ISO TC 22/SC 12

Date: 2020-06-17

ISO/TS 13499 - RED C : 2020 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 1.6.2 —

Remark for version 2.x release:
All figures comply to the latest version 1.x release .
Figures are maintained and updated in parallel for both major versions. File name references will be identical to version 1.

Document type: Related electronic document
Document language: E

ISO MME Database 252 - Data Release 1.6.2

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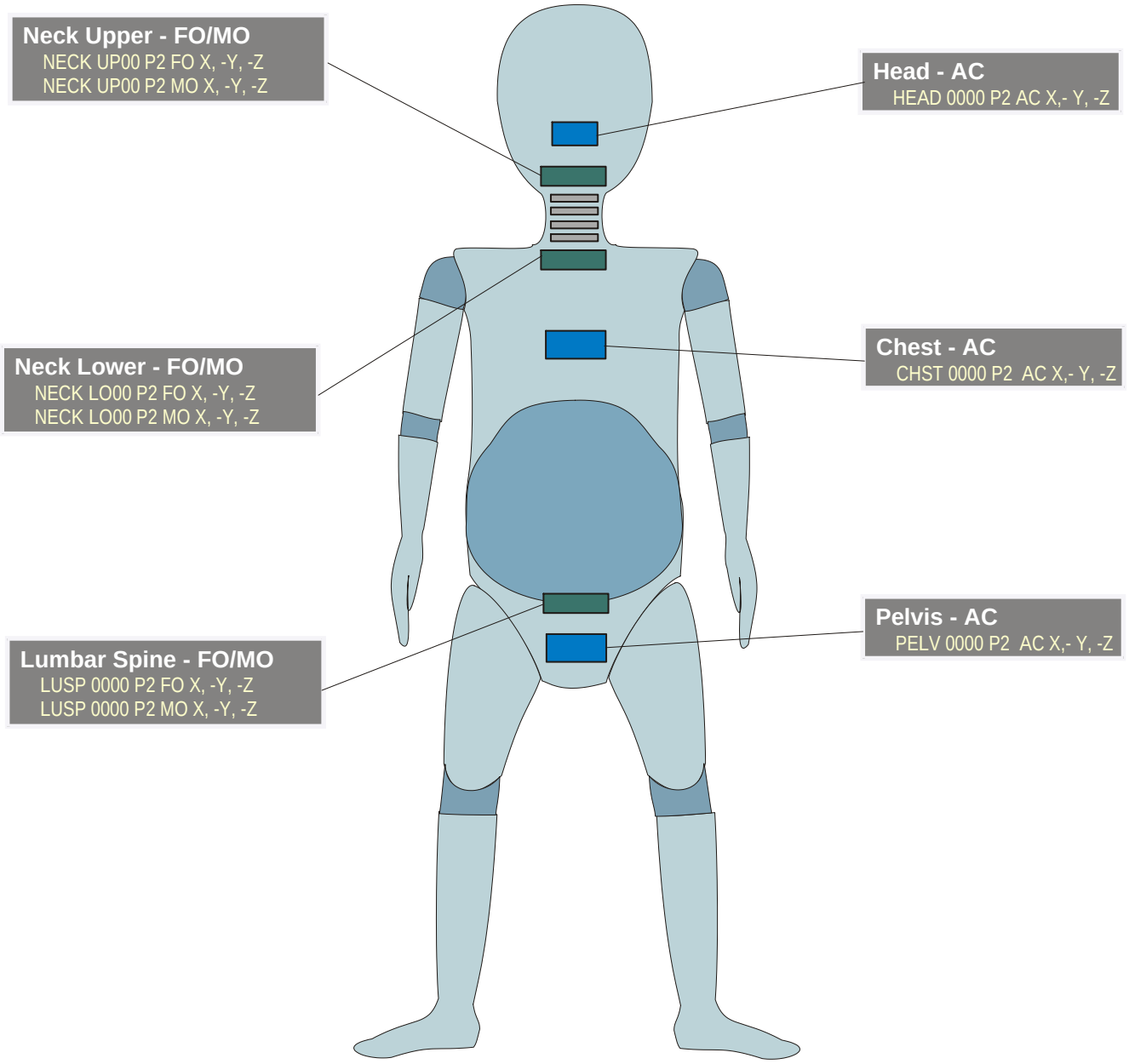
SEAT_1	**Seat**	**1.6.1**	**belts and seat structure**
SEAT_2	**Seat and traction devices**	**1.6.1**	**traction devices, Child restraint anchorage**
WPL_1	**Whiplash**	**1.6.2.p2**	**whiplash filmanalysis**
OTHER	**Chest Deflection Measurement**	**1.6.2.p3**	**Chest Deflection Coding for different dummy types**

P2 TNO P 1½ year old

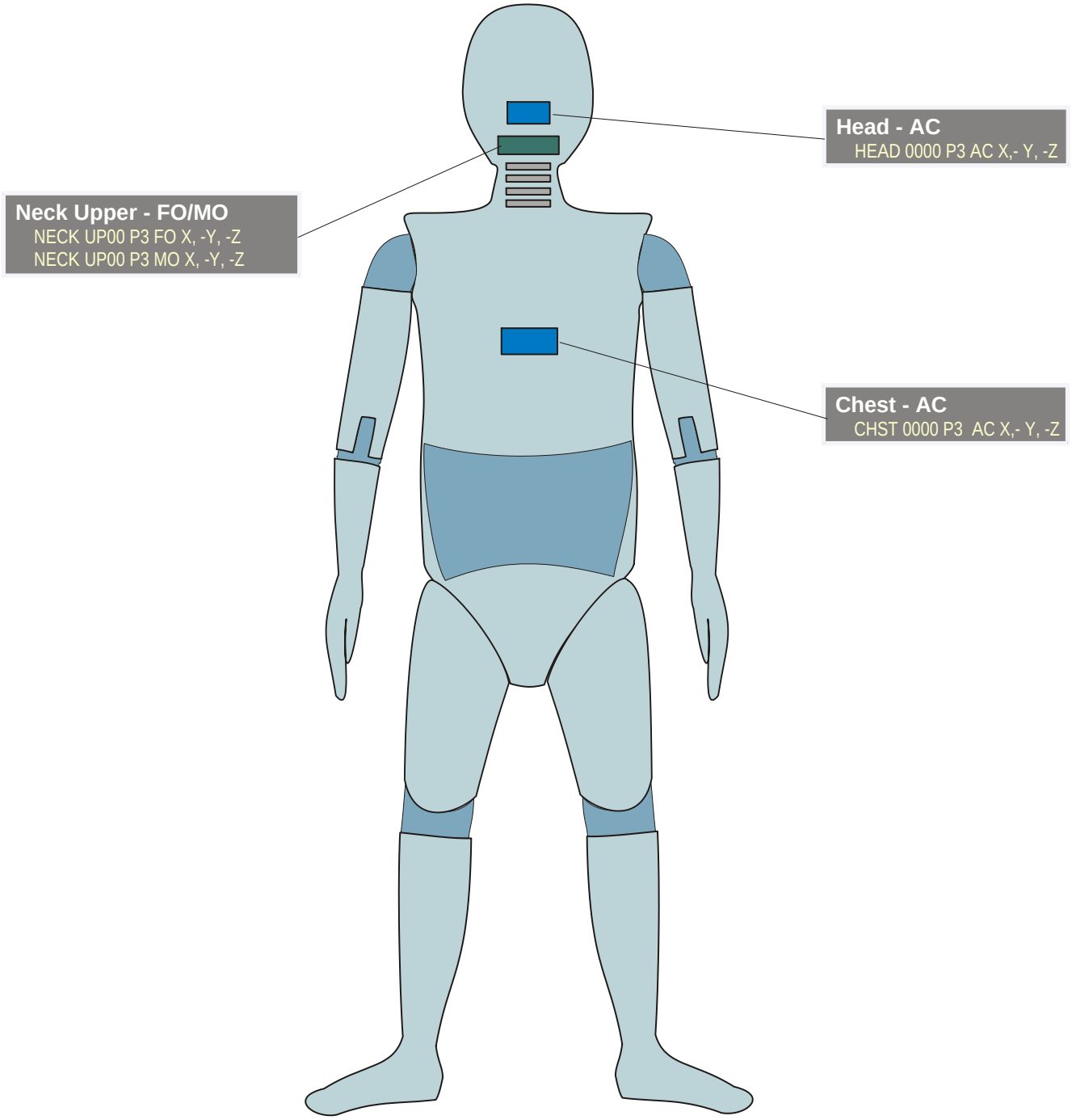
Valid since Version **1.1**



P2_1_11.wmf

P3 TNO P 3 year old

Valid since Version **1.1**



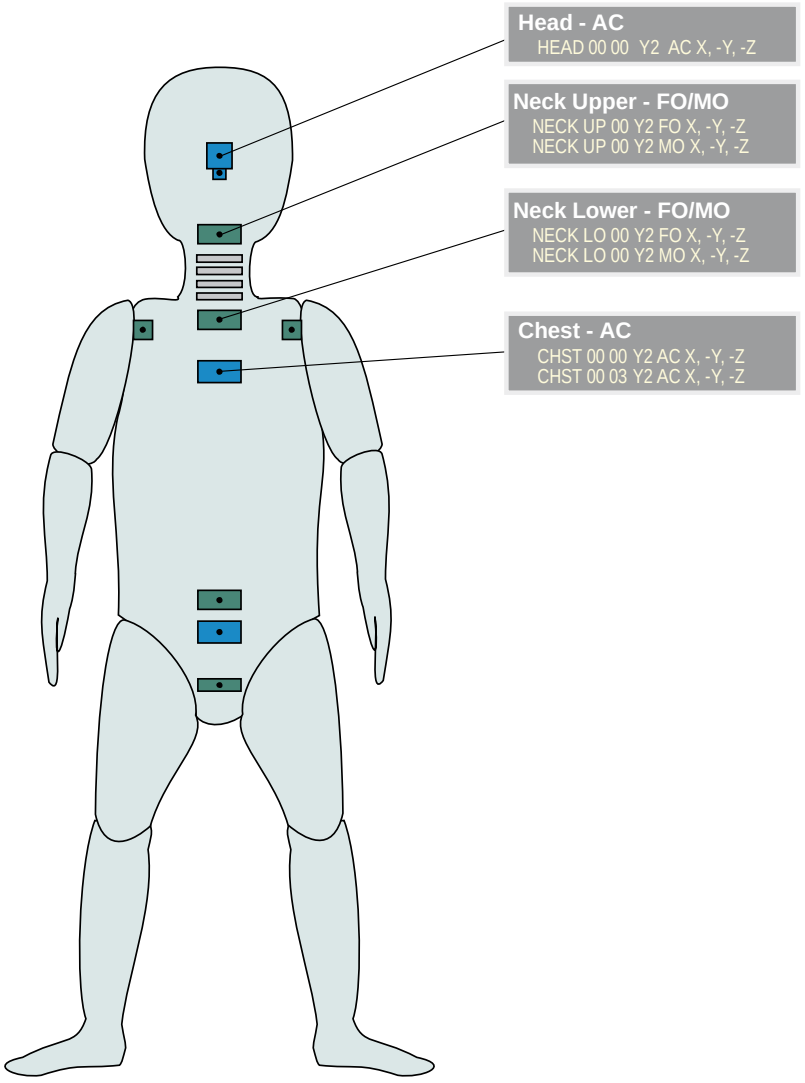
P3_1_11.WMF

-> P3 <- 1 of 1

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



ISO-Y2_20111220

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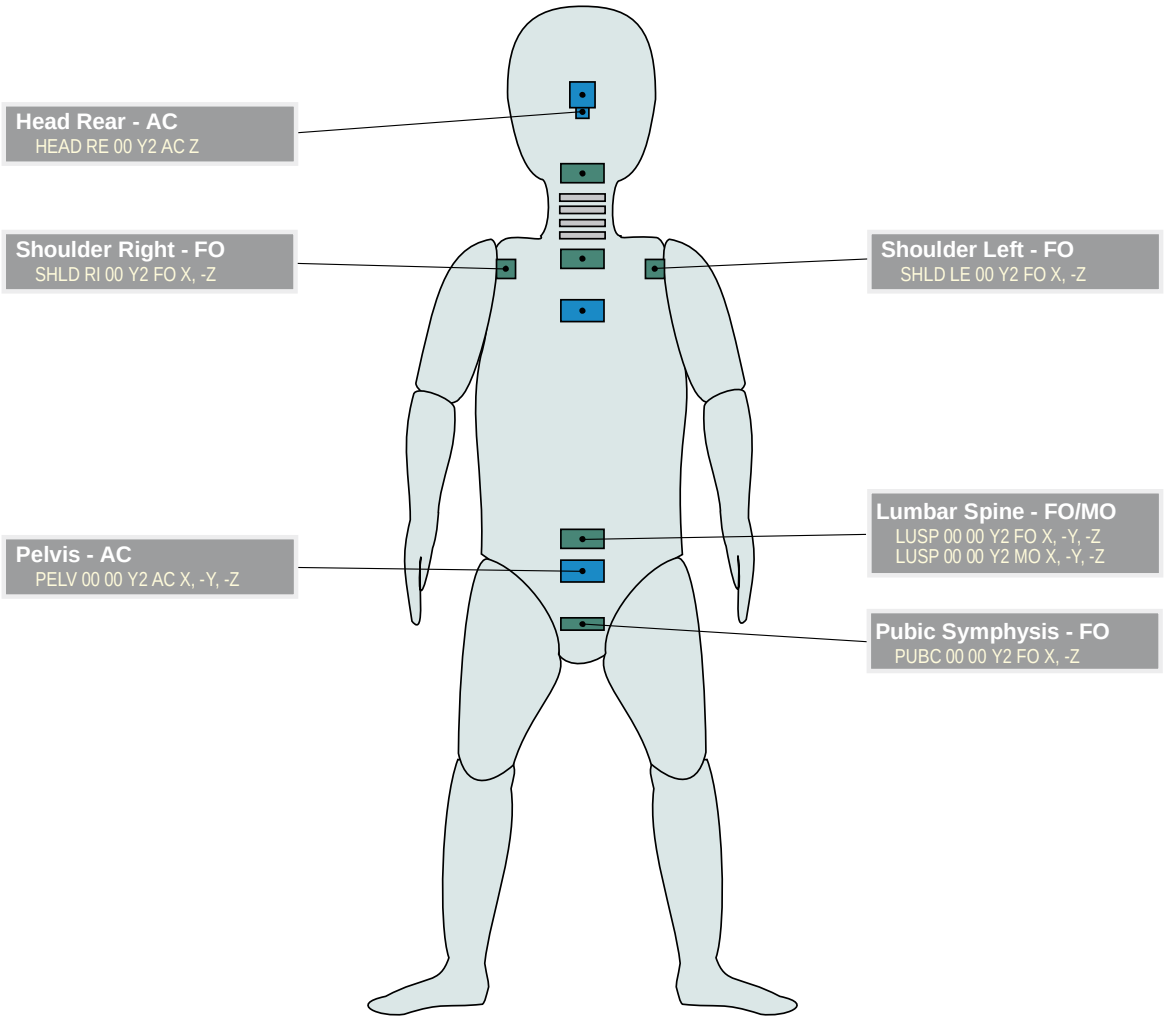
ISO_Y2_1_16_20111220.EMF

-> Y2 <- 1 of 1

Y2 CRABI 12 month old (2)

Valid since Version **1.6**

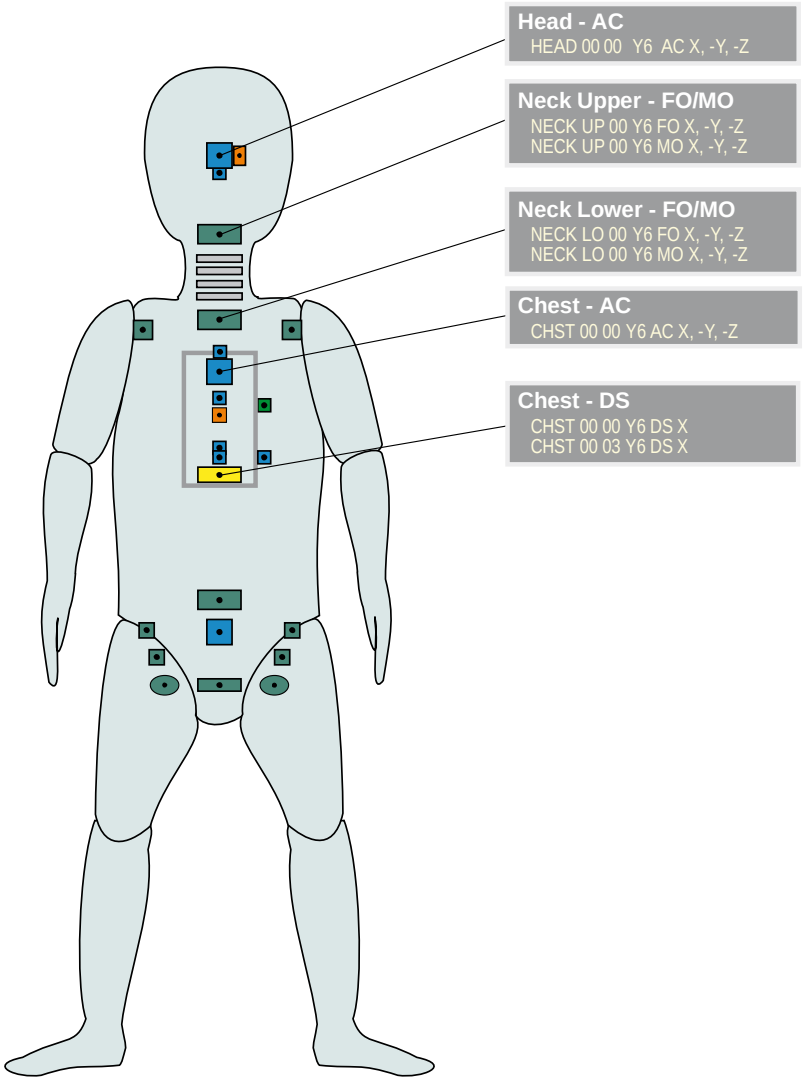
ISO/TS 13499 – RED C : 2010(E)
Y2, CRABI 12 Month Old Infant Dummy
Additional Instrumentation
2011-12-20



Y6 H III - 3 year old (1)

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

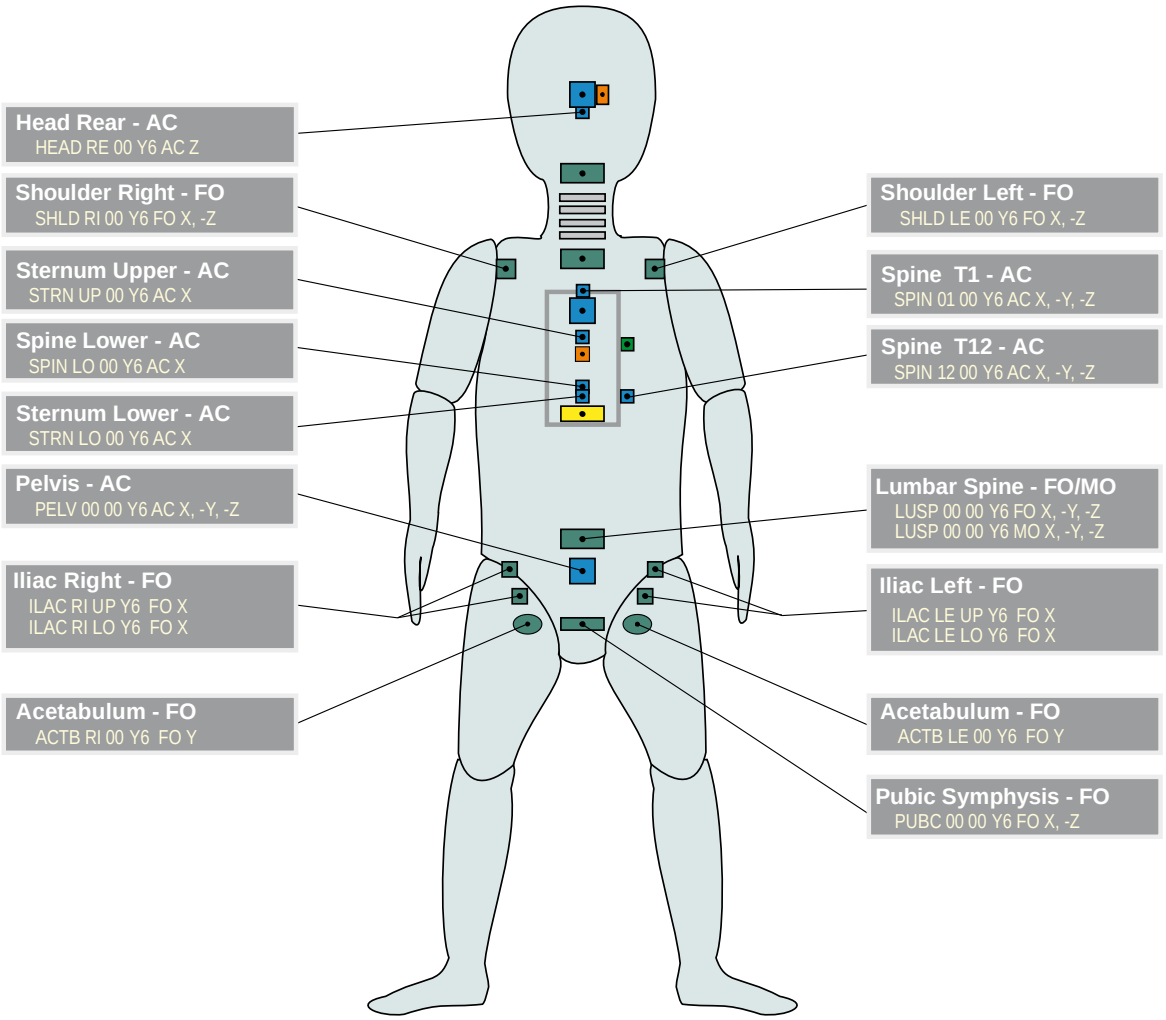
ISO/TS 13499 – RED C : 2010(E)
Y6, Hybrid III 3 Year Old Child Dummy
Standard Instrumentation
2013-07-10



Y6 H III - 3 year old (2)

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

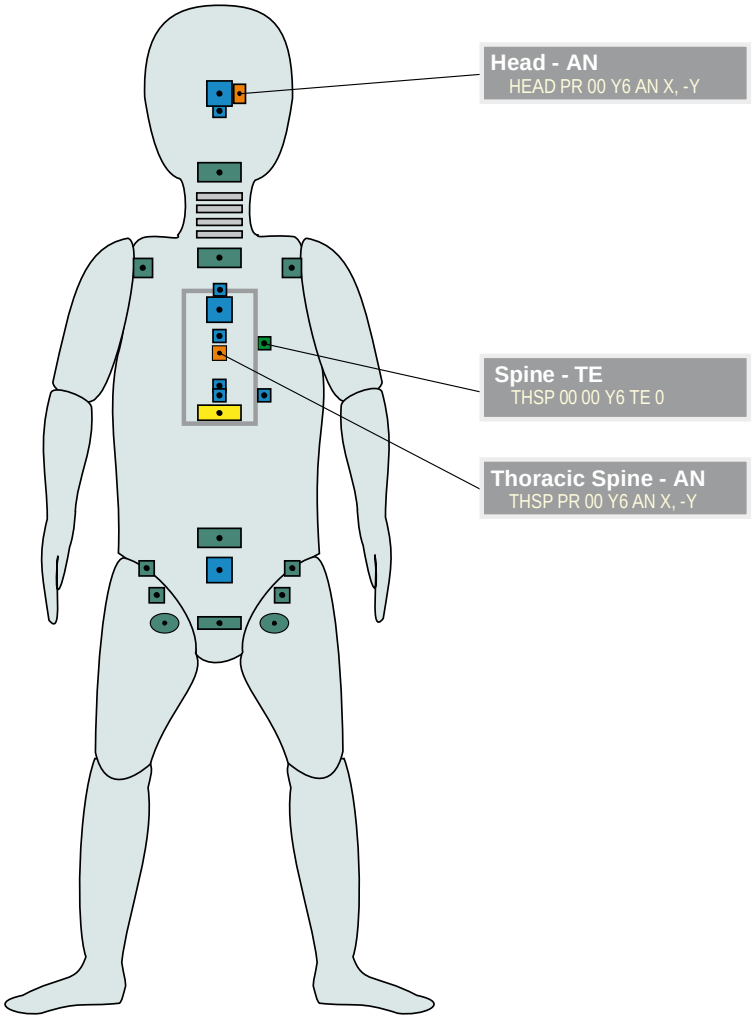
ISO/TS 13499 – RED C : 2010(E)
Y6, Hybrid III 3 Year Old Child Dummy
Additional Instrumentation
2013-07-10



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

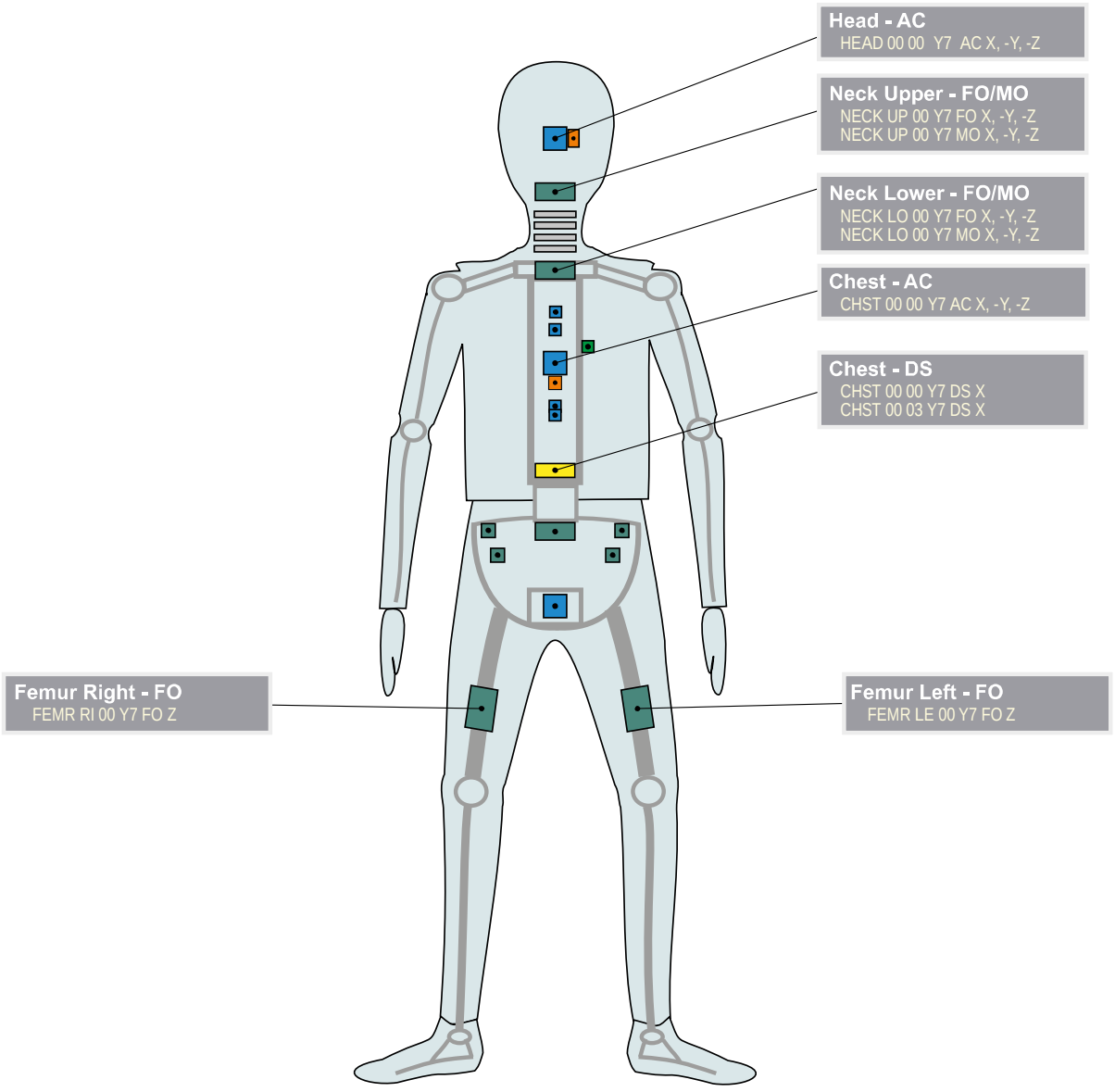


Y7 H III - 6 year old (1)

Valid since Version **1.6.1**

NPRM Level "I" and also Subpart S (6 Year weighted)

ISO/TS 13499 – RED C : 2010(E)
Y7, Hybrid III 6-Year Old Child Dummy (use also for 6-Year weighted with YW)
Standard Instrumentation
2017-12-13



All codes can also be used with the 6-Year weighted Dummy (Subpart S). ·
Replace in Fine Location 3 the "Y7" with "YW".·

ISO-Y7_20171213

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Maintained by Paul Wellicome, MIRA Ltd.·
and Dirk Vetter, IATmbH

ISO_Y7_1_162p2_20171213.EMF

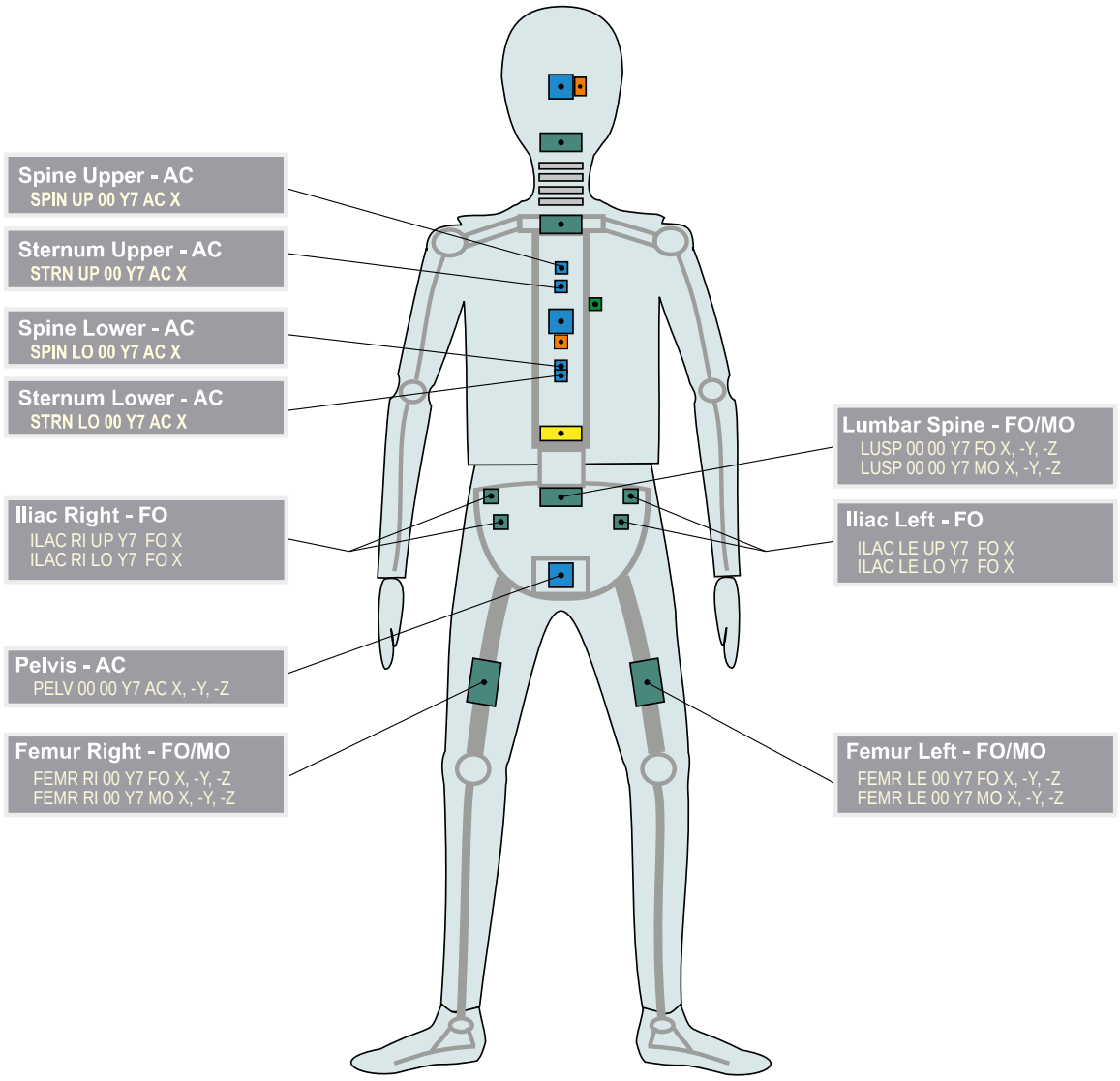
-> Y7 <- 1 of 3

Y7 H III - 6 year old (2)

Valid since Version **1.6.1**

NPRM Level "I" and also Subpart S (6 Year weighted)

ISO/TS 13499 – RED C : 2010(E)
Y7, Hybrid III 6-Year Old Child Dummy (use also for 6-Year weighted with YW)
Additional Instrumentation
2017-12-13



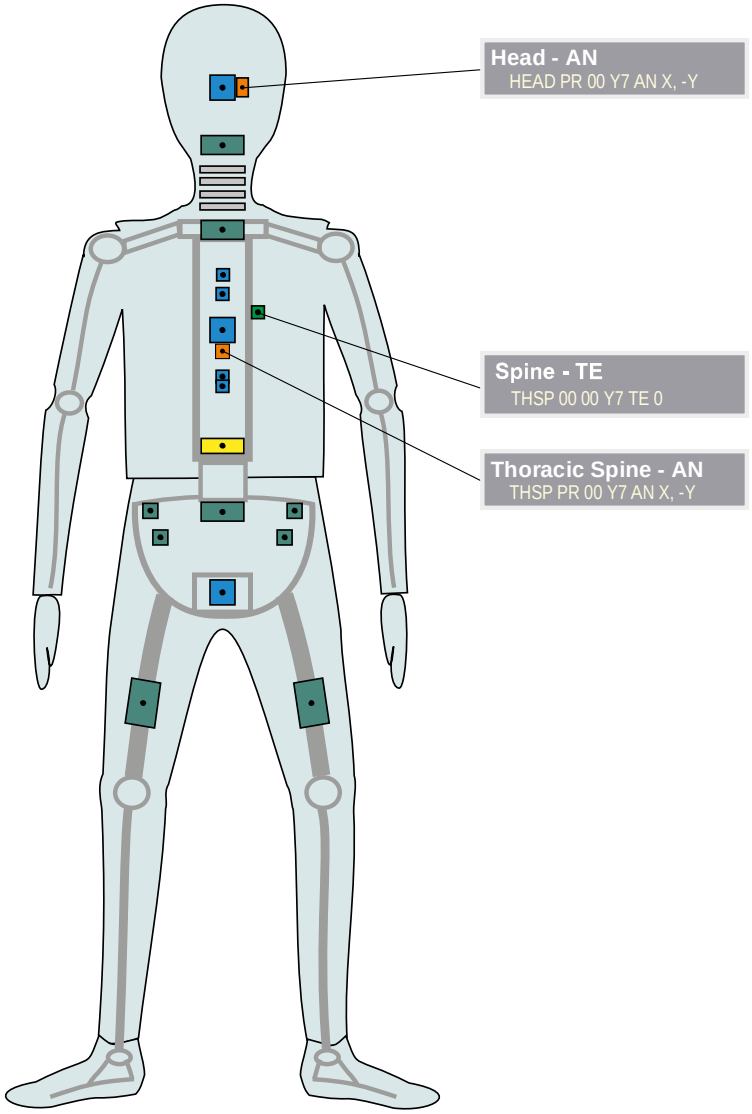
All codes can also be used with the 6-Year weighted Dummy (Subpart S). ·
Replace in Fine Location 3 the “Y7” with “YW”.·

Y7 H III - 6 year old (3)

Valid since Version **1.6.1**

NPRM Level "I" and also Subpart S (6 Year weighted)

ISO/TS 13499 – RED C : 2010(E)
Y7, Hybrid III 6-Year Old Child Dummy (use also for 6-Year weighted with YW)
Static measurements, other channels
2017-12-13

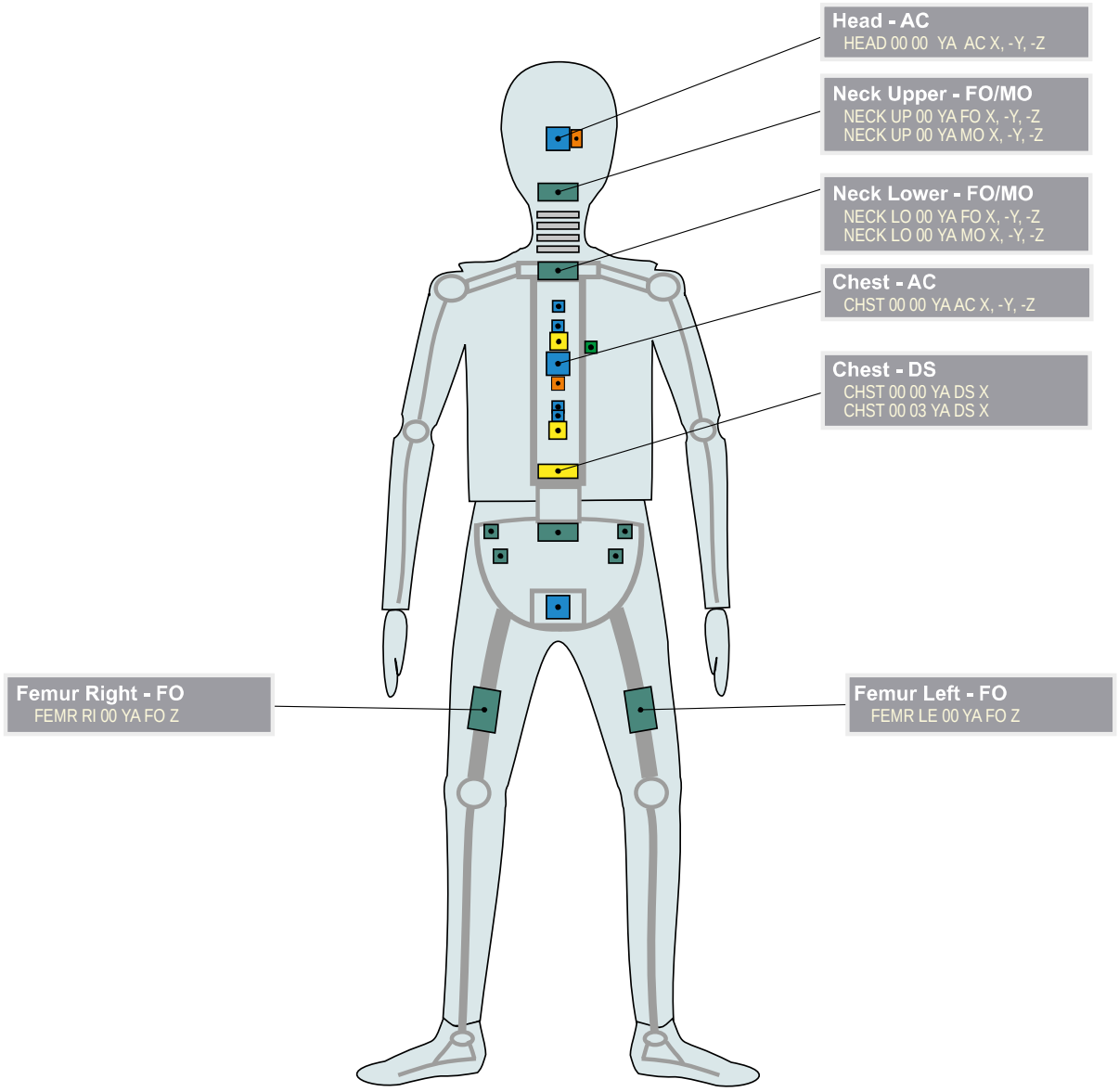


All codes can also be used with the 6-Year weighted Dummy (Subpart S). ·
Replace in Fine Location 3 the “Y7” with “YW”.·

YA H III - 10 year old (1)

Valid since Version **1.6.2**
Subpart T - Hybrid III 10-Year-Old

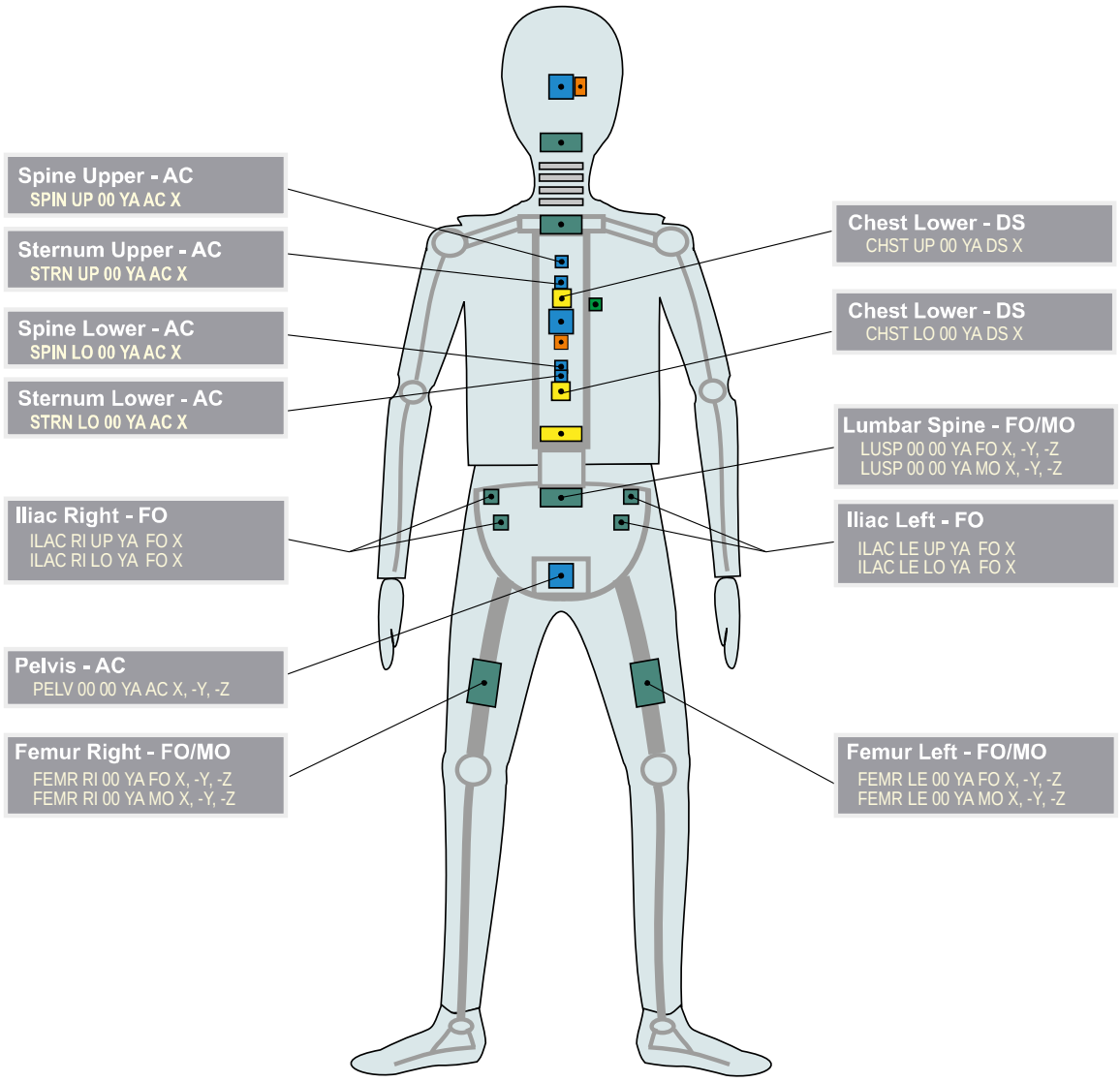
ISO/TS 13499 – RED C : 2019
YA, Hybrid III 10-Year Old Child Dummy
Standard Instrumentation
2019-07-18



YA H III - 10 year old (2)

Valid since Version **1.6.2**
Subpart T - Hybrid III 10-Year-Old

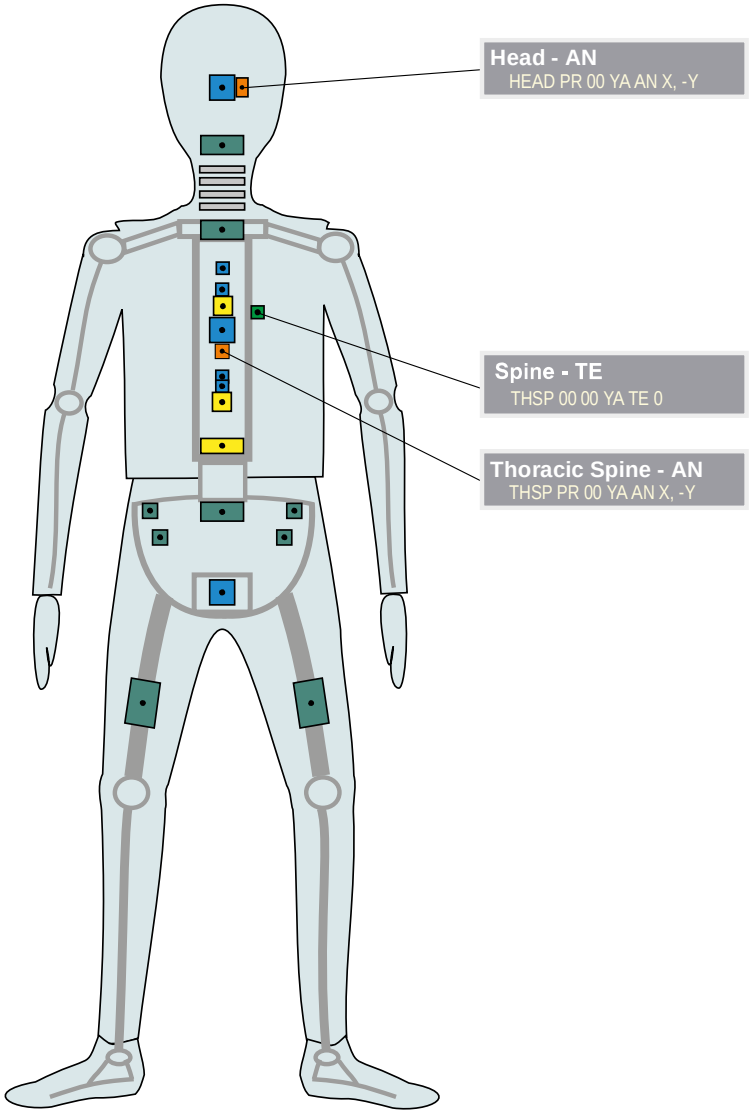
ISO/TS 13499 – RED C : 2019
YA, Hybrid III 10-Year Old Child Dummy
Additional Instrumentation
2019-07-18



YA H III - 10 year old (3)

Valid since Version **1.6.2**
Subpart T - Hybrid III 10-Year-Old

ISO/TS 13499 – RED C : 2019
YA, Hybrid III 10-Year Old Child Dummy
Static measurements, other channels
2019-07-18

