

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 1.6.3.p1 —

Remark for version 2.x release:

All figures comply to the latest version 1.x release .

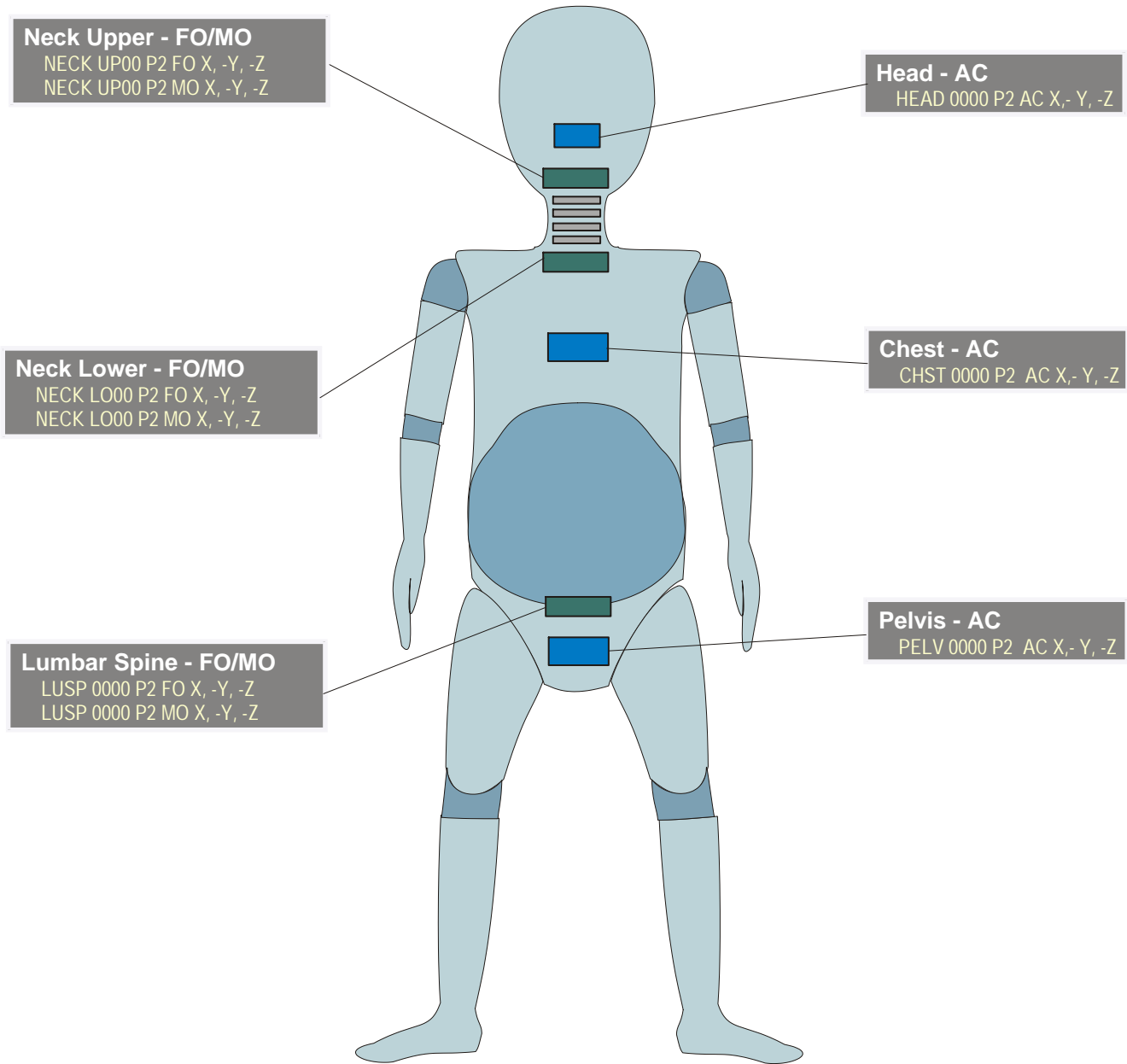
Figures are maintained and updated in parallel for both major versions. File name references will be identical to version 1.

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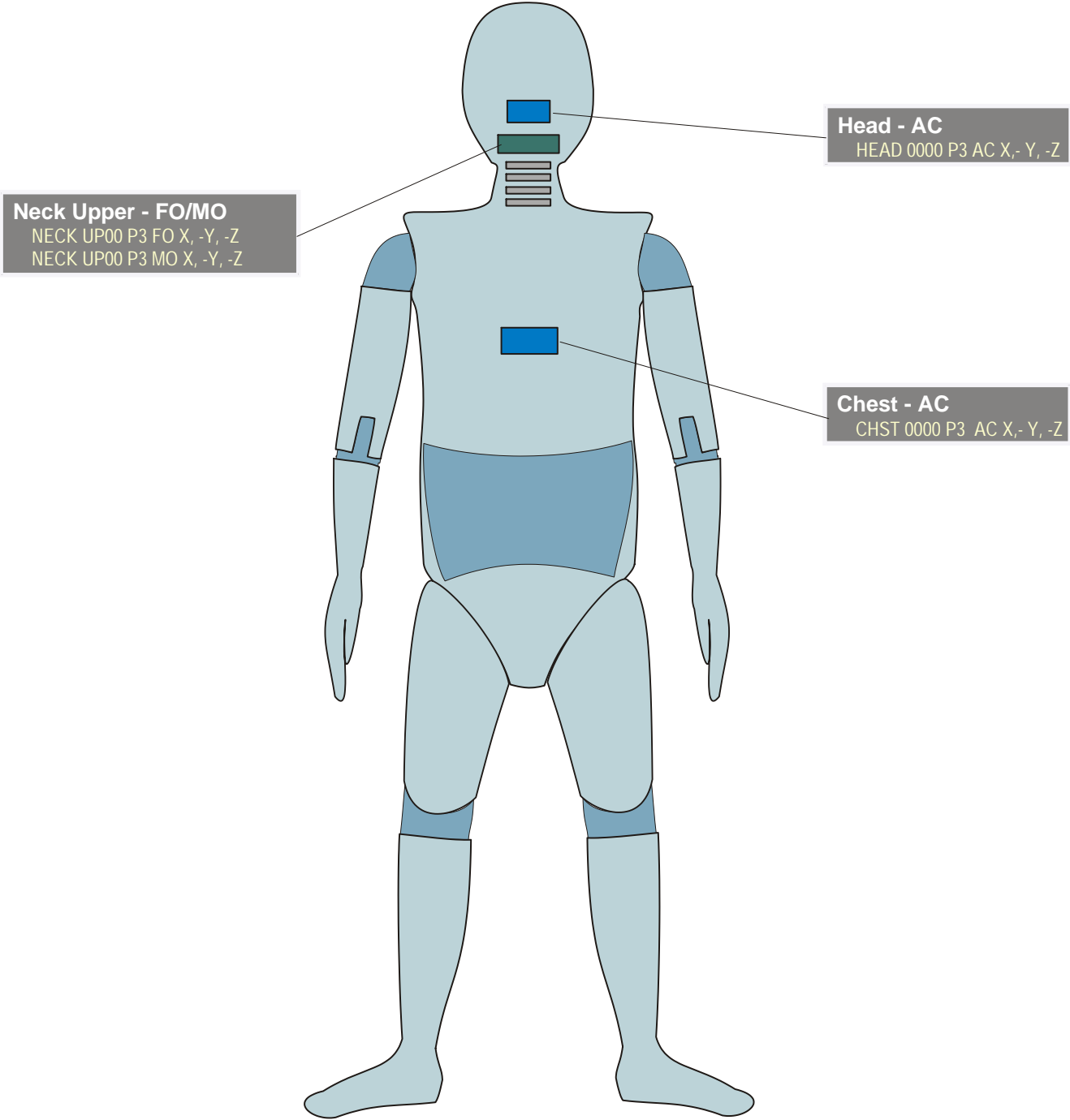
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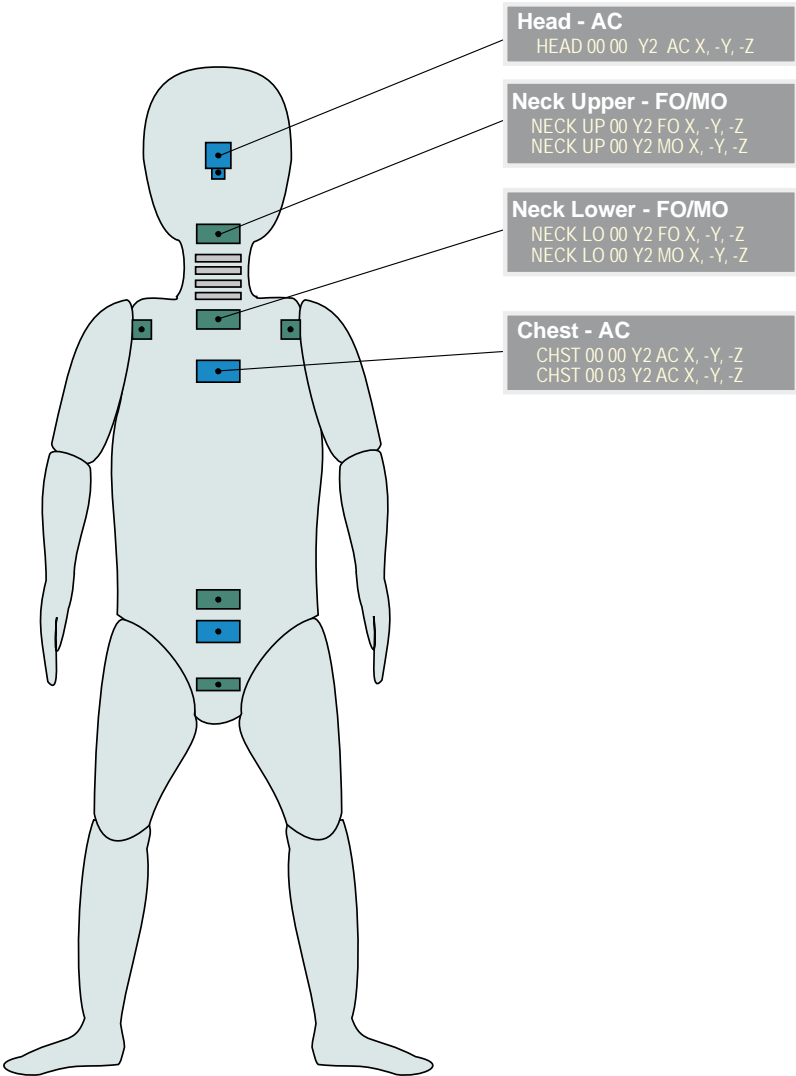
P3 TNO P 3 year old

Valid since Version 1.1





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



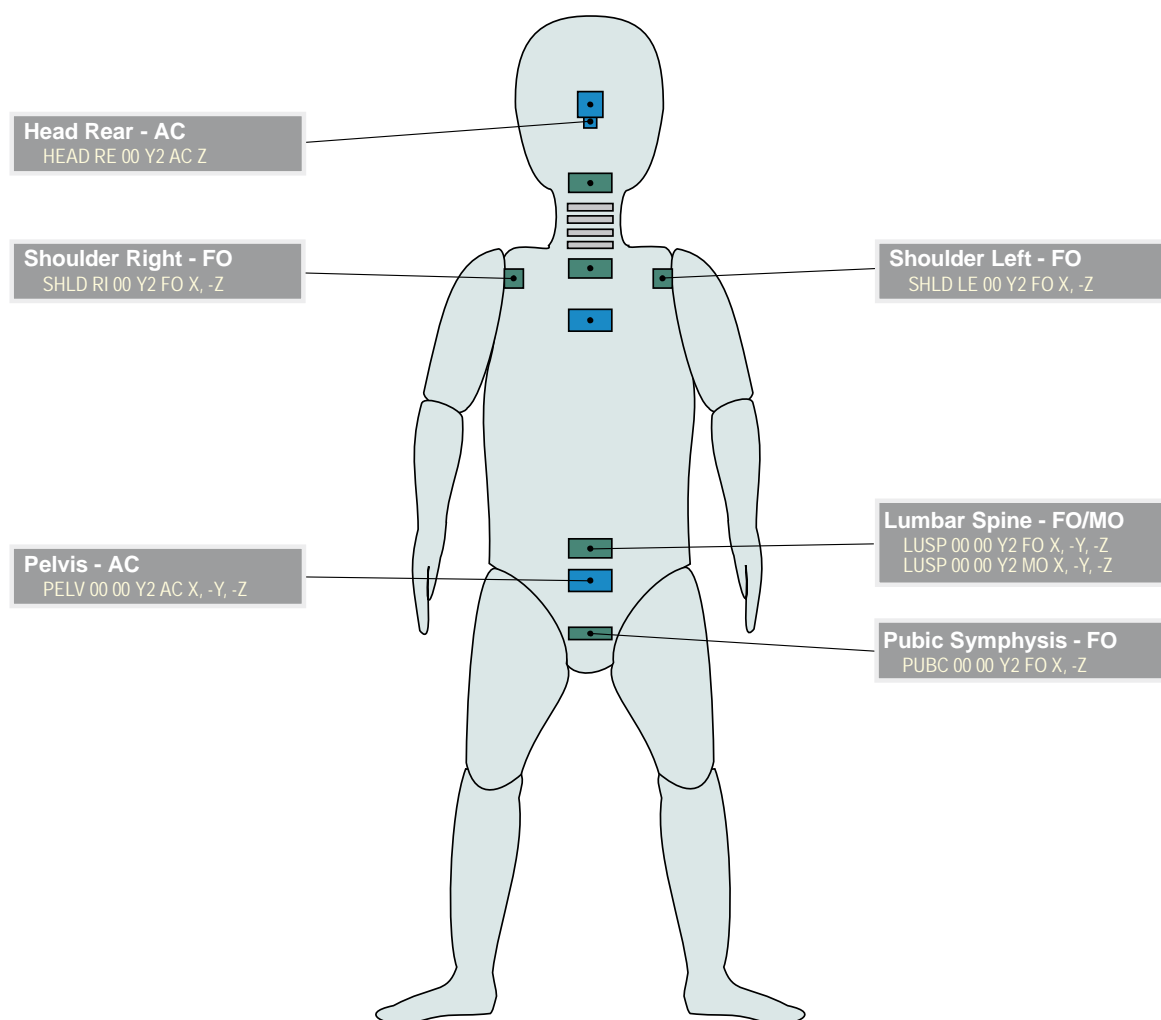
Y2 CRABI 12 month old (2)

Valid since Version

1.6

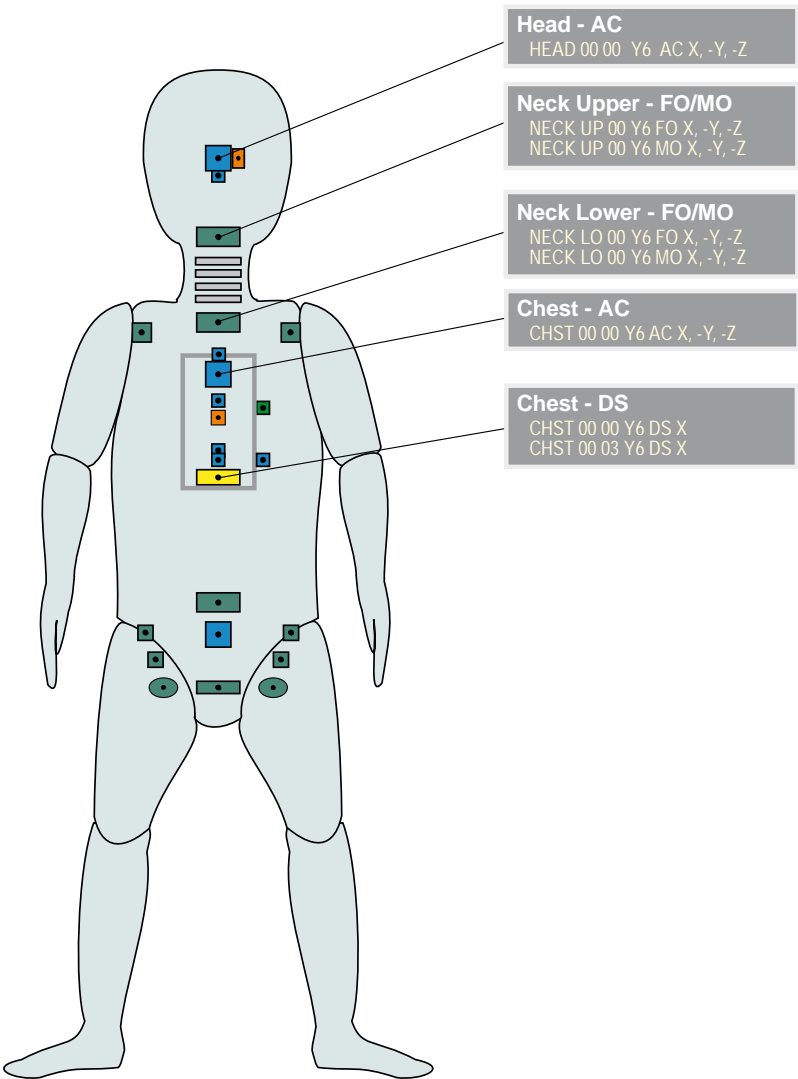


ISO/TS 13499 – RED C : 2010(E)
Y2, CRABI 12 Month Old Infant Dummy
Additional Instrumentation
2011-12-20





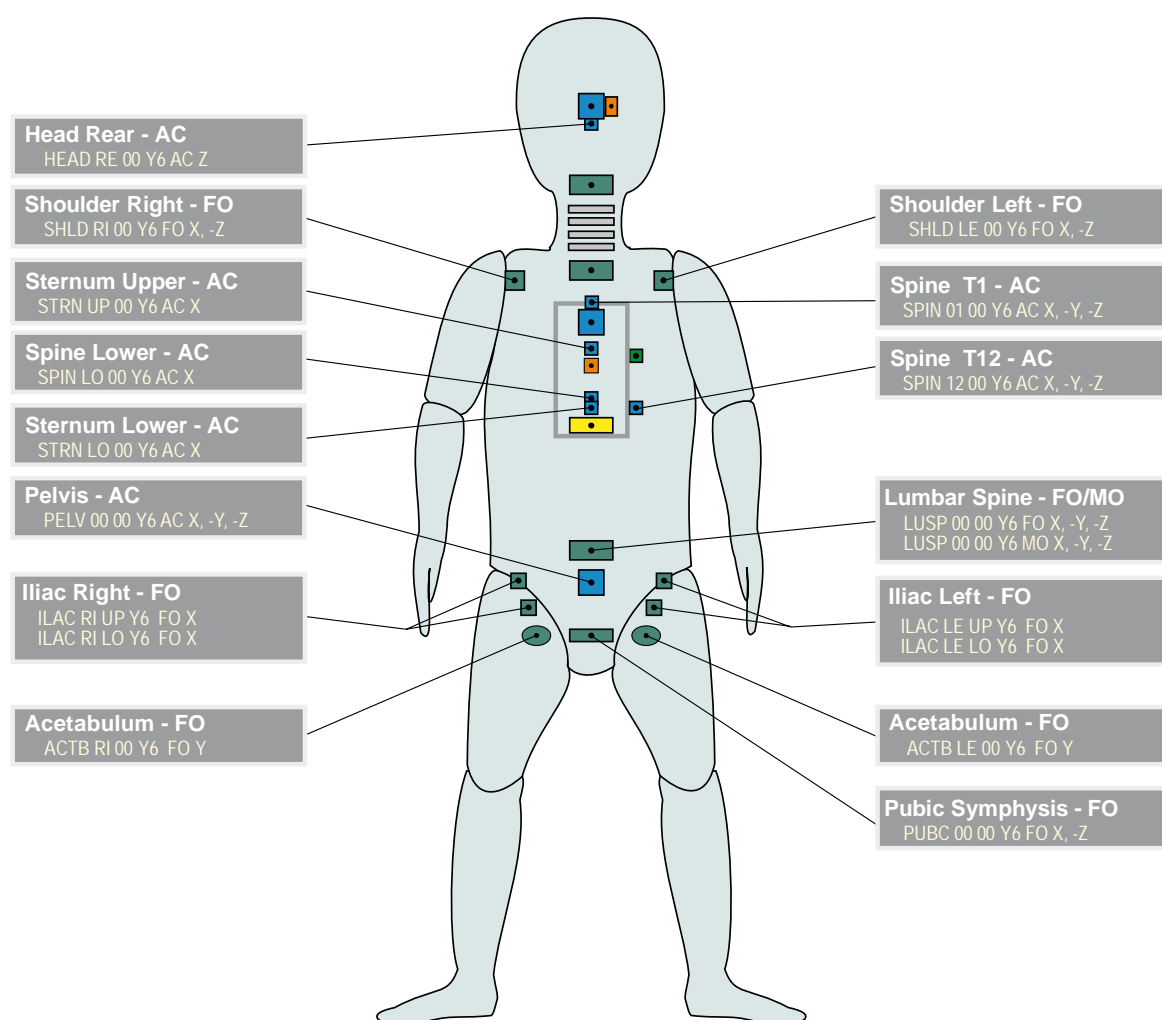
ISO/TS 13499 – RED C : 2010(E)
Y6, Hybrid III 3 Year Old Child Dummy
Standard Instrumentation
2013-07-10



Y6 H III - 3 year old (2)

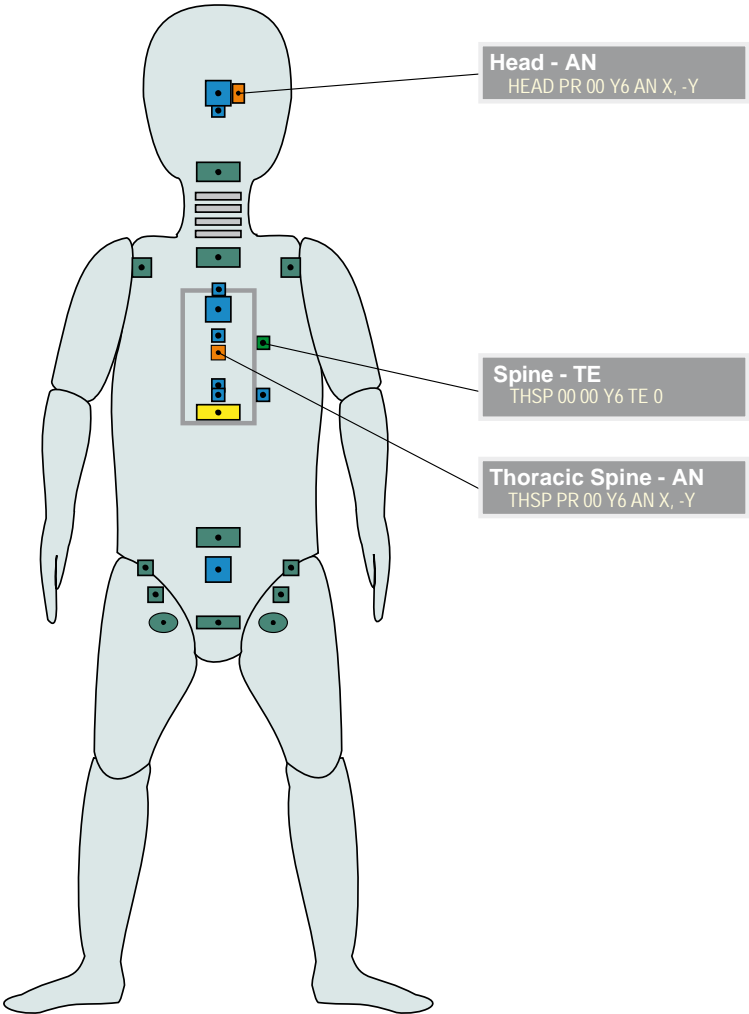
Valid since Version 1.6.1
NPRM Level "A"

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





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

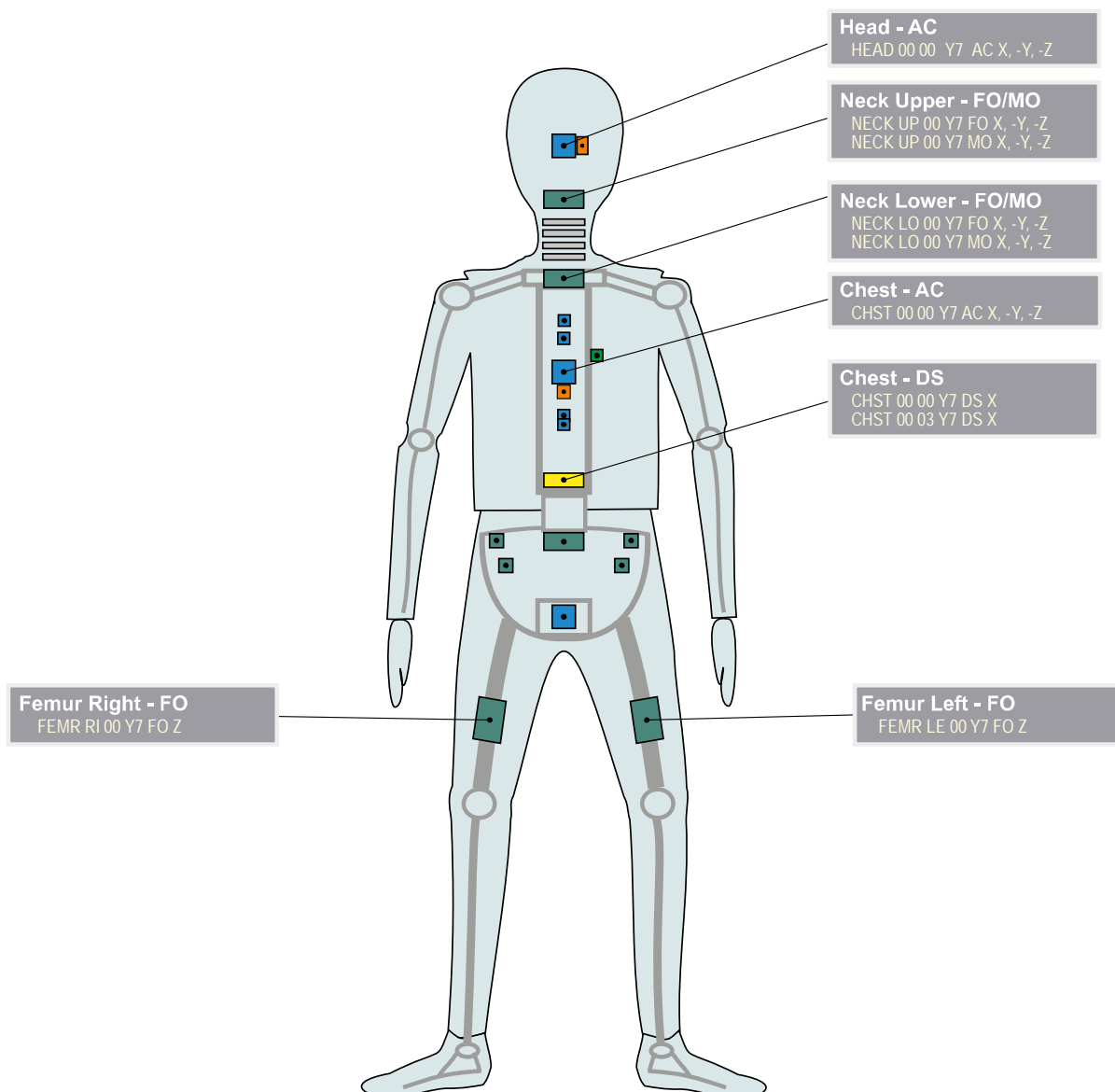


Y7 H III - 6 year old (1)

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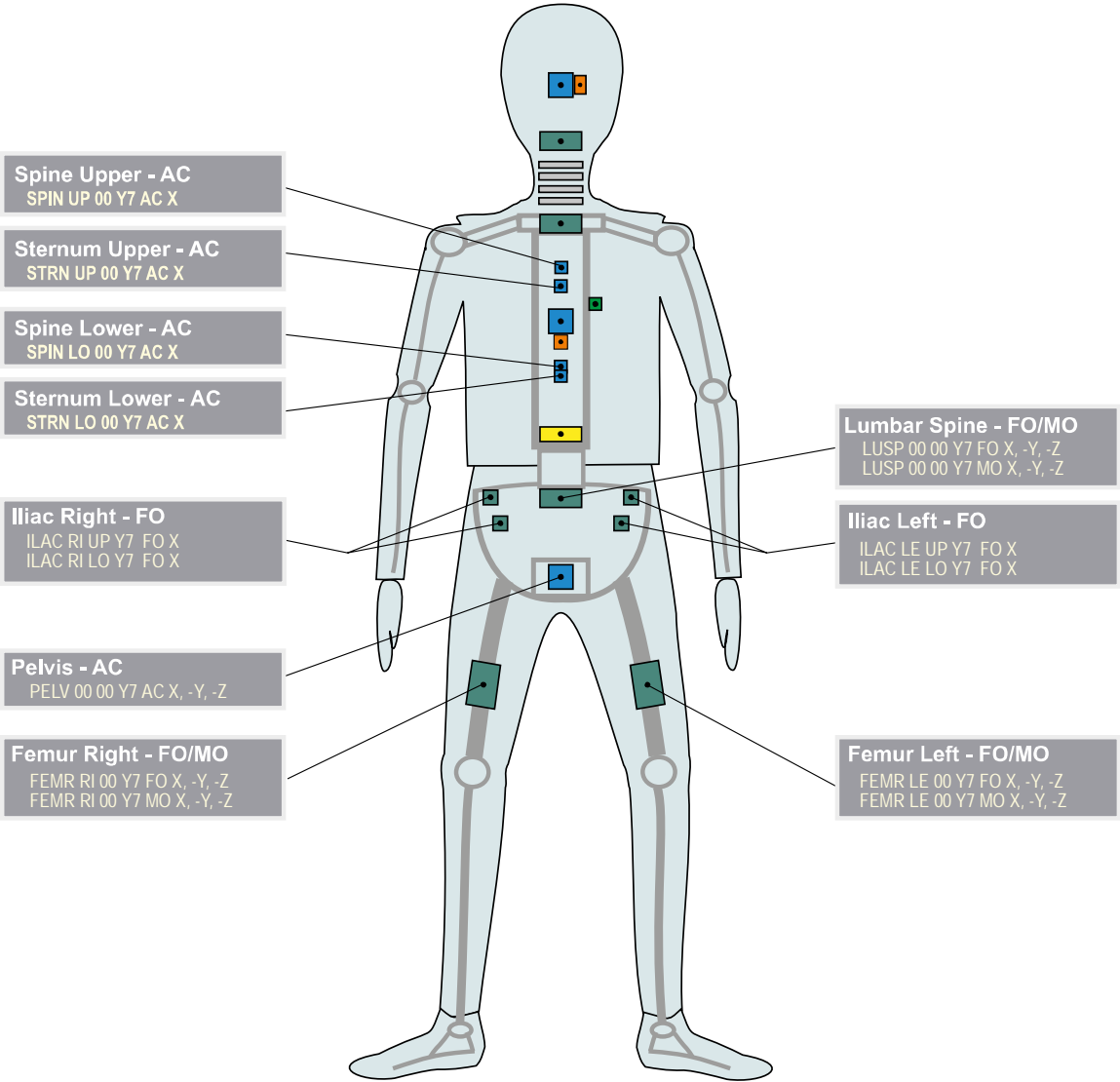
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.
and Dirk Vetter, IATmbH

ISO_Y7_1_162p2_20171213.EMF

-> Y7 <- 1 of 3



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)

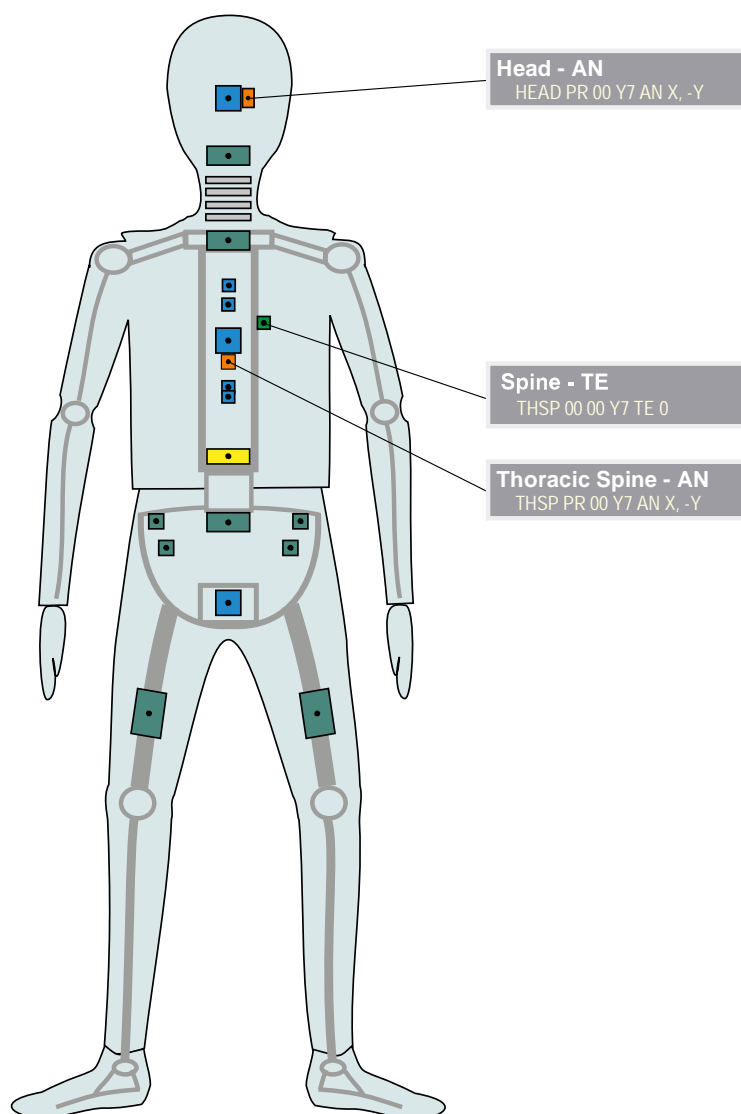


ISO/TS 13499 – RED C : 2010(E)

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".

ISO-Y7_20171213

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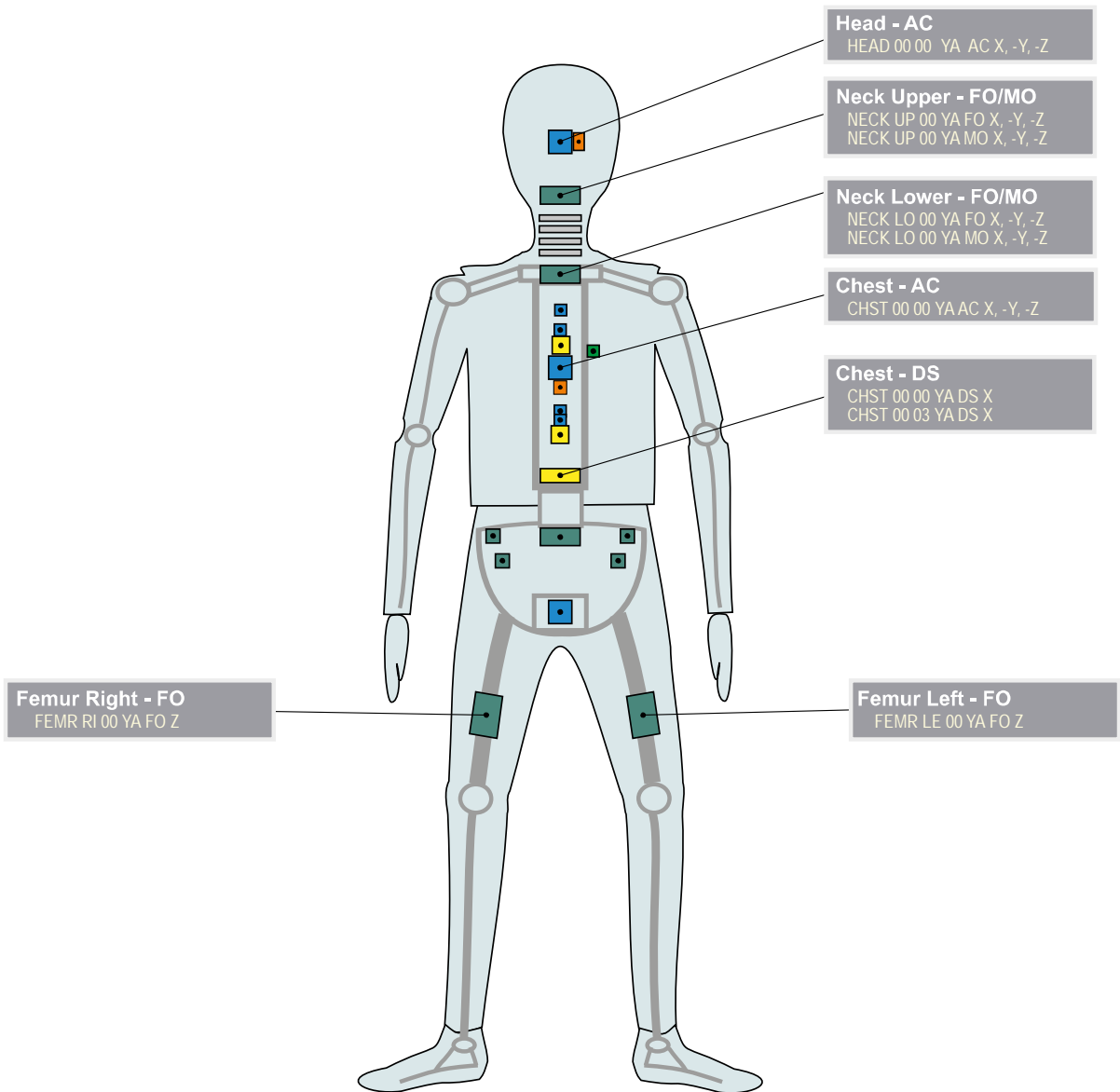
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
 Maintained by Paul Wellicome, MIRA Ltd.
 and Dirk Vetter, IATmbH

ISO_Y7_3_162p2_20171213.EMF

-> Y7 <- 3 of 3



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

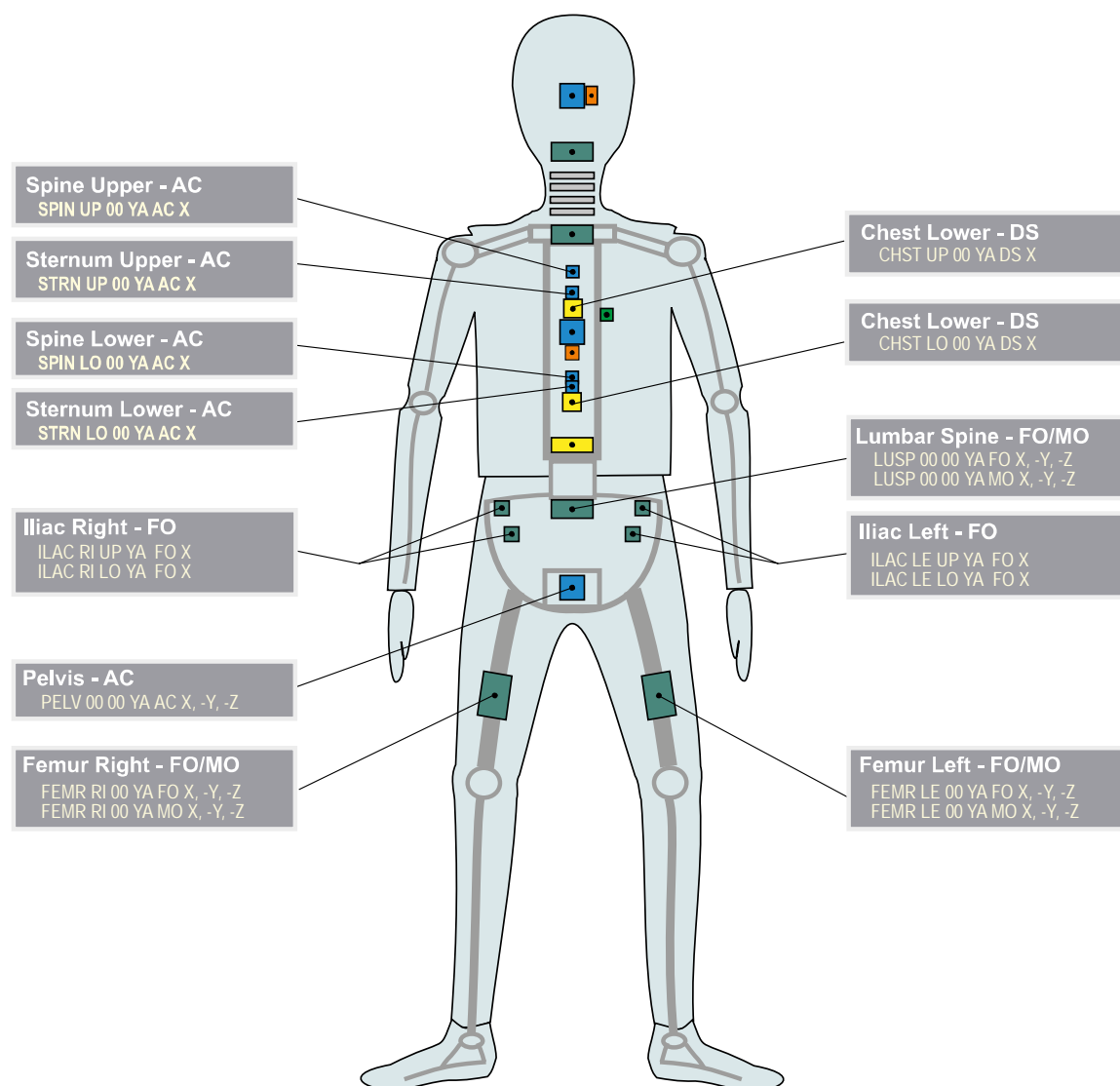


YA H III - 10 year old (2)

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



ISO-YA_20190718

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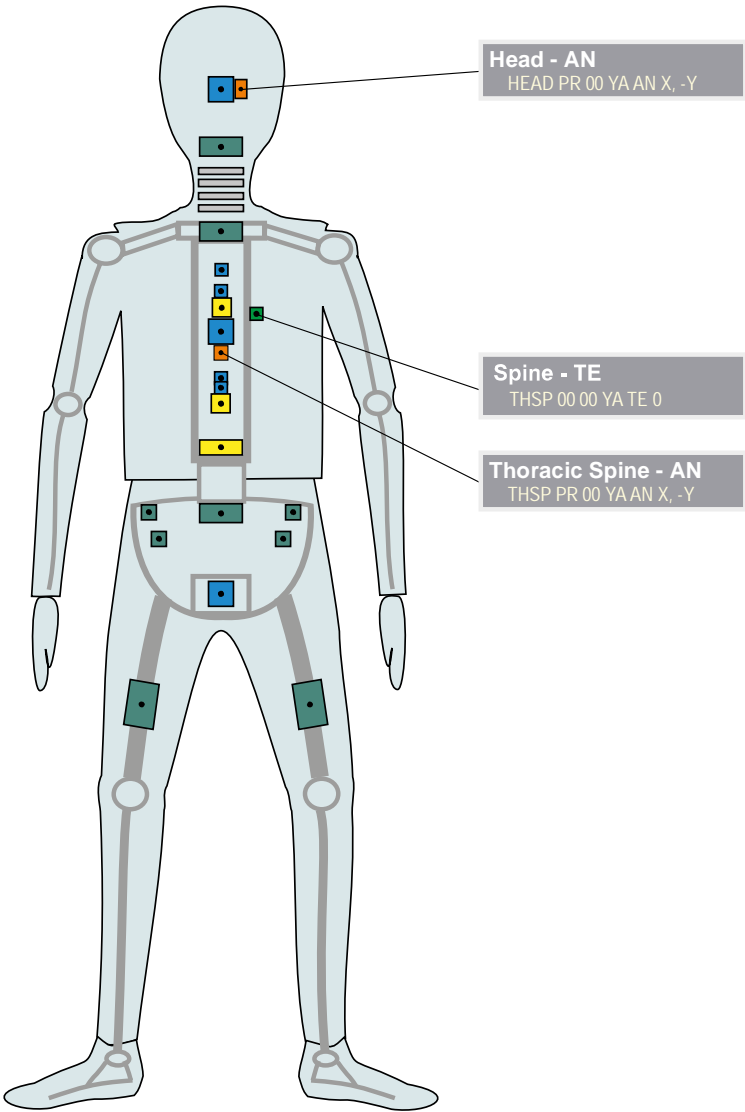
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.
and Dirk Vetter, IAT mbH

