EMC TEST REPORT

Type of equipment:	**Autonomous Fill Level Sensor**
Model:	**BWSFNB**
Marketing name:	**Binology WSens**
Sub model:	N/A
Serial number:	N/A
Applicant:	**Binology LLC**
Manufacturer:	**Binology LLC**
Test standards:	**ETSI EN 301 489-1 V2.2.3 (2019-11)** *ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU* **ETSI EN 301 489-3 V2.1.1 (2019-03)** *ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*
Test report no.:	LEITC-TR-21-130
Identification no.:	ID_1058
Testing laboratory:	SIA LEITC
Result summary:	**Pass**

Test responsible:	Andris Dzenis
Laboratory responsible:	Uldis Stūre
Date of issue:	30.09.2021

SABIEDRĪBA AR IEROBEŽOTU ATBILDĪBU LEITC LATVIJAS REPUBLIKA

Contents

1. REVISION HISTORY

Revision no.	Description	Date	Pages revised
00	First release.	30.09.2021	N/A

2. LABORATORY INFORMATION

LEITC
Latvian Electronic Equipment Testing Centre

Testing laboratory: **SIA LEITC**
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Accredited by: State agency Latvian National accreditation bureau (LATAK)
Address: Kr.Valdemara str. 157, Riga, LV-1013, Latvia
E-mail: latak@latak.gov.lv
Web site: http://www.latak.gov.lv
Accreditation No: LATAK-T-397-10-2009

3. CLIENT INFORMATION

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Manufacturer:	Binology LLC
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E-mail:	info@binology.com
Web:	www.binology.com

4. SUMMARY OF TEST RESULTS

Standard:	**ETSI EN 301 489-1 V2.2.3 (2019-11)**
Title:	*ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU*
Reference standard:	**ETSI EN 301 489-3 V2.1.1 (2019-03)**
Title:	*ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*

Emissions

No.	Measurement type	Reference standard	Applicability	Result
1.	Radiated emissions (30MHz to 1GHz)	LVS EN 55032:2015+AC:2017+A11:2020 (Class B)	Y	**Pass**
2.	Radiated emissions (1GHz to 6GHz)	LVS EN 55032:2015+AC:2017+A11:2020 (Class B)	Y	**Pass**

Notes: Y- applied; N/A - not applicable.

Deviations from standard specification: no deviations from the test standards.

Standard:	**ETSI EN 301 489-1 V2.2.3 (2019-11)**
Title:	*ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU*
Reference standard:	**ETSI EN 301 489-3 V2.1.1 (2019-03)**
Title:	*ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*

Immunity

No.	Measurement type	Reference standard	Applicability	Result
1.	Radio frequency radiated electromagnetic field immunity	LVS EN 61000-4-3:2006+A1:2008+IS1:2009+ A2:2010	Y	**Pass**
2.	Radio frequency common mode immunity	LVS EN 61000-4-6:2014+AC:2015	N/A	N/A
3.	Electric fast transients/Burst	LVS EN 61000-4-4:2013	N/A	N/A
4.	Voltage dips and interruptions	LVS EN 61000-4-11:2004+A1:2017	N/A	N/A
5.	Surge	LVS EN 61000-4-5:2014+A1:2018	N/A	N/A
6.	Electrostatic discharge	LVS EN 61000-4-2:2009	Y	**Pass**
7.	Power frequency magnetic field	LVS EN 61000-4-8:2010	Y	**Pass**

Notes: Y- applied; N/A - not applicable.

Deviations from standard specification: no deviations from the test standards.

Evaluation of immunity test results

The test results are classified in terms of loss of the function or degradation of performance of the EUT:

A	normal performance within limits specified by manufacturer, requestor or purchaser
B	temporary loss of function or degradation of performance, which ceases after the disturbance ceases, and from which the EUT recovers its normal performance, without operator intervention
C	temporary loss of function or degradation of performance, the correction which requires operator intervention
D	temporary loss of function or degradation of performance which is not recoverable, owing damage to hardware or software, or loss of data

5. DESCRIPTION OF EQUIPMENT UNDER TEST

5.1 Description of EUT

LEITC identification no.: ID_1056/4

Autonomous Fill Level Sensor offers a unique set of functions for measuring the accumulation level of municipal solid waste, bulk materials, and liquids. Configurable data transmission frequency, ease of installation, a protected case, and a sensor battery life of up to 10 years will enable to implement analytics and digitalization, reduce personnel and maintenance costs.

No.	EUT	Model	Serial No.	Manufacturer
1.	Sensor	BWSFNB	N/A	Binology LLC

5.2 Peripherals and associated equipment

No.	Description	Model	Serial No.	Manufacturer
1.	Module	USR-TCP232-T2	N/A	N/A
2.	Laptop	Latitude E5550	N/A	DELL Inc.

5.3 Cables used during the testing

No.	Cable type	Shielded	Ferrite	Length used during test	Connection 1	Connection2
2.	USR-TCP wire	☐	☒	1.2m	BWSFNB	Module
3.	Ethernet (CAT6)	☒	☐	1m/20m	Module	Laptop

5.4 EUT configuration

The equipment under test (EUT) was functioning correctly during all tests, according to user's manual. The EUT was installed within the test site and was configured to simulate a typical user installation.

5.4.1 Operating modes/load

1.	The equipment under test (EUT) was functioning correctly during all tests, according to user's manual. Software used: PuTTY, Release 0.74. USR-VCOM, version: V3.7.2.529. Radiated emissions block diagram 1.
2.	The equipment under test (EUT) was functioning correctly during all tests, according to user's manual. Software used: PuTTY, Release 0.74. USR-VCOM, version: V3.7.2.529. Immunity test block diagram 2.