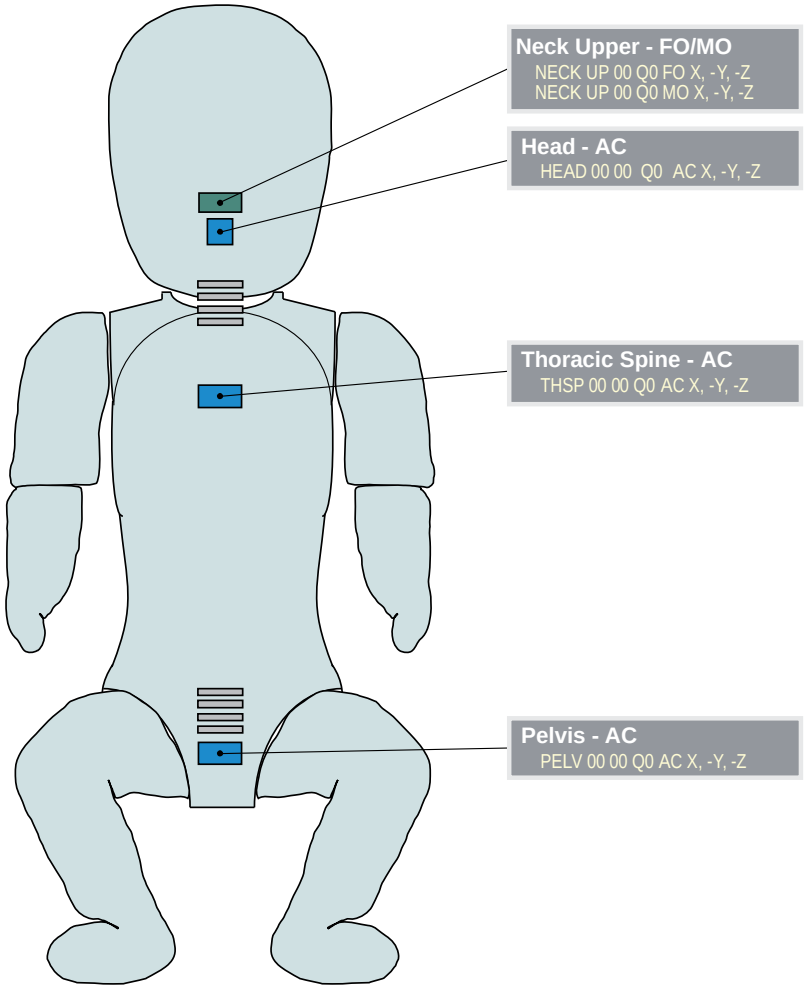


Q0 Q0 newborn

Valid since Version **1.6**

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

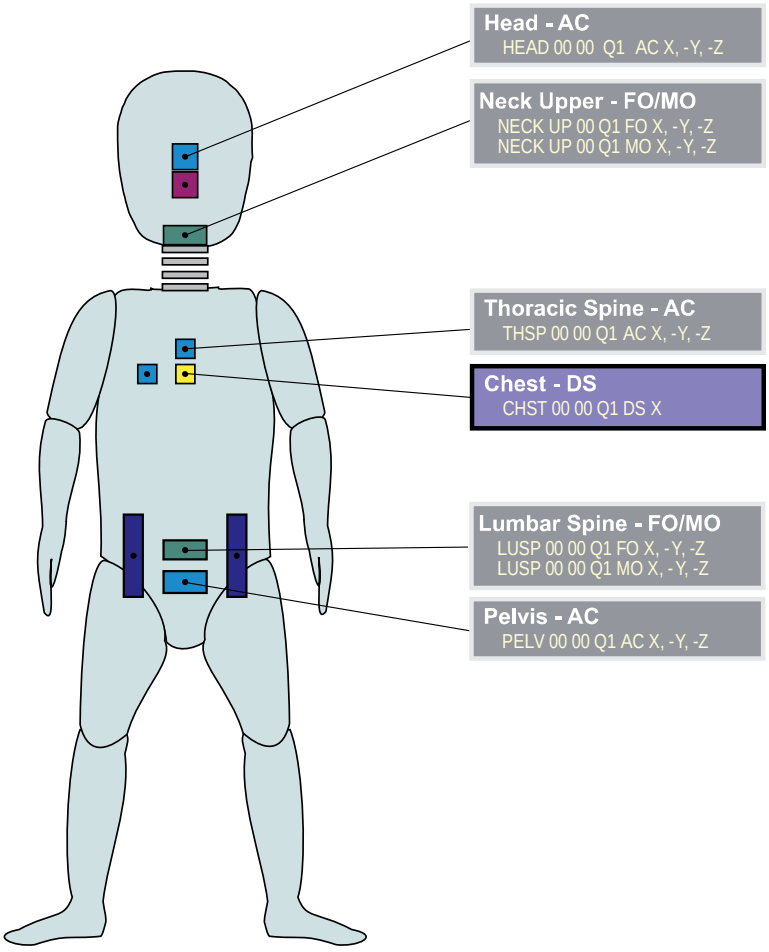
2012-01-24



Q1 Q1 (1)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q1, Advanced 1-year old Dummy
Standard Instrumentation
2015-11-25



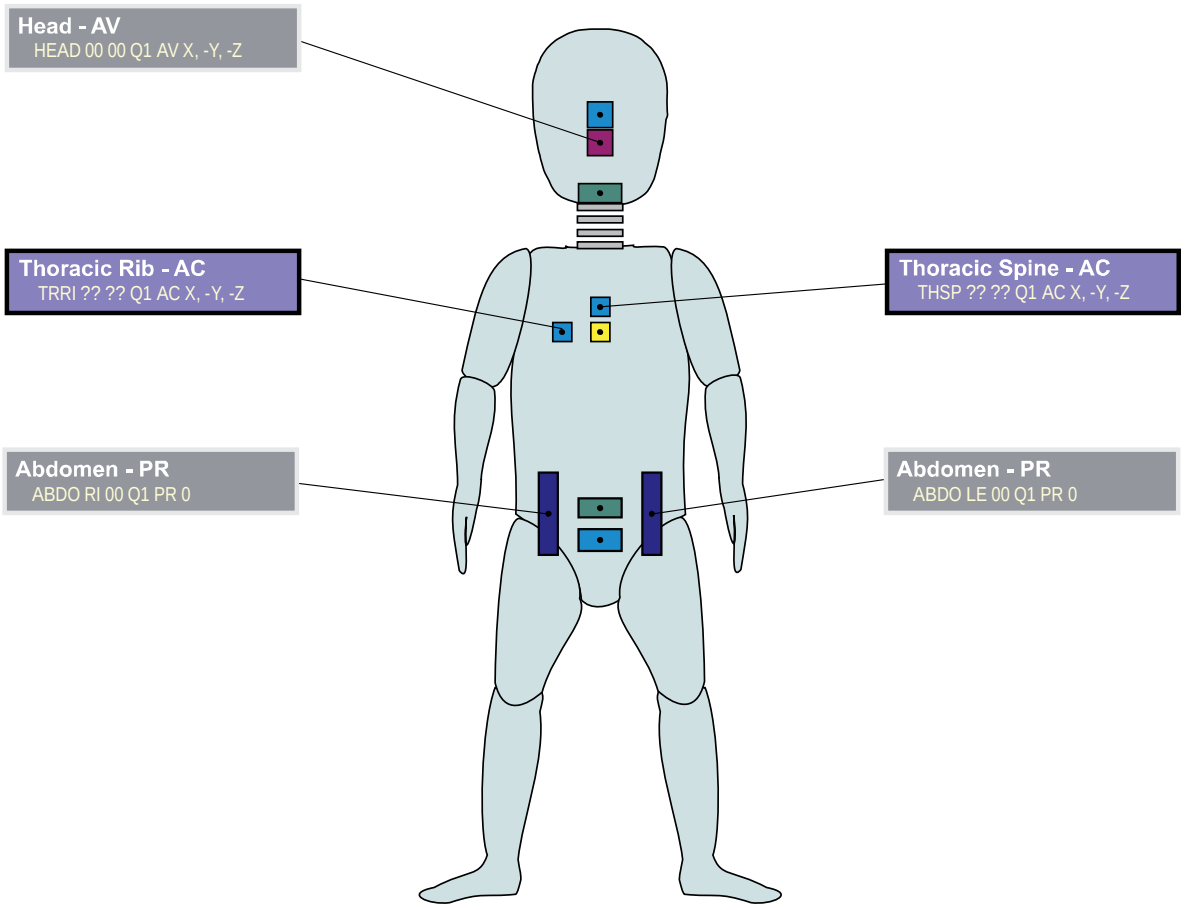
Frontal Impact

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 **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q1, Advanced 1-year old Dummy
Additional Instrumentation
2015-11-25

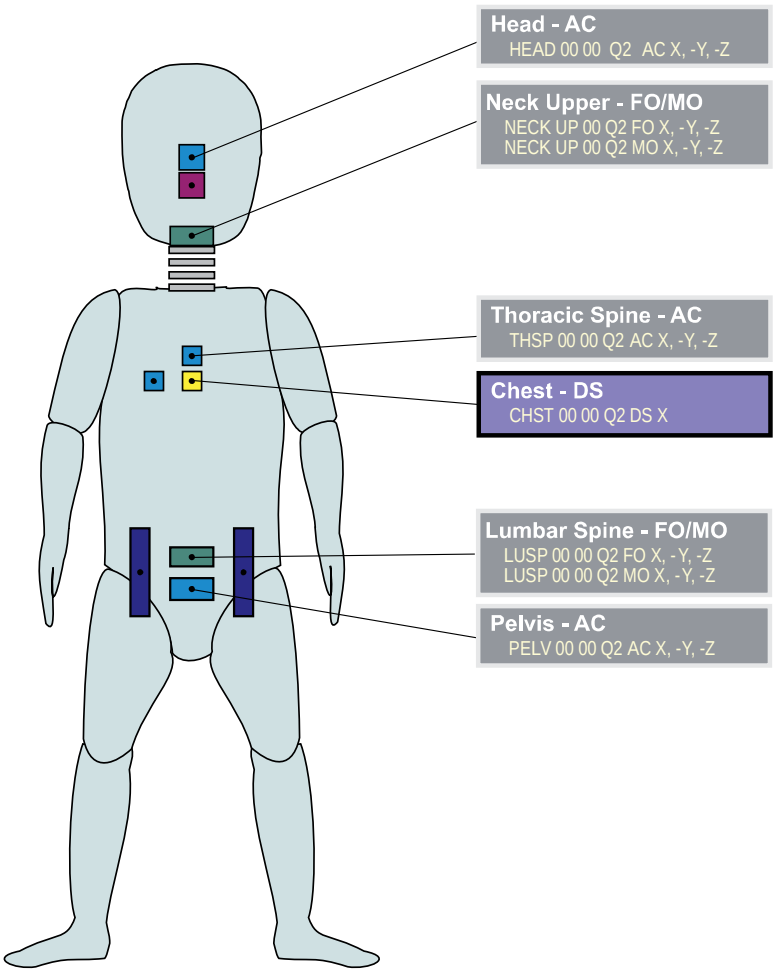


Note that sensor locations are not fixed: transducers are taped in position as required.
ISO Codes used must reflect the chosen position.
FL1 should reflect the side, LE or RI, for these channels, if used.

Q2 Q1 1/2 (1)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q2, Advanced 1.5-year old child dummy (Q1.5)
Standard Instrumentation
2015-11-25



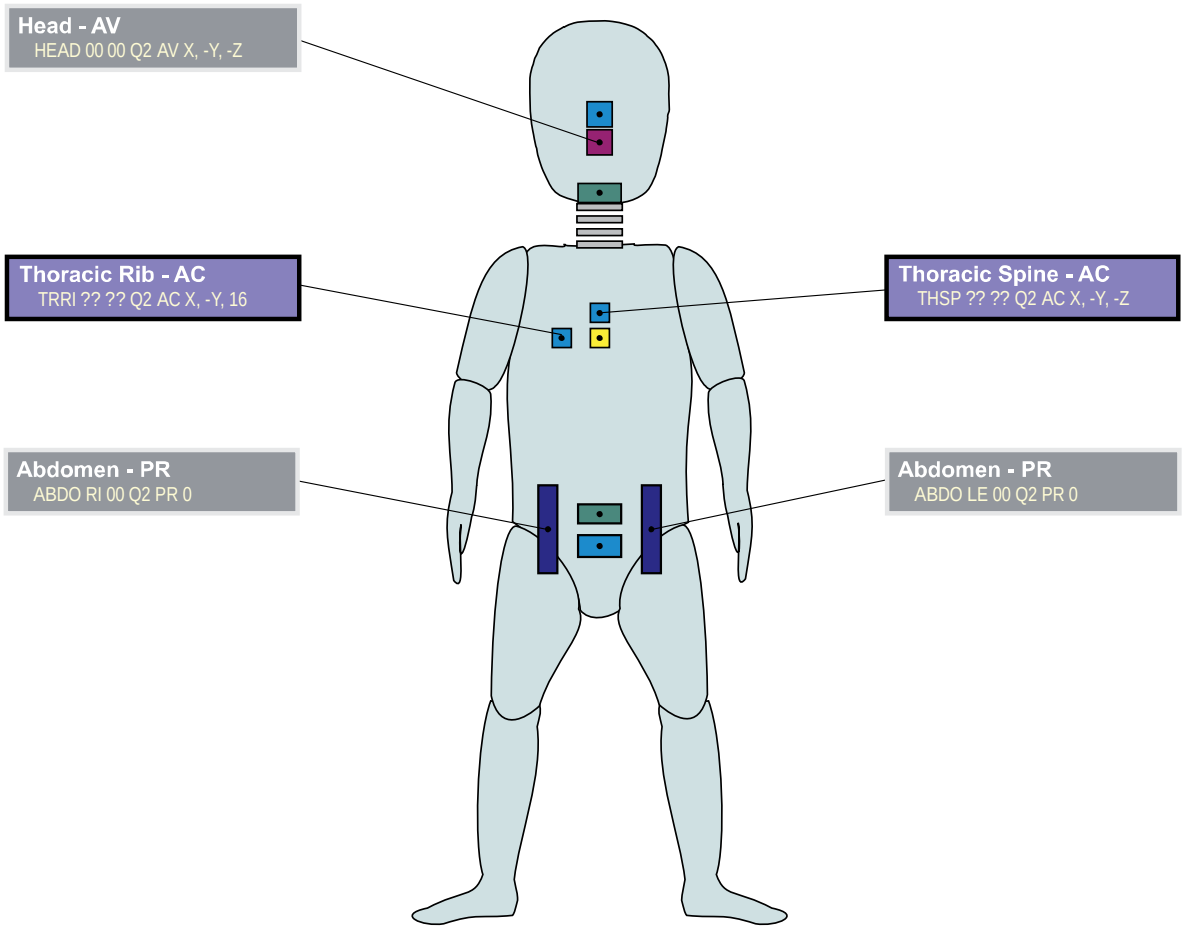
Frontal Impact

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 **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q2, Advanced 1.5-year old child dummy (Q1.5)
Additional Instrumentation
2015-11-25

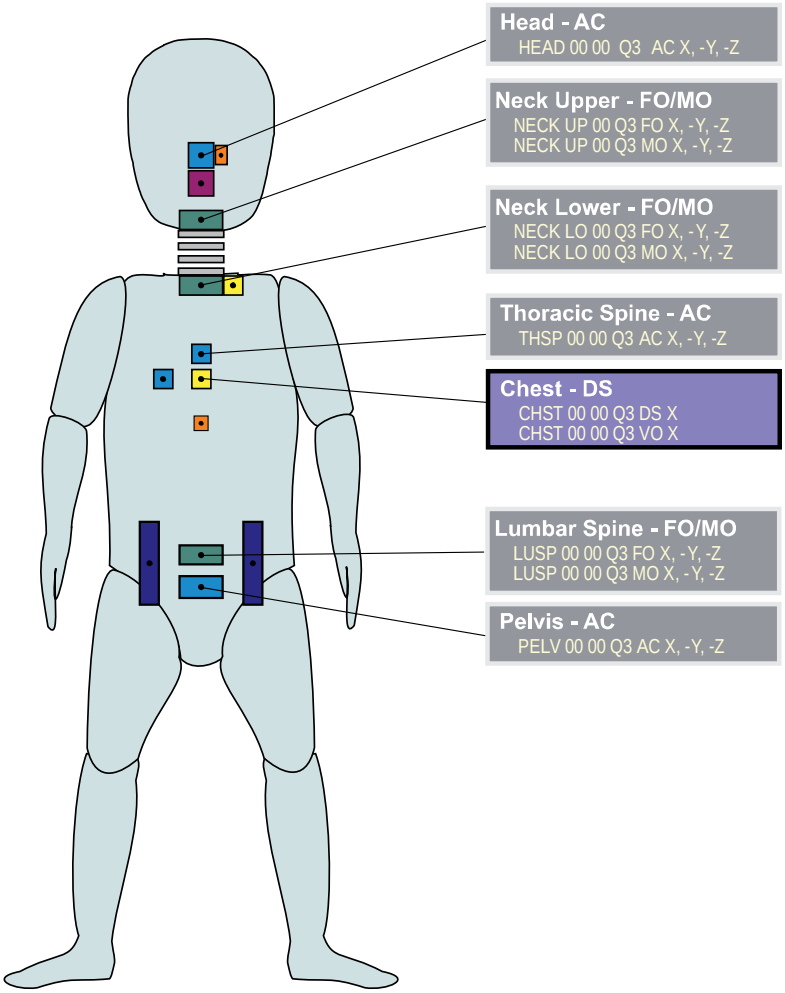


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q3 Q3 (1)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q3, Advanced 3-year old child dummy: frontal impact (Q3)
Standard Instrumentation
2015-11-25

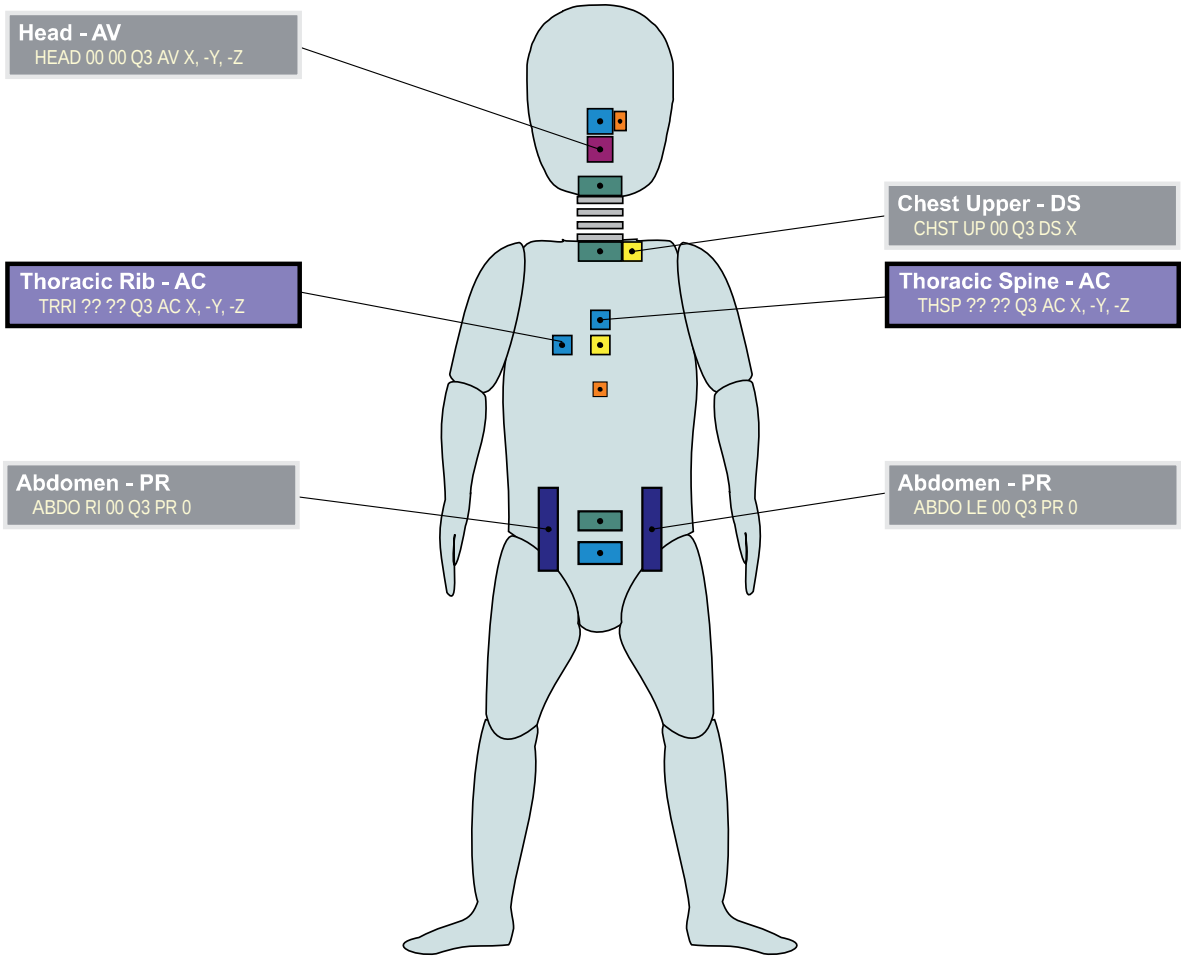


Note that the IR-TRACC device fitted to this dummy records a voltage.
It is more normal to exchange the displacement channel.

Q3 Q3 (2)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q3, Advanced 3-year old child dummy: frontal impact (Q3)
Additional Instrumentation
2015-11-25

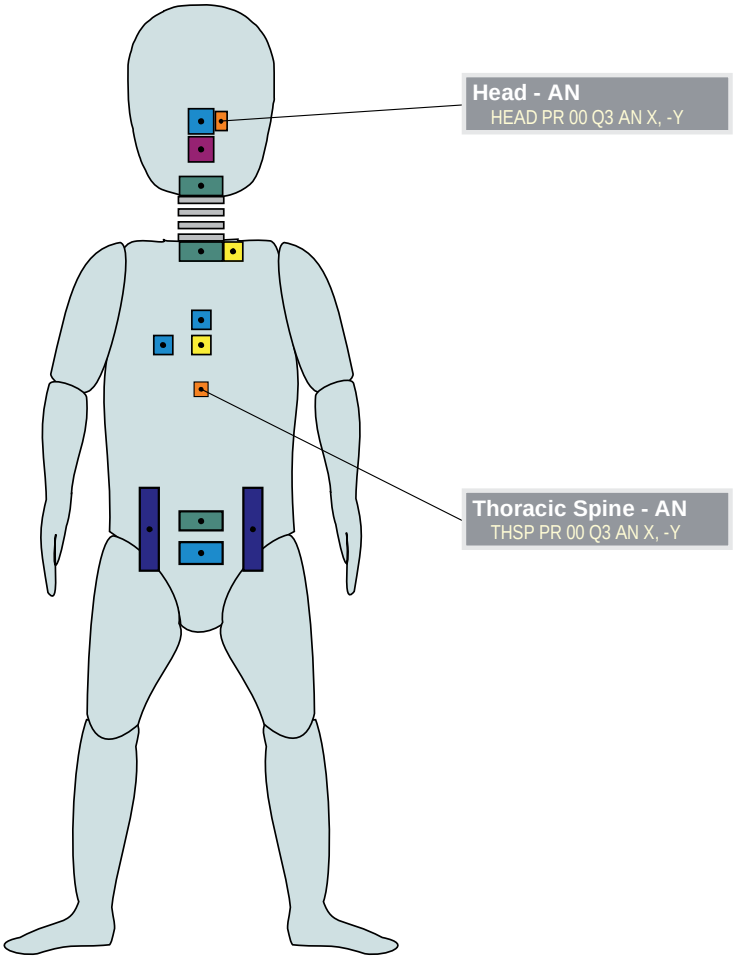


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q3 Q3 (3)

Valid since Version **1.6.2.p1**

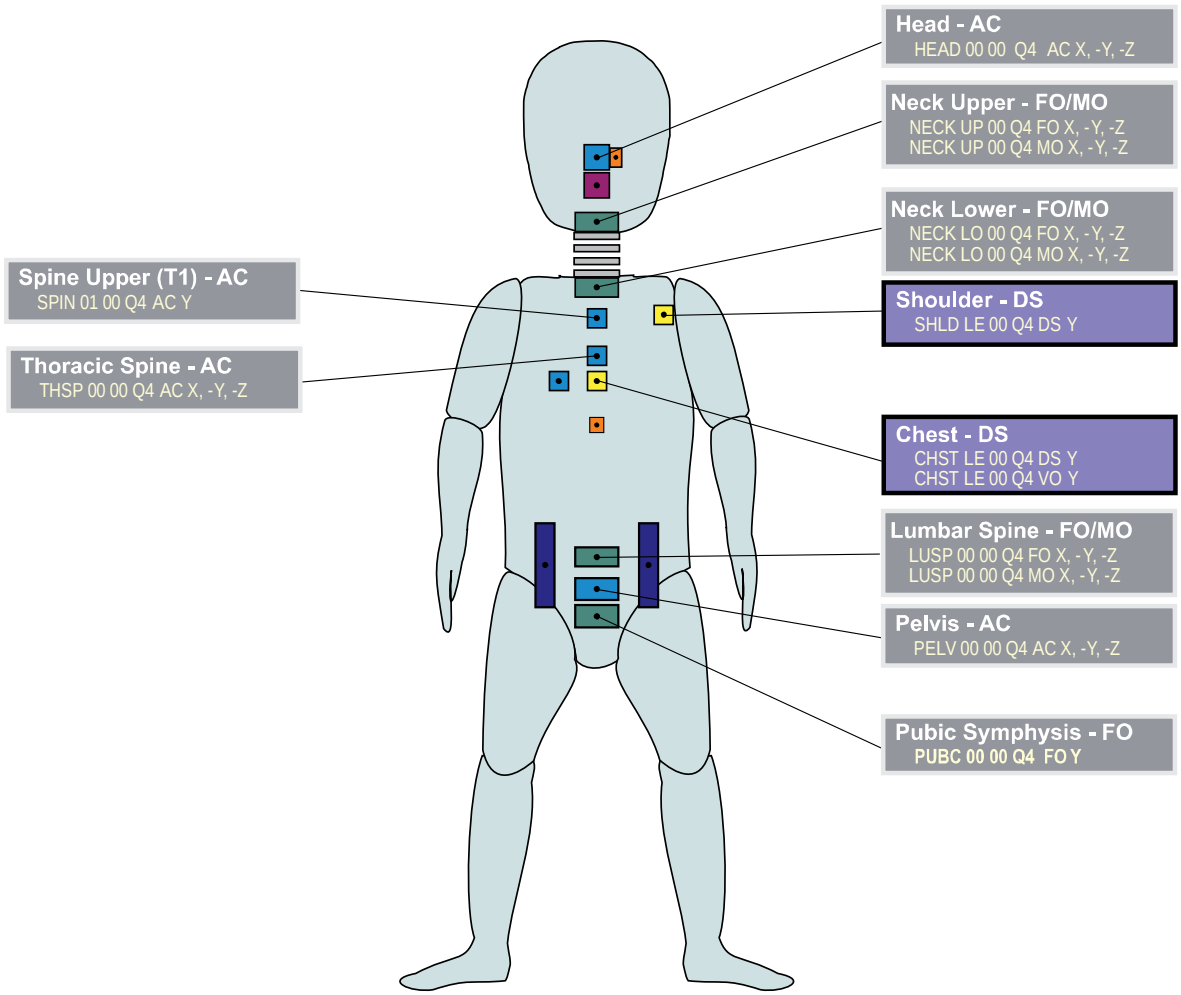
ISO/TS 13499 – RED C : 2012(E)
Q3, Advanced 3-year old child dummy: frontal impact (Q3)
Static measurements, other channels
2015-11-25



Q3s Q3s Side Impact (1)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Standard Instrumentation
2015-11-25



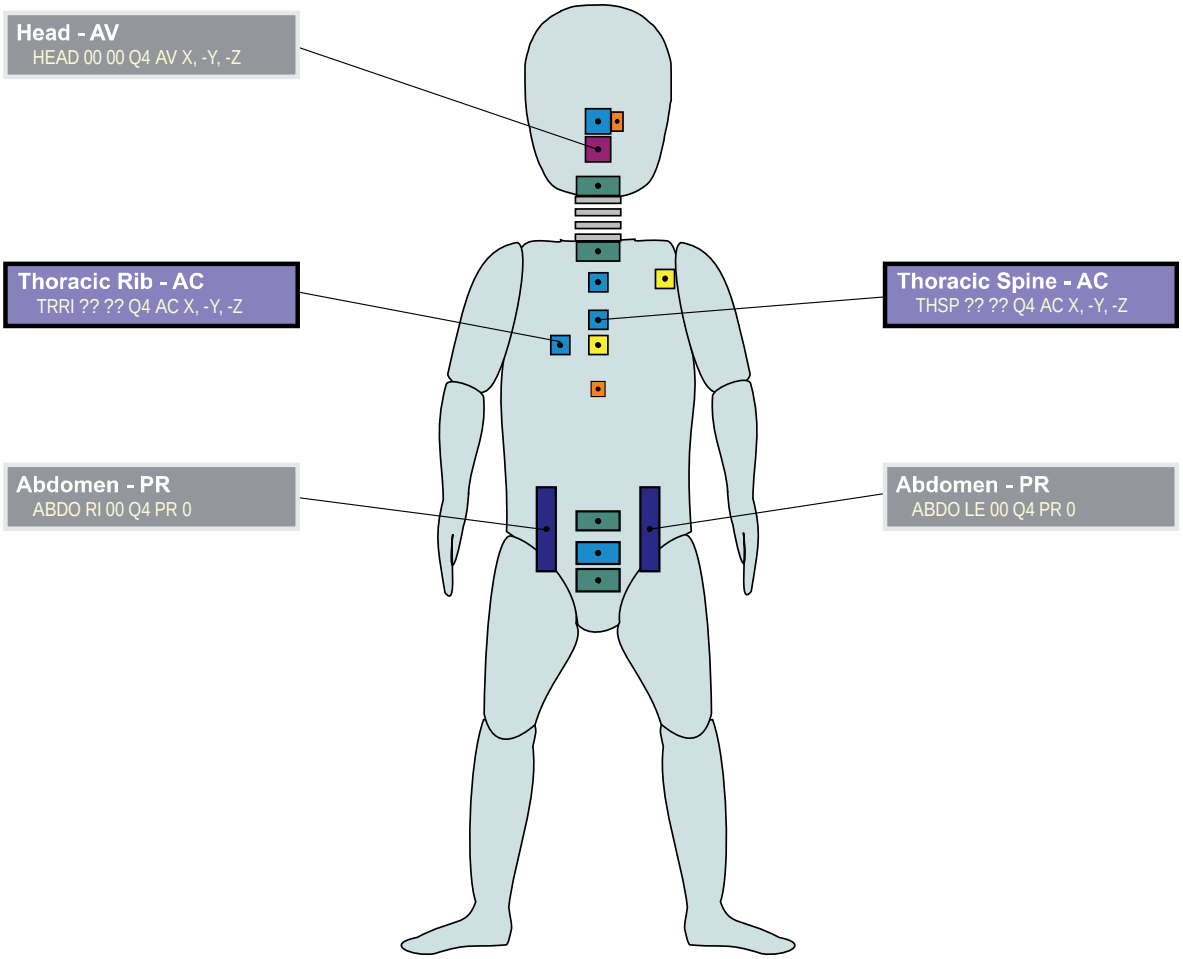
Left Side Impact, Front-View

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 **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Additional Instrumentation
2015-11-25

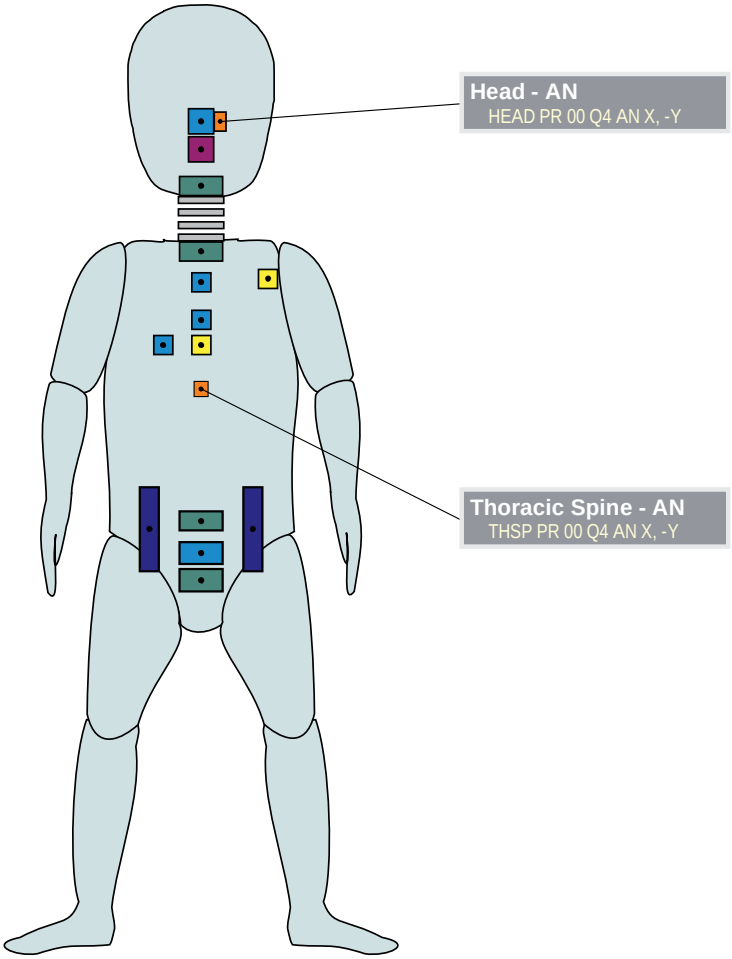


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q3s Q3s Side Impact (3)

Valid since Version **1.6.2.p1**

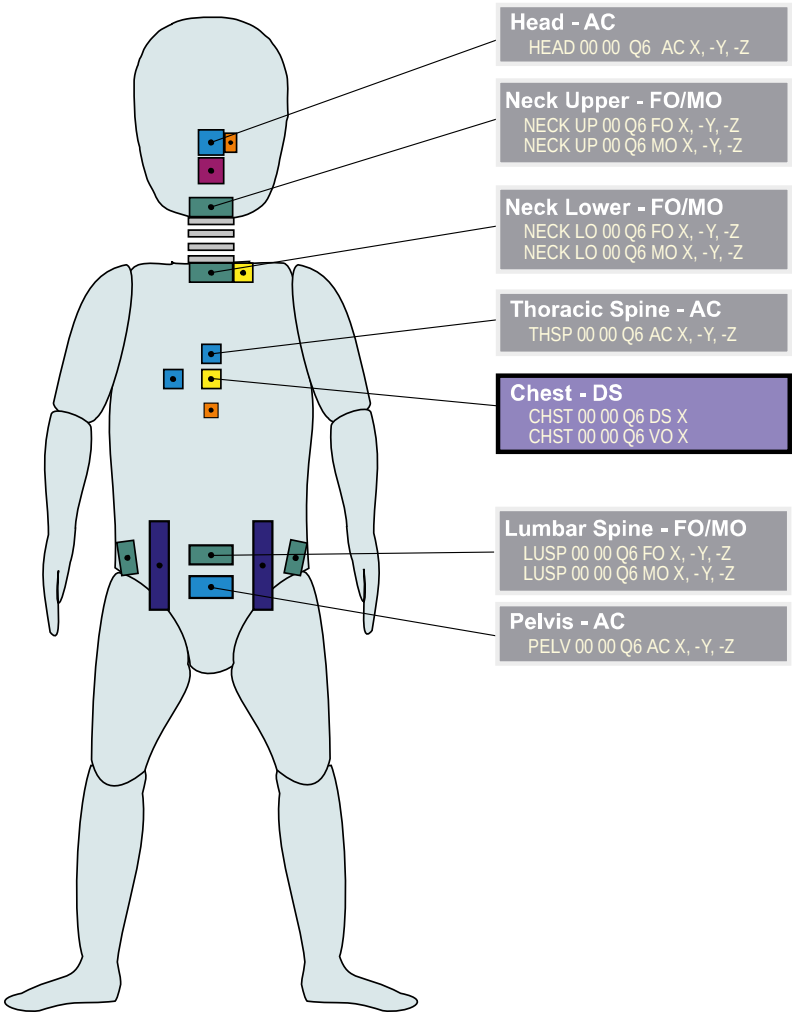
ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Static measurements, other channels
2015-11-25



Q6 Q6 (1)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q6, Advanced 6-year old child dummy
Standard Instrumentation
2017-04-05



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.

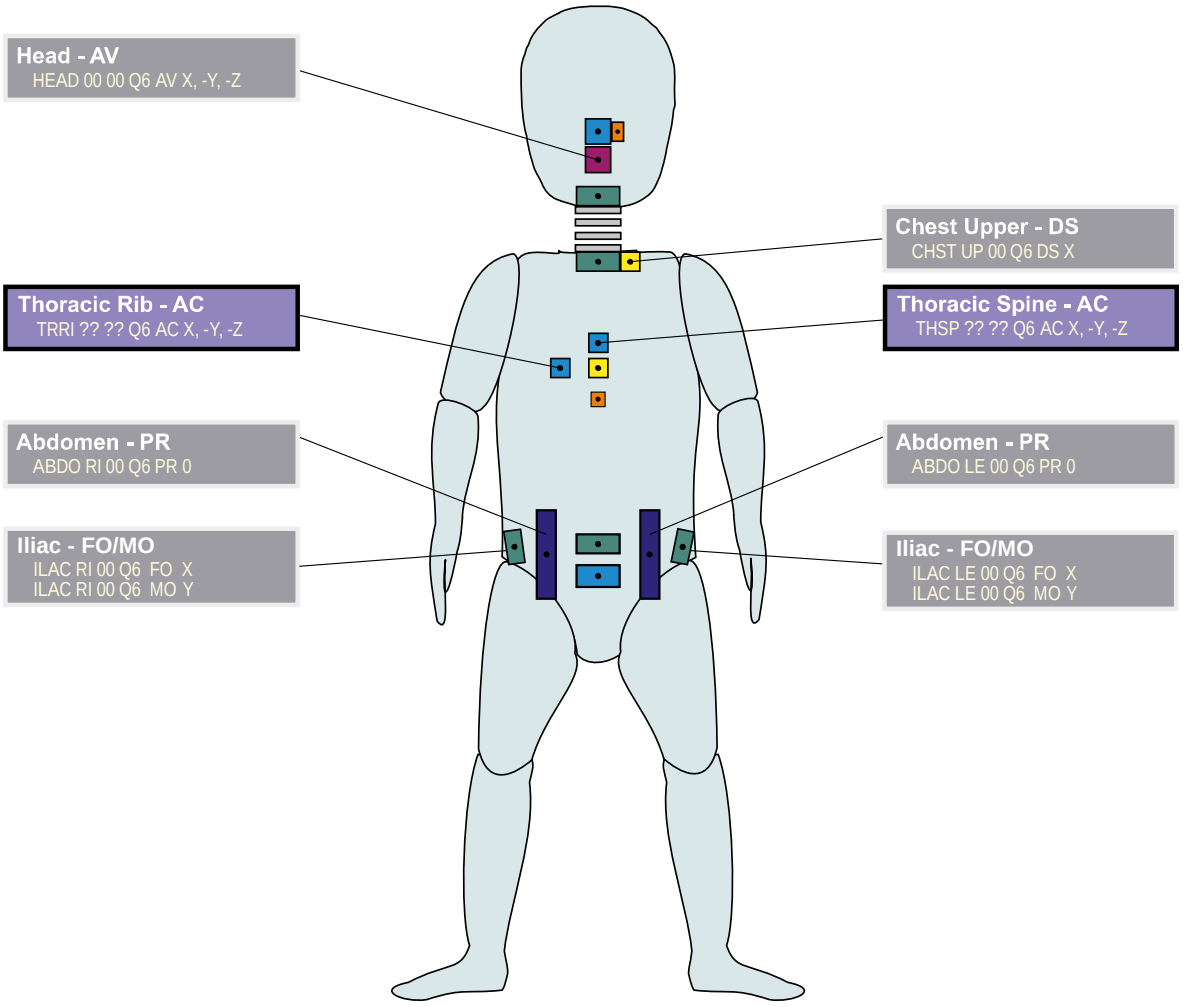
Right-hand side impact: CHST RI 00 Q6 DS Y and CHST RI 00 Q6 VO Y..

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 **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q6, Advanced 6-year old child dummy
Additional Instrumentation
2017-04-05

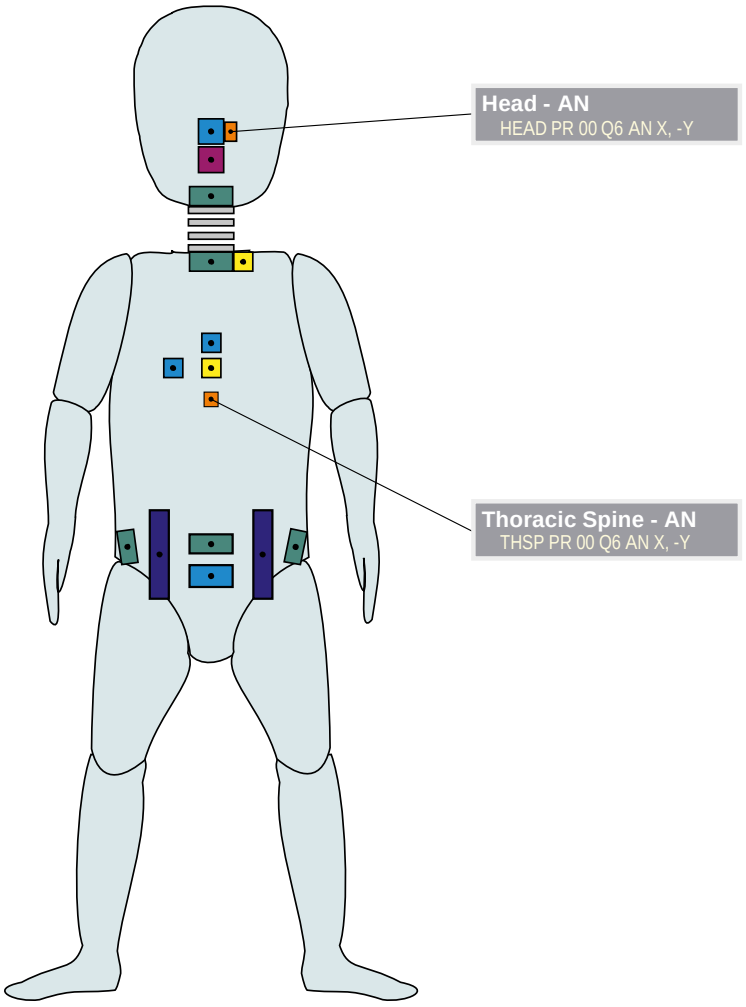


Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.

Q6 Q6 (3)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2012(E)
Q6, Advanced 6-year old child dummy
Static measurements, other channels
2017-04-05

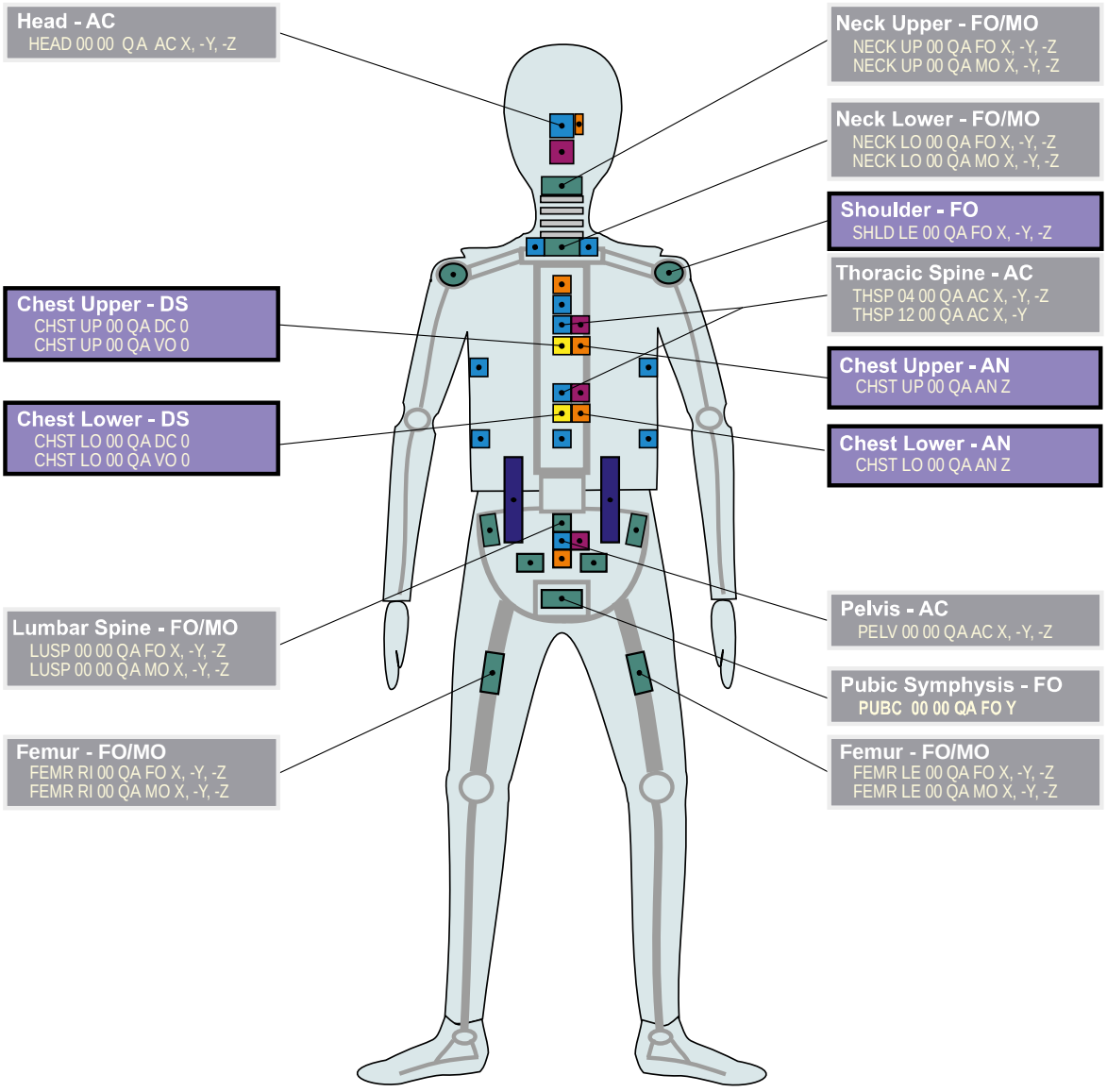


Q10 Q10 (1)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2019
QA, Advanced 10-year old child dummy
QB, Advanced 10-year old child dummy, EuroNCAP variant
Standard Instrumentation
2019-07-18

Note: For QB dummy, FL3 will read QB



Frontal Impact

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

Left-hand side impact: SHLD LE 00 QA FO X, -Y, -Z, CHST LE UP QA DC 0, CHST LE UP QA VO 0, CHST LE LO QA DC 0, CHST LE LO QA VO 0, CHST LE UP QA AN Z and CHST LE LO QA AN Z .

