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TEST REPORT

**Windcave CHU200TW REL D
Point of Sale (POS) Device**

tested to the

**47 Code of Federal Regulations
Part 15 - Radio Frequency Devices
Subpart C – Intentional Radiators**

Section 15.225

Operation within the band 13.110 -14.010 MHz

for

Windcave

A handwritten signature in black ink, appearing to read "Andrew Cutler".

This Test Report is issued with the authority of:

Andrew Cutler- General Manager



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1. STATEMENT OF COMPLIANCE

The **Windcave CHU200TW REL D Point of Sale (POS) Device** complies with FCC Part 15 Subpart C Section 15.225 as an Intentional Radiator when the methods as described in ANSI C63.10 –2020 + Corrigendum 1-2023 are applied.

2. RESULTS SUMMARY

The results from testing carried out between 28th – 31st July 2026 are detailed in the following table:

Clause	Parameter	Result
15.201	Equipment authorisation requirement	Certification required
15.203	Antenna requirement	Complies Antenna internal to the device
15.204	External PA and antenna modifications	Not applicable No external devices
15.205	Restricted bands of operation	Complies Device transmits on 13.560 MHz
15.207	Conducted limits	Complies
15.209	Radiated emission limits - Emissions < 30 MHz	Complies
15.209	Radiated emission limits – Emissions > 30 MHz	Complies
15.225	Radiated emission limits - Fundamental	Complies
15.225	Frequency stability	Complies

3. INTRODUCTION

This report describes the tests and measurements performed for the purpose of determining compliance with the specification with the following conditions:

The client selected the test sample.

The report relates only to the sample tested.

Any corrections or erasures in this report are detailed in the revision table below.

Testing was carried out in accordance with EMC Technologies NZ Ltd designation as a FCC Accredited Laboratory by International Accreditation New Zealand, designation number: NZ0002 under the APEC TEL MRA.

The equipment has been tested in accordance with the requirements contained in the appropriate Commission regulations.

Testing was carried out using measurement procedures that are consistent with industry or Commission standards and demonstrate that the equipment complies with the appropriate standards.

All compliance statements have been made with respect of the specification limit with no reference to the measurement uncertainty.

Laboratory measurements were made at 47 Mackevlie Street, Grey Lynn, Auckland, New Zealand (Postal and Actual Address).

Radiated emissions testing was carried out at the laboratory's open area test site - located at 670 Kawakawa-Orere Road, RD5, Papakura, New Zealand (Postal and Actual Address).

Report Revision Table

Version	Change Made	Date
260604.2	Initial Issue	12 th August 2026
260604.2A	Radiated emission plots added	15 th Sept 2026

4. CLIENT INFORMATION

Company Name	Windcave
Address (Postal)	43 Wilkinson Road, Ellerslie
Address (Actual)	33 Wilkinson Road, Ellerslie
City	Auckland 1060
Country	New Zealand
Contact	Mr Ken Peng / Mr Shaun Mason

5. DESCRIPTION OF TEST SAMPLE

Brand Name	Windcave
Model Tested	CHU200TW REL D
Product	Point of Sale (POS) Device
Manufacturer	Windcave
Country of Origin	New Zealand
Serial Number(s)	3426130299
Firmware version	v2.0.0.2
Hardware version	CHU200T-D-W0-00
Antenna type and gain	The NFC antenna is a 2-turn loop antenna around the perimeter of the LCD with gain of zero.
Rated supply voltage	12 VDC representative power supply powered at 120 VAC
Modulation description	ASK
Highest clock frequency	12 MHz crystal CPU with 168 MHz internal PLL 500 MHz MIPI DSI
NFC Frequency	13.560 MHz
FCC ID	2AC2O-CHU200TW

Product Description:

The device tested is a CHU200TW Release D non handheld payment terminal for fixed and mobile retail environments.

The sample consists of the following equipment:

CHU200TW terminal x 2

CHU200TW terminal with NFC dummy load attached x 1

The sample was provided with the following auxiliary equipment:

Laptop with software

12 VDC AC Adaptor

Ethernet Cable

RS232 Cable

PoE Board

The device was powered at 12 VDC using the pre-certified adapter powered by 120 VAC mains supply.

The equipment was set up with the laptop running the software to continuously operate the desktop payment terminal.

Testing was carried out in EMC Emissions mode and NFC mode.

6. SETUPS AND PROCEDURES

Standard

The sample was tested in accordance with 47 CFR Part 15 Subpart C.

Methods and Procedures

The measurement methods and procedures as described in ANSI C63.10 – 2020 + Corrigendum 1-2023 were used.

Section 15.201: Equipment authorisation requirement

Certification as detailed in Subpart J of Part 2 is required for this device.

Section 15.203: Antenna requirement:

The device has a permanently attached internal 13.560 MHz antenna

Result: Complies

Section 15.204: External radio frequency power amplifiers and antenna modifications

It is NOT possible to attach an external power amplifier to this transmitter.

Result: Complies

Section 15.205: Restricted bands of operation

The 13.560 MHz device will fall into the band of 13.110 – 14.010 MHz that is covered by Section 15.225.

Measurements were made using a spectrum analyser with the 99% power points being determined.

Measurements were made using a span of 1 MHz with a resolution bandwidth of 10 kHz and a video bandwidth of 30 kHz.

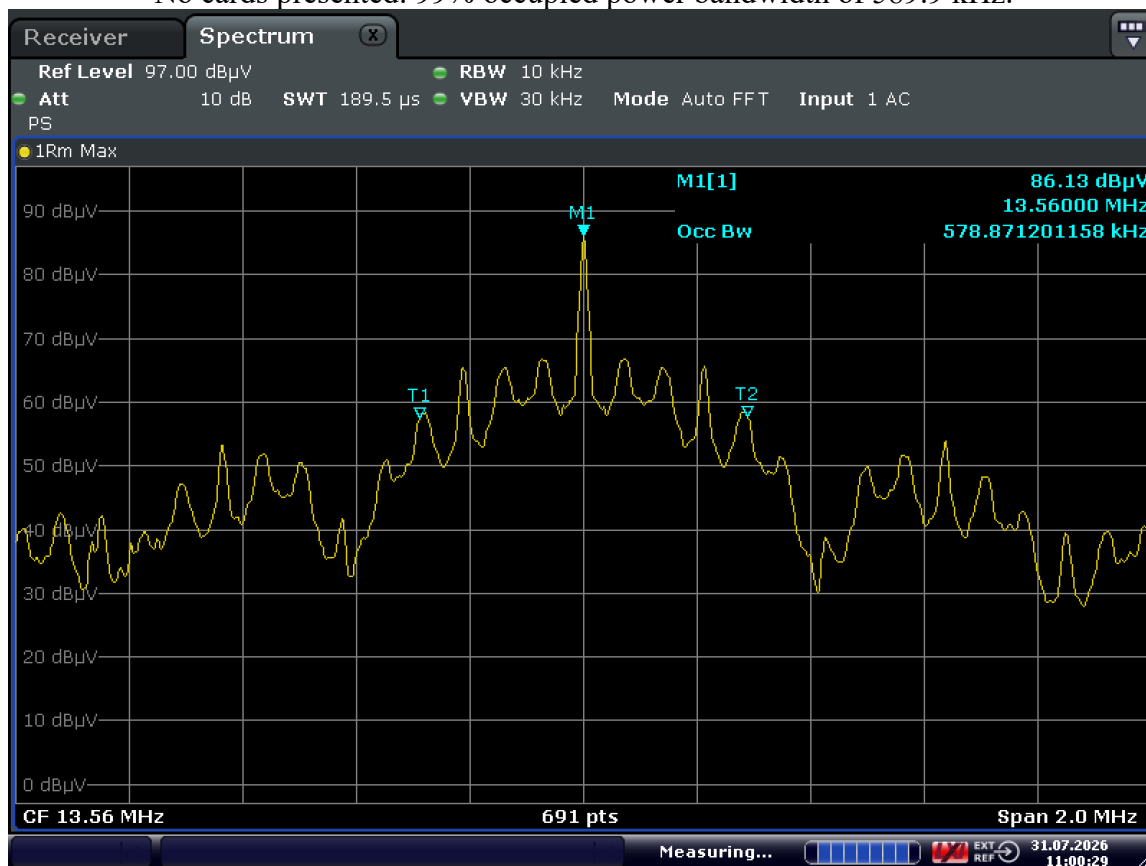
Indicative measurements were made in the laboratory at a close distance.

Observations were made when various cards were presented as detailed below when the device was operating in EMC mode.

Card	Modulation Bandwidth (MHz)
No cards	0.590
NFC card only	1.085
NFC card + Card in Slot	1.019

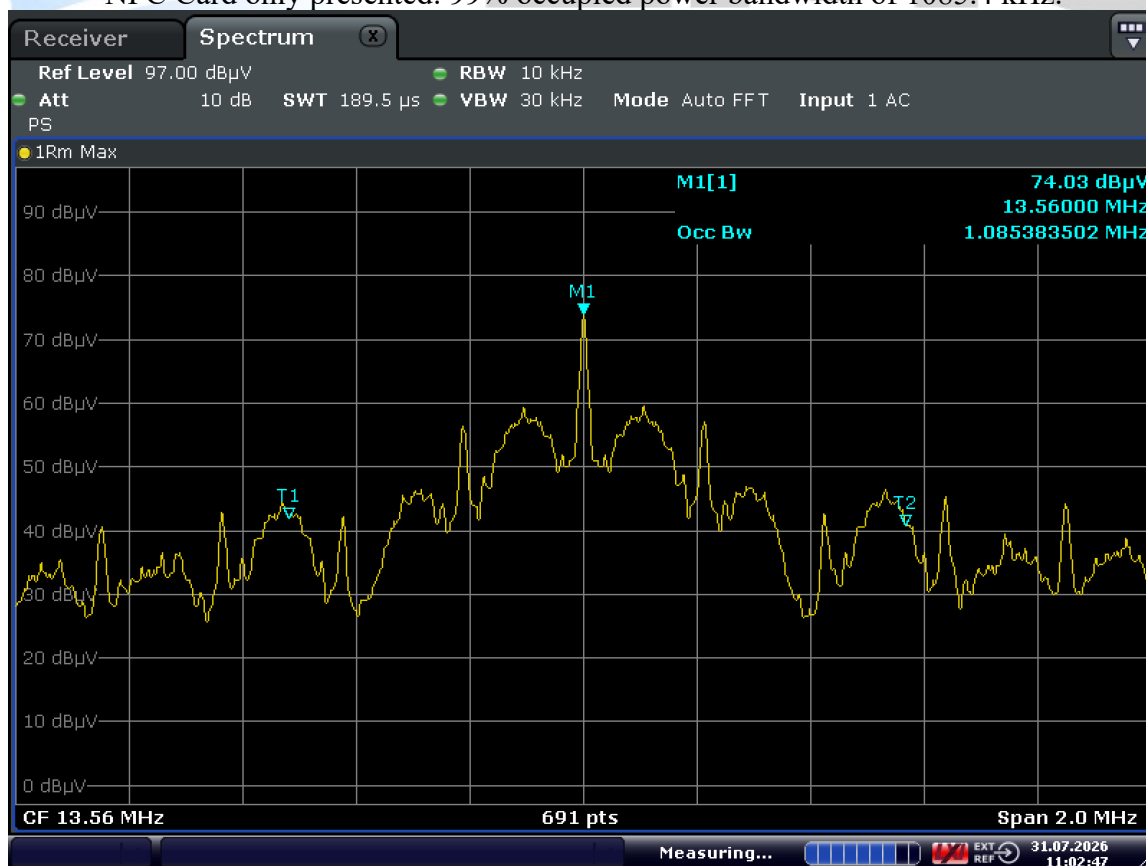
Result: Complies.

No cards presented: 99% occupied power bandwidth of 589.9 kHz.



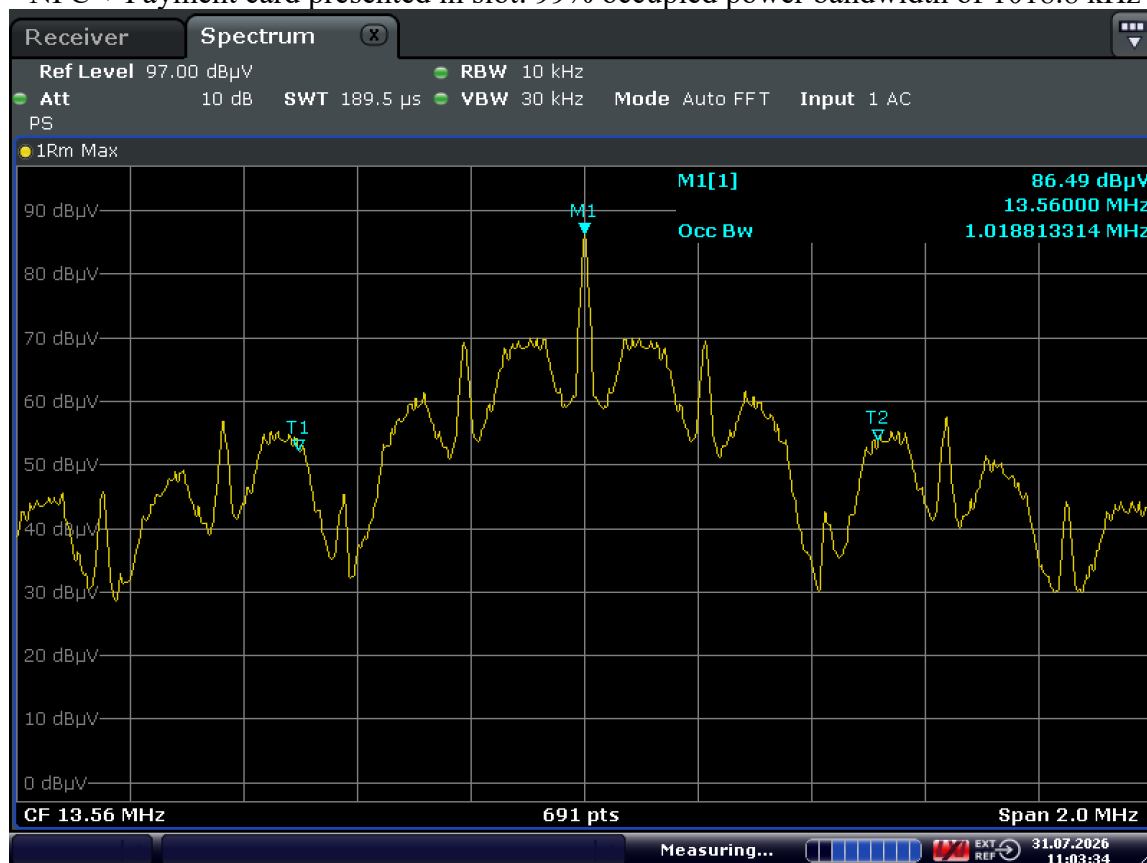
Date: 31.JUL.2026 11:00:30

NFC Card only presented: 99% occupied power bandwidth of 1085.4 kHz.



Date: 31.JUL.2026 11:02:47

NFC + Payment card presented in slot: 99% occupied power bandwidth of 1018.8 kHz



Date: 31.JUL.2026 11:03:34



Section 15.207: Conducted Emissions Testing

Conducted Emissions testing was carried out over the frequency range of 150 kHz to 30 MHz which was carried out at the laboratory's MacKelvie Street premises in a 2.4 m x 2.4 m x 2.4 m screened room.

As it is possible for this device to be directly or indirectly connected to the Public AC mains supply testing was carried out using a representative AC power supply system that was powered at 120 Vac 60 Hz which powered the device under test via the USB to UART interface device at 12 Vdc.

Initial testing was carried out in EMC Mode when the device was operating normally while continuously reading a NFC card on the NFC Card Reader and when a Card was placed in the Payment Card slot.

Testing was also carried out in NFC test mode where the NFC card reader was transmitting an unmodulated carrier.

As the device did not comply with both of these tests at 13.560 MHz, an additional test was then carried out with a Resistive Dummy load replacing the NFC antenna.

The device is deemed to comply when the emissions from the NFC device are observed to be less than the appropriate limits when the dummy load is attached.

The device was placed on top of the emissions table, which is 0.8 m x 0.8 m, 80 cm above the screened room floor which acts as the horizontal ground plane.

In addition, the device was positioned 40 cm away from the screened room wall which acts as the vertical ground plane.

The artificial mains network was bonded to the screened room floor.

At all times the device was kept more than 80 cm from the artificial mains network.

Initially a conducted emissions pre scan is carried out using a Peak detector (red trace) and an Average detector (green trace).

Worst case measurements are then made on the highest pre-scan emission levels on a limited number of frequencies using a Quasi Peak detector and an Average detector with the results of both the phase and neutral lines being recorded in the results table.

When either the Peak or Average detector pre scan emissions appear to be over the Quasi Peak or Average limit line each peak is individually checked and confirmed to be below the applicable limit.

The supplied plot is combined plot showing the worst-case quasi peak and average results of both the phase and neutral lines to the representative AC power supply.

Quasi peak and average detectors have been used with resolution bandwidths of 9 kHz.

