Radio Test Report

Basetime BV
Locator One

47 CFR Part 15.255 Effective Date 1st October 2022
DXX: Part 15 Low Power Communication Device Transmitter
Test Date: 6th December 2023 to 12th December 2023
Report Number: 12-14198-8-23 Issue 01

The testing was carried out by RN Electronics Ltd, an independent test house, at their test facility located at:

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Certificate of Test 14198-8

The equipment noted below has been partially tested and, where appropriate, conforms to the relevant subpart of 47 CFR Part 15C. This is a certificate of test only and should not be confused with an equipment authorisation. Other standards may also apply.

Equipment:	Locator One
Model Number:	Not declared
Unique Serial Number:	03-FD
Applicant:	Basetime BV Lichtschip 75A Houten Netherlands 3991CP
Full measurement results are detailed in Report Number:	12-14198-8-23 Issue 01
Test Standards:	47 CFR Part 15.255 Effective Date 1st October 2022 DXX: Part 15 Low Power Communication Device Transmitter

NOTE:
With reference to the Rule part detailed, not all tests within the Rule part have been applied at the request of the applicant. The following tests have not been performed at the request of Basetime BV:- Frequency stability, 6dB Occupied bandwidth. Certain tests were not performed based upon applicant's declarations. Certain other requirements are subject to applicant's declaration only and have not been tested/verified. For details refer to section 3 of this report.

DEVIATIONS: No deviations were applied.

This certificate relates only to the unit tested as identified by a unique serial number and in the condition at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of unit not meeting the intentions of the standard or the requirements of the Federal Regulations, particularly under different conditions to those during testing. Any compliance statements are made reliant on (a) the application of the product and use of the assigned band being acceptable to the FCC and (b) the modes of operation as instructed to us by the Customer based on their specific knowledge of the application and functionality of the EUT. Statements of compliance, where measurements were made, do not include the measurement uncertainty. The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Date of Test:	6th December 2023 to 12th December 2023
Test Engineer Graham Blake	Graham Blake Digitally signed by: Graham Blake DN: CN = Graham Blake email = graham.blake@kiwa.com C = GB OU = Kiwa Electrical Compliance Date: 2024.04.15 13:15:00 Z
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Customer Representative:	

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2 Equipment under test (EUT)

2.1 Equipment specification

Applicant	Basetime BV Lichtschip 75A Houten Netherlands 3991CP	
Manufacturer of EUT	Basetime BV	
Full Name of EUT	Locator One	
Model Number of EUT	Not declared	
Serial Number of EUT	03-FD	
Date Received	1st December 2023	
Date of Test:	6th December 2023 to 12th December 2023	
Purpose of Test	To demonstrate design compliance to the relevant rules of Chapter 47 of the Code of Federal Regulations.	
Date Report Issued	10th April 2024	
Main Function	This device can be mounted on an object. It can be configured remotely and it can monitor horizontal and vertical movements by taking scheduled GNSS measurements. The GNSS data is sent to a cloud environment for data processing.	
Information Specification	Height	200 mm
	Width	300 mm
	Depth	160 mm
	Weight	2 kg (approx)
	Voltage	4.2 VDC
	Current	Not declared

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2.2 Configurations for testing

General Parameters	
EUT Normal use position	Typically pole mounted
Choice of model(s) for type tests	Sample
Antenna details	Internal Antenna ADFGP.50A
Antenna port	Internal
Baseband Data port (yes/no)?	No
Highest Signal generated in EUT	60.5 GHz
Lowest Signal generated in EUT	32.768 kHz
Hardware Version (HVIN)	V2.2
Software Version	Not applicable
Firmware Version (FVIN)	Not applicable
Type of Equipment	Multi-radio
Technology Type	Field disturbance sensor
Geo-location (yes/no)	Yes
TX Parameters	
Alignment range – transmitter	60.5 GHz (Single UWB frequency)
EUT Declared Modulation Parameters	UWB Radar
EUT Declared Power level	Not declared
EUT Declared Signal Bandwidths	Not declared
EUT Declared Channel Spacing's	Single frequency
EUT Declared Duty Cycle	Not declared
Unmodulated carrier available?	No
Declared frequency stability	Not declared
RX Parameters	
Alignment range – receiver	60.5 GHz (Single UWB frequency)
EUT Declared RX Signal Bandwidth	Not declared
FCC Parameters	
FCC Transmitter Class	DXX: Part 15 Low Power Communication Device Transmitter

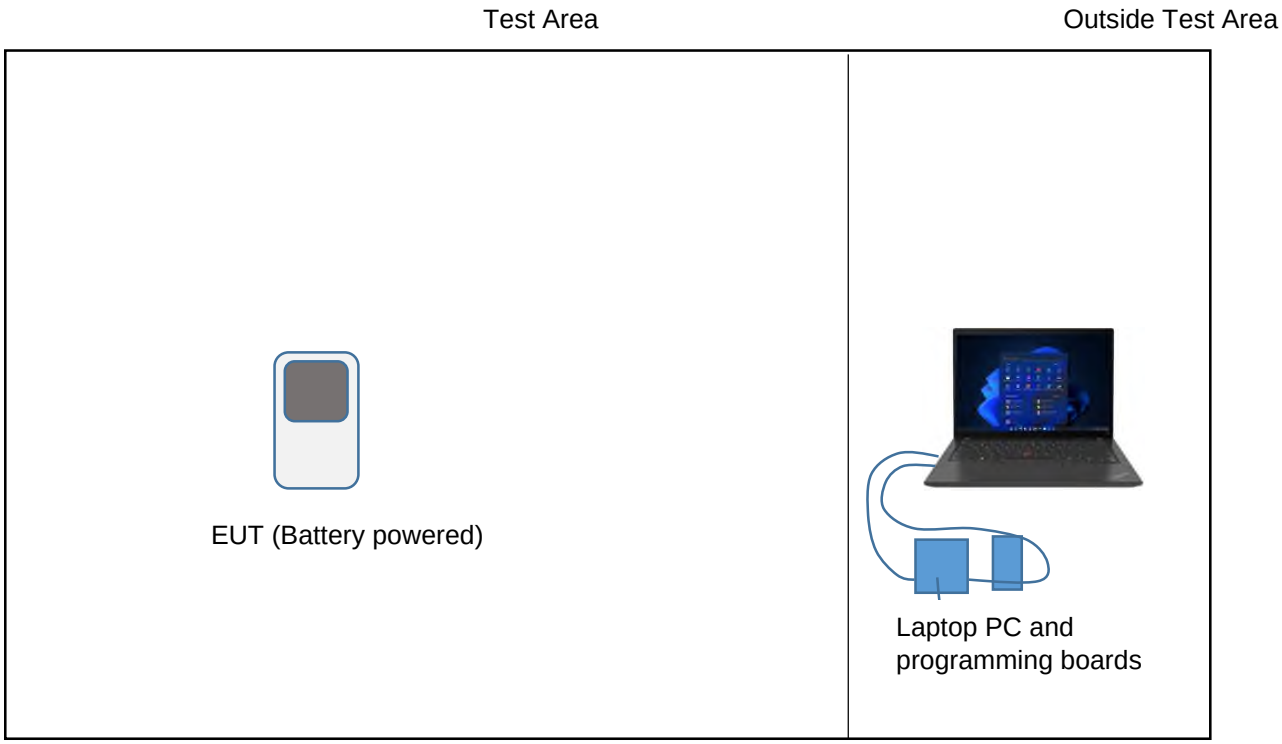
2.3 Functional description

The device can only be configured remotely and works completely autonomously. The device collects GNSS data during pre-scheduled measurements. The data is sent using an LTE-M connection. The EUT incorporates a 60 GHz pulsed RADAR radio operating on a single frequency.

2.4 Modes of operation

Mode Reference	Description	Used for testing
Mode 1	Continuously transmitting pulsed 60 GHz Radar signals at maximum power.	Yes

2.5 Emissions configuration



The unit was powered from its internal battery which was fully charged prior to test. Using the laptop PC and programming interface, the EUT was flashed with the supplied firmware “Settlement_Beacon-v93.0.6-only_radar_ct-f964a0c6.hex”. Once reprogrammed the EUT was restarted. Upon reboot the EUT repeatedly transmitted 60 GHz RADAR pulses in quick succession.

2.5.1 Signal leads

Port Name	Cable Type	Connected
Programming port	12-way connector	No*

*Port only used for programming

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3 Summary of test results

The Locator One was tested for compliance to the following standard:

47 CFR Part 15.255 Effective Date 1st October 2022
DXX: Part 15 Low Power Communication Device Transmitter

Any compliance statements are made reliant on (a) the application of the product and use of the assigned band being acceptable to the FCC and (b) the modes of operation as instructed to us by the Customer based on their specific knowledge of the application and functionality of the EUT. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of equipment not meeting the intentions of the standard or the essential requirements of the directive, particularly under different conditions to those during testing. Statements of compliance, where measurements were made, do not include the measurement uncertainty. The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Title	References	Results
Transmitter Tests		
1. AC power line conducted emissions	47 CFR Part 15C Part 15.207	NOT APPLICABLE[1]
2. Radiated emissions 9 - 150 kHz	47 CFR Part 15C Part 15.209	PASSED
3. Radiated emissions 150 kHz - 30 MHz	47 CFR Part 15C Part 15.209	PASSED
4. Radiated emissions 30 MHz -1 GHz	47 CFR Part 15C Part 15.209 and 15.255(d)(2)	PASSED
5. Radiated emissions 1 - 40 GHz	47 CFR Part 15C Part 15.209 and 15.255(d)(2)	PASSED
6. Radiated emissions 40 - 200 GHz	47 CFR Part 15C Part 15.255(d)(3)	PASSED
7. Peak & Average EIRP	47 CFR Part 15C Part 15.255(c)(3)	PASSED
8. Peak Conducted Power	47 CFR Part 15C Part 15.255(f)	NOT APPLICABLE[2]
9. Frequency stability	47 CFR Part 15C Part 15.255(e)1	NOT TESTED[3]
10. Occupied bandwidth	47 CFR Part 15C Part 15.255(c)(3)/(e)/(2)	NOT TESTED[3]
11. Duty Cycle	47 CFR Part 15C Part 15.255(c)(3)	PASSED

[1] EUT does not operate from the AC power lines nor contain provisions for operation while connected to AC power lines.

[2] No test requirement for field disturbance sensors/radars.

[3] Not tested at request of applicant.

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4 Specifications

The tests were performed and operated in accordance with R.N. Electronics Ltd procedures and the relevant standards listed below.

4.1 Relevant standards

Ref.	Standard Number	Version	Description
4.1.1	47 CFR Part 15C	2022	Federal Communications Commission PART 15 – RADIO FREQUENCY DEVICES
4.1.2	ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
4.1.3	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
4.1.4	KDB 842590 D01 v01	2019	Federal Communications Commission Office of Engineering and Technology Laboratory Division; Basic certification requirements and measurement procedures for Upper Microwave Flexible Use Service (UMFUS) devices

4.2 Deviations

No deviations were applied.

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5 Tests, methods and results

5.1 AC power line conducted emissions

NOT APPLICABLE: EUT does not operate from the AC power lines nor contain provisions for operation while connected to AC power lines.

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5.2 Radiated emissions 9 - 150 kHz

5.2.1 Test methods

Test Requirements:	47 CFR Part 15C Part 15.209 [Reference 4.1.1 of this report]
Test Method:	ANSI C63.10 Clause 6.4 & 6.6 [Reference 4.1.2 of this report]
Limits:	47 CFR Part 15C Part 15.209/15.255(d)(2) [Reference 4.1.1 of this report]

5.2.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a fully charged battery. The EUT was operated in Mode 1.

5.2.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Measurements were made in a semi-anechoic chamber (pre-scan) with any final measurements required performed on an OATS without a ground plane. The antenna was placed 1m above the ground. The equipment was rotated 360 degrees to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated. Tests were performed using Test Site M.

5.2.4 Test equipment

TMS81, ZSW1, E412, E411

See Section 9 for more details

5.2.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	101 kPa

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Plot refs
14198-8 Rad 1 9 - 150 kHz Para
14198-8 Rad 1 9 - 150 kHz Perp

Peak detector “Max held” Analyser plots against the Quasi-Peak / Average limit line(s) can be found in Section 6 of this report.

LIMITS:
15.209 limits are applicable in the restricted bands of 15.205 with the relevant detector.

The general limits of 15.209 are as drawn on the respective plots.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows: 9kHz - 30MHz ±3.9dB

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5.3 Radiated emissions 150 kHz - 30 MHz

5.3.1 Test methods

Test Requirements:	47 CFR Part 15C Part 15.209 [Reference 4.1.1 of this report]
Test Method:	ANSI C63.10 Clause 6.4 & 6.6 [Reference 4.1.2 of this report]
Limits:	47 CFR Part 15C Part 15.209/15.255(d)(2) [Reference 4.1.1 of this report]

5.3.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a fully charged battery. The EUT was operated in Mode 1.

5.3.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Measurements were made in a semi-anechoic chamber (pre-scan) with any final measurements required performed on an OATS without a ground plane. The antenna was placed 1m above the ground. The equipment was rotated 360 degrees to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

Tests were performed using Test Site M.

5.3.4 Test equipment

TMS81, ZSW1, E412, E411

See Section 9 for more details

5.3.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	101 kPa

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Plot refs
14198-8 Rad 1 150k-30MHz Para
14198-8 Rad 1 150k-30MHz Perp

Peak detector “Max held” Analyser plots against the Quasi-Peak / Average limit line(s) can be found in Section 6 of this report.

LIMITS:
15.209 limits are applicable in the restricted bands of 15.205 with the relevant detector.
The general limits of 15.209 are as drawn on the respective plots.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
9kHz - 30MHz ±3.9dB

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5.4 Radiated emissions 30 MHz -1 GHz

5.4.1 Test methods

Test Requirements:	47 CFR Part 15C Part 15.255(d)(2) [Reference 4.1.1 of this report]
Test Method:	ANSI C63.10 Clause 6.3 & 6.5 [Reference 4.1.2 of this report]
Limits:	47 CFR Part 15C Part 15.255(d)(2) [Reference 4.1.1 of this report]

5.4.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a fully charged battery. The EUT was operated in Mode 1.

5.4.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment listed below.

Measurements were made on a site listed with the FCC. The equipment was rotated 360 degrees and the antenna scanned 1 – 4 metres in both horizontal and vertical polarisations to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

Tests were performed using Test Site B and M.

5.4.4 Test equipment

LPE364, E743, NSA-M, ZSW1, E412, E411

See Section 9 for more details

5.4.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	101 kPa

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Plot refs
14198-8 Rad 1 VHF Horiz
14198-8 Rad 1 VHF Vert
14198-8 Rad 1 UHF Horiz
14198-8 Rad 1 UHF Vert

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Table of signals measured for Rad 1 Horizontal Signal List

Signal No.	Freq (MHz)	Peak Amp (dBuV/m)	QP Amp (dBuV/m)	QP -Lim (dB)
1	154.938	25.9	19.4	-24.1
2	232.281	30.8	26.4	-19.6

Table of signals measured for Rad 1 Vertical Signal List

Signal No.	Freq (MHz)	Peak Amp (dBuV/m)	QP Amp (dBuV/m)	QP -Lim (dB)
1	109.999	26.8	20.1	-23.4
2	115.200	26.3	20.4	-23.1

Peak detector “Max held” Analyser plots against the Quasi-Peak / Average limit line(s) can be found in Section 6 of this report.

LIMITS:
15.209 limits are applicable in the restricted bands of 15.205 with the relevant detector.

The general limits of 15.209 are as drawn on the respective plots.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:

30MHz - 1000MHz ±6.1dB

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5.5 Radiated emissions 1 - 40 GHz

5.5.1 Test methods

Test Requirements:	47 CFR Part 15C Part 15.255(d)(2) [Reference 4.1.1 of this report]
Test Method:	ANSI C63.10 Clause 6.3 & 6.6 & 9.8 [Reference 4.1.2 of this report]
Limits:	47 CFR Part 15C Part 15.255(d)(2) [Reference 4.1.1 of this report]

5.5.2 Configuration of EUT

The EUT was placed on a 1.5 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at distances stated in the procedure. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a fully charged battery. The EUT was operated in Mode 1.

5.5.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment listed below.

Measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. Horn antennas were used at heights where the whole of the EUT was contained within the main beam, and emissions maximised. The EUT was rotated through 360 degrees to record the worst case emissions. A measurement distance of 3m was used between the frequency range 1 - 6GHz, 1.2m was used in the frequency range 6 - 18GHz, 0.3m was used in the frequency range 18 - 40GHz.
At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

Tests were performed using test Site B and M.

5.5.4 Test equipment

E136, E296-2, E330, E411, E412, E651, E902, E904, E932, F362, TMS78, TMS79, TMS82

See Section 9 for more details

5.5.5 Test results

Temperature of test environment	20°C
Humidity of test environment	60%
Pressure of test environment	101kPa

Setup Table

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Spurious Frequency (MHz)	Measured Peak Level (dBµV/m)	Difference to Peak Limit (dB)	Measured Average Level (dBµV/m)	Difference to Average Limit (dB)	EUT Polarisation	Antenna Polarisation
No emissions within 20 dB of the limits were observed						

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Plots
14198-8 Rad 1 1-2GHz Horiz
14198-8 Rad 1 1-2GHz Vert
14198-8 Rad 1 2-5GHz Horiz
14198-8 Rad 1 2-5GHz Vert
14198-8 Rad 1 5-6GHz Horiz
14198-8 Rad 1 5-6GHz Vert
14198-8 Rad 1 6upto10GHz Horiz
14198-8 Rad 1 6upto10GHz Vert
14198-8 Rad 1 10upto12_5GHz Horiz
14198-8 Rad 1 10upto12_5GHz Vert
TX Radiated Emissions 12.5 - 15 GHz Horiz
TX Radiated Emissions 12.5 - 15 GHz Vert
TX Radiated Emissions 15 - 18 GHz Horiz
TX Radiated Emissions 15 - 18 GHz Vert
TX Radiated Emissions 18 - 22 GHz Horiz
TX Radiated Emissions 18 - 22 GHz Vert
TX Radiated Emissions 22 - 26.5 GHz Horiz
TX Radiated Emissions 22 - 26.5 GHz Vert
TX Radiated Emissions 26.5 - 30 GHz Horiz
TX Radiated Emissions 26.5 - 30 GHz Vert
TX Radiated Emissions 30 - 35 GHz Horiz
TX Radiated Emissions 30 - 35 GHz Vert
TX Radiated Emissions 35 - 40 GHz Horiz
TX Radiated Emissions 35 - 40 GHz Vert

Peak detector “Max held” Analyser plots against the Average limit line can be found in Section 6 of this report.

LIMITS:
15.209 limits are applicable in the restricted bands of 15.205 with the relevant detector.
The general limits of 15.209 are as drawn on the respective plots.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:

1 – 18 GHz ±3.5dB, 18 – 26.5 GHz ±3.9dB, 26.5 – 40 GHz ±3.9dB

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5.6 Radiated emissions 40 - 200 GHz

5.6.1 Test methods

Test Requirements: 47 CFR Part 15C Part 15.255(d)(3) [Reference 4.1.1 of this report]
Test Method: ANSI C63.10 Clause 6.3 & 6.6 & 9.8 [Reference 4.1.2 of this report]
Limits: 47 CFR Part 15C Part 15.255(d)(3) [Reference 4.1.1 of this report]

5.6.2 Configuration of EUT

The EUT was placed on a 1.5 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at distances stated in the procedure. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a fully charged battery.

The EUT was operated in Mode 1.

5.6.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment listed below.

Measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. Horn antennas were used at heights where the EUT was contained within the main beam and emissions maximised, or where this was not possible due to the size of the EUT versus antenna beamwidth, height and lateral scanning of the EUT to maximise emissions was performed. The EUT was rotated through 360 degrees to record any worst case emissions. A measurement distance of 0.3m was used in the frequency range 40 - 75GHz, 0.1m was used in the frequency range 75-110GHz and 0.1/0.03m was used in the frequency range 110-200 GHz.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

Tests were performed using test Site B.

5.6.4 Test equipment

E296-4, E296-5, E520, E580, E717, E718, E719, E720, E722, E755, E760, E941, H070

See Section 9 for more details

5.6.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	101kPa

Setup Table

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Spurious Frequency (MHz)	Measured Peak Level (dBµV/m)	Difference to Peak Limit (dB)	Measured Average Level (dBµV/m)	Difference to Average Limit (dB)	EUT Polarisation	Antenna Polarisation
No emissions within 20 dB of the limits were observed						

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Plots
TX Radiated Emissions 40 – 45 GHz Horiz
TX Radiated Emissions 40 – 45 GHz Vert
TX Radiated Emissions 45 – 50 GHz Horiz
TX Radiated Emissions 45 – 50 GHz Vert
TX Radiated Emissions 50 – 55 GHz Horiz
TX Radiated Emissions 50 – 55 GHz Vert
TX Radiated Emissions 55 – 60 GHz Horiz
TX Radiated Emissions 55 – 60 GHz Vert
TX Radiated Emissions 60 – 65 GHz Horiz
TX Radiated Emissions 60 – 65 GHz Vert
TX Radiated Emissions 65 – 70 GHz Horiz
TX Radiated Emissions 65 – 70 GHz Vert
TX Radiated Emissions 70 – 75 GHz Horiz
TX Radiated Emissions 70 – 75 GHz Vert
TX Radiated Emissions 75 – 80 GHz Horiz
TX Radiated Emissions 75 – 80 GHz Vert
TX Radiated Emissions 80 – 85 GHz Horiz
TX Radiated Emissions 80 – 85 GHz Vert
TX Radiated Emissions 85 – 90 GHz Horiz
TX Radiated Emissions 85 – 90 GHz Vert
TX Radiated Emissions 90 – 95 GHz Horiz
TX Radiated Emissions 90 – 95 GHz Vert
TX Radiated Emissions 95 – 100 GHz Horiz
TX Radiated Emissions 95 – 100 GHz Vert
TX Radiated Emissions 100 – 110 GHz Horiz
TX Radiated Emissions 100 – 110 GHz Vert
TX Radiated Emissions 110 – 120 GHz Horiz
TX Radiated Emissions 110 – 120 GHz Vert
TX Radiated Emissions 120 – 130 GHz Horiz
TX Radiated Emissions 120 – 130 GHz Vert
TX Radiated Emissions 130 – 140 GHz Horiz
TX Radiated Emissions 130 – 140 GHz Vert
TX Radiated Emissions 140 – 150 GHz Horiz
TX Radiated Emissions 140 – 150 GHz Vert
TX Radiated Emissions 150 – 160 GHz Horiz
TX Radiated Emissions 150 – 160 GHz Vert
TX Radiated Emissions 160 – 170 GHz Horiz
TX Radiated Emissions 160 – 170 GHz Vert
TX Radiated Emissions 170 – 180 GHz Horiz
TX Radiated Emissions 170 – 180 GHz Vert
TX Radiated Emissions 180 – 190 GHz Horiz
TX Radiated Emissions 180 – 190 GHz Vert
TX Radiated Emissions 190 – 200 GHz Horiz
TX Radiated Emissions 190 – 200 GHz Vert

Peak detector “Max held” Analyser plots against the Average limit line can be found in Section 6 of this report.

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LIMITS:
15.255 (d)(3) between 40 GHz and 200 GHz the level of the emissions shall not exceed 90pW/cm^2 at a distance of 3m (85.3 dBuV/m @3m).
The limits are as drawn on the respective plots.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
26.5 – 60 GHz ±3.9dB, 60 – 110 GHz ±4.4dB, 110 – 200 GHz ±5.9dB

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5.7 Peak & Average EIRP

5.7.1 Test methods

Test Requirements:	47 CFR Part 15C Part 15.255©(3) [Reference 4.1.1 of this report]
Test Method:	ANSI C63.10 Clause 9.10 & 9.11 [Reference 4.1.2 of this report]
Limits:	47 CFR Part 15C Part 15.255©(3) [Reference 4.1.1 of this report]

5.7.2 Configuration of EUT

The EUT was placed on a 1.5 metres high turntable. The EUT antenna was positioned and aligned with the measuring antenna. The EUT was measured at a distance of 1 metre. EIRP testing was performed whilst powered from a fully charged battery.

The EUT was operated in Mode 1.

5.7.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment listed below.

Measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. A Horn antenna was used to align with and measure the radiated power from the EUT. A wideband RF detector was used with a digital oscilloscope to measure the Peak and Average power. Voltage measured from the detector was recorded and then substitution performed to determine actual EUT power level in dBm. A measurement distance of 1m was used.

Tests were performed using test Site A.

5.7.4 Test equipment

E433, E503, E602, E627, E658, E768, E839, F045, F139, F305, F379, F024, F042, H078

See Section 9 for more details

5.7.5 Test results

Temperature of test environment	20°C
Humidity of test environment	60%
Pressure of test environment	101kPa

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Chan Freq (GHz)	Meas distance (m)	
60.5	1	
Mod scheme/rate	Pk EIRP result (dBm)	RMS EIRP result (dBm)
Pulsed RADAR	23.5	10.4

Duty cycle correction (for average EIRP)

Maximum pulse length measured	3.64ns
Maximum number of pulses in a 0.3 µs time window	4
Calculated duty cycle in a 0.3 µs time window	4.9%
Duty cycle correction factor	-13.1 dB

Refer to section 6 for duty cycle plots

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LIMITS:
15.255 (c(3) For pulsed field disturbance sensors/radars operating in the 57–64 GHz band that have a maximum pulse duration of 6 ns, the average EIRP shall not exceed 13 dBm and the transmit duty cycle shall not exceed 10% during any 0.3 µs time window. In addition, the average integrated EIRP within the frequency band 61.5–64.0 GHz shall not exceed 5 dBm in any 0.3 µs time window. Peak emissions shall not exceed 20 dB above the maximum permitted average emission limit applicable to the equipment under test. The radar bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
<± 4.6 dB
Duty cycle uncertainty Duty ±0.026%

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5.8 Peak Conducted Power

NOT APPLICABLE: No test requirement for field disturbance sensors/radars

5.9 Frequency stability

NOT TESTED: Not tested at request of applicant.

5.10 Occupied bandwidth

NOT TESTED: Not tested at request of applicant.

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5.11 Duty Cycle

5.11.1 Test methods

Test Requirements:	47 CFR Part 15C Part 15.255©(3) [Reference 4.1.1 of this report]
Test Method:	ANSI C63.10 Clause 9.10 & 9.11 [Reference 4.1.2 of this report]
Limits:	47 CFR Part 15C Part 15.255©(3) [Reference 4.1.1 of this report]

5.11.2 Configuration of EUT

The EUT was placed on a 1.5 metres high turntable. The EUT antenna was positioned and aligned with the measuring antenna. The EUT was measured at a distance of 1 metre.

The EUT was operated in Mode 1.

5.11.3 Test procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment listed below.

Measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. A Horn antenna was used to align with and measure the radiated power from the EUT. A wideband RF detector was used with a digital oscilloscope to measure the Duty Cycle.

Tests were performed using test Site A.