Right-hand side impact: SHLD RI 00 QA FO X, -Y, -Z, CHST RI UP QA DC 0, CHST RI UP QA VO 0, CHST RI LO QA DC 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 distance channel, IR-TRACC total length.

ISO-QA_20190718

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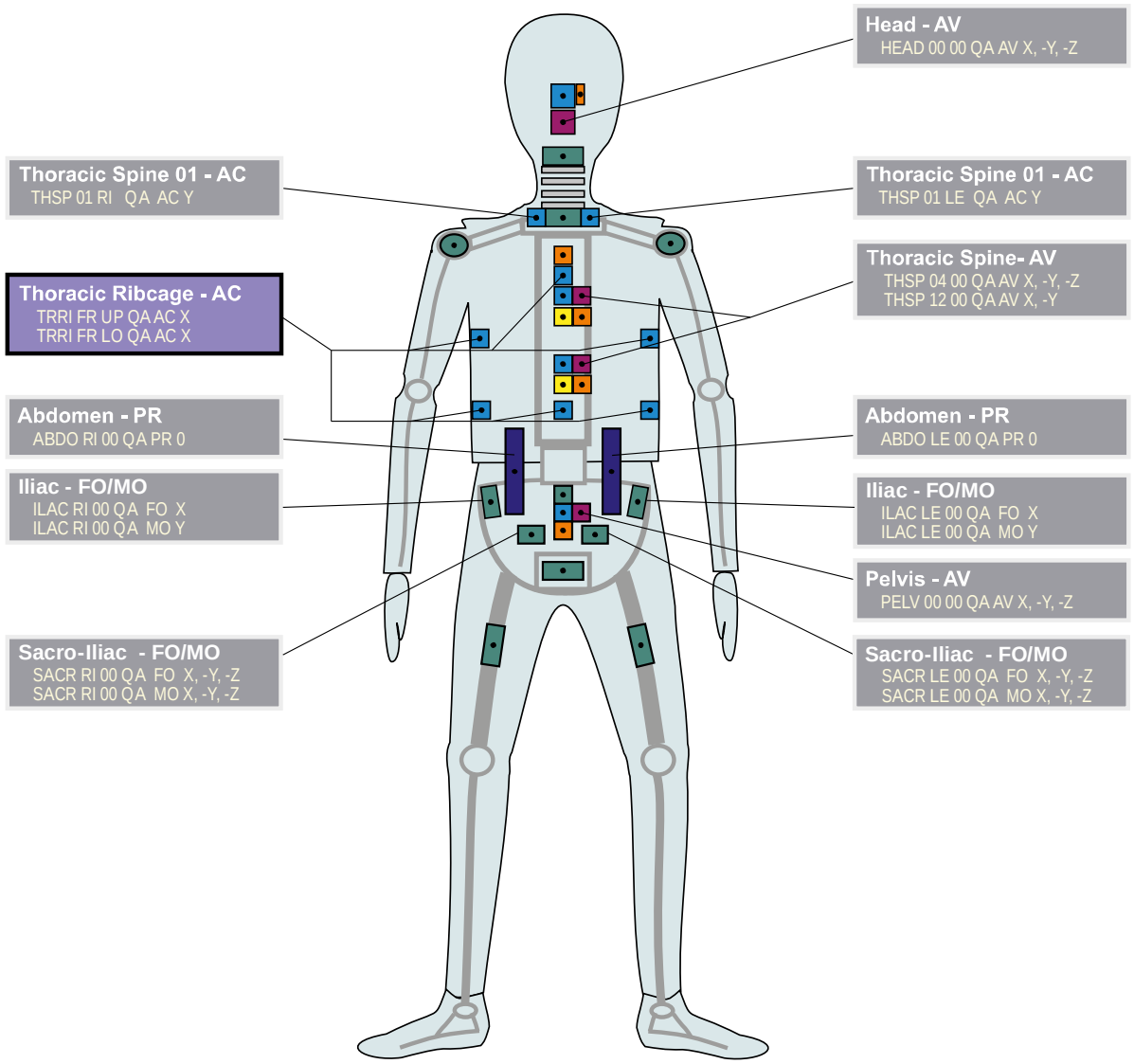
Q10 Q10 (2)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2019
QA, Advanced 10-year old child dummy
QB, Advanced 10-year old child dummy, EuroNCAP variant
Additional Instrumentation
2019-07-18

Note: For QB dummy, FL3 will read QB



Frontal Impact

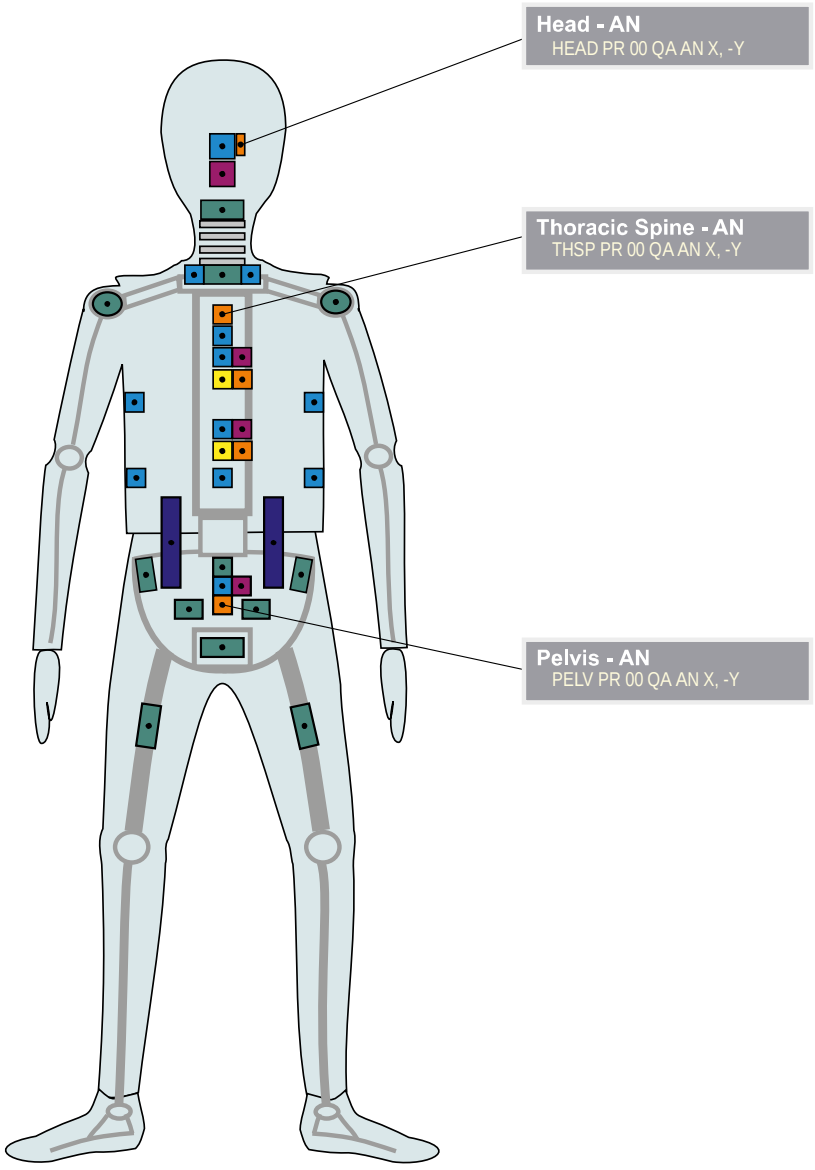
Note that sensor orientation is different for side impact configurations. ·
ISO Codes used must reflect the chosen orientation. ·
Left-hand side impact: TRRI LE UP QA AC Y and TRRI LE LO QA AC Y. ·
Right-hand side impact: TRRI RI UP QA AC Y and TRRI RI LO QA AC Y.

Q10 Q10 (3)

Valid since Version **1.6.2.p1**

ISO/TS 13499 – RED C : 2019
QA, Advanced 10-year old child dummy
QB, Advanced 10-year old child dummy, EuroNCAP variant
Static measurements, other channels
2019-07-18

Note: For QB dummy, FL3 will read QB



ISO-QA_20190718

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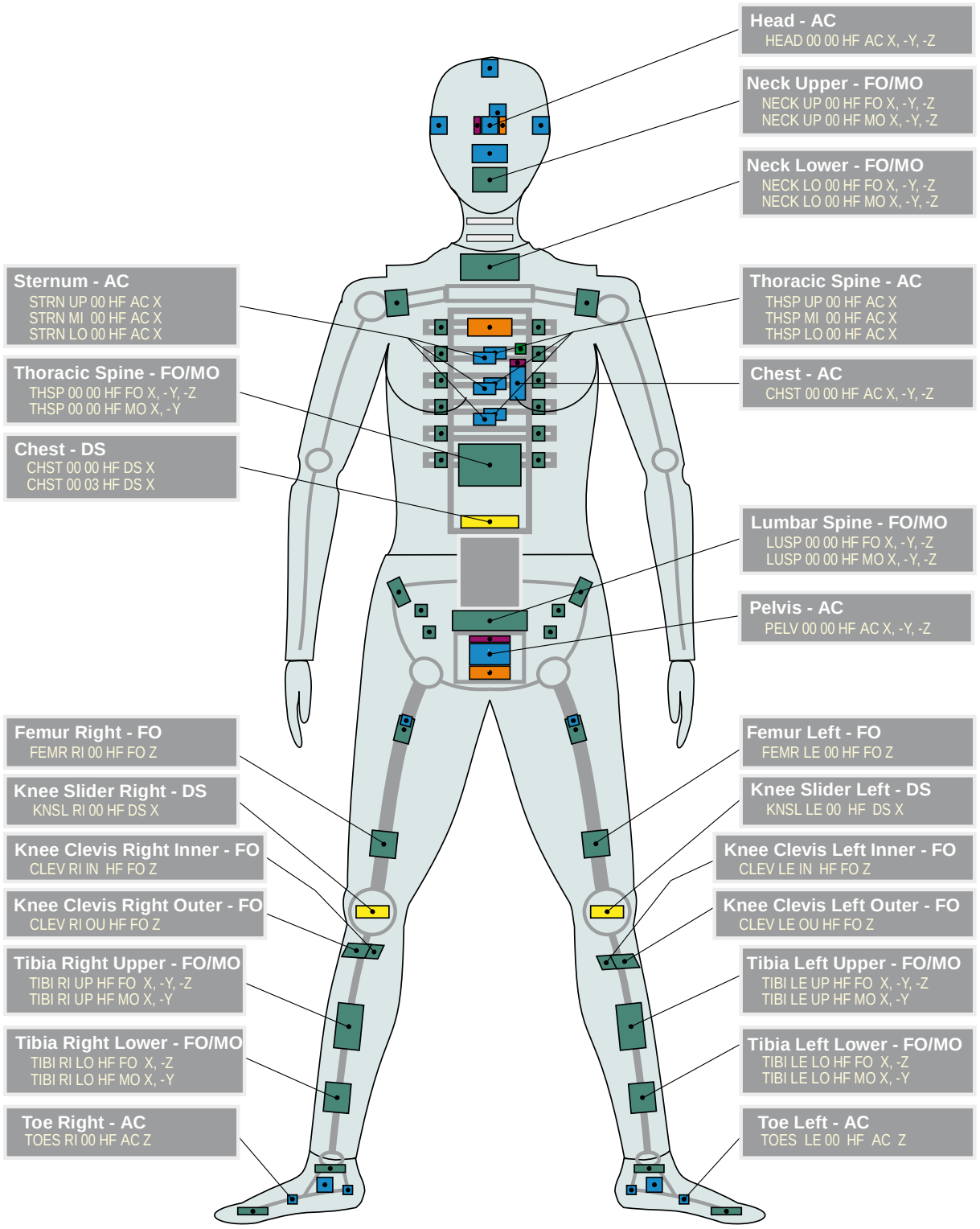
ISO_QA_3_162_20190718.EMF

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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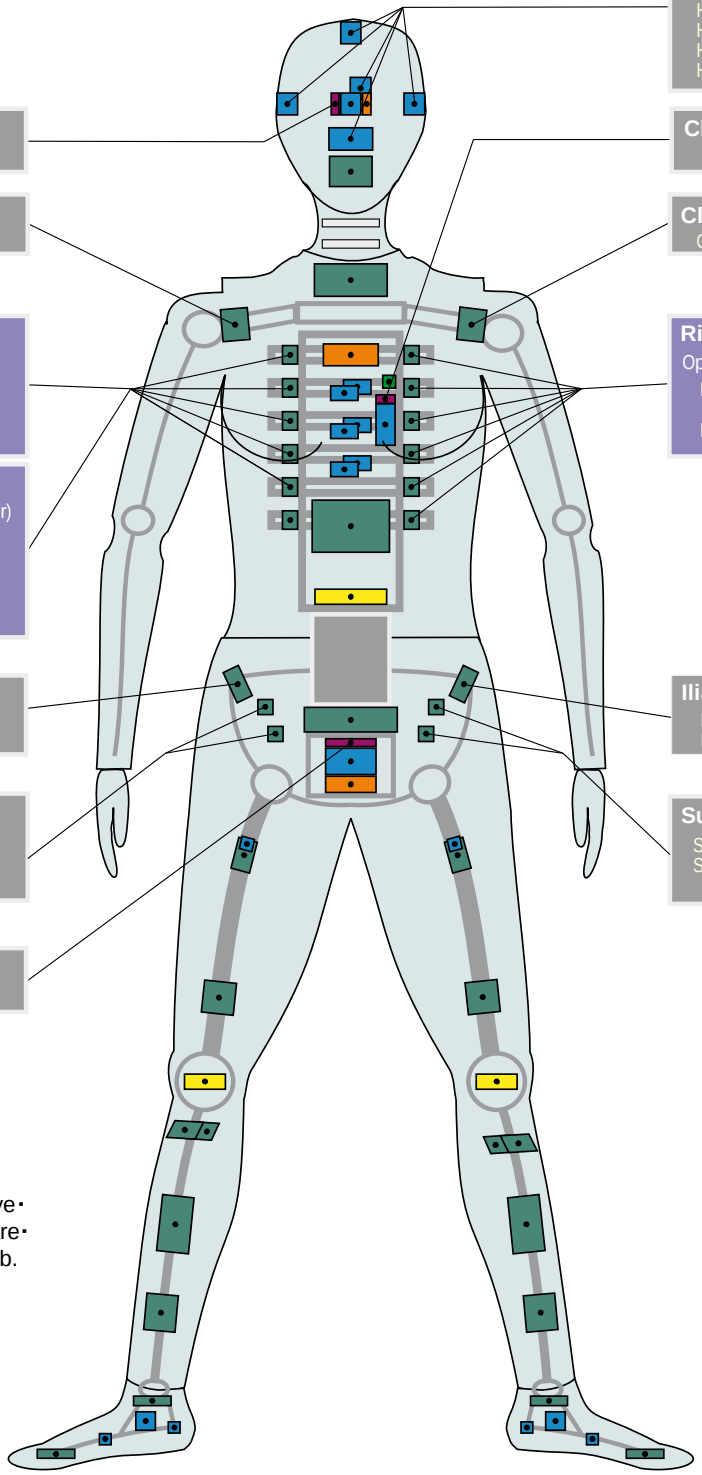
ISO_HF_1_161_20130410.EMF

-> 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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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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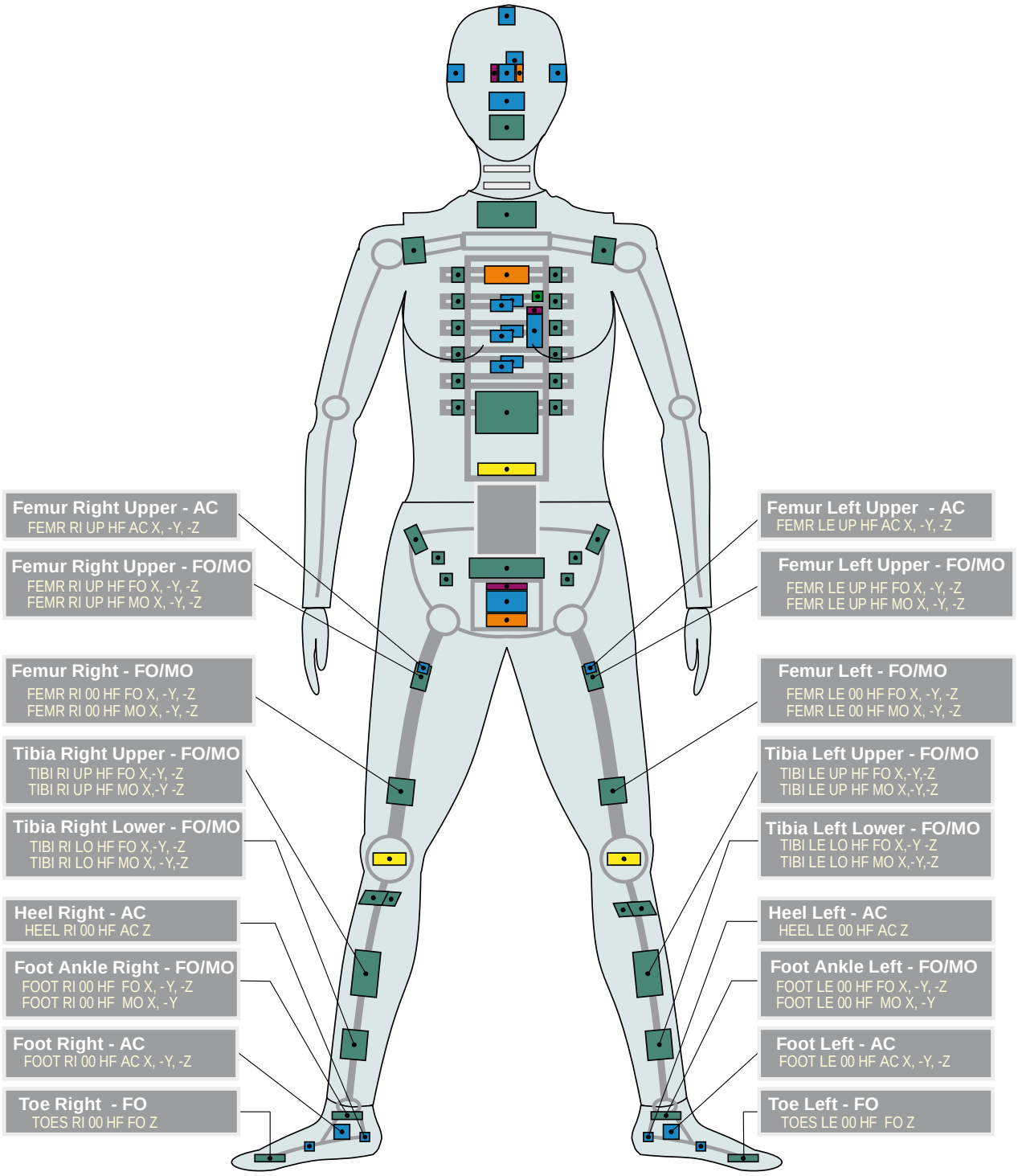
HF Hybrid III 5% Female (3)

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

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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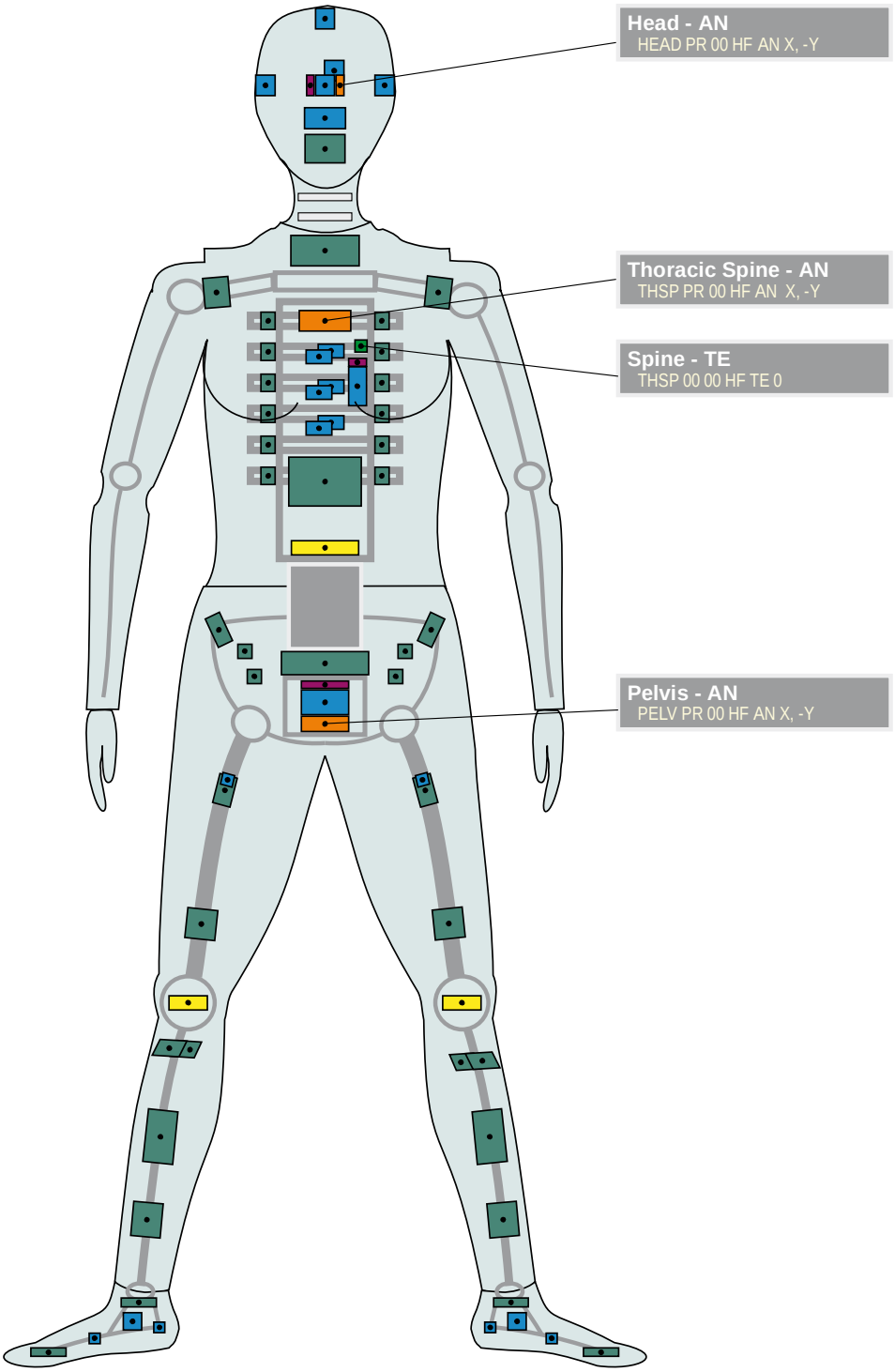
ISO_HF_3_161_20130410.EMF

-> HF <- 3 of 5

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



ISO-HF_20130410

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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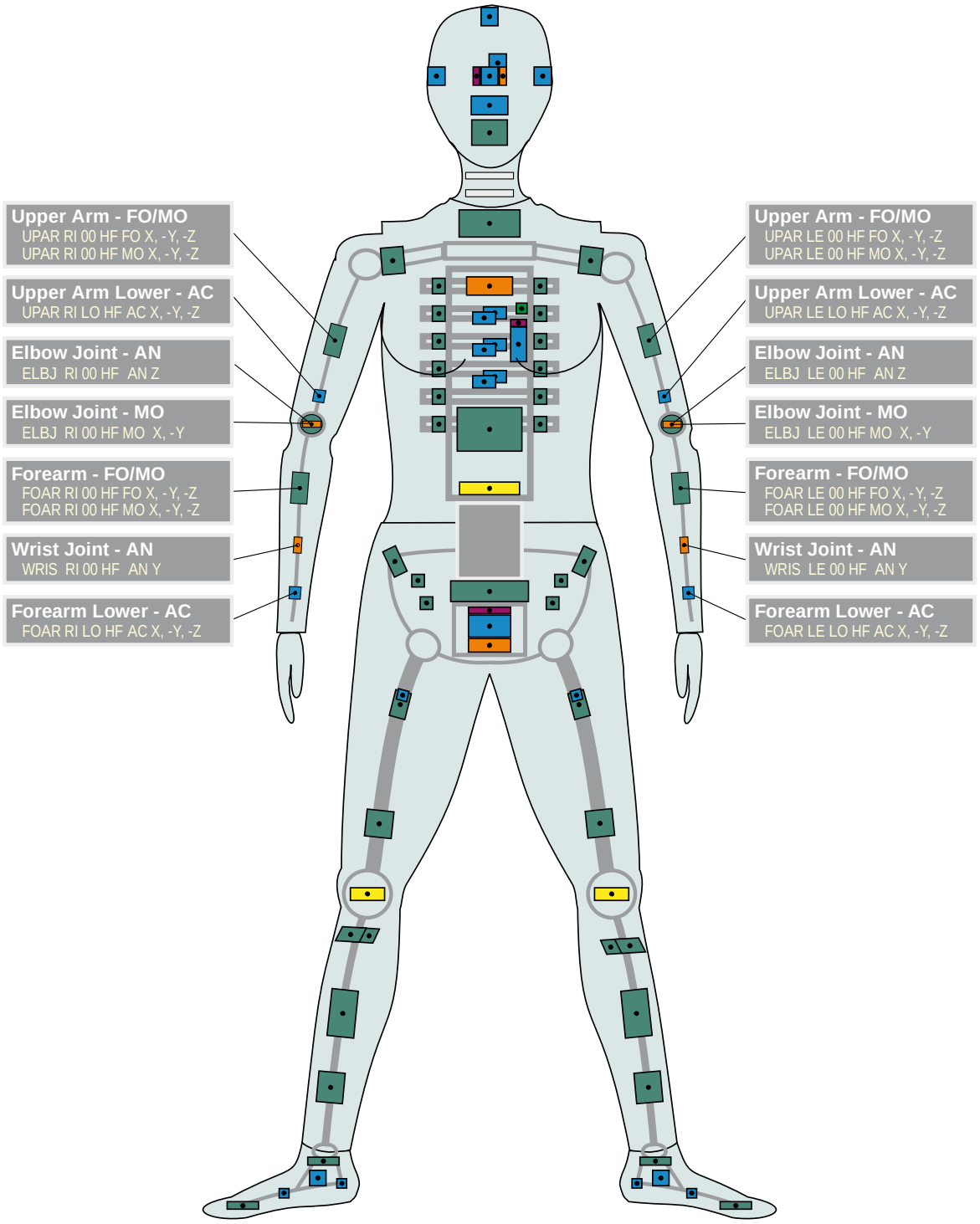
ISO_HF_4_161_20130410.EMF

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

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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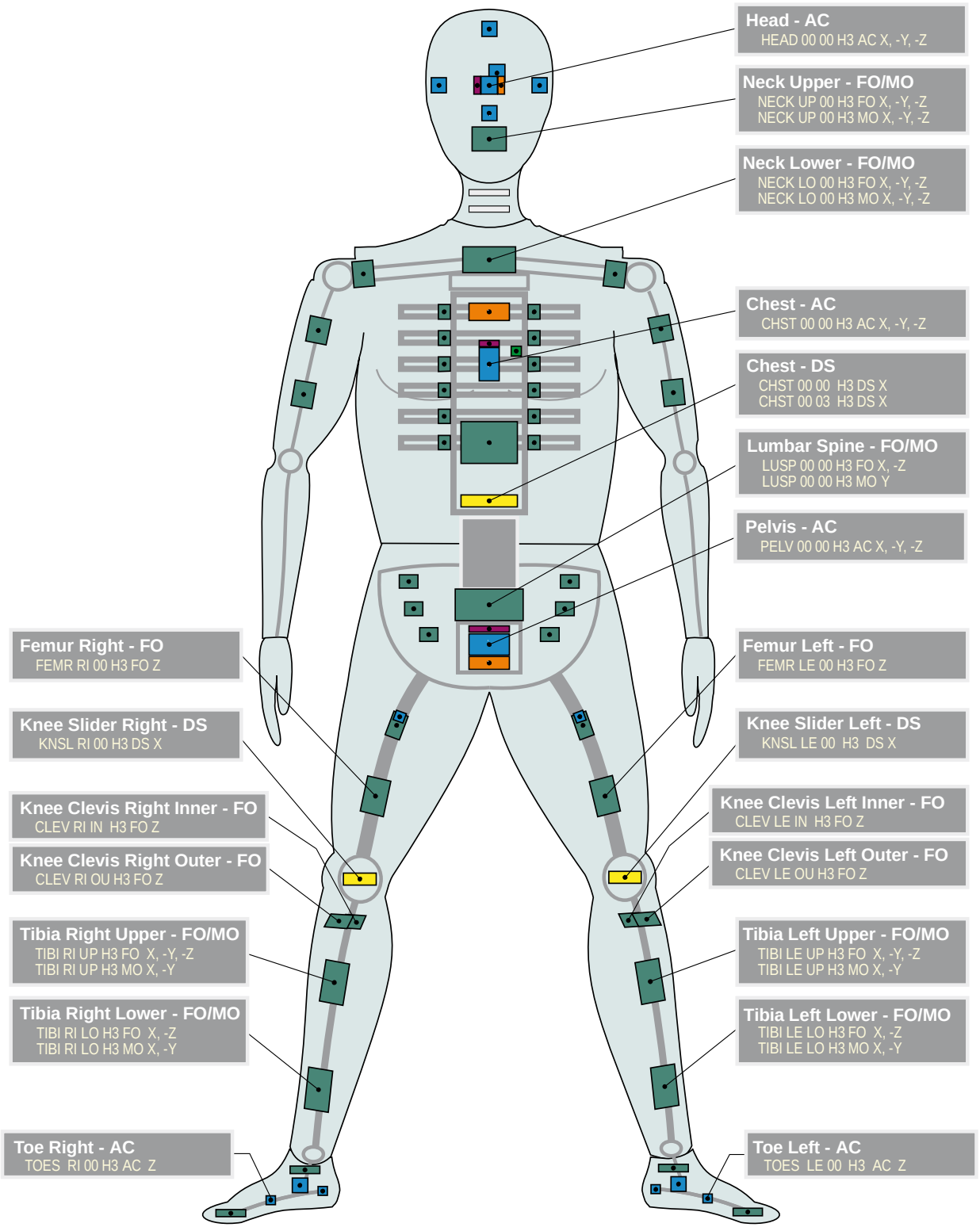
ISO_HF_5_161_20130410.EMF

-> 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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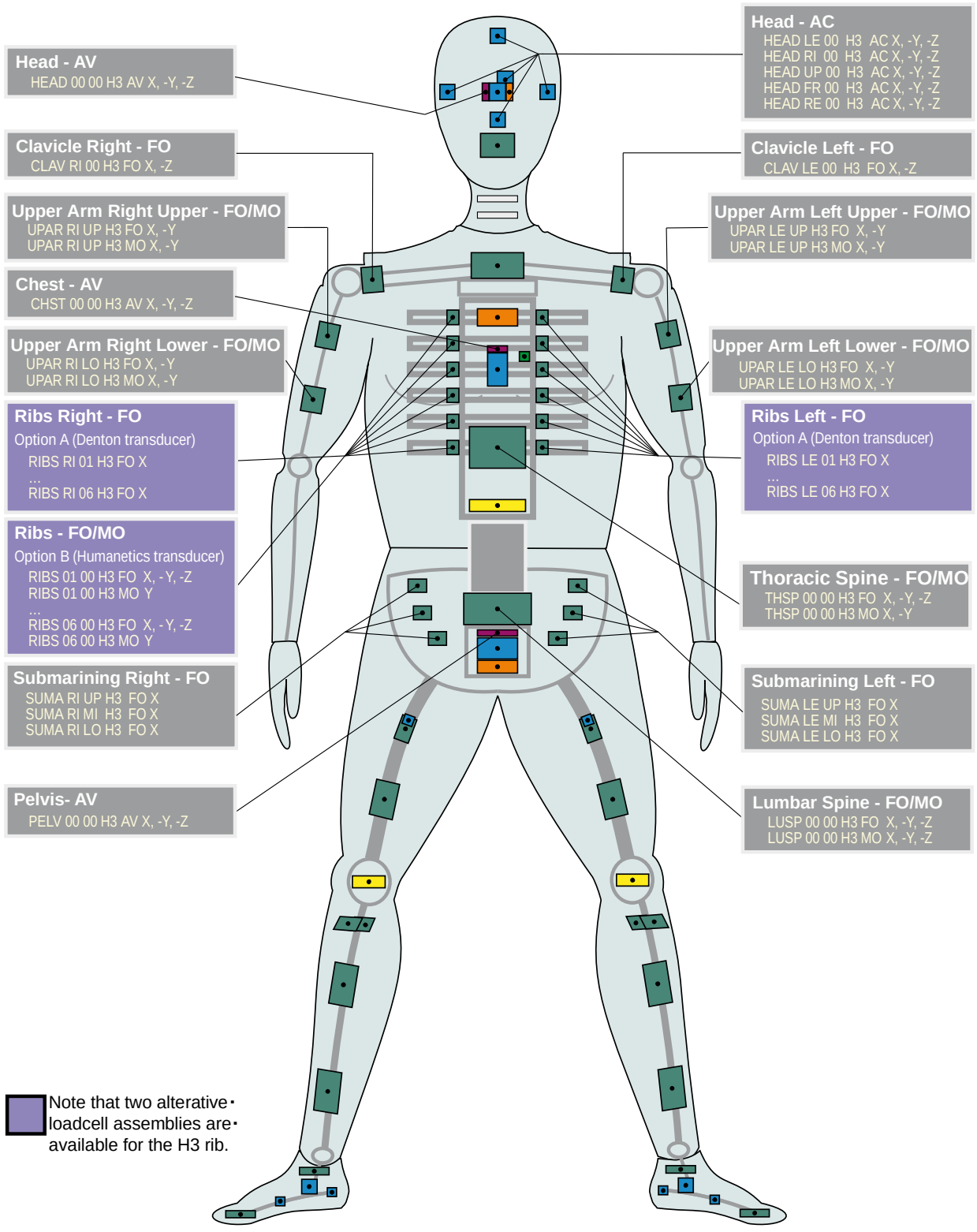
ISO_H3_1_161_20130410.EMF

-> 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

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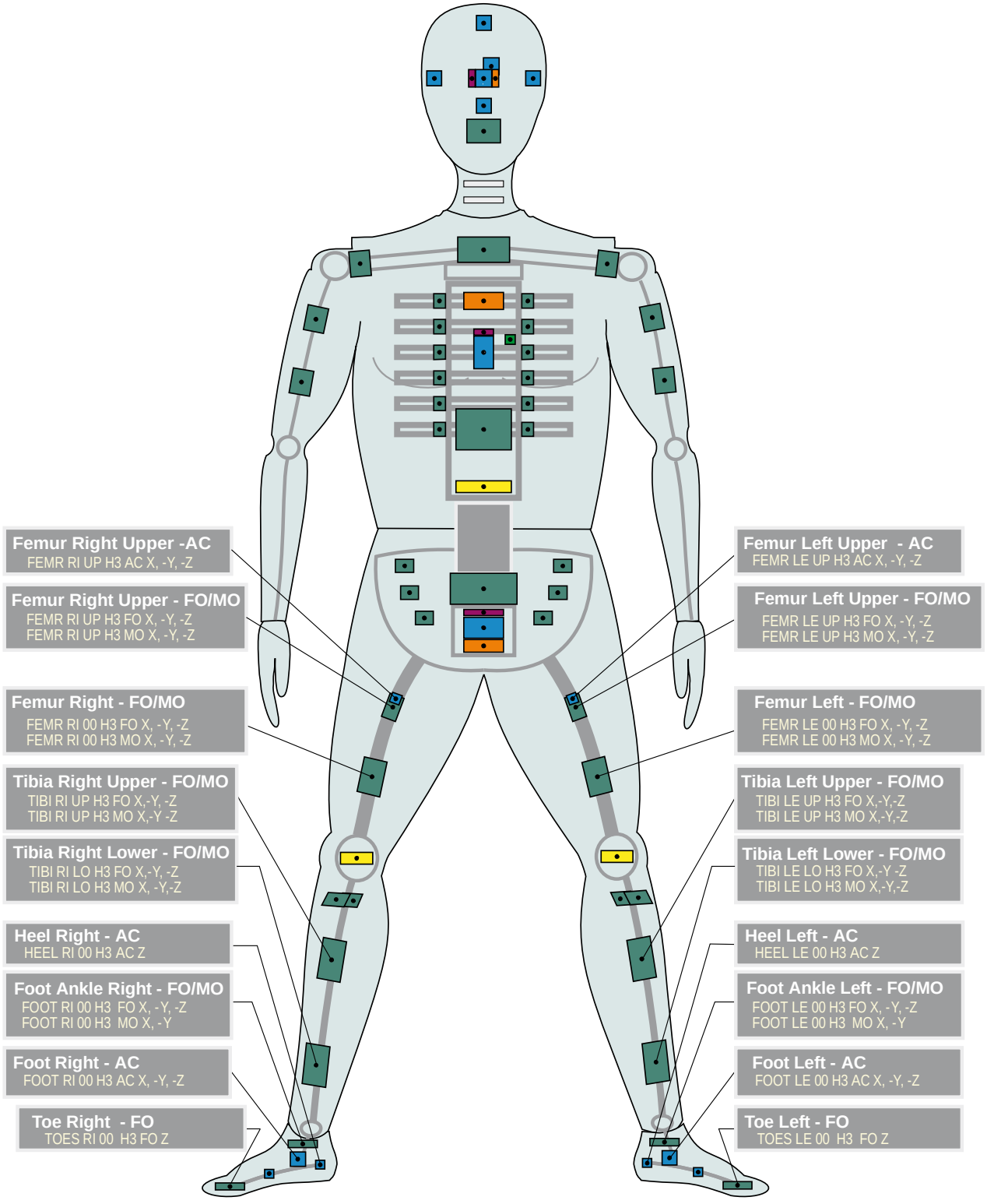
ISO_H3_2_161_20130410.EMF

-> 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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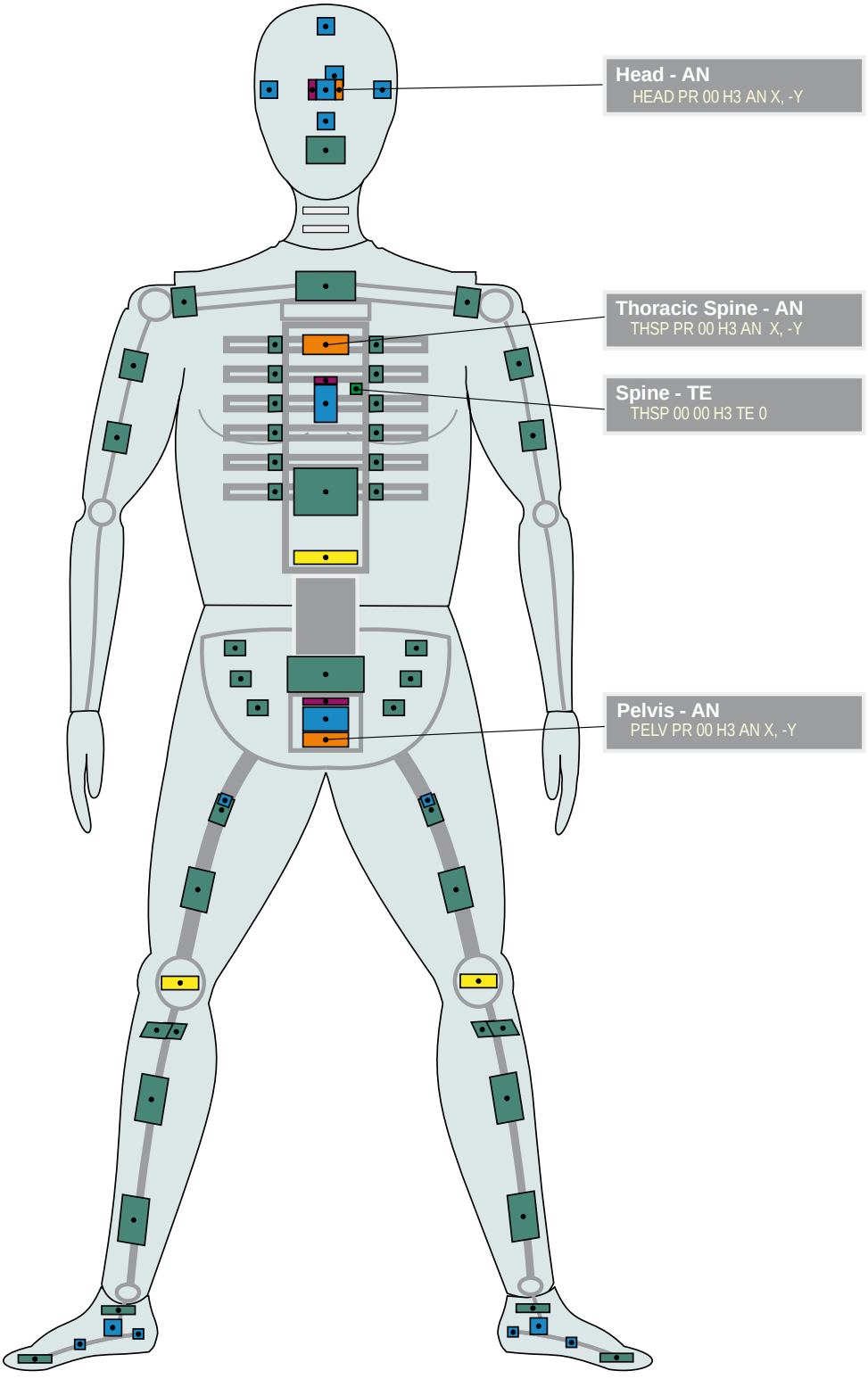
ISO_H3_3_161_20130410.EMF

-> 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

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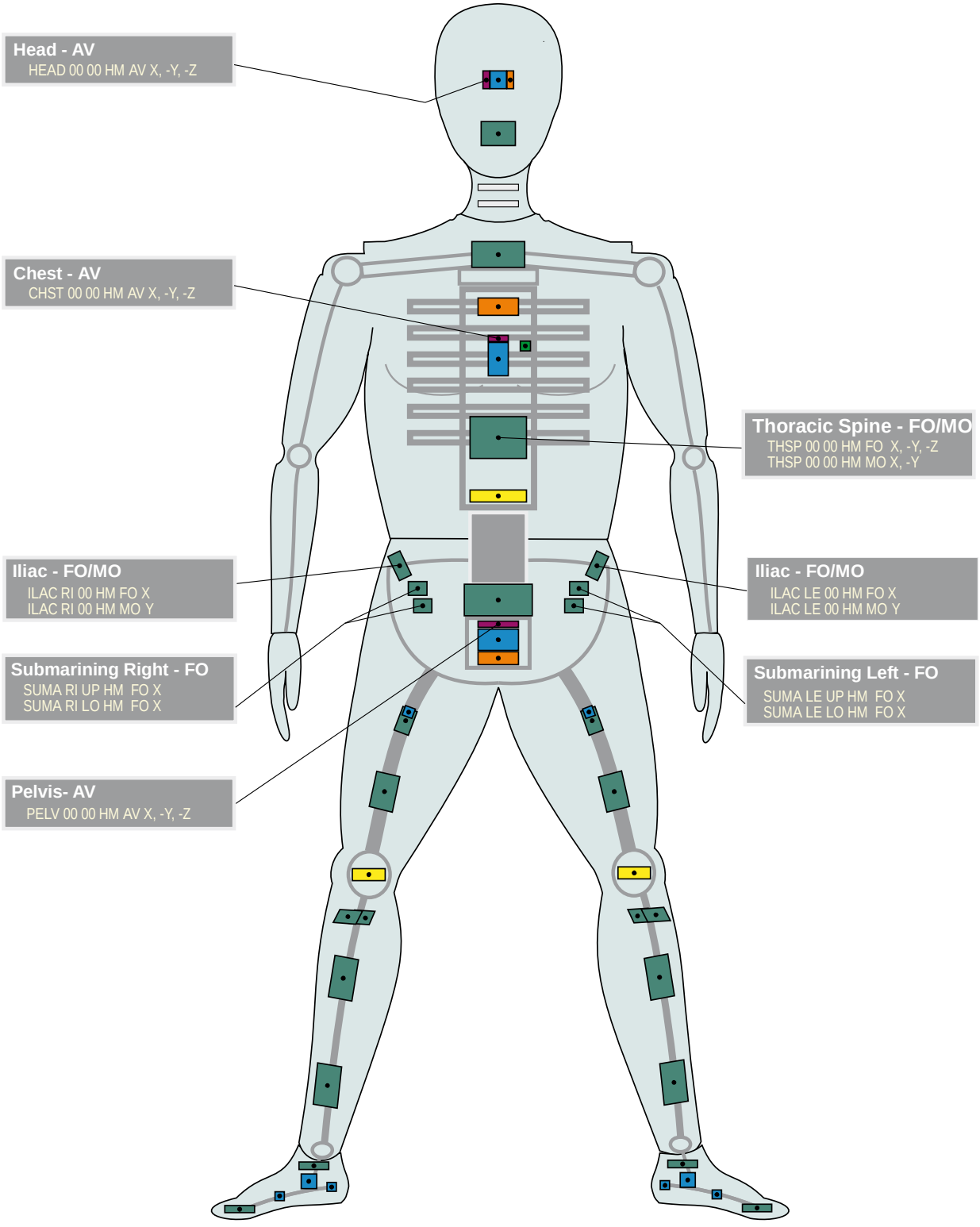
ISO_H3_4_161_20130410.EMF

-> H3 <- 4 of 4

HM Hybrid III 95% Male (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
HM, Hybrid III 95% male
Additional Instrumentation - Head, Torso and Pelvis
2013-04-10