ISO_YA_2_162_20190718.EMF

-> YA <- 2 of 3



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



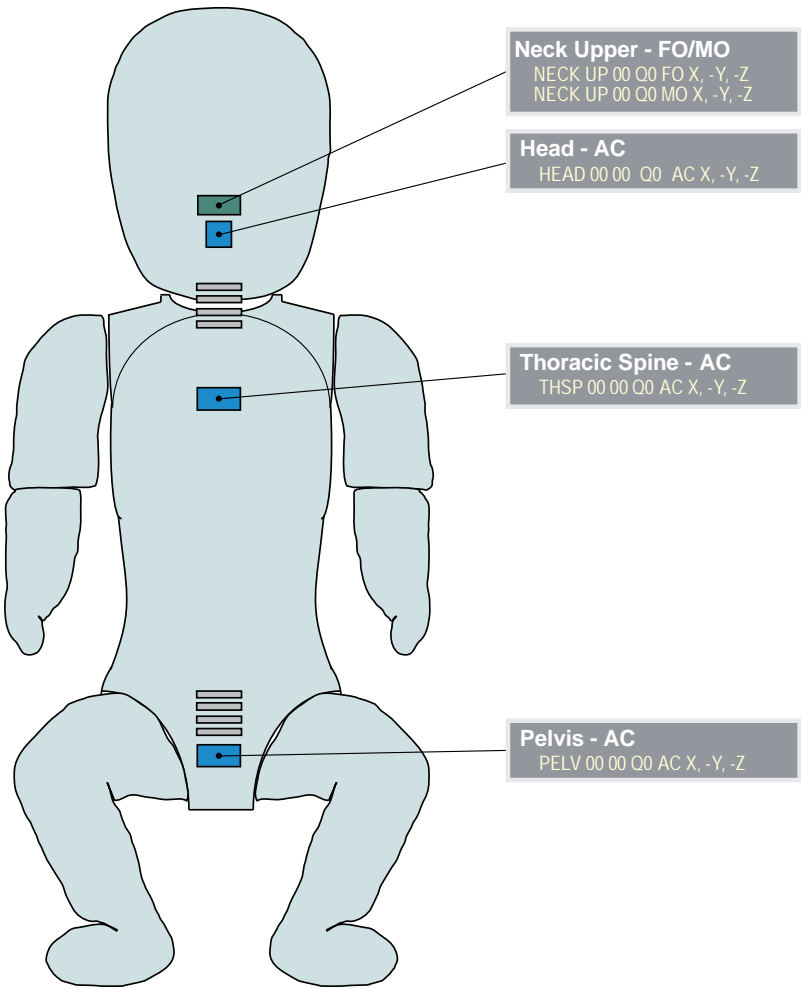
Q0 Q0 newborn


Valid since Version 1.6



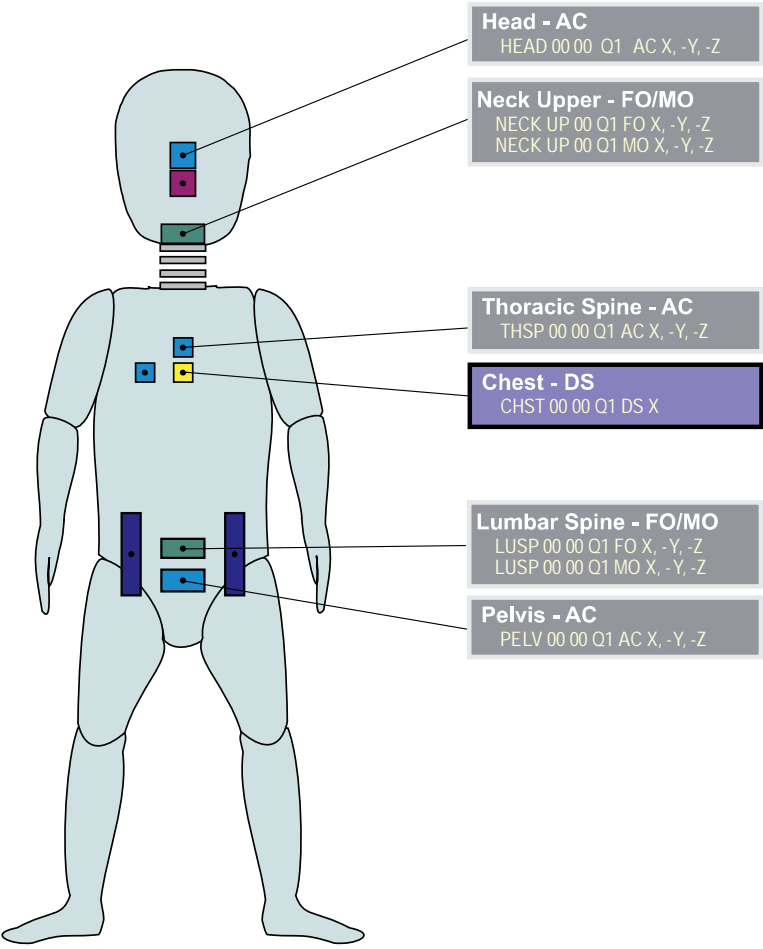
ISO/TS 13499 – RED C : 2012(E)
Q0, 6-week Old Infant Dummy

2012-01-24






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



Frontal Impact

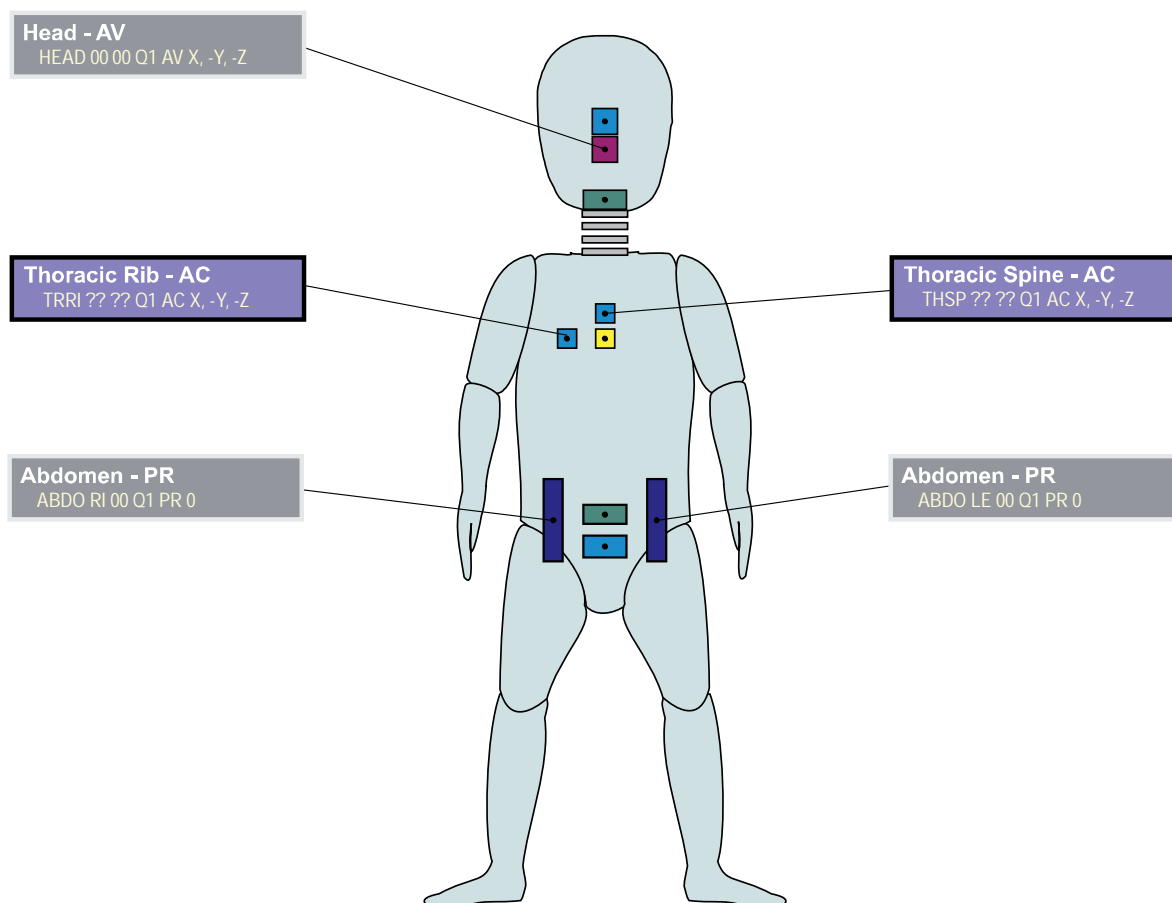
 Note that sensor orientation is different for side impact configurations.
ISO Codes used must reflect the chosen orientation.]]
Left-hand side impact: CHST LE 00 Q1 DS Y.]]
Right-hand side impact: CHST RI 00 Q1 DS Y.

Q1 Q1 (2)

Valid since Version 1.6.2.p1



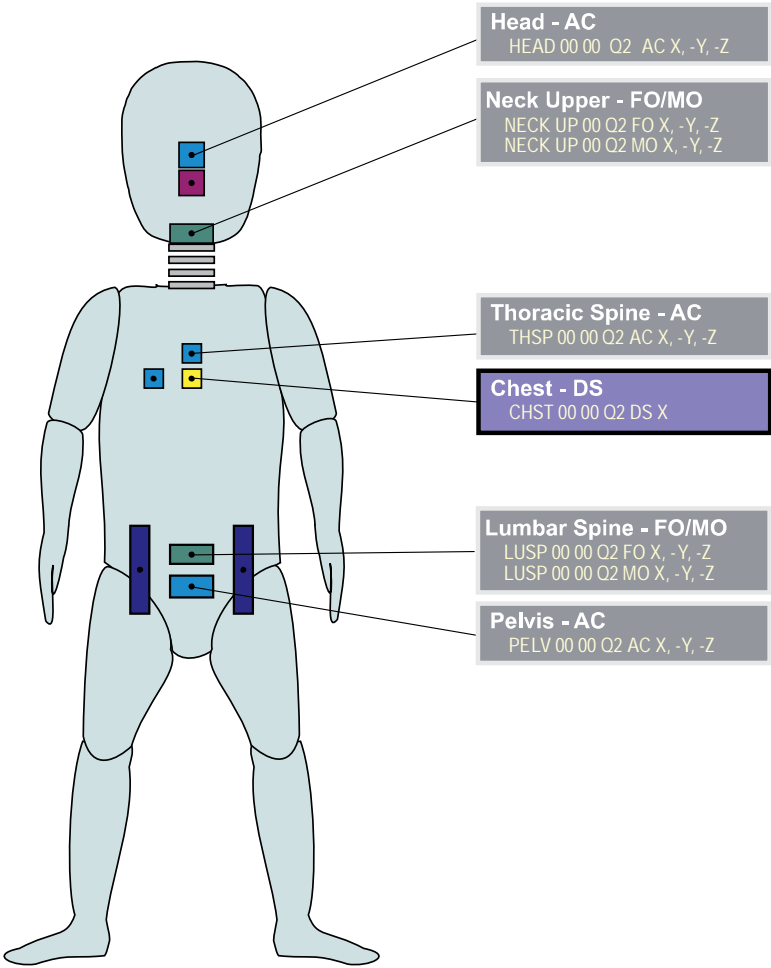
ISO/TS 13499 – RED C : 2012(E)
Q1, Advanced 1-year old Dummy
Additional Instrumentation
2015-11-25



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.



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



Frontal Impact

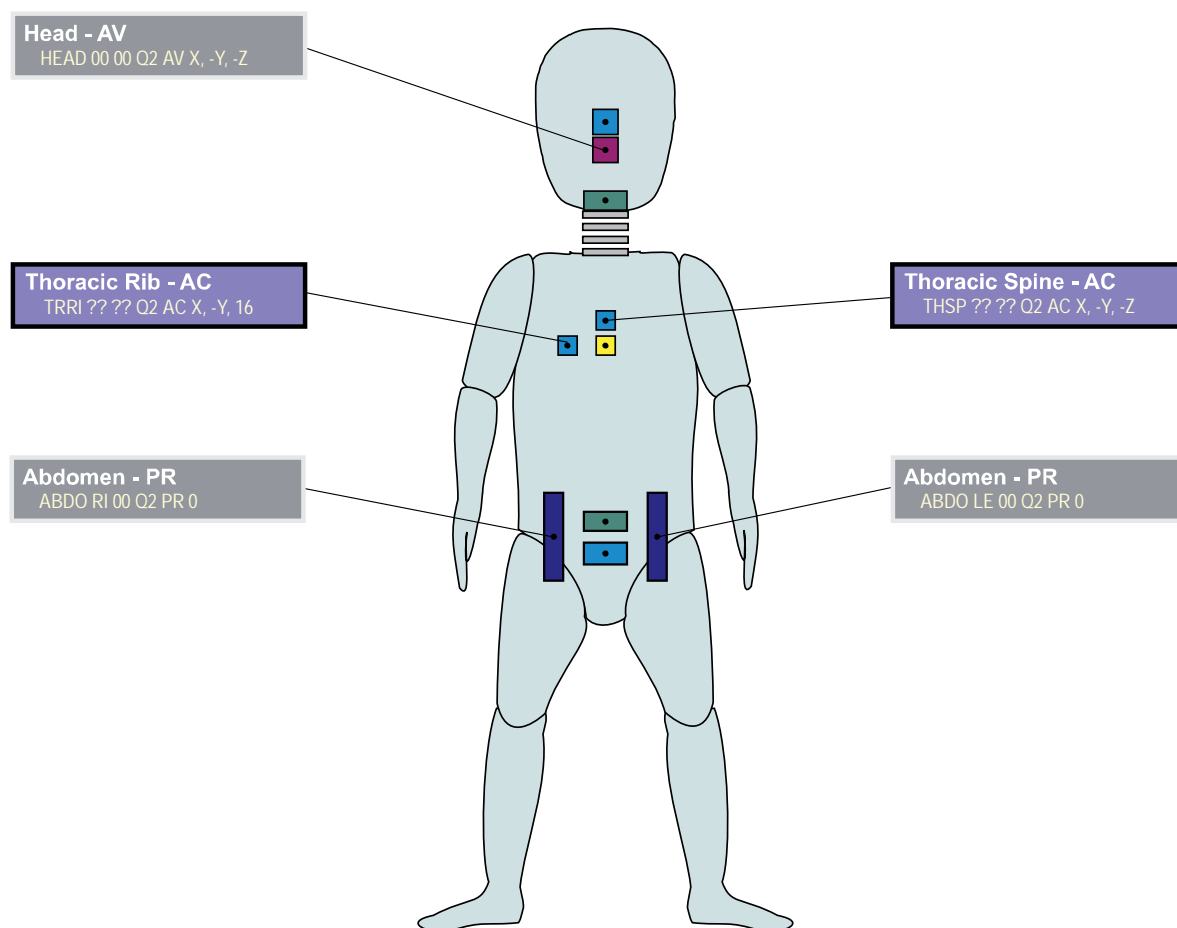
Note that sensor orientation is different for side impact configurations.
ISO Codes used must reflect the chosen orientation.
Left-hand side impact: CHST LE 00 Q2 DS Y.
Right-hand side impact: CHST RI 00 Q2 DS Y.

Q2 Q1 1/2 (2)

Valid since Version 1.6.2.p1



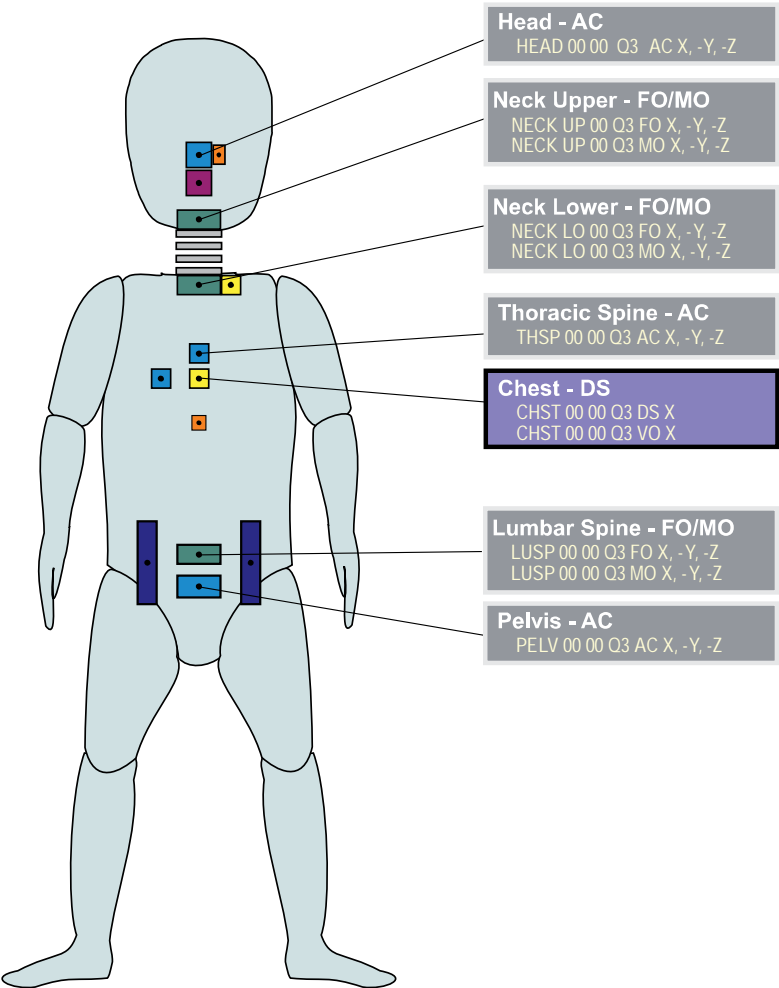
ISO/TS 13499 – RED C : 2012(E)
 Q2, Advanced 1.5-year old child dummy (Q1.5)
 Additional Instrumentation
 2015-11-25




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.



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

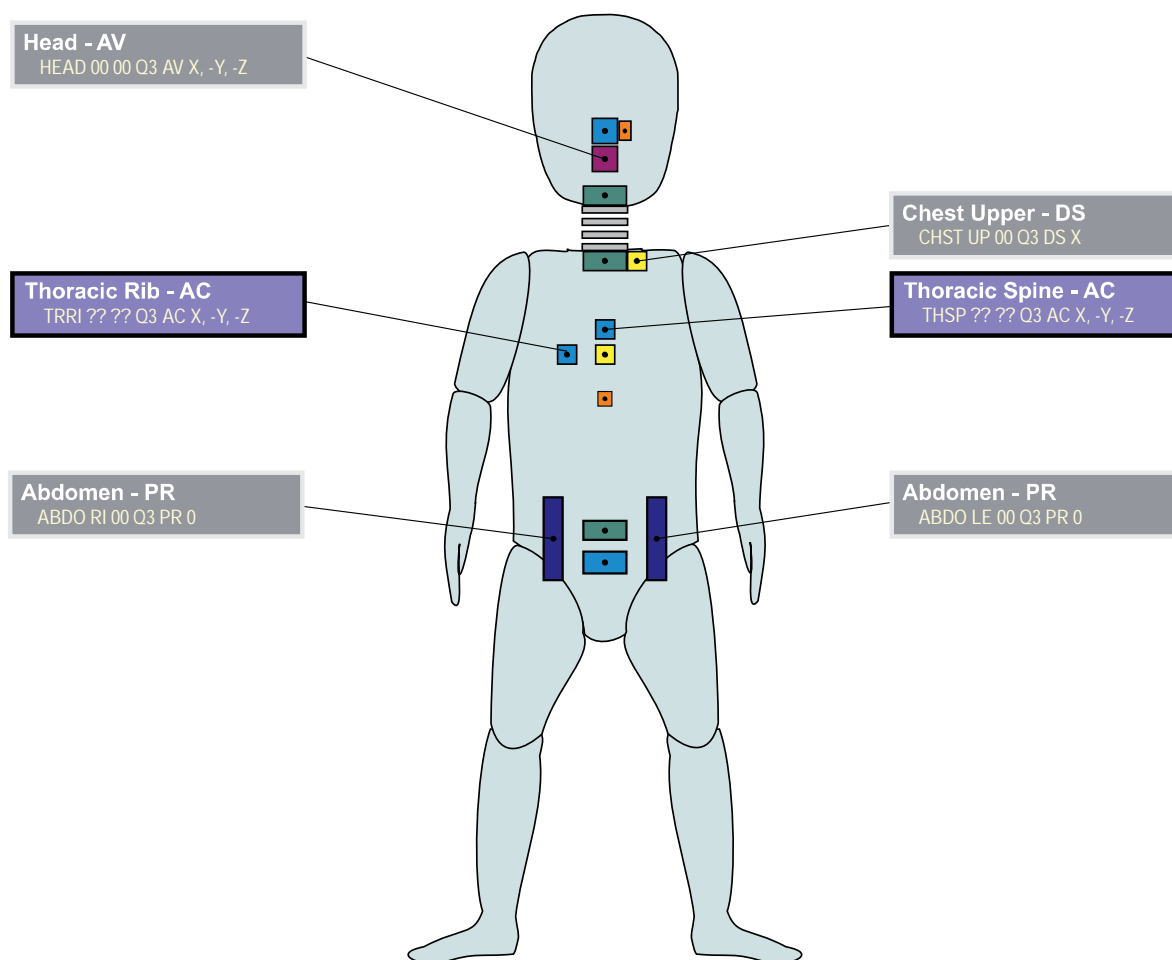


ISO/TS 13499 – RED C : 2012(E)

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.

ISO_Q3_20151125

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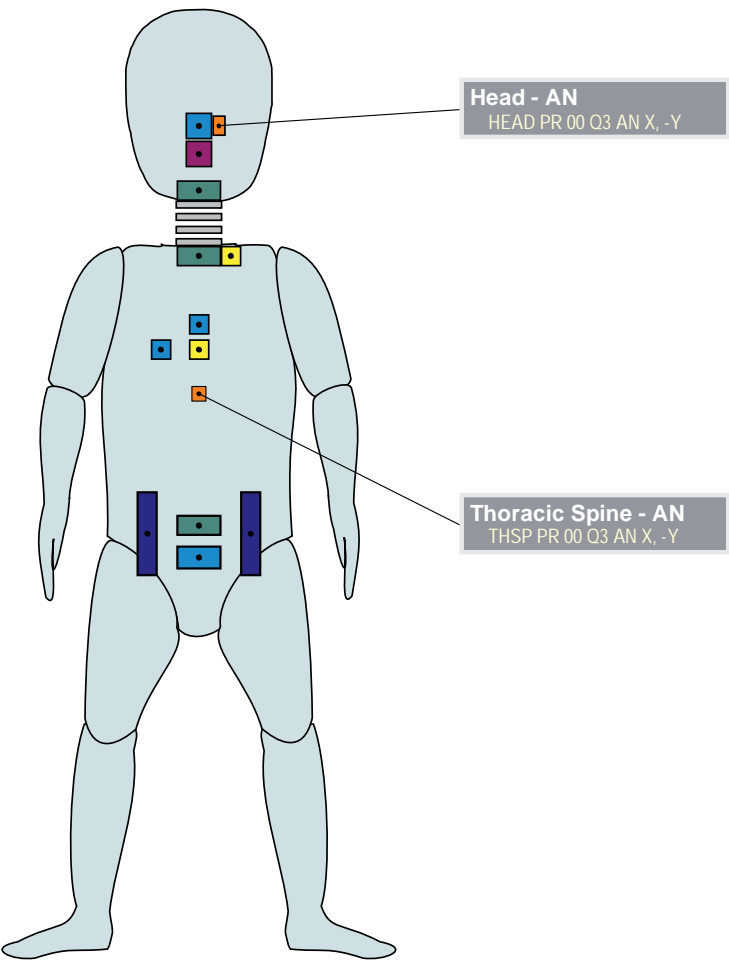
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.

ISO_Q3_2_162p1_20151125.EMF

-> Q3 <- 2 of 3



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

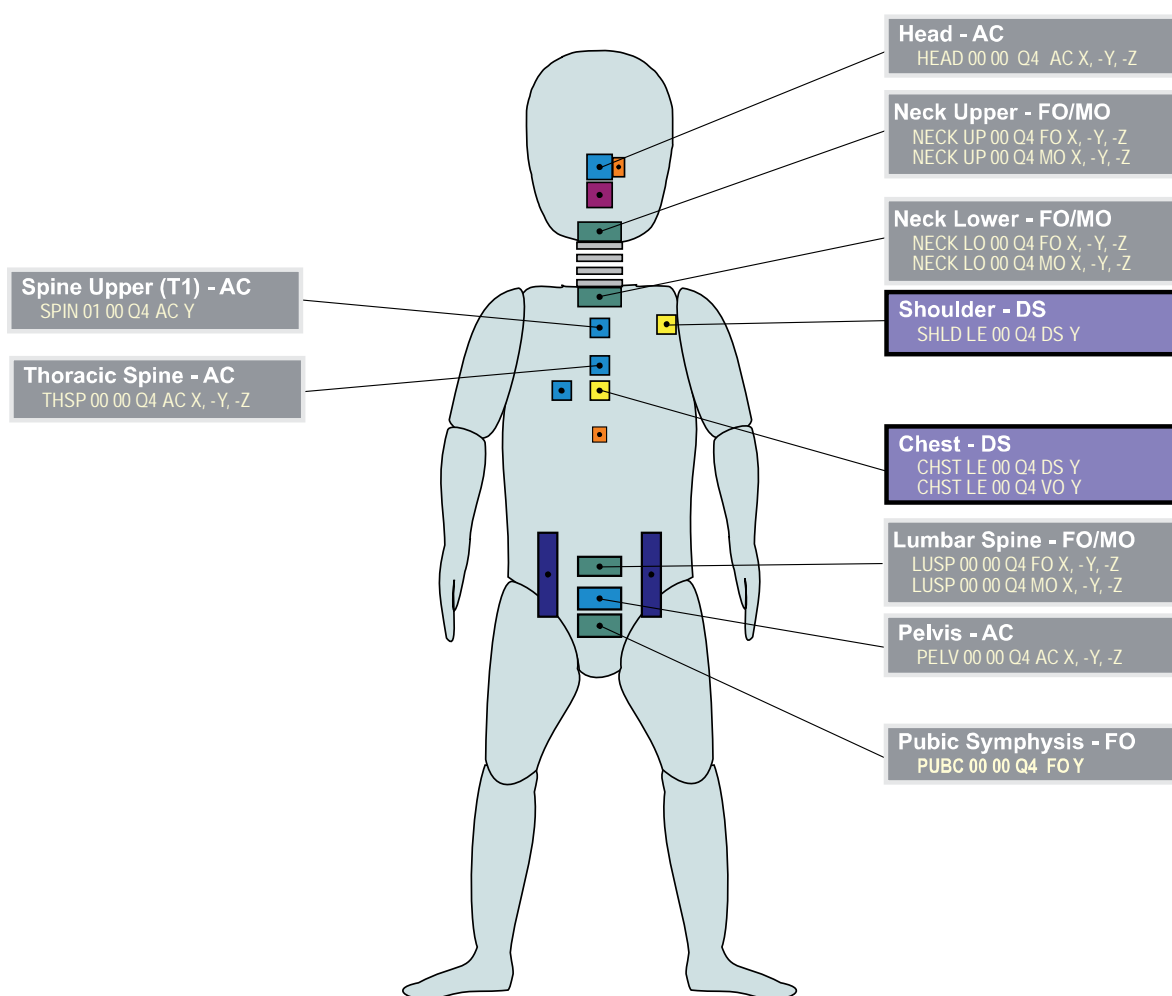


ISO/TS 13499 – RED C : 2012(E)

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.

ISO-Q4_20151125

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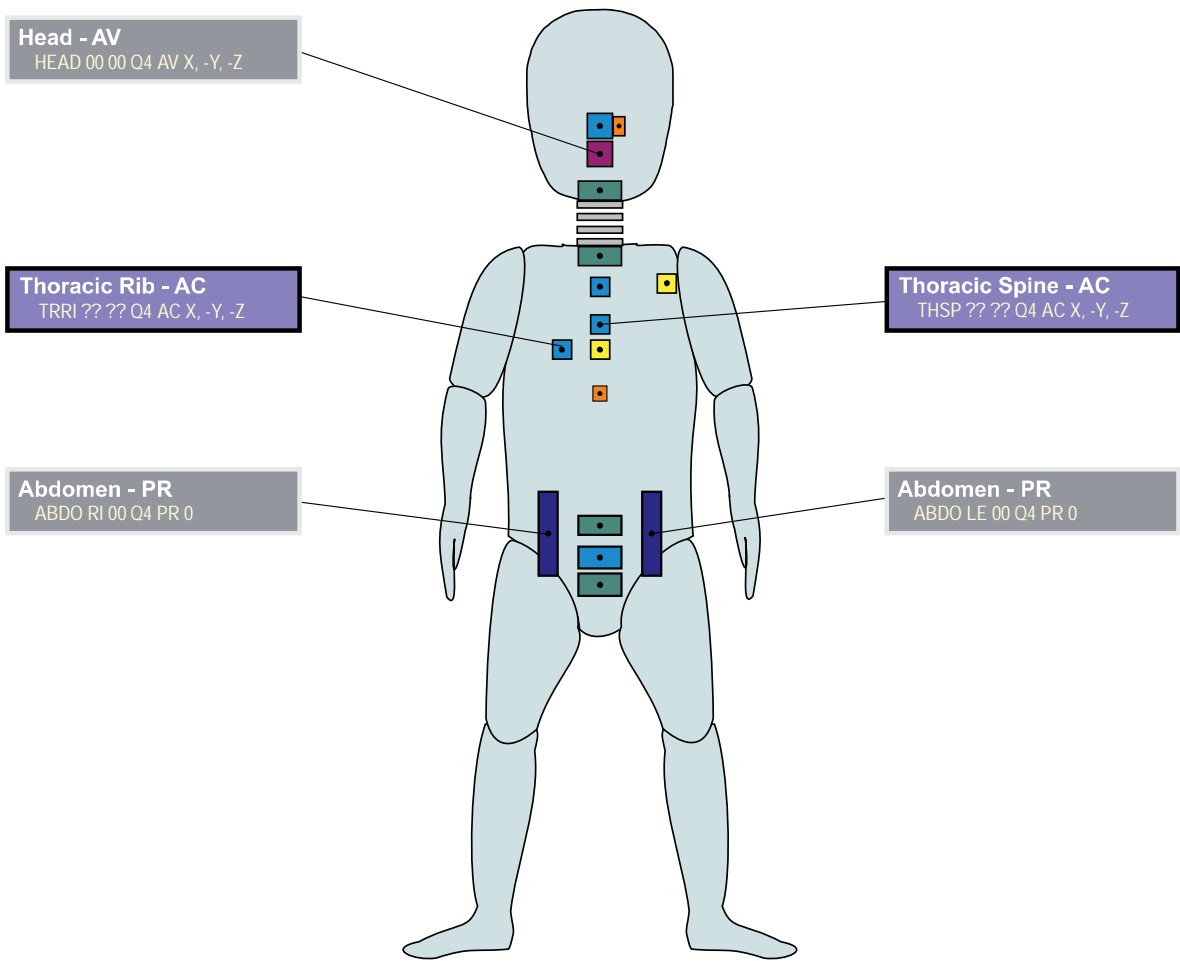
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.

ISO_Q4_1_162p1_20151125.EMF

-> Q3s <- 1 of 3



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



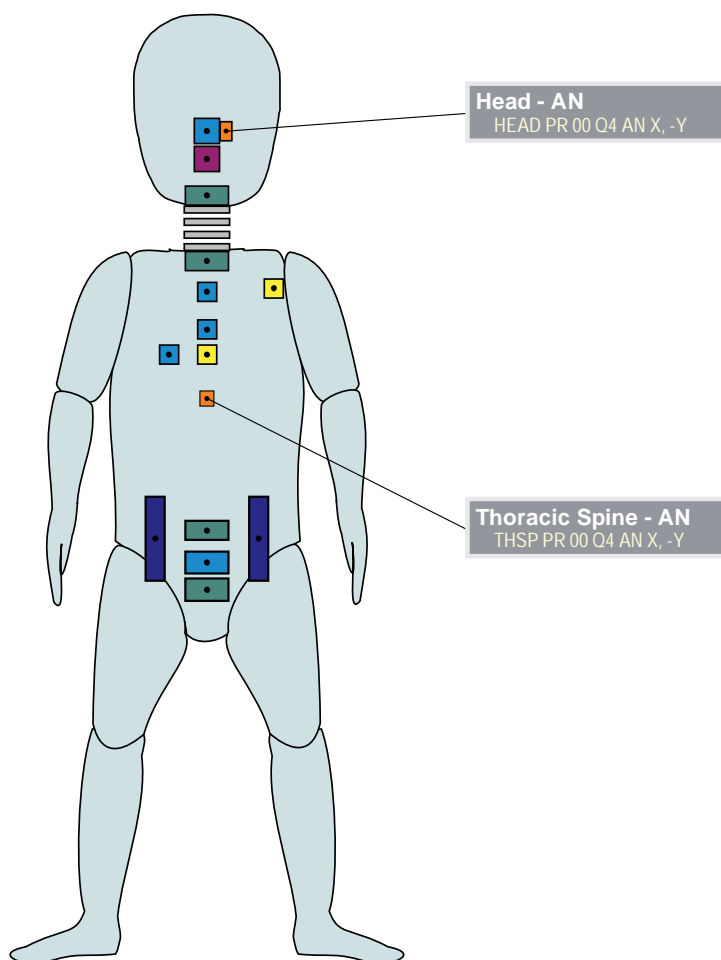
Note that sensor locations are not fixed: transducers are taped in position as required. ISO Codes used must reflect the chosen position. FL1 should reflect the side, LE or RI, for these channels, if used.


Q3s Q3s Side Impact (3)

Valid since Version 1.6.2.p1

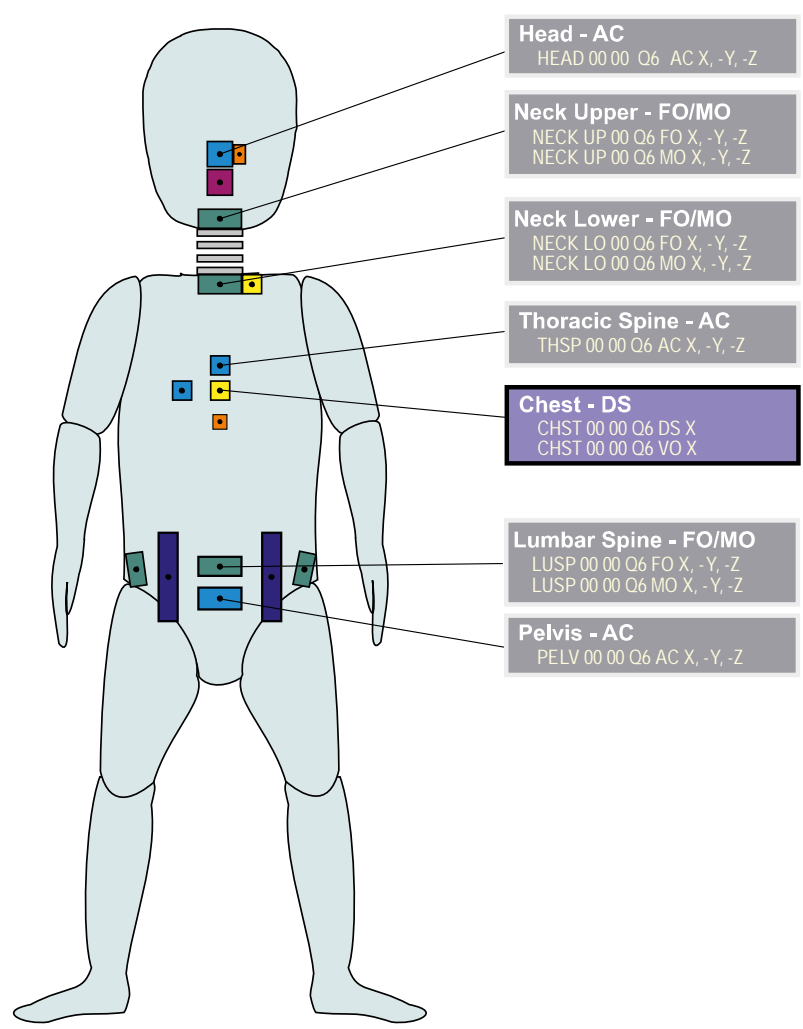


ISO/TS 13499 – RED C : 2012(E)
Q4, Advanced 3-year old child dummy: side impact (Q3s)
Static measurements, other channels
2015-11-25





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

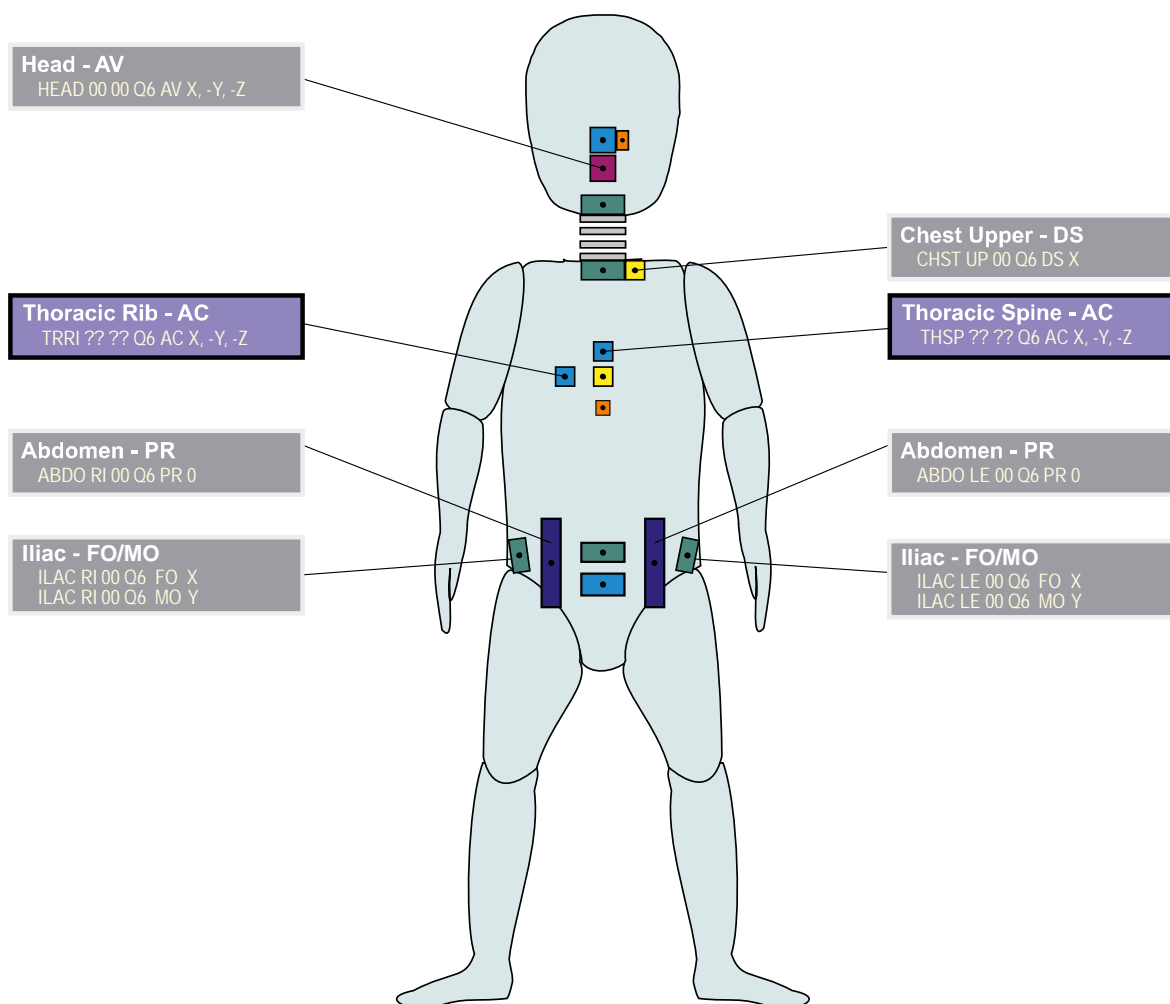
Q6 (2)

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.

ISO-Q6_20170405

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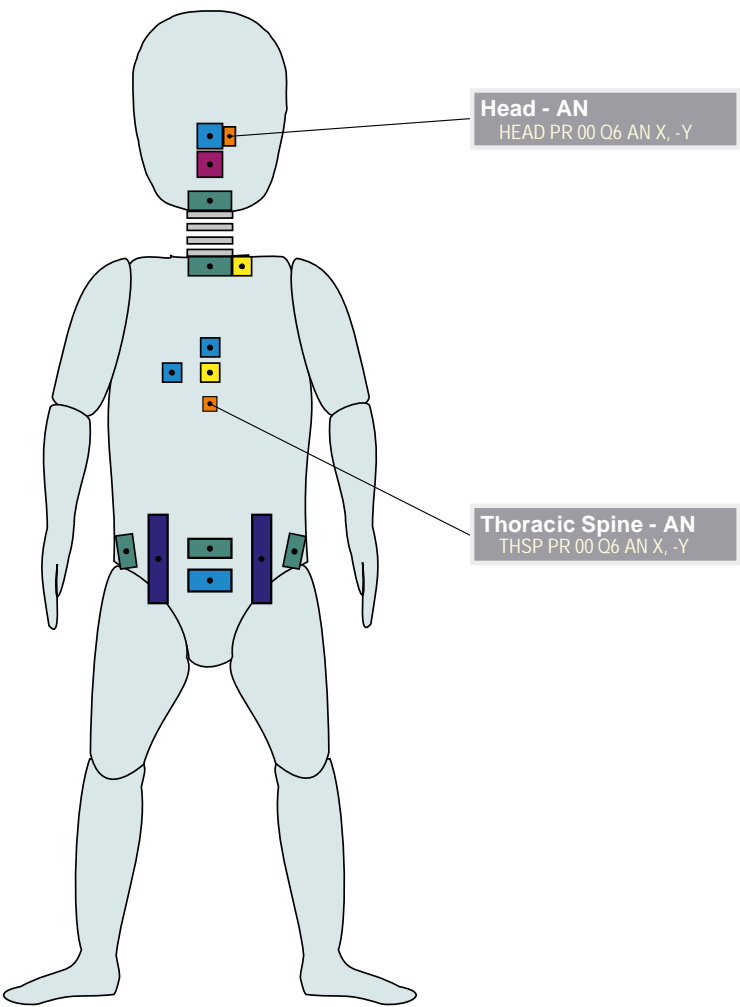
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.

