R F – T E S T R E P O R T

- FCC Part 15B -

Type / Model Name	:	Vehicle Tag / KNX-T3.6
Product Description	:	Tracking System for intra-logistics vehicles
Applicant	:	Kinexon Inc.
Address	:	25 Broadway Floor 9
		NEW YORK, NY 10004, USA
Manufacturer	:	Kinexon GmbH
Address	:	Schellingstraße 35
		80799 MÜNCHEN, GERMANY

Test Result according to the standards listed in clause 1 test standards:	**POSITIVE**

Test Report No. : T46318-00-04FX	22. September 2021 Date of issue

Deutsche Akkreditierungsstelle
D-PL-12030-01-03
D-PL-12030-01-04

Contents

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15 Subpart B - Unintentional Radiators (September 2019)

Part 15, Subpart B, Section 15.107	AC Line conducted emission ☐ Class A device ☒ Class B device
Part 15, Subpart B, Section 15.109	Radiated emission, general requirements ☐ Class A device ☒ Class B device
ANSI C63.4: 2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
CISPR 16-4-2: 2011 + A1: 2014 EN 55016-4-2: 2011	Uncertainty in EMC measurement

ISED Canada Rules and Regulations - Information Technology Equipment (Including Digital Apparatus)

ICES-003, Issue 7, October 15, 2020	AC Power Line Conducted Emissions ☐ Class A device ☒ Class B device
ICES-003, Issue 7, October 15, 2020	Radiated emission ☐ Class A device ☒ Class B device
ANSI C63.4: 2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2 SUMMARY

2.1 General remarks

2.2 Summary for all EMC tests

FCC Rule Part	ISED Standard	Description
15.107	ICES-003/RSS-Gen	AC power line conducted emissions
15.109	ICES-003/RSS-Gen	Radiated Emissions

Type of test		Test result
Emission:		
A4	Conducted emission (AC mains power / DC power)	passed
A5	Radiated emission (< 1 GHz)	passed
SER 3	Radiated emission (> 1 GHz)	passed

2.3 Final assessment

The equipment under test fulfills the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 01 April 2020

Testing concluded on : 15 May 2020

Checked by:

Klaus Gegenfurtner
I confirm the correctness and integrity of this document
2021.09.23 13:09:48 +02'00'

Klaus Gegenfurtner
Teamleader Radio

Tested by:

I am the author of this document
2021.09.22 18:16:52 +02'00'

Franz-Xaver Schrettenbrunner
Radio Team

3 EQUIPMENT UNDER TEST

3.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

3.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

3.3 Photo documentation of the EUT – Detailed photos see ATTACHMENT A

3.4 Power supply system utilised

Power supply voltage	:	9 – 30 V DC
Test voltage	:	24 V DC

All tests were carried out with a supply voltage of 120 V, 60 Hz unless otherwise stated.

3.5 Highest internal frequency

Highest internal frequency	:	6489.6 MHz

3.6 Short description of the Equipment under Test (EUT)

The technology is an UWB Real Time Location System (RTLS) which is used in an indoor industrial environment. The tag is installed on forklifts, trolleys, cranes or other industrial vehicular devices. The EUT communicates with further devices in order to obtain information on the tag position. The equipped vehicles can be globally localized in a factory wide coordinate system.

Number of tested samples:	1
Serial number:	60815
UWB driver version:	4.27.0

3.7 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

- Operation mode 1: stand-by mode, waiting for UWB signal

3.8 EUT configuration

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurements:

- --- Model : ---

Port	Cable	Screening	Transmission	Status	Length
1	DC power line	unshielded	analogue	active	2.0 m

Modifications during the EMC test: None

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15 - 35 °C
Humidity:	30 - 60 %
Atmospheric pressure:	86 - 106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor k = 2. The true value is located in the corresponding interval with a probability of 95 % The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 / 2011 + A1 / 2014 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, CSA Group Bayern GmbH, is below the measurement uncertainty as defined by CISPR. Therefore, no special measures must be taken into consideration with regard to the limits according to CISPR. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.4 Conformity Decision Rule

The conformity decision rule is based on the ILAC G8 published at the time of reporting.

4.5 Measurement protocol for FCC and ISED

4.5.1 General information

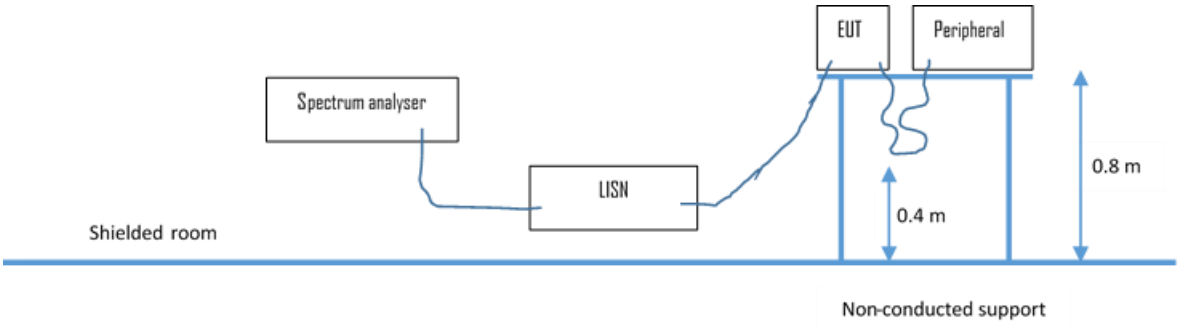
CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

FCC: DE 0011
ISED: DE0009

4.5.2 Details of test procedures

4.5.2.1 Conducted emission

Test setup according ANSI C63.4



Description of measurement

The final level, expressed in dBμV, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between dBμV and μV, the following conversions apply:

dBμV = 20(log μV)

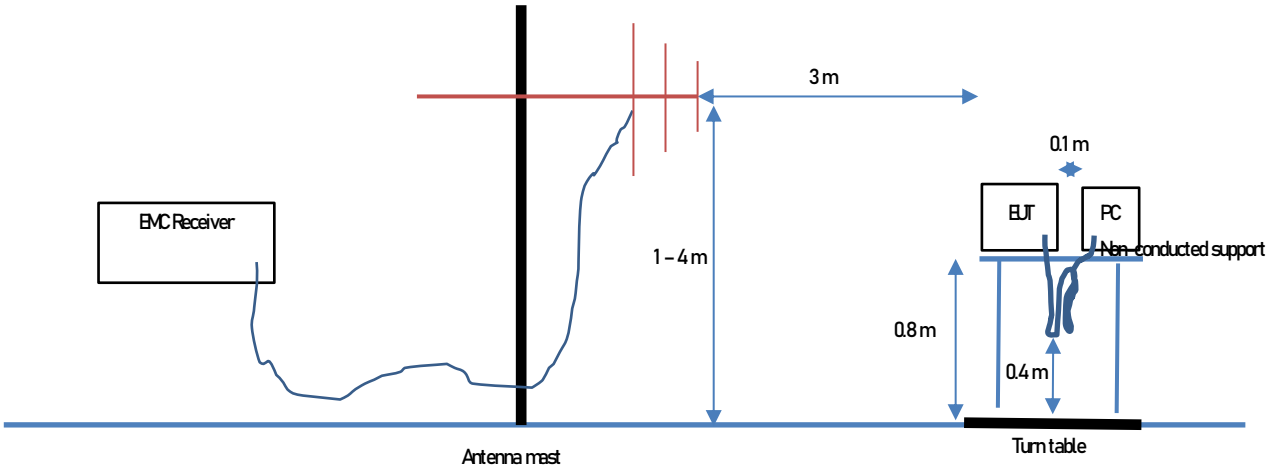
μV = Inverse log(dBμV/20)

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50 Ω / 50 μH (CISPR 16) characteristics. The receiver is protected by means of an impedance matched pulse limiter connected directly to the RF input. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emission is re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

4.5.2.2 Radiated emission

4.5.2.2.1 OATS1 test site (30 MHz - 1 GHz)

Test setup according ANSI C63.4



Description of measurement

Spurious emission from the EUT is measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 metre non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. The setup of the equipment under test is established in accordance with ANSI C63.4. The interface cables that are closer than 40 centimetres to the ground plane are bundled in the centre in a serpentine fashion so that they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area.
The antenna is positioned 3 or 10 metres horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres, measurement scans are made with both horizontal and vertical antenna polarization planes and the EUT is rotated 360 degrees.

