FCC and ISED Test Report

Trackunit ApS
Access Control Unit: Pass, Model: K300

In accordance with FCC 47 CFR Part 15C, ISED RSS-210 and ISED RSS-GEN (BLE, WLAN and NFC)

Prepared for: Trackunit ApS
Gasværksvej 24
4. Sal
Aalborg
9000
DENMARK

Add value.
Inspire trust.

FCC ID: ZMF-K300 / Contains FCC ID: ZMF-TUBLEWIM01
IC: 9746A-K300 / Contains IC: 9746A-TUBLEWIM01

COMMERCIAL-IN-CONFIDENCE

Document 75959427-06 Issue 01

SIGNATURE			
			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Steve Marshall	Senior Engineer	Authorised Signatory	17 April 2024

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

ENGINEERING STATEMENT
The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C and ISED RSS-210 and ISED RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Ahmad Javid	17 April 2024	

FCC Accreditation
492497/UK2010 Octagon House, Fareham Test Laboratory

ISED Accreditation
12669A Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY
A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15C: 2021, ISED RSS-210: Issue 10 (12-2019) + A1 (2020-04) and ISED RSS-GEN: Issue 05 (2018-04) + A2 (2021-02) for the tests detailed in section 1.3.

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Contents

1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	17-April-2024

Table 1

1.2 Introduction

Applicant	Trackunit ApS
Manufacturer	Trackunit ApS
Model Number(s)	K300
Serial Number(s)	15000022 15000025
Hardware Version(s)	Prototype 3, Rev B
Software Version(s)	0.2.0
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 15C: 2021 ISED RSS-210: Issue 10 (12-2019) + A1 (2020-04) ISED RSS-GEN: Issue 05 (2018-04) + A2 (2021-02)
Order Number	TripleID EMC and RF
Date	20-September-2023
Date of Receipt of EUT	20-November-2023
Start of Test	24-November-2023
Finish of Test	25-January-2024
Name of Engineer(s)	Ahmad Javid & Pier-Angelo Lorusso
Related Document(s)	ANSI C63.10 (2020) ANSI C63.10 (2013)

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C, ISED RSS-210 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15C	RSS-210	RSS-GEN			
Configuration and Mode: NFC Transmit						
2.1	15.215 (c)	-	6.7	20 dB Bandwidth & 99% Occupied Bandwidth	Pass	ANSI C63.10
2.2	15.225 (a)(b)(c)(d)	B.6	6.13	Field Strength of any Emission	Pass	ANSI C63.10
2.3	15.225 (e)	B.6	6.11	Frequency Tolerance Under Temperature Variations	Pass	ANSI C63.10

Table 2

1.4 Application Form

Equipment Description

Technical Description: *(Please provide a brief description of the intended use of the equipment including the technologies the product supports)*	This equipment is an Access Control unit to be mounted in and on vehicles/machinery. It has a keypad, BLE/WLAN, and NFC. It can be connected to a Trackunit Raw Telematics unit via CAN bus and to power lines of the vehicles/machinery.		
Manufacturer:	Trackunit ApS		
Model:	K300		
Part Number:	9833.xxxxxx		
Hardware Version:	Prototype 3, Rev B		
Software Version:	0.2.0		
FCC ID of the product under test – see guidance here		ZMF-K300 / Contains FCC ID: ZMF-TUBLEWIM01	
IC ID of the product under test – see guidance here		9746A-K300 / Contains IC: 9746A-TUBLEWIM01	
Device Category	Mobile ☐	Portable ☐	Fixed ☒
Equipment is fitted with an Audio Low Pass Filter		Yes ☐	No ☒

Table 3

Intentional Radiators

Technology	NFC	Bluetooth Low Energy	2.4 GHz Wi-Fi
Frequency Range (MHz to MHz)	13.56 MHz	2402-2480	2412-2462
Conducted Declared Output Power (dBm)	N/A	14 dBm [1)] <10 dBm EIRP for wolrldwide deployment	16 dBm [1)] <10 dBm EIRP for wolrldwide deployment
Antenna Gain (dBi)	N/A	1.66	1.66
Supported Bandwidth(s) (MHz) (e.g. 1 MHz, 20 MHz, 40 MHz)	0.014	1, 2	20
Modulation Scheme(s) (e.g. GFSK, QPSK etc)	Manchester, 10% ASK	GFSK	DSSS, OFDM
ITU Emission Designator (see guidance here) (not mandatory for Part 15 devices)	14k0A1D	1M00F7D, 2M00F7D	20M0G7D
Bottom Frequency (MHz)	13.553	2402	2412
Middle Frequency (MHz)	13.560	2441	2437
Top Frequency (MHz)	13.567	2480	2462

Table 4

1) Maximum output power was used during the type approval testing of the Trackunit end product. For worldwide deployment of the Trackunit end product a reduced output power of <10 dBm EIRP will be used common across all regions.

Un-intentional Radiators

Highest frequency generated or used in the device or on which the device operates or tunes	2480 MHz
Lowest frequency generated or used in the device or on which the device operates or tunes	32.768 kHz
Class A Digital Device (Use in commercial, industrial or business environment) ☒ Class B Digital Device (Use in residential environment only) ☐	

Table 5

AC Power Source

AC supply frequency:	N/A	Hz
Voltage	N/A	V
Max current:	N/A	A
Single Phase ☐ Three Phase ☐		

Table 6

DC Power Source

Nominal voltage:	12 / 24 / 36 / 48 V systems	V
Extreme upper voltage:	58	V
Extreme lower voltage:	9	V
Max current:	0.5	A

Table 7

Battery Power Source

Voltage:	N/A	V
End-point voltage:	N/A	V *(Point at which the battery will terminate)*
Alkaline ☐ Leclanche ☐ Lithium ☐ Nickel Cadmium ☐ Lead Acid* ☐ **(Vehicle regulated)*		
Other ☐ Please detail:		

Table 8

Charging

Can the EUT transmit whilst being charged	Yes ☐ No ☐

Table 9

Temperature

Minimum temperature:	-30	°C
Maximum temperature:	70	°C

Table 10

Cable Loss

Adapter Cable Loss (Conducted sample)	N/A	dB

Table 11

Antenna Characteristics

Antenna connector ☐			State impedance		Ohm
Temporary antenna connector ☐			State impedance		Ohm
Integral antenna ☒	Type:	BLE/Wi-Fi: Antenna on module	Gain	1.66	dBi
Integral antenna ☒	Type:	NFC: Loop antenna	Gain	N/A	dBi
External antenna ☐	Type:		Gain		dBi
For external antenna only: Standard Antenna Jack ☐ If yes, describe how user is prohibited from changing antenna (if not professional installed): Equipment is only ever professionally installed ☐ Non-standard Antenna Jack ☐ All part 15 applications will need to show how the antenna gain was derived either from a manufacturer data sheet or a measurement. Where the gain of the antenna is inherently accounted for as a result of the measurement, such as field strength measurements on a part 15.249 or 15.231 device, so the gain does not necessarily need to be verified. However, enough information regarding the construction of the antenna shall be provided. Such information maybe photographs, length of wire antenna etc.					

