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S Schweizerischer Kalibrierdienst
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Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.749 ± 0.1% (k=2)	404.733 ± 0.1% (k=2)	405.174 ± 0.1% (k=2)
Low Range	3.98175 ± 0.7% (k=2)	3.93601 ± 0.7% (k=2)	3.96830 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	90.0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199991.9	-0.91	-0.00
Channel X	+ Input	20000.28	0.48	0.00
Channel X	- Input	-19998.51	0.59	-0.00
Channel Y	+ Input	200003.0	1.24	0.00
Channel Y	+ Input	19999.67	0.17	0.00
Channel Y	- Input	-20000.04	-0.34	0.00
Channel Z	+ Input	200010.1	-0.11	-0.00
Channel Z	+ Input	19999.33	-0.07	-0.00
Channel Z	- Input	-20001.45	-0.85	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.0	0.05	0.00
Channel X	+ Input	199.81	-0.09	-0.04
Channel X	- Input	-199.63	0.37	-0.19
Channel Y	+ Input	1999.9	-0.22	-0.01
Channel Y	+ Input	198.81	-1.19	-0.59
Channel Y	- Input	-201.62	-1.72	0.86
Channel Z	+ Input	2000.4	0.48	0.02
Channel Z	+ Input	199.30	-0.70	-0.35
Channel Z	- Input	-200.86	-1.06	0.53

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	14.43	13.13
	- 200	-12.22	-13.72
Channel Y	200	-10.07	-9.78
	- 200	9.61	8.66
Channel Z	200	-0.56	-0.83
	- 200	-0.01	0.11

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	3.08	0.09
Channel Y	200	3.19	-	4.59
Channel Z	200	0.90	-0.06	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15920	15519
Channel Y	16179	17567
Channel Z	15791	15270

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.03	-1.16	2.66	0.46
Channel Y	-0.63	-3.22	0.29	0.46
Channel Z	-0.87	-2.03	0.28	0.46

