

Prüfbericht-Nr.: Test Report No.:	20071401.r02	Auftrags-Nr.: Order No.:	89217437	Seite 1 von 26 Page 1 of 26
Kunden-Referenz-Nr.: Client Reference No.:	POC-LM-000674	Auftragsdatum: Order date:	2020-08-25	
Auftraggeber: Client:	Nedap N.V., Parallelweg 2 7141 DC Groenlo, Netherlands			
Prüfgegenstand: Test item:	134.2 kHz Inductive RFID tag Reader-Motor control			
Bezeichnung / Typ-Nr.: Identification / Type No.:	VP1004B			
Auftrags-Inhalt: Order content:	Compliance with regulatory requirements			
Prüfgrundlage: Test specification:	47 CFR PART 15 (10-1-19 EDITION), Subpart 15C RSS-Gen (Issue 5 April 2018) General Requirements for Compliance of Radio Apparatus and RSS-210 (Issue 10 Dec 2019) Licence-exempt Radio Apparatus. -			

Wareneingangsdatum: Date of receipt:	2020-09-23
Prüfmuster-Nr.: Test sample No.:	1229 + 1206
Prüfzeitraum: Testing period:	2020-11-01 / 2020-12-21
Ort der Prüfung: Place of testing:	Leek
Prüflaboratorium: Testing laboratory:	TÜV Rheinland Nederland B.V. Leek Laboratory
Prüfergebnis*: Test result*:	Pass



geprüft von / tested by: 			genehmigt von / authorized by:		
Datum /date: 2021-01-20 Richard van der Meer, Expert			Datum /date: 2021-01-20 Ties Koning, Senior Expert		
Datum Date	Name / Stellung Name / Position	Unterschrift Signature	Datum Date	Name / Stellung Name / Position	Unterschrift Signature
Sonstiges / Other: issue date is equal to authorized date					
Zustand des Prüfgegenstandes bei Anlieferung:2 Condition of the test item at delivery:			Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: 1 = sehr gut P(ass) = entspricht o.g. 2 = gut Prüfgrundlage(n) 3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n) 4 = ausreichend N/A = nicht anwendbar 5 = mangelhaft N/T = nicht getestet Legend: 1 = very good P(ass) = passed a.m. 2 = good Test specification(s) 3 = satisfactory F(ail) a.m. test specification(s) 4 = sufficient N/A = not applicable 5 = poor N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the above mentioned testsample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This report does not entitle to carry any test mark					

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TEST SUMMARY

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
§15.209 / RSS-Gen Table 5	Radiated Emissions	☒	☐	☐	☐
§15.207 / RSS-Gen Table 4	AC Power Line Conducted Emissions	☒	☐	☐	☐

Revisions Revisions

Revision Revision	Datum Date	Anmerkung Remark	Verfasser Author
-	2020.12.21	First release	R. van der Meer
01	2021.01.20	4.1.3 note1, extended calculation of extrapolation factor	R. van der Meer

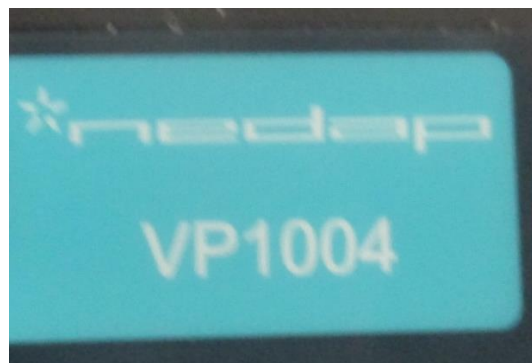
Note: Latest revision report will replace all previous reports

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1	Produktdetails <i>Product details</i>	134.2 kHz Inductive RFID tag Reader-Motor control
2	Maße / Gewicht <i>Dimensions / Weight</i>	L x W x H = 143 x 120 x 68 mm / ± 430 g
3	Bedienelemente <i>Operating elements</i>	None
4	Ausstattung / Zubehör <i>Equipment / Accessories</i>	2x Switch, 1 x Lamp, 5 x Antenna, VP1001, Power Supply VP2002, VPU VP8002, Laptop
5	Verwendete Materialien <i>Used materials</i>	None
6	Sonstiges <i>Other</i>	none



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1. General Remarks

1.1.1 Complementary Materials

There is no attachment to this test report.

1.1.2 Special Accessories

None.

1.1.3 Equipment modifications

None

2. Test Sites

2.1 Test Facilities

The Semi-Anechoic chamber and AC Line Conducted measurement facility used to collect the radiated and conducted data has been constructed in accordance with ANSI C63.7. The site has been measured in accordance with and verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 meters. The site is listed with the FCC and ISED and accredited by RvA (Cert #L484). The 3 meter semi-anechoic chamber used to collect the radiated data has been verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 meter. H-field measurements have been done in the Semi-Anechoic chamber to identify emissions from the EUT and final testing been performed on the outside facilities at 3m, 5m and 10m distance.

The Federal Communications Commission and Industry Canada has reviewed the technical characteristics of the test facilities at TÜV Rheinland Nederland B.V., located in Leek, 9351VT Eiberkamp 10, The Netherlands, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948.

The description of the test facilities has been filed at the Office of the Federal Communications Commission under Designation Number NL0005 (test site registration number: 786213). The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

The description of the test facilities has been filed to Industry Canada under CABID number NL0002 (test site registration number: 2932G-2). The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

Normal test conditions:

Temperature (*)	: +15°C to +35°C
Relative humidity(*)	: 20 % to 75 %
Supply voltage	: 25 Vdc.