ISO-HM_20130410

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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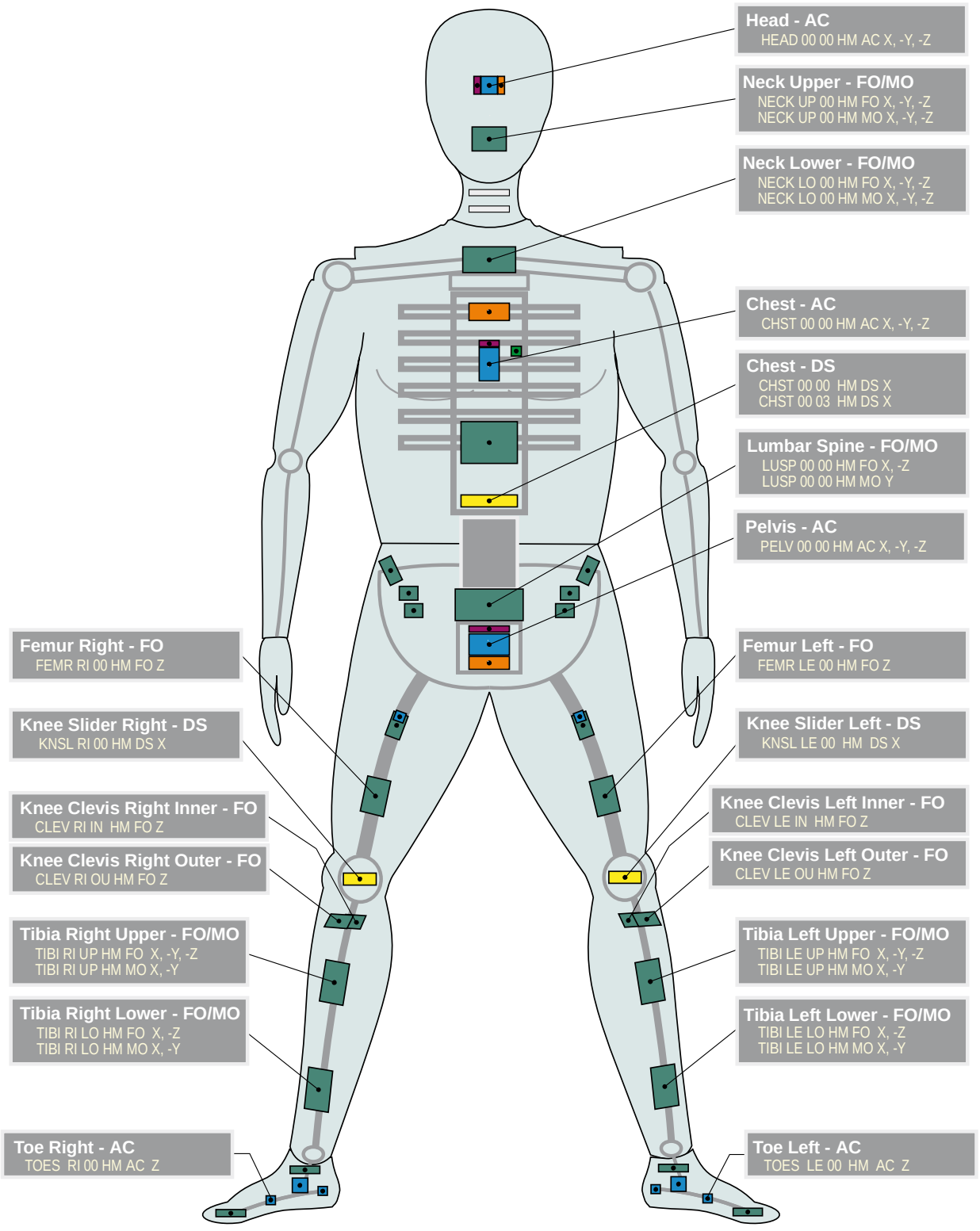
ISO_HM_2_161_20130410.EMF

-> HM <- 2 of 4

HM Hybrid III 95% Male (1)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
HM, Hybrid III 95% male
Standard Instrumentation
2013-04-10



ISO-HM_20130410

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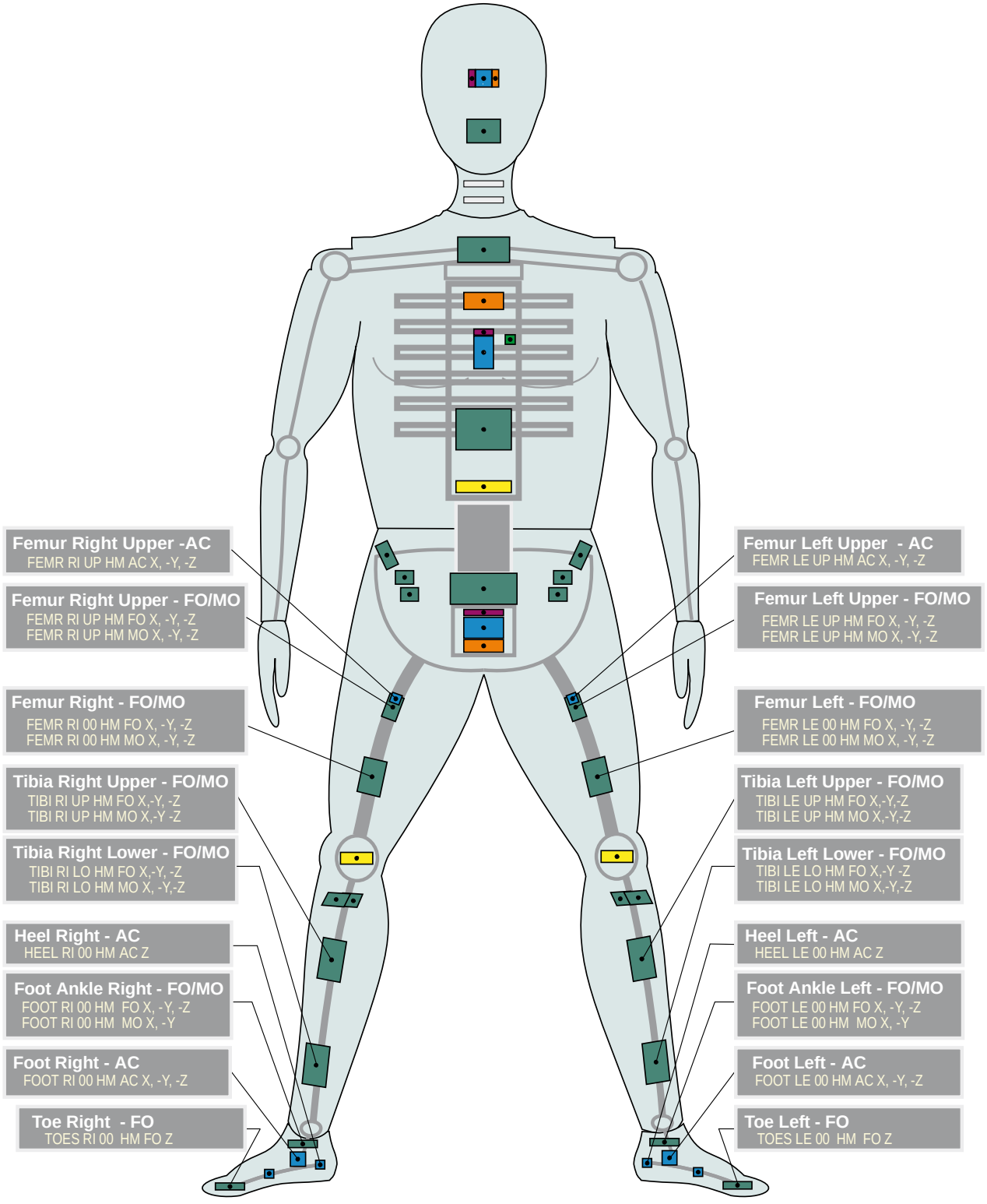
ISO_HM_1_161_20130410.EMF

-> HM <- 1 of 4

HM Hybrid III 95% Male (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
HM, Hybrid III 95% male
Additional Instrumentation - Legs
2013-04-10



ISO-HM_20130410

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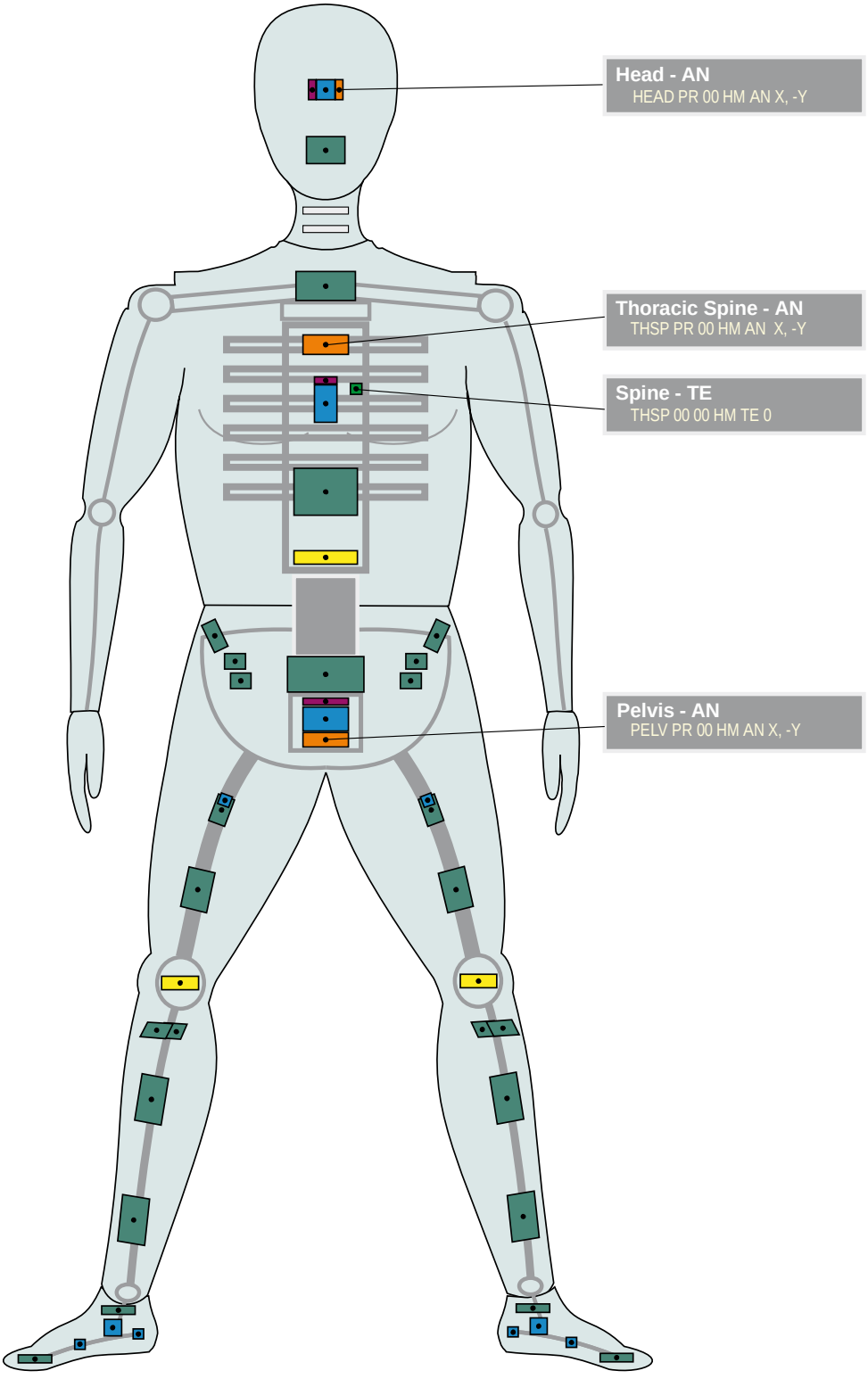
ISO_HM_3_161_20130410.EMF

-> HM <- 3 of 4

HM Hybrid III 95% Male (4)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012
HM, Hybrid III 95% male
Static measurements, other channels
2013-04-10



ISO-HM_20130410

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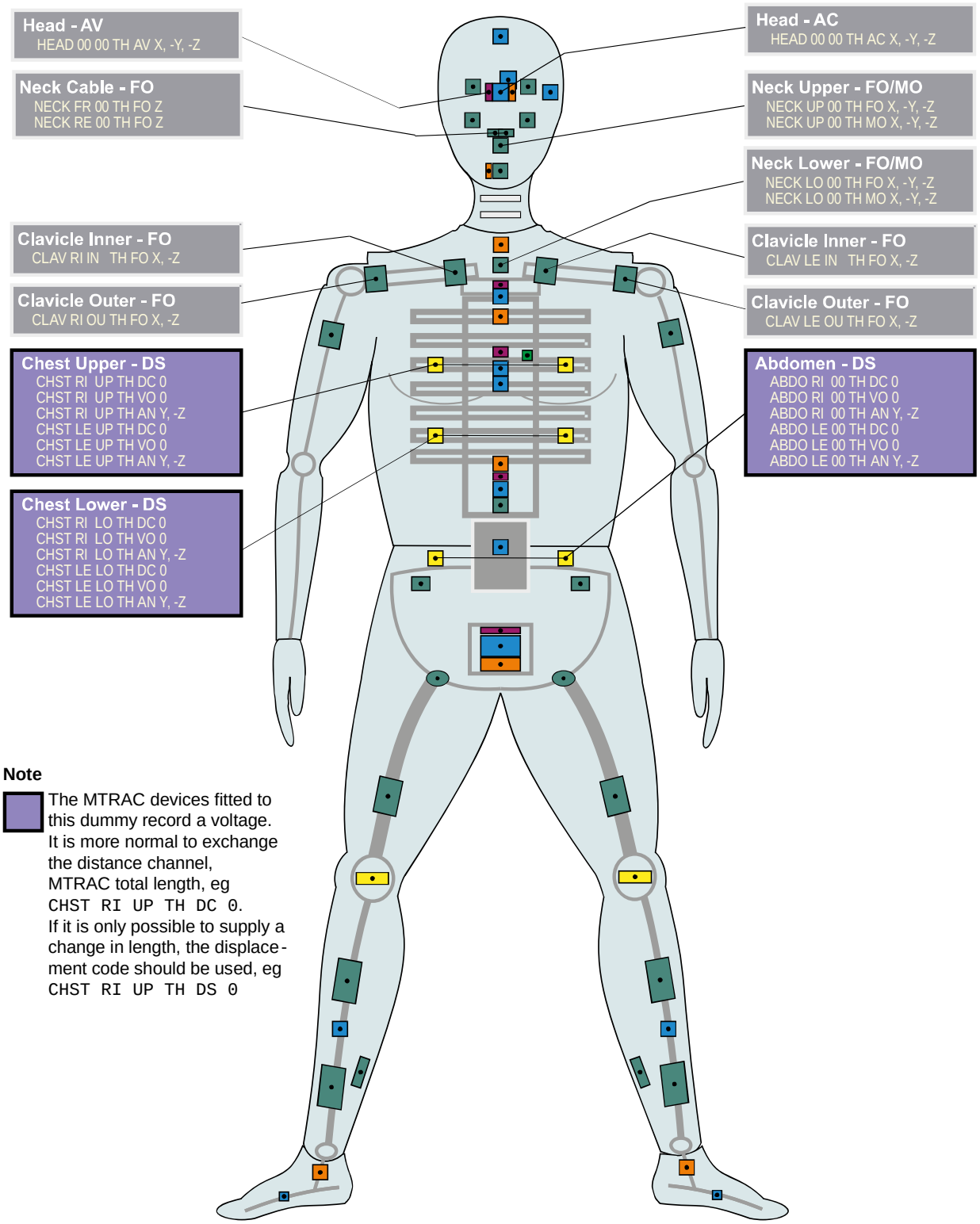
ISO_HM_4_161_20130410.EMF

-> HM <- 4 of 4

TH THOR 50th (1)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
TH, THOR 50% male
Standard Instrumentation: Upper Body
2020-06-17



Note

The MTRAC devices fitted to this dummy record a voltage. It is more normal to exchange the distance channel, MTRAC total length, eg `CHST RI UP TH DC 0`. If it is only possible to supply a change in length, the displacement code should be used, eg `CHST RI UP TH DS 0`

ISO-TH_20200617

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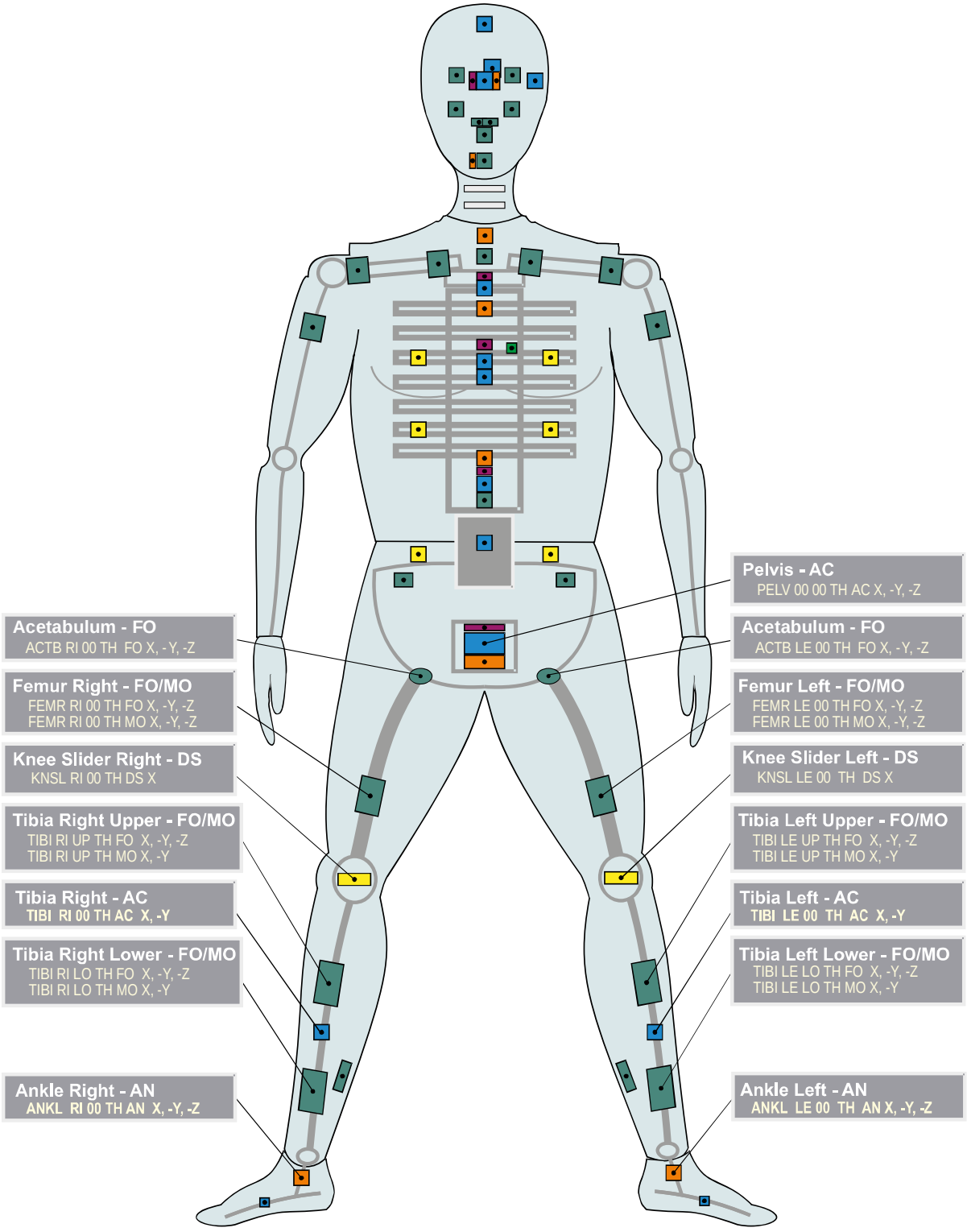
ISO_TH_1_162_20200617.EMF

-> TH <- 1 of 4

TH THOR 50th (2)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
TH, THOR 50% male
Standard Instrumentation: Lower Body
2020-06-17



ISO-TH_20200617

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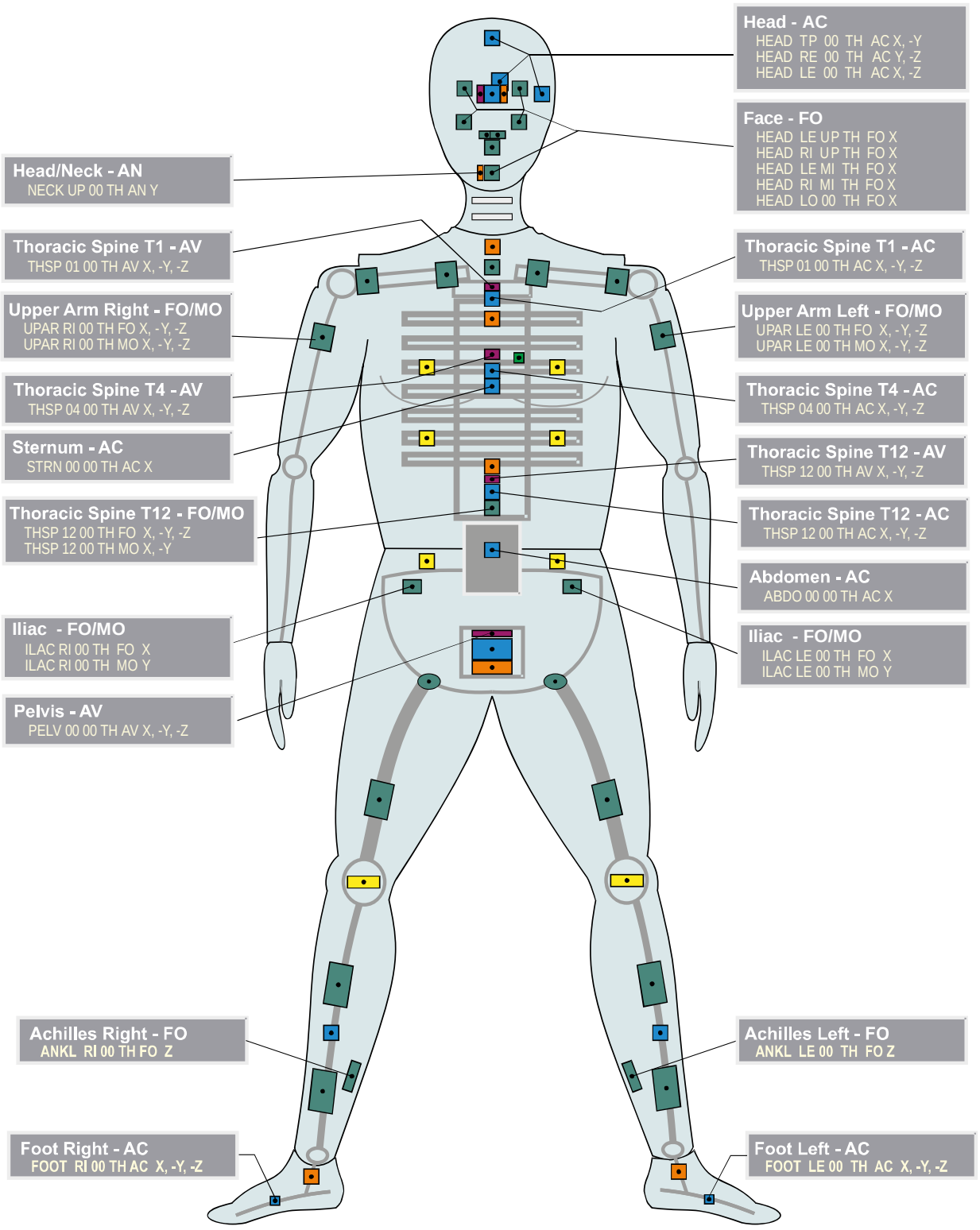
and Dirk Vetter, IAT mbH

ISO_TH_2_162_20200617.EMF

TH THOR 50th (3)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
TH, THOR 50% male
Additional Instrumentation: Upper and Lower Body
2020-06-17



ISO-TH_20200617

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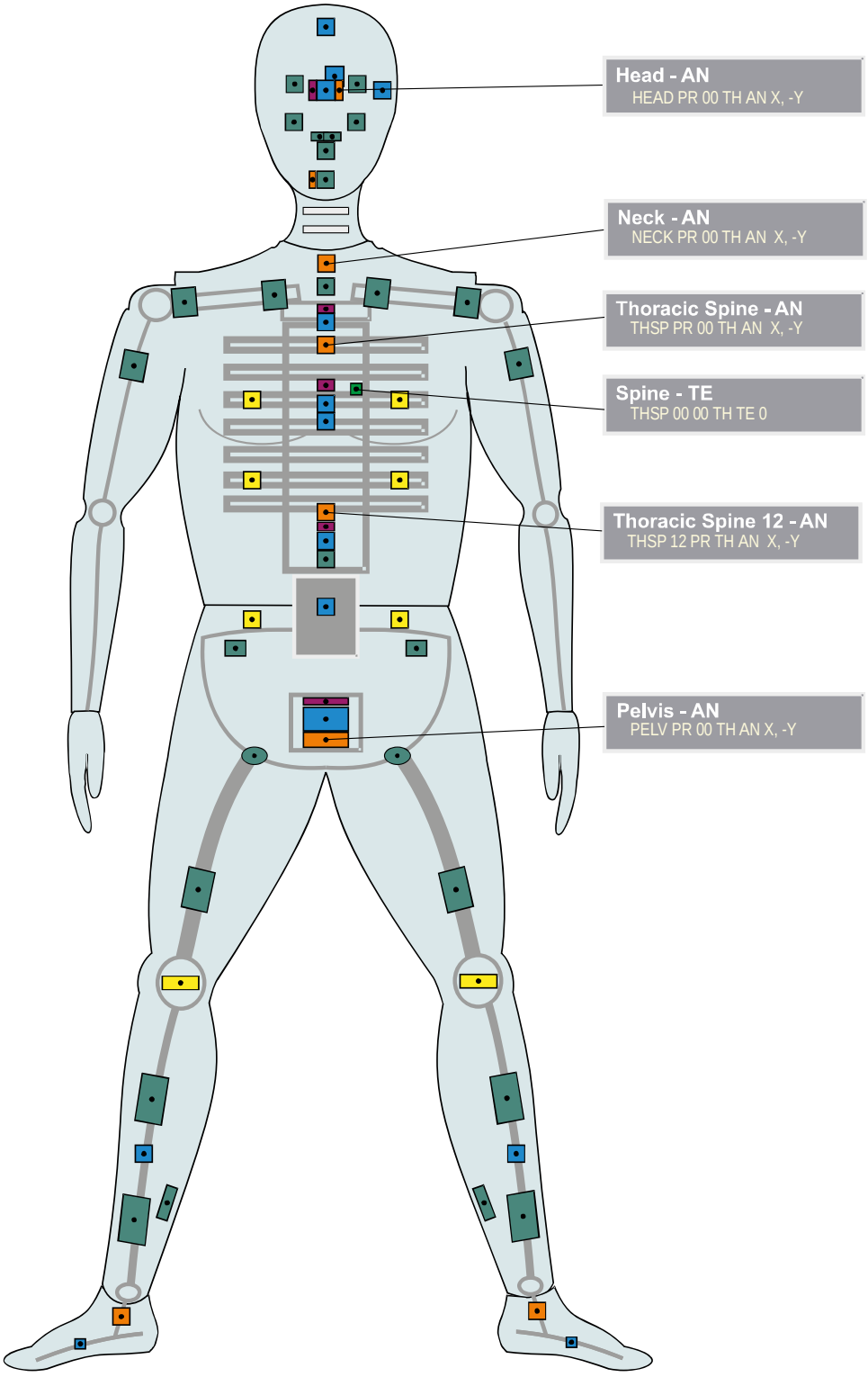
and Dirk Vetter, IAT mbH

TH THOR 50th (4)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
TH, THOR 50% male
Static measurements, other channels
2020-06-17



ISO-TH_20200617

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and Dirk Vetter, IAT mbH

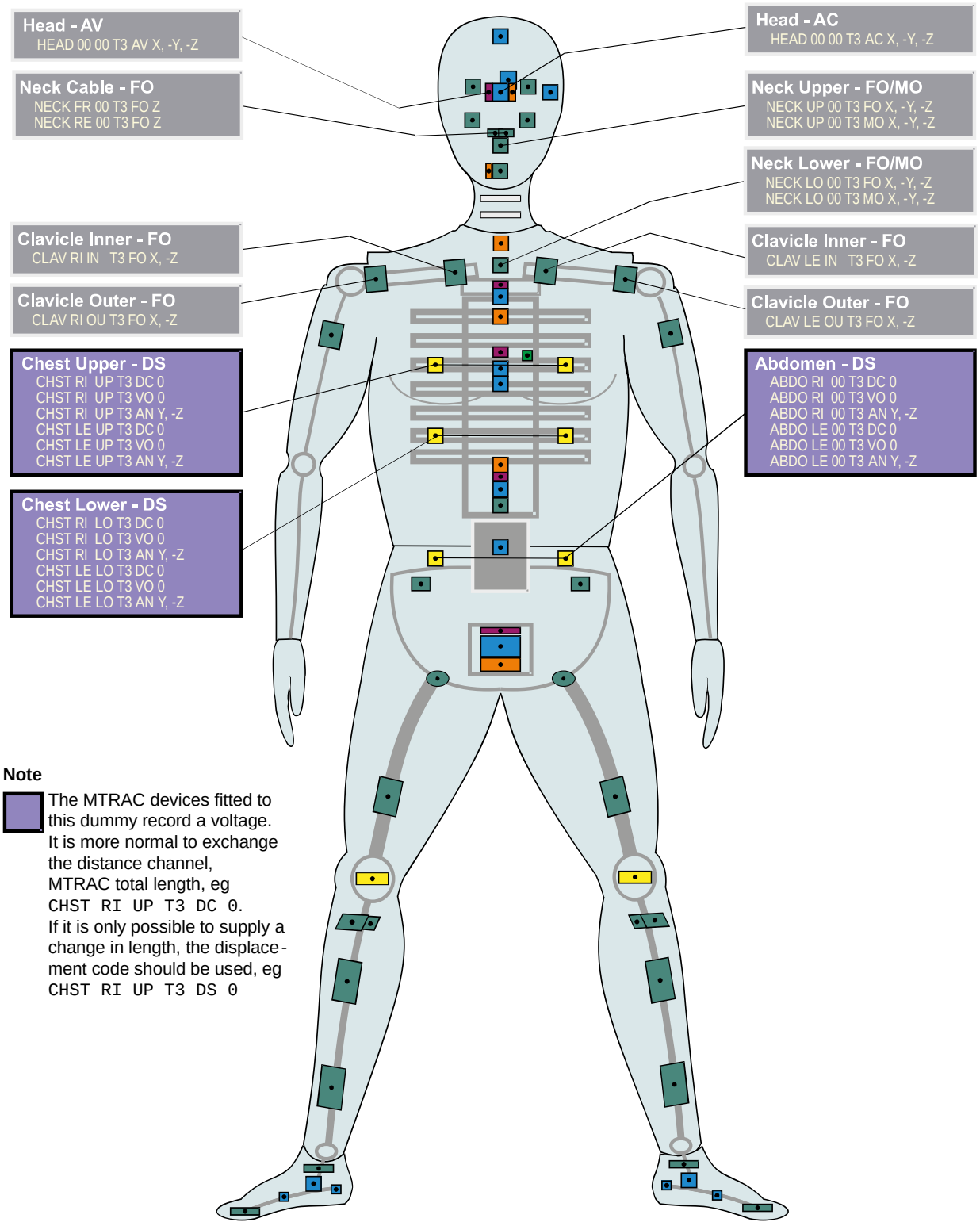
ISO_TH_4_162_20200617.EMF

-> TH <- 4 of 4

T3 THOR with H3 Legs (1)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
T3, THOR 50% male + H3 50% Lower Legs
Standard Instrumentation: Upper Body
2020-06-17



Note

The MTRAC devices fitted to this dummy record a voltage. It is more normal to exchange the distance channel, MTRAC total length, eg `CHST RI UP T3 DC 0`. If it is only possible to supply a change in length, the displacement code should be used, eg `CHST RI UP T3 DS 0`

ISO-T3_20200617

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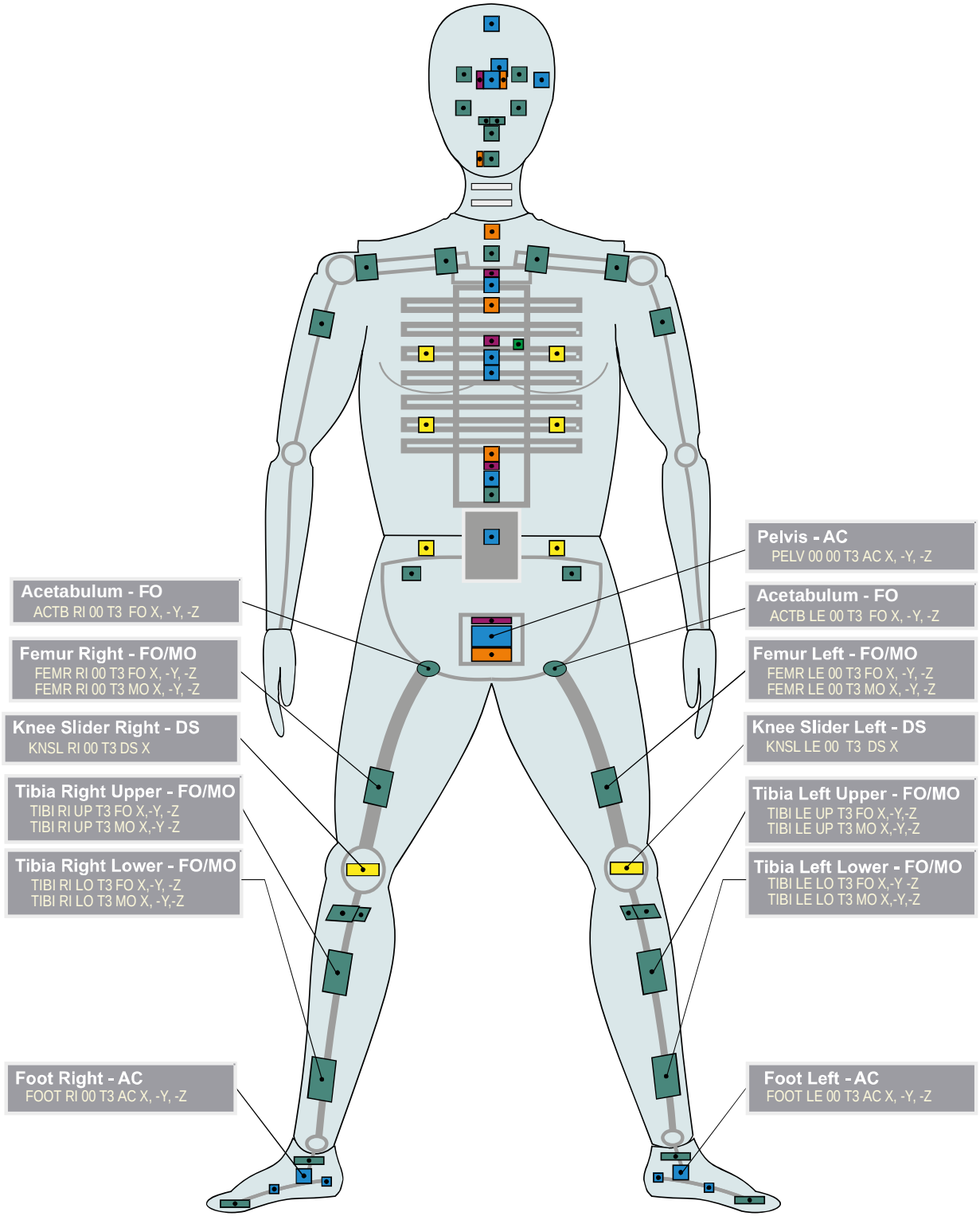
ISO_T3_1_162_20200617.EMF

-> T3 <- 1 of 4

T3 THOR with H3 Legs (2)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
T3, THOR 50% male + H3 50% Lower Legs
Standard Instrumentation: Lower Body
2020-06-17



ISO-T3_20200617

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and Dirk Vetter, IAT mbH

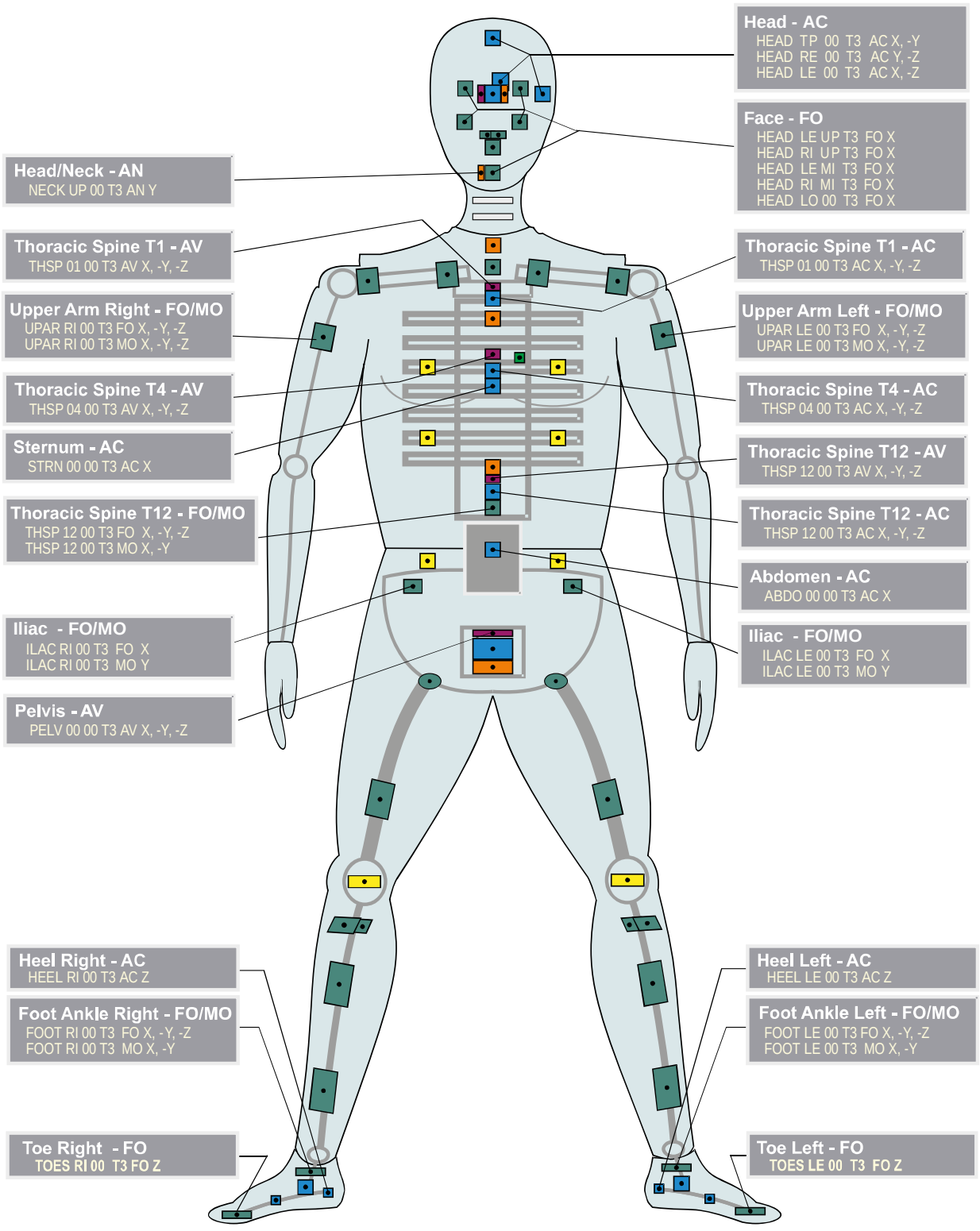
ISO_T3_2_162_20200617.EMF

-> T3 <- 2 of 4

T3 THOR with H3 Legs (3)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
T3, THOR 50% male + H3 50% Lower Legs
Additional Instrumentation: Upper and Lower Body
2020-06-17



ISO-T3_20200617

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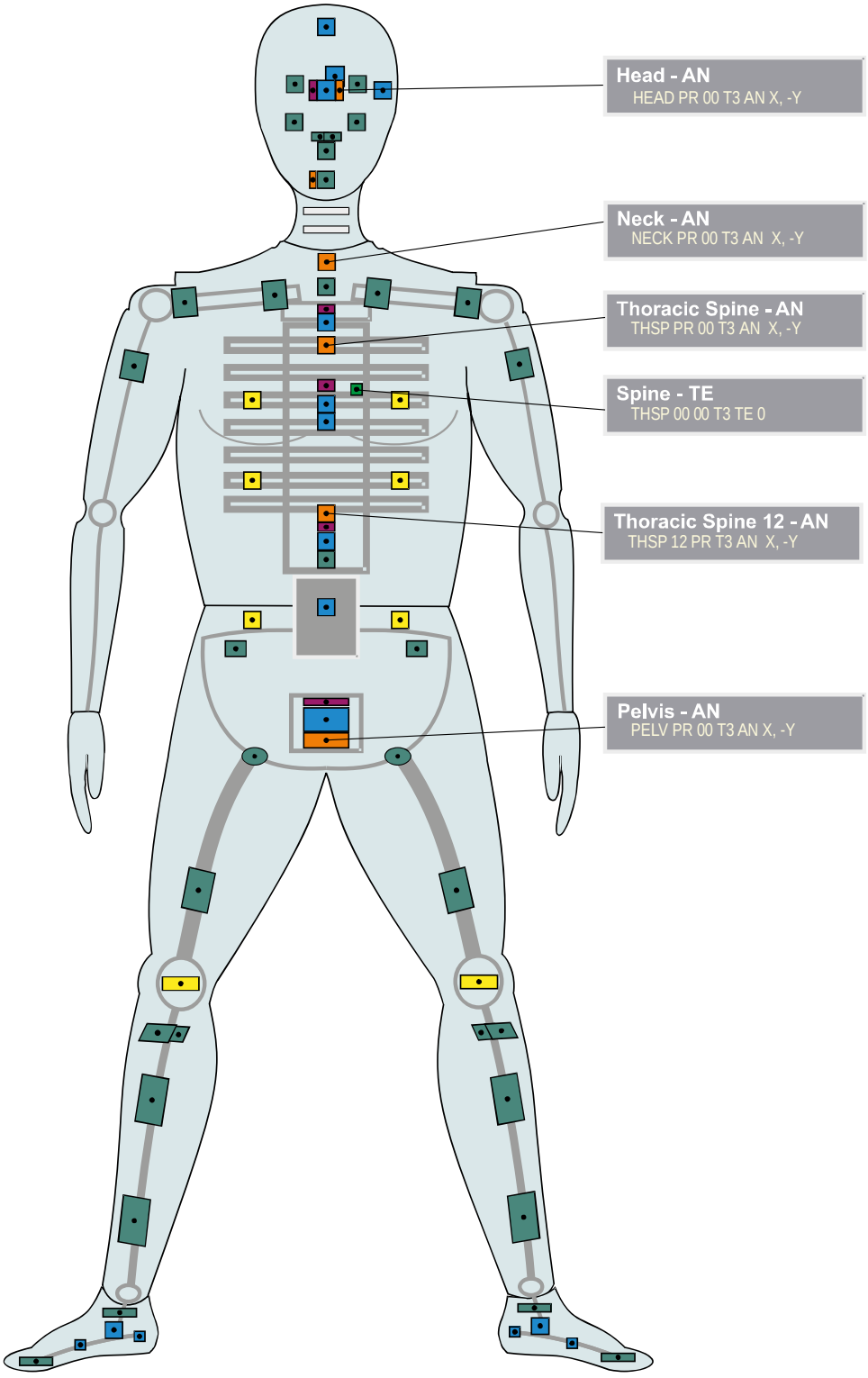
ISO_T3_3_162_20200617.EMF

-> T3 <- 3 of 4

T3 THOR with H3 Legs (4)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2020
T3, THOR 50% male + H3 50% Lower Legs
Static measurements, other channels
2020-06-17



ISO-T3_20200617

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ISO TC 22 / SC 36 / WG 3 / ISO-MME Task Force
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ISO_T3_4_162_20200617.EMF

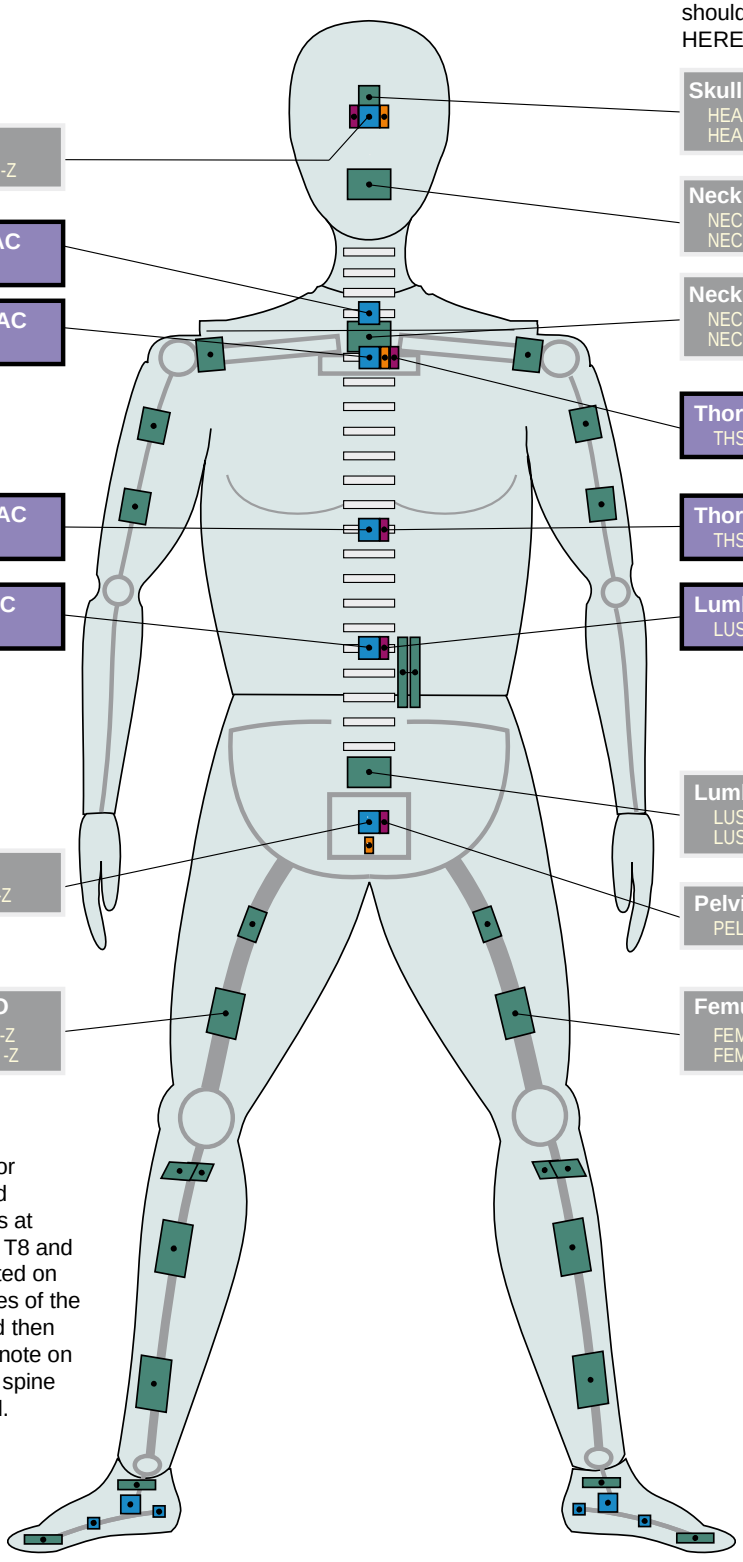
-> T3 <- 4 of 4

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



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

Cervical Spine 04 - AC
CESP 04 00 BR AC X, -Z

Thoracic Spine 01 - AC
THSP 01 00 BR AC X, -Z

Thoracic Spine 08 - AC
THSP 08 00 BR AC X, -Z

Lumbar Spine 01 - AC
LUSP 01 00 BR AC X, -Z

Pelvis - AC
PELV 00 00 BR AC X, -Y, -Z

Femur Right - FO/MO
FEMR RI 00 BR FO X, -Y, -Z
FEMR RI 00 BR MO X, -Y, -Z

Skull Cap - FO/MO
HEAD RE 00 BR FO X, -Z
HEAD RE 00 BR MO Y

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

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

Thoracic Spine 01 - AV
THSP 01 00 BR AV X, -Y, -Z

Thoracic Spine 08 - AV
THSP 08 00 BR AV X, -Y, -Z

Lumbar Spine 01 - AV
LUSP 01 00 BR AV X, -Y, -Z

Lumbar Spine - FO/MO
LUSP 05 00 BR FO X, -Y, -Z
LUSP 05 00 BR MO X, -Y, -Z

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

Femur Left - FO/MO
FEMR LE 00 BR FO X, -Y, -Z
FEMR LE 00 BR MO X, -Y, -Z

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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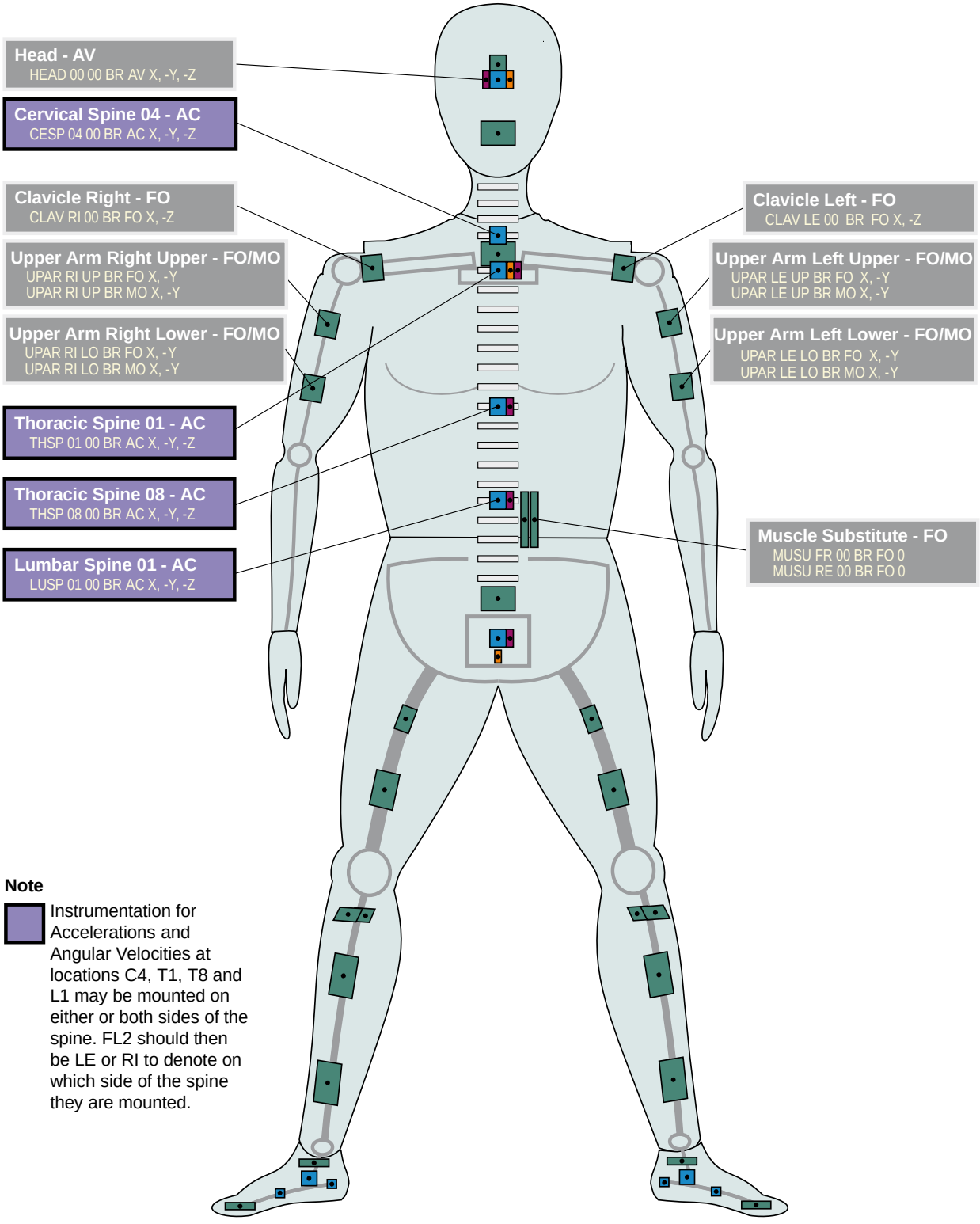
BR BioRID (2)

