
D0FEMRLO00PFAVY	Femur Lo Ang Vel Y
D0FEMRLO00PFAVZ	Femur Lo Ang Vel Z
D0TIBIUP00PFACX	Tibia Up Acc X
D0TIBIUP00PFACY	Tibia Up Acc Y
D0TIBIUP00PFACZ	Tibia Up Acc Z
D0TIBIUP00PFAVX	Tibia Up Ang Vel X
D0TIBIUP00PFAVY	Tibia Up Ang Vel Y
D0TIBIUP00PFAVZ	Tibia Up Ang Vel Z
D0TIBI0100PFACY	Tibia Seg 1 Acc Y
D0TIBI0200PFACY	Tibia Seg 2 Acc Y
D0TIBI0300PFACY	Tibia Seg 3 Acc Y
D0TIBI0400PFACY	Tibia Seg 4 Acc Y
D0TIBI0500PFACY	Tibia Seg 5 Acc Y
D0TIBI0600PFACY	Tibia Seg 6 Acc Y
D0TIBI0700PFACY	Tibia Seg 7 Acc Y
D0TIBI0800PFACY	Tibia Seg 8 Acc Y
D0TIBIBO00PFACX	Tibia Bo Acc X
D0TIBIBO00PFACY	Tibia Bo Acc Y
D0TIBIBO00PFACZ	Tibia Bo Acc Z

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ISO_IMP_4_161_20131106.EMF

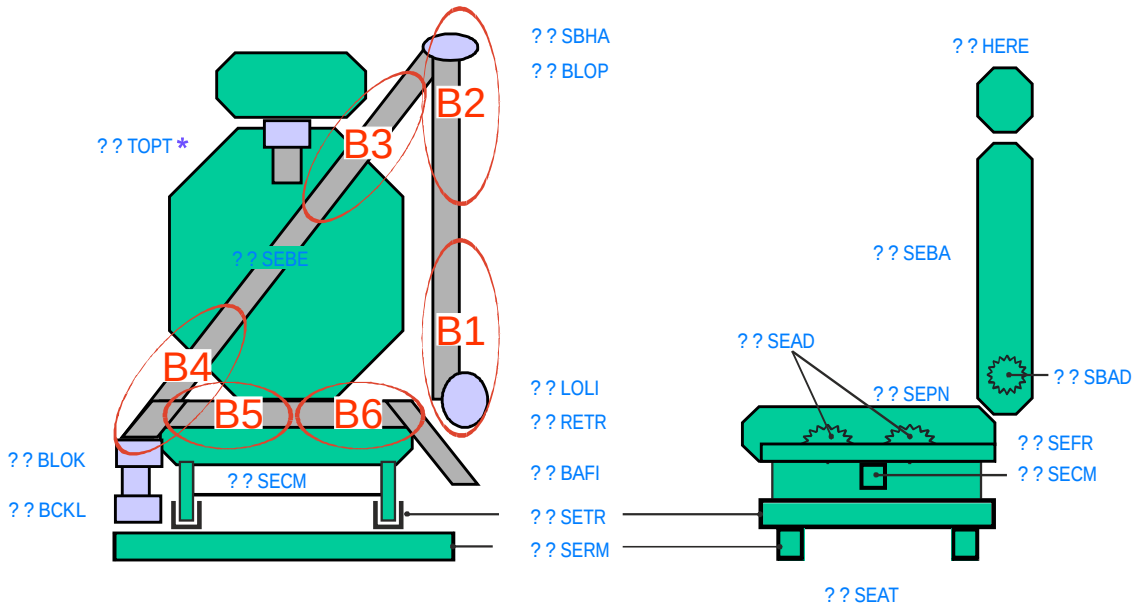
-> IMP_4 <- 4 of 4

SEAT_1 Seat

Valid since Version **1.6.1**

belts and seat structure

ISO/TS 13499 - RED C : 2013
Seat 1
Seat Front and Side View
2013-11-06



? ? SEBE ???? B1 Seat Belt at Retractor
? ? SEBE ???? B2 Seat Belt below Belt Loop
? ? SEBE ???? B3 Seat Belt at upper Diag. Belt
? ? SEBE ???? B4 Seat Belt at lower Diag. Belt
? ? SEBE ???? B5 Seat Belt at Lap Belt inside
? ? SEBE ???? B6 Seat Belt at Lap Belt outside