Table 12

Ancillaries (if applicable)

Manufacturer:	N/A	Part Number:	N/A
Model:	N/A	Country of Origin:	N/A

Table 13

We hereby declare that the information supplied is correct and complete.

Name: Lan My Tran/ Bjarke Ebbesen
Position held: Product Compliance Specialist/ Team Lead, Hardware Engineering
Date: 20-Nov-2023

1.5 Product Information

1.5.1 Technical Description

This equipment is an Access Control unit to be mounted in and on vehicles/machinery. It has a keypad, BLE/WLAN, and NFC. It can be connected to a Trackunit Raw Telematics unit via CAN bus and to power lines of the vehicles/machinery.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Model: K300, Serial Number: 15000022			
1	re-soldered the RF module to make sure all the contacts had proper connections	Customer	23 November 2023
Model: K300, Serial Number: 15000025			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 14

1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: NFC Transmit		
20 dB Bandwidth & 99% Occupied Bandwidth	Ahmad Javid	UKAS
Field Strength of any Emission	Ahmad Javid & Pier-Angelo Lorusso	UKAS
Frequency Tolerance Under Temperature Variations	Ahmad Javid	UKAS

Table 15

Office Address:

TÜV SÜD
Octagon House
Concorde Way
Fareham
Hampshire
PO15 5RL
United Kingdom

2 Test Details

2.1 20 dB Bandwidth & 99% Occupied Bandwidth

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.215 (c)
ISED RSS-GEN, Clause 6.7

2.1.2 Equipment Under Test and Modification State

K300, S/N: 15000022 - Modification State 1

2.1.3 Date of Test

25-November-2023

2.1.4 Test Method

The 20dB Bandwidth test was performed in accordance with ANSI C63.10, clauses 6.9.2 and 6.9.1. The 99% Occupied bandwidth test was performed in accordance with ANSI C63.10, clauses 6.9.3 and 6.9.1.

The DUT was powered by a 12V DC power supply.

2.1.5 Environmental Conditions

Ambient Temperature	20.3 °C
Relative Humidity	48.9 %

2.1.6 Test Results

NFC Transmit

Frequency (MHz)	20 dB Bandwidth (Hz)	99% Occupied Bandwidth (Hz)	F_{LOWER} (MHz)	F_{UPPER} (MHz)
13.560879	24.98	82.74	13.560867	13.560892

Table 16

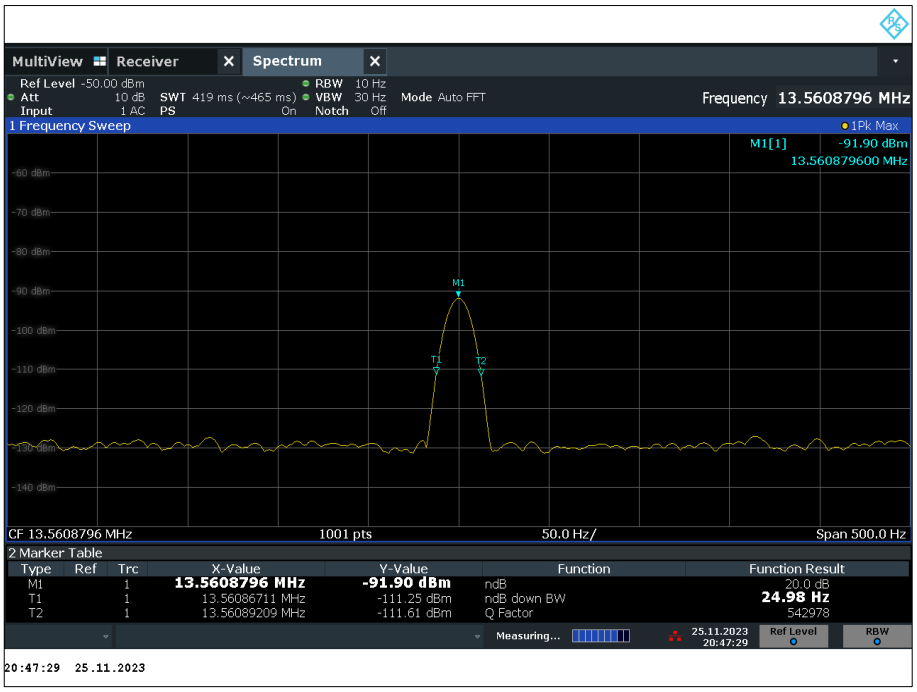


Figure 1 - 20 dB Bandwidth

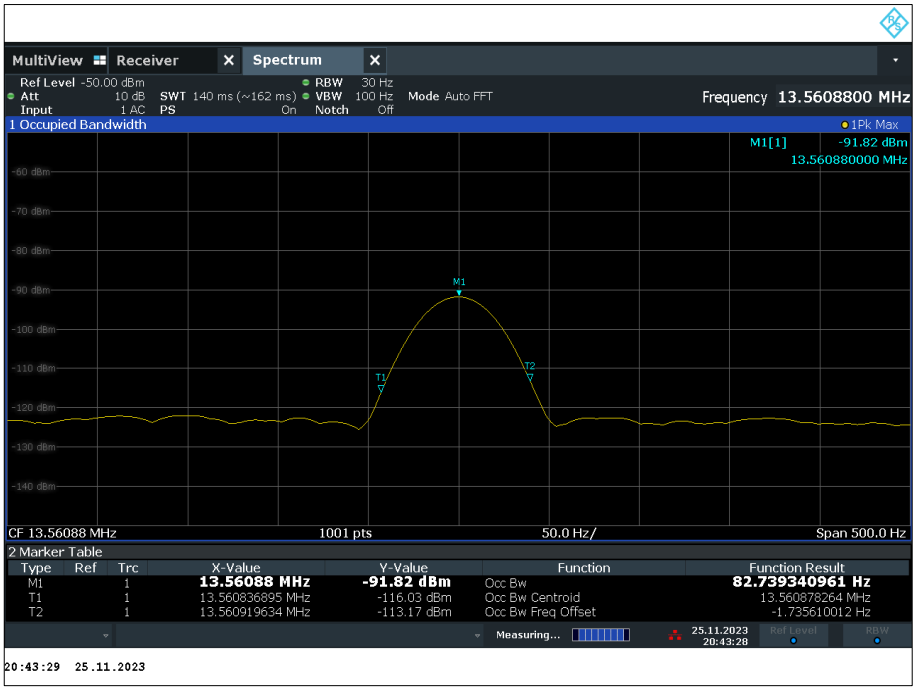


Figure 2 - 99% Occupied Bandwidth

FCC 47 CFR Part 15C, Limit Clause 15.215 (c)

The 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

ISED RSS 210 and ISED RSS GEN, Limit Clause

None specified.