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
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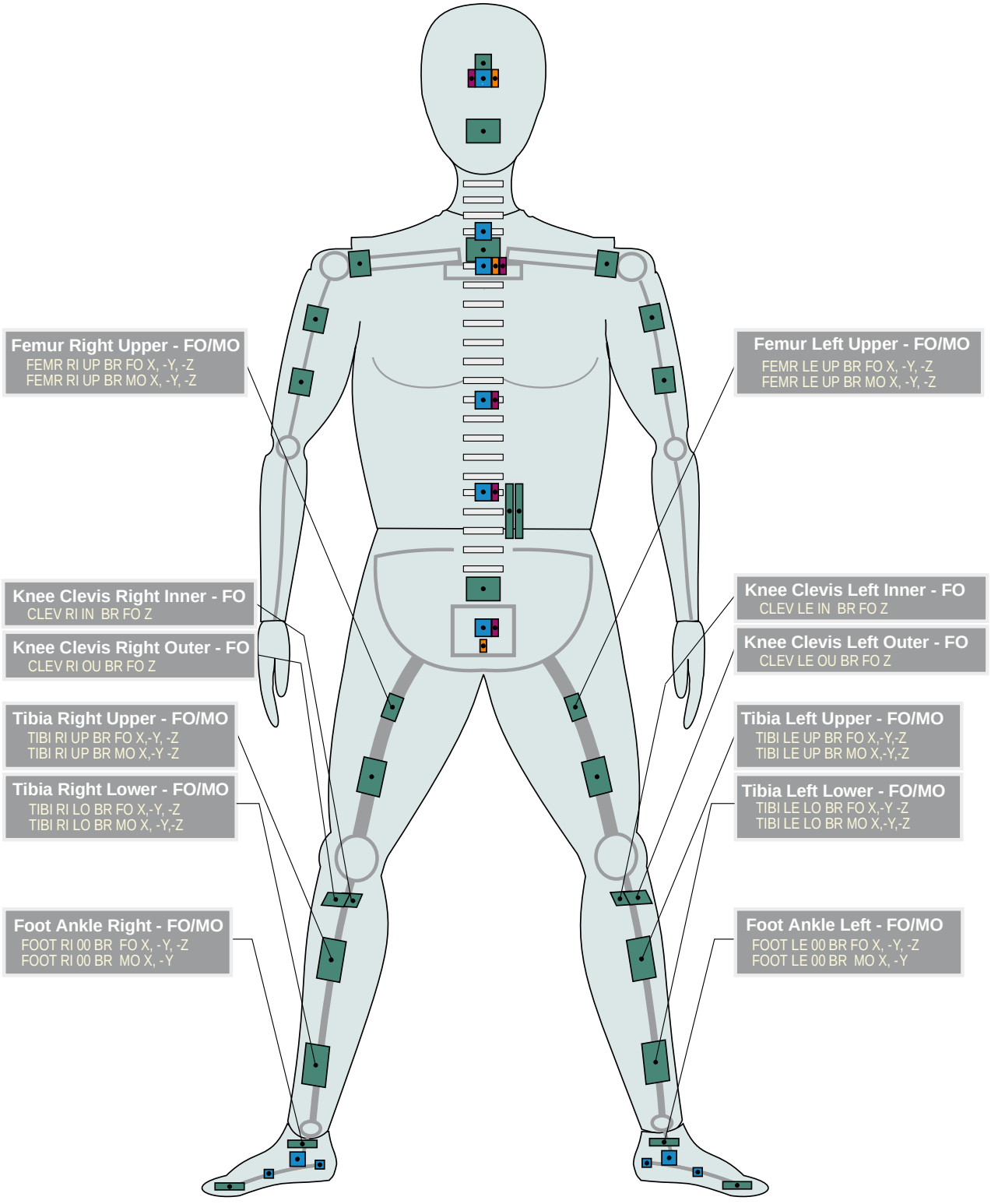
BR BioRID (3)

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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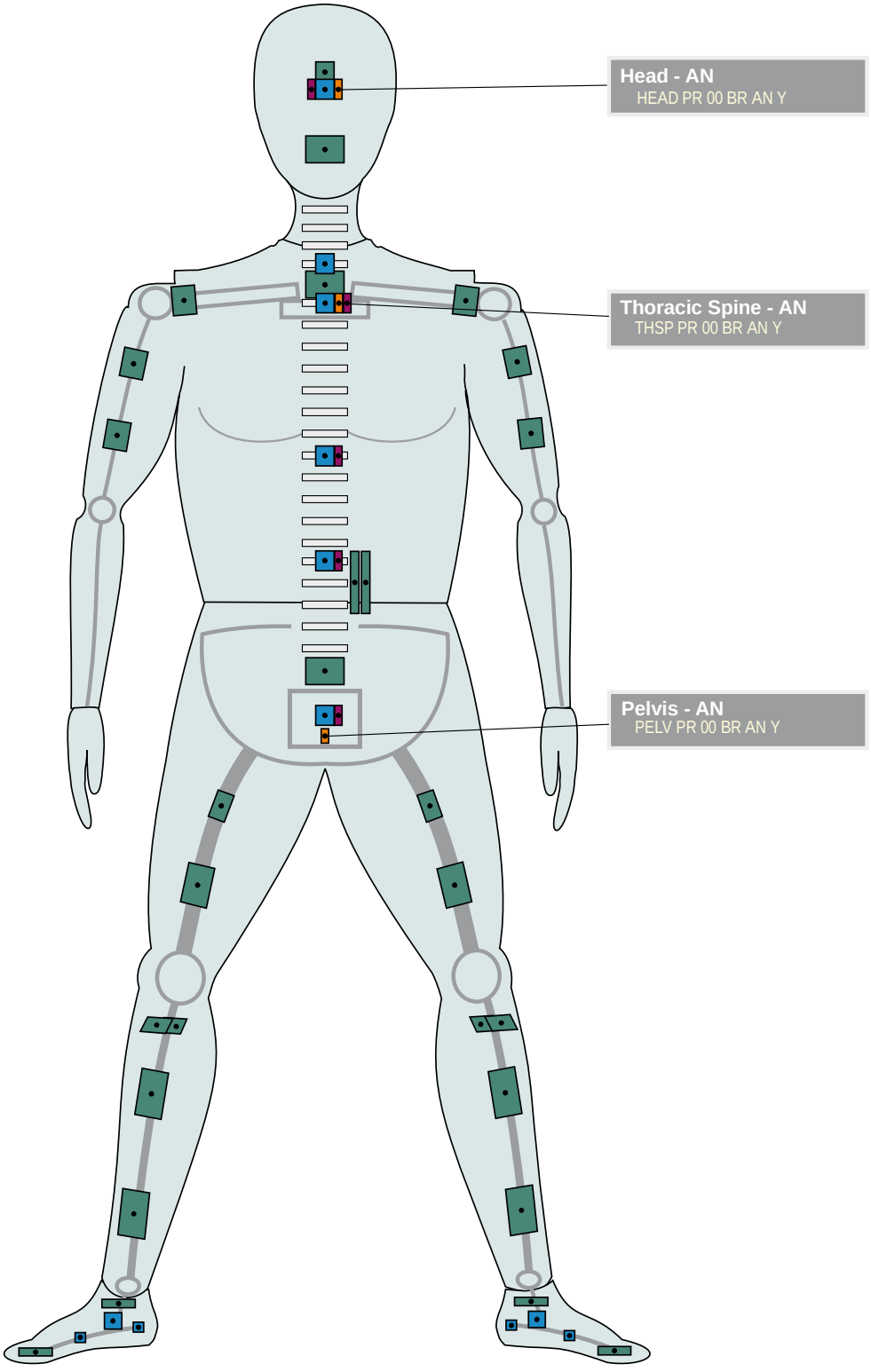
Maintained by Paul Wellicome, MIRA Ltd.

ISO_BR_3_161_20130710.EMF

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

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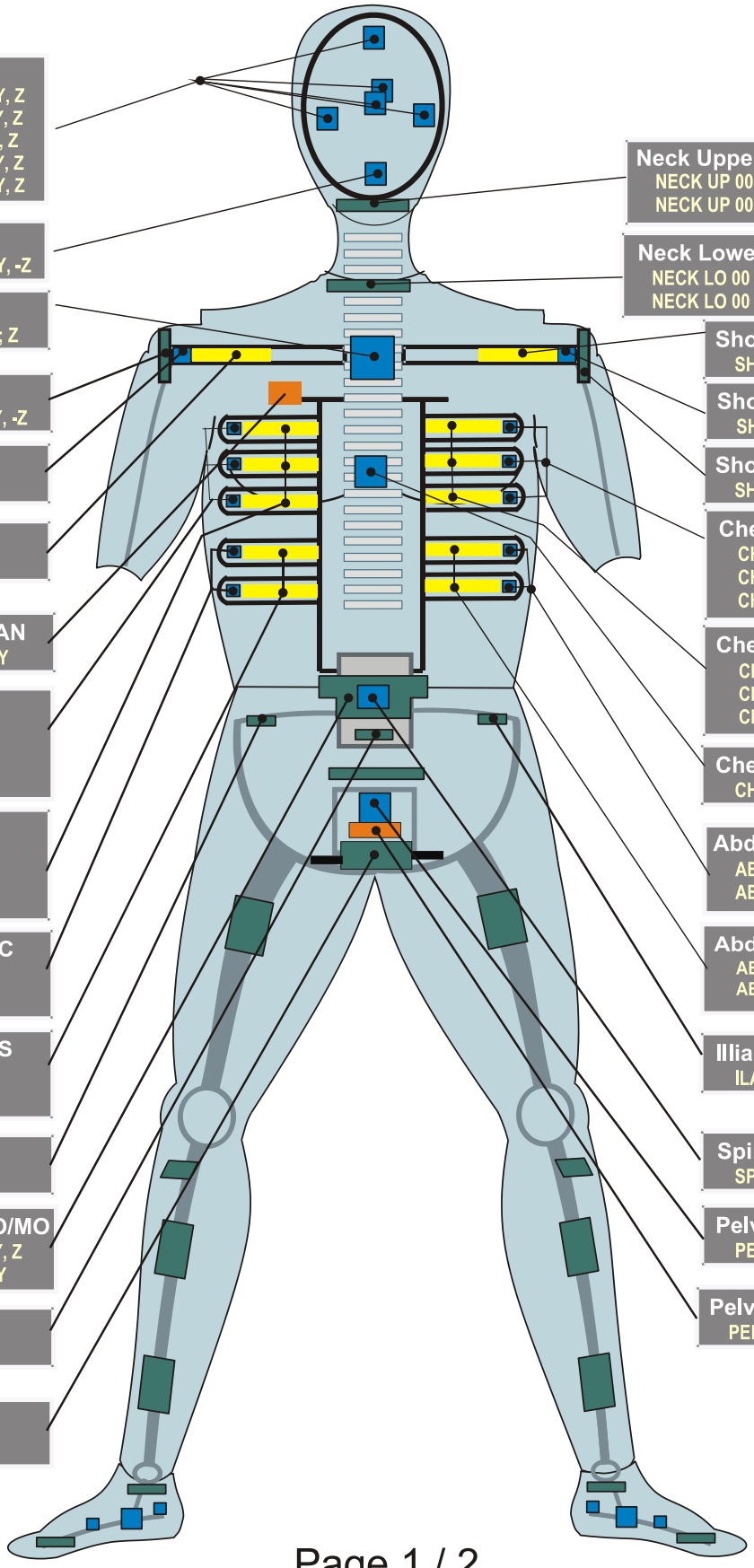
ISO_BR_4_161_20130710.EMF

-> BR <- 4 of 4

BS **Bio-SID**

Valid since Version **1.3**



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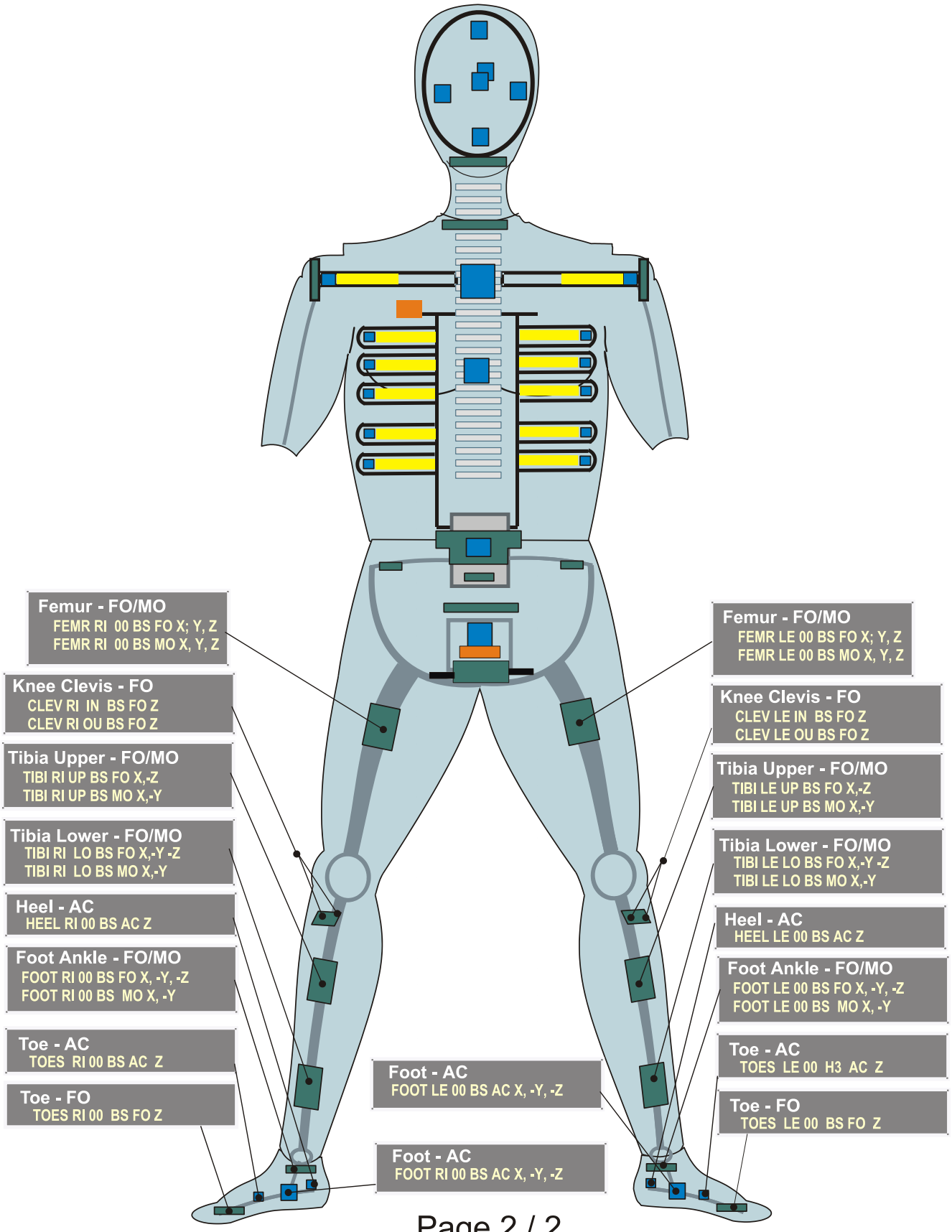
BS_1_13.WMF

-> BS <- 1 of 2

BS **Bio-SID** Valid since Version **1.3**



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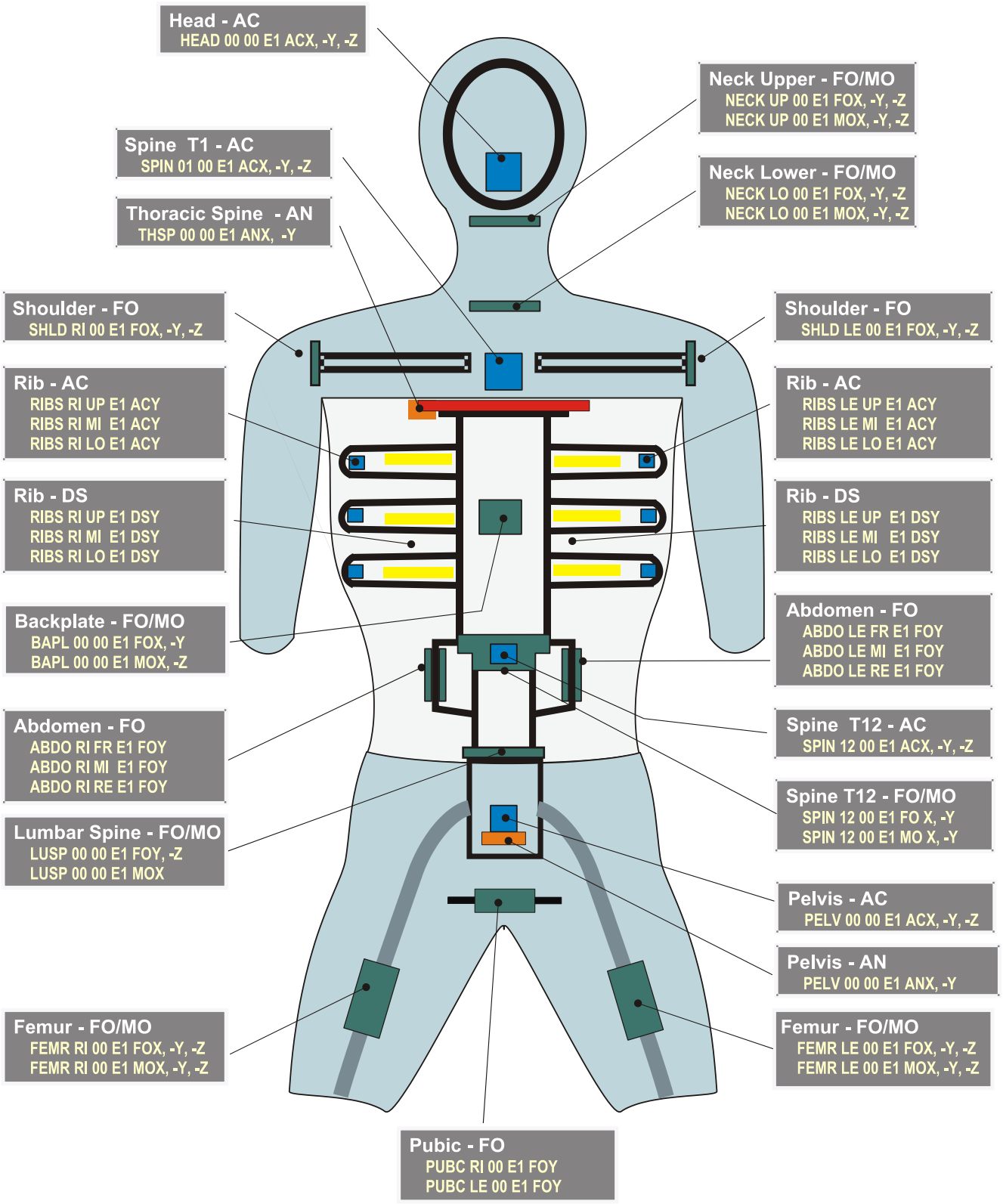
BS_2_13.WMF -> BS <- 2 of 2

E1 EuroSID I

Valid since Version 1.2



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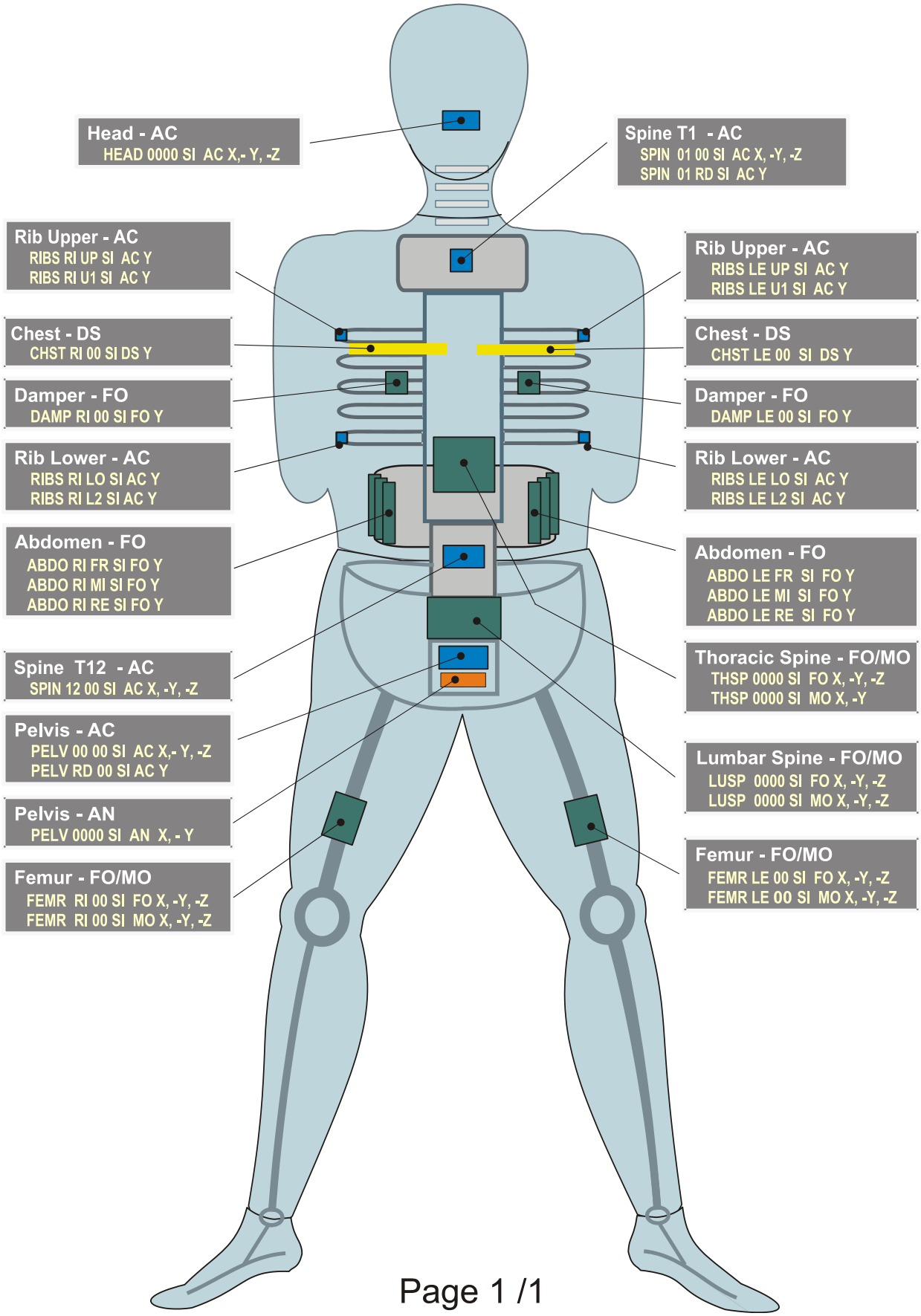
E1_1_12.WMF

-> E1 <- 1 of 1

SI **US SID**

Valid since Version **1.2**



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SI_1_12.WMF

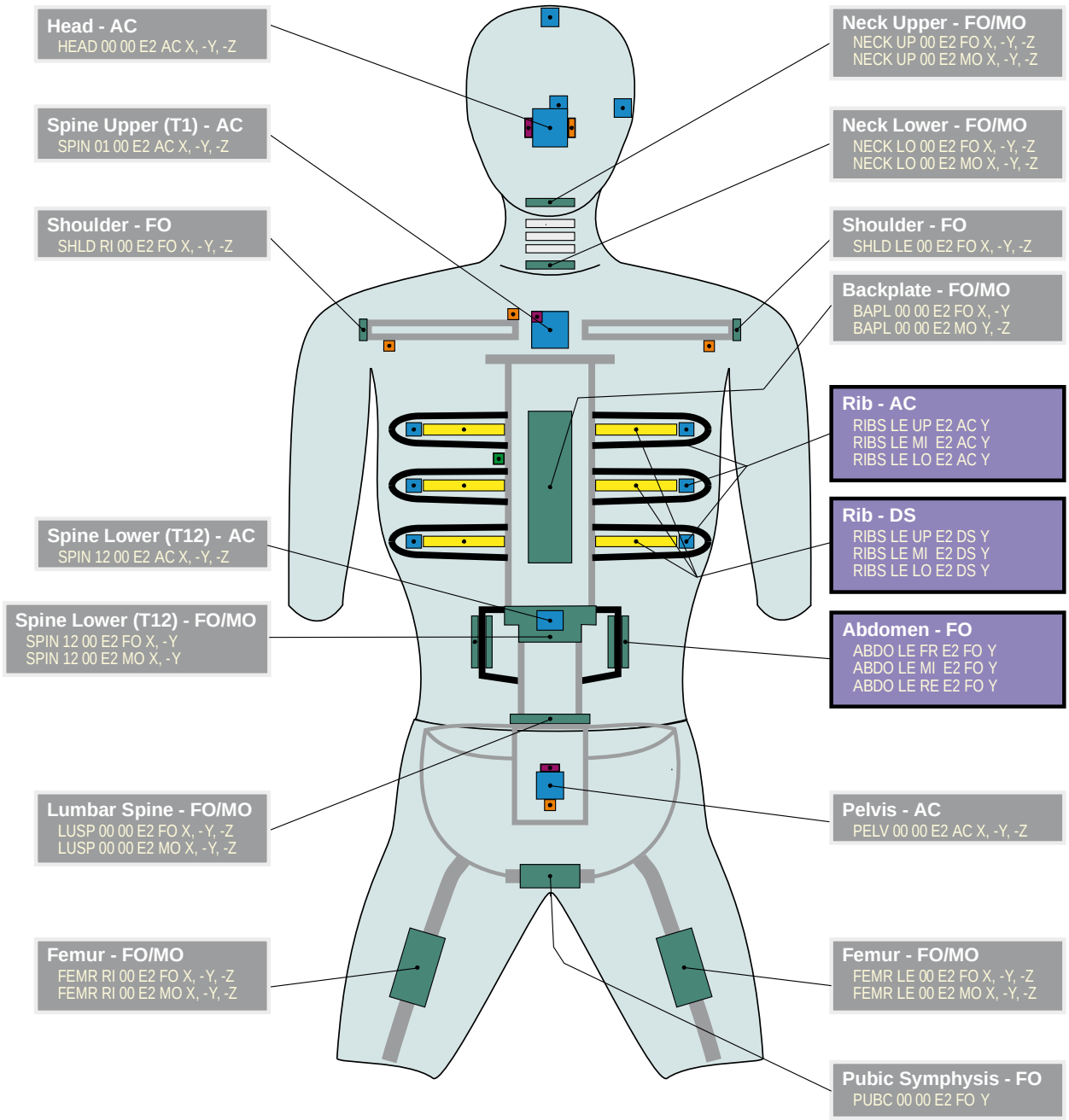
-> SI <- 1 of 1

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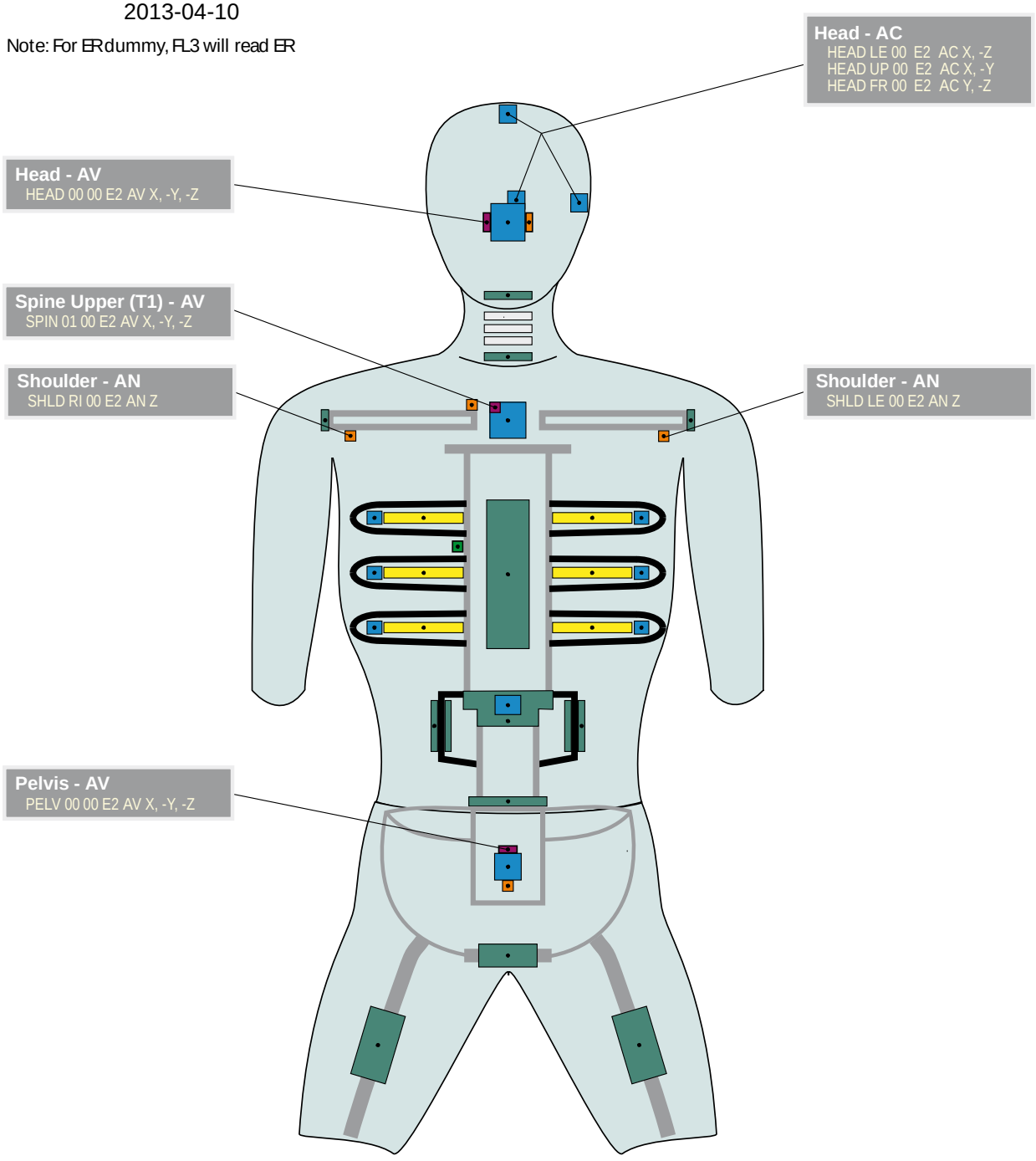
E2+ER ES-2 & ES-2re (2)

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

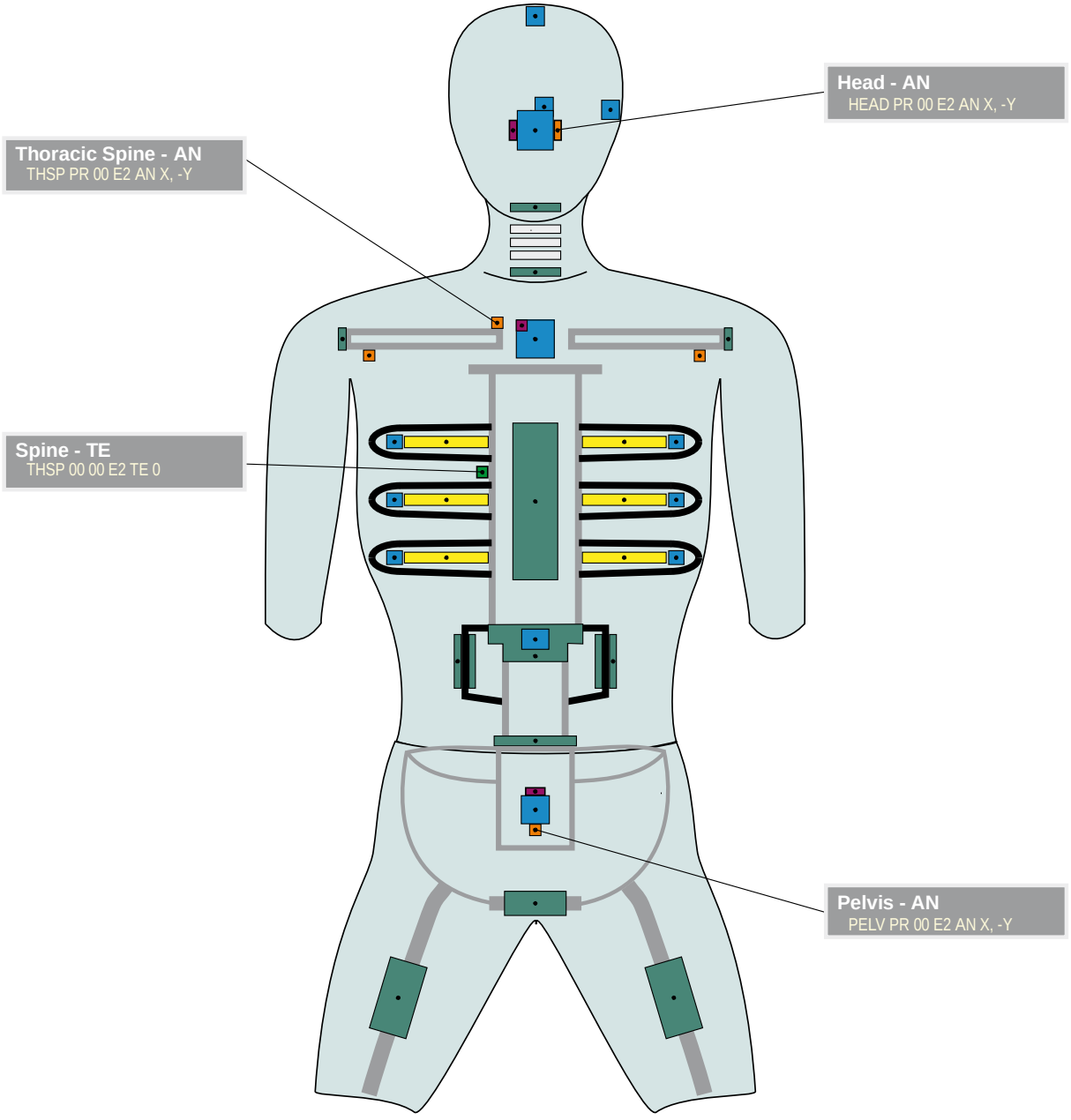


E2+ER ES-2 & ES-2re (3)

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

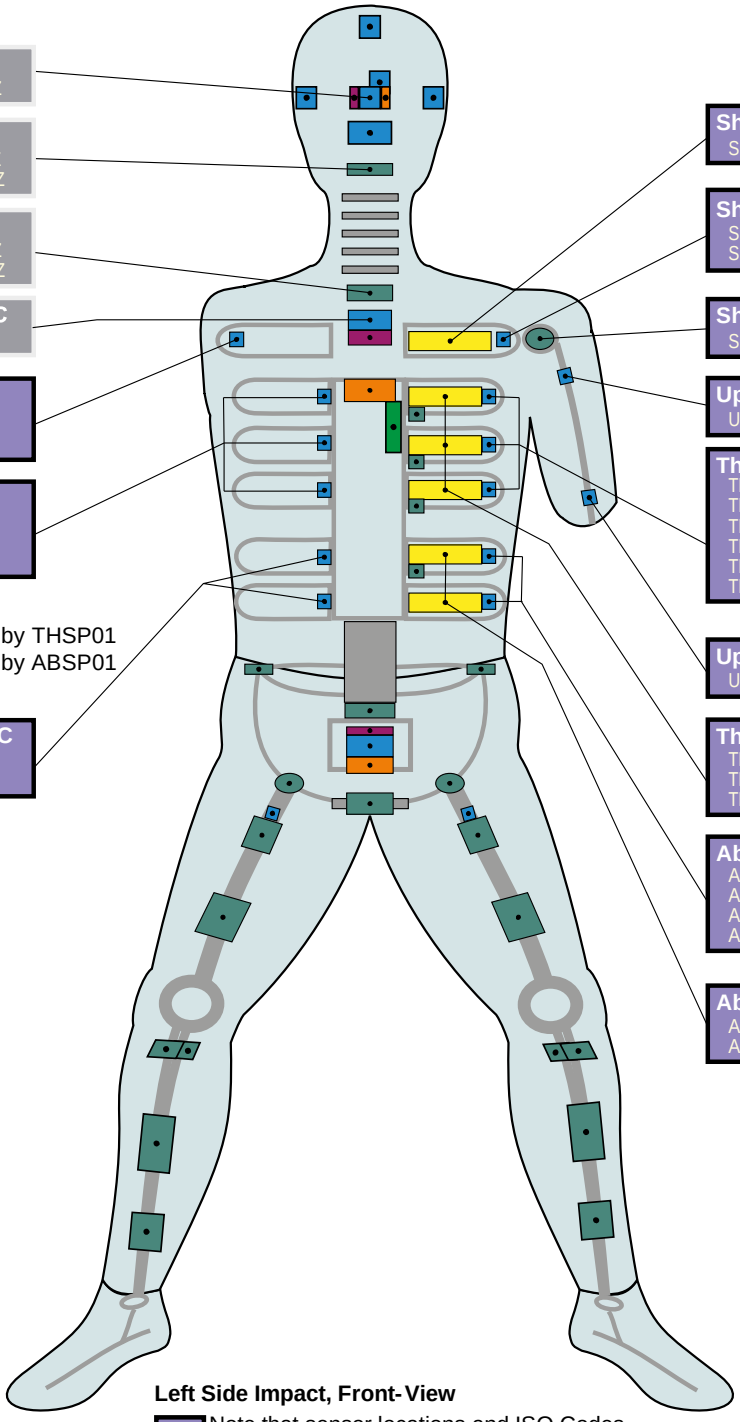
Note: For ER dummy, FL3 will read ER



S2 SID IIs (1)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2019(E)
S2, SID IIs
Standard Instrumentation (upper body)
2019-07-17



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: ·
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_20190717

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force·
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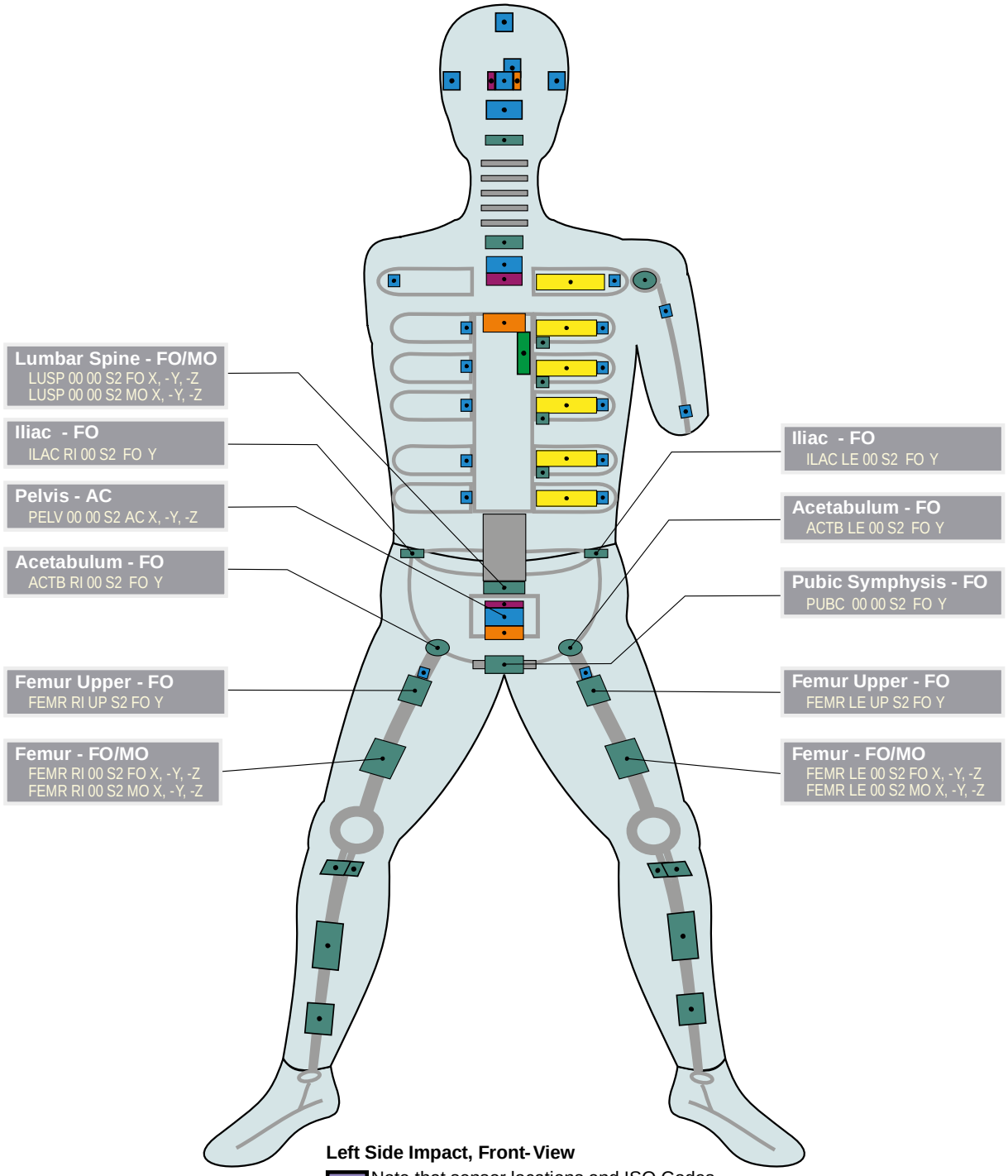
ISO_S2_1_162_20190719.EMF

-> S2 <- 1 of 5

S2 SID IIs (2)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2019(E)
S2, SID IIs
Standard Instrumentation (lower body)
2019-07-17