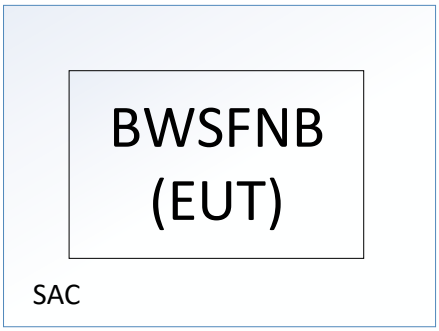
5.4.2 Modification state

1.	No modification made.

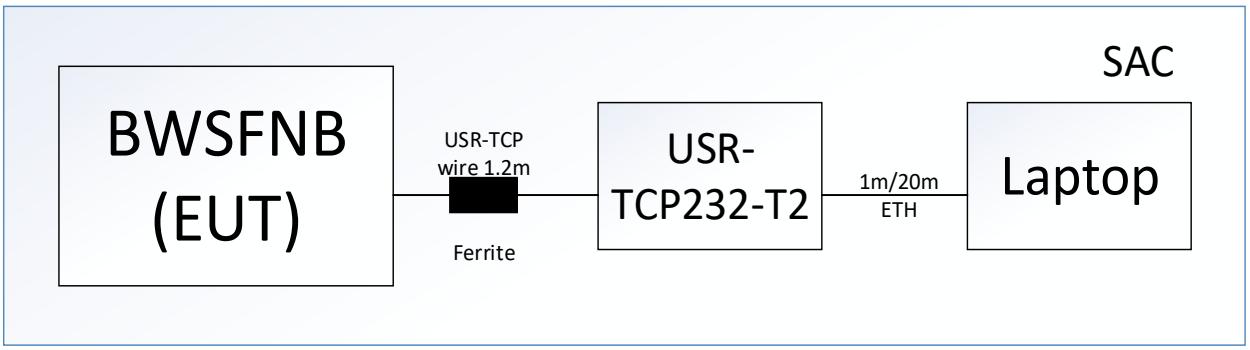
5.4.3 Radio frequency transmitters incorporated in EUT

No.	Description	Frequency	Modulation
1.	Radar A111	N/A	N/A
2.	Cellular antenna W3073	N/A	N/A
3.	GPS/Glonass antenna PA1590MI4G-316-FZM	N/A	N/A

Block diagram 1:



Block diagram 2:



6. INSTRUMENTATION AND CALIBRATION

Equipment and EUT during the tests are operated in temperature range of 21^0 to 25^0C, humidity range of 40% to 60%, if not mentioned more precisely next to measurement data.

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with manufacturer's recommendations or quality manager deliverance and it is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

The following list contains measurement equipment used for testing. The equipment conforms to the requirements of CISPR 16-1 and other standard requirements.

Radiated emissions				
Device	**Manufacturer**	**Model**	**Serial number**	**Notes**
Antenna	Rohde & Schwarz	HL562E	102093	Certificate of calibration No. 200583 D-K-15195-01-00; 15.04.2021
Antenna	Rohde & Schwarz	HF906	100448	Certificate of calibration No. 201404739.00; 18.12.2014
Antenna	Rohde & Schwarz	HM020	-	Not applicable.
Preamplifier	BONN Elektronik GmbH	BLMA 0118-1M	066396D	Test report No. 160701; 01.07.2016
Receiver	Rohde & Schwarz	ESIB26	1088.7490K26	Certificate of calibration No. 201905062.00; 19.12.2019
Receiver	Gauss Instruments	TDEMI X6	1605023	Certificate of calibration No. 202001017.00; 10.03.2020
Antenna	Rohde & Schwarz	HL562E	102093	Certificate of calibration No. 200583 D-K-15195-01-00; 15.04.2021
Antenna mast	FRANKONIA	FBM 1-4 Rev.1	-	Not applicable.
Turntable	FRANKONIA	FCTAM01	-	Not applicable.
Test site	FRANKONIA	SAC3	-	Not applicable.
Software for EMC measurements EMC32	Rohde & Schwarz	Version 8.53.0	-	Not applicable.
Software for EMC measurements (Gauss Instruments)	Gauss Instruments	Version 6.12	-	Not applicable.

Radio frequency radiated electromagnetic field immunity				
Device	**Manufacturer**	**Model**	**Serial number**	**Notes**
Generator	Rohde & Schwarz	IMS	1502.0009.02	Certificate of calibration No. 0378/D-K-15195-01-00; 26.11.2015
Amplifier	BONN Elektronik GmbH	BLMA 1040-60/3D	066396C	Field uniformity calibration No. LEITC-M-03/2021; 16.02.2021
Amplifier	BONN Elektronik GmbH	BLWA 0810-160/100D	066396B	Field uniformity calibration No. LEITC-M-03/2021; 16.02.2021
Amplifier	FRANKONIA	FLG-50F	1070	Field uniformity calibration No. LEITC-M-05/2021; 18.02.2021
Antenna	Rohde & Schwarz	HL046E	4065.5960.02	Field uniformity calibration No. LEITC-M-03/2021; 16.02.2021
Antenna	Schwarzbeck	BBHA 9120 E	0899	Field uniformity calibration No. LEITC-M-04/2021; 17.02.2021
Antenna	FRANKONIA	MAX-9	822	Field uniformity calibration No. LEITC-M-05/2021; 18.02.2021
Power meter	Rohde & Schwarz	NRP-Z91	1000015	Certificate of calibration No. 202002089.00; 22.01.2021
Power meter	FRANKONIA	PMS-1084	19902160-0101	Certificate of calibration No. 19902160-0101_01; 26.07.2019
Field Sensor	ETS-LINDGREN	HI 6005	00074579	Certificate of calibration No. 202002090.00; 26.01.2021
Electric field probe	FRANKONIA	EFS-10	711WX81265	Certificate of calibration No. FR29012020; 29.01.2020
Test site	FRANKONIA	SAC3	-	Not applicable.
Software for EMC measurements PEOVE-EMC	FRANKONIA	Version 2.0.0.6	-	Not applicable.

Electrostatic discharge				
Device	**Manufacturer**	**Model**	**Serial number**	**Notes**
ESD simulator	EM TEST	DITO	V0629101637	Certificate of calibration No. SCS-0629101637-PURCHASE ORDER-Dito; 27.01.2021
Vertical coupling plane	EM TEST	DITO	-	Not applicable.

