



RF - TEST REPORT

- FCC Part 15.517 -

Type / Model Name : R&S® QPS Walk2000

Product Description : Walk-through security scanner

Applicant : Rohde & Schwarz GmbH & Co. KG

Address : Mühldorfstraße 15

81614 MÜNCHEN, GERMANY

Manufacturer : Rohde & Schwarz GmbH & Co. KG

Address : Mühldorfstraße 15

81614 MÜNCHEN, GERMANY

Test Result according to the standards
listed in clause 1 test standards:

POSITIVE

Test Report No. : 80119127-00 Rev2

27. July 2022

Date of issue



Deutsche
Akkreditierungsstelle
D-PL-12030-01-03
D-PL-12030-01-04

FCC ID: KVV-QPW2K

Contents

1	<u>TEST STANDARDS</u>	3
2	<u>EQUIPMENT UNDER TEST</u>	4
2.1	Information provided by the Client	4
2.2	Sampling	4
2.3	Photo documentation of the EUT – Detailed photos see ATTACHMENT A1 and A2	4
2.4	Equipment type	4
2.5	Short description of the equipment under test (EUT)	4
2.6	Variants of the EUT	4
2.7	Operation frequency	4
2.8	Transmit operating modes	4
2.9	Antenna	5
2.10	Power supply system utilised	5
2.11	Peripheral devices and interface cables	5
2.12	Determination of worst case conditions for final measurement	5
3	<u>TEST RESULT SUMMARY</u>	6
3.1	Revision history of test report	6
3.2	Final assessment	7
4	<u>TEST ENVIRONMENT</u>	8
4.1	Address of the test laboratory	8
4.2	Environmental conditions	8
4.3	Statement of the measurement uncertainty	8
4.4	Conformity Decision Rule	9
4.5	Measurement protocol for FCC and ISSED	9
5	<u>TEST CONDITIONS AND RESULTS</u>	12
5.1	UWB Bandwidth	16
5.2	Radiated Emissions 9 kHz to 40 GHz	18
5.3	Radiated Emissions at 1164-1240 MHz and 1559-1610 MHz	24
5.4	Peak Power radiated	27
5.5	Antenna application	29
6	<u>USED TEST EQUIPMENT AND ACCESSORIES</u>	30

ATTACHMENT A1, A2 and B as separate supplements

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: KVV-QPW2K

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15, Subpart A - General (September 2021)

Part 15, Subpart A, Section 15.31	Measurement standards
Part 15, Subpart A, Section 15.33	Frequency range of radiated measurements

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September 2021)

Part 15, Subpart C, Section 15.203	Antenna requirement
Part 15, Subpart C, Section 15.204	External radio frequency power amplifiers and antenna modifications
Part 15, Subpart C, Section 15.205	Restricted bands of operation
Part 15, Subpart C, Section 15.207	Conducted limits
Part 15, Subpart C, Section 15.209	Radiated emission limits, general requirements

FCC Rules and Regulations Part 15, Subpart F – Ultra Wideband Operation (October 2021)

Part 15, Subpart F, Section 15.503	Definitions
Part 15, Subpart F, Section 15.505	Cross reference
Part 15, Subpart F, Section 15.517	Technical requirements for indoor UWB systems
Part 15, Subpart F, Section 15.521	Technical requirements applicable to all UWB devices

ANSI C63.10: 2013 Testing Unlicensed Wireless Devices

ETSI TR 100 028 V1.3.1: 2001-03 Electromagnetic Compatibility and Radio Spectrum Matters (ERM);
Uncertainties in the Measurement of Mobile Radio Equipment
Characteristics—Part 1 and Part 2

FCC ID: KVV-QPW2K

2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according to his/her instructions.

2.3 Photo documentation of the EUT – Detailed photos see ATTACHMENT A1 and A2

2.4 Equipment type

Mobile UWB Device for Indoor Use

2.5 Short description of the equipment under test (EUT)

The QPS Walk2000 is the next generation of a walk through body scanning, designed to improve individuals' security. The system is meant to be installed in fixed indoor locations, generally in entrances to secured areas. The QPS Walk2000 automatically detects the existence of concealed unauthorized objects on an individual's body. The end device consists of 224 transmitter modules and 448 receiver modules. All measurements were performed on a single transmitter to demonstrate that all requirements are fulfilled.

Number of tested samples:	1
Serial number:	1342.3207.01 (S/N of Tx module)
Firmware version:	NA
UWB driver version:	NA

2.6 Variants of the EUT

There are no variants.

2.7 Operation frequency

The operating frequency band is 3100 MHz to 10600 MHz.

2.8 Transmit operating modes

The signal consists of a single pulse with 12 MHz repetition rate.

2.9 Antenna

The following antennas shall be used with the EUT:

Number	Characteristic	Model number	Plug	f-range (GHz)	Max. Gain (dBi)	Average Gain (dBi)
1	directional linear polarized	1342.4203.00	PCB soldered	3.6 – 9.5	9.9	7.2

2.10 Power supply system utilised

Power supply V_{nom} (Tx module)	5 V DC
------------------------------------	--------

2.11 Peripheral devices and interface cables

The following peripheral devices and interface cables are connected during the measurements:

- | | |
|--------------------------|---------------------------------------|
| - <u>3 SMA cable</u> | Model : <u>Commercially available</u> |
| - <u>DC Power Supply</u> | <u>R&S NGT 20</u> |
| Oscilloscope | R&S RTO2064 |

2.12 Determination of worst case conditions for final measurement

Measurements are made in all three orthogonal axes with horizontal and vertical antenna positions to determine the worst case condition.

2.12.1 Test jig

No test jig is used.

2.12.2 Test software

No special test software is used.

FCC ID: KVV-QPW2K

3 TEST RESULT SUMMARY

FCC Rule Part	Description	Result
15.207(a) 15.521(j)	AC power line conducted emissions	passed
15.517(b) 15.521(e)	UWB Bandwidth	passed
15.209(a) 15.517(c) 15.521(c)(d)(h)	Radiated Emissions 9 kHz to 40 GHz	passed
15.517(d)	Radiated Emissions at 1164-1240 MHz and 1559-1610 MHz	passed
15.517(e) 15.521(g)	Peak Power radiated	passed
15.203 15.521(b)	Antenna requirement	passed *1
15.204(a)-(d) 15.521(b)	External radio frequency power amplifiers and antenna modifications	passed *1
15.521(a)(b)(f)(i)	Technical requirements applicable to all UWB devices	passed *2

*1: According to the applicant, the EUT has internal PCB antennas. No other antennas can be connected to the EUT. Therefore, the requirements are regarded as fulfilled.

*2: According to the applicant, the EUT will not be used in toys. The imaging system is only employed for its specific purposes, the detection of tags or the transfer of data or voice information is not possible. For details refer to the user manual.

3.1 Revision history of test report

Test report No	Rev.	Issue Date	Changes
80119127-00	0	19 May 2022	Initial test report
80119127-00	1	07 July 2022	Includes AC power line emissions Includes requirements for § 15.521
80119127-00	2	27 July 2022	Corrections in test result summary table

The test report with the highest revision number replaces the previous test reports.