ISO_Q6_2_162p2_20170405.EMF

-> Q6 <- 2 of 3



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

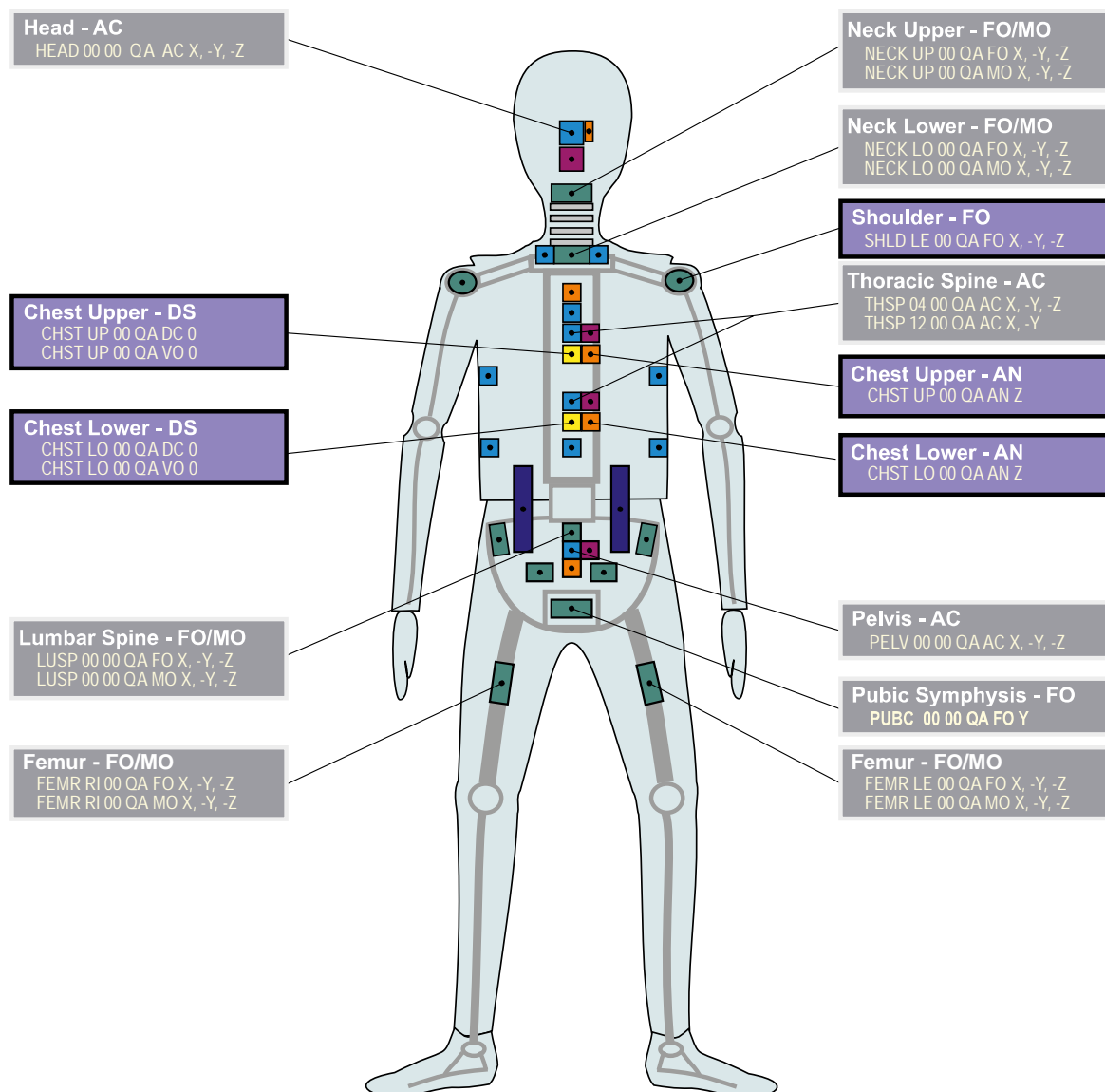
QA, Advanced 10-year old child dummy

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 QAAN Z and CHST LE LO QAAN 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 QAAN Z and CHST RI LO QAAN 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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ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellcome, HORIBA MIRA Ltd.
and Dirk Vetter, IAT mbH

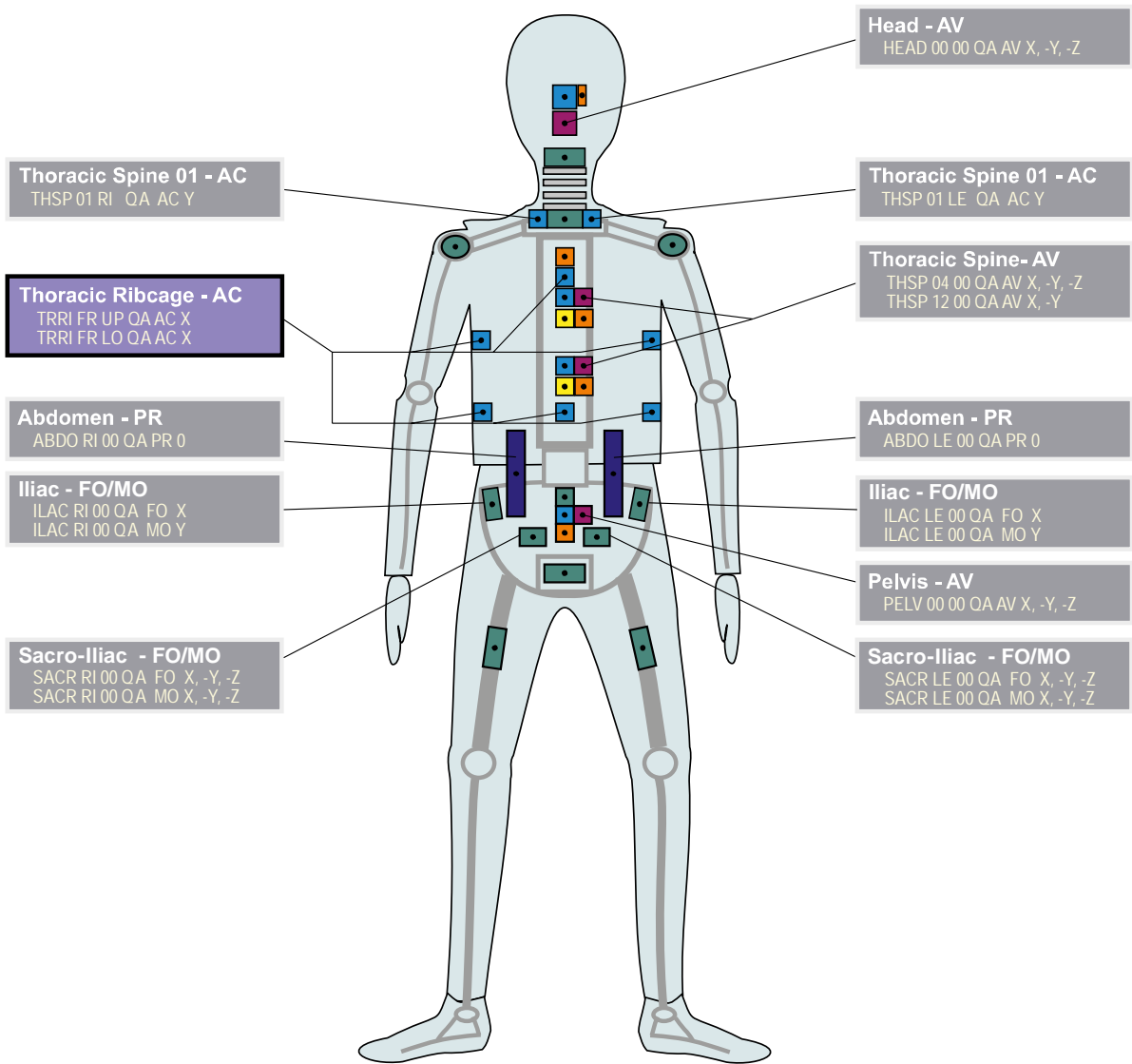
ISO_QA_1_162_20190718.EMF

-> Q10 <- 1 of 3



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

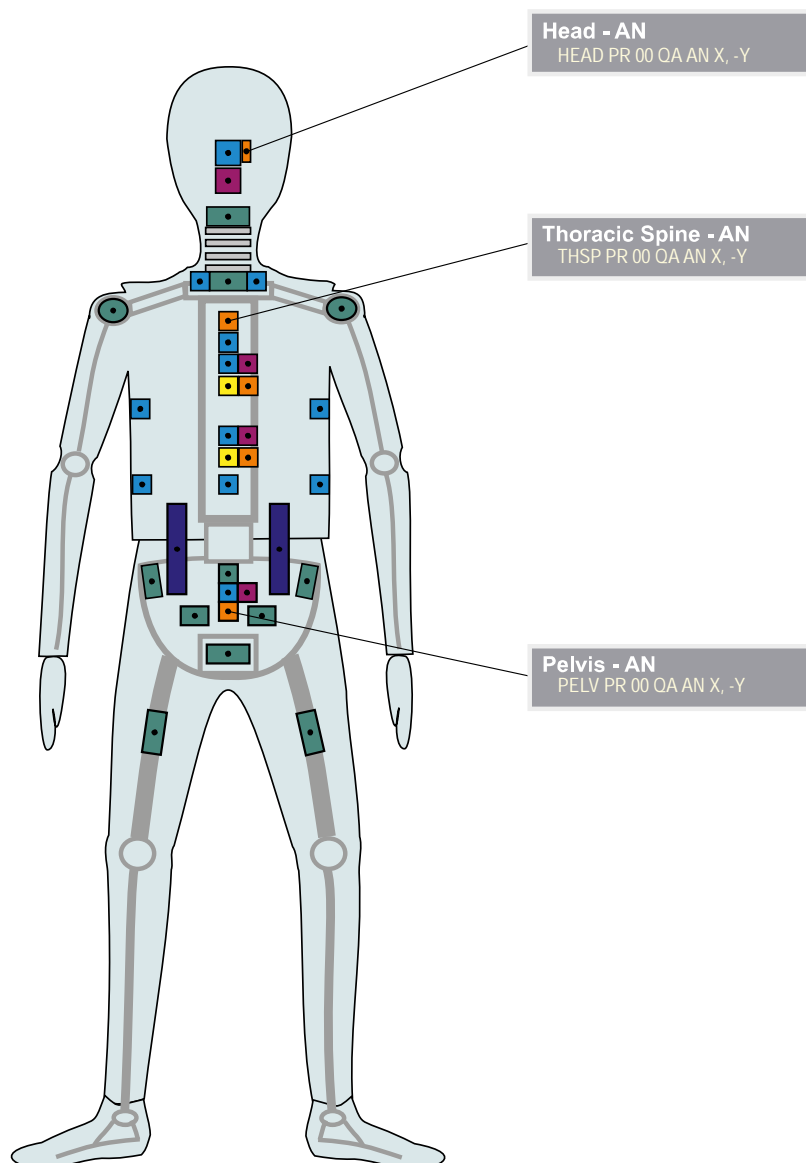
QA, Advanced 10-year old child dummy

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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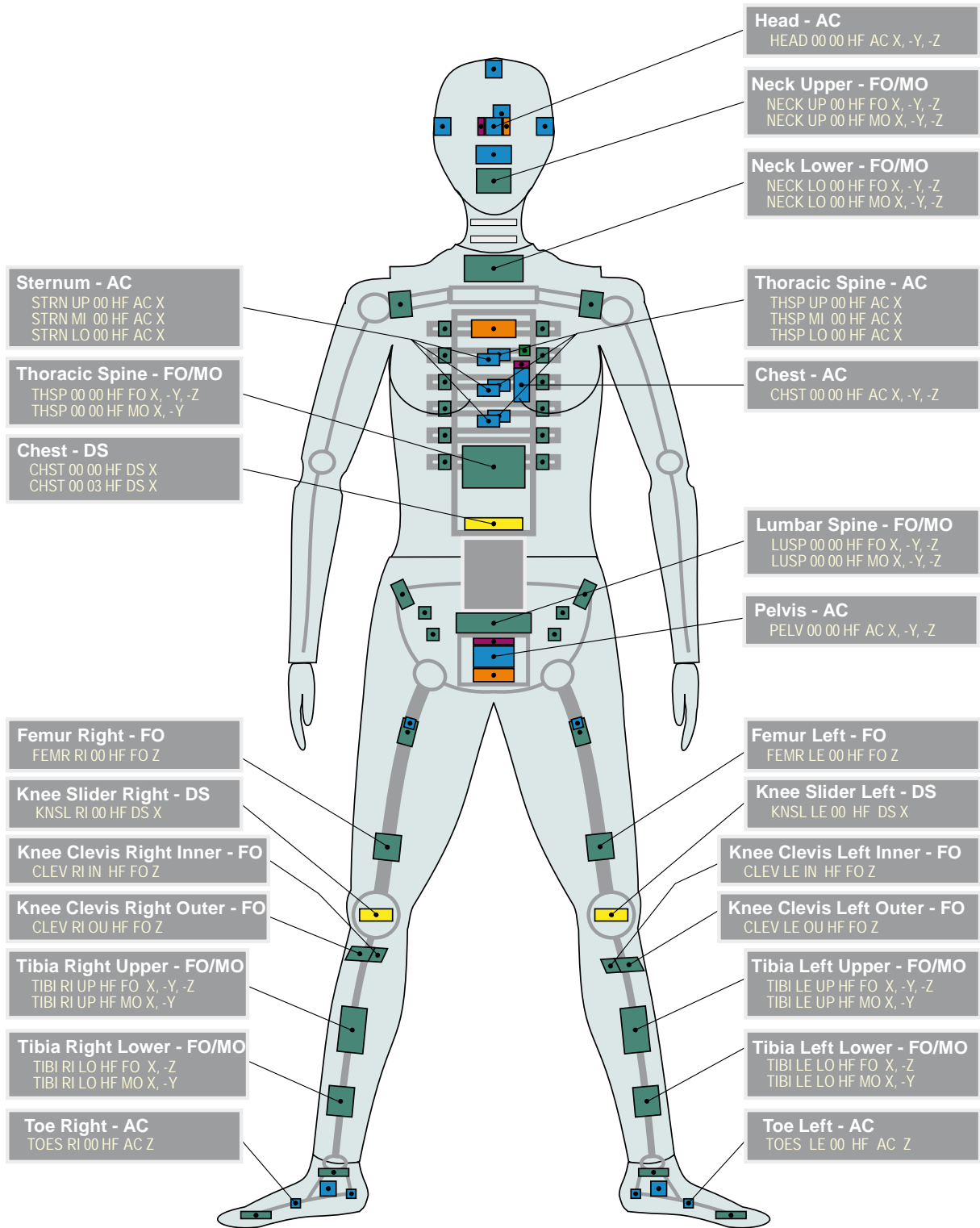
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellcome, HORIBA MIRA Ltd.
and Dirk Vetter, IAT mbH

ISO_QA_3_162_20190718.EMF

-> Q10 <- 3 of 3



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

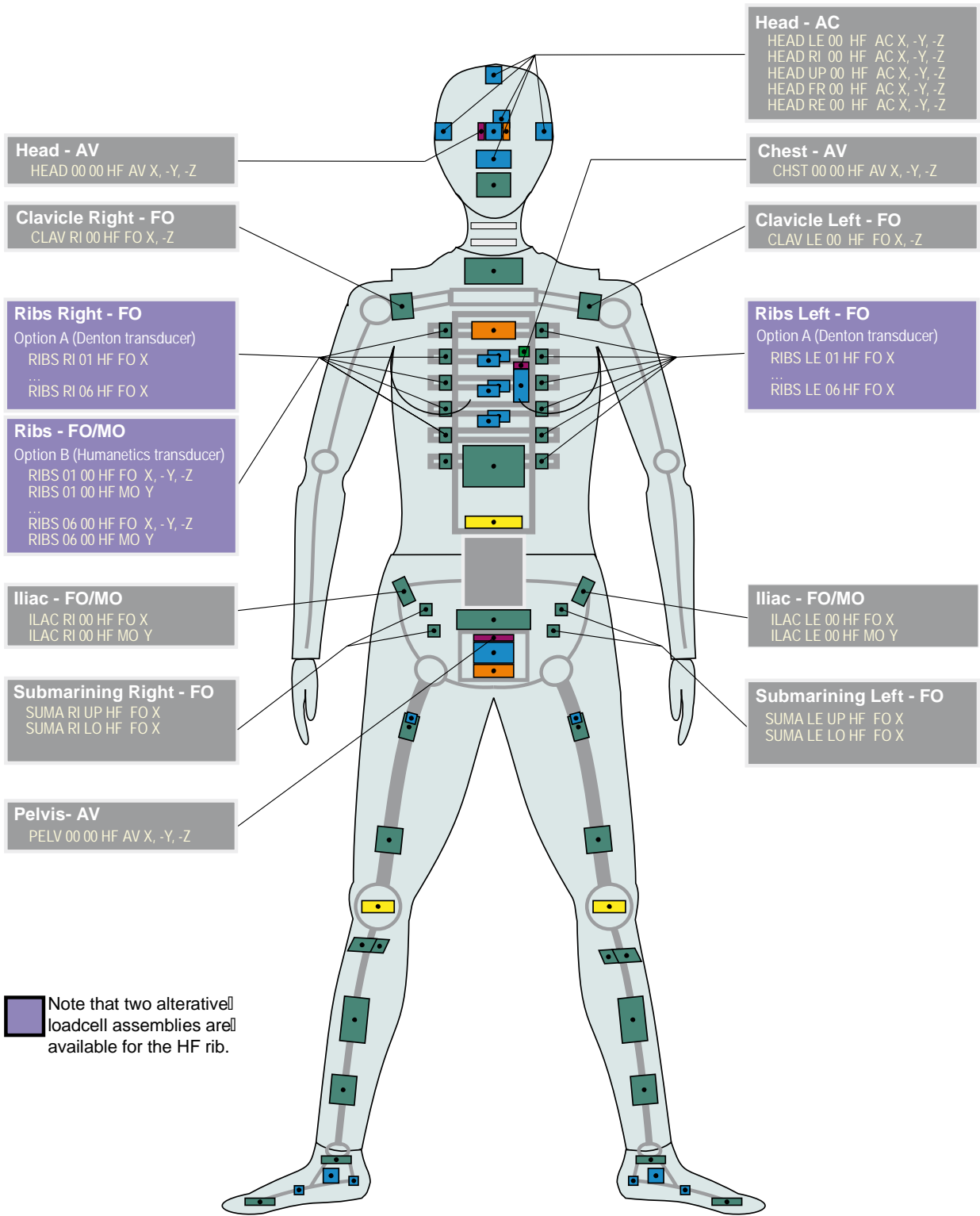


HF Hybrid III 5% Female (2)

Valid since Version 1.6.1



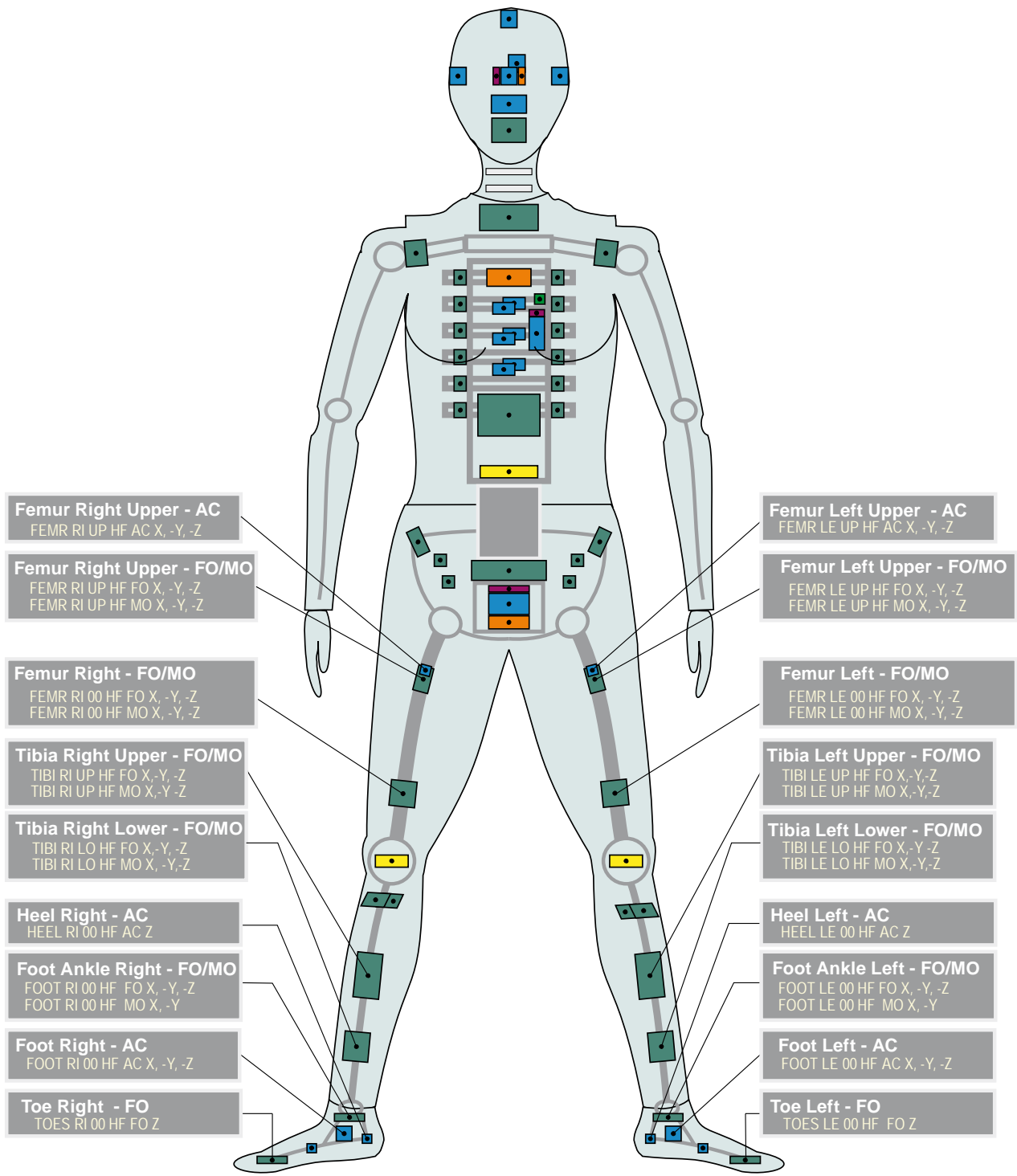
ISO/TS 13499 – RED C : 2012(E)
HF, Hybrid III 5% female
Additional Instrumentation - Head, Torso and Pelvis
2013-04-10



ISO-HF_20130410



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



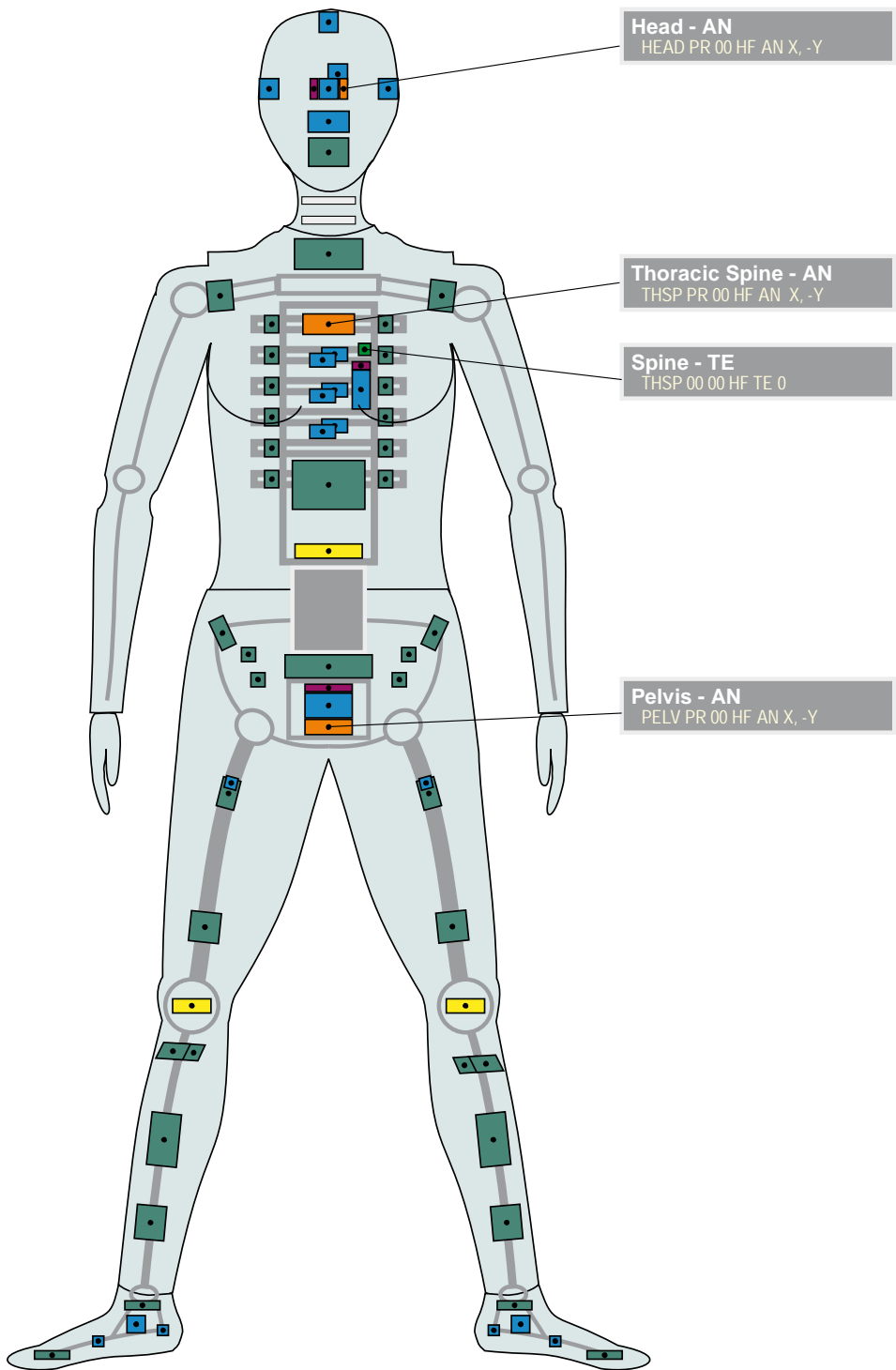
ISO-HF_20130410

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

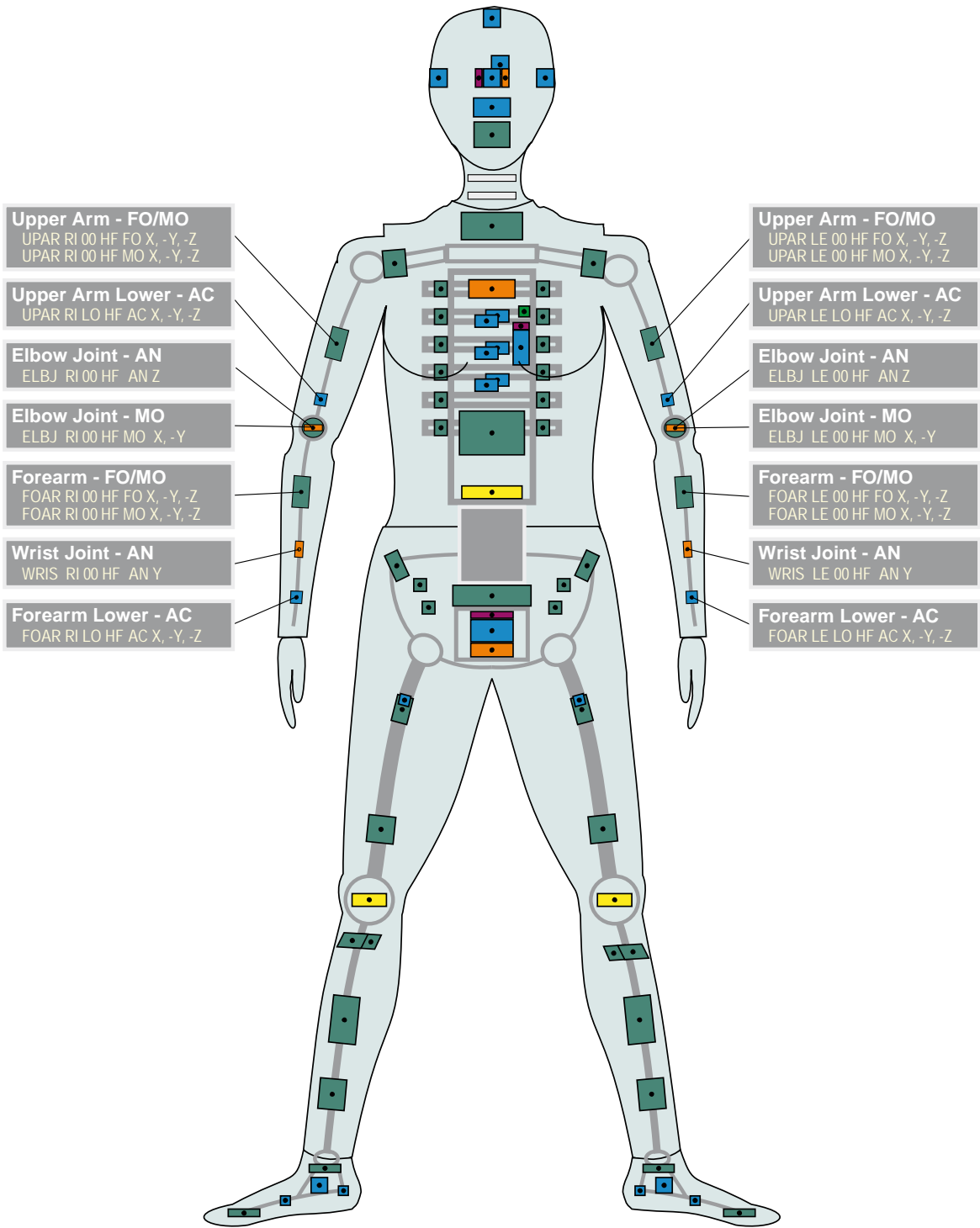


ISO-HF_20130410

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



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



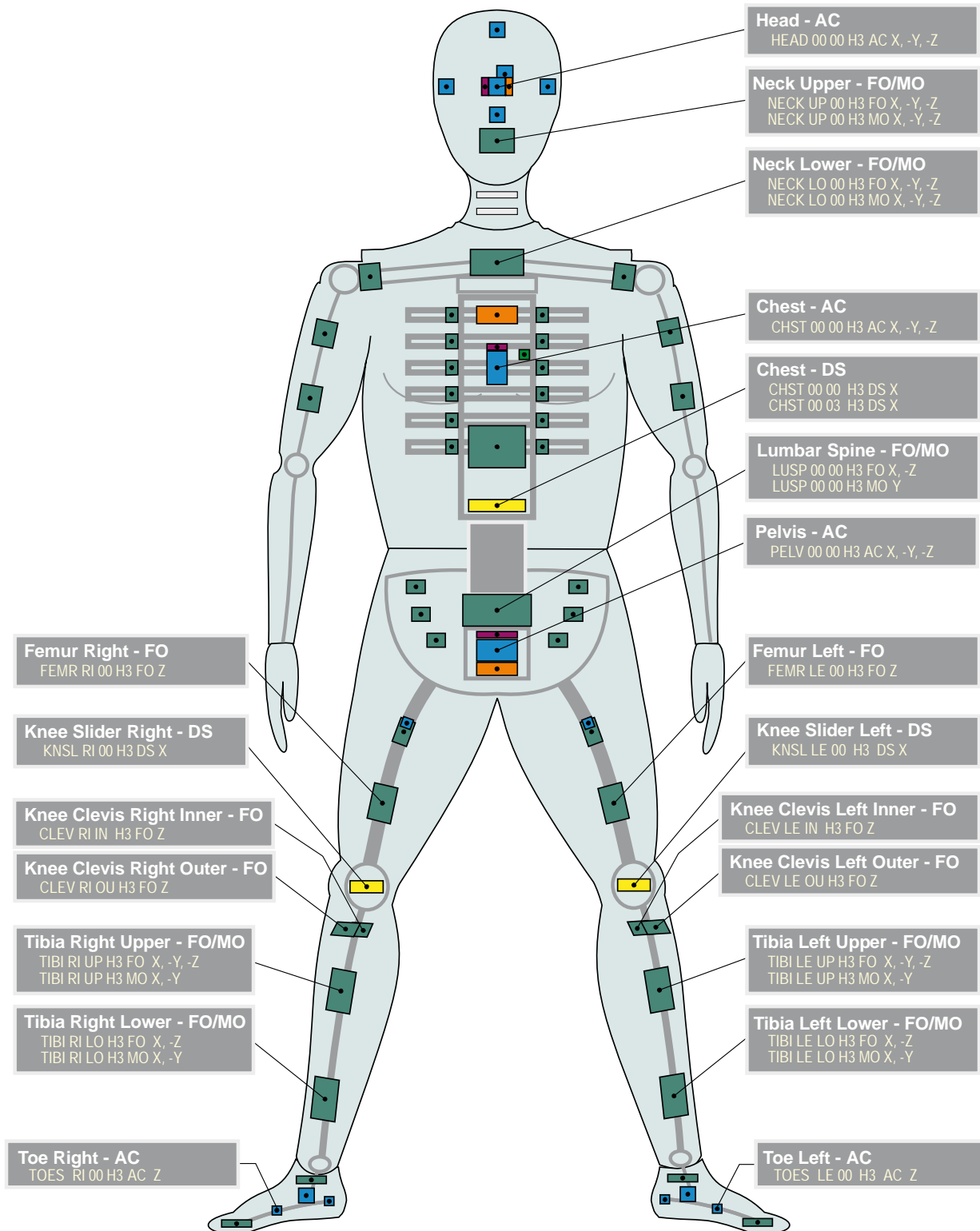
H3 Hybrid III 50% Male (1)

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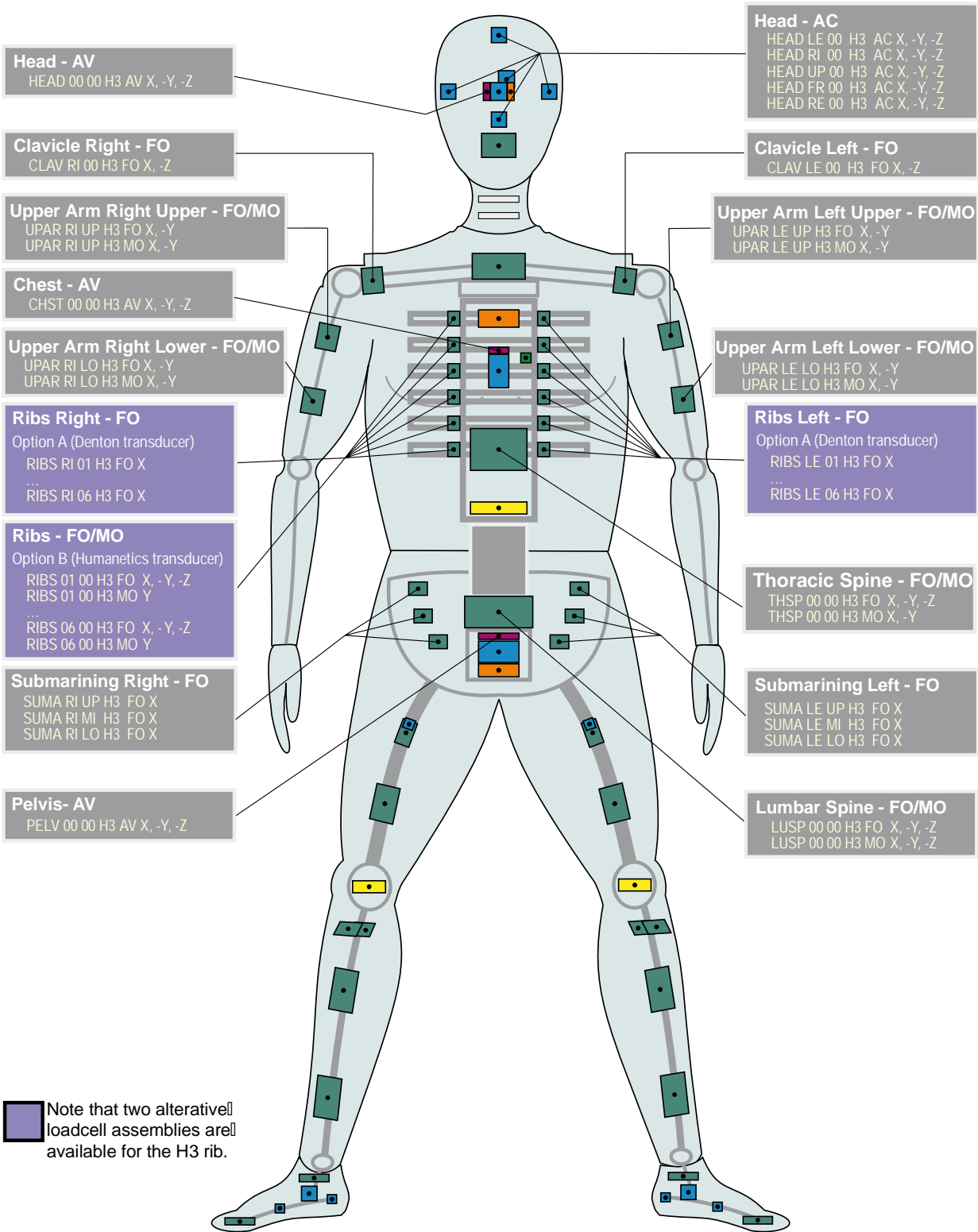
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellcome, MIRA Ltd.

ISO_H3_1_161_20130410.EMF

-> H3 <- 1 of 4



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



ISO-H3_20130410

H3 Hybrid III 50% Male (3)

Valid since Version

1.6.1

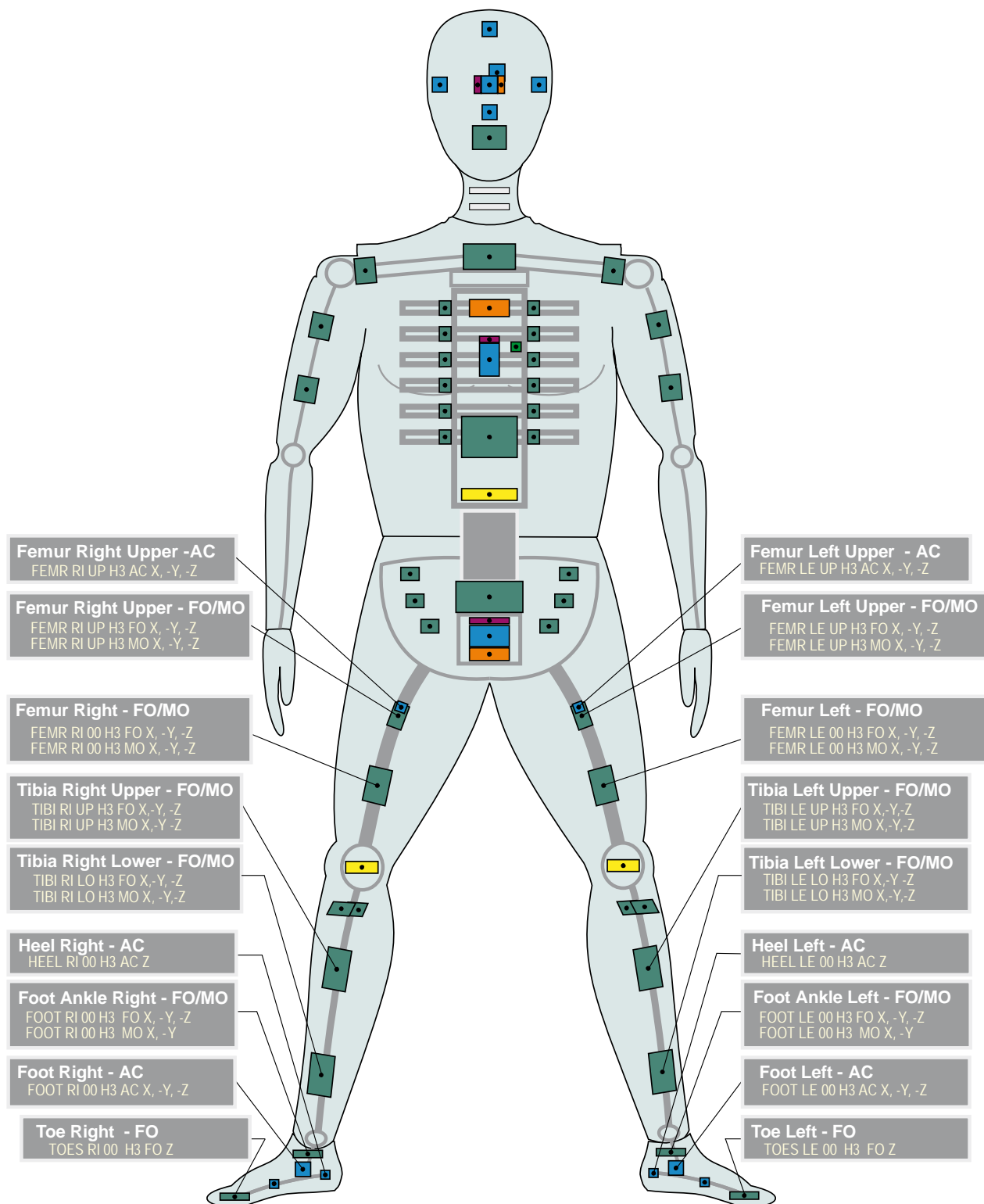


ISO/TS 13499 – RED C : 2012

H3, Hybrid III 50% male

Additional Instrumentation - Legs

2013-04-10



ISO-H3_20130410

Page 3 of 4

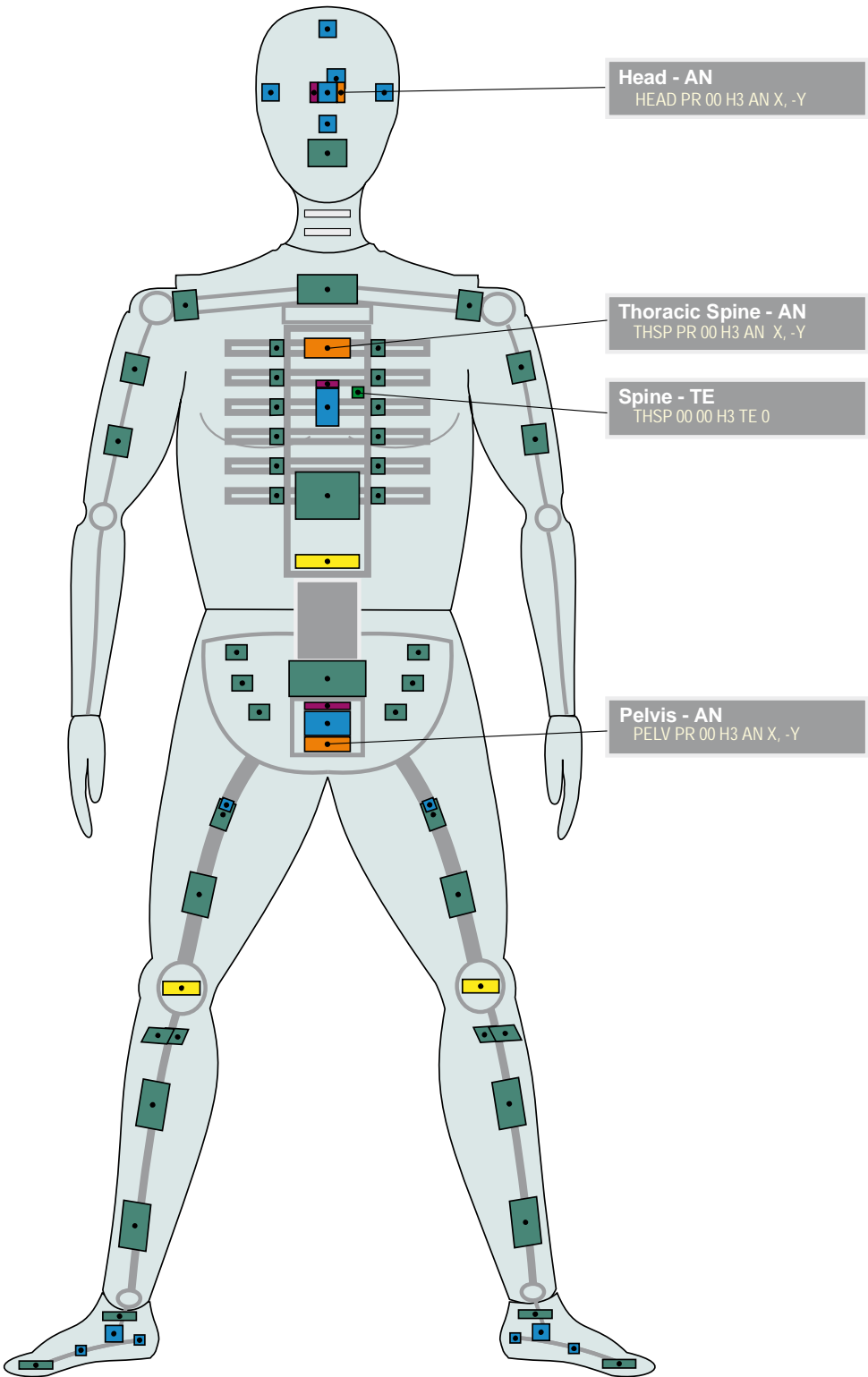
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_H3_3_161_20130410.EMF

-> H3 <- 3 of 4



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



ISO-H3_20130410

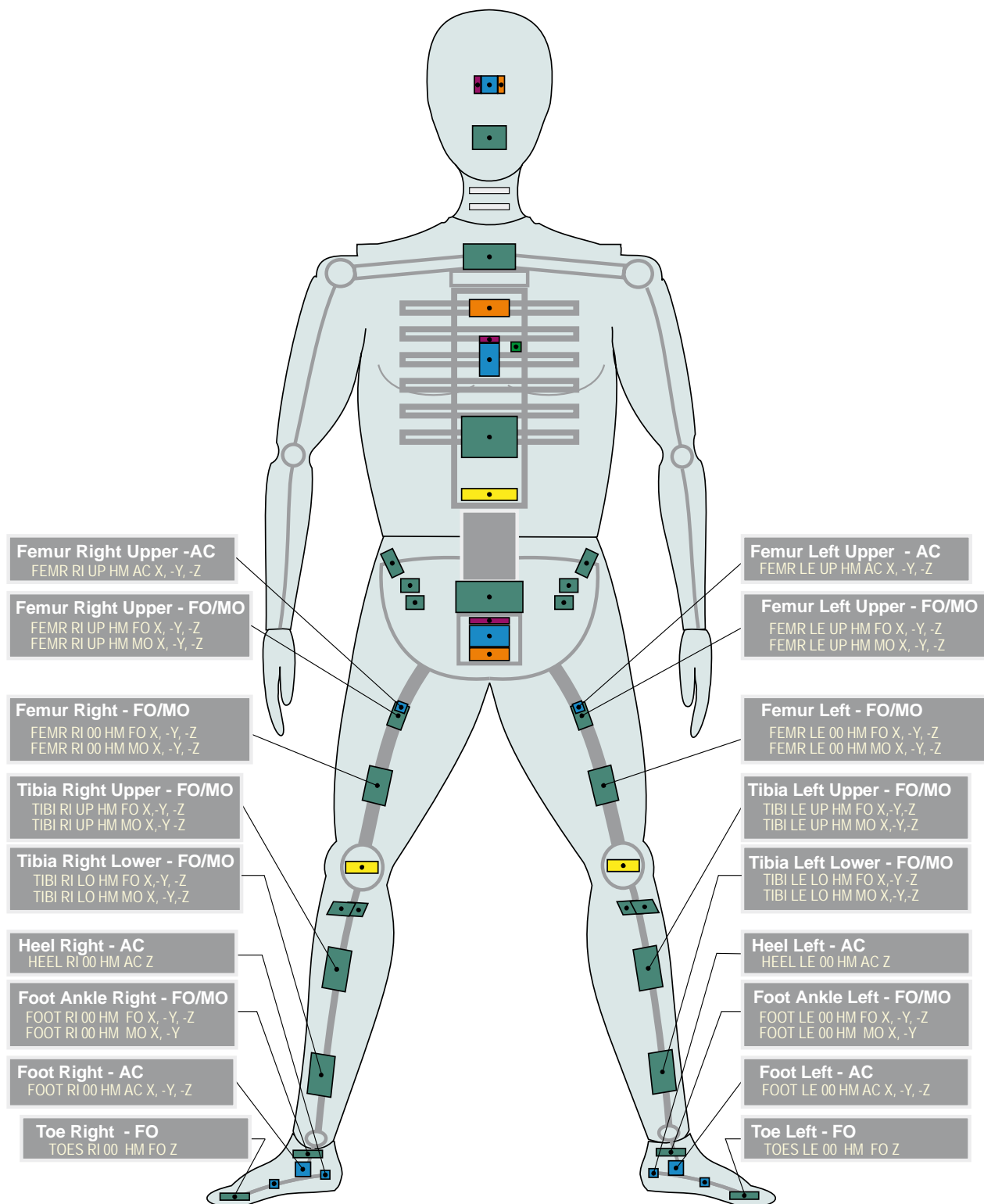
HM Hybrid III 95% Male (3)

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

Page 3 of 4

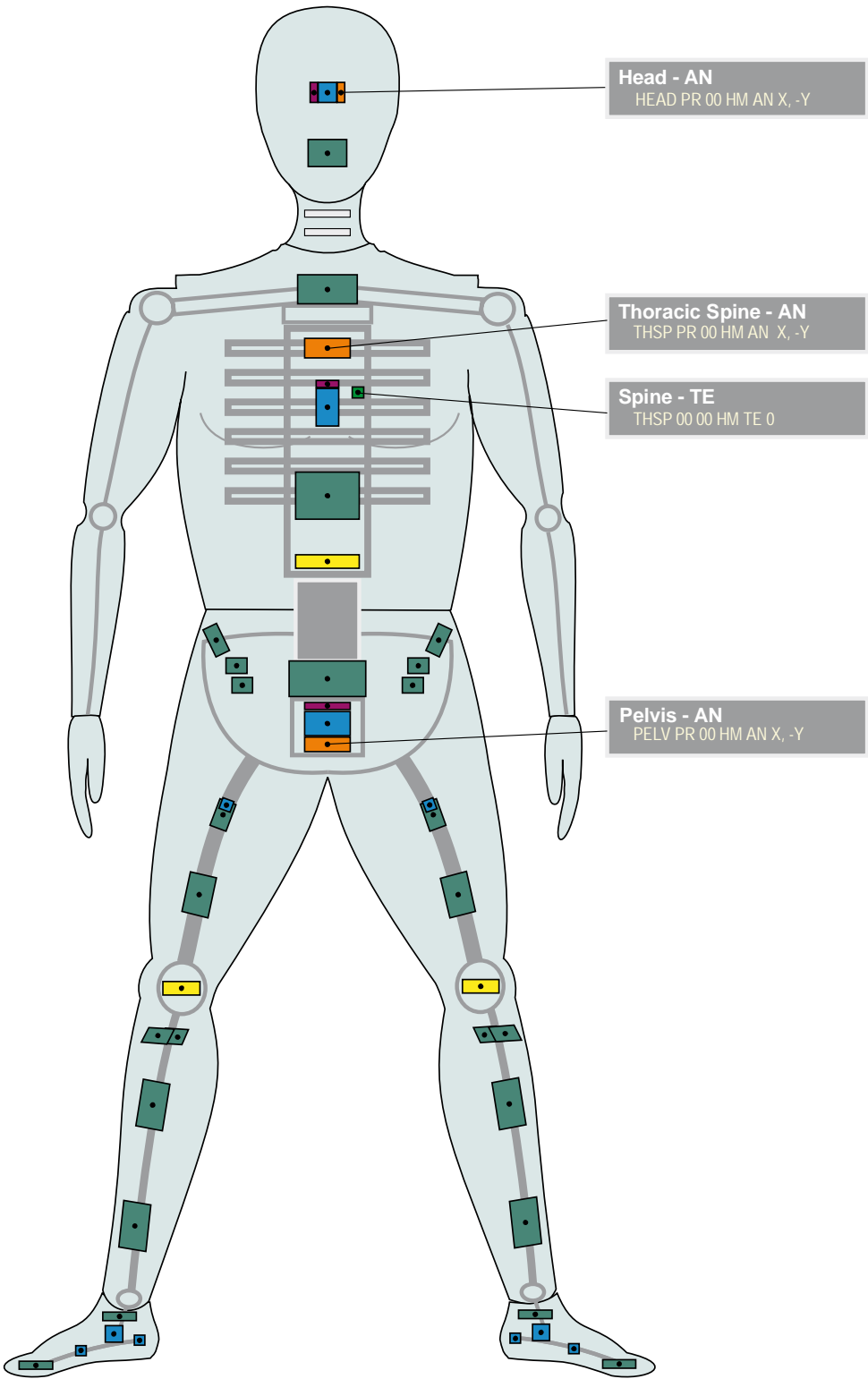
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
 Maintained by Paul Wellicome, MIRA Ltd.