Power frequency magnetic field				
Device	**Manufacturer**	**Model**	**Serial number**	**Notes**
Burst/Surge generator	EM TEST	UCS500-M	V0629101638	Certificate of calibration No. SCS-0629101638-UCS500M4; 28.01.2021
Antenna	EM TEST	MS 100	080613	Certificate of calibration No. CE-D19702-UCS500M4-170410; 10.04.2017
Current transformer	EM TEST	MC 2603	0506-51	Certificate of calibration No. CE-D19702-UCS500M4-170410; 10.04.2017
ISMIEC for Windows software	EM TEST	Version 4.08	-	Not applicable.

7. STATEMENT OF THE MEASUREMENT UNCERTAINLY

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainties were calculated according to guidelines given in EN 55016-4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4 Uncertainly in EMC Measurements” and is documented in the SIA “LEITC” quality system according to ISO/IEC 17025. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manuals.

Measurement uncertainty			
Procedure	**Designation**	**Uncertainty**	**Device**
Radiated emissions 30MHz to 1GHz	U_{lab}	4.72dB	Antenna: HL562E
Radiated emissions 1GHz to 6GHz	U_{lab}	4.91dB	Antenna: HF906
RF radiated electromagnetic field immunity 80MHz to 2GHz	U_{lab}	2.01dB	Antenna: HL046E
RF radiated electromagnetic field immunity 2GHz to 6GHz	U_{lab}	2.00dB	Antenna: MAX-9
Electrostatic discharge	U_{lab}	According to EN 61000-4-2	Dito
Power frequency magnetic field	U_{lab}	According to EN 61000-4-8	Antenna: MS 100

8. TEST PROCEDURES

Radiated emissions

The equipment was set up as per the test configuration to simulate typical usage per user's manual. When the EUT is a table top equipment, a non-conductive turntable with a height of 0,8m is used which is placed on the ground plane. When EUT is floor standing equipment, it is placed on the 0,1m insulation support.

Auxiliary equipment and/or support equipment, if needed was placed as per EN 55032 recommendations.

All input/output cables were positioned to simulate typical usage as per EN 55032.

The EUT was connected to AC mains 230V/50Hz under the turntable shucko type socket, all other equipment was connected to the other shucko type socket under the turntable.

The antenna was placed at 3m away from EUT. Antenna height was changed in range 1-4m and EUT rotation angle in range of -180^0 to 180^0 maximize measured emissions.

Radio frequency radiated electromagnetic field immunity

The equipment was set up as per the test configuration to simulate typical usage per user's manual. When the EUT is a table top equipment, a wooden table with a height of 0,8m is used. When EUT is floor standing equipment, it is placed on the 0,1m insulation support.

Electrostatic discharge immunity

The equipment was set up as per the test configuration to simulate typical usage per user's manual. When the EUT is table top equipment, it is placed on table 0,5mm above ground reference plane. When EUT is floor standing equipment, it is placed on the 0,5mm insulation above the ground reference plane.

Electrostatic discharges are applied as contact discharge and air discharge, discharge to vertical and horizontal coupling plane. The discharges are applied only to such points and surfaces of the EUT which are accessible to personnel during normal usage.

Test is performed as single discharges on preselected points at least ten single discharges on both polarities. Between successive discharges a time interval of 1s is used. In case of contact discharge the tip of discharge electrode touch the EUT before the discharge switch is operated. In case of air discharge, the round tip of the discharge electrode is approached as fast as possible (without causing mechanical damage) to touch the EUT discharge switch is operated before the tip is approached.

At least ten single contact discharges are applied to horizontal and vertical coupling plate.

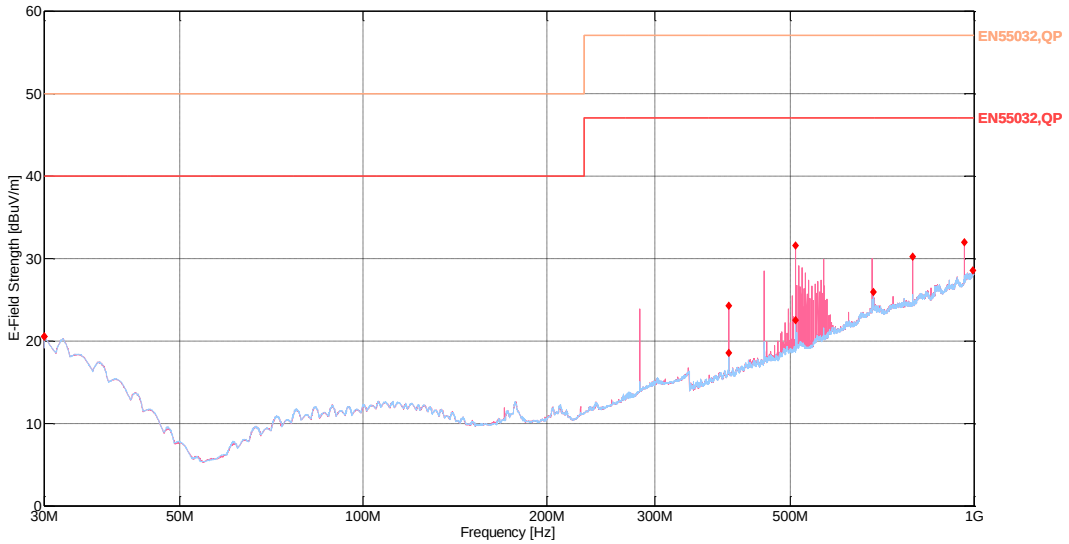
Power frequency magnetic field immunity

The equipment was set up as per the test configuration to simulate typical usage per user's manual. When the EUT is table top equipment, it is placed on table 0,1m above ground reference plane. When EUT is floor standing equipment, it is placed on the 0,1m insulation above the ground reference plane.

EUT is exposed to magnetic field in all axes. EUT is placed inside magnetic dipole antenna of 1m x1m dimensions. Duration of test is defined in test results.