? ? PRET ???? B1 Pretensioner at Retractor
? ? PRET ???? B2 Pretensioner below Belt Loop
? ? PRET ???? B4 Pretensioner at lower Diag. Belt
? ? PRET ???? B6 Pretensioner at Lap Belt outside

? ? LOLI Load Limiter
? ? RETR Retractor

? ? SBHA Seat Belt Height Adjuster
? ? BLOP Belt Loop

? ? BLOK Belt Lock
? ? BCKL Buckle

? ? BAFI Belt Anchor Fitting

* Only at the rear seats
? ? TOPT Top Tether

? ? SEAT Seat
? ? SEBA Seat Back
? ? SBAD Seat Back Adjuster
? ? SEFR Seat Frame
? ? SETR Seat Track
? ? SEAD Seat Adjuster
? ? SEPN Seat Pan
? ? HERE Head Restraint
? ? SECM Seat Cross Member
? ? SERM Seat Rail Mount

ISO_SEAT_16R1

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ISO_SEAT_1_161_20131106.EMF

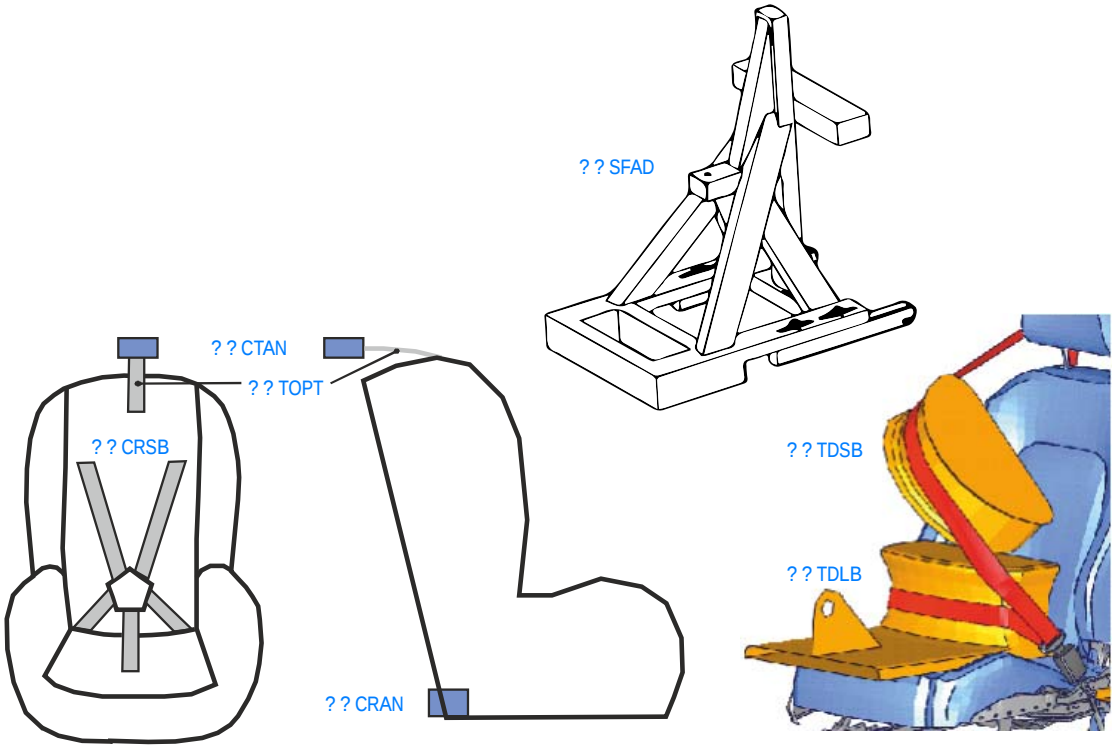
-> SEAT_1 <- 1 of 2

SEAT_2 Seat and traction devices

Valid since Version **1.6.1**

traction devices, Child restraint anchorage

ISO/TS 13499 - RED C : 2013
Seat 2
Child Restraint Systems
2013-11-06



? ? TDSB Traction Device Shoulder Belt
? ? TDLB Traction Device Lap Belt

? ? CTAN Child Tether Anchorage
? ? CRAN Child Restraint Anchor
? ? CRSB Child Restraint Seat Belt
? ? TOPT Top Tether