Result: Complies

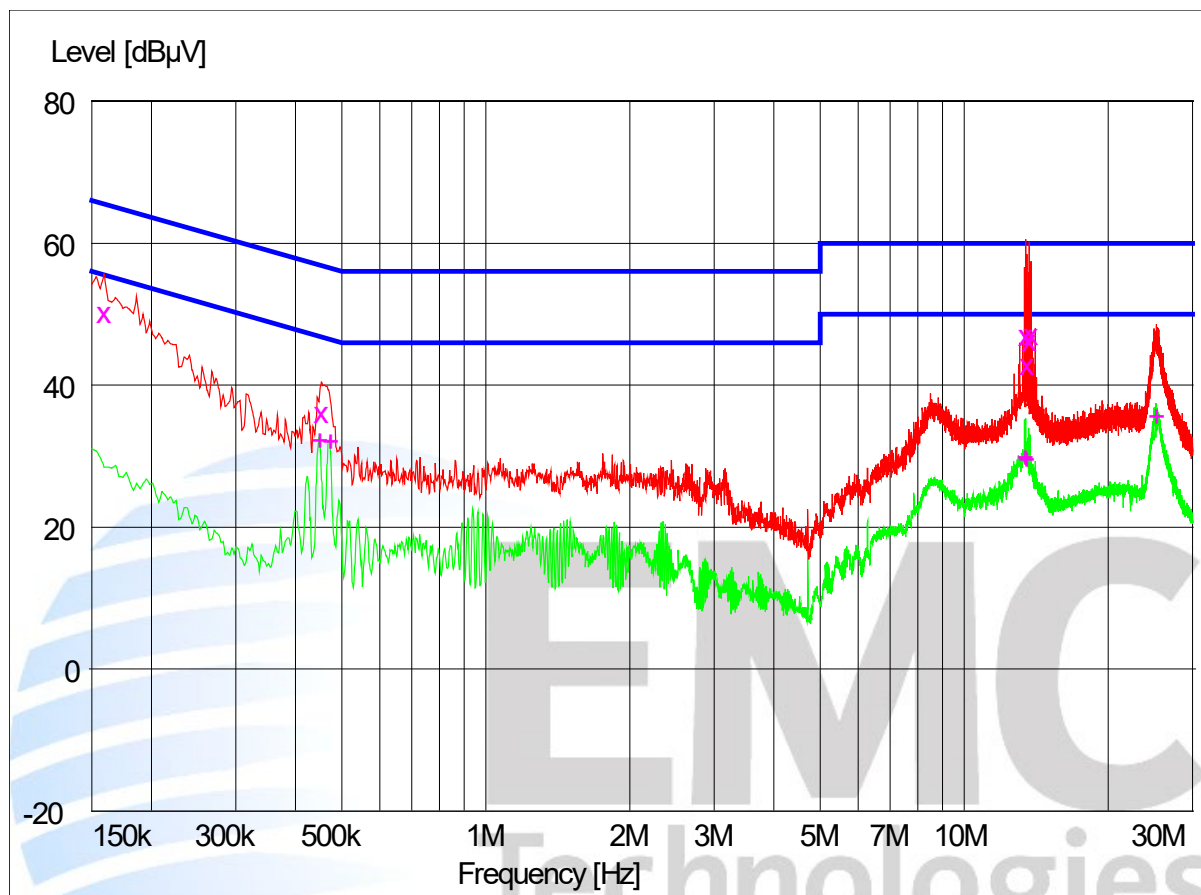
Measurement uncertainty with a confidence interval of 95% is:

- AC Mains port (0.15-30 MHz) $\pm$ 2.8 dB

Conducted Emissions Results – AC Input Power Port

Setup: Device tested when powered at 120 VAC 60 Hz when operating continuously in **EMC test mode**.

Peak --- Average -- Quasi Peak X Average +



Final Quasi-Peak Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.159000	50.60	65.6	15.0	L1	-
0.453000	36.50	56.8	20.3	N	-
13.448000	47.30	60.0	12.7	L1	-
13.506500	43.30	60.0	16.7	N	-
13.560000	71.10	60.0	-11.1	N	<i>Fundamental</i>
13.686500	46.60	60.0	13.4	N	-
13.776500	47.50	60.0	12.5	N	-

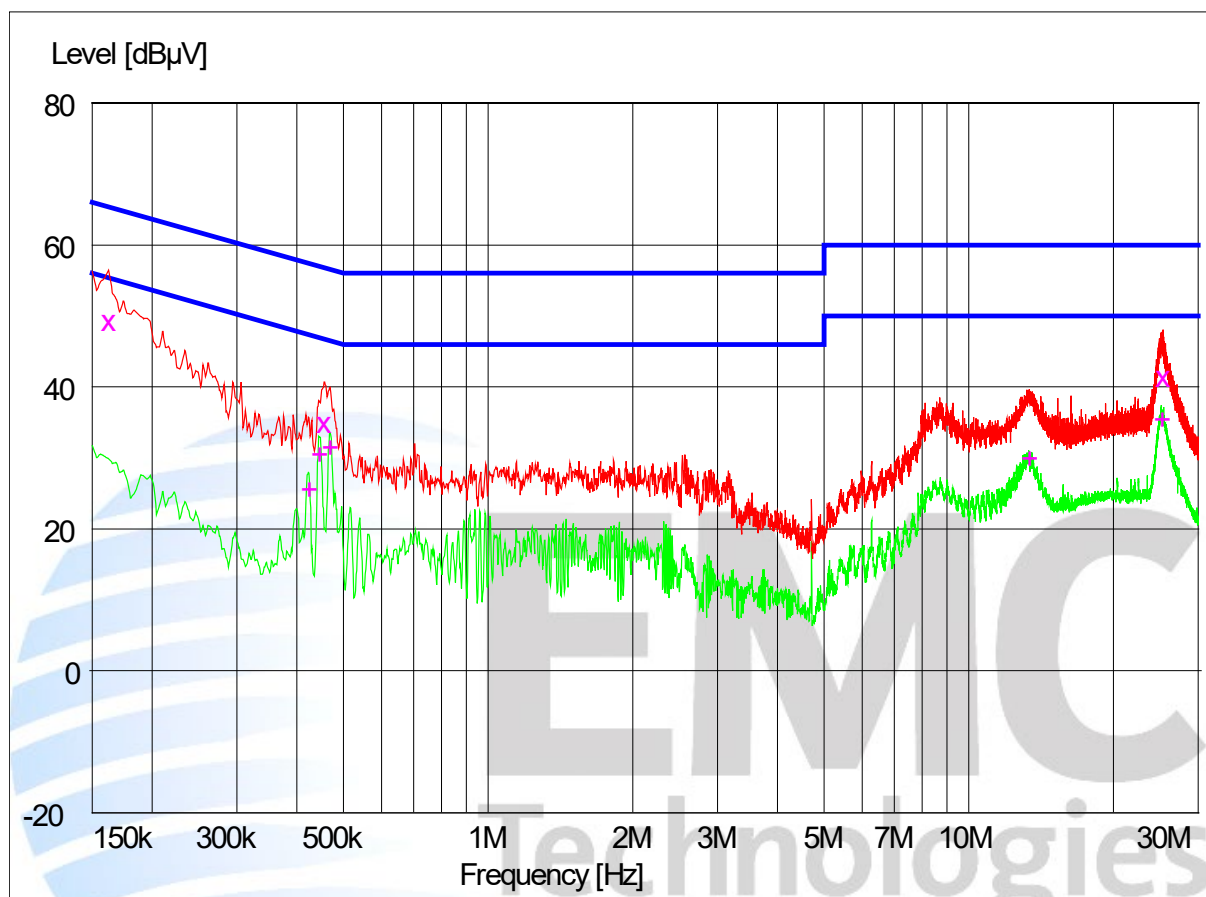
Final Average Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.447000	32.60	47.0	14.4	L1	-
0.471000	32.40	46.5	14.1	N	-
13.353500	30.10	50.0	19.9	L1	-
13.448000	29.90	50.0	20.1	L1	-
13.560000	43.30	50.0	6.7	N	<i>Fundamental</i>
25.121000	36.00	50.0	14.0	N	-

Conducted Emissions Results – AC Input Power Port

Setup: Device tested when powered at 120 Vac 60 Hz when operating continuously in **EMC test mode** with the NFC device operating into a dummy load.

Peak --- Average -- Quasi Peak X Average +



Final Quasi-Peak Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.162000	49.70	65.3	15.6	L1	-
0.456000	35.40	56.8	21.4	N	-
25.337000	41.80	60.0	18.2	N	-

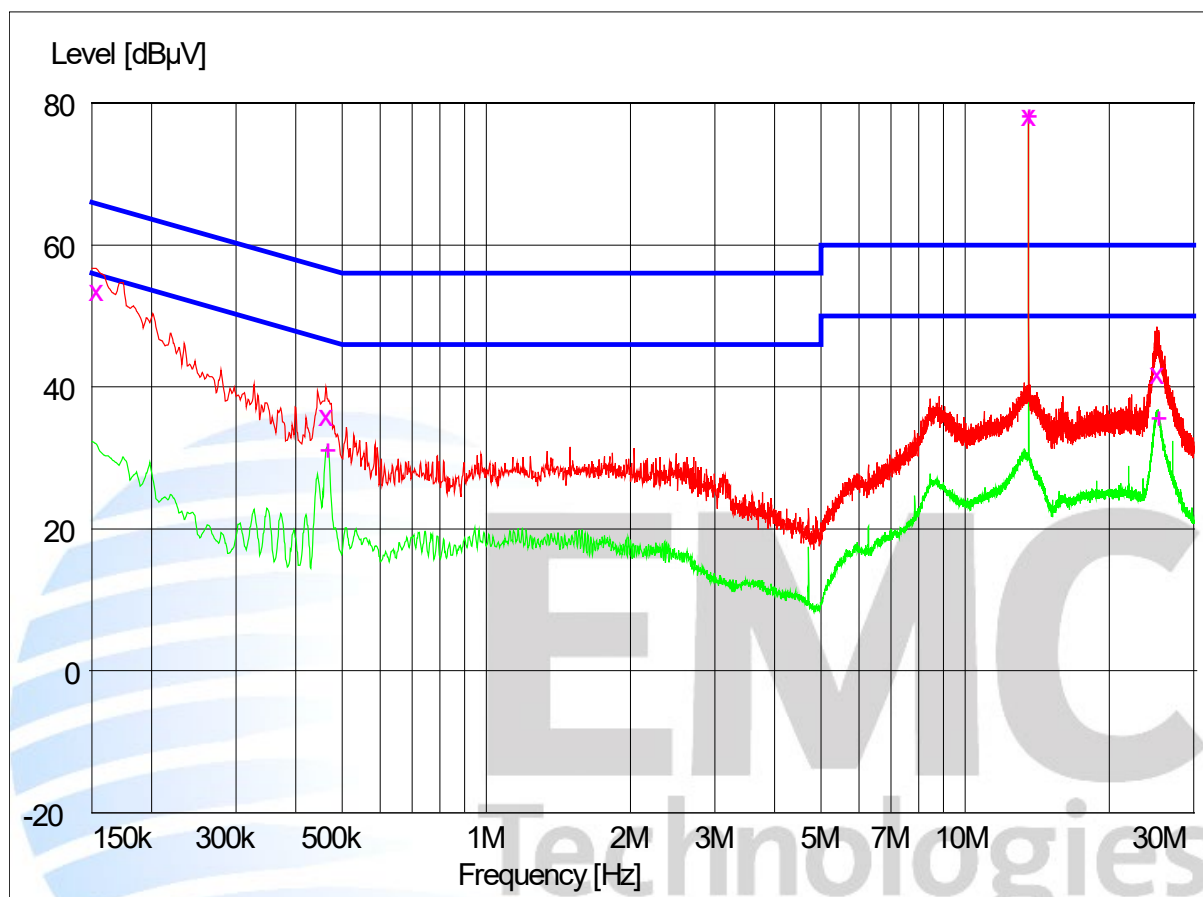
Final Average Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.423000	25.90	47.4	21.5	L1	-
0.444000	30.80	47.0	16.2	L1	-
0.468000	31.90	46.6	14.7	N	-
13.326500	30.30	50.0	19.7	L1	-
25.148000	35.80	50.0	14.2	L1	-

Conducted Emissions Results – AC Input Power Port

Setup: Device tested when powered at 120 Vac 60 Hz when operating continuously in **NFC mode** with the NFC device transmitting a carrier on 13.560 MHz continuously.

Peak --- Average -- Quasi Peak X Average +



Final Quasi-Peak Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.153000	54.00	65.8	11.8	N	-
0.462000	36.40	56.7	20.3	L1	-
13.560500	78.60	60.0	-18.6	L1	Fundamental
25.161500	42.20	60.0	17.8	N	-

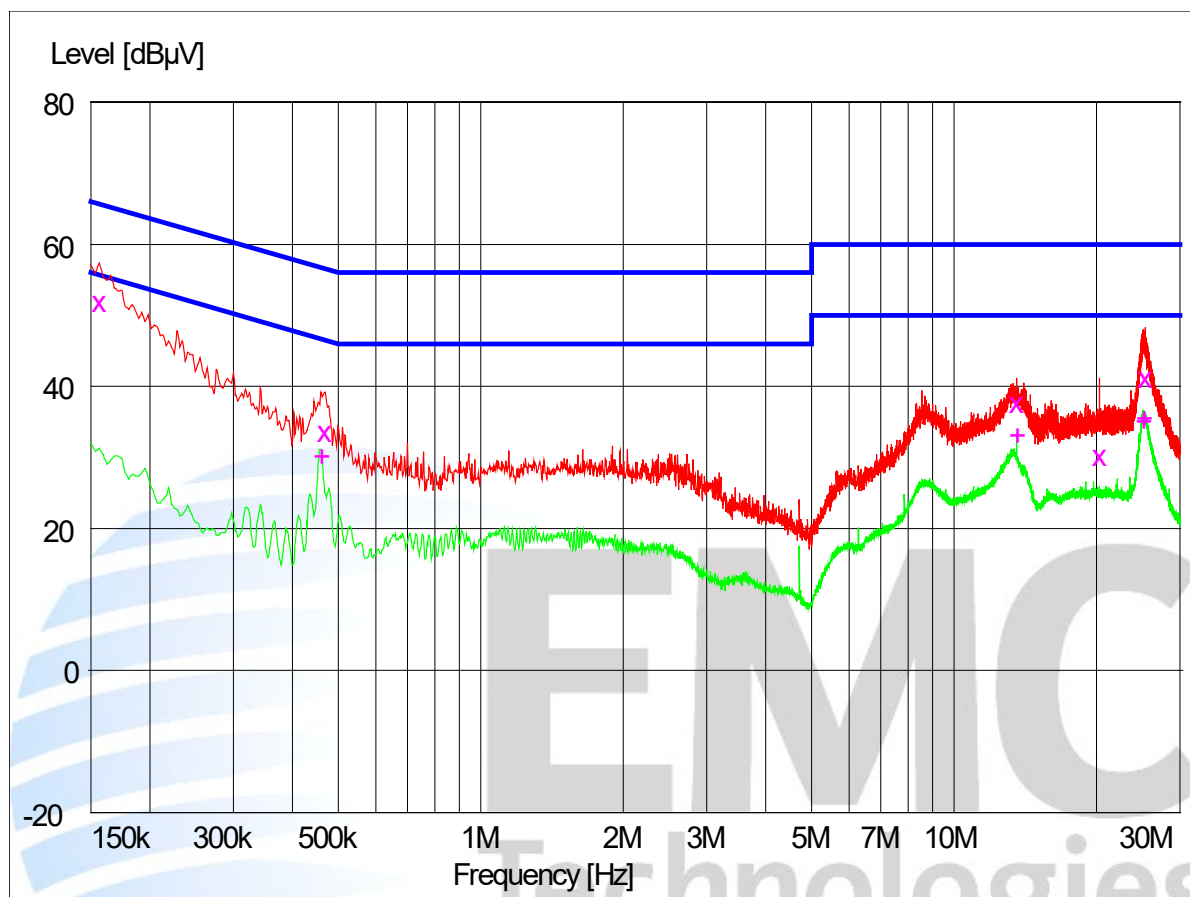
Final Average Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.465000	31.50	46.6	15.1	L1	-
13.560500	78.50	50.0	-28.5	L1	Fundamental
25.296500	35.90	50.0	14.1	L1	-

Conducted Emissions Results – AC Input Power Port

Setup: Device tested when powered at 120 Vac 60 Hz when operating continuously in **NFC mode** with the NFC device transmitting a carrier on 13.560 MHz continuously into a dummy load.

Peak --- Average -- Quasi Peak X Average +



Final Quasi-Peak Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.156000	52.30	65.7	13.4	N	-
0.468000	34.10	56.5	22.4	N	-
13.560500	38.20	60.0	21.8	L1	-
20.301500	30.60	60.0	29.4	N	-
25.350500	41.70	60.0	18.3	L1	-

Final Average Measurements

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Phase	Rechecks (dBμV)
0.459000	30.50	46.7	16.2	N	-
13.560500	33.40	50.0	16.7	L1	-
25.044500	35.50	50.0	14.5	L1	-
25.139000	35.80	50.0	14.2	N	-

Section 15.209: Radiated emission limits, general requirements

Radiated emission testing was carried out over the frequency range of 10 kHz to 2000 MHz as the highest declared frequency in use in the device is 500 MHz.

Testing was carried out at the laboratory's open area test site - located at Driving Creek, Orere Point, Auckland, New Zealand.

The device was tested when placed in the centre of the test table 0.8 m above the test site ground plane.

The sample was tested when powered using a proprietary USB / Serial connection

The device was powered at 12 VDC using a representative AC power supply that was powered at 120 VAC.

Attached to the interface was a laptop computer using a USB C data cable.

A laptop computer was used to exercise the device under test in EMC mode.

The device under test was laid flat on top of the test table to the left-hand side.

The data and power cable from the device was led directly down to the interface device that was placed on top of the turntable.

The laptop computer was also placed on top of the table to the right-hand side.

The USB cable was lead directly down to the interface device along with the power supply cable with the power being placed on the ground plane behind the turntable.

The interface power supply was also placed on the ground plane behind the turntable.

NFC observed operating on 13.560 MHz.

Testing was carried out in EMC mode when the NFC card was placed on top of the NFC card reader and with the slot card placed inside the slot card reader.

Initial measurement plots were made to determine the emissions of interest.

When an emission of interest is located, it is positively identified and its maximum level is found by rotating the automated turntable, and by varying the antenna height with an automated antenna tower, which the level being recorded in a tabulated format.

Below 30 MHz a magnetic loop is used with the centre of the loop being 1 metre above the ground with measurements being made using a quasi peak detector at a distance of 10 metres.

Between 30 and 2000 MHz measurements were made at a distance of 3 metres in both vertical and horizontal antenna polarisations.

Section 15.209: Radiated emission limits, general requirements cont.

A Quasi Peak detector with a 120 kHz bandwidth was used between 30 and 1000 MHz.

A Peak detector and an Average detector, with a bandwidth of 1 MHz, were used between 1000 – 2000 MHz.

During the test a number of ambient emissions were identified a list of which can be provided upon request.

The emission level is determined in field strength by taking the following into consideration:
Level (dB μ V/m) = Receiver Reading (dB μ V) + Antenna Factor (dB/m) + Coax Loss (dB)

For example, if an emission of 30 dB μ V was observed at 30 MHz:
45.5 dB μ V/m = 30.0 dB μ V + 14 dB/m + 1.5 dB



Section 15.209: Below 30 MHz spurious emission measurements

The emission below was derived from the raw data plots and then it was individually measured.

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
27.120	10.7	48.6	37.9	Pass

The NFC device was transmitting continuously on 13.560 MHz.

Magnetic loop measurements were made at a distance of 10 metres.

Measurement receiver with a quasi-peak detector with a 9 kHz bandwidth was used.

The 30-metre limit has been scaled by a factor of 40 dB per decade, as per section 15.31 (f) (2).

The limit at 27.120 MHz when measured at 30 metres is 30 μ V/m or 29.54 dB μ V/m.

The scaled limit at 10 metres will be 48.6 dB μ V/m.

The spurious emission observed does not exceed the level of the fundamental emission.

No other low frequency spurious emissions were detected from the device when measurements were attempted from 10 kHz - 30.0 MHz

Result: Complies.

