

Report on the FCC and IC Testing of the BRUSA Elektronik GmbH

CPM – car pad module
Model: ICS2-S5U8-1525-002

In accordance with FCC 47 CFR Part 15 C
and ISED RSS-210 and ISED RSS-Gen



Prepared for: BRUSA Elektronik GmbH
Hollerithstraße 7A
81829 München
Germany

FCC ID: 2AK2AICS2CPM
IC ID: 22375-ICS2CPM

COMMERCIAL-IN-CONFIDENCE

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RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Michael Ingerl	2026-06-23	 SIGN-ID 1138212 23.06.2026 Michael Ingerl
Authorised Signatory	Martin Steindl	2026-06-23	 SIGN-ID 1138301 23.06.2026 Martin Steindl

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

Engineering Statement:

This measurement 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 with FCC 47 CFR Part 15 C and ISED RSS-210 and RSS-GEN.

The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Michael Ingerl	2026-06-23	 SIGN-ID 1138213 23.06.2026 Michael Ingerl

Laboratory Accreditation

DAkkS Reg. No. D-PL-11321-11-02

DAkkS Reg. No. D-PL-11321-11-03

Laboratory recognition

Registration No. BNetzA-CAB-16/21-15

Industry Canada test site registration

3050A-2

Executive Statement:

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15 C:2024 and ISED RSS-210:2024 and ISED RSS-Gen:2018 + A1:2019 + A2:2021

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www.tuvsud.com/imprint

Managing Directors:
Wolfgang Hübl (Sprecher / CEO)
Karl Meier
Patrick van Welij

Phone: +49 9421 5682-0
Fax: +49 9421 5682-199
www.tuvsud.com

TÜV SÜD Product Service GmbH
Äußere Frühlingstraße 45
94315 Straubing
Germany



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1 Report Summary

1.1 Modification Report

Alternations and additions of this report will be issued to the holders of each copy in the form of a complete document. The current version replaces all previous versions.

Revision	Description of changes	Date of Revision
0	First Revision	2026-06-23

Table 1: Report of Modifications

1.2 Introduction

Applicant	BRUSA Elektronik GmbH
Manufacturer	BRUSA Elektronik GmbH
Model Number(s)	ICS2-S5U8-1525-002
Serial Number(s)	017604118S950554
Hardware Version(s)	C2.D
Software Version(s)	0180
Number of Samples Tested	1
Test Specification(s) /	FCC 47 CFR Part 15 C:2024
Issue / Date	ISED RSS-210 Issue11 2024
	ISED RSS-Gen Issue 5 2018 + A1:2019 + A2:2021
Test Plan/Issue/Date	---
Order Number	MBS26-1694
Date of Receipt of EUT	2026-04-21
Start of Test	2026-04-29
Finish of Test	2026-05-07
Name of Engineer(s)	Michael Ingerl
Related Document(s)	ANSI C63.10:2020



1.3 Brief Summary of Results

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

Section	Specification Clause	Test Description	Result
2.1	15.250 (a) 15.250 (b)	Bandwidth of Signal	Pass
2.2	15.250 (d)	Peak Power	Pass
2.3	15.250 (d)(1), 15.250 (d)(4), 15.209	Radiated Emissions	Pass
2.4	15.250 (d)(2)	Radiated Emissions in GPS bands	Pass
---	15.207	Conducted Disturbance at Mains Terminal	Not applicable, battery supply

Table 2: Results according to FCC 47 CFR Part 15 C

Section	Specification Clause	Test Description	Result
2.1	K.2	Bandwidth of Signal	Pass
2.2	K.3 (c)	Peak Power	Pass
2.3	K.3 (a) K.3 (d)	Radiated Emissions	Pass
2.4	K.3 (b)	Radiated Emissions in GPS bands	Pass

Table 3: Results according to ISED RSS-210

Section	Specification Clause	Test Description	Result
2.1	6.7	Bandwidth of Signal	Pass
2.3	8.9	Radiated Emissions	Pass
---	8.8	AC Power Line Conducted Emissions	Not applicable, battery supply
2.3	8.9, 8.10	Radiated Emissions	Pass

Table 4: Results according to ISED RSS-Gen



1.4 Product Information

1.4.1 Technical Description

Supply Voltage:	12 V
Supply Frequency:	DC - NA
Highest clock frequency:	---
Type of equipment:	CPM: Car Pad Module
Application:	UWB
Equipment class:	IEEE Std 802.15.4™-2020 (BPRF mode)
Kind of equipment	UWB - DW3300Q RF module
Frequency band:	UWB-CH5
Frequency range:	BW - 499.2 MHz
Operating Frequency:	6.200 GHz to 6.7392 GHz
Channel spacing:	No Channel spacing, Centre Frequency is 6.4892 GHz
Nubmer of RF channels:	1
Antenna:	Monopole-Omni directional antenna
Standby mode:	UWB is Powered OFF in Standby mode

1.4.2 Test Configuration

Configuration	Description
12 V DC supplied	EUT is connected to a 12V DC source

1.4.3 Mode(s) of Operation

Mode	Description
Emission test mode	Transmitting continuously (UWB set to CH5)

1.4.4 Customer Support Equipment

Instrument	Manufacturer	Type No	Serial Number
Laptop	DELL	N° DE01NB050	---
CAN Vector box with embedded license	Vector	VN1630A	---
Ground Pad Module	BRUSA	GPM	---



1.5 EUT Modifications 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
0	As supplied by the customer	Not Applicable	Not Applicable

Table 5

1.6 Test Location

TÜV SÜD Product Service conducted the following tests at our Straubing test laboratory:

Test Name	Name of Engineer(s)
Configuration and Mode: Transmitting continuously	
Bandwidth of Signal	Michael Ingerl
Peak Power	Michael Ingerl
Radiated Emissions	Michael Ingerl
Radiated Emissions in GPS bands	Michael Ingerl

Office Address:

Äußere Frühlingstraße 45
94315 Straubing
Germany



2 Test Details

2.1 Bandwidth of Signal

2.1.1 Specification Reference

FCC 47 CFR Part 15 C, Clause 15.250 (a) and 15.250 (b)
ISED RSS-210, K.2
ISED RSS-Gen, Clause 6.7

2.1.2 Equipment under Test and Modification State

ICS2-S5U8-1525-002, S/N: 017604118S950554 - Modification State 0

2.1.3 Date of Test

2026-05-06

2.1.4 Environmental Conditions

Ambient Temperature	21 °C
Relative Humidity	35 %

2.1.5 Specification Limits

The 10 dB bandwidth of the device shall be within the band 5925-7250 MHz under all conditions of operation, including the effects from stepped frequency, frequency hopping or other modulation techniques that may be employed, as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

The 10 dB bandwidth of the device shall be at least 50 MHz and less than 500 MHz. For transmitters that employ frequency hopping, stepped frequency or similar modulation types, measurement of the 10 dB bandwidth specified in this paragraph shall be made with the frequency hop or step function disabled, and with the transmitter operating continuously at a frequency chosen in accordance with the provisions of RSS-Gen for determining measurement frequencies.

2.1.6 Test Method

The test was performed according to ANSI C63.10, clauses 6.9 and 10.1
See section 2.3 of this test report for details.



2.1.7 Test Results

Temp °C	f_L (GHz)	f_H (GHz)	f_M (GHz)	-10 dB Bandwidth (MHz)	Limit (MHz)
-40	6.2701	6.7692	6.489	499.1	500
20	6.2705	6.7698	6.489	499.3	500
50	6.2712	6.7701	6.489	498.9	500