The final level is calculated in a calculation sheet by taking the reading from the EMI receiver (Level dBµV) and adding the correction factors and cable loss factor (Factor dB) on to it. The limit is subtracted from this result in order to provide the limit margin listed in the measurement protocols.

Example:

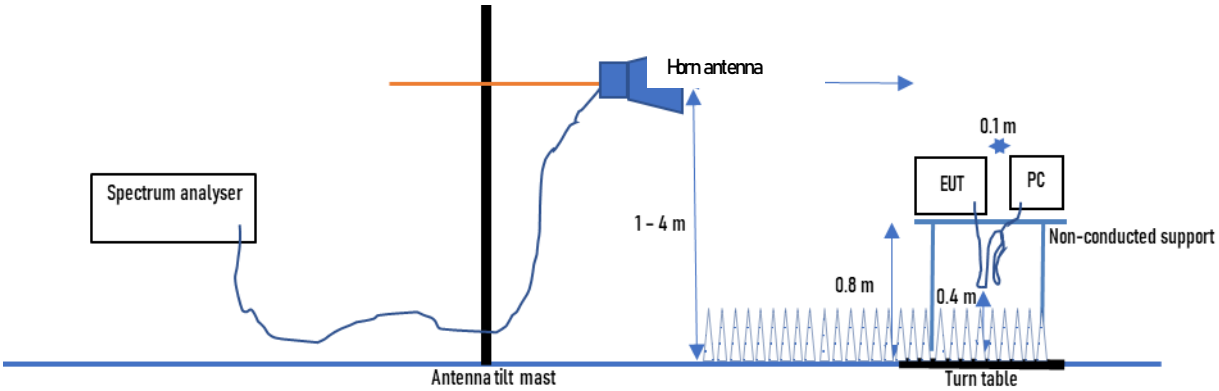
Frequency (MHz)	Reading (dBµV)	+	Correction* (dB/m)	=	Level (dBµV/m)	-	Limit (dBµV/m)	=	Dlimit (dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

*Correction Factor = Antenna Factor + Cable Attenuation = 30 dB/m + 2.6 dB = 32.6 dB/m

The resolution bandwidth during the measurement is as follows:
30 MHz – 1000 MHz: RBW: 120 kHz

4.5.2.2.2 Anechoic chamber 1, 1000 MHz – 18000 MHz

Test setup according ANSI C63.4

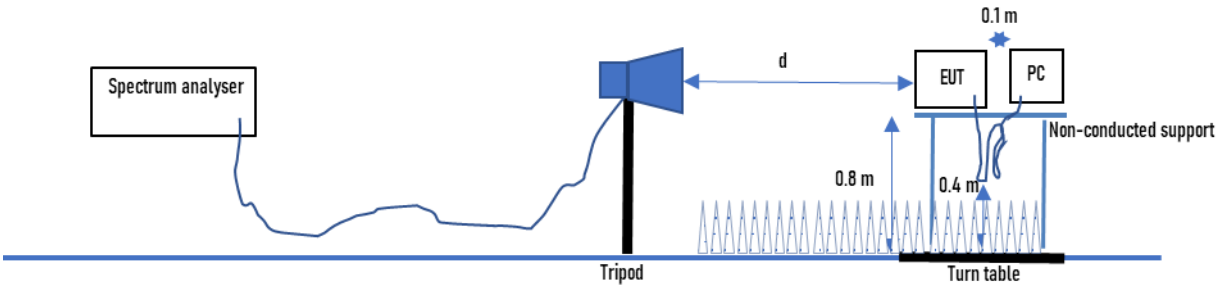


Description of measurement

Radiated emission from the EUT are measured in the frequency range of 1 GHz to the maximum frequency as specified in 47 CFR Part 15 Subpart A section 15.33, using a tuned receiver (spectrum analyser) and appropriate linearly polarized antennas. Table top equipment is placed on a 0.65 X 1.0 metre non-conducting table 80 centimetres above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12).
The interface cables that are closer than 40 centimetres to the ground plane are bundled in the centre in a serpentine fashion, so they are at least 40 centimetres from the ground plane. Measurements are made in both the horizontal and vertical polarization planes in a fully anechoic room using a spectrum analyser set to a peak detector function and a RBW= 1 MHz and VBW = 3 MHz. All tests are performed at a test distance of 3 metres. Hand-held or body-worn devices are rotated around three orthogonal axes in order to determine the position, angle and configuration having the maximum emission. The antenna height is then adjusted from 1 m to 4 m maximizing the measured value. The antenna is mounted to a boresight axis, so the antenna centre always points to the EUT. The turntable is rotated 360° until the spectrum analyser displays the maximum level at the observed frequency. The antenna height is then adjusted from 1 m to 4 m maximizing the measured value. The turntable is re-adjusted to re-affirm the maximum emission value which is then recorded. This procedure is repeated for all frequencies of interest.

4.5.2.2.3 Anechoic chamber 1, 18 GHz – 40 GHz

Test setup according ANSI C63.4



Description of measurement

Radiated emission from the EUT are measured in the frequency range of 1 GHz to the maximum frequency as specified in 47 CFR Part 15 Subpart A section 15.33, using a tuned receiver (spectrum analyser) and appropriate linearly polarized antennas. Table top equipment is placed on a 0.65 X 1.0 metre non-conducting table 80 centimetres above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12).
The interface cables that are closer than 40 centimetres to the ground plane are bundled in the centre in a serpentine fashion, so they are at least 40 centimetres from the ground plane. Measurements are made in both the horizontal and vertical polarization planes in a fully anechoic room using a spectrum analyser set to a peak detector function and an RBW= 1 MHz and VBW = 3 MHz. All tests are performed at a test distance of 3 metres. Hand-held or body-worn devices are rotated around three orthogonal axes in order to determine the position, angle and configuration having the maximum emission. The turntable is rotated 360° until the spectrum analyser displays the maximum level at the observed frequency, the maximum emission value is then recorded. This procedure is repeated for all frequencies of interest.
Where appropriate in frequency range 18 GHz - 40 GHz, the test distance may be reduced to 1 m in order to reduce the noise level to hold a minimum distance between noise level and limit. The limit will be adopted to the measurement distance.