()When it was impracticable to carry out the tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests are stated separately.*

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Model Name	Inventory number	Calibration date (mm/yyyy)	Calibration due date (mm/yyyy)
For Radiated Emissions					
Measurement Receiver	Rohde & Schwarz	ESR7	2790499	08/2020	08/2021
RF Cable S-AR	Gigalink	APG0500	2789217	03/2020	03/2021
Test facility	Comtest	FCC listed: 786213 IC: 2932G-2	2789009	03/2020	03/2022
Spectrum Analyzer	Rohde & Schwarz	FSV	2790106	09/2020	09/2021
Antenna mast+control	Innco	CO3000	9002463	N/A	N/A
Temperature-Humiditymeter	Extech	SD500	2789214	07/2020	07/2021
Biconilog Testantenna	Teseq	CBL 6111D	2789237	08/2020	08/2021
Magnetic Loop Antenna, Active	Chase	HLA-6120	2790033	12/2017	12-16/2020
Magnetic Loop Antenna, Passive	EMCO	6509	2788774	12/2017	12-16/2020
120Vac source	EMtest	DPA500N	2789197	11/2019	11/2021

Kind of Equipment	Manufacturer	Model Name	Inventory number	Calibration date (mm/yyyy)	Calibration due date (mm/yyyy)
For AC Powerline Conducted Emissions					
Pulse limiter	R&S	ESH3-Z2	2788823	09/2020	09/2021
120Vac source	EMtest	DPA500N	2789197	11/2019	11/2021
LISN	Rohde & Schwarz	ESH2-Z5	2788791	07/2020	07/2021
Measurement Receiver	Rohde & Schwarz	ESCS30	2790497	08/2020	08/2021
Shielded room for Conducted emissions	--	--	2789207	NA	NA
Temperature-Humiditymeter	Extech	SD500	2789211	07/2020	07/2021

Conformance of the used measurement and test equipment with the requirements of ISO/IEC 17025:2005 has been confirmed before testing. NA= Not Applicable

Accreditation

The reported tests were performed under ISO17025 accreditation, unless otherwise specified as 'not under Accreditation'. An overview of all TÜV Rheinland Nederland B.V. accreditations, notifications and designations, please visit our website www.tuv.com/nl. You can find the relevant declarations under the download link.

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2.3 Measurement Uncertainty

Table 2: Emission Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Radiated Emission	9kHz - 30MHz	±5.0dB
	30MHz - 1GHz	±5.0dB
AC Power Line Conducted Emissions	150kHz - 30MHz	±3.5dB

3. General Product Information / Disclaimer

Info as provided by the client.

The VP1004B is a reader with an RFID interface. Up to 8 antennas may be connected. Antennas are scanned one by one. It is used to identify animals for location, feeding, weighing, milking, heat detection, etc. 2 input switches and pilot lights may be connected. For testing only 1 antenna was used and others disabled/not connected and settings optimized to maximize power from one antenna.

Technical Specifications

Technical Specifications	Value
Operating Frequency	134.2 kHz
Channel number	1
Operation Voltage	25 Vdc
Output power / MaximumHfPowerlevel (%)	100
Extra Power option	0
Modulation	None
Antenna Type tested	External magnetic wire loop VP 6012
Antenna Gain	-(loop antenna)

3.1 Countermeasures to achieve compliance

No additional measures were employed to achieve compliance.

3.2 Operation Modes

Testing was performed at 134.2 kHz, the only operating frequency.

3.3 Physical Configuration for Testing

The EUT was tested as per Figure 1, but only one antenna connected and active-to maximize the field from one source. Test with the system working on all antenna's is covered in a separate 15B report (13b / 20071401.r03) and in this report for AC power line Conducted Emissions. The laptop was not used in final testing, it was used to setup the system, check and set operating routines and verify correct operation of the system before final testing.

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.10-2013.

Test setup as in Fig.1.

