

GANTNER Electronic TEST REPORT

SCOPE OF WORK

EMC TESTING – GT7.3500 incl. mounted GT7b.2000

REPORT NUMBER

2232708KAU-011

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PAGES

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DOCUMENT CONTROL NUMBER

EMC_FCCpart15_ICES003 (12-September-2017)

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TYPE: GT7.3500 incl. mounted GT7b.2000
DESCRIPTION: Multi-functional RFID terminal / Fingerprint module
ARTICLE NO: 919229 / 982936
SERIAL NO: 1808000015 / 1807000019

All measurement results refer to the equipment which was tested

MANUFACTURER: Gantner Electronic GmbH
CUSTOMER NAME: Gantner Electronic GmbH
ADDRESS (CUSTOMER): Montafonerstr. 8
AT-6780 SCHRUNS
AUSTRIA

REPORT NO: 2232708KAU-011

TEST RESULT: The FCC, part 15 B, SDoC and ICES-003, requirements are fulfilled.

TEST LABORATORY: Intertek Deutschland GmbH
Innovapark 20, 87600 Kaufbeuren
Germany

**FCC DESIGNATION
NUMBER:** DE0014

**FCC TEST FIRM
REGISTRATION NUMBER.** 359260

**INDUSTRY CANADA
REGISTRATION.** 8882A-1; 8882A-2

COMPILED BY: R. Dressler
Technical Manager EMC/ Radio

APPROVED BY: U. Gronert
Senior Project Engineer



Details about Accreditations/Acceptances

EMC / Radio National

	The Intertek Deutschland EMC-Lab is accredited by the Deutsche Akkreditierungsstelle GmbH (DAkKS) Registration Number (EMC general): D-PL-12085-01-01 Registration Number (EMC Med): D-PL-12085-01-03
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International

	The Intertek Deutschland EMC-Lab is accepted to participate in the IECEE (IEC Conformity assessment for Electrotechnical Equipment and Components) CB-Scheme CB Test Laboratory: TL118
	The Intertek Deutschland EMC-Lab is listed at the Federal Communications Commission (FCC) Designation Number: DE0014 Test Firm Registration Number: 359260
	The <i>Bundesnetzagentur</i> recognizes Intertek Deutschland GmbH as Conformity Assessment Body in the sector electromagnetic compatibility (EMC).
	The Intertek Deutschland EMC-Lab is listed at Industry Canada No. 8882A-1 (OATS) and 8882A-2 (3 m alternative test site)

Automotive

 Anerkennungsstelle Anerkannt unter KBA-P 00046-03	The Intertek Deutschland EMC-Lab is recognized as technical service of the Kraftfahrt-Bundesamt (KBA) Registration Number: KBA-P 00046-03
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SECTION 2

MEASUREMENT AND TEST SPECIFICATION

☒ FCC, Part 15 B, Class A, SDoC

☐ FCC, Part 15 B, Class A, certification

The test setup and test was done according to: **ANSI C63.4: 2014**
American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ISED Canada

ICES-003, Issue 6, April 2017

Information Technology Equipment (Including digital apparatus) – Limits and methods of measurement

Tests according to:

ANSI C63.4

American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, ANSI C63.4-2014 (Revision of ANSI C63.4-2009).

The test results detailed in this report apply only to the GT7.3500 incl. mounted GT7b.2000 with the test setup described. Any modification such as a change, addition to or inclusion of another device into this product will require an additional evaluation.

The support equipment listed as part of the emission tests is required to properly exercise and test the device under test.

SECTION 3

GENERAL INFORMATION

Possible test case verdicts:

Test case does not apply to the test object: N/A (Not Applicable)

Test object does meet the requirement: P (Pass)

Test object does not meet the requirements: F (Fail)

Samples arrived (labelling in stock area): 2018-08-24

Testing: 2018-08-27 to 2018-09-07

Decimal separator: ☒ Point ☐ Comma

Environmental conditions during testing:	Temperature:	15 °C - 35 °C
	Humidity:	20 % - 60 %
	Atmospheric pressure:	900 mbar - 1000 mbar
	If explicitly required by a basic standard the measured climatic conditions are documented in the corresponding test section.	

SECTION 4

SUMMARY OF TESTING

4.1 General annotation

The tests were performed in the order of the right column in the “Test Results – Overview” table.

4.2 Measurement uncertainty

For each test method, an uncertainty evaluation was carried out. The results of the evaluation can be provided upon request from Intertek Deutschland GmbH.

4.3 Document History

REVISION	DATE	REPORT	CHANGES	AUTHOR
Initial release	2018-09-14	2232708KAU-011	Initial issue	RDR

SECTION 5

TEST RESULTS – OVERVIEW

EMISSION	REQUESTED	VERDICT	DATE	NO
Radiated emissions (30 MHz - 1 GHz)	Class A	P	2018-08-27	1
Radiated emissions (1 GHz – 7 GHz)	Class A	P	2018-08-29	2
Radiated emissions (7 GHz – 12.5 GHz)	Class A	P	2018-08-29	3

Informative Test – Conducted emissions (see Section 9 – Annex)

Even though the EUT is DC supplied, the conducted emission test on the AC input of the power supply and the PoE injector that was delivered by the customer was applied.

Conducted emissions (0.15 MHz - 30 MHz)	Class A	P	2018-09-07	4
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SECTION 6

INFORMATION ABOUT THE EUT

6.1 Description of the EUT

☒ table-top EUT

☐ floor-standing EUT

Dimensions:

Height:

Width:

Length:

GT7.3500

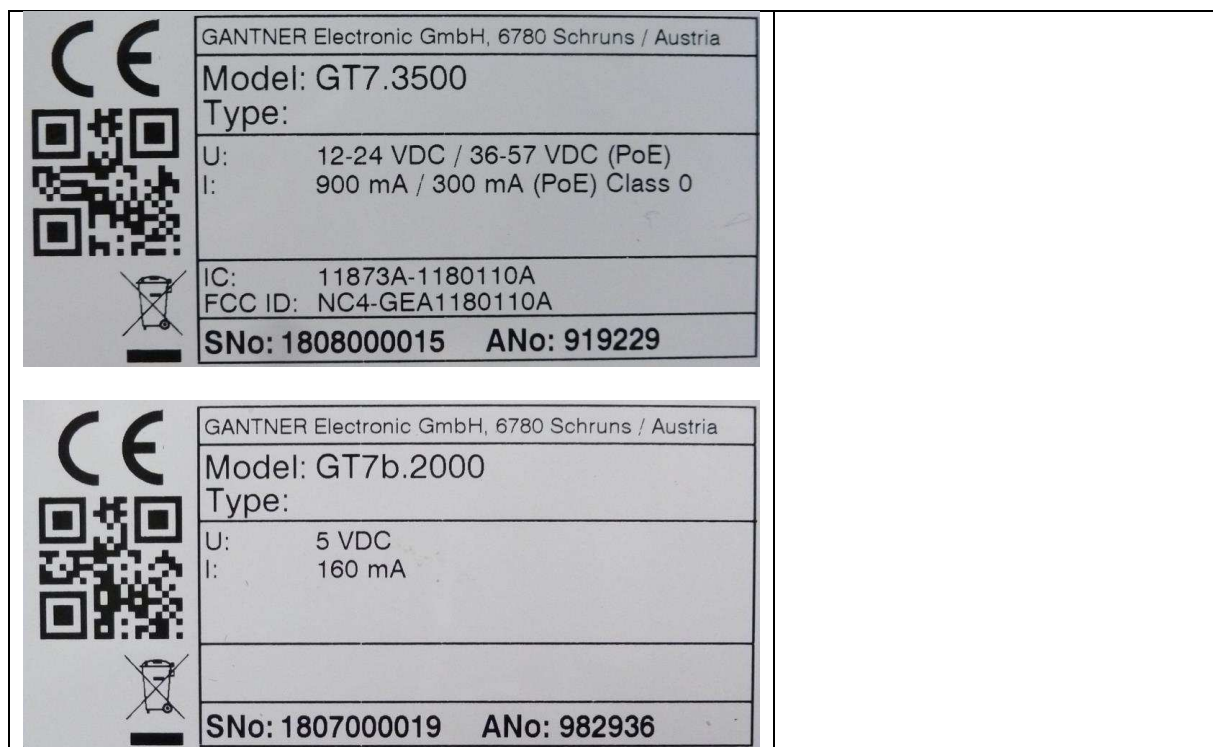
127.1 mm

151.1 mm

24.7 mm

Description of GT7.3500: Multi-functional RFID terminal, Ethernet, PoE, 2 relay outputs, 1 status input, and with Wiegand, RS-232 and RS-485 interfaces, WLAN, Bluetooth.
Incl. mounted fingerprint module GT7b.2000

6.1.1 Photo of the rating plate



6.2 Power interface

MODE	VOLTAGE (V)	FREQUENCY (Hz)	COMMENT
1	36 - 57	DC	PoE Injector
2	120	60	Power over Ethernet
3	120	60	Input voltage into power supply

Power sources/associated test equipment

DEVICE	MANUFACTURER	TYPE	SN	ASSET NO.
4 quadrant amplifier	Spitzenberger & Spies	PAS 5000	826149/005	PM KF 2555
PoE Injector	Level One	POI-2002	17111301490	--
Power Supply*	DYS	DYS404-240166W	--	--

*Power supply delivered by the customer (but not part of the EUT).

6.3 Configuration mode

MODE	DESCRIPTION
1	The GT7.3500 was supplied over an external PoE Adapter in order to include the EUT internal DC/DC converter into the measurement. The Ethernet output cable of the adapter was connected to a notebook.
2	The GT7.3500 was supplied over the external power supply. The Ethernet cable was connected to a notebook.

6.4 Operation mode

MODE	DESCRIPTION
1	Ping over Ethernet (-I 20000), Radio parts voltage supplied but not transmitting (RFID, BLE, WLAN)

6.5 Peripheral devices used for testing

DEVICE	MANUFACTURER	TYPE
Notebook	HP	ProBook 6470b

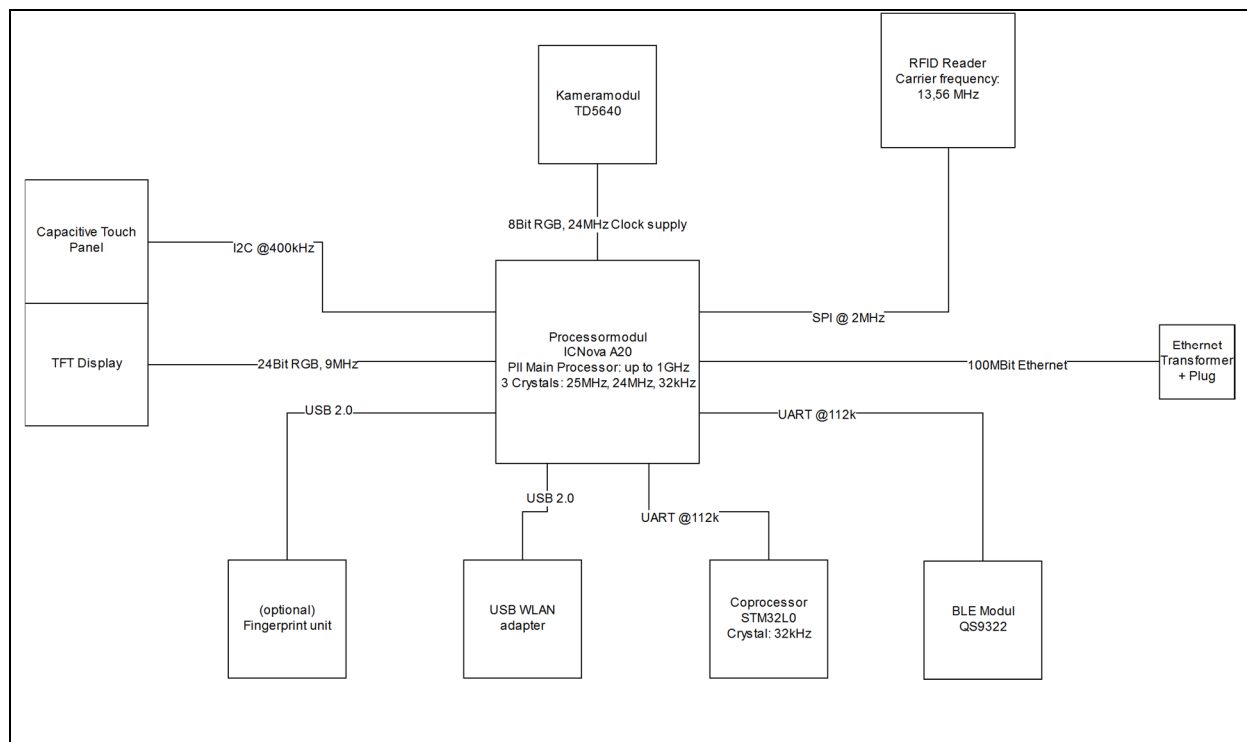
6.6 Supply and interconnecting cables used for testing

LINE	LENGTH (cm)	SHIELDING
Ethernet	290	Y
Mains cable to power supply	180	N
DC cable with ferrite core from power supply to EUT	35	N

6.7 Clock frequencies of the EUT

SOURCE	FREQUENCY ()
Processormodul ICNova A20	PII Main Processor: up to 1 GHz; 3 Crystals: 25 MHz, 24 MHz and 32 kHz
Cameramodule TD5640	8Bit RGB, 24 MHz Clock supply
RFID Reader	SPI @ 2 MHz
Co-Processor STM32L0	Crystal: 32 kHz
TFT Display	24Bit RGB, 9 MHz
Capacitive Touch Panel	I2C @ 400 kHz
Bluetooth	2.4 GHz range
WLAN	2.4 GHz range