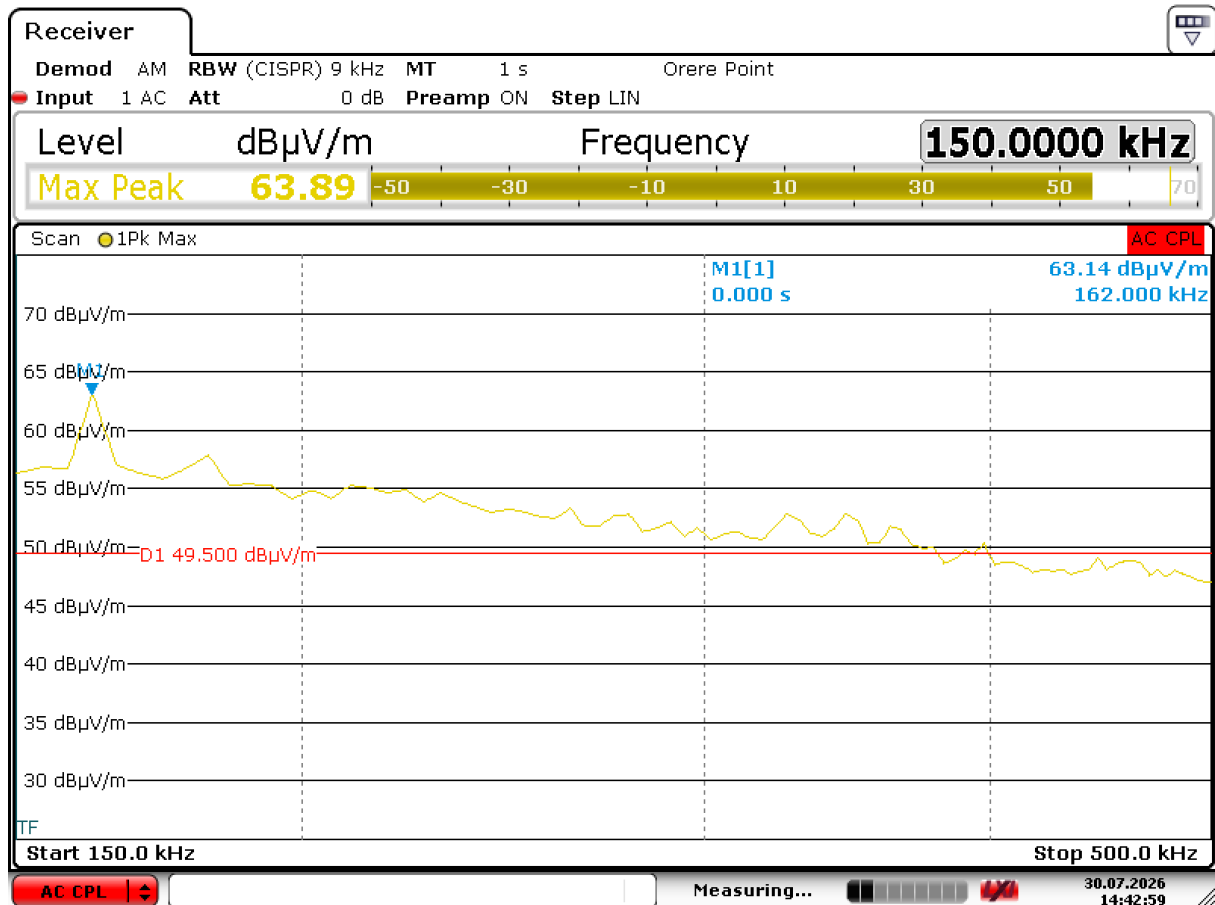
Measurement uncertainty with a confidence interval of 95% is:

- Free radiation tests (10 kHz – 30 MHz) $\pm$ 4.8 dB

Spurious Emissions (less than 30 MHz)

Frequency Range: 150 – 500 kHz

Antenna: Loop



Date: 30.JUL.2026 14:42:59

Notes

No emissions detected from the product

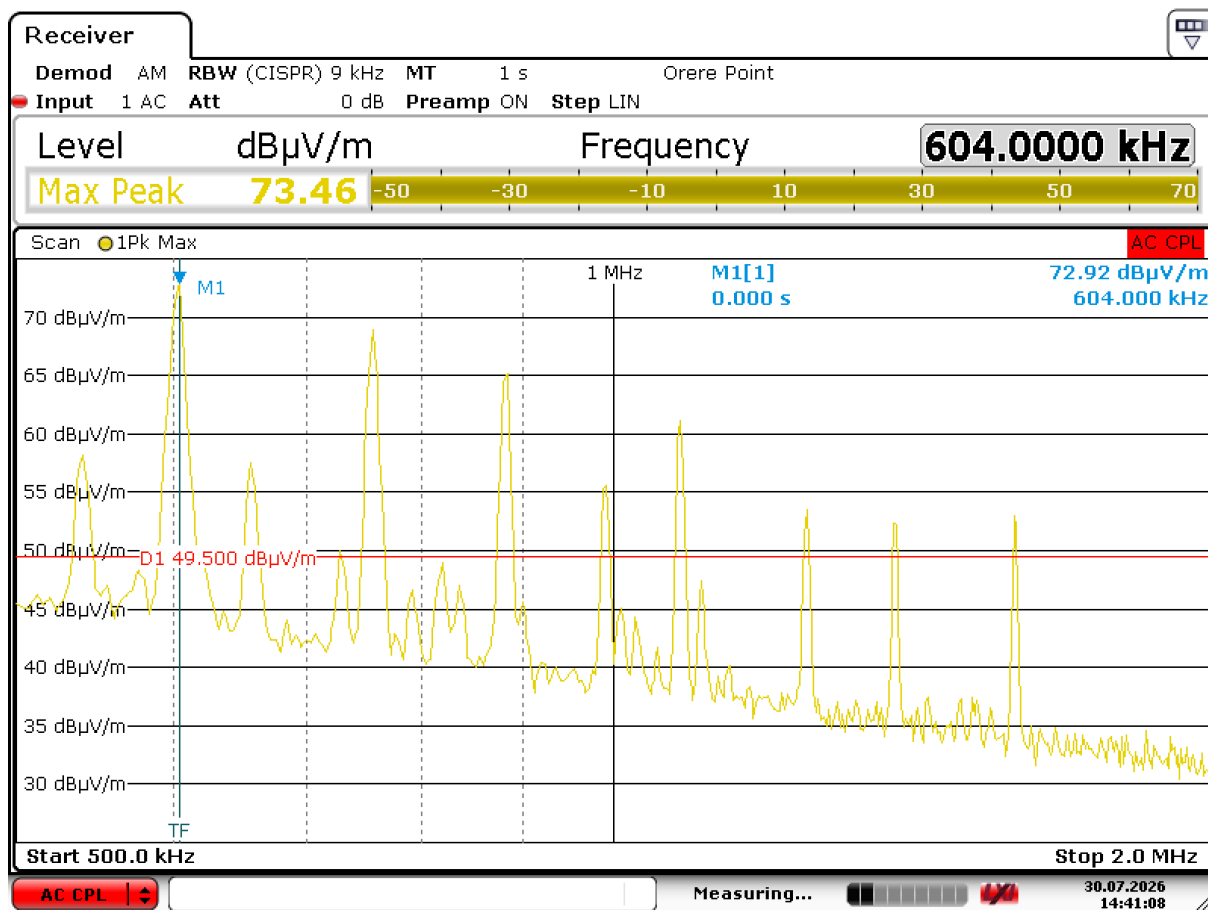
Limit shown is not correct

The correct limit slopes is higher than the reference level of the plot.

Greater than 70 dBuV/m at 10 metres.

Frequency Range: 500 – 2000 kHz

Antenna: Loop



Date: 30.JUL.2026 14:41:07

Notes

No emissions detected from the product

AM broadcast emissions observed between 550 – 1705 kHz

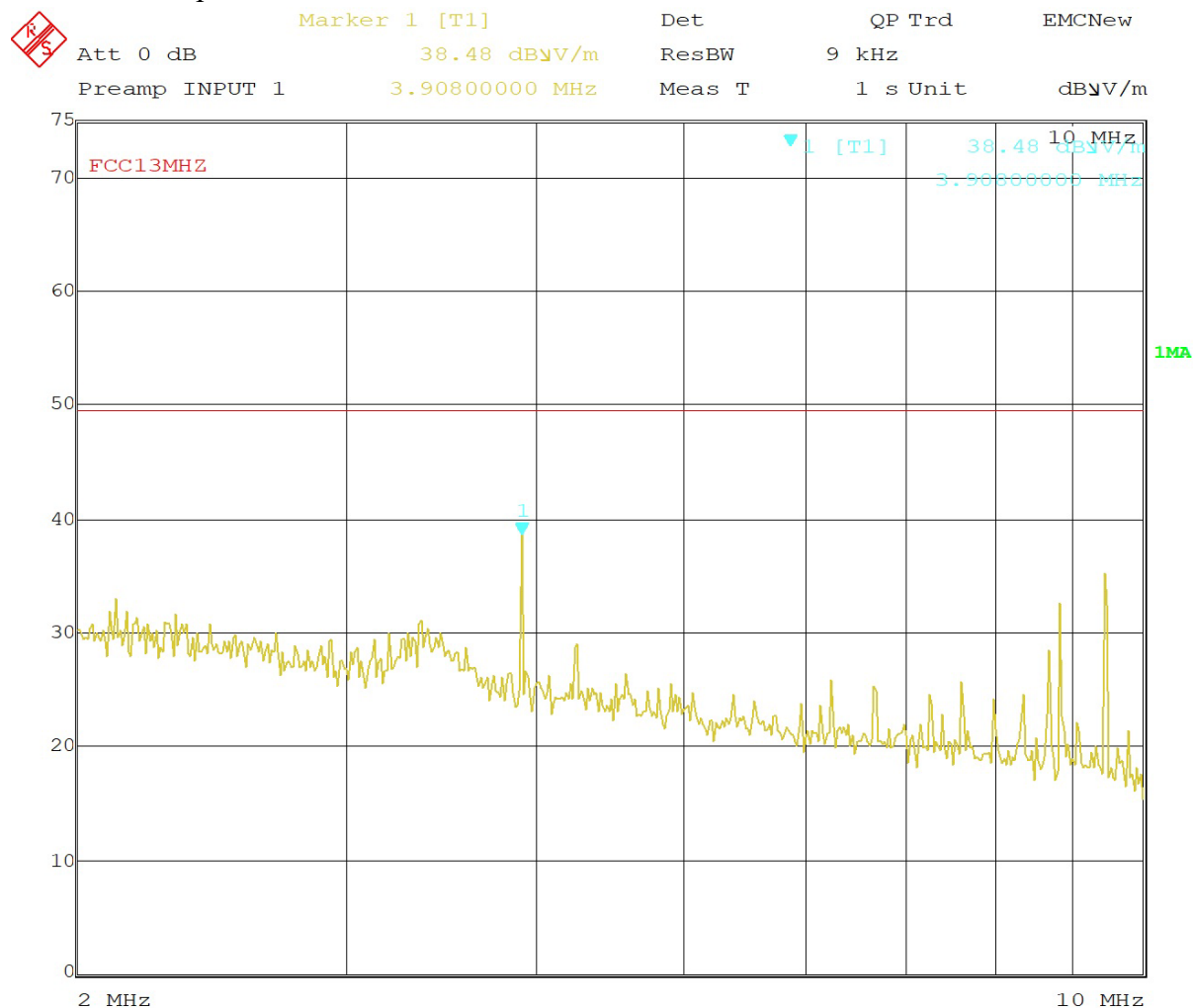
Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test over this frequency range.

The limit on the plot is not correct between 500 kHz and 1705 kHz

Between 500 kHz and 1705 kHz slopes from 54 dBuV/m to 48 dBuV/m

Frequency Range: 2.0 – 10.0 MHz

Antenna: Loop



Date: 7.JAN.2026 13:17:56

Notes

No plot was recorded for this frequency range.

The above previously recorded plot is representative of what was observed on the day of testing

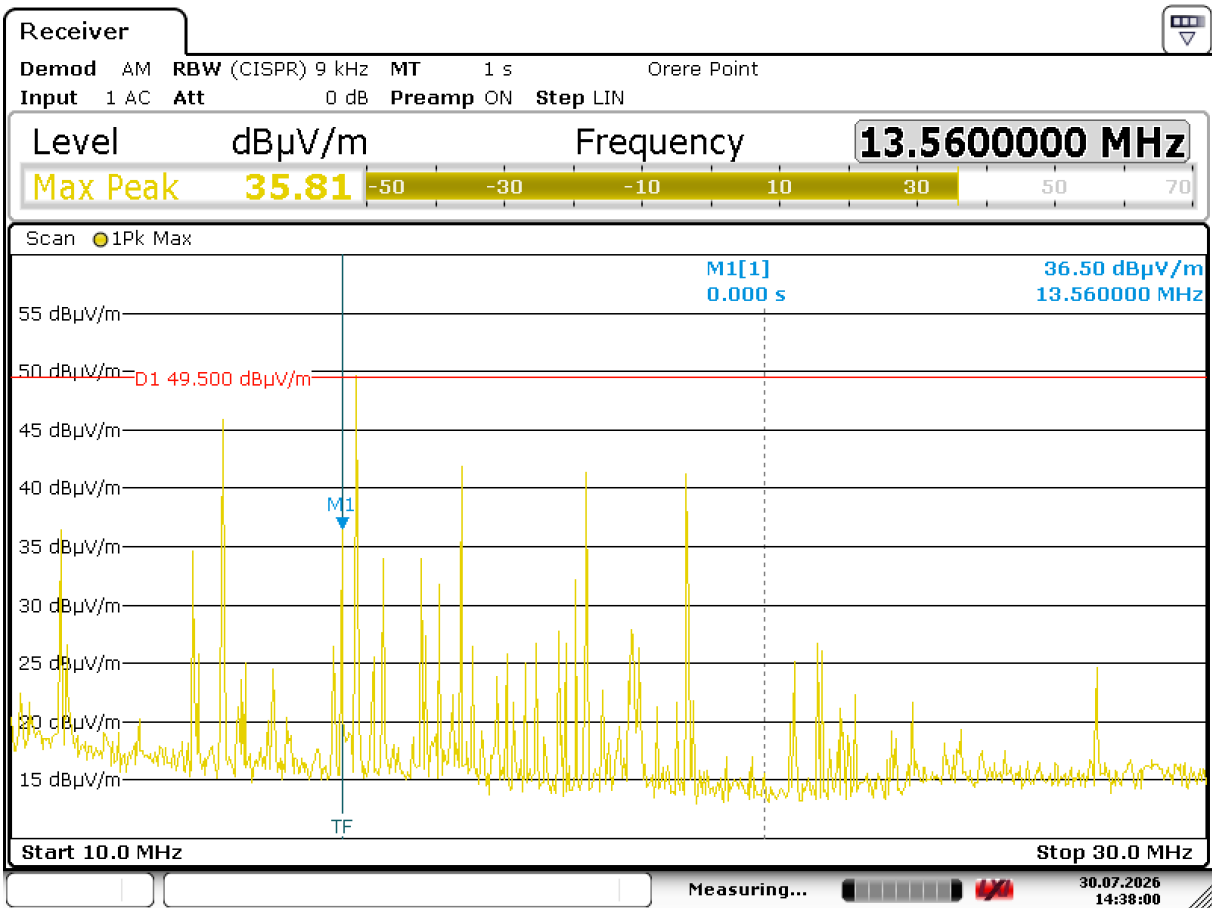
No emissions detected from the device.

Maritime FAX observed at 3908 kHz

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test over this frequency range.

Frequency Range: 10.0 – 30.0 MHz

Antenna: Loop



Date: 30.JUL.2026 14:38:00

Notes

Device observed transmitting on 13.560 MHz

A number of high frequency shortwave broadcast type emissions observed between 10 MHz and 30 MHz.

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test over this frequency range except for the emission on 13.560 MHz and the 2nd Harmonic on 27.120 MHz.

Section 15.209: Spurious Emissions (above 30 MHz)

Measurements between 30 – 2000 MHz have been made at a distance of 3 metres.

The emissions below were derived from the raw data plots that were then individually measured.

The limits as described in Section 15.209 have been applied.

General Emissions Observed

Frequency (MHz)	Vertical (dBμV/m)	Horizontal (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result	Antenna Polarisation
33.960	37.9	-	40.0	2.1	Pass	Vertical
35.920	40.0	-	40.0	0.0	Pass	Vertical
37.480	37.8	-	40.0	2.2	Pass	Vertical
48.080	30.2	-	40.0	9.8	Pass	Vertical
67.400	34.1	-	40.0	5.9	Pass	Vertical
69.520	33.5	-	40.0	6.5	Pass	Vertical
76.400	33.5	-	40.0	6.5	Pass	Vertical
215.480	-	23.9	43.5	19.6	Pass	Horizontal
240.000	-	31.4	46.0	14.6	Pass	Horizontal
382.760	-	22.3	46.0	23.7	Pass	Horizontal
455.040	-	34.9	46.0	11.1	Pass	Horizontal
480.080	26.3	39.7	46.0	6.3	Pass	Horizontal

NFC Emissions Observed

Frequency (MHz)	Vertical (dBμV/m)	Horizontal (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result	Antenna Polarisation
40.680	31.5	33.3	40.0	6.7	Pass	Horizontal
54.240	29.4	-	40.0	10.6	Pass	Vertical
67.800	36.0	32.5	40.0	4.0	Pass	Vertical
81.360	28.5	-	40.0	11.5	Pass	Vertical
176.280	18.0	36.6	43.5	6.9	Pass	Horizontal
203.400	-	28.3	43.5	15.2	Pass	Horizontal
216.960	-	22.5	46.0	23.5	Pass	Horizontal
257.640	-	26.7	46.0	19.3	Pass	Horizontal
339.000	-	24.5	46.0	21.5	Pass	Horizontal
366.120	-	24.5	46.0	21.5	Pass	Horizontal
393.240	-	28.0	46.0	18.0	Pass	Horizontal
420.360	-	26.9	46.0	19.1	Pass	Horizontal

All other emissions observed had a margin to the limit that exceed at least 15 dB when measurements were made between 30 – 2000 MHz using both vertical and horizontal polarisations.

Result: Complies.