ISO_HM_3_161_20130410.EMF

-> HM <- 3 of 4



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



ISO-HM_20130410

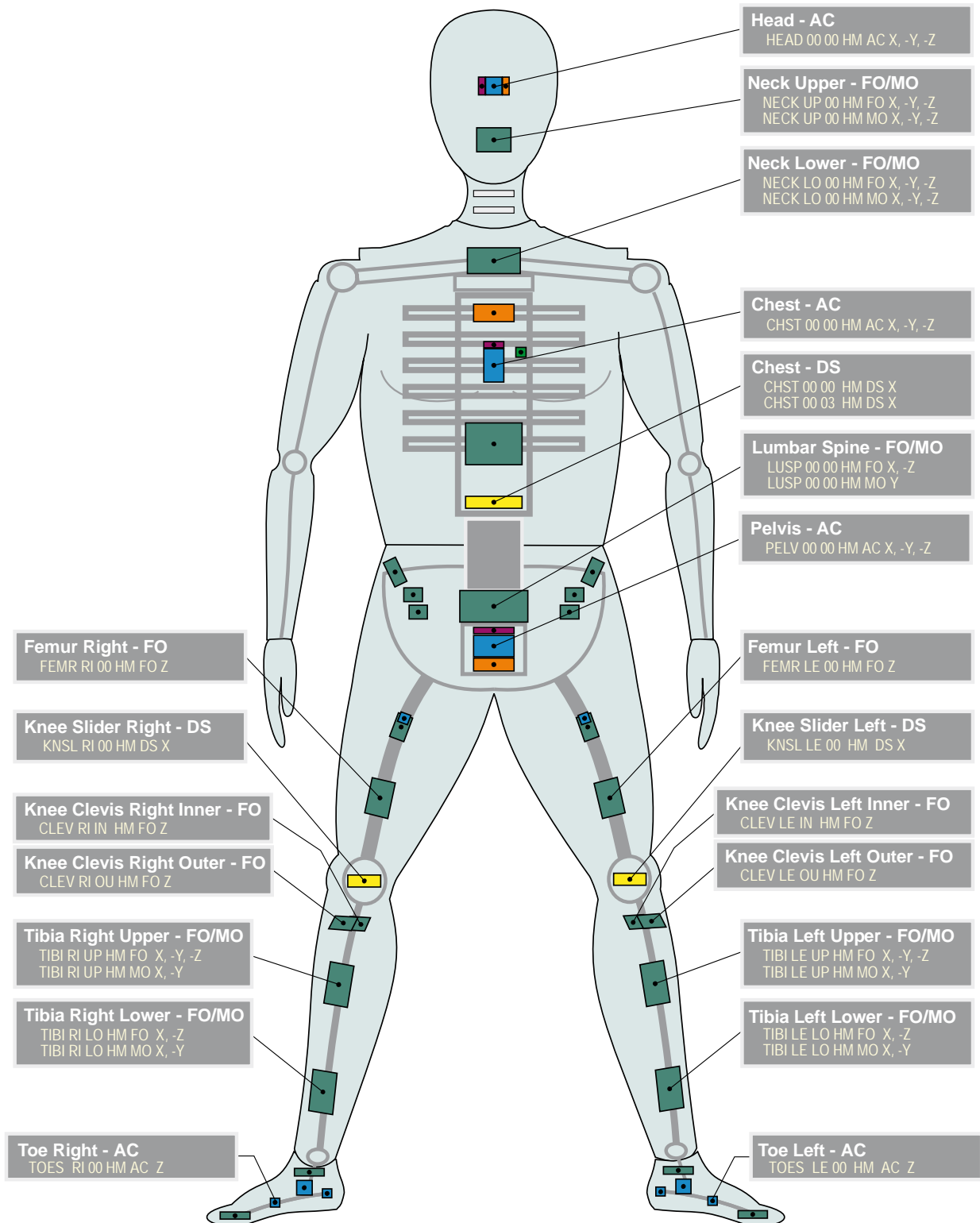
HM Hybrid III 95% Male (1)

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

Page 1 of 4

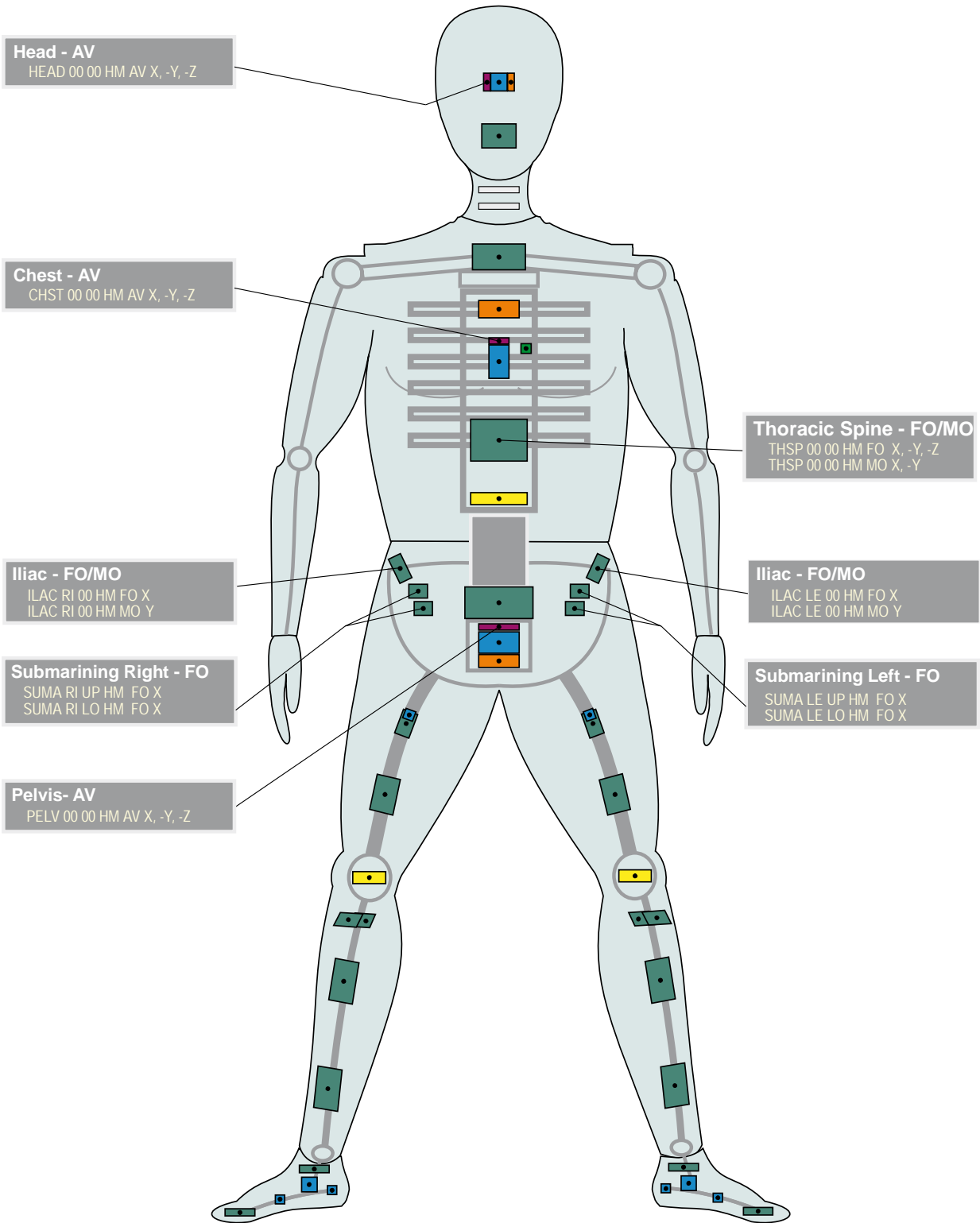
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellcome, MIRA Ltd.

ISO_HM_1_161_20130410.EMF

-> HM <- 1 of 4



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



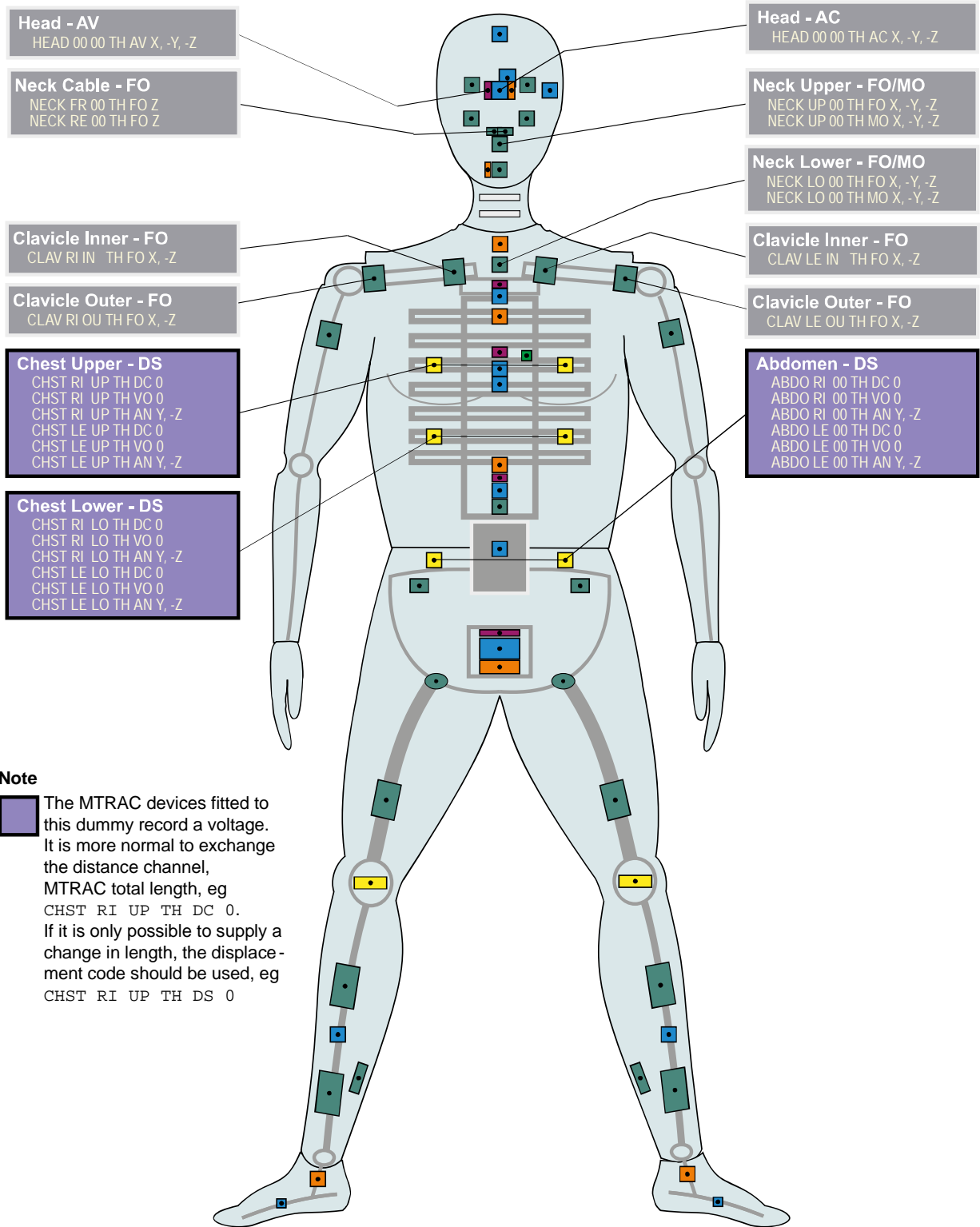
ISO-HM_20130410

TH THOR 50th (1)

Valid since Version 1.6.2



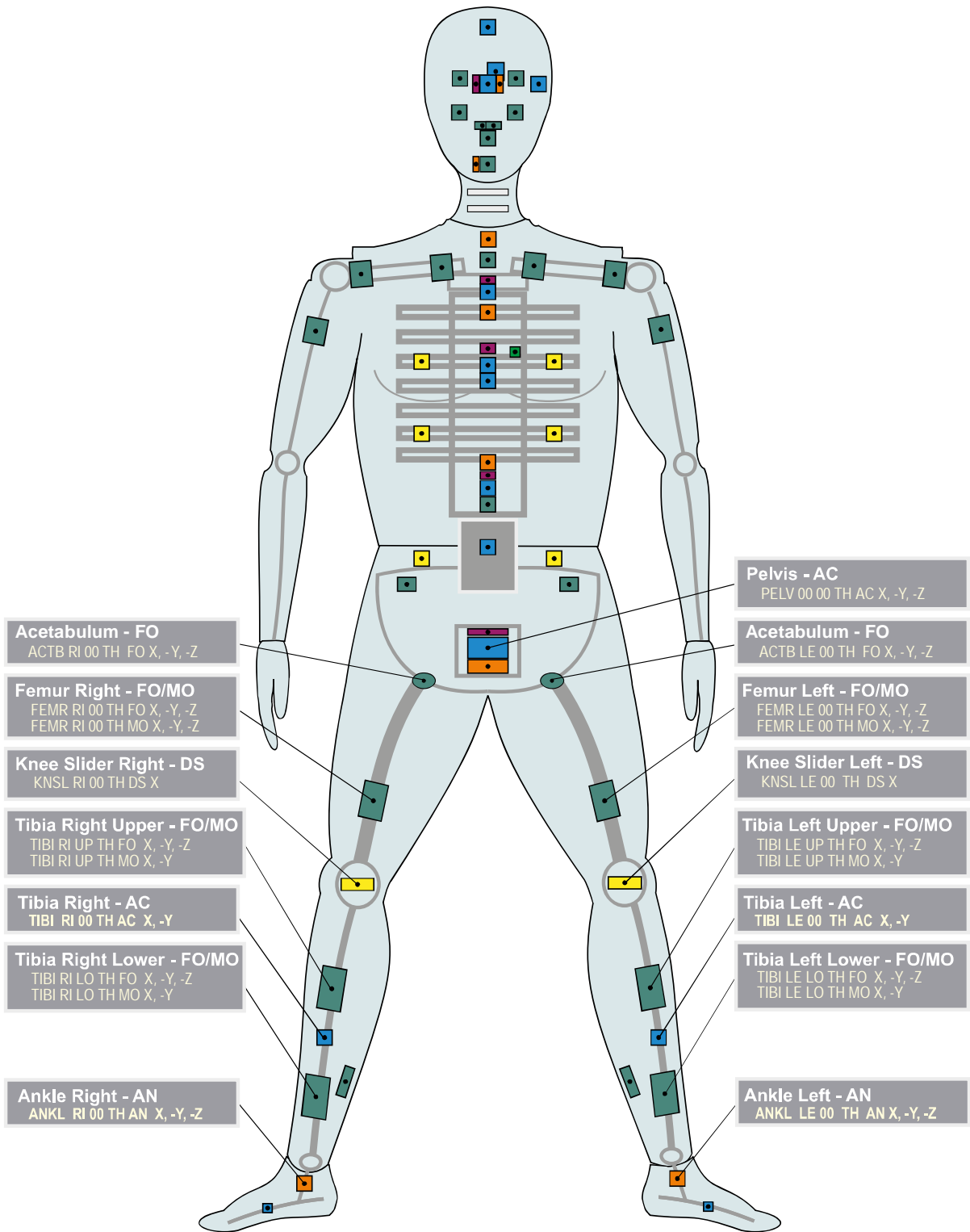
ISO/TS 13499 – RED C : 2020
TH, THOR 50% male
Standard Instrumentation: Upper Body
2020-06-17



ISO-TH_20200617



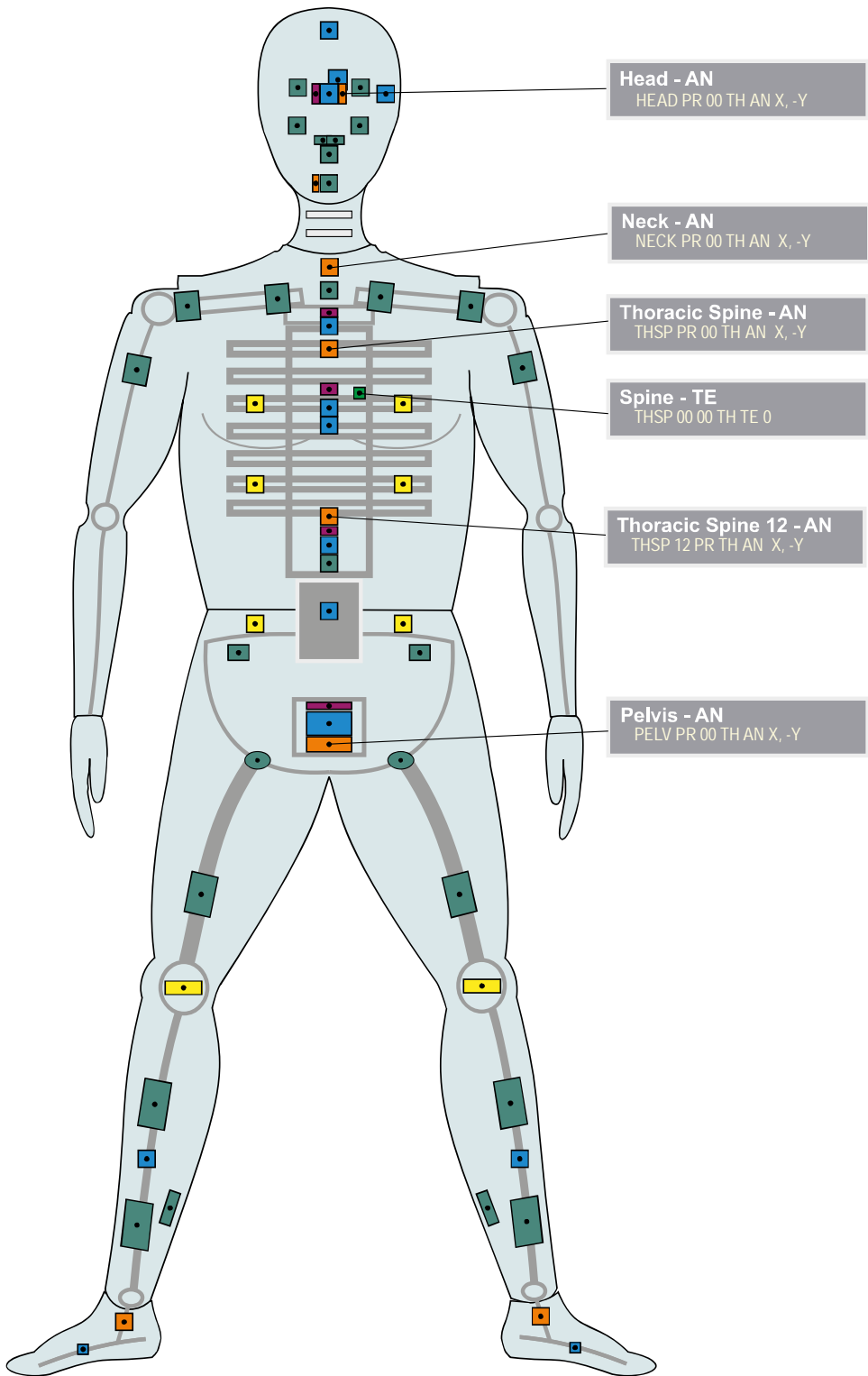
ISO/TS 13499 – RED C : 2020
TH, THOR 50% male
Standard Instrumentation: Lower Body
2020-06-17



ISO-TH_20200617



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

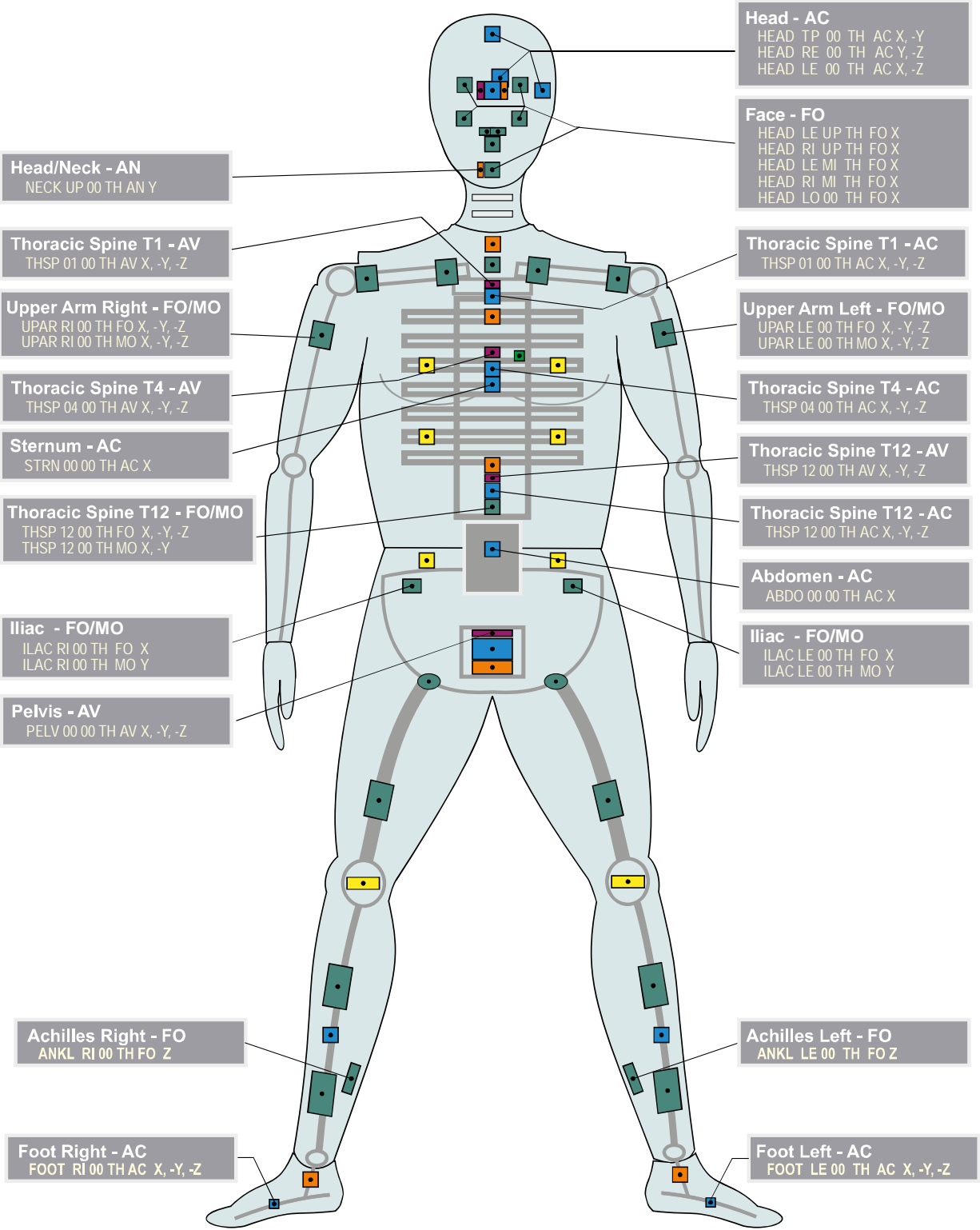


ISO-TH_20200617

ISO TC 22 / SC 36 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.
and Dirk Vetter, IAT mbH



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



ISO-TH_20200617

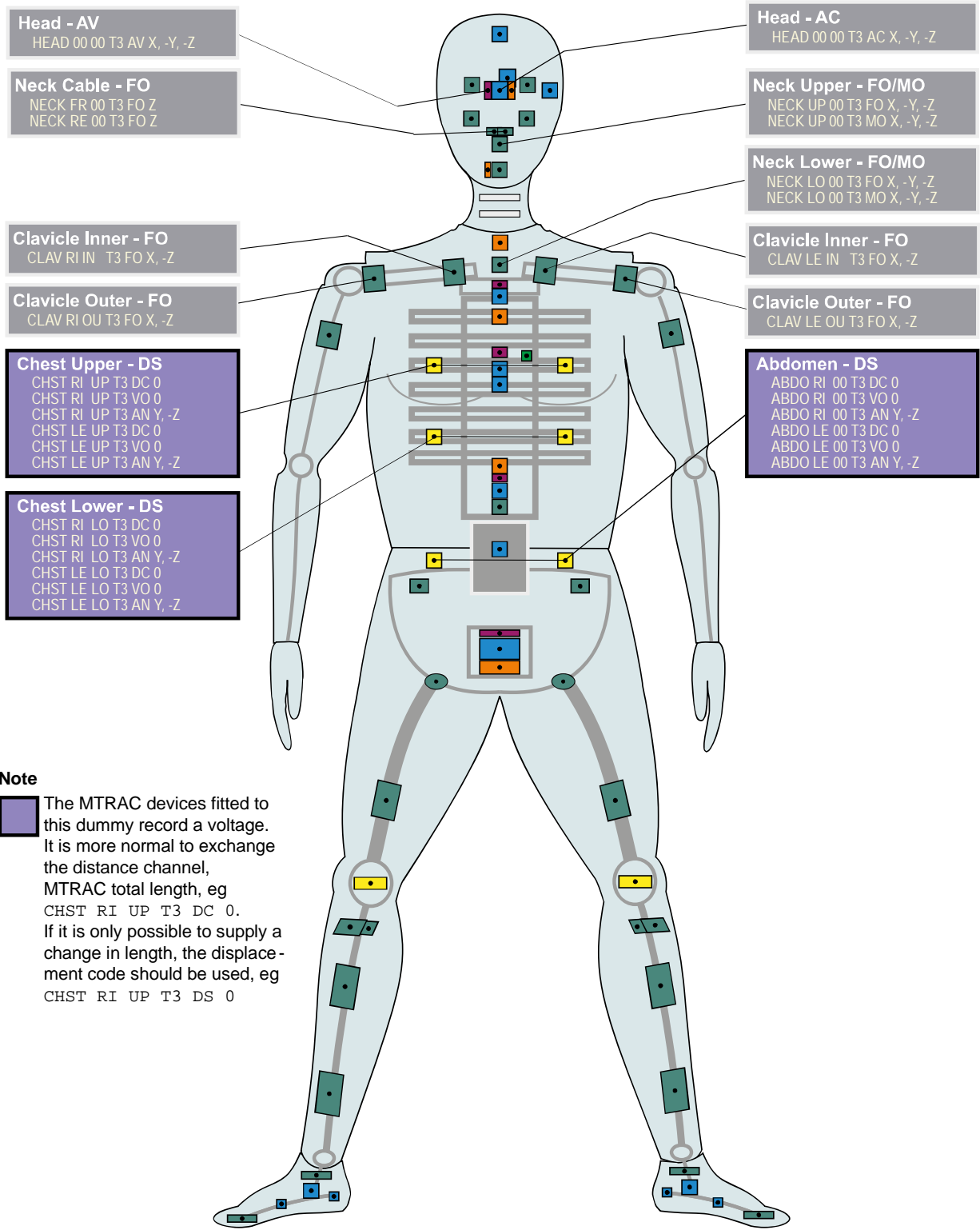
T3 THOR with H3 Legs (1)

Valid since Version

1.6.2



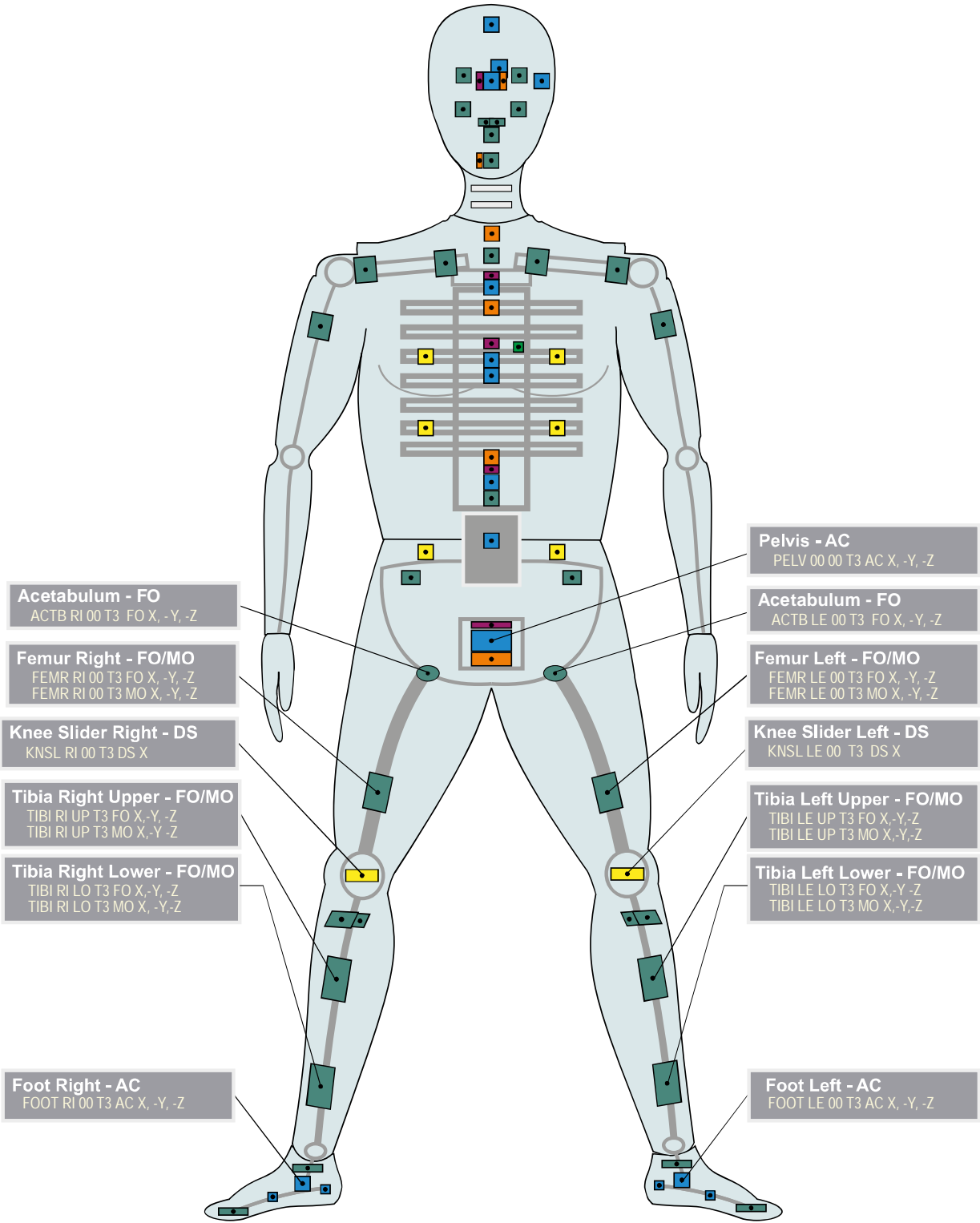
ISO/TS 13499 – RED C : 2020
T3, THOR 50% male + H3 50% Lower Legs
Standard Instrumentation: Upper Body
2020-06-17



ISO-T3_20200617



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



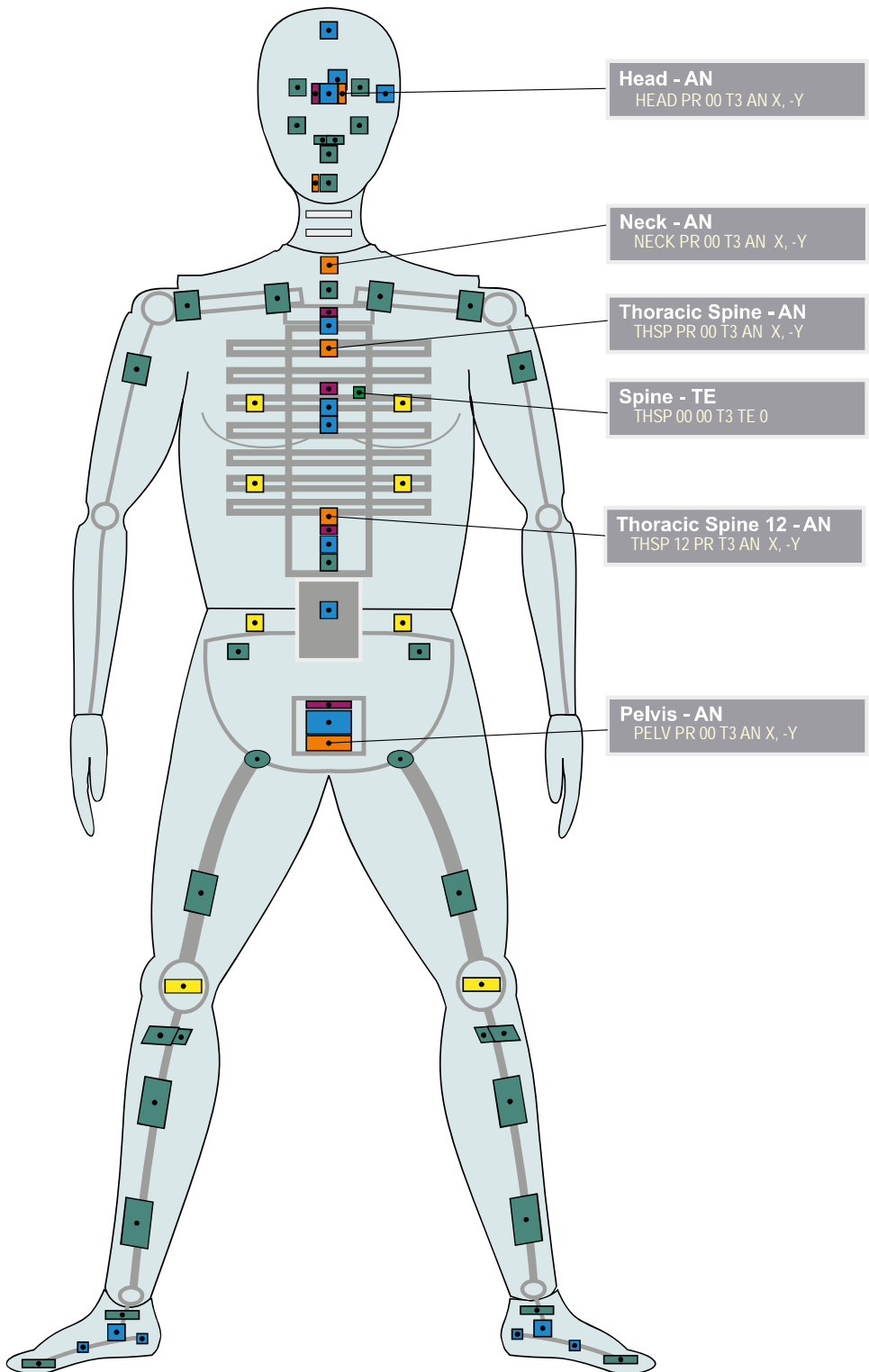
ISO-T3_20200617

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

ISO TC 22 / SC 36 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.
and Dirk Vetter, IAT mbH

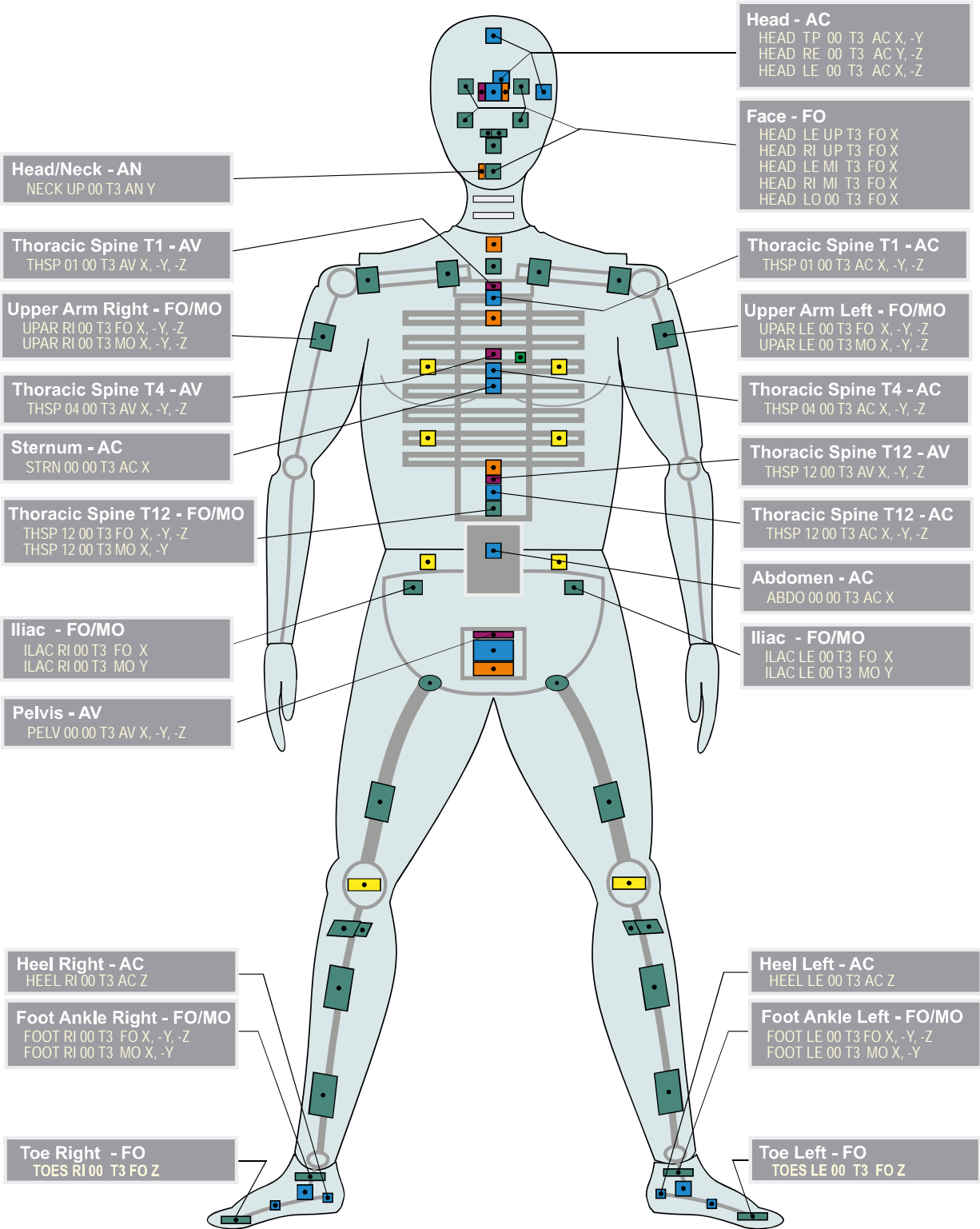
T3 THOR with H3 Legs (3)

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

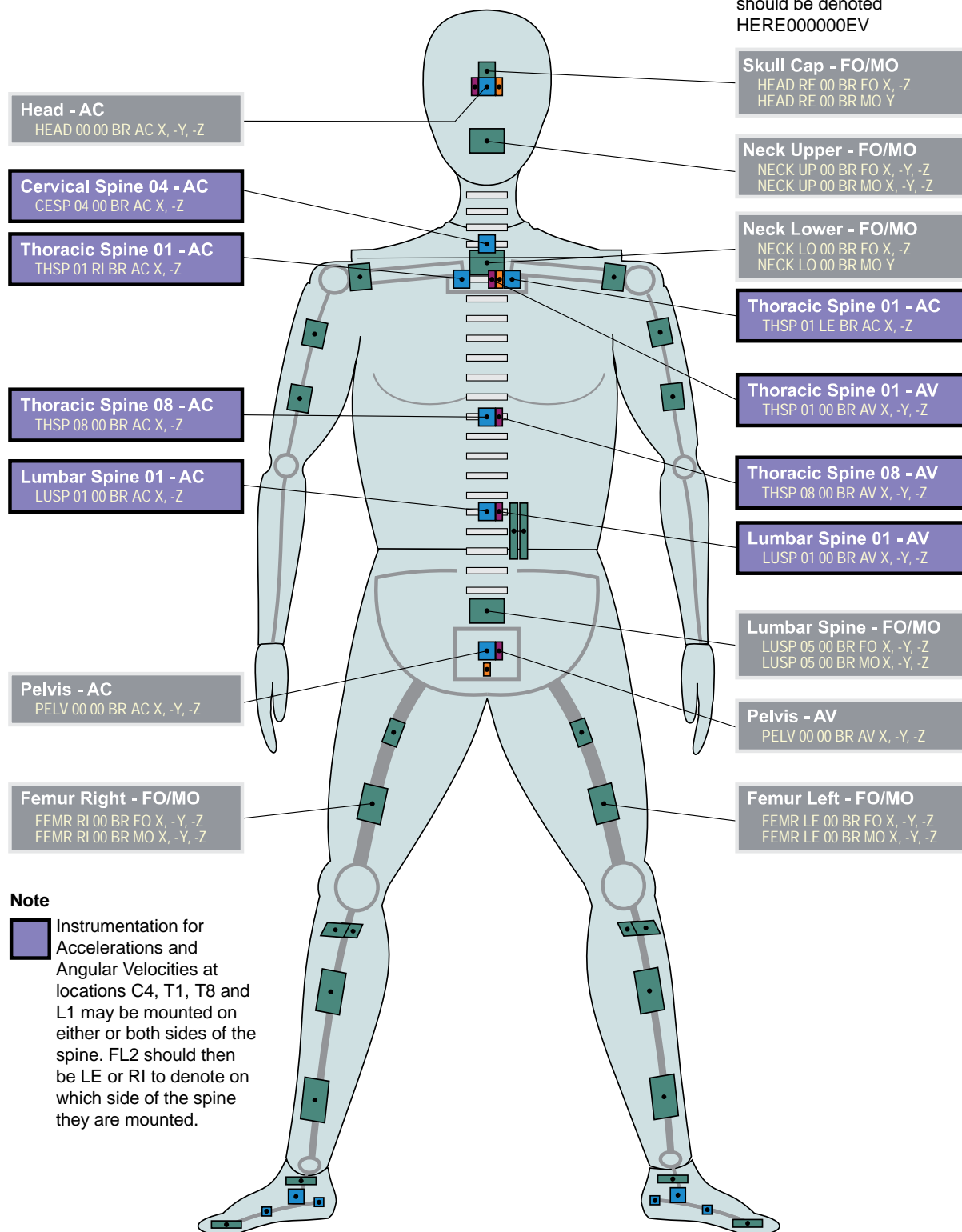
ISO TC 22 / SC 36 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, HORIBA MIRA Ltd.
and Dirk Vetter, IAT mbH



ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Standard Instrumentation
2021-07-07

Note

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



ISO-BR_20210707

Page 1 of 4

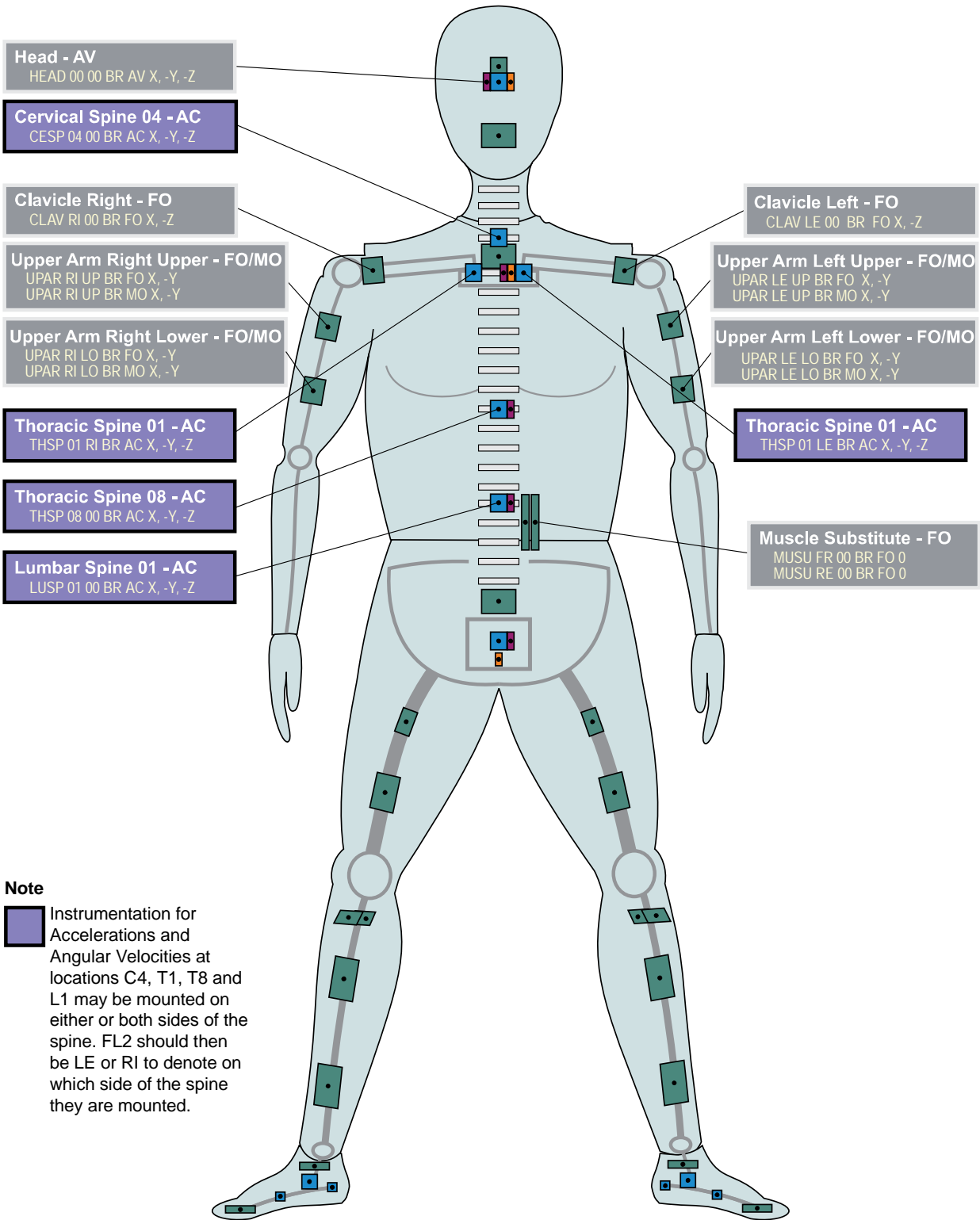
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Chad Ivan, DTS Inc.