5.11.4 Test equipment

E433, E503, E602, E627, E658, E768, E839, F045, F139, F305, F379, F024, F042, H078

See Section 9 for more details

5.11.5 Test results

Temperature of test environment	20°C
Humidity of test environment	60%
Pressure of test environment	101kPa

Band	57-64 GHz
Power Level	Maximum
Channel Spacing	Single Channel
Mod Scheme	Pulsed Radar
Single channel	60.5 GHz

Maximum pulse length measured	3.64ns
Maximum number of pulses in a 0.3 µs time window	4
Calculated duty cycle in a 0.3 µs time window	4.9%

Refer to section 6 for duty cycle plots

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LIMITS:
15.255 (c(3) For pulsed field disturbance sensors/radars operating in the 57–64 GHz band that have a maximum pulse duration of 6 ns, the average EIRP shall not exceed 13 dBm and the transmit duty cycle shall not exceed 10% during any 0.3 µs time window.

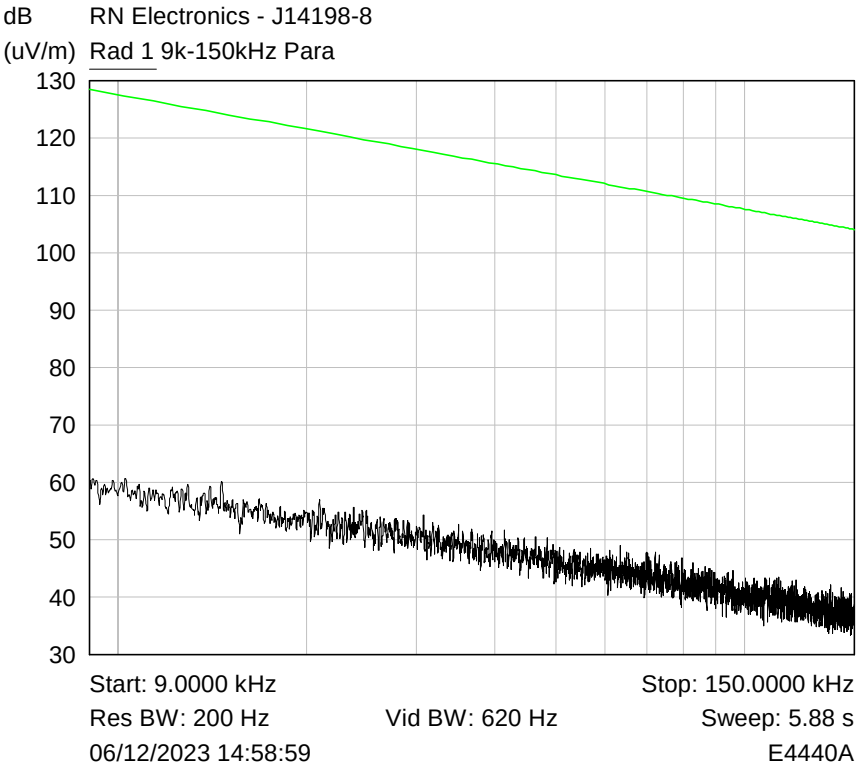
These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
Duty cycle uncertainty Duty ±0.026%

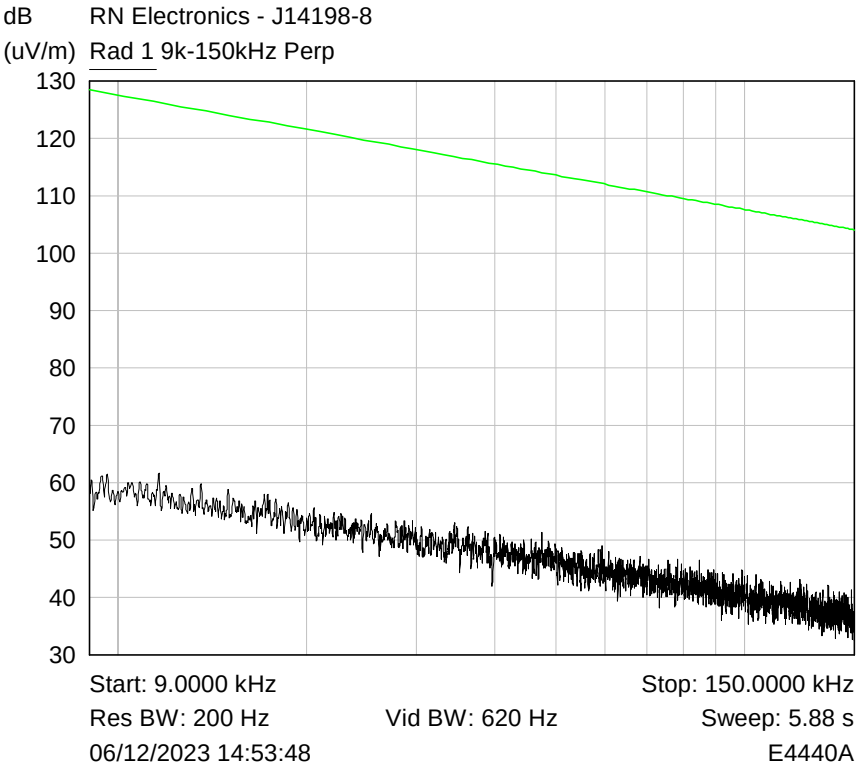
6 Plots/Graphical results

6.1 Radiated emissions 9 – 150 kHz

RF Parameters: Band 57-64 GHz, Power Maximum, Channel Spacing Single Channel, Modulation Pulsed Radar, Channel 60.5 GHz



Plot of 9 – 150 kHz Parallel



Plot of 9 – 150 kHz Perpendicular

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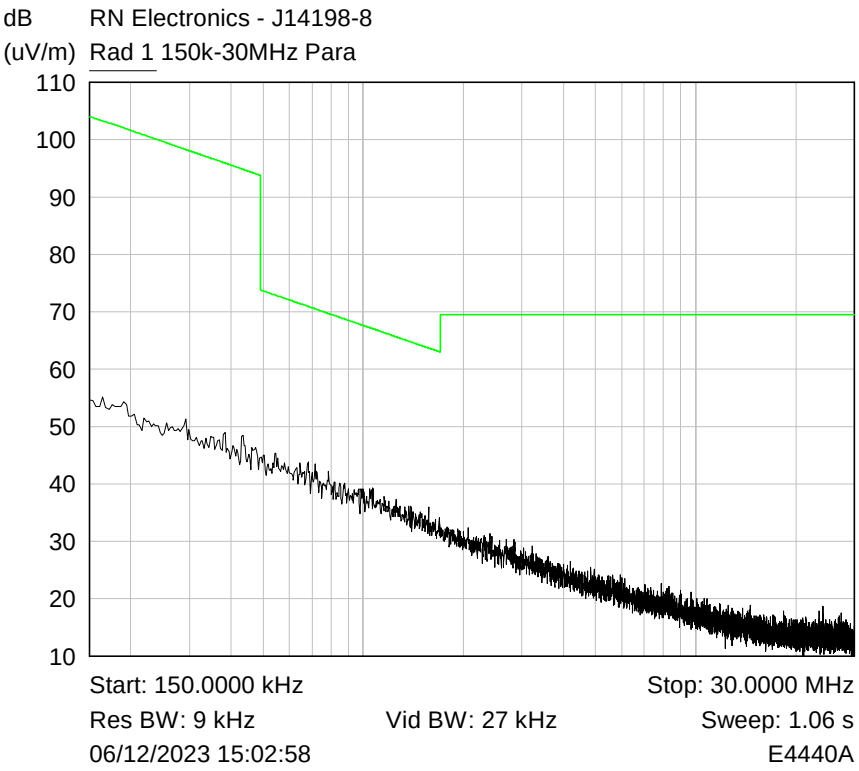
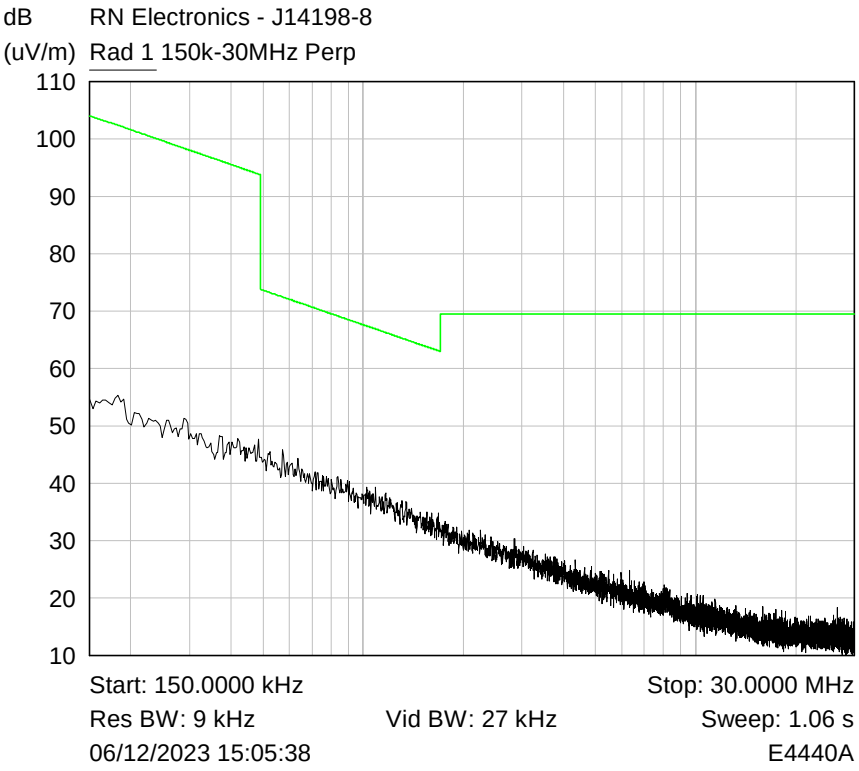
6.2 Radiated emissions 150 kHz – 30 MHz

RF Parameters: Band 57-64 GHz, Power Maximum, Channel Spacing Single Channel, Modulation Pulsed Radar, Channel 60.5 GHz



Plot of 150kHz – 30MHz Parallel



Plot of 150kHz – 30MHz Perpendicular

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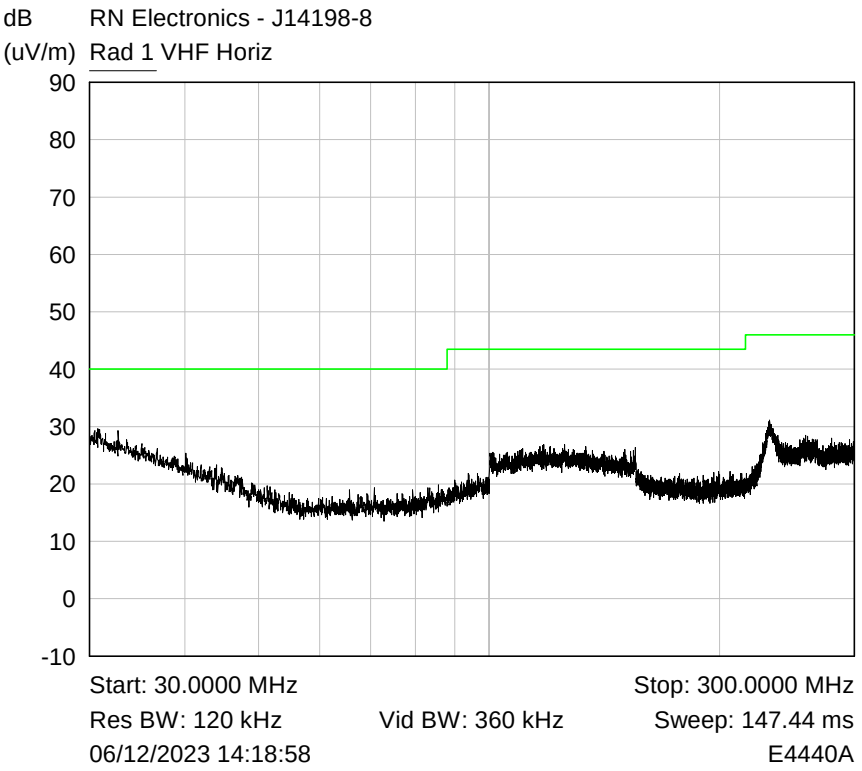
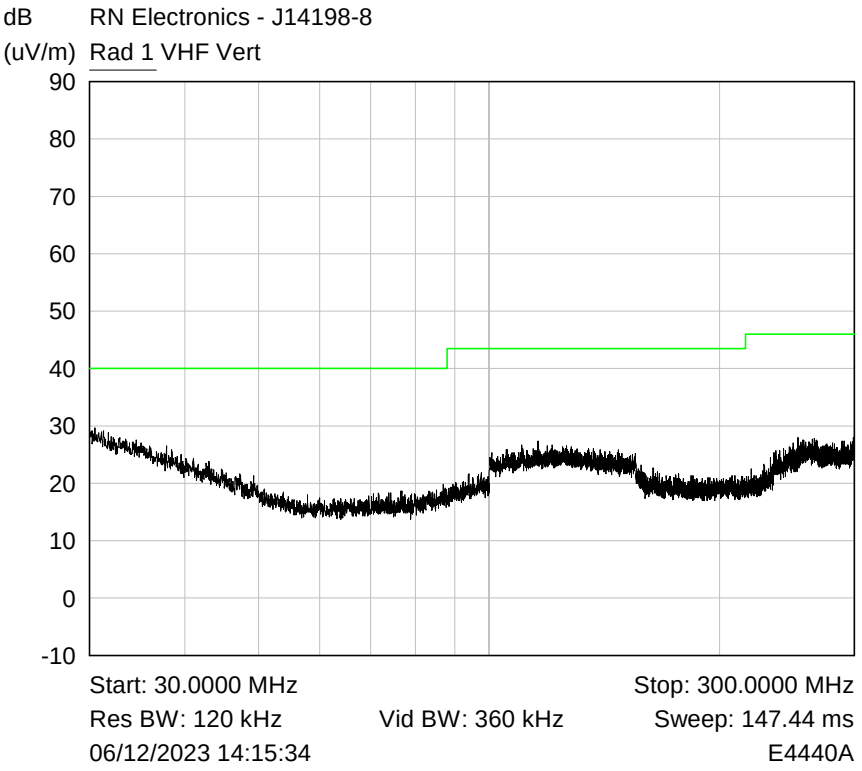
6.3 Radiated emissions 30 MHz -1 GHz

RF Parameters: Band 57-64 GHz, Power Maximum, Channel Spacing Single Channel, Modulation Pulsed Radar, Channel 60.5 GHz



Plot of Peak emissions for VHF Horizontal against the QP limit line.



Plot of Peak emissions for VHF Vertical against the QP limit line.

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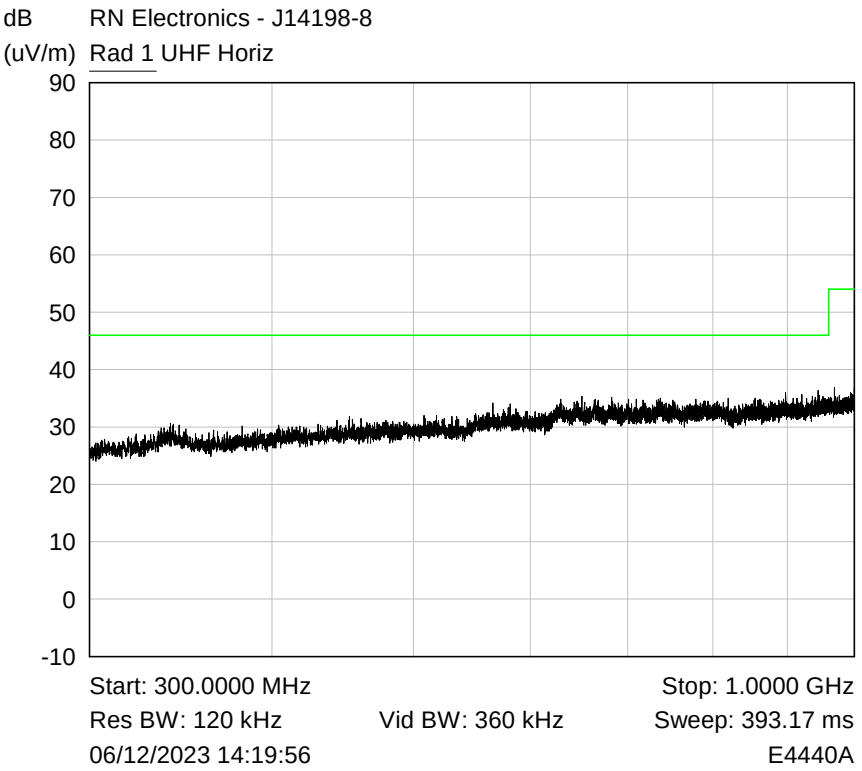
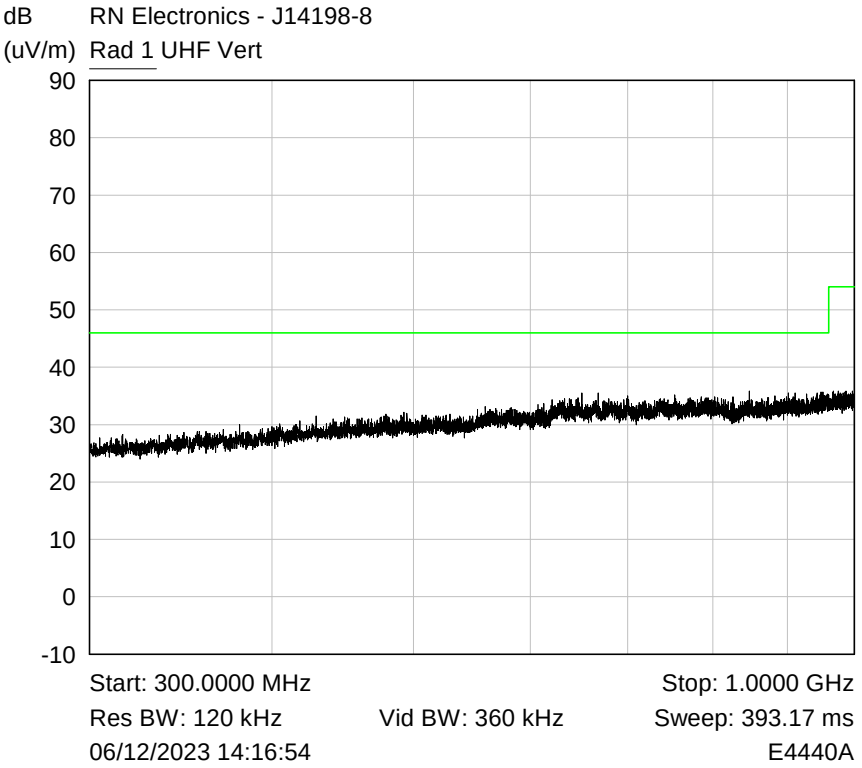


Plot of Peak emissions for UHF Horizontal against the QP limit line.



Plot of Peak emissions for UHF Vertical against the QP limit line.

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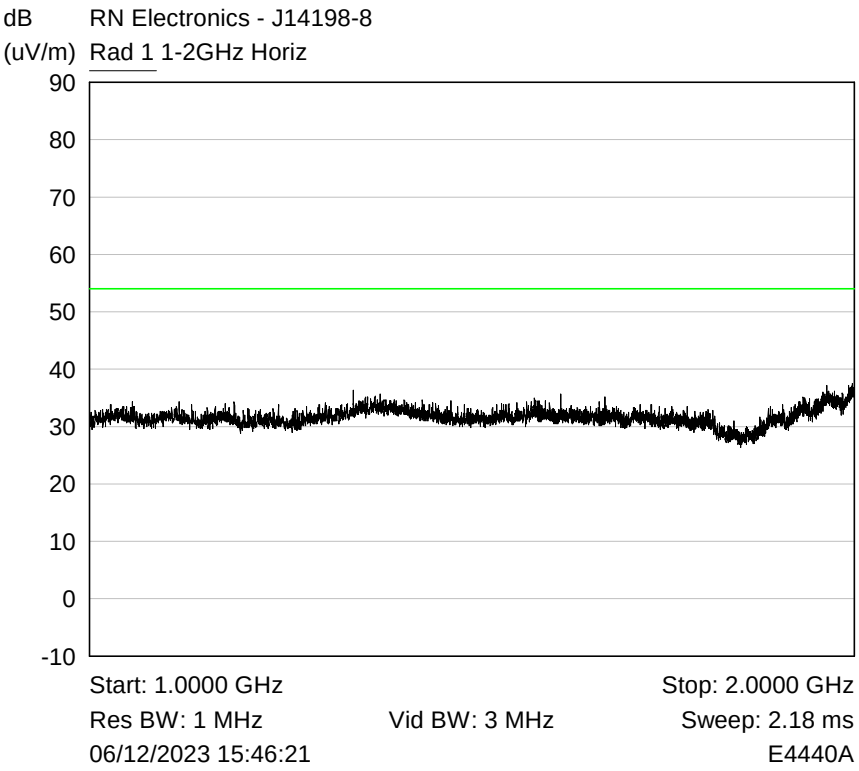
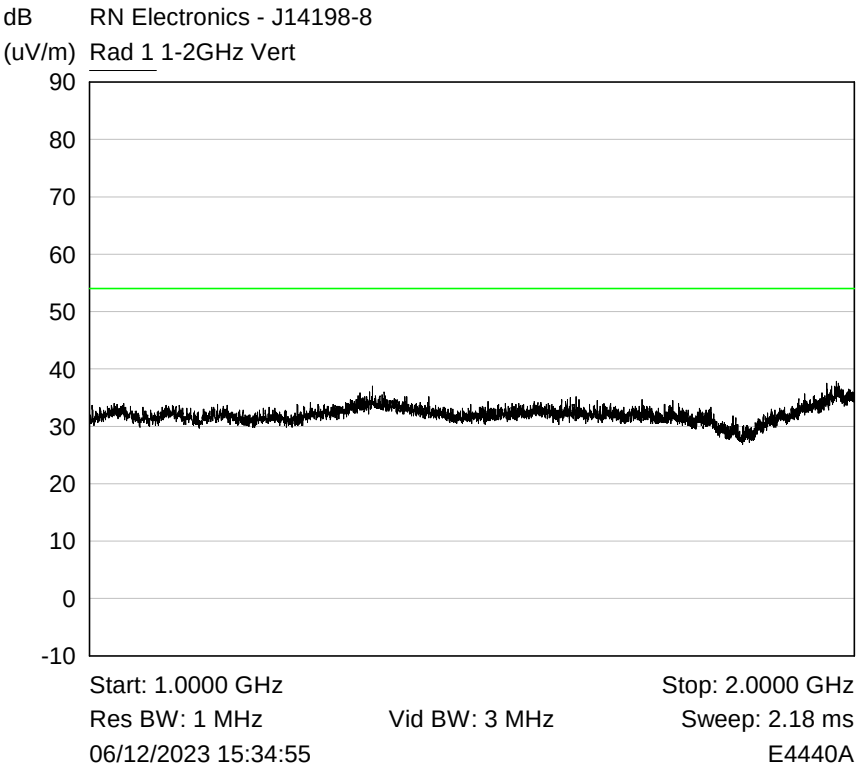
6.4 Radiated emissions 1 – 40 GHz

RF Parameters: Band 57-64 GHz, Power Maximum, Channel Spacing Single Channel, Modulation Pulsed Radar, Channel 60.5 GHz





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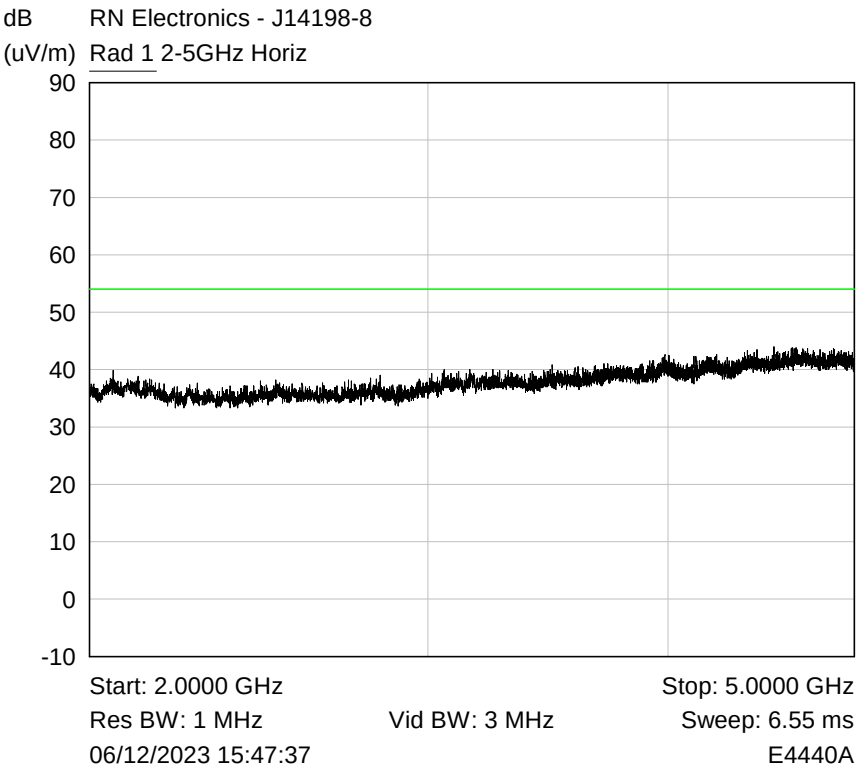