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

ANNEX G: The EUT Appearances and Test Configuration

Picture 3-1: EUT

Front

Side

Back

Side

Picture 3-2: Thicker Battery

Front

Side

Back

Side

Picture 3-3: Thinner Battery

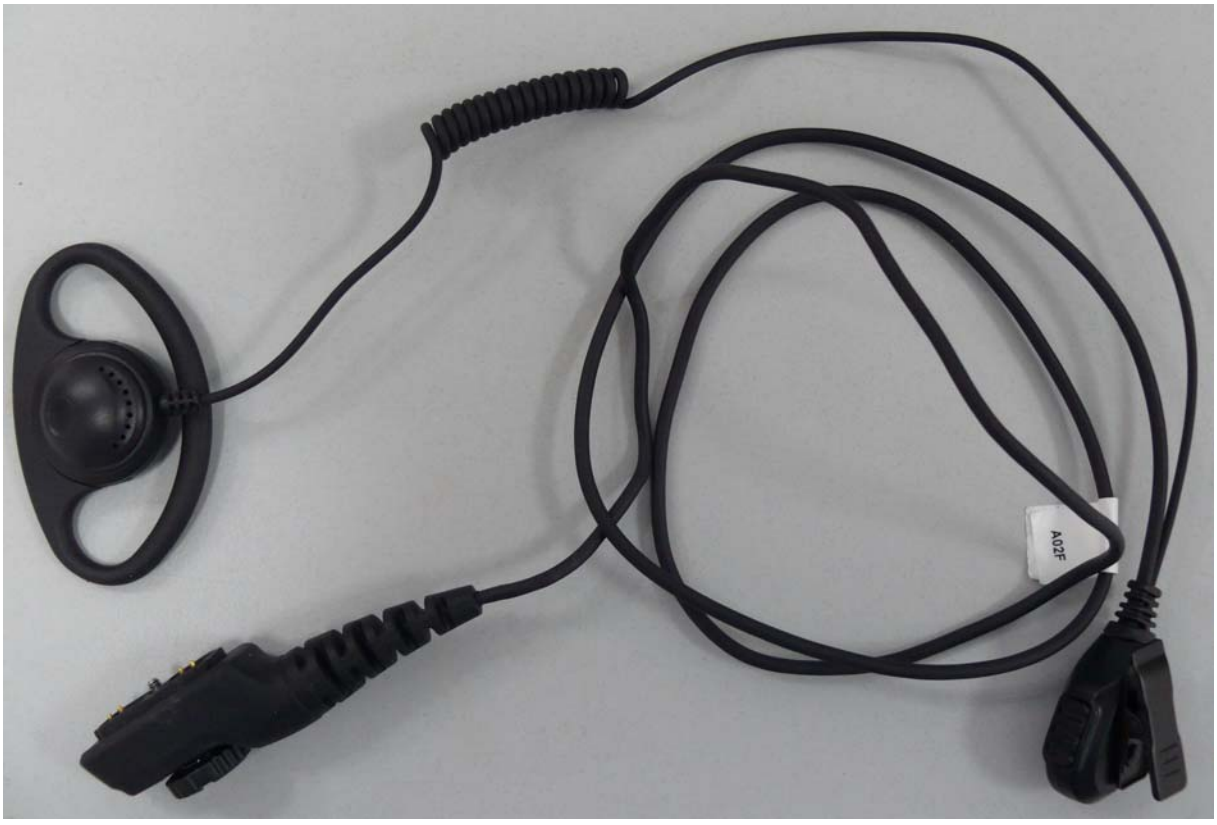
Picture 3-4: Belt

Picture 3-5: Earphone 1

Picture 3-6: Earphone 2

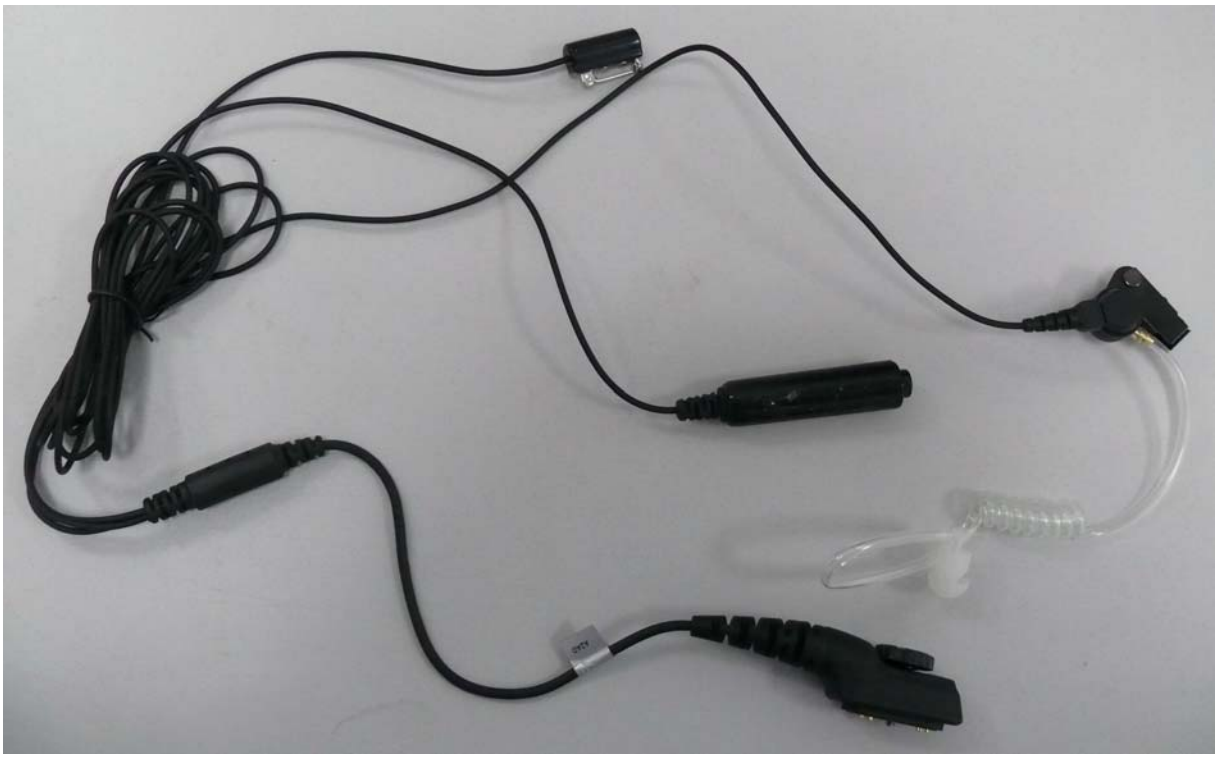
Picture 3-7: Pocket and Leather

Picture 3-8: Accessory 1