ISO_BR_1_163_20210707.EMF

-> BR <- 1 of 4



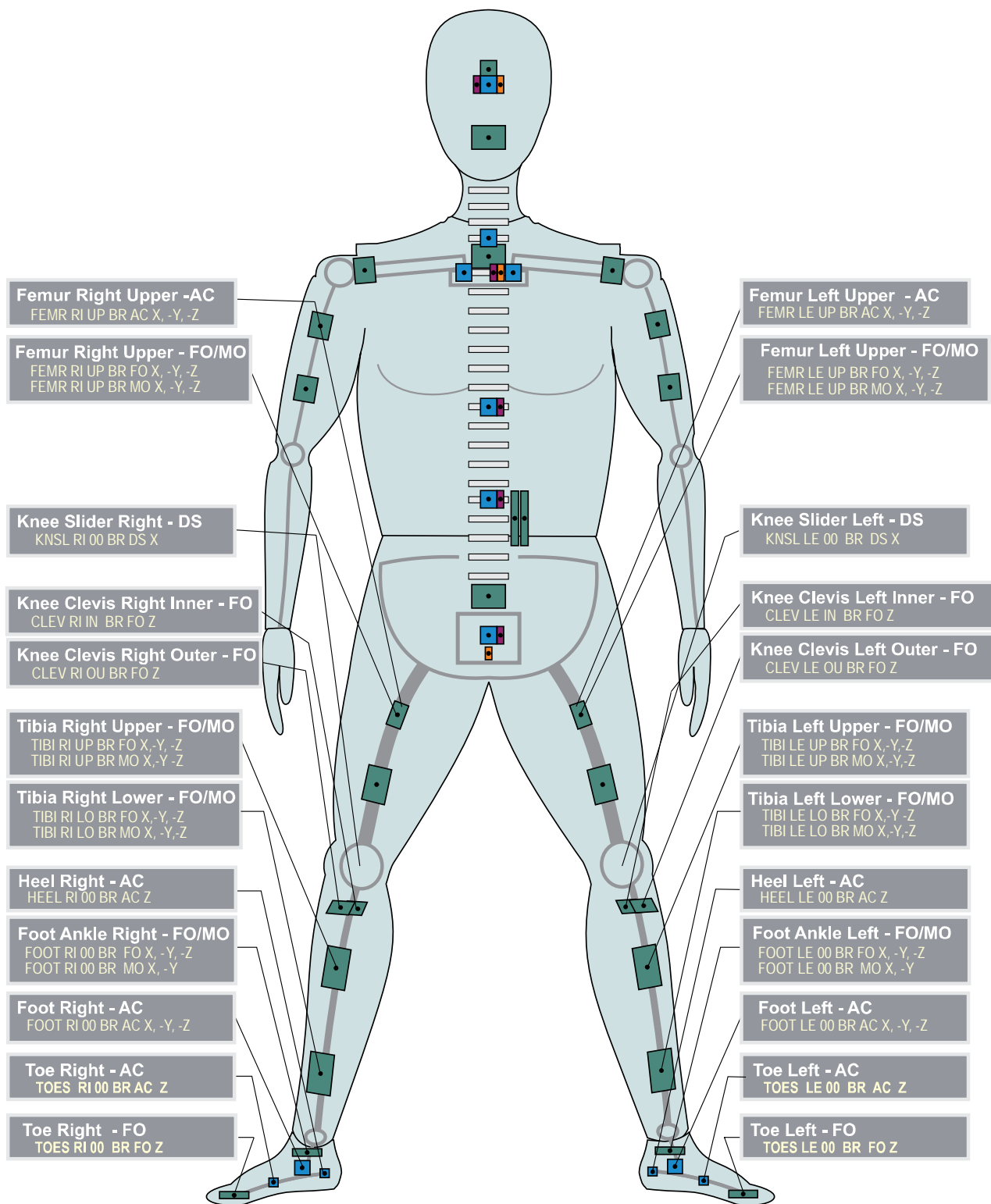
ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Additional Instrumentation - Upper Torso
2021-07-07



ISO-BR_20210707



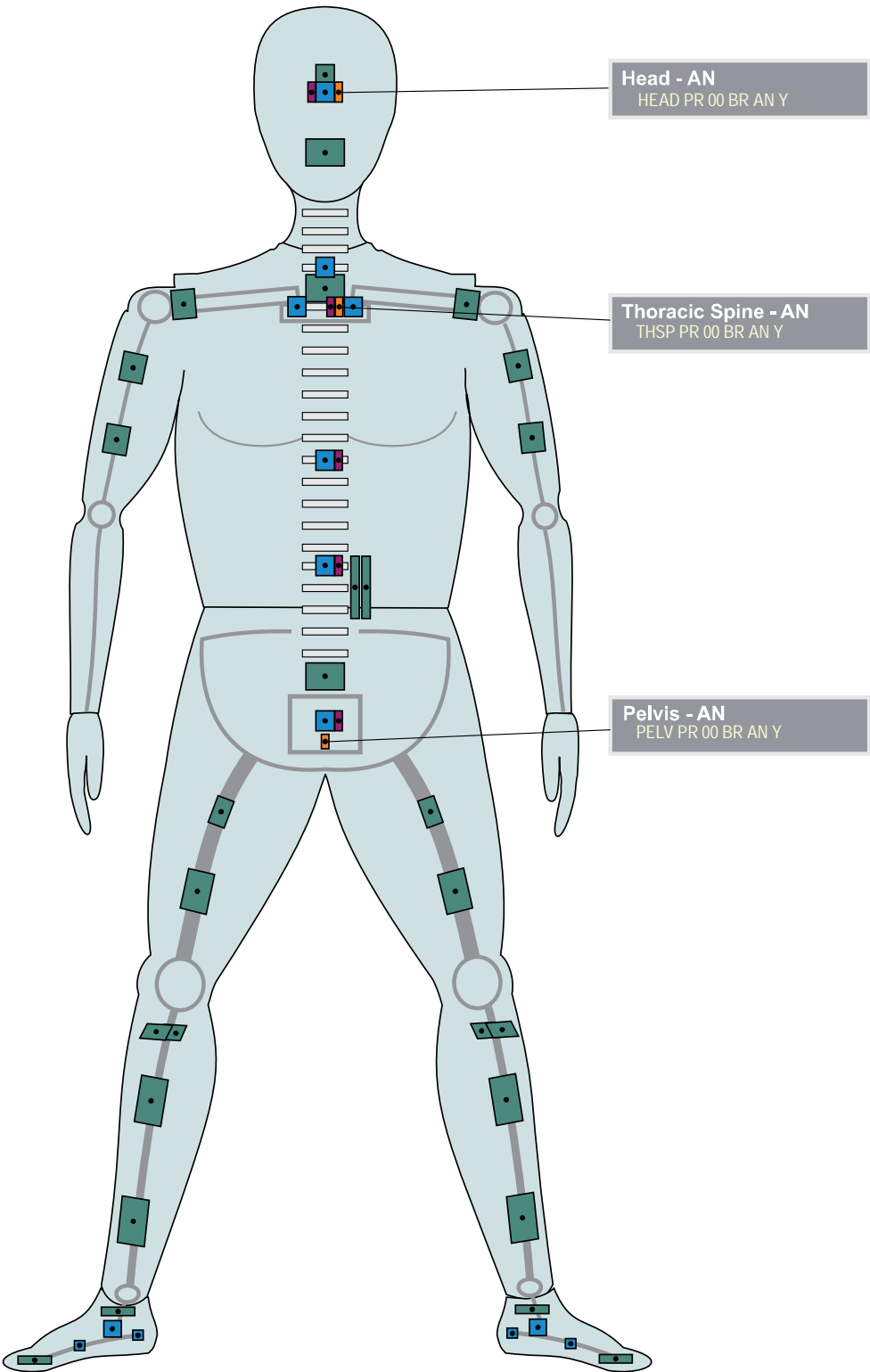
ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Additional Instrumentation - Legs
2021-07-07

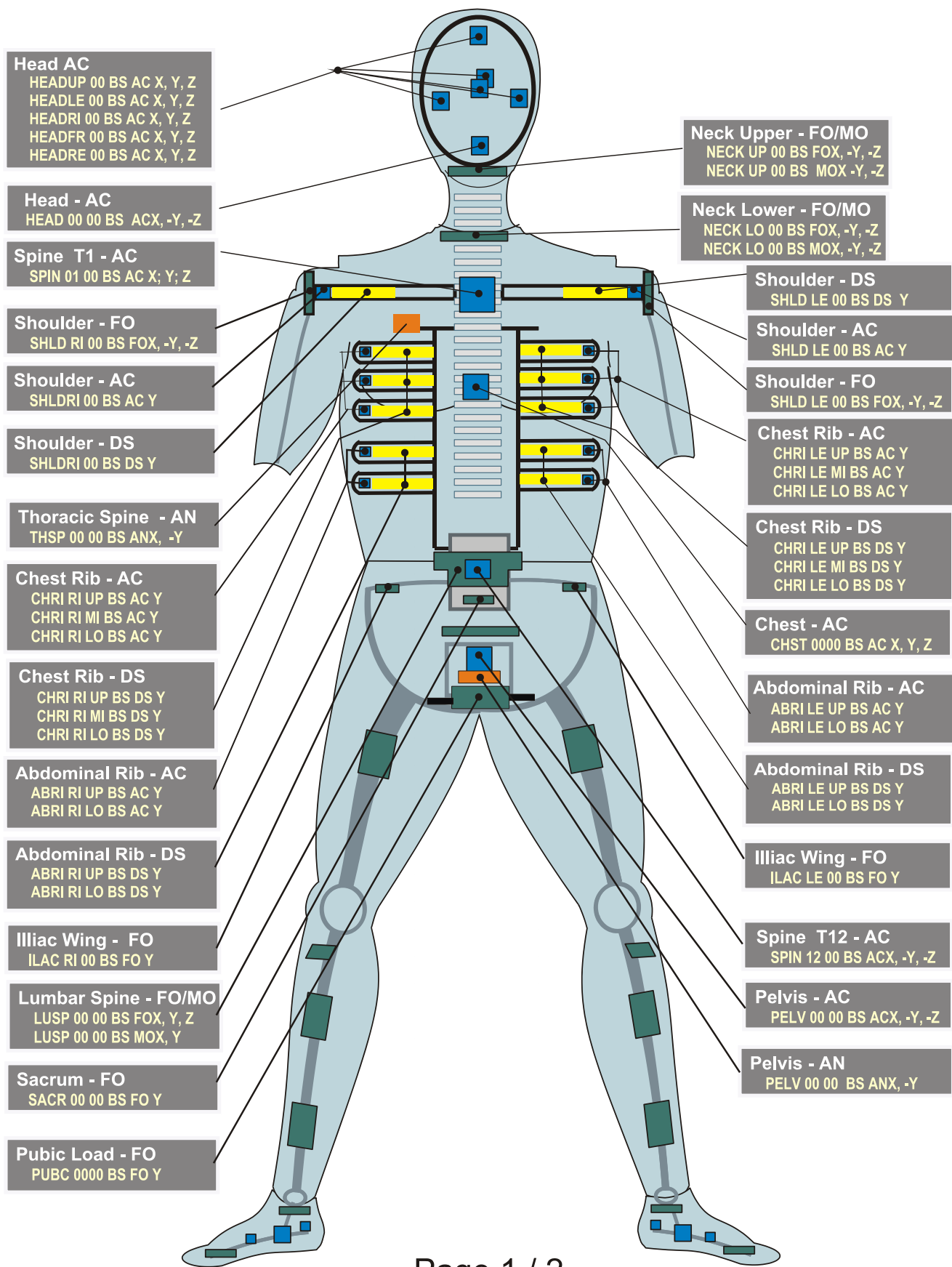


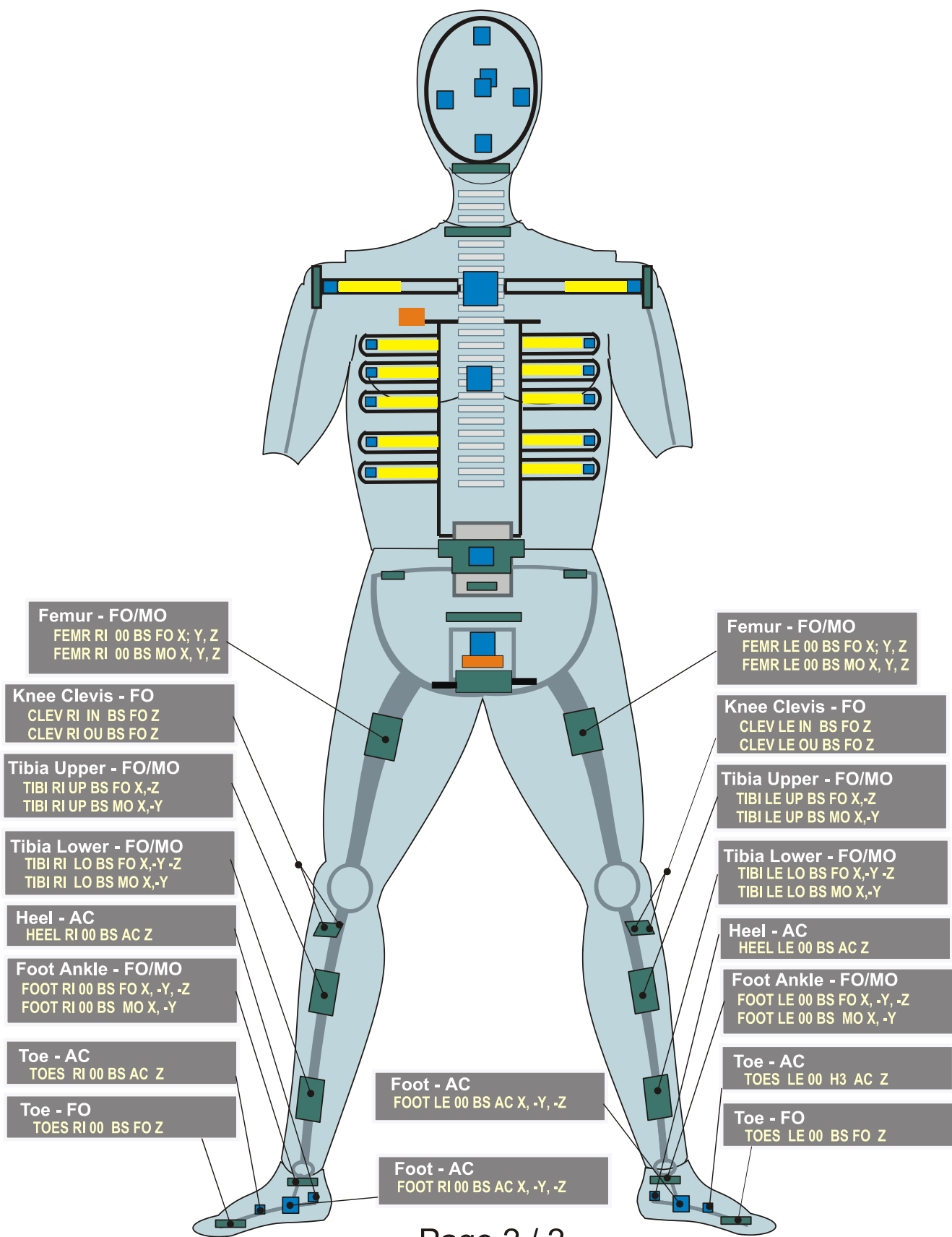
ISO-BR_20210707

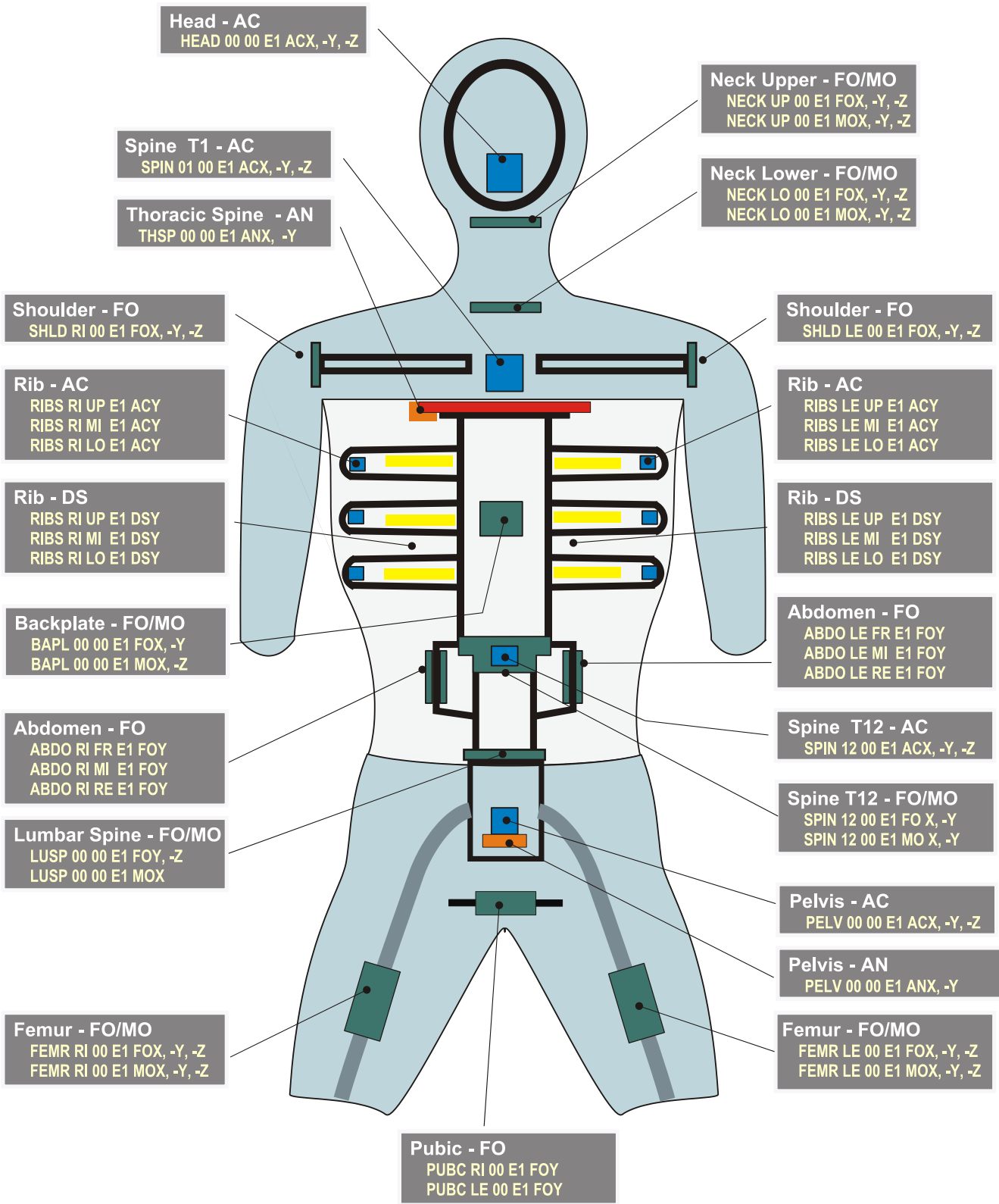


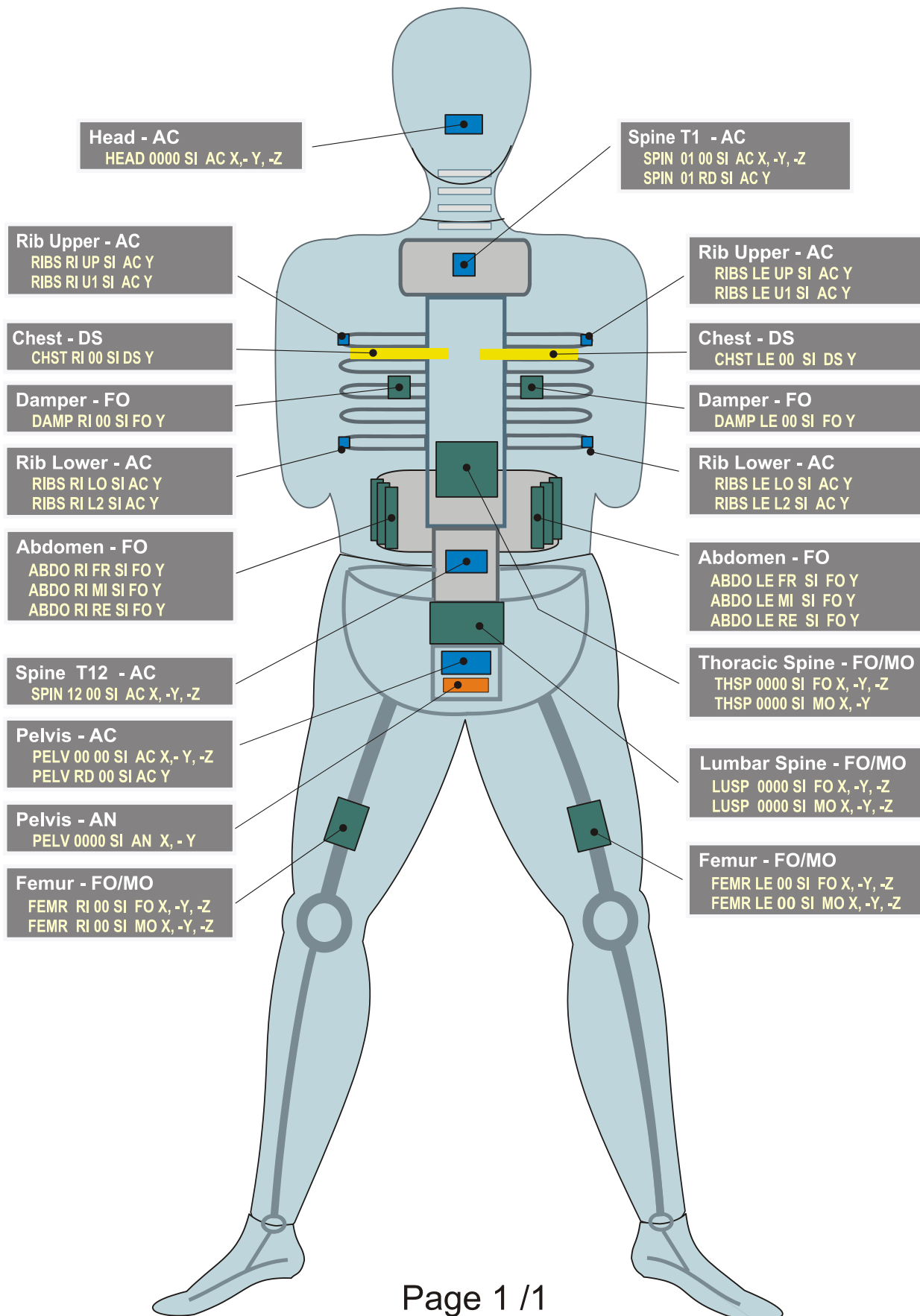
ISO/TS 13499 – RED C : 2012
BR, BioRID II 50% male
Static measurements, other channels
2021-07-07











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

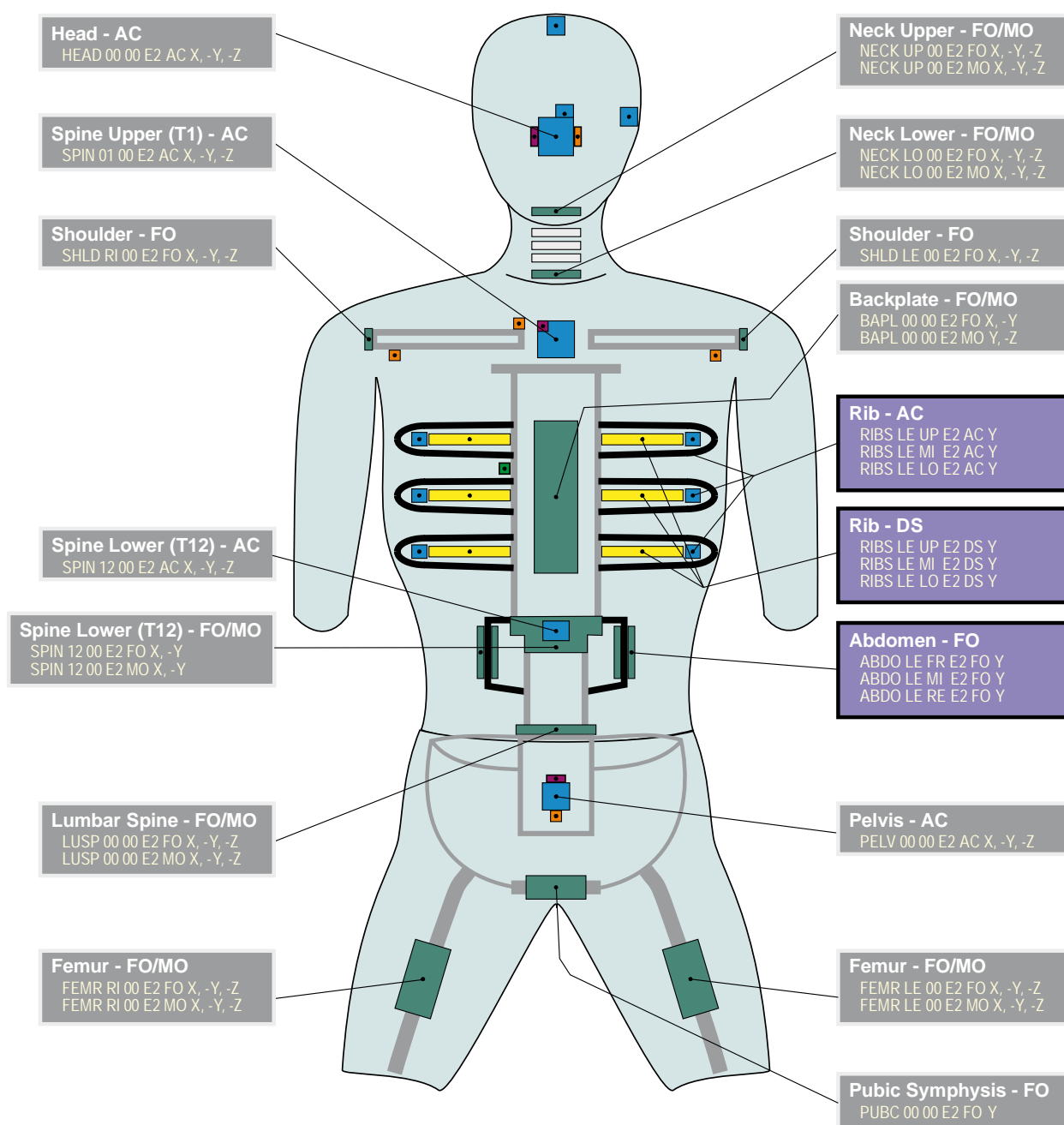
Valid since Version

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



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

Note: For ERdummy, FL3 will read ER

Head - AV
HEAD 00 00 E2 AV X, -Y, -Z

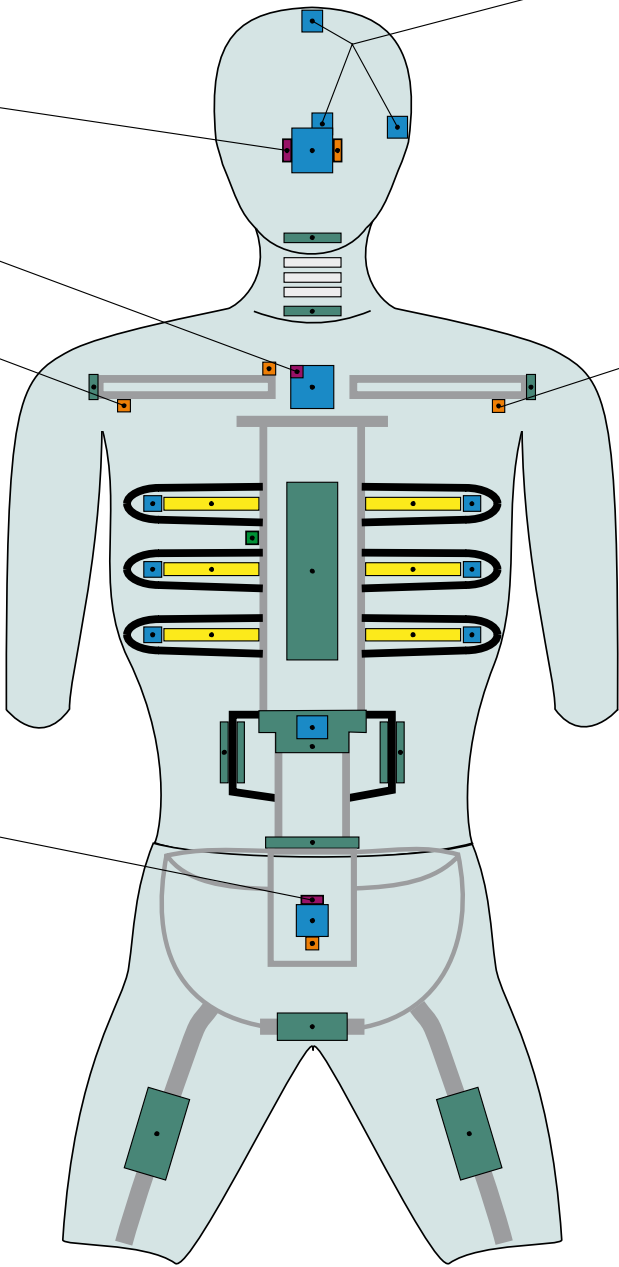
Spine Upper (T1) - AV
SPIN 01 00 E2 AV X, -Y, -Z

Shoulder - AN
SHLD RI 00 E2 AN Z

Pelvis - AV
PELV 00 00 E2 AV X, -Y, -Z

Head - AC
HEAD LE 00 E2 AC X, -Z
HEAD UP 00 E2 AC X, -Y
HEAD FR 00 E2 AC Y, -Z

Shoulder - AN
SHLD LE 00 E2 AN Z



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

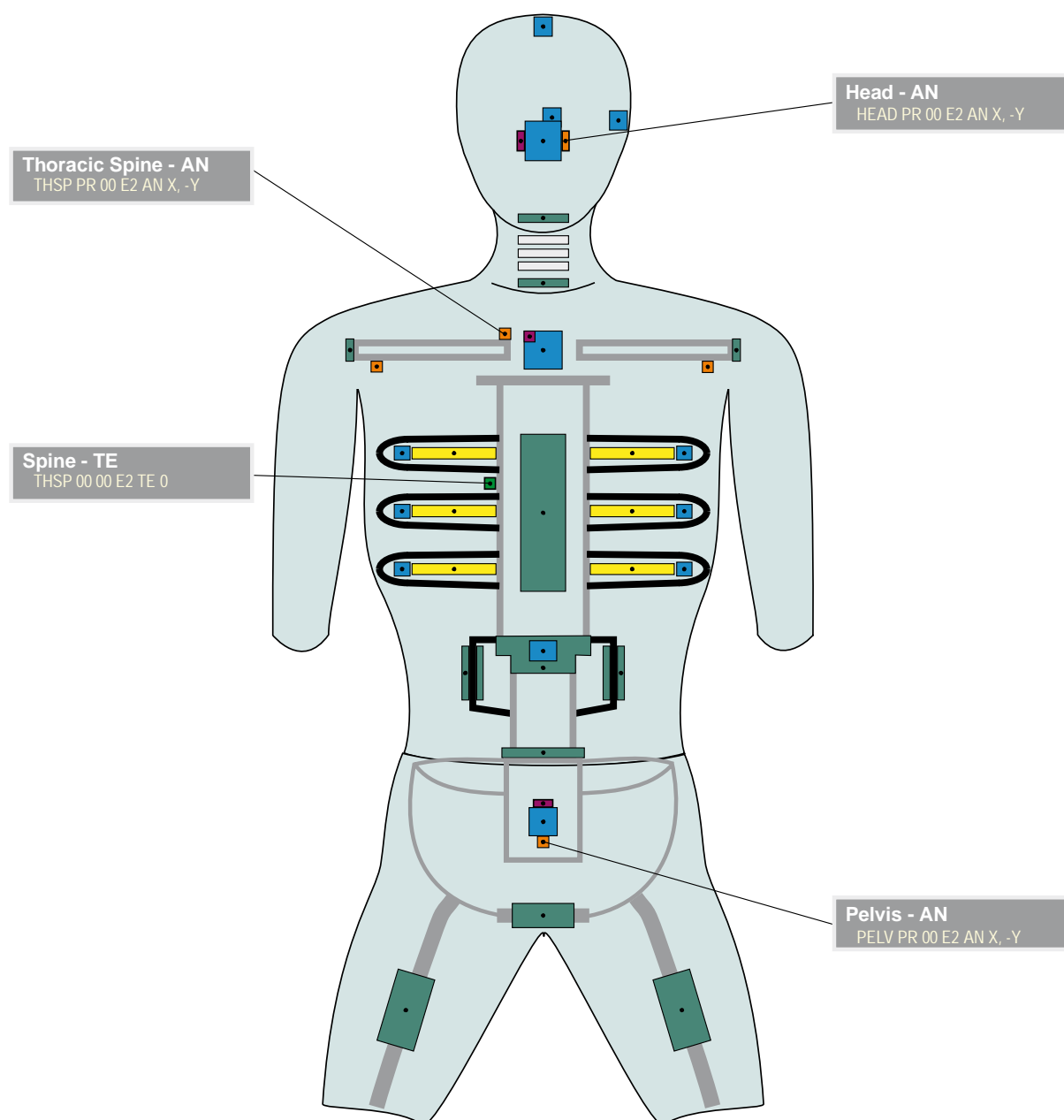
Valid since Version

1.6.1



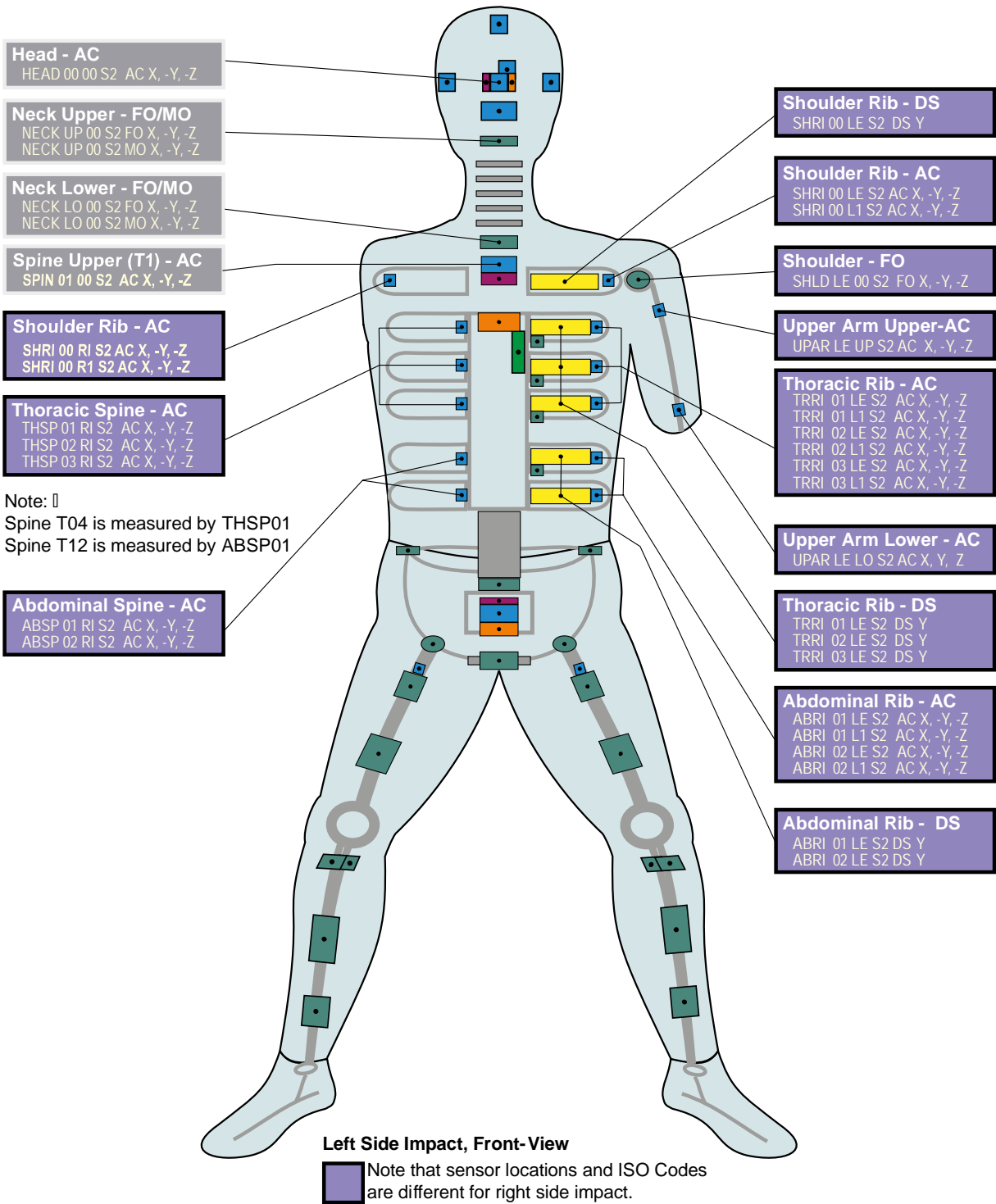
ISO/TS 13499 – RED C : 2012(E)
 E2, ES-2 dummy
 ER, ES2 Dummy with Rib Extension
 Static measurements, other channels
 2013-04-10

Note: For ERdummy, FL3 will read ER





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



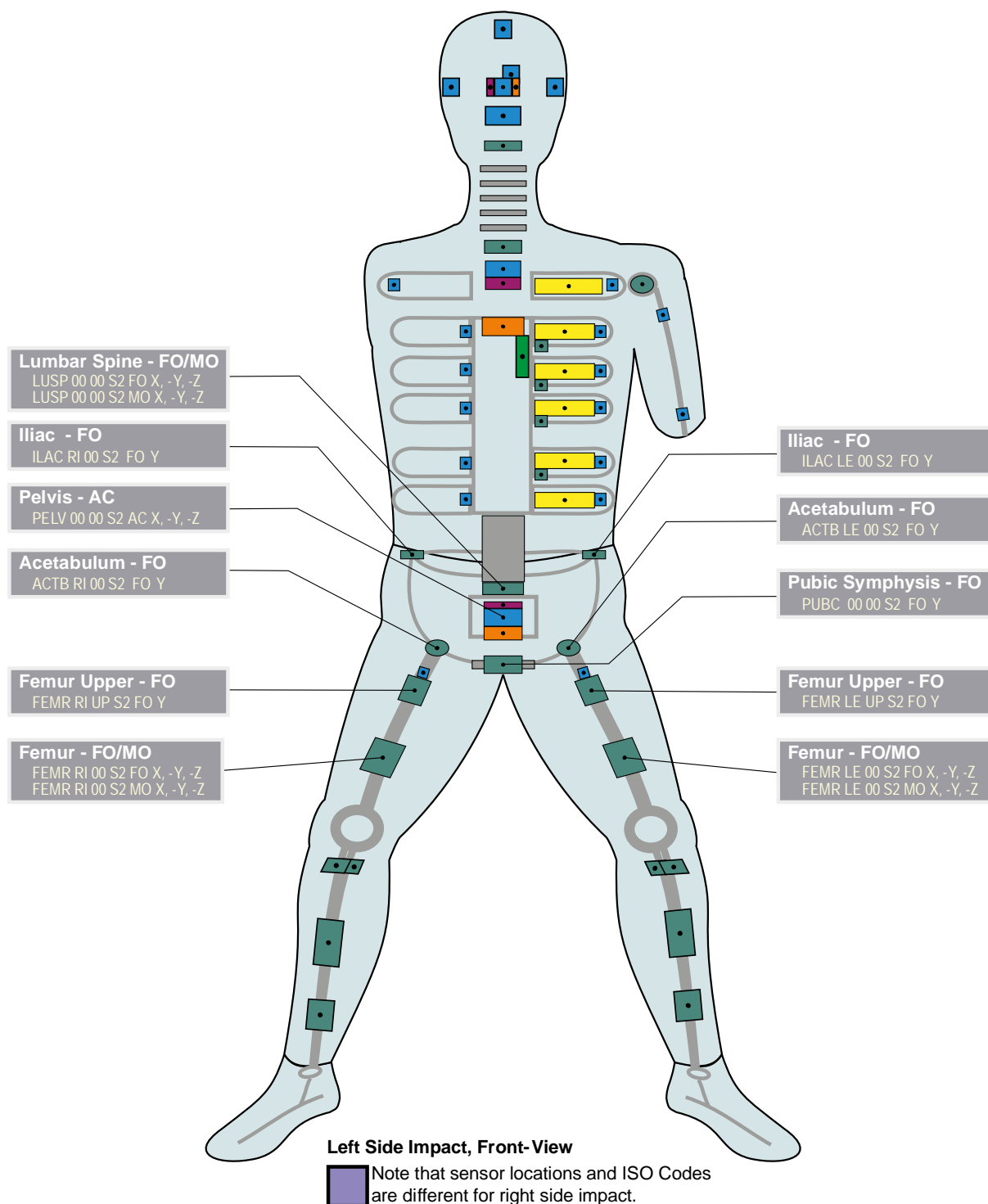
S2 SID IIs (2)

Valid since Version

1.6.2



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



ISO-S2_20190717

Page 2 of 5

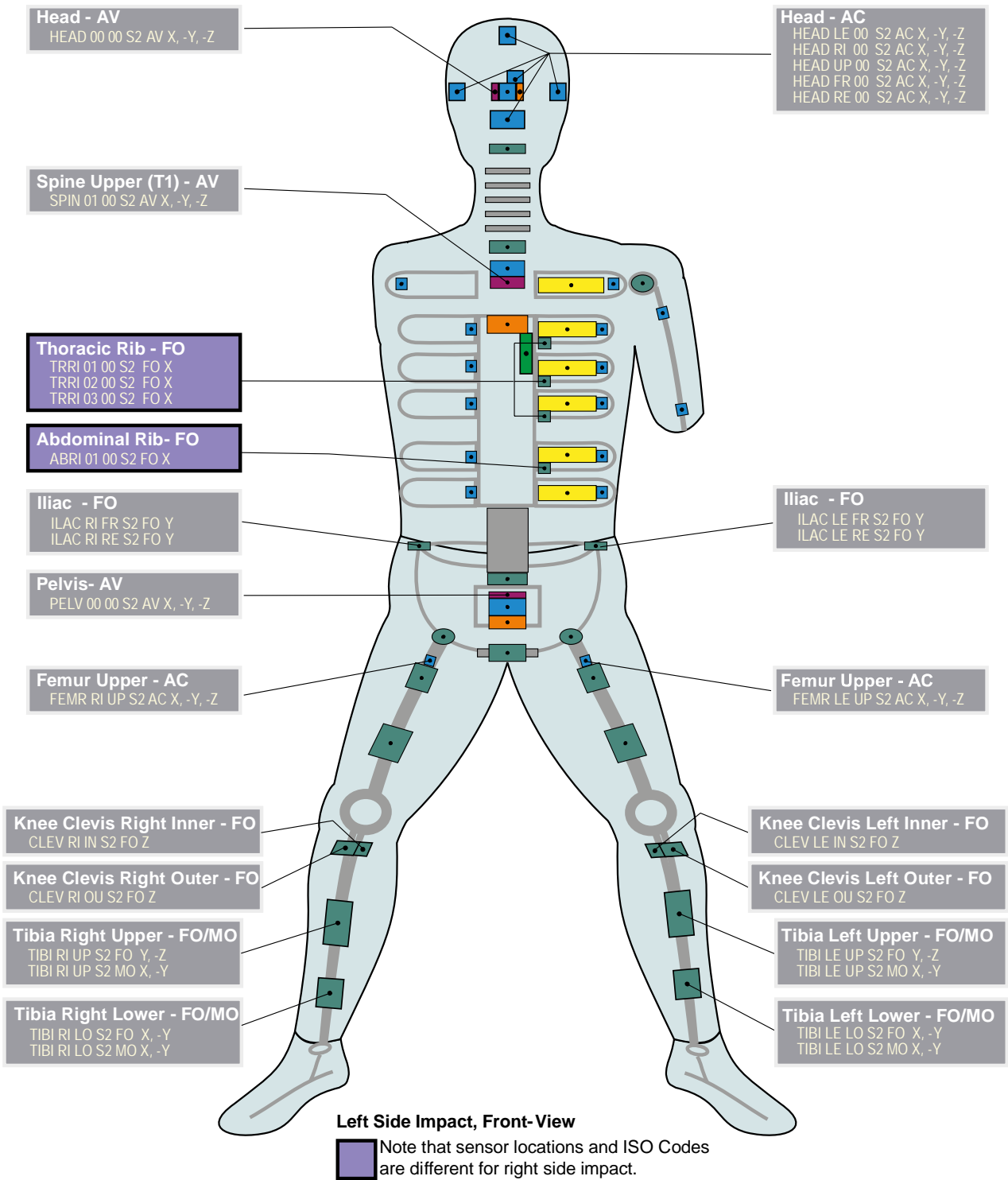
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Paul Wellicome, MIRA Ltd.