Table 6: 10 dB Bandwidth

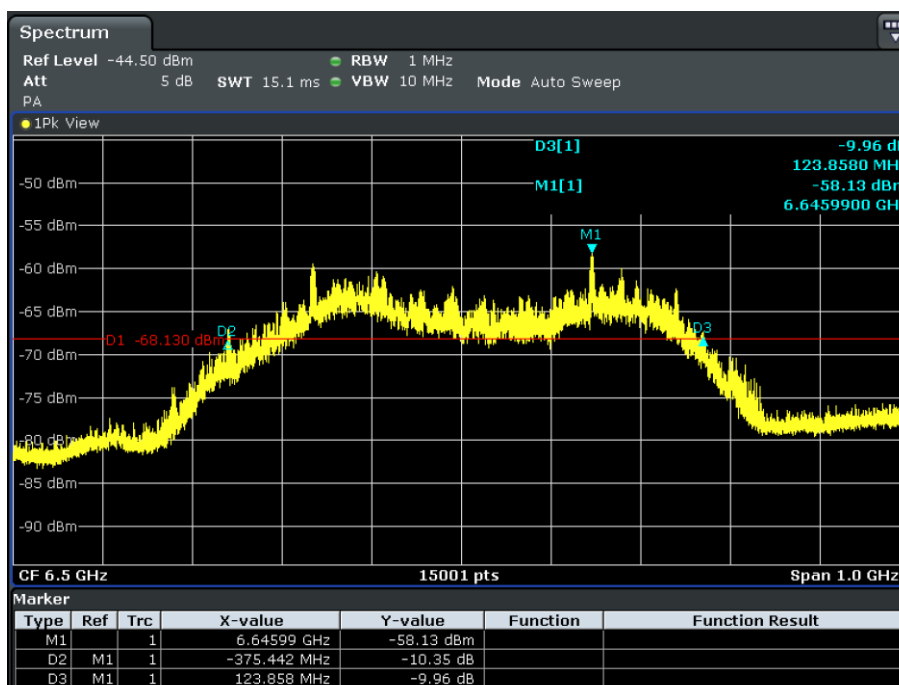


Figure 1 – 10 dB Bandwidth at 20°C



Temp °C	f_L (GHz)	f_H (GHz)	f_M (GHz)	99% Bandwidth (MHz)
-40	6.1896	6.7515	6.489	561.9
20	6.1830	6.7452	6.489	562.2
50	6.1870	6.7578	6.489	570.8

Table 7: 99% Bandwidth



Figure 2 – 99% Bandwidth at 20°C



2.1.8 Test Location and Test Equipment

This test was carried out in climatic chamber.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Signal and Spectrum Analysator	Rohde & Schwarz	FSV40	20219	12	2028-04-30
Climatic test chamber	Espec	PL-4J	38958	18	2026-09-06

Table 8



2.2 Peak Power

2.2.1 Specification Reference

FCC 47 CFR Part 15 C, Clause 15.250 (d)
ISED RSS-210, K.3 (c)

2.2.2 Equipment under Test and Modification State

ICS2-S5U8-1525-002, S/N: 017604118S950554 - Modification State 0

2.2.3 Date of Test

2026-04-29

2.2.4 Environmental Conditions

Ambient Temperature	22 °C
Relative Humidity	36 %

2.2.5 Specification Limits

There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs and this 50 MHz bandwidth must be contained within the 5925-7250 MHz band. The peak EIRP limit is $20 \log (RBW/50)$ dBm where RBW is the resolution bandwidth in megahertz that is employed by the measurement instrument. RBW shall not be lower than 1 MHz or greater than 50 MHz. The video bandwidth of the measurement instrument shall not be less than RBW. If RBW is greater than 3 MHz, the application for certification filed with the Commission shall contain a detailed description of the test procedure, calibration of the test setup, and the instrumentation employed in the testing.

2.2.6 Test Method

The test was performed according to ANSI C63.10, section 10.3.5
See section 2.3 of this test report for details.



2.2.7 Test Results

f_M (GHz)	Resolution Bandwidth (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)
6.418	50	-5.79	0

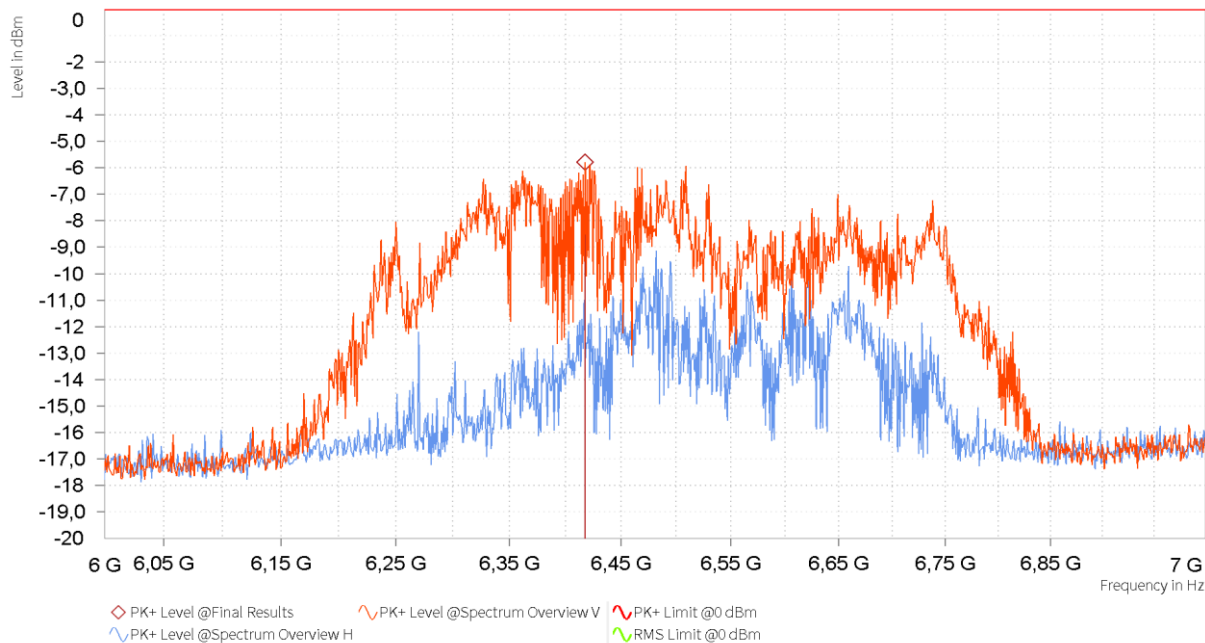
Table 9: Peak Power

f_M (GHz)	Resolution Bandwidth (MHz)	RMS Power (dBm)	RMS Power Limit (dBm)
6.360	1	-51.01	-41.3

Table 10: RMS Power



Peak Power Spectrum Overview

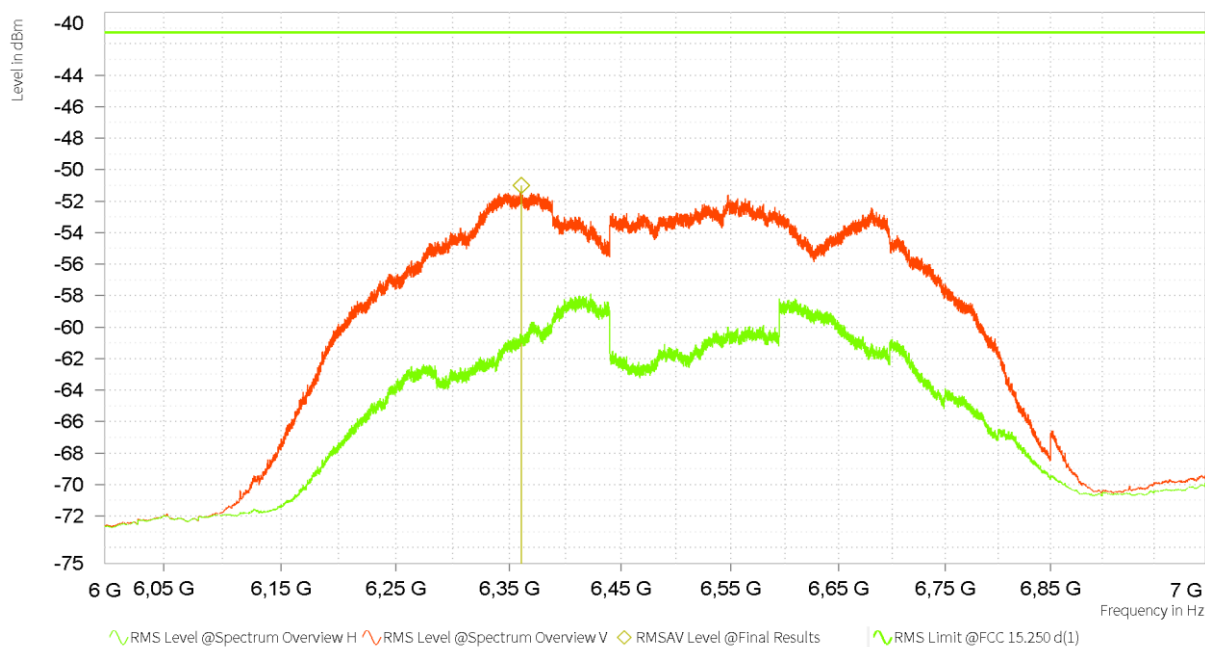


EMI Final Results

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	6.418.000	-5.79	0.00	5.79	45.99	V	83	1.50	50.000.000	0.020