2.1.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Screened Room (5)	Rainford	Rainford	1545	36	15-Apr-2024
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
True RMS Multimeter	Fluke	179	4007	12	17-Nov-2024
Emissions Software	TUV SUD	EmX V3.1.6	5125	-	Software
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5476	12	07-Nov-2024
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5517	12	21-May-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	15-Jun-2024
Antenna (Loop, 9 kHz to 30 MHz)	Rohde & Schwarz	HFH2-Z2	0333	24	21-Dec-2024

Table 17

TU - Traceability Unscheduled
O/P Mon – Output Monitored

2.2 Field Strength of any Emission

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.225 (a)(b)(c)(d)
ISED RSS-210, Clause B.6
ISED RSS-GEN, Clause 6.13.

2.2.2 Equipment Under Test and Modification State

K300, S/N: 15000022 - Modification State 1
K300, S/N: 15000025 - Modification State 0

2.2.3 Date of Test

25-November-2023 to 25 January 2024

2.2.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.3, 6.4 and 6.5.

Pre-scan measurements were made at a distance of 3 m as shown by the plots below using a peak detector. Final emission measurements were then made using a Quasi-Peak detector and recorded in the tables below. The limit lines shown on the plot were extrapolated from either 300 m or 30 m to the measurement distance of 3 m in accordance with ANSI C63.10 Clause 6.4.4.2.

The DUT was powered by a 12V DC power supply.

2.2.5 Environmental Conditions

Ambient Temperature	20.5 – 20.6 °C
Relative Humidity	48.0 - 49.2 %

2.2.6 Test Results

NFC Transmit, Carrier Results

Frequency (MHz)	Quasi-Peak Level (dBµV/m) at 3m	Quasi-Peak Level (dBµV/m) at 30m	Quasi-Peak Level (µV/m) at 3m	Quasi-Peak Level (µV/m) at 30m
13.56	57.32	37.32	734.51	73.45

Table 18

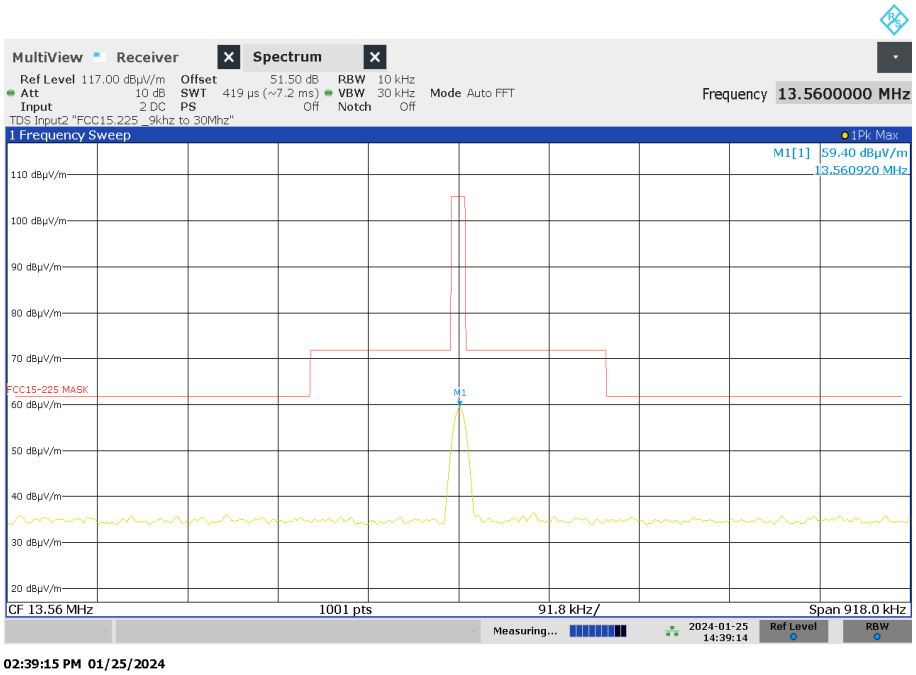


Figure 3 - Plot of the Fundamental - 13.56 MHz

Frequency MHz	Quasi-Peak Level (dBµV/m) at 3 m	Quasi-Peak Level (dBµV/m) at 30 m	Quasi-Peak Level (µV/m) at 3 m	Quasi-Peak Level (µV/m) at 30 m
*	*	*	*	*

Table 19 - Emissions Results - 9 kHz to 30 MHz

No emissions were detected within 10 dB of the limit.