VP1004B AR test set

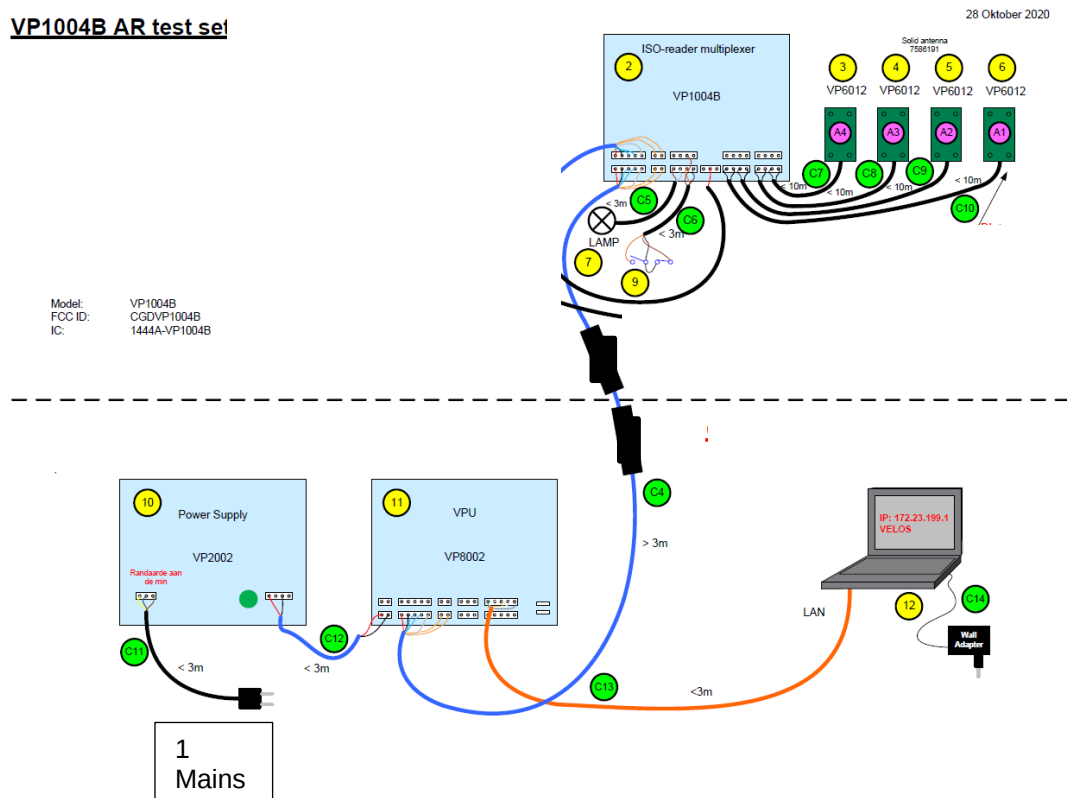


Figure 1: Test Setup Diagram, radiated tests

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1004B AR test setup

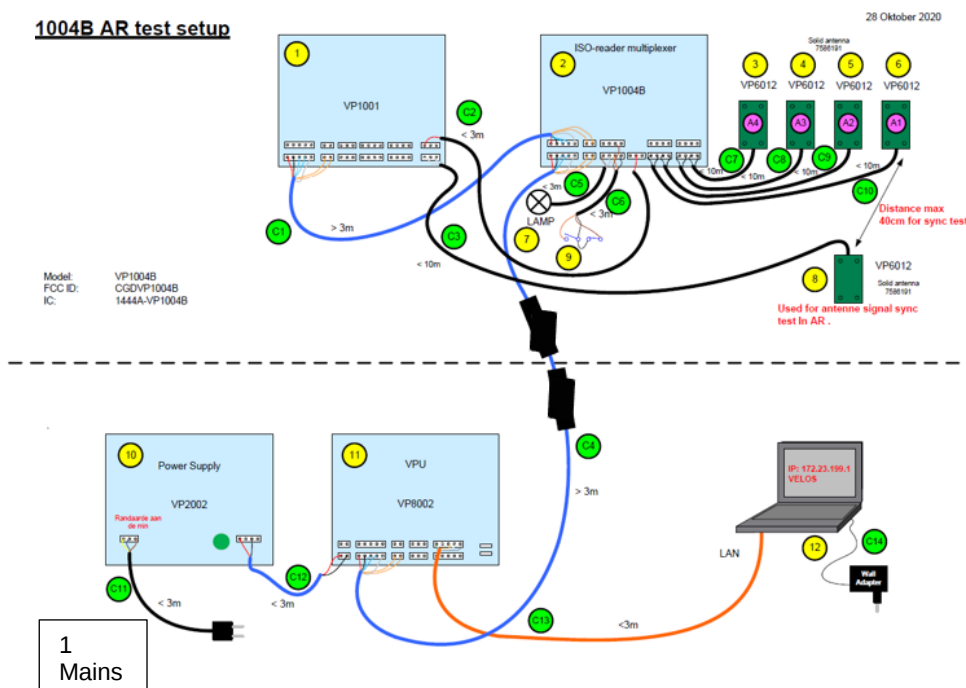


Figure 2: Test Setup Diagram, AC Power line conducted emissions test

List of used cables					
Number	Function	From	To	Length	Remarks
C1	CAN	EUT	VP1001	> 3m	
C2	FSYNC	EUT	VP1001	< 3m	
C3	Antenna	VP1001	Antenna	< 10m	
C4	CAN	VPU (VP8002)	EUT	> 3m	
C5	Lamp	EUT	Lamp	< 3m	
C6	I/O Switch	EUT	Switches	< 3m	
C7	Antenna	EUT	Antenna	< 10m	
C8	Antenna	EUT	Antenna	< 10m	
C9	Antenna	EUT	Antenna	< 10m	
C10	Antenna	EUT	Antenna	< 10m	
C11	AC Mains	Mains	PSU (VP2002)	< 3m	
C12	Power supply	VP2002	VPU (VP8002)	< 3m	
C13	Ethernet	VPU (VP8002)	Laptop	< 3m	
C14	Laptop Adapter	AC/DC Adapter	Laptop	< 3m	

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3.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Test item EUT pos 2	:	EUT
Manufacturer	:	Nedap N.V.
Brand mark	:	Nedap
Models	:	VP1004B
Serial number(s)	:	Engineering Sample
Remark	:	I/O connected to VP1001, VPU, lamp, switches, antenna's
Test item (AUX1) Pos 1	:	ISO Reader, AC power line test only
Manufacturer	:	Nedap N.V.
Brand mark	:	Nedap
Model	:	VP1001
Serial number	:	KO18 D 0005
Test item (AUX2) Pos. 10	:	Power supply
Manufacturer	:	Nedap N.V.
Brand	:	Nedap
Models	:	VP2002
Serial number	:	J331 A 0007
Voltage input rating	:	100 - 240V/ 50 - 60 Hz
Voltage output rating	:	25Vdc 2.5 Amp
Test item (AUX3) Pos 11	:	VPU
Manufacturer	:	Nedap N.V.
Brand	:	Nedap
Models	:	VP8002
Serial number	:	M630 A 0009
Test item (AUX4) Pos 3,4,5,6,8	:	Antenna's
Manufacturer	:	Nedap N.V.
Brand	:	Nedap
Models	:	VP6012
Serial number	:	---
Test item (AUX5) Pos 12	:	Laptop (Not used for final testing)
Manufacturer	:	HP
Brand	:	HP
Models	:	EliteBook 840 G6
Serial number	:	5CG93278NN

4. Test Results

4.1.1 20dB and 99% Bandwidth

RESULT: PASS

Tested by:

R. van der Meer

Date of testing:

2020-12-02

Requirements:

For 99% Bandwidth: RSS-Gen Section 4.6.1: No requirement is given.

Test procedure 20dB bandwidth:

ANSI C63.10-2013 section 11.8.1

A spectrum analyzer was connected to the antenna port of the EUT. The spectrum analyzer resolution bandwidth was set to 200 Hz, video bandwidth to 1kHz and the span wide enough to capture the modulated carrier.

For 99% Bandwidth:

Test procedure: RSS-Gen.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

A spectrum analyzer was connected to the antenna port of the EUT. The spectrum analyzer resolution bandwidth was set to 1% of the selected span, Video bandwidth was set to 3 times the resolution bandwidth. The span was set to capture the whole modulation process. The Spectrum analyzers automated function for 99% BW was used.