RMS Power Spectrum Overview



EMI Final Results

Rg	Frequency [MHz]	RMSAV Level [dBm]	RMSAV: RMS Limit [dBm]	RMSAV Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	6.360.800	-51.01	-41.30	9.71	11.56	V	-10	1.06	1.000.000	1.000



2.2.8 Test Location and Test Equipment

This test was carried out in Semi anechoic room - cabin no. 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
EMI test receiver	Rohde & Schwarz	ESW44	39897	12	2026-06-30
Double ridged horn antenna	Rohde & Schwarz	HF907	40089	24	2026-11-30
EMC measurement software	Rohde & Schwarz	ELEKTRA 11 Emmision - V5.11.1	68262	---	---
Semi anechoic room	Frankonia	Cabin No. 11	42961	---	---

Table 11



Product Service

2.3 Radiated Emissions

2.3.1 Specification Reference

FCC 47 CFR Part 15 C, Clauses 15.250 (d)(1) and 15.250 (d)(4)
FCC 47 CFR Part 15 C, Clauses 15.209
ISED RSS-210, Clause K.3 (a), K.3 (d)
ISED RSS-Gen, Clauses 8.9

2.3.2 Equipment under Test and Modification State

ICS2-S5U8-1525-002, S/N: 017604118S950554 - Modification State 0

2.3.3 Date of Test

2026-04-29 - 2026-04-30

2.3.4 Environmental Conditions

Ambient Temperature	21 °C
Relative Humidity	34 %



2.3.5 Specification Limits

2.3.5.1 Radiated emissions up to 960 MHz according to 47 CFR 15.250 (d)(4) and ISSED RSS-210 K.3 (a), K.3 (d)

The radiated emissions at or below 960 MHz from a device operating under the provisions of this sections shall not exceed the general radiated emission limits:

General radiated emission limits:					
Frequency Range (MHz)	Test distance (m)	Field strength		Field strength	
		($\mu\text{A}/\text{m}$)	($\text{dB}\mu\text{A}/\text{m}$)	($\mu\text{V}/\text{m}$)	($\text{dB}\mu\text{V}/\text{m}$)
0.009 – 0.49	300	$6.37 / f$	$20*\lg(6.37 / f)$	$2400 / f$	$20*\lg(2400 / f)$
0.49 – 1.705	30	$63.7 / f$	$20*\lg(63.7 / f)$	$24000 / f$	$20*\lg(24000 / f)$
1.705 - 30	30	0.08	$20*\lg(0.08 / f)$	30	$20*\lg(30 / f)$
30 – 88	3	---	---	100	40
88 – 216	3	--	---	150	43.5
126 – 960	3	--	---	200	46

Note 1: f in kHz

Table 12 General radiated emission limits

2.3.5.2 Radiated emissions above 960 MHz according to 47 CFR 15.250

The radiated emissions above 960 MHz shall not exceed the following average (RMS) limits when measured using a resolution bandwidth of 1 MHz:

Frequency range (MHz)	EIRP (dBm)
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-5925	-51.3
5925-7250	-41.3
7250-10600	-51.3
Above 10600	-61.3



2.3.5.3 Radiated emissions above 960 MHz according to ISED RSS-210

The radiated emissions above 960 MHz shall not exceed the following average (RMS) limits when measured using a resolution bandwidth of 1 MHz:

<i>Frequency range (MHz)</i>	<i>EIRP (dBm)</i>
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-5925	-51.3
5925-7250	-41.3
7250-10600	-51.3
Above 10600	-61.3

2.3.6 Test Method

The test was performed according to ANSI C63.10, sections 11.11 and 11.12

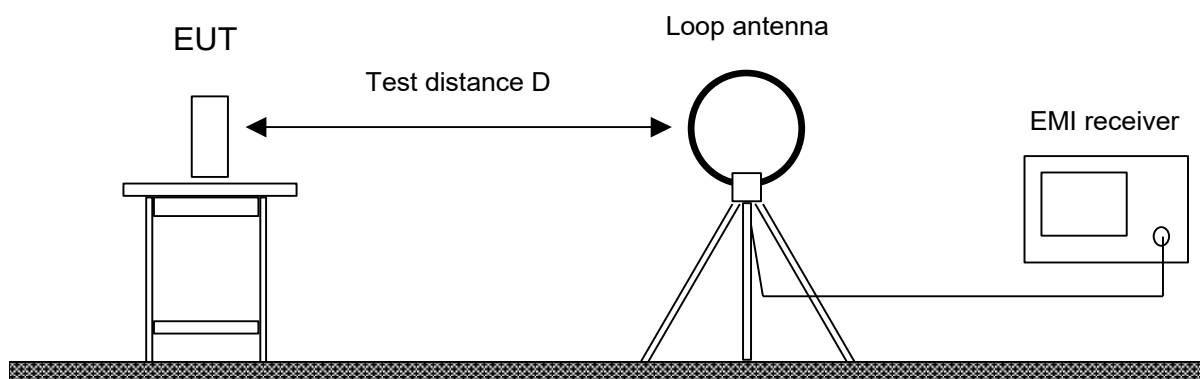
Prescans are performed in six positions of the EUT to get the full spectrum of emission caused by the EUT with the measuring antenna raised and lowered from 1 m to 4 m with vertical and horizontal polarisation to find the combination of table position, antenna height and antenna polarisation for the maximum emission levels.

Data reduction is applied to these results to select those levels having less margin than 10 dB or exceeding the limit using subranges and limited number of maximums.

Further maximisation for adjusting the maximum position is following.

Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.

2.3.6.1 Frequency range 9 kHz – 30 MHz

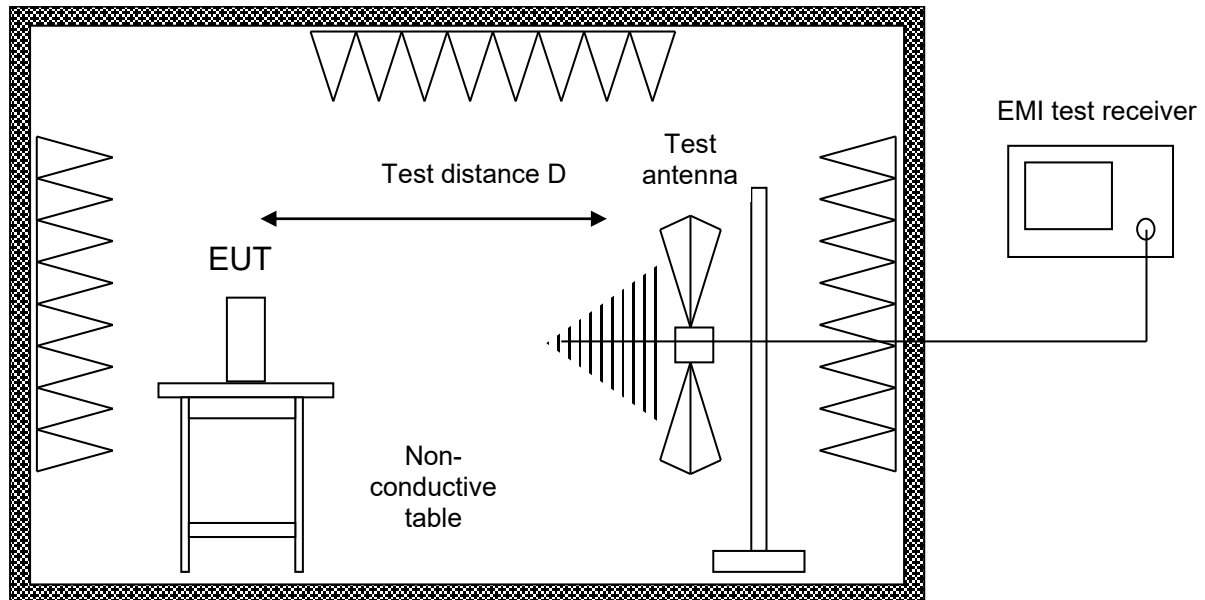


The EUT was placed on a non-conductive table, 0.8 m above the ground.

Radiated emissions in the frequency 9 kHz – 30 MHz is measured within a semi-anechoic room with an active loop antenna with the measurement detector set to peak. In addition in the frequency range 9 kHz to 490 kHz also an average detector was used. The measurement bandwidth of the receiver was set to 300 Hz in the frequency range 9 kHz to 150 kHz and 10 kHz in the frequency range 150 kHz to 30 MHz. Prescans were performed in six positions of the EUT.