Picture 3-9: Audio Accessory 2

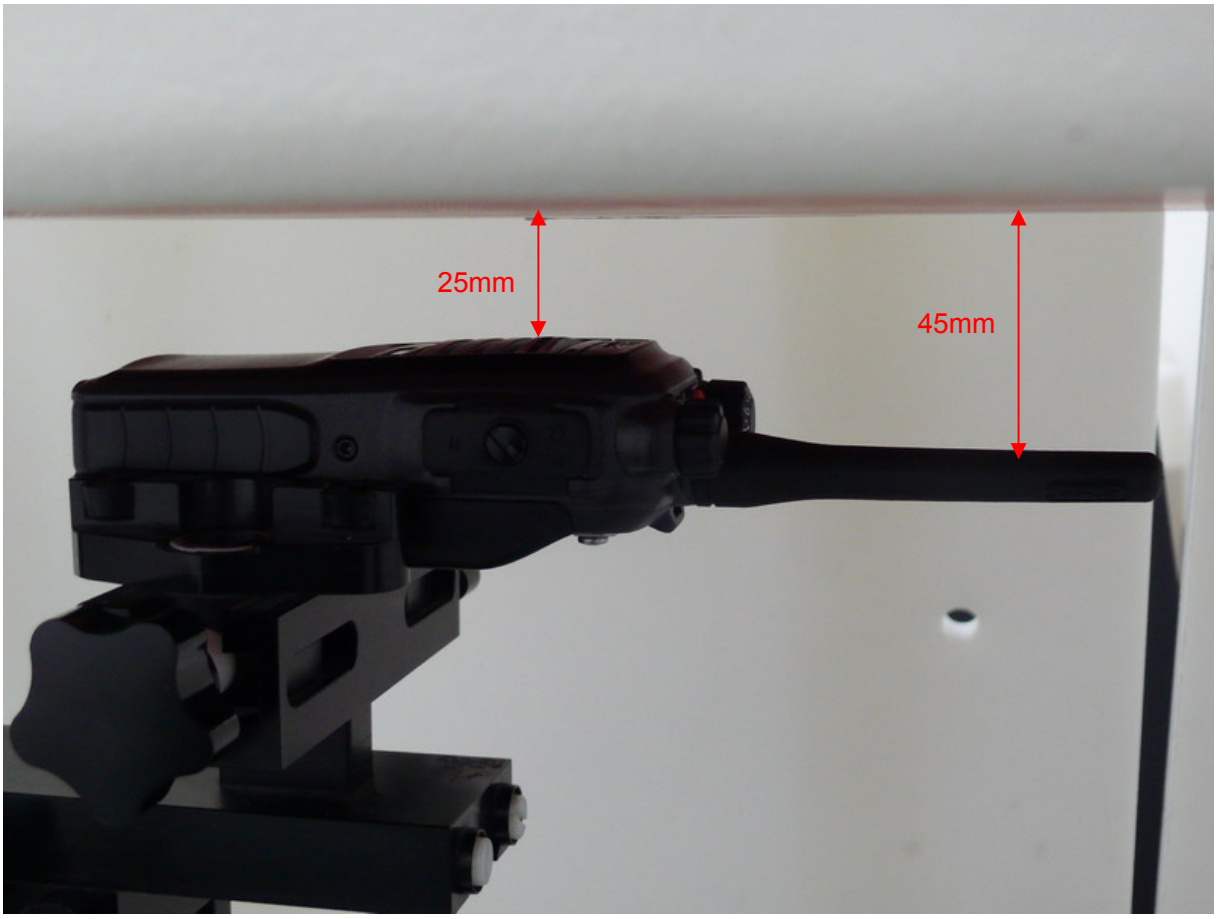
Picture 3-10: Audio Accessory 3



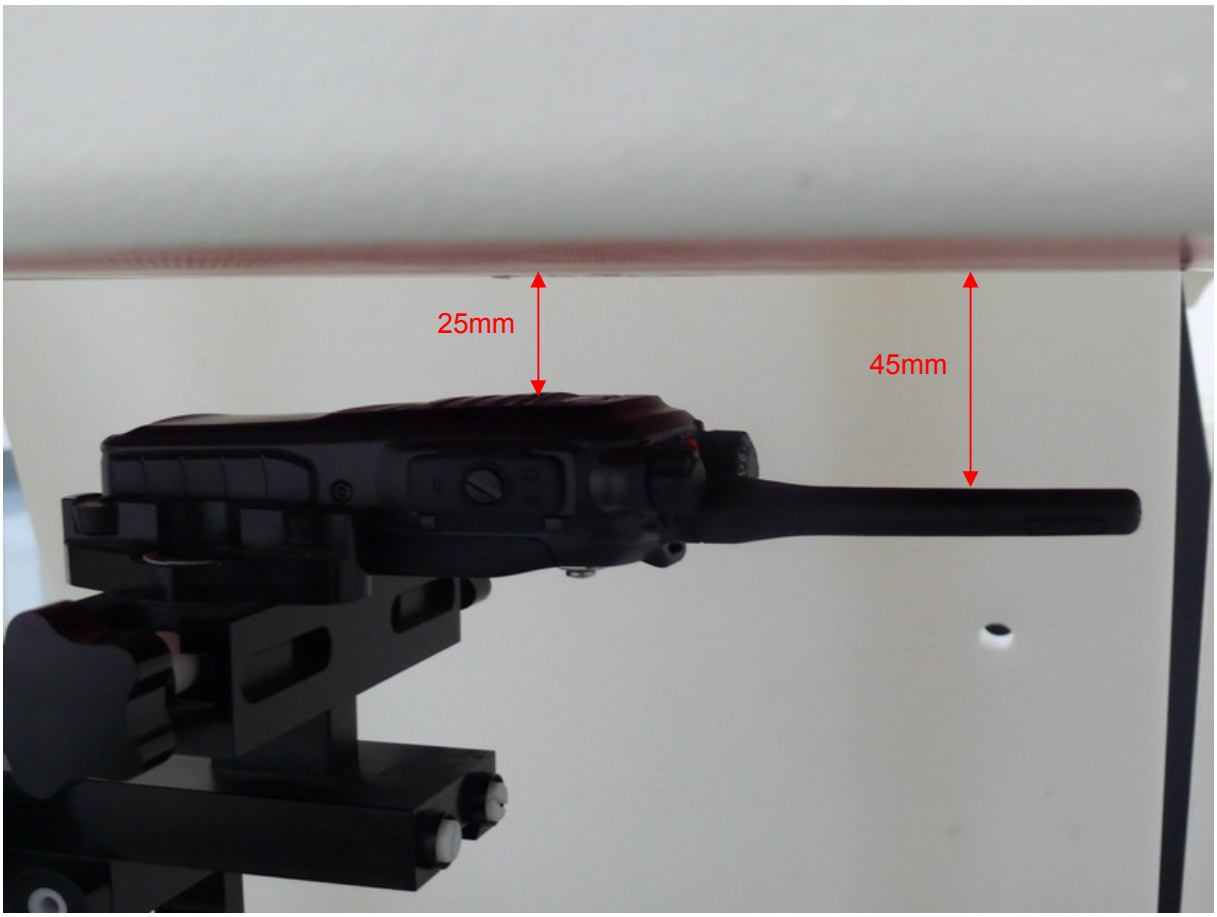
Picture 3-11: Audio Accessory 4

Picture 3-12: Audio Accessory 5

Picture 3: Constituents of the sample



Picture 4: Face-held with Thicker Battery, the front of the EUT towards phantom, the distance from EUT Antenna to the bottom of the Phantom is 45mm



Picture 5: Face-held with Thinner Battery, the front of the EUT towards phantom, the distance from EUT Antenna to the bottom of the Phantom is 45mm

Picture 6: Body-worn with Thinner Battery, Belt and Accessory 1, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

Picture 7: Body-worn with Thinner Battery, Belt, Accessory 1 and Earphone 1, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

Picture 8: Body-worn with Thinner Battery, Belt, Accessory 1 and Earphone 2, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