9. TEST RESULTS

	9.1 Radiated emissions (30MHz to 1GHz)	Plot	



Trace	Start	Step	Stop	IF Bandwidth	Detector	Dwell time	Attenuation	Notes
Scan 1	30.0 MHz	50.0 kHz	1.0 GHz	120kHz	QP	1.0 s	0	
Scan 2	30.0 MHz	50.0 kHz	1.0 GHz	120kHz	QP	1.0 s	0	

Scan1: 30.0 MHz, 50.0 kHz, 1.0 GHz; IF:120kHz, 1.0 s QP, Att 0dB

f	Mag [dBuV/m]	Limit	Diff	Polarization	Height [cm]	Angle [°]	Trans	Comment
30.0417188 MHz	20.48	40.00	19.52	V	150	90	20.86	
397.166719 MHz	24.26	47.00	22.74	V	150	90	17.06	
510.641719 MHz	31.57	47.00	15.43	V	100	-150	19.52	
794.2875 MHz	30.22	47.00	16.78	V	150	-30	23.64	
964.5 MHz	31.92	47.00	15.08	V	100	90	25.44	

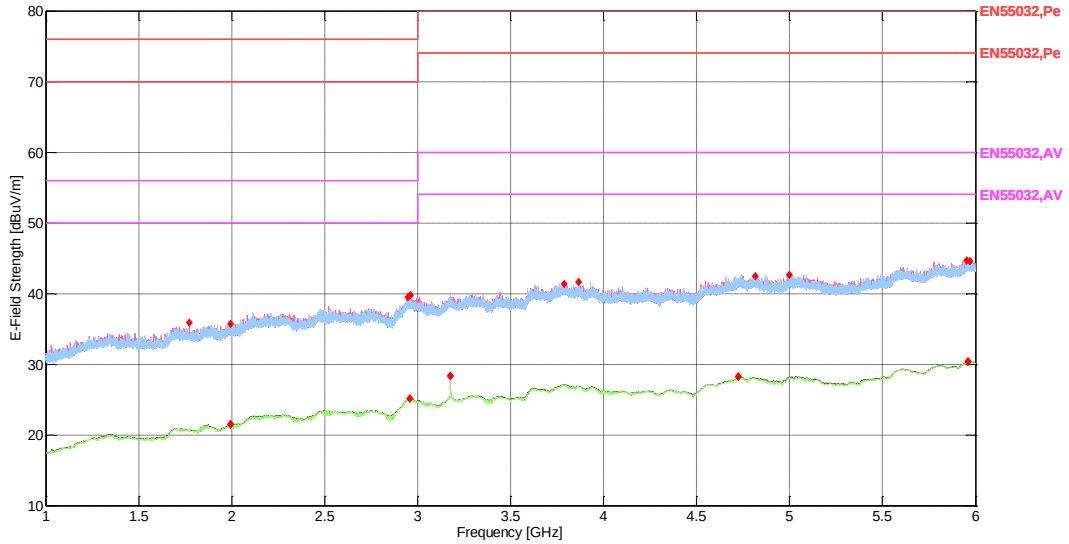
Scan2: 30.0 MHz, 50.0 kHz, 1.0 GHz; IF:120kHz, 1.0 s QP, Att 0dB

f	Mag [dBuV/m]	Limit	Diff	Polarization	Height [cm]	Angle [°]	Trans	Comment
30.0417188 MHz	20.53	40.00	19.47	H	200	-60	20.86	
397.166719 MHz	18.51	47.00	28.49	H	100	30	17.06	
510.641719 MHz	22.53	47.00	24.47	H	200	30	19.52	
685.026094 MHz	25.91	47.00	21.09	H	200	150	22.32	
995.497031 MHz	28.50	47.00	18.50	H	150	180	26.04	

QP detector (H); QP detector (V); QP detector (table); Limit line (Class B); Limit line (Class A)

Date:	24.09.2021	**Test engineer:**	Andris Dzenis		
Method:	LVS EN 55032:2015+AC:2017+A11:2020 (Class B)	**Port:**	Enclosure		
Notes:					
Chamber:	SAC3	**Height:**	1-4m	**Mode:**	1
Distance:	3m	**Polarization:**	V+H	**Mod. State:**	1
Angle:	$-180^0..+180^0$	**File:**	2021.09.24_HL562E_#01_Binology_AT		

	9.2 Radiated emissions (1GHz to 6GHz)	Plot



Trace	Start	Step	Stop	IF Bandwidth	Detector	Dwell time	Attenuation	Notes
Scan 1	1.0 GHz	400.0 kHz	6.0 GHz	1MHz	MaxPeak	1.0 s	10	
Scan 2	1.0 GHz	400.0 kHz	6.0 GHz	1MHz	Average	1.0 s	10	
Scan 3	1.0 GHz	400.0 kHz	6.0 GHz	1MHz	MaxPeak	1.0 s	10	
Scan 4	1.0 GHz	400.0 kHz	6.0 GHz	1MHz	Average	1.0 s	10	

Scan1: 1.0 GHz, 400.0 kHz, 6.0 GHz; IF:1MHz, 1.0 s MaxPeak, Att 10dB

f	Mag [dBuV/m]	Limit	Diff	Polarization	Height [cm]	Angle [°]	Trans	Comment
1.7736325 GHz	35.85	70.00	34.15	V	100	150	-9.65	
2.94643 GHz	39.45	70.00	30.55	V	100	-90	-5.09	
3.78748 GHz	41.33	74.00	32.67	V	100	60	-2.02	
4.81576375 GHz	42.44	74.00	31.56	V	100	-90	-0.35	
5.95251625 GHz	44.64	74.00	29.36	V	100	-90	0.94	

Scan2: 1.0 GHz, 400.0 kHz, 6.0 GHz; IF:1MHz, 1.0 s Average, Att 10dB

f	Mag [dBuV/m]	Limit	Diff	Polarization	Height [cm]	Angle [°]	Trans	Comment
1.9952425 GHz	21.51	50.00	28.49	V	100	90	-8.12	
2.9591125 GHz	25.15	50.00	24.85	V	100	90	-5.06	
3.177385 GHz	28.31	54.00	25.69	V	100	-90	-4.09	
4.7239825 GHz	28.25	54.00	25.75	V	100	150	-0.59	
5.959525 GHz	30.41	54.00	23.59	V	100	30	1.00	