6.8 Block diagram of the EUT



SECTION 7 EMISSIONS

7.1 Radiated emissions – Electric field strength

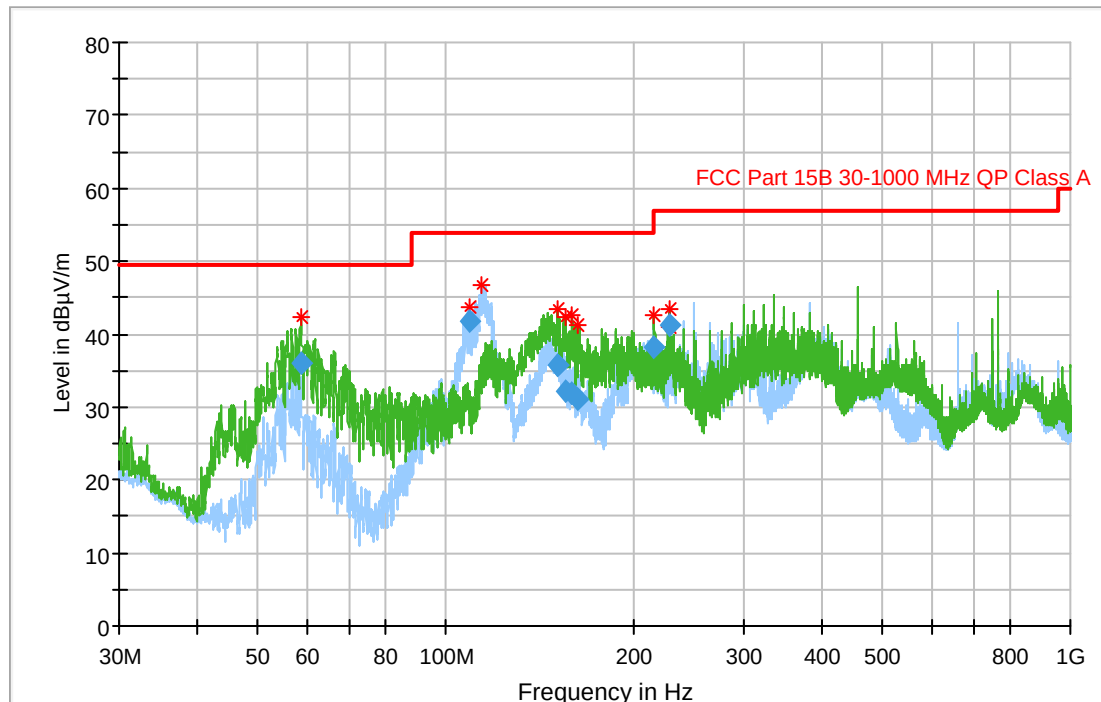
NORMATIVE REFERENCES			RESULT
Limits according to:	FCC, Part 15 B		P
Methods of measurement according to:	ANSI C63.4		
Equipment mode	Power interface	1	
	EUT configuration mode	1	
	Operation mode	1	
Test requirements	Frequency range	30 MHz – 12.5 GHz	
	Antenna distance	3 m	
	Class	A	

Test equipment

DESCRIPTION	MANUFACTURER	TYPE	SN	ASSET NO.	CALIBRATION
Semi-Anechoic chamber	Siepel	REF W460SLB	-	PM KF 1150-01	2016-12 (3 years)
Turntable	Inn-Co	-	-	PM KF 2949-04	-
Tower	Inn-Co	MA4484-XPET	-	PM KF 2949-03	-
Controller	Inn-Co	CO 3000	4970815	PM KF 2949	-
Receiver 9 kHz - 7 GHz	Rohde & Schwarz	ESR7	101757	PM KF 3371	2018-04 (1 year)
Receiver 20 Hz - 26.5 GHz	Rohde & Schwarz	ESIB26	100150	PM KF 0948	2017-11 (1 year)
Antenna 30 MHz - 3GHz	Rohde & Schwarz	HL 562	100354	PM KF 1123	2018-03 (2 years)
Horn antenna 1 - 18 GHz	Rohde & Schwarz	HF906	100188	PM KF 1047a	2017-05 (2 years)
Horn antenna preamp. 1 - 18 GHz	Bonn	BLMA0118-4A	35352	PM KF 0946	2017-07 (2 years)
Test software	Rohde & Schwarz	EMC 32 V.10.01.00	-	PM KF 2983-2	-

Measurement results – Radiated emissions:

EUT: GT7.3500 with GT7b.2000
Test Verdict: pass
Test Description: Radiated emission 30 - 1000 MHz
Operating Conditions: PoE; Ping -I 20000; no RFID tag
Operator Name: RDR
Project Number: 32708
Date: 2018-08-27
Comment:



— Preview Result 1H-PK+ [Preview Result 1H.Result:2]
— Preview Result 1V-PK+ [Preview Result 1V.Result:2]
* Critical_Freqs PK+ [Critical_Freqs.Result:4]
— FCC Part 15B 30-1000 MHz QP Class A [..\EMI radiated\FCC Part 15B\]
◆ Final_Result QPK [Final_Result.Result:4]

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
58.710000	36.10	50.00	13.90	1000.0	120.000	163.0	V	250.0	5.4
108.810000	41.77	50.00	8.23	1000.0	120.000	230.0	H	250.0	12.4
151.560000	35.87	50.00	14.13	1000.0	120.000	100.0	V	288.0	10.2
151.560000	35.87	50.00	8.62	1000.0	120.000	100.0	V	288.0	10.2
155.340000	32.11	50.00	17.89	1000.0	120.000	123.0	V	312.0	10.2
159.660000	31.96	50.00	18.04	1000.0	120.000	100.0	V	297.0	10.4
162.960000	30.99	50.00	19.01	1000.0	120.000	115.0	V	303.0	10.7
216.030000	38.34	50.00	11.66	1000.0	120.000	111.0	V	292.0	10.9
228.120000	41.16	50.00	8.84	1000.0	120.000	104.0	V	286.0	11.1

EMI Auto Test Template: EN-RE-R17-AN08

Hardware Setup: EN-RE-R12-AN08
Measurement Type: Open-Area-Test-Site
Frequency Range: 30 MHz - 1 GHz
Graphics Level Range: 0 dB μ V/m - 80 dB μ V/m

Preview Measurements:
Antenna height: 100 - 355 cm , Step Size = 85 cm , Positioning Speed = 8
Polarization: H + V
Turntable position: 0 - 315 deg , Step Size = 45 deg , Positioning Speed = 8
Graphics Display: Show separate traces for horizontal and vertical polarization
Scan Test Template: EN-RE-R12-AN08_PRE

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Receiver: [ESR 7]					
30 MHz - 1 GHz	30 kHz	PK+	120 kHz	0,1 s	20 dB
1 GHz - 3 GHz	250 kHz	PK+	1 MHz	0,1 s	20 dB