? ? SFAD Static Force Application Device

ISO_SEAT_16R1

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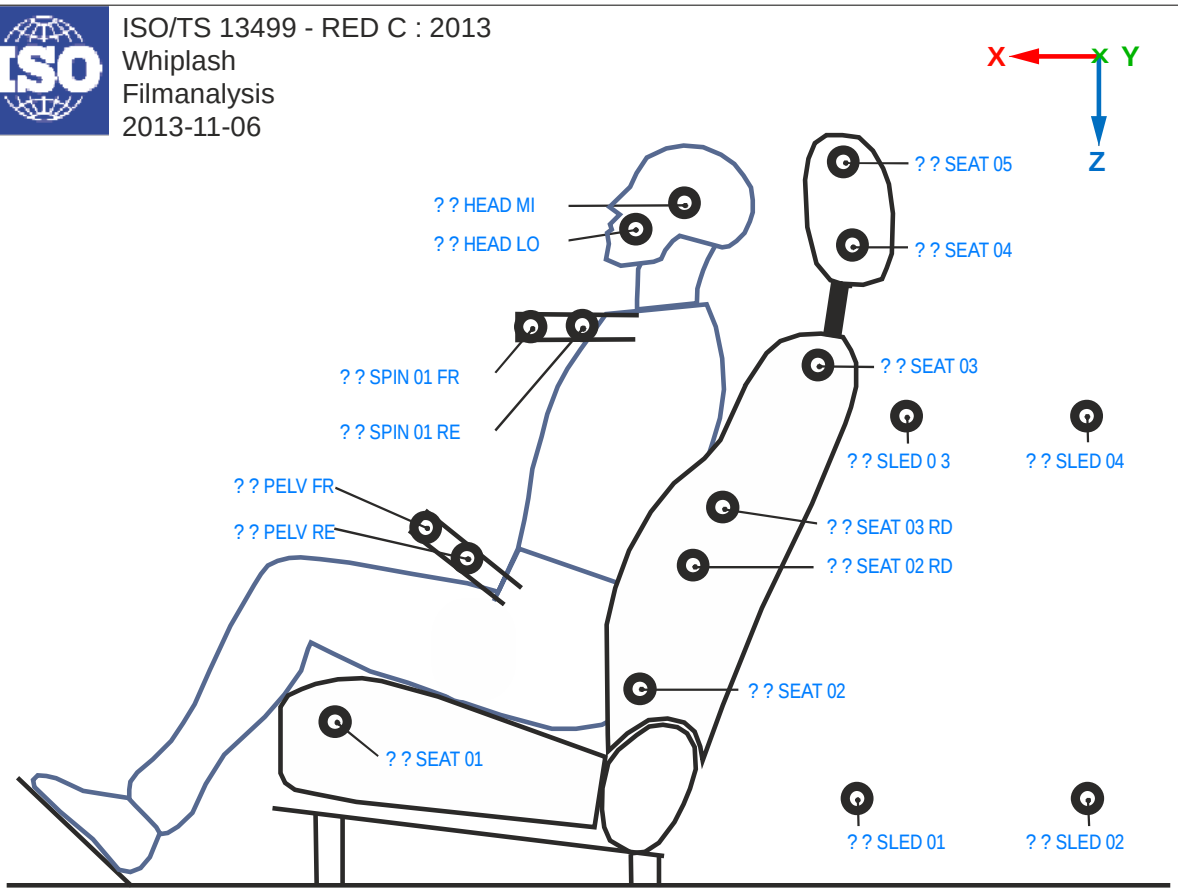
ISO_SEAT_2_161_20131106.EMF