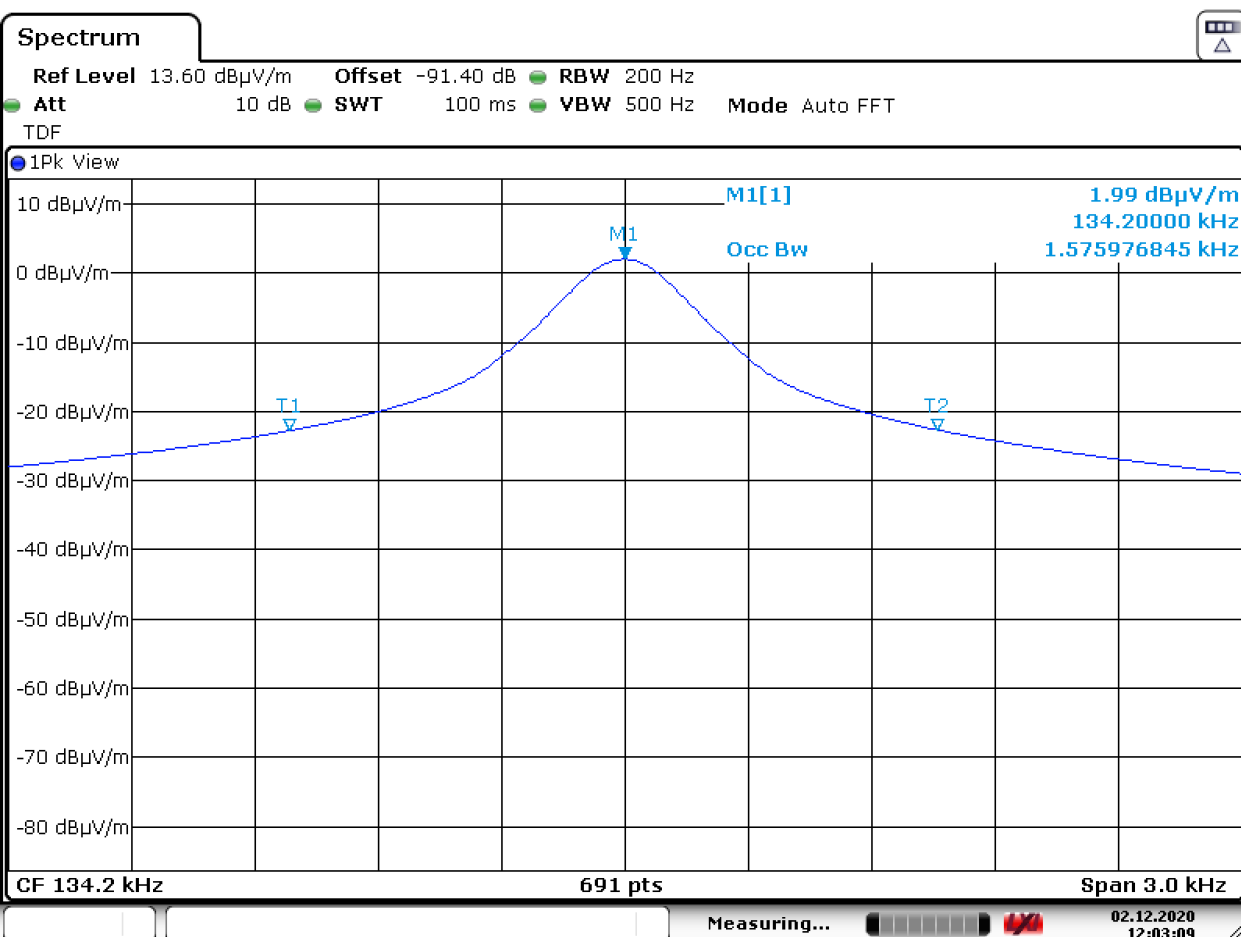
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20dB and 99% Bandwidth

Operating Frequency [MHz]	99% Bandwidth [kHz]	20dB Bandwidth [kHz]	Plot number
0.1342	1.58	0.986	A1/A2