5 TEST CONDITIONS AND RESULTS

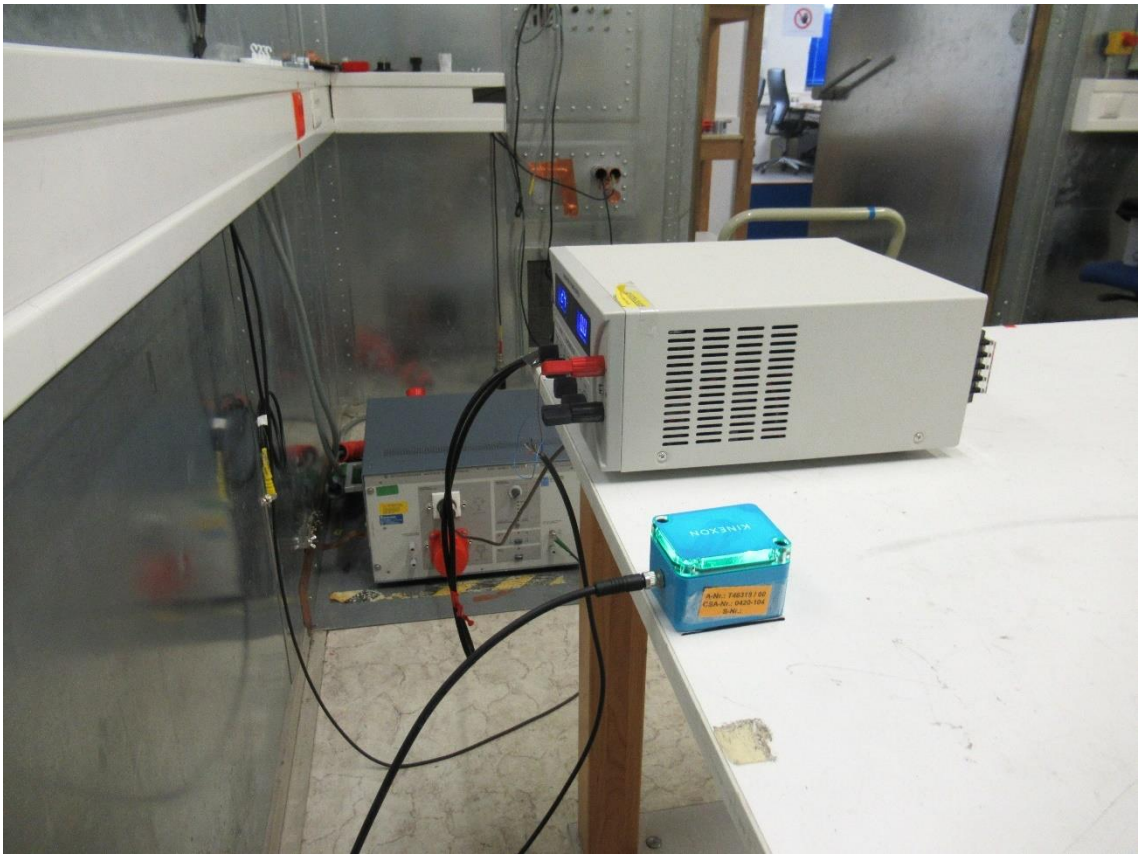
5.1 Conducted emission

For test instruments and accessories used see section 6 Part **A 4**.

5.1.1 Description of the test location

Test location: Shielded Room S2

5.1.2 Photo documentation of the test setup



5.1.3 Test result

Frequency range: 0.15 MHz - 30 MHz
Min. limit margin - 18.5 dB at 20.001 MHz

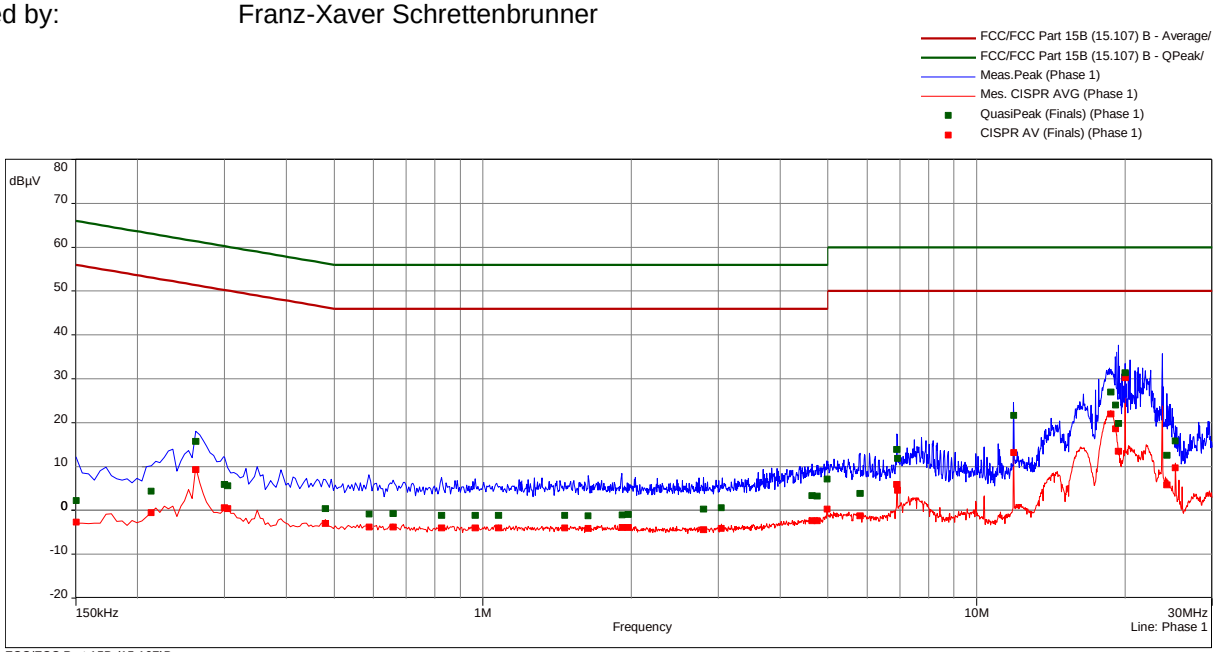
The requirements are **FULFILLED.**

Remarks: For detailed results, please see the following page(s).

For description of the measurement see 4.5.2.

5.1.4 Test protocol

Test point:	L1	Result: passed
Operation mode:	Operation mode 1	
Remarks:	None.	
Date:	12-05-2020	
Tested by:	Franz-Xaver Schrettenbrunner	