ISO_S2_2_162_20190719.EMF

-> S2 <- 2 of 5



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



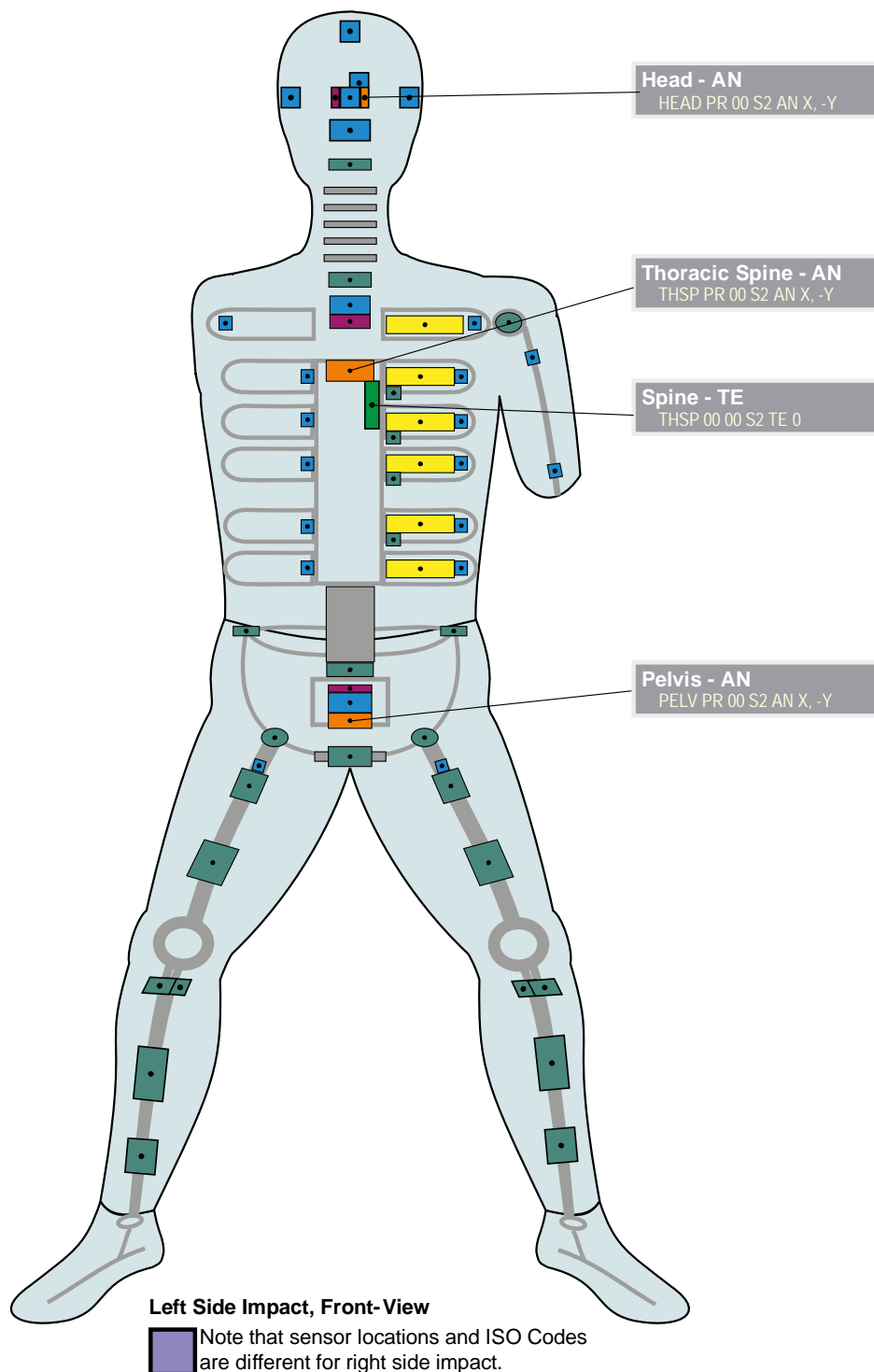
S2 SID IIs (4)

Valid since Version

1.6.2



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



ISO-S2_20190717

Page 4 of 5

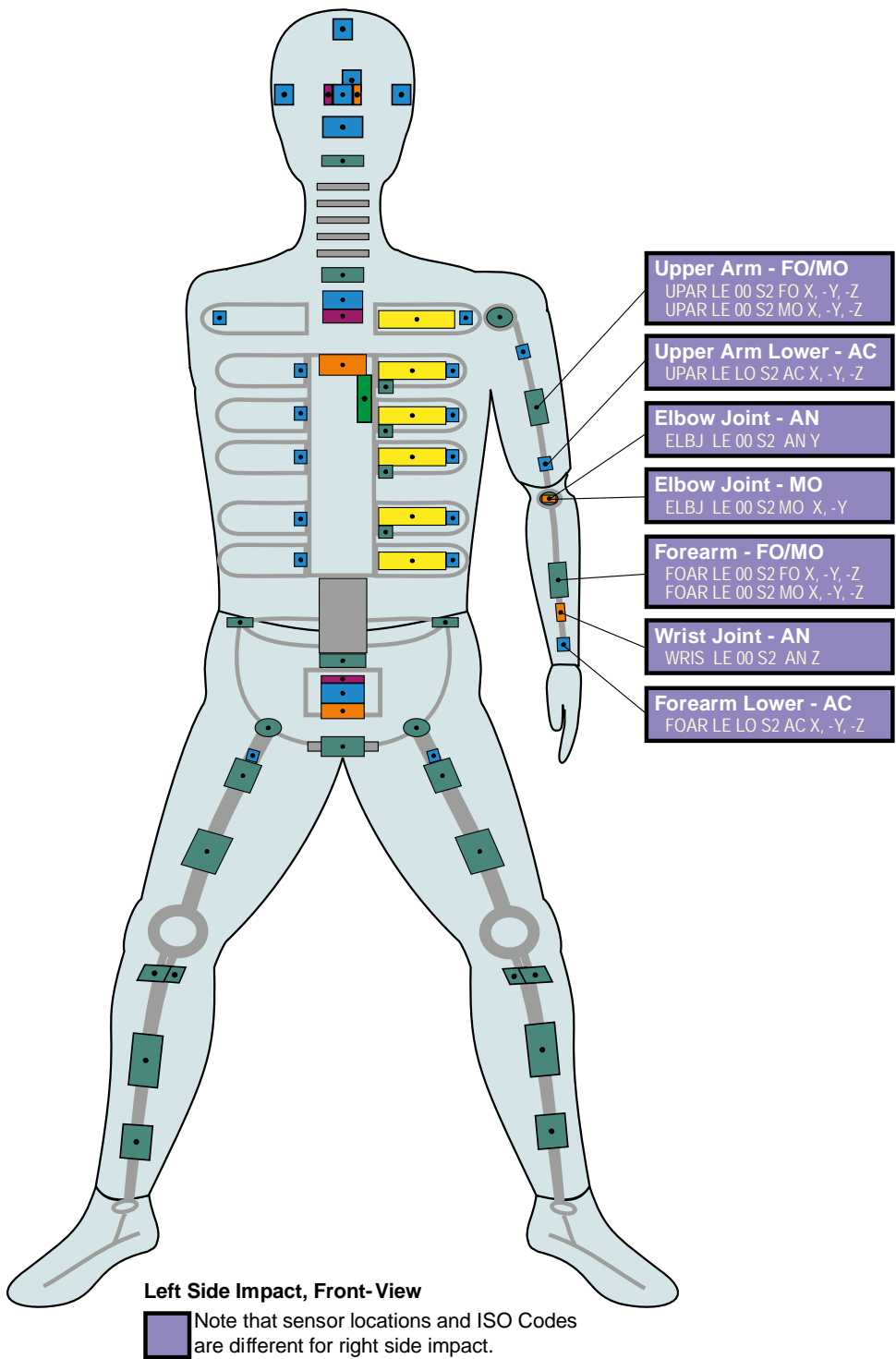
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force II
Maintained by Paul Wellicome, MIRA Ltd.

ISO_S2_4_162_20190719.EMF

-> S2 <- 4 of 5

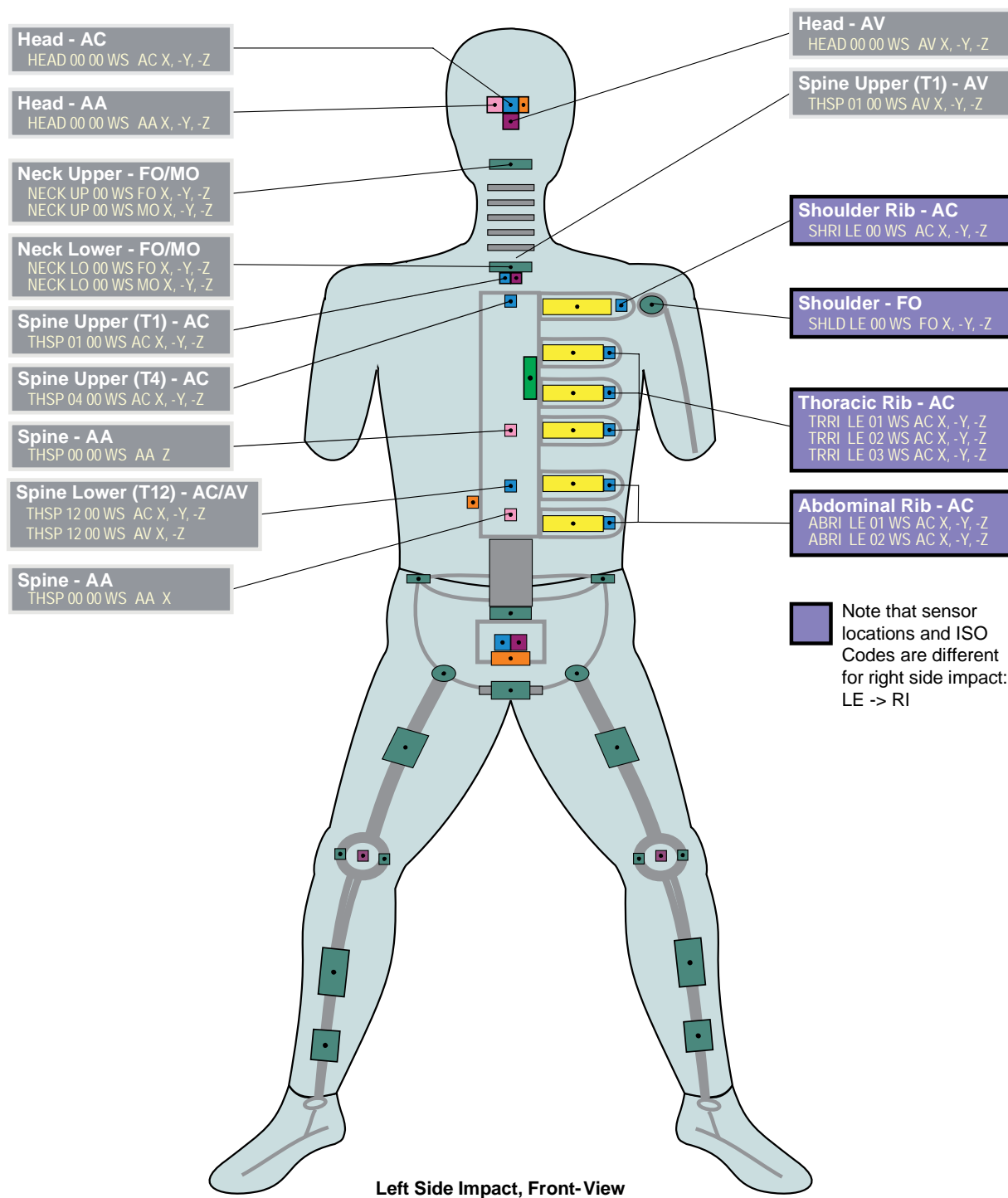


ISO/TS 13499 – RED C : 2019(E)
S2, SID IIs
Additional Instrumentation: Instrumented arm
2019-07-17





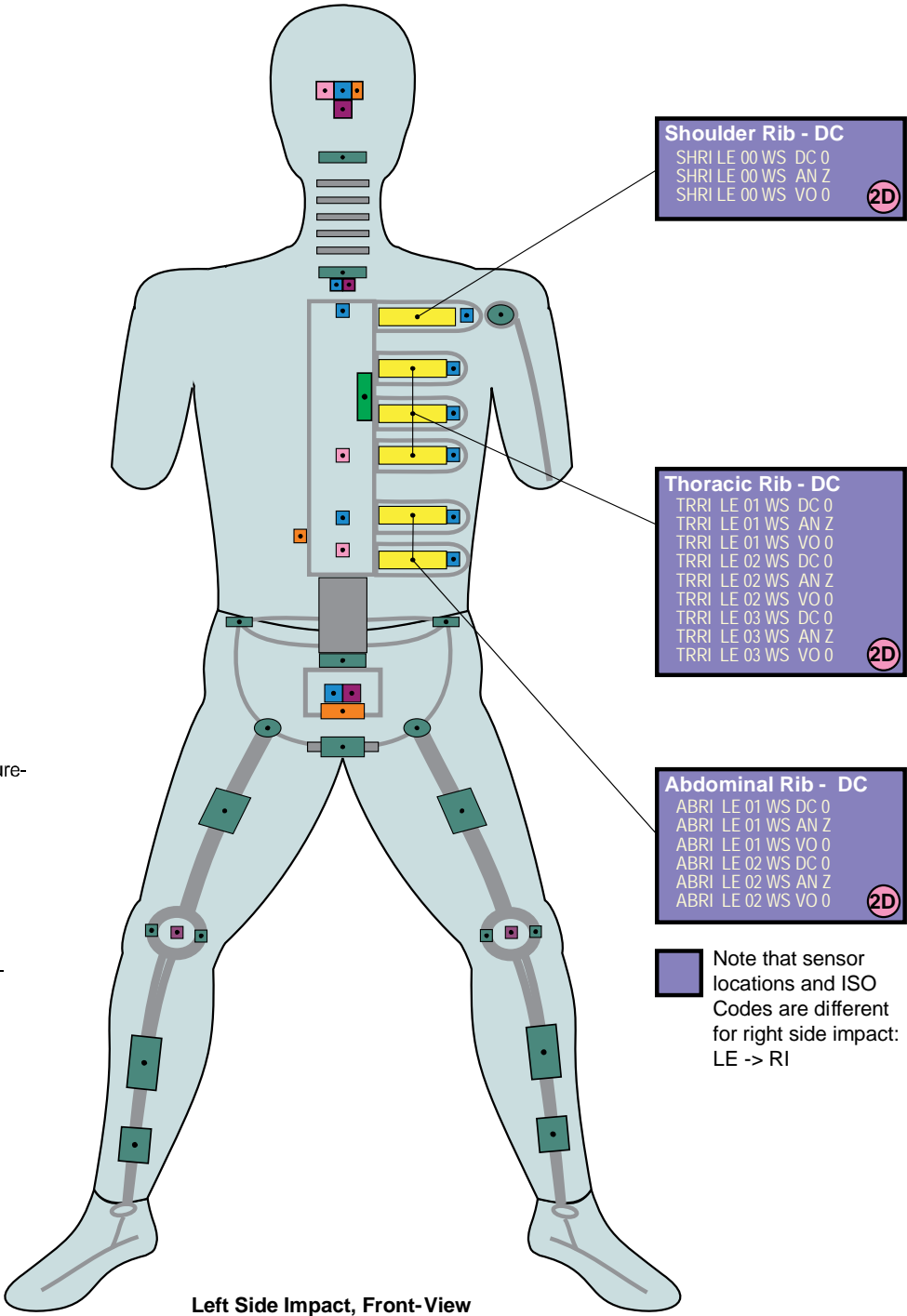
ISO/TS 13499 – RED C : 2012(E)
 WS, WorldSID 50th percentile dummy
 Standard Instrumentation (upper body)
 2022-09-01





ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Deflection Measurement (Shoulder, Thorax, Abdomen) 2D-Equipment
2022-09-01

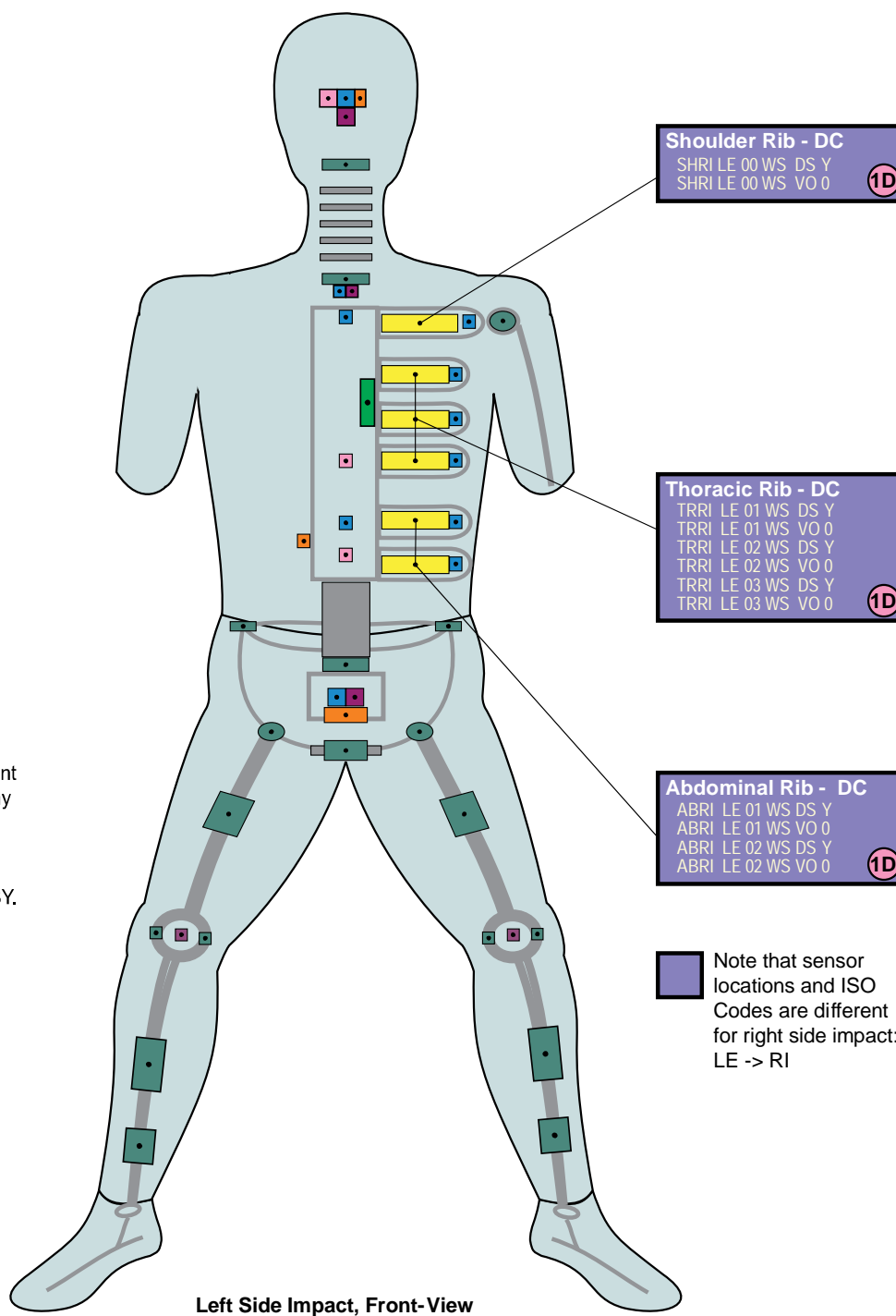
Note that the some measure-
ment devices fitted to this
dummy records a voltage.
It is more normal to
exchange the distance
channel or total length
channel (DC0). □
If the DC0 channel is not
available, DS0 is permissi-
ble.





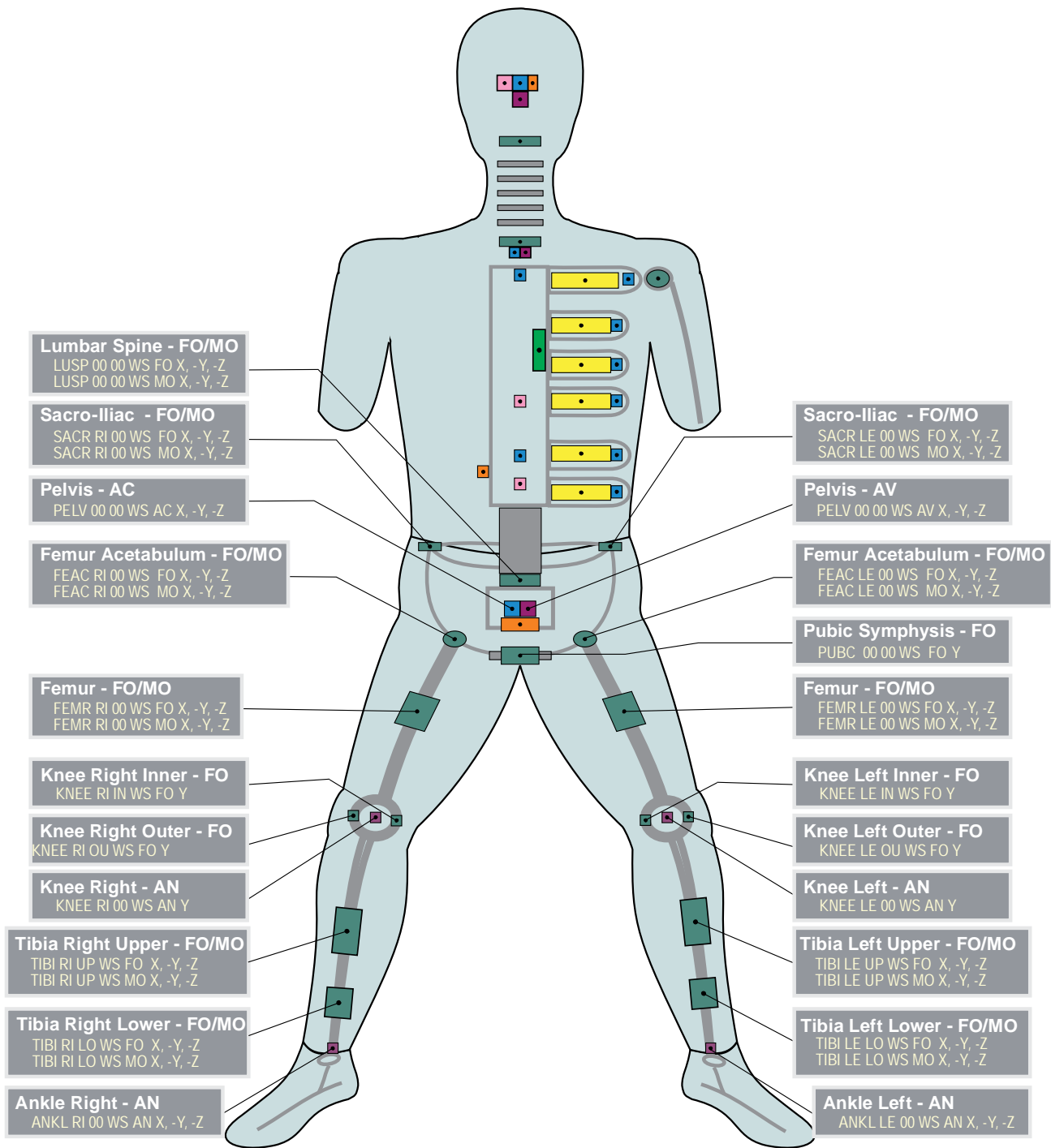
ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Deflection Measurement (Shoulder, Thorax, Abdomen) 1D Equipment
2022-09-01

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



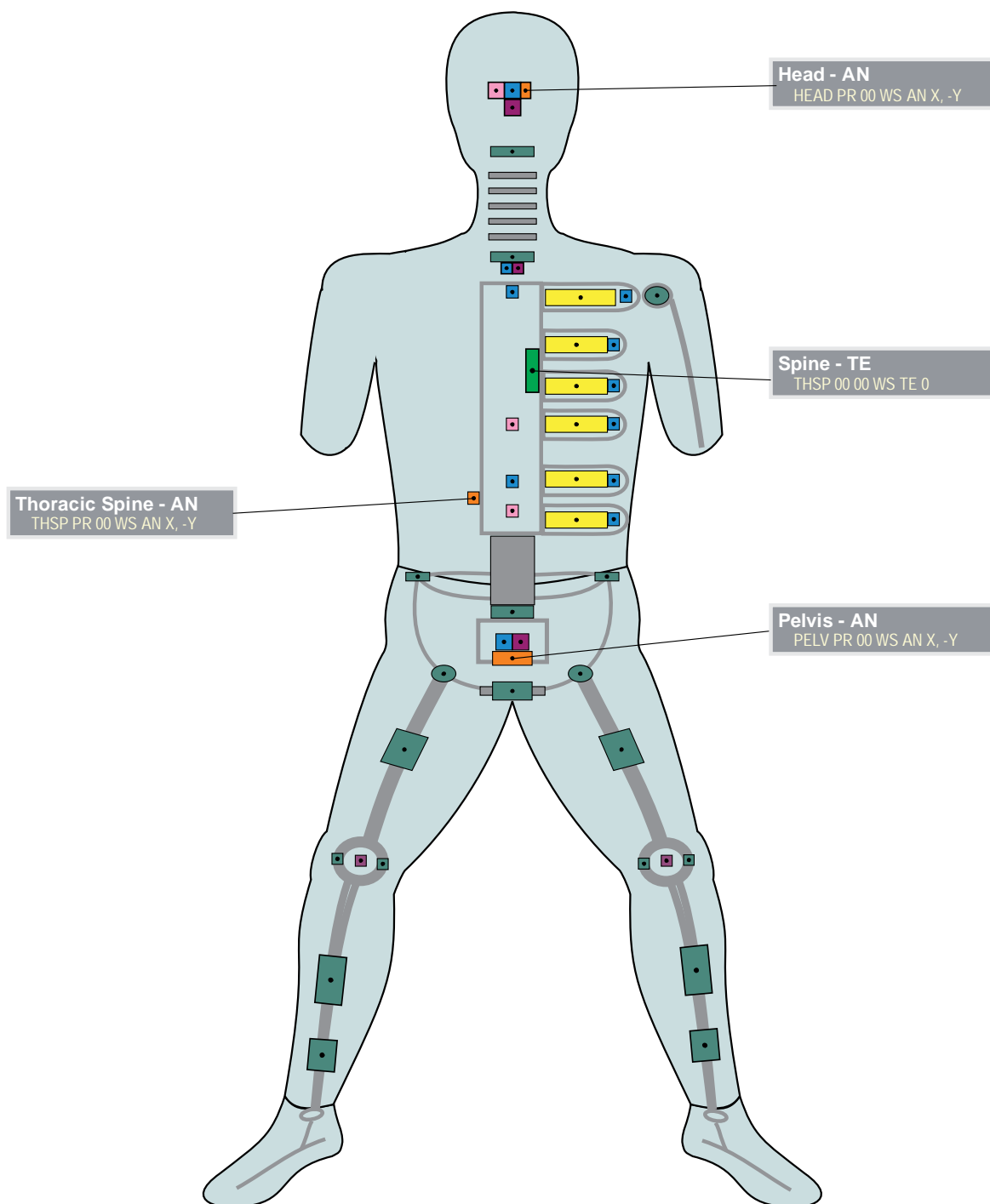


ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Standard Instrumentation (lower body)
2022-09-01



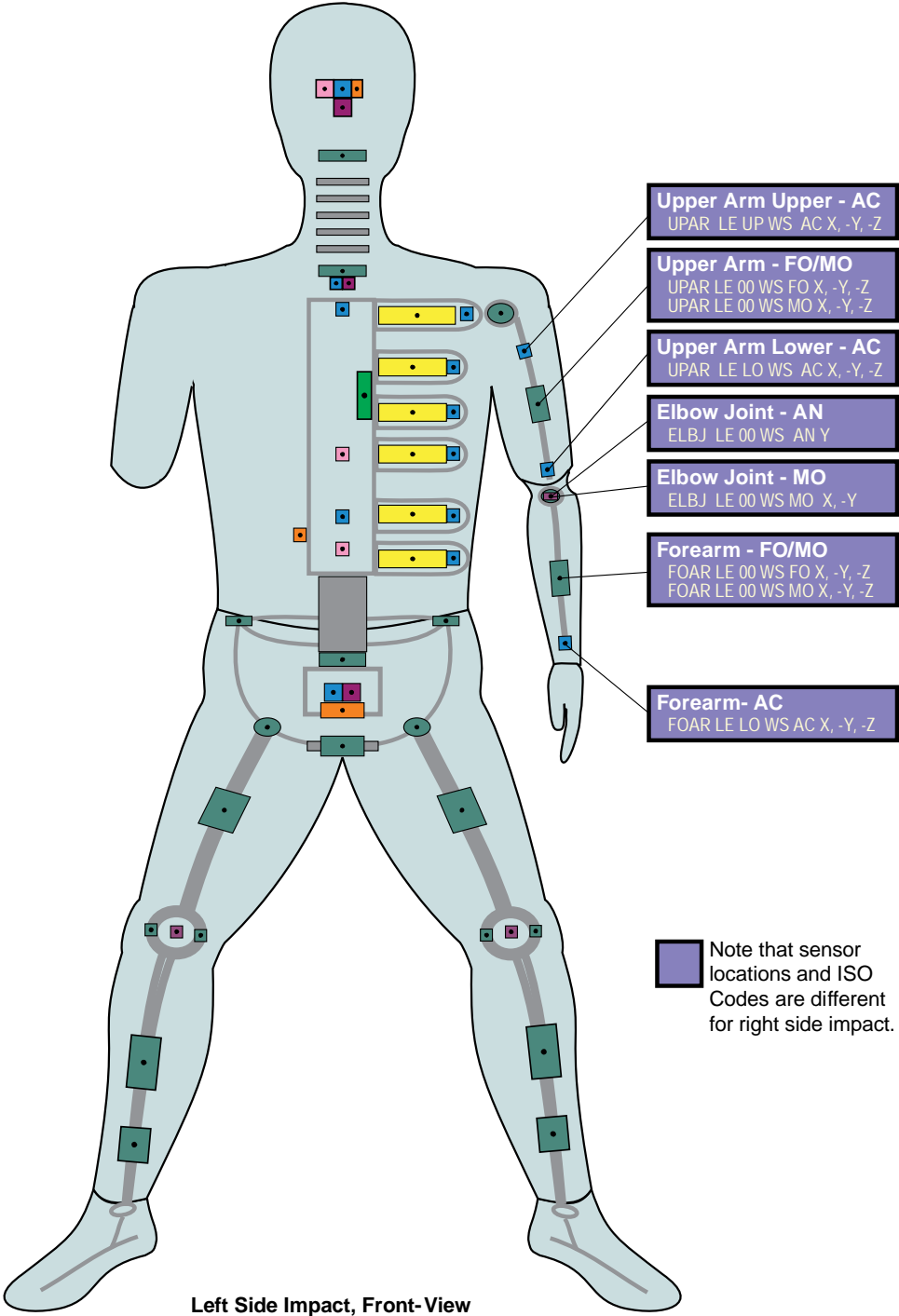



ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Static measurements, other channels
2022-09-01





ISO/TS 13499 – RED C : 2012(E)
WS, WorldSID 50th percentile dummy
Additional Instrumentation: Instrumented arm
2022-09-01





ISO/TS 13499 - RED C : 2020
Human Model
2020-06-17

The Skeletal System

Anterior *Posterior*

?? SKUL Skull ?? BRAI

Sternum Clavicle Scapula

?? HUMS Humerus Ribs

?? RADI Radius Ilium

?? ULNA Ulna Ischium

?? ULEG Carpals Pubis

Metacarpals

Phalanges

Femur

Patella

?? LLEG Tibia

?? FIBU Fibula

Tarsals Metatarsals

?? ACRO

?? SCAP

?? ACHI

?? 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

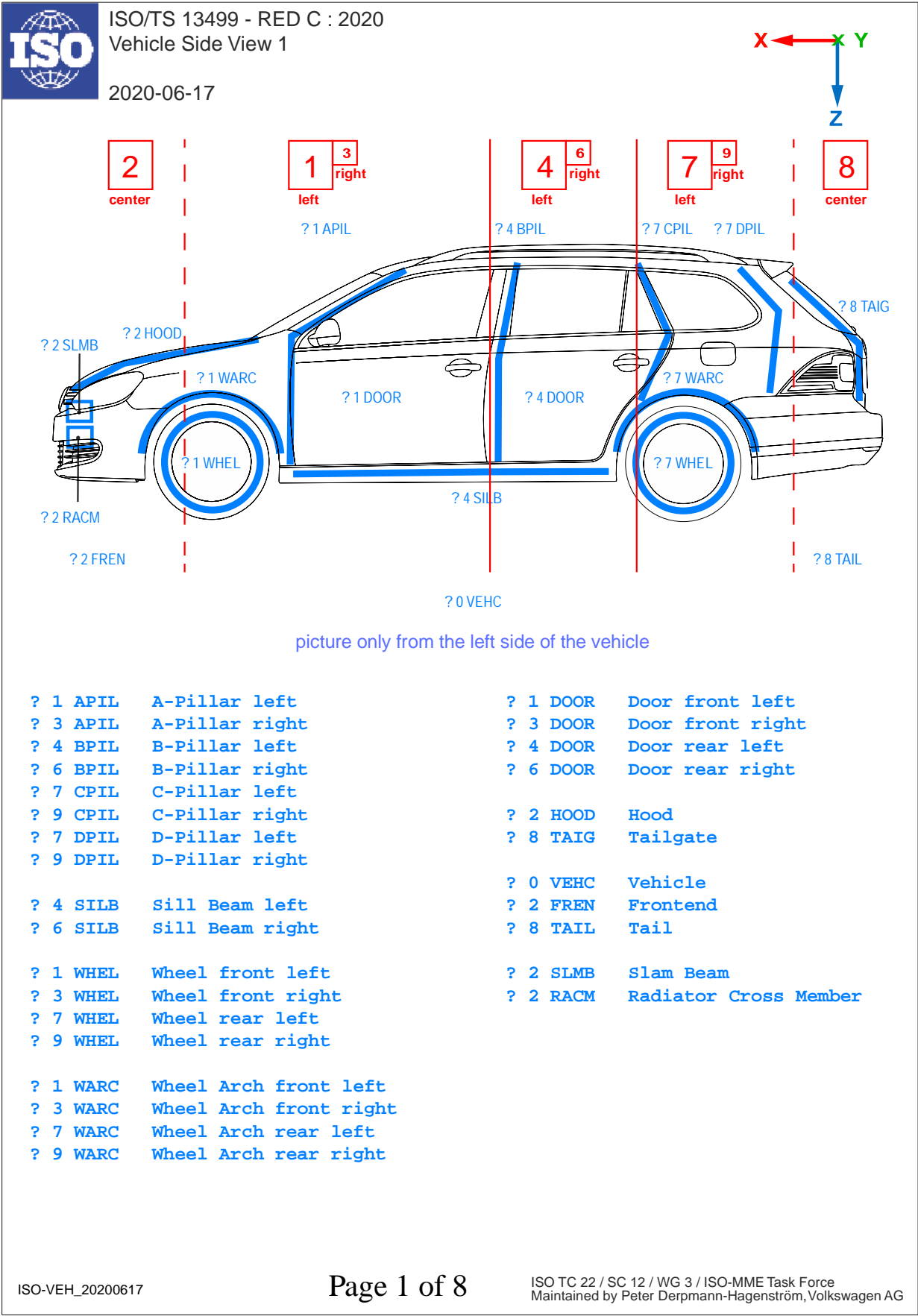
Page 1 of 1

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

VEH_S1 Vehicle left side

Valid since Version 1.6.2.p2

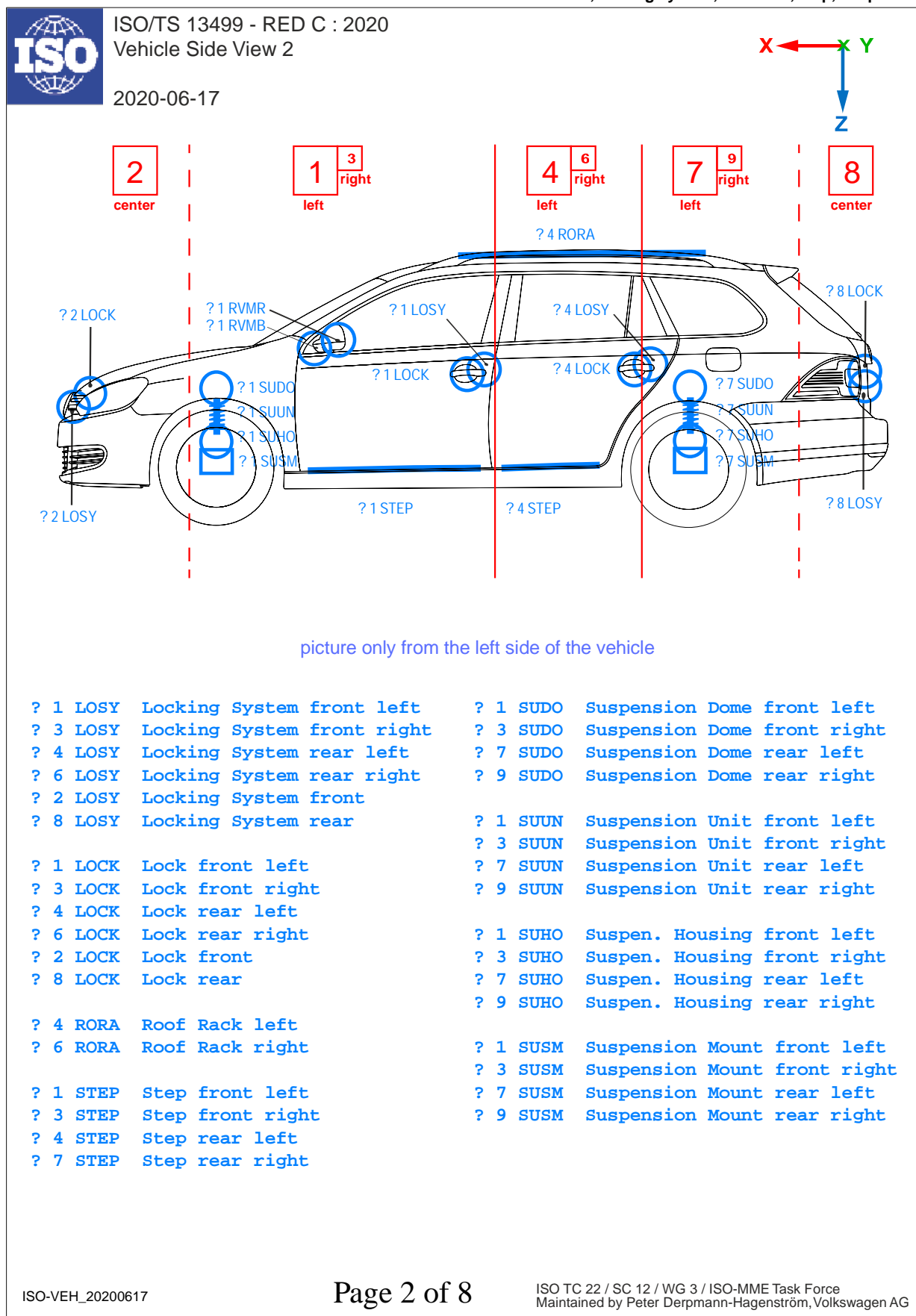
A,B,C,D-pillar, wheel, door, sillbeam, hood, tailgate, vehicle, frontend, tail, wheelarch ...