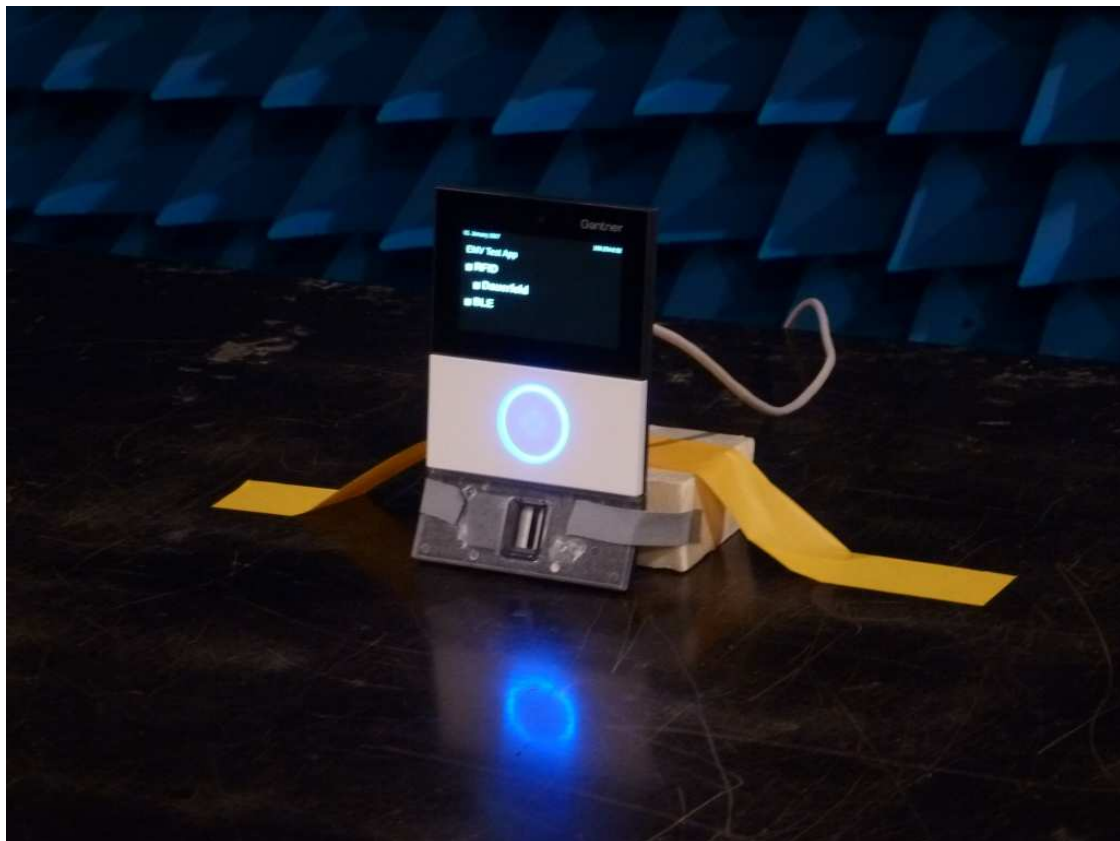
Frequency Zoom:
Zoom Scan Template: EN-RE-R12-AN08_ZOOM

Adjustment:
Antenna height: Range = 90 cm , Measuring Speed = 3
Turntable position: Range = 45 deg , Measuring Speed = 3
Template for Single Meas.: EN-RE-R12-AN08_MAX

Final Measurements:
Template for Single Meas.: EN-RE-R12-AN08_FIN

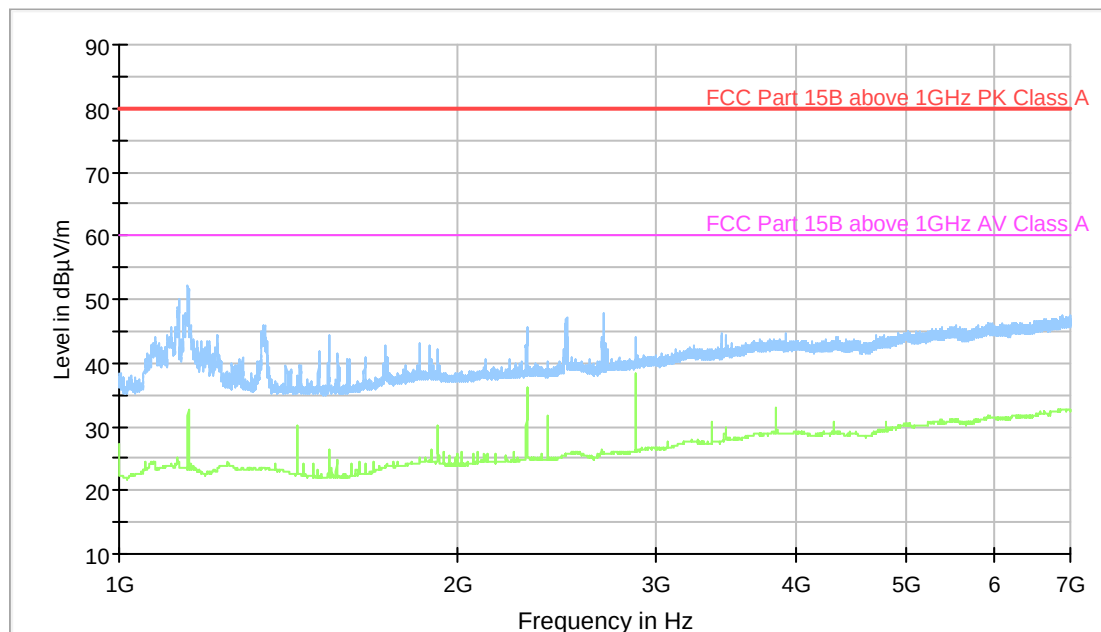
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Receiver: [ESR 7]					
30 MHz - 1 GHz	40 kHz	QPK	120 kHz	1 s	20 dB
1 GHz - 3 GHz	40 kHz	QPK	1 MHz	1 s	20 dB

Photos of the test setup:



Measurement results – Radiated emissions:

EUT:	GT7.3500 with GT7b.2000
Test Verdict:	pass
Test Description:	Radiated emission 1 GHz- 7 GHz
Operating Conditions:	PoE; Ping -I 20000; no RFID tag
Operator Name:	RDR
Project Number:	32708
Date:	2018-08-29
Comment:	



- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC Part 15B above 1GHz PK Class A [..\EMI radiated\FCC Part 15B\]
- FCC Part 15B above 1GHz AV Class A [..\EMI radiated\FCC Part 15B\]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

EMI Auto Test Template: FCC-RE-R17-AN20

Hardware Setup: EN-RE-R12-AN20
Measurement Type: Open-Area-Test-Site
Frequency Range: 1 GHz - 7 GHz
Graphics Level Range: 10 dB μ V/m - 90 dB μ V/m