-> SEAT_2 <- 2 of 2

WPL_1 Whiplash

Valid since Version **1.6.1**

whiplash filmanalysis




```
S ? SEAT 01 00 00 DS ? V   ST1    Seat Base forward
S ? SEAT 02 00 00 DS ? V   ST2    Seat Back lower
S ? SEAT 02 RD 00 DS ? V   ST2'   Seat Back mid #1
S ? SEAT 03 00 00 DS ? V   ST3    Seat Back upper
S ? SEAT 03 RD 00 DS ? V   ST3'   Seat Back mid #2
S ? SEAT 04 00 00 DS ? V   ST4    Lower Head Restraint
S ? SEAT 05 00 00 DS ? V   ST5    Upper Head Restraint

S ? HEAD MI 00 BR DS ? V   DT6    Head CoG
S ? HEAD LO 00 BR DS ? V   DT7    Cheek
S ? SPIN 01 RE BR DS ? V   DT8    T1 Bracket proximal
S ? SPIN 01 FR BR DS ? V   DT9    T1 Bracket distal
S ? PELV RE 00 BR DS ? V   DT10   Pelvis Bracket proximal
S ? PELV FR 00 BR DS ? V   DT11   Pelvis Bracket distal

S 0 SLED 01 00 00 DS ? V   Ref1   Reference Point #1
S 0 SLED 02 00 00 DS ? V   Ref2   Reference Point #2
S 0 SLED 03 00 00 DS ? V   Ref3   Reference Point #3
S 0 SLED 04 00 00 DS ? V   Ref4   Reference Point #4

Possible values for the direction are X, Y, Z and R

S 0 HEAD 00 DI BR VE X V   Rebound velocity of head relative to sled
```

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ISO_WPL_1_161_20131106.EMF

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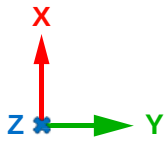
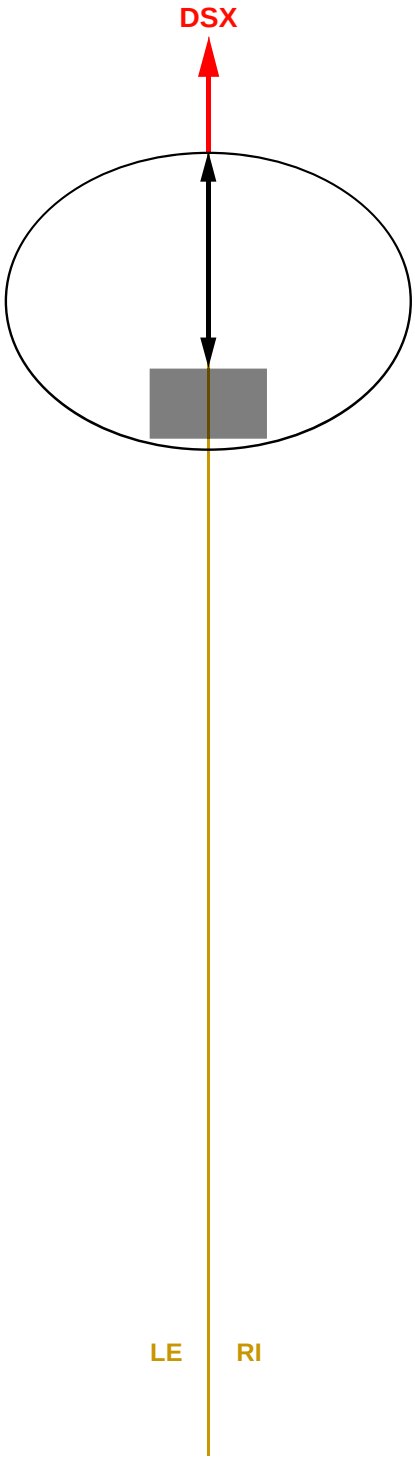
OTHER Chest Deflection Measurement

Valid since Version **1.6.1**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2013
Chest Deflection
1 Axis - Frontal Impact
2013-11-06





Rotary Potentiometer **H3, HF, HM, Y6, Y7**
transducer:
CHST 00 00 ?? DSX

for polynomial calibration and simultaneously exchange only:
calculation:
CHST 00 03 ?? DSX

String Potentiometer **Q1, Q2**
transducer:
CHST 00 00 ?? DSX

IR-TRACC 1D **Q3, Q6**
transducer:
CHST 00 00 ?? VOX
calculation:
CHST 00 00 ?? DSX

ISO_CHST_16R1

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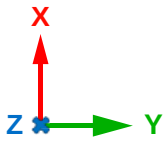
-> OTHER <- 1 of 6