FCC ID: KVV-QPW2K

3.2 Final assessment

The equipment under test fulfills the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 19 April 2022

Testing concluded on : 29 April 2022

Checked by:

Tested by:

Klaus Gegenfurtner
Teamleader Radio

Franz-Xaver Schrettenbrunner
Radio Team

FCC ID: KVV-QPW2K

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

**CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY**

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15 - 35 °C

Humidity: 30 - 60 %

Atmospheric pressure: 86 - 106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor $k = 2$. The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	$\pm 3.29 \text{ dB}$
20 dB Bandwidth	Center frequency of EUT	95%	$\pm 2.5 \times 10^{-7}$
99% Occupied Bandwidth	Center frequency of EUT	95%	$\pm 2.5 \times 10^{-7}$
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	$\pm 3.53 \text{ dB}$
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	$\pm 3.71 \text{ dB}$
Radiated Spurious Emissions	1000 MHz to 10000 MHz	95%	$\pm 2.34 \text{ dB}$
Peak conducted output power	902 MHz to 928 MHz	95%	$\pm 0.35 \text{ dB}$
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	$\pm 2.15 \text{ dB}$

4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule ($w = 0$).

Details can be found in the procedure CSA_B_V50_29.

4.5 Measurement protocol for FCC and ISED

4.5.1 General information

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

FCC: DE 0011

ISED: DE0009

4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

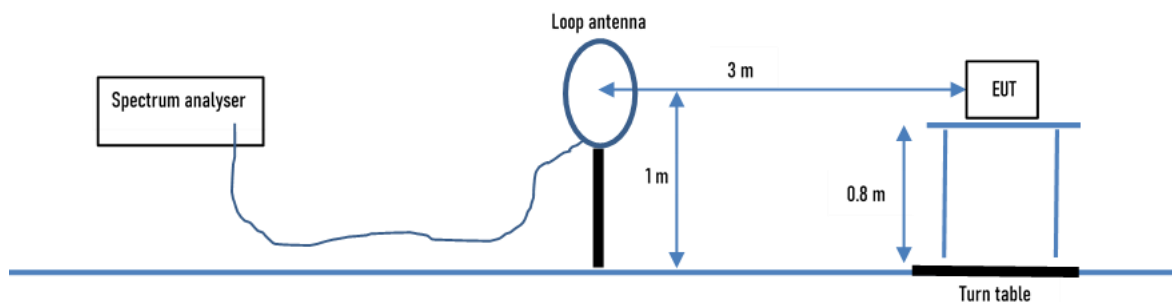
4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral using the appropriate impedance characteristic or left unterminated. Where appropriate, cables are manually manipulated with respect to each other thus obtaining maximum disturbances from the unit.

4.5.2.2 Radiated emission

4.5.2.2.1 OATS1 test site (9 kHz - 30 MHz):

Test setup according ANSI C63.10

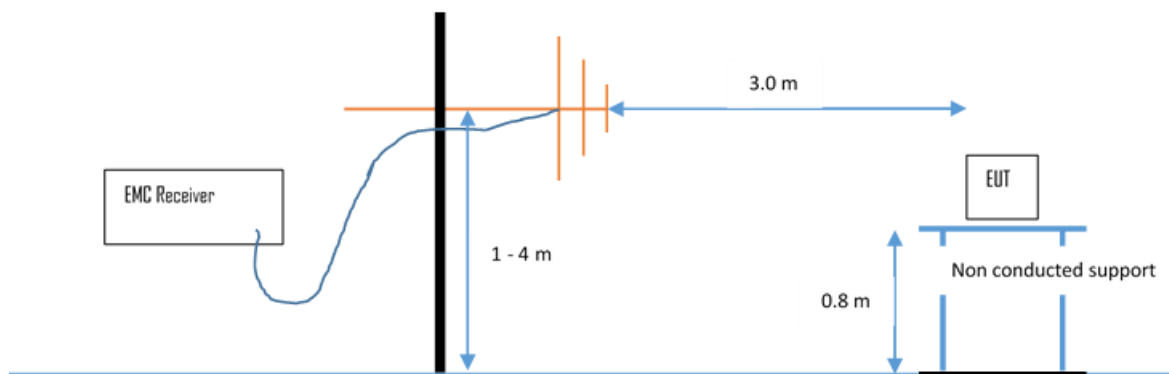


Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

FCC ID: KVV-QPW2K

4.5.2.2.2 OATS1 test site (30 MHz - 1 GHz):

Test setup according ANSI C63.10.



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dB μ V/m is calculated by taking the reading from the EMI receiver (Level dB μ V) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:

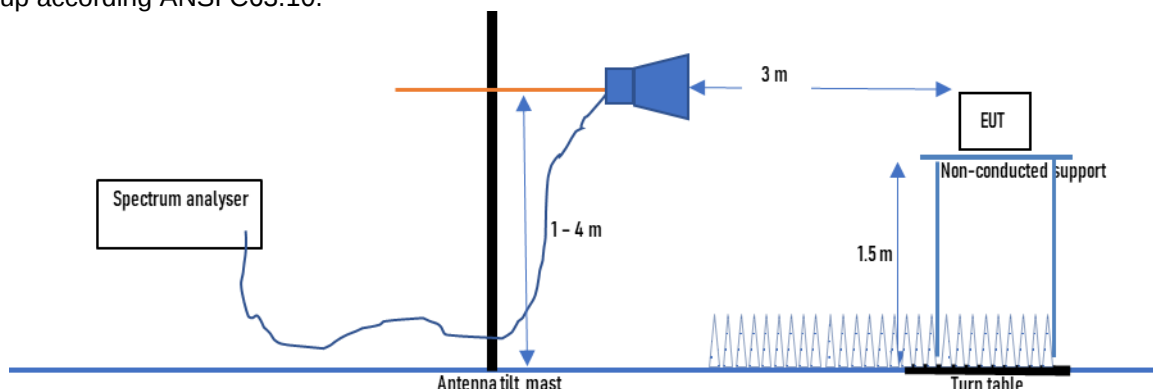
30 MHz – 1000 MHz: RBW: 120 kHz

Example:

Frequency (MHz)	Level (dB μ V)	+	Factor (dB)	=	Level (dB μ V/m)	-	Limit (dB μ V/m)	=	Delta (dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

4.5.2.2.3 Anechoic chamber 1 (1000 MHz – 18000 MHz)

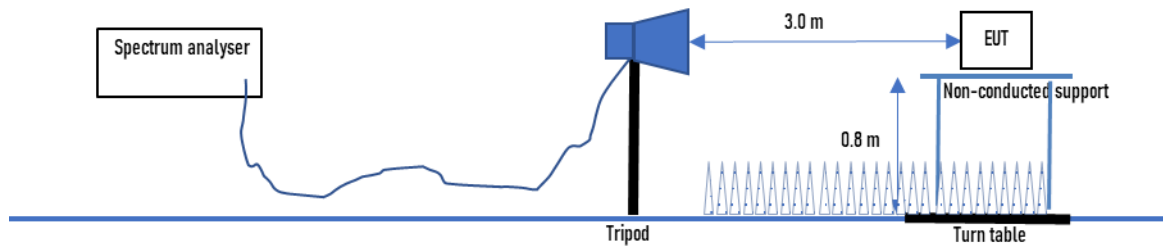
Test setup according ANSI C63.10.