Preview Measurements:
Antenna height: 100 - 355 cm , Step Size = 85 cm , Positioning Speed = 8
Polarization: H + V
Turntable position: 0 - 352 deg , Step Size = 22 deg , Positioning Speed = 8
Scan Test Template: EN-RE-R12-AN20_PRE

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Receiver: [ESR 7] 1 GHz - 7 GHz	250 kHz	PK+ ; AVG	1 MHz	0,1 s	0 dB

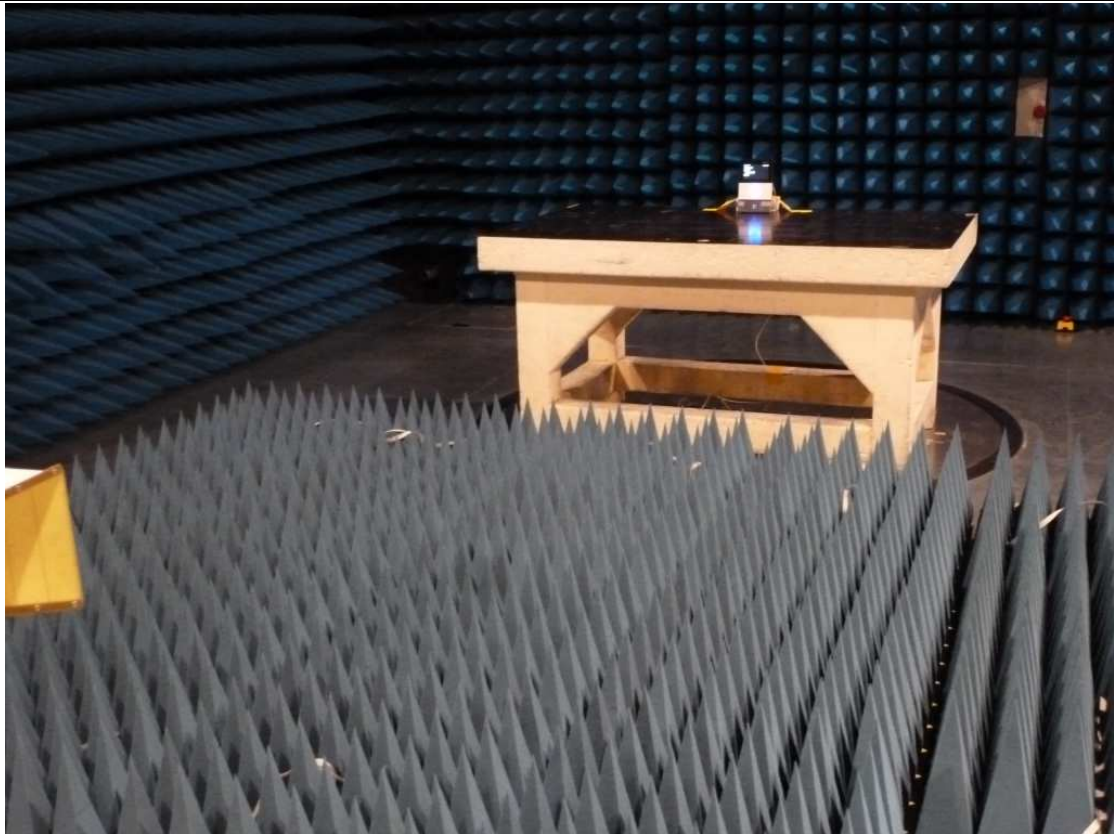
Frequency Zoom:
Zoom Scan Template: EN-RE-R12-AN20_ZOOM

Adjustment:
Antenna height: Range = 90 cm , Measuring Speed = 3
Turntable position: Range = 30 deg , Measuring Speed = 3
Template for Single Meas.: EN-RE-R12-AN20_MAX

Final Measurements:
Template for Single Meas.: EN-RE-R12-AN20_FIN

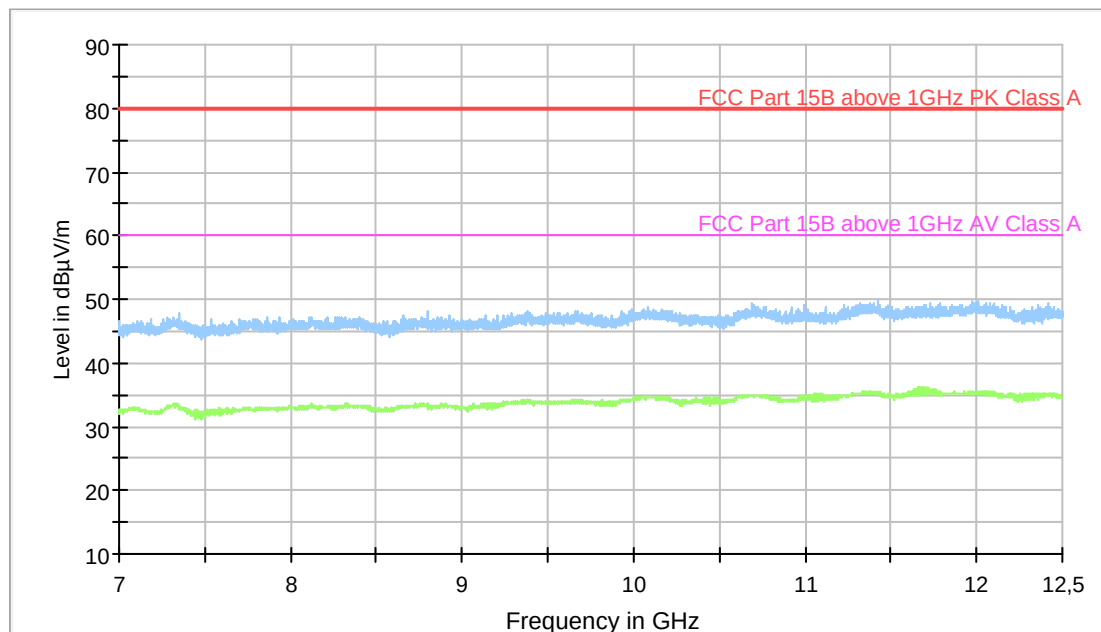
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Receiver: [ESR 7] 1 GHz - 7 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Photos of the test setup:



Measurement results – Radiated emissions:

EUT:	GT7.3500 with GT7b.2000
Test Verdict:	pass
Test Description:	Radiated emission 7 GHz- 12.5 GHz
Operating Conditions:	PoE; Ping -I 20000; no RFID tag
Operator Name:	RDR
Project Number:	32708
Date	2018-08-29
Comment:	