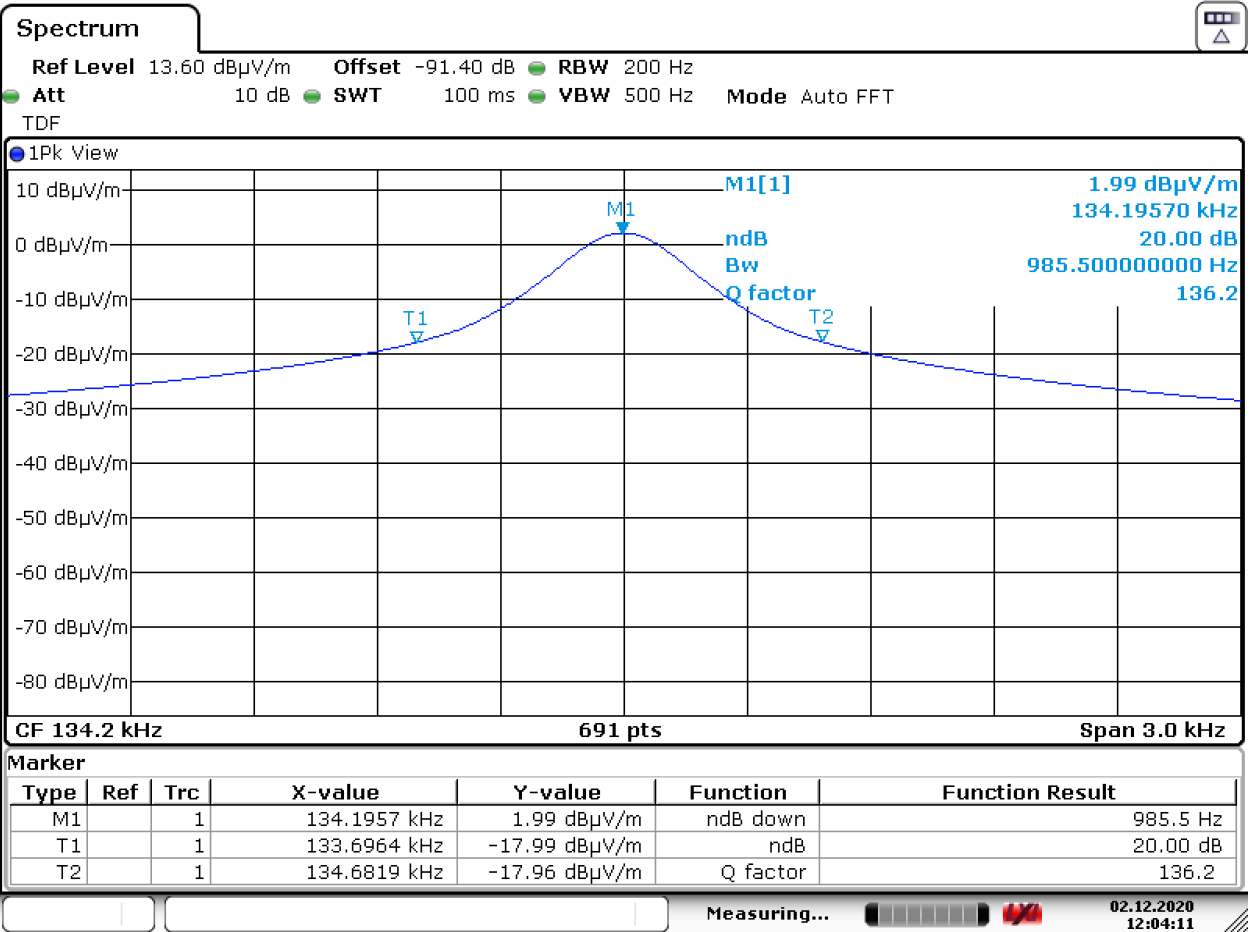
Date: 2.DEC.2020 12:03:09

Plot A1, 99% dB BW,
with FDX tags (is worst case)

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Date: 2.DEC.2020 12:04:11

Plot A2 20 dB BW, with FDX tags (is worst case)

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4.1.2 Radiated Emissions of Transmitter

RESULT: PASS

Tested by:

R. van der Meer

Date of testing:

2020-12-02 & 21

Frequency range:

9kHz - 1GHz

Requirements:

FCC 15.209 and RSS-Gen

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following tables:

Frequency (MHz)	Field strength (microvolts/meter)	Field strength (dB μ V/m)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	43.5-13.8	300
0.490-1.705	24000/F(kHz)	33.8-22.9	30
1.705-30.0	30	29.5	30

Table 2a. Field strength limits

Frequency (MHz)	Field strength (μ V/meter)	Field strength (dB μ V/m)	Measurement distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0 (Av), 74 (Pk)	3

Table 2b applicable limits

Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) and RSS-Gen Table 7, must comply with the radiated emission limits specified in FCC 15.209(a) and RSS-Gen Table 5&6.

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Test procedure:

ANSI C63.10-2013.

Before final measurements of radiated emissions were performed, the EUT was scanned to determine its emission spectrum profile. The physical arrangement of the test system, the associated cabling were varied in order to ensure that maximum emission amplitudes were attained.

The spectrum was examined from 9 kHz to 1 GHz. Radiated emission testing was performed at a distance of 3 meters in a 5 meter semi-anechoic chamber.

Final radiated emission measurements below 30MHz were made at 3m, 5m and 10m distance on the outside open field facility. The measured values were corrected to the 30m distance using the extrapolation factor of 40dB/decade as per FCC Part 15.31(f)(2) or by determining the proper extrapolation factor by using the measurement results at 3m and 10m distance.

At each frequency where a spurious emission was found, the EUT was rotated 360° and the antenna was raised and lowered from 1 to 4m in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations.

The highest emission amplitudes relative to the appropriate limit were recorded in this report. Field strength values of radiated emissions at frequencies not listed in the tables are more than 20 dB below the applicable limit.

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4.1.3 Radiated field strength measurements H-field, 0.009-30 MHz.

Frequency (MHz)	Measurement results	Measurement results (for info only)	Measurement results	Detector	Extrapolation factor	Measurement results (calculated)	Limits	Pass/Fail
	dBμV @3m	dBμV @5m	dBμV @10m		dB	dBμV/m @300m	dBμV/m @300m	
0.1342 (fundamental)	93.4 (x) 69.6 (y) 71.2 (z)	78.1 (x) 62.2 (y) 64.9 (z)	69.5 (x) 60.2 (y) 60.6 (z)	Pk	91.4 * ¹	2.0 (x)	45.1	Pass
0.1342 (fundamental)	87.1 (x) 51.3 (y) 53.9 (z)	72.7 (x) 47.7 (y) 49.2 (z)	62.3 (x) 44.6 (y) 45.5 (z)	Av	94.9 * ¹	-7.8 (x)	25.1	Pass
0.2684 *H	63.5 (x)	-	-	Pk	80	-16.5 (x)	39.0	Pass
0.2684 *H	35.6 (x)	-	-	Av	80	-44.4 (x)	19.0	Pass
0.4026 *H	62.9 (x)	-	-	Pk	80	-17.1 (x)	35.5	Pass
0.4026 *H	44.6 (x)	-	-	Av	80	-35.4 (x)	15.5	Pass
0.480	45.0 (x)	-	-	Pk	80	-35.0 (x)	14.0	Pass
0.550	42.0 (x)	-	-	Pk	80	-38.0 (x)	32.8	Pass
0.652	40.0 (x)	-	-	Pk	80	-40.0 (x)	31.3	Pass

Table 3 Radiated emissions of the EUT

Test equipment used (for reference see test equipment listing).

2789083	2790033	2788774	2789217	2789106				

Notes:

1. Calculated measurement results are obtained by using the 40 dB/decade extrapolation factor and the antenna factor and cable loss is included. For instance the corrected value for 0.1342 MHz fundamental frequency is calculated as: Measurement result– Extrapolation Factor => 93.4 dBμV– 91.4 dB = 2.0 dBμV/m. For the fundamental the extrapolation factor is calculated from the measured value obtained at 3m and 10m by using the equation: $(d1/d2)^n = (H_{d2}/H_{d1})$.
2. In the frequency range 9 kHz – 10 MHz Peak detector used during measurements with a resolution bandwidth of 9kHz was used. Most Peak values were already within Av limits. For the frequency range 10 MHz – 30 MHz a Quasi peak detector used during measurements with a resolution bandwidth of 9kHz was used.
3. Field strength values of radiated emissions at frequencies in the frequency range 0.009 – 30 MHz not listed in Table 3 are more than 20 dB below the applicable limit. The reported value is the worst case found at the reported frequency. Measurement antenna in axial position was the worst case.
4. Restricted bands were investigated and were found to be below the levels as reported in Table 3.
5. Measurement uncertainty is ±5.0dB.
6. Pk value within Qp limit.