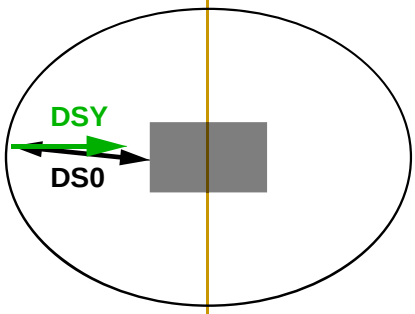
OTHER Chest Deflection Measurement

Valid since Version **1.6.1**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2013
Chest Deflection
1 Axis - Side Impact
2013-11-06





Linear Potentiometer **E1, E2, SI**
transducer:
???? LE ?? ?? DSY

Linear Potentiometer **S2** (historical)
transducer:
???? ?? LE S2 DSY

String Potentiometer **Q1, Q2**
transducer:
CHST LE 00 ?? DSY

IR-TRACC 1D **Q3, Q4, Q6**
transducer:
CHST LE 00 ?? VOY
calculation:
CHST LE 00 ?? DSY

IR-TRACC **WS**
transducer:
???? LE ?? WS VOY
calculation:
???? LE ?? WS DSY

LE RI

Note that sensor locations and ISO Codes are different for right side impact.

ISO_CHST_16R1

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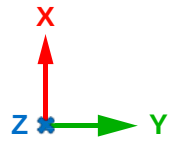
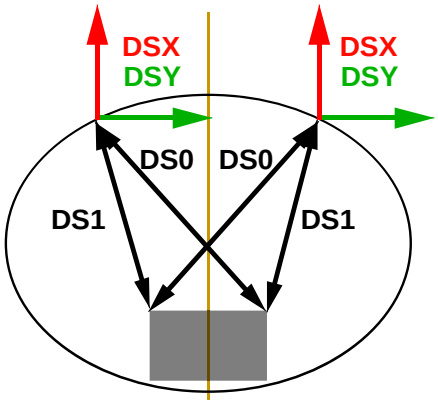
OTHER Chest Deflection Measurement

Valid since Version **1.6.1**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2013
Chest Deflection
2 Axis - Frontal Impact
2013-11-06

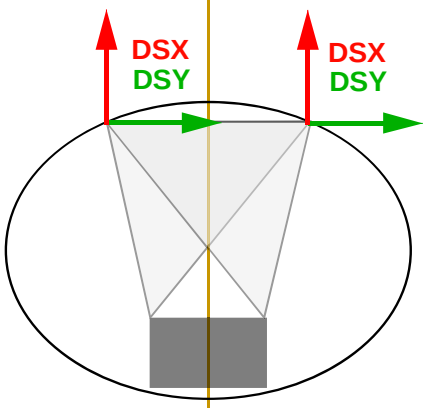




String Potentiometer **H3, HF**

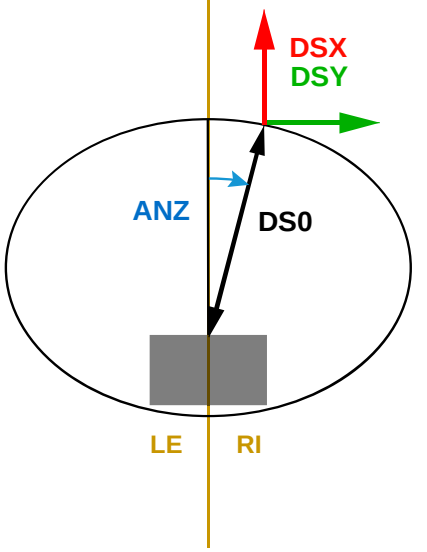
```
transducer:
CHST LE UP ?? DS 0,1
CHST RI UP ?? DS 0,1
CHST LE LO ?? DS 0,1
CHST RI LO ?? DS 0,1

calculation:
CHST LE UP ?? DS X,Y
CHST RI UP ?? DS X,Y
CHST LE LO ?? DS X,Y
CHST RI LO ?? DS X,Y
```



RibEye **H3, HF**

```
calculation:
CHST LE ?? ?? DS X,Y
CHST RI ?? ?? DS X,Y
```



