EMI – TEST REPORT

- FCC Part 15.225 -

Type / Model Name	:	LumiGuide Docking Base for LumiGuide Equipment / 722480
Product Description	:	RFID reader for visualization device with Fiber Optic Realshape (FORS) technology. RFID 13.56 MHz
Applicant	:	Philips Medical Systems Nederland B.V.
Address	:	Veenpluis 6 Best, North Brabant 5684 PC, Netherlands
Manufacturer	:	Philips Medical Systems Nederland B.V.
Address	:	Veenpluis 6 Best, North Brabant 5684 PC, Netherlands

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

Test Report No. :	**80140361-03 Rev_0**	06. July 2023 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 A - General (September 2021)

Part 15, Subpart A, Section 15.31	Measurement standards
Part 15, Subpart A, Section 15.33	Frequency range of radiated measurements
Part 15, Subpart A, Section 15.35	Measurement detector functions and bandwidths

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September 2021)

Part 15, Subpart C, Section 15.207	Conducted limits
Part 15, Subpart C, Section 15.209	Radiated emission limits, general requirements
Part 15, Subpart C, Section 15.225	Operation within the band 13.110 - 14.010 MHz
ANSI C63.10: 2013	Testing Unlicensed Wireless Devices

2 EQUIPMENT UNDER TEST

2.1 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.

2.2 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.

2.3 Photo documentation of the EUT

Detailed photos see ATTACHMENT A and ATTACHMENT B

ATTACHMENT A: External views
ATTACHMENT B: Internal views

2.4 Short description of the equipment under test (EUT)

LumiGuide Docking Base for LumiGuide Equipment
RFID reader for visualization device with Fiber Optic Realshape (FORS) technology.
RFID technology (13.56 MHz)

Number of tested samples: 1
Serial number: SVER 2

EUT operation mode:

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

- Continous reading mode (13.56 MHz).

EUT configuration:

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

- HP Laptop Model : CSA-ID.: 02-01/01-15-009
- Power adapter Laptop Model : HP Part No.: 677774-003
- FORS Guidewire (TAG) Model : Philips

2.5 Power supply system utilised

Power supply voltage : 5 V DC (powered over USB)

3 TEST RESULT SUMMARY

FCC Rule Part	Description	Result
15.207	AC power line conducted emissions	passed
15.225	Field strength of fundamental	passed
15.209	Spurious emissions	passed
15.225	Frequency tolerance	passed
15.215	Occupied bandwidth	passed
15.225	Transmitter spectrum mask	passed

3.1 Revision history of test report

Test report No	Rev.	Issue Date	Changes
80140361-03	0	06 July 2023	Initial test report

The test report with the highest revision number replaces the previous test reports.

3.2 FINAL ASSESSMENT

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

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

Testing commenced on : 09 February 2023

Testing concluded on : 27 February 2023

Checked by:

Klaus Gegenfurtner
I confirm the correctness and integrity of this document
2023.07.07 08:15:33 +02'00'

Klaus Gegenfurtner
Team Lead Radio

Tested by:

Markus Friedl
I am the author of this document.
2023.07.06 21:34:41 +02'00'

Markus Friedl
Radio Team

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 on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. 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.

Measurement Type	**Range**	**Confidence Level (%)**	**Calculated Uncertainty**
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	± 3.29 dB
20 dB Bandwidth	Center frequency of EuT	95%	± 2.5 10^{-7}
99% Occupied Bandwidth	Center frequency of EuT	95%	± 2.5 10^{-7}
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	± 3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	± 3.71 dB
Radiated Spurious Emissions	1000 MHz to 10000 MHz	95%	± 2.34 dB
Peak conducted output power	902 MHz to 928 MHz	95%	± 0.35 dB
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	± 2.15 dB

4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule (w = 0).
Details can be found in the procedure CSA_B_V50_29.

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 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

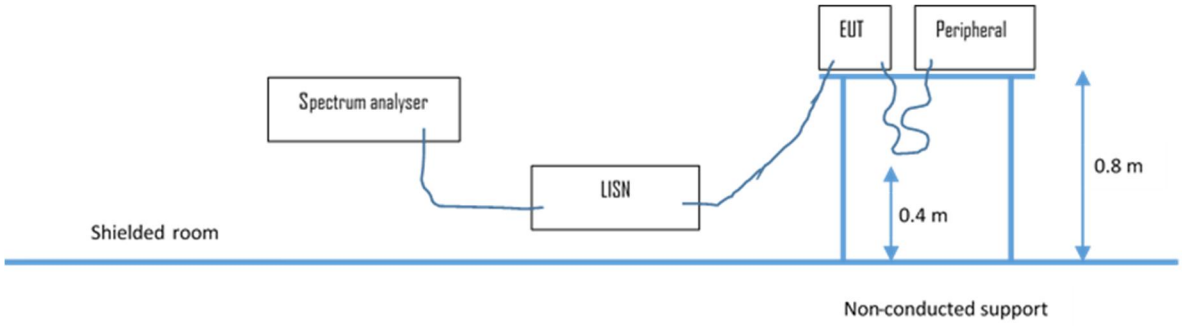
4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions.