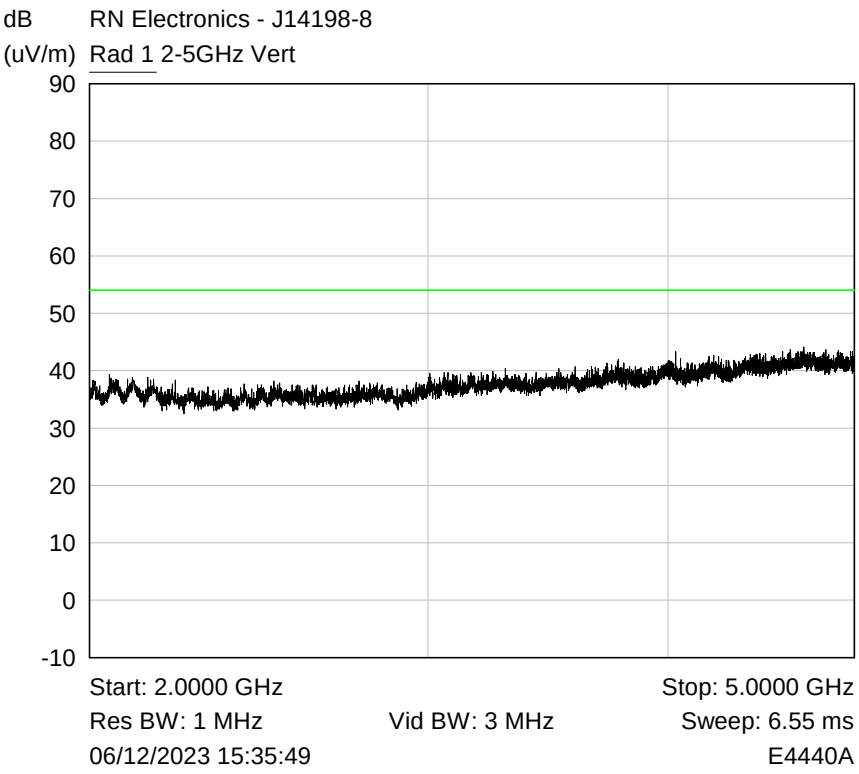

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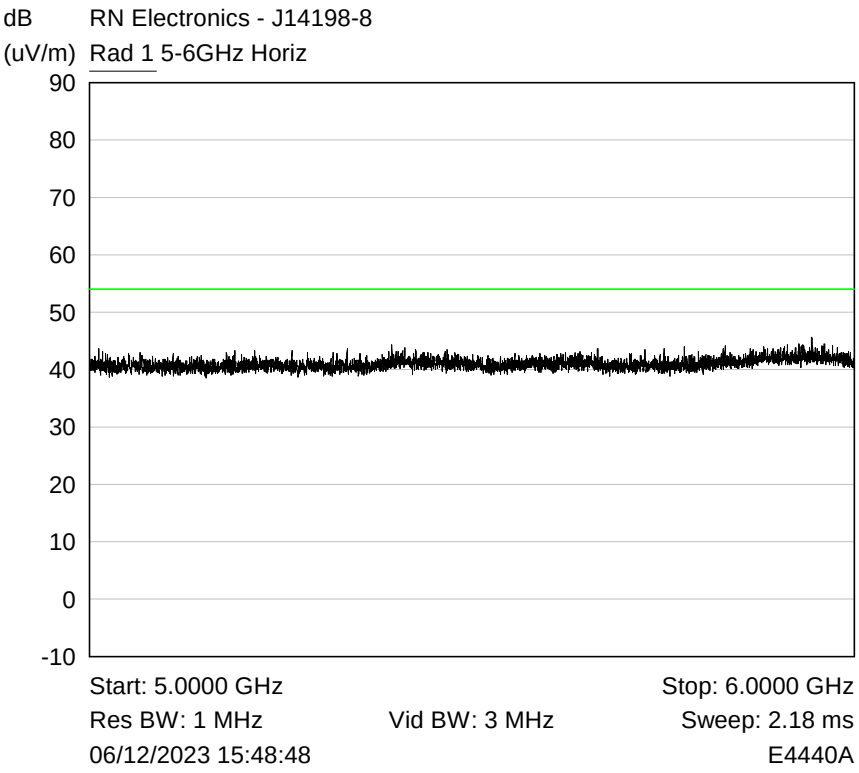

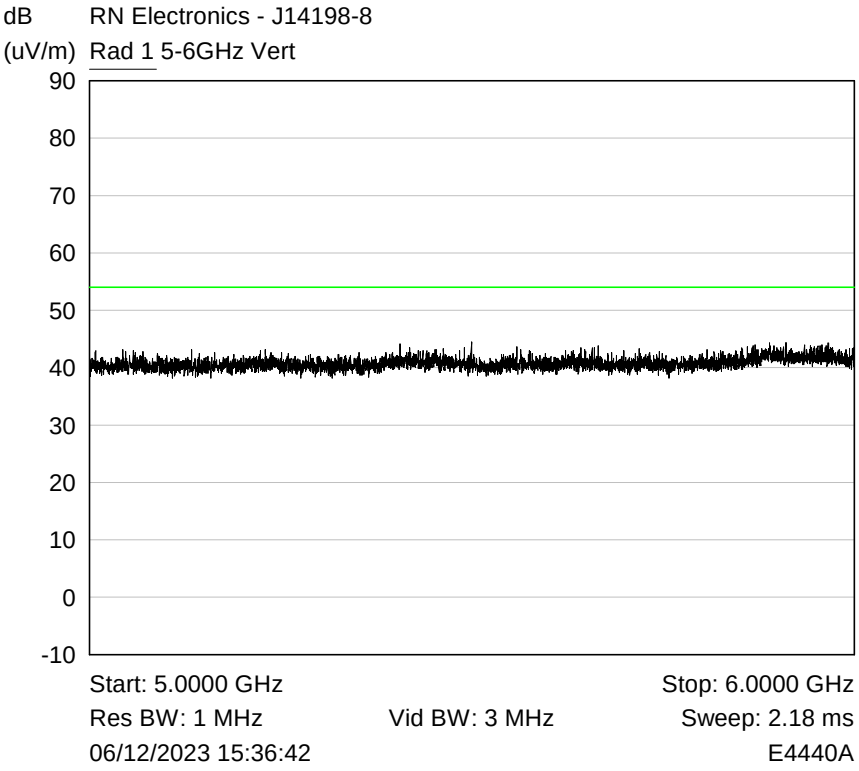

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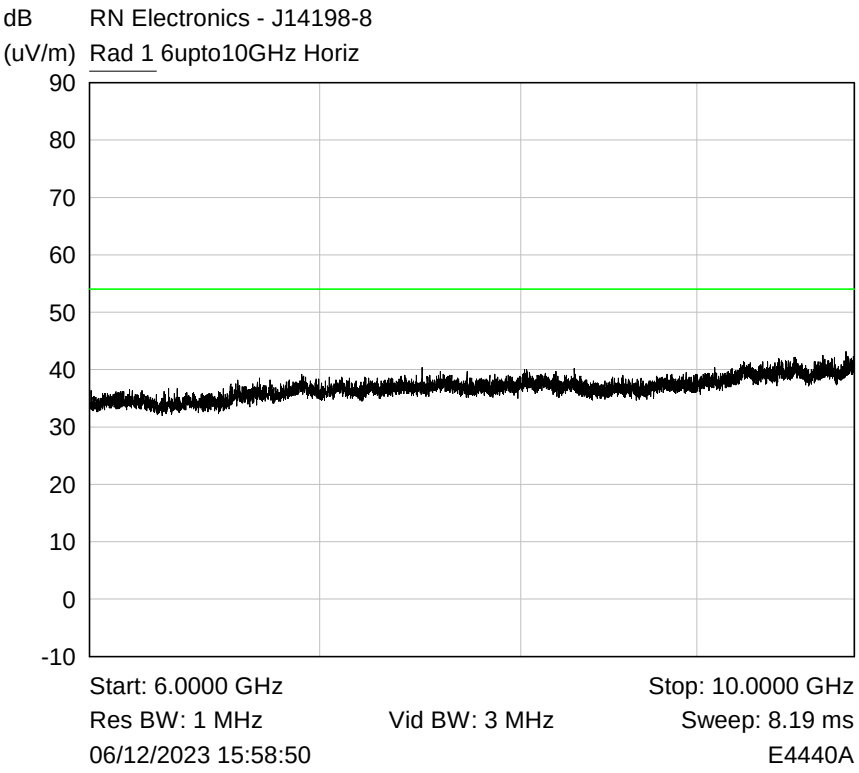

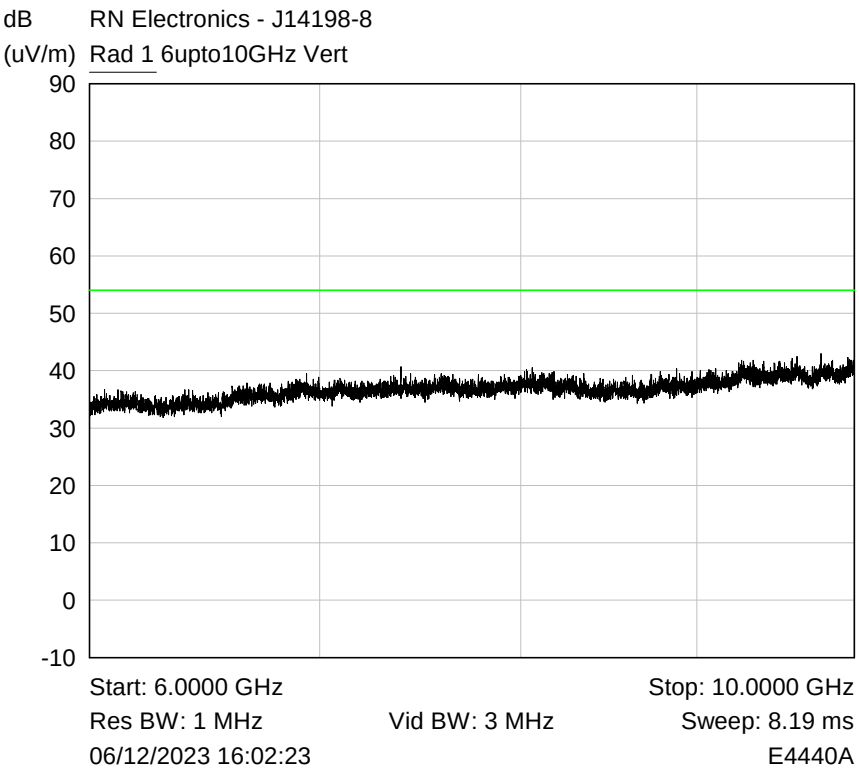

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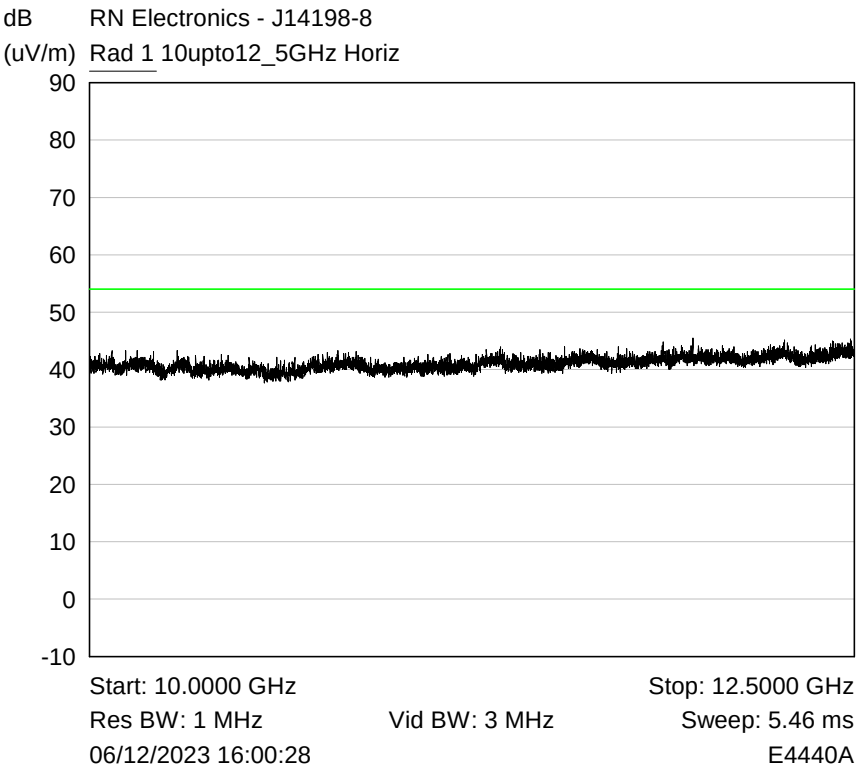

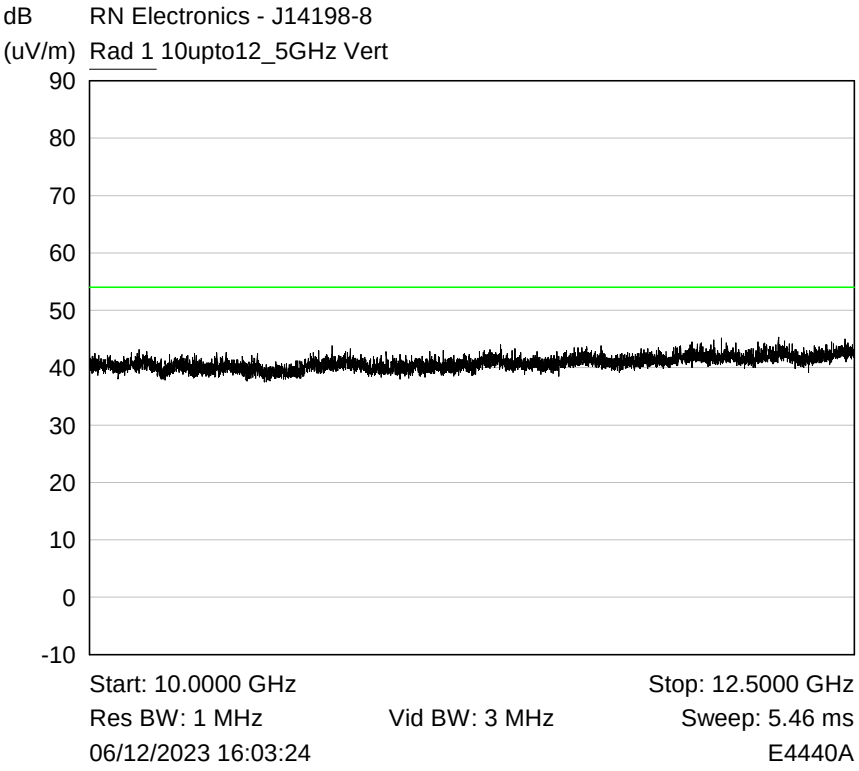

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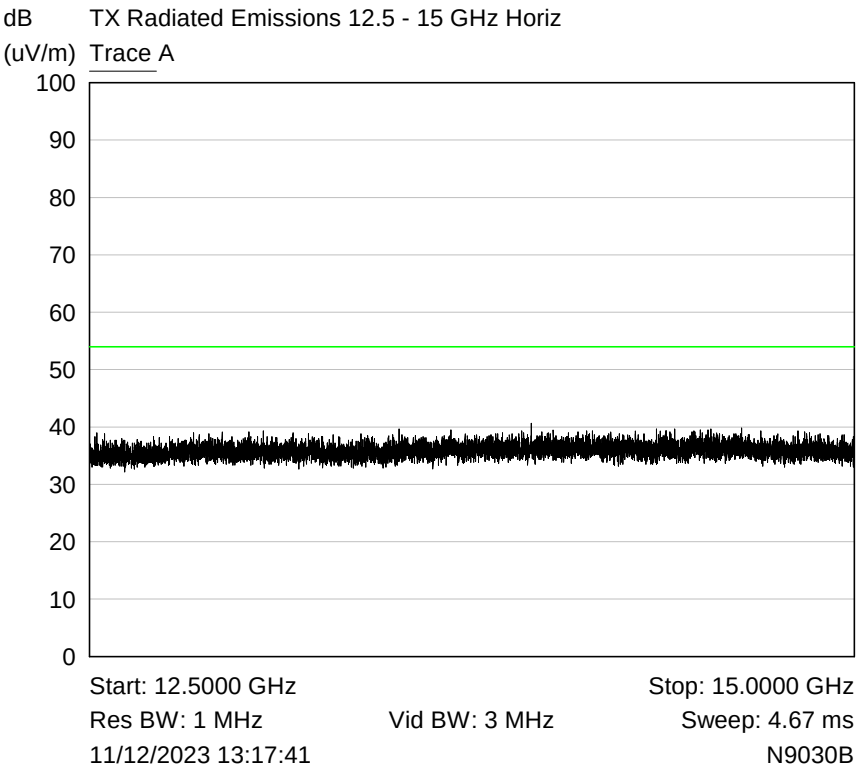

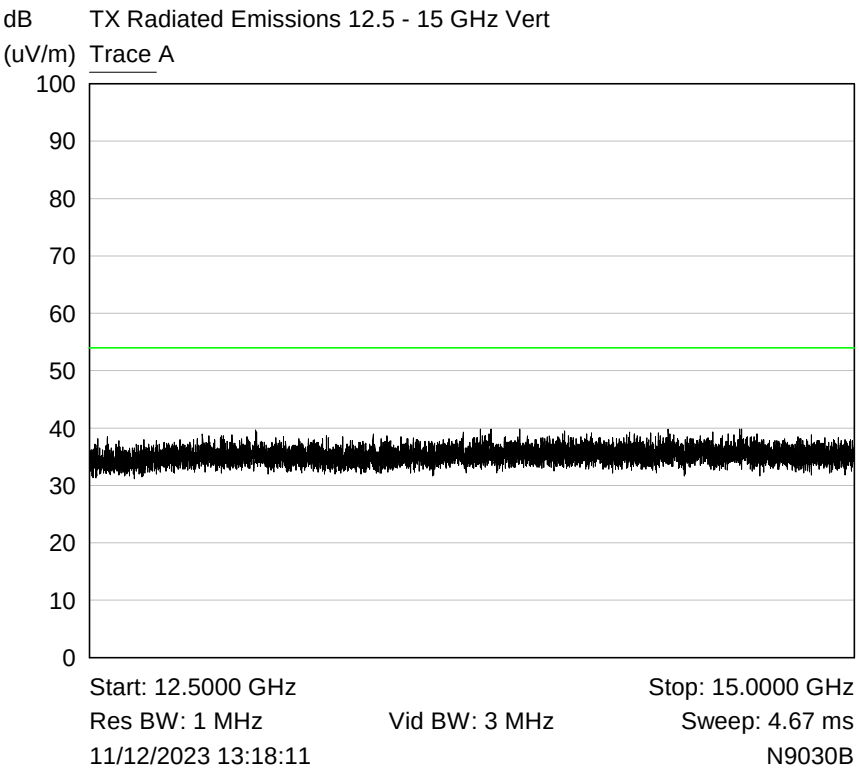

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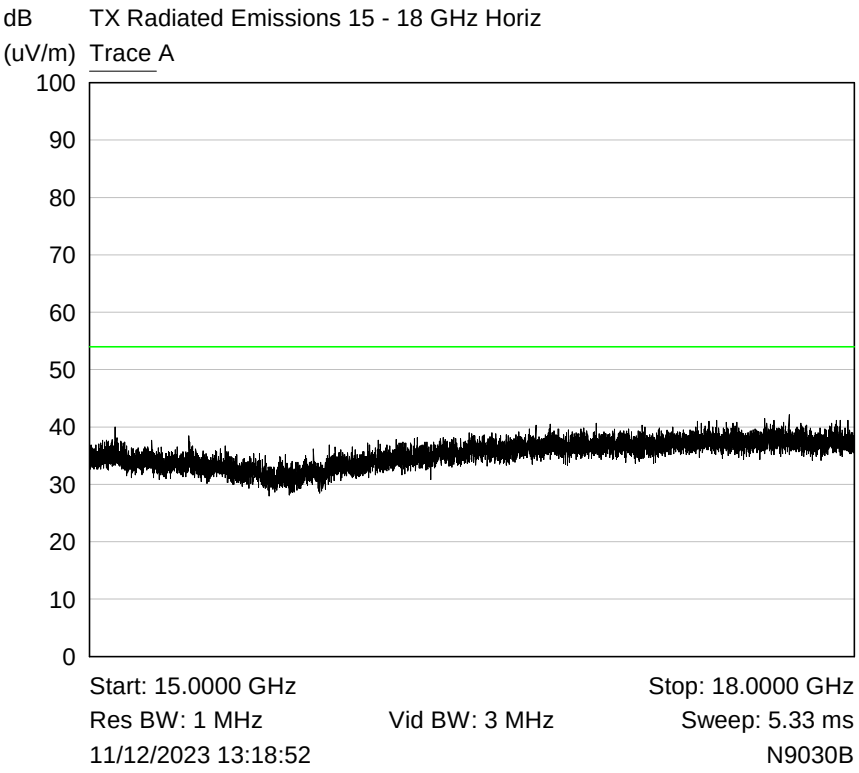

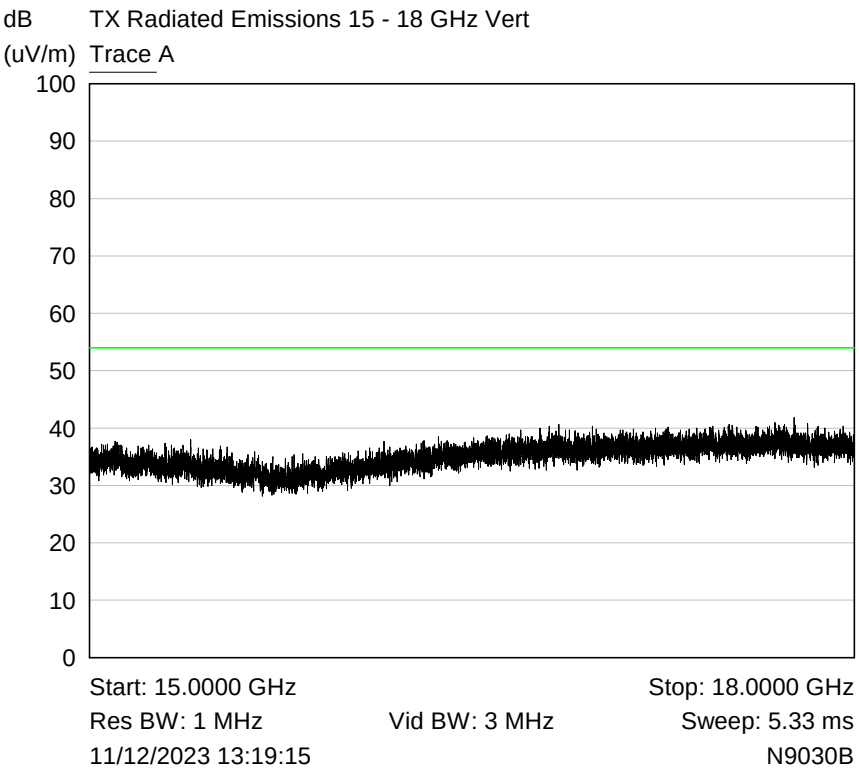

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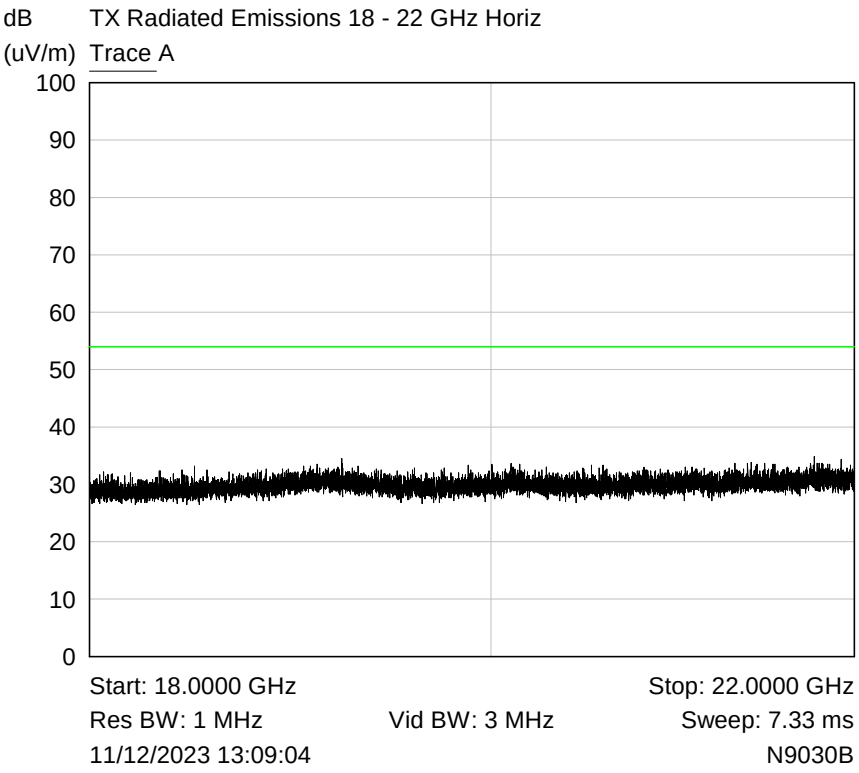

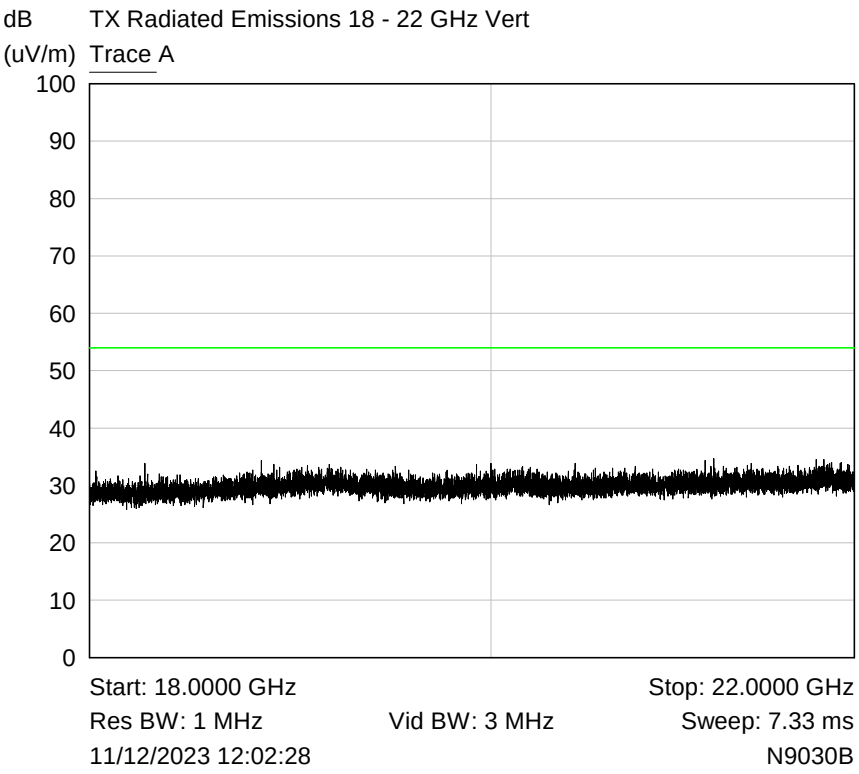

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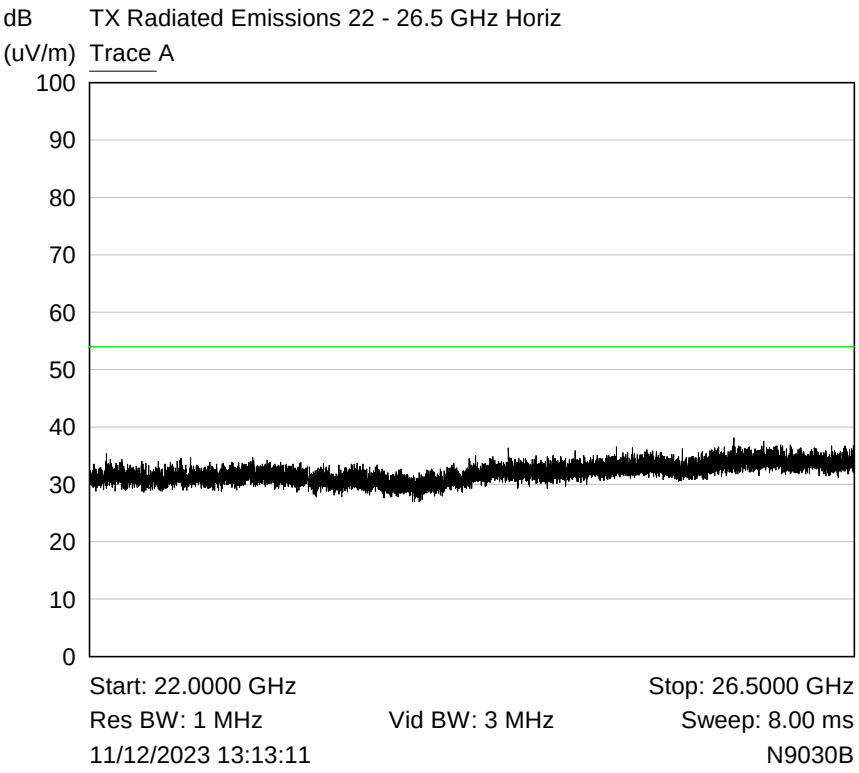