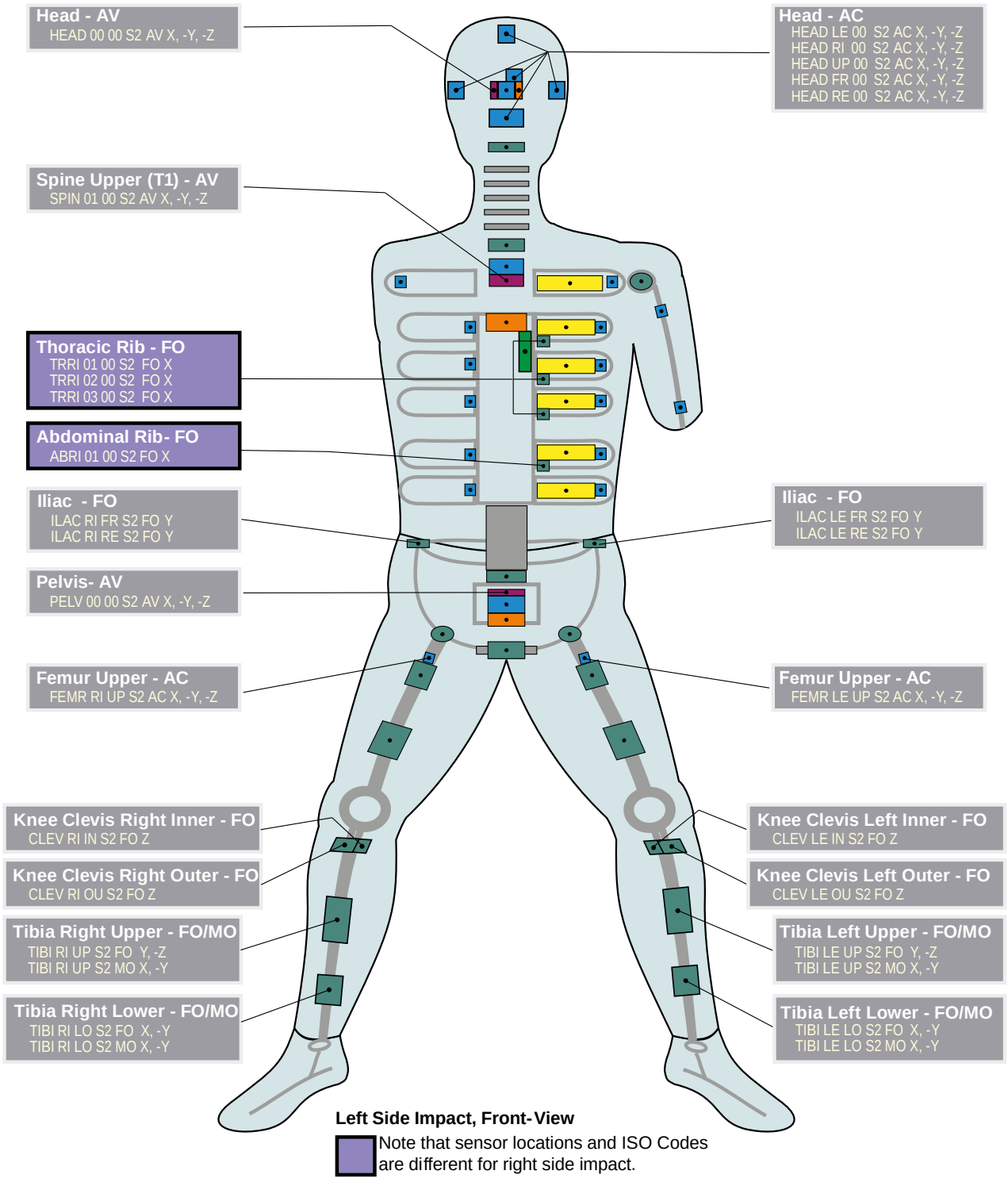
Left Side Impact, Front-View

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

S2 SID IIs (3)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2019(E)
S2, SID IIs
Additional Instrumentation
2019-07-17



Left Side Impact, Front-View

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

ISO-S2_20190717

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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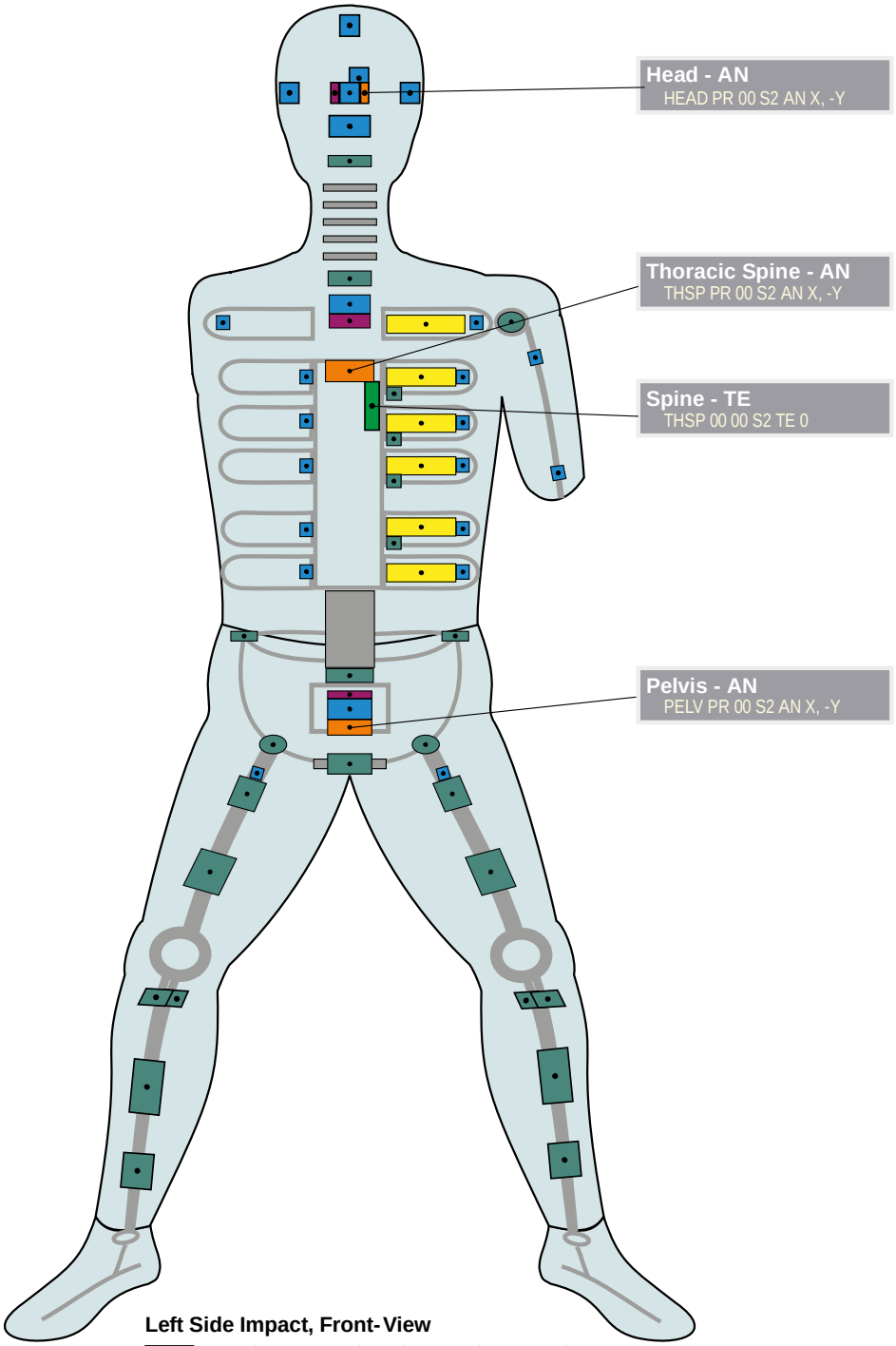
ISO_S2_3_162_20190719.EMF

-> S2 <- 3 of 5

S2 SID IIs (4)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2019(E)
S2, SID IIs
Static measurements, other channels
2019-07-17



Left Side Impact, Front-View

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

ISO-S2_20190717

ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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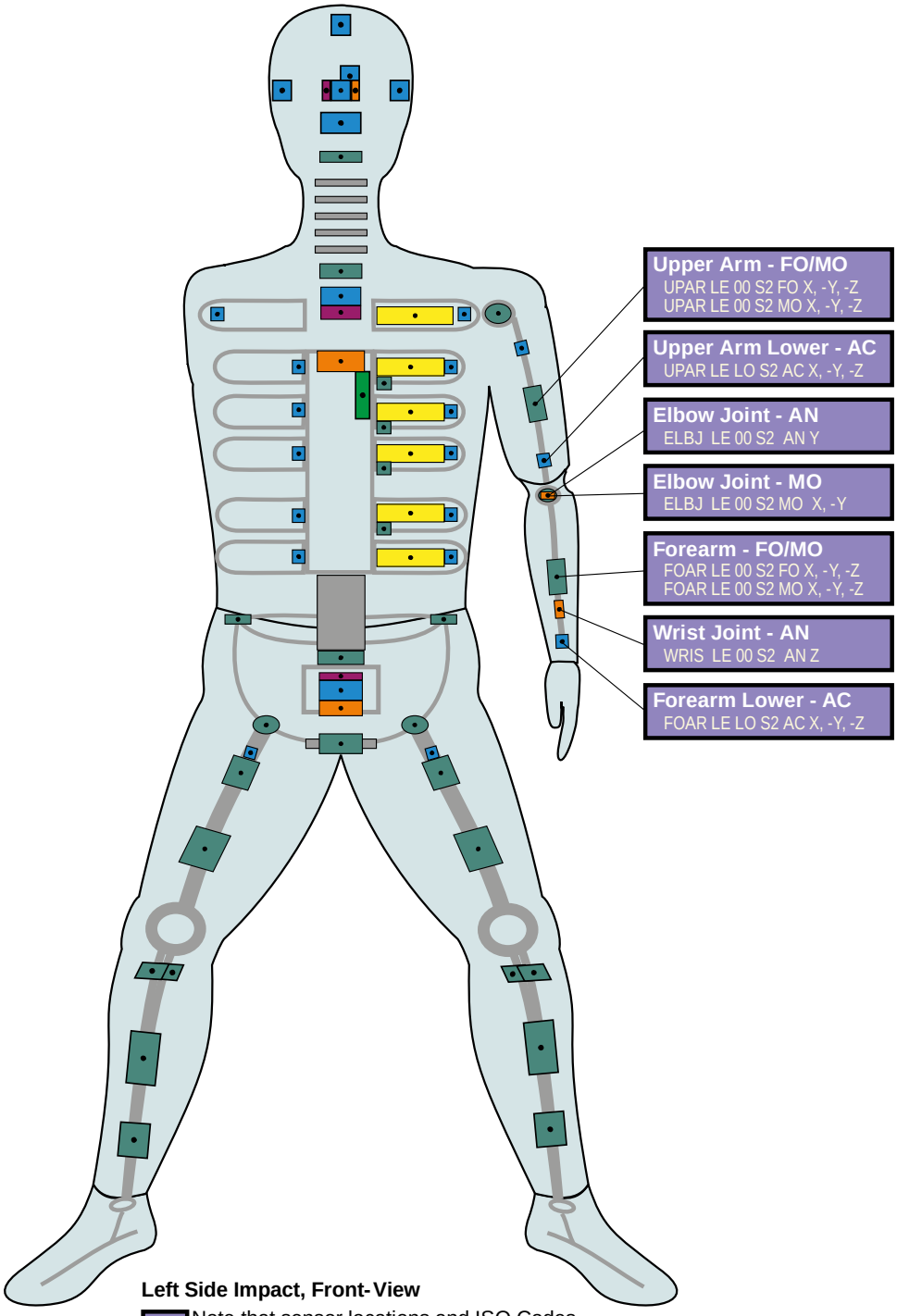
ISO_S2_4_162_20190719.EMF

-> S2 <- 4 of 5

S2 SID IIs (5)

Valid since Version **1.6.2**

ISO/TS 13499 – RED C : 2019(E)
S2, SID IIs
Additional Instrumentation: Instrumented arm
2019-07-17



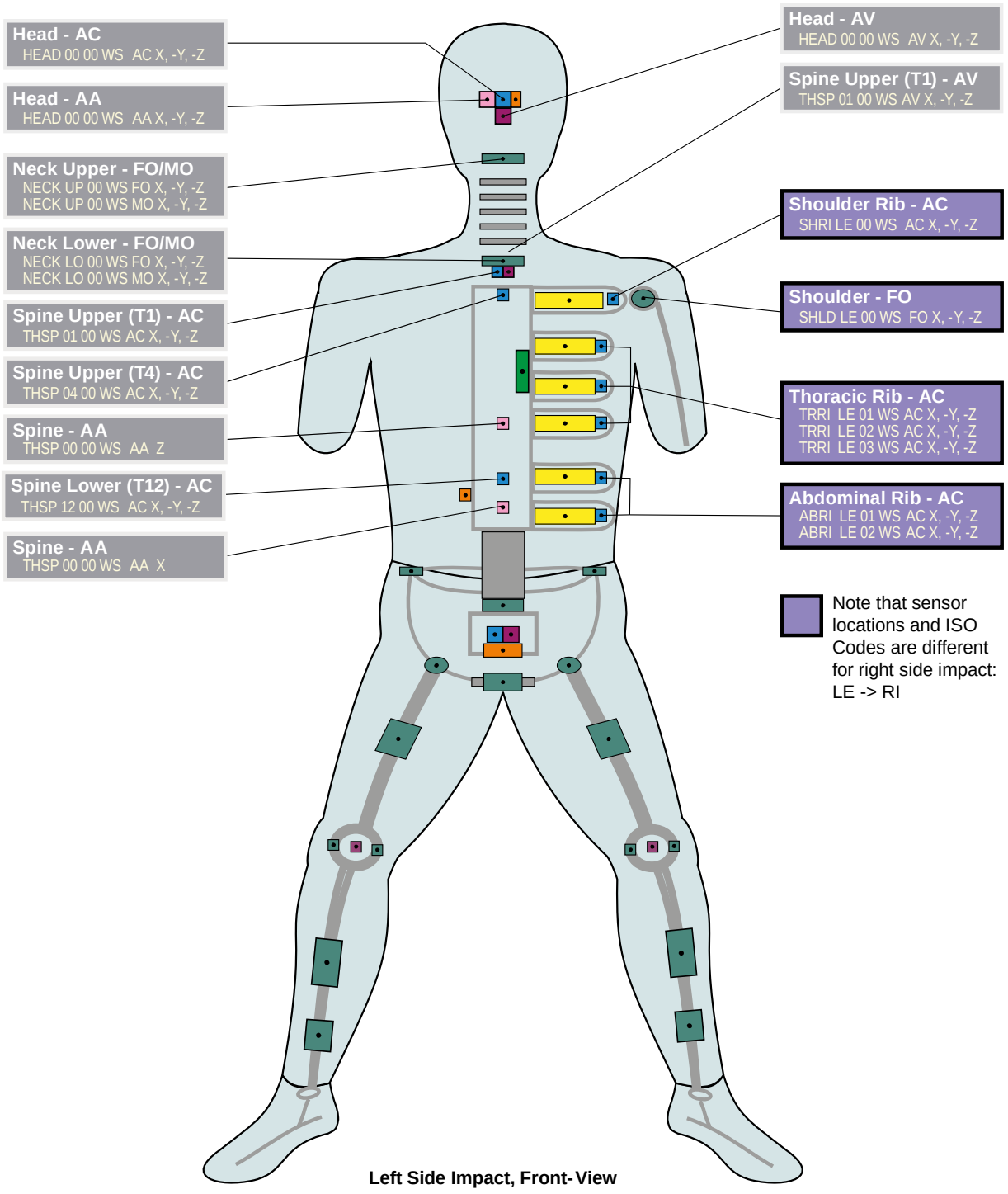
Left Side Impact, Front-View

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

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)
2017-04-20

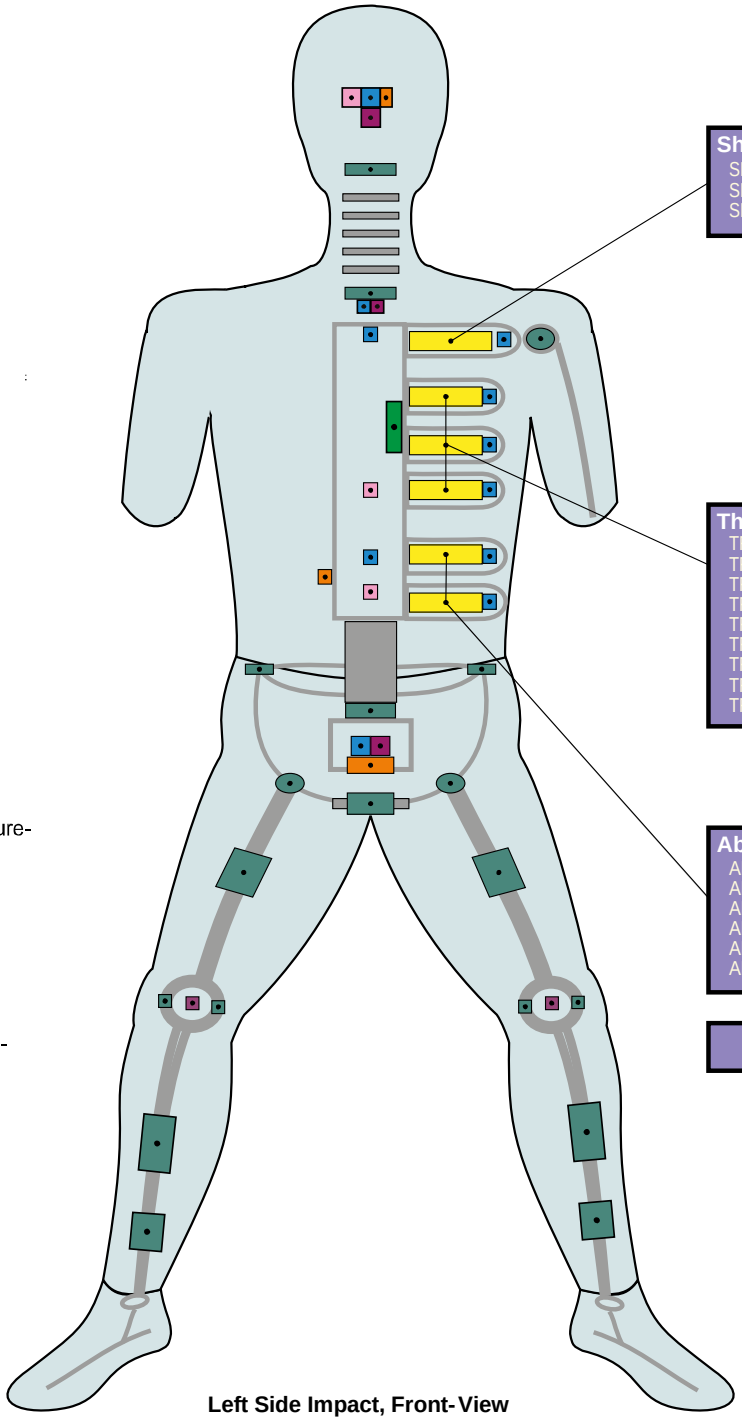


Left Side Impact, Front-View

WS WorldSID (2)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Deflection Measurement (Shoulder, Thorax, Abdomen) 2D-Equipment
2017-04-20



Note that the some measurement devices fitted to this dummy records a voltage. It is more normal to exchange the distance channel or total length channel (DC0). If the DC0 channel is not available, DS0 is permissible.

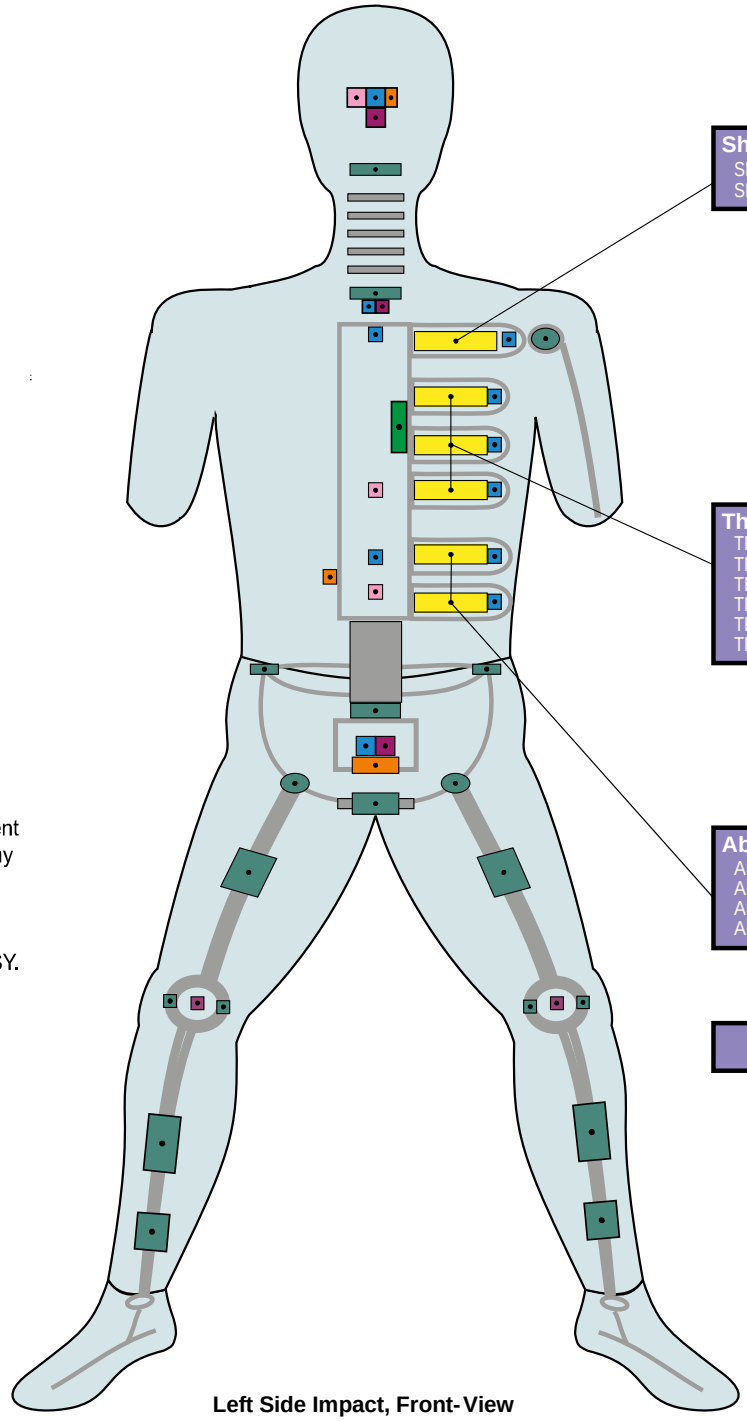
Note that sensor locations and ISO Codes are different for right side impact: LE -> RI

Left Side Impact, Front-View

WS WorldSID (3)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Deflection Measurement (Shoulder, Thorax, Abdomen) 1D Equipment
2017-04-20



Note that the measurement device fitted to this dummy often records a voltage. It is more normal to exchange the generated displacement channel DSY.

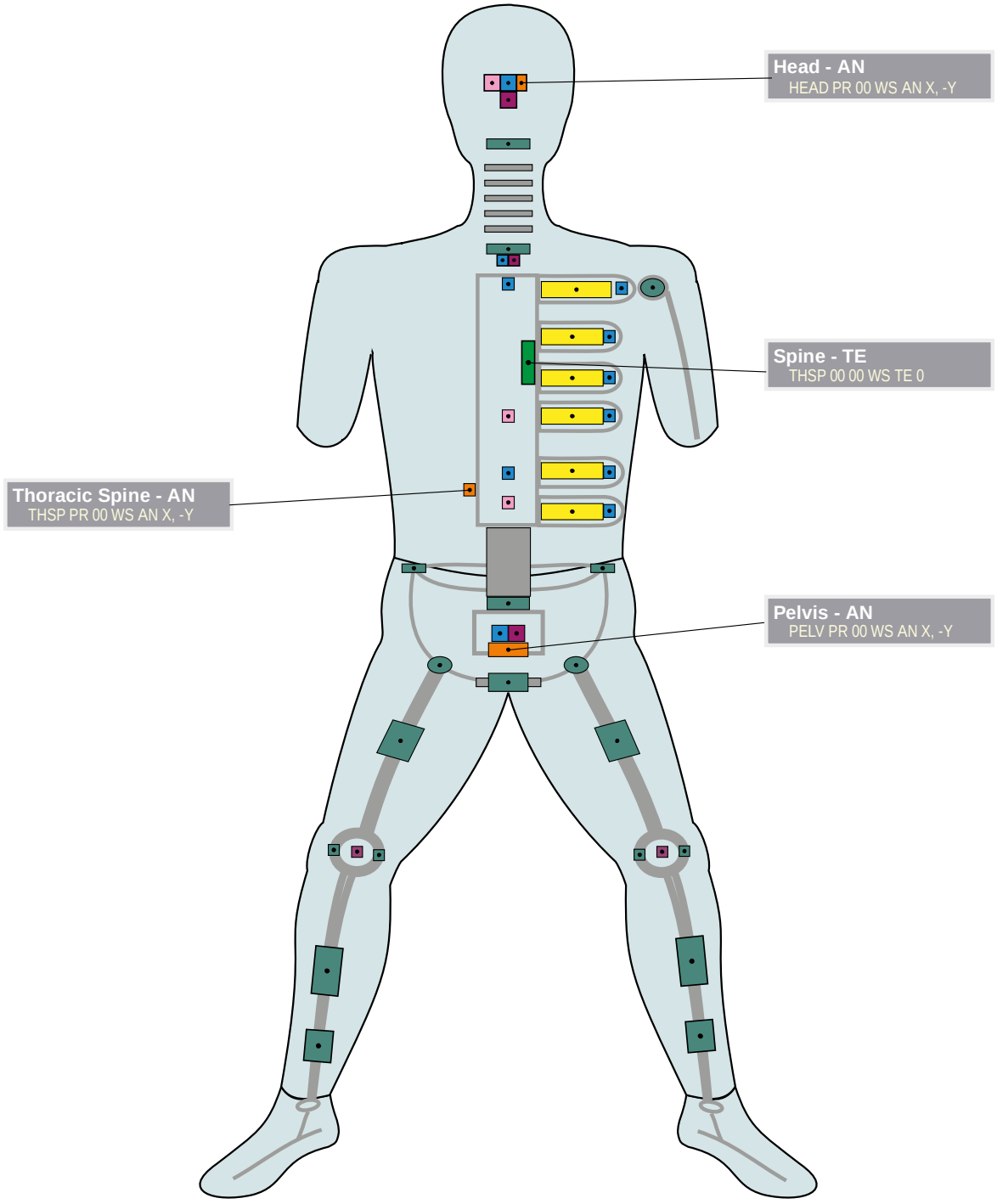
Note that sensor locations and ISO Codes are different for right side impact: LE -> RI

Left Side Impact, Front-View

WS WorldSID (5)

Valid since Version **1.6.1**

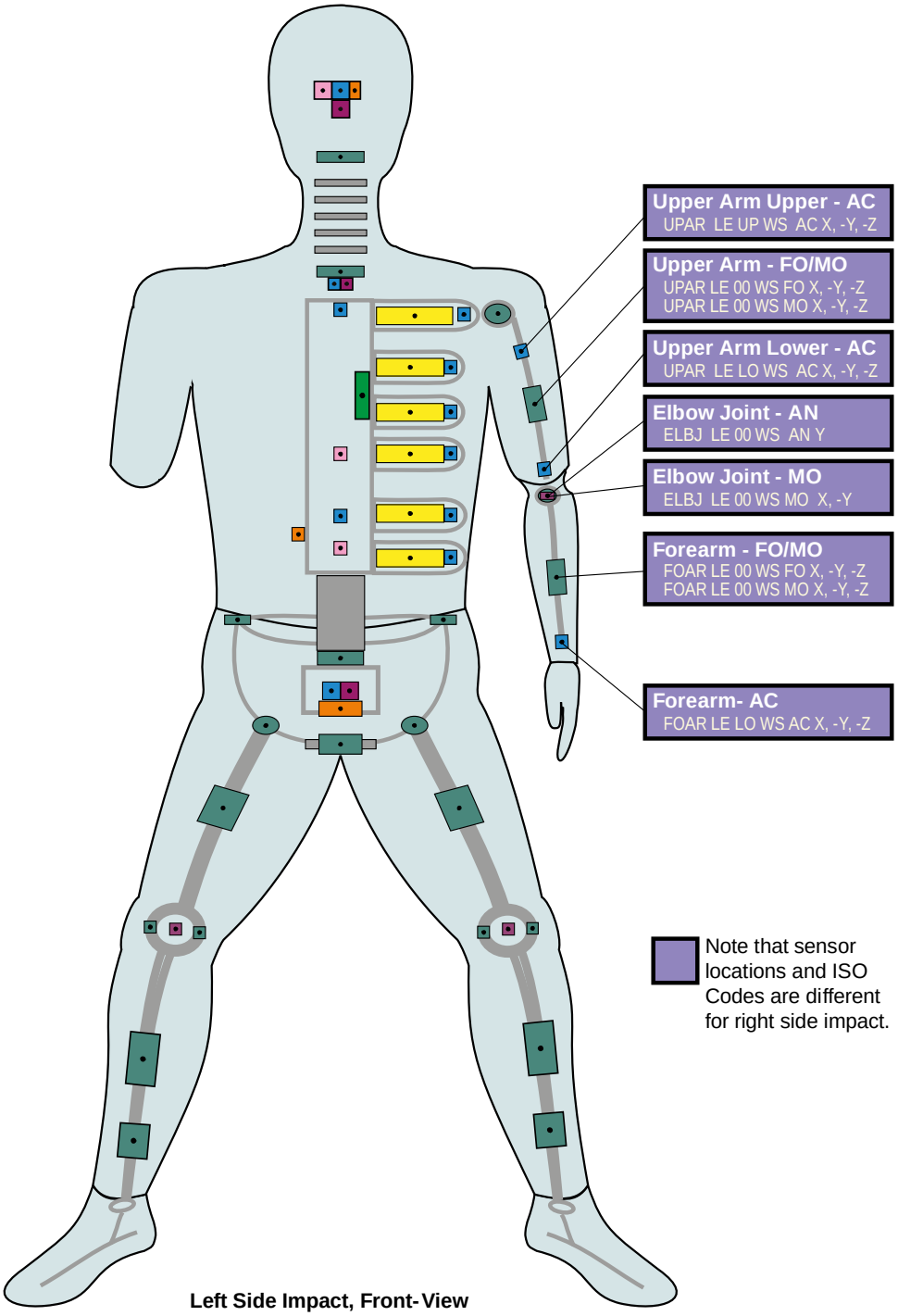
ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Static measurements, other channels
2017-04-20



WS WorldSID (6)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Additional Instrumentation: Instrumented arm
2017-04-20

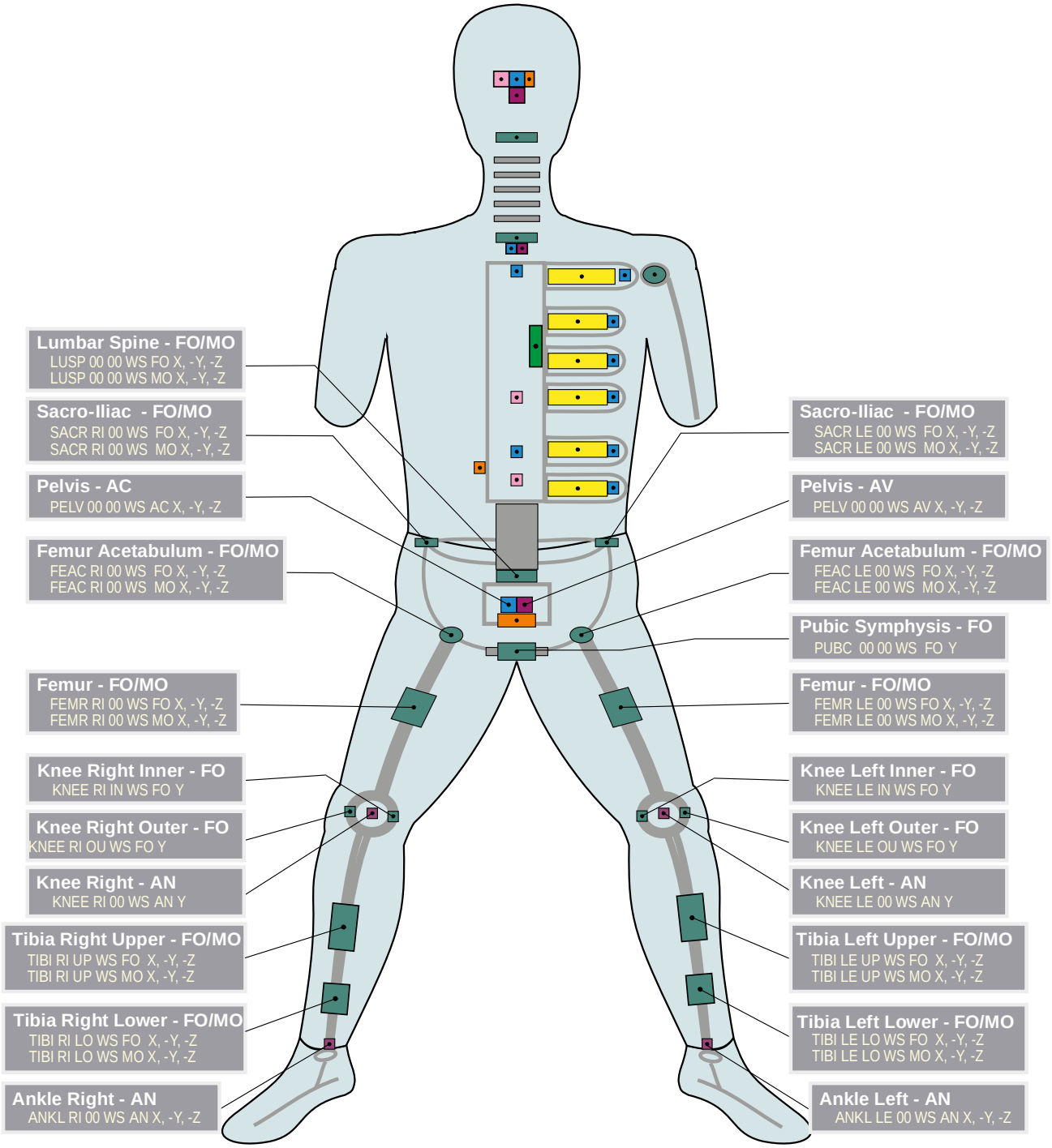


Left Side Impact, Front-View

WS WorldSID (4)

Valid since Version **1.6.1**

ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Standard Instrumentation (lower body)
2017-04-20



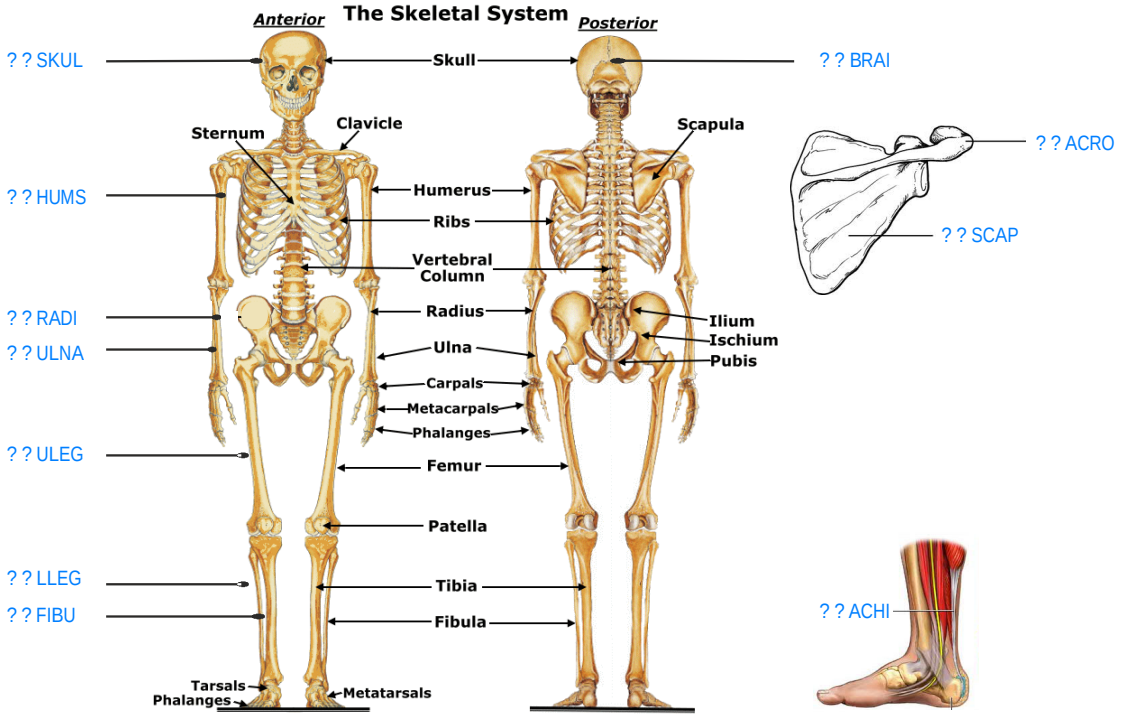
HUM Human Models

Valid since Version **1.6.2.p2**

Human Models; specific Main Locations

ISO/TS 13499 - RED C : 2020
Human Model

2020-06-17



? ? SKUL Skull
? ? HUMS Humerus
? ? RADI Radius
? ? ULNA Ulna
? ? ULEG Upper Leg
? ? LLEG Lower Leg
? ? FIBU Fibula
? ? BRAI Brain
? ? ACRO Acromion
? ? SCAP Scapula
? ? ACHI Achilles Tendon

ISO-HuMo_20200617

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ISO_HUMO_1_162_20200617.EMF

-> HUM <- 1 of 1

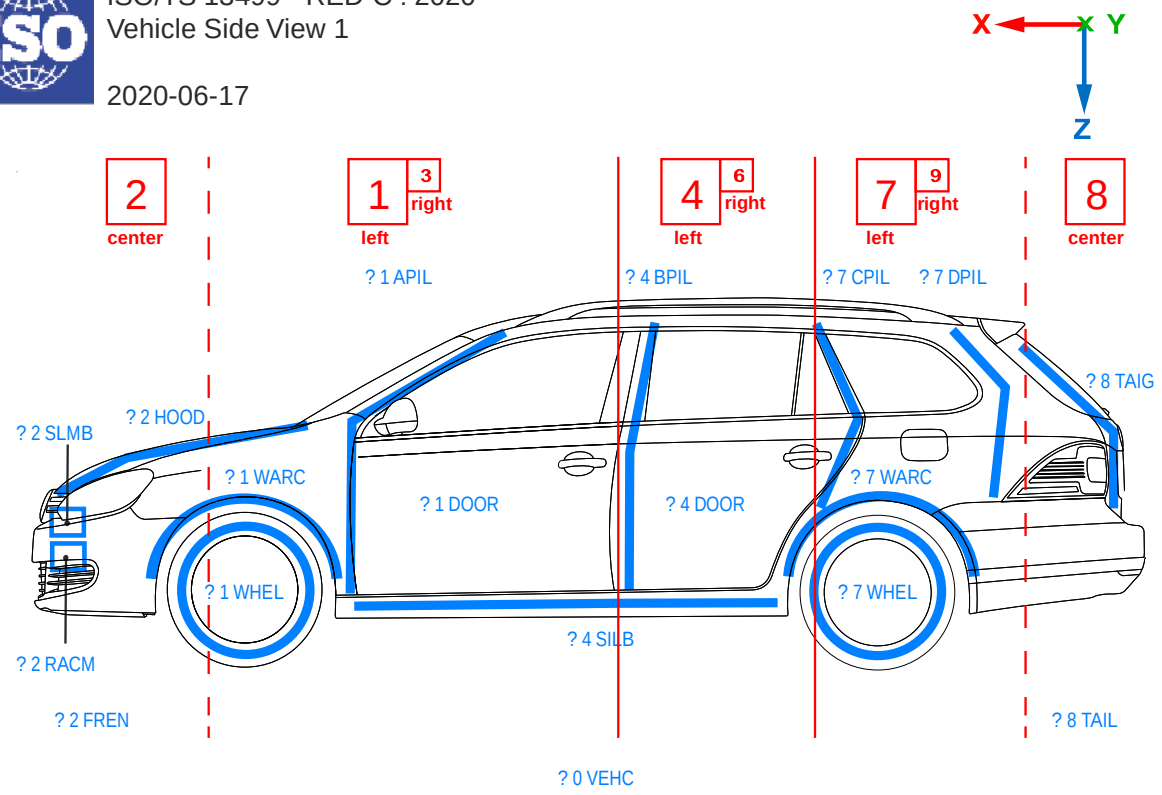
VEH_S1 Vehicle left side

Valid since Version **1.6.2.p2**

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

ISO/TS 13499 - RED C : 2020
Vehicle Side View 1

2020-06-17



picture only from the left side of the vehicle

? 1 APIL	A-Pillar left
? 3 APIL	A-Pillar right
? 4 BPIL	B-Pillar left
? 6 BPIL	B-Pillar right
? 7 CPIL	C-Pillar left
? 9 CPIL	C-Pillar right
? 7 DPIL	D-Pillar left
? 9 DPIL	D-Pillar right
? 4 SILB	Sill Beam left
? 6 SILB	Sill Beam right
? 1 WHEL	Wheel front left
? 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

? 1 DOOR	Door front left
? 3 DOOR	Door front right
? 4 DOOR	Door rear left
? 6 DOOR	Door rear right
? 2 HOOD	Hood
? 8 TAIG	Tailgate
? 0 VEHC	Vehicle
? 2 FREN	Frontend
? 8 TAIL	Tail
? 2 SLMB	Slam Beam
? 2 RACM	Radiator Cross Member

ISO-VEH_20200617

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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ISO_VEH_S1_162_20200617.EMF

-> VEH_S1 <- 1 of 8

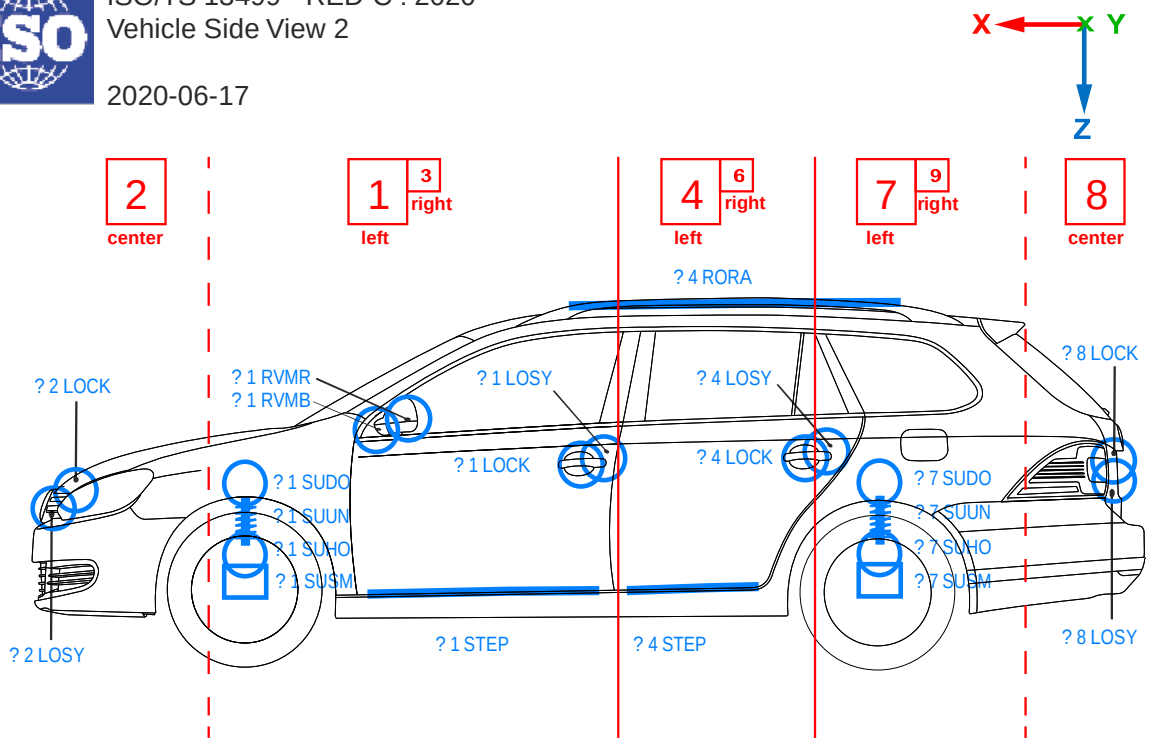
VEH_S2 Vehicle left side

Valid since Version **1.6.2.p2**

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

ISO/TS 13499 - RED C : 2020
Vehicle Side View 2

2020-06-17



picture only from the left side of the vehicle

? 1 LOSY	Locking System front left
? 3 LOSY	Locking System front right
? 4 LOSY	Locking System rear left
? 6 LOSY	Locking System rear right
? 2 LOSY	Locking System front
? 8 LOSY	Locking System rear
? 1 LOCK	Lock front left
? 3 LOCK	Lock front right
? 4 LOCK	Lock rear left
? 6 LOCK	Lock rear right
? 2 LOCK	Lock front
? 8 LOCK	Lock rear
? 4 RORA	Roof Rack left
? 6 RORA	Roof Rack right
? 1 STEP	Step front left
? 3 STEP	Step front right
? 4 STEP	Step rear left
? 7 STEP	Step rear right

? 1 SUDO	Suspension Dome front left
? 3 SUDO	Suspension Dome front right
? 7 SUDO	Suspension Dome rear left
? 9 SUDO	Suspension Dome rear right
? 1 SUUN	Suspension Unit front left
? 3 SUUN	Suspension Unit front right
? 7 SUUN	Suspension Unit rear left
? 9 SUUN	Suspension Unit rear right
? 1 SUHO	Suspen. Housing front left
? 3 SUHO	Suspen. Housing front right
? 7 SUHO	Suspen. Housing rear left
? 9 SUHO	Suspen. Housing rear right
? 1 SUSM	Suspension Mount front left
? 3 SUSM	Suspension Mount front right
? 7 SUSM	Suspension Mount rear left
? 9 SUSM	Suspension Mount rear right

ISO-VEH_20200617

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ISO_VEH_S2_162_20200617.EMF

-> VEH_S2 <- 2 of 8

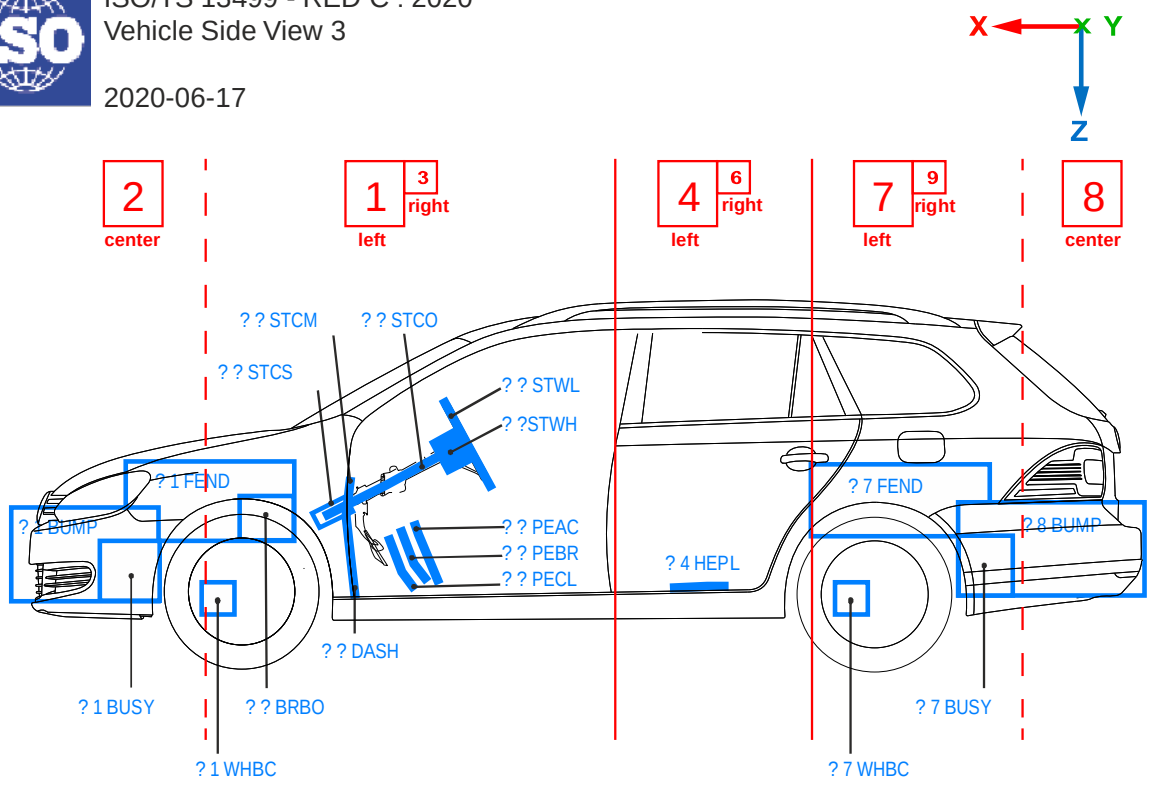
VEH_S3 Vehicle left side, open

Valid since Version **1.6.2.p2**

left side open; steering wheel, pedals

ISO/TS 13499 - RED C : 2020
Vehicle Side View 3

2020-06-17



picture only from the left side of the vehicle

? ? STWL	Steering Wheel
? ? STWH	Steering Wheel Hub
? ? STCO	Steering Column
? ? STCM	Steering Column Mount
? ? STCS	Steering Column Suspension
? ? DASH	Dash Panel
? ? PEAC	Pedal Accelerator
? ? PEBR	Pedal Brake
? ? PECL	Pedal Clutch
? ? BRBO	Brake Booster

? 1 FEND	Fender front left
? 3 FEND	Fender front right
? 7 FEND	Fender rear left
? 9 FEND	Fender rear right
? 2 BUMP	Bumper front
? 8 BUMP	Bumper rear
? 1 BUSY	Bumper System front left
? 3 BUSY	Bumper System front right
? 7 BUSY	Bumper System rear left
? 9 BUSY	Bumper System rear right
? 4 HEPL	Heel Plate left
? 6 HEPL	Heel Plate right
? 1 WHBC	Wheel Brake Caliper front left
? 3 WHBC	Wheel Brake Caliper front right
? 7 WHBC	Wheel Brake Caliper rear left
? 9 WHBC	Wheel Brake Caliper rear right

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ISO_VEH_S3_162_20200617.EMF

-> VEH_S3 <- 3 of 8

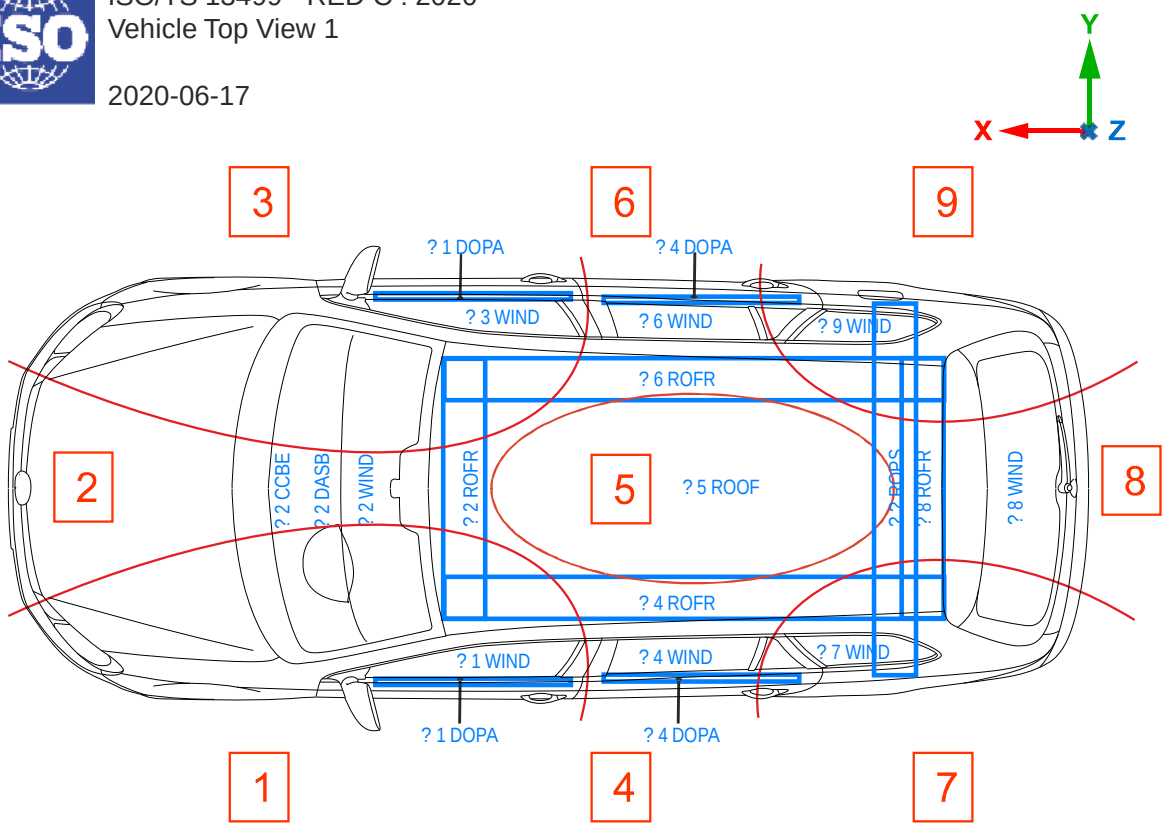
VEH_T1 Vehicle top

Valid since Version **1.6.2.p2**

window, roof, roof frame, ...