4.5.3 Details of test procedures

4.5.3.1 Conducted emission

Test setup according ANSI C63.10



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

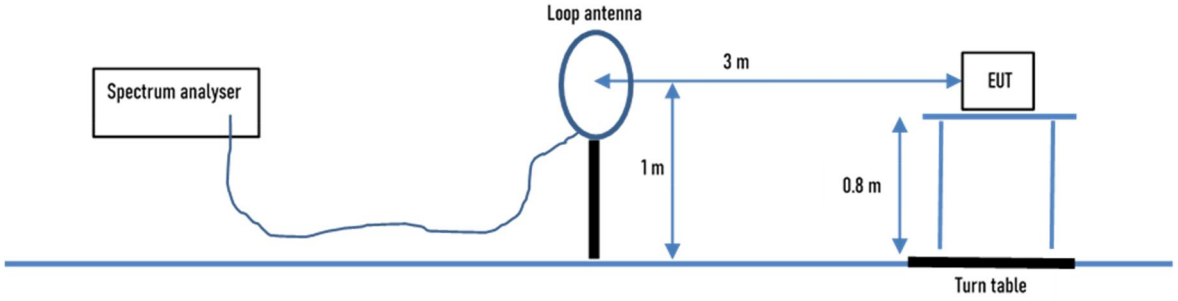
To convert between dBmV and mV, the following conversions apply:

dBmV = 20(log mV)
mV = Inverse log(dBmV/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 W / 50 mH (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.

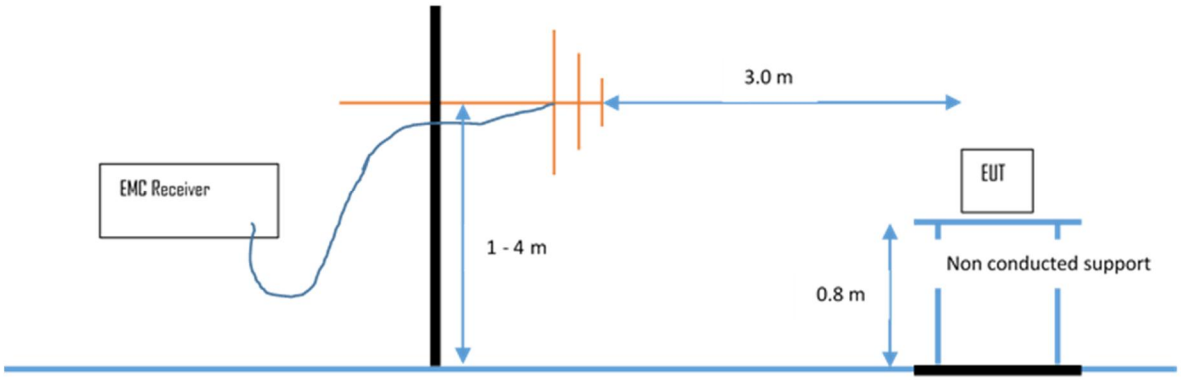
4.5.3.2 Radiated emission

4.5.3.2.1 OATS1 test site (9 kHz - 30 MHz):
Test setup according ANSI C63.10



Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

4.5.3.2.2 OATS1 test site (30 MHz - 1 GHz):
Test setup according ANSI C63.10.



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised 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 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dBµV/m is calculated by taking the reading from the EMI receiver (Level dBµV) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:
30 MHz – 1000 MHz: RBW: 120 kHz

Example:

Frequency (MHz)	Level (dBµV)	+	Factor (dB)	=	Level (dBµV/m)	-	Limit (dBµV/m)	=	Delta (dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

5 TEST CONDITIONS AND RESULTS

5.1 Conducted emissions

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 set-up

See ATTACHMENT C to this test report.

5.1.3 Applicable standard

FCC Part 15, Section 15.207.

5.1.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin 4.66 dB at 13.56 MHz

Limit according to FCC Part 15, Section 15.207:

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency

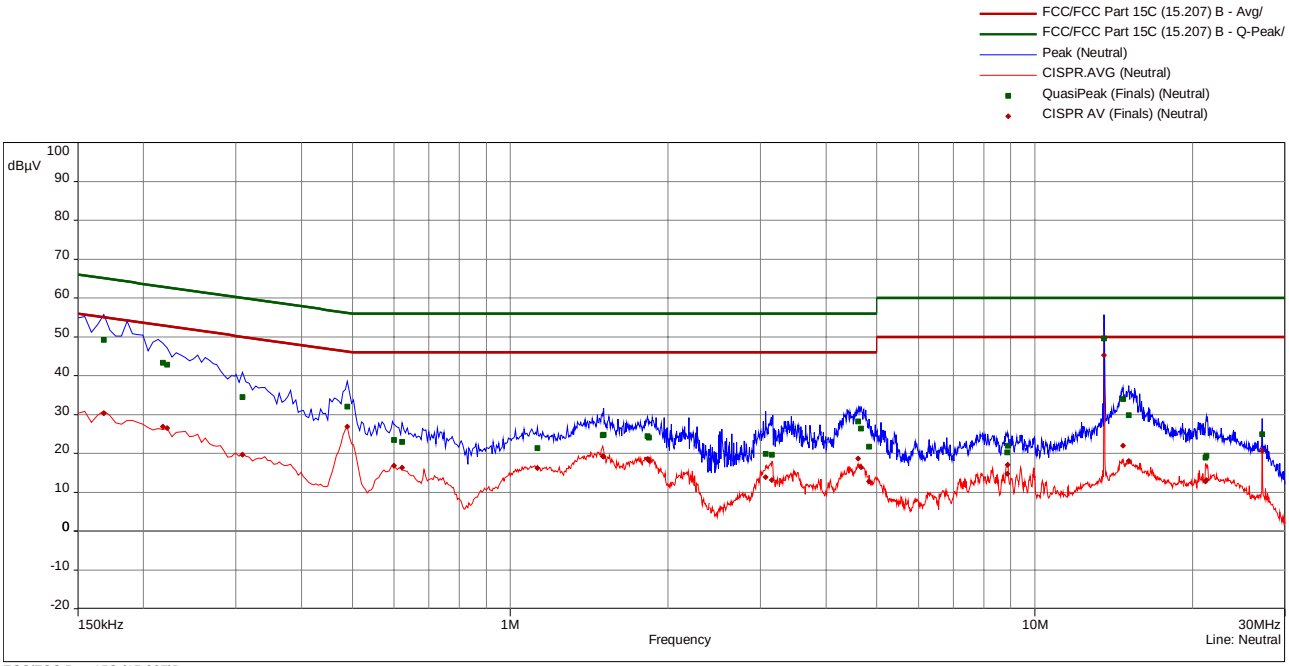
The requirements are **FULFILLED.**

Remarks: For detailed test result please refer to following test protocols

The EUT is supplied via USB connector of the laptop. The measurement was performed at the AC power supply of the laptop.

Tested voltage A4 test: 120 V AC 60 Hz

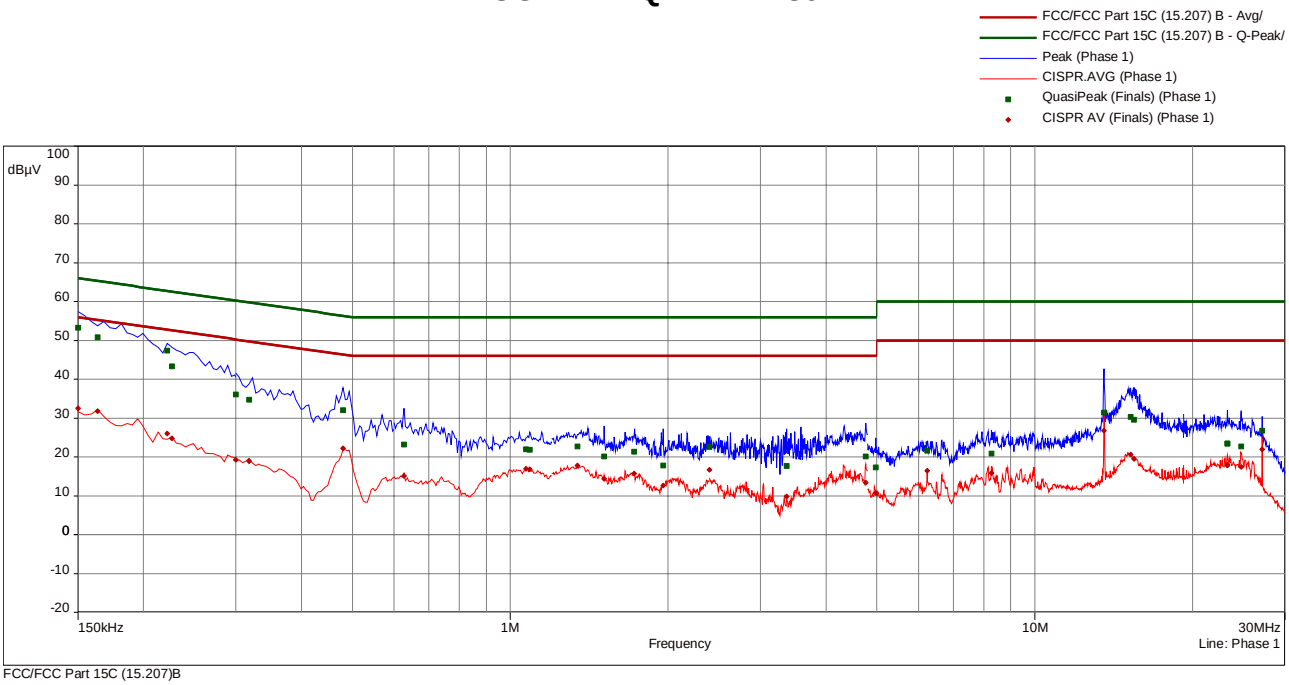
5.1.6 Test protocol



FCC/FCC Part 15C (15.207)B

freq	QP	margin	limit	AV	margin	limit	line	corr
MHz	dBµV	dB	dBµV	dBµV	dB	dBµV		dB
0.168	49.19	-15.87	65.06	30.32	-24.73	55.06	Neutral	10.11
0.2175	43.30	-19.61	62.91	26.88	-26.03	52.91	Neutral	10.12
0.222	42.86	-19.88	62.74	26.54	-26.20	52.74	Neutral	10.13
0.309	34.55	-25.45	60.00	19.64	-30.36	50.00	Neutral	10.15
0.489	32.09	-24.09	56.18	26.85	-19.34	46.18	Neutral	10.18
0.6	23.49	-32.51	56.00	16.83	-29.17	46.00	Neutral	10.19
0.6225	22.91	-33.09	56.00	16.38	-29.62	46.00	Neutral	10.19
1.1265	21.37	-34.63	56.00	16.20	-29.80	46.00	Neutral	10.24
1.5015	24.72	-31.28	56.00	19.25	-26.75	46.00	Neutral	10.29
1.506	24.74	-31.26	56.00	19.17	-26.83	46.00	Neutral	10.29
1.8255	24.42	-31.58	56.00	18.58	-27.42	46.00	Neutral	10.30
1.839	24.05	-31.95	56.00	18.13	-27.87	46.00	Neutral	10.30
3.066	19.90	-36.10	56.00	13.86	-32.14	46.00	Neutral	10.38
3.156	19.63	-36.37	56.00	13.15	-32.85	46.00	Neutral	10.38
4.6005	28.23	-27.77	56.00	18.63	-27.37	46.00	Neutral	10.43
4.659	26.41	-29.59	56.00	16.47	-29.53	46.00	Neutral	10.43
4.827	21.77	-34.23	56.00	12.76	-33.24	46.00	Neutral	10.44
8.859	20.27	-39.73	60.00	14.71	-35.29	50.00	Neutral	10.63
8.8725	21.97	-38.03	60.00	17.02	-32.98	50.00	Neutral	10.63
13.56	49.53	-10.47	60.00	45.34	-4.66	50.00	Neutral	10.88
14.7255	34.04	-25.96	60.00	21.97	-28.03	50.00	Neutral	10.92
15.099	29.85	-30.15	60.00	18.08	-31.92	50.00	Neutral	10.92
21.1755	18.91	-41.09	60.00	12.74	-37.26	50.00	Neutral	11.15
21.2475	19.33	-40.67	60.00	13.18	-36.82	50.00	Neutral	11.15
27.12	24.94	-35.06	60.00	20.67	-29.33	50.00	Neutral	11.07

FCC ID: 2AQ4B-722480



FCC/FCC Part 15C (15.207)B

freq	QP	margin	limit	AV	margin	limit	line	corr
MHz	dBµV	dB	dBµV	dBµV	dB	dBµV		dB
0.15	53.26	-12.74	66.00	32.51	-23.49	56.00	Phase 1	10.07
0.1635	50.75	-14.53	65.28	31.76	-23.53	55.28	Phase 1	10.08
0.222	47.37	-15.38	62.74	25.98	-26.76	52.74	Phase 1	10.09
0.2265	43.38	-19.20	62.58	24.85	-27.73	52.58	Phase 1	10.09
0.3	36.05	-24.19	60.24	19.26	-30.98	50.24	Phase 1	10.11
0.318	34.70	-25.06	59.76	18.88	-30.88	49.76	Phase 1	10.12
0.48	32.01	-24.33	56.34	22.20	-24.14	46.34	Phase 1	10.16
0.627	23.14	-32.86	56.00	15.10	-30.90	46.00	Phase 1	10.16
1.0725	22.00	-34.00	56.00	16.91	-29.09	46.00	Phase 1	10.22
1.0905	21.84	-34.16	56.00	16.78	-29.22	46.00	Phase 1	10.22
1.344	22.76	-33.24	56.00	17.75	-28.25	46.00	Phase 1	10.26
1.5105	20.11	-35.89	56.00	14.36	-31.64	46.00	Phase 1	10.27
1.722	21.40	-34.60	56.00	15.77	-30.23	46.00	Phase 1	10.27
1.956	17.79	-38.21	56.00	12.63	-33.37	46.00	Phase 1	10.26
2.4	22.63	-33.37	56.00	16.68	-29.32	46.00	Phase 1	10.30
3.363	17.71	-38.29	56.00	9.80	-36.20	46.00	Phase 1	10.33
4.7625	20.16	-35.84	56.00	13.38	-32.62	46.00	Phase 1	10.42
4.9755	17.32	-38.68	56.00	10.74	-35.26	46.00	Phase 1	10.43
6.231	21.55	-38.45	60.00	16.48	-33.52	50.00	Phase 1	10.55
8.2785	20.93	-39.07	60.00	15.80	-34.20	50.00	Phase 1	10.64
13.551	31.37	-28.63	60.00	26.73	-23.27	50.00	Phase 1	10.96
15.243	30.35	-29.65	60.00	20.58	-29.42	50.00	Phase 1	11.07
15.45	29.56	-30.44	60.00	19.54	-30.46	50.00	Phase 1	11.08
23.304	23.50	-36.50	60.00	17.96	-32.04	50.00	Phase 1	11.42
23.3085	23.50	-36.50	60.00	17.76	-32.24	50.00	Phase 1	11.42
24.7575	22.66	-37.34	60.00	17.42	-32.58	50.00	Phase 1	11.47
27.12	26.78	-33.22	60.00	22.00	-28.00	50.00	Phase 1	11.46

5.2 Field strength of the fundamental wave

For test instruments and accessories used see section 6 Part **CPR 1**.

5.2.1 Description of the test location

Test location: OATS 1
Test distance: 3 metres

5.2.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

5.2.3 Applicable standard

FCC Part 15, Section 15.225(a).

5.2.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

5.2.5 Test result

a) Result at a measurement distance of 3m

Frequency (MHz)	Level (dBµV)	Ant. factor (dB 1/m)	Field strength dB(µV/m)
13.56	30	20.0	50

b) Result extrapolated to a distance of 30 m

Frequency (MHz)	Field strength dB(µV/m) @3m	Extrapolation factor (dB)	Field strength dB(µV/m) @30m	Limit dB(µV/m)	Delta (dB)
13.56	50	-40	10	84.0	74

Limit according to FCC Part 15, Section 15.225(a):

Frequency	Field strength of fundamental wave		Measurement distance
(MHz)	(µV/m)	dB(µV/m)	(metres)
13.553 - 13.567	15848	84.0	30

The requirements are **FULFILLED.**

Remarks: None

5.3 Spurious emissions

For test instruments and accessories used see section 6 Part **SER 1, SER 2**.

5.3.1 Description of the test location

Test location: OATS 1
Test distance: 3 metres

5.3.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

5.3.3 Applicable standard

FCC Part 15, Section 15.209(a).

5.3.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

The resolution bandwidth during the measurement is as follows:
9 kHz – 150 kHz: RBW: 200 Hz
150 kHz – 30 MHz: RBW: 9 kHz
30 MHz – 1000 MHz: RBW: 120 kHz
Detector: QP (In frequency range 9-90 kHz and 110-490 kHz a linear average detector is used for iSED)

5.3.5 Test result < 30MHz

FCC

f (MHz)	Level QP@3m (dBµV)	Ant. factor (dB/m)	Field strength QP@3m dB(µV/m)	Distance corr. 3m to 30m (dB)	Corrected level QP@30m dB(µV/m)	Limit QP@30m dB(µV/m)	Delta (dB)
27.12	14.5	20	34.5	-40	-5.5	29.5	-35

ISED

f (MHz)	Level QP@3m (dBµA)	Ant. factor (dB/m)	Field strength QP@3m dB(µA/m)	Distance corr. 3m to 30m (dB)	Corrected level QP@30m dB(µA/m)	Limit QP@30m dB(µA/m)	Delta (dB)
27.12	-37	20	-17	-40	-57	-22	-35

5.3.6 Test result 30 MHz < f < 1 GHz

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)
40.68	21.7	11.6	16.9	18.1	38.6	29.7	40.0	-1.4
54.24	10.9	5.3	17.3	18.5	28.2	23.8	40.0	-11.8
67.80	7.5	6.0	16.1	16.8	23.6	22.8	40.0	-16.4
81.36	5.7	6.6	14.1	14.3	19.8	20.9	40.0	-19.1
108.48	10.4	9.8	16.1	15.1	26.5	24.9	43.5	-17.0
122.04	6.9	5.5	17.6	17.0	24.5	22.5	43.5	-19.0
135.60	8.8	11.4	18.9	18.0	27.7	29.4	43.5	-14.1
149.16	8.9	9.0	19.5	18.8	28.4	27.8	43.5	-15.1
162.72	7.9	8.0	19.6	19.0	27.5	27.0	43.5	-16.0
189.84	7.5	10.0	17.7	17.0	25.2	27.0	43.5	-16.5
203.40	7.6	7.1	17.1	16.5	24.7	23.6	43.5	-18.8
216.96	6.5	10.8	17.6	17.1	24.1	27.9	46.0	-18.1
230.52	6.7	6.1	18.0	17.8	24.7	23.9	46.0	-21.3
244.08	6.5	9.2	18.5	18.4	25.0	27.6	46.0	-18.4
257.64	5.6	6.0	18.9	19.0	24.5	25.0	46.0	-21.0
271.20	5.7	9.2	19.3	19.5	25.0	28.7	46.0	-17.3
284.76	6.6	8.0	19.7	20.1	26.3	28.1	46.0	-17.9
298.32	6.4	9.8	20.1	20.6	26.5	30.4	46.0	-15.6
311.88	6.3	7.6	20.5	21.0	26.8	28.6	46.0	-17.4
325.44	6.4	8.2	20.9	21.4	27.3	29.6	46.0	-16.4
339.00	6.3	6.6	21.3	21.8	27.6	28.4	46.0	-17.6
406.80	6.4	6.5	23.3	23.7	29.7	30.2	46.0	-15.8
542.40	7.4	6.7	26.7	27.0	34.1	33.7	46.0	-11.9

Note: The correction factor includes cable loss and antenna factor.

Limit according to FCC Part 15 Subpart 15.209(a)

Frequency	Field strength of spurious emissions		Measurement distance
(MHz)	(µV/m)	dB(µV/m)	(metres)
0.009 - 0.490	2400/F(kHz)	--	300
0.490 - 1.705	24000/F (kHz)	--	30
1.705 - 30.0	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

The requirements are **FULFILLED.**

Remarks: Measurement has been performed up to 1000 MHz.

5.4 Frequency tolerance

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

5.4.1 Description of the test location

Test location: AREA4 (Climatic Chamber)

5.4.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

5.4.3 Applicable standard

According to FCC Part 15, Section 15.225(e).

5.4.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

5.4.5 Test result

Test conditions		Test result	Tolerance	Limit
		Frequency (kHz)	(kHz)	(kHz)
T_{min} (-20)°C	V_{nom} (5.0 V)	13560.069	+0.062	± 1.356
T (-10)°C	V_{nom} (5.0 V)	13560.069	+0.062	± 1.356
T (0)°C	V_{nom} (5.0 V)	13560.044	+0.037	± 1.356
T (10)°C	V_{nom} (5.0 V)	13560.032	+0.025	± 1.356
T_{nom} (20)°C	V_{min} (4.5 V)	13560.007	±0.000	± 1.356
	V_{nom} (5.0 V)	13560.007	±0.000	± 1.356
	V_{max} (5.5 V)	13560.007	±0.000	± 1.356
T (30)°C	V_{nom} (5.0 V)	13559.995	-0.012	± 1.356
T (40)°C	V_{nom} (5.0 V)	13559.957	-0.050	± 1.356
T_{max} (50)°C	V_{nom} (5.0 V)	13559.956	-0.051	± 1.356

Limit Calculation:
Carrier frequency: f_c = 13.560007 MHz
Max. tolerance: ± 0.01 % of 13.560007 MHz = ± 1.356 kHz

Limit according to FCC Part 15, Section 15.225(e):
The frequency tolerance of the carrier signal shall be maintained within ±0.01 % of the operating frequency.

The requirements are **FULFILLED.**

Remarks: Measurements started at T=20°C.

5.5 Bandwidth

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

5.5.1 Description of the test location

Test location: AREA4

5.5.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

5.5.3 Applicable standard

According to FCC Part 15, Section 15.215(c).

5.5.4 Test result

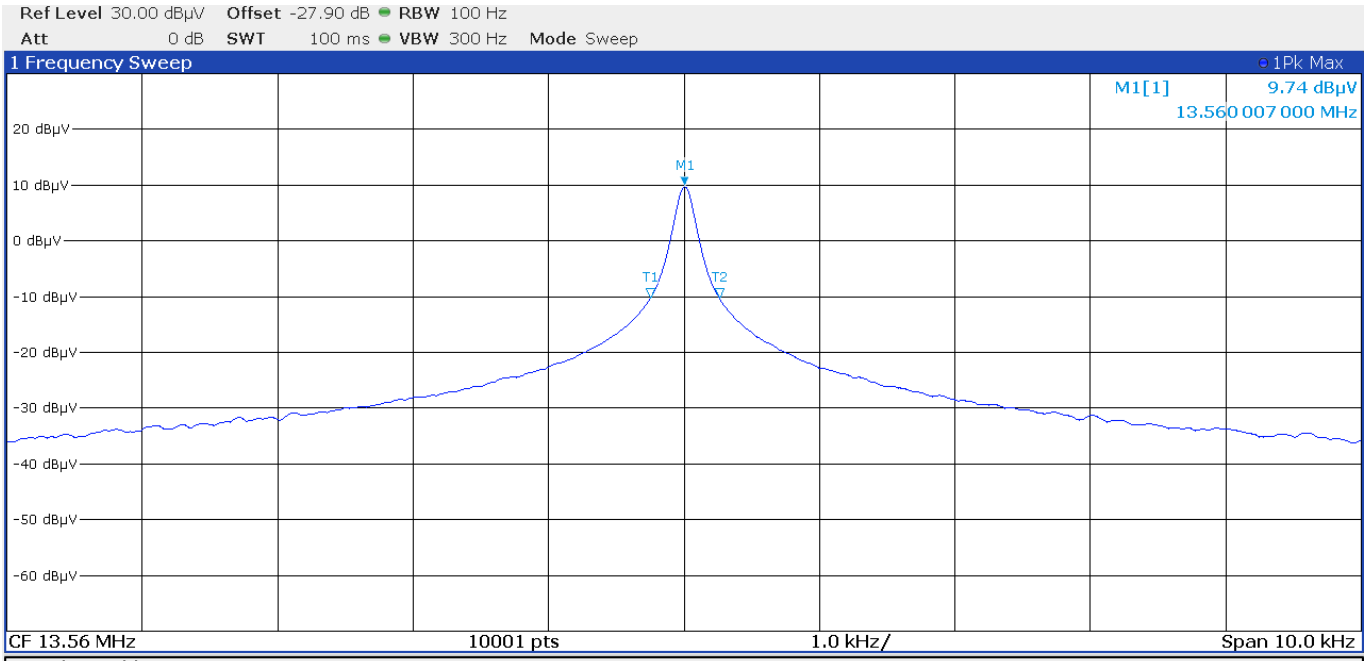
Measured Bandwidth	result (kHz)	Limit (kHz)
20dB	0.51	--
99%	1.59	--

The requirements are **FULFILLED.**

Remarks: For detailed test result please refer to following test protocol.

5.5.5 Test protocol

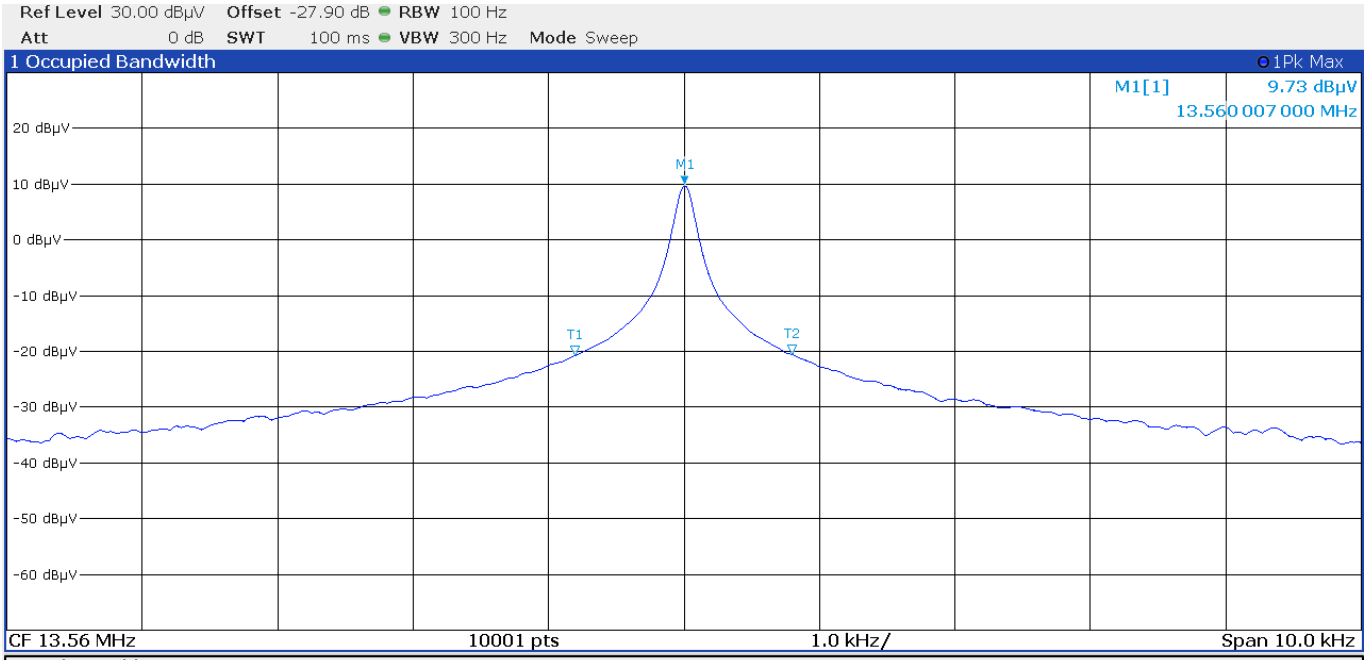
20 dB bandwidth



2 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**13.560 007 MHz**	**9.74 dBµV**	ndB	20.0 dB
T1		1	13.559 749 MHz	-10.27 dBµV	ndB down BW	**511.90 Hz**
T2		1	13.560 261 MHz	-10.28 dBµV	Q Factor	26.487

99% Bandwidth



2 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	**13.560 007 MHz**	**9.73 dBµV**	Occ Bw	**1.595 181 777 kHz**
T1		1	13.559 198 33 MHz	-20.72 dBµV	Occ Bw Centroid	13.559 995 925 MHz
T2		1	13.560 793 52 MHz	-20.55 dBµV	Occ Bw Freq Offset	-4.074 994 901 Hz