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4.1.4 Radiated Spurious Emissions, 30MHz - 1GHz

Frequency [MHz]	EUT Orientation	Antenna Orientation	Level QP [dB μ V/m]	Limit QP [dB μ V/m]	Verdict [Pass/Fail]
55.9-65.1	Horizontal	Horizontal	35.0	40.0	Pass
278.9	Horizontal	Horizontal	32.2	43.5	Pass
322.0	Horizontal	Horizontal	38.0	43.5	Pass
343.4	Horizontal	Horizontal	40.0	46.0	Pass
386.5	Vertical	Vertical	35.5	46.0	Pass
633.3	Vertical	Vertical	37.0 Pk	46.0	Pass

Table 4 Radiated emissions of the EUT

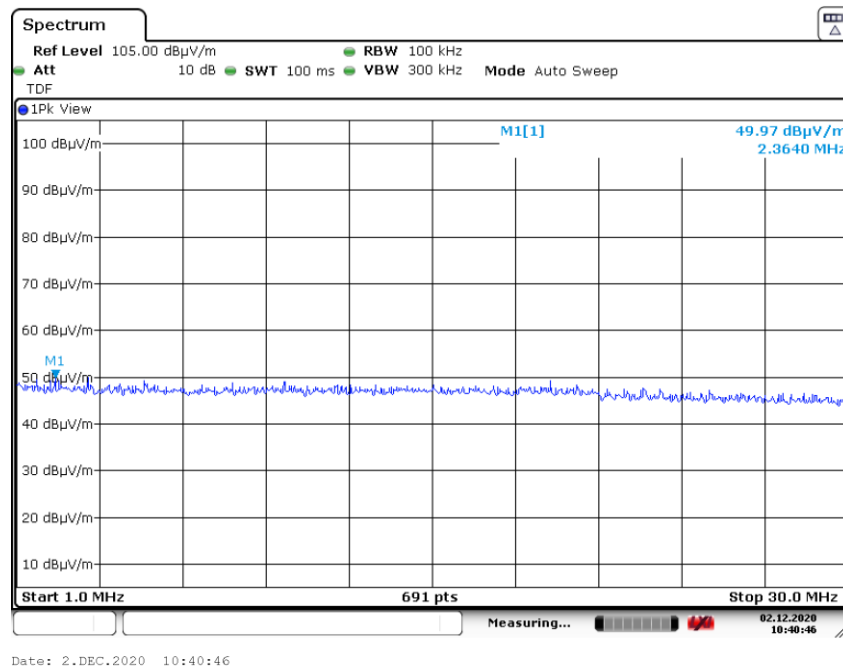
- Note:
- Level QP = Reading QP + Factor
 - Tested in modes as described in section 3.2, the 6 highest values noted.
 - *^R refers to a frequency in a restricted band, *^H refers to a harmonic of the fundamental
 - Quasi Peak detector used with a bandwidth of 120 kHz.
 - Measurement uncertainty is +/- 5.0 dB.
 - a selection of plots are provided on the next pages

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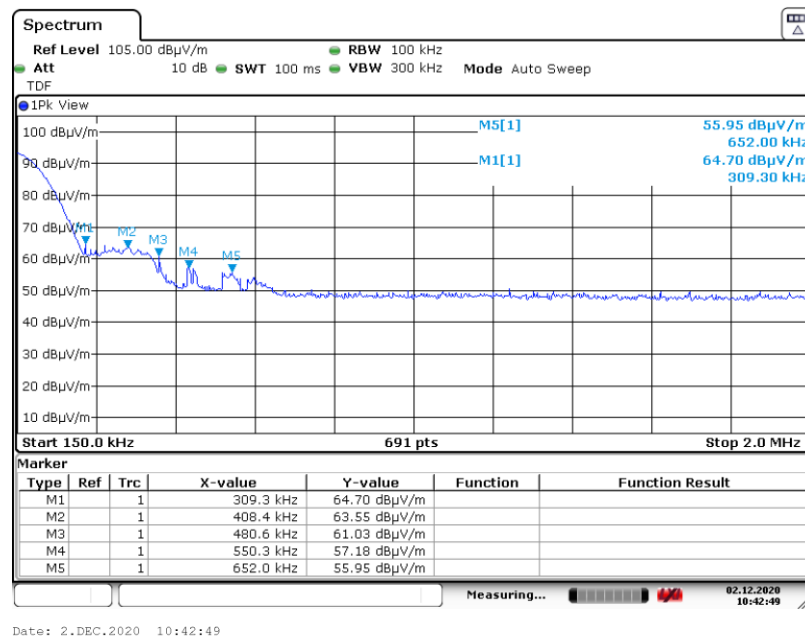
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4.1.5 Plots of the emissions



Pre-scan Plot of the emissions in the range 1 – 30 MHz (Peak detector values shown), EUT vertical

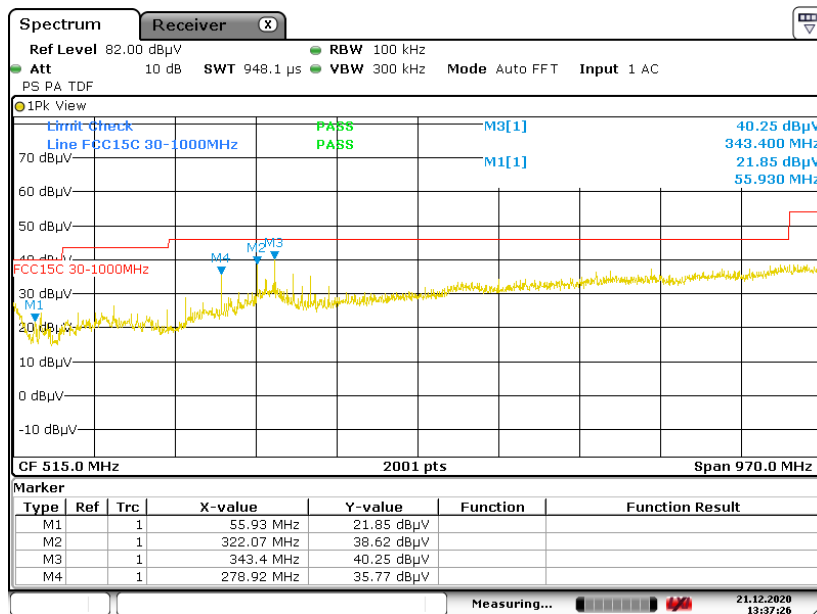


Pre-scan Plot of the emissions in the range 150k – 2 MHz (Peak detector values shown), EUT vertical