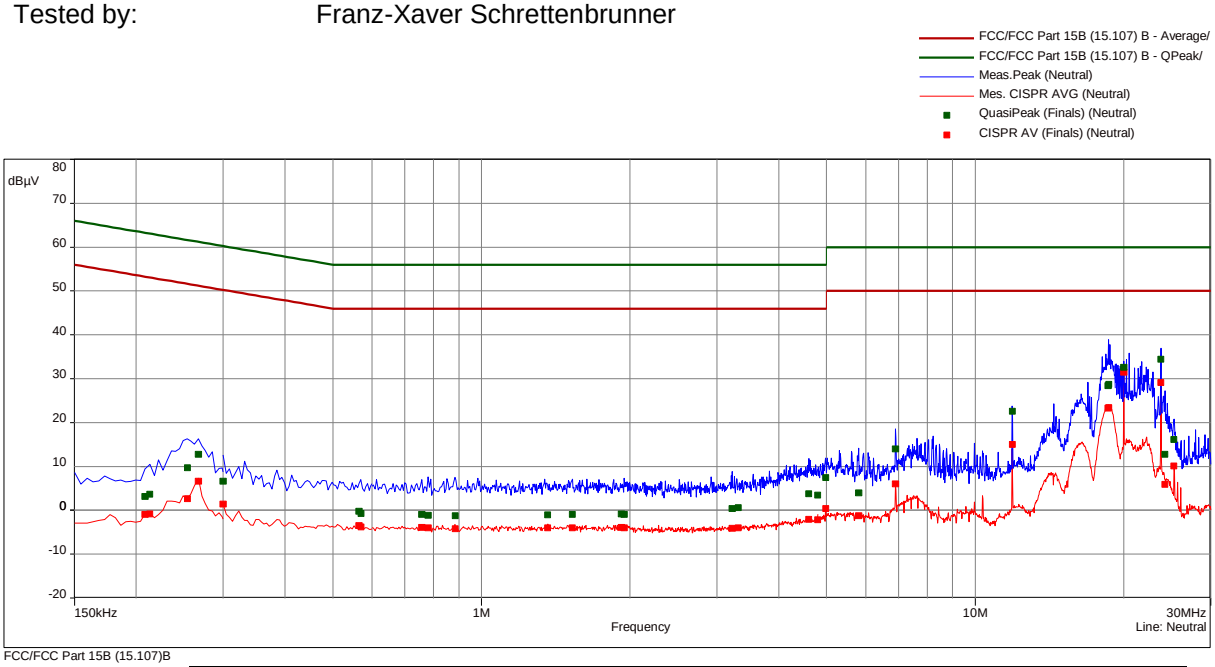


FCC/FCC Part 15B (15.107)B

freq	QP	margin	limit	AV	margin	limit	corr
MHz	dB(µV)	dB	dB	dB(µV)	dB	dB	dB
0.150	2.33	-63.67	66.00	-2.58	-58.58	56.00	10.09
0.213	4.42	-58.67	63.09	-0.48	-53.56	53.09	10.11
0.263	15.78	-45.57	61.35	9.40	-41.95	51.35	10.13
0.300	5.97	-54.27	60.24	0.64	-49.60	50.24	10.14
0.305	5.66	-54.46	60.12	0.44	-49.68	50.12	10.14
0.480	0.48	-55.86	56.34	-2.89	-49.23	46.34	10.16
0.588	-0.73	-56.73	56.00	-3.77	-49.77	46.00	10.17
0.659	-0.63	-56.63	56.00	-3.75	-49.75	46.00	10.18
0.825	-1.04	-57.04	56.00	-3.97	-49.97	46.00	10.19
0.965	-1.03	-57.03	56.00	-3.92	-49.92	46.00	10.20
1.077	-1.10	-57.10	56.00	-3.95	-49.95	46.00	10.21
1.466	-1.06	-57.06	56.00	-3.93	-49.93	46.00	10.26
1.637	-1.13	-57.13	56.00	-4.02	-50.02	46.00	10.27
1.911	-0.96	-56.96	56.00	-3.83	-49.83	46.00	10.27
1.970	-0.88	-56.88	56.00	-3.87	-49.87	46.00	10.27
2.801	0.31	-55.69	56.00	-4.36	-50.36	46.00	10.34
3.044	0.71	-55.29	56.00	-4.02	-50.02	46.00	10.35
4.641	3.47	-52.53	56.00	-2.28	-48.28	46.00	10.43
4.754	3.34	-52.66	56.00	-2.35	-48.35	46.00	10.43
4.980	7.16	-48.84	56.00	0.31	-45.69	46.00	10.44
5.813	3.89	-56.11	60.00	-1.21	-51.21	50.00	10.51
6.902	13.97	-46.03	60.00	6.02	-43.98	50.00	10.60
6.906	11.91	-48.09	60.00	4.68	-45.32	50.00	10.60
11.886	21.77	-38.23	60.00	13.26	-36.74	50.00	10.93
18.695	27.07	-32.93	60.00	22.07	-27.93	50.00	11.40
19.086	24.09	-35.91	60.00	18.63	-31.37	50.00	11.42
19.390	19.92	-40.08	60.00	13.55	-36.45	50.00	11.44
20.001	31.45	-28.55	60.00	30.33	-19.67	50.00	11.46
24.290	12.58	-47.42	60.00	5.86	-44.14	50.00	11.65
25.293	15.94	-44.06	60.00	9.80	-40.20	50.00	11.68

Test point: N
Operation mode: Operation mode 1
Remarks: None.
Date: 12-05-2020
Tested by: Franz-Xaver Schrettenbrunner

Result: passed



FCC/FCC Part 15B (15.107)B

freq	QP	margin	limit	AV	margin	limit	corr
MHz	dB(µV)	dB	dB	dB(µV)	dB	dB	dB
0.209	3.23	-60.04	63.26	-0.85	-54.11	53.26	10.13
0.213	3.78	-59.31	63.09	-0.75	-53.84	53.09	10.13
0.254	9.78	-51.86	61.64	2.69	-48.95	51.64	10.13
0.267	12.87	-48.35	61.21	6.74	-44.47	51.21	10.13
0.300	6.66	-53.58	60.24	1.52	-48.73	50.24	10.14
0.566	-0.18	-56.18	56.00	-3.42	-49.42	46.00	10.17
0.570	-0.65	-56.65	56.00	-3.69	-49.69	46.00	10.17
0.758	-0.87	-56.87	56.00	-3.85	-49.85	46.00	10.19
0.780	-1.12	-57.12	56.00	-3.96	-49.96	46.00	10.19
0.884	-1.21	-57.21	56.00	-4.12	-50.12	46.00	10.20
1.362	-0.98	-56.98	56.00	-3.95	-49.95	46.00	10.25
1.529	-0.88	-56.88	56.00	-3.91	-49.91	46.00	10.27
1.920	-0.79	-56.79	56.00	-3.79	-49.79	46.00	10.27
1.947	-0.88	-56.88	56.00	-3.91	-49.91	46.00	10.27
3.219	0.43	-55.57	56.00	-4.09	-50.09	46.00	10.35
3.309	0.66	-55.34	56.00	-3.99	-49.99	46.00	10.35
4.601	3.88	-52.12	56.00	-2.00	-48.00	46.00	10.42
4.800	3.50	-52.50	56.00	-2.11	-48.11	46.00	10.42
4.980	7.49	-48.51	56.00	0.49	-45.51	46.00	10.44
5.804	4.00	-56.00	60.00	-1.15	-51.15	50.00	10.49
6.902	14.06	-45.94	60.00	6.09	-43.91	50.00	10.57
11.886	22.67	-37.33	60.00	15.06	-34.94	50.00	10.81
18.569	28.52	-31.48	60.00	23.33	-26.67	50.00	11.19
18.636	28.76	-31.24	60.00	23.47	-26.53	50.00	11.20
20.001	32.65	-27.35	60.00	31.54	-18.46	50.00	11.25
23.768	34.50	-25.50	60.00	29.19	-20.81	50.00	11.26
24.231	12.86	-47.14	60.00	5.98	-44.02	50.00	11.26
25.298	16.19	-43.81	60.00	10.13	-39.87	50.00	11.24

5.2 Radiated emission < 1 GHz (electric field)

For test instruments and accessories used see section 6 Part **A 5**.