VEH_S2 Vehicle left side

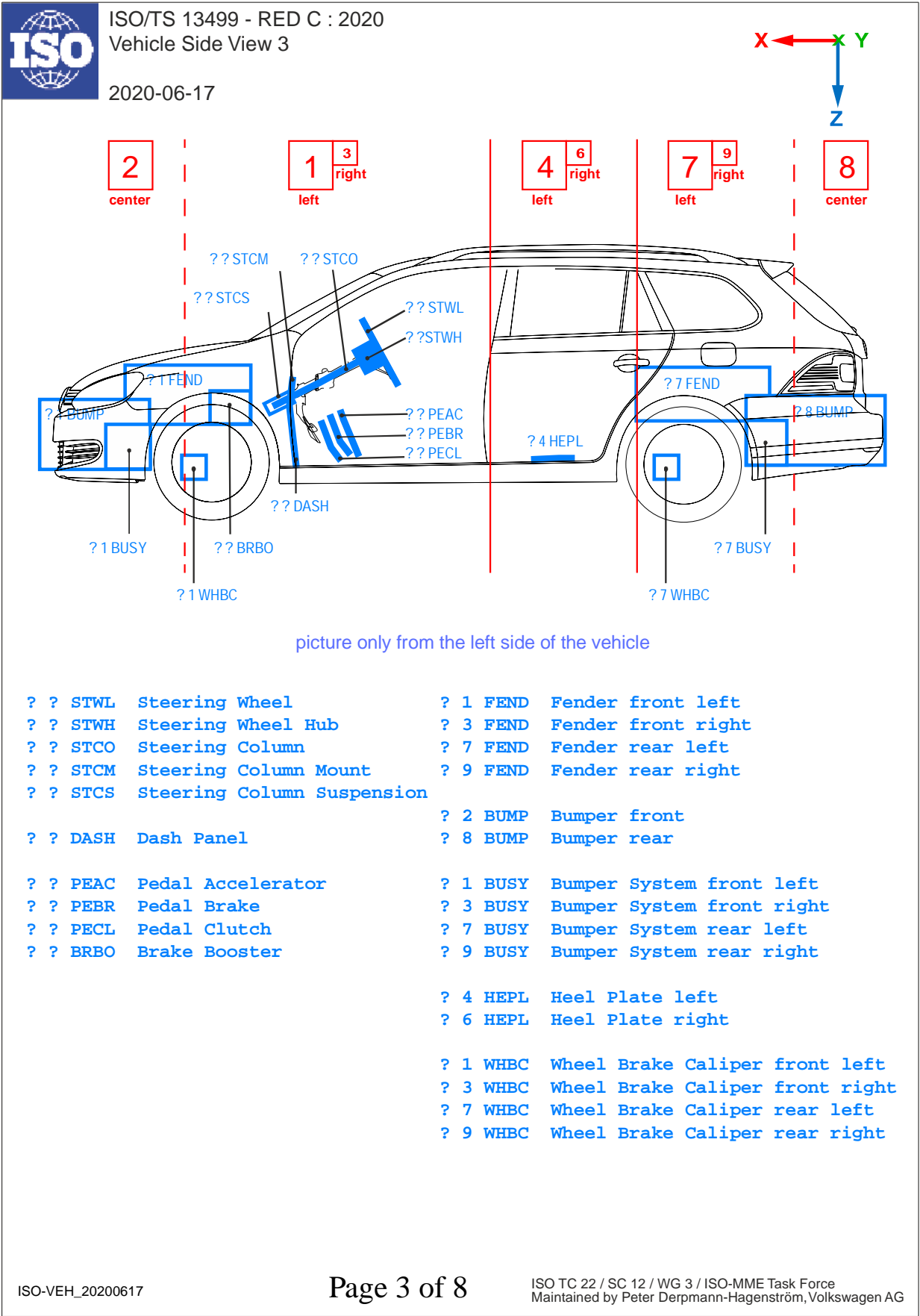
Valid since Version 1.6.2.p2

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

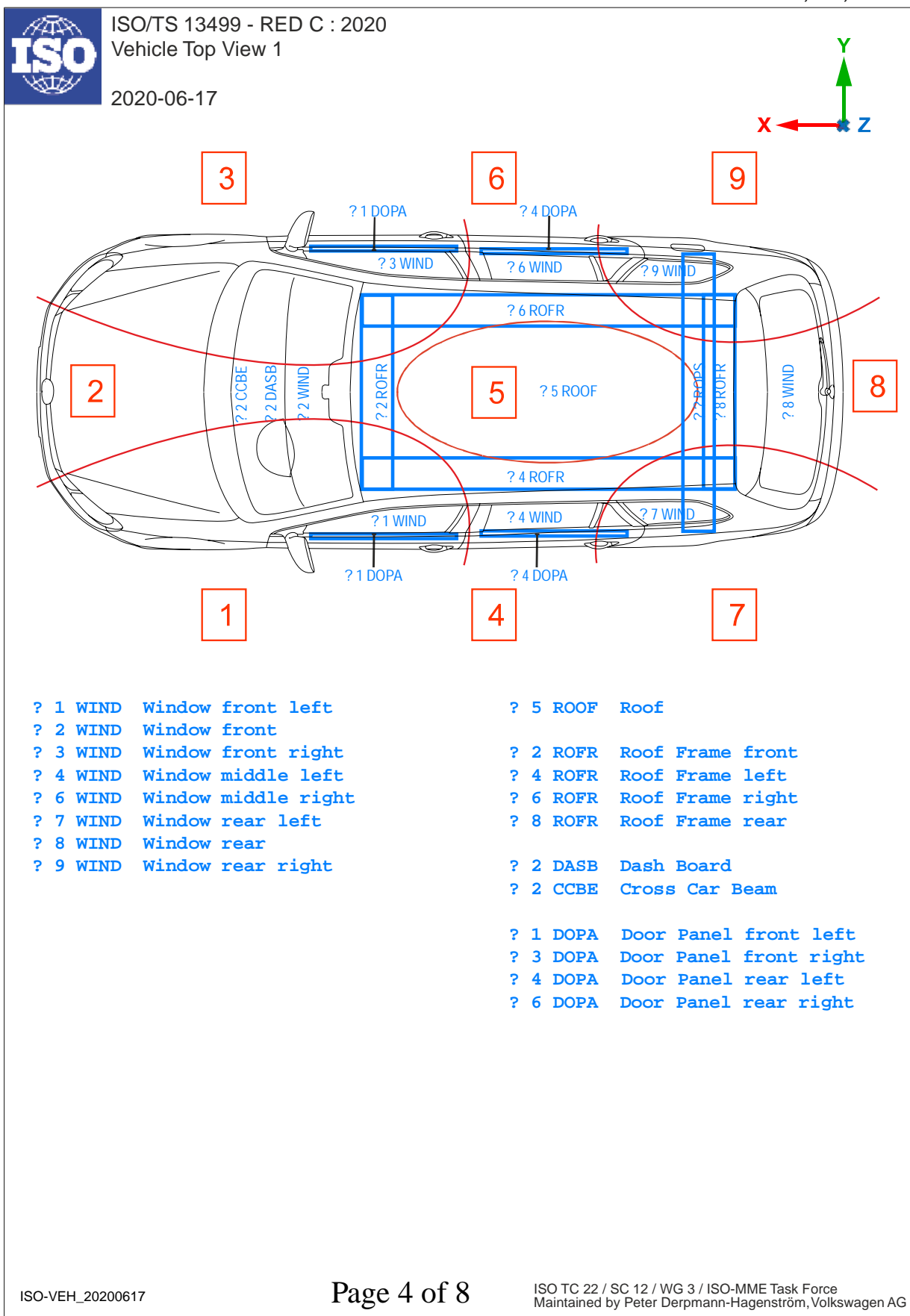


VEH_S3 Vehicle left side, open

Valid since Version 1.6.2.p2
left side open; steering wheel, pedals



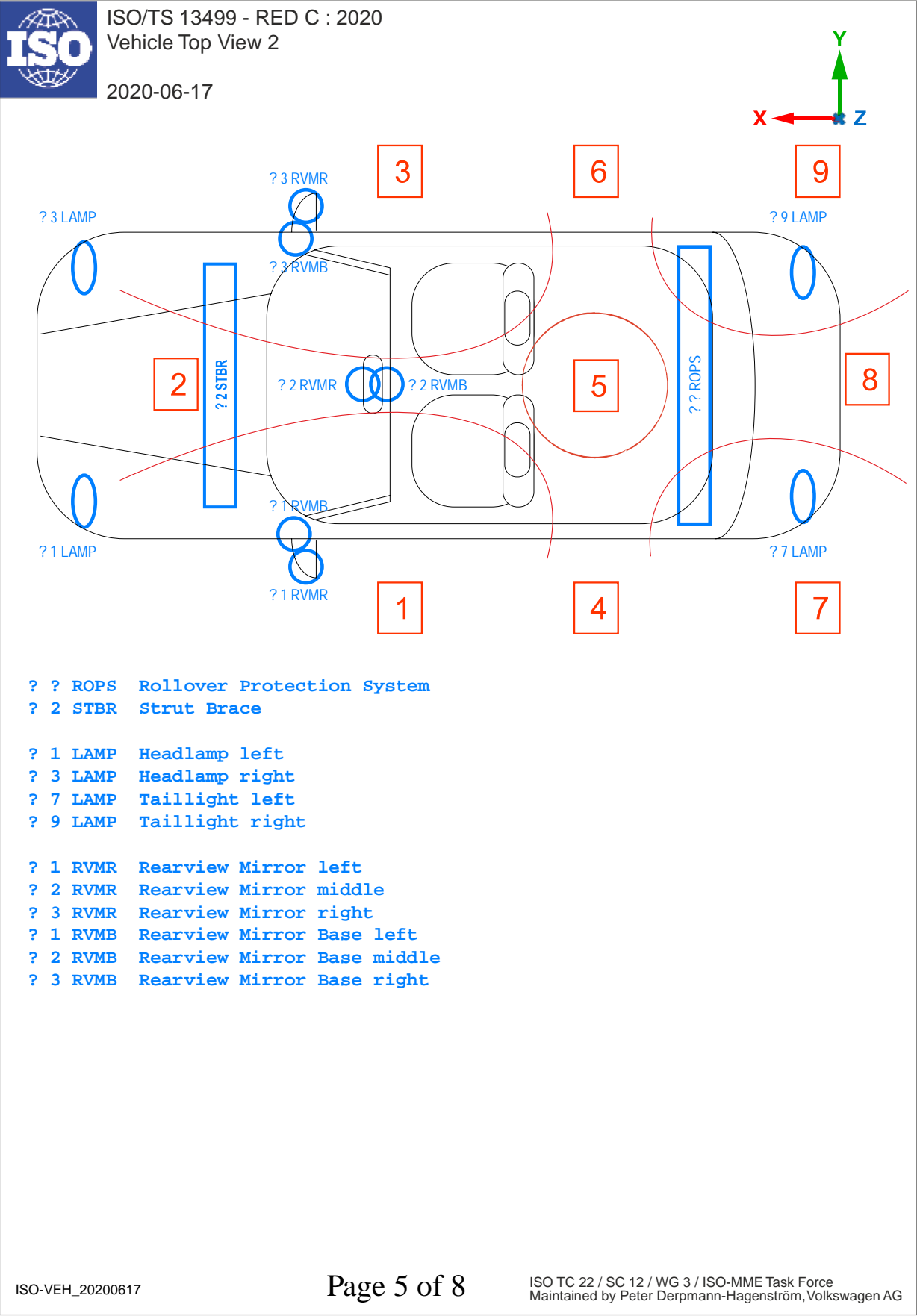
VEH_T1 Vehicle top

Valid since Version 1.6.2.p2
window, roof, roof frame, ...

VEH_T2 Vehicle top

Valid since Version 1.6.2

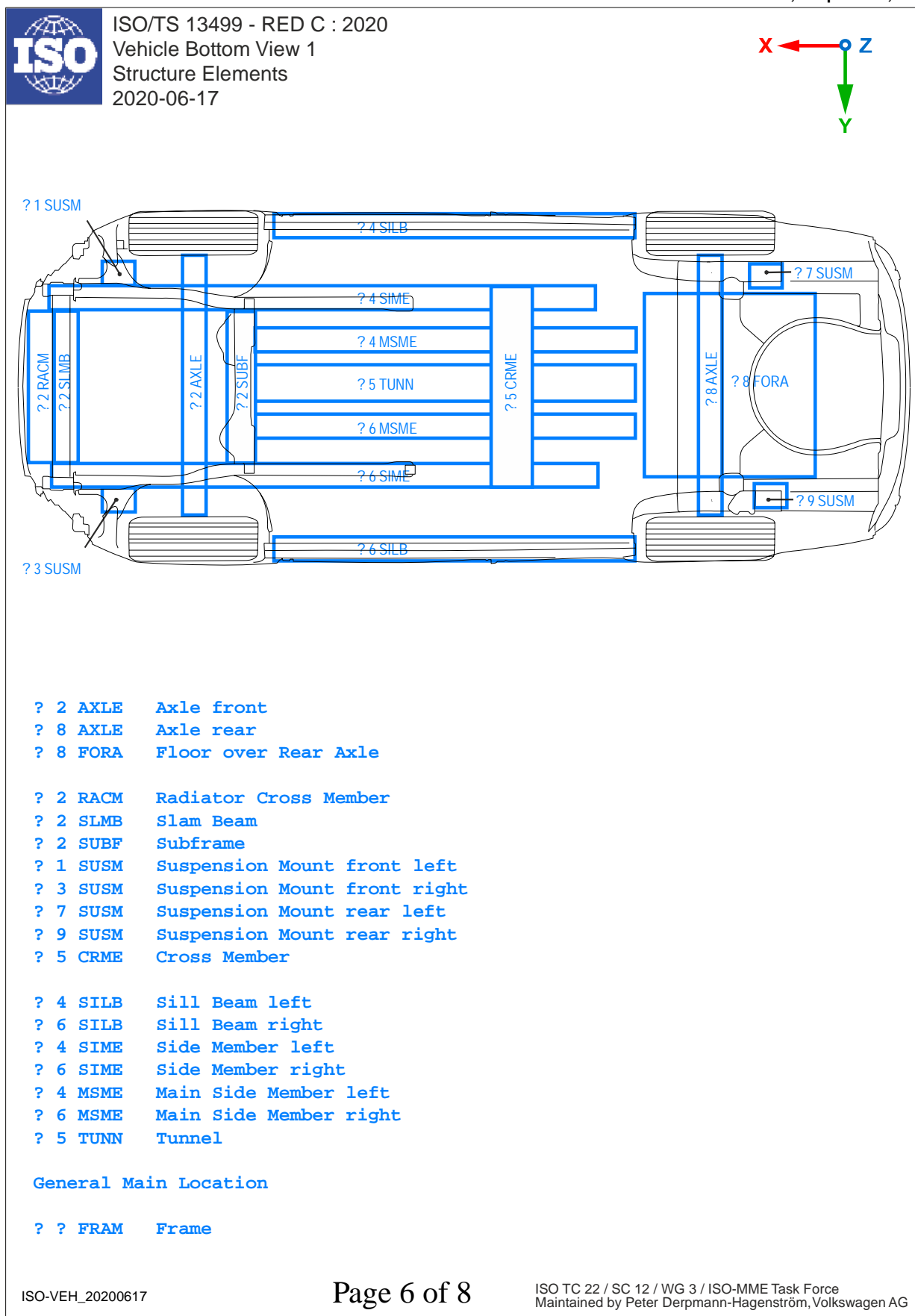
figure shows convertible, because of ROPS



VEH_B1 Vehicle bottom

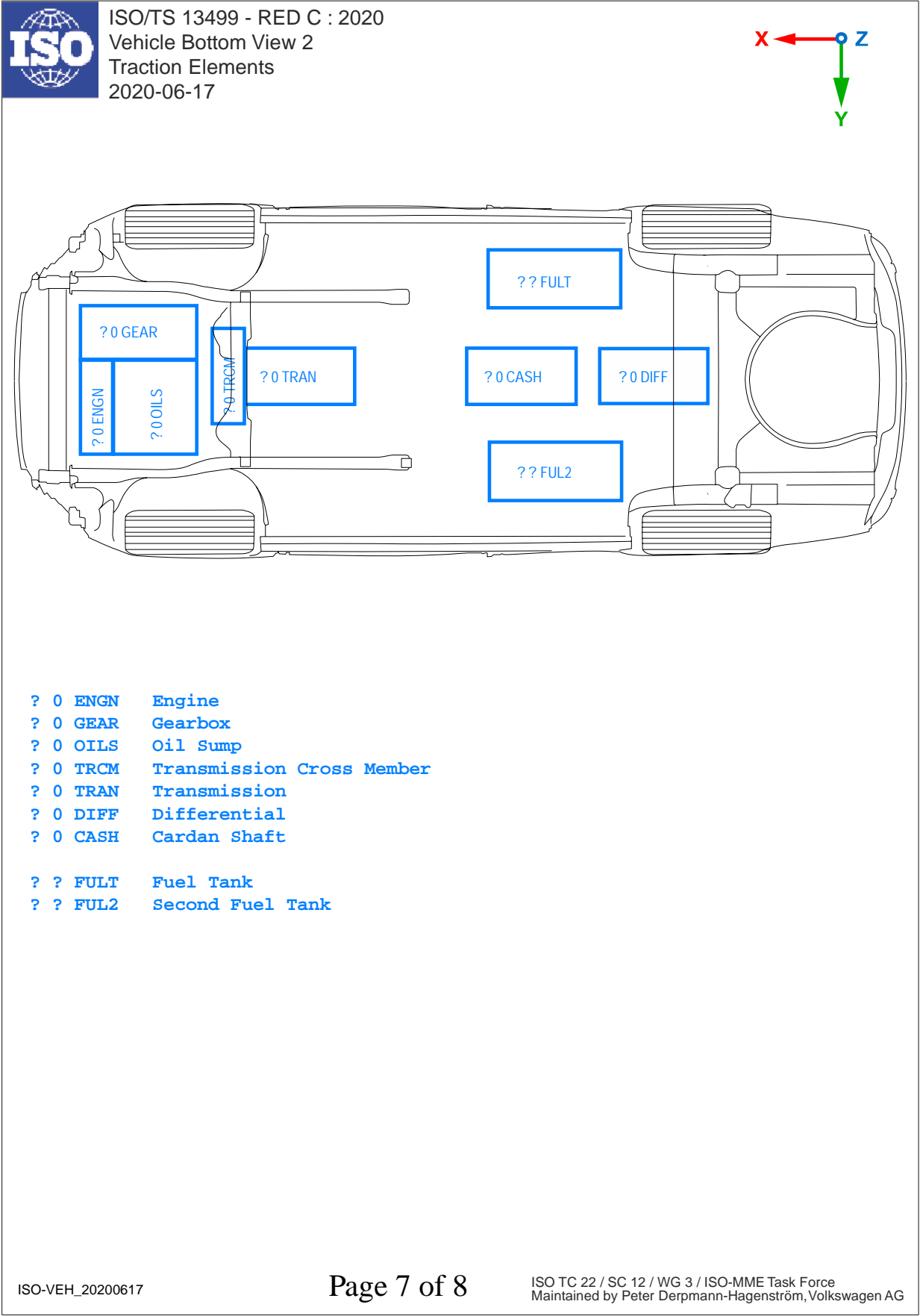
Valid since Version 1.6.2.p2

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

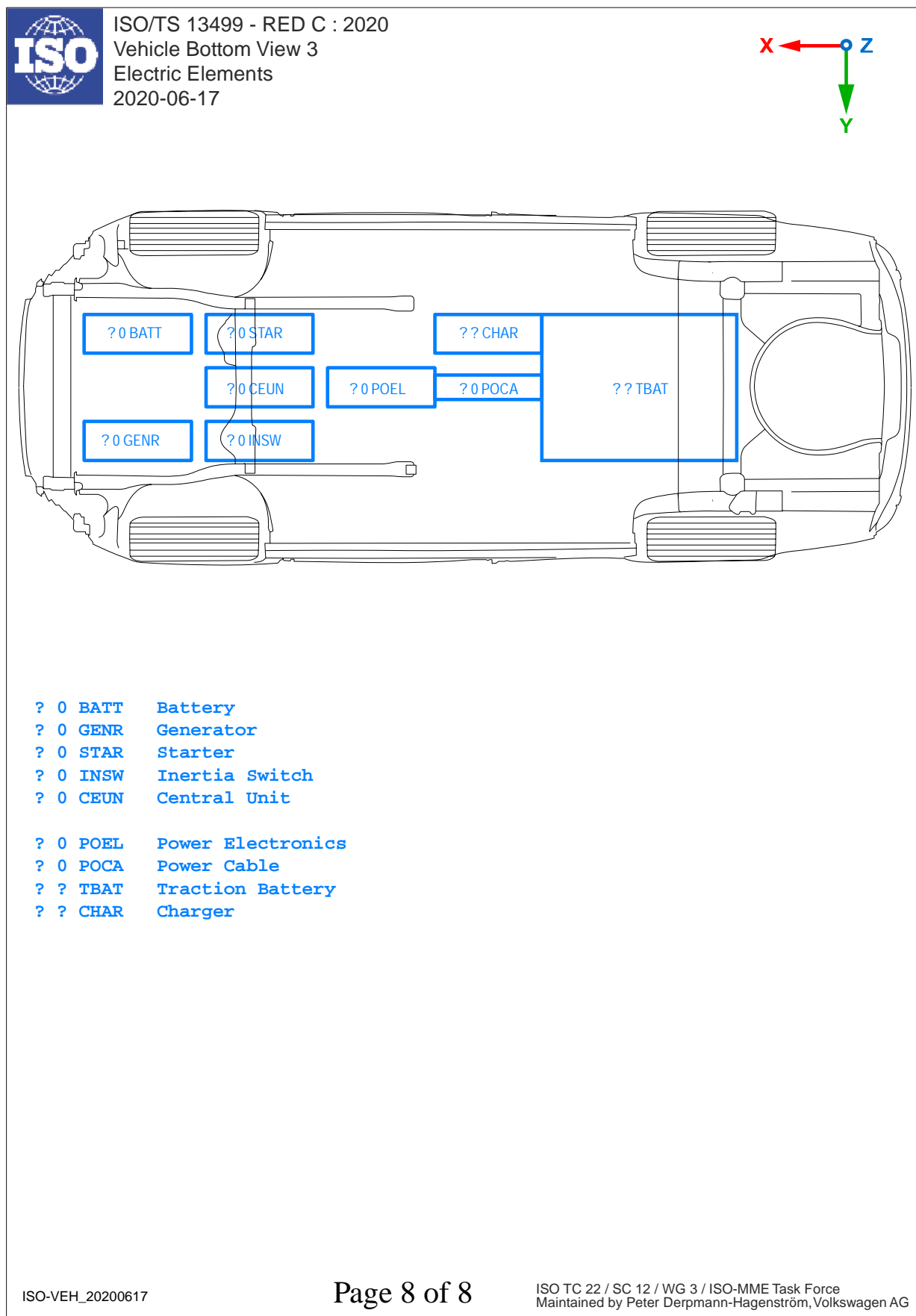


VEH_B2 Vehicle bottom

Valid since Version 1.6.2.p2
engine, transmission, fuel tank, electrical components,

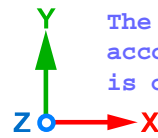


VEH_B3 Vehicle bottom

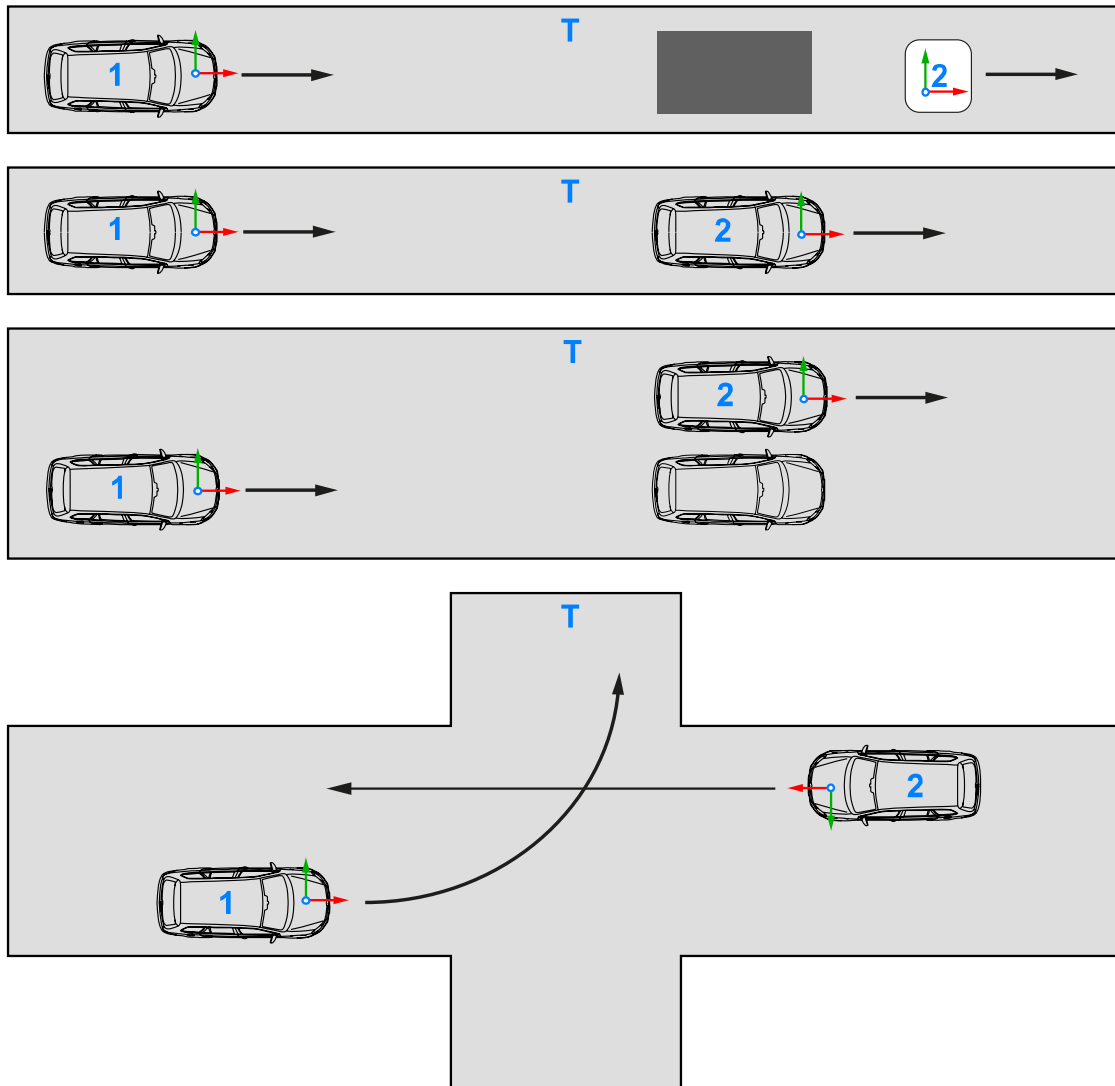
Valid since Version 1.6.2.p2
electric elements