5.6 Transmitter spectrum mask

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

5.6.1 Description of the test location

Test location: AREA4

5.6.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

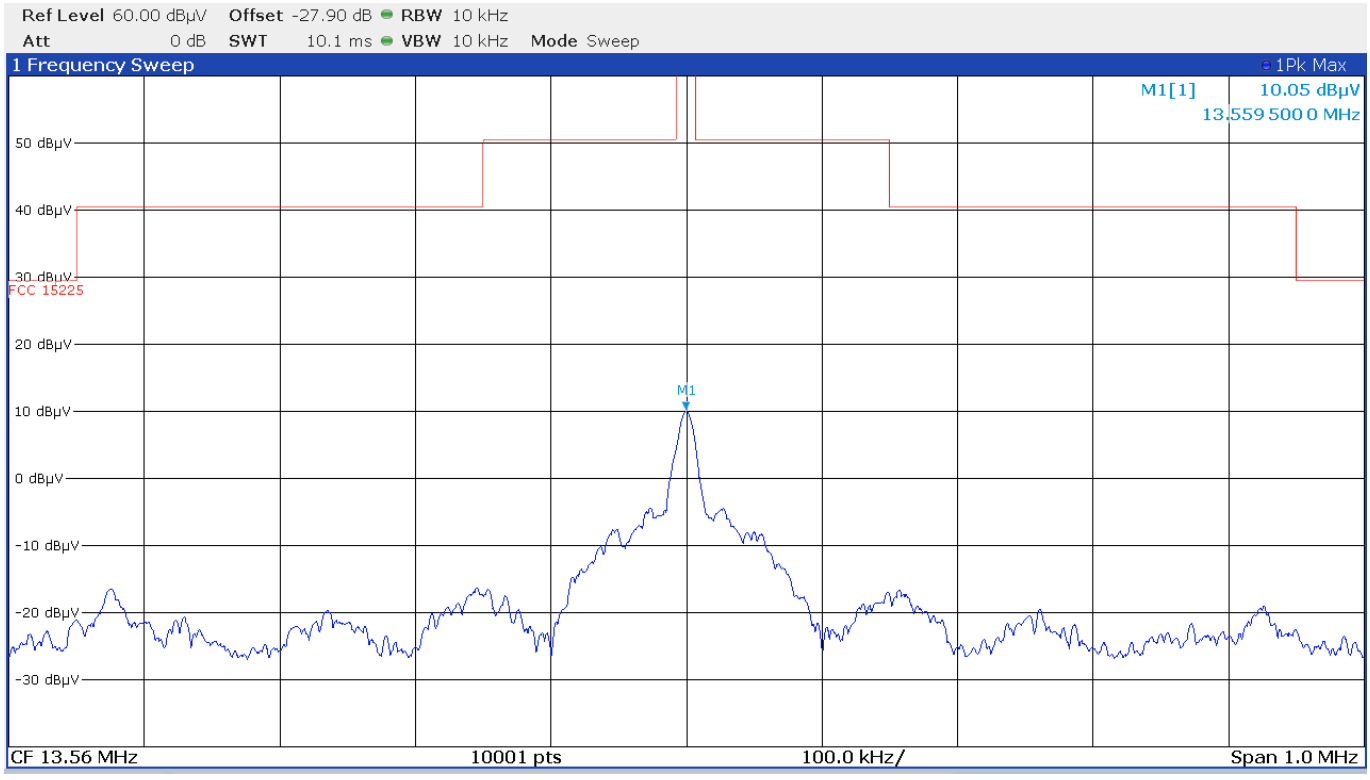
5.6.3 Applicable standard

According to FCC Part 15, Section 15.225 (a-d).

5.6.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

5.6.5 Test result



Limits according to FCC Part 15, Section 15.225(a-d)

Frequency band (MHz)	Emission level limit at 30 m (µV/m)	Emission level limit at 30 m (dBµV/m)
13.110 – 13.410	106	40.5
13.410 - 13.553	334	50.5
13.553 - 13.567	15.848	84.0
13.567 – 13.710	334	50.5
13.710 – 14.010	106	40.5
outside of 13.110 – 14.010	30	29.5

The requirements are **FULFILLED.**

Remarks: None

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
A 4	BAT-EMC 2022.0.23.0	01-02/68-13-001				
	ESCI	02-02/03-15-001	17/06/2023	17/06/2022		
	ESH 2 - Z 5	02-02/20-05-004	13/10/2025	13/10/2022	13/04/2023	13/10/2022
	N-4000-BNC	02-02/50-05-138				
	ESH 3 - Z 2	02-02/50-05-155	09/11/2025	09/11/2022	09/05/2023	09/11/2022
	6430	02-02/50-13-014				
CPR 1	ESR 7	02-02/03-17-001	05/08/2023	05/08/2022		
	HFH 2 - Z 2	02-02/24-15-001	31/03/2023	31/03/2022		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
FE	FSW43	02-02/11-15-001	22/04/2023	22/04/2022		
	HFRAE 5161 _ 50 kHz-120	02-02/24-11-004				
	WK-340/40	02-02/45-05-001	03/08/2023	03/08/2022		
MB	FSW43	02-02/11-15-001	22/04/2023	22/04/2022		
	HFRAE 5161 _ 50 kHz-120	02-02/24-11-004				
SER 1	ESR 7	02-02/03-17-001	05/08/2023	05/08/2022		
	HFH 2 - Z 2	02-02/24-15-001	31/03/2023	31/03/2022		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
SER 2	ESVS 30	02-02/03-05-006	27/07/2023	27/07/2022		
	VULB 9168	02-02/24-05-005	20/03/2023	20/12/2021	03/07/2023	03/07/2022
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
	50F-003 N 3 dB	02-02/50-21-010				