ISO/TS 13499 - RED C : 2020
Vehicle Top View 1

2020-06-17



? 1 WIND Window front left
? 2 WIND Window front
? 3 WIND Window front right
? 4 WIND Window middle left
? 6 WIND Window middle right
? 7 WIND Window rear left
? 8 WIND Window rear
? 9 WIND Window rear right

? 5 ROOF Roof

? 2 ROFR Roof Frame front
? 4 ROFR Roof Frame left
? 6 ROFR Roof Frame right
? 8 ROFR Roof Frame rear

? 2 DASB Dash Board
? 2 CCBE Cross Car Beam

? 1 DOPA Door Panel front left
? 3 DOPA Door Panel front right
? 4 DOPA Door Panel rear left
? 6 DOPA Door Panel rear right

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ISO_VEH_T1_162_20200617.EMF

-> VEH_T1 <- 4 of 8

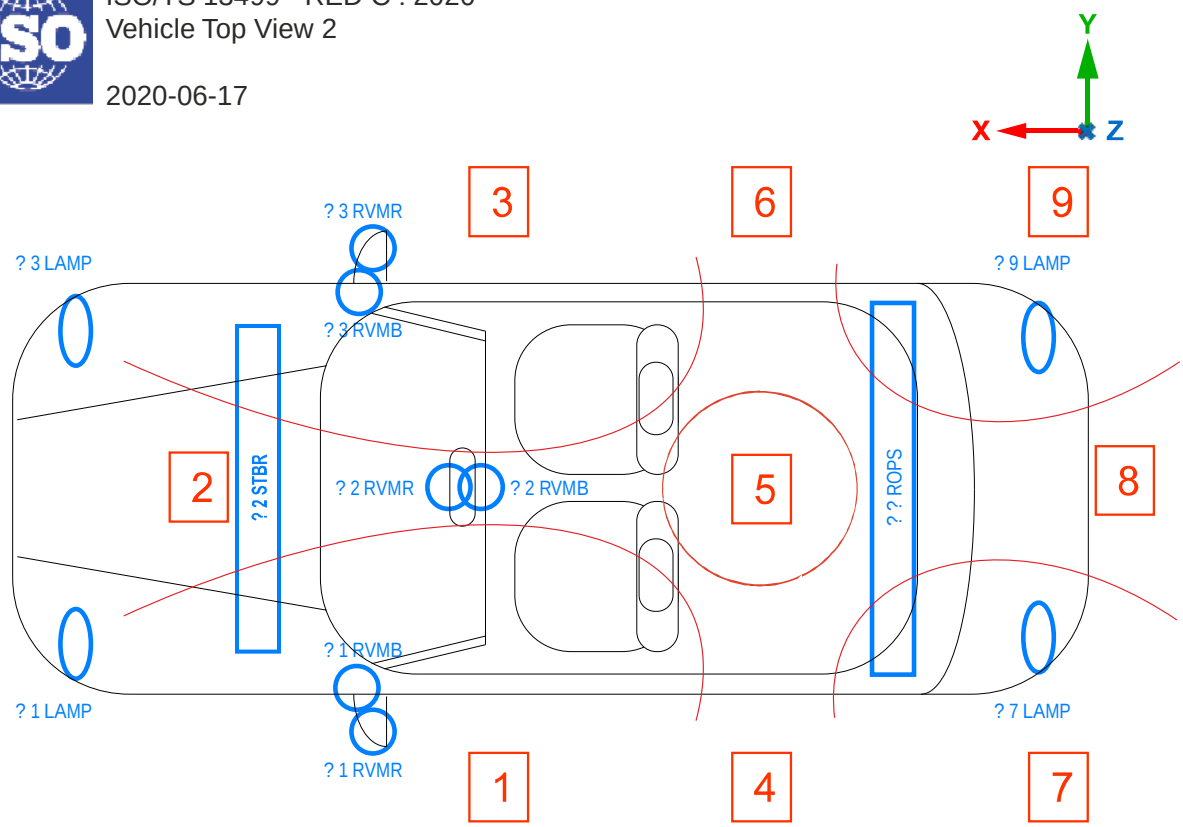
VEH_T2 Vehicle top

Valid since Version **1.6.2**

figure shows convertible, because of ROPS

ISO/TS 13499 - RED C : 2020
Vehicle Top View 2

2020-06-17



? ? ROPS Rollover Protection System
? 2 STBR Strut Brace

? 1 LAMP Headlamp left
? 3 LAMP Headlamp right
? 7 LAMP Taillight left
? 9 LAMP Taillight right

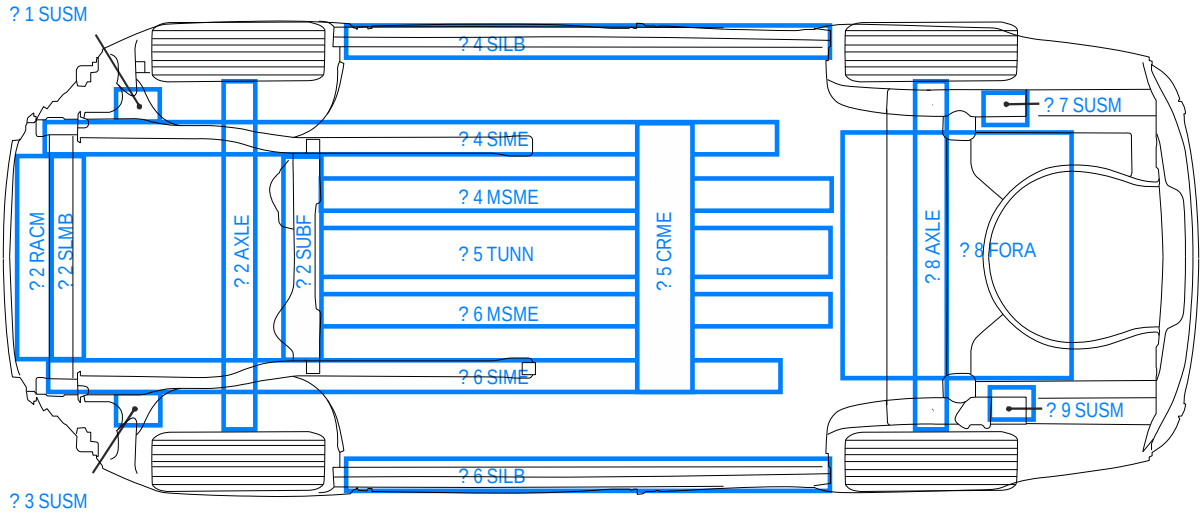
? 1 RVMR Rearview Mirror left
? 2 RVMR Rearview Mirror middle
? 3 RVMR Rearview Mirror right
? 1 RVMB Rearview Mirror Base left
? 2 RVMB Rearview Mirror Base middle
? 3 RVMB Rearview Mirror Base right

VEH_B1 Vehicle bottom

Valid since Version **1.6.2.p2**

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

ISO/TS 13499 - RED C : 2020
Vehicle Bottom View 1
Structure Elements
2020-06-17



? 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

ISO-VEH_20200617

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ISO_VEH_B1_162_20200617.EMF

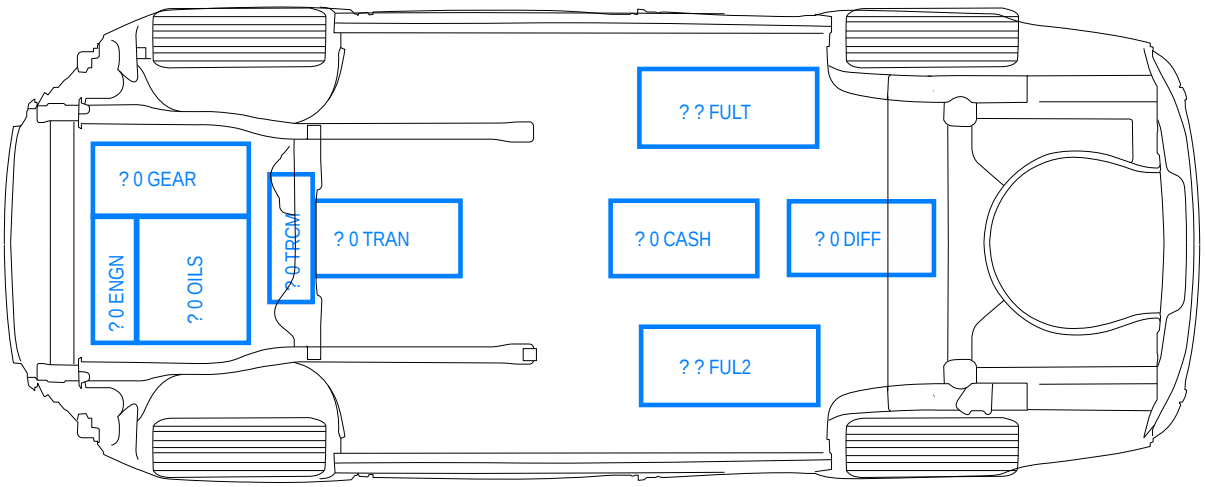
-> VEH_B1 <- 6 of 8

VEH_B2 Vehicle bottom

Valid since Version **1.6.2.p2**

engine, transmission, fuel tank, electrical components,

ISO/TS 13499 - RED C : 2020
Vehicle Bottom View 2
Traction Elements
2020-06-17



? 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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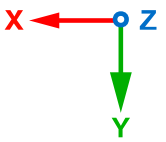
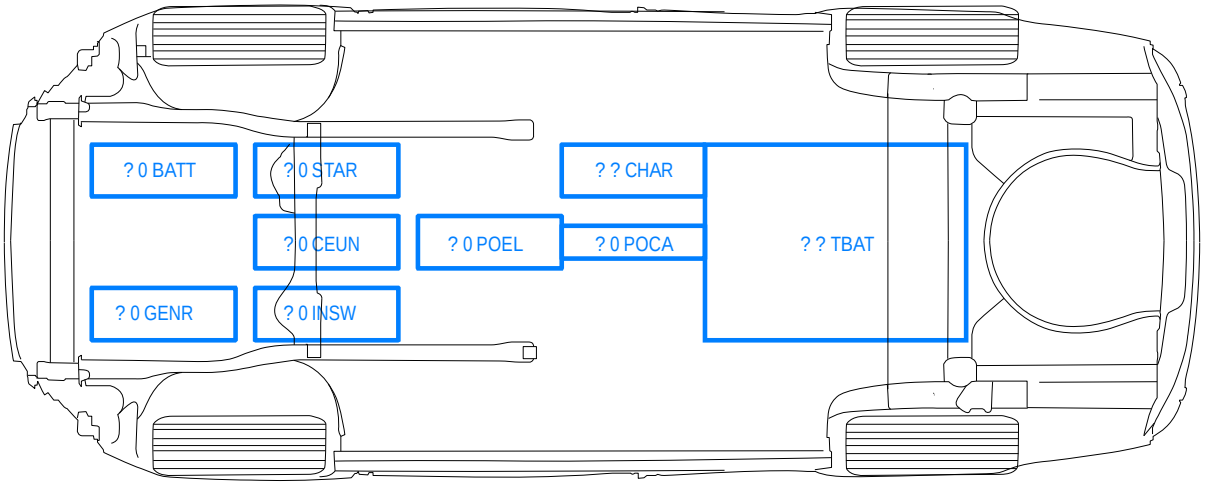
VEH_B3 Vehicle bottom

Valid since Version **1.6.2.p2**
electric elements

ISO/TS 13499 - RED C : 2020
Vehicle Bottom View 3
Electric Elements
2020-06-17





? 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
? ? CHAR Charger

ISO-VEH_20200617

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ISO_VEH_B3_162_20200617.EMF

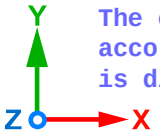
-> VEH_B3 <- 8 of 8

ACTIVE Active Safety

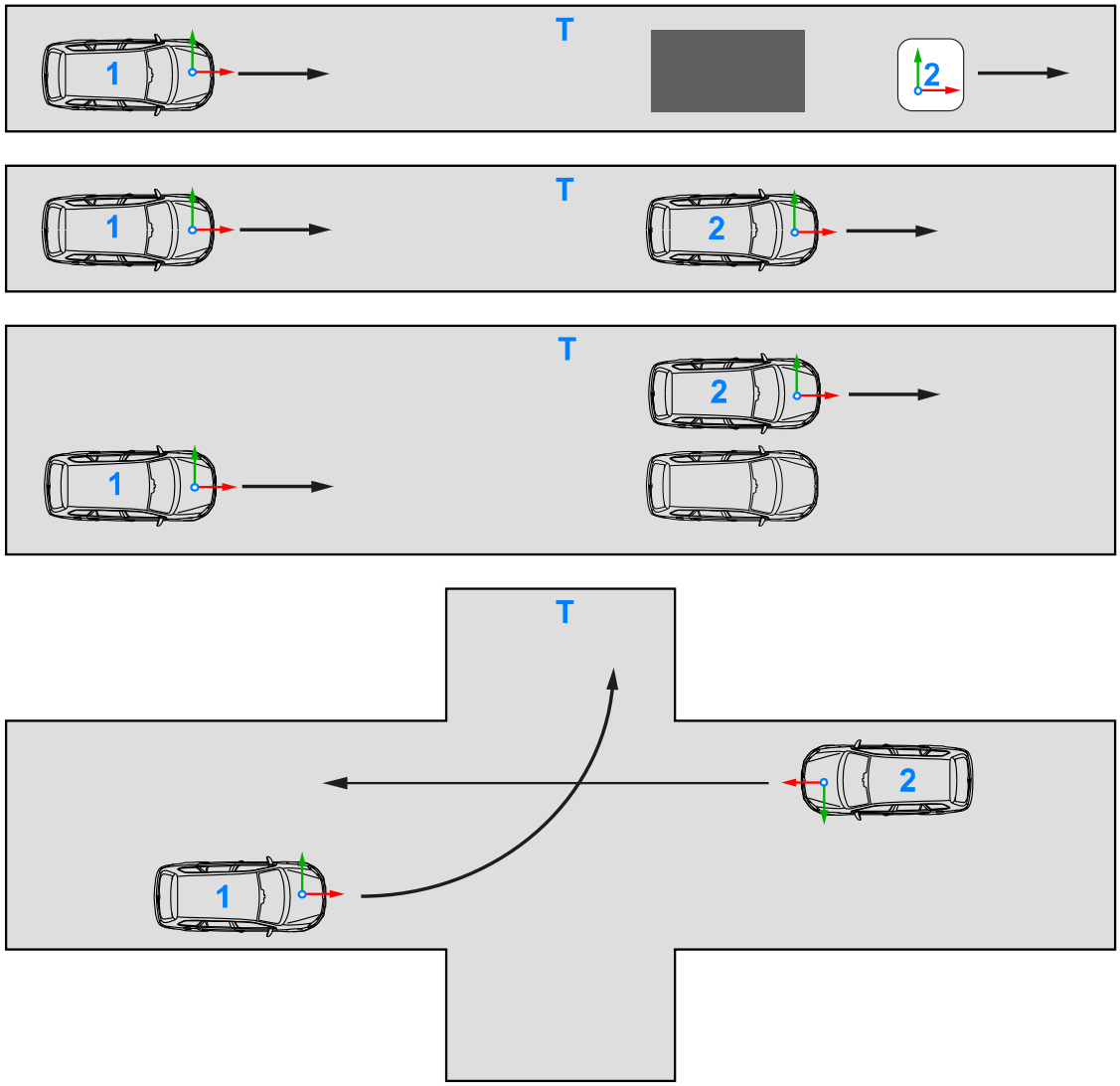
Valid since Version **1.6.2.p2**

Coding for Active Safety Tests

ISO/TS 13499 - RED C : 2020
Active Safety Systems
Car To Car
2020-06-17



The coordinate reference system
according ISO_8855_1991
is different to SAE_J211_1985.



Testobject 1 1 Vehicle 1 (VUT = Vehicle under Test,
TV = Test Vehicle,
SV = Subject Vehicle)

Testobject 2 2 Vehicle 2 (GVT = Global Vehicle Target,
VT = Vehicle Target,
POV = Principle Other Vehicle)

Testobject 3 T Test Ground

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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ISO_ACTIV_1_162_20200617.EMF

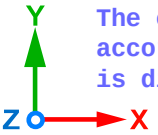
-> ACTIVE <- 1 of 3

ACTIVE Active Safety

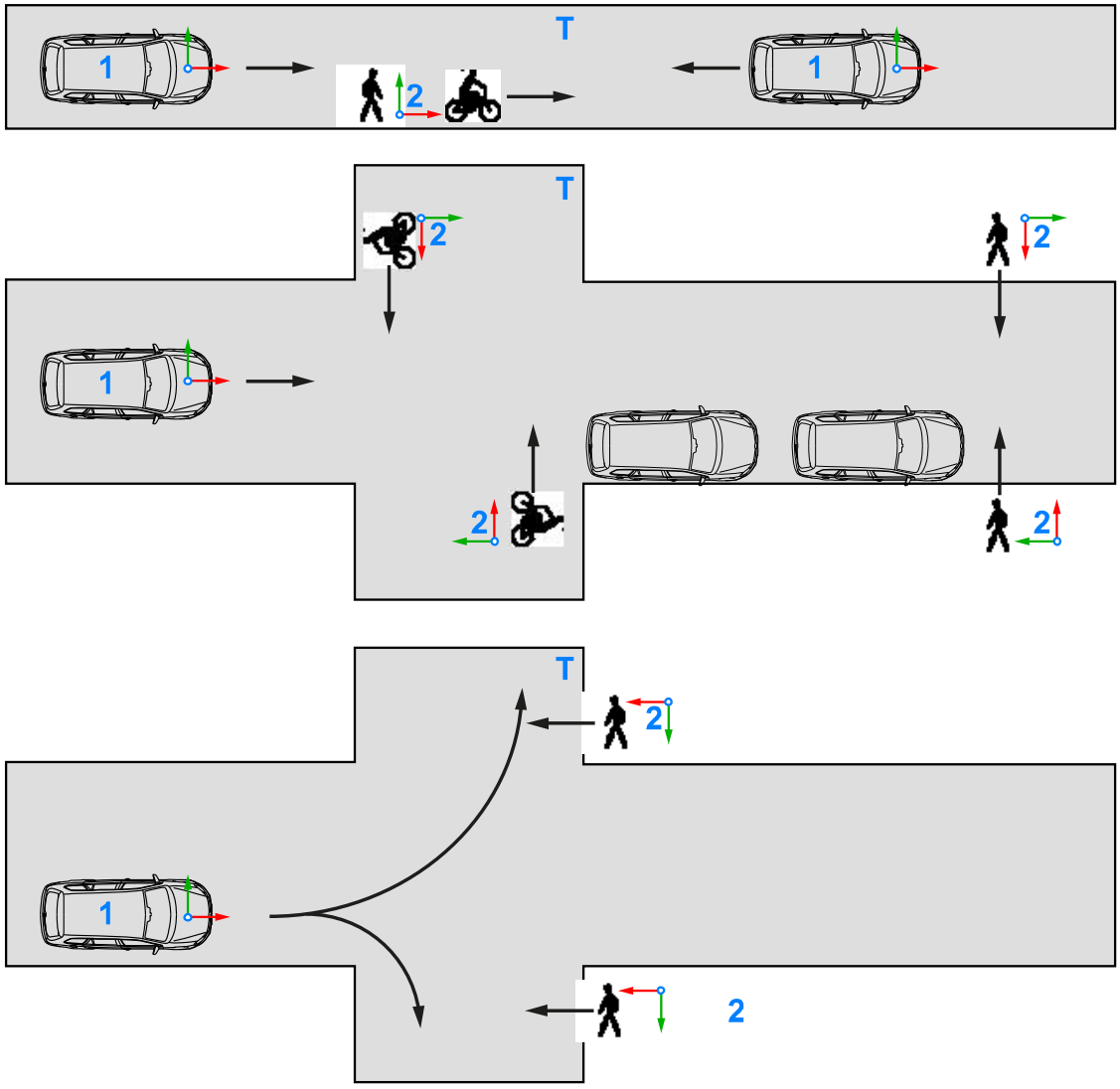
Valid since Version **1.6.2**

Active Safety configurations - Vulnerable Road Users

ISO/TS 13499 - RED C : 2020
Active Safety Systems
Vulnerable Road Users
2020-06-17



The coordinate reference system according ISO_8855_1991 is different to SAE_J211_1985.



Testobject 1 1 Vehicle 1 (VUT = Vehicle under Test,
TV = Test Vehicle,
SV = Subject Vehicle)

Testobject 2 2 Target (EPT = EuroNCAP Pedestrian Target,
EBT = EuroNCAP Bicyclist and Bike Target,
TT = Test Target)

Testobject 3 T Test Ground

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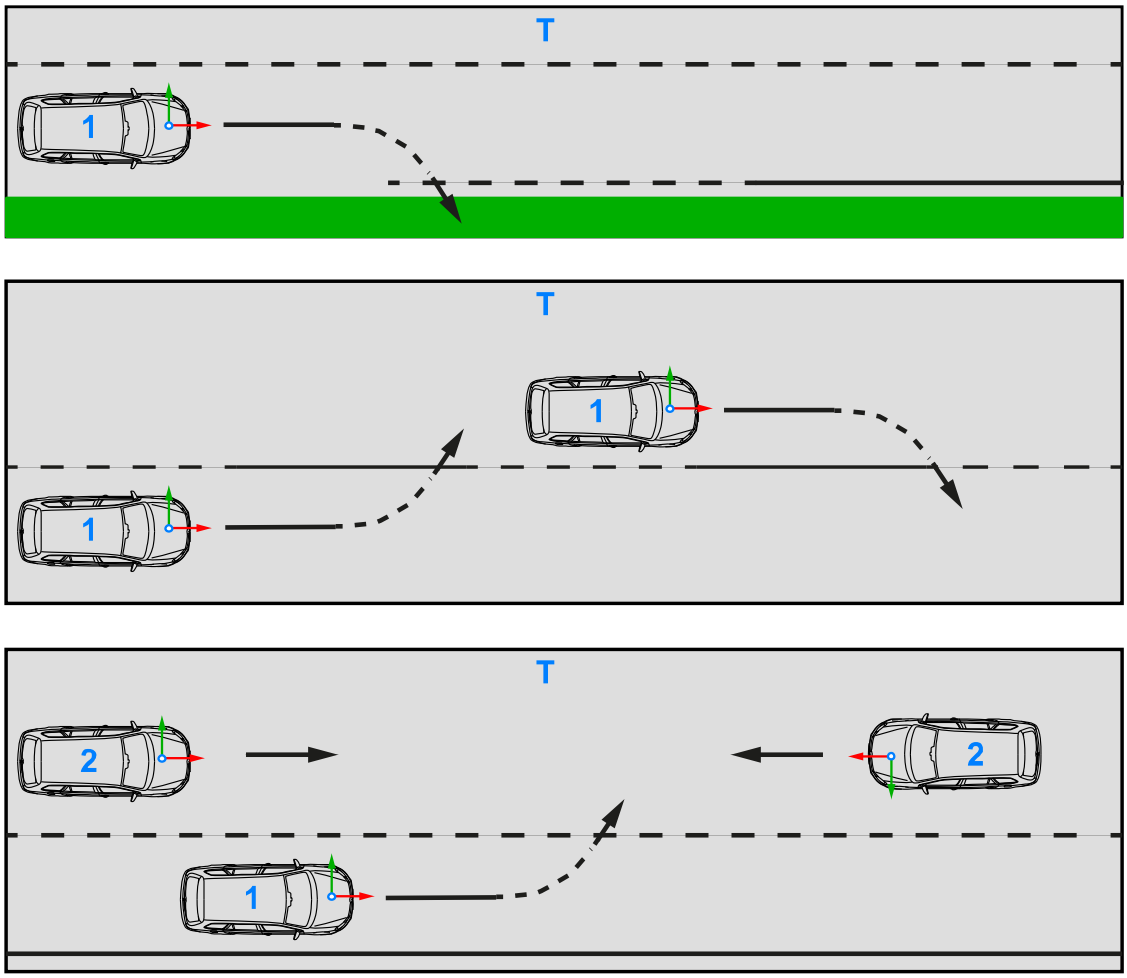
ACTIVE Active Safety

Valid since Version **1.6.2**

Active Safety configurations - Lane Support Systems

ISO/TS 13499 - RED C : 2020
Active Safety Systems
Lane Support Systems
2020-06-17

The coordinate reference system
according ISO_8855_1991
is different to SAE_J211_1985.



Testobject 1 1 Vehicle 1 (VUT = Vehicle under Test,
TV = Test Vehicle,
SV = Subject Vehicle)

Testobject 2 2 Target (GVT = Global Vehicle Target,
VT = Vehicle Target,
POV = Principle Other Vehicle)

Testobject 3 T Test Ground

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ISO_ACTIV_3_162_20200617.EMF

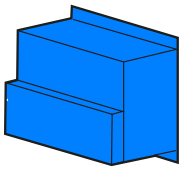
-> ACTIVE <- 3 of 3

OBJ_1 Objects

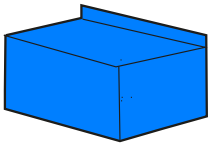
Valid since Version **1.6.2**

deformable elements

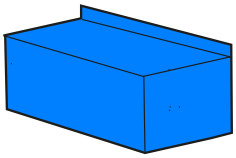
ISO/TS 13499 - RED C : 2020
Other Objects
Deformable Elements
2020-06-17



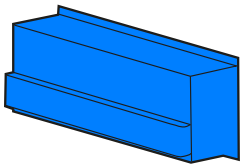
B 0 DEFO 00 00 DO **Frontal Impact**



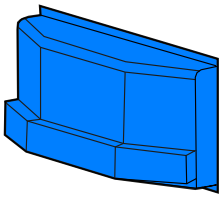
M 0 DEFO 00 00 DM **Frontal MPDB Impact**



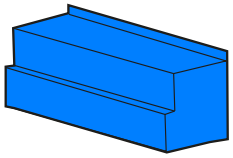
M 0 DEFO 00 00 DB **Frontal Oblique Impact**



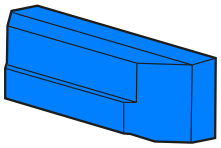
M 0 DEFO 00 00 DN **Rear and Side Impact**



M 0 DEFO 00 00 DI **Side Impact**



M 0 DEFO 00 00 DE **Side Impact**



M 0 DEFO 00 00 DA **Side Impact**

B 0 DEFO 00 00 DO Deformable Element for Frontal Offset Tests
M 0 DEFO 00 00 DM Deformable Element according ADAC MPDB Test
M 0 DEFO 00 00 DB Deformable Element according NHTSA Frontal Oblique Tests
M 0 DEFO 00 00 DN Deformable Element according NHTSA Rear and Side Tests
M 0 DEFO 00 00 DI Deformable Element according IIHS Test
M 0 DEFO 00 00 DE Deformable Element EuroNCAP Advanced 2000
M 0 DEFO 00 00 DA Deformable Element AEMDB

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ISO_OBJ_1_162_20200617.EMF

-> OBJ_1 <- 1 of 1

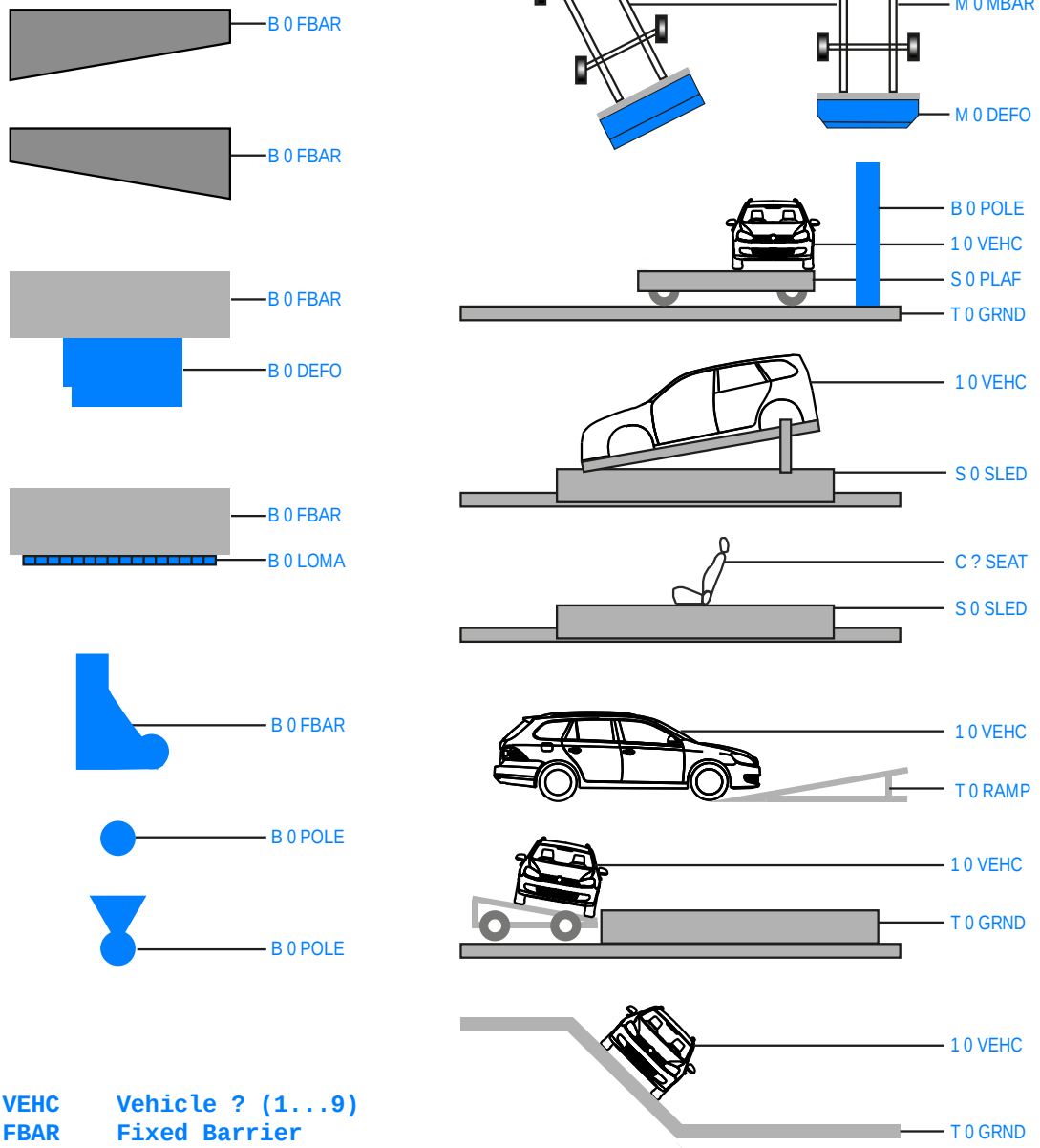
OBJ_2 Objects

Valid since Version **1.6.2**

other objects

ISO/TS 13499 - RED C : 2020
Other Objects

2020-06-17



? 0 VEHC	Vehicle ? (1...9)
B 0 FBAR	Fixed Barrier
B 0 POLE	Pole
M 0 MBAR	Mobile Barrier
? 0 LOMA	Load Cell Matrix
? 0 DEFO	Deformable Element
S 0 SLED	Sled
S 0 PLAF	Platform (e.g. Flying Floor)
C ? SEAT	Seat (for component tests without vehicle structure)
T 0 GRND	Surface/Plane of Sand Bed, Embankment or Testrig
T 0 RAMP	Ramp - part with variable height or angle to turn vehicles

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ISO_OBJ_2_162_20200617.EMF

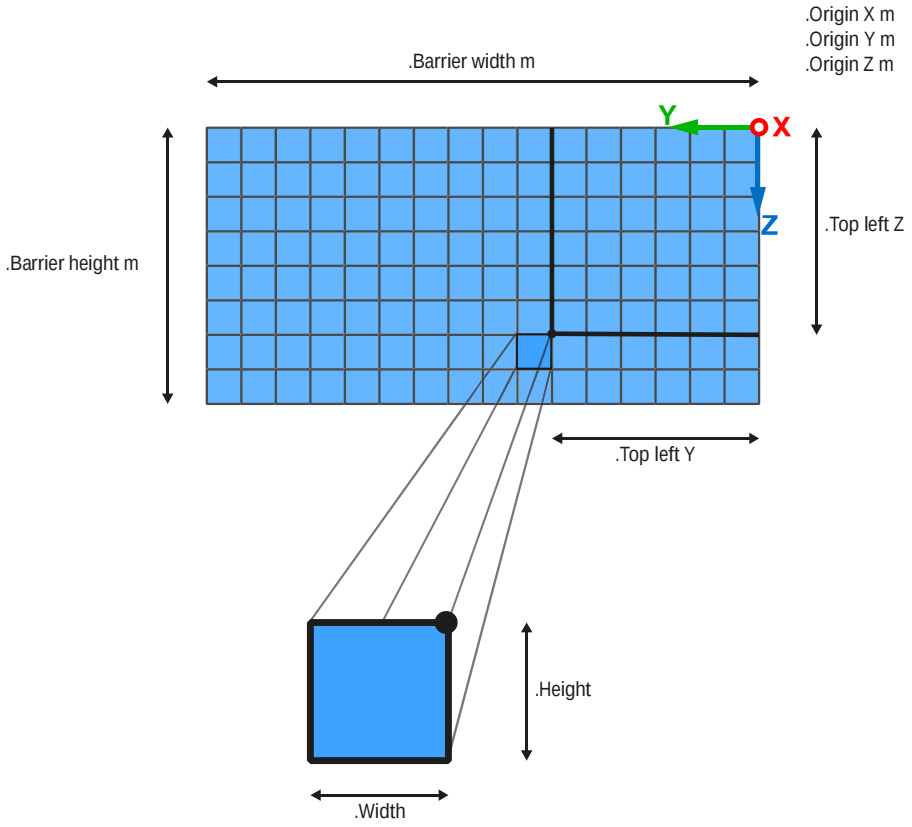
-> OBJ_2 <- 1 of 2

LOMA Load Cell Matrix

Valid since Version **1.6.2.p2**

Load Cell Matrix Configurations Coding Description

ISO/TS 13499 - RED C : 2020
Load Cell Matrix
Descriptors
2020-06-17



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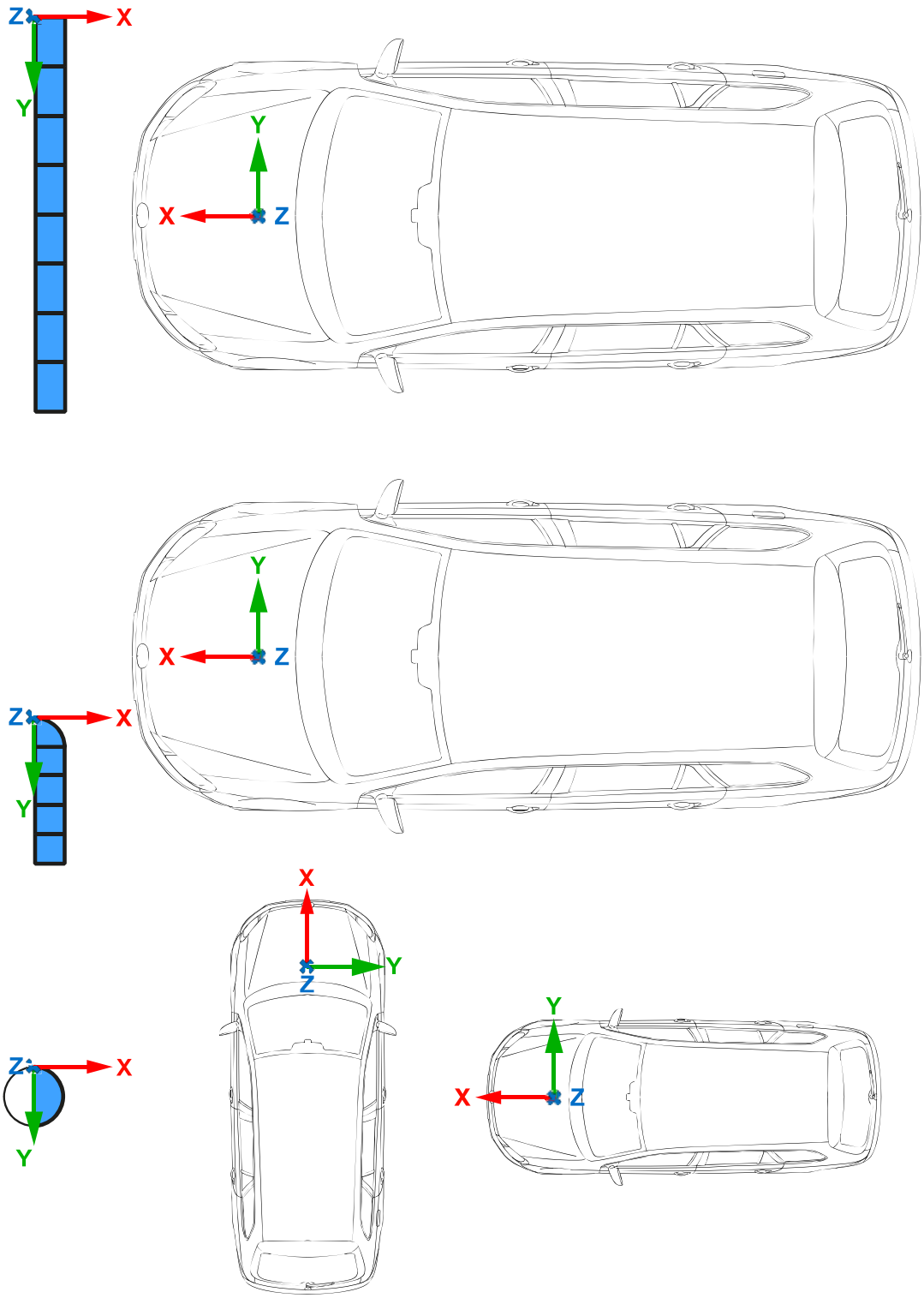
LOMA Load Cell Matrix

Valid since Version **1.6.2.p2**

Load Cell Matrix Configurations Top View

ISO/TS 13499 - RED C : 2020
Load Cell Matrix
Top View
2020-06-17



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LOMA Load Cell Matrix

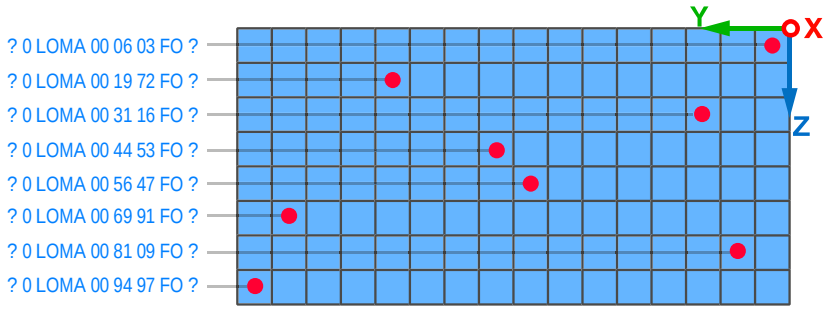
Valid since Version **1.6.2.p2**

Load Cell Matrix Configurations View from Vehicle

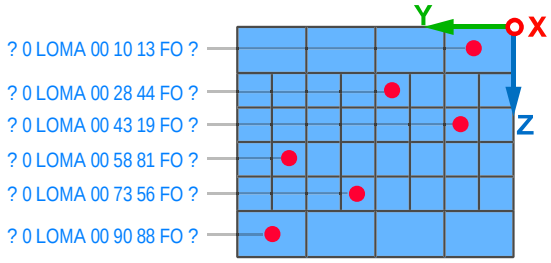
ISO/TS 13499 - RED C : 2020
Load Cell Matrix
View from vehicle
2020-06-17

Percentage Values F2=Row F3=Column

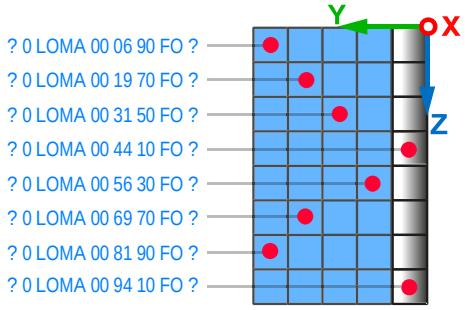
Fixed or Mobile Barrier - Regular Matrix



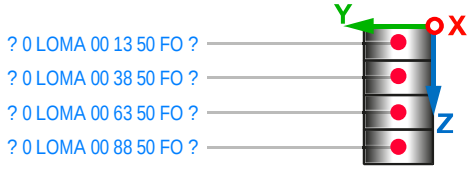
Fixed or Mobile Barrier - Irregular Matrix



Small Overlap



Pole



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ISO_LOMA_2_162_20200617.EMF

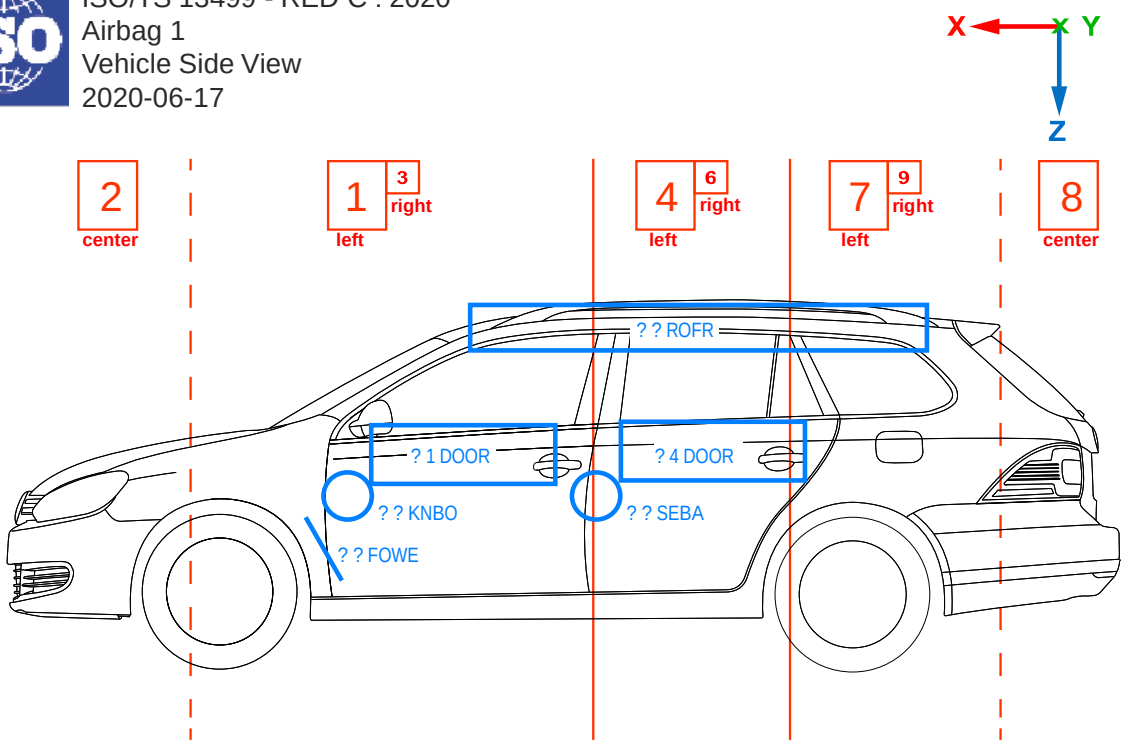
-> LOMA <- 2 of 3

AIRB Airbag (1)

Valid since Version **1.6.2**

door, knee, footwell, roof frame airbags

ISO/TS 13499 - RED C : 2020
Airbag 1
Vehicle Side View
2020-06-17



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

Interaction Airbags (without picture)

? ? AIRB ???? AI	Interaction Airbag
? ? AIRB ???? GI	Interaction Generator

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ISO_AIRB_1_162_20200617.EMF

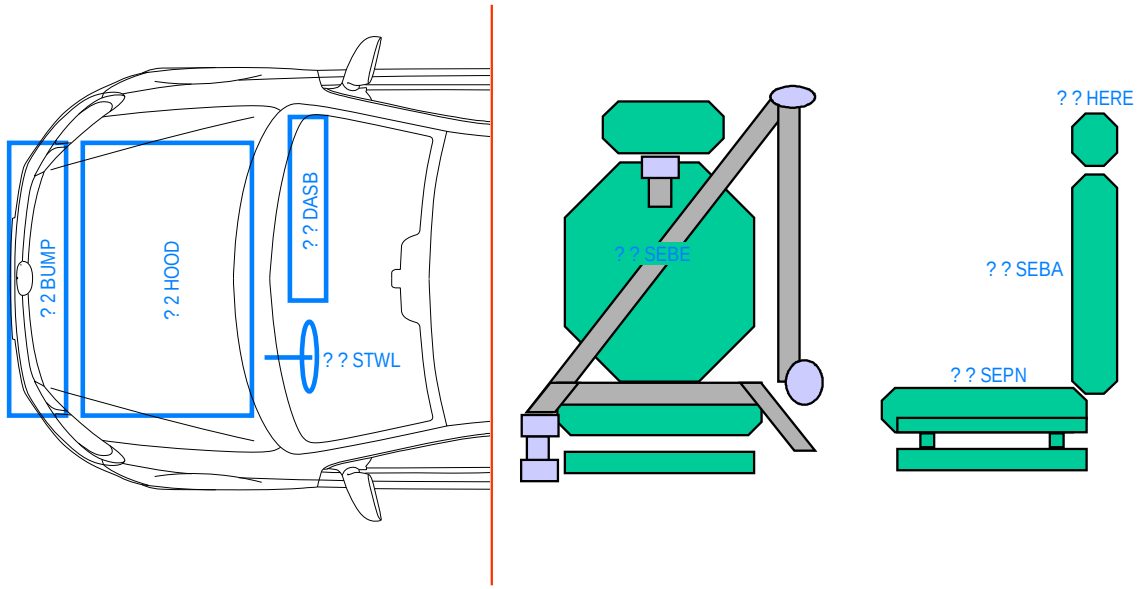
-> AIRB <- 1 of 2

AIRB Airbag (2)

Valid since Version **1.6.2**

external, seat related airbags

ISO/TS 13499 - RED C : 2020
Airbag 2
Vehicle Top View and Seat
2020-06-17



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.