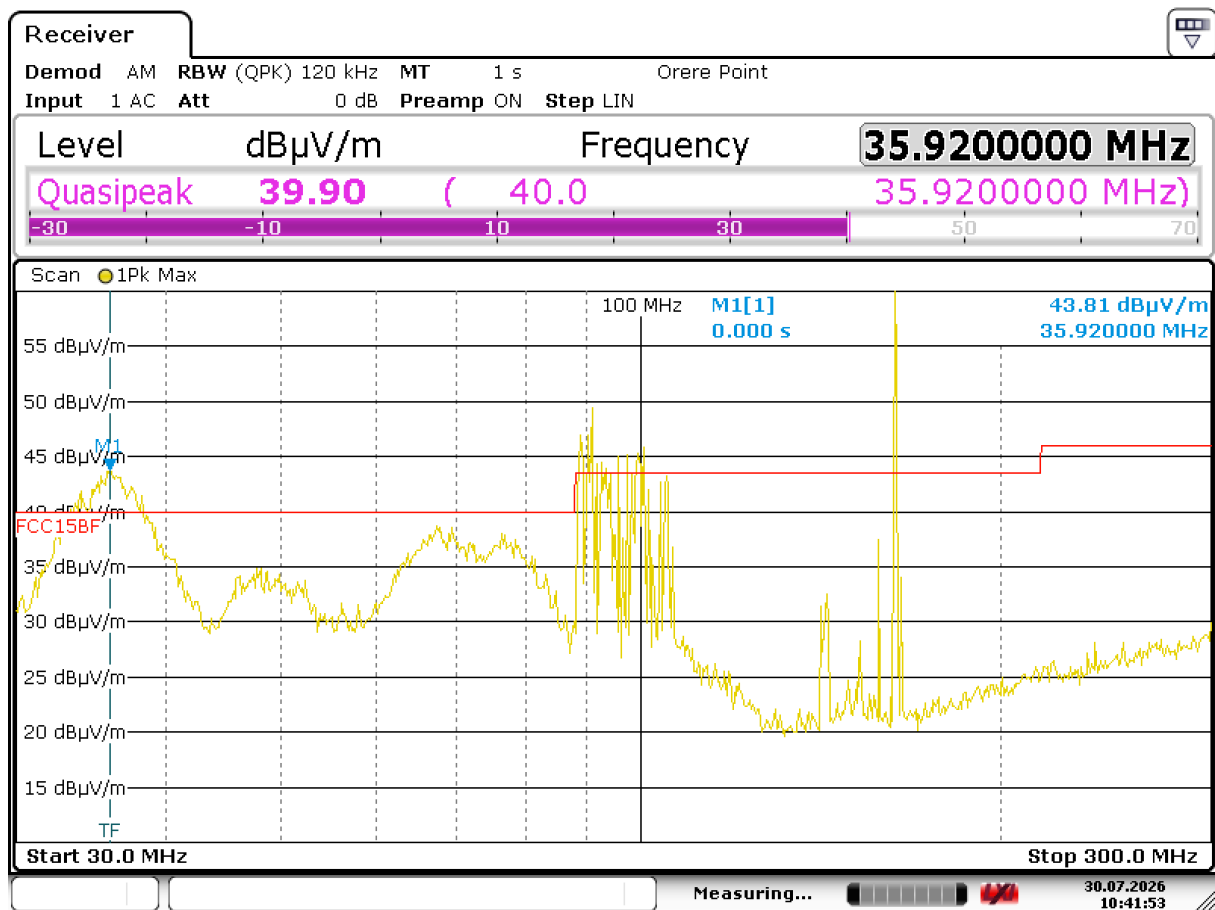
Measurement uncertainty with a confidence interval of 95% is:

Free radiation tests (30 – 2000 MHz) ± 4.1 dB

Spurious Emissions (above 30 MHz)

Frequency Range: 30 – 300 MHz

Antenna polarisation: Vertical



Date: 30.JUL.2026 10:41:53

Notes:

88 – 108 MHz: FM Broadcast ambient emissions

163.240 MHz: Local VHF land mobile repeater – intermittent ambient emission

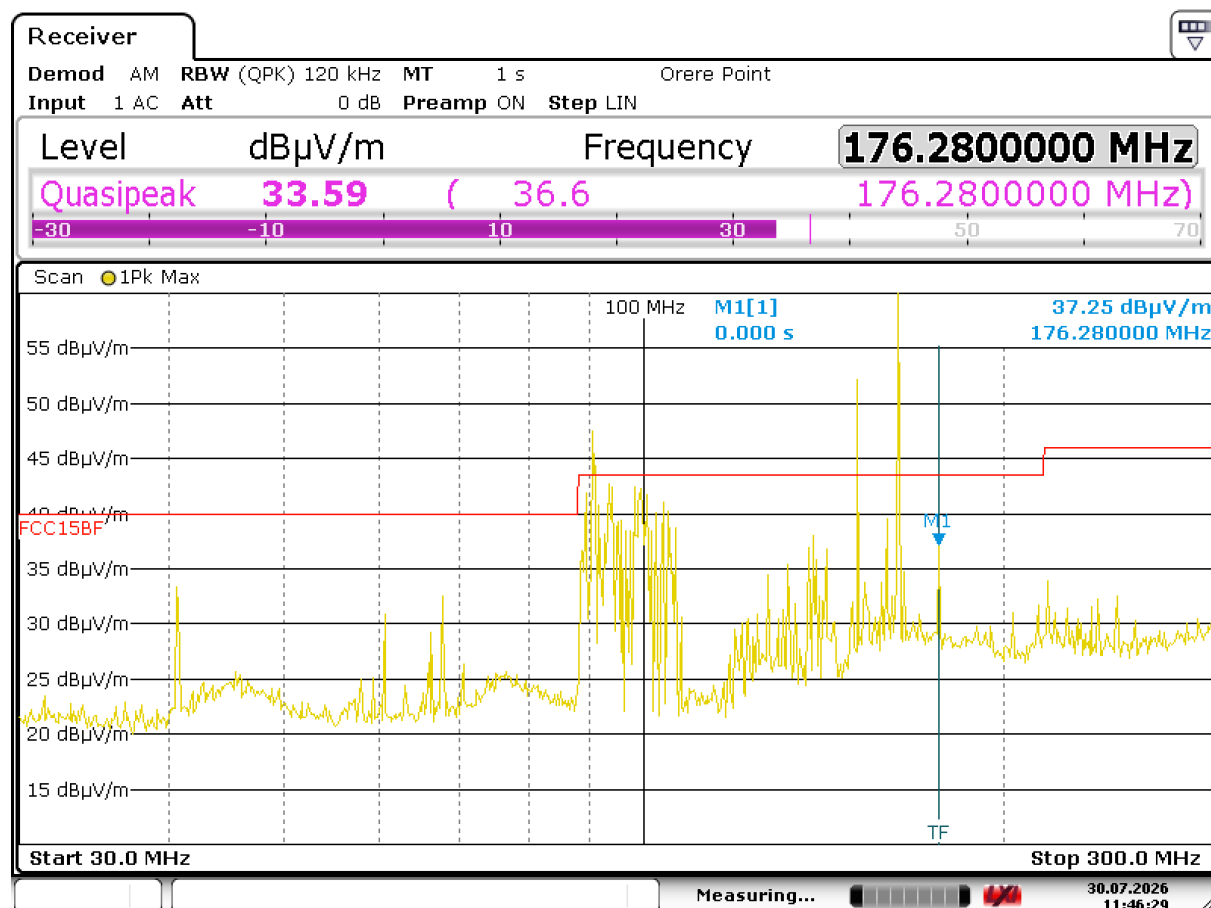
140 – 160 MHz: VHF land mobile emissions

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test in the FM broadcast band.

Spurious Emissions (above 30 MHz)

Frequency Range: 30 – 300 MHz

Antenna polarisation: Horizontal



Date: 30.JUL.2026 11:46:30

Notes:

88 – 108 MHz: FM Broadcast ambient emissions

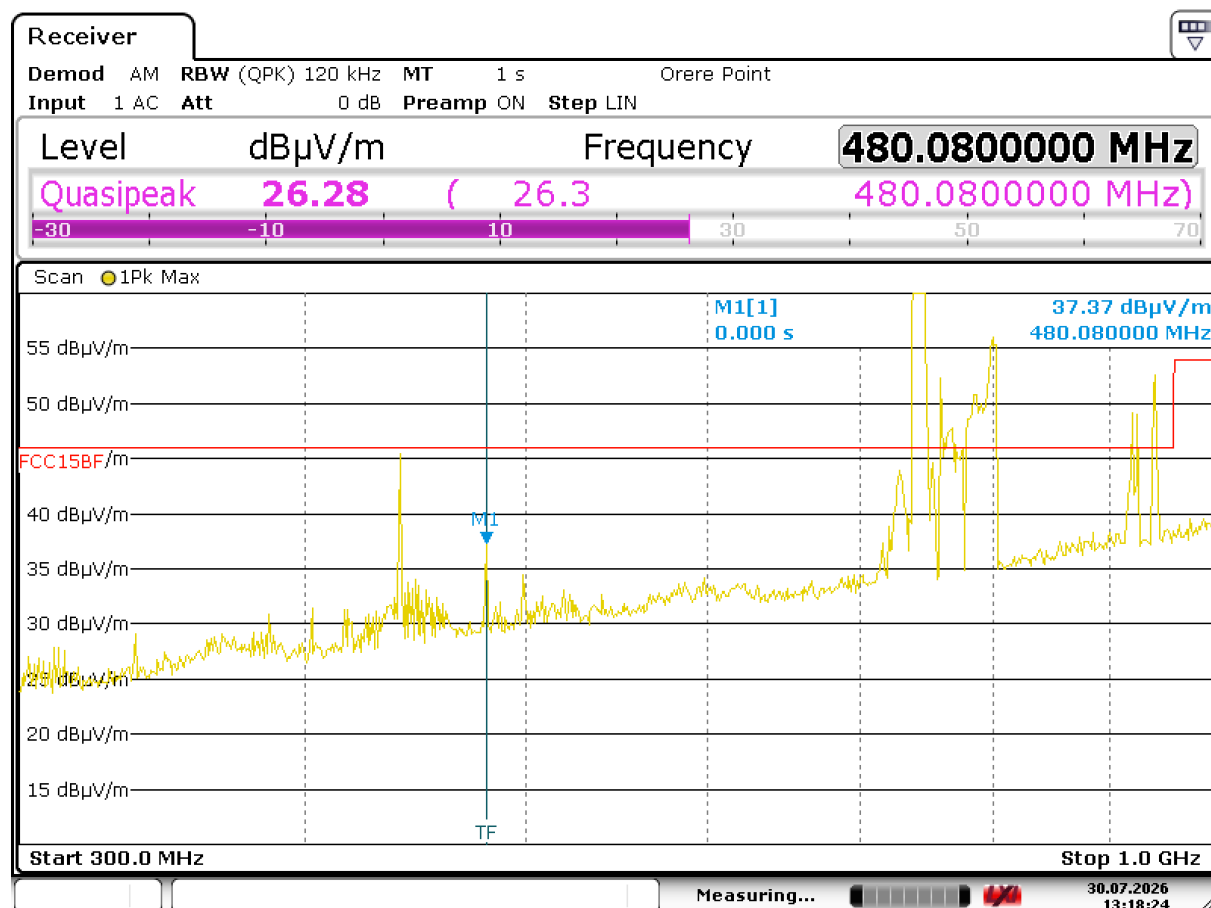
124.300 MHz, 151.300 MHz, 163.240 MHz: VHF aeronautical and land mobile local high level intermittent ambient emissions

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test in the FM broadcast band.

Spurious Emissions (above 30 MHz)

Frequency Range: 300 – 1000 MHz

Antenna polarisation: Vertical



Date: 30.JUL.2026 13:18:25

Notes

No emissions detected from the product

High level intermittent UHF link transmitter on 454 MHz

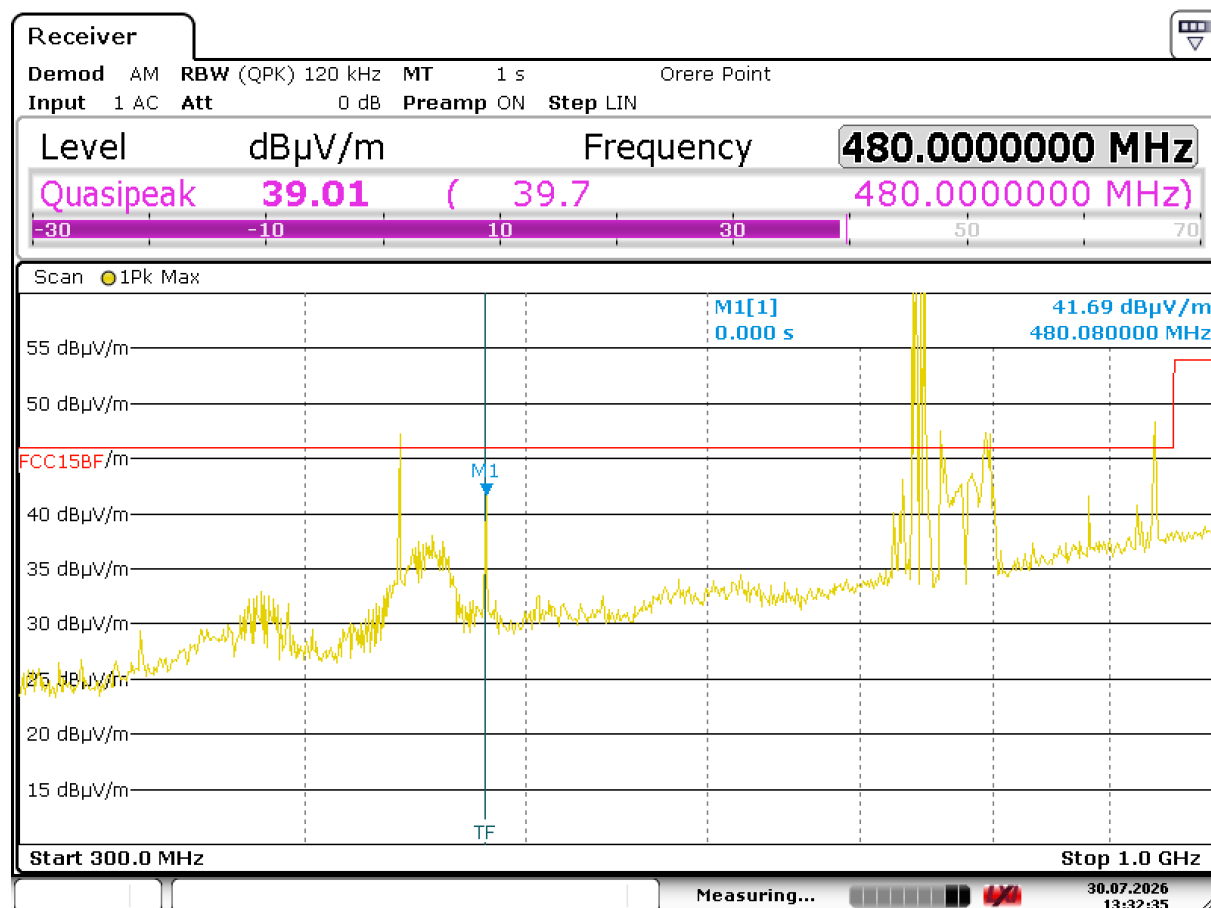
High level cellular emissions from 700 – 800 MHz, 880 MHz and 947 – 959 MHz.

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test in the cellular bands indicated above.

Spurious Emissions (above 30 MHz)

Frequency Range: 300 – 1000 MHz

Antenna polarisation: Horizontal



Date: 30.JUL.2026 13:32:36

Notes

No emissions detected from the product

High level intermittent UHF link transmitter on 454 MHz

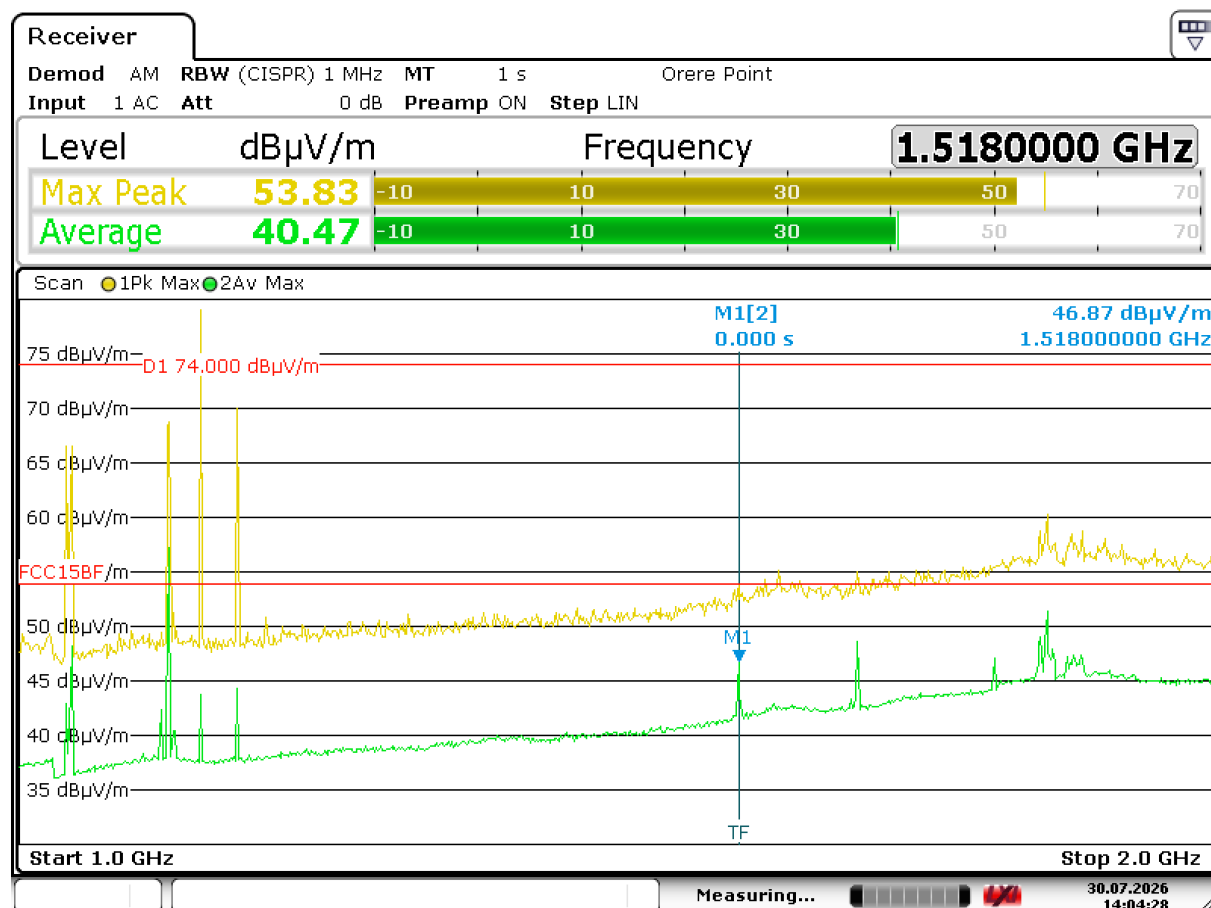
High level cellular emissions from 700 – 800 MHz, 880 MHz and 947 – 959 MHz.

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test in the cellular bands indicated above.