Test Report No.:

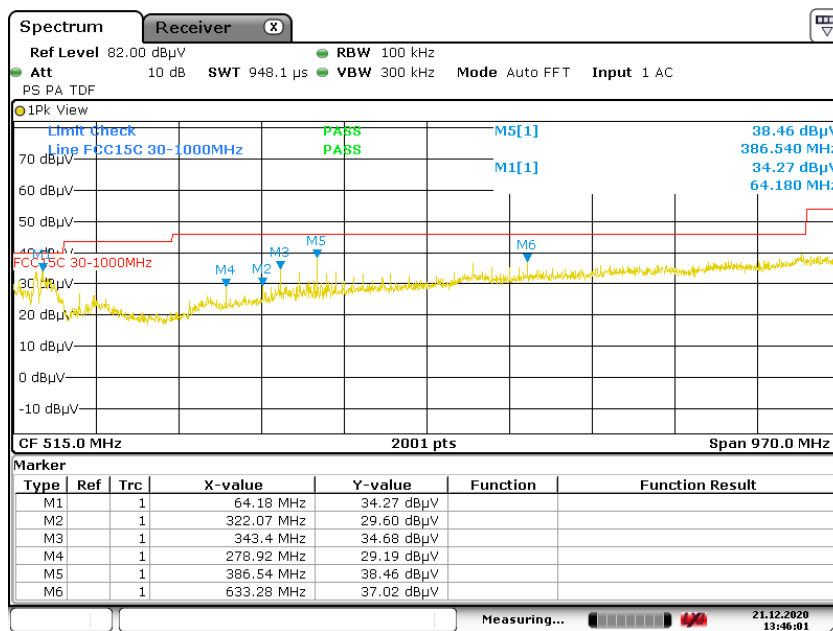
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Date: 21.DEC.2020 13:37:26

Pre-scan Plot of the emissions in the range 30 – 1000 MHz (Peak detector values shown),
Test Antenna horizontal, EUT horizontal (X)



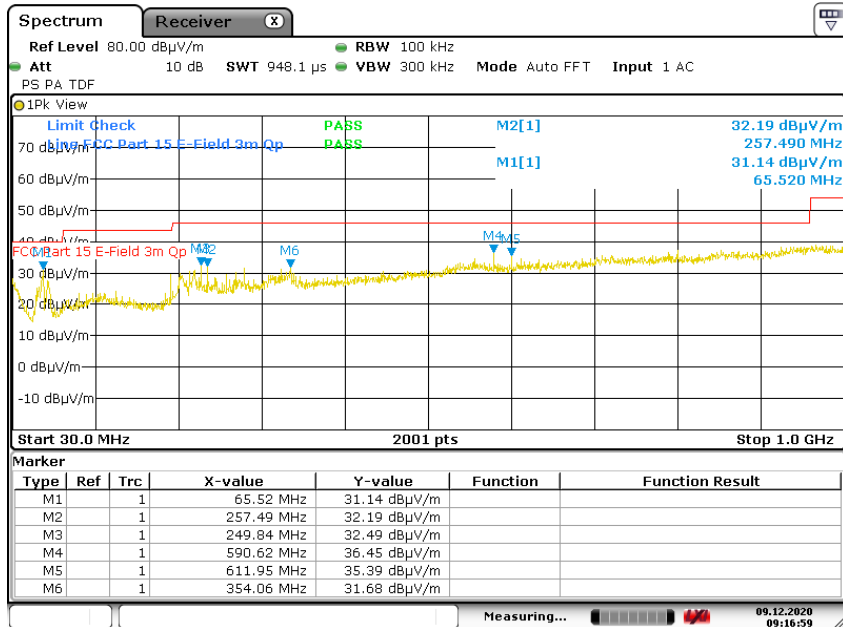
Date: 21.DEC.2020 13:46:01

Pre-scan Plot of the emissions in the range 30 – 1000 MHz (Peak detector values shown),
Test Antenna vertical, EUT vertical (Y)

Test Report No.:

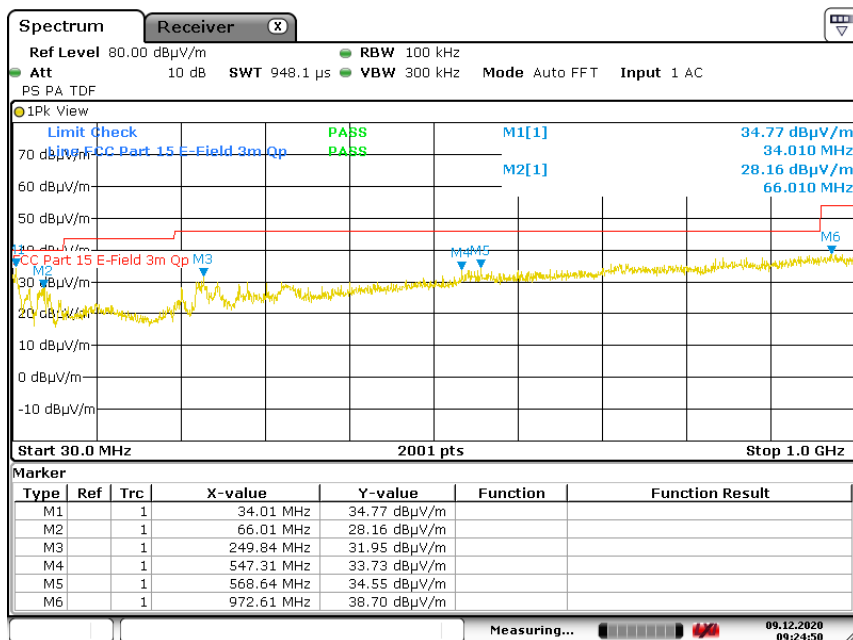
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Date: 9.DEC.2020 09:16:59

Pre-scan Plot of the emissions in the range 30 – 1000 MHz (Peak detector values shown),
Test Antenna Vertical, EUT horizontal (Y)



Date: 9.DEC.2020 09:24:50

Pre-scan Plot of the emissions in the range 30 – 1000 MHz (Peak detector values shown),
Test Antenna Vertical, EUT (z)

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2 AC Power Line Conducted Measurements

RESULT: Pass.