Scan3: 1.0 GHz, 400.0 kHz, 6.0 GHz; IF:1MHz, 1.0 s MaxPeak, Att 10dB

f	Mag [dBuV/m]	Limit	Diff	Polarization	Height [cm]	Angle [°]	Trans	Comment
1.994575 GHz	35.74	70.00	34.26	H	100	-60	-8.12	
2.961115 GHz	39.75	70.00	30.25	H	100	0	-5.06	
3.86457625 GHz	41.63	74.00	32.37	H	100	60	-1.96	
4.99732375 GHz	42.65	74.00	31.35	H	100	180	-0.41	
5.9708725 GHz	44.61	74.00	29.39	H	100	0	1.08	

Scan4: 1.0 GHz, 400.0 kHz, 6.0 GHz; IF:1MHz, 1.0 s Average, Att 10dB

f	Mag [dBuV/m]	Limit	Diff	Polarization	Height [cm]	Angle [°]	Trans	Comment
1.9952425 GHz	21.40	50.00	28.60	H	100	0	-8.12	
2.95877875 GHz	25.09	50.00	24.91	H	100	-60	-5.06	
3.177385 GHz	28.41	54.00	25.59	H	100	180	-4.09	
4.72364875 GHz	28.17	54.00	25.83	H	100	-60	-0.59	
5.959525 GHz	30.34	54.00	23.66	H	100	-150	1.00	

MaxPeak detector (H); MaxPeak detector (V); AV detector (H); AV detector (V); MaxPeak Limit line; AV Limit line

Date:	23.09.2021	**Test engineer:**	Andris Dzenis
Method:	LVS EN 55032:2015+AC:2017+A11:2020 (Class B)	**Port:**	Enclosure

Notes:

Chamber:	SAC3	**Height:**	1-4m	**Mode:**	1
Distance:	3m	**Polarization:**	V+H	**Mod. State:**	1
Angle:	$-180^0..+180^0$	**File:**	2021.09.23_HF906_#01_Binology_AT		

9.3 Radio frequency radiated electromagnetic field immunity

Date:	23.09.2021			
				RESULT
Port(s):	Enclosure		**Recm'd Crit**	**Ach'd Crit**
Method:	LVS EN 61000-4-3:2006+A1:2008+ IS1:2009+A2:2010		A	A

Oper. mode	Mod. State	EUT orientation	Antenna	Step size (%)	Frequency (MHz)	Sweep time (s)	Polarization	Field strength (V/m)	Modulation (%AM//kHz)	Notes
2	1	Front	HL046E	1	80-2000	5	V	3	80% 1kHz	#1
2	1	Front	HL046E	1	80-2000	5	H	3	80% 1kHz	#1
2	1	Front	MAX-9	1	2000-6000	5	V	3	80% 1kHz	#1
2	1	Front	MAX-9	1	2000-6000	5	H	3	80% 1kHz	#1

#1, 2, 3... see Observations Table below

Notes	Comments and Observations
#1	No effect observed.

9.4 Electrostatic discharge immunity

Date:	27.09.2021			
				RESULT
Port:	Enclosure		**Recm'd Crit**	**Ach'd Crit**
Method:	LVS EN 61000-4-2:2009	Air discharge	B	A
Port:	Enclosure		**Recm'd Crit**	**Ach'd Crit**
Method:	LVS EN 61000-4-2:2009	Contact discharge	B	A

Oper. mode	Mod. State	Applied to:	+4kV cont.	-4kV cont.	+2kV air	-2kV air	+4kV air	-4kV air	+8kV air	-8kV air
2	1	Vertical coupling plane	#1	#1						
2	1	Horizontal coupling plane	#1	#1						
2	1	Enclosure							#1	#1

#1, 2, 3... see Observations Table below

Notes	Comments and Observations
#1	No effect observed.

9.5 Power frequency magnetic field immunity

Date:	27.09.2021			
				RESULT
Port(s):	Enclosure		**Recm'd Crit**	**Ach'd Crit**
Method:	LVS EN 61000-4-8:2010		A	A

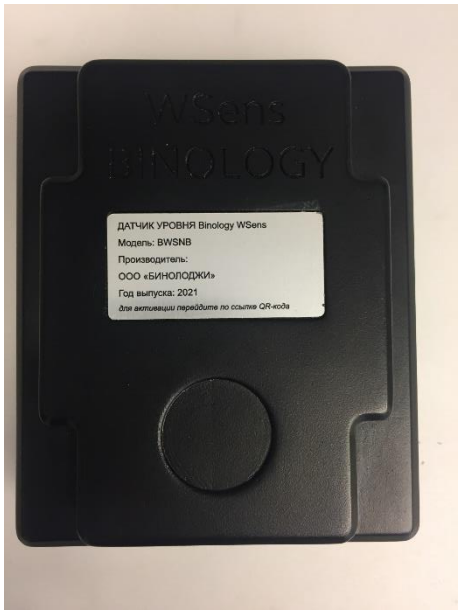
Oper. mode	Mod. State	Antenna	Frequency (Hz)	Polarization	Field strength (A/m)	Test duration (min)	Notes
2	1	MS100	50	V	3	5	#1
2	1	MS100	50	H	3	5	#1

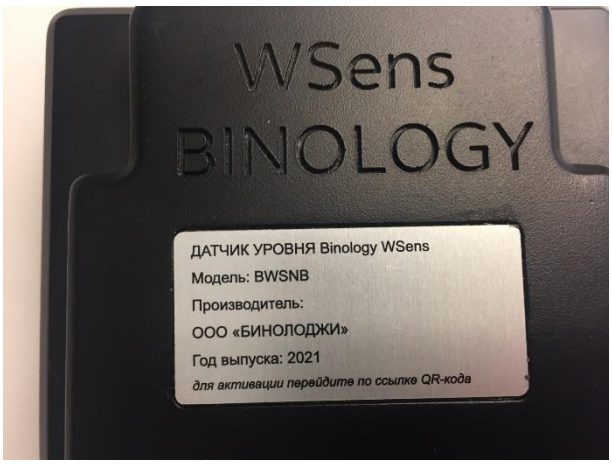
#1, 2, 3... see Observations Table below