For final measurements the detector was set to CISPR quasi-peak and in addition to CISPR average in the frequency range 9 kHz to 490 kHz with a resolution bandwidth 200 Hz in the frequency range 9 kHz to 150 kHz and 9 kHz in the frequency range 150 kHz to 30 MHz. Final tests were performed immediately after a final frequency and zoom (for drifting disturbances) and maximum adjustment.

2.3.6.2 Frequency range 30 MHz – 1 GHz



Alternate test site (semi anechoic room)

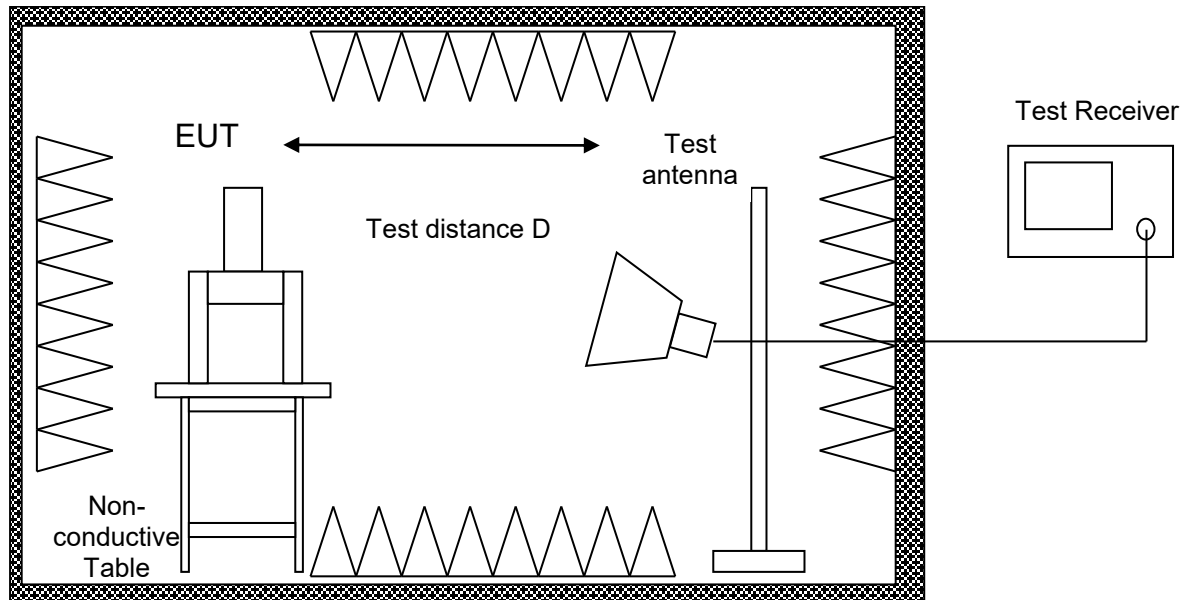
The EUT was placed on a non-conductive table, 0.8 m above the ground plane

Radiated emissions in the frequency range 30 MHz – 1 GHz is measured within a semi-anechoic room with groundplane complying with the NSA requirements of ANSI C63.4. for alternative test sites. A linear polarised logarithmic periodic antenna combined with a 4:1 broadband dipole ("Trilog broadband antenna") is used.

For prescan tests the test receiver is set to peak-detector with a bandwidth of 120 kHz.

With the measurement bandwidth of the test receiver set to 120 kHz CISPR quasi-peak detector is selected for final measurements following immediately after a final frequency zoom (for drifting disturbances) and maximum adjustment.

2.3.6.3 Frequency range above 1 GHz



Fully anechoic room

The EUT was placed on a non-conductive table, 1.5 m above the ground plane

Radiated emission tests above 1 GHz are performed in a fully anechoic room with the S_{VSWR} requirements of ANSI C63.4. Measurements are performed both in the horizontal and vertical planes of polarisation using a test receiver with the detector function set to peak and average and the resolution bandwidth set to 1 MHz. Testing above 1 GHz is performed with horn antennas with the EUT in boresight of the antenna.

For prescan tests the test receiver is set to peak- and average-detector with a bandwidth of 1 MHz.

With the measurement bandwidth of the test receiver set to 1 MHz and peak- and CISPR average-detector is selected for final measurements following immediately after a final frequency zoom (for drifting disturbances) and maximum adjustment.



2.3.7 Test Results

<i>Frequency range</i>	<i>Test distance</i>
9 kHz to 1 GHz	3 m
1 GHz to 18 GHz	1 m
18 GHz to 40 GHz	1 m

Table 13

Sample calculation:

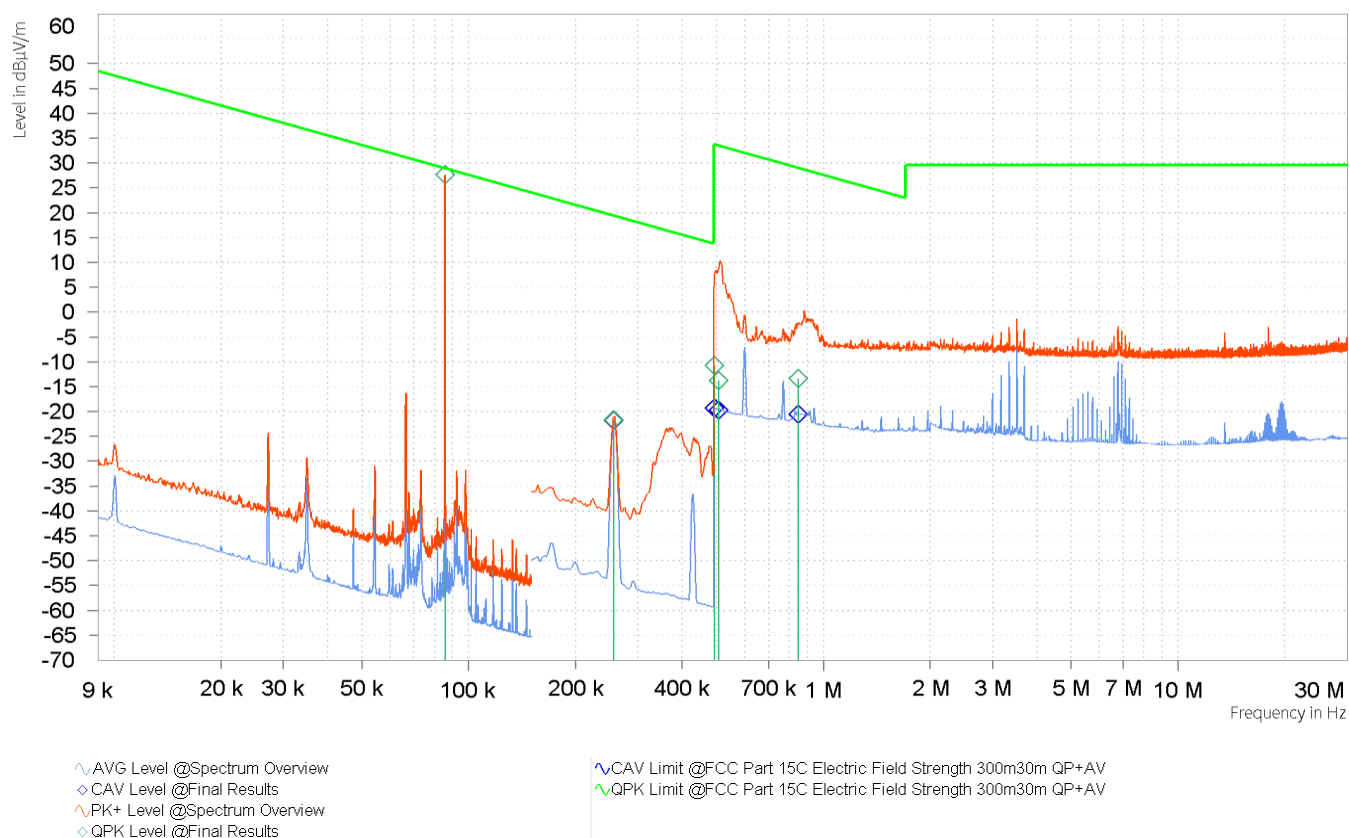
Final Value (dB μ V/m) = Reading Value (dB μ V) + (Cable attenuation (dB)
+ Antenna Transducer (dB(1/m)))



Transmitting continuously

Frequency range 9 kHz – 30 MHz:

Spectrum Overview



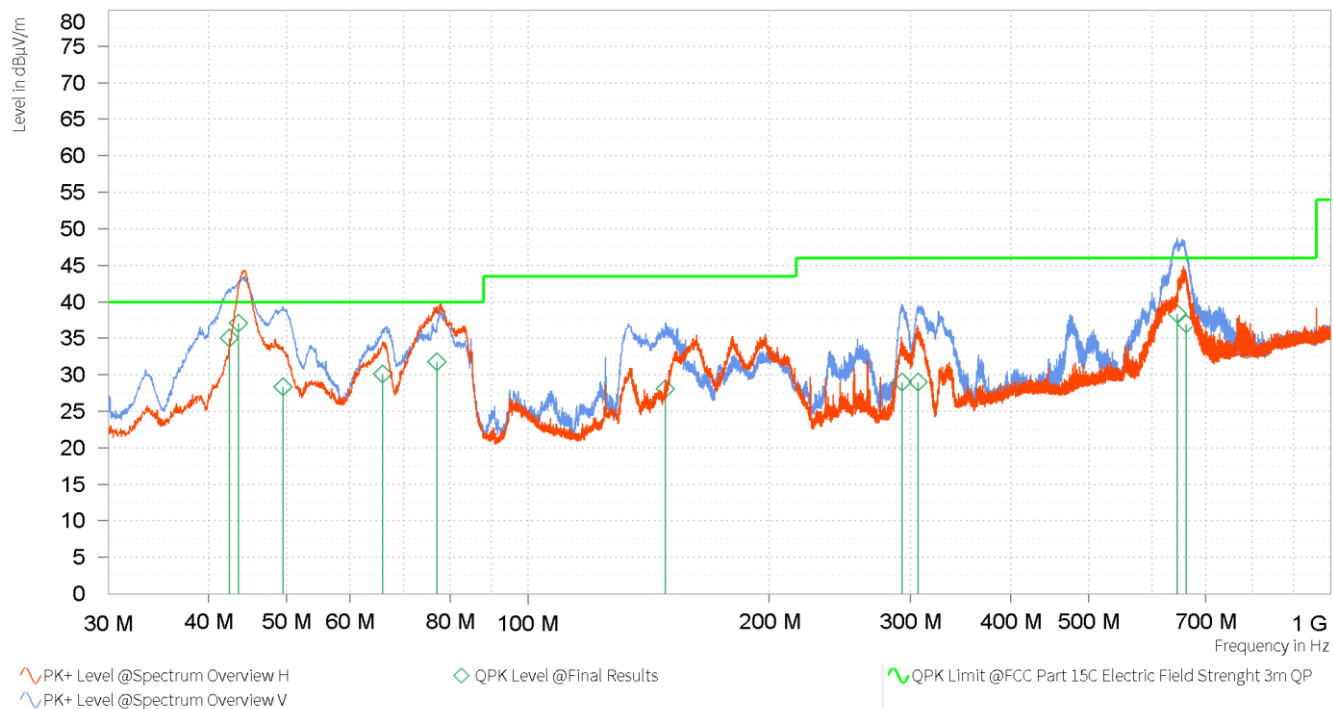
EMI Final Results

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	CAV Level [dBµV/m]	CAV Limit [dBµV/m]	CAV Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	0.086	27.68	28.94	1.26	27.69	28.94	1.25	-60.60	V	135	1.00	0.200	1.000
2	0.256	-21.71	19.44	41.15	-21.75	19.44	41.19	-60.67	V	105	1.00	9.000	1.000
2	0.494	-10.73	33.73	44.46	-19.24	33.73	52.97	-20.71	H	-17	1.00	9.000	1.000
2	0.508	-13.79	33.50	47.28	-19.66	33.50	53.16	-20.72	H	-15	1.00	9.000	1.000
2	0.852	-13.34	29.00	42.34	-20.52	29.00	49.52	-20.74	H	-135	1.00	9.000	1.000



Frequency range 30 MHz – 1 GHz:

Spectrum Overview



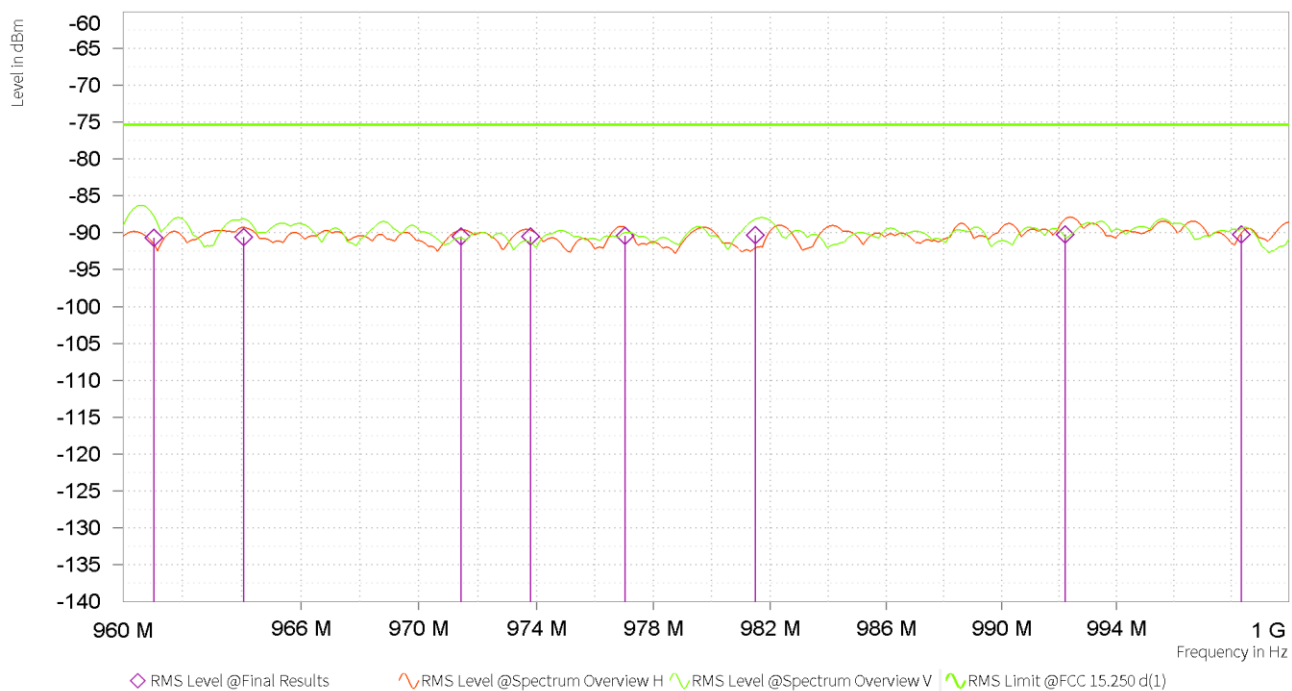
EMI Final Results

Rg	Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	42.510	35.05	40.00	4.95	19.67	V	-169	1.00	120.000	15.000
1	43.620	37.10	40.00	2.90	19.87	H	-50	2.65	120.000	15.000
1	49.500	28.31	40.00	11.69	20.42	V	191	1.00	120.000	15.000
1	65.880	30.14	40.00	9.86	17.76	V	73	2.94	120.000	15.000
1	77.010	31.78	40.00	8.22	13.68	H	151	2.35	120.000	15.000
1	148.470	28.09	43.50	15.41	14.84	V	-85	1.00	120.000	15.000
1	292.590	29.02	46.00	16.98	20.73	V	189	1.00	120.000	15.000
1	306.630	28.95	46.00	17.05	20.88	V	170	1.19	120.000	15.000
1	644.490	38.41	46.00	7.59	27.66	V	-9	1.18	120.000	15.000
1	660.930	37.01	46.00	8.99	27.64	V	9.19852	1.00	120.000	15.000



Frequency range 960 MHz – 1 GHz:

Spectrum Overview



EMI Final Results

Rg	Frequency [MHz]	RMS Level [dBm]	RMS Limit [dBm]	RMS Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	961.035	-90.67	-75.30	15.37	-3.16	V	47	1.50	1.000.000	1.000
1	964.073	-90.62	-75.30	15.32	-3.12	V	15	1.50	1.000.000	1.000
1	971.432	-90.50	-75.30	15.20	-3.02	H	208	1.50	1.000.000	1.000
1	973.805	-90.47	-75.30	15.17	-2.98	H	237	1.50	1.000.000	1.000
1	977.024	-90.43	-75.30	15.13	-2.93	H	309	1.50	1.000.000	1.000
1	981.509	-90.36	-75.30	15.06	-2.87	V	333	1.50	1.000.000	1.000
1	992.211	-90.24	-75.30	14.94	-2.75	H	247	1.50	1.000.000	1.000
1	998.352	-90.20	-75.30	14.90	-2.68	V	124	1.50	1.000.000	1.000