Tested by:

R. van der Meer

Date of testing:

2020-11-20

Requirements: for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency of Emission (MHz)	Conducted Limit (dB μ V) Quasi-Peak	Conducted Limit (dB μ V) Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 - 30	46	50

*Decreases with the logarithm of the frequency.

Test procedure:

ANSI C63.10-2013.

Each phase and neutral of the AC power line were measured with respect to ground. Measurements were performed using a 50 μ H / 50 Ω LISN. The frequency range from 150kHz to 30MHz was searched. The six highest EUT emissions relative to the limit were noted. The EUT was positioned at least 80cm from the LISN.

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2.1.1 AC Power Line Conducted Emission of Transmitter

Results and limits Neutral						
Frequency (MHz)	Quasi peak detector			Average detector		
	Result	Limit	Margin	Result	Limit	Margin
0.16	44.5	65.5	21.0	24.7	55.5	30.8
0.38	35.0	58.3	23.3	23.8	48.3	24.5
0.40	37.1	57.8	20.7	29.5	47.8	18.3
0.43	32.1	57.3	25.1	22.6	47.3	24.7
0.48	30.9	56.3	25.4	22.5	46.3	23.9
11.31	34.7	60.0	25.4	30.1	50.0	20.0

Results and limits L1						
Frequency (MHz)	Quasi peak detector			Average detector		
	Result	Limit	Margin	Result	Limit	Margin
0.16	45.3	65.5	20.2	28.2	55.5	27.2
0.38	32.4	58.3	25.9	20.5	48.3	27.8
0.40	39.1	57.8	18.7	33.0	47.8	14.8
0.43	33.3	57.3	24.0	22.8	47.3	24.5
1.09	30.0	56.0	26.0	23.1	46.0	22.9
11.31	36.7	60.0	23.3	32.0	50.0	18.0

The results of the AC power line conducted emission tests, carried out in accordance with 47 CFR Part 15 section 15.207(a) and RSS-Gen section 8.8, at the 120 Volts/ 60 Hz AC mains connection terminals of AUX5, are depicted in the table above.

Notes:

1. The resolution bandwidth used was 9 kHz.
2. From pre-test the worst case configuration proved to be mode wherein the EUT was scanning a tag. Worst case values noted.
3. Qp values already within Av limits, therefor Av not tested.
4. Measurement uncertainty is +/- 3.5 dB.
5. Plots are provided on the next pages.

2.1.2 Test equipment used (for reference see test equipment listing).

2788823	2788794	2789421	2789207	2789211	2790478 / 2789158	
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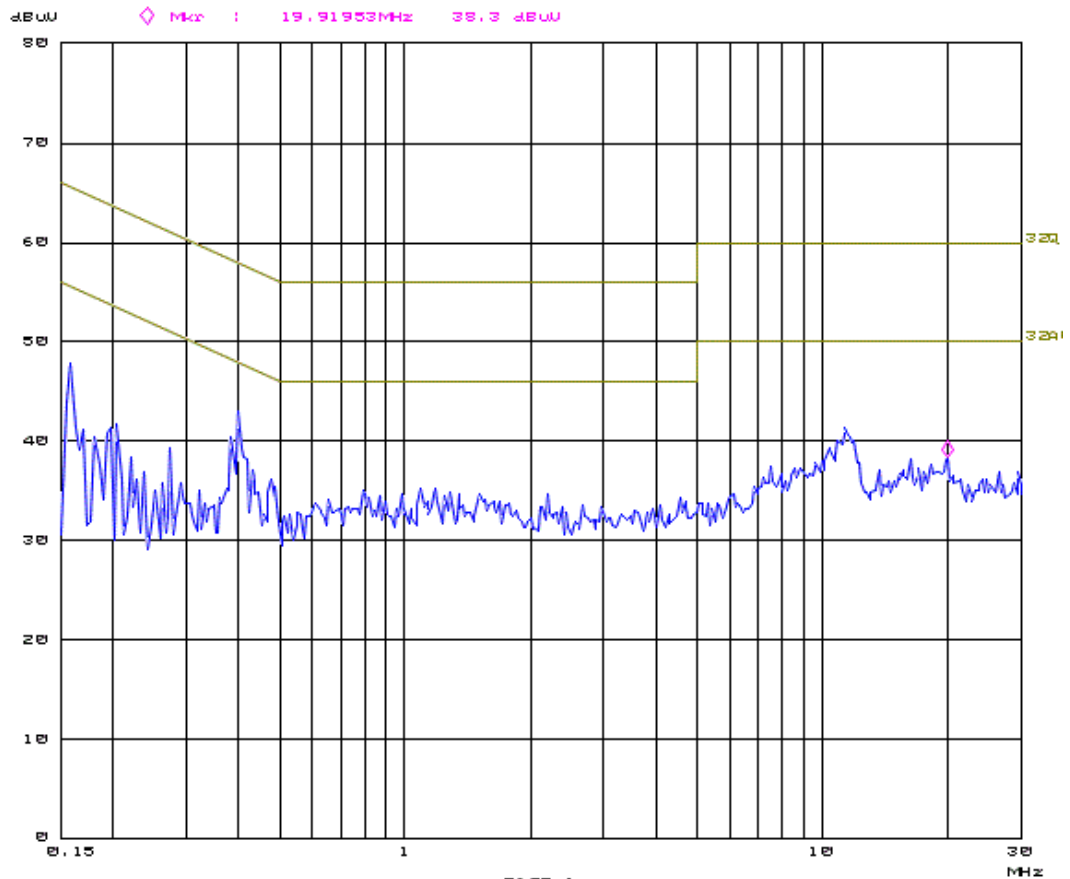
Plots of the AC Power-line Conducted Emissions

7 GHI

12. Nov 20 14:14

Overview Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	3.9k	9k	PK	0.10ms	20dB LN	OFF



Pre-scan plot with peak detector of the AC Power-line Conducted emissions
Max hold of L1 and N

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End of report