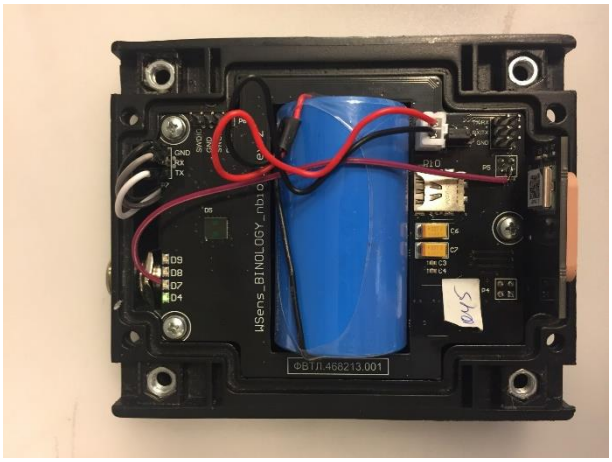
Notes	Comments and Observations
#1	No effect observed.

10. TEST PHOTOGRAPHS

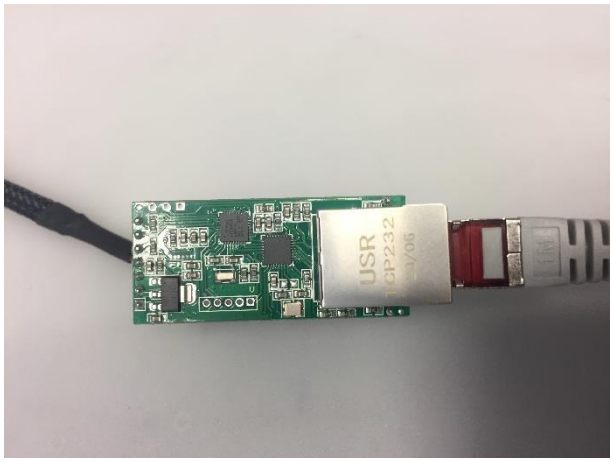
EUT-equipment under test:

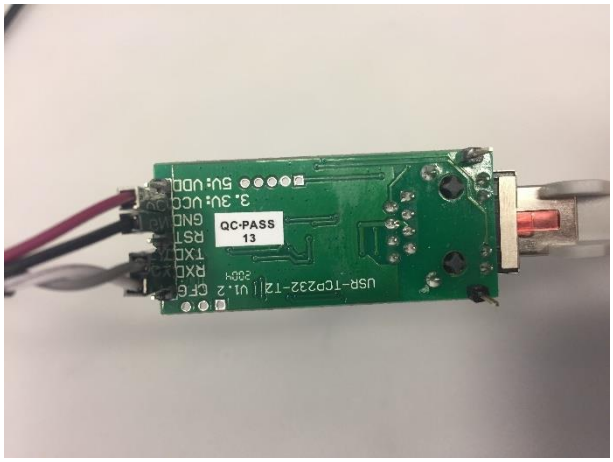




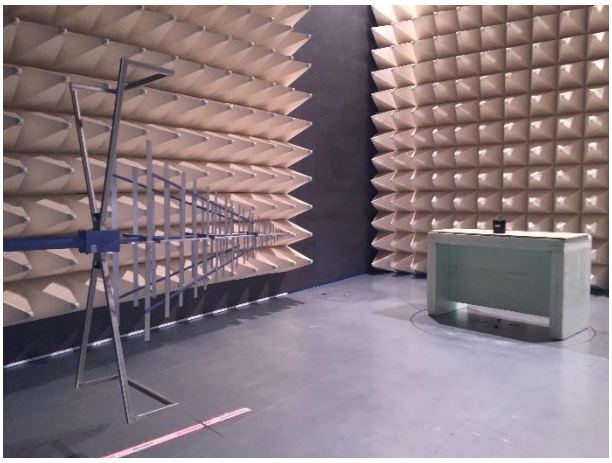


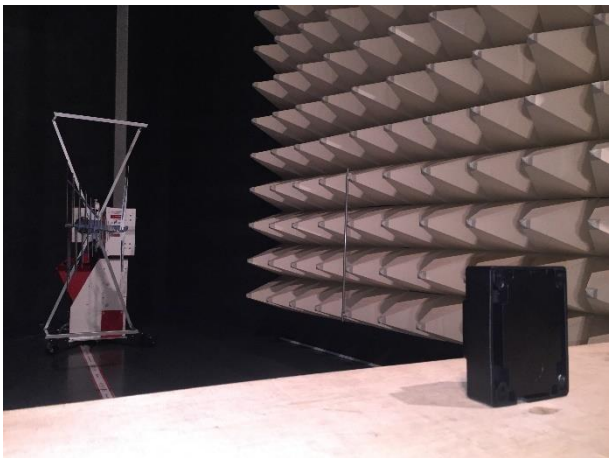
USR-TCP232-T2:



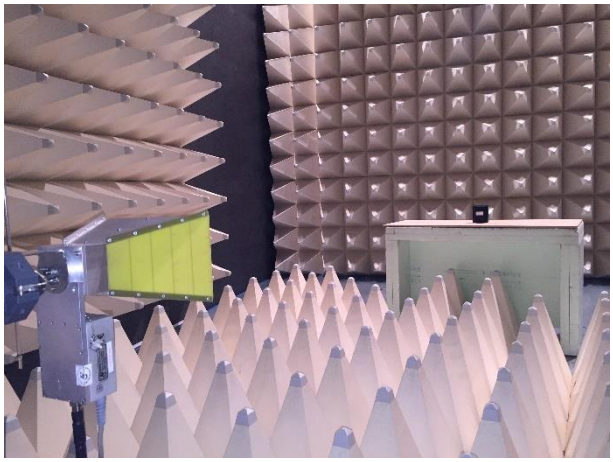


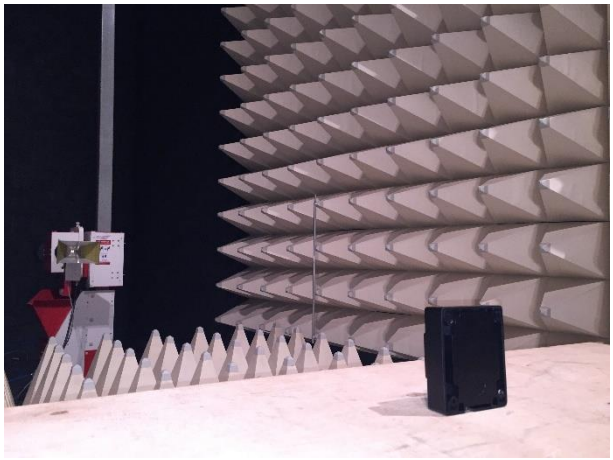
Radiated emissions (30MHz-1GHz):