Spurious Emissions (above 30 MHz)

Frequency Range: 1000 - 2000 MHz

Antenna polarisation: Vertical



Date: 30.JUL.2026 14:04:28

Notes

ADSB / DME intermittent emissions around 1030, 1090, 1117 MHz etc

Cellular emissions observed around 1830 MHz

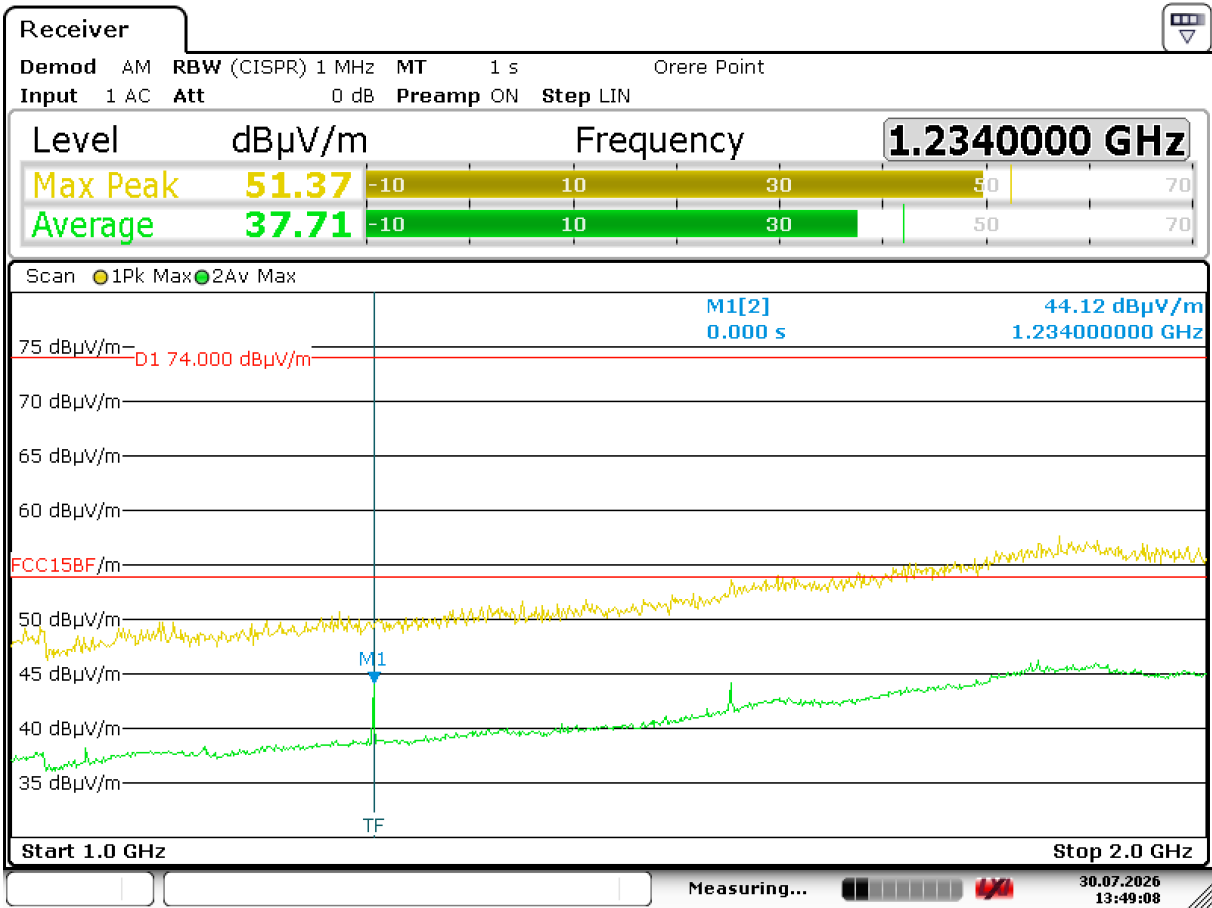
Satellite emissions around 1615 MHz

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test in the bands indicated above.

Spurious Emissions (above 30 MHz)

Frequency Range: 1000 - 2000 MHz

Antenna polarisation: Horizontal



Date: 30.JUL.2026 13:49:09

Notes

Pretesting in the screened semi anechoic chamber in the laboratory identified no emissions from the device under test in the bands indicated above.

Section 15.225: Fundamental emission:

Measurements were made using a magnetic loop antenna and a receiver with a Quasi Peak detector using a 9 kHz bandwidth.

Measurements were made at a distance of 10 metres with the limit being determined by using the extrapolation factor of 40 dB per decade limit, as detailed in section 15.31 f (2).

The limit at 30 m at 13.560 MHz is 15,848 uV/m or 84.0 dBuV/m.

Applying the extrapolation factor of 40 dB/ per decade, the limit at 10 m is 103.1 dBuV/m.

The 120 VAC supply to the device was varied by +/- 15% to determine whether a change in field strength would occur.

Voltage (VDC)	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
108.0	13.560	49.6	103.1	53.5
120.0	13.560	49.6	103.1	53.5
138.0	13.560	49.6	103.1	53.5

Indicative spectrum analyser plots were made at a close distance in the laboratory showing the carrier and modulation peaks.

Observations were made when various cards were presented as detailed below when the device was operating in EMC mode.

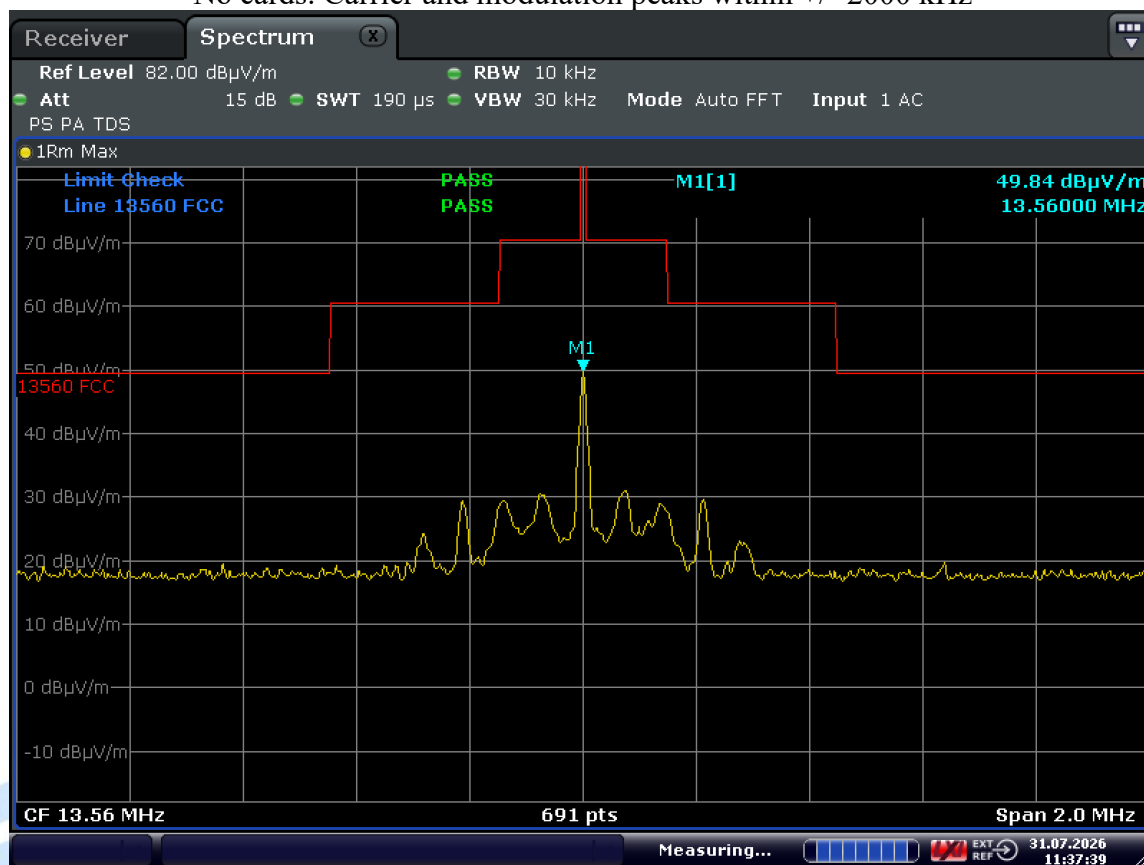
Card
No cards
NFC card only
NFC card + Card in Slot

Result: Complies

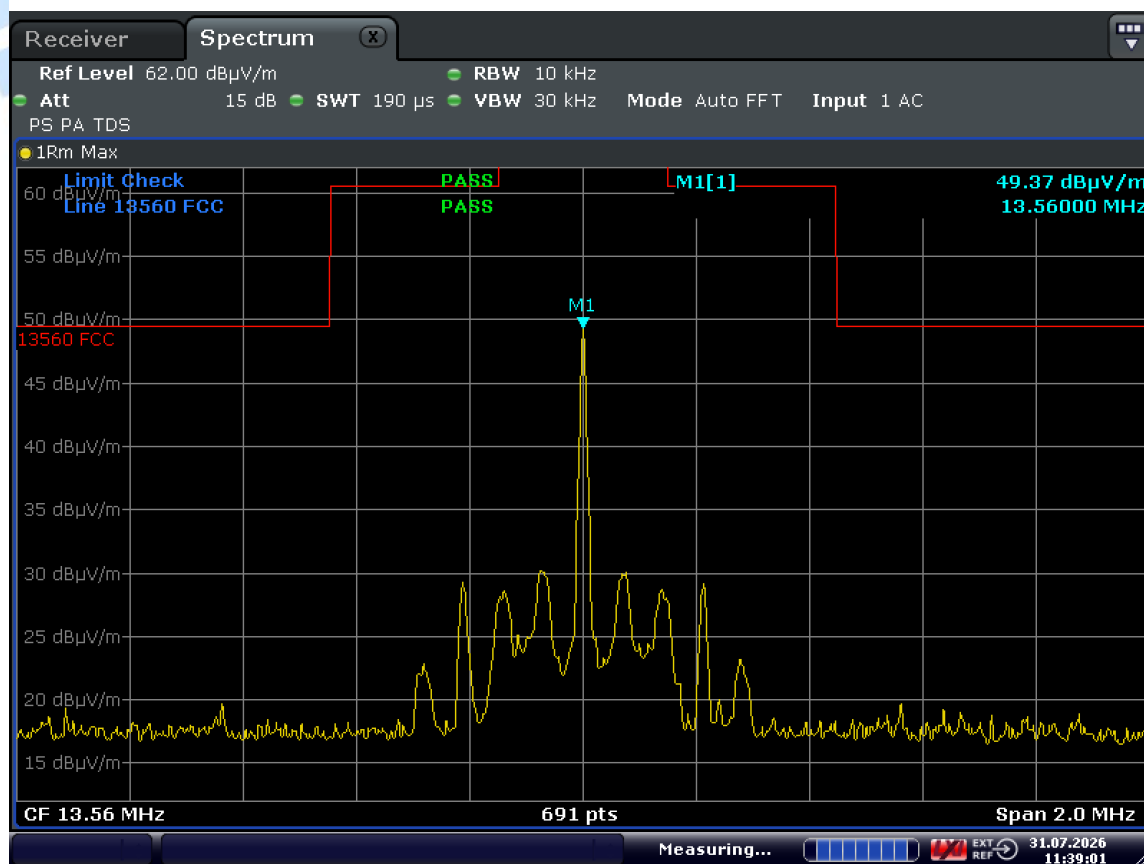
Measurement uncertainty with a confidence interval of 95% is:

- Free radiation tests (100 kHz – 30 MHz) ± 4.8 dB

No cards. Carrier and modulation peaks within +/- 2000 kHz

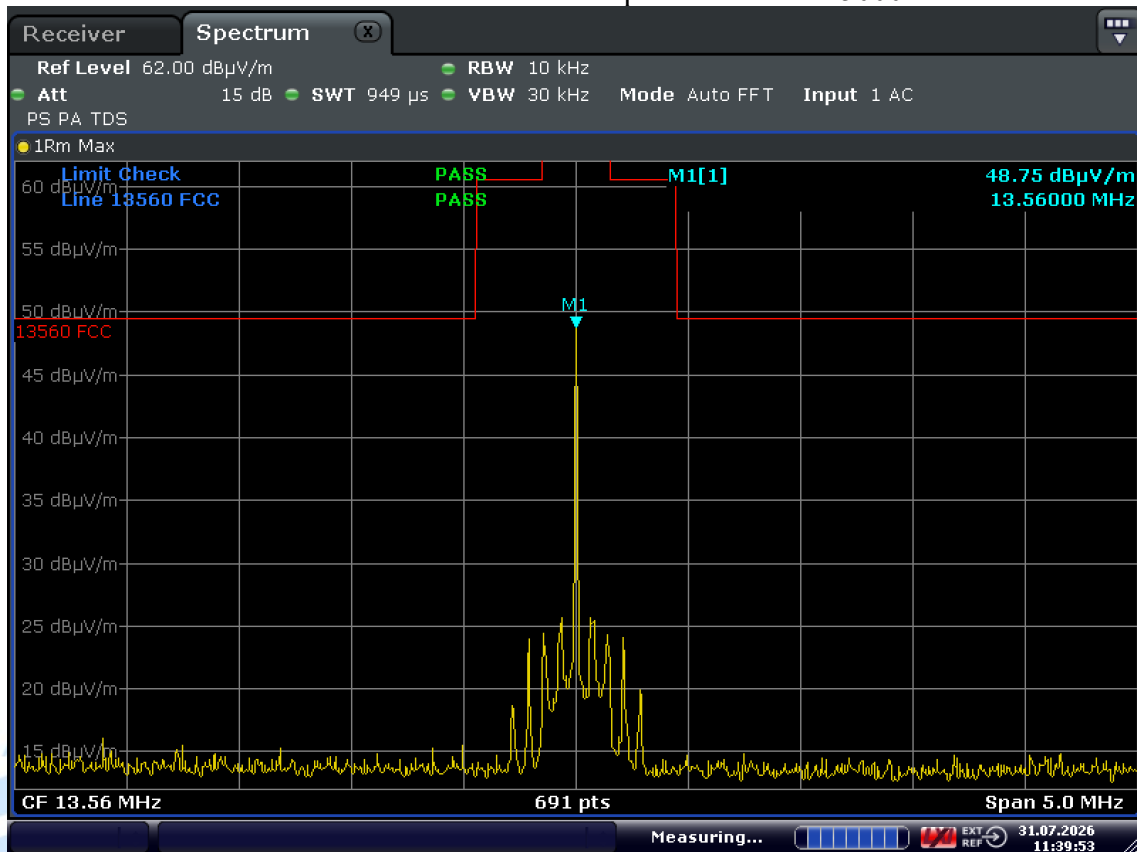


Date: 31.JUL.2026 11:37:39

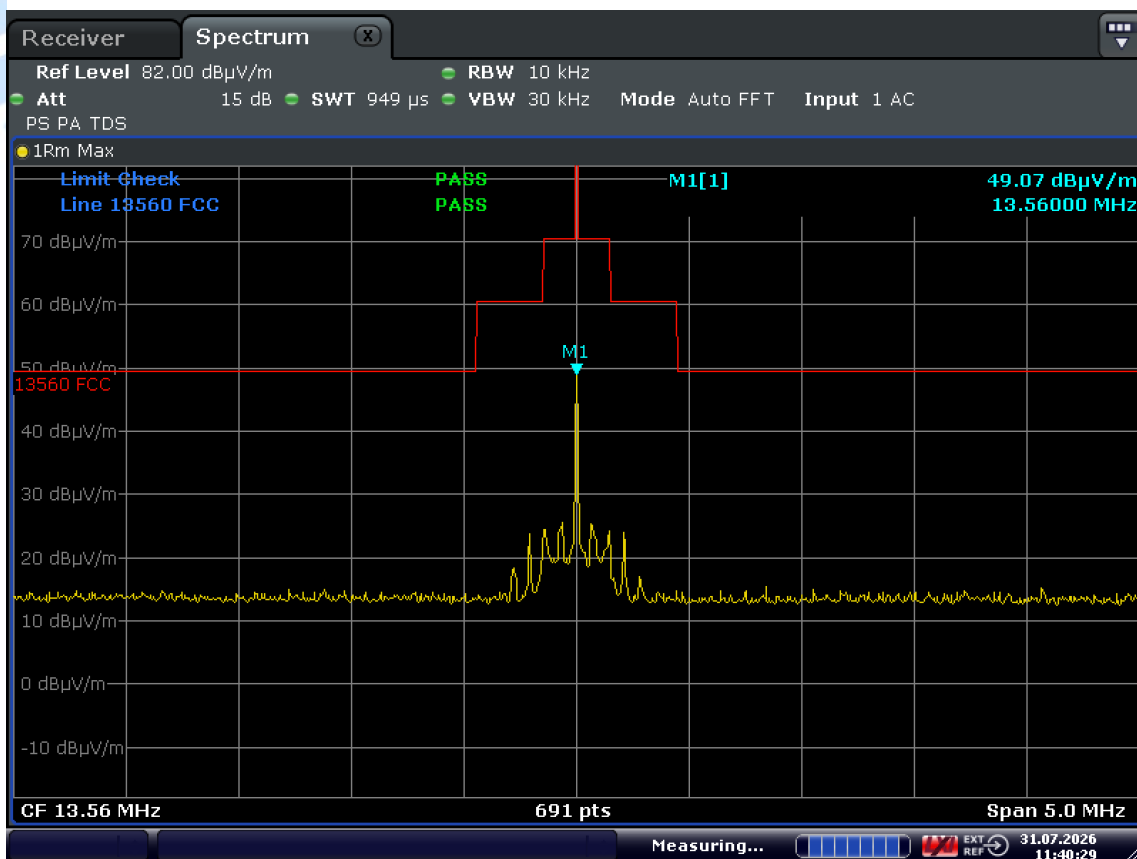


Date: 31.JUL.2026 11:39:02

No cards. Carrier and modulation peaks within +/- 5000 kHz

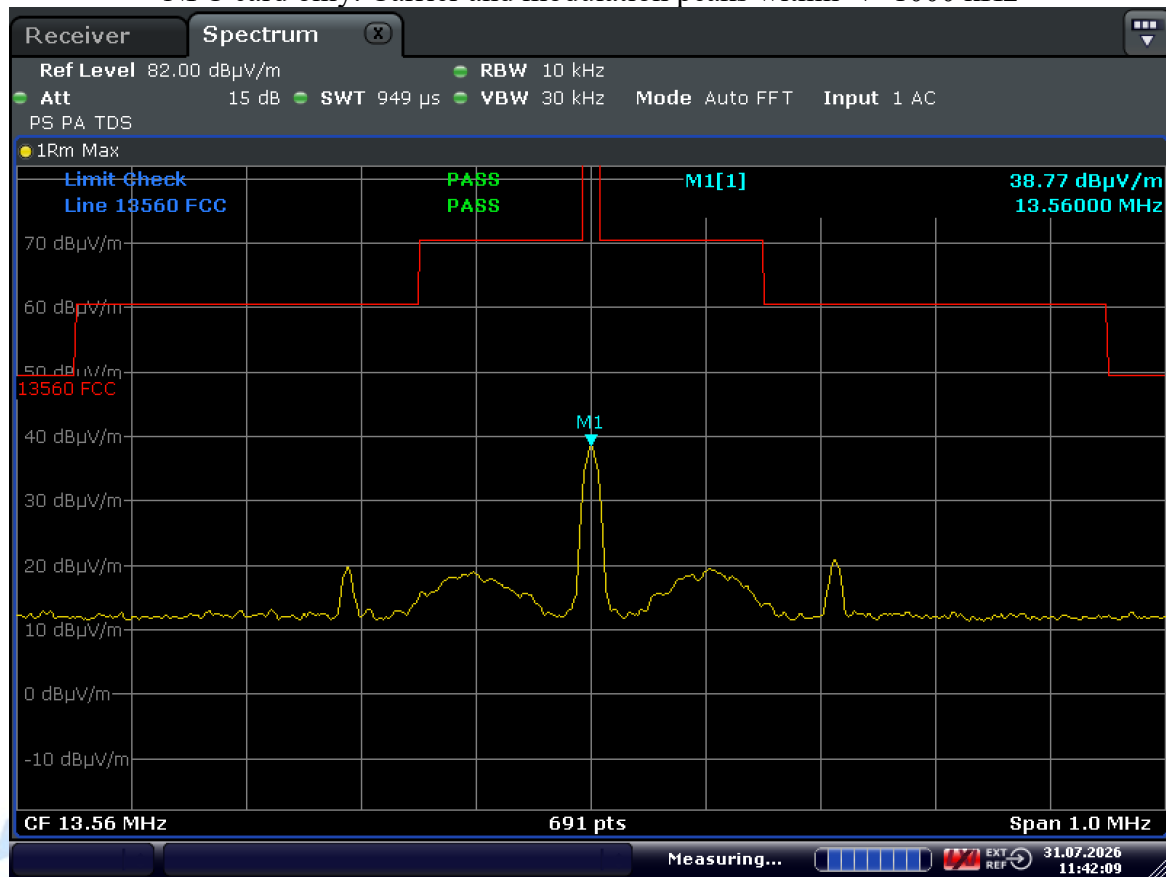


Date: 31.JUL.2026 11:39:54

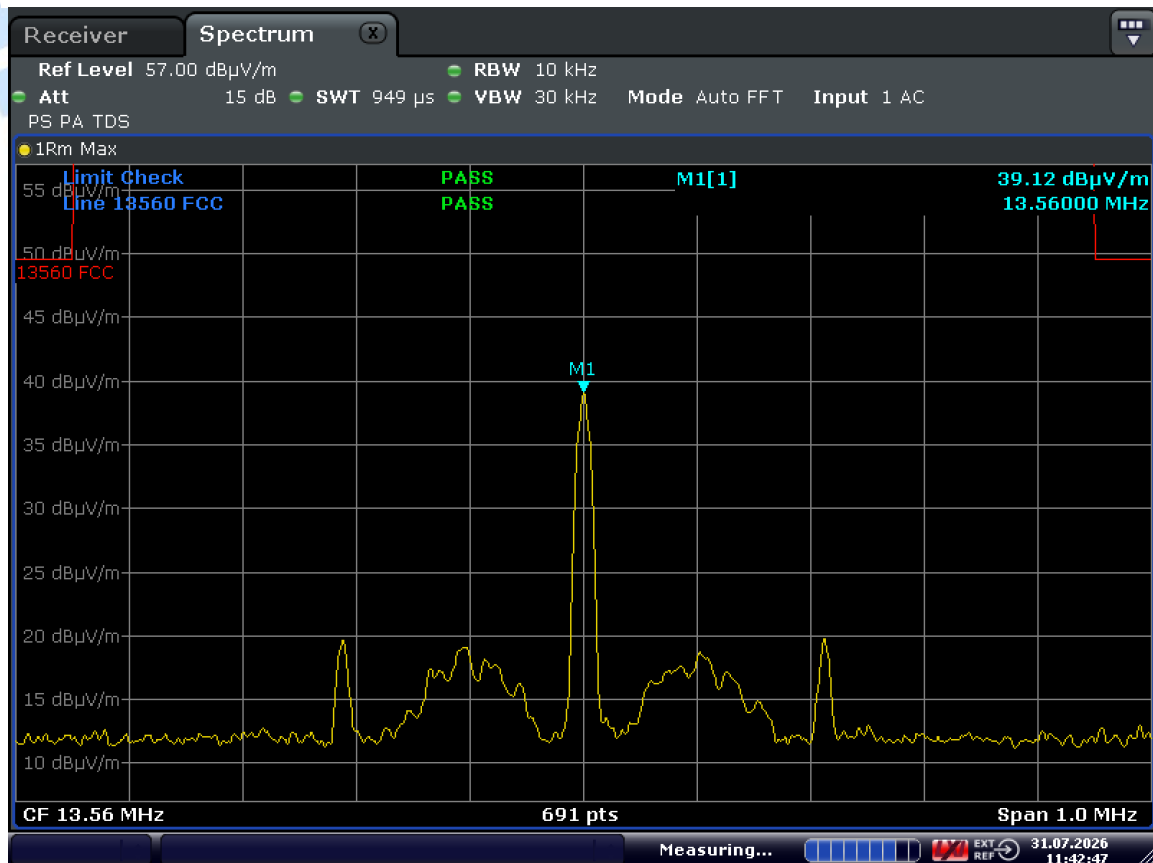


Date: 31.JUL.2026 11:40:30

NFC card only. Carrier and modulation peaks within +/- 1000 kHz

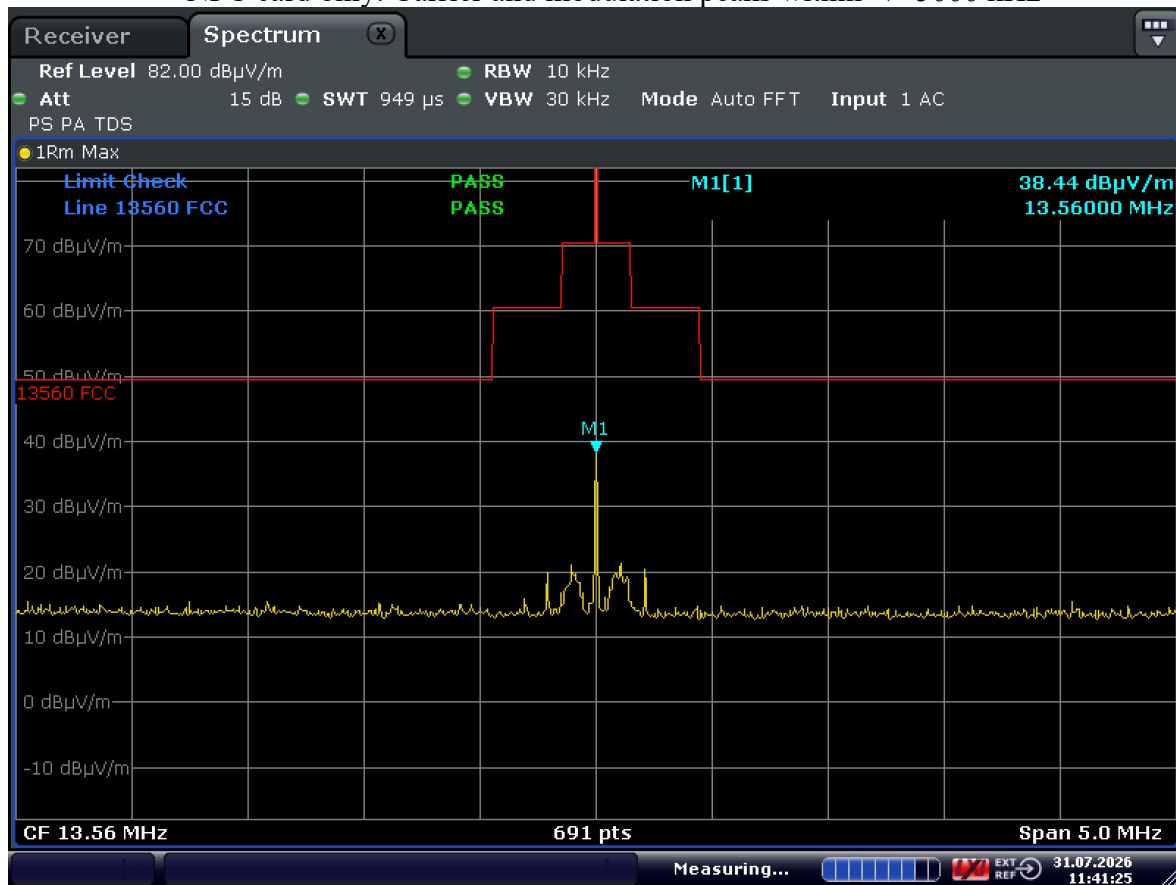


Date: 31.JUL.2026 11:42:09

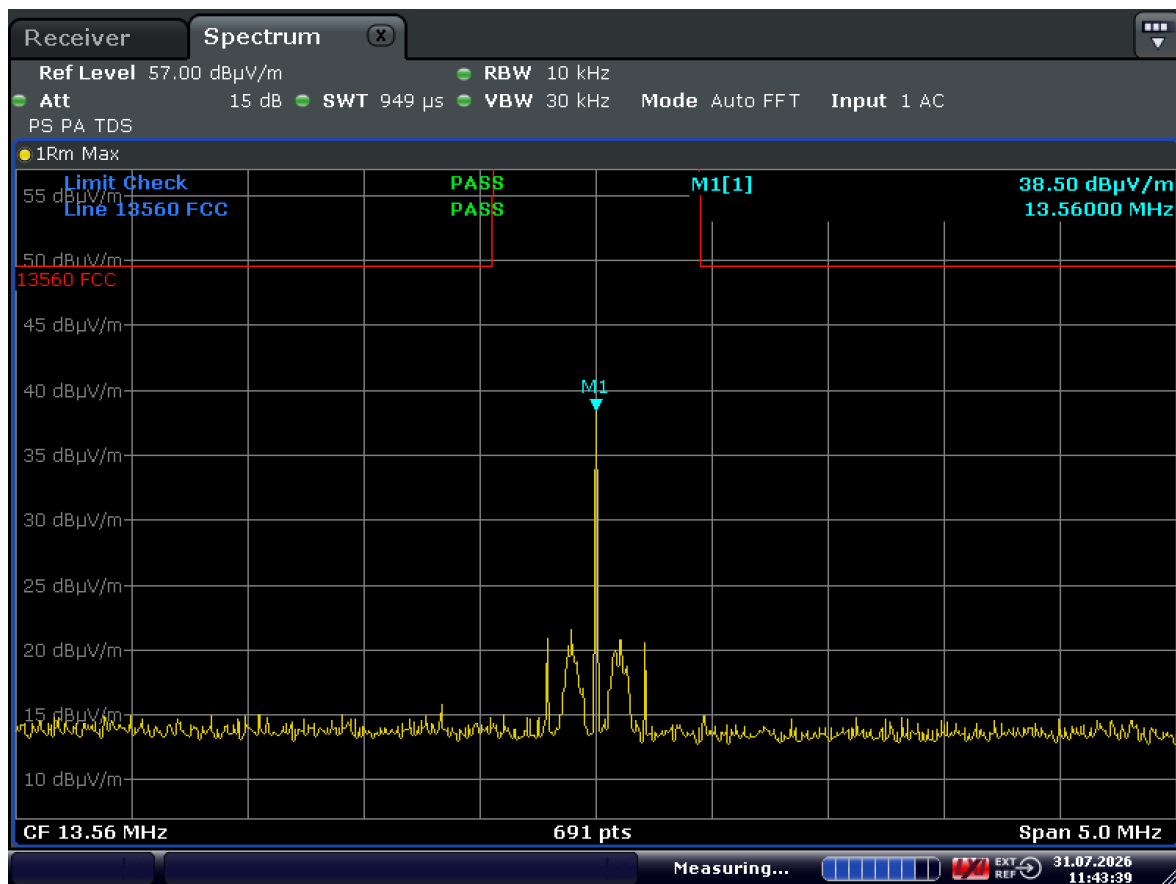


Date: 31.JUL.2026 11:42:47

NFC card only. Carrier and modulation peaks within +/- 5000 kHz

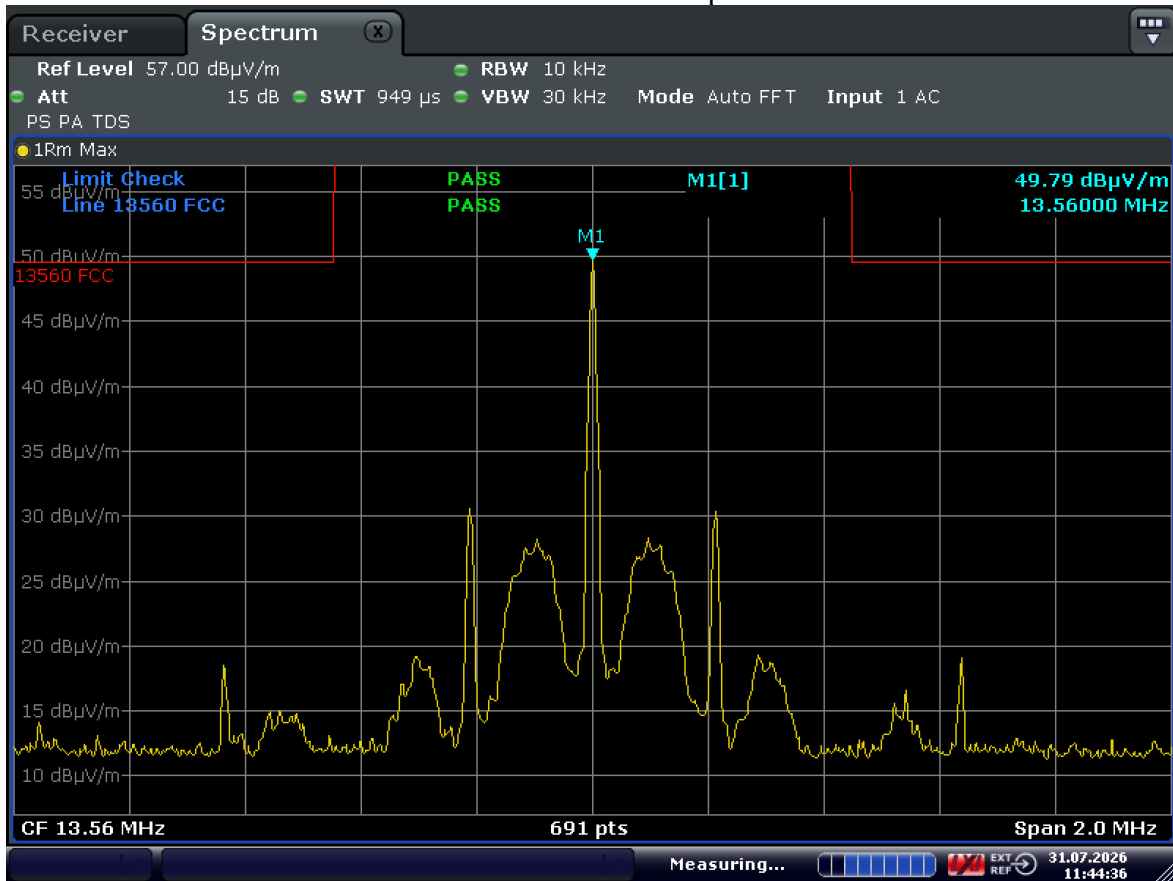


Date: 31.JUL.2026 11:41:26

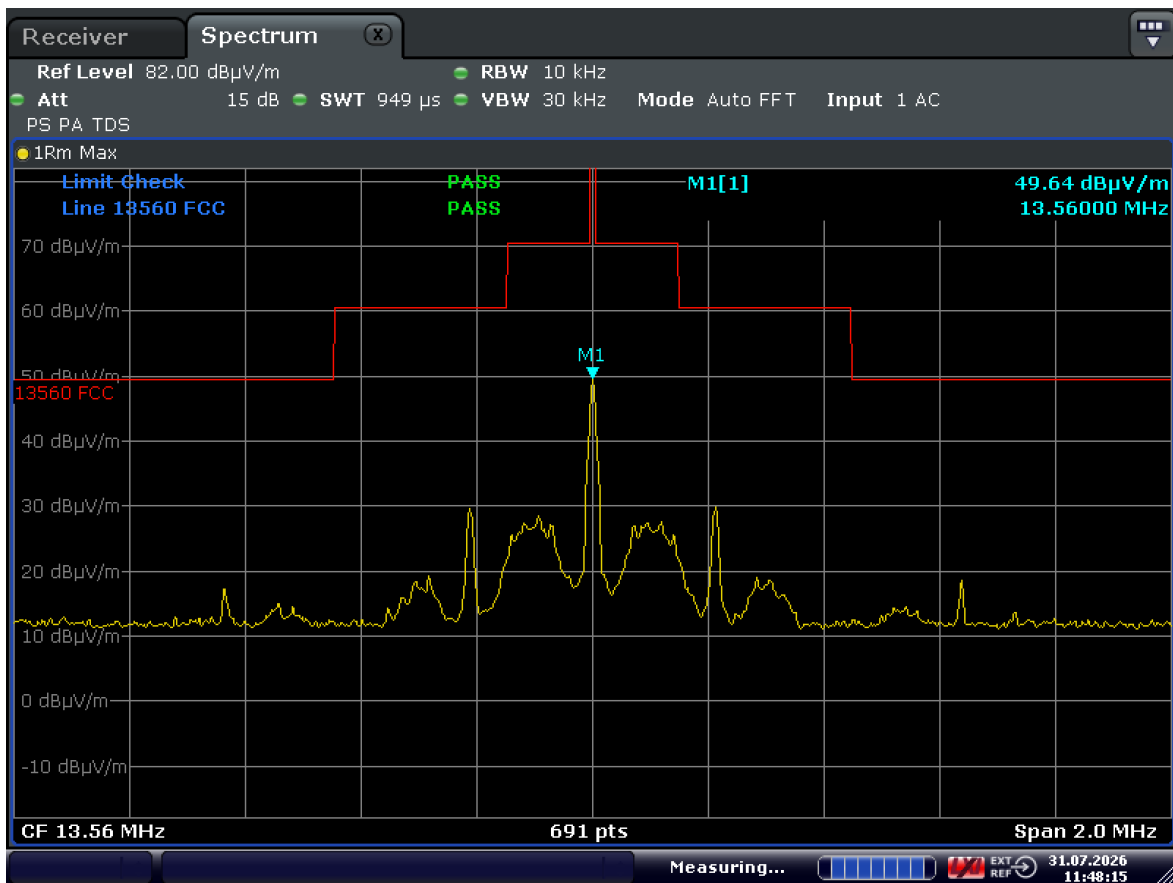


Date: 31.JUL.2026 11:43:39

NFC + Slot card. Carrier and modulation peaks within +/- 2000 kHz

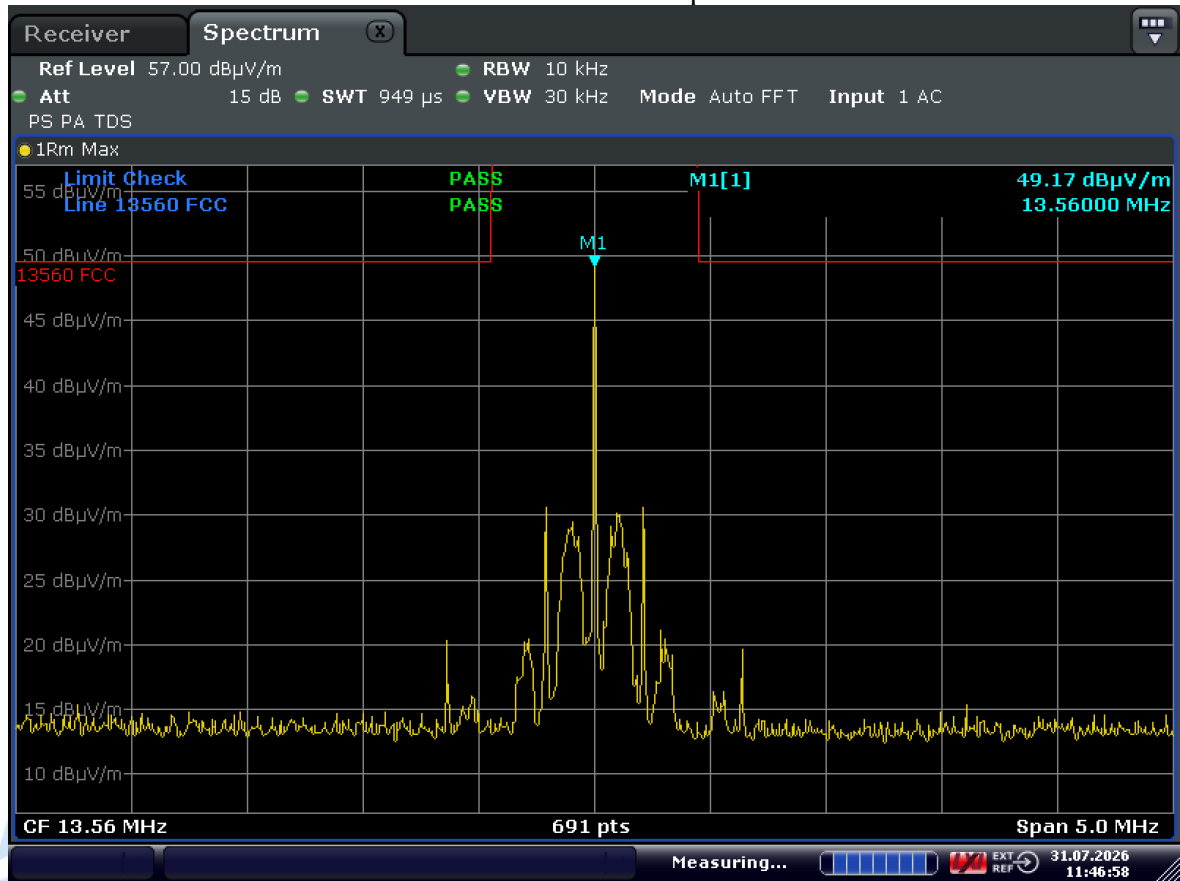


Date: 31.JUL.2026 11:44:37

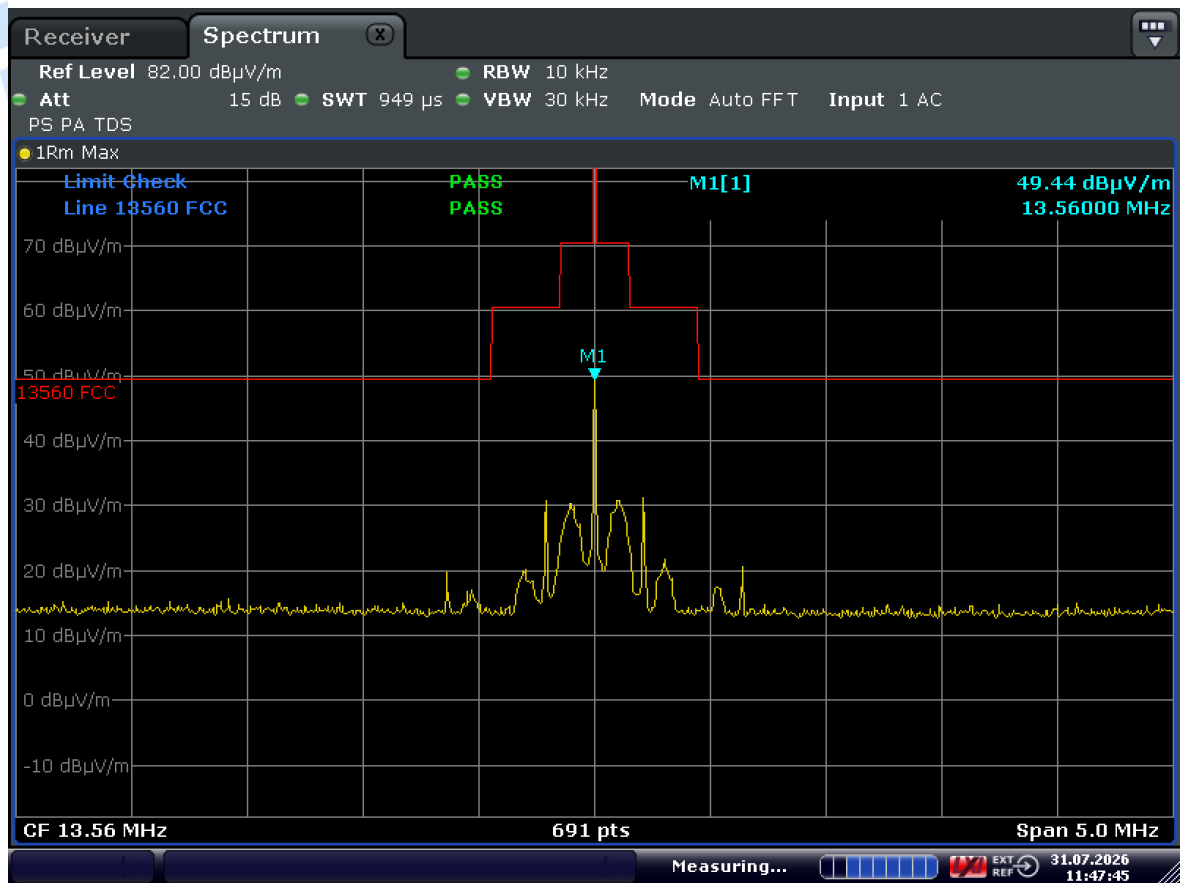


Date: 31.JUL.2026 11:48:15

NFC + Slot card. Carrier and modulation peaks within +/- 5000 kHz



Date: 31.JUL.2026 11:46:59



Date: 31.JUL.2026 11:47:45

Section 15.225: Frequency Tolerance:

The frequency tolerance of the carrier is required to be +/- 0.01% of operating frequency when the temperature is varied between -20 degrees C and +50 degrees C.

The device operates nominally on 13.560 MHz which gives a frequency tolerance of +/- 1356 Hz.

Temperature (°C)	Frequency (MHz)	Difference (Hz)
50.0	13.560 104	+104
40.0	13.560 005	+5
30.0	13.559 997	-3
20.0	13.560 040	+40
10.0	13.560 009	+9
0.0	13.560 017	+17
-10.0	13.560 034	+34
-20.0	13.560 211	+211

As a worst-case scenario the 12 Vdc supply to the device was varied by +/- 15% at 20 degrees C (ambient).

Voltage (Vdc)	Frequency (MHz)	Difference (Hz)
10.2	13.560 040	+40
12.0	13.560 040	+40
13.8	13.560 040	+40

The frequency tolerance above has been calculated by subtracting the Measured Frequency from the Nominal Frequency (13.560 MHz).

Result: Complies.