IR-TRACC 2D **QA**

```
transducer:
CHST UP 00 QA VO0
CHST UP 00 QA DS0
CHST UP 00 QA ANZ
CHST LO 00 QA VO0
CHST LO 00 QA DS0
CHST LO 00 QA ANZ

calculation:
CHST UP 00 QA DS X,Y
CHST LO 00 QA DS X,Y
```

ISO_CHST_16R1

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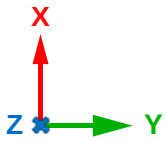
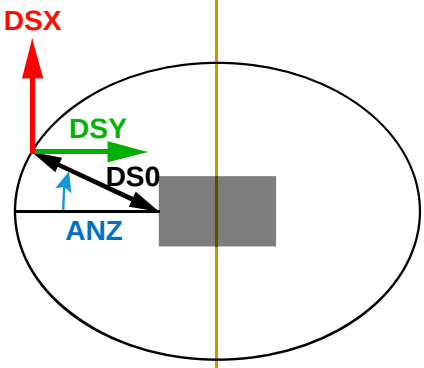
OTHER Chest Deflection Measurement

Valid since Version **1.6.1**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2013
Chest Deflection
2 Axis - Side Impact
2013-11-06





IR-TRACC 2D **WS**

transducer:

SHRI LE 00 WS VO0
SHRI LE 00 WS DS0
SHRI LE 00 WS ANZ
TRRI LE 0? WS VO0
TRRI LE 0? WS DS0
TRRI LE 0? WS ANZ
ABRI LE 0? WS VO0
ABRI LE 0? WS DS0
ABRI LE 0? WS ANZ

calculation:

SHRI LE 00 WS DS X,Y
TRRI LE 01 WS DS X,Y
TRRI LE 02 WS DS X,Y
TRRI LE 03 WS DS X,Y
ABRI LE 01 WS DS X,Y
ABRI LE 02 WS DS X,Y

IR-TRACC 2D **QA**

transducer:

CHST LE UP QA VO0
CHST LE UP QA DS0
CHST LE UP QA ANZ
CHST LE LO QA VO0
CHST LE LO QA DS0
CHST LE LO QA ANZ

calculation:

CHST LE UP QA DS X,Y
CHST LE LO QA DS X,Y

LE RI

Note that sensor locations and ISO Codes are different for right side impact.

ISO_CHST_16R1

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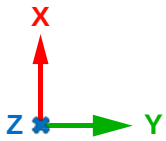
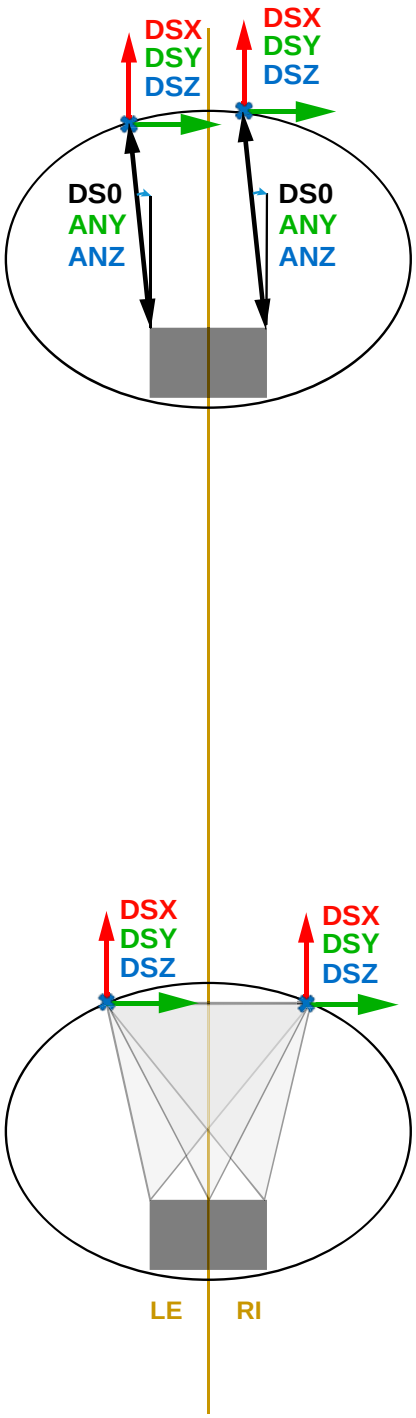
OTHER Chest Deflection Measurement