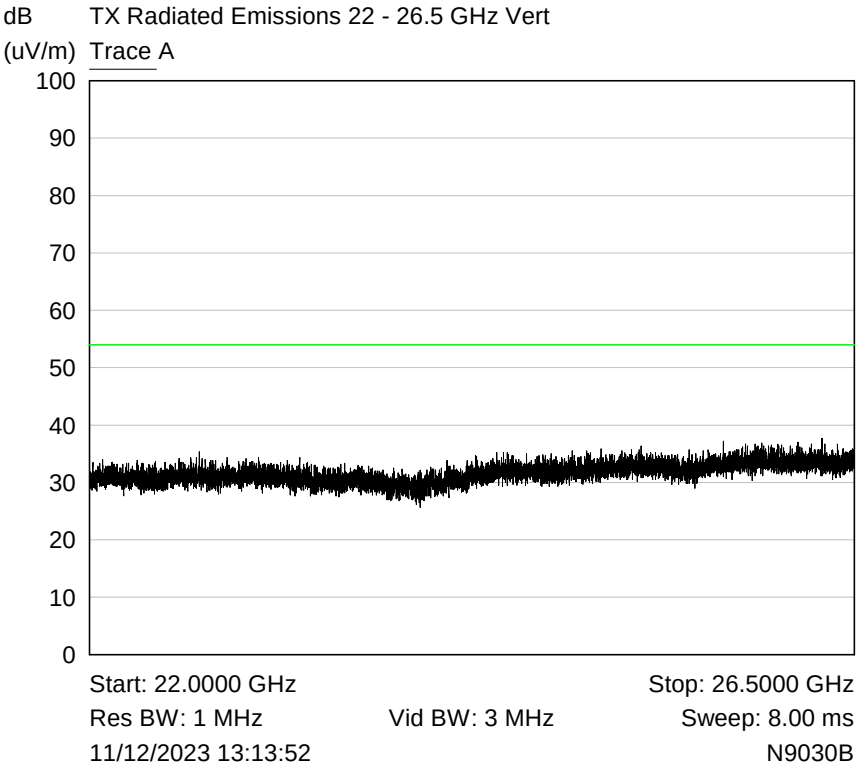

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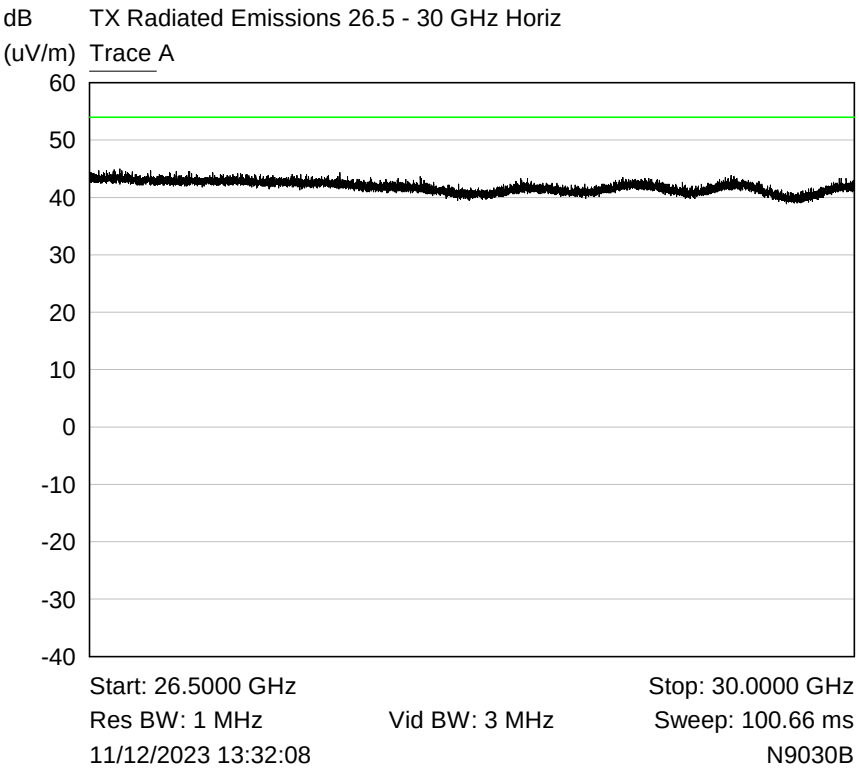

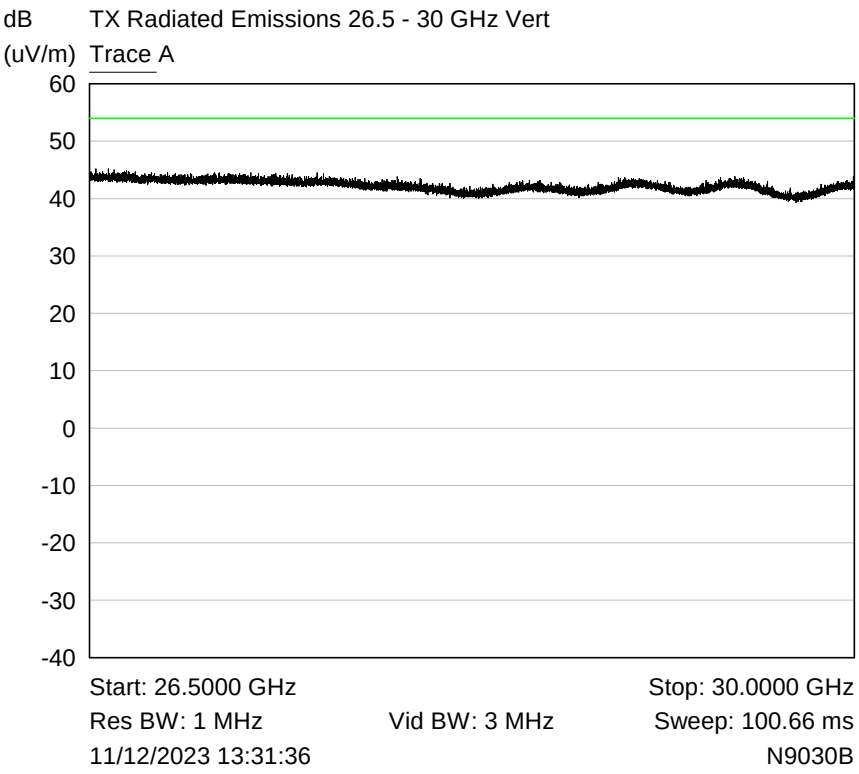

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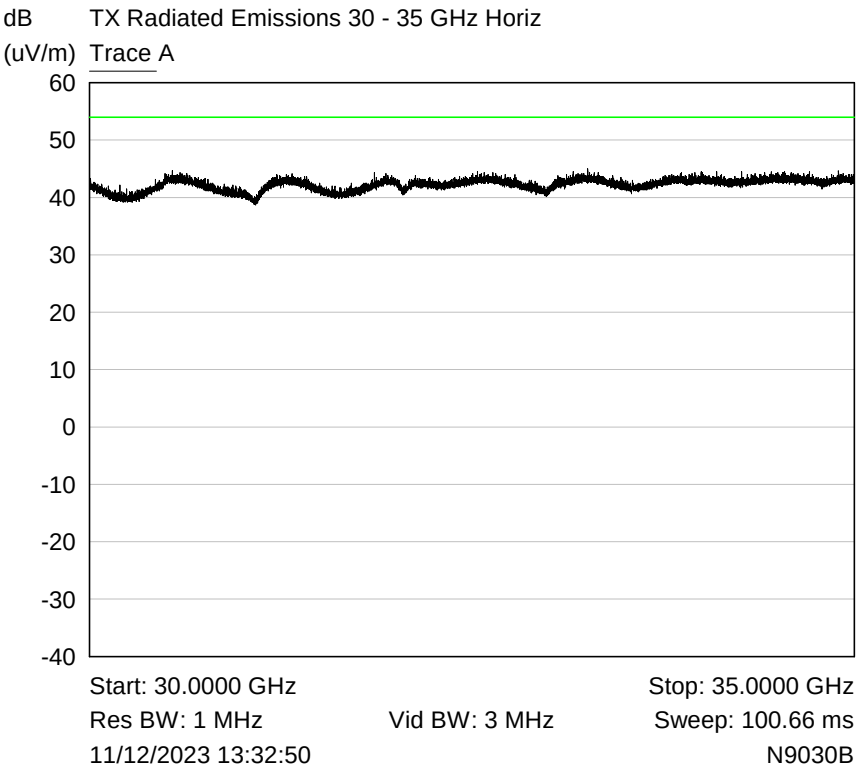

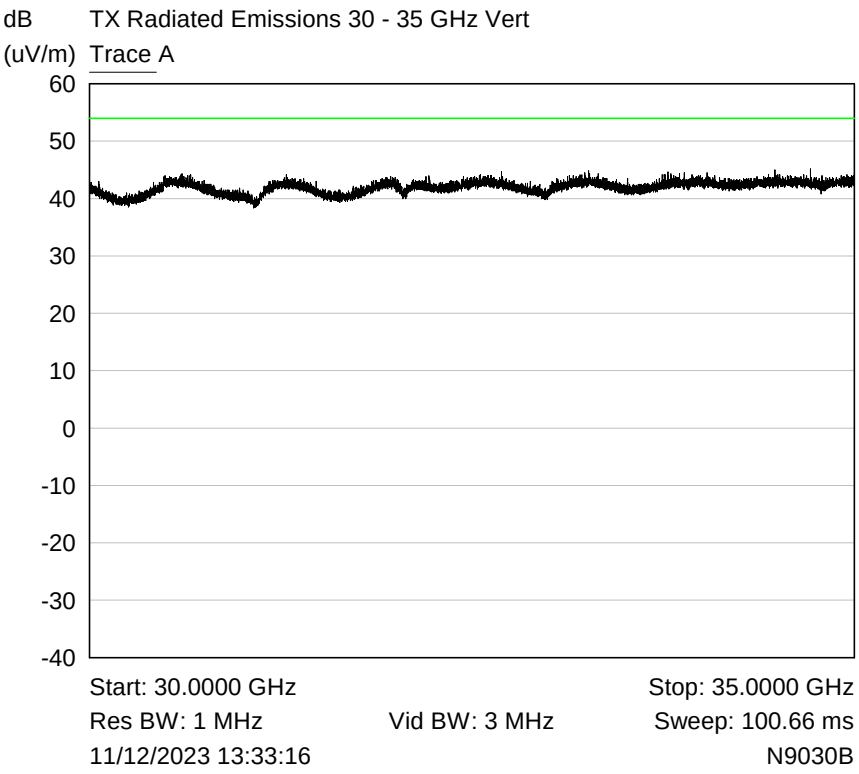

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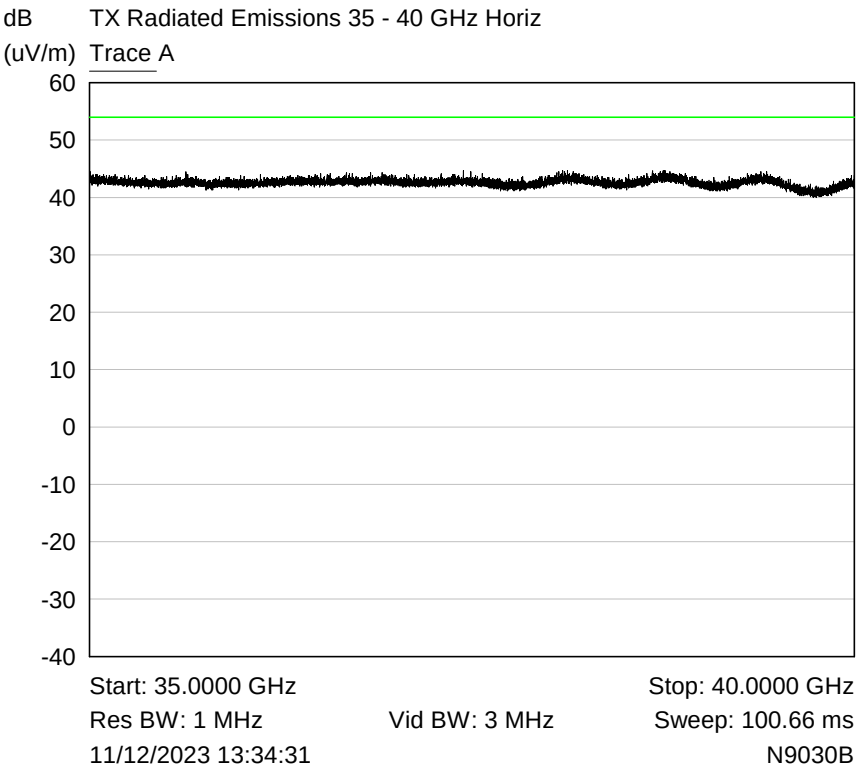

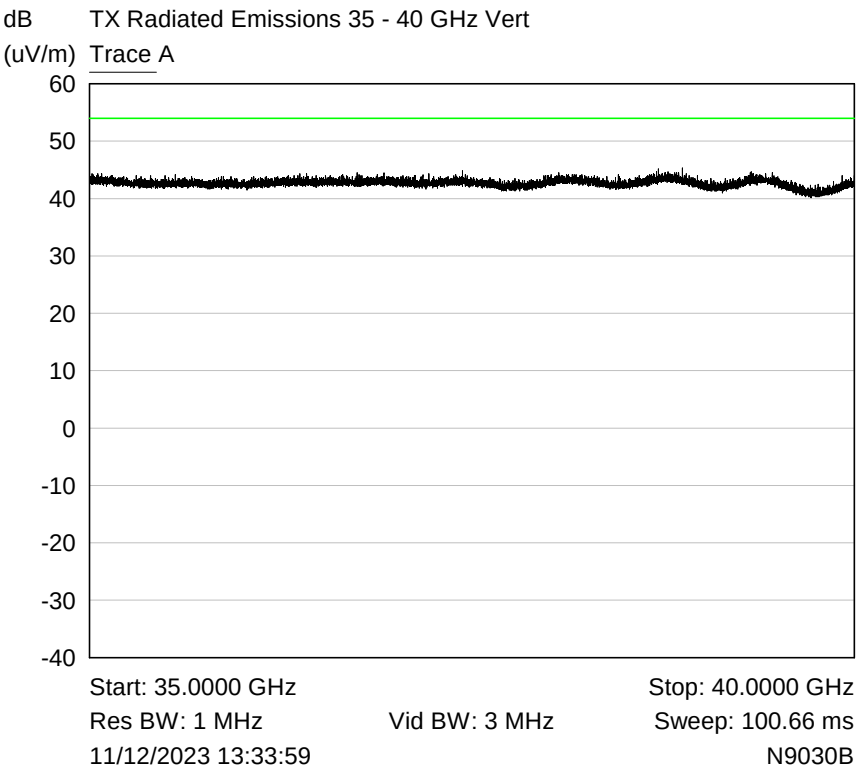

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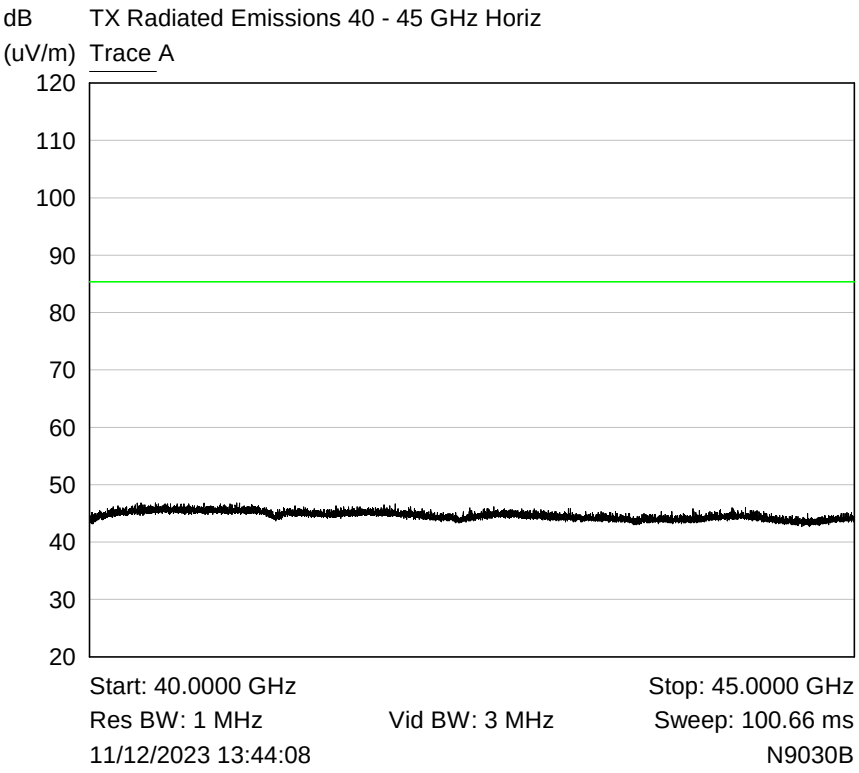
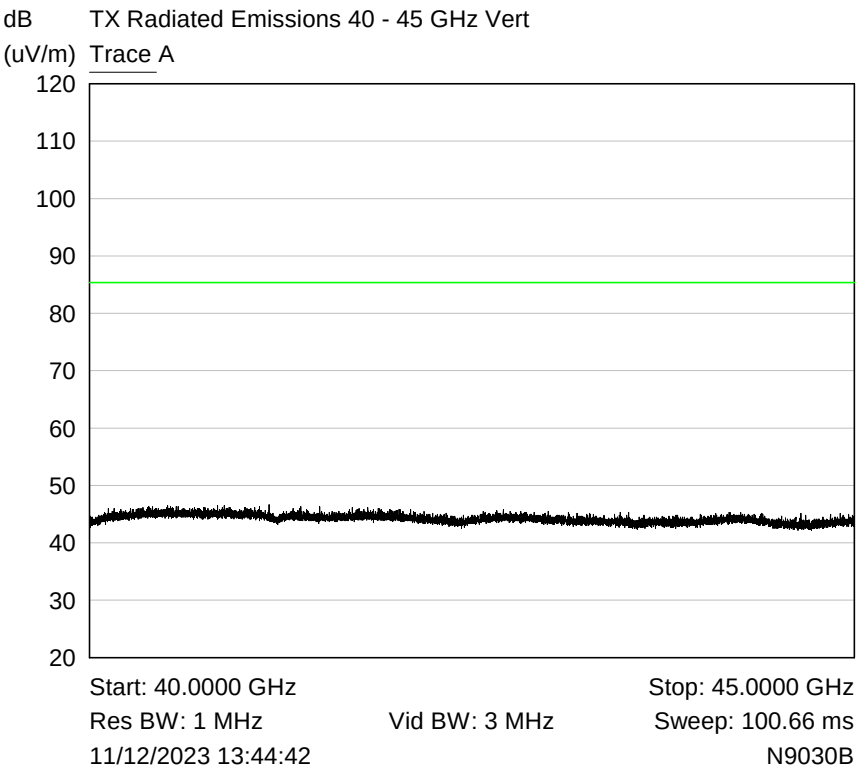
6.5 Radiated emissions 40 – 200 GHz

RF Parameters: Band 57-64 GHz, Power Maximum, Channel Spacing Single Channel, Modulation Pulsed Radar, Channel 60.5 GHz





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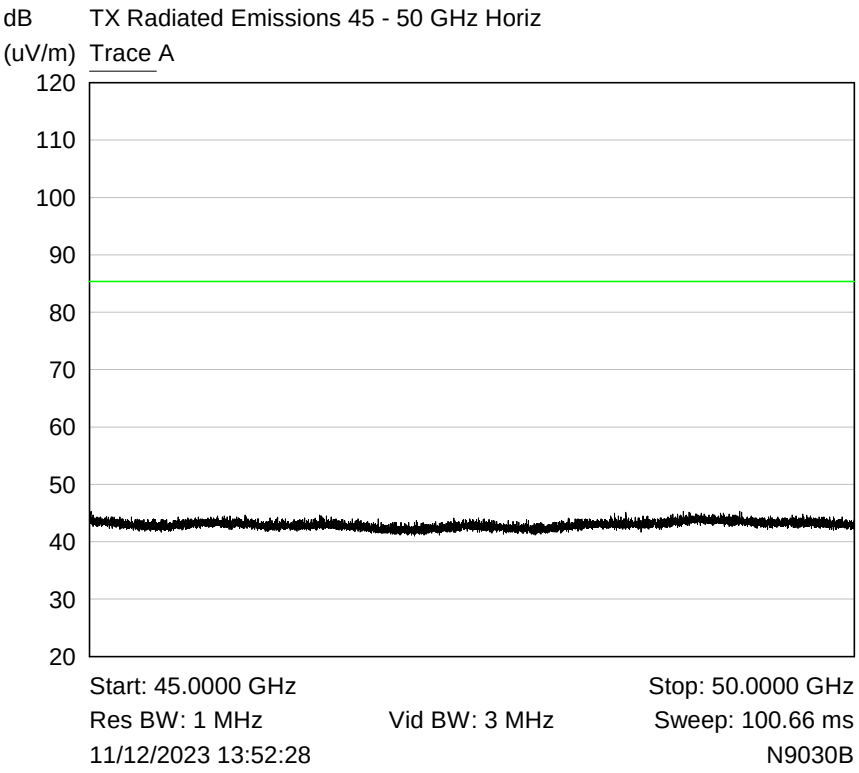

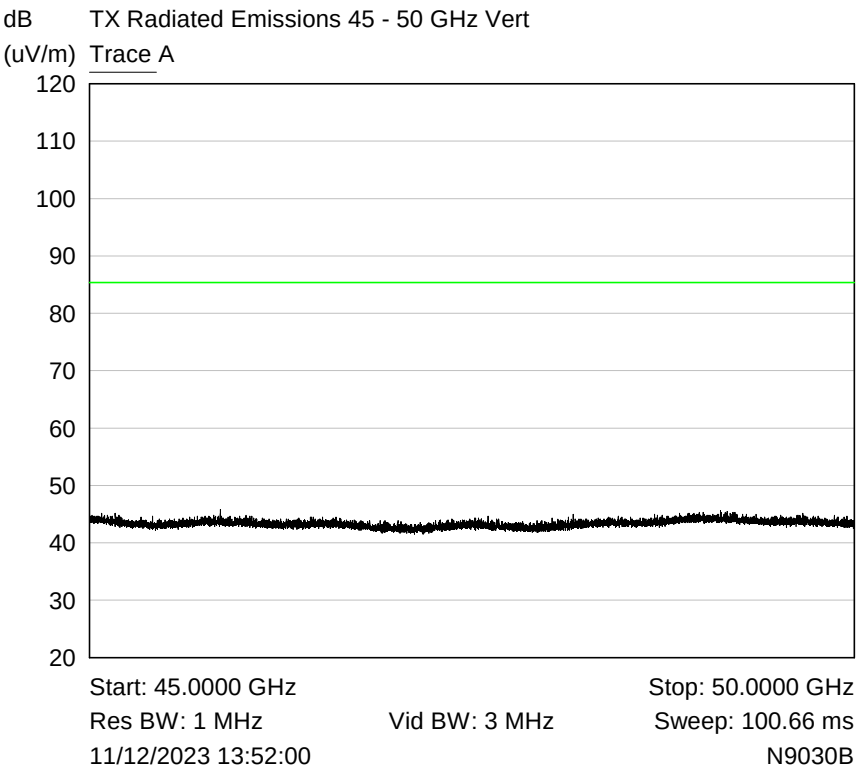

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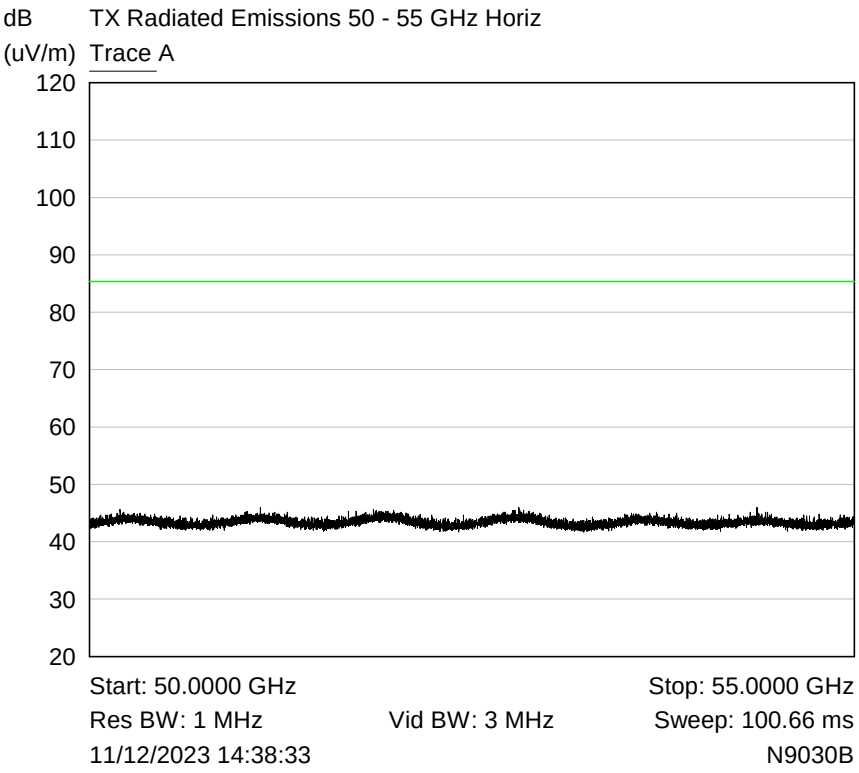