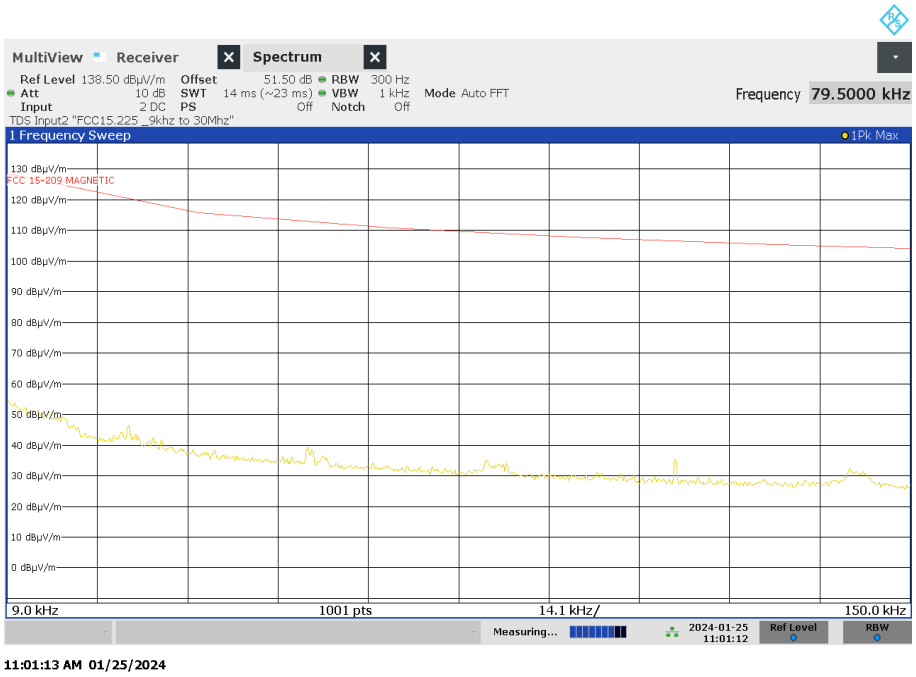


Figure 4 - 9 kHz to 150 kHz - X Orientation – Face On

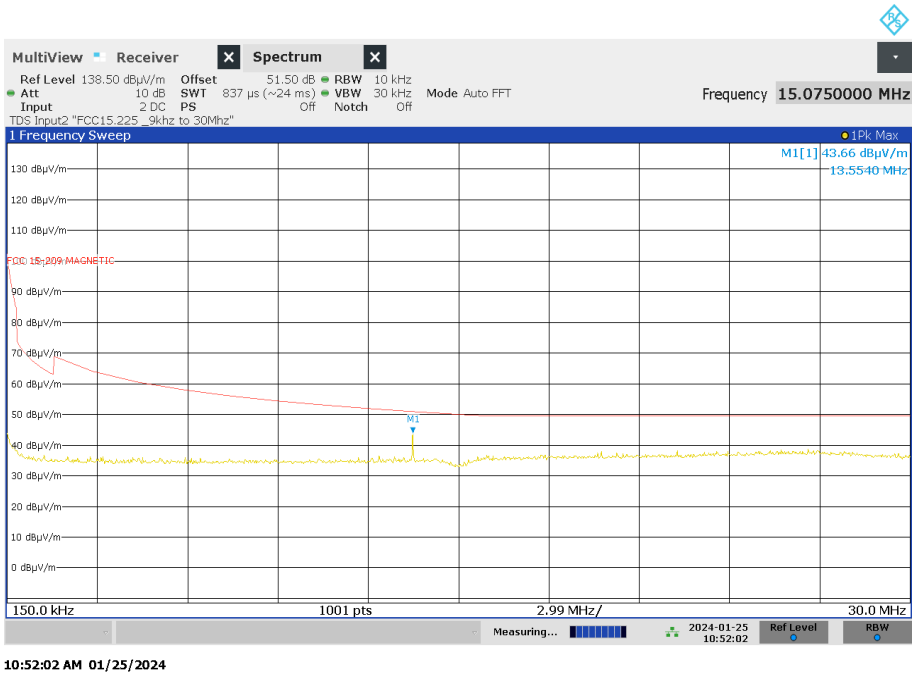


Figure 5 - 150 kHz to 30 MHz - X Orientation – Face On

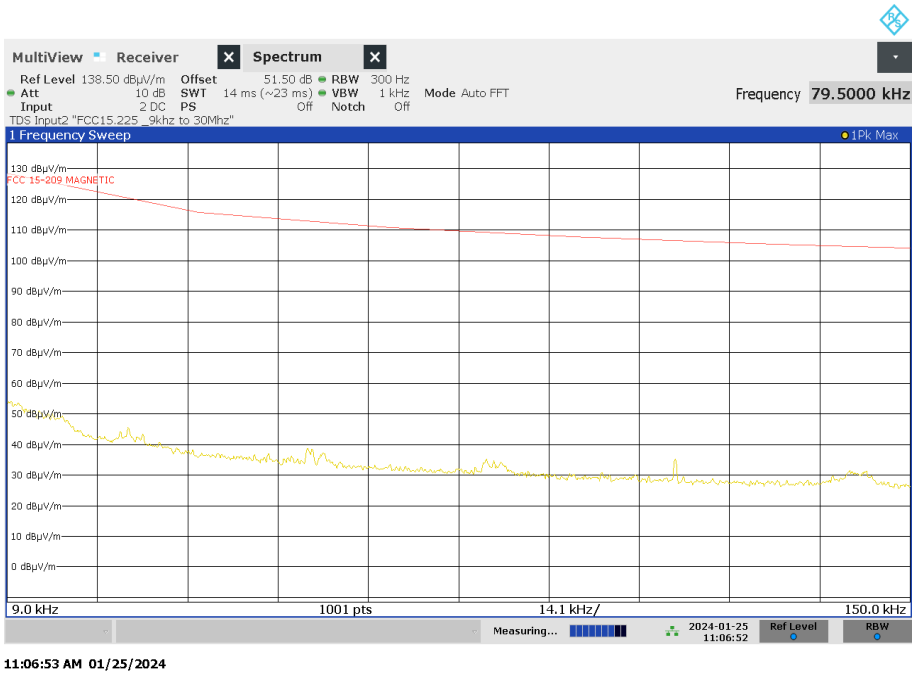
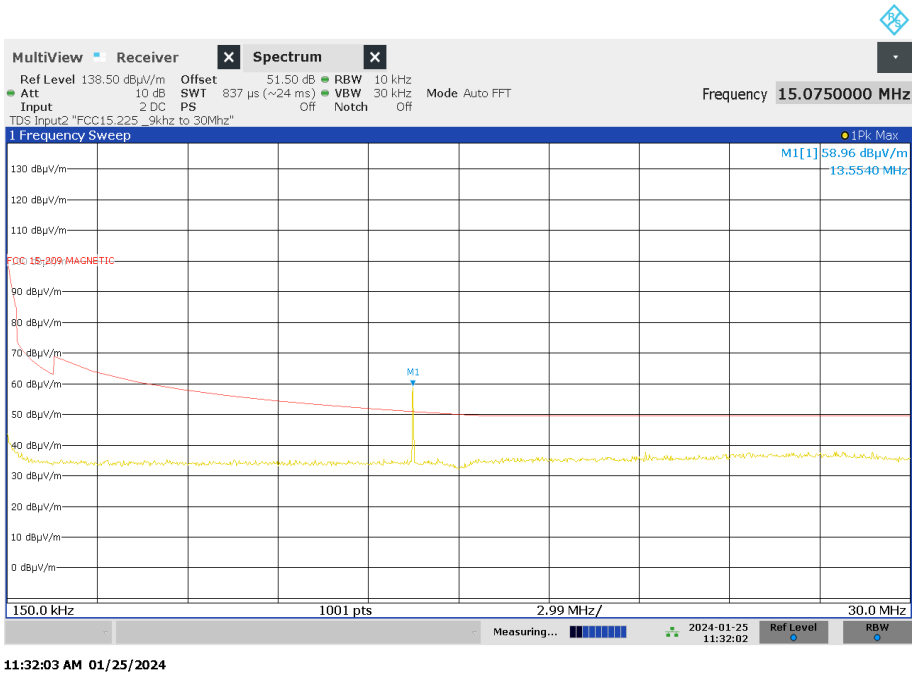