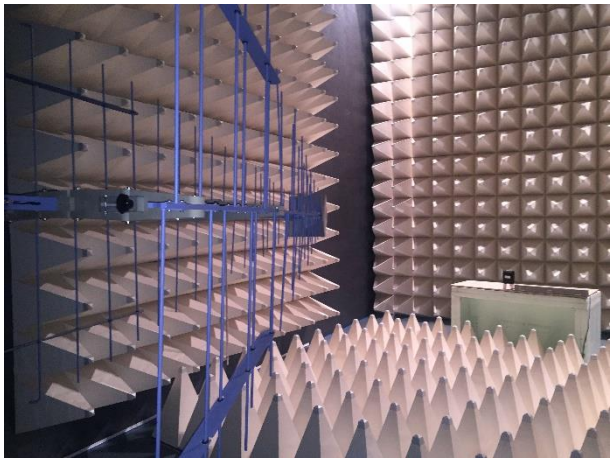
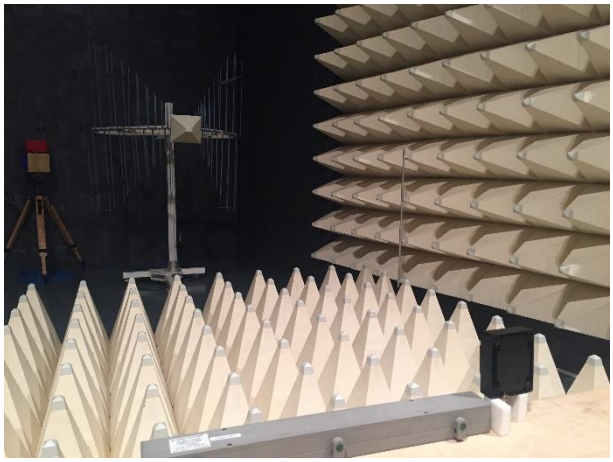
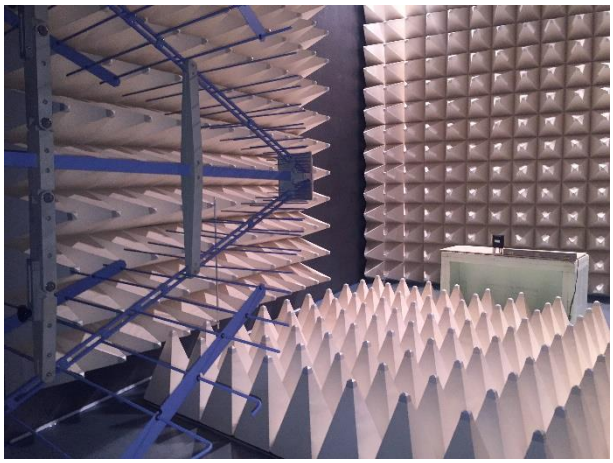
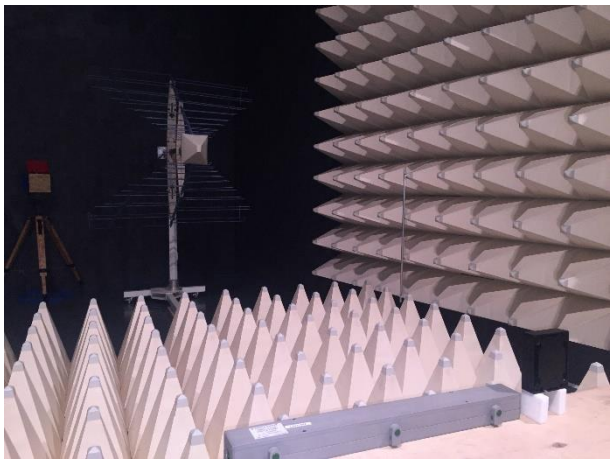


Radiated emissions (1GHz-6GHz):