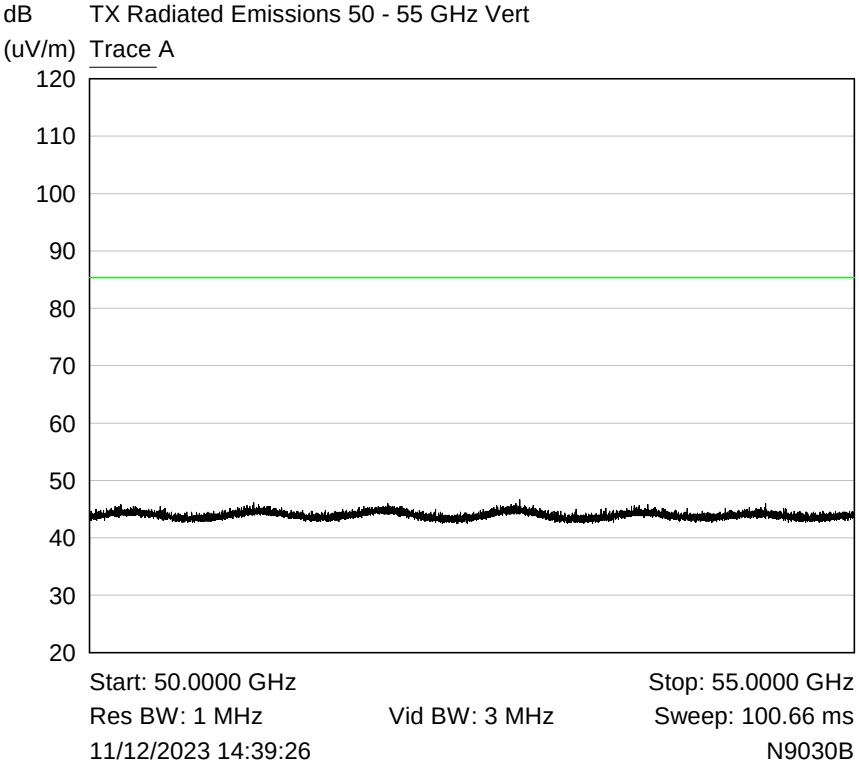

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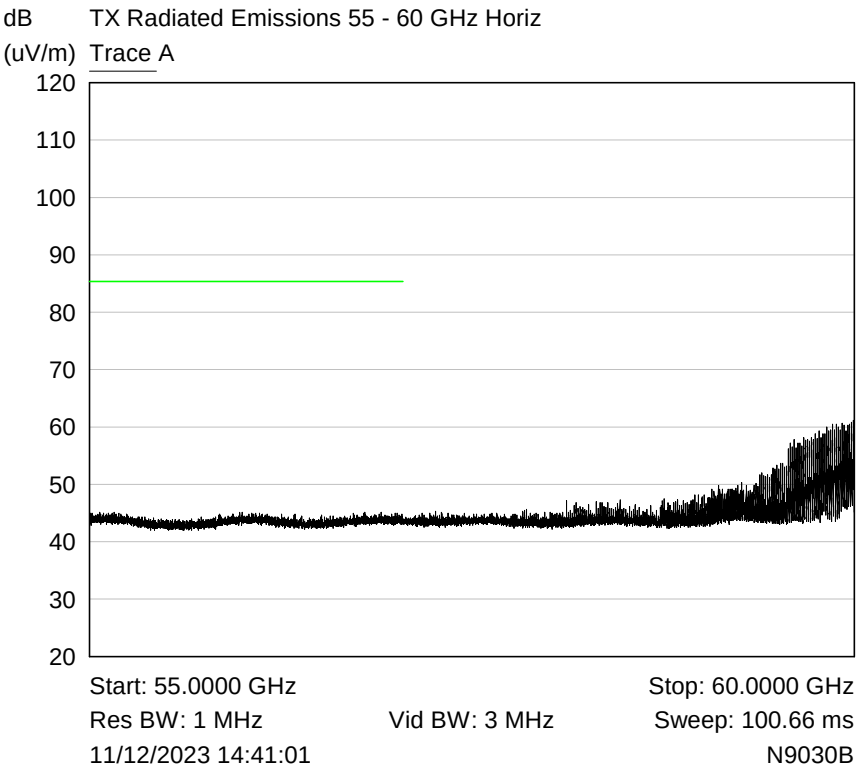
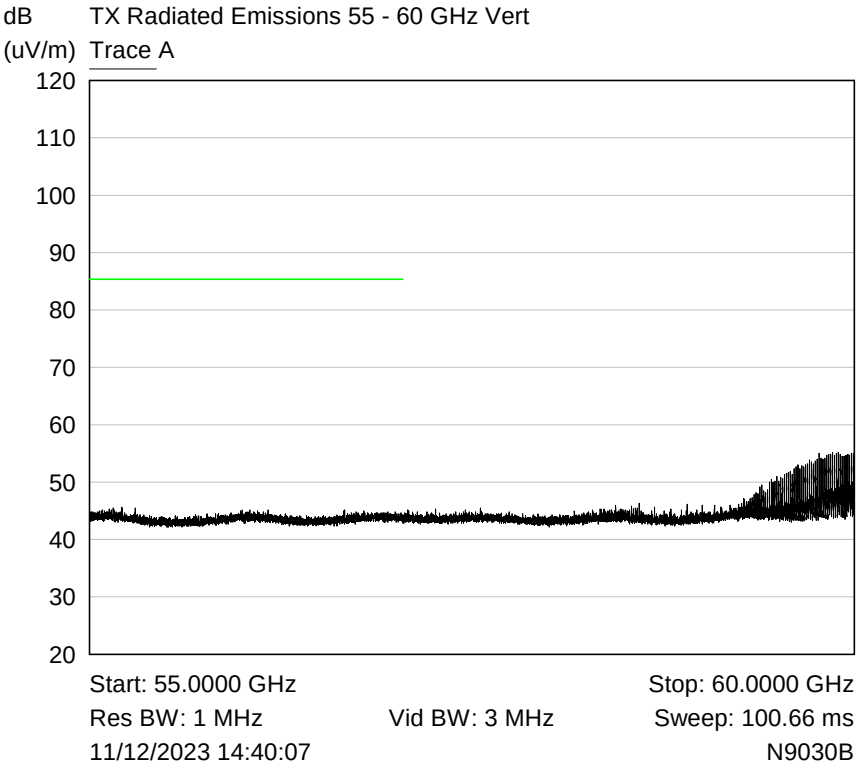


Note: plot shows fundamental transmission



Note: plot shows fundamental transmission

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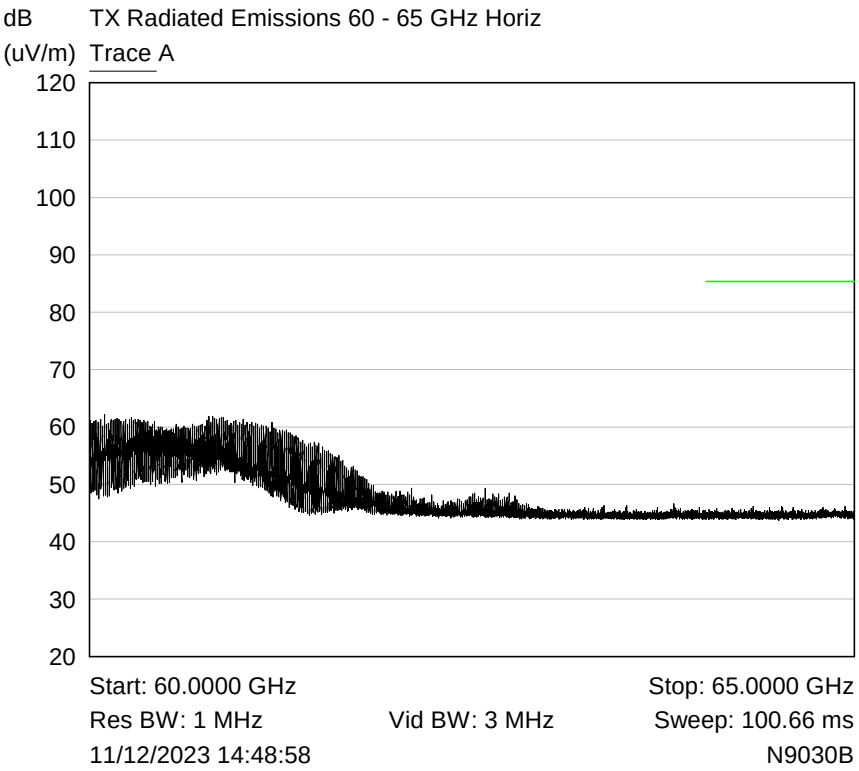
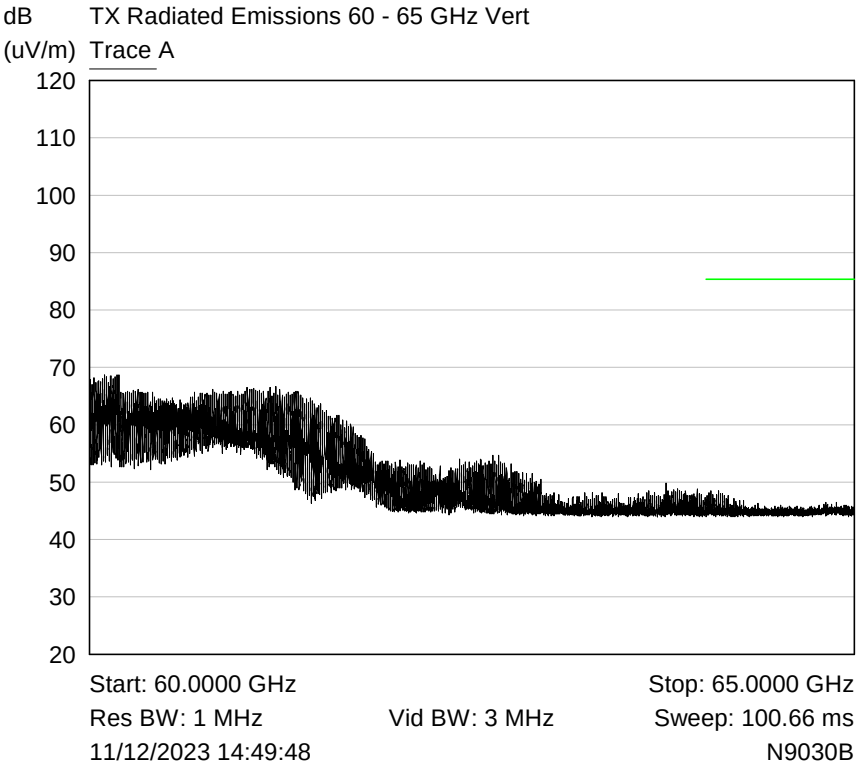


Note: plot shows fundamental transmission



Note: plot shows fundamental transmission

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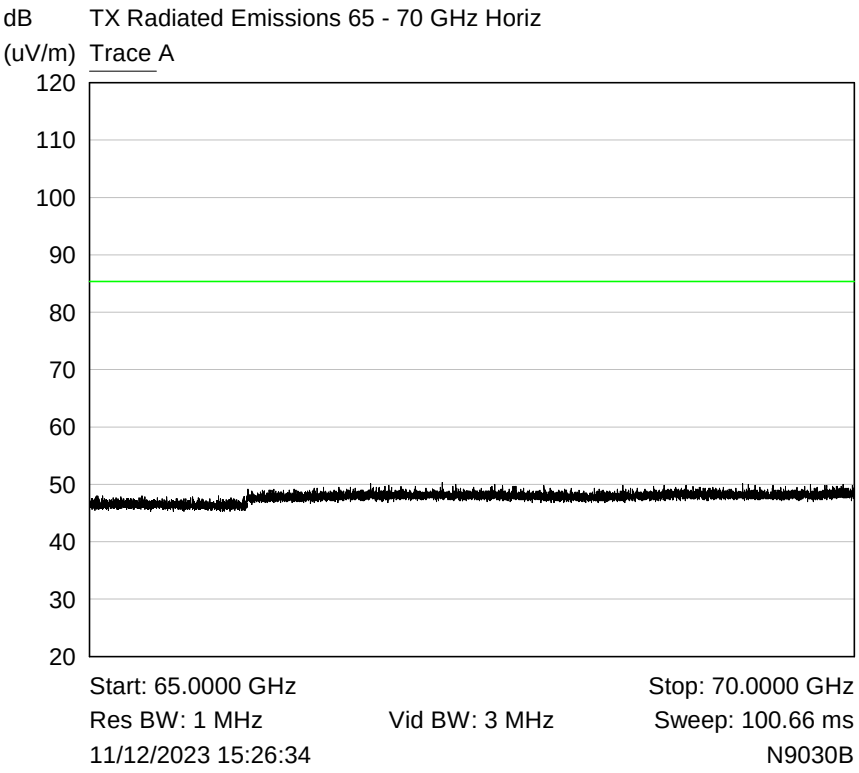

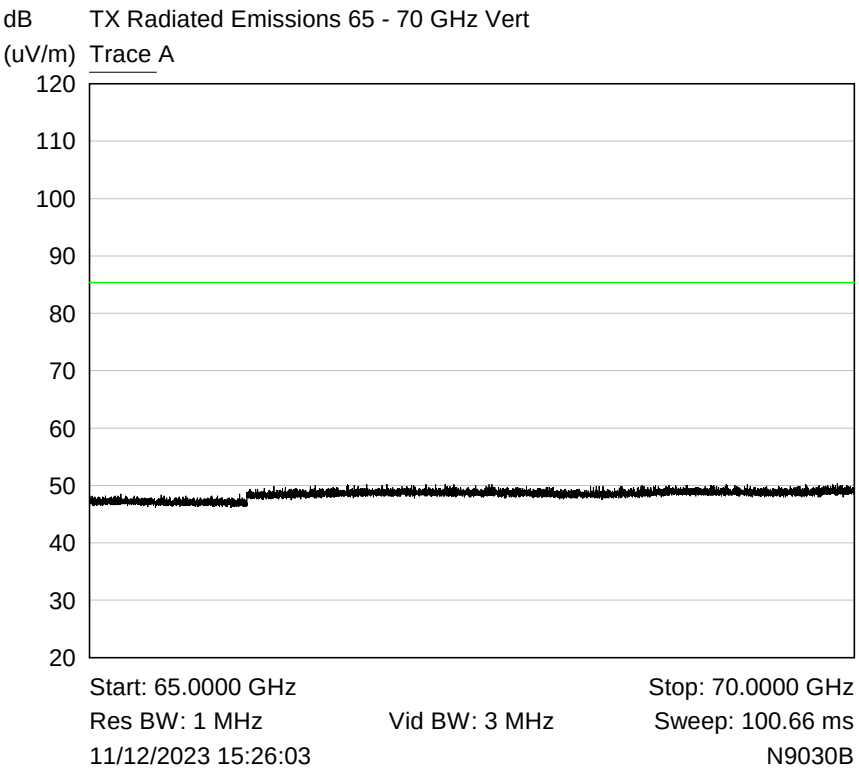

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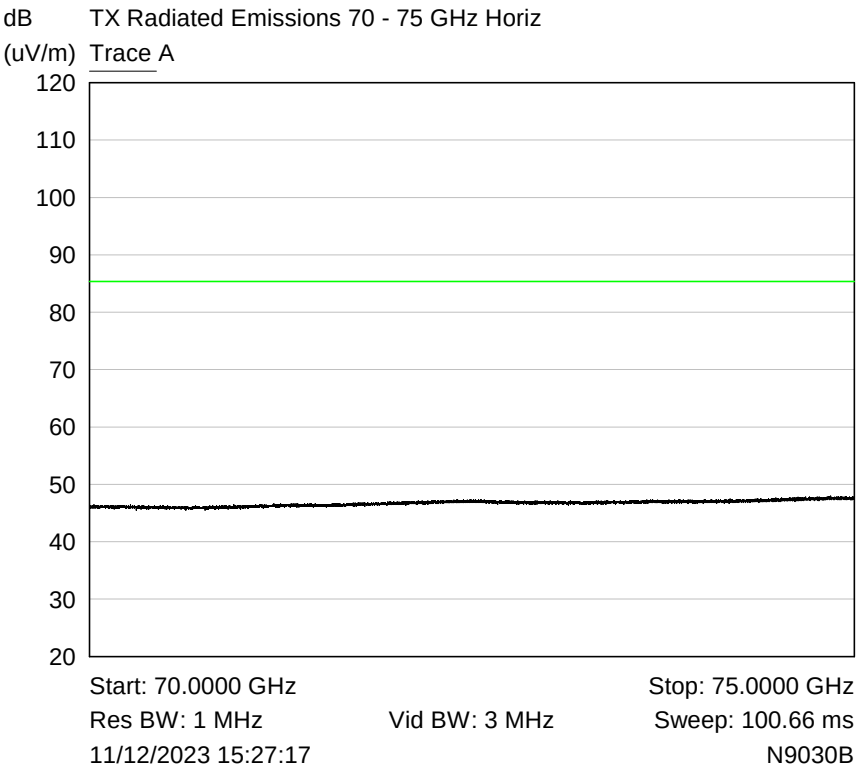

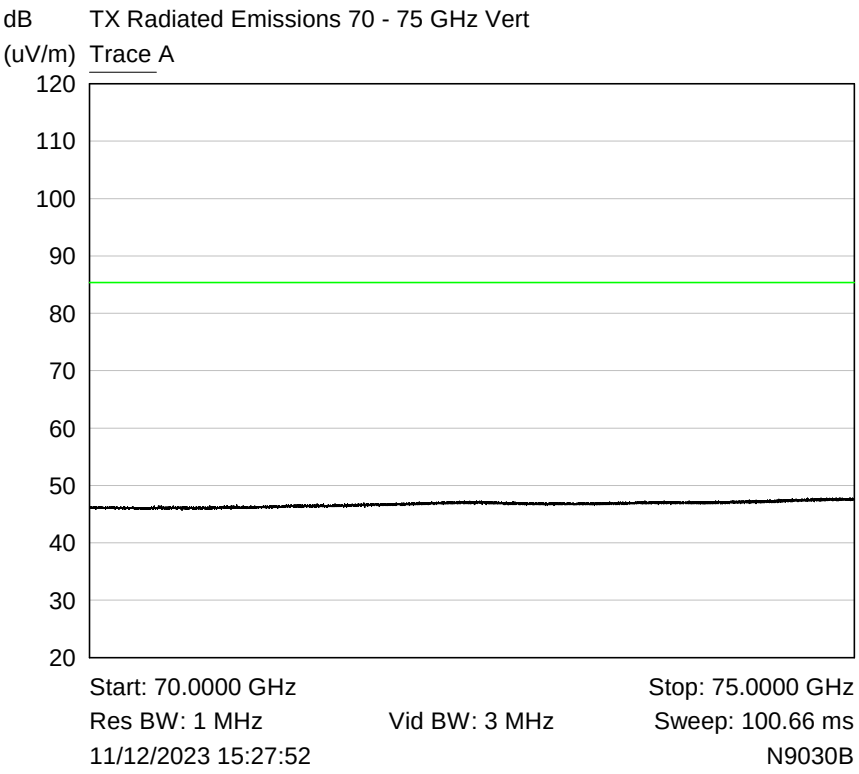

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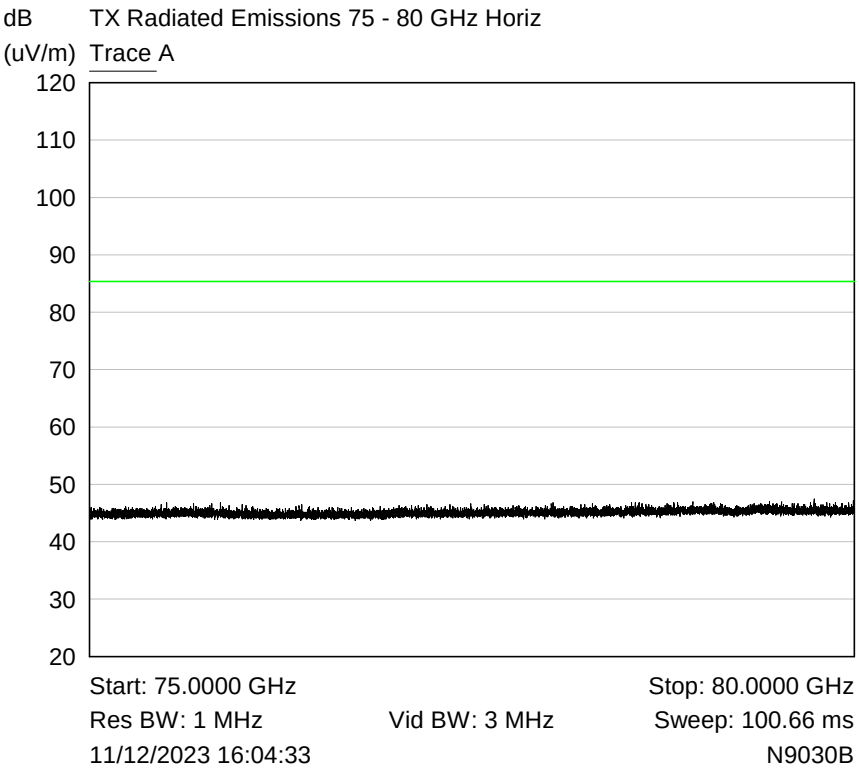

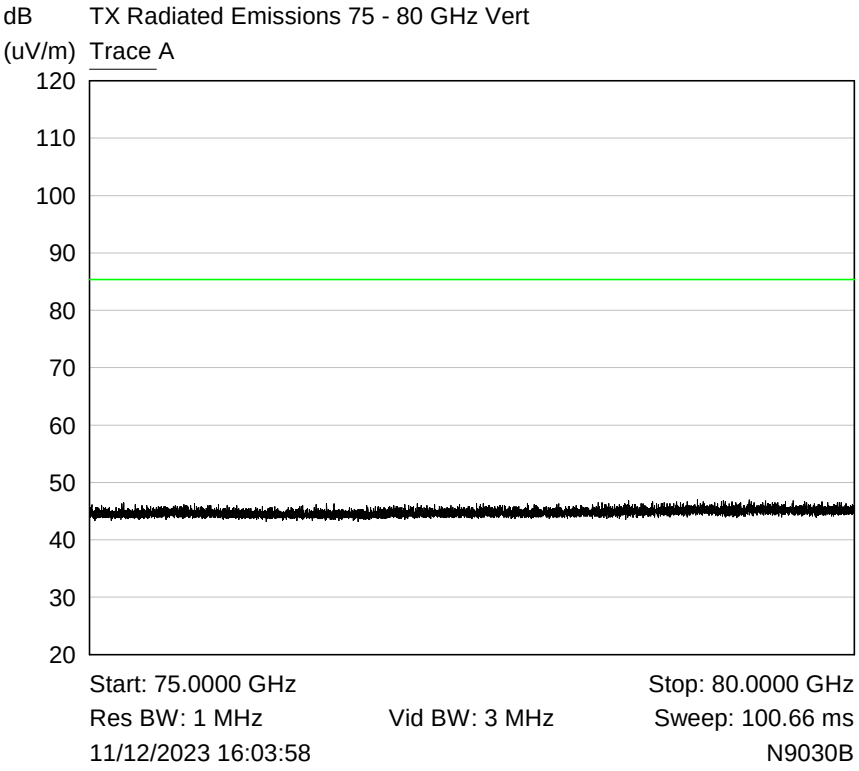

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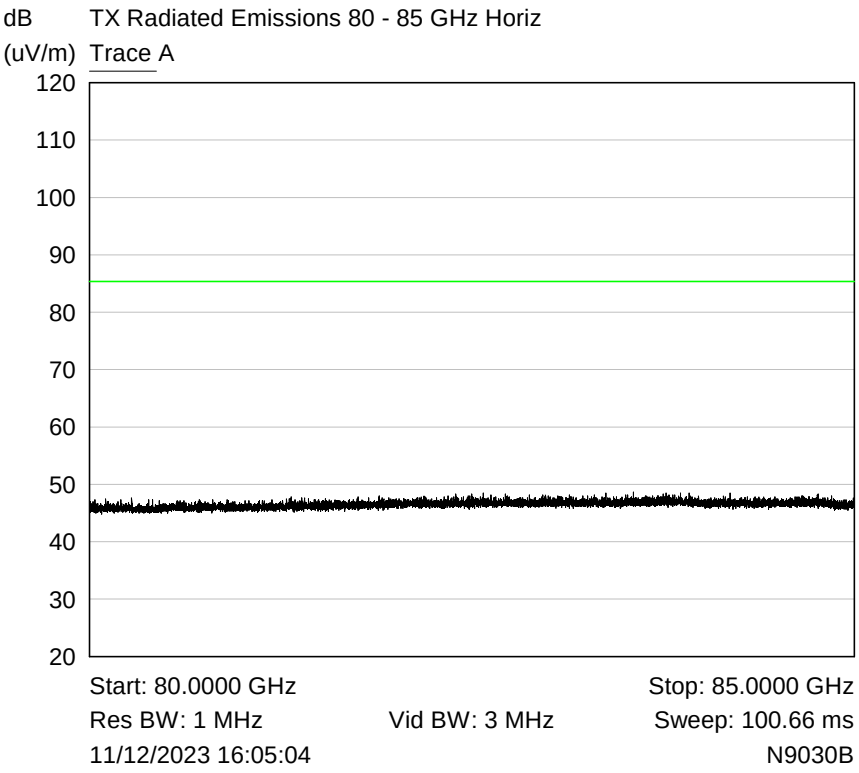

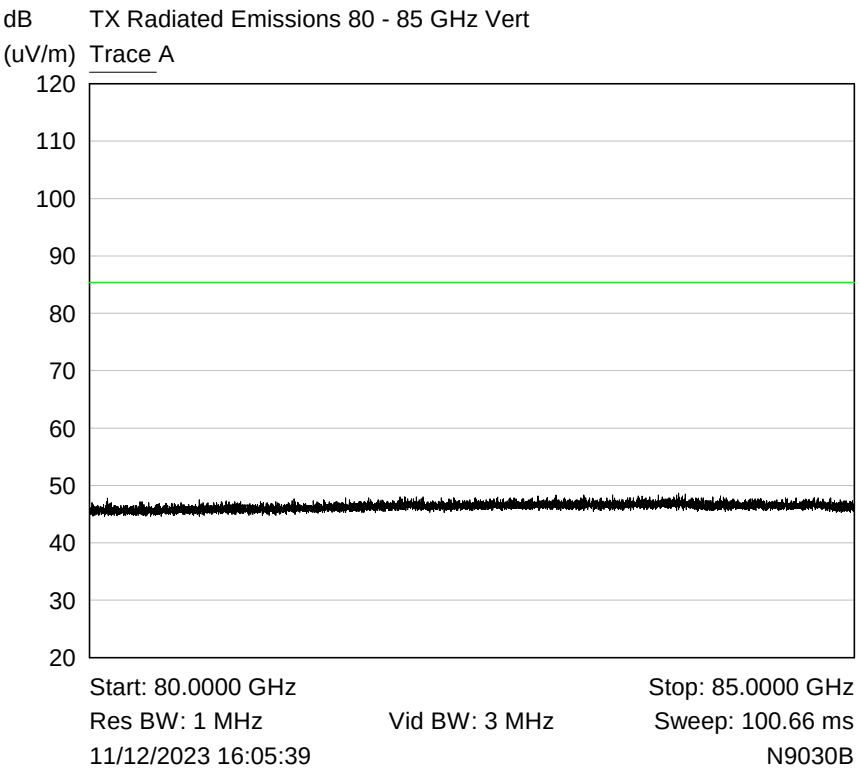

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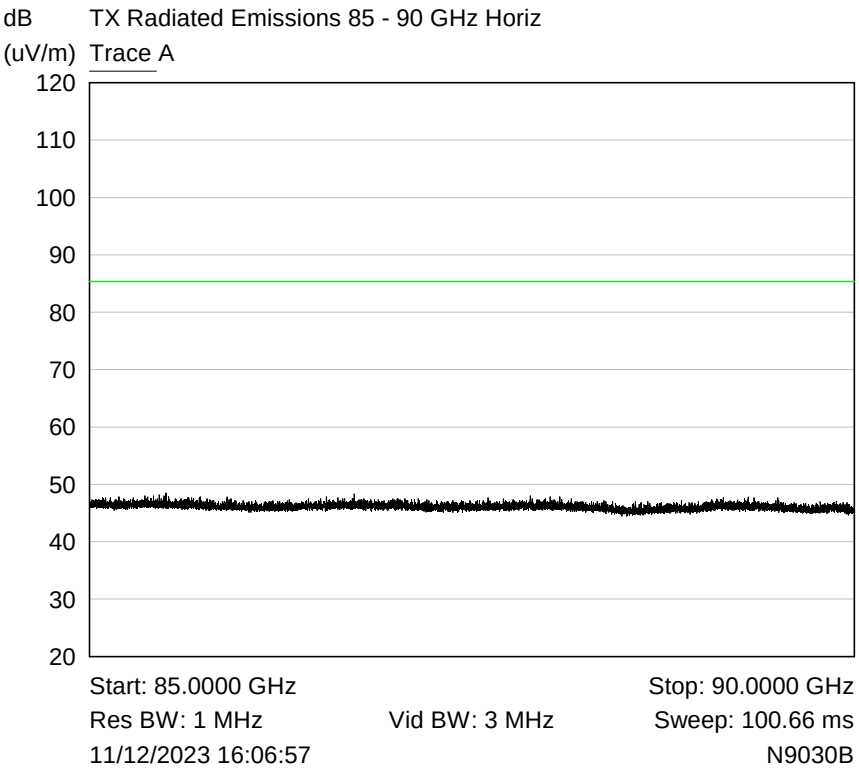