Frequency range 1 GHz – 3 GHz:

Spectrum Overview



EMI Final Results

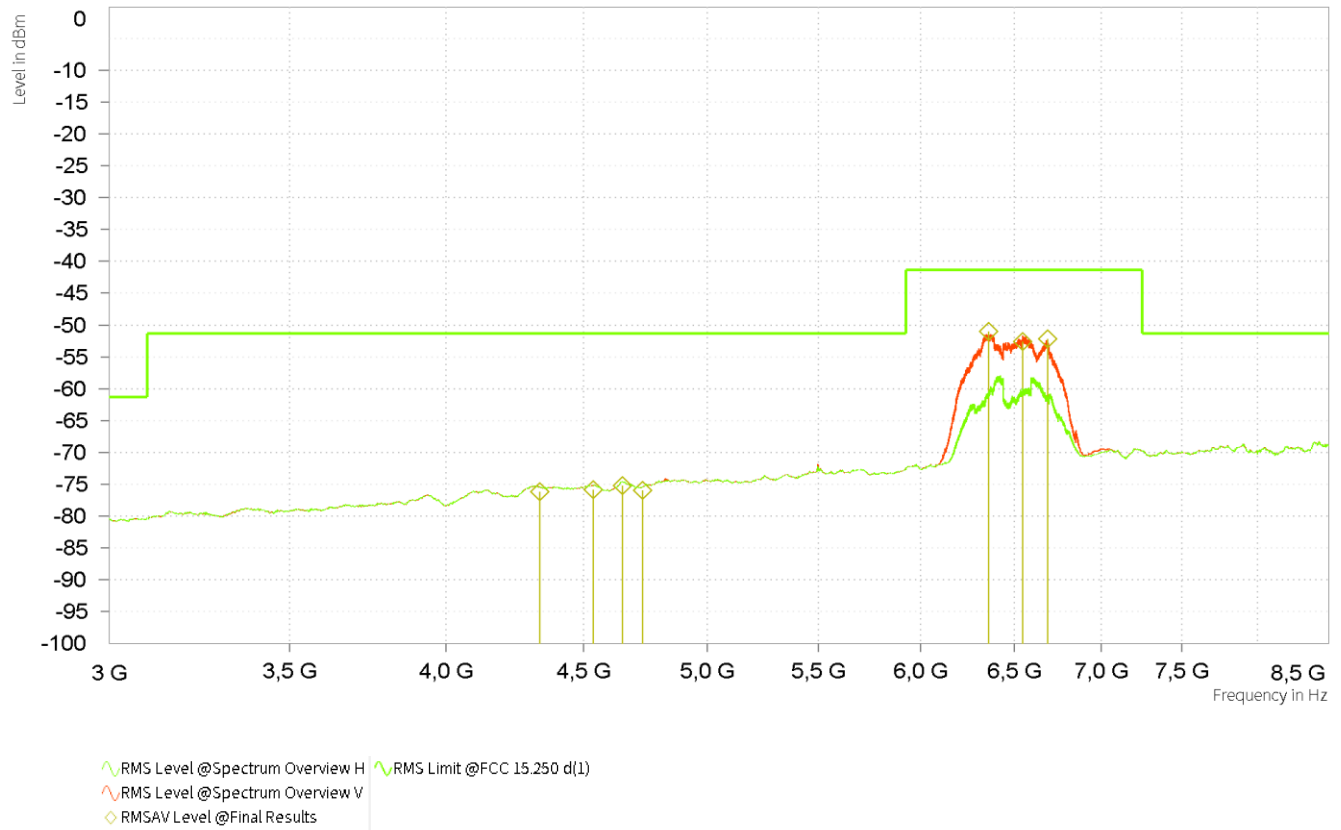
Rg	Frequency [MHz]	RMSAV Level [dBm]	RMSAV: RMS Limit [dBm]	RMSAV Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	2.396.800	-76.81	-61.30	15.51	0.46	V	-53	1.50	1.000.000	1.000
1	2.404.500	-41.60	#1	#1	0.50	V	127.5454	1.48	1.000.000	1.000
1	2.404.550	-42.08	#1	#1	0.50	V	133	1.48	1.000.000	1.000
1	2.464.800	-82.05	#1	#1	1.00	V	-107	1.50	1.000.000	1.000
1	2.701.050	-79.54	-61.30	18.24	2.27	V	123	1.48	1.000.000	1.000
1	2.755.450	-79.48	-61.30	18.18	2.11	V	124	1.50	1.000.000	1.000
1	2.795.700	-79.40	-61.30	18.10	2.15	V	121	1.50	1.000.000	1.000
1	2.837.000	-78.92	-61.30	17.62	2.47	V	121	1.50	1.000.000	1.000

#1 Intentional Radiation from the WIFI Modul



Frequency range 3 GHz – 8 GHz:

Spectrum Overview



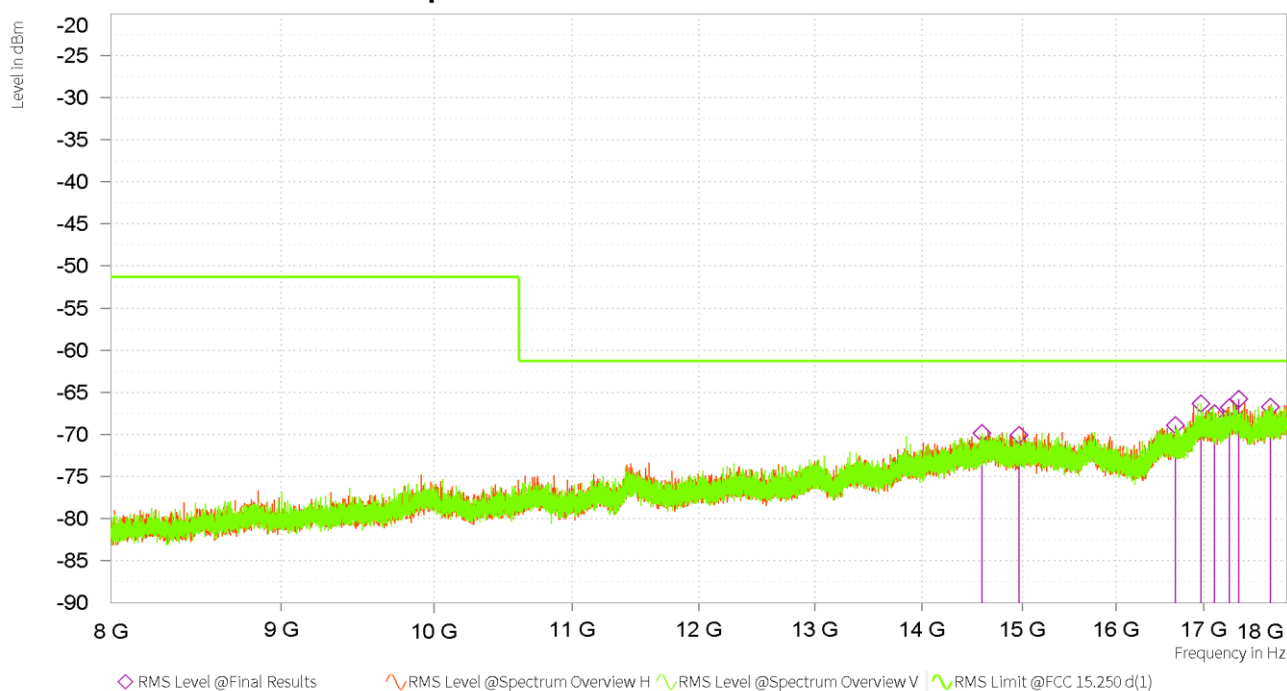
EMI Final Results

Rg	Frequency [MHz]	RMSAV Level [dBm]	RMSAV: RMS Li- mit [dBm]	RMSAV Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	4.334.700	-76.25	-51.30	24.95	8.46	H	-195	1.15	1.000.000	1.000
1	4.535.800	-75.86	-51.30	24.56	8.35	H	5	1.34	1.000.000	1.000
1	4.650.050	-75.20	-51.30	23.90	9.34	V	-3	2.08	1.000.000	1.000
1	4.733.200	-75.95	-51.30	24.65	8.89	H	-33	1.15	1.000.000	1.000
1	6.360.800	-51.01	-41.30	9.71	11.56	V	-10	1.06	1.000.000	1.000
1	6.547.550	-52.58	-41.30	11.28	12.58	V	0	1.06	1.000.000	1.000
1	6.688.200	-52.21	-41.30	10.91	12.19	V	160	1.40	1.000.000	1.000