Radiated emissions from the EUT are measured in the frequency range 1 GHz up to 18 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 1.5 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the center, forming a bundle 30 cm to 40 cm long. Measurements are made in in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements.

FCC ID: KVV-QPW2K

4.5.2.2.4 Anechoic chamber 1 (18 GHz – 40 GHz)



Emissions from the EUT are measured in the frequency range 18 GHz up to 40 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 0.8 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the center, forming a bundle 30 cm to 40 cm long. Measurements are made in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements. Where appropriate, the test distance may be reduced in order to detect emissions under better uncertainty. The limit are adopted.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: KVV-QPW2K

5 TEST CONDITIONS AND RESULTS

5.1 AC power line conducted emissions

For test instruments and accessories used see section 6 Part A 4.

5.1.1 Description of the test location

Test location: Shielded Room S2

The test was performed on the complete device. Measurements show that the emissions must be rather assessed under Subpart 15B according to § 15.521(c).

5.1.2 Photo documentation of the test set-up



5.1.3 Applicable standard

According to FCC Part 15, Section 15.207(a):

Except as shown in paragraphs (b) and (c) of this Section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the given limits.

FCC ID: KVV-QPW2K**5.1.4 Description of Measurement**

The measurements are performed following the procedures set out in ANSI C63.10 described under item 4.4.3. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

For the measurement, the following accessoires according §2.1033 were used:

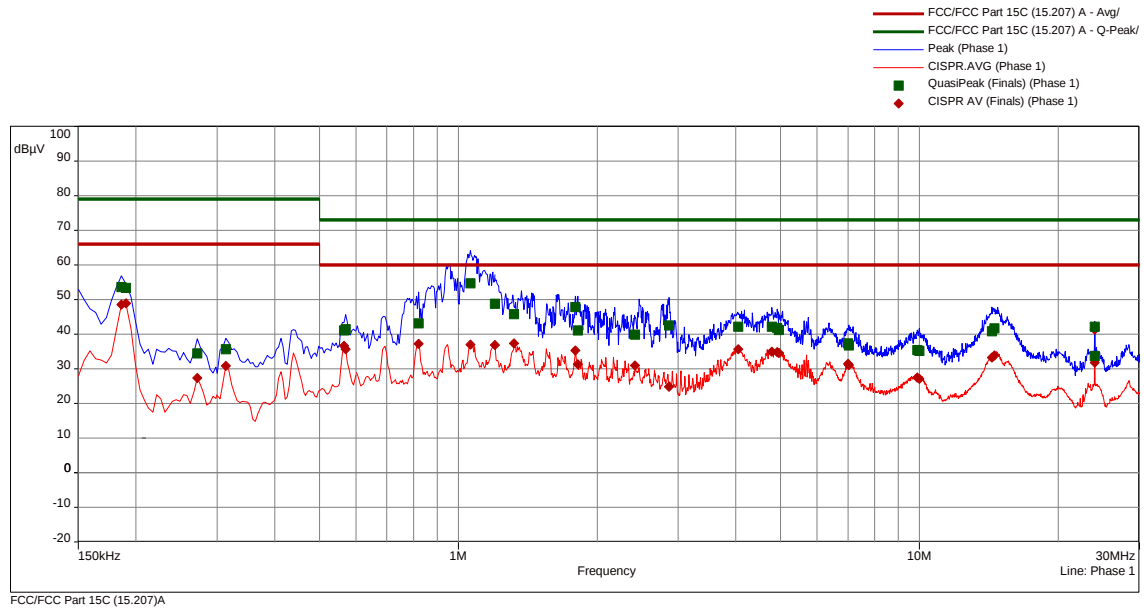
- --- Model : ---

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

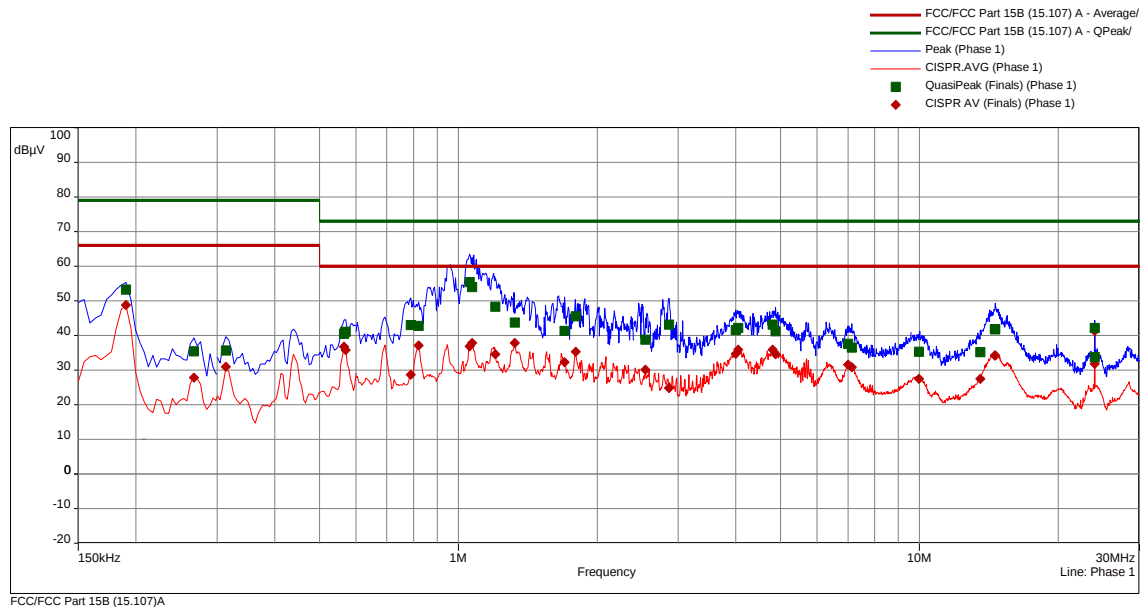
FCC ID: KVV-QPW2K

5.1.5 Test result

Phase 1, UWB ON



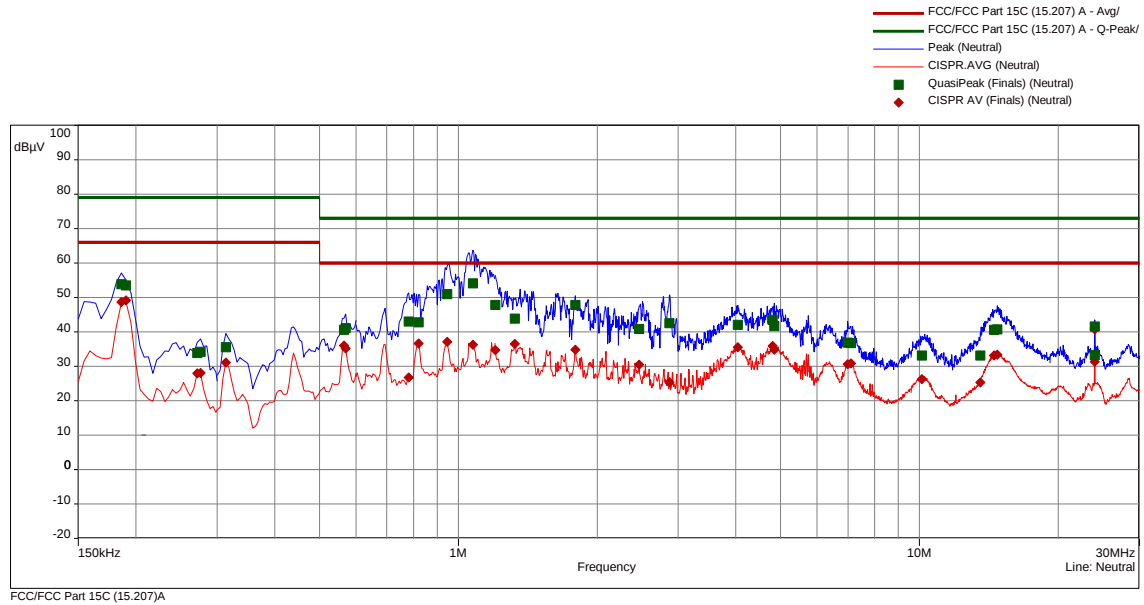
Phase 1, UWB and digital circuitry for UWB generation OFF



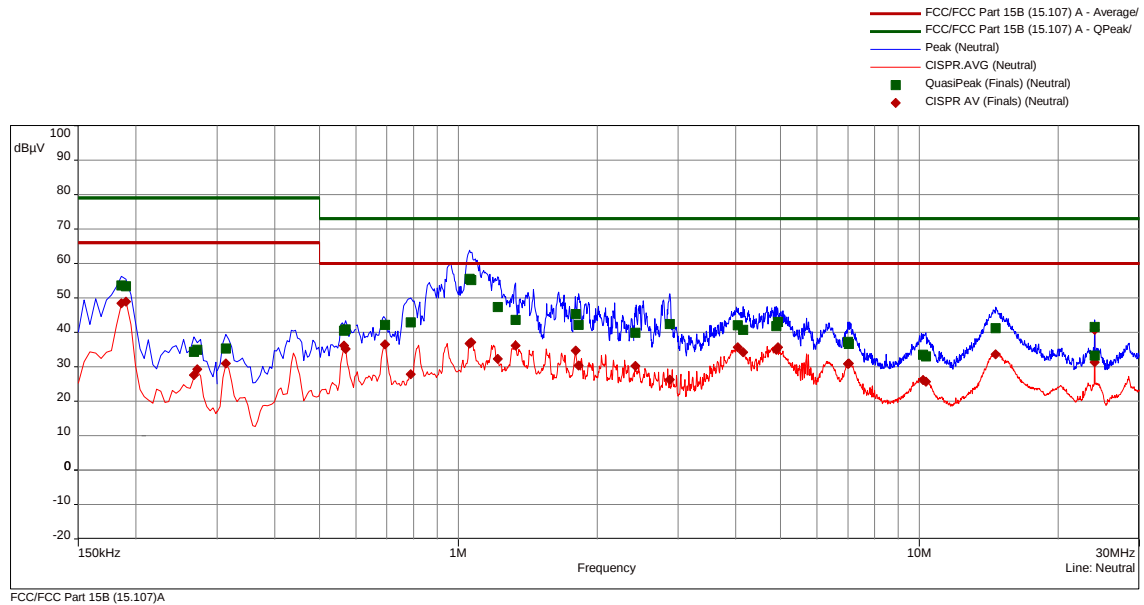
Note: There is no difference between the graphs. According to § 15.521(c), the emissions are assessed under Subpart B, see test report 80119127-03 of test laboratory CSA Group Bayern GmbH.

FCC ID: KVV-QPW2K

Neutral, UWB ON



Neutral, UWB and digital circuitry for UWB generation OFF



Note: There is no difference between the graphs. According to § 15.521(c), the emissions are assessed under Subpart B, see test report 80119127-03 of test laboratory CSA Group Bayern GmbH.

The requirements are **FULFILLED**.

Remarks: There is no possibility for the EUT to enable the digital circuitry for UWB without emitting radiation.

FCC ID: KVV-QPW2K

5.2 UWB Bandwidth

For test instruments and accessories used see section 6 Part **CPR 3**.

5.2.1 Description of the test location

Test location: Anechoic chamber 1

5.2.2 Photo documentation of the test set-up – see ATTACHMENT B

5.2.3 Applicable standard

According to FCC Part 15, Section 15.517(b):

The UWB bandwidth of a UWB system operating under the provisions of this section must be contained between 3100 MHz and 10,600 MHz.

According to FCC Part 15, Section 15.503(d):

Ultra-wideband (UWB) transmitter. An intentional radiator that, at any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

5.2.4 Description of Measurement

The bandwidth is measured following the procedure set out in ANSI C63-10, Item 10.1. The measurement was performed radiated at a distance of 1 m. The bandwidth was measured at an amplitude level reduced from the reference level of a modulated channel by a ratio of -10 dB. The EUT is set in TX continuous mode while measuring.

Spectrum analyser settings:

RBW: 1 MHz, VBW: 3 MHz, Detector: Peak

5.2.5 Test result

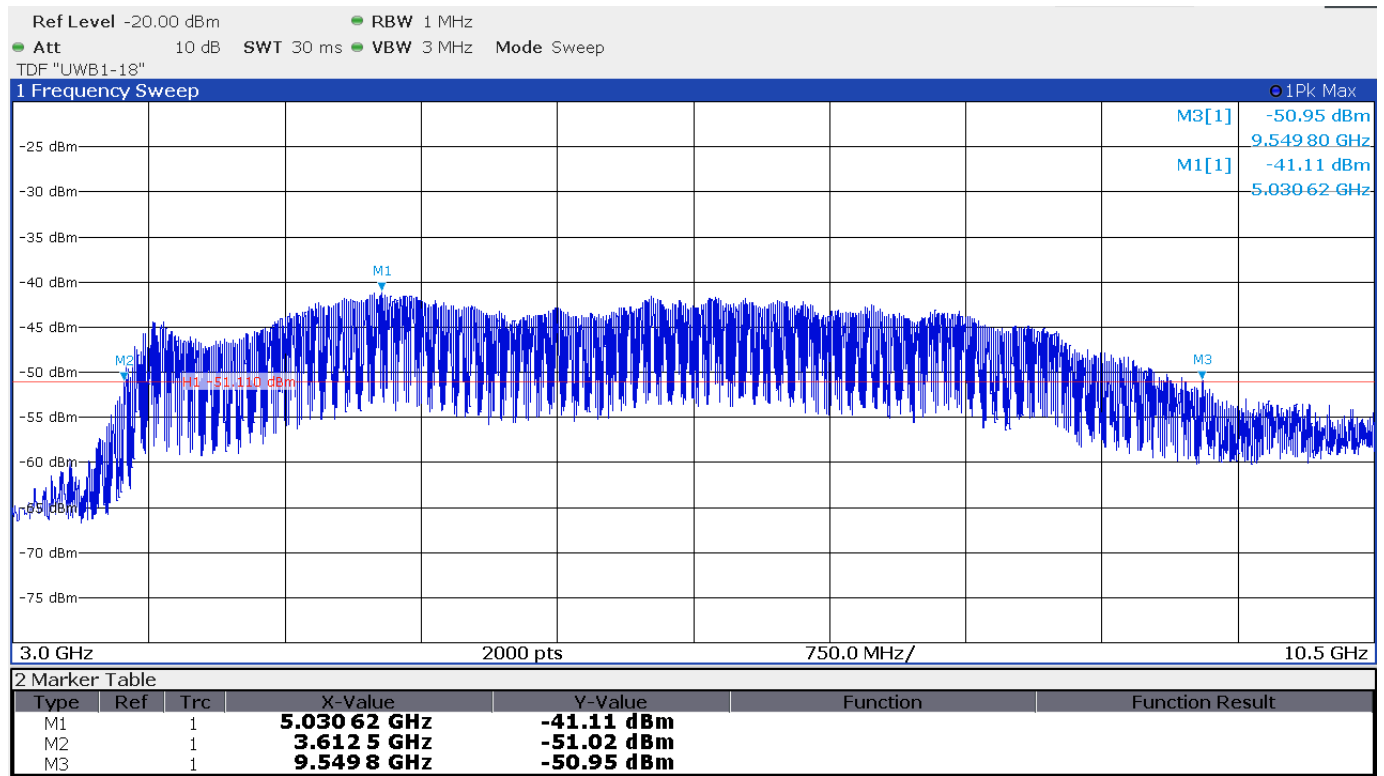
lowest frequency f_L (MHz)	highest frequency f_H (MHz)	permitted frequency range (GHz)	UWB bandwidth (MHz)	required UWB bandwidth (MHz)	result
3612.5	9549.8	3.1 – 10.6	5937.3	> 500	passed

The requirements are **FULFILLED**.

Remarks: For detailed test results please refer to following test protocols.

FCC ID: KVV-QPW2K

5.2.6 Test protocols EBW



FCC ID: KVV-QPW2K

5.3 Radiated Emissions 9 kHz to 40 GHz

For test instruments and accessories used see section 6 Part **SER 2** and **SER 3**.

5.3.1 Description of the test location

Test location: OATS 1
Test location: Anechoic chamber 1

5.3.2 Photo documentation of the test set-up – see ATTACHMENT B

5.3.3 Applicable standard

According to FCC Part 15, Section 15.517(c):

The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz.

5.3.4 Description of Measurement

The maximum emission is measured following the procedure set out in ANSI C63-10, item 10.2. The EUT is set in TX continuous mode while measuring.

Measurements according to § 15.209 were performed on the complete device.

Analyser settings:

9 kHz – 150 kHz	RBW: 200 Hz			
150 kHz - 30 MHz	RBW: 9 kHz			
30 MHz – 960 MHz	RBW: 120 kHz	Detector: QP		
960 MHz – 40 GHz	RBW: 1 MHz	VBW: 3 MHz	Detector: RMS	Sweeptime: 1ms per MHz

5.3.5 Test result

5.3.5.1 Measurement 9 kHz to 30 MHz

Note: Pre-measurements have shown, there are no detectable emissions in this frequency range.

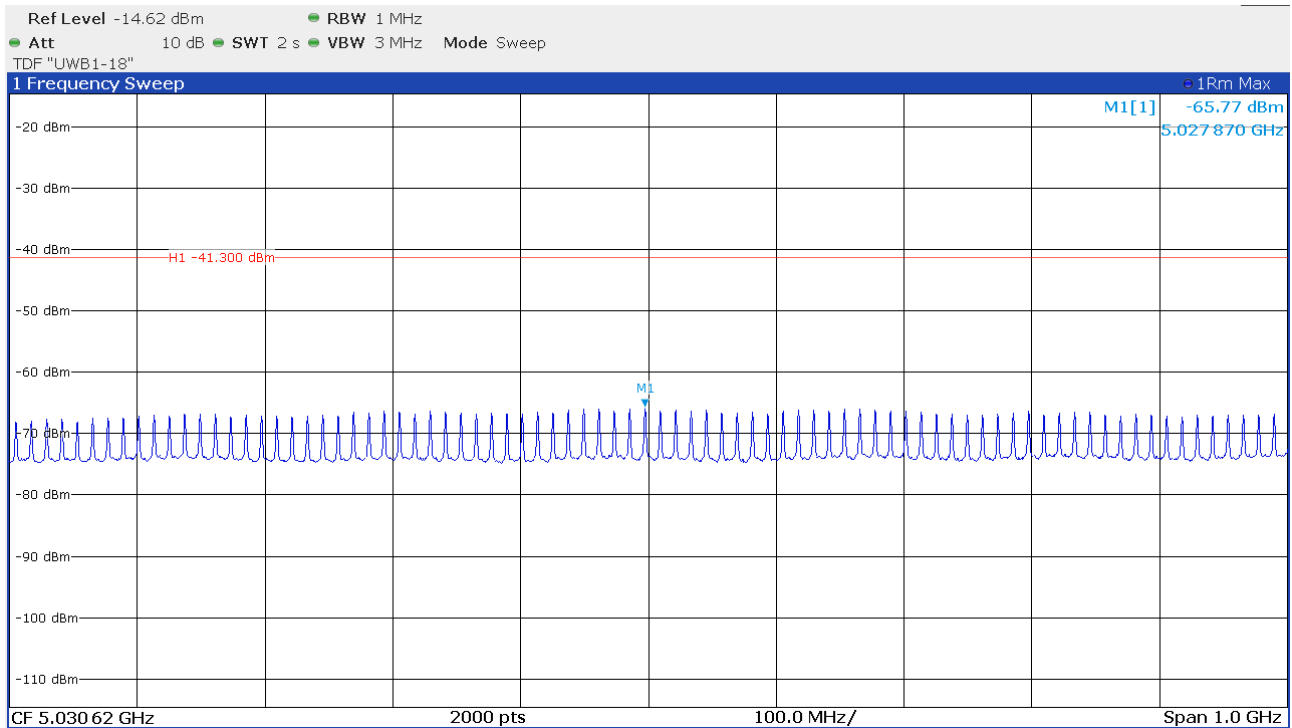
5.3.5.2 Measurement 30 MHz to 960 MHz

Frequency (MHz)	Reading Vert. (dBµV)	Reading Hor. (dBµV)	Correct. Vert. (dB)	Correct. Hor. (dB)	Level Vert. (dBµV/m)	Level Hor. (dBµV/m)	Limit (dBµV/m)	Dlimit (dB)
70.60	2.8	2.1	15.7	16.3	18.5	18.4	40.0	-21.5
89.87	12.9	10.5	13.3	12.6	26.2	23.1	43.5	-17.3
149.97	4.6	3.4	19.5	18.8	24.1	22.2	43.5	-19.4
282.70	9.3	4.3	19.7	20.0	29.0	24.3	46.0	-17.0
422.46	3.1	5.4	23.7	24.1	26.8	29.5	46.0	-16.5
565.55	1.9	10.4	27.2	27.6	29.1	38.0	46.0	-8.0
699.99	3.6	5.9	29.5	30.1	33.1	36.0	46.0	-10.0
774.49	2.0	1.1	30.9	31.3	32.9	32.4	46.0	-13.1