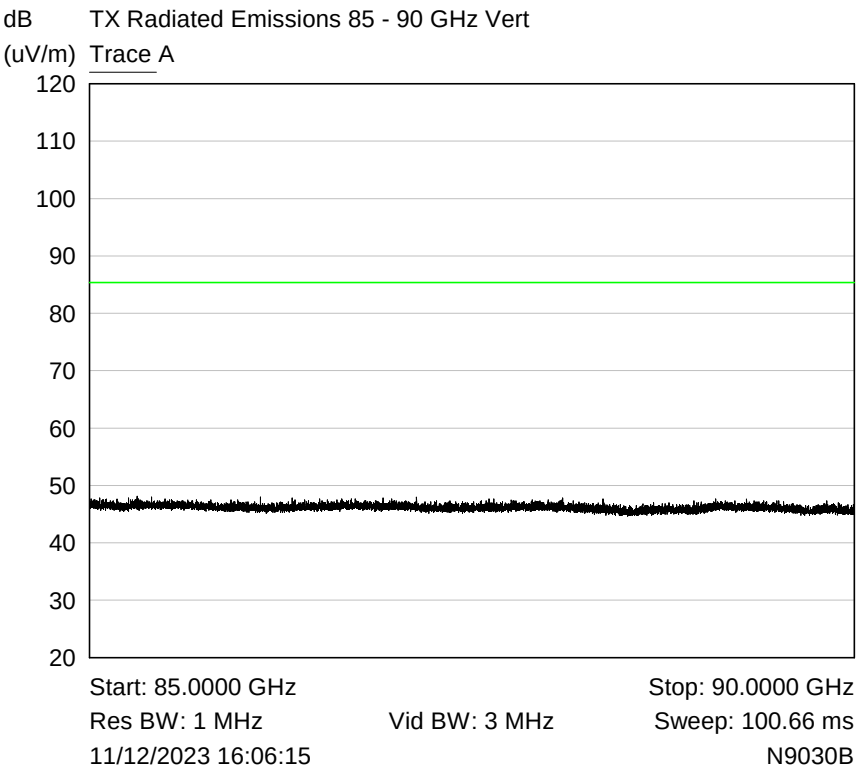

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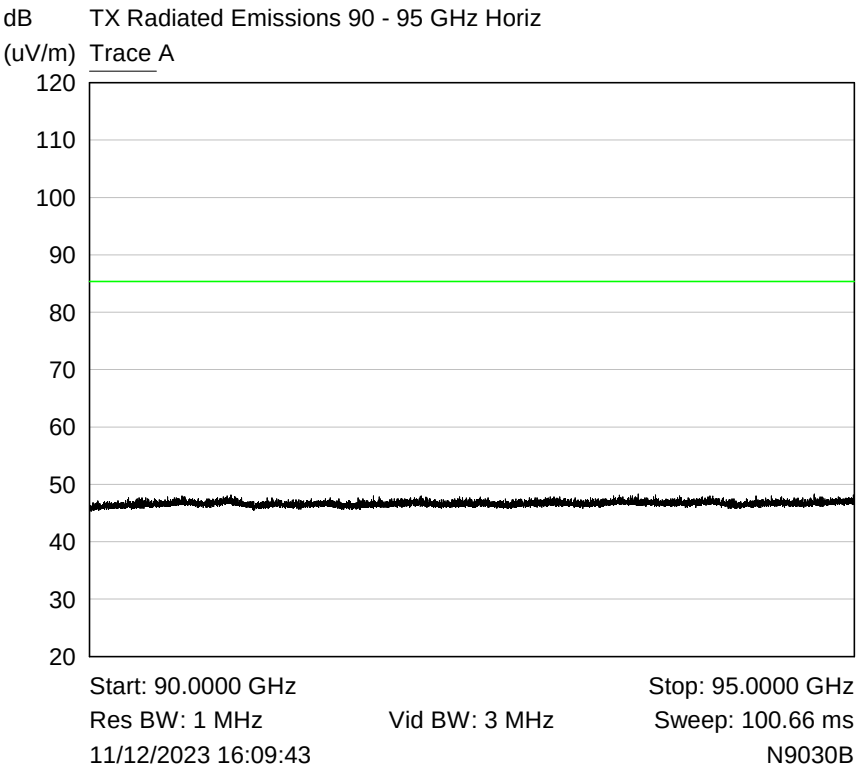

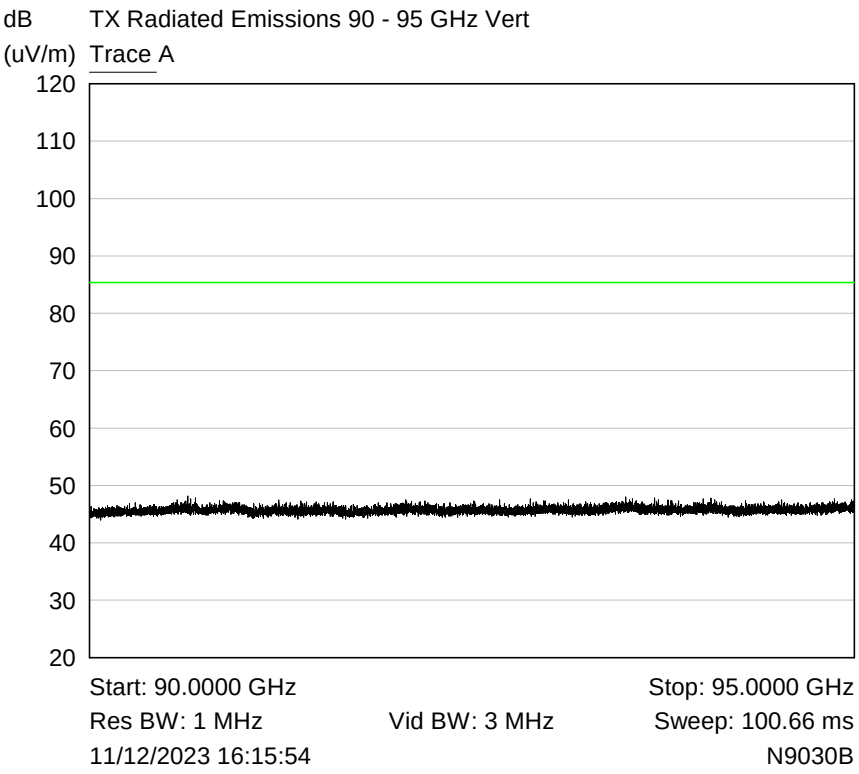

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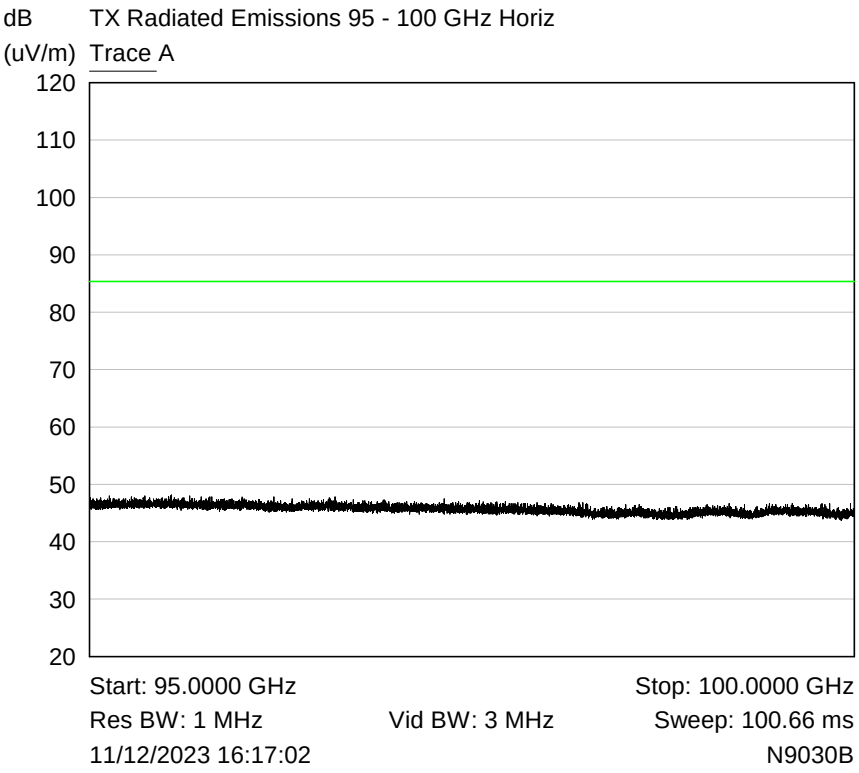

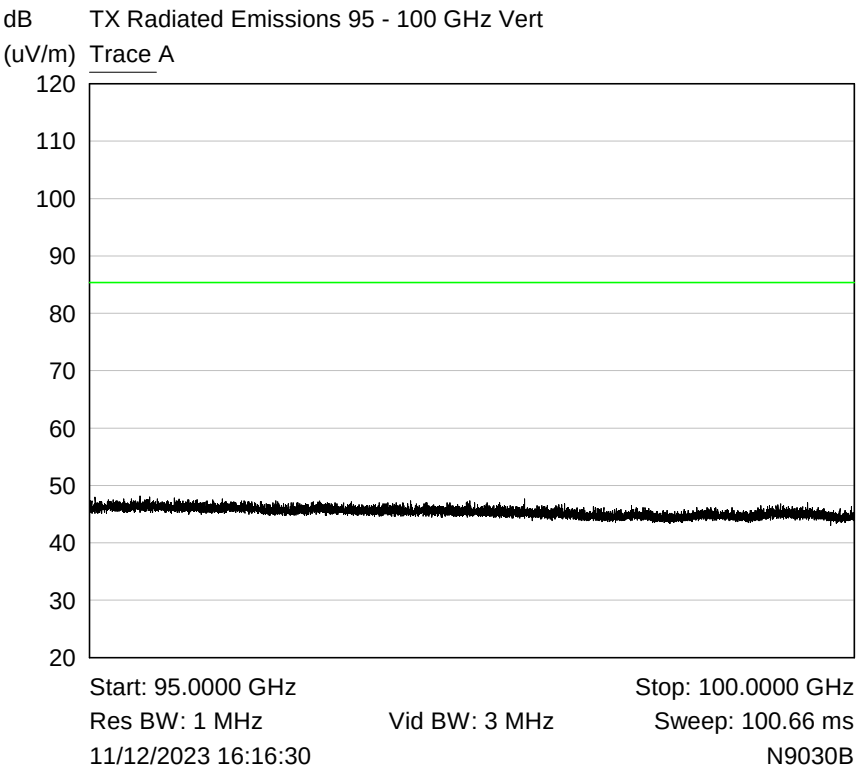

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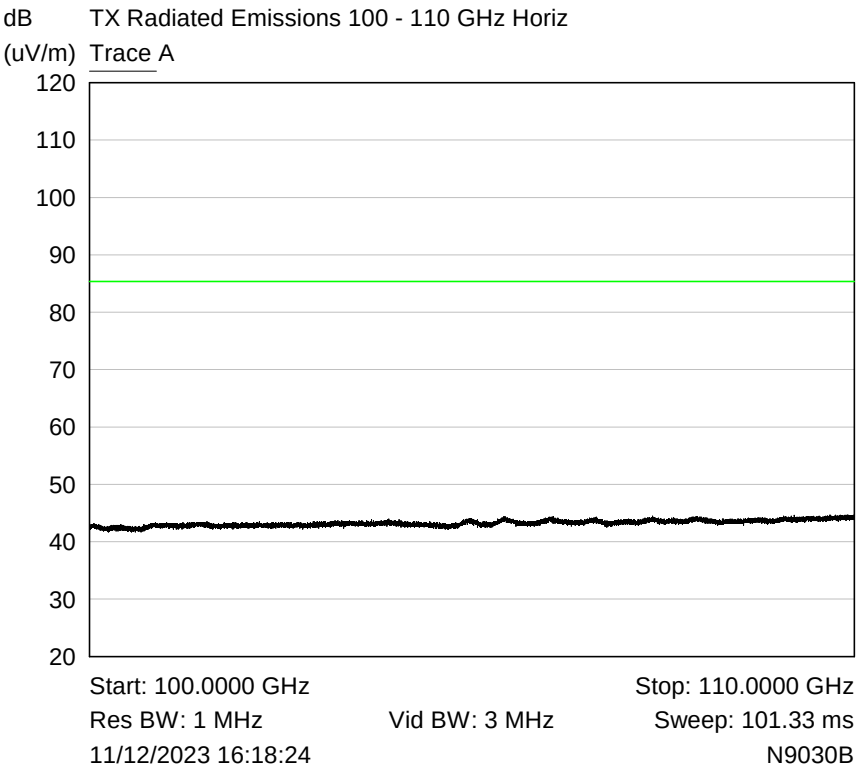

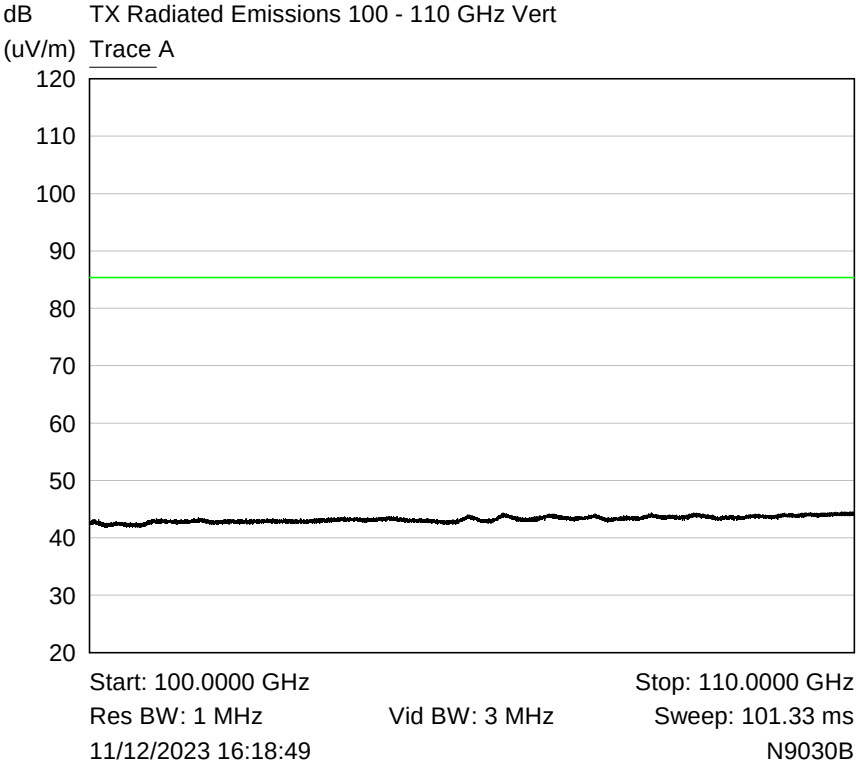

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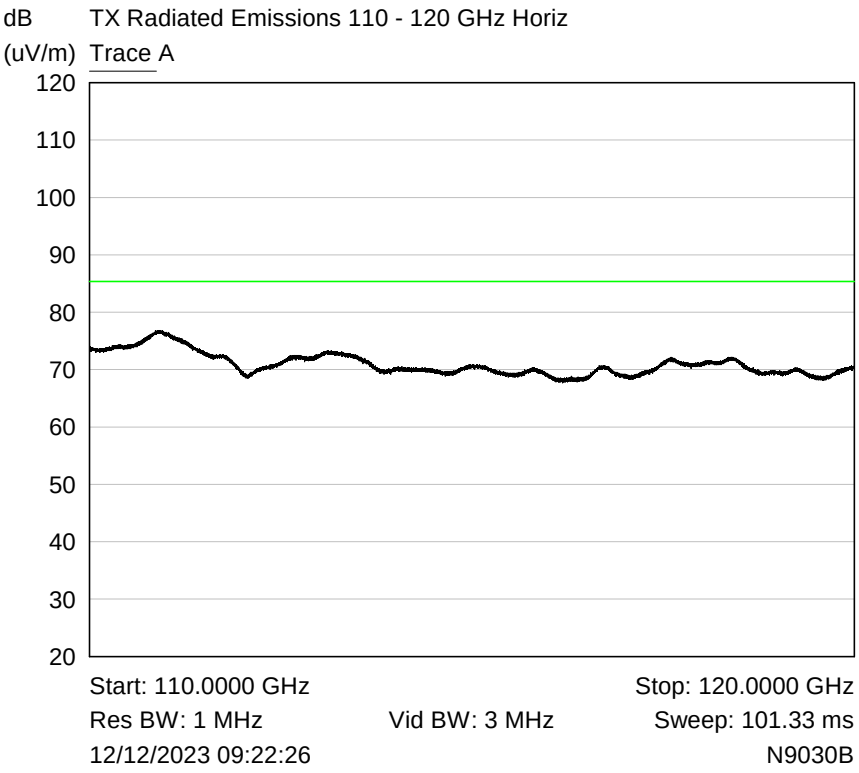

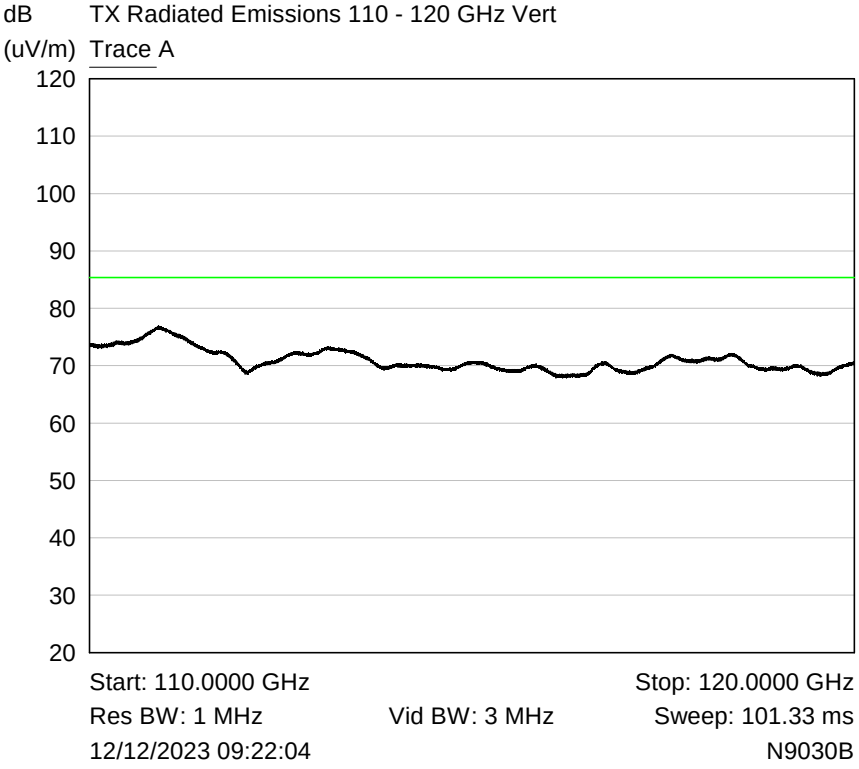

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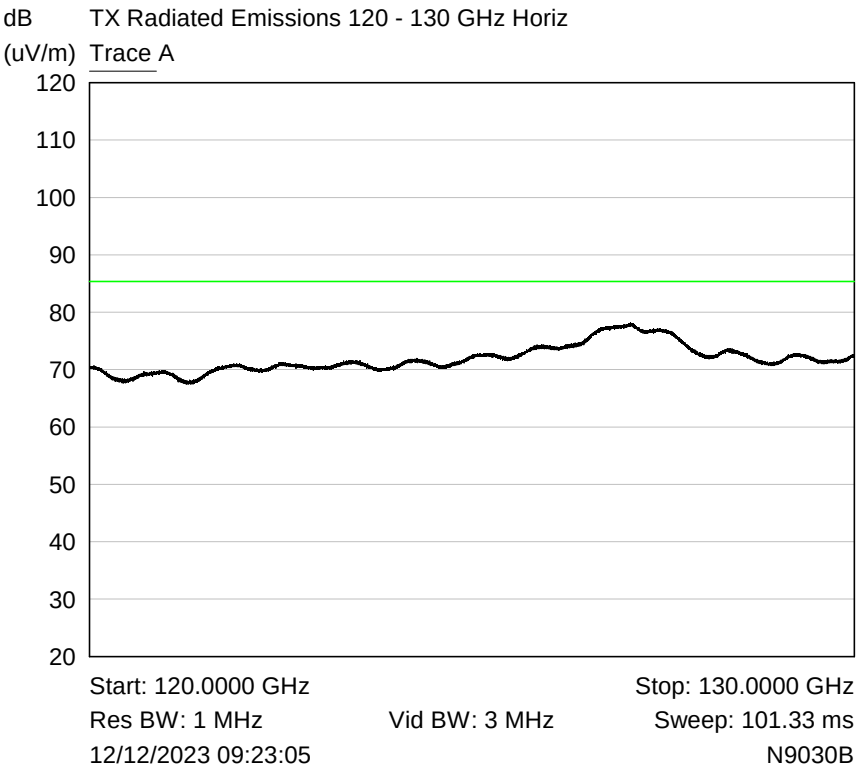

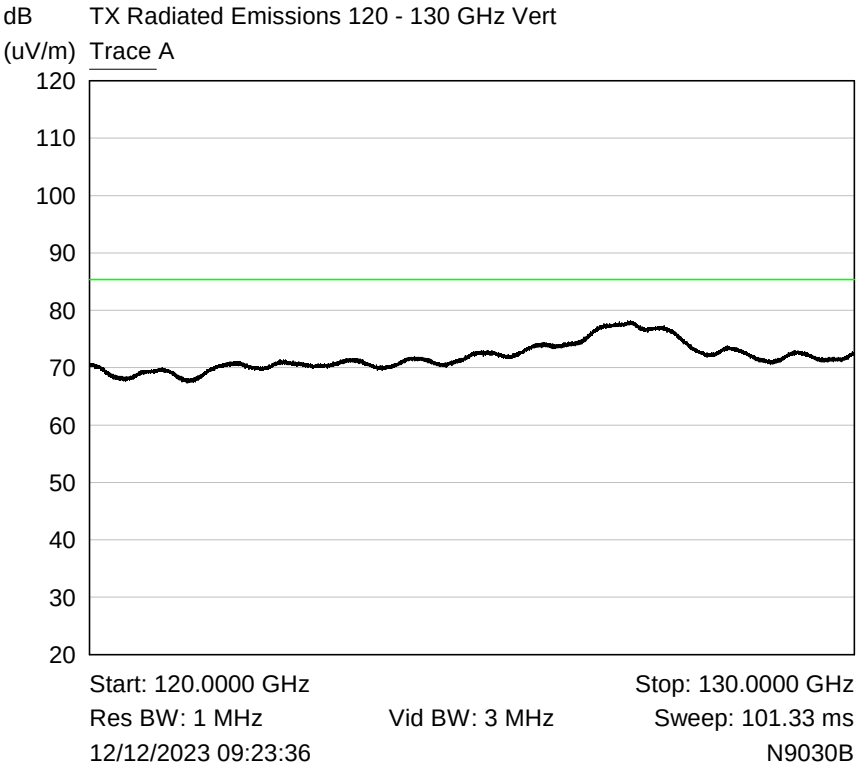

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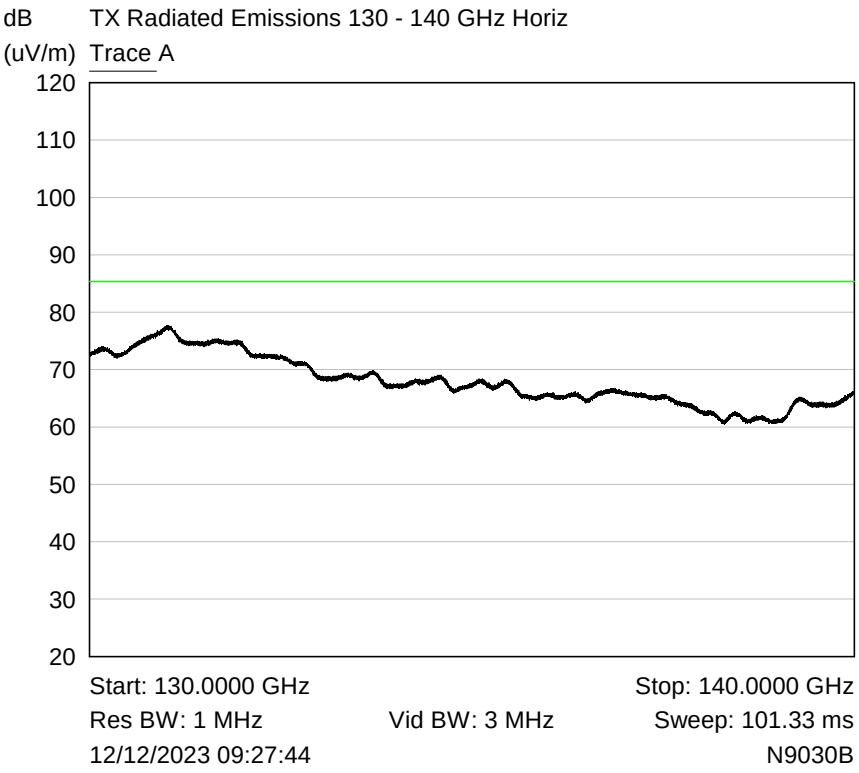