5.2.1 Description of the test location

Test location: OATS 1
Test distance: 3 m

5.2.2 Photo documentation of the test setup

5.2.3 Test result

Frequency range: 30 MHz - 1000 MHz
Min. limit margin - 2.5 dB at 742.49 MHz

The requirements are **FULFILLED.**

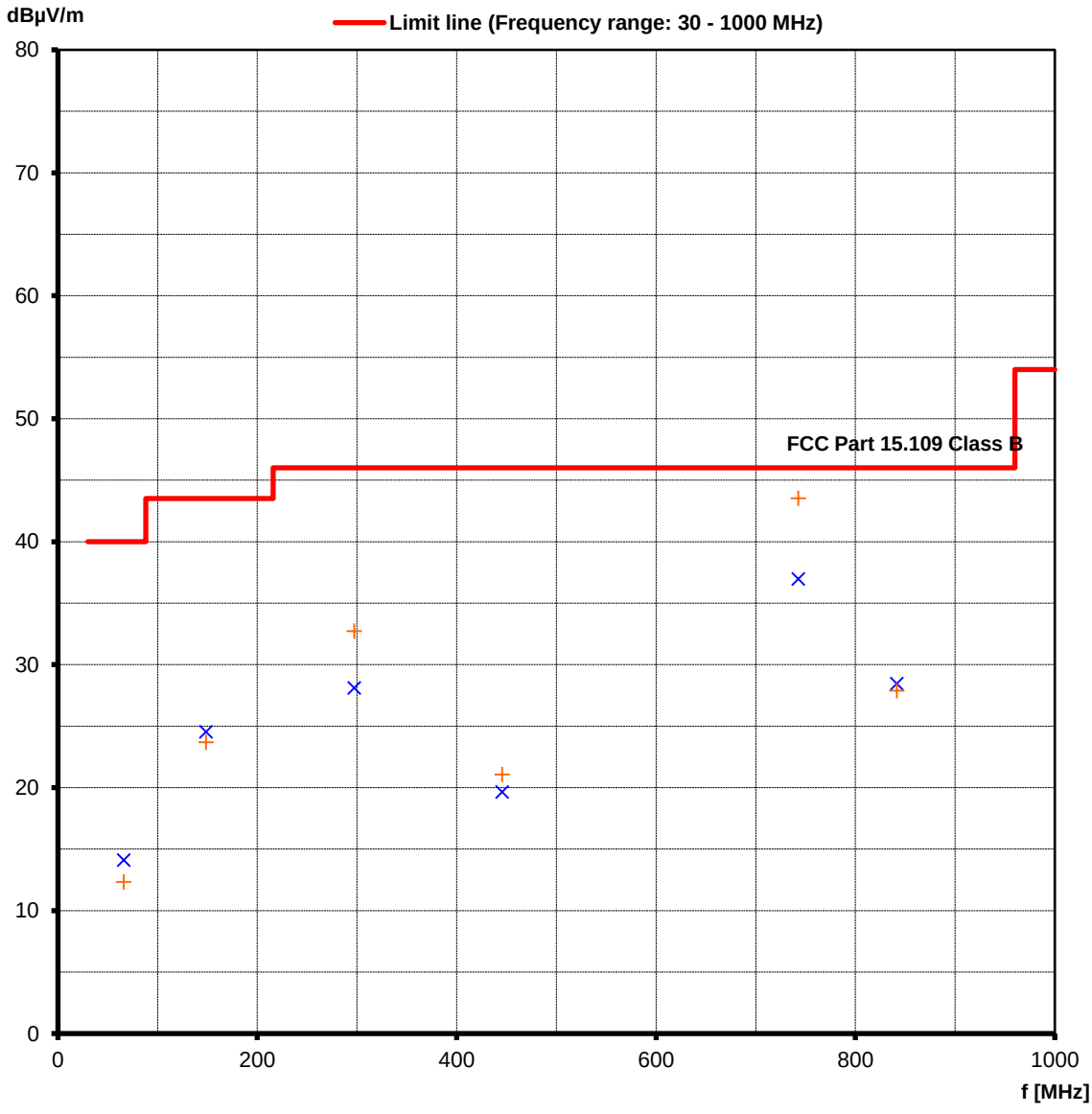
Remarks: For detailed results, please see the following page(s).

For description of the measurement see 4.5.2.

5.2.4 Test protocol

Operation mode:	Operation mode 1	Result: passed
Remarks:	None	
Date:	03.04.2020	
Tested by:	Franz-Xaver Schrettenbrunner	

Frequency (MHz)	Reading Vert. (dBµV)	Reading Hor. (dBµV)	Correct. Vert. (dB)	Correct. Hor. (dB)	Level Vert. (dBµV/m)	Level Hor. (dBµV/m)	Limit (dBµV/m)	Dlimit (dB)
65,89	-0,2	-1,2	14,3	13,5	14,1	12,3	40,0	-25,9
148,50	10,7	9,0	13,9	14,7	24,6	23,7	43,5	-18,9
297,04	11,4	16,4	16,7	16,3	28,1	32,7	46,0	-13,3
445,55	-1,4	0,3	21,1	20,8	19,7	21,1	46,0	-24,9
742,49	8,9	16,0	28,1	27,5	37,0	43,5	46,0	-2,5
841,41	-1,7	-1,8	30,2	29,7	28,5	27,9	46,0	-17,5



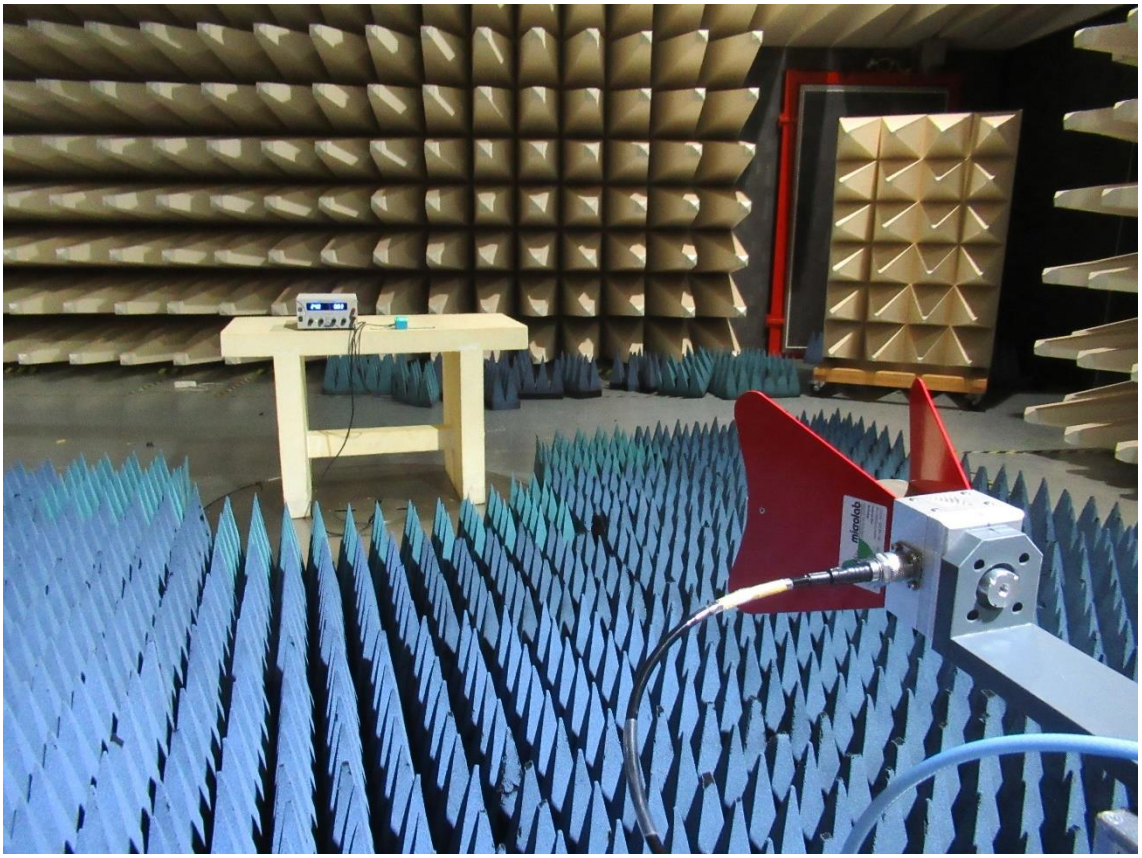
5.3 Radiated emission > 1 GHz (electric field)