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ISO_AIRB_2_162_20200617.EMF

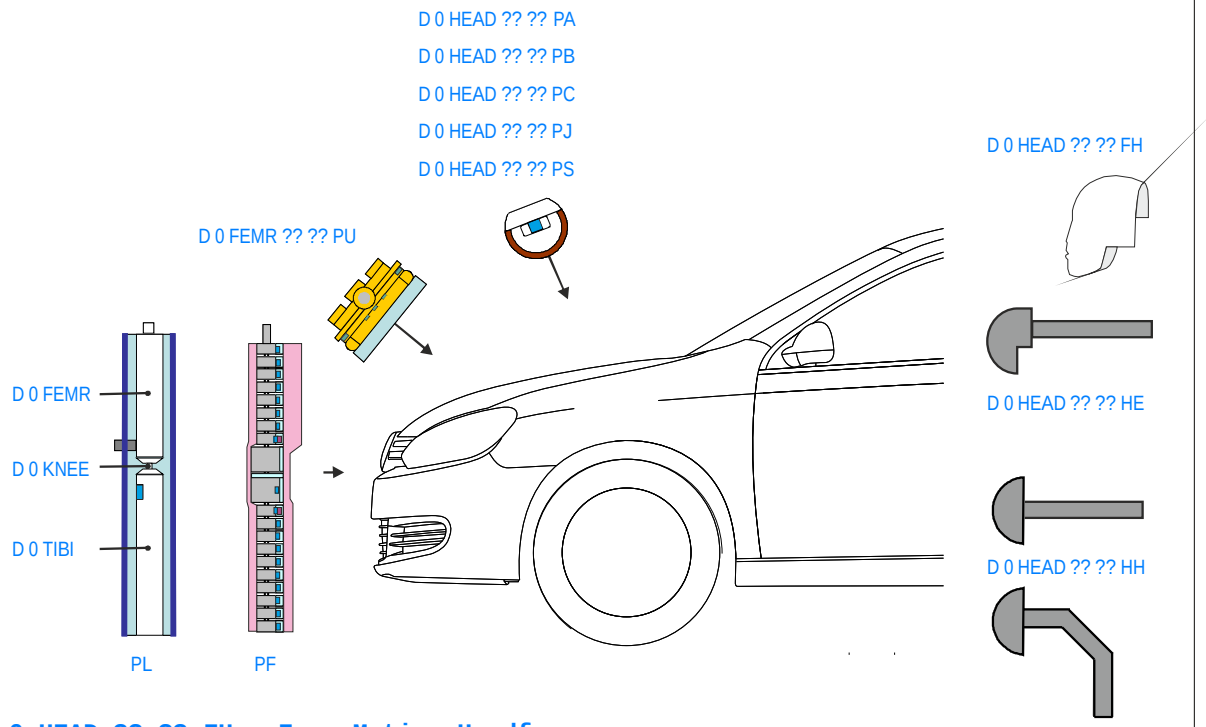
-> AIRB <- 2 of 2

IMP Impactors: vehicle front end

Valid since Version **1.6.2**

impactors overview

ISO/TS 13499 - RED C : 2020
Impactors
Overview
2020-06-17



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)

ISO-IMP_20200617

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ISO_IMP_1_162_20200617.EMF

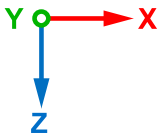
-> IMP <- 1 of 6

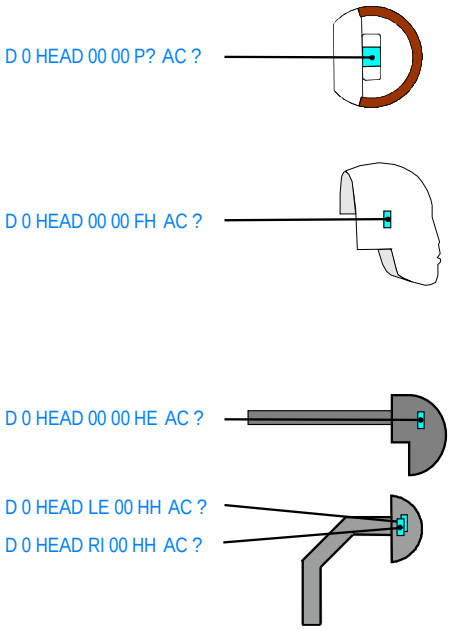
IMP Impactors: head, upper legform

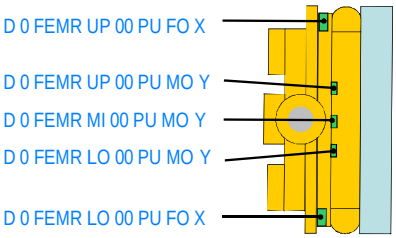
Valid since Version **1.6.2**

headforms and upper legform impactor

ISO/TS 13499 - RED C : 2020
Impactors
Headforms and Upper Legform Impactor
2020-06-17







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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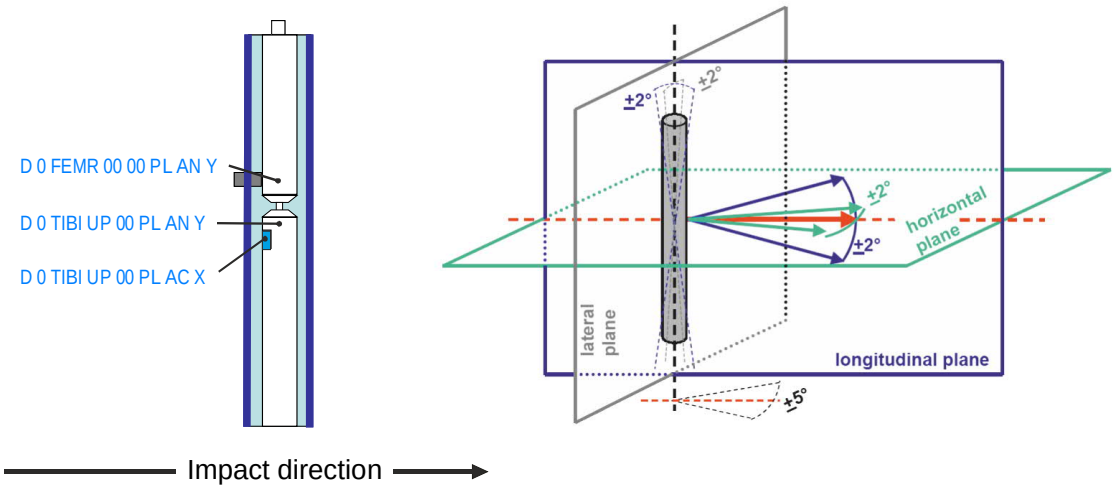
IMP Impactors: legform

Valid since Version **1.6.2**

pedestrian legform impactor

ISO/TS 13499 - RED C : 2020
Impactors
Pedestrian Legform Impactor
2020-06-17




```
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.
```

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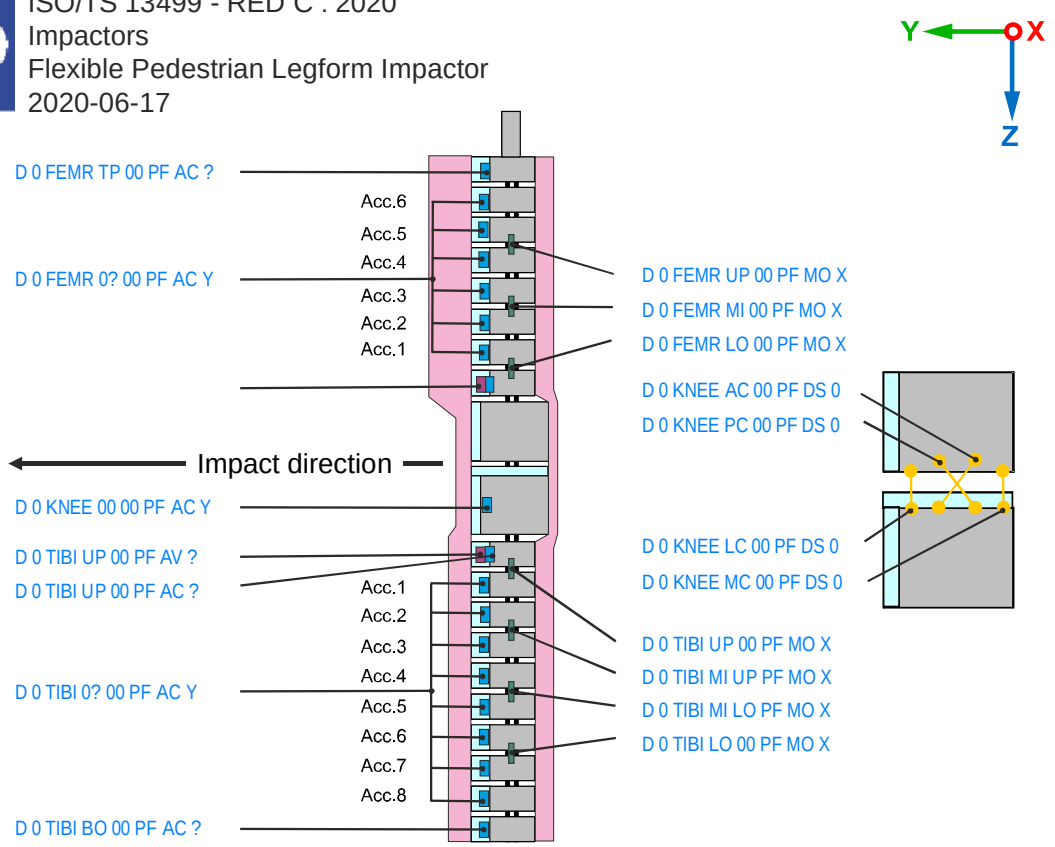
IMP Impactors: flexpli-legform

Valid since Version **1.6.2**

pedestrian flexible legform impactor

ISO/TS 13499 - RED C : 2020
Impactors
Flexible Pedestrian Legform Impactor
2020-06-17



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 TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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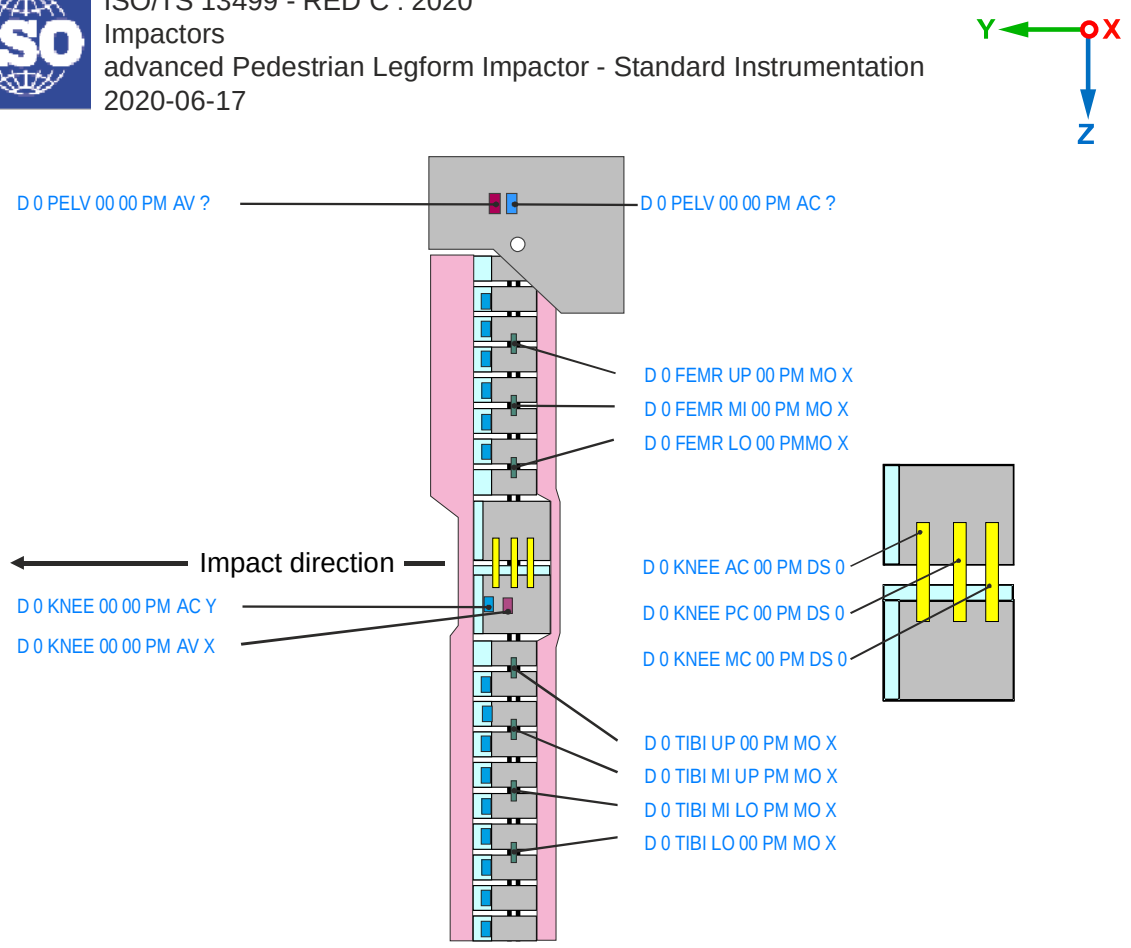
IMP Impactors: aPLI-legform

Valid since Version **1.6.2**

Advanced Pedestrian Legform aPLI

ISO/TS 13499 - RED C : 2020
Impactors
advanced Pedestrian Legform Impactor - Standard Instrumentation
2020-06-17




```
D0PELV0000PMAVX  Pelvis Angular Velocity X  (Upper Body)
D0PELV0000PMAVY  Pelvis Angular Velocity Y  (Upper Body)
D0PELV0000PMAVZ  Pelvis Angular Velocity Z  (Upper Body)
D0PELV0000PMACX  Pelvis Acceleration X      (Upper Body)
D0PELV0000PMACY  Pelvis Acceleration Y      (Upper Body)
D0PELV0000PMACZ  Pelvis Acceleration Z      (Upper Body)

D0FEMRUP00PMMOX  Femur Upper  Bending Moment X
D0FEMRMI00PMMOX  Femur Middle Bending Moment X
D0FEMRLO00PMMOX  Femur Lower  Bending Moment X

D0KNEE0000PMACY  Knee Acceleration Y
D0KNEE0000PMAVX  Knee Angular Velocity X
D0KNEEAC00PMDS0  Knee ACL Elongation
D0KNEEPC00PMDS0  Knee PCL Elongation
D0KNEEMC00PMDS0  Knee MCL Elongation

D0TIBIUP00PMMOX  Tibia Upper        Bending Moment X
D0TIBIMIUPPMMOX  Tibia Middle Upper Bending Moment X
D0TIBIMILOPMMOX  Tibia Middle Lower Bending Moment X
D0TIBILO00PMMOX  Tibia Lower        Bending Moment X
```

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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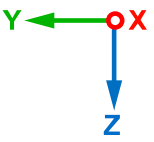
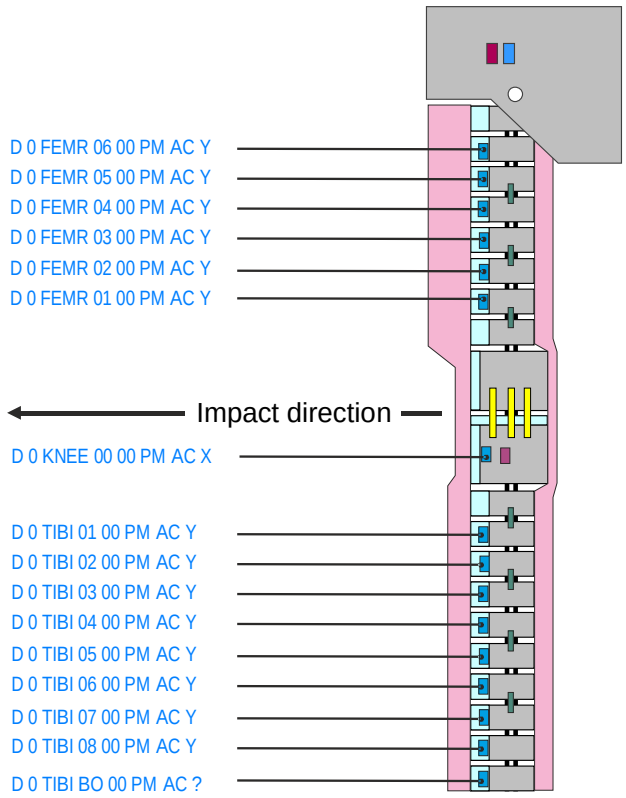
IMP Impactors: aPLI-legform

Valid since Version **1.6.2**

Advanced Pedestrian Legform aPLI (AC+)

ISO/TS 13499 - RED C : 2020
Impactors
advanced Pedestrian Legform Impactor - Additional Instrumentation
2020-06-17





D0FEMR0600PMACY Femur Segment 6 Acceleration Y
D0FEMR0500PMACY Femur Segment 5 Acceleration Y
D0FEMR0400PMACY Femur Segment 4 Acceleration Y
D0FEMR0300PMACY Femur Segment 3 Acceleration Y
D0FEMR0200PMACY Femur Segment 2 Acceleration Y
D0FEMR0100PMACY Femur Segment 1 Acceleration Y

D0KNEE0000PMACX Knee Acceleration X

D0TIBI0100PMACY Tibia Segment 1 Acceleration Y
D0TIBI0200PMACY Tibia Segment 2 Acceleration Y
D0TIBI0300PMACY Tibia Segment 3 Acceleration Y
D0TIBI0400PMACY Tibia Segment 4 Acceleration Y
D0TIBI0500PMACY Tibia Segment 5 Acceleration Y
D0TIBI0600PMACY Tibia Segment 6 Acceleration Y
D0TIBI0700PMACY Tibia Segment 7 Acceleration Y
D0TIBI0800PMACY Tibia Segment 8 Acceleration Y

D0TIBIBO00PMACX Tibia Bottom Acceleration X
D0TIBIBO00PMACY Tibia Bottom Acceleration Y
D0TIBIBO00PMACZ Tibia Bottom Acceleration Z

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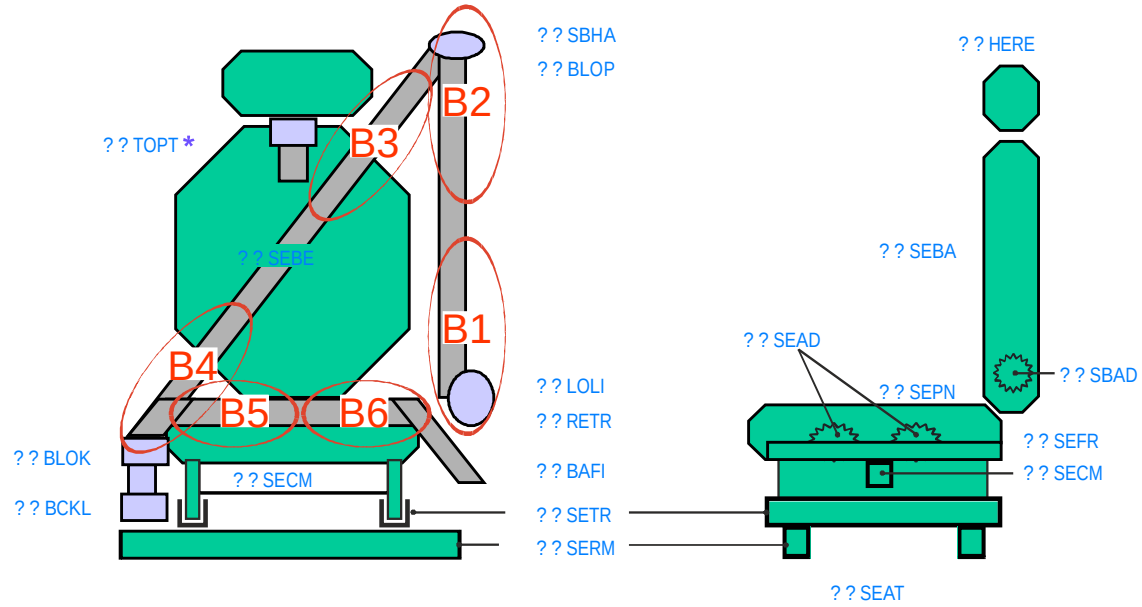
SEAT_1 Seat

Valid since Version **1.6.1**

belts and seat structure

ISO/TS 13499 - RED C : 2020
Seat
Seat Front and Side View
2020-06-17



? ? SEBE	???? B1 Seat Belt at Retractor	? ? SEAT	Seat
? ? SEBE	???? B2 Seat Belt below Belt Loop	? ? SEBA	Seat Back
? ? SEBE	???? B3 Seat Belt at upper Diag. Belt	? ? SBAD	Seat Back Adjuster
? ? SEBE	???? B4 Seat Belt at lower Diag. Belt	? ? SEFR	Seat Frame
? ? SEBE	???? B5 Seat Belt at Lap Belt inside	? ? SETR	Seat Track
? ? SEBE	???? B6 Seat Belt at Lap Belt outside	? ? SEAD	Seat Adjuster
		? ? SEPN	Seat Pan
? ? PRET	???? B1 Pretensioner at Retractor	? ? HERE	Head Restraint
? ? PRET	???? B2 Pretensioner below Belt Loop	? ? SECM	Seat Cross Member
? ? PRET	???? B4 Pretensioner at lower Diag. Belt	? ? SERM	Seat Rail Mount
? ? 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

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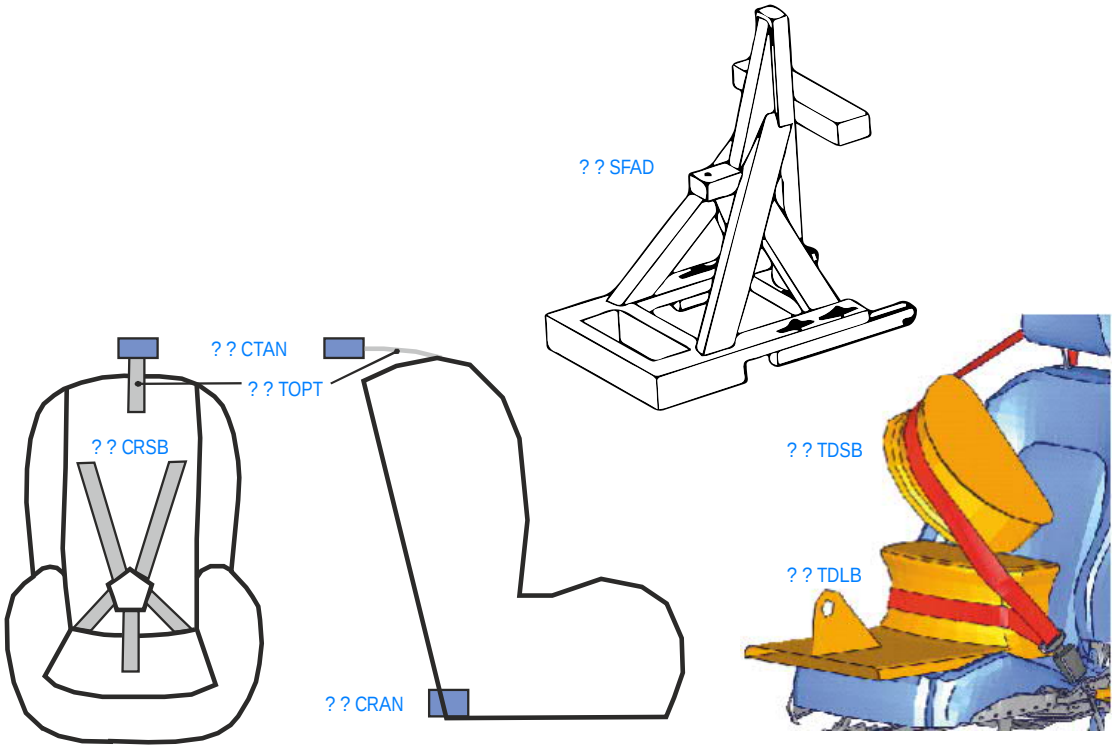
SEAT_2 Seat and traction devices

Valid since Version **1.6.1**

traction devices, Child restraint anchorage

ISO/TS 13499 - RED C : 2020
Seat
Child Restraint Systems
2020-06-17



? ? 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

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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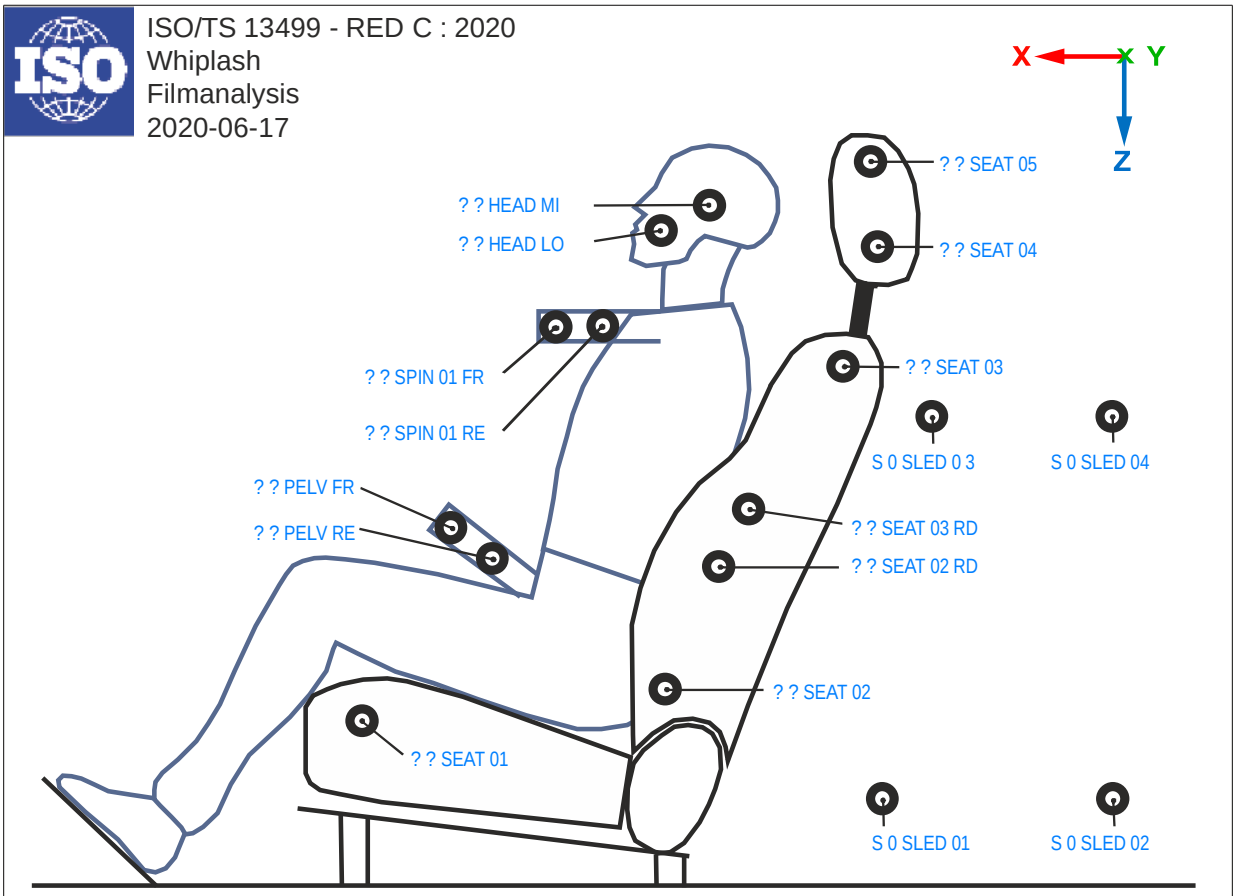
ISO_SEAT_2_162_20200617.EMF

-> SEAT_2 <- 2 of 2

WPL_1 Whiplash

Valid since Version **1.6.2.p2**
whiplash filmanalysis




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

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

Test objects for the seat and the dummy should be S, 1 and C
Possible directions are X, Y, Z and R

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

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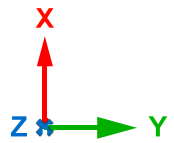
-> WPL_1 <- 1 of 1

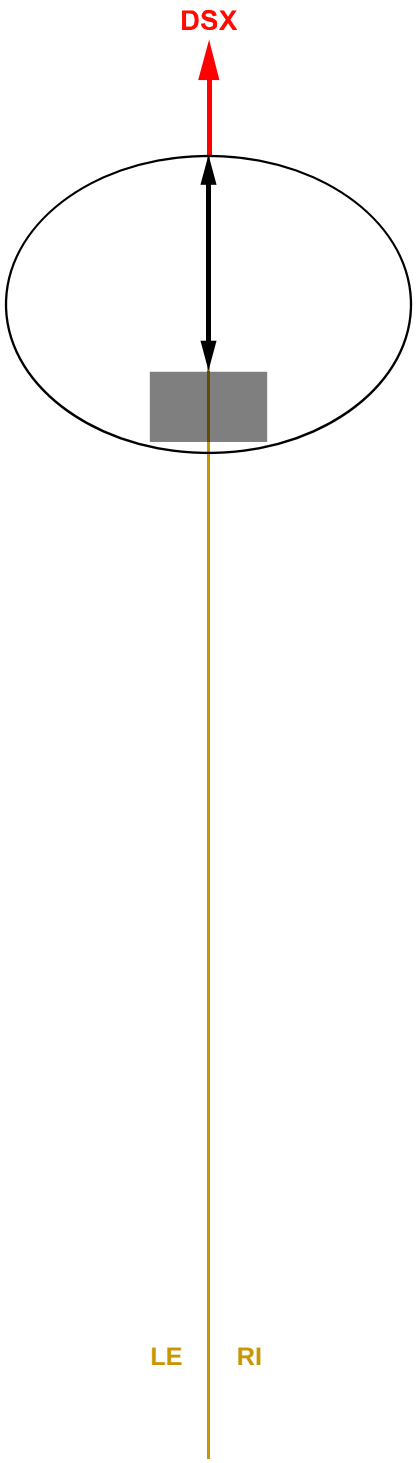
OTHER Chest Deflection Measurement

Valid since Version **1.6.2.p3**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2020
Chest Deflection
1 Axis - Frontal Impact
2020-06-17





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

1D TRAC* **Q3, Q6**
transducer:
CHST 00 00 ?? VOX
calculation:
CHST 00 00 ?? DSX

* TRAC: Telescoping Rod for the Asessment of Compression

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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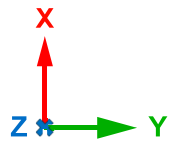
-> OTHER <- 1 of 6

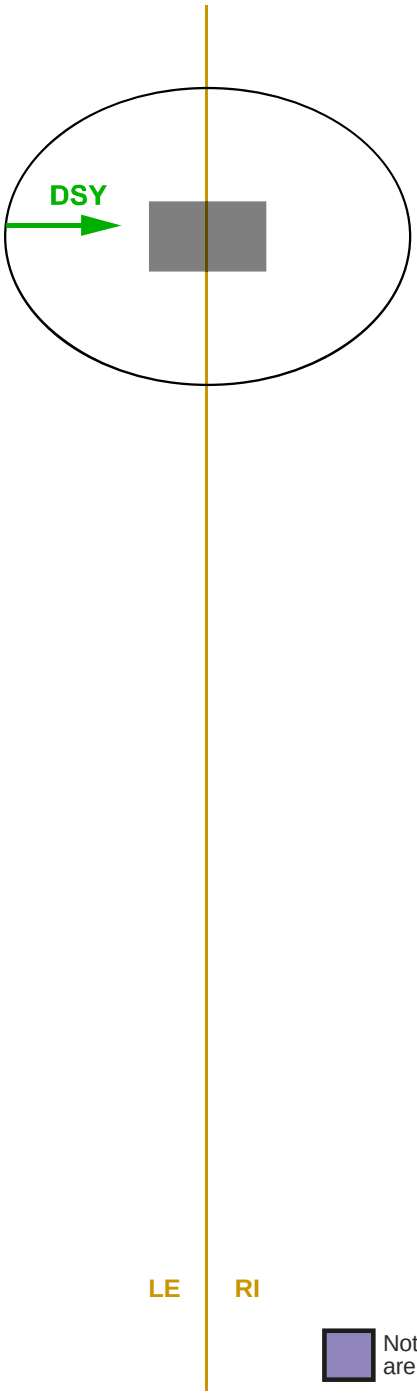
OTHER Chest Deflection Measurement

Valid since Version **1.6.2.p3**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2020
Chest Deflection
1 Axis - Side Impact
2020-06-17





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

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

1D MTRAC* **WS** (historical)
transducer:
???? LE ?? WS VOY
calculation:
???? LE ?? WS DSY

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

* MTRAC: Multidimensional Telescoping Rod for the Asessment of Compression

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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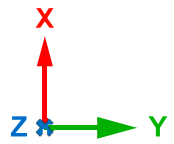
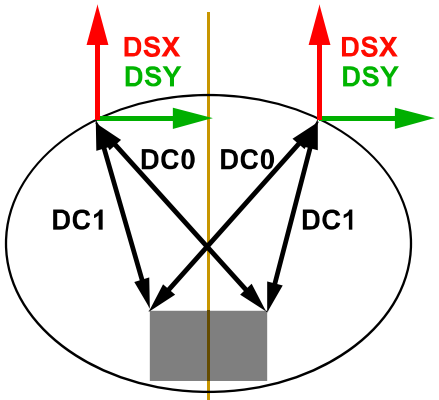
OTHER Chest Deflection Measurement

Valid since Version **1.6.2.p3**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2020
Chest Deflection
2 Axis - Frontal Impact
2020-06-17

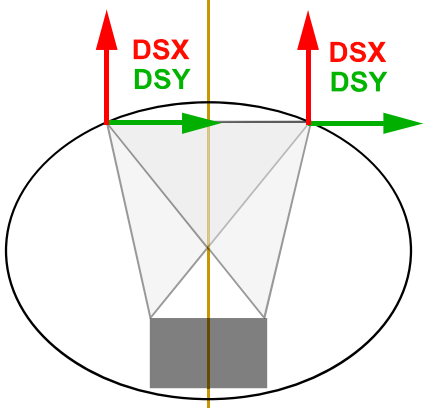




String Potentiometer **H3, HF**

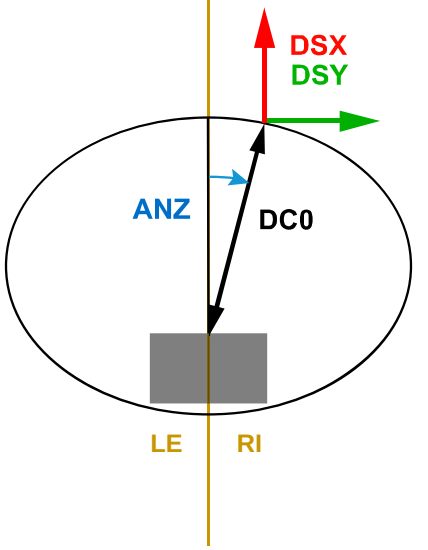
```
transducer:
CHST LE UP ?? DC 0,1
CHST RI UP ?? DC 0,1
CHST LE LO ?? DC 0,1
CHST RI LO ?? DC 0,1

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
```



2D MTRAC* **QA**

```
transducer:
CHST UP 00 QA VO0
CHST UP 00 QA DC0
CHST UP 00 QA ANZ
CHST LO 00 QA VO0
CHST LO 00 QA DC0
CHST LO 00 QA ANZ

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

* MTRAC: Multidimensional Telescoping Rod for the Asessment of Compression

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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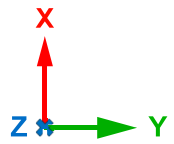
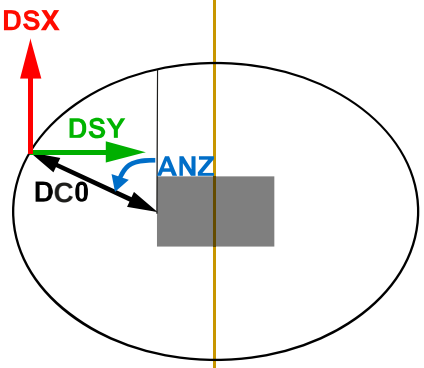
OTHER Chest Deflection Measurement

Valid since Version **1.6.2.p3**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2020
Chest Deflection
2 Axis - Side Impact - Variant
2020-06-17





2D MTRAC* **WS**

transducer:

```
SHRI LE 00 WS VO0
SHRI LE 00 WS DC0
SHRI LE 00 WS ANZ
TRRI LE 0? WS VO0
TRRI LE 0? WS DC0
TRRI LE 0? WS ANZ
ABRI LE 0? WS VO0
ABRI LE 0? WS DC0
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
```

2D MTRAC* **QA**

transducer:

```
CHST LE UP QA VO0
CHST LE UP QA DC0
CHST LE UP QA ANZ
CHST LE LO QA VO0
CHST LE LO QA DC0
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.

* MTRAC: Multidimensional Telescoping Rod for the Asessment of Compression

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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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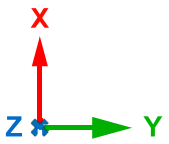
-> OTHER <- 4 of 6

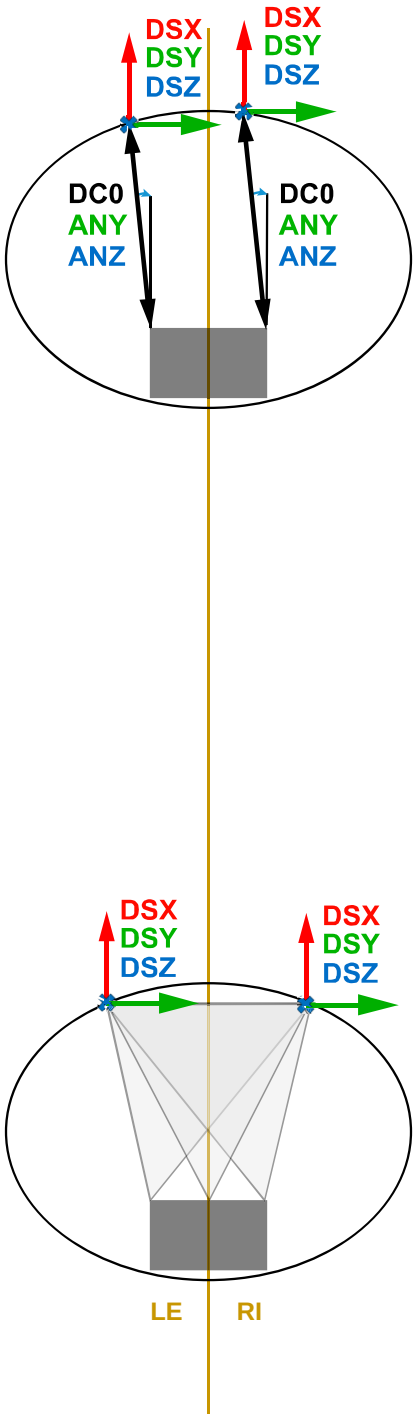
OTHER Chest Deflection Measurement

Valid since Version **1.6.2.p3**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2020
Chest Deflection
3 Axis - Frontal Impact
2020-06-17





3D MTRAC* **TH** , (THMPR) **H3, HF**

```
transducer:
CHST LE UP ?? VO0
CHST LE UP ?? DC0
CHST LE UP ?? ANY
CHST LE UP ?? ANZ
CHST RI UP ?? VO0
CHST RI UP ?? DC0
CHST RI UP ?? ANY
CHST RI UP ?? ANZ
CHST LE LO ?? VO0
CHST LE LO ?? DC0
CHST LE LO ?? ANY
CHST LE LO ?? ANZ
CHST RI LO ?? VO0
CHST RI LO ?? DC0
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, HF**

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

* MTRAC: Multidimensional Telescoping Rod for the Asessment of Compression

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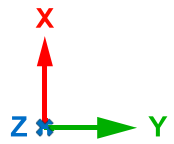
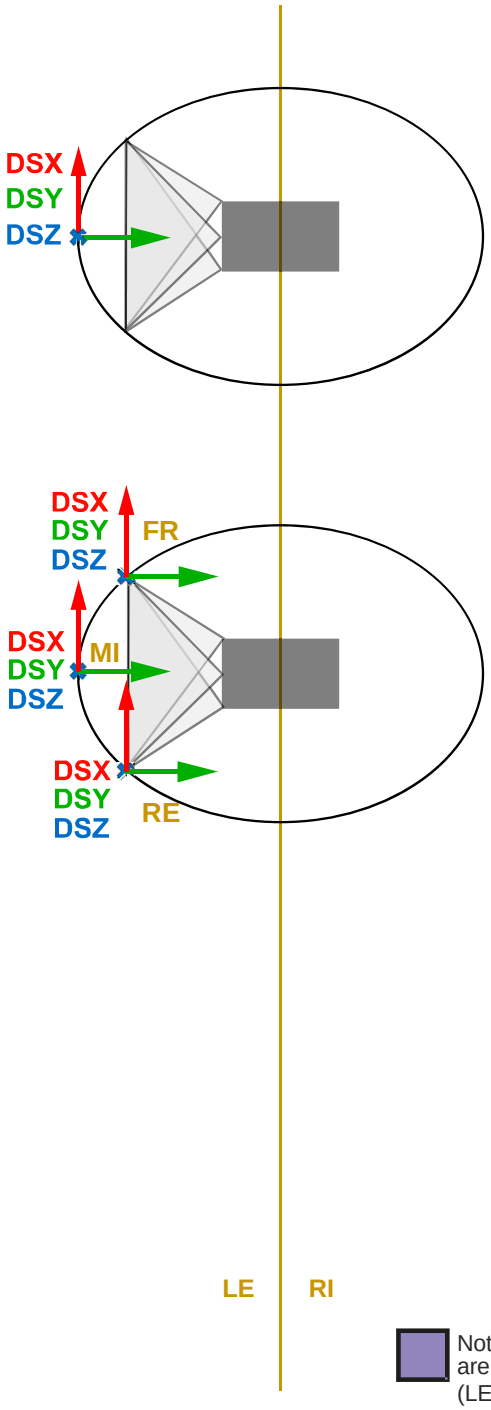
OTHER Chest Deflection Measurement

Valid since Version **1.6.2.p3**

Chest Deflection Coding for different dummy types

ISO/TS 13499 - RED C : 2020
Chest Deflection
3 Axis - Side Impact
2020-06-17





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 (2D IR-TRACC equiv):
SHRI LE 00 WS DS Y
TRRI LE 01 WS DS Y
TRRI LE 02 WS DS Y
TRRI LE 03 WS DS Y
ABRI LE 01 WS DS Y
ABRI LE 02 WS DS Y

calculation (1D IR-TRACC equiv):
SHRI LE 00 WS DS 0
TRRI LE 01 WS DS 0
TRRI LE 02 WS DS 0
TRRI LE 03 WS DS 0
ABRI LE 01 WS DS 0
ABRI LE 02 WS DS 0

optional channels (LED's):
SHRI LE FR,MI,RE WS DS X,Y,Z
TRRI LU FR,MI,RE WS DS X,Y,Z
TRRI LM FR,MI,RE WS DS X,Y,Z
TRRI LL FR,MI,RE WS DS X,Y,Z
ABRI LU FR,MI,RE WS DS X,Y,Z
ABRI LL FR,MI,RE WS DS X,Y,Z
```

Note that sensor locations and ISO Codes are different for right side impact.
(LE -> RI, LM -> RM, LU -> RU, LL -> RL)

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ISO_CHST_6_162_20200617.EMF

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