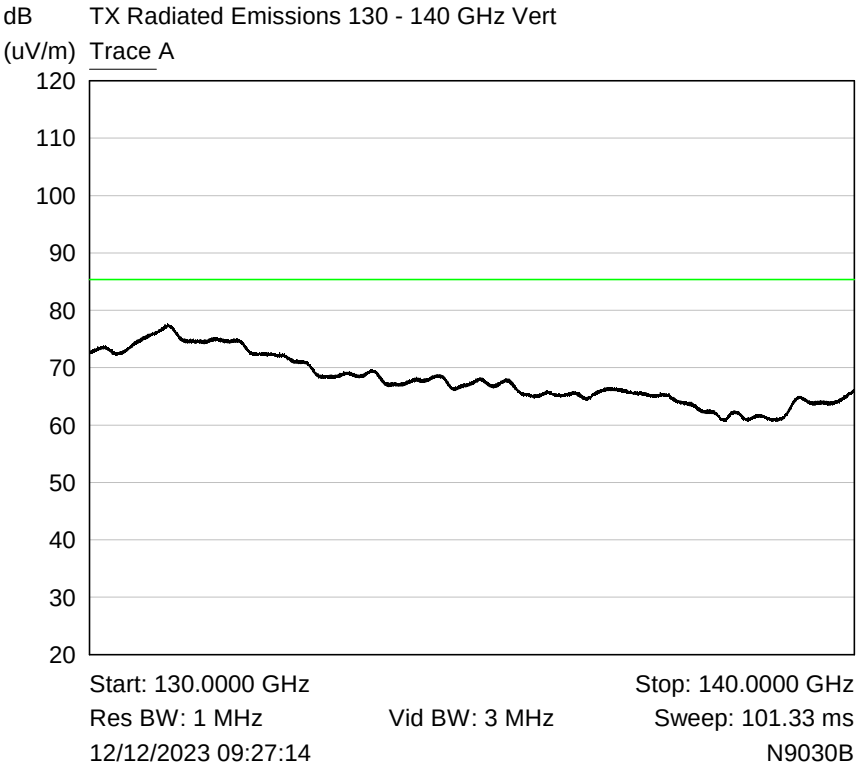

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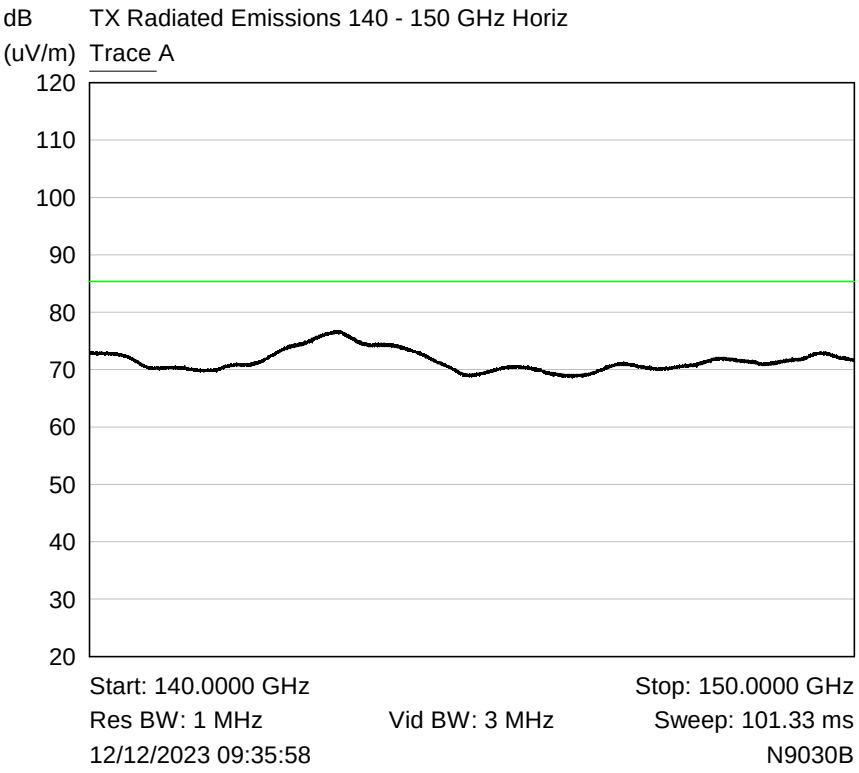

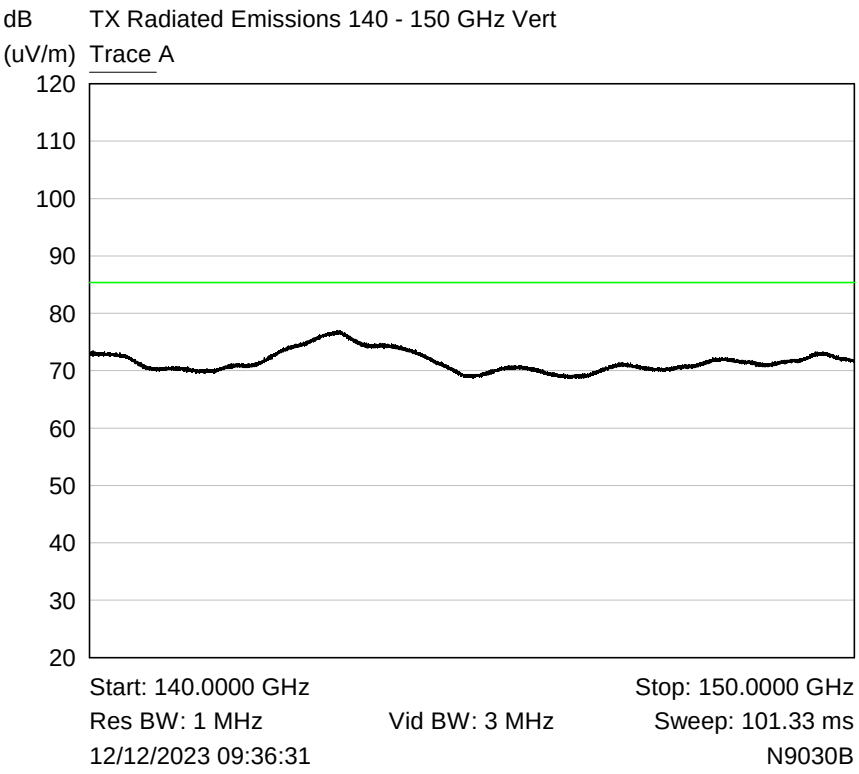

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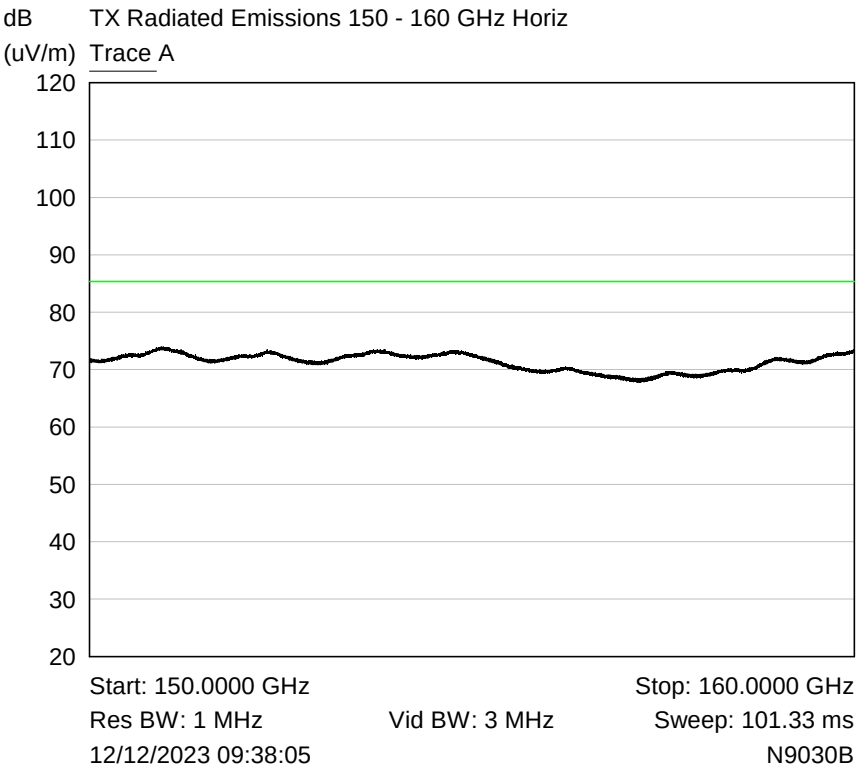

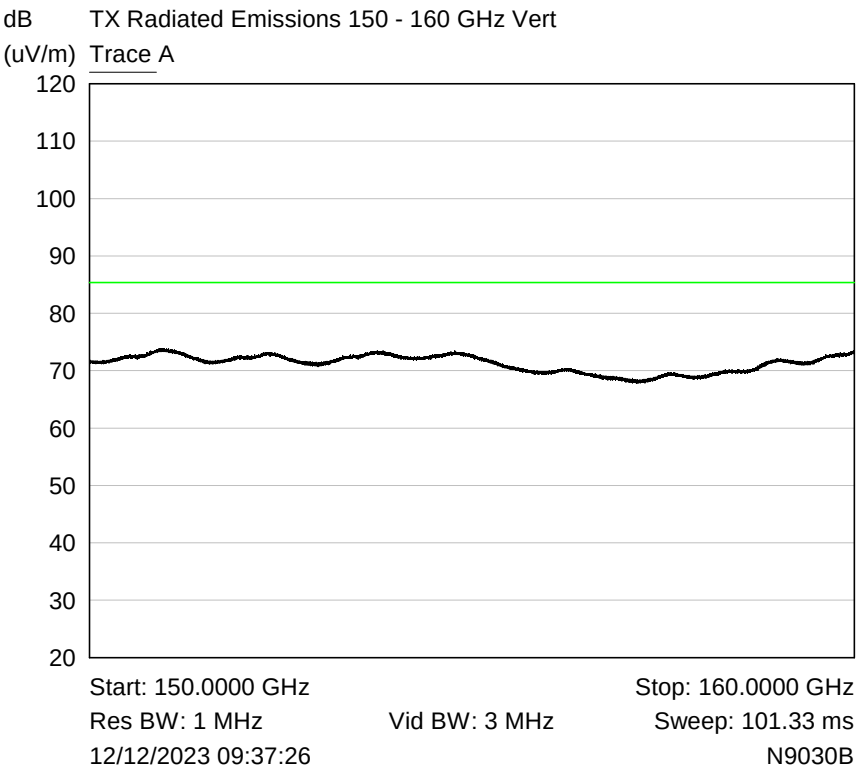

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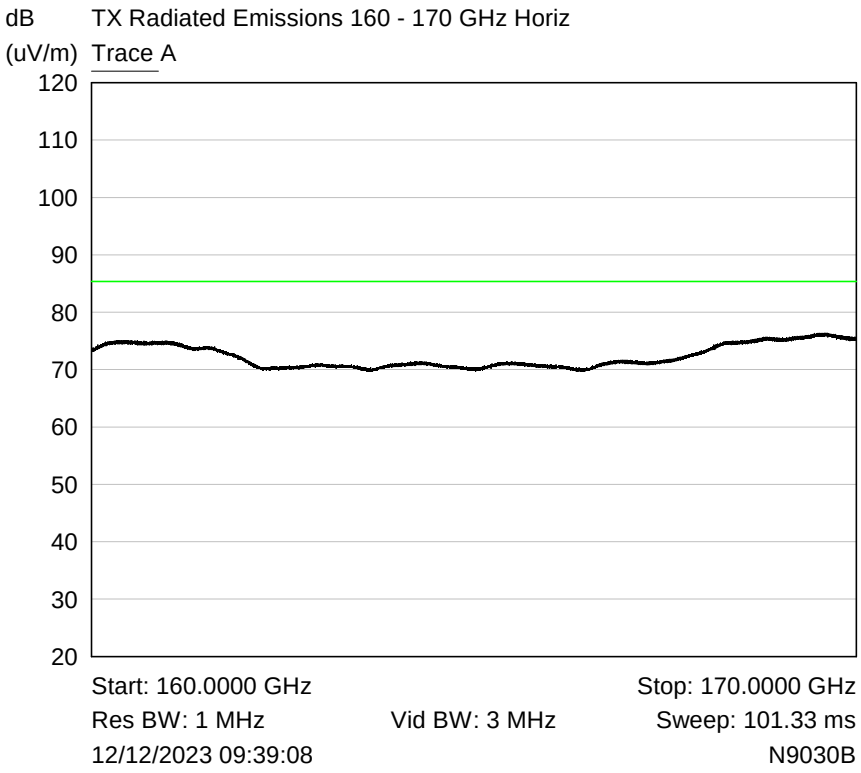

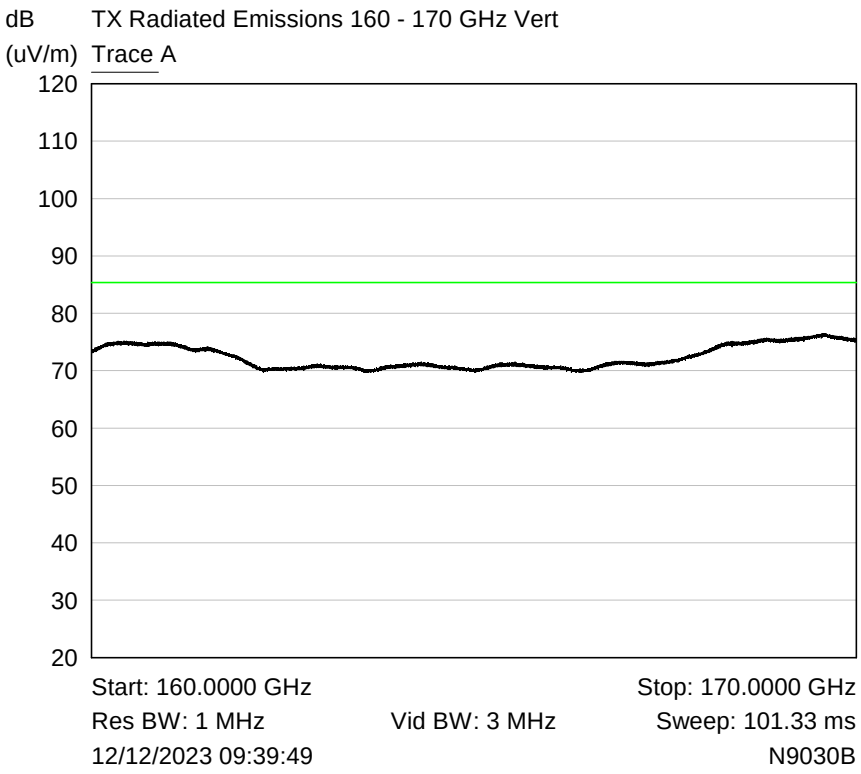

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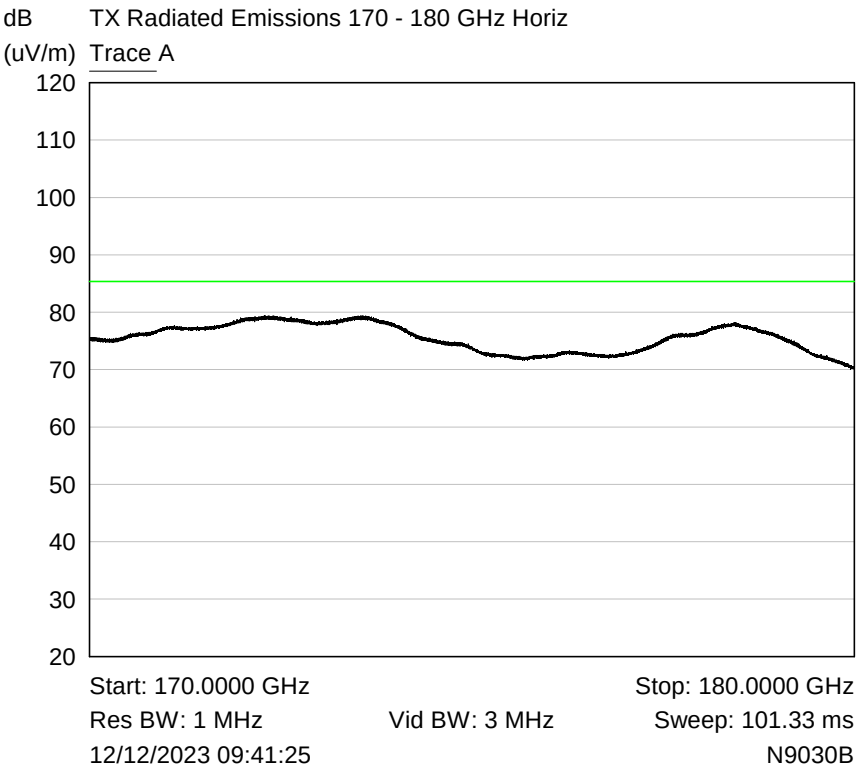

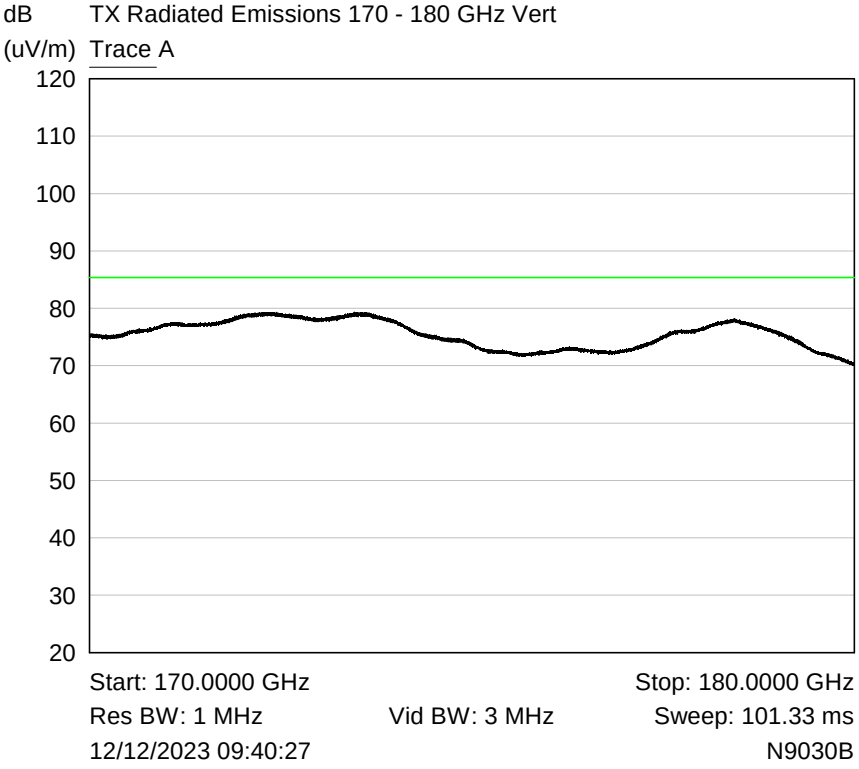

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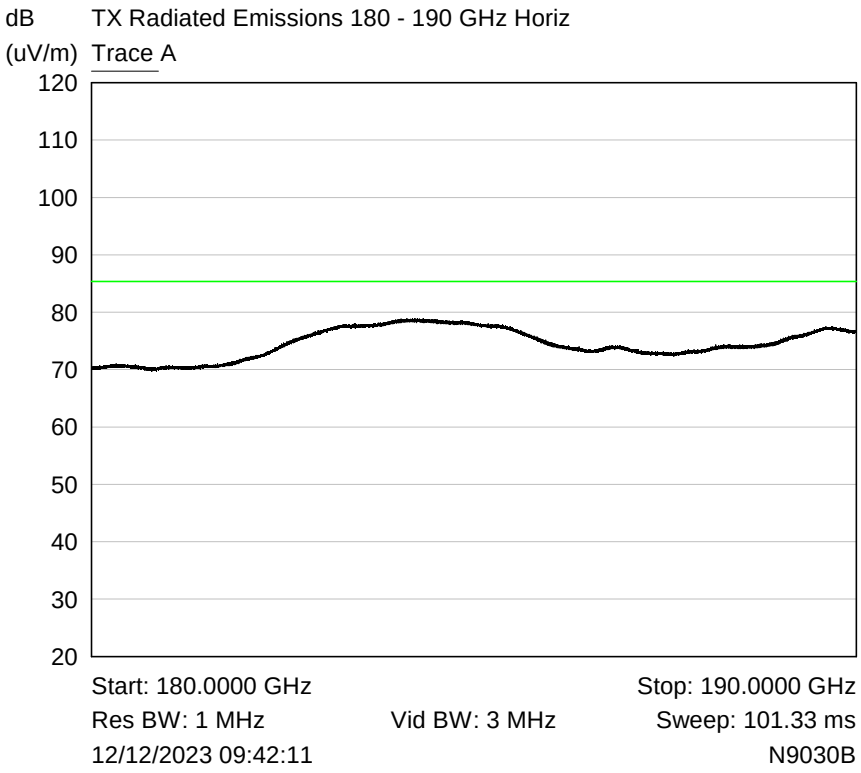

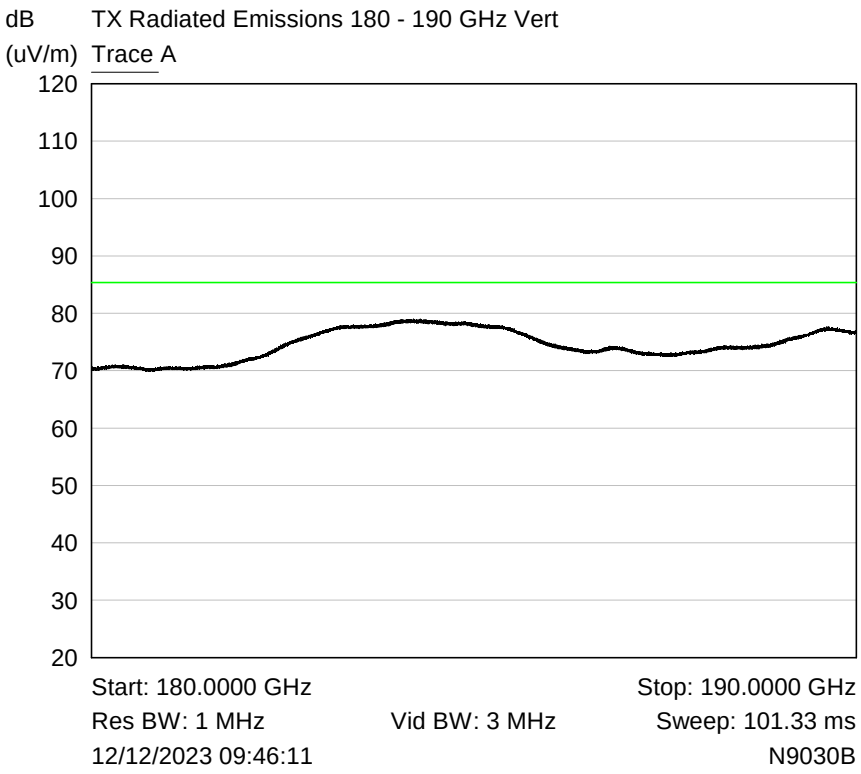

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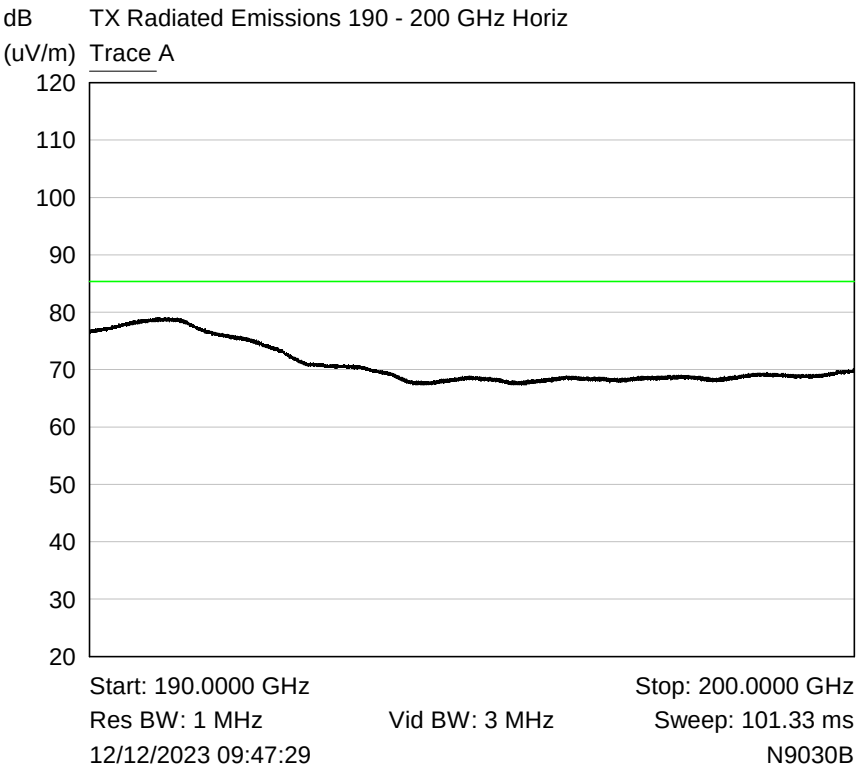
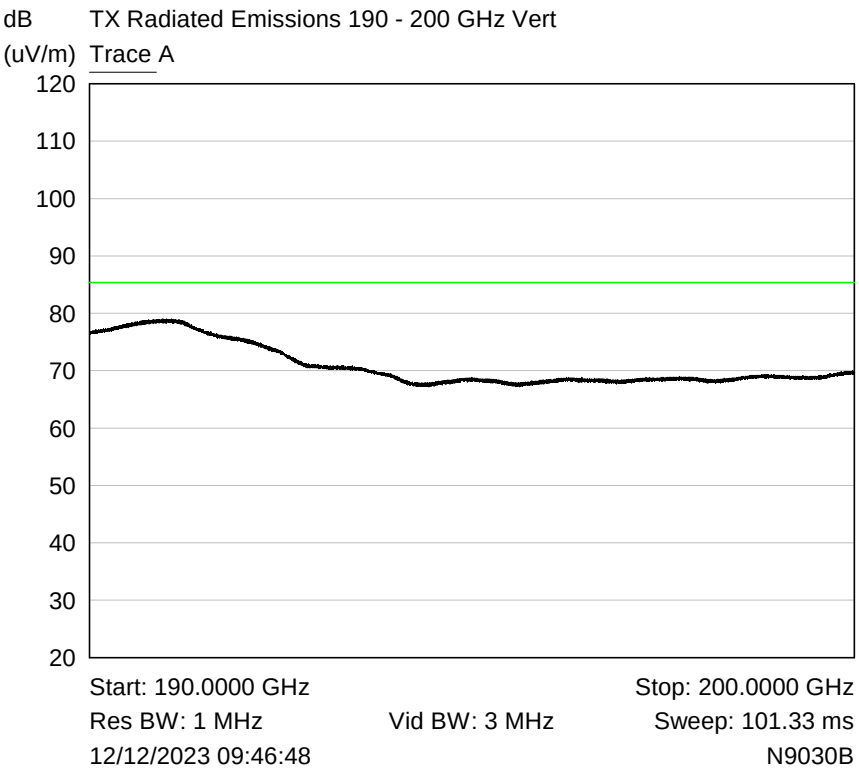
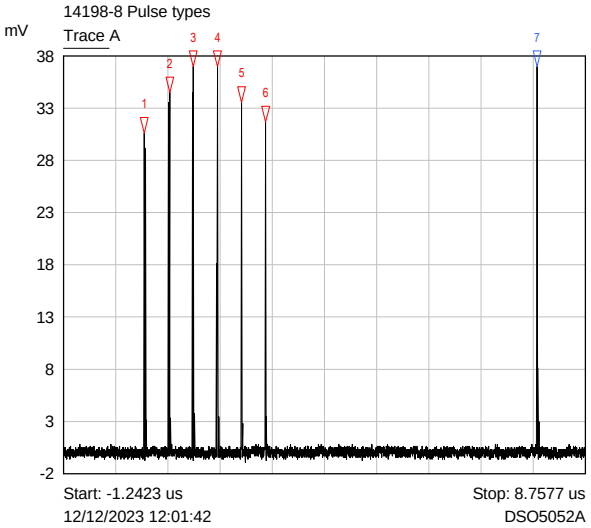
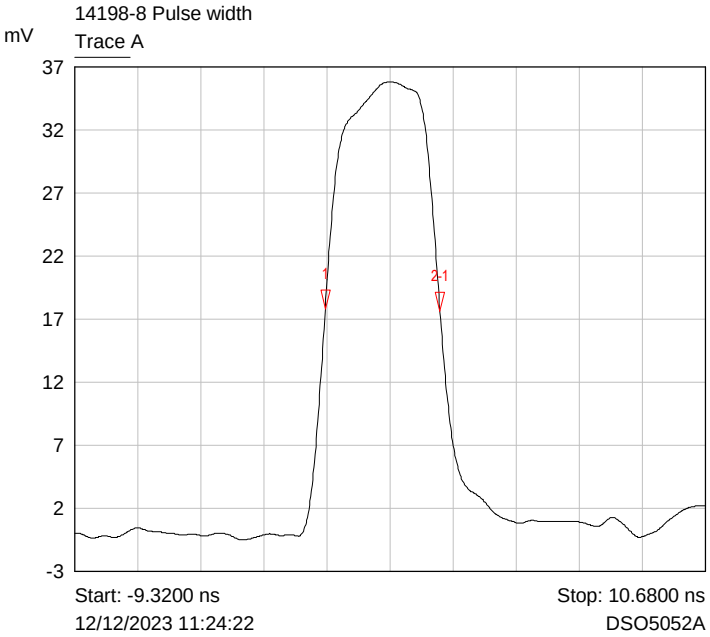