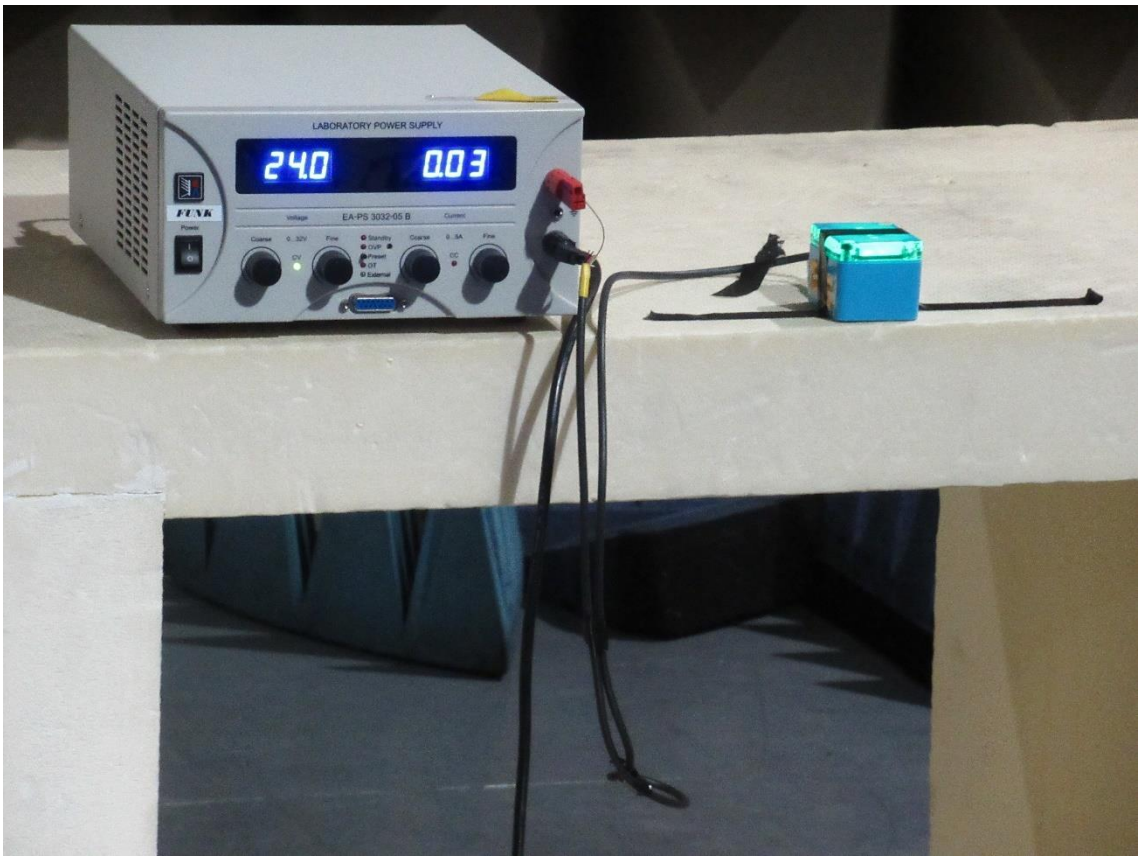
For test instruments and accessories used see section 6 Part **SER 3**.

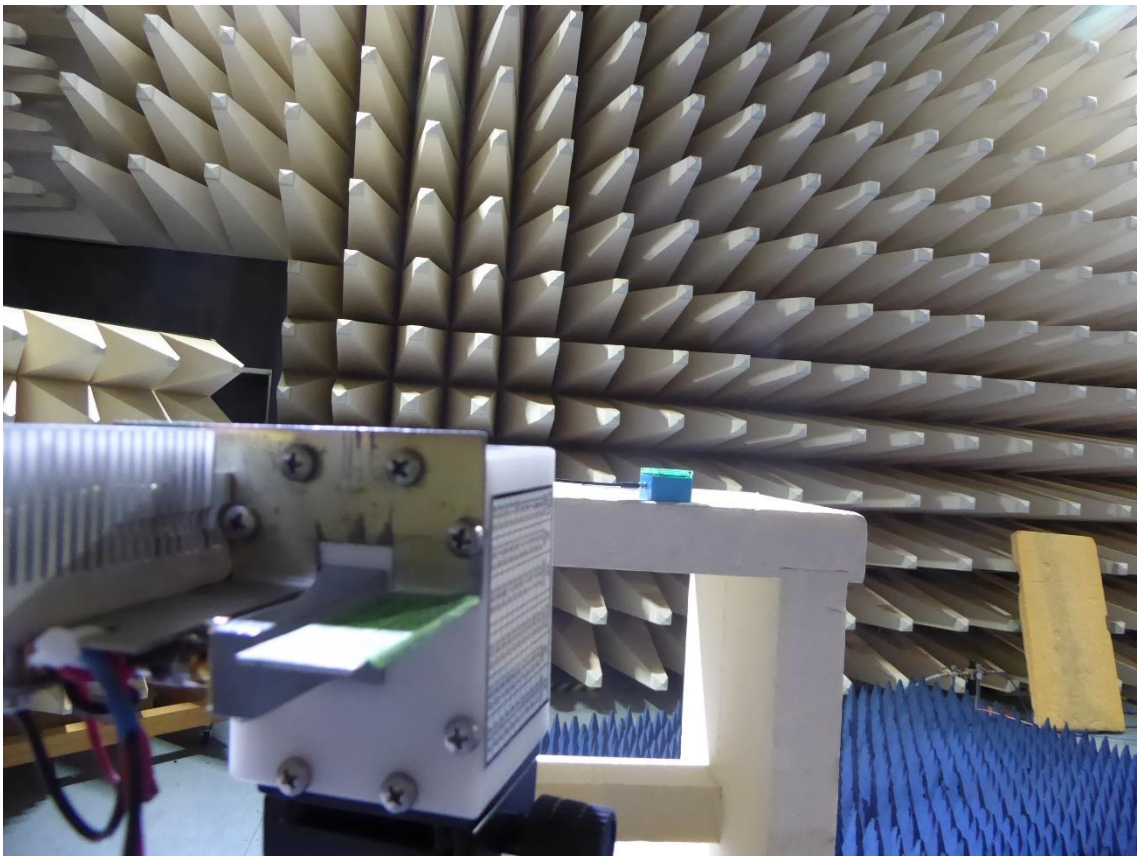
5.3.1 Description of the test location

Test location: Anechoic chamber 1
Test distance: 3 m

5.3.2 Photo documentation of the test setup







5.3.3 Test result

Frequency range: 1000 MHz – 40000 MHz

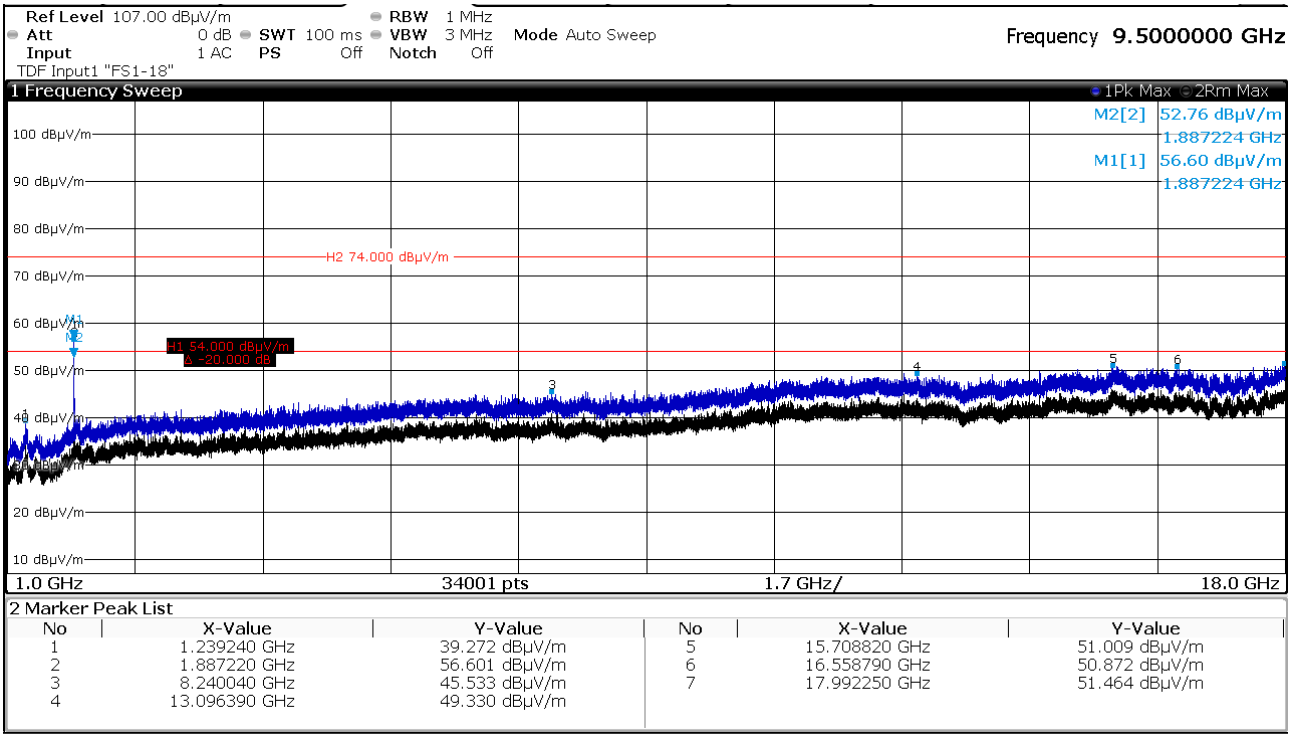
The requirements are **FULFILLED.**

Remarks: For detailed results, please see the following page(s).