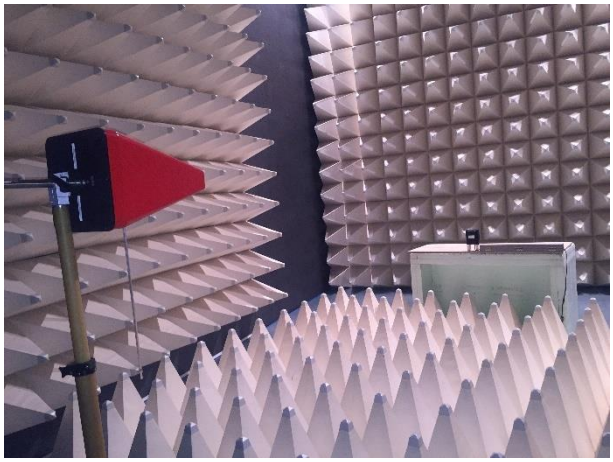
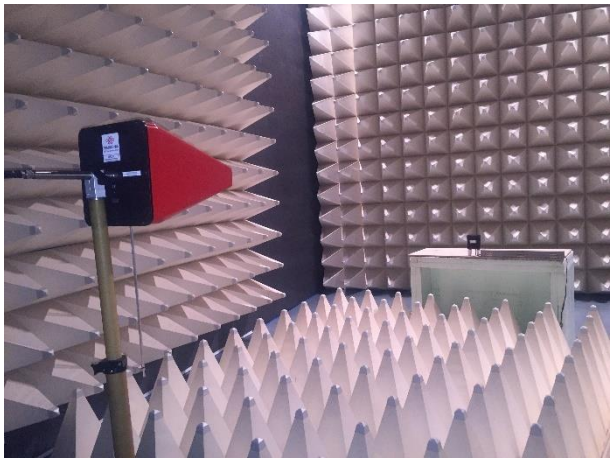
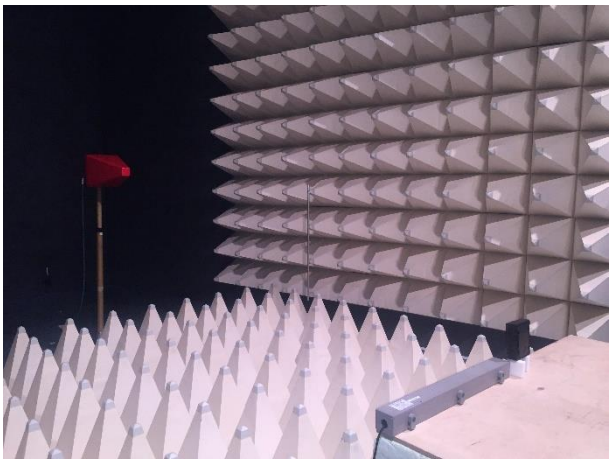




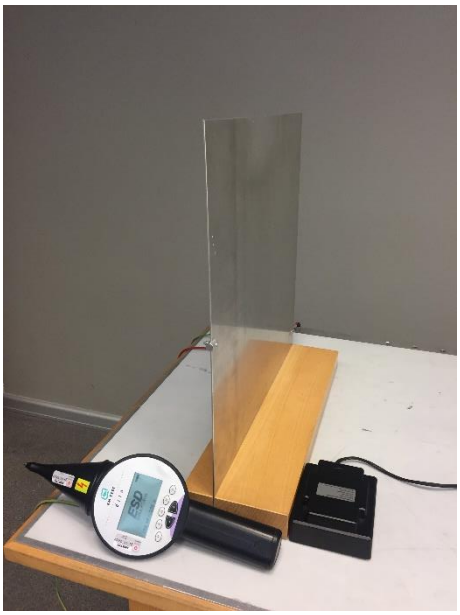
Radio frequency radiated electromagnetic field immunity (80MHz-2GHz):

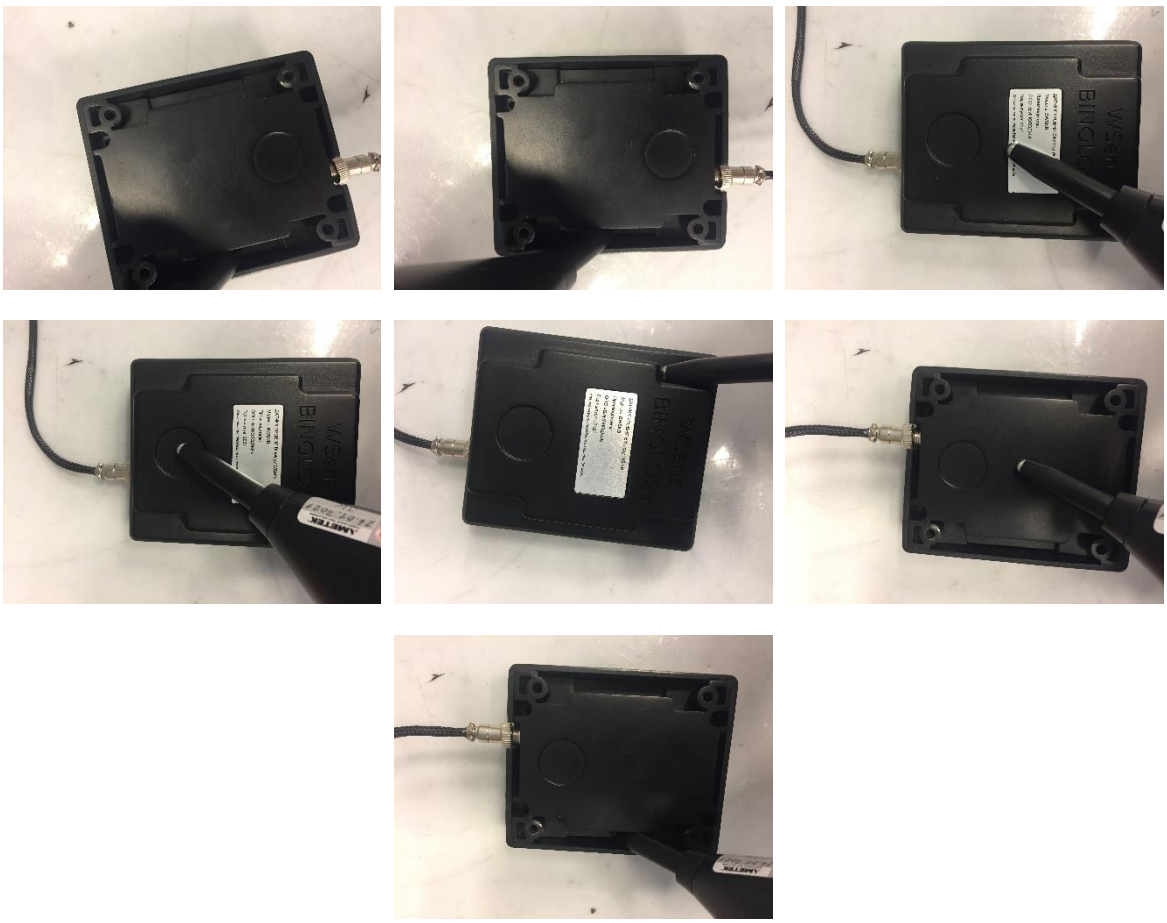





Radio frequency radiated electromagnetic field immunity (2GHz-6GHz):

Electrostatic discharge immunity:





Power frequency magnetic field immunity: