





Test Report

Electromagnetic Compatibility

Product	Cellular and sub-GHz gateway for the Smart Connect system		
Name and address of the applicant	Anticimex Innovation Center A/S Skovgaardsvej 23E Helsingør 3200 Denmark		
Name and address of the manufacturer	Anticimex Innovation Center A/S Skovgaardsvej 23E Helsingør 3200 Denmark		
Model	Connect 3-300120		
Rating	100-240V AC 50/60Hz (Power supply); 3.6V DC (Internal Battery)		
Trademark	Anticimex		
Additional information	/		
Tested according to	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7	FCC ID: 2A0FP-300120	
Project number	PRJ0048537		
Tested in period	2024-05-27 to 2024-05-31		
Issue date	2024-10-01		
Name and address of the testing laboratory	Nemko Scandinavia AS <input type="checkbox"/> Location 1: Philip Pedersens vei 11, 1366 Lysaker, Norway	<input checked="" type="checkbox"/> Location 2: Instituttveien 6, 2007 Kjeller, Norway	 
<small>An accredited technical test executed under the Norwegian accreditation scheme</small>			
 Prepared by [Jørn Gustavsen]		 Approved by [Roger Berget]	

REPORT REVISIONS

Report Edition	Date	Project	Description
A	2024-10-01	PRJ0048537	First issued



THIS REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATION(S) TESTED.

It is the manufacturer's responsibility to assure the additional production units of this product are manufactured with identical electrical and mechanical components. The manufacturer is responsible to the authorities for any modifications made to the product, which result in non-compliance to the relevant regulations.

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Opinions expressed within this report regarding general assessments and qualifications for PASS or FAIL to the standards limits and requirements, are not part of the current accreditation. Neither is opinions expressed regarding model variants covered by the testing performed in this report.

Deviations from, additions to, or exclusions from the test specifications are described in "Test Report Summary".

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DESCRIPTION OF TESTED ITEM(S)

Product description.....:	The tested item is a Connect 3 serves as a communication hub connecting a system of digital pest control units. Connect 3 is part of the SMART Connect system and is fully compatible with existing installed SMART Connect systems. The gateway receives messages at 868 or 921 MHz SRD communication (Short Range Devices) and forwards these over cellular interface 4G (LTE) or 2G (GSM) to the cloud.
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Model/type	Connect 3-300120
Serial number	/
Operating voltage.....	100-240V AC 50/60Hz (Power supply); 3.6V DC (Internal Battery)
Maximum power/current.....	0.8A
Insulation class	II
Highest clock frequency	48MHz
Hardware version	Connect 3-300120 Rev A
Software version	CC1354: 30.003; BG95-M5: BG95M5LAR02A03

Mounting position.....:	<input checked="" type="checkbox"/> Tabletop equipment <input checked="" type="checkbox"/> Wall/ceiling mounted equipment <input type="checkbox"/> Floor standing equipment <input type="checkbox"/> Handheld equipment <input type="checkbox"/> Rack mounted equipment <input type="checkbox"/> Console equipment <input type="checkbox"/> Other:
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Description	Manufacturer	Type
AC/DC Power Supply	Starwell	SK02G-0500300Z
AC/DC Power Supply	Starwell	SK02G-0500300EU
MCU+Sub-GHz RF ASIC	TI	CC1354R106T0RSK
Cellular modem	Quectel	BG95M5LA-64-SGNS

ACCESSORIES USED DURING TEST

Description	Manufacturer	Type
Laptop	HP (Bang & Olufsen)	ELITEBOOK
Gateway #10-6ABC (Control device)	Anticimex	Manila_020
Comtester	R&S	CMW 500

INPUT/OUTPUT PORTS

Port name and description	Cable		
	Longer than 3m	Attached during test	Shielded
AC mains supply	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This equipment has been tested with certain cable types and cable configurations. Any changes to these parameters when installed may influence the EMC properties of this equipment.

OPERATING MODES

OP no.	Description	Applied for testing	
		Emissions	Immunity
OP1	Standby	<input checked="" type="checkbox"/>	<input type="checkbox"/>

POWER SUPPLY CONDITIONS

The following nominal power supply conditions have been tested:

PC no.	Voltage	Frequency	Type	Ground terminal
PC2	120 V	<input type="checkbox"/> AC 50Hz / <input checked="" type="checkbox"/> AC 60Hz / <input type="checkbox"/> DC	<input type="checkbox"/> 3AC / <input type="checkbox"/> 3ACN / <input type="checkbox"/> PoE	<input type="checkbox"/> PE / <input type="checkbox"/> GND / <input checked="" type="checkbox"/> None

- The power supply voltage has been selected after a maximum disturbance investigation over the product's rated voltage range.
- Additional chassis grounding was applied.

PHOTOS AND DRAWINGS


Copy of marking label..... : /

Photo of the test item : /

OTHER INFORMATION

Modifications	None
Additional information	None

TEST ENVIRONMENT

Test laboratory	<input checked="" type="checkbox"/> KJELLER (Instituttveien 6, N-2007 Kjeller, Norway) <input type="checkbox"/> LYSAKER (Philip Pedersens vei 11, N-1366 Lysaker, Norway)
Laboratory accreditation	 <p>Norsk Akkreditering – TEST 033 P06 – Electromagnetic Compatibility</p>
Environmental conditions	<p>The climatic conditions during the tests are within limits specified by the manufacturer for the operation of the product and the test equipment. The climatic conditions during tests are within the following limits:</p> <p>Ambient temperature: 15 – 35 °C Relative humidity: 25 – 75 %RH Atmospheric pressure: 86 – 106 kPa</p> <p>If explicitly required by the test standard, or the requirements are tighter than the above; the climatic conditions are recorded and documented separately in this test report.</p>
Calibration	<p>All instruments used in the tests of this test report are calibrated and traceable to national or international standards. Between calibrations test set-ups are controlled and verified on a regular basis by intermediate checks to ensure, with 95% confidence that the instruments remain within their calibrated levels. The instrumentation accuracy is within limits agreed by the IECEE/CTL and defined by Nemko.</p>
Measurement uncertainties	<p>Uncertainty in EMC emission measurements stated in this report are calculated from the standard measurement uncertainties multiplied by the coverage factor k=2. It was determined in accordance with ANSI C63.4. The true value is in the corresponding interval with a probability of 95%. If some emission measurements have a margin to the required limit which is less than the instrumentation measurement uncertainty provided by the laboratory, occurrences are marked with an asterisk (*) in the “Margin” columns. <i>Further information about measurement uncertainties is provided on request.</i></p>

TEST REPORT SUMMARY

APPLIED STANDARDS

Standards	Titles
FCC CFR 47 Subpart 15B	<i>Digital devices - Unintentional radiators, Class B Digital Device</i>
ISED Canada ICES-003, Issue 7 *	<i>Spectrum Management and Telecommunications Policy. Interference-Causing Equipment Standard. Information Technology Equipment (Including Digital Apparatus - Limits and Methods of Measurement (Issue 7, June 2020)</i>

* : An asterisk (*) placed after the standard name indicates standards that are not within the laboratory scope of accreditation.

TEST SUMMARY

Requirements – Tests	Reference standards	Verdict
Conducted Emissions (Method: FCC Part 12.107 per ANSI C63.4-2014)	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7	PASS
Radiated Emissions (Below 1GHz) (Method: FCC Part 12.109 per ANSI C63.4-2014)	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7	PASS
Radiated Emissions (Above 1GHz) (Method: FCC Part 12.109 per ANSI C63.4-2014)	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7	PASS

- PASS : Tested and complied with the requirements
- FAIL : Tested and failed the requirements
- N/A : Test not relevant to this specimen (evaluated by the test laboratory)
- : Test not performed (instructed by the applicant)
- * : An asterisk (*) placed after the verdict in the Result column indicates a test item that are not within Nemko’s scope of accreditation
- # : A grid (#) placed after the verdict in the Result column indicates a test item that are only partly covered by Nemko’s scope of accreditation. Further information or details may be provided within the test chapter

NOTES

None

Test Results

CONDUCTED EMISSIONS

TEST DESCRIPTION

Method

The reference method for this test is listed in the table under clause TEST SUMMARY.

Set-up

The measurement was performed at the power supply terminal of the specimen. Nominal supply voltage was provided. The specimen was energized and in normal operating mode during the measurement.

- The specimen and its cables were elevated 10 cm above a ground plane.
- The specimen and its cables were elevated 40 cm above a ground plane.
- The specimen and its cables were placed 40 cm from a vertical ground plane, 80 cm over ground plane.
- The specimen was mounted directly on, and bonded to a ground plane. Cables and auxiliary equipment were elevated by 1 cm.

- The specimen was connected to an Artificial Mains Network (AMN) by its power supply cable, which was adjusted to 100cm length by folding.
- The specimen was connected to an Artificial Mains Network (AMN) by a 0.8 m shielded power supply cable directly connected to the AMN.

- Artificial Hand was applied to the specimen during test (for location see photos)

Conditions

- Frequency range was 9kHz – 30MHz.
- Frequency range was 10kHz – 30MHz.
- Frequency range was 150kHz – 30MHz.

The measuring bandwidth is 200Hz in the frequency range 9 kHz – 150 kHz. Measurement was made with a 100 Hz step size and 100 ms dwell time.

The measuring bandwidth is 9 kHz in the frequency range 150 kHz – 30 MHz. Measurement was made with a 4.5 kHz step size and 20 ms dwell time.

Measurement uncertainty: ± 3.7 dB (9 kHz – 150 kHz); ± 3.3 dB (150 kHz – 30 MHz)

Instruments used during measurement

Instrument list: AMN: R&S / ENV216 (LR-1665) (11/2026)
 EMI Receiver: R&S / ESR 7 (LR-1675) (07/2026)

Conformity

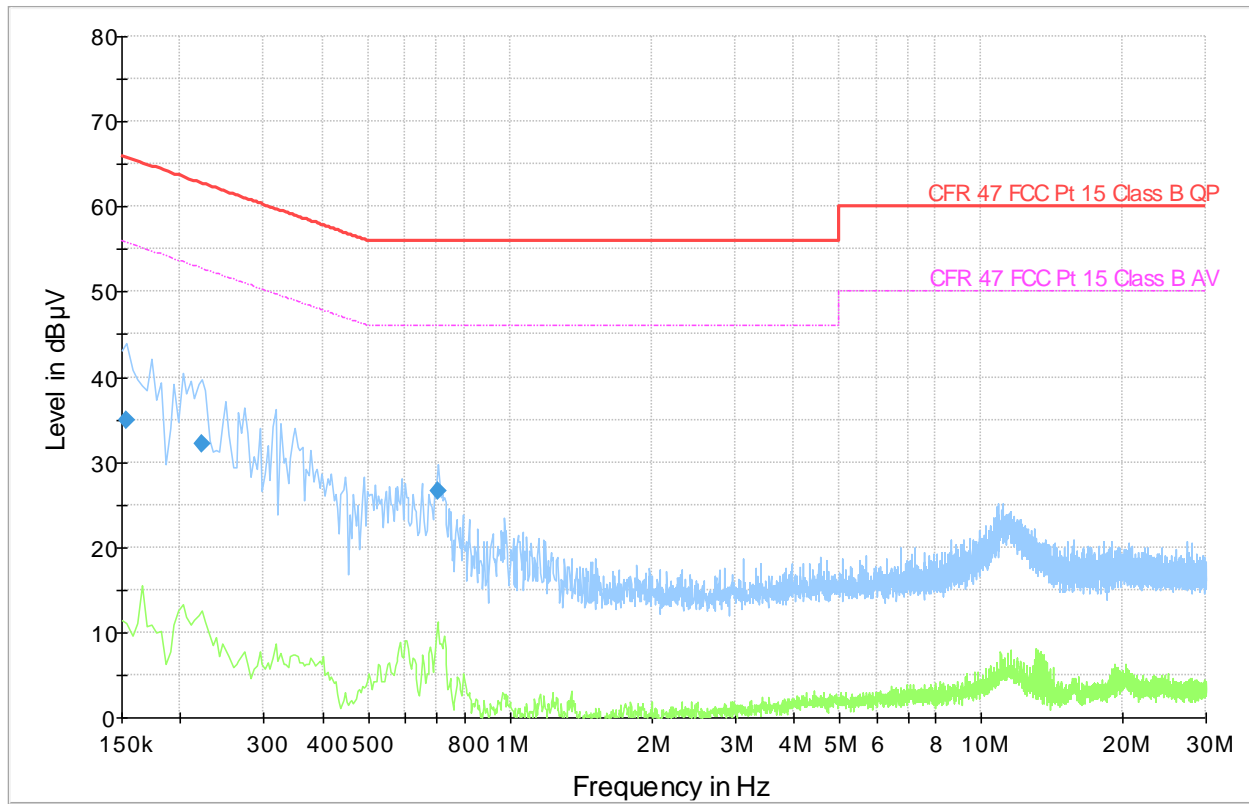
Verdict:

Pass

Test engineer:

Jørn Gustavsen

EMISSION SPECTRUM (POWER SUPPLY, STARWELL MODEL: SK02G-0500300EU)
Full Spectrum

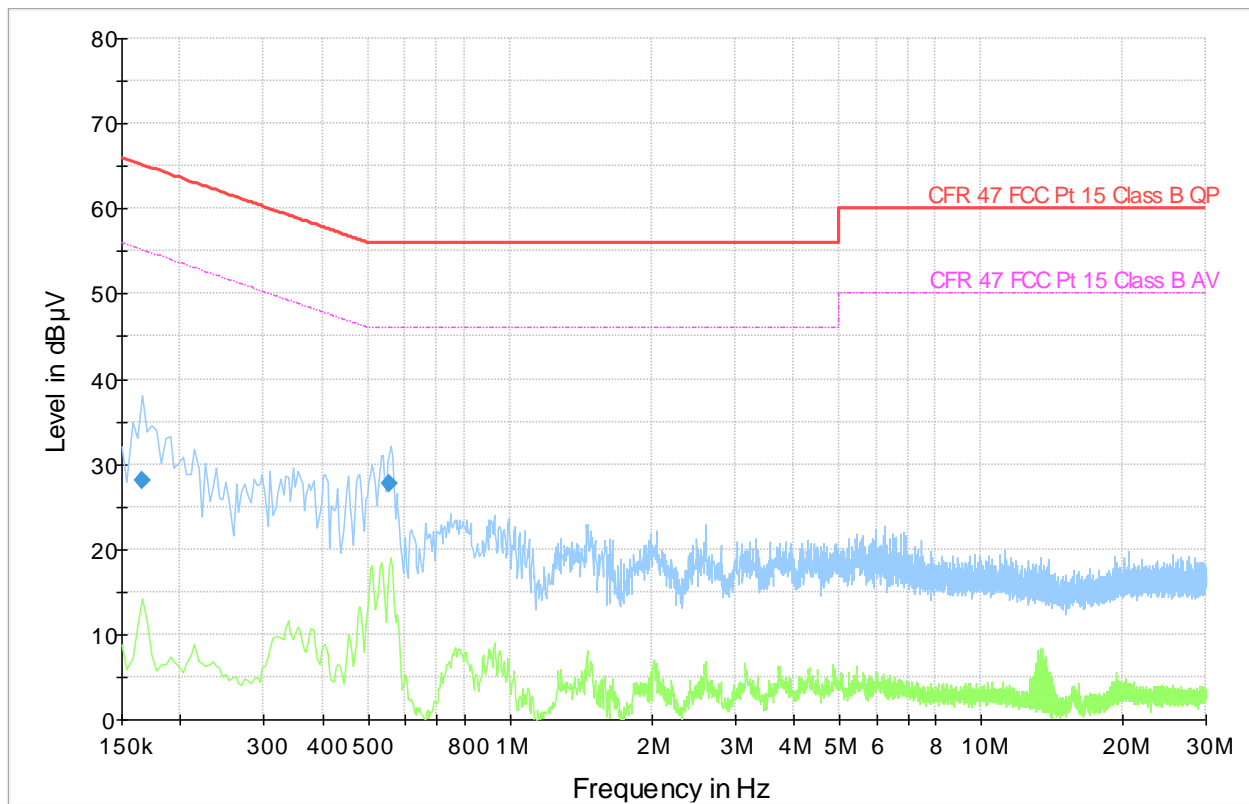


— Preview Result 2-AVG
 — Preview Result 1-PK+ Final_Result QPK
 — CFR 47 FCC Pt 15 Class B QP
- - - CFR 47 FCC Pt 15 Class B AV ◆

MEASUREMENT DATA

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.154000	34.98	---	65.78	30.80	15000.0	9.000	N	OFF	9.7
0.222000	32.15	---	62.74	30.59	15000.0	9.000	N	OFF	9.7
0.702000	26.55	---	56.00	29.45	15000.0	9.000	N	OFF	9.6

EMISSION SPECTRUM (POWER SUPPLY, STARWELL MODEL: SK02G-050300Z)
Full Spectrum



— Preview Result 2-AVG
 — Preview Result 1-PK+ Final_Result QPK
 — CFR 47 FCC Pt 15 Class B QP Final_Result CAV
- - - CFR 47 FCC Pt 15 Class B AV
 ◆

MEASUREMENTS DATA

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.166000	28.00	---	65.16	37.15	15000.0	9.000	N	OFF	9.7
0.554000	27.72	---	56.00	28.28	15000.0	9.000	N	OFF	9.6

RADIATED EMISSIONS (BELOW 1GHZ)

TEST DESCRIPTION

Method

The reference method for this test is listed in the table under clause TEST SUMMARY.

Set-up

The measurements were performed in a semi-anechoic chamber (SAC). Nominal supply voltage was provided. The specimen was energized and in normal operating mode during the measurement.

- The specimen and its cables were elevated 10 cm above the site ground plane and placed in the centre of the turntable.
- The specimen and its cables were placed on a table 80 cm above the site ground plane and placed in the centre of the turntable.
- Ferrite clamps type CMAD were applied to cables leaving the test volume.
- A CDNE was applied to the power supply cable.

Antenna type = Hybrid bilog antenna

Antenna elevation = 100-400 cm above the ground reference plane.

Specimen rotation = 0-360°.

- Band-stop filter(s) was used to suppress the wanted RF transmission band to protect the measurement equipment.

Frequency range:

- 30-300MHz
- 30-1000MHz
- Other:

Measurement distance:

- 3m
- 5m
- 10m

Conditions

The measuring bandwidth is 120 kHz in the frequency range 30 MHz – 1000 MHz. Frequency sweeps with RBW = 120 kHz and VBW = 1 MHz was applied with a sweep time of 20 ms (step size resolution < 60 kHz).

Measurement uncertainty: ± 5.2 dB (3m distance in SAC10); ± 5.1 dB (3m distance in SAC3); ± 5.2 dB (10m distance in SAC10)

Instruments used during measurement

Instrument list:

Conformity

Verdict:

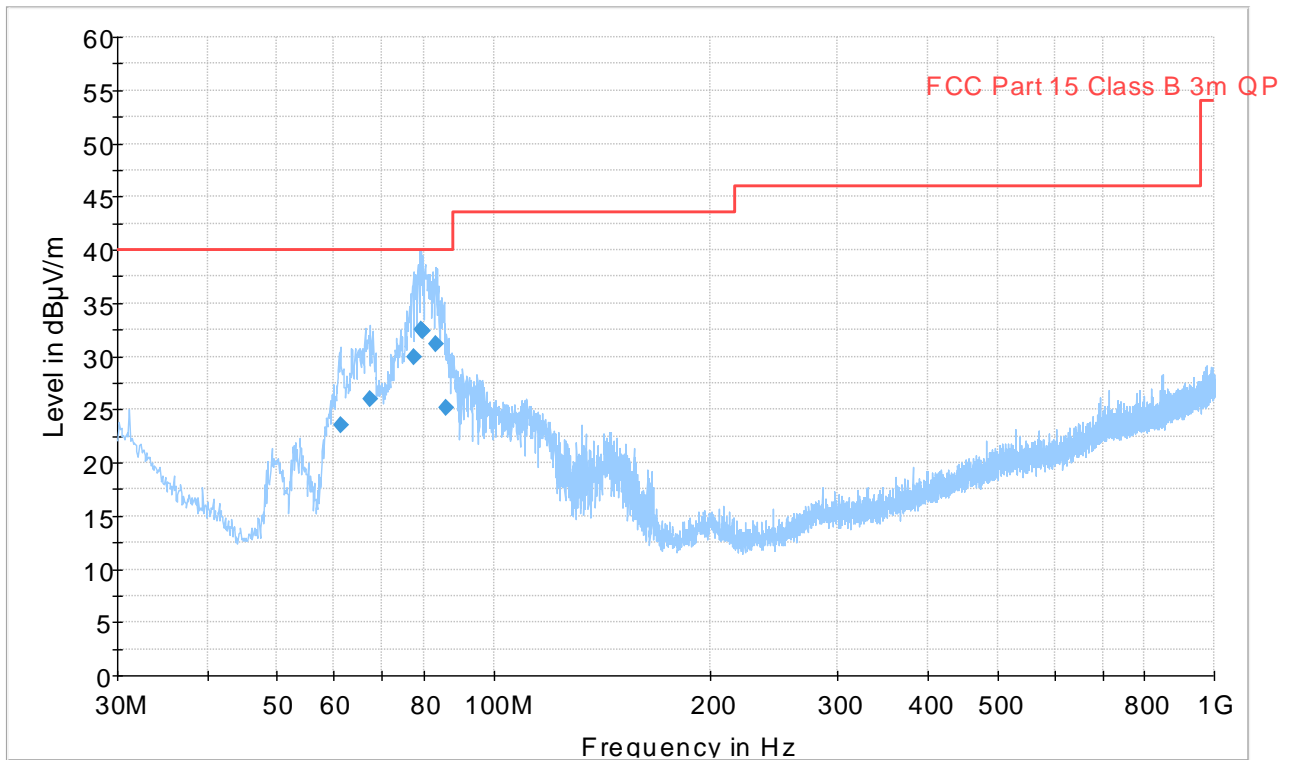
Pass

Test engineer:

Jørn Gustavsen

EMISSION SPECTRUM (POWER SUPPLY, STARWELL MODEL: SK02G-0500300EU)

Full Spectrum

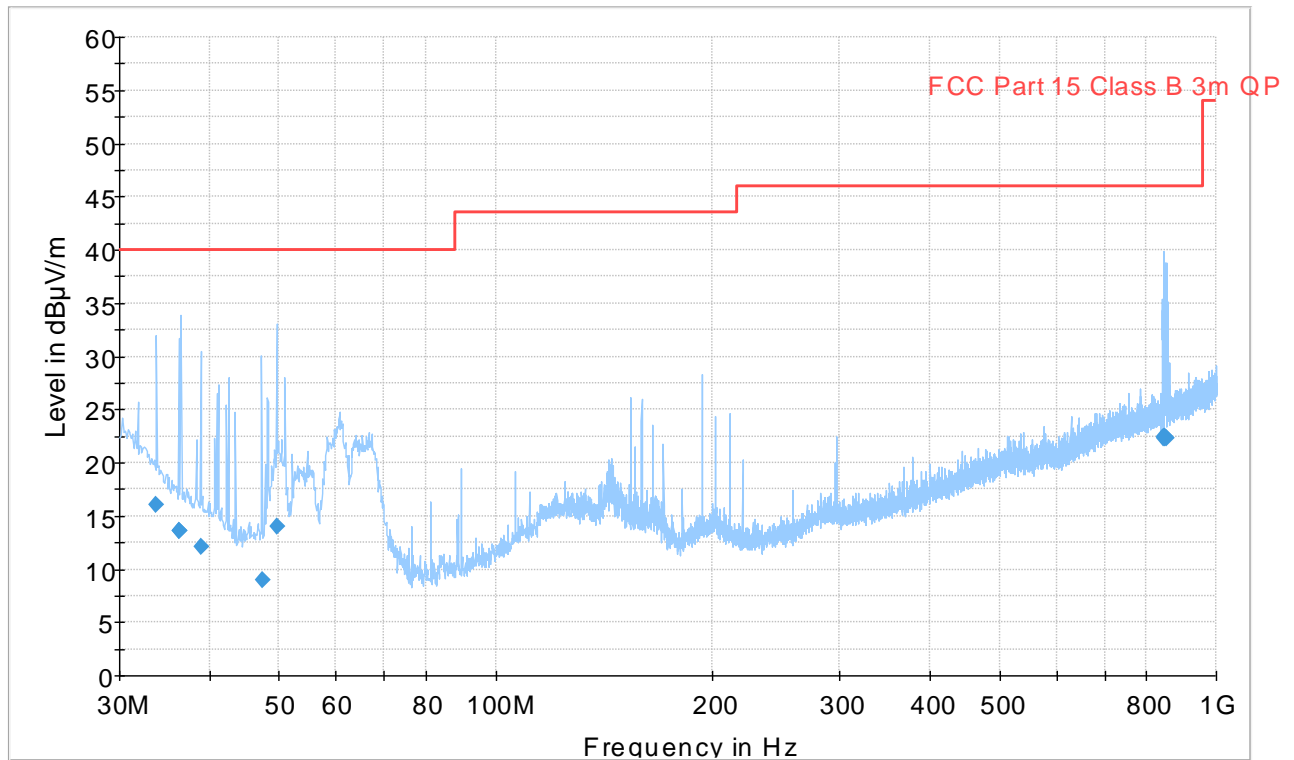


MEASUREMENTS DATA

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	PoI	Azimuth (deg)	Corr. (dB/m)
61.324160	23.49	40.00	16.51	15000.0	120.000	116.0	V	102.0	-17.8
67.295716	26.01	40.00	13.99	15000.0	120.000	110.0	V	68.0	-17.8
77.295574	29.87	40.00	10.13	15000.0	120.000	109.0	V	104.0	-17.7
79.136970	32.55	40.00	7.45	15000.0	120.000	242.0	V	207.0	-17.7
79.752506	32.33	40.00	7.67	15000.0	120.000	150.0	V	165.0	-17.7
83.008476	31.22	40.00	8.78	15000.0	120.000	240.0	V	191.0	-17.2
85.946662	25.11	40.00	14.89	15000.0	120.000	355.0	V	198.0	-16.8

EMISSION SPECTRUM (POWER SUPPLY, STARWELL MODEL: SK02G-050300Z)

Full Spectrum



MEASUREMENTS DATA

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
33.759438	16.08	40.00	23.92	15000.0	120.000	203.0	V	237.0	-7.2
36.305810	13.61	40.00	26.39	15000.0	120.000	282.0	V	213.0	-9.2
36.414256	13.55	40.00	26.45	15000.0	120.000	280.0	V	193.0	-9.3
38.975480	12.17	40.00	27.83	15000.0	120.000	400.0	V	280.0	-11.1
47.322160	8.99	40.00	31.01	15000.0	120.000	143.0	H	113.0	-14.3
49.588582	14.01	40.00	25.99	15000.0	120.000	268.0	V	216.0	-15.0
845.376294	22.36	46.00	23.64	15000.0	120.000	400.0	V	290.0	0.0
846.507968	22.40	46.00	23.60	15000.0	120.000	150.0	V	328.0	0.1
848.033400	22.43	46.00	23.57	15000.0	120.000	138.0	V	0.0	0.1
850.477390	22.34	46.00	23.66	15000.0	120.000	102.0	V	347.0	0.1
853.261392	22.36	46.00	23.64	15000.0	120.000	400.0	V	161.0	0.2

RADIATED EMISSIONS (ABOVE 1GHZ)

TEST DESCRIPTION

Method

The reference method for this test is listed in the table under clause TEST SUMMARY.

Set-up

Nominal supply voltage was provided. The specimen was energized and in normal operating mode during the measurement.

- The specimen and its cables were elevated 10 cm above the floor and placed in the centre of the turntable.
- The specimen and its cables were placed on a table 80 cm above the floor and placed in the centre of the turntable.

Facility:

- 3m semi-anechoic chamber (SAC3) with extra floor absorbers* (calibrated volume: D=2.0m / H=2.0m).
- 10m semi-anechoic chamber (SAC10) with extra floor absorbers* (calibrated volume: D=1.5m / H=2.0m).
- 3m fully anechoic room (FAR3) (calibrated volume: D=1.2m / H=2.0m).

* The reference ground plane was covered with ferrite absorbers in the reflecting area between the specimen and the measuring antenna.

Measurement distance = 3m.

Antenna elevation = fixed at centre of specimen height.

Specimen rotation = 0-360°.

Measurements were performed with a double-ridged guide horn antenna.

- Band-stop filter(s) was used to suppress the wanted RF transmission band to protect the measurement equipment.

Frequency range:

- 1-2GHz
- 1-5GHz
- 1-6GHz
- 1-12GHz

Highest internal frequency of specimen:

- Below 108MHz
- Between 108MHz and 500MHz
- Between 500MHz and 1000MHz
- Above 1000MHz

The measuring bandwidth is 1 MHz in the above frequency range. Frequency sweeps with RBW = 1 MHz and VBW = 1 MHz was applied with a sweep time of 100 ms (proper segmentation of the frequency range was applied to obtain step size resolution < 500 kHz).

Measurement uncertainty: ± 5.1 dB (1-6GHz); ± 5.2 dB (6-18GHz)

Instruments used during measurement

Instrument list: Antenna, Horn: ETS / 3117 (LR-1717) (12/2027)
 EMI Receiver: R&S / ESU40 (LR-1639) (01/2025)
 Pre-amplifier: ETS / 3117-PA (LR-1757) (08/2024)

Conformity

Verdict:

Pass

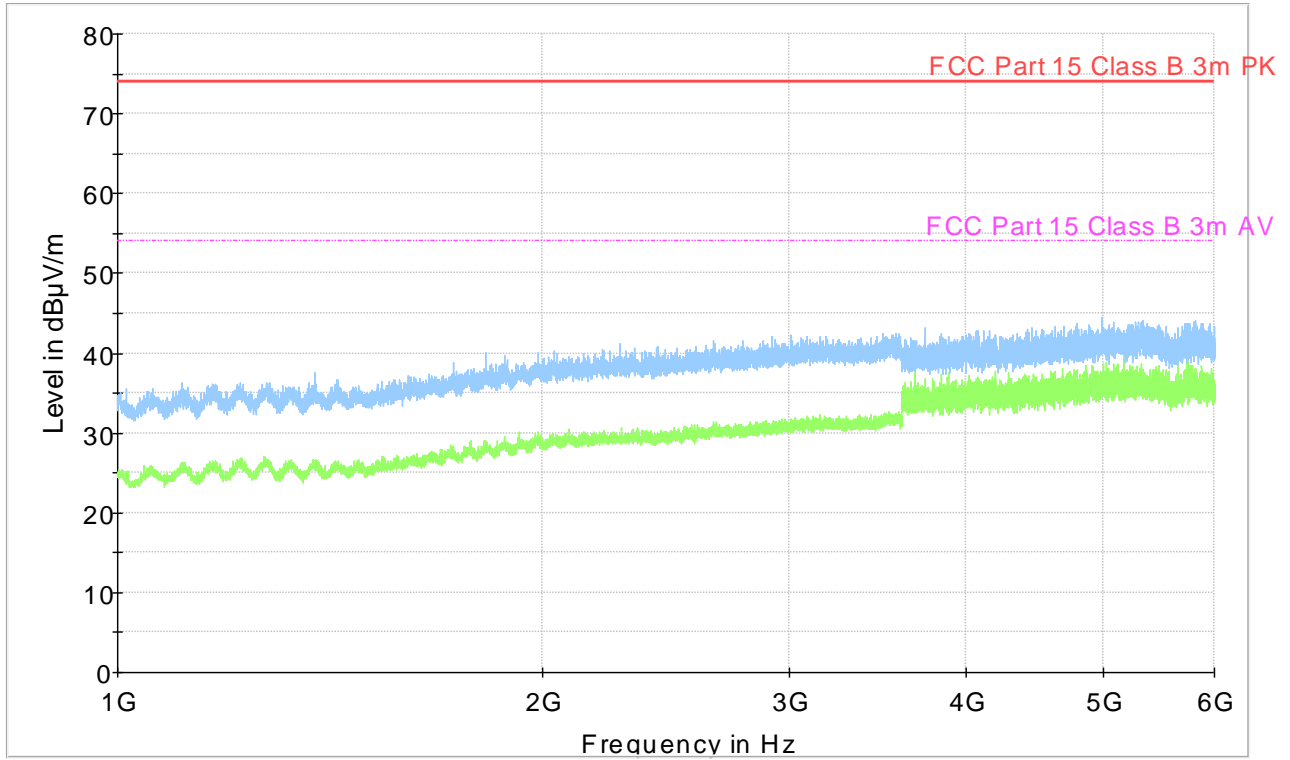
Test engineer:

Jørn Gustavsen

EMISSION SPECTRUM (HORIZONTAL POLARIZATION)

Power Supply, STARWELL model: SK02G-0500300EU

Full Spectrum



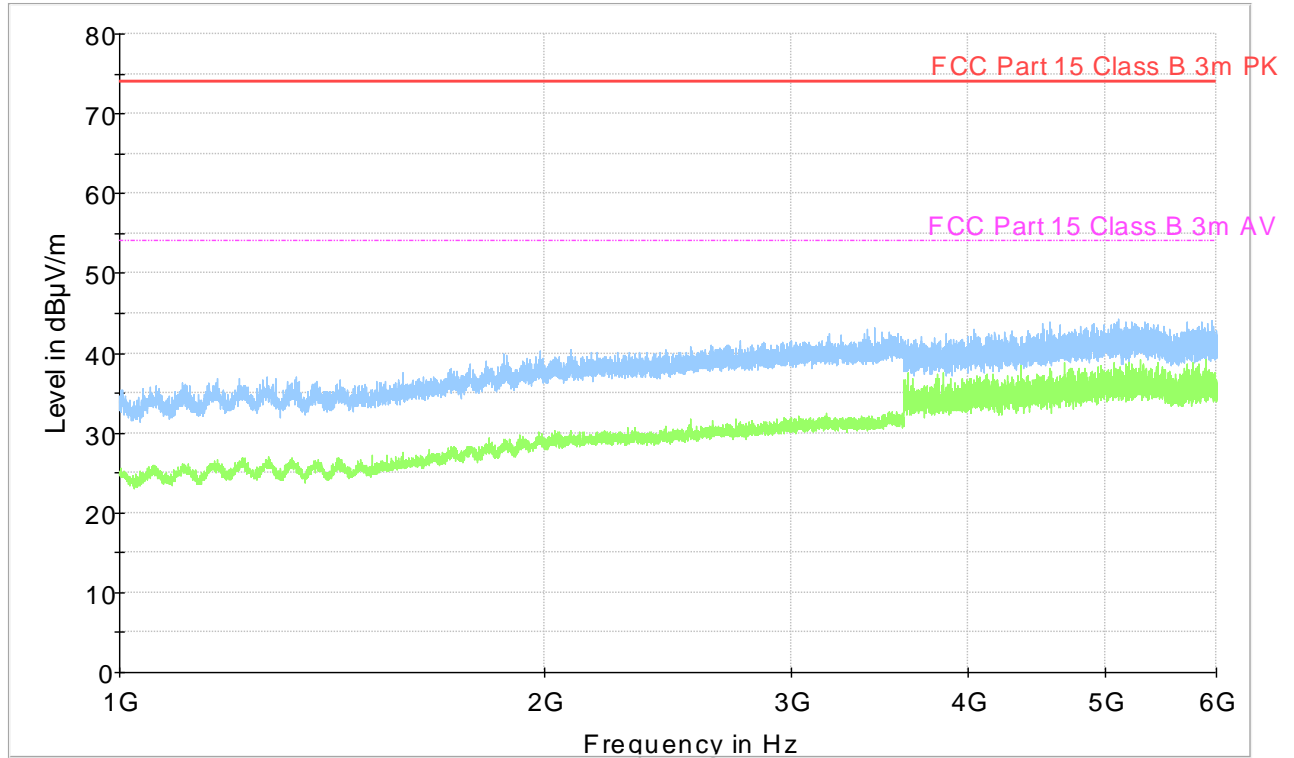
MEASUREMENTS DATA

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EMISSION SPECTRUM (VERTICAL POLARIZATION)

Power Supply, STARWELL model: SK02G-0500300EU

Full Spectrum



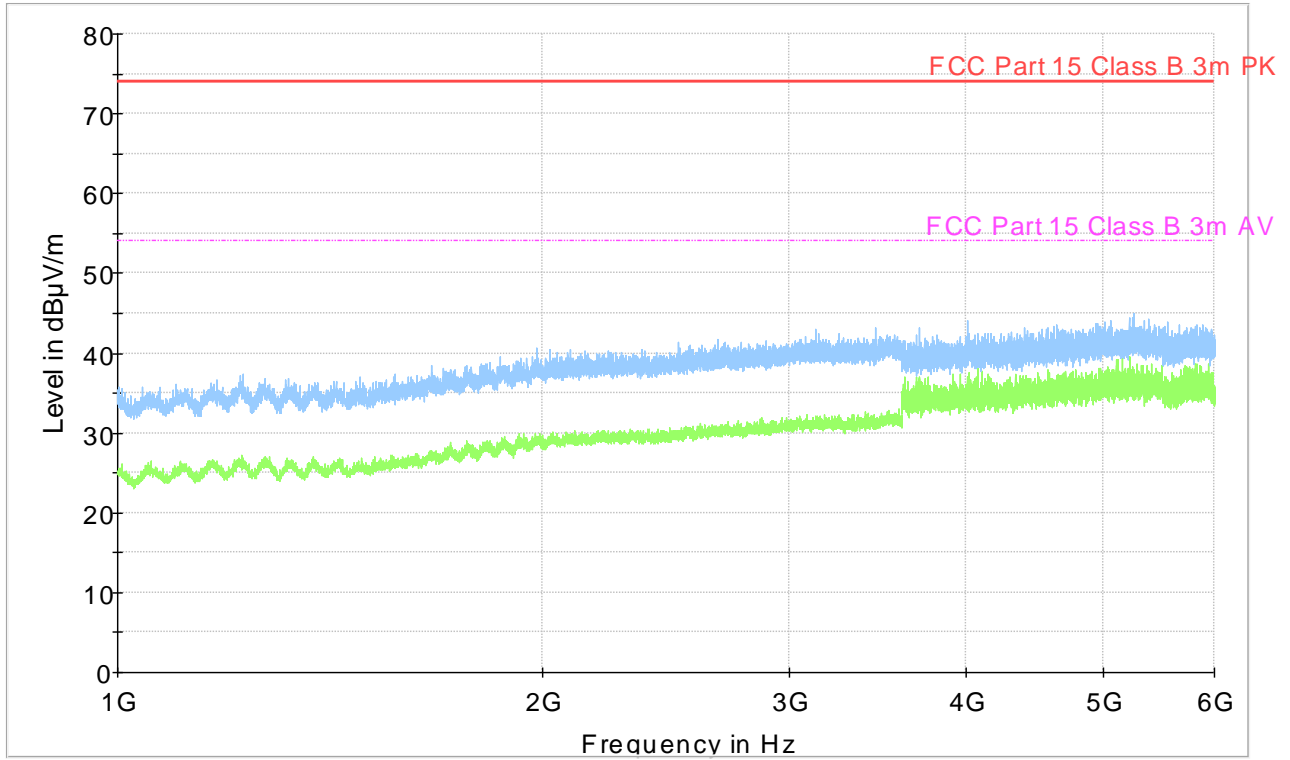
MEASUREMENTS DATA

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EMISSION SPECTRUM (HORIZONTAL POLARIZATION)

Power Supply: STARWELL model: SK02G-050300Z

Full Spectrum



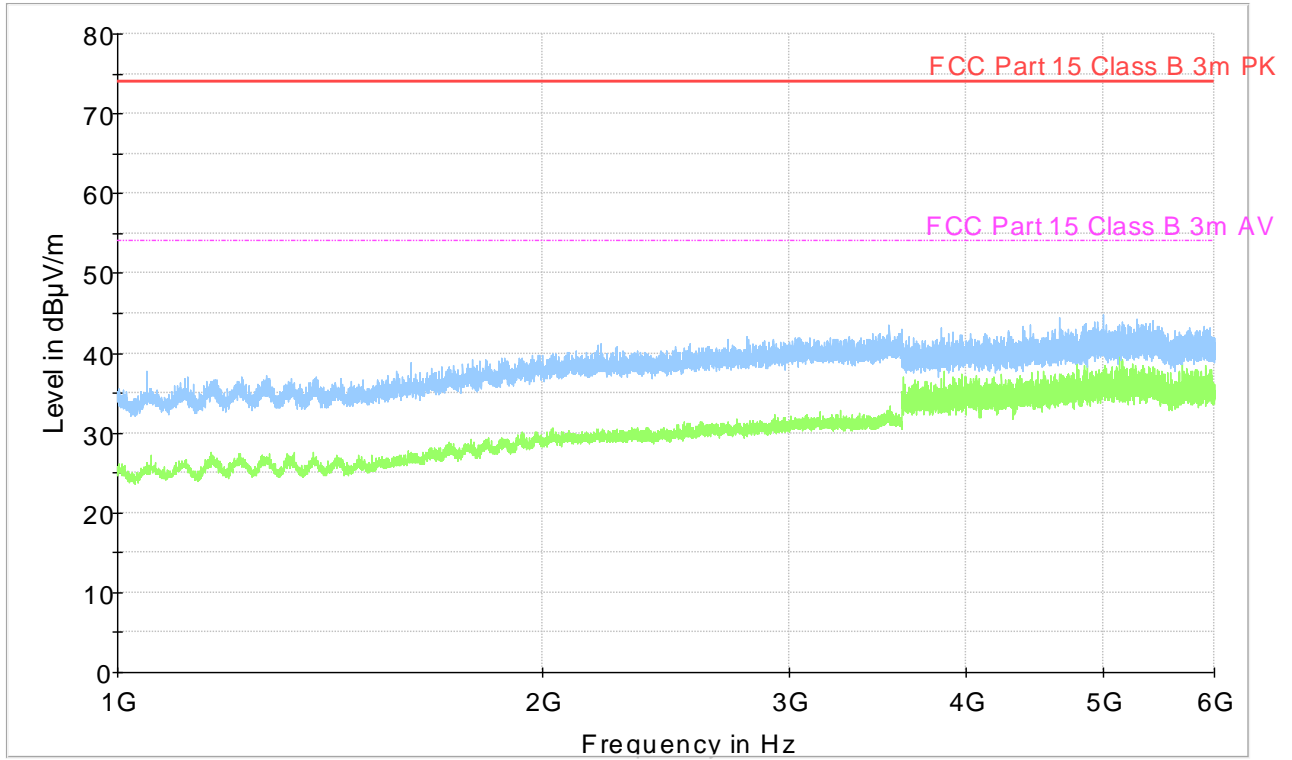
MEASUREMENTS DATA

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EMISSION SPECTRUM (VERTICAL POLARIZATION)

Power Supply: STARWELL model: SK02G-050300Z

Full Spectrum



MEASUREMENTS DATA

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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Annexes

PHOTOS

Test set-up for EMC emissions measurements	