Figure 6 - 9 kHz to 150 kHz - Y Orientation – Face On



11:32:03 AM 01/25/2024

Figure 7 - 150 kHz to 30 MHz - Y Orientation – Face On

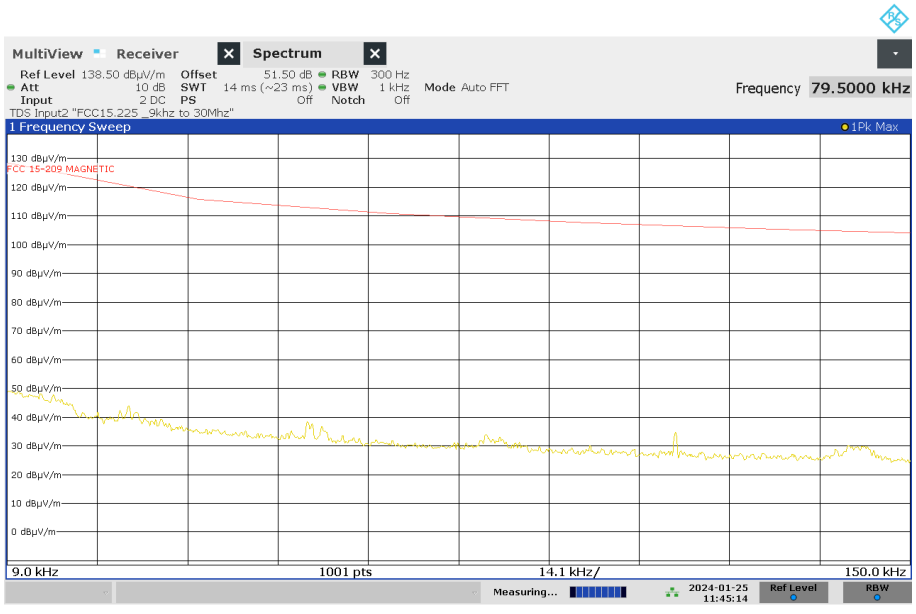


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Figure 8 - 9 kHz to 150 kHz - Z Orientation – Face On

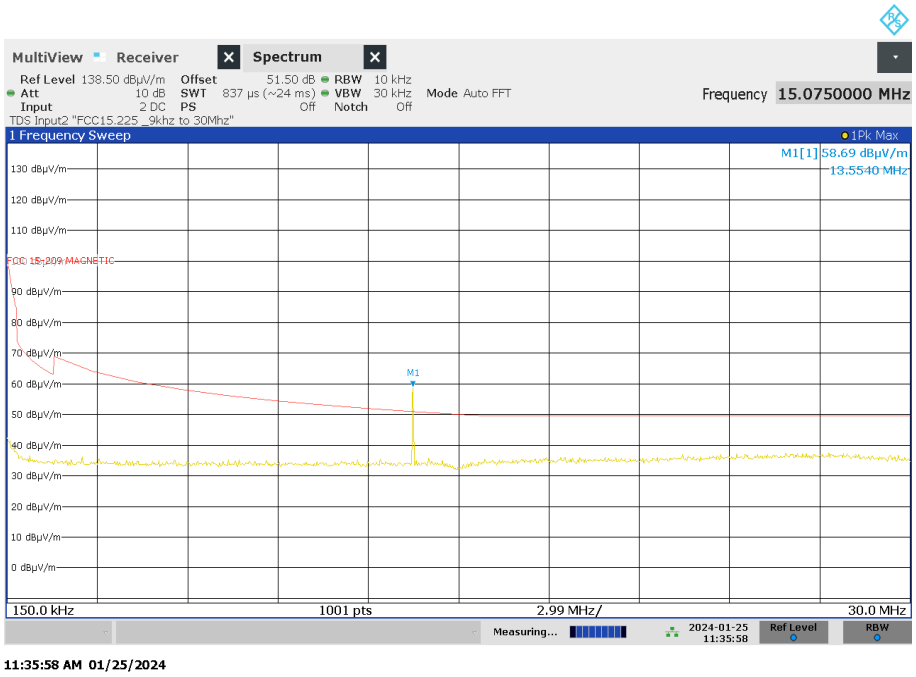

Figure 9 - 150 kHz to 30 MHz - Z Orientation – Face On

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 20 - Emissions Results – 30 MHz to 1 GHz