For description of the measurement see 4.5.2.

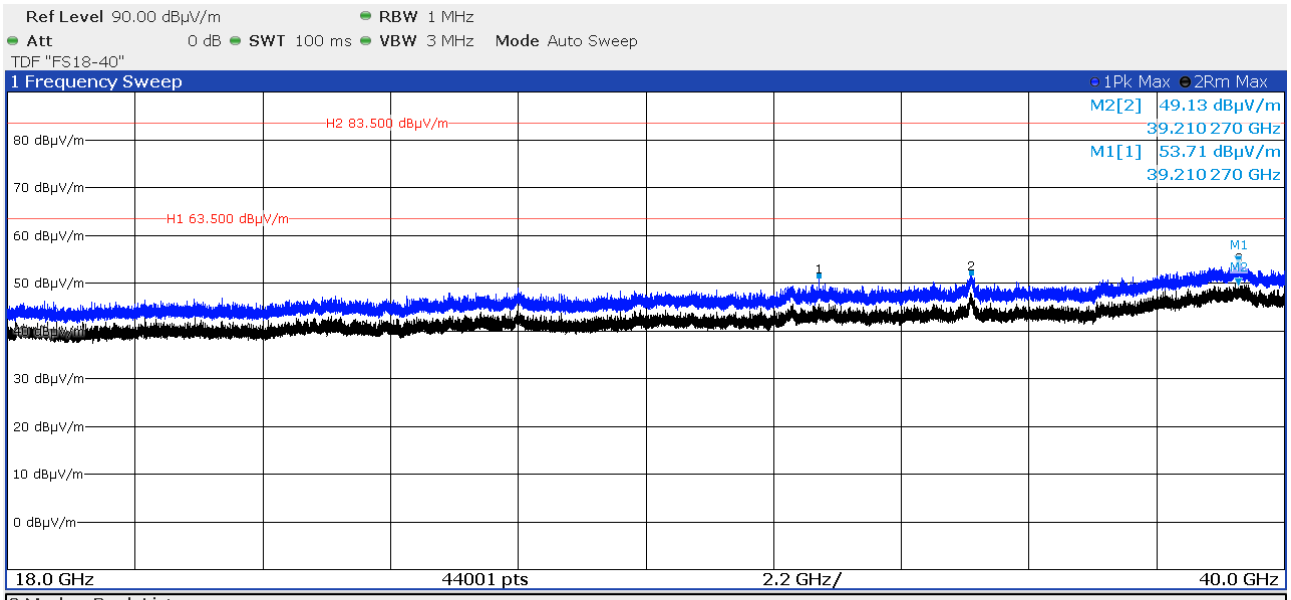
5.3.4 Test protocol

horizontal



2 Marker Peak List

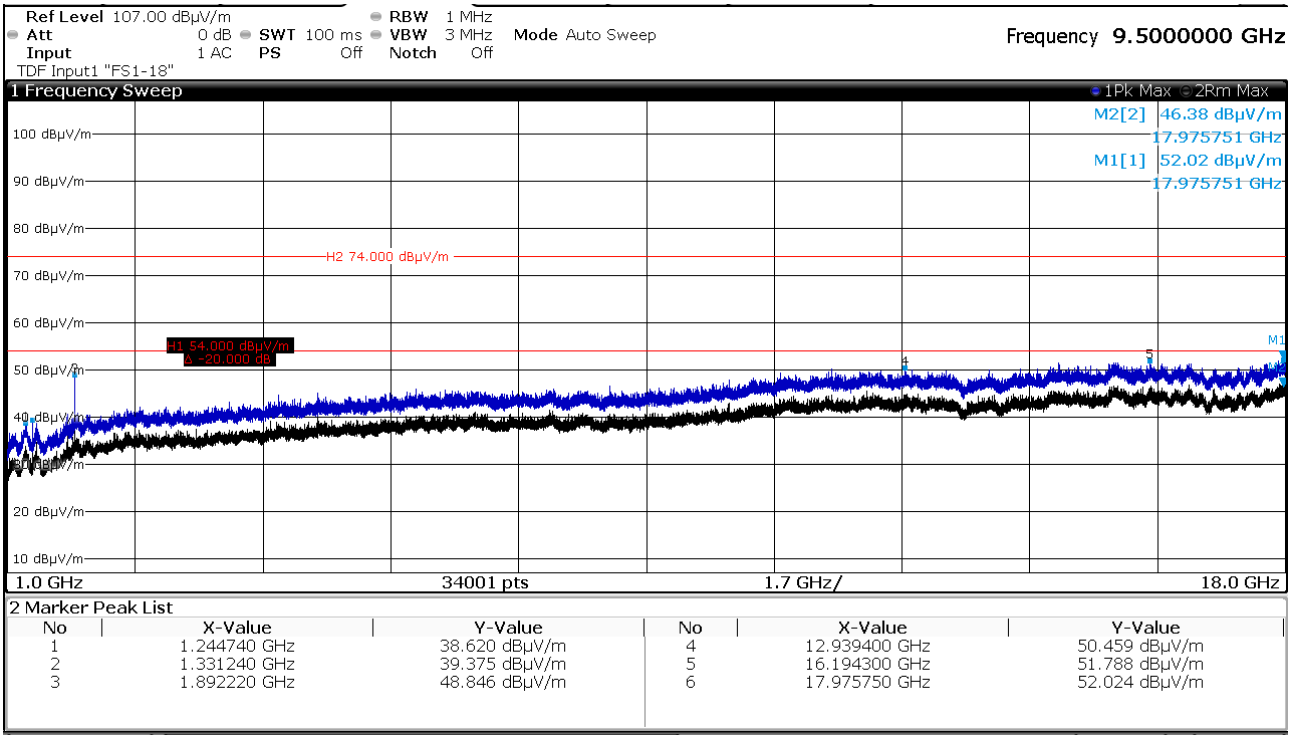
No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.239240 GHz	39.272 dBµV/m	5	15.708820 GHz	51.009 dBµV/m
2	1.887220 GHz	56.601 dBµV/m	6	16.558790 GHz	50.872 dBµV/m
3	8.240040 GHz	45.533 dBµV/m	7	17.992250 GHz	51.464 dBµV/m
4	13.096390 GHz	49.330 dBµV/m			