6.6 Duty Cycle



Mkr	Trace	X-Axis	Value	Notes
1	Trace A	320.0000 ns	30.62 mV	3.6 ns pulse
2	Trace A	800.0000 ns	34.53 mV	3.6 ns pulse
3	Trace A	1.2500 us	37.03 mV	3.6 ns pulse
4	Trace A	1.7100 us	37.03 mV	3.6 ns pulse
5	Trace A	2.1700 us	33.59 mV	3.6 ns pulse
6	Trace A	2.6300 us	31.72 mV	3.6 ns pulse
7	Trace A	7.8300 us	37.03 mV	6 ns pulse



Mkr	Trace	X-Axis	Value	Notes
1	Trace A	-1.3800 ns	17.79 mV	
2-1	Trace A	3.6400 ns	-175.78 uV	

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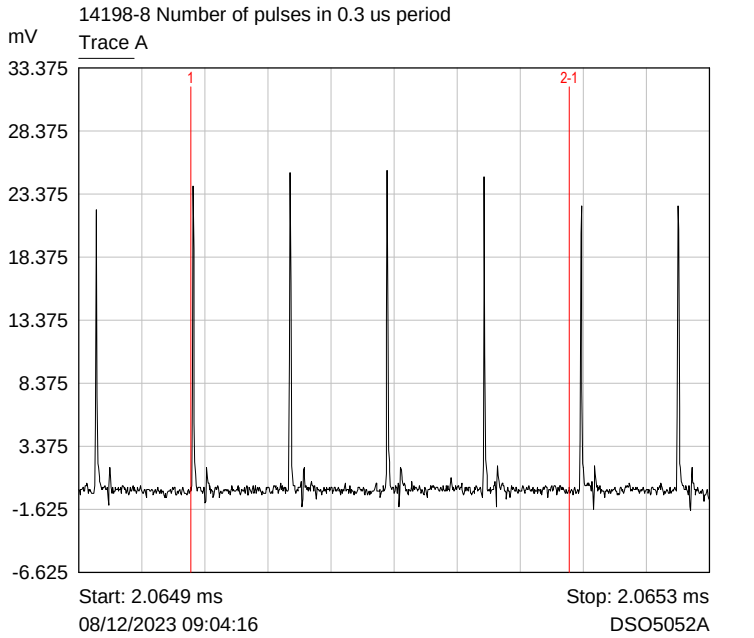

Mkr	Trace	X-Axis	Value	Notes
1	Trace A	2.0649 ms	-218.75 uV	
2-1	Trace A	300.0000 ns	312.50 uV	

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7 Explanatory Notes

7.1 Explanation of Table of Signals Measured

Measurements are made as required by the standard. These measurements are made and recorded using detectors, either peak, quasi peak or average dependant on the test. A table of results has been given following the relevant plots. This table looks similar to the one illustrated below dependant on the measurements required by the test: -

Signal No.	Freq (MHz)	Peak Amp (dBuV)	Pk – Lim 1 (dB)	QP Amp (dBuV)	QP – Lim1 (dB)	Av Amp (dBuV)	Av – Lim1 (dB)
1	12345	54.9	-10.5	48	-12.6	37.6	-14.4

Column One – Labelled Signal No. is an incremental number that the receiver has given to each signal that has been measured.

Column Two – Labelled Freq (MHz) is the approximate frequency of the signal received.

Column Three – Labelled Peak Amp (dBμV) is the level of received signal that was measured in dB above 1μV using the peak detector.

Column Four – Labelled Pk – Lim1 (dB) is the difference in level from the peak signal given to the active limit line. If this column appears in the table the peak detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Column Five – Labelled QP Amp (dBμV) is the level of received signal that was measured in dB above 1μV using the quasi-peak detector.

Column Six – Labelled QP – Lim1 (dB) is the difference in level from the quasi-peak signal given to the active limit line. If this column appears in the table the quasi-peak detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Column Seven – Labelled Av Amp (dBμV) is the level of received signal that was measured in dB above 1μV using the average detector.

Column Eight – Labelled Av – Lim1 (dB) is the difference in level from the average signal given to the active limit line. If this column appears in the table the average detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Only signals highlighted in red are deemed to exceed the limit of the detector required.

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7.2 Explanation of limit line calculations for radiated measurements

The limits given in the test standard are normally expressed as absolute values (e.g. in µV/m at a specified distance), whereas the measured values are expressed as peak, quasi peak or average values in dBµV/m referenced to the measuring instrument inputs. Kiwa Electrical Compliance calibrate the test set-up to account for any path losses, antenna gains, etc. so that the value read at the receiver relates directly to the absolute value required, except that it is expressed in dB relative to one 65icrovolt and may need to take account of any alternative measuring distance used. Examples:

(a) limit of 500 µV/m equates to 20.log (500) = 54 dB µV/m.
(b) limit of 300 µV/m at 10m equates to 20.log (300 . 10/3) = 60 dB µV/m at 3m
© limit of 30 µV/m at 30m, but below 30MHz, equates to 20.log(30) + 40.log(30/3) = 69.5 dBµV/m at 3m, as extrapolation factor below 30MHz is 40dB/decade per 15.31(f)(2).

The measurement receiver used for emissions testing, performs the field strength (FS) calculations automatically. The receiver combines the signal amplitude (RA), Antenna Factor (AF) and Cable Loss (CL) factors for the frequency to be measured.

Example calculation: - FS = RA + AF + CL.

Receiver amplitude (RA)	Antenna factor (3m) (AF)		Cable loss (CL)		Field strength result (3m) (FS)		
20dBuV	25 dB		3 dB		48dBuV/m		

Additional calculation examples per ANSI C63.10 clause 9.4 – 9.6 equations 21, 22, 25 & 26:

Equation 21: $E_{Linear} = 10^{((E_{log}-120)/20)}$
And therefore equation 21 transposed is: $E_{Log} = 20xLog(E_{Linear}) +120$

Where:
E_{Linear} is the field strength of the emission in V/m
E_{Log} is the field strength of the emissions in dBµV/m

Equation 22: $EIRP = E_{Meas} + 20log(d_{Meas}) -104.7$

Where:
EIRP is equivalent isotropically radiated power in dBm
E_{Meas} is the field strength of the emission at the measurement distance in dBµV/m
d_{Meas} is the measurement distance in metres

Equation 25: $PD = EIRP_{Linear} / 4\pi d^2$
And therefore equation 25 transposed is: $EIRP_{Linear} = PD \times 4\pi d^2$

Where:
PD is the power density at distance specified by the limit, in W/m^2
$EIRP_{Linear}$ is the equivalent isotropically radiated power in Watts
d is the distance at which the power density limit is specified in metres

Equation 26: $PD = E^2_{Speclimit} / 377$
And therefore equation 26 transposed is: $E_{Spec\ limit} = \sqrt{(PD \times 377)}$

Where:
PD is the power density at distance specified by the limit, in W/m^2
$E_{spec\ limit}$ is the field strength at the distance specified by the limit in V/m

Example:

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Radiated spurious emissions limit at 3metres of 90pW/cm$^{2.}$

90pW/cm^2 x 100^2 = 0.9 µW/m^2 = (EIRP Linear)

Equation 25 transposed: 0.9 x 10^{-6} x 4 x π x 3^2 = 0.0001017876 W
And
Equation 26 transposed: $E_{Spec\ limit}$ = √(0.9x10^{-6} x 377) = 0.01842 V/m.
And
Equation 21 transposed: E_{Log} = 20Log(0.01842) +120 = 85.3dBµV/m @ 3m.

8 Photographs

Photos not included due to confidentiality request of client.

8.1 Radiated emission diagrams

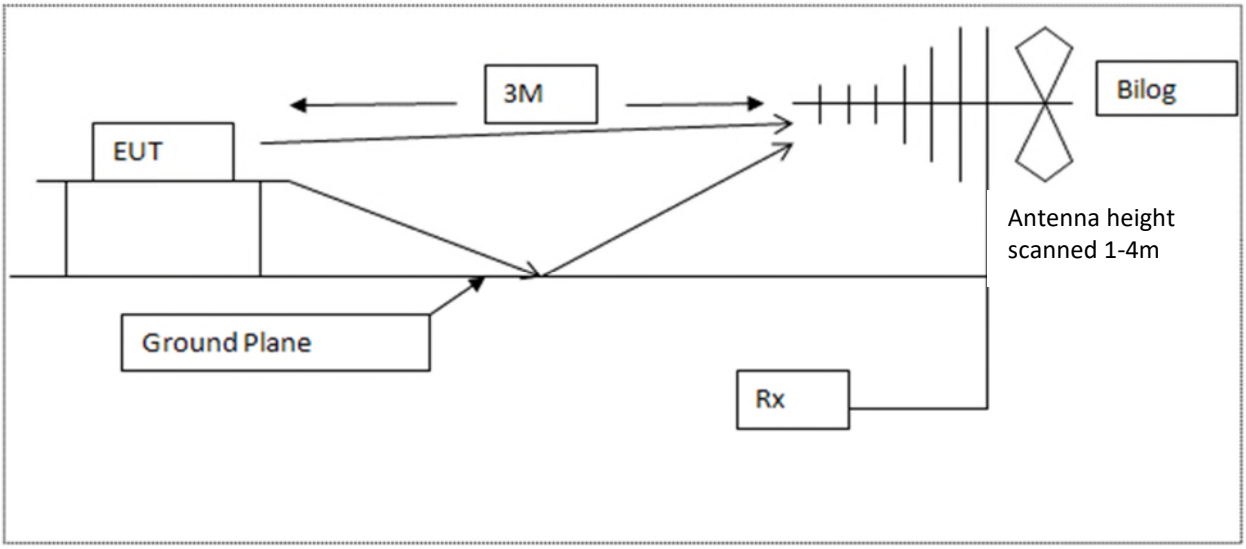

Diagram of the radiated emissions test setup 30 – 1000 MHz

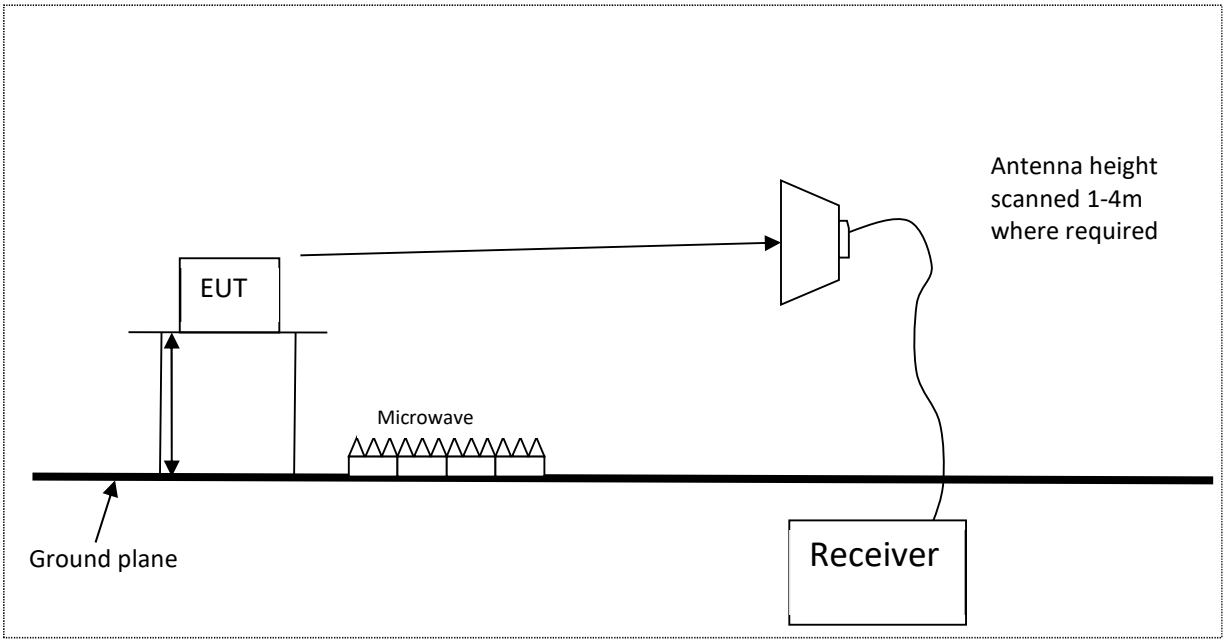

Diagram of the radiated emissions test setup above 1GHz

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9 Test equipment calibration list

The following is a list of the test equipment used by R.N. Electronics Ltd to test the unit detailed within this report. In line with our procedures, the equipment was within calibration for the period during which testing was carried out.

RN No.	Model No.	Description	Manufacturer	Calibration date	Cal period
E136	3105	Horn Antenna 1 – 12.5 GHz	EMCO	02-Apr-2023	12 months
E296-2	11970A	Harmonic Mixer 26.5-40GHz	Hewlett Packard	20-Jun-2023	12 months
E296-4	11970U	Harmonic Mixer 40-60GHz	Hewlett Packard	07-Jul-2023	24 months
E296-5	11970V	Harmonic Mixer 50-75GHz	Hewlett Packard	05-Jul-2023	24 months
E330	2224-20	Horn Antenna 26.5-40GHz	Flann (FMI)	17-Apr-2023	12 months
E411	N9039A	9 kHz – 1 GHz RF Filter Section	Agilent Technologies	05-Jul-2023	12 months
E412	E4440A	PSA 3 Hz – 26.5 GHz	Agilent Technologies	22-Sep-2023	24 months
E433	MG3693A	Signal Generator 2 GHz – 30 GHz	Anritsu	02-Oct-2023	12 months
E503	2524-20	Horn Antenna 50-75GHz	Flann (FMI)	17-Apr-2023	12 months
E520	MD4A	Diplexor IF DC-2.5GHz, LO 5-20GHz	Pacific Millimeter Products	15-Mar-2023	12 months
E580	24240	Horn Std Gain 40GHz – 60 GHz	Flann (FMI)	17-Apr-2023	12 months
E602	MG3692A	Signal Generator 10 MHz – 20 GHz	Anritsu	02-Mar-2023	12 months
E627	DSO5052A	Oscilloscope 500MHz 2CH 4Gsa/s	Agilent Technologies	14-Aug-2023	12 months
E651	MWX221	Cable N Type to SMA Blue 2m (M)	Junflon	05-Jul-2023	12 months
E658	E4418B	Power Meter EPM series	Agilent Technologies	09-Oct-2023	12 months
E717		Horn Std Gain 50-75GHz		19-May-2023	12 months
E718		Horn Std Gain 75-110GHz		17-Apr-2023	12 months
E719		Horn Std Gain 90-140GHz		17-Apr-2023	12 months
E720	28240	Horn Std Gain 90-140 GHz	Flann (FMI)	17-Apr-2023	12 months
E722	861G/387	Horn Std Gain 140-220GHz	Alpha Industries Inc	17-Apr-2023	12 months
E743	2017 4/2dB	Attenuator 4/2dB 30-1000MHz	RN Electronics	15-Mar-2023	12 months
E755	N9030B	PXA Signal Analyser 3 Hz to 50 GHz	Keysight Technologies	14-Aug-2023	12 months
E760	M05HWDX	Mixer 140-220GHz	OML Inc	#06-Dec-2023	6 months
E768	FBI-15_R0000	Isolator 50 to 75GHz	Millitech	22-Jul-2022	24 months
E839	5244D	Oscilloscope 200MHz 2CH	Pico Technology	23-May-23	12 months
E902	MWX221	Cable SMA (m) to SMA (m) 2m Blue (M)	Junflon	05-Jul-2023	12 months
E904	5086-7805	Pre-Amplifier 1GHz - 26.5GHz	Hewlett Packard	03-May-2023	12 months
E932	N5181A	Signal Generator 100kHz to 6GHz	Agilent Technologies	13-Jun-2023	12 months
E941	M08HWDX	Mixer 90-140GHz	OML Inc	#06-Dec-2023	6 months
F024	V8486A	Power Sensor 50-75GHz	Hewlett Packard	06-Dec-2022	24 months
F042	45324H-1110	Directional Coupler 10dB WR15	Hughes	20-Apr-2022	24 months
F045	2511	Attenuator 50-75GHz Rotary	Flann (FMI)	05-Jan-2023	24 months
F139	ALN-62106025-01	Amplifier WR15	Ducommun	20-Jan-2023	12 months
F305	DET-15-RPFA0	Detector WR15	Millitech	06-Feb-2023	12 months
F362	ACO-055-510070-K4K4	Cable SMA to SMA 5.5m	Atlantic Microwave	05-Jul-2023	12 months
F379	QMC-MX4-15-F	Multiplier 50 - 75GHz X4 WR15	MMWave Group (Quantum)	25-Jul-2022	24 months
H070	M1970W	Waveguide Harmonic Mixer 75 - 110 GHz	Keysight Technologies	09-Oct-2023	12 months
H078	V530	Waveguide switch 50-75GHz		23-May-2022	24 months
LPE364	CBL6112A	Antenna BiLog 30MHz - 2GHz	Chase Electronics Ltd	28-Mar-2022	36 months
NSA-M	NSA - M	NSA - Site M	RN Electronics	29-Nov-2021	36 months
TMS78	3160-08	Horn Std Gain 12.4 - 18 GHz	ETS Systems	05-Oct-2023	12 months
TMS79	3160-09	Horn Std Gain 18 - 26.5 GHz	ETS Systems	23-May-2023	12 months
TMS81	6502	Antenna Active Loop	EMCO	17-Aug-2023	24 months
TMS82	8449B	Pre-Amplifier 1GHz - 26.5GHz	Agilent Technologies	#08-Jan-2024	12 months
ZSW1	V2.5.2	Measurement Software Suite	RN Electronics	Not applicable	

Equipment was within calibration dates for tests and has been re-calibrated since/during date of tests.

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10 Auxiliary and peripheral equipment

10.1 Customer supplied equipment

Item No.	Model No.	Description	Manufacturer	Serial No.
1	SF314-41-R70W	Laptop PC	Acer	NXHFEEH0011010139B6600
2	Not stated	Programming board 1	Not stated	Not stated
3	Not stated	Programming board 2	Not stated	Not stated

10.2 R.N. Electronics Ltd supplied equipment

No R.N. Electronics Ltd supplied equipment was used.

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11 Condition of the equipment tested

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

11.1 Modifications before test

No modifications were made before test by R.N. Electronics Ltd.

11.2 Modifications during test

No modifications were made during test by R.N. Electronics Ltd.

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12 Description of test sites

Site A Radio Laboratory and Anechoic Chamber

Site B Semi-Anechoic Chamber and Control Room
FCC Registration No. 293246, ISED Registration No. 5612A-4

Site C Transient Laboratory

Site D Screened Room (Conducted Immunity)

Site E Screened Room (Control Room for Site D)

Site F Screened Room (Conducted Emissions)

Site G Screened Room (Control Room for Site H)

Site H 3m Semi-Anechoic Chamber (indoor OATS)
FCC Registration No. 293246, ISED Registration No. 5612A-2, VCCI Registration No. 4065

Site J Transient Laboratory

Site K Screened Room (Control Room for Site M)

Site M 3m Semi-Anechoic Chamber (indoor OATS)
FCC Registration No. 293246, ISED Registration No. 5612A-3

Site N Radio Laboratory

Site Q Fully-Anechoic Chamber

Site OATS 3m and 10m Open Area Test Site
FCC Registration No. 293246, ISED Registration No. 5612A-1

Site R Screened Room (Conducted Immunity)

Site S Safety Laboratory

Site T Transient Laboratory

CAB identifier as issued by Innovation, Science and Economic Development Canada is UK0002
CAB identifier as issued by FCC is UK2015

13 Abbreviations and units

%	Percent
λ	Wavelength
µA/m	microAmps per metre
µV	microVolts
µW	microWatts
AC	Alternating Current
ACK	ACKnowledgement
ACP	Adjacent Channel Power
AFA	Adaptive Frequency Agility
ALSE	Absorber Lined Screened Enclosure
AM	Amplitude Modulation
Amb	Ambient
ANSI	American National Standards Institute
ATPC	Automatic Transmit Power Control
AVG	Average
AWGN	Additive White Gaussian Noise
BER	Bit Error Rate
BPSK	Binary Phase Shift Keying
BT	BlueTooth
BLE	BlueTooth Low Energy
BW	Bandwidth
ºC	Degrees Celsius
C/I	Carrier / Interferer
CAC	Channel Availability Check
CCA	Clear Channel Assessment
CEPT	European Conference of Postal and Telecommunications Administrations
CFR	Code of Federal Regulations
CISPR	Comité International Spécial des Perturbations Radioélectriques
cm	centimetre
COFDM	Coherent OFDM
COT	Channel Occupancy Time
CS	Channel Spacing
CW	Continuous Wave
DAA	Detect And Avoid
dB	deciBels
dBµA/m	deciBels relative to 1µA/m
dBµV	deciBels relative to 1µV
dBµV/m	deciBels relative to 1µV/m
dBc	deciBels relative to Carrier
dBd	deciBels relative to dipole gain
dBi	deciBels relative to isotropic gain
dBm	deciBels relative to 1mW
dBr	deciBels relative to a maximum value
dBW	deciBels relative to 1W
DC	Direct Current
DFS	Dynamic Frequency Selection
DMO	Dynamic Modulation Order
DSSS	Direct Sequence Spread Spectrum
DTA	Digital Transmission Analyser
EIRP	Equivalent Isotropic Radiated Power
emf	electromotive force
ERC	European Radiocommunications Committee
ERP	Effective Radiated Power
ETSI	European Telecommunications Standards Institute
EU	European Union
EUT	Equipment Under Test
FCC	Federal Communications Commission
FER	Frame Error Rate
FHSS	Frequency Hopping Spread Spectrum
FM	Frequency Modulation
FSK	Frequency Shift Keying
FSS	Fixed Satellite Service
g	Grams
GHz	GigaHertz
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
Hz	Hertz
IEEE	Institute of Electrical and Electronics Engineers
IF	Intermediate Frequency
ISED	Innovation Science and Economic Development
ITU	International Telecommunications Union
KDB	Knowledge DataBase

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kg	kilogram
kHz	kiloHertz
kPa	Kilopascal
LBT	Listen Before Talk
LISN	Line Impedance Stabilisation Network
LNA	Low Noise Amplifier
LNB	Low Noise Block
LO	Local Oscillator
m	metre
mA	milliAmps
max	maximum
Mbit/s	MegaBits per second
MCS	Modulation and Coding Scheme
MHz	MegaHertz
mic	Microphone
MIMO	Multiple Input, Multiple Output
min	minimum
mm	millimetres
ms	milliseconds
mW	milliWatts
NA	Not Applicable
NFC	Near Field Communications
nom	Nominal
nW	nanoWatt
OATS	Open Area Test Site
OBW	Occupied Band Width
OCW	Occupied Channel Width
OFDM	Orthogonal Frequency Division Multiplexing
OOB	Out Of Band
ppm	Parts per million
PER	Packet Error Rate
PK	Peak
PMR	Private Mobile Radio
PRBS	Pseudo Random Bit Sequence
PRF	Pulse Repetition Frequency
PSD	Power Spectral Density
PSU	Power Supply Unit
pW	picoWatts
QAM	Quadrature Amplitude Modulation
QP	Quasi Peak
QPSK	Quadrature Phase Shift Keying
RBW	Resolution Band Width
RED	Radio Equipment Directive
R&TTE	Radio and Telecommunication Terminal Equipment
Ref	Reference
RF	Radio Frequency
RFC	Remote Frequency Control
RFID	Radio Frequency IDentification
RLAN	Radio Local Area Network
RMS	Root Mean Square
RNSS	Radio Navigation Satellite Service
RSL	Received Signal Level
RSSI	Received Signal Strength Indicator
RTP	Room Temperature and Pressure
RTPC	Remote Transmit Power Control
Rx	Receiver
s	Seconds
SINAD	Signal to Noise And Distortion
SRD	Short Range Device
Tx	Transmitter
UKAS	United Kingdom Accreditation Service
UKCA	United Kingdom Conformity Assessed
UKRER	United Kingdom Radio Equipment Regulations
UHF	Ultra High Frequency
U-NII	Unlicensed National Information Infrastructure
USB	Universal Serial Bus
UWB	Ultra Wide Band
V	Volts
V/m	Volts per metre
VBW	Video Band Width
VHF	Very High Frequency
VSAT	Very Small Aperture Terminal
W	Watts

====== END OF TEST REPORT ======