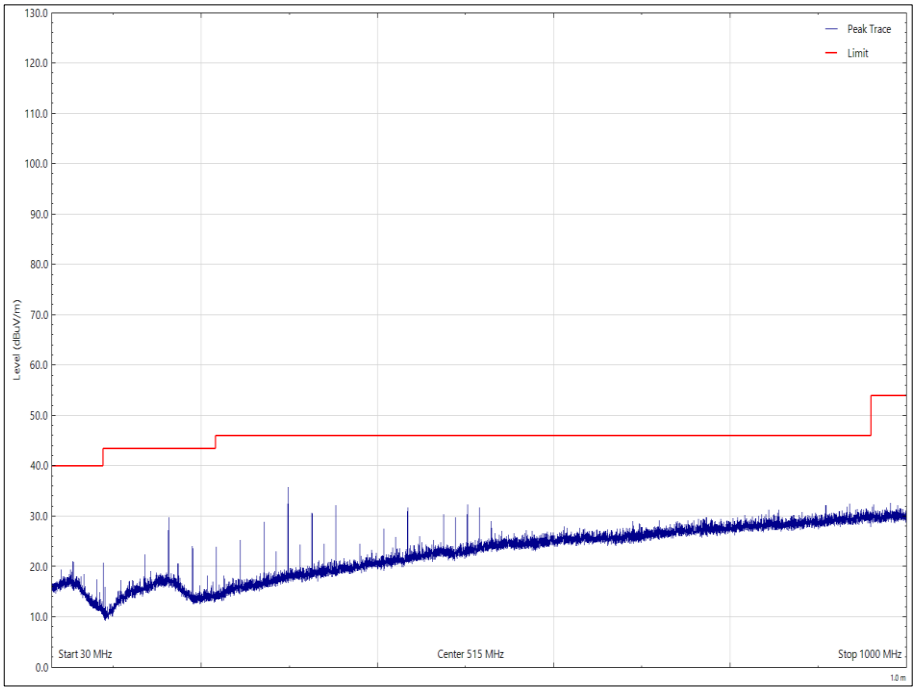

Figure 10 - 30 MHz to 1 GHz_X - Horizontal

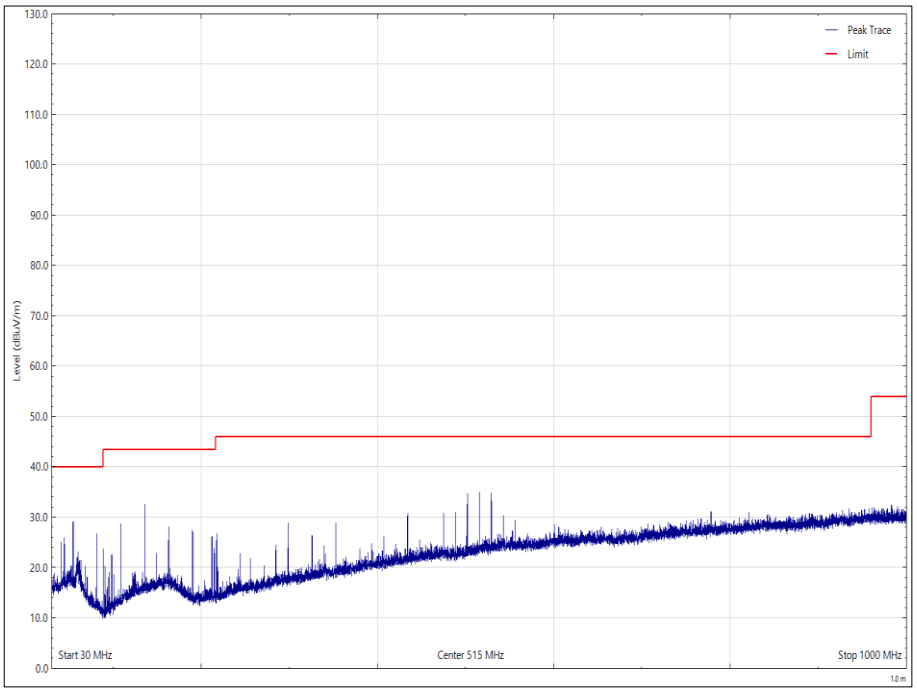

Figure 11 - 30 MHz to 1 GHz_X - Vertical

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
54.251	30.46	40.00	-9.54	Q-Peak	0	100	Vertical
501.748	41.29	46.00	-4.71	Q-Peak	328	106	Vertical
515.313	43.42	46.00	-2.58	Q-Peak	120	101	Vertical
528.871	40.00	46.00	-6.00	Q-Peak	113	100	Vertical

Table 21 - Emissions Results – 30 MHz to 1 GHz

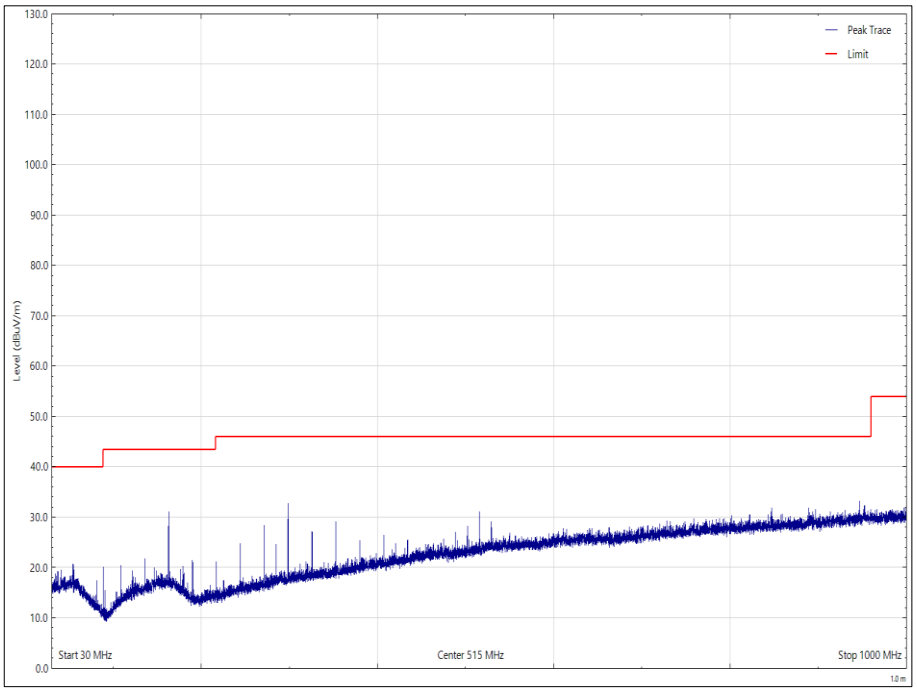

Figure 12 - 30 MHz to 1 GHz_Y - Horizontal

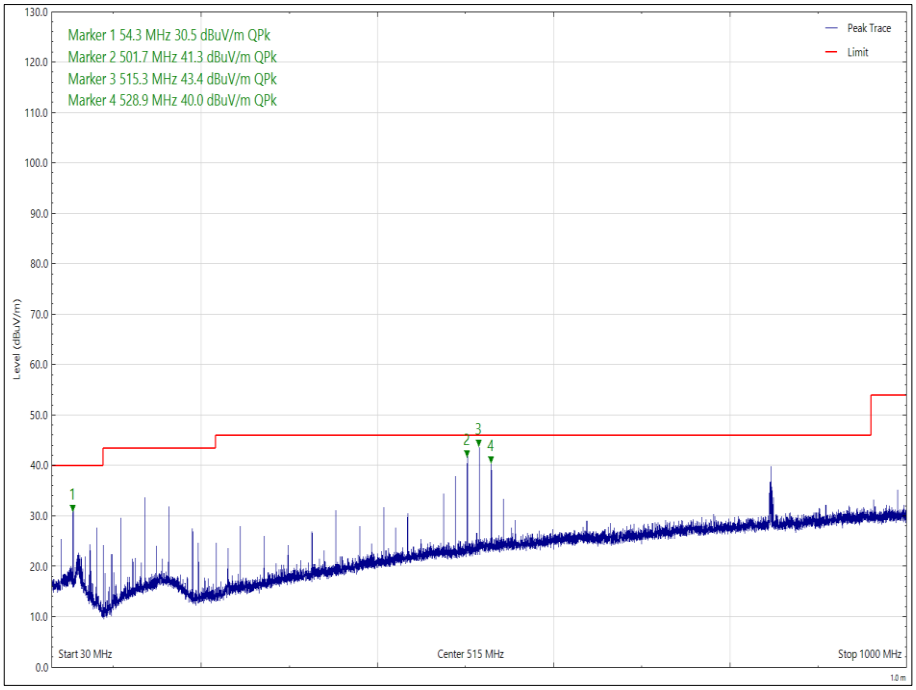

Figure 13 - 30 MHz to 1 GHz_Y - Vertical

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
54.252	30.38	40.00	-9.62	Q-Peak	10	109	Vertical
501.762	36.84	46.00	-9.16	Q-Peak	192	100	Vertical
515.318	38.83	46.00	-7.17	Q-Peak	134	100	Vertical