2 Marker Peak List

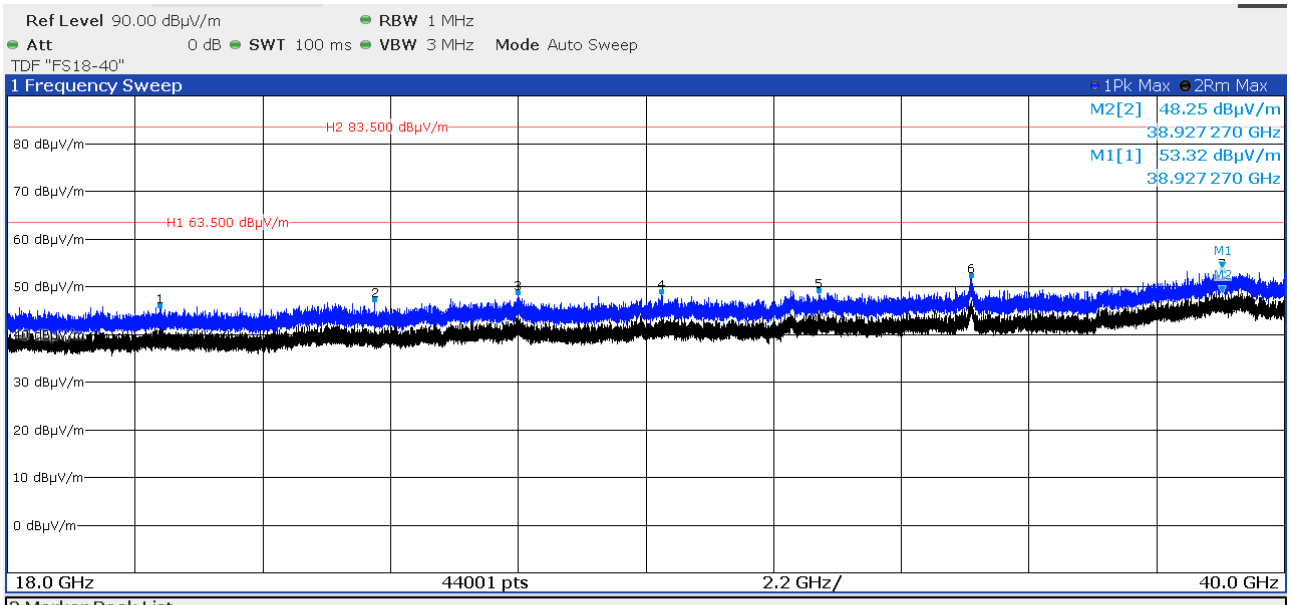
No	X-Value	Y-Value	No	X-Value	Y-Value
1	31.975 430 GHz	51.415 dBµV/m	3	39.210 270 GHz	53.711 dBµV/m
2	34.605 870 GHz	52.017 dBµV/m			

vertical



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.244740 GHz	38.620 dBµV/m	4	12.939400 GHz	50.459 dBµV/m
2	1.331240 GHz	39.375 dBµV/m	5	16.194300 GHz	51.788 dBµV/m
3	1.892220 GHz	48.846 dBµV/m	6	17.975750 GHz	52.024 dBµV/m



2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	20.623190 GHz	46.053 dBµV/m	5	31.973430 GHz	49.254 dBµV/m
2	24.332610 GHz	47.216 dBµV/m	6	34.599870 GHz	52.293 dBµV/m
3	26.792050 GHz	48.670 dBµV/m	7	38.927270 GHz	53.323 dBµV/m
4	29.261490 GHz	48.860 dBµV/m			

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test ID	Model Type	Kind of Equipment	Manufacturer	Equipment No.	Next Calib.	Last Calib.	Next Verif.
A 4	BAT-EMC 3.18.0.26	Nexio Software	EMCO Elektronik GmbH	01-02/68-13-001			
	ESCI	EMI Test Receiver	Rohde & Schwarz München	02-02/03-15-001	02/07/2020	02/07/2019	
	ESH 2 - Z 5 04/05/2020	LISN	Rohde & Schwarz München	02-02/20-05-004	31/10/2021	31/10/2019	04/11/2020
	N-4000-BNC	RF Cable	CSA Group Bayern GmbH	02-02/50-05-138			
	N-1500-N	RF Cable	CSA Group Bayern GmbH	02-02/50-05-140			
	ESH 3 - Z 2 12/05/2020	Pulse Limiter	Rohde & Schwarz München	02-02/50-05-155	13/11/2022	13/11/2019	12/11/2020
A 5	ESVS 30	EMI Test Receiver	Rohde & Schwarz München	02-02/03-05-006	19/08/2020	19/08/2019	
	VULB 9168	Trilog Broadband Antenn	Schwarzbeck Mess-Elektron	02-02/24-05-005	19/07/2020	19/07/2019	
	NW-2000-NB	RF Cable	Huber + Suhner	02-02/50-05-113			
	KK-EF393/U-16N-21N20 m	RF Cable 20m	Huber + Suhner	02-02/50-12-018			
	KK-SD_7/8-2X21N-33,0M	RF Cable 33 m	Huber + Suhner AG	02-02/50-15-028			
SER 3	ESW26	EMI Test Receiver	Rohde & Schwarz München	02-02/03-17-002	16/01/2021	16/01/2020	
	FSP 40	Spectrum Analyser	Rohde & Schwarz München	02-02/11-11-001	07/10/2020	07/10/2019	
	FSW43	Spectrum Analyser	Rohde & Schwarz München	02-02/11-15-001	02/04/2021	02/04/2020	
	AFS5-12001800-18-10P-6	RF Amplifier 12 - 18 GHz	PARZICH GMBH	02-02/17-06-002			
	AFS4-01000400-10-10P-4	RF Amplifier 1 - 4 GHz	MITEQ, Inc.	02-02/17-13-002			
	AMF-4F-04001200-15-10P	RF Amplifier 4 - 12 GHz	MITEQ, Inc.	02-02/17-13-003			
	3117	Horn Antenna 1 - 18 GH	EMCO Elektronik GmbH	02-02/24-05-009	06/06/2020	06/06/2019	
	BBHA 9170 14/01/2020	SHF-EHF Horn Antenna	Schwarzbeck Mess-Elektron	02-02/24-05-014	12/06/2021	12/06/2018	14/01/2021
	Sucoflex N-2000-SMA	RF Cable	novotronik Signalverarbeit	02-02/50-05-075			
	KMS102-0.2 m	RF Cable	Tactron Elektronik	02-02/50-11-020			

7 Detailed measurement uncertainty

7.1 Overview

Measurement instrumentation uncertainty shall be taken into account when determining compliance or non-compliance with a disturbance limit.
The measurement instrumentation uncertainty for a test laboratory shall be evaluated. The standard uncertainty $u(x_i)$ in decibels and the sensitivity coefficient c_i shall be evaluated for the estimate x_i of each quantity. The combined standard uncertainty $u_c(y)$ of the estimate y of the measurand shall be calculated as

$$u_c(y) = \sqrt{\sum_i c_i^2 \; u^2(x_i)}$$

The expanded measurement instrumentation uncertainty U_{lab} for a test laboratory shall be calculated as $U_{lab} = 2\, u_c(y)$

$$U_{lab} = 2\, u_c(y)$$

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} in the table below, then:
- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} in the table below, then:
- compliance is deemed to occur if no measured disturbance, increased by ($U_{lab} – U_{cispr}$), exceeds the disturbance limit.
- non-compliance is deemed to occur if any measured disturbance, increased by ($U_{lab} – U_{cispr}$), exceeds the disturbance limit.

7.2 Definitions and symbols

X_i	Input quantity
x_i	estimate of X_i
$u(x_i)$	standard uncertainty of x_i
c_i	sensitivity coefficient
$u_c(y)$	(combined) standard uncertainty of y
Y	result of a measurement, (the estimate of the measured), corrected for all recognised significant systematic effects
U	expanded uncertainty of y

7.3 Measurement uncertainty

Measurement	U_{lab} [dB]
Conducted disturbance	+ 2.53 / - 2.77
Radiated disturbance (electric field) - 10 m test distance - 3 m test distance - Frequency range: 30 MHz – 200 MHz	 + 3.16 / - 3.22 + 3.16 / - 3.22
Radiated disturbance (electric field) - 10 m test distance - 3 m test distance - Frequency range: 200 MHz – 1000 MHz	 + 4.51 / - 4.51 + 4.51 / - 4.51
Radiated disturbance (electric field) - 3 m test distance - Frequency range: 1 GHz – 30 GHz	 + 5.07 / -3.70