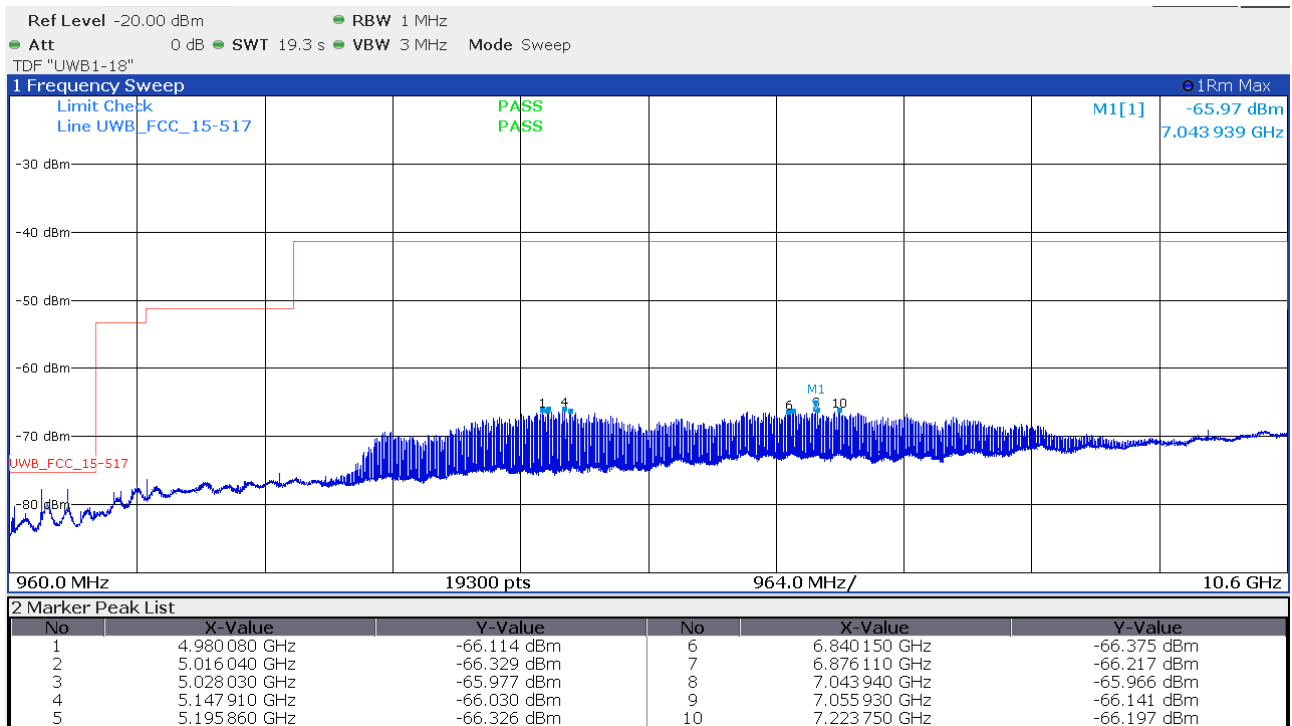
FCC ID: KVV-QPW2K

5.3.5.3 Measurement 960 MHz to 40 GHz according to § 15.517

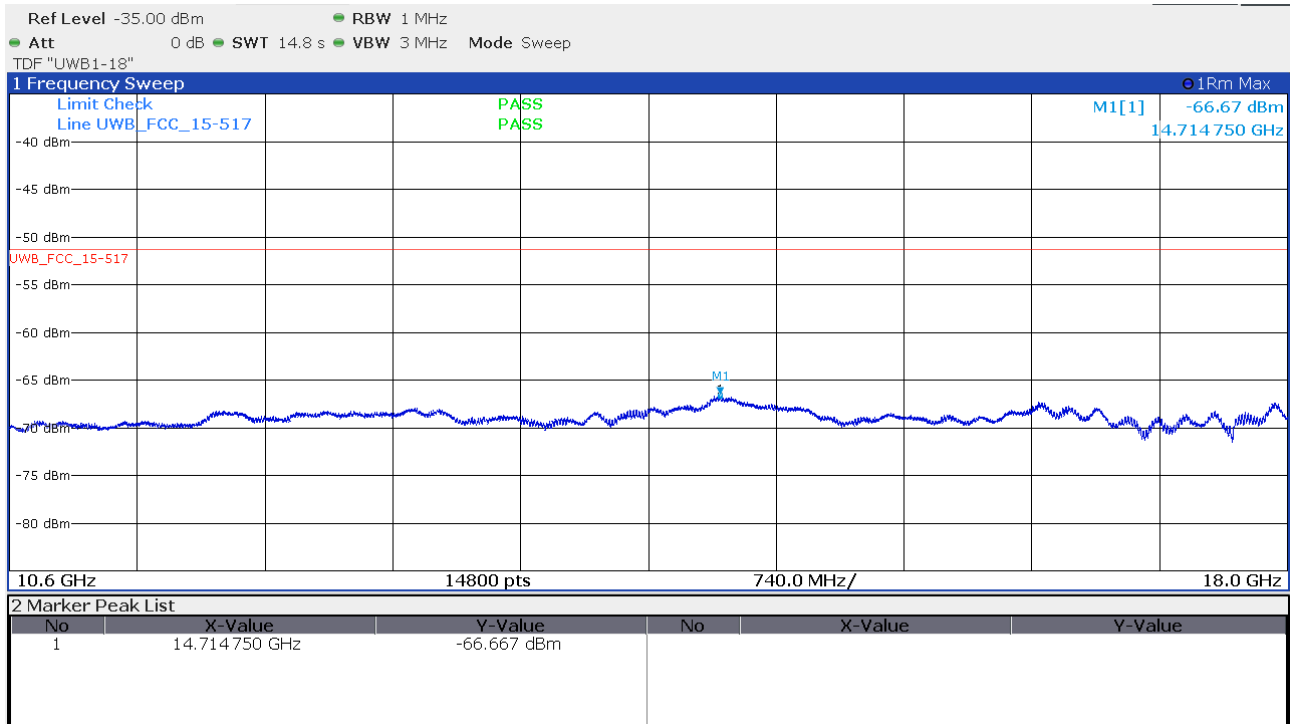
Mean Power