Table 22 - Emissions Results – 30 MHz to 1 GHz

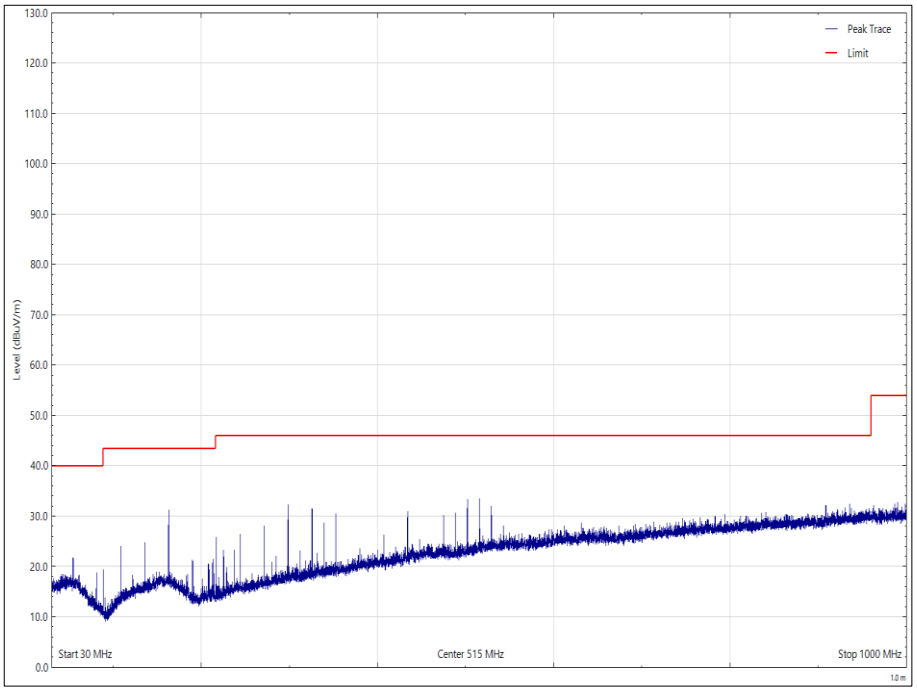

Figure 14 - 30 MHz to 1 GHz_Z - Horizontal

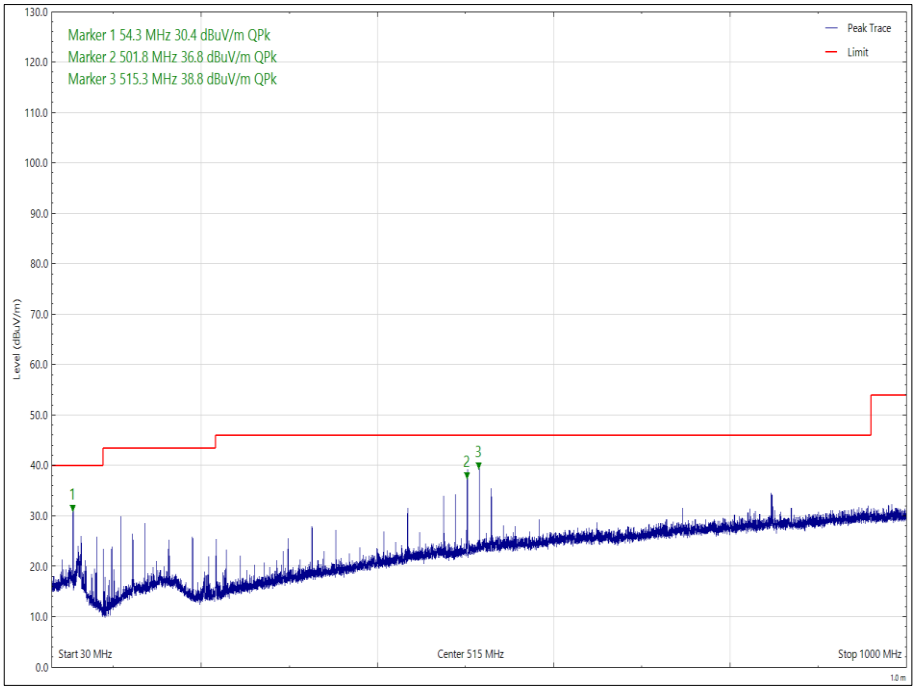

Figure 15 - 30 MHz to 1 GHz_Z - Vertical

FCC 47 CFR Part 15, Limit Clause 15.225 (a)(b)(c)(d)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 m.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 m.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 m.

(d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 to 0.490	2400/F (kHz)	300
0.490 to 1.705	24000/F (kHz)	30
1.705 to 30	30	30
30 to 88	100**	3
88 to 216	150**	3
216 to 960	200**	3
Above 960	500	5

Table 23 - FCC Radiated Emission Limit

ISED RSS-210, Limit Clause B.6

The field strength of any emission shall not exceed the following limits:

(a) 15.848 mV/m (84 dBµV/m) at 30 m, within the band 13.553 – 13.567 MHz.

(b) 334 µV/m (50.5 dBµV/m) at 30 m, withing the bands 13.410 – 13.553 MHz and 13.567 – 13.710 MHz.

(c) 106 µV/m (40.5 dBµV/m) at 30 m, within the bands 13.110 – 13.410 MHz and 13.710 – 14.010 MHz.

(d) RSS-GEN general field strength limits for frequencies outside the band 13.110 – 14.010 MHz.

ISED RSS-GEN, Limit Clause

Frequency	Electric Field Strength (µV/m)	Magnetic Field Strength (H-Field) (µA/m)	Measurement Distance (m)
9 - 490 kHz	2,400/F (F in kHz)	2,400/377F (F in kHz)	300
490 - 1,705 kHz	24,000/F (F in kHz)	24,000/377F (F in kHz)	30
1,705 kHz - 30 MHz	30	N/A	30

Table 24 - ISED Radiated Emission Limit - Less than 30 MHz

Frequency (MHz)	Field Strength (µV/m at 3 m)
30 - 88	100
88 - 216	150
216 - 960	200
> 960	500

Table 25 - ISED Radiated Emission Limit - 30 MHz to 1 GHz

2.2.7 Test Location and Test Equipment Used

9kHz to 30MHz was carried out in EMC Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Dual Power Supply Unit	Hewlett Packard	6253A	292	-	O/P Mon
Test Receiver	Rohde & Schwarz	ESW44	5084	12	31-Aug-2024
Screened Room (11)	Rainford	Rainford	5136	36	24-Nov-2024
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU
Thermo-Hygro-Barometer	PCE Instruments	OCE-THB-40	5470	12	20-Apr-2024
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5518	12	14-Apr-2024
Antenna (Active Loop, 9kHz-30MHz)	Rohde & Schwarz	HFH2-Z2	333	24	21-Dec-2024
Attenuator (4 dB)	Pasternack	PE7074-4	6202	24	16-Jul-2024

Table 26

30MHz to 1GHz was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Screened Room (5)	Rainford	Rainford	1545	36	15-Apr-2024
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
True RMS Multimeter	Fluke	179	4007	12	17-Nov-2024
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	6635	24	13-Jun-2025
Emissions Software	TUV SUD	EmX V3.1.6	5125	-	Software
Attenuator 4dB	Pasternack	PE7074-4	6201	24	16-Jul-2024
Mast Controller	Maturo Gmbh	NCD	4810	-	TU
Tilt Antenna Mast	Maturo Gmbh	TAM 4.0-P	4811	-	TU
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5476	12	07-Nov-2024
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5517	12	21-May-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	15-Jun-2024
Antenna (Loop, 9 kHz to 30 MHz)	Rohde & Schwarz	HFH2-Z2	0333	24	21-Dec-2024

Table 27TU - Traceability Unscheduled

2.3 Frequency Tolerance Under Temperature Variations

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.225 (e)
ISED RSS-210, Clause B.6
ISED RSS-GEN, Clause 6.11.

2.3.2 Equipment Under Test and Modification State

K300, S/N: 15000022 - Modification State 1

2.3.3 Date of Test

24-November-2023

2.3.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.8.