Measurement uncertainty with a confidence interval of 95% is:

Frequency tolerance ± 50 Hz

7. TEST EQUIPMENT USED

Instrument	Manufacturer	Model	Serial No	Asset Ref	Cal Due	Period
Aerial Controller	EMCO	1090	9112-1062	RFS 3710	N/A	N/A
Aerial Mast	EMCO	1070-1	9203-1661	RFS 3708	N/A	N/A
Loop Antenna	EMCO	6502	9003-2485	3798	24 Jun 2028	3 years
Biconical Antenna	Schwarzbeck	BBA 9106	9124-420 + 04272023E	3802	5 May 2029	3 years
VHF Balun	Schwarzbeck	VHBB9124	9124-420 + 04272023E	3801	8 May 2029	3 years
Log Periodic	Schwarzbeck	VUSLP 9111	9111-113 + 04272023D	EMC4026	8 May 2029	3 years
Horn Antenna	EMCO	3115	9511-4629	E1526	24 Jun 2030	5 years
Heliac cable	Andrews	L6PNM-RPD	22869	Oats Cable	09 Jan 2027	1 year
Mains Network	Rohde & Schwarz	ESH2-Z5	881362/034	3628	09 Jul 2027	3 years
Receiver	R & S	ESR26	101866	EMC4040	29 Oct 2026	2 years
Receiver	ESHS 10	828404/005	828404/005	3728	03 Dec 2026	2 years
Software	R & S	ESK 1 - 140	-	-	N/A	N/A
Spectrum Analyzer	Keysight	N9038A	MY57290153	EMC4033	20 Nov 2026	3 year
Thermal Chamber	Contherm	M180F	86025	3626	18 Oct 2027	3 year
Thermometer	DSIR	RT200	35	EMC4029	20 Apr 2027	5 years
Turntable	EMCO	1080-1-2.1	9109-1578	RFS 3709	N/A	N/A
Voltage Variac	Powerdeck	SRV-5	RFS3800	-	N/A	N/A

All test equipment was within calibration at the time of testing.

8. ACCREDITATIONS

All testing was carried out in accordance with the terms of EMC Technologies (NZ) Ltd International Accreditation New Zealand (IANZ) Accreditation to NZS/ISO/IEC 17025, Accreditation Number 424 dated 26th June 1991.

All measurement equipment has been calibrated in accordance with the terms of the EMC Technologies (NZ) Ltd International Accreditation New Zealand (IANZ) Accreditation to NZS/ISO/IEC 17025.

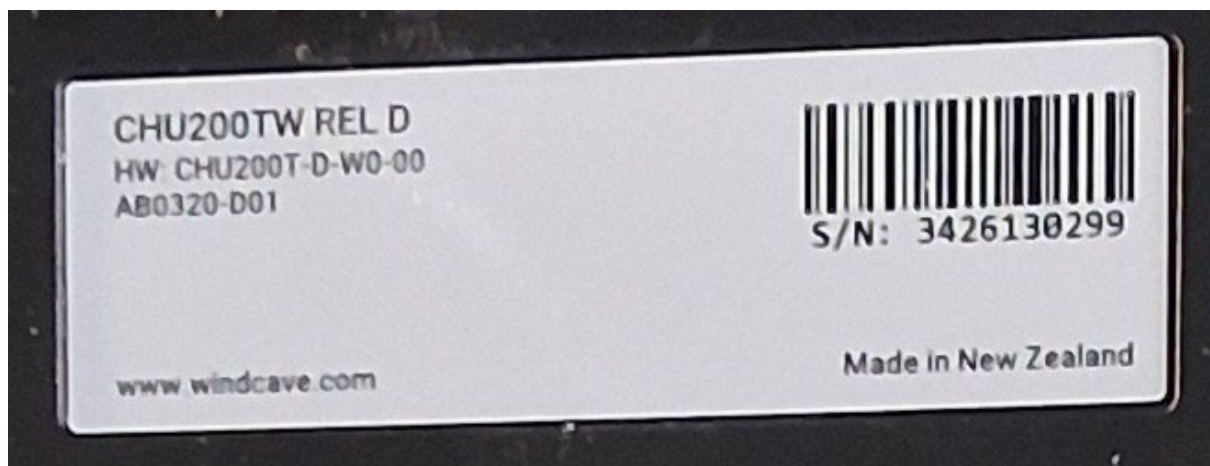
International Accreditation New Zealand has International Laboratory Accreditation Council (ILAC) Mutual Recognition Arrangements for testing and calibration with various accreditation bodies in a number of economies.

This includes NATA (Australia), UKAS (UK), SANAS (South Africa), NVLAP (USA), A2LA (USA), SWEDAC (Sweden).