Valid since Version **1.6.1**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2013
Chest Deflection
3 Axis - Frontal Impact
2013-11-06





IR-TRACC 3D **TH** , (THMPR) **H3, HF**

```
transducer:
CHST LE UP ?? VO0
CHST LE UP ?? DS0
CHST LE UP ?? ANY
CHST LE UP ?? ANZ
CHST RI UP ?? VO0
CHST RI UP ?? DS0
CHST RI UP ?? ANY
CHST RI UP ?? ANZ
CHST LE LO ?? VO0
CHST LE LO ?? DS0
CHST LE LO ?? ANY
CHST LE LO ?? ANZ
CHST RI LO ?? VO0
CHST RI LO ?? DS0
CHST RI LO ?? ANY
CHST RI LO ?? ANZ

calculation:
CHST LE UP ?? DS X,Y,Z
CHST RI UP ?? DS X,Y,Z
CHST LE LO ?? DS X,Y,Z
CHST RI LO ?? DS X,Y,Z
```

RibEye **H3**

```
calculation:
CHST LE ?? H3 DS X,Y,Z
CHST RI ?? H3 DS X,Y,Z
```

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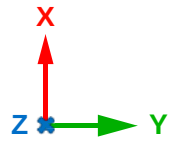
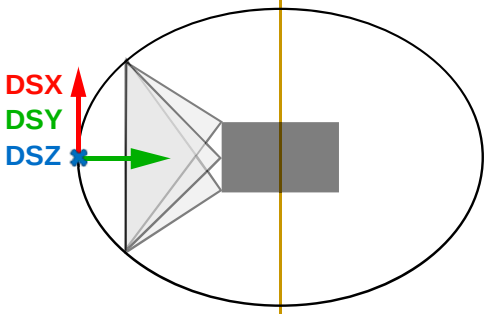
OTHER Chest Deflection Measurement

Valid since Version **1.6.1**

Chest Deflection Coding for different dummy types

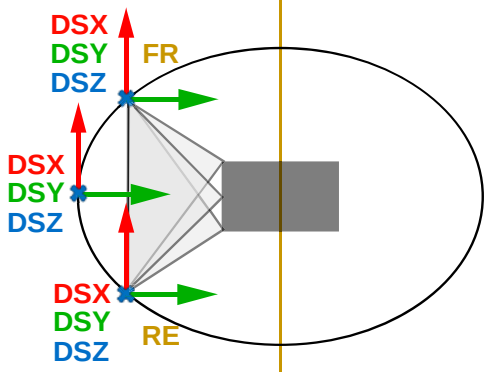
ISO/TS 13499 - RED C : 2013
Chest Deflection
3 Axis - Side Impact
2013-11-06





RibEye **S2**
calculation:

```
SHRI 00 LE S2 DS X,Y,Z
TRRI 01 LE S2 DS X,Y,Z
TRRI 02 LE S2 DS X,Y,Z
TRRI 03 LE S2 DS X,Y,Z
ABRI 01 LE S2 DS X,Y,Z
ABRI 02 LE S2 DS X,Y,Z
```



RibEye **WS**
calculation:

```
SHRI LE 00 WS DS X,Y,Z
TRRI LE 01 WS DS X,Y,Z
TRRI LE 02 WS DS X,Y,Z
TRRI LE 03 WS DS X,Y,Z
ABRI LE 01 WS DS X,Y,Z
ABRI LE 02 WS DS X,Y,Z
```

optional channels

```
SHRI LE FR WS DS X,Y,Z
SHRI LE RE WS DS X,Y,Z
TRRI LU FR WS DS X,Y,Z
TRRI LU RE WS DS X,Y,Z
TRRI LE FR WS DS X,Y,Z
TRRI LE RE WS DS X,Y,Z
TRRI LL FR WS DS X,Y,Z
TRRI LL RE WS DS X,Y,Z
ABRI LU FR WS DS X,Y,Z
ABRI LU RE WS DS X,Y,Z
ABRI LL FR WS DS X,Y,Z
ABRI LL RE WS DS X,Y,Z
```

LE RI

Note that sensor locations and ISO Codes are different for right side impact.

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