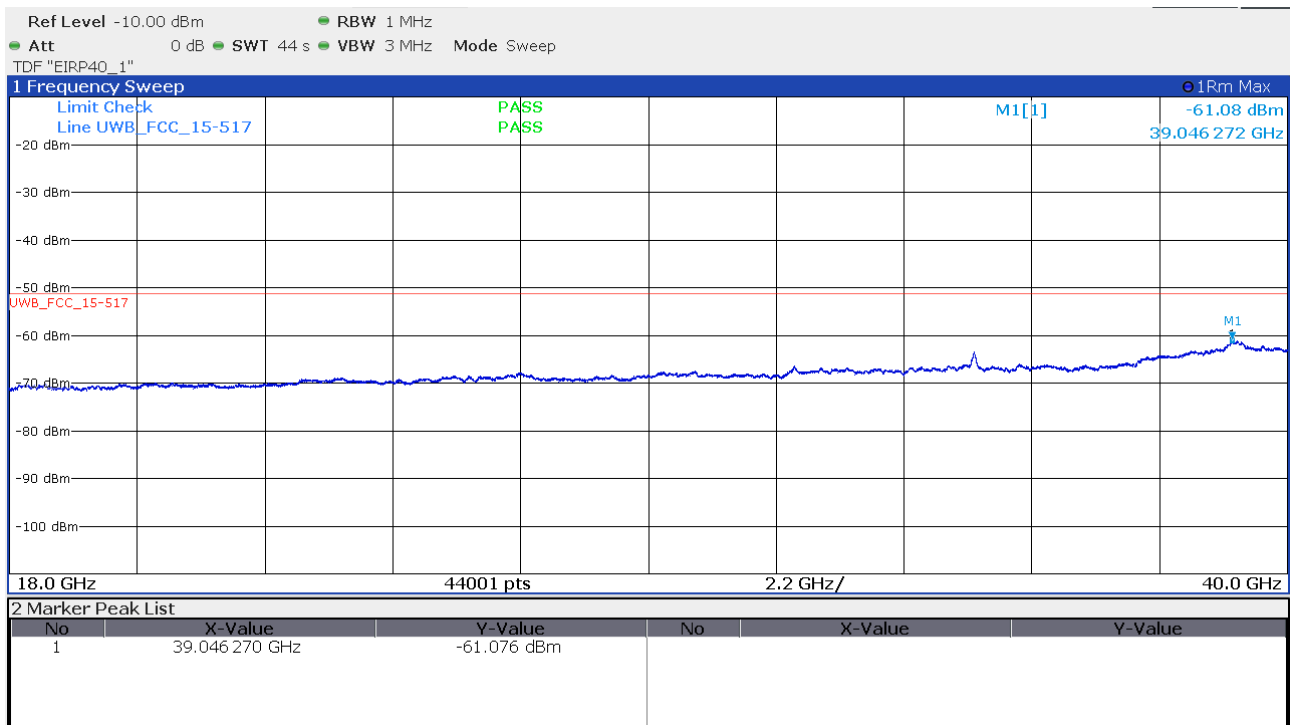
960 MHz to 18 GHz



FCC ID: KVV-QPW2K

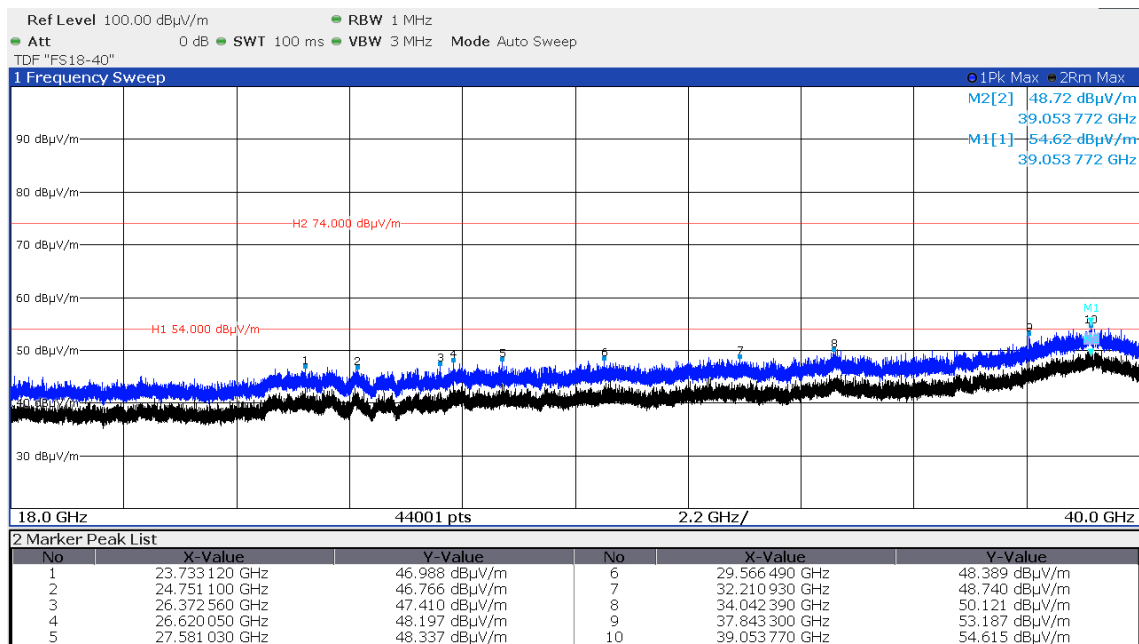
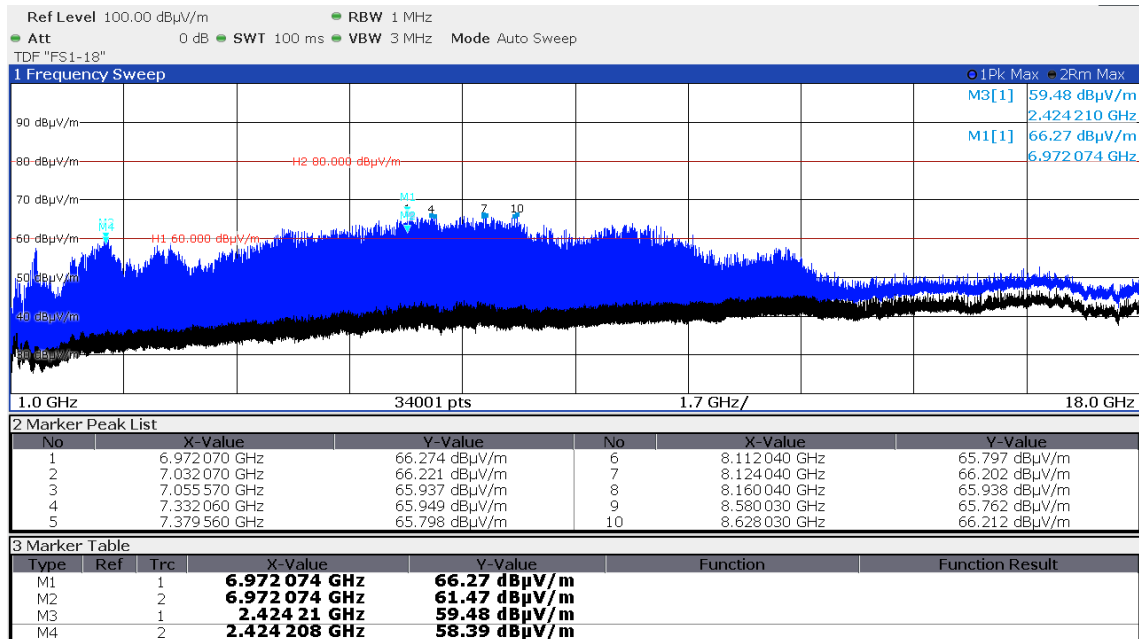