Further details can be supplied on request

9. PHOTOGRAPHS

Device Identification Label



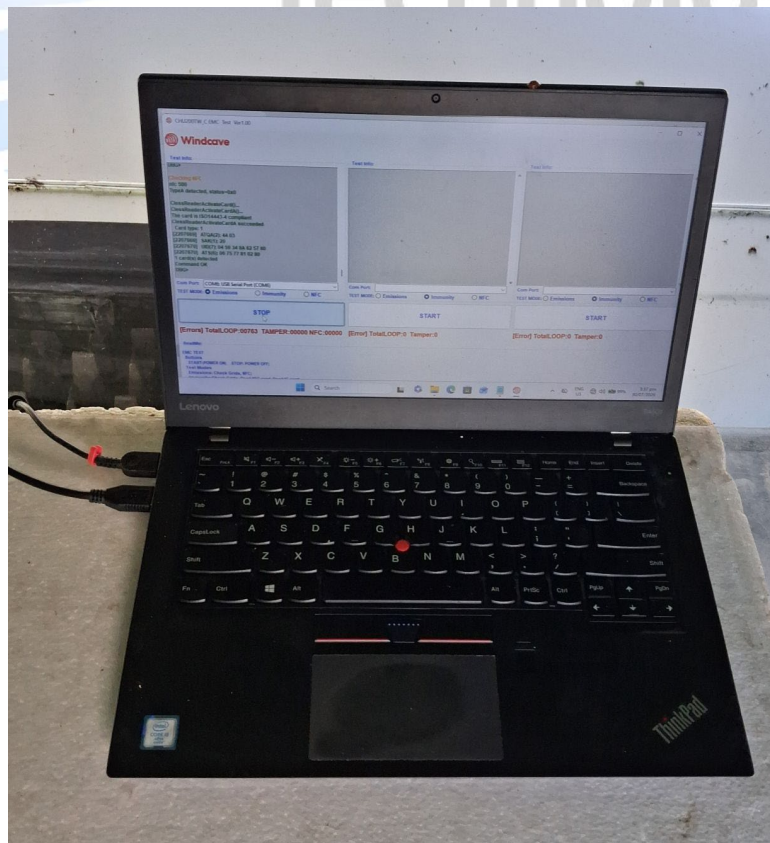
Device under test – Front Face



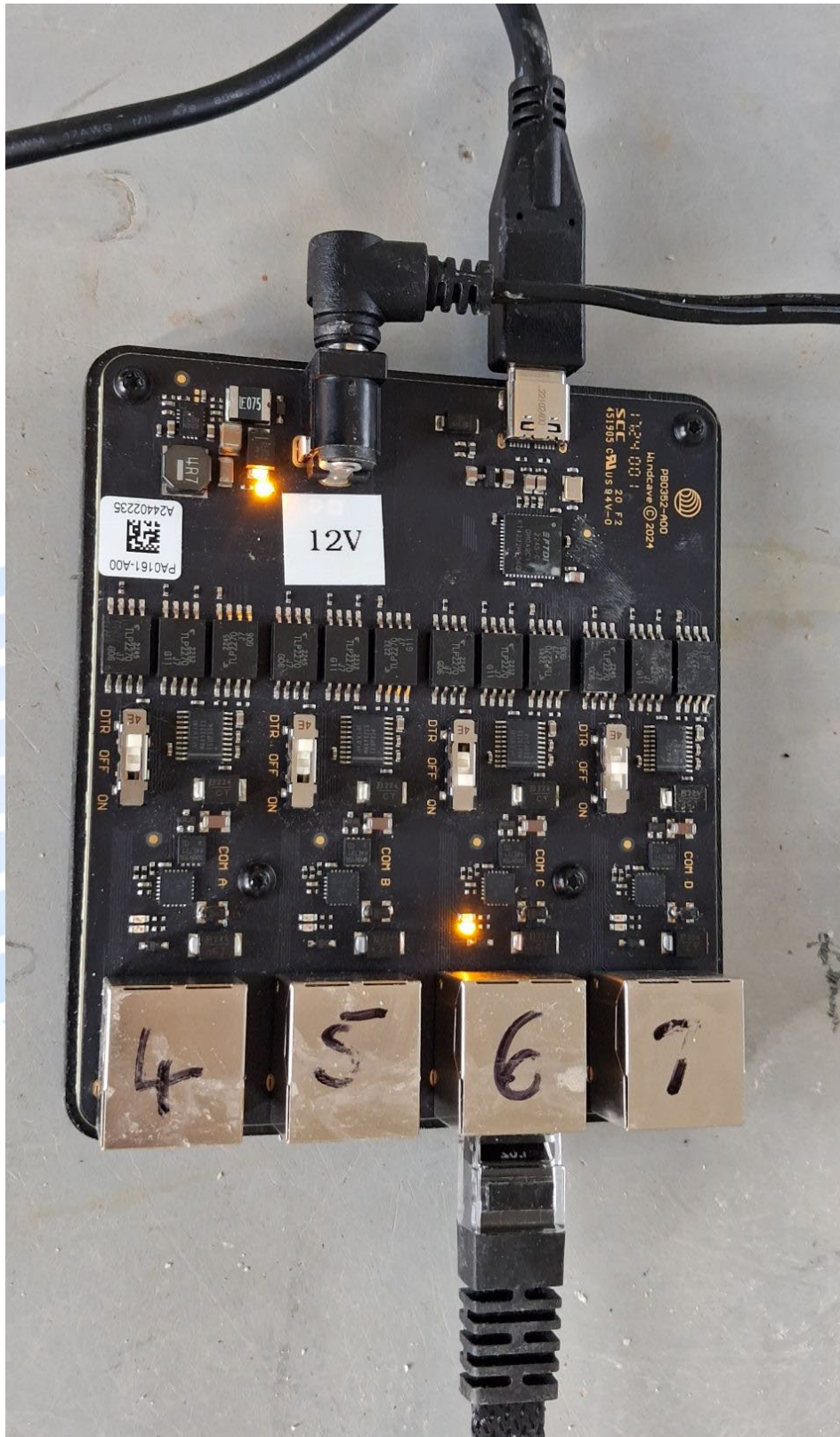
Device Under Test – Rear Face



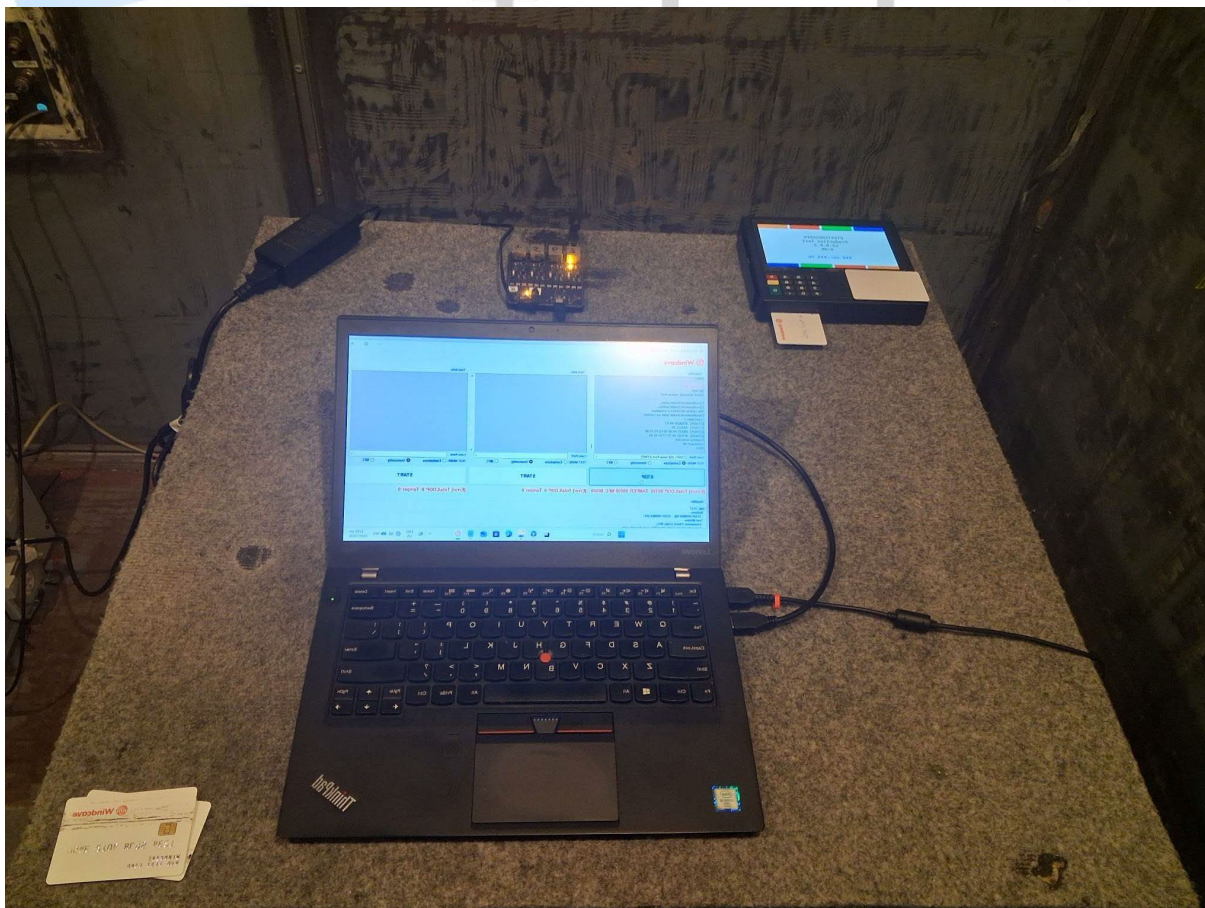
Test Laptop



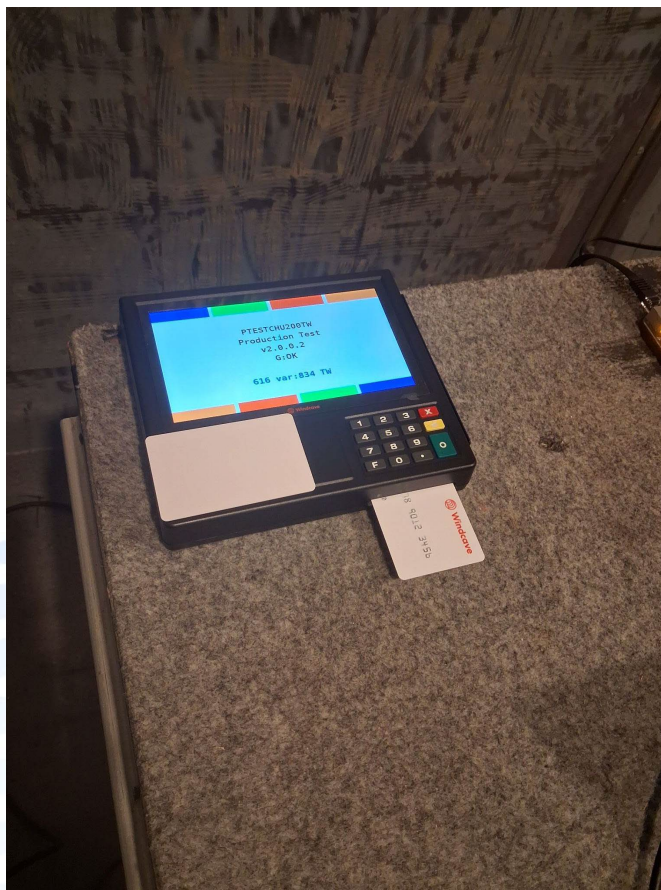
USB to RS-232 Power Supply Interface



Conducted Emissions Test Setup



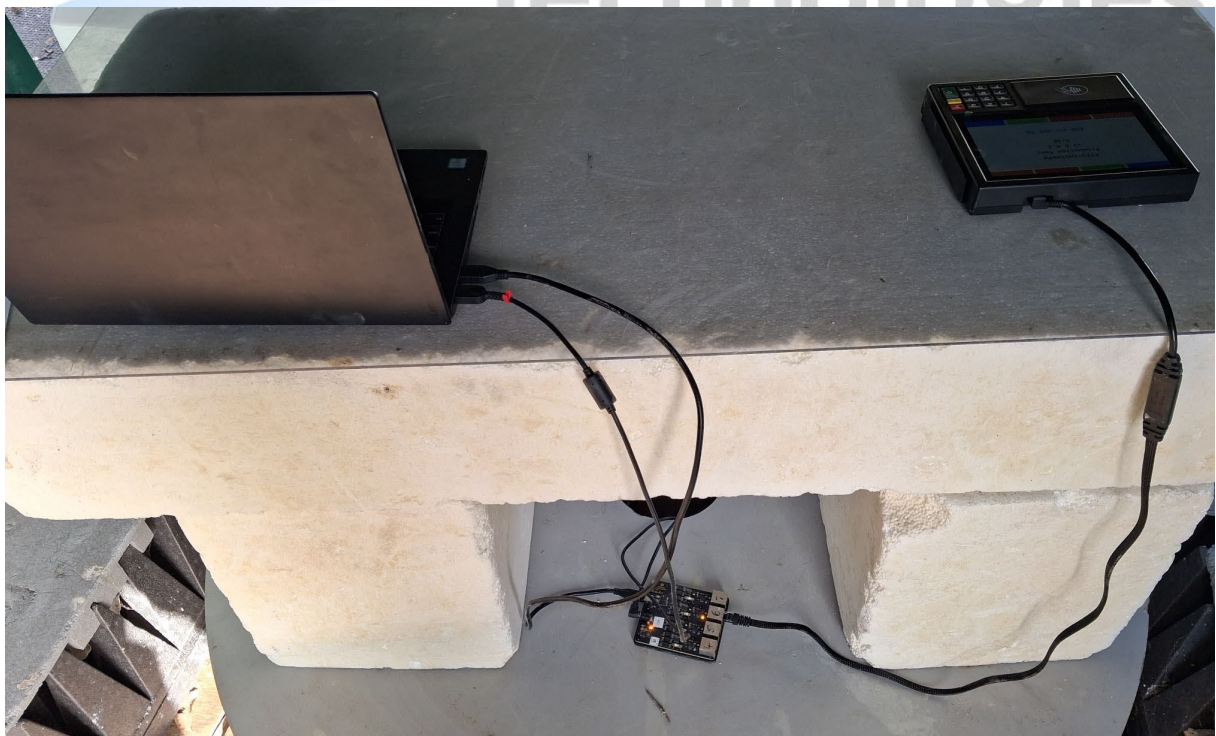
Conducted Emissions Test Setup



Radiated Emissions Test Setup



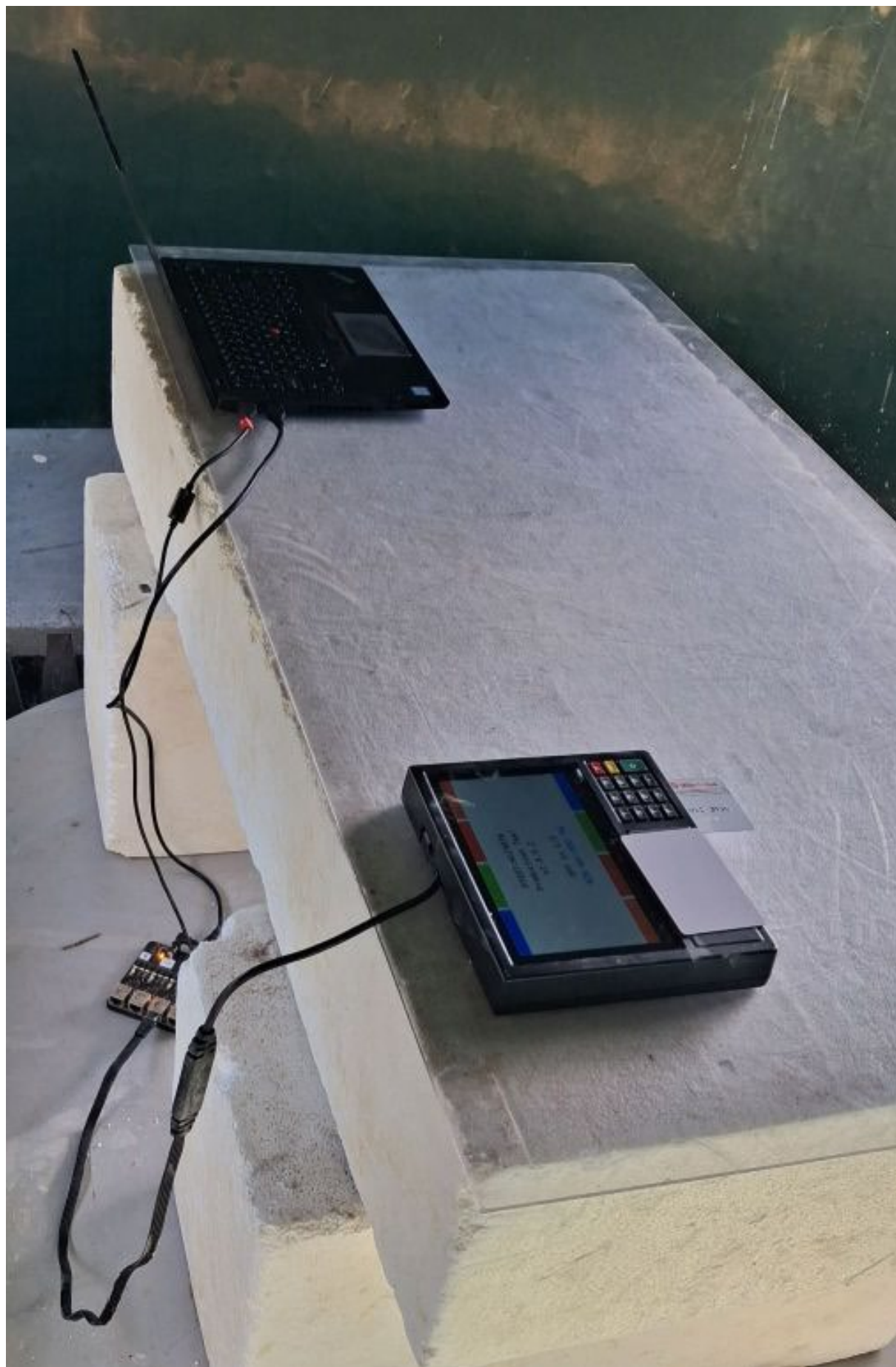
Radiated Emissions Test Setup



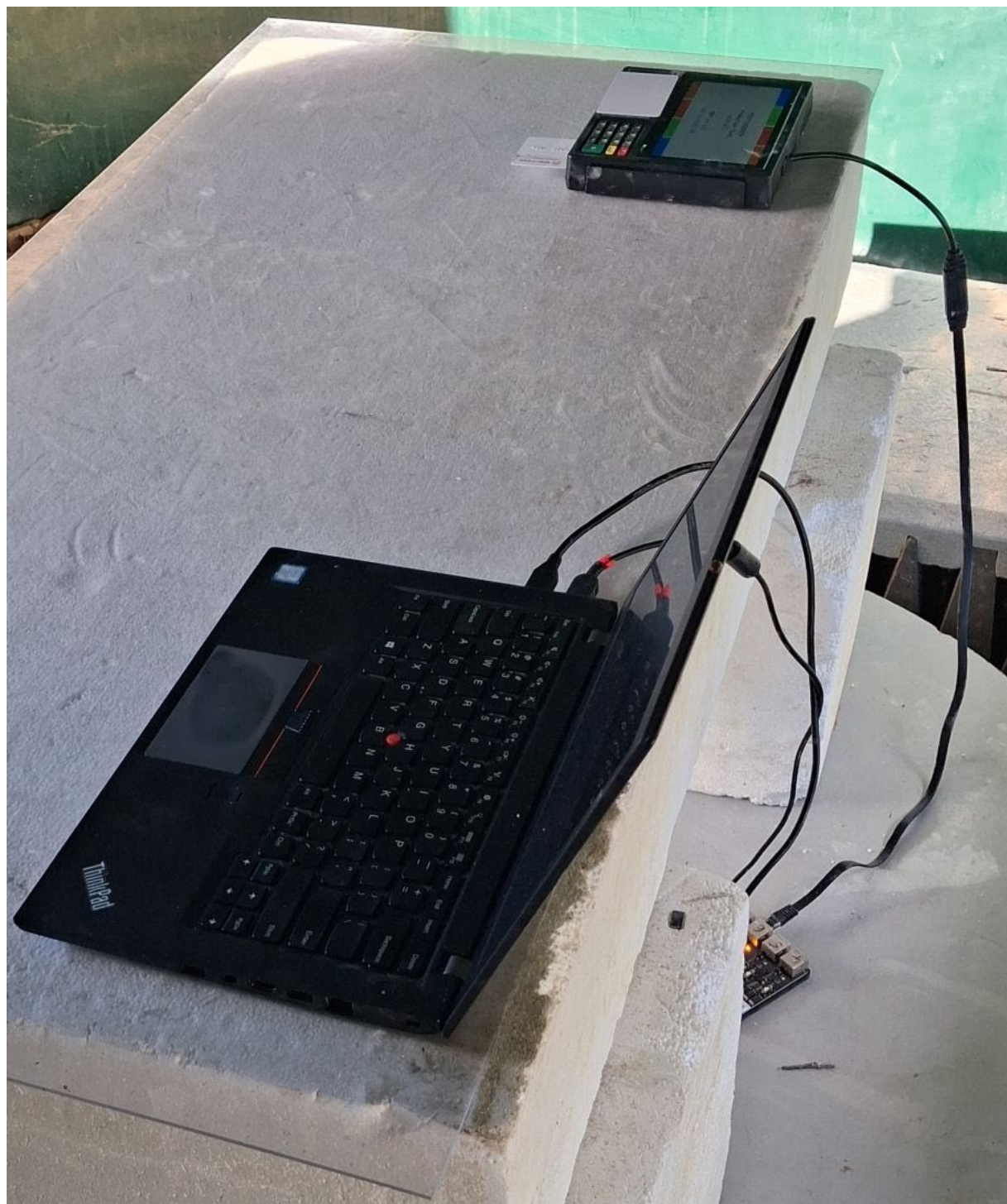
Radiated Emissions Test Setup



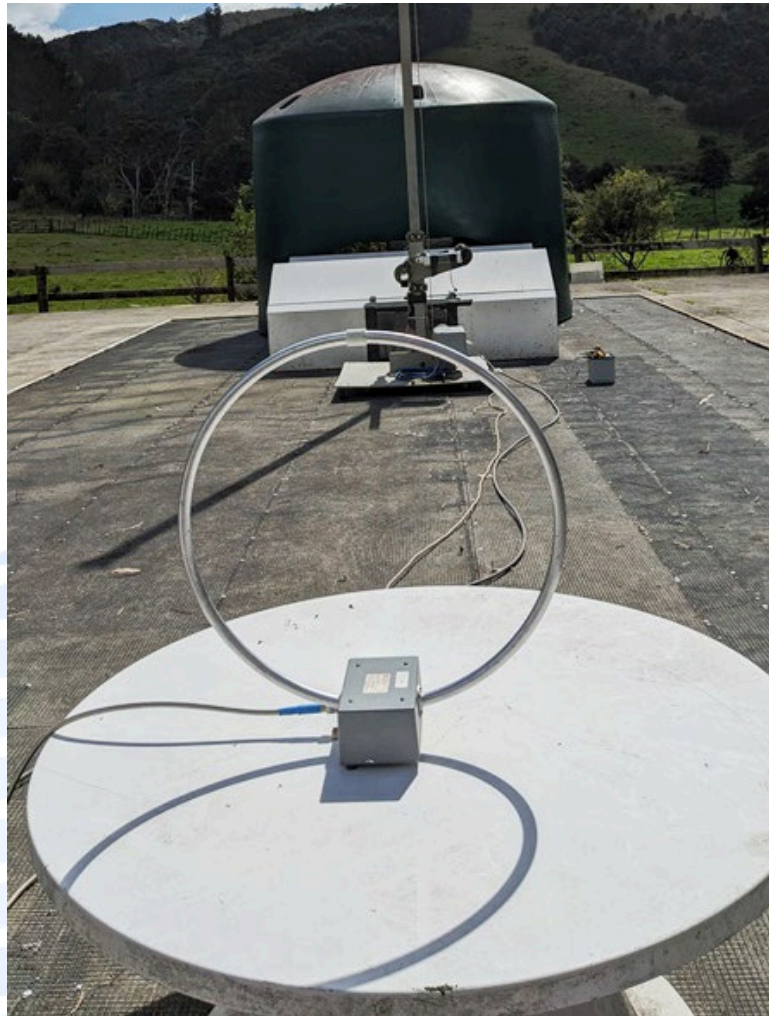
Radiated Emissions Test Setup



Radiated Emissions Test Setup



Radiated Emissions Test Site - Loop Antenna



Radiated Emissions Test Site - Biconical Antenna



Radiated Emissions Test Setup - Log Periodic Antenna



Radiated Emissions Test Setup - Horn Antenna

