

EMC TEST REPORT

No. 2025112STO-105

Electromagnetic disturbances

EQUIPMENT UNDER TEST

Equipment: Table standing luminaire
Type/Model: B2101 Åskmuller
Manufacturer: IKEA of Sweden AB
Tested by request of: IKEA of Sweden AB

SUMMARY

Referring to the emission limits, and the operating mode during the tests specified in this report, the equipment complies with the requirements according to the following standards:

FCC 47 CFR Part 15: Radio frequency devices, Subpart B: Unintentional radiators. Class B equipment.

ICES-005 Issue 5: Lighting Equipment, Class B. (2018)

For details, see clause 2 – 4.

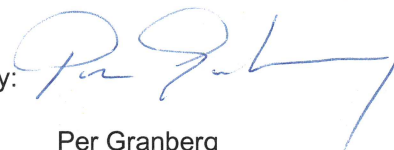
Date of issue: February 01, 2021

Tested by:



Lovisa Gibson

Approved by:



Per Granberg

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Revision History

Test report no.	Release no.	Date of issue	Description
2025112STO-105	1	February 01, 2021	

Terms, definition and abbreviations

The following terms, definitions and abbreviations may be used throughout the report.

Term/definition/abbreviation	Meaning
AAN	Asymmetrical Artificial Network
AC	Alternating Current
AE	Associated Equipment
AM	Amplitude Modulation
AMN	Artificial Mains Network
AV	Average
BW	Bandwidth
CAV	CISPR Average
CDN	Coupling/Decoupling Network
CM	Common Mode
CMAD	Common Mode Absorption Device
DC	Direct Current
DM	Differential Mode
EM	Electromagnetic
EMC	Electromagnetic Compatibility
ESD	Electrostatic Discharge
EUT	Equipment Under Test
F	Fail
FM	Frequency Modulation
FAR	Fully Anechoic Room
F_x	Highest fundamental frequency generated or used within the EUT, or highest frequency at which it operates
H	Horizontal
HCP	Horizontal Coupling Plane
I_{ref}	Reference Current
ISN	Impedance Stabilizing Network
MU	Measurement Uncertainty
N/A	Not Applicable
P	Pass
PE	Protective Earth
PK	Peak
Pol.	Polarisation
PWHC	Partial Weighted Harmonic Current
QP / QPK	Quasi-Peak
RF	Radio Frequency
RGP	Reference Ground Plane
RH	Relative Humidity
RMS	Root Mean Square
Rx	Receiver / Receiving
SAC	Semi-Anechoic Chamber
THC	Total Harmonic Current
Tx	Transmitter / Transmitting
V	Vertical
VCP	Vertical Coupling Plane

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1. CLIENT INFORMATION

The EUT has been tested by request of

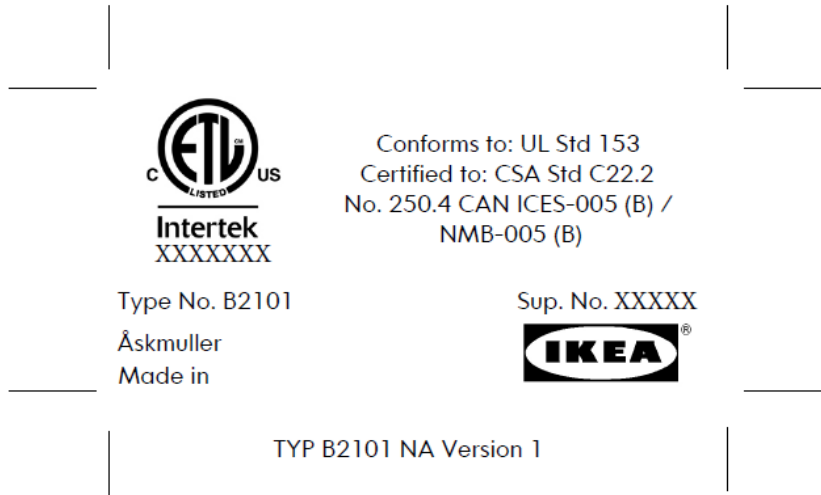
Company	IKEA of Sweden AB
Name of contact	Adina Zugrav
Client observer	-

2. EQUIPMENT UNDER TEST (EUT)

2.1 Identification of the EUT

Equipment:	Table standing luminaire														
Type/Model:	B2101 Åskmuller														
Brand name:	IKEA														
S/N:	-														
Manufacturer:	IKEA of Sweden AB Box 702 343 81 Älmhult Sweden														
Installation class:	<input type="checkbox"/> I <input checked="" type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> N/A														
Highest clock frequency, F_X:	< 108 MHz														
Software version:	-														
Hardware version:	-														
Mounting position: (during normal use)	<input checked="" type="checkbox"/> Table-top <input type="checkbox"/> Floor-standing <input type="checkbox"/> Wall/ceiling <input type="checkbox"/> Hand-held <input type="checkbox"/> Other:														
Supplementary information:															
Input ratings	Voltage [V]	Freq. [Hz]	Current [A]	Power [W]	Coupling										
<input checked="" type="checkbox"/> AC	120	50-60		8,6	<table border="0"> <tr> <td>L1</td> <td>L2</td> <td>L3</td> <td>N</td> <td>PE</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	L1	L2	L3	N	PE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L1	L2	L3	N	PE											
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
<input type="checkbox"/> DC					<table border="0"> <tr> <td>V+</td> <td>V-</td> <td>PE</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	V+	V-	PE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
V+	V-	PE													
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
<input type="checkbox"/> Battery					<table border="0"> <tr> <td>V+</td> <td>V-</td> <td>PE</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	V+	V-	PE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
V+	V-	PE													
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
<input type="checkbox"/> Other:															

Photo(s) of EUT: see Annex 1



Photo/copy of marking/rating plate(s)

2.2 Additional information about the EUT

The EUT has the following noted components:

Noted component	Type
LED lamp	IKEA LED 1515 G8 E12

The EUT has the following ports:

Port type	Port name	Shielded
AC I/O		
<input checked="" type="checkbox"/> AC power input	AC Input Port	<input type="checkbox"/>
<input type="checkbox"/> AC power output		<input type="checkbox"/>
DC I/O		
<input type="checkbox"/> DC power input		<input type="checkbox"/>
<input type="checkbox"/> DC power output		<input type="checkbox"/>
Signal/control I/O		
<input type="checkbox"/> Telecom/network		<input type="checkbox"/>
<input type="checkbox"/> Signal/control		<input type="checkbox"/>
Supplementary information:		

3. TEST SPECIFICATIONS

3.1 Additions, deviations and exclusions from standards and accreditation

No additions, deviations or exclusions have been made from standards and accreditation.

3.2 Test site

Measurements were performed at:

Intertek Semko AB.
Torshamnsgatan 43,
P.O. Box 1103
SE-164 22 Kista

Intertek Semko AB is a FCC listed test site with site registration number 90913
Intertek Semko AB is a FCC accredited conformity assessment body with designation number SE0002
Intertek Semko AB is an Industry Canada listed test facility with IC assigned code 2042G

Measurement chambers

Measurement Chamber	Type of chamber	IC Site filing #
<input checked="" type="checkbox"/> STORA HALLEN	Semi-anechoic 10 m and 3 m	2042G-2
<input type="checkbox"/> BJÖRKHALLEN	Semi-anechoic 3 m	2042G-1
<input type="checkbox"/> 5 m CHAMBER	Semi-anechoic 5 m	2042G-3

3.3 Mode of operation during the test

Mode no.	Supply	Description
1	120 V AC, 60 Hz	Maximum light intensity
2	120 V AC, 60 Hz	Minimum light intensity

Test	Mode of operation
Conducted continuous emission	1, 2
Radiated emission of EM fields	1, 2

4. TEST SUMMARY

The test has been carried out at the Intertek Semko AB premises in Kista, Sweden.

The results in this report apply only to sample tested.

Result: P – F – N/A

EMISSION TESTS					
Chapter	Standard(s)	Description	Port type(s)	Note(s)	Verdict
5	FCC Part 15 subpart B	Conducted continuous emission	AC input	(1)	P
5	ICES-005	Conducted continuous emission	AC input	-	P
6	FCC Part 15 subpart B	Radiated emission of EM fields	Enclosure	-	P
6	ICES-005	Radiated emission of EM fields	Enclosure	-	P
Supplementary information: (1) Measured value(s) is/are within the measurement uncertainty interval to the limit.					

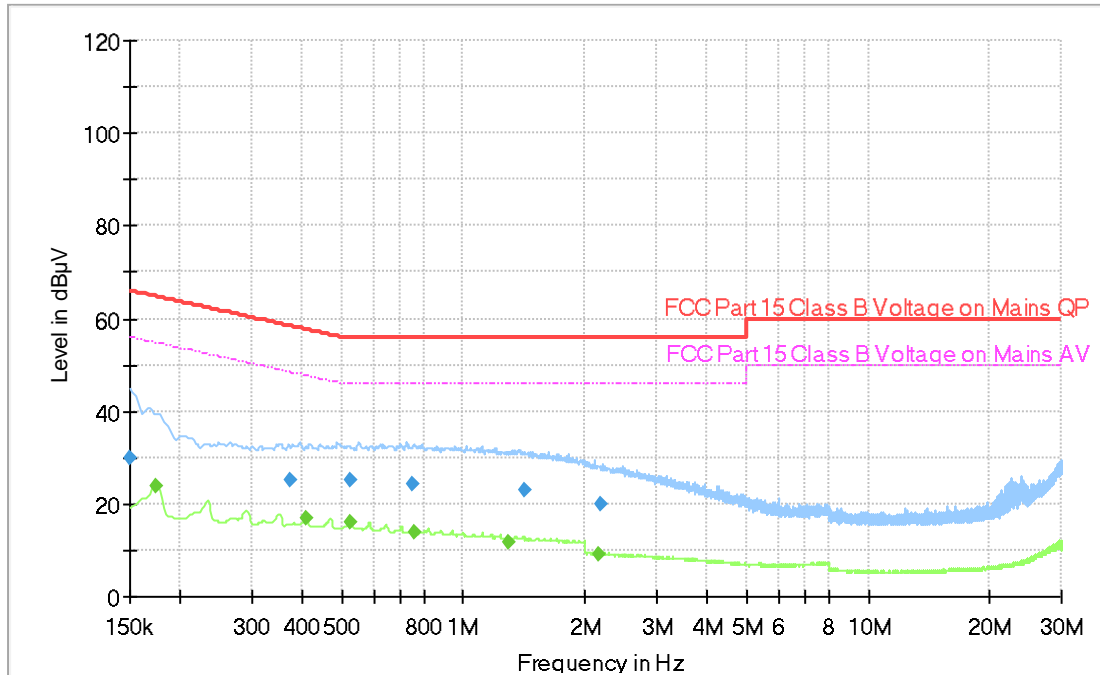
5. CONDUCTED CONTINUOUS DISTURBANCES
in the frequency-range 0.15 – 30 MHz

Date of test	Temp. [°C]	Humidity [%RH]	Tested by
January 20, 2021	22	26	Lovisa Gibson

Test setup and procedure:	EUT was placed 0.8 m from the AMN /ISN. Overview sweeps were performed for each lead of the cable(s). AE requiring mains power to operate was/were connected to AMN /ISN terminated with 50 Ω, when applicable.		
EUT position:	<input checked="" type="checkbox"/> Table-top (EUT 0.4 m from the RGP) <input type="checkbox"/> Floor-standing (EUT 12 mm from the RGP) <input type="checkbox"/> Other:		
Tested port type(s):	Coupling device	Measurement uncertainty	
		Frequency range	Value
<input checked="" type="checkbox"/> AC power	<input checked="" type="checkbox"/> AMN	0.15 – 30 MHz	± 3.3 dB
Supplementary information: Measurement uncertainty is calculated in accordance with CISPR 16-4-2:2011. The measurement uncertainty is given with a confidence of 95 %.			

Photo(s) of test setup(s) for conducted continuous disturbances:
see 2025112STO-106, Annex 1.

5.1 Test results, AC Power input port, Class B
Mode of operation: No.1



Diagram, Peak and AV overview sweep

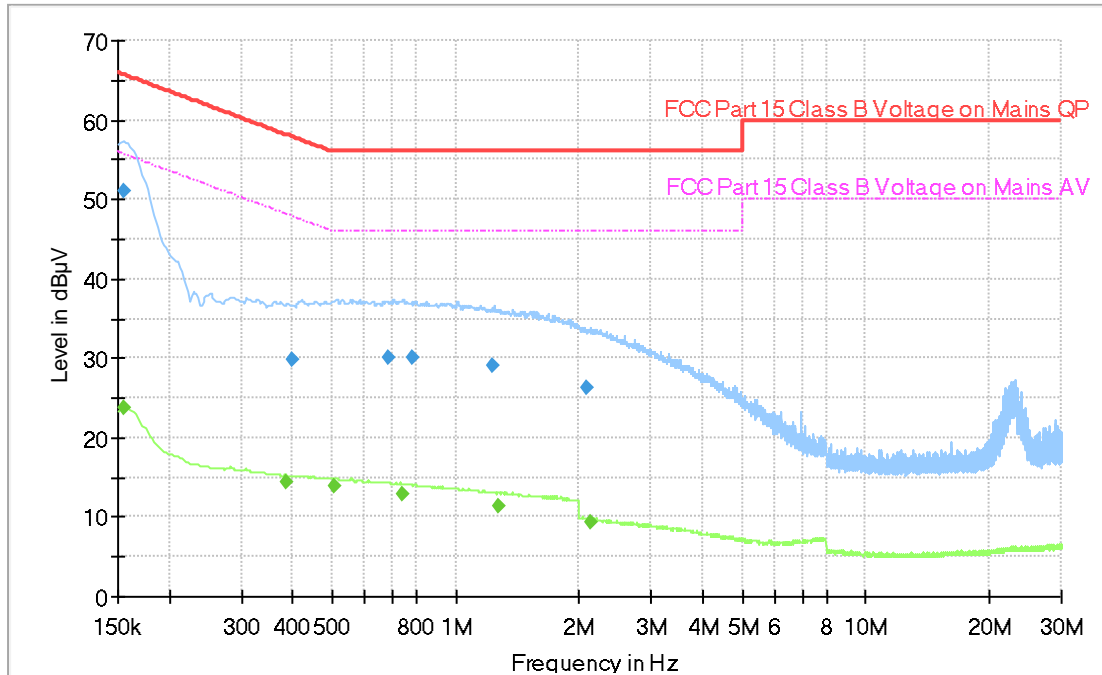
Measurement results, Quasi-peak

All measured disturbances have a margin of more than 20 dB to the limits.

Measurement results, Average

All measured disturbances have a margin of more than 20 dB to the limits.

5.2 Test results, AC Power input port, Class B
Mode of operation: No.2



Diagram, Peak and AV overview sweep

Measurement results, Quasi-peak

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE
0.154500	51.03	---	65.75	14.72	1000.0	9.000	L1	GND
0.399750	29.74	---	57.86	28.12	1000.0	9.000	L1	GND
0.685500	30.07	---	56.00	25.93	1000.0	9.000	N	GND
0.782250	29.95	---	56.00	26.05	1000.0	9.000	N	GND
1.232250	29.08	---	56.00	26.92	1000.0	9.000	N	GND
2.089500	26.29	---	56.00	29.71	1000.0	9.000	L1	GND

Measurement results, Average

All measured disturbances have a margin of more than 20 dB to the limits.

5.3 Test equipment

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32	--	--	--
Receiver	Rohde & Schwarz	ESU 8	12866	07-2020	1 year
AMN / LISN	Rohde & Schwarz	ESH3-Z5	2728	07-2020	1 year
Cable	Suhner	G03232 D-01	9701	06-2020	1 year
Cable	Huber+Suhner	RG 223/U	9815	06-2020	1 year

6. RADIATED RF EMISSION IN THE FREQUENCY-RANGE 30 MHZ – 1 GHZ

Date of test	Temp. [°C]	Humidity [%RH]	Tested by
January 14, 2021	22	20	Lovisa Gibson, Ann-Christine Norrström

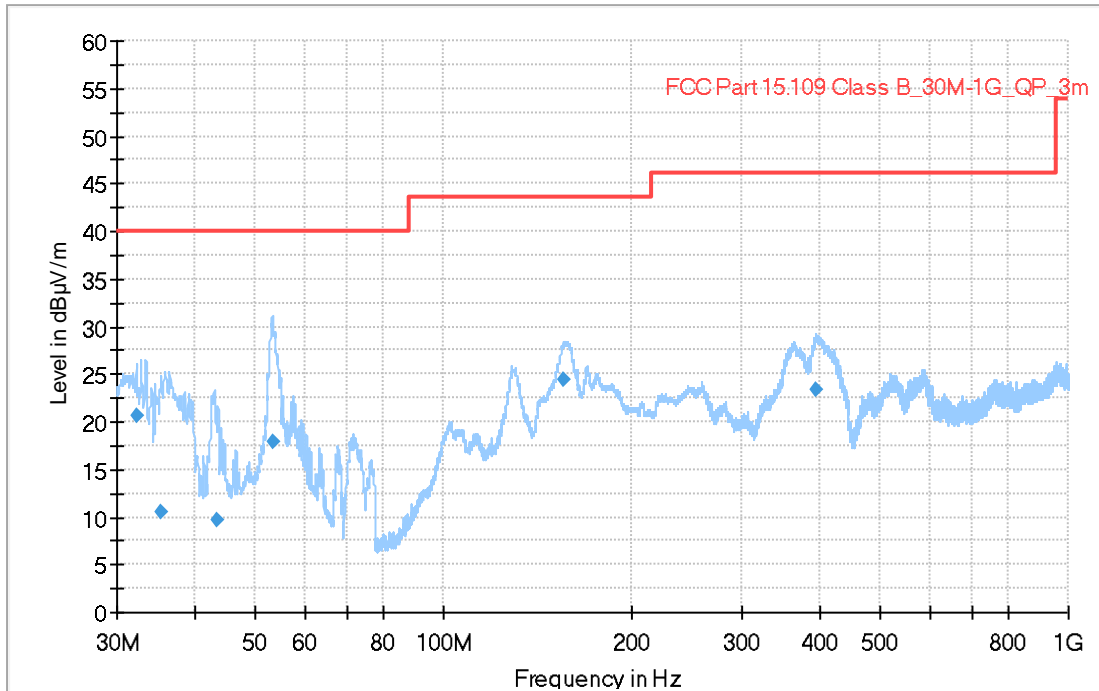
Test setup and procedure:	The EUT was placed on a non-conductive support on the RGP. Overview sweeps were performed with the measurement receiver in max hold mode and the peak detector activated in the frequency range 30 – 1000 MHz. Above 1 GHz, both the peak and average detectors were activated, when applicable. During height scan above 1 GHz the EUT was kept in antennas cone of radiation.		
EUT position:	<input checked="" type="checkbox"/> Table-top (EUT 0.8 m from the RGP) <input type="checkbox"/> Floor-standing (EUT 12 mm from the RGP) <input type="checkbox"/> Other:		
Highest measured frequency:	<input checked="" type="checkbox"/> F_x 108 MHz: 1 GHz <input type="checkbox"/> 108 MHz < F_x ≤ 500 MHz: 2 GHz <input type="checkbox"/> 500 Mhz < F_x ≤ 1 GHz: 5 GHz <input type="checkbox"/> F_x > 1 GHz: 5 x F_x up to a max. of 40 GHz <input type="checkbox"/> F_x is unknown: 40 GHz		
Frequency range:	Measuring distance	Measurement uncertainty	
<input checked="" type="checkbox"/> 30 to 1000 MHz	3 m	± 5.1 dB	
<input type="checkbox"/> 30 to 1000 MHz	10 m	± 5.0 dB	
<input type="checkbox"/> 1.0 to 18 GHz	3 m	± 4.5 dB	
<input type="checkbox"/> 18 to 26 GHz	3 m	± 4.8 dB	
<input type="checkbox"/> 26 to 40 GHz	3 m	± 5.7 dB	
Supplementary information: Measurement uncertainty is calculated in accordance with CISPR 16-4-2:2011. The measurement uncertainty is given with a confidence of 95 %.			

Test	Freq. [MHz]	Meas. angle [°]	Antenna			RBW [kHz]			VBW [kHz]
			Type	Height	Pol.	QP	PK	AV	PK
Preview	30 – 1000	0 – 359	Bilog	1 – 4 m	V and H	-	120	-	1000
Final						120	-	-	
Preview	1000 – 40000	0 – 359	Horn	1 – 4 m		-	1000	-	3000
Final						-	1000	1000	-

Photo(s) of test setup(s) for radiated disturbances: see 2025112STO-106, Annex 1.

Measurement distance [m]	Frequency [MHz]	Limits [dB μ V/m]		
		QP	PK	AV
Limits, FCC, Class A				
<input type="checkbox"/> 3 / <input type="checkbox"/> 10	30 – 88	49.6 / 39.1	-	-
	88 – 216	54.0 / 43.5	-	-
	216 – 960	56.9 / 46.4	-	-
	960 – 1000	60.0 / 49.5	-	-
<input type="checkbox"/> 3 / <input type="checkbox"/> 10	Above 1000	-	80.0 / 69.5	60.0 / 49.5
Limits, FCC, Class B				
<input checked="" type="checkbox"/> 3 / <input type="checkbox"/> 10	30 – 88	40.0 / 29.5	-	-
	88 – 216	43.5 / 33.1	-	-
	216 – 960	46.0 / 35.6	-	-
	960 – 1000	54.0 / 43.5	-	-
<input type="checkbox"/> 3 / <input type="checkbox"/> 10	Above 1000	-	74.0 / 63.5	54.0 / 43.5
Limits, ICES-005 Class A				
<input type="checkbox"/> 3 / <input type="checkbox"/> 10	30 – 88	49.5 / 39.1	-	-
	88 – 216	54.0 / 43.5	-	-
	230 – 1000	56.9 / 46.4	-	-
Limits, ICES-005, Class B				
<input checked="" type="checkbox"/> 3 / <input type="checkbox"/> 10	30 – 88	40.0 / 29.5	-	-
	88 – 216	43.5 / 33.1	-	-
	230 – 1000	46.0 / 35.6	-	-

6.1 Test results, 30 – 1000 MHz, FCC, Class B
Operation mode: No. 1



Diagram, Peak and Average overview sweep

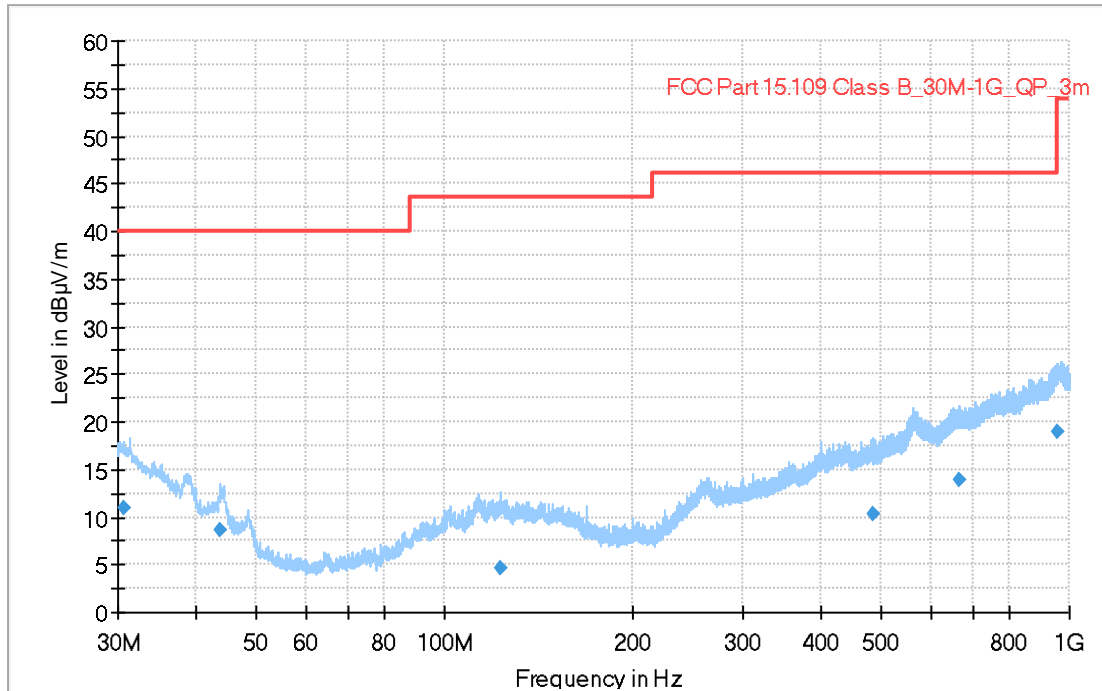
Measurement results, Quasi-peak

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
32.190	20.69	40.00	19.31	1000.0	120.0	118.0	V	215.0
35.340	10.60	40.00	29.40	1000.0	120.0	104.0	V	211.0
43.500	9.61	40.00	30.39	1000.0	120.0	104.0	V	255.0
53.400	17.89	40.00	22.11	1000.0	120.0	100.0	V	280.0
155.970	24.48	43.52	19.04	1000.0	120.0	100.0	V	20.0
394.770	23.46	46.02	22.56	1000.0	120.0	156.0	V	105.0

Result [dBµV/m] = Analyser reading [dBµV] + Antenna factor [1/m] - Amplifier gain [dB] + Cable loss [dB]

The EUT also fulfil the limit for ICES-005, see limit in table, page 15.

6.2 Test results, 30 – 1000 MHz, FCC, Class B
Operation mode: No. 2



Diagram, Peak and Average overview sweep

Measurement results, Quasi-peak

All measured disturbances have a margin of more than 20 dB to the limits.

The EUT also fulfil the limit for ICES-005, see limit in table, page 15.

6.3 Test equipment

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32	--	--	--
Measurement Receiver	Rohde & Schwarz	ESW 44	33890	07-2020	1 year
Antenna	Teseq	CBL 6111D	34200	03-2020	3 year
Preamplifier	Semko	AM1331	S7992	06-2020	1 year
Measurement cable	Huber+Suhner	SUCOFLEX 106	39122	04-2020	1 year
Measurement cable	Rosenberger	LA5-S003-8500	39148	04-2020	1 year
Measurement cable	Rosenberger	LA5-S003-10000 (UFB293C)	39163	06-2020	1 year