- Preview Result 2-AVG [Preview Result 2.Result:2]
- Preview Result 1-PK+ [Preview Result 1.Result:1]
- * Critical_Freqs AVG [Critical_Freqs.Result:5]
- * Critical_Freqs PK+ [Critical_Freqs.Result:4]
- FCC Part 15B above 1GHz PK Class A [..\EMI radiated\FCC Part 15B\]
- FCC Part 15B above 1GHz AV Class A [..\EMI radiated\FCC Part 15B\]
- ◆ Final_Result PK+ [Final_Result.Result:4]
- ◆ Final_Result AVG [Final_Result.Result:5]

EMI Auto Test Template: FCC-RE-R11-AN20

Hardware Setup: EN-RE-R11-AN20
Measurement Type: Open-Area-Test-Site
Frequency Range: 7 GHz - 12,5 GHz
Graphics Level Range: 10 dB μ V/m - 90 dB μ V/m

Preview Measurements:
Antenna height: 100 - 355 cm , Step Size = 85 cm , Positioning Speed = 8
Polarization: H + V
Turntable position: 0 - 352 deg , Step Size = 22 deg , Positioning Speed = 8
Scan Test Template: EN-RE-R11-AN20_PRE

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Receiver: [ESIB 26] 1 GHz - 18 GHz	700 kHz	PK+ ; AVG	1 MHz	0,01 s	0 dB

Frequency Zoom:
Zoom Scan Template: EN-RE-R11-AN20_MAX

Frequency Zoom:
Zoom Scan Template: EN-RE-R11-AN20_MAX

Adjustment:
Antenna height: Range = 90 cm , Measuring Speed = 3
Turntable position: Range = 30 deg , Measuring Speed = 3
Template for Single Meas.: EN-RE-R11-AN20_MAX

Final Measurements:
Template for Single Meas.: EN-RE-R11-AN20_FIN

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Receiver: [ESIB 26] 1 GHz - 7 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
7 GHz - 18 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Anechoic chamber

Test procedure

The test site is an anechoic chamber suitable for radiated emission measurements in the frequency range of 30 MHz – 18 GHz (26 GHz). It includes automatic antenna mast of height 4 m and turntable of radius 2 m. It enables both manual and fully automatic measurements. To find the highest level of radiation

- the height of the antenna is scanned in range 1m to 4 m with antenna in horizontal and vertical polarization;
- the turntable is rotated in range from 0° to 360°.

The system was configured for testing in a typical worst case fashion (as a customer may use it). All interface cables were moved to determine the position which resulted in the highest emission levels.

Correction factors

The field strength is calculated by adding the antenna factor and cable attenuation. The calculations are performed automatically by the measurement software EMC 32. As example consider the following input values and result:

FREQUENCY (MHZ)	RECEIVER READING U (dBμV)	ANTENNA FACTOR AF (dB/m)	CABLE ATTENUATION A (dB)	CORRECTION ANTENNA + CABLE (dB)	RADIATED FIELD STRENGTH E (dBμV/m)
30.0	20	20.6	0.8	21.4	41.4

$$E = U + AF + A$$

SECTION 8

Product identification and compliance information

§2.1074 Identification.

(a) Devices subject only to Supplier's Declaration of Conformity shall be uniquely identified by the party responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format which could be confused with the FCC Identifier required on certified equipment. The responsible party shall maintain adequate identification records to facilitate positive identification for each device.

(b) Devices subject to authorization under Supplier's Declaration of Conformity may be labelled with the following logo on a voluntary basis as a visual indication that the product complies with the applicable FCC requirements. The use of the logo on the device does not alleviate the requirement to provide the compliance information required by §2.1077.



§ 2.1077 Compliance information.

(a) If a product must be tested and authorized under Supplier's Declaration of Conformity, a compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- (1) Identification of the product, e.g., name and model number;
- (2) A compliance statement as applicable, e.g., for devices subject to part 15 of this chapter as specified in § 15.19(a)(3) of this chapter, that the product complies with the rules; and
- (3) The identification, by name, address and telephone number or Internet contact information, of the responsible party, as defined in § 2.909. The responsible party for Supplier's Declaration of Conformity must be located within the United States.

(c) The compliance information statement shall be included in the user's manual or as a separate sheet. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form. The information may be provided electronically as permitted in §2.935.

§15.19(a)(3):

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Small devices

When the device is so small or for such use that it is impracticable to label it with the statement in a font that is four-point or larger, and the device does not have a display that can show electronic labeling, then the information shall be placed in the user manual and must also either be placed on the device packaging or on a removable label attached to the device.

§2.935 Electronic labeling of radiofrequency devices.

(a) Any radiofrequency device equipped with an integrated electronic display screen, or a radiofrequency device without an integrated screen that can only operate in conjunction with a device that has an electronic display screen, may display on the electronic display the FCC Identifier, any warning statements, or other information that the Commission's rules would otherwise require to be shown on a physical label attached to the device.

(b) Devices displaying their FCC Identifier, warning statements, or other information electronically must make this information readily accessible on the electronic display. Users must be provided with prominent instructions on how to access the information in the operating instructions, inserts in packaging material, or other easily accessible format at the time of purchase. The access instructions may also be provided via the product-related Web site, if such a Web site exists; the packaging material must provide specific instructions on how to locate the Web site information, and a copy of these instructions must be included in the application for equipment certification.

(c) Devices displaying their FCC Identifier, warning statements, or other information electronically must permit access to the information without requiring special codes, accessories or permissions and the access to this information must not require more than three steps from the device setting menu. The number of steps does not include those steps for use of screen locks, passcodes or similar security protection designed to control overall device access.

(d) The electronically displayed FCC Identifier, warning statements, or other information must be displayed electronically in a manner that is clearly legible without the aid of magnification;

(e) The necessary label information must be programmed by the responsible party and must be secured in such a manner that third-parties cannot modify it.

(f) Devices displaying their FCC Identifier, warning statements, or other information electronically must also be labeled, either on the device or its packaging, with the FCC Identifier or other information (such as a model number and identification of a Web page that hosts the relevant regulatory information) that permits the devices to be identified at the time of importation, marketing, and sales as complying with the FCC's equipment authorization requirements. Devices can be labeled with a stick-on label, printing on the packaging, a label on a protective bag, or by similar means. Any removable label shall be of a type intended to survive normal shipping and handling and must only be removed by the customer after purchase.

Canadian ICES-003, Labelling Requirements

Self-Declaration of Compliance (SDoC):

ITE subject to ICES-003 is approved through the method of Self-Declaration of Compliance (SDoC) by the manufacturer, importer or distributor of ITE who shall ensure that compliance with all technical requirements prescribed by ICES-003 has been demonstrated and the results compiled into a test report.

Test Report:

The test report shall be **retained** by the manufacturer or importer **for a minimum period of five years** from the date the model of ITE is first offered for sale, distributed and/or leased in Canada, and shall be made available to Industry Canada upon request.

Industry Canada ICES-003 Compliance Label:

CAN ICES-3 ()/NMB-3(*)*

* Insert either "A" or "B" but not both to identify the applicable Class of ITE.