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)
```


[illegible]

Testobject 3 T Test Ground

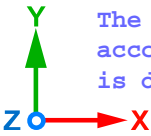
ACTIVE Active Safety

Valid since Version 1.6.2

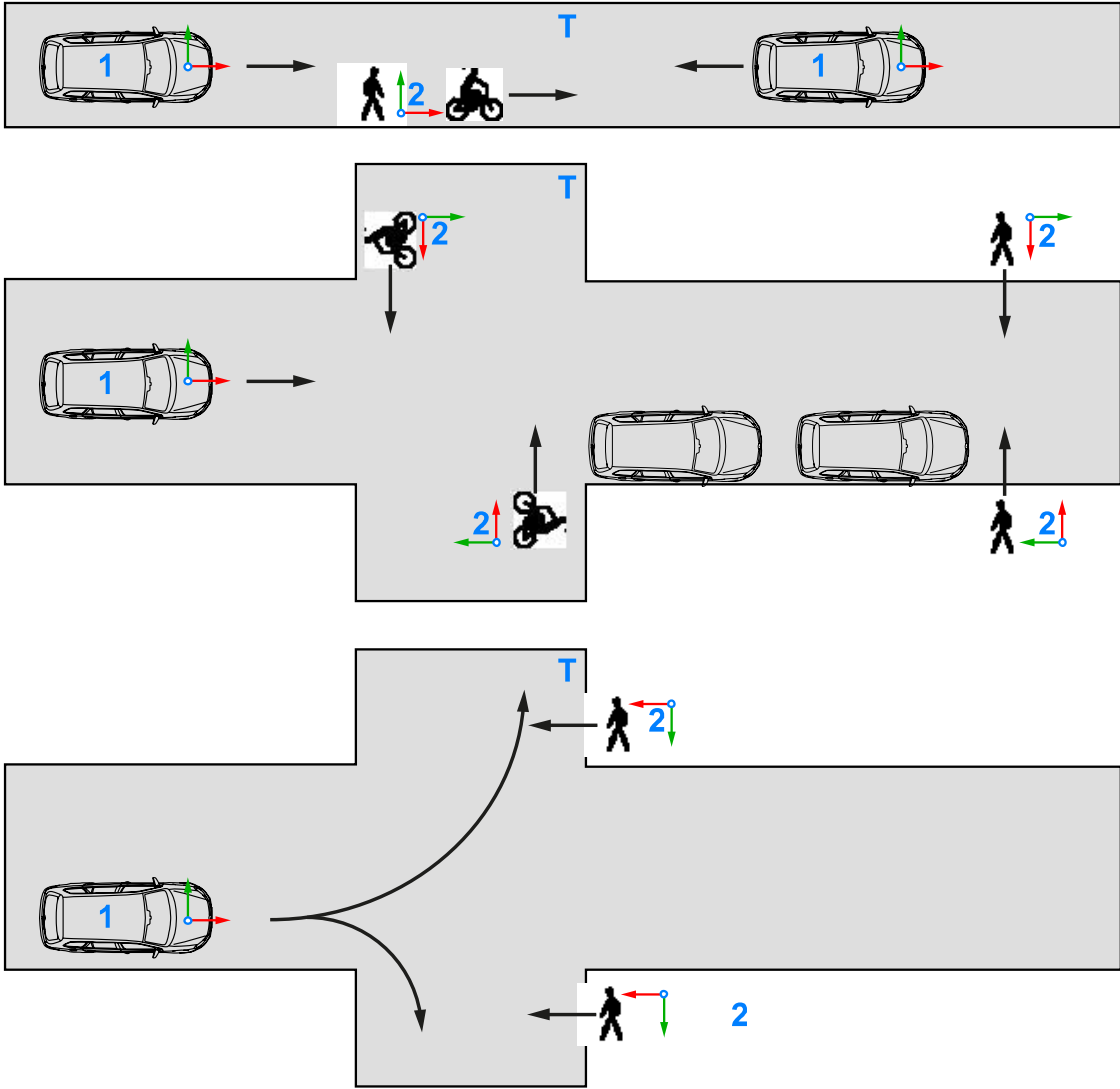
Active Safety configurations - Vulnerable Road Users



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 11Vehicle 1(VUT = Vehicle under Test, TV = Test Vehicle, SV = Subject Vehicle)


Testobject 22Target(EPT = EuroNCAP Pedestrian Target, EBT = EuroNCAP Bicyclist and Bike Target, TT = Test Target)

Testobject 3TTest Ground

ISO-ACTIV_20200617

Page 2 of 3

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



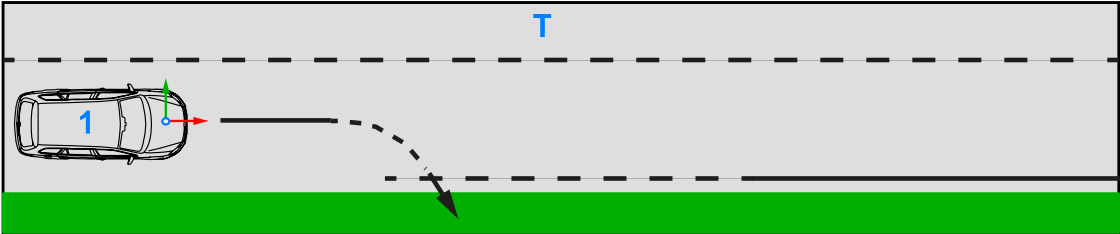
ISO/TS 13499 - RED C : 2020
Active Safety Systems
Lane Support Systems
2020-06-17

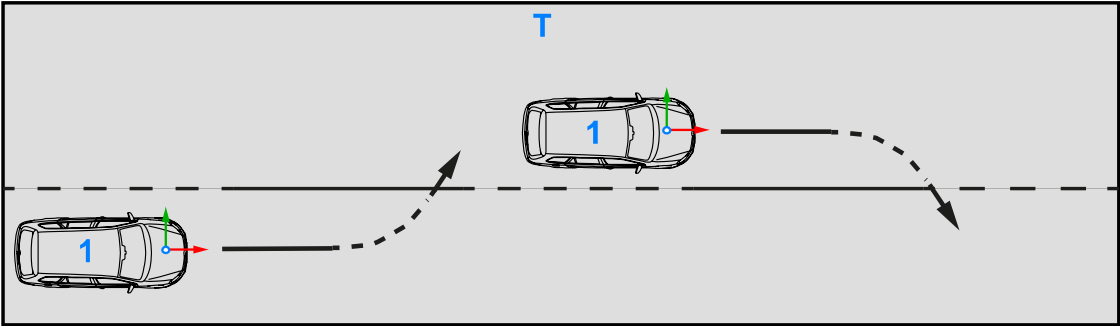
Y

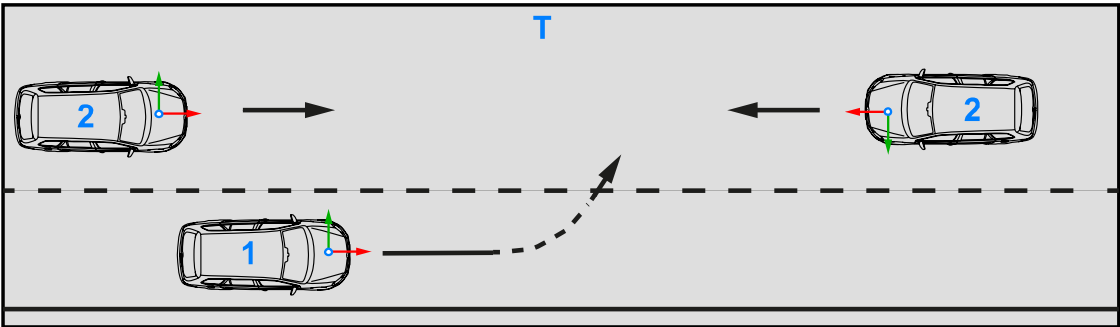
Z

X

The coordinate reference system according ISO_8855_1991 is different to SAE_J211_1985.







Testobject 11Vehicle 1(VUT = Vehicle under Test, TV = Test Vehicle, SV = Subject Vehicle)

Testobject 22Target(GVT = Global Vehicle Target, VT = Vehicle Target, POV = Principle Other Vehicle)

Testobject 3TTest Ground


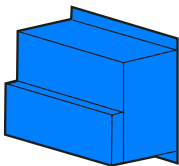
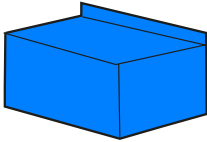
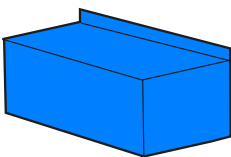
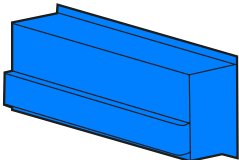
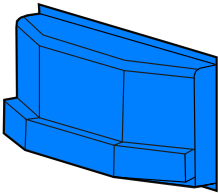
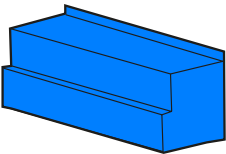
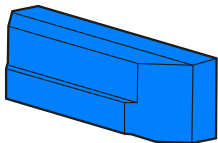
ISO-ACTIV_20200617

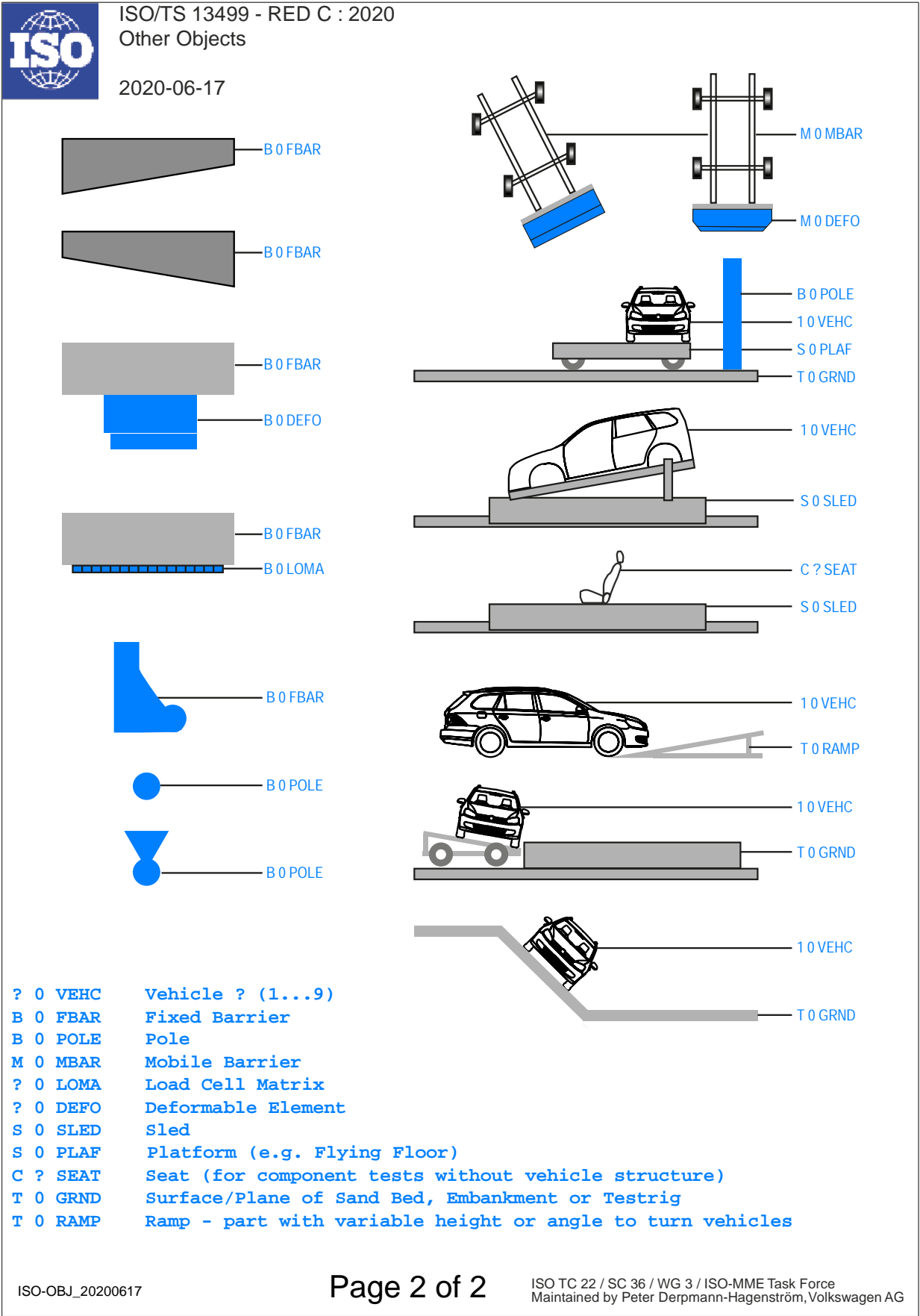
Page 3 of 3

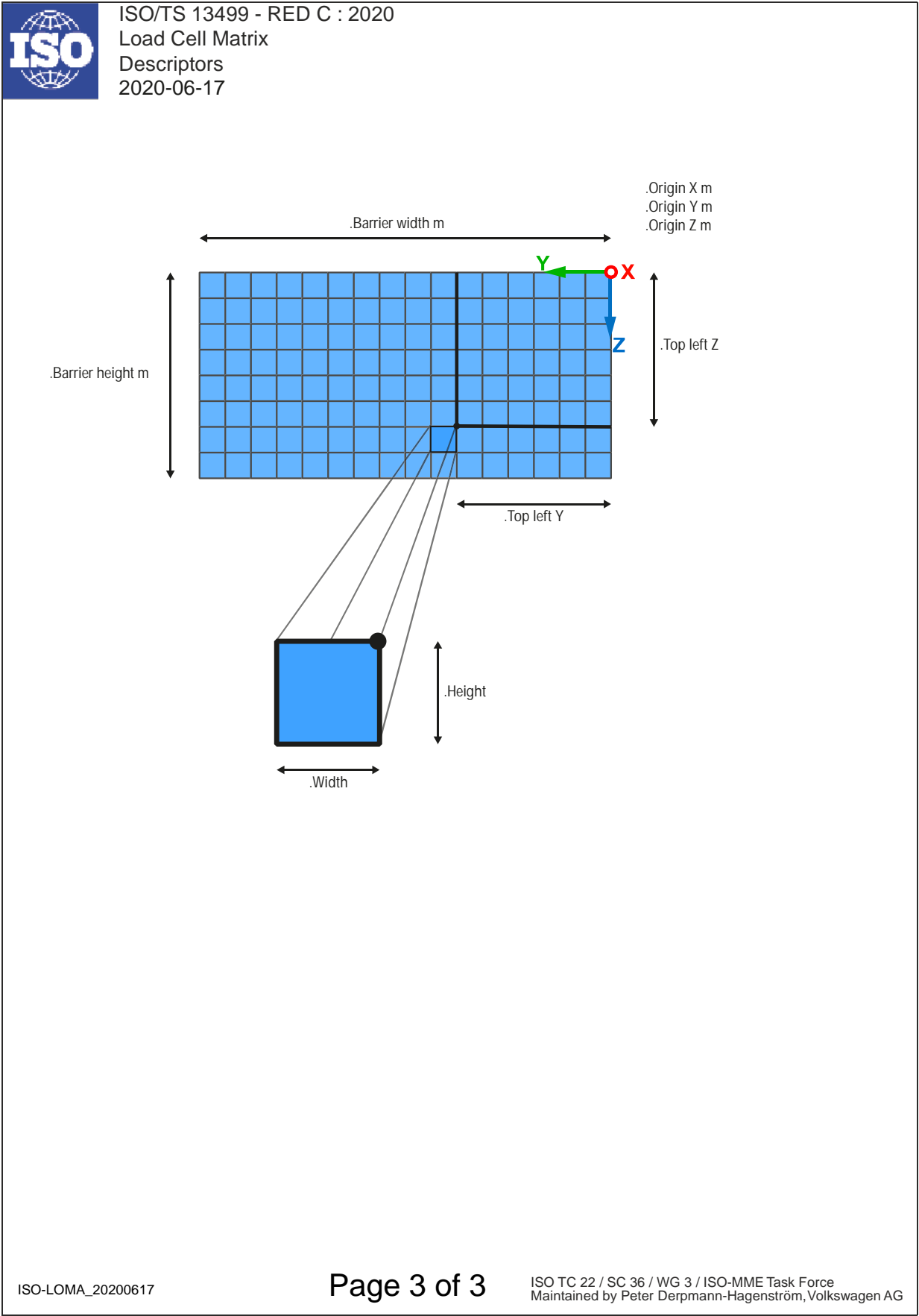
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
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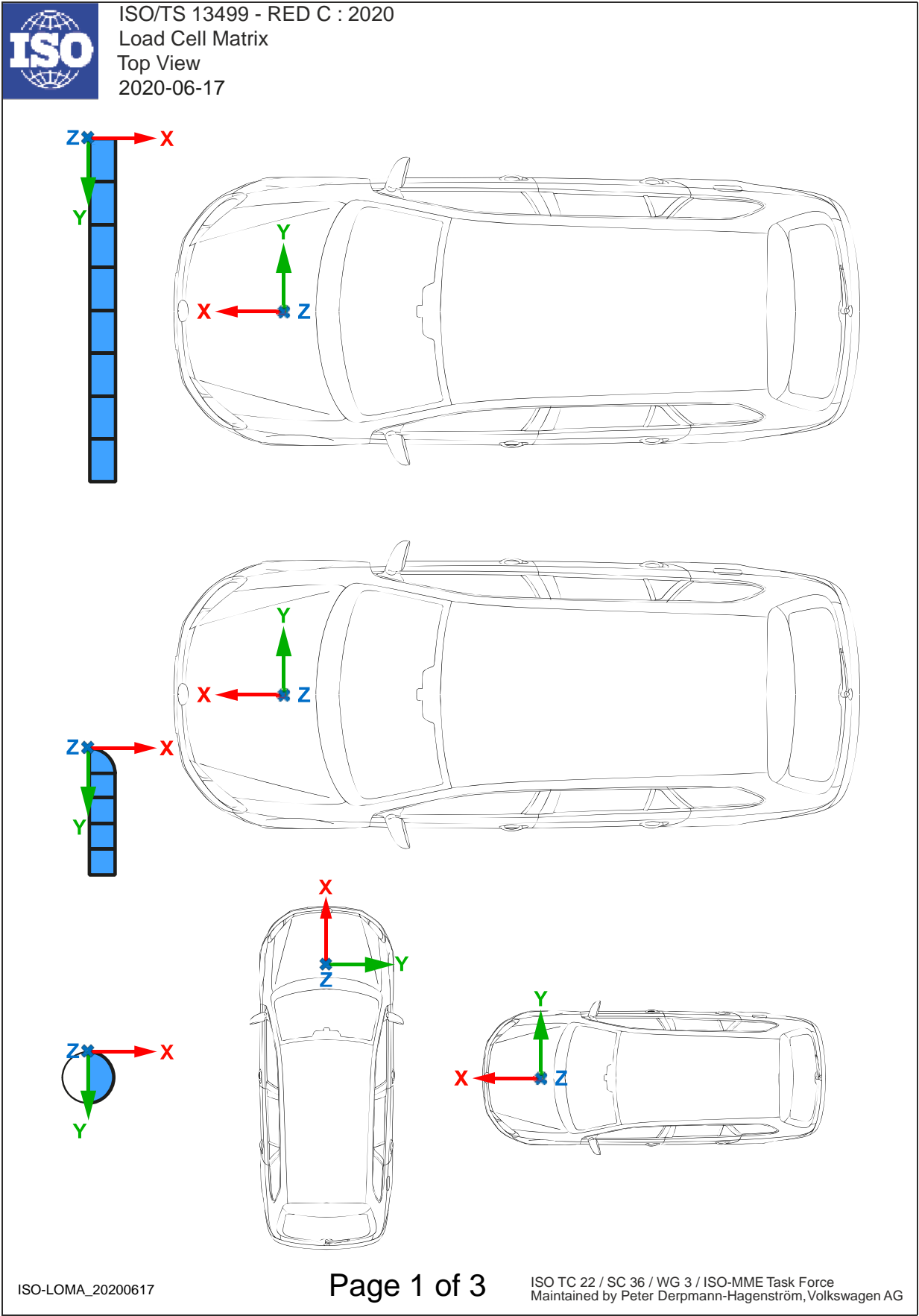
OBJ_1 Objects


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			
ISO-OBJ_20200617		Page 1 of 2	
ISO TC 22 / SC 36 / WG 3 / ISO-MME Task Force Maintained by Peter Derpmann-Hagenström, Volkswagen AG			







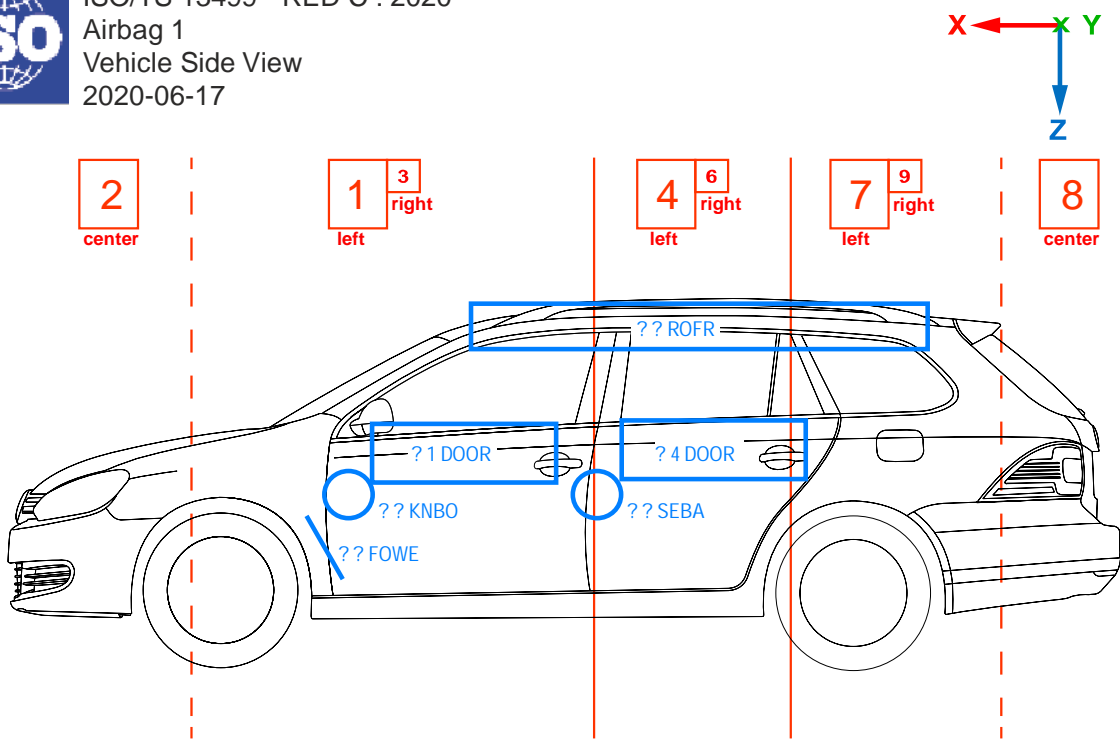


ISO/TS 13499 - RED C : 2020

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)

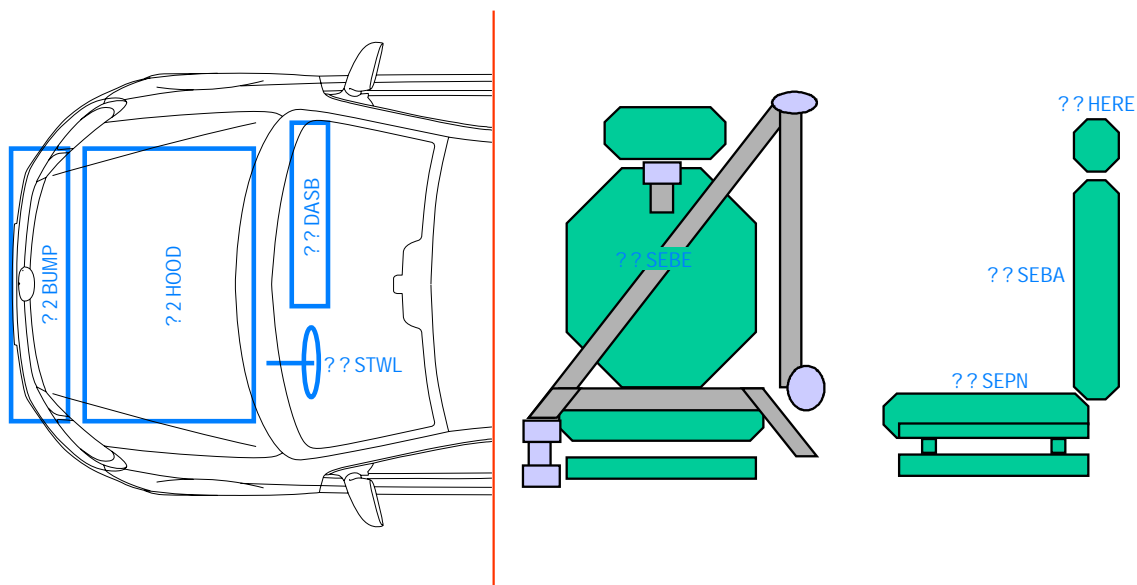
? ? AIRB	???	AI	Interaction Airbag
? ? AIRB	???	GI	Interaction Generator

ISO-AIRB_20200617

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AIRB Airbag (2)

Valid since Version 1.6.2
external, seat related airbagsISO/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

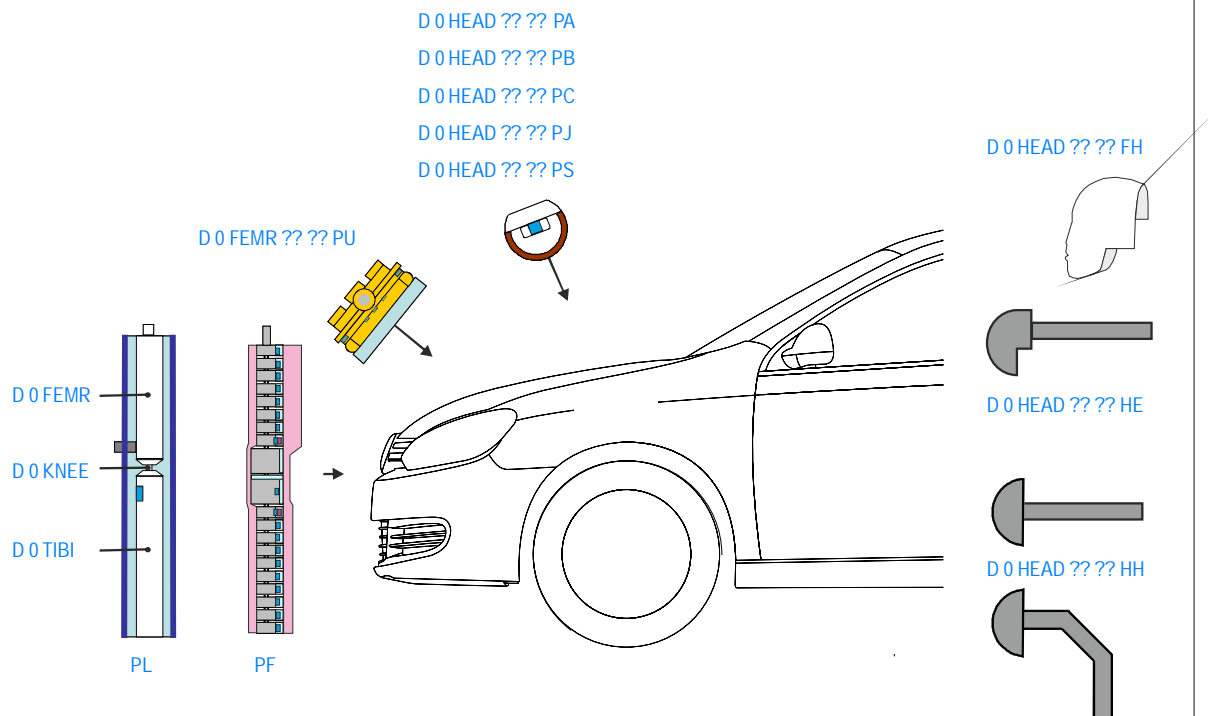
Side Airbags

? ? 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.

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


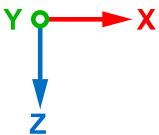
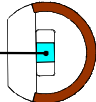
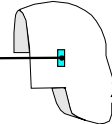
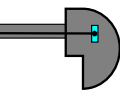
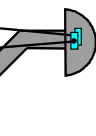
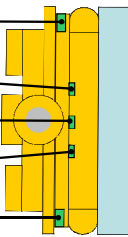


D 0	HEAD	??	??	FH	Free Motion Headform
D 0	HEAD	??	??	HE	Headform (e.g. Ejection Mitigation)
D 0	HEAD	??	??	HH	Hemisphere Headform (e.g. FMVSS201,FMVSS202a,ECE-R17,ECE-R21,GTR7)
D 0	HEAD	??	??	PA	Adult Headform
D 0	HEAD	??	??	PB	ACEA Headform
D 0	HEAD	??	??	PC	Child Headform
D 0	HEAD	??	??	PJ	JARI Headform
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)

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 P? AC ?

D 0 HEAD 00 00 FH AC ?

D 0 HEAD 00 00 HE AC ?

D 0 HEAD LE 00 HH AC ?

D 0 HEAD RI 00 HH AC ?

D 0 FEMR UP 00 PU FO X

D 0 FEMR UP 00 PU MO Y

D 0 FEMR MI 00 PU MO Y

D 0 FEMR LO 00 PU MO Y


D 0 FEMR LO 00 PU FO X

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

ISO-IMP_20200617


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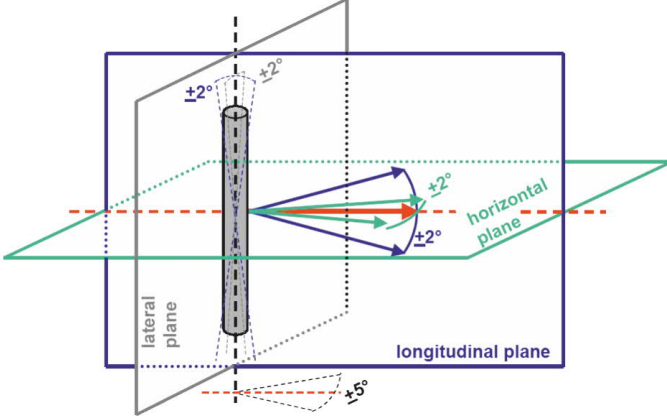


ISO/TS 13499 - RED C : 2020
Impactors
Pedestrian Legform Impactor
2020-06-17

D 0 FEMR 00 00 PL AN Y
D 0 TIBI UP 00 PL AN Y
D 0 TIBI UP 00 PL AC X



Impact direction →



lateral plane
longitudinal plane
horizontal plane
±2°
±2°
±2°
±2°
±5°

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

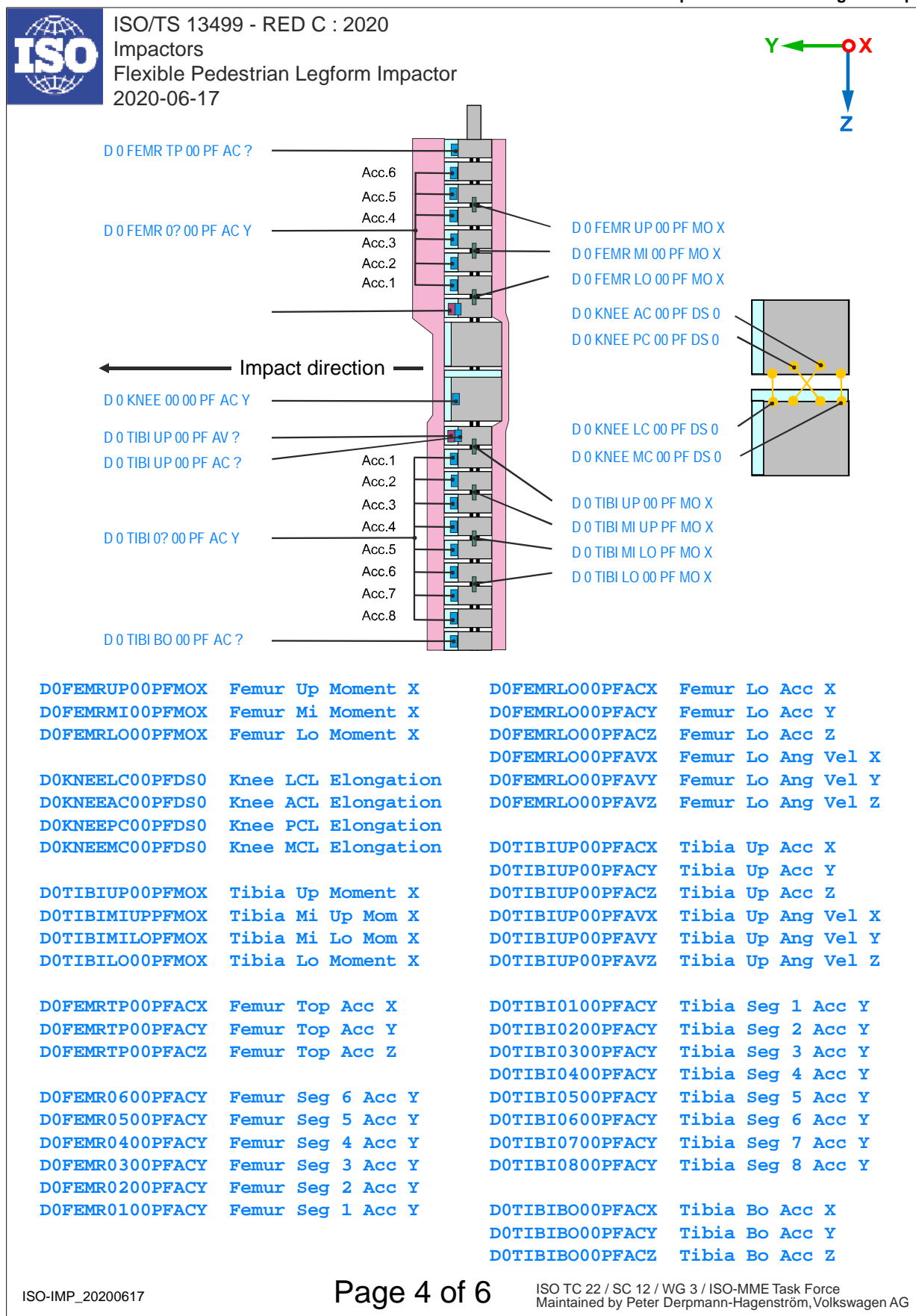
For compatibility to existing data the impact direction for this impactor defines the X coordinate of the local system.

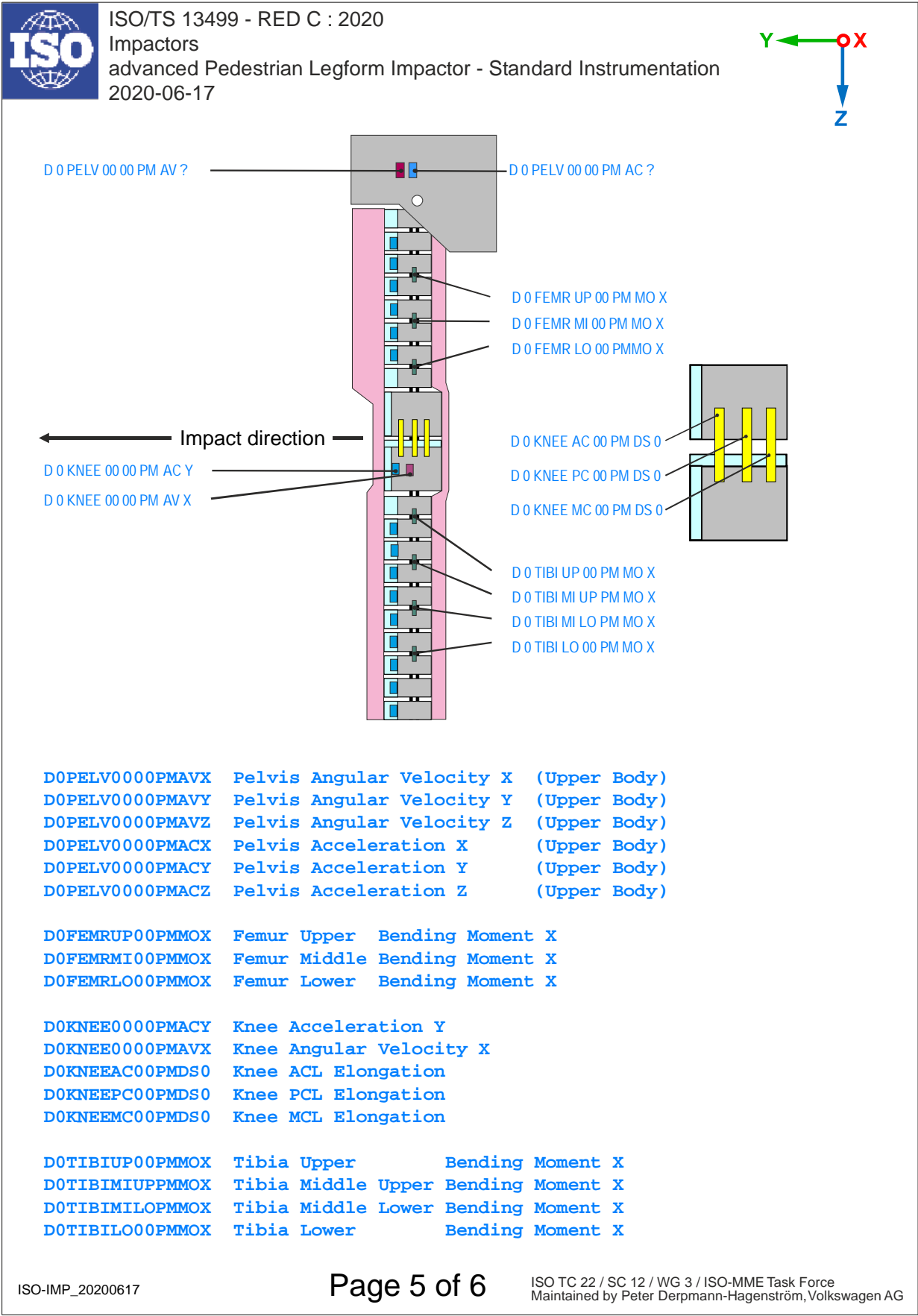
ISO-IMP_20200617

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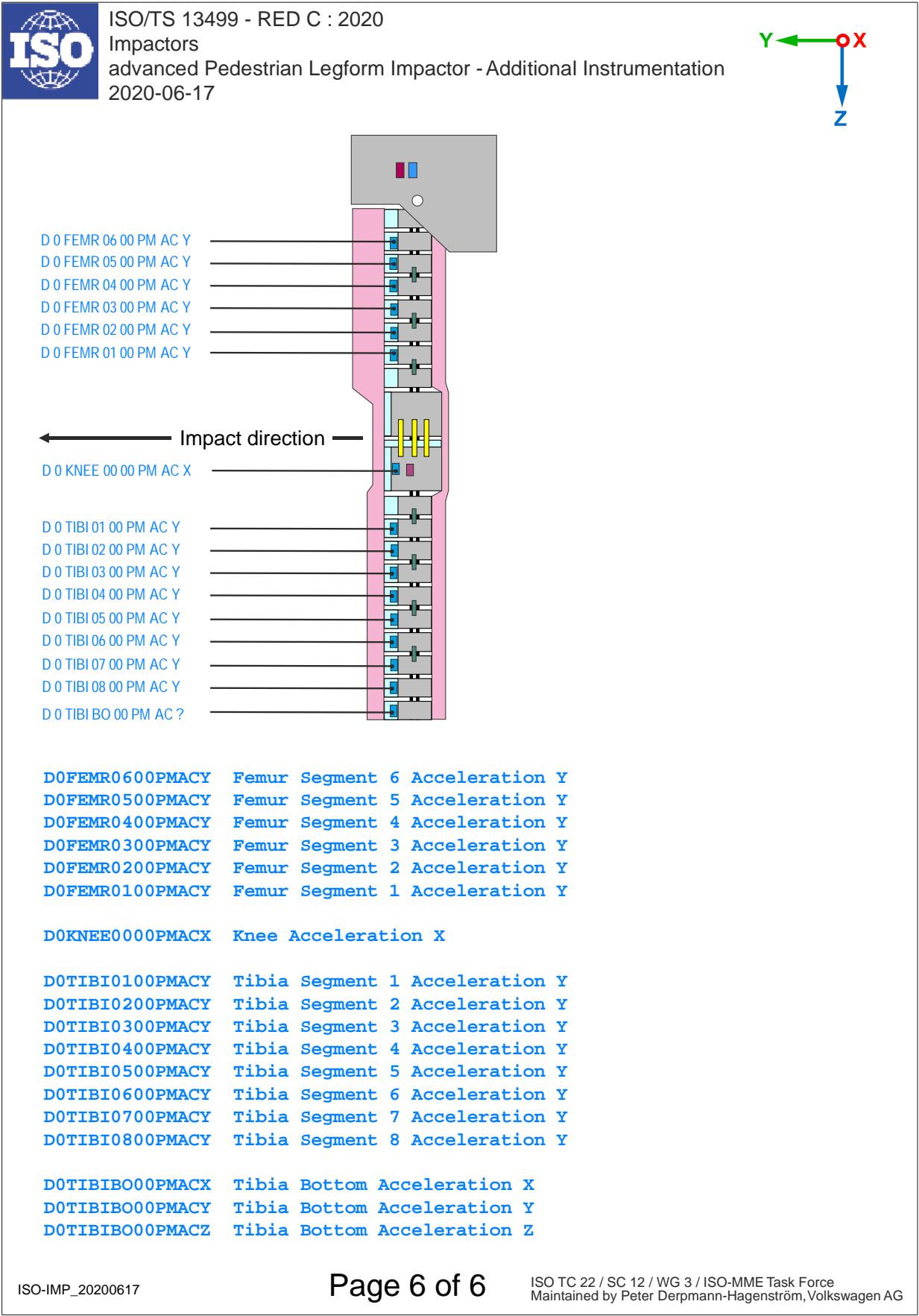
IMP Impactors: flexpli-legform

Valid since Version 1.6.2
pedestrian flexible legform impactor



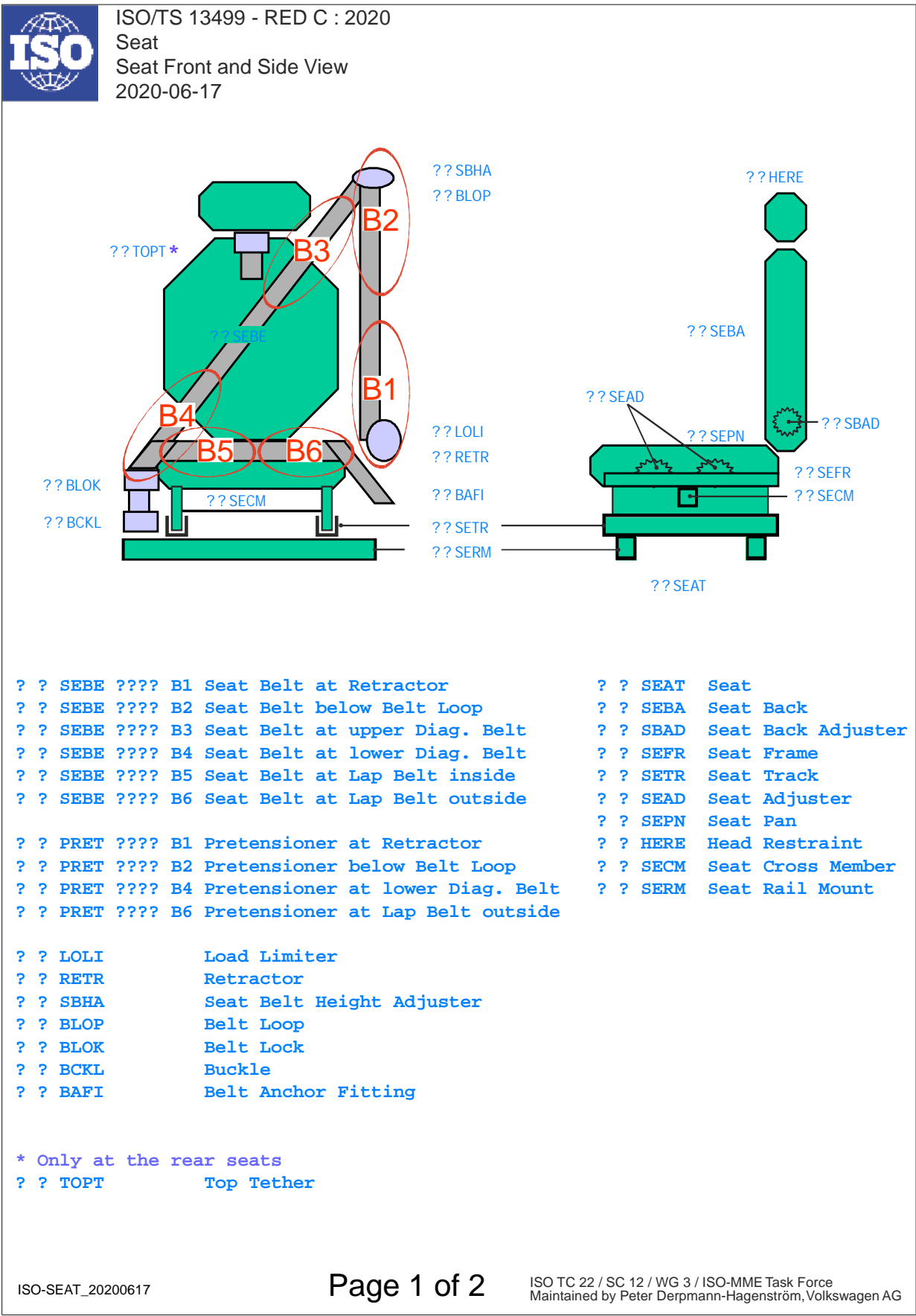
IMP Impactors: aPLI-legform

Valid since Version 1.6.2
Advanced Pedestrian Legform Impactor - Additional Instrumentation




SEAT_1 Seat

Valid since Version 1.6.1
belts and seat structure

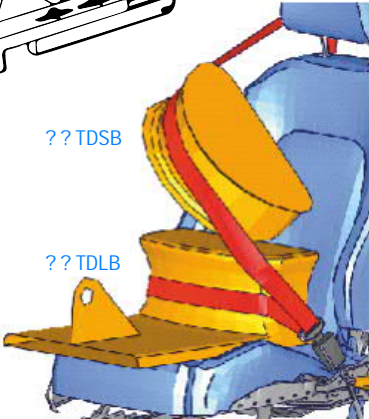
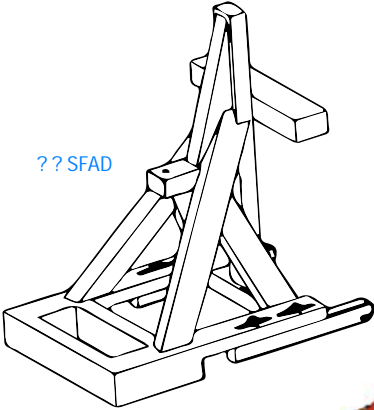
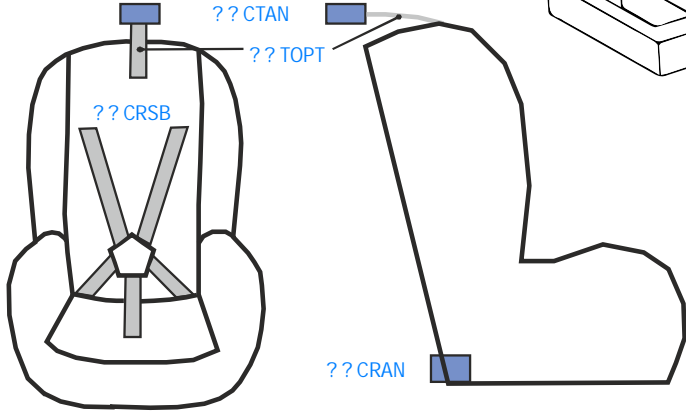


SEAT_2 Seat and traction devices

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

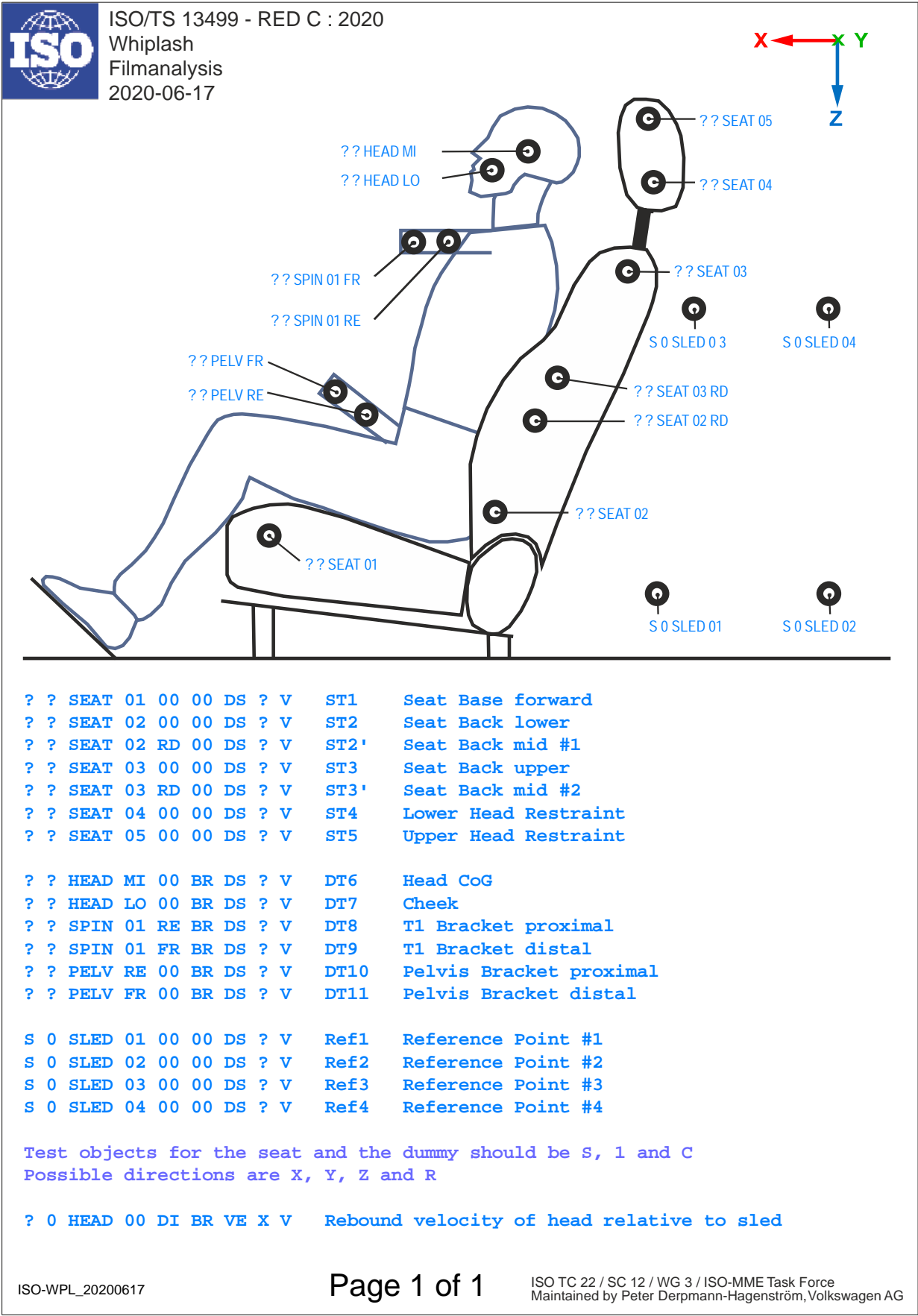
?? CTAN Child Tether Anchorage
?? CRAN Child Restraint Anchor
?? CRSB Child Restraint Seat Belt
?? TOPT Top Tether

?? SFAD Static Force Application Device

ISO-SEAT_20200617

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ISO-WPL_20200617


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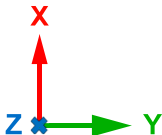
OTHER Chest Deflection Measurement

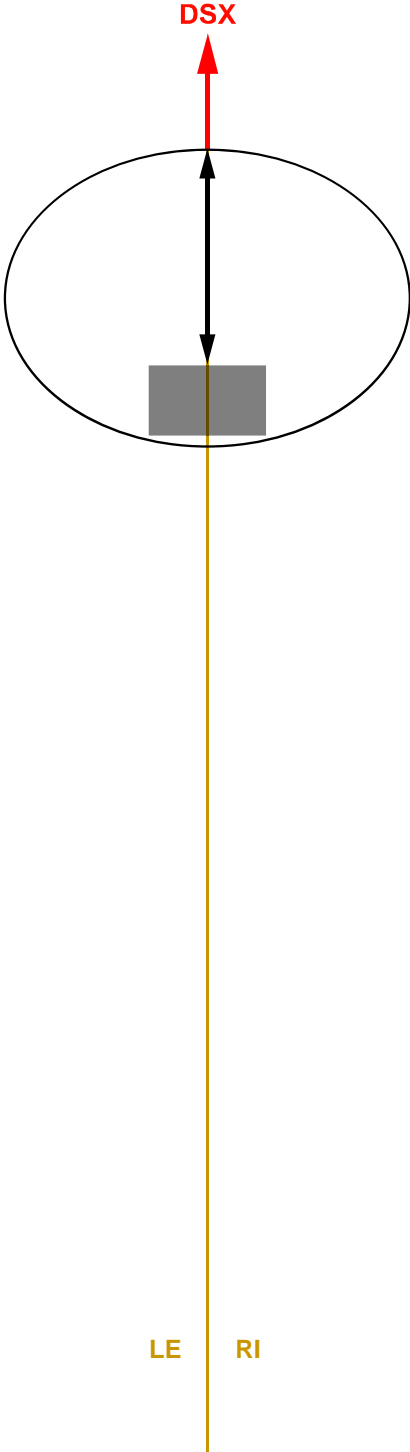
Valid since Version 1.6.2.p3

Chest Deflection Coding for different dummy types



ISO/TS 13499 - RED C : 2020
Chest Deflection
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 Assessment of Compression

ISO-CHST_20200617


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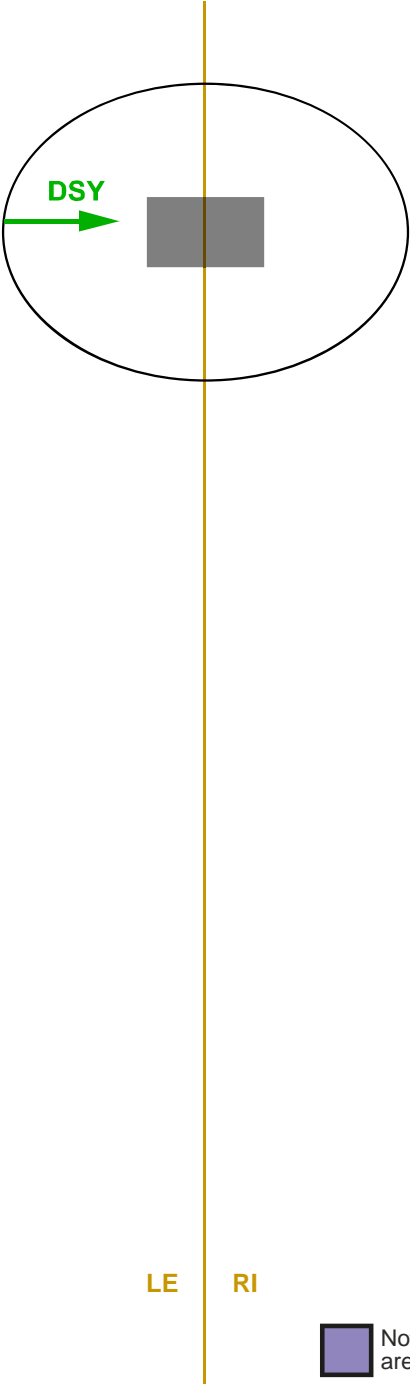
OTHER Chest Deflection Measurement

Valid since Version 1.6.2.p3

Chest Deflection Coding for different dummy types



ISO/TS 13499 - RED C : 2020
Chest Deflection
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 Assessment of Compression


ISO-CHST_20200617

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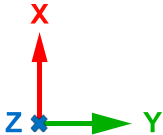
ISO TC 22 / SC 12 / WG 3 / ISO-MME Task Force
Maintained by Peter Derpmann-Hagenström, Volkswagen AG

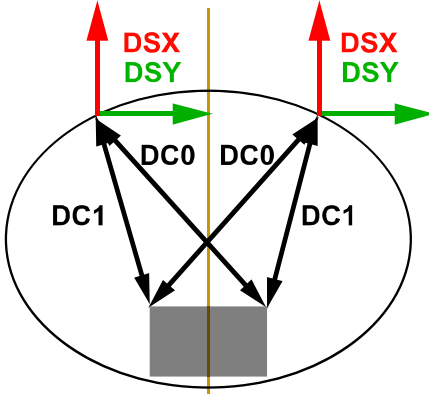
OTHER Chest Deflection Measurement

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





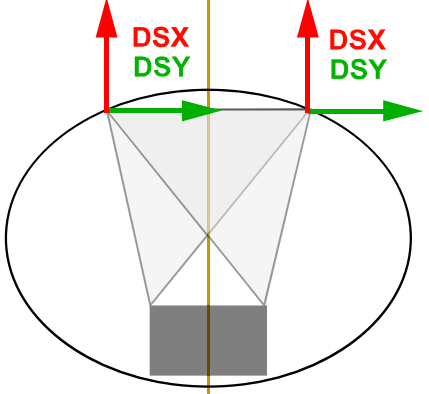
String Potentiometer **H3, HF**

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:

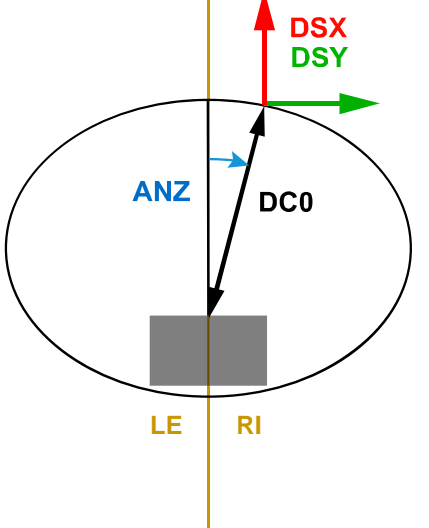
```
CHST LE UP ?? DS X,Y
CHST RI UP ?? DS X,Y
CHST LE LO ?? DS X,Y
CHST RI LO ?? DS X,Y
```



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 Assessment of Compression

ISO-CHST_20200617

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ISO_CHST_3_162_20200617.EMF

-> OTHER <- 3 of 6


ISO MME Database 252 - Data Release 1.6.3.p1

107

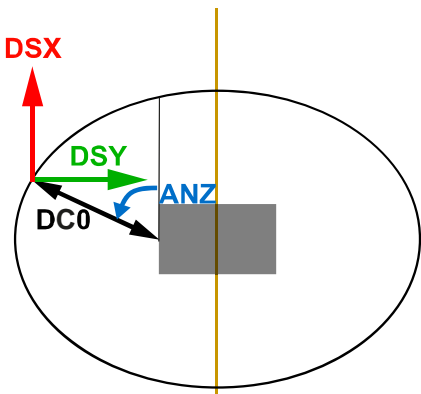
OTHER Chest Deflection Measurement

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 VOO
SHRI LE 00 WS DC0
SHRI LE 00 WS ANZ
TRRI LE 0? WS VOO
TRRI LE 0? WS DC0
TRRI LE 0? WS ANZ
ABRI LE 0? WS VOO
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 VOO
CHST LE UP QA DC0
CHST LE UP QA ANZ
CHST LE LO QA VOO
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 Assessment of Compression

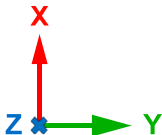
OTHER Chest Deflection Measurement

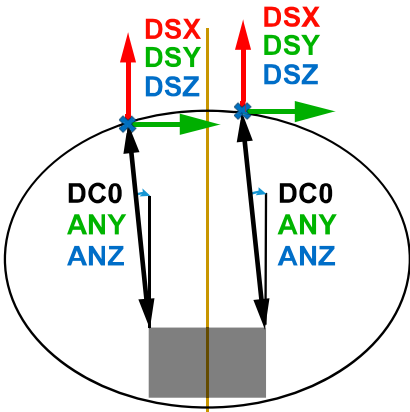
Valid since Version 1.6.2.p3

Chest Deflection Coding for different dummy types



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



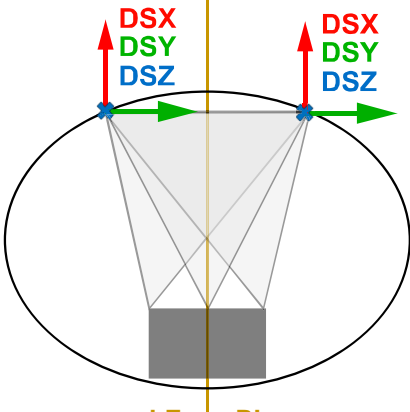


3D MTRAC* TH , (THMPR) H3, HF
transducer:

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

LE
RI

* MTRAC: Multidimensional Telescoping Rod for the Assessment of Compression

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

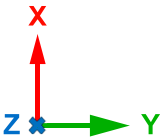
OTHER Chest Deflection Measurement

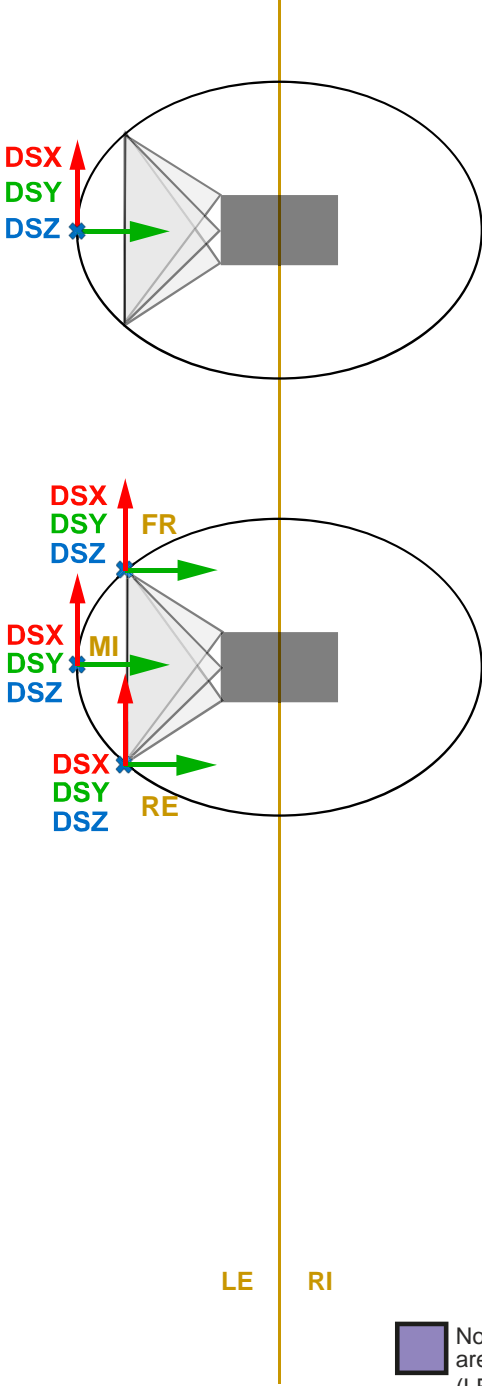
Valid since Version 1.6.2.p3

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
```

LE RI

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