2.3.5 Environmental Conditions

Ambient Temperature	20.2 °C
Relative Humidity	48.9 %

2.3.6 Test Results

NFC Transmit

Temperature	Voltage	Measured Frequency (MHz)	Frequency Deviation (%)	Frequency Error (ppm)
-20.0 °C	12VDC	13.560925	0.006821534	68.21533923
-10.0 °C	12VDC	13.560945	0.006969027	69.69026549
0.0 °C	12VDC	13.560935	0.006895280	68.95280236
+10.0 °C	12VDC	13.560915	0.006747788	67.47787611
+20.0 °C	12VDC	13.560890	0.006563422	65.63421829
+30.0 °C	12VDC	13.560870	0.006415929	64.15929204
+40.0 °C	12VDC	13.560850	0.006268437	62.68436578
+50.0 °C	12VDC	13.560835	0.006157817	61.57817109

Table 28 - Frequency Tolerance Under Temperature Variation

Temperature	Voltage	Measured Frequency (MHz)	Frequency Deviation (%)	Frequency Error (ppm)
+20.0 °C	59VDC	13.560894	0.006592920	65.92920354
+20.0 °C	12VDC	13.560890	0.006563422	65.63421829
+20.0 °C	10.2VDC	13.560889	0.006556047	65.56047198

Table 29 - Frequency Tolerance Under Voltage Variation

FCC 47 CFR Part 15, Limit Clause 15.225 (e)

The frequency tolerance of the carrier signal shall be maintained within ± 0.01 % of the operating frequency.

ISED RSS-210, Limit Clause B.6

The carrier frequency stability shall not exceed ±100 ppm.

2.3.7 Test Location and Test Equipment Used

This test was carried out in RF Lab2.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
True RMS Multimeter	Fluke	179	4007	12	17-Nov-2024
PSU	Hewlett Packard	6253A	292	-	O/P Mon
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5476	12	07-Nov-2024
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5517	12	21-May-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	15-Jun-2024
Climatic Chamber	Weiss Technik	TempEvent T/180/40/3	5894	12	07-Jul-2024

Table 30

O/P Mon – Output Monitored using calibrated equipment

3 Photographs

3.1 Test Setup Photographs

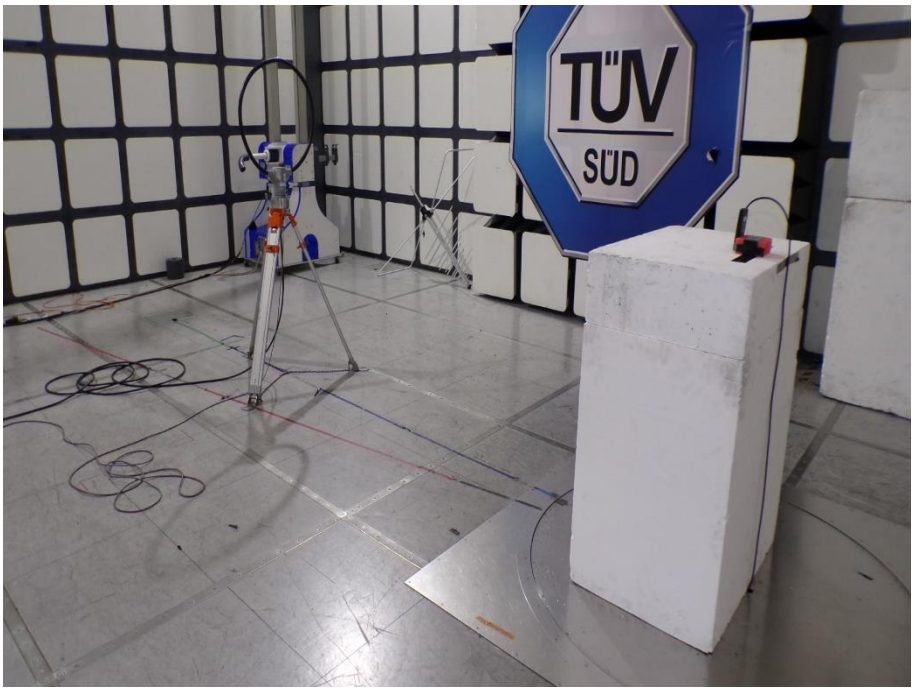

Figure 16 – 9KHz to 30MHz Antenna Setup Front On

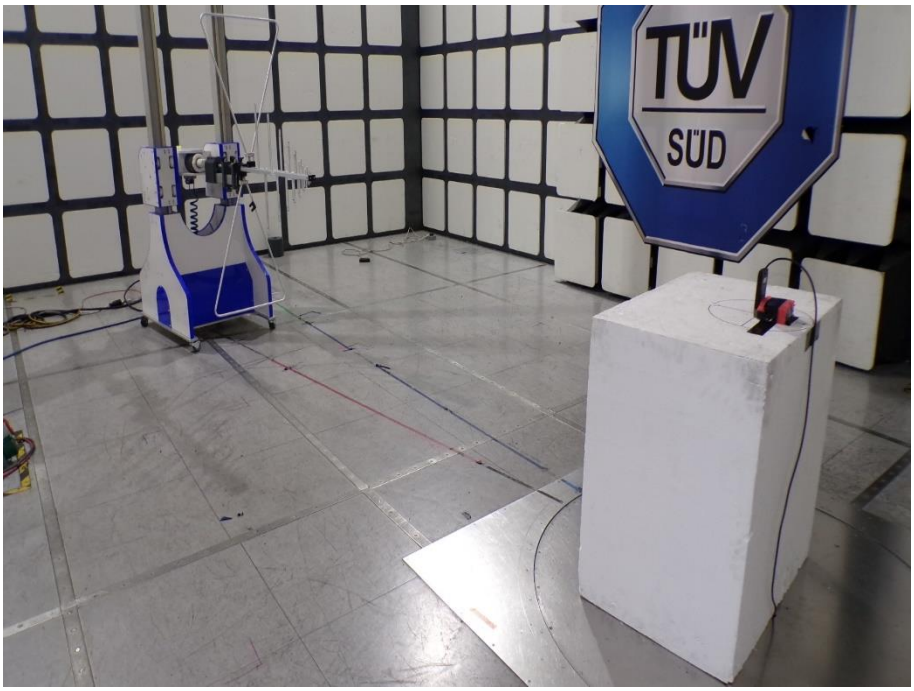

Figure 17 – 30MHz to 1GHz Setup

4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
20 dB Bandwidth & 99% Occupied Bandwidth	= (+/-) 41.3856Hz
Field Strength of any Emission	9 kHz to 30 MHz: ± 3.4 dB 30 MHz to 1 GHz: ± 5.2 dB
Frequency Tolerance Under Temperature Variations	± 58.03 Hz

Table 31

Measurement Uncertainty Decision Rule – Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.