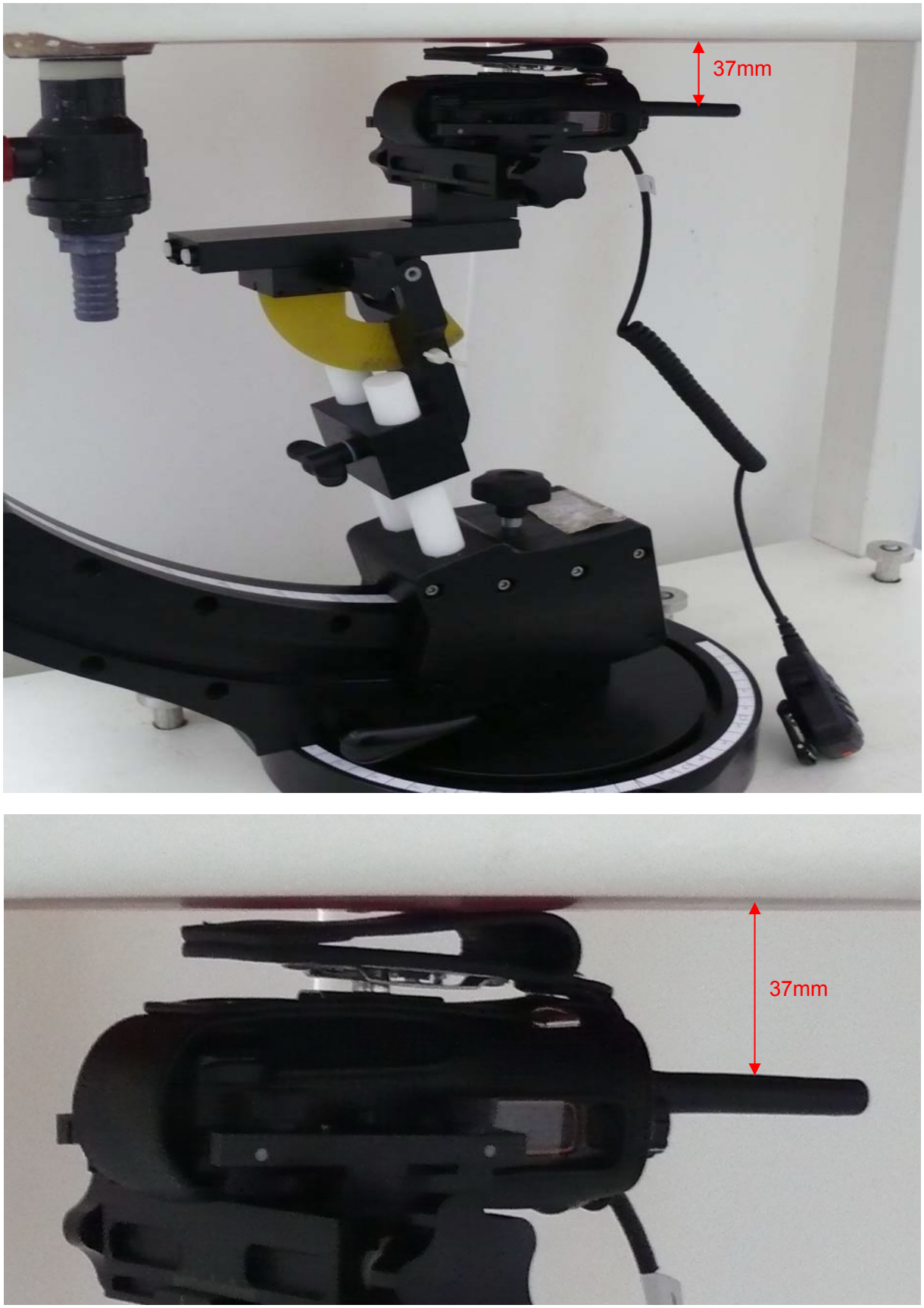
Picture 9: Body-worn with Thinner Battery, Belt and Audio Accessory 2, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

Picture 10: Body-worn with Thinner Battery, Belt and Audio Accessory 3, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

Picture 11: Body-worn with Thinner Battery, Belt and Audio Accessory 4, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

Picture 12: Body-worn with Thinner Battery, Belt and Audio Accessory 5, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm

Picture 13: Body-worn with Thinner Battery, Pocket and Accessory 1, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 26mm



Picture 14: Body-worn with Thinner Battery, Pocket, Leather and Accessory 1, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 37mm

Picture 15: Body-worn with Thicker Battery, Belt and Accessory 1, the front of the EUT towards ground, the distance from EUT Antenna to the bottom of the Phantom is 24mm