The label shall be permanently affixed to the ITE or displayed electronically and its text must be clearly legible. When the dimension of the device is too small or it is otherwise not practical to place the label on the ITE, the label shall be placed in a prominent location in the user manual supplied with the ITE. The user manual may be in an electronic format and must be readily available.

The manufacturer, importer or supplier shall meet the labelling requirements set out in this section for every ITE unit ³:

- (i) Prior to marketing in Canada, for ITE manufactured in Canada, and;
- (ii) Prior to importation into Canada, for imported ITE.

The presence of the label on the ITE represents the manufacturer's or importer's Self-Declaration of Compliance (SDoC) to Industry Canada ICES-003.

Each unit of an ITE model shall bear a label indicating the model's compliance with ICES-003.

³ The labelling requirements apply to new models. Existing models may continue with the requirements in Issue 4 or adopt the requirements in Issue 5.

SECTION 9

ANNEX

9.1 Informative attachment – Conducted emissions

NORMATIVE REFERENCES			RESULT
Limits according to:	FCC, Part 15 B		P
Methods of measurement according to:	ANSI C63.4		
Equipment mode	Power interface	2 and 3	
	EUT configuration mode	1	
	Operation mode	1	
Test requirements	Frequency range	150 kHz - 30 MHz	
	Class	A	

Test equipment

DESCRIPTION	MANUFACTURER	TYPE	SN	ASSET NO.	CALIBRATION
Shielded cabin	ETS LINDGREN	RFSD 100	3598	PM KF 2955-2	-
Pulse Limiter 10 dB 9 kHz - 200 MHz	Schwarzbeck	VTSD 9561-F N	9561-F N242	PM KF 3059	2018-02 (1 year)
Receiver 9 kHz - 7 GHz	Rohde & Schwarz	ESR7	101757	PM KF 3371	2018-04 (1 year)
V-Artificial mains- network, 2 Line	Rohde & Schwarz	ESH3-Z5	863367/018	PM KF 0142	2017-10 (2 years)
Test software	Rohde & Schwarz	EMC 32 V.8.54	-	PM KF 2983	-

Comment

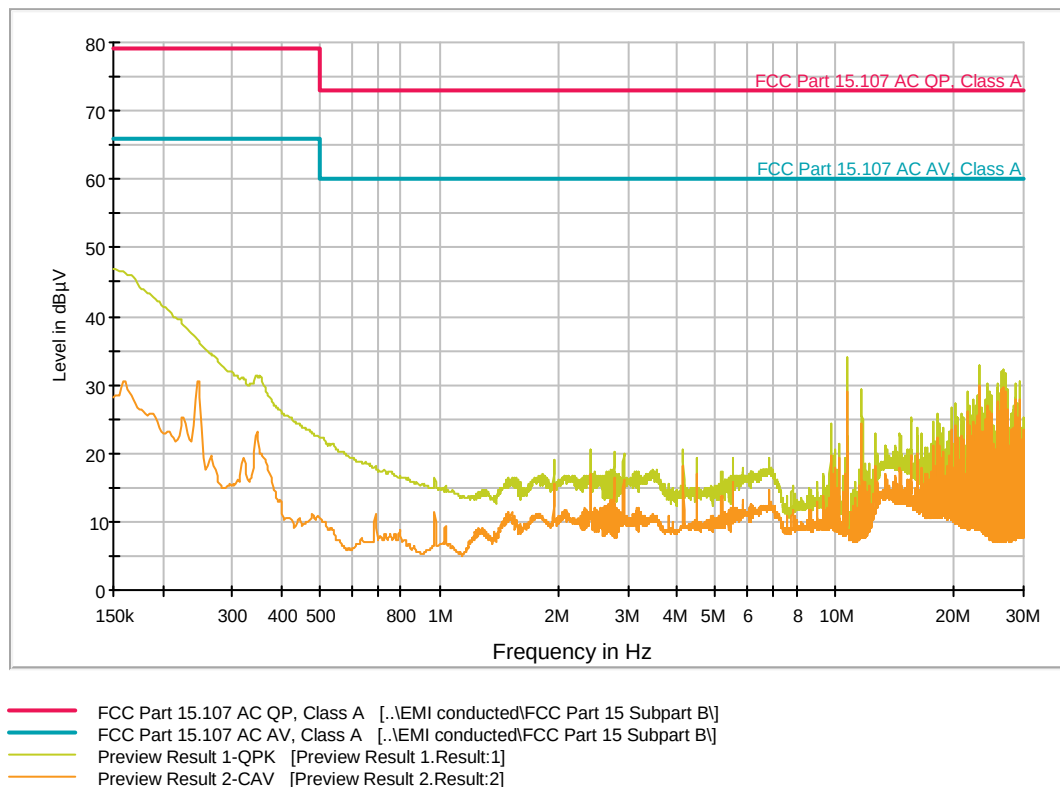
In the following diagram, the N and L line are merged.

The tested ports were: Mains input of the power supply and mains input of the PoE Adapter (Injector).

Measurement results – Conducted emissions:

EUT:	GT7.3500 incl. mounted GT7b.2000
Project No.:	32708
Test description:	Conducted Emissions
Test standard:	FCC Part 15 Subpart B, Class A
Tested port:	Mains input of the power supply
Test verdict:	pass
Operating conditions:	Continuous normal operation with ping -I 20000, 120 V, 60 Hz, Radio parts not transmitting
Operator name:	RDR
Date of testing:	2018-09-07

EN-CE-R32-LN01



EMI Auto Test Template: EN-CE-R32-LN01

Hardware Setup: EN-CE-R32-LN01
Measurement Type: 2 Line LISN
Frequency Range: 150 kHz - 30 MHz
Graphics Level Range: 0 dBμV - 80 dBμV

Preview Measurements:
Scan Test Template: EN-CE-R32-LN01_PRE

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	50 Hz	QPK; CAV	200 Hz	1 s	20 dB
150 kHz - 30 MHz	2.25 kHz	QPK; CAV	9 kHz	1 s	0 dB