Frequency range 8 GHz – 18 GHz:

Spectrum Overview



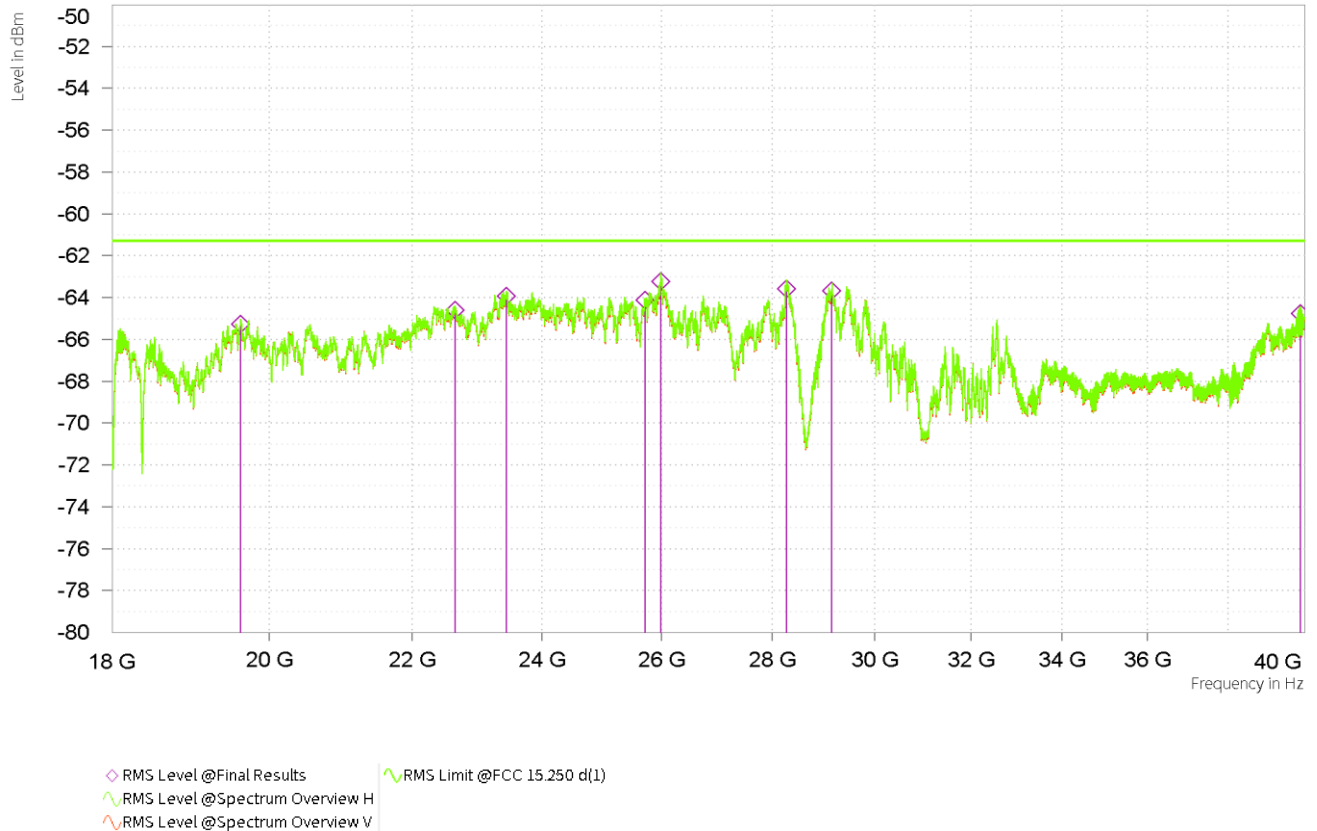
EMI Final Results

Rg	Frequency [MHz]	RMS Level [dBm]	RMS Limit [dBm]	RMS Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	14.586.818	-69.88	-61.30	8.58	20.92	V	311	1.50	1.000.000	1.000
1	14.966.364	-70.07	-61.30	8.77	20.80	V	66	1.50	1.000.000	1.000
1	16.670.909	-68.90	-61.30	7.60	22.20	H	257	1.50	1.000.000	1.000
1	16.965.909	-66.35	-61.30	5.05	23.50	V	31	1.50	1.000.000	1.000
1	17.123.636	-67.53	-61.30	6.23	23.96	V	173	1.50	1.000.000	1.000
1	17.303.182	-66.82	-61.30	5.52	24.25	V	136	1.50	1.000.000	1.000
1	17.416.364	-65.84	-61.30	4.54	24.49	H	275	1.50	1.000.000	1.000
1	17.797.727	-66.71	-61.30	5.41	24.07	V	140	1.50	1.000.000	1.000



Frequency range 18 GHz – 40 GHz:

Spectrum Overview



EMI Final Results

Rg	Frequency [MHz]	RMS Level [dBm]	RMS Limit [dBm]	RMS Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1	19.617.550	-65.29	-61.30	3.99	27.04	H	18	1.48	1.000.000	1.000
1	22.647.200	-64.59	-61.30	3.29	29.16	H	3	1.50	1.000.000	1.000
1	23.440.300	-63.94	-61.30	2.64	30.56	V	17.5	1.50	1.000.000	1.000
1	25.722.000	-64.13	-61.30	2.83	31.90	H	3	1.50	1.000.000	1.000
1	25.995.450	-63.23	-61.30	1.93	32.35	H	3	1.50	1.000.000	1.000
1	28.282.050	-63.58	-61.30	2.28	33.69	H	-2	1.50	1.000.000	1.000
1	29.147.000	-63.67	-61.30	2.37	33.66	H	3	1.48	1.000.000	1.000
1	39.890.950	-64.77	-61.30	3.47	37.48	H	2	1.48	1.000.000	1.000



2.3.8 Test Location and Test Equipment

This test was carried out in Semi anechoic room - cabin no. 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
EMI test receiver	Rohde & Schwarz	ESW44	39897	12	2026-06-30
Loop antenna	Schwarzbeck	FMZB 1519 C	72526	36	2028-01-31
ULTRALOG antenna	Rohde & Schwarz	HL562E	61486	36	2026-05-14
Fixed attenuator	Rohde & Schwarz	HL562E-ATT 6dB	61491	36	2026-05-14
Double ridged horn antenna	Rohde & Schwarz	HF907	40089	24	2026-11-30
Horn Antenna with preamplifier	Rohde & Schwarz	A-INFOMW LB-180400H-KF+ TS-	43661	12	2027-01-31
EMC measurement software	Rohde & Schwarz	ELEKTRA 11 Emmision - V5.11.1	68262	---	---
Semi anechoic room	Frankonia	Cabin No. 11	42961	---	---

Table 14



2.4 Radiated Emissions in GPS bands

2.4.1 Specification Reference

FCC 47 CFR Part 15 C. Clauses 15.250 (d)(2)
ISED RSS-210. K.3 (b)

2.4.2 Equipment under Test and Modification State

ICS2-S5U8-1525-002. S/N: 017604118S950554 - Modification State 0

2.4.3 Date of Test

2026-05-07

2.4.4 Environmental Conditions

Ambient Temperature	21 °C
Relative Humidity	36 %

2.4.5 Specification Limits

In addition to the radiated emission limits above. UWB transmitters shall not exceed the following average (RMS) limits when measured using a resolution bandwidth of no less than 1 kHz:

<i>Frequency range</i>	<i>EIRP</i>
1164 MHz – 1240 MHz	-85.3 dBm
1559 MHz – 1610 MHz	-85.3 dBm



2.4.6 Test Method

The test was performed according to ANSI C63.10. sections 11.11 and 11.12
See section 2.4.6 for details.