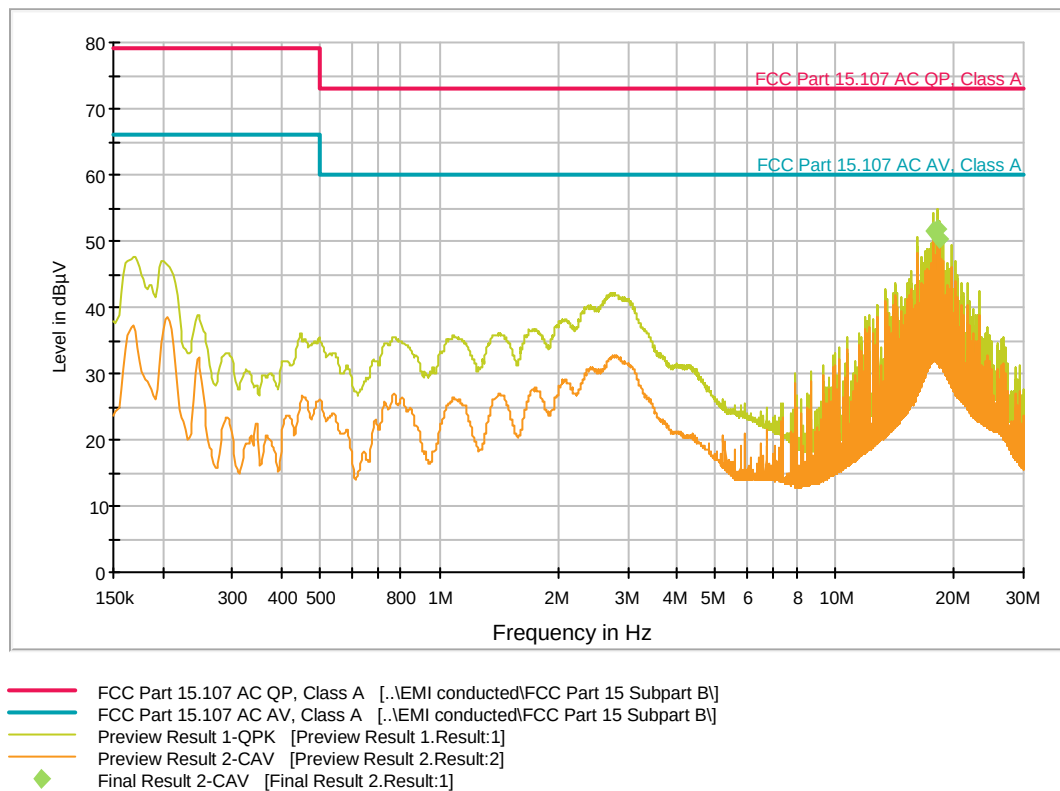
Receiver: [ESR 7]

Data Reduction:
Limit Line #1: FCC Part 15.107 AC QP, Class A
Limit Line #2: FCC Part 15.107 AC AV, Class A
Peak Search: 6 dB , Maximum Results: 10
Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
Acceptance Offset: -10 dB
Maximum Number of Results: 20
After Data Reduction: Interactive data reduction

Report Settings:
Report Template: Standard Report_EMC KF_Conducted Emission

EUT: GT7.3500 incl. mounted GT7b.2000
Project No.: 32708
Test description: Conducted Emissions
Test standard: FCC Part 15 Subpart B, Class A
Tested port: **Mains input of the PoE adapter (Injector)**
Test verdict: pass
Operating conditions: Continuous normal operation with ping -I 20000, 120 V, 60 Hz, Radio parts not transmitting
Operator name: RDR
Date of testing: 2018-09-07

EN-CE-R32-LN01



Final Result 2

Frequency (MHz)	CAverage-ClearWrite (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
17.693250	51.5	GN	N	11.0	8.5	60.0	
18.242250	51.8	GN	N	11.0	8.2	60.0	
18.305250	50.2	GN	N	11.0	9.8	60.0	

EMI Auto Test Template: EN-CE-R32-LN01

Hardware Setup: EN-CE-R32-LN01
Measurement Type: 2 Line LISN
Frequency Range: 150 kHz - 30 MHz
Graphics Level Range: 0 dB μ V - 80 dB μ V

Preview Measurements:
Scan Test Template: EN-CE-R32-LN01_PRE

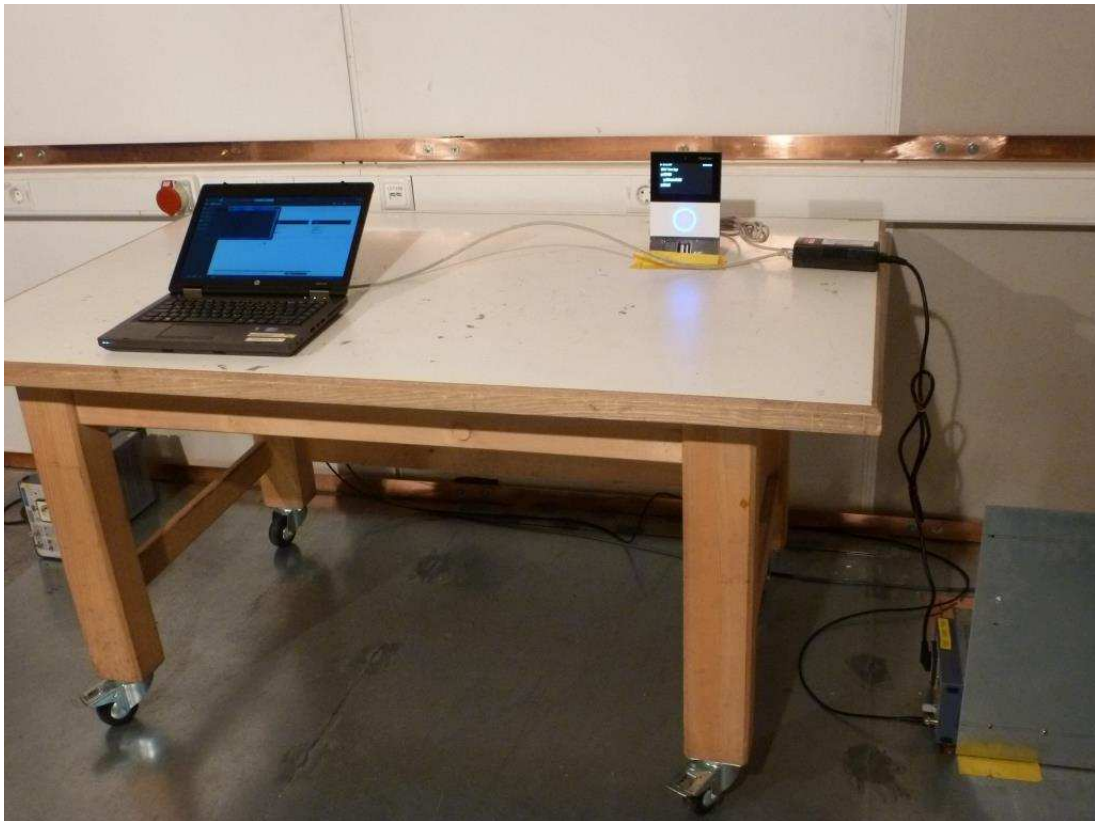
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	50 Hz	QPK; CAV	200 Hz	1 s	20 dB
150 kHz - 30 MHz	2.25 kHz	QPK; CAV	9 kHz	1 s	0 dB

Receiver: [ESR 7]

Data Reduction:
Limit Line #1: FCC Part 15.107 AC QP, Class A
Limit Line #2: FCC Part 15.107 AC AV, Class A
Peak Search: 6 dB , Maximum Results: 10
Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
Acceptance Offset: -10 dB
Maximum Number of Results: 20
After Data Reduction: Interactive data reduction

Report Settings:
Report Template: Standard Report_EMC KF_Conducted Emission

Photos of the test setup:



End of test report