2.4.7 Test Results

<i>Frequency range</i>	<i>Test distance</i>
1164 MHz – 1240 MHz	1 m
1559 MHz – 1610 MHz	1 m

Table 15

Sample calculation:

Final Value (dB μ V/m) = Reading Value (dB μ V) + (Cable attenuation (dB)
+ Antenna Transducer (dB(1/m)))



Transmitting continuously

Spectrum Overview

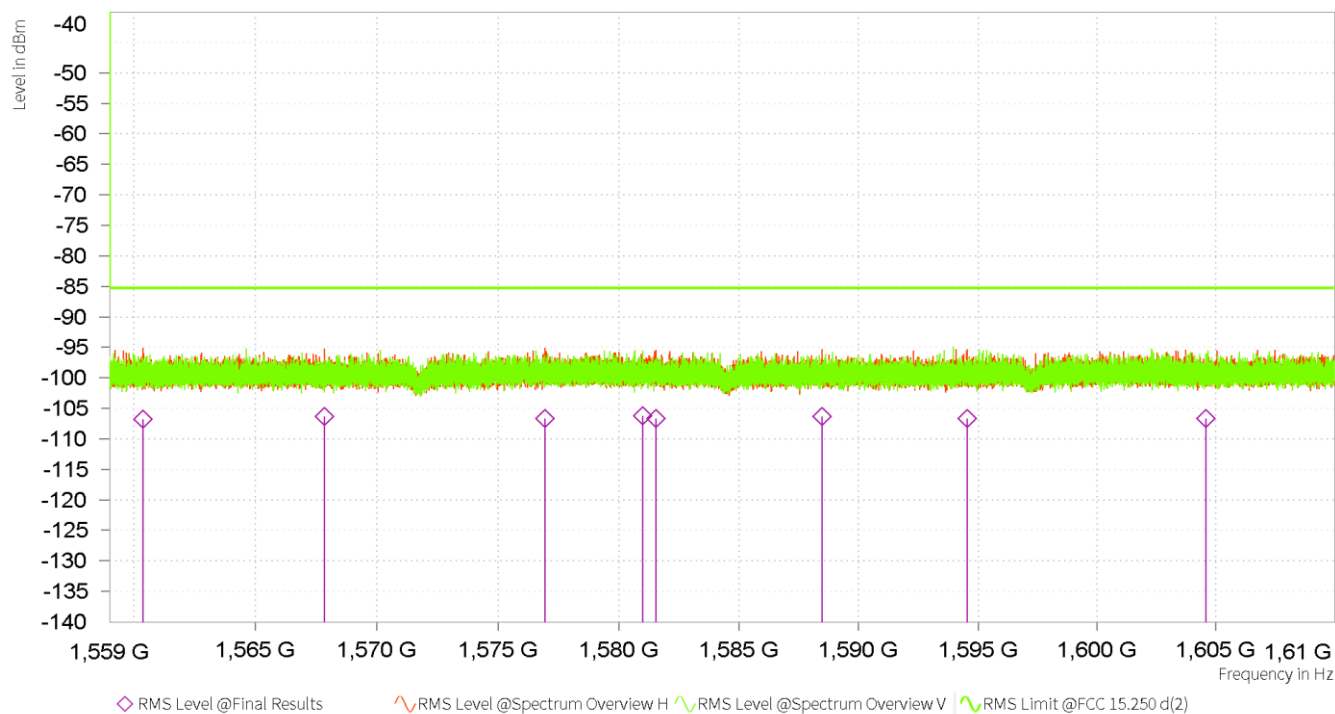


EMI Final Results

Frequency [MHz]	RMS Level [dBm]	RMS Limit [dBm]	RMS Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1.168.353	-109.06	-85.30	23.76	-1.79	V	215	1.50	2.000	1.000
1.179.538	-108.61	-85.30	23.31	-1.76	V	41	1.50	2.000	1.000
1.187.411	-109.27	-85.30	23.97	-1.73	V	287	1.50	2.000	1.000
1.196.782	-108.88	-85.30	23.58	-1.71	V	213	1.50	2.000	1.000
1.203.692	-108.92	-85.30	23.62	-1.69	V	79	1.50	2.000	1.000
1.216.503	-108.20	-85.30	22.90	-1.66	V	114	1.50	2.000	1.000
1.224.678	-108.60	-85.30	23.30	-1.64	H	0	1.50	2.000	1.000
1.232.794	-108.79	-85.30	23.49	-1.61	V	252	1.50	2.000	1.000



Spectrum Overview



EMI Final Results

Frequency [MHz]	RMS Level [dBm]	RMS Limit [dBm]	RMS Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Meas. Time [s]
1.560.361	-106.76	-85.30	21.46	0.57	H	142	1.50	2.000	1.000
1.567.823	-106.38	-85.30	21.08	0.59	H	25	1.50	2.000	1.000
1.576.940	-106.63	-85.30	21.33	0.62	H	192	1.50	2.000	1.000
1.580.998	-106.25	-85.30	20.95	0.64	V	161	1.50	2.000	1.000
1.581.563	-106.64	-85.30	21.34	0.64	H	189	1.50	2.000	1.000
1.588.477	-106.28	-85.30	20.98	0.67	H	30	1.50	2.000	1.000
1.594.528	-106.62	-85.30	21.32	0.70	H	84	1.50	2.000	1.000
1.604.564	-106.66	-85.30	21.36	0.75	V	274	1.50	2.000	1.000



2.4.8 Test Location and Test Equipment

This test was carried out in Semi anechoic room - cabin no. 11.

Instrument	Manufacturer	Type No	TE No	Calibra- tion Pe- riod (months)	Calibration Due
EMI test receiver	Rohde & Schwarz	ESW44	39897	12	2026-06-30
Double ridged horn antenna	Rohde & Schwarz	HF907	40089	24	2026-11-30
EMC measurement software	Rohde & Schwarz	ELEKTRA 11 Emmision - V5.11.1	68262	---	---
Semi anechoic room	Frankonia	Cabin No. 11	42961	---	---

Table 16



3 Measurement Uncertainty

The measurement uncertainty in the laboratory is less than or equal to the maximum measurement uncertainty according to CISPR16-4-2: 2011 + A1 + A2 + Cor1 (U_{CISPR}). This normative regulation means that the measured value is also the value to be assessed in relation to the limit value.

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

<i>Radio Interference Emission Testing</i>		
<i>Test Name</i>	<i>kp</i>	<i>Expanded Uncertainty</i>
Conducted Voltage Emission		
9 kHz to 150 kHz (50Ω/50μH AMN)	2	± 3.8 dB
150 kHz to 30 MHz (50Ω/50μH AMN)	2	± 3.4 dB
100 kHz to 200 MHz (50Ω/5μH AMN)	2	± 3.6 dB
Discontinuous Conducted Emission		
9 kHz to 150 kHz (50Ω/50μH AMN)	2	± 3.8 dB
150 kHz to 30 MHz (50Ω/50μH AMN)	2	± 3.4 dB
Conducted Current Emission		
9 kHz to 200 MHz	2	± 3.5 dB
Magnetic Fieldstrength		
9 kHz to 30 MHz (with loop antenna)	2	± 3.9 dB
9 kHz to 30 MHz (large-loop antenna 2 m)	2	± 3.5 dB
Radiated Emission		
30 MHz to 300 MHz	2	± 4.9 dB
300 MHz to 1 GHz	2	± 5.0 dB
1 GHz to 6 GHz	2	± 4.6 dB
Test distance 10 m		
30 MHz to 300 MHz	2	± 4.9 dB
300 MHz to 1 GHz	2	± 4.9 dB
The expanded uncertainty reported according to CISPR16-4-2: 2011 + A1 + A2 + Cor1 is based on a standard uncertainty multiplied by a coverage factor of $k_p = 2$, providing a level of confidence of $p = 95.45\%$		

Table 17 Measurement uncertainty based on CISPR 16-4-2



<i>Radio Interference Emission Testing</i>		
<i>Test Name</i>	<i>kp</i>	<i>Expanded Uncertainty</i>
Occupied Bandwidth	2	± 5 %
Conducted Power		
9 kHz ≤ f < 30 MHz	2	± 1.0 dB
30 MHz ≤ f < 1 GHz	2	± 1.5 dB
1 GHz ≤ f ≤ 40 GHz	2	± 2.5 dB
1 MS/s power sensor (TS8997)	2	± 1.5 dB
Occupied Bandwidth	2	± 5 %
Power Spectral Density	2	± 3.0 dB
Radiated Power		
9 kHz ≤ f < 26.5 GHz	2	± 6.5 dB
26.5 GHz ≤ f < 60 GHz	2	± 8.0 dB
60 GHz ≤ f < 325 GHz	2	± 10 dB
Conducted Spurious Emissions	2	± 3.0 dB
Radiated Spurious Emissions	2	± 6.0 dB
Voltage		
DC	2	± 1.0 %
AC	2	± 2.0 %
Time (automatic)	2	± 5 %
Frequency	2	± 10 ⁻⁷
The expanded uncertainty reported according to to ETSI TR 100 028:2001 is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%		

Table 18 Measurement uncertainty based on ETSI TR 100 028

End of Test Report