18 GHz to 40 GHz at 30 cm distance



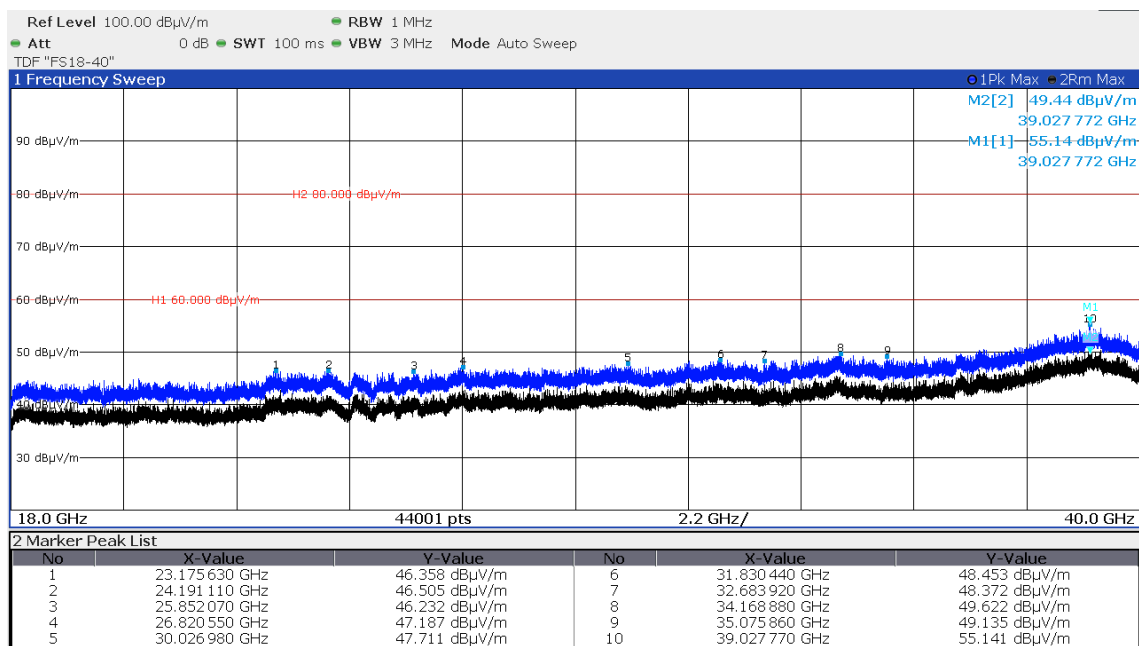
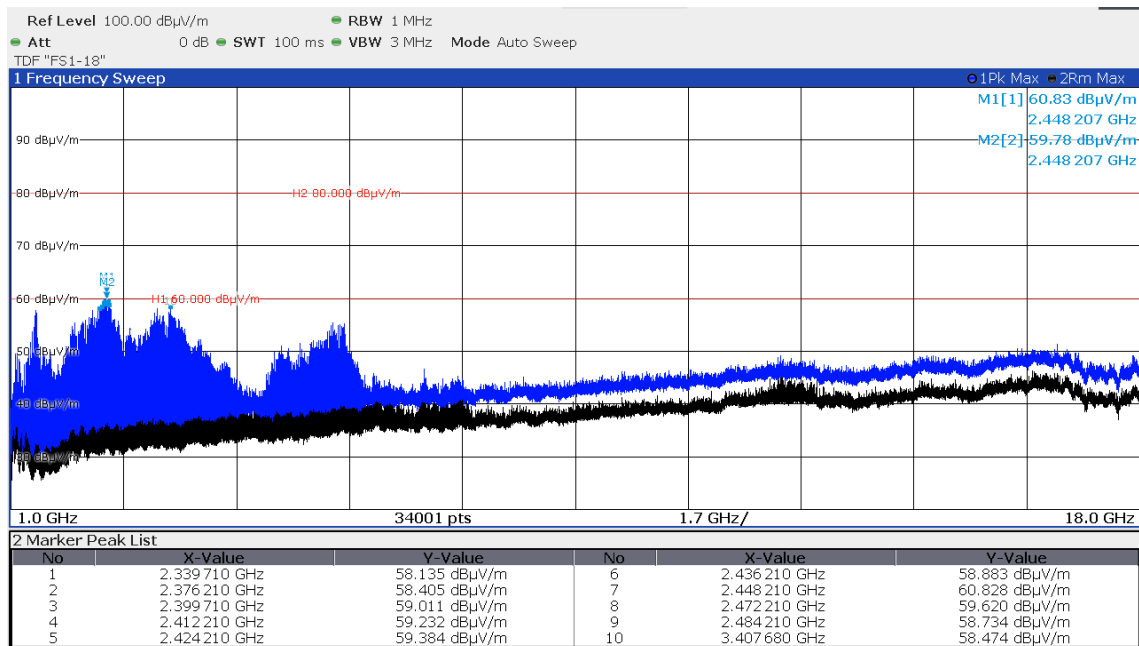
FCC ID: KVV-QPW2K
5.3.5.4 Measurement 960 MHz to 40 GHz according to § 15.209

UWB ON



FCC ID: KVV-QPW2K

UWB and digital circuitry for UWB generation OFF



Result: Exempt for the UWB transmission, the radiated emissions are due to the digital circuitry of the device. Thus they have to be assessed under Subpart 15B, see test report 80119127-03 of test laboratory CSA Group Bayern GmbH.

FCC ID: KVV-QPW2K
Limits:

Limit according §15.209(a) in the frequency range 9 kHz 960 MHz:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

Limit according §15.517(c) in the frequency range 960 MHz to 40 GHz:

Frequency in MHz	EIRP in dBm
960-1610	-75.3
1610-1990	-53.3
1990-3100	-51.3
3100-10600	-41.3
Above 10600	-51.3

The requirements are **FULFILLED**.

Remarks: There is no possibility for the EUT to enable the digital circuitry for UWB without emitting radiation.

FCC ID: KVV-QPW2K

5.4 Radiated Emissions at 1164-1240 MHz and 1559-1610 MHz

For test instruments and accessories used see section 6 Part SER 3.

5.4.1 Description of the test location

Test location: Anechoic chamber 1

5.4.2 Photo documentation of the test set-up – see ATTACHMENT B

5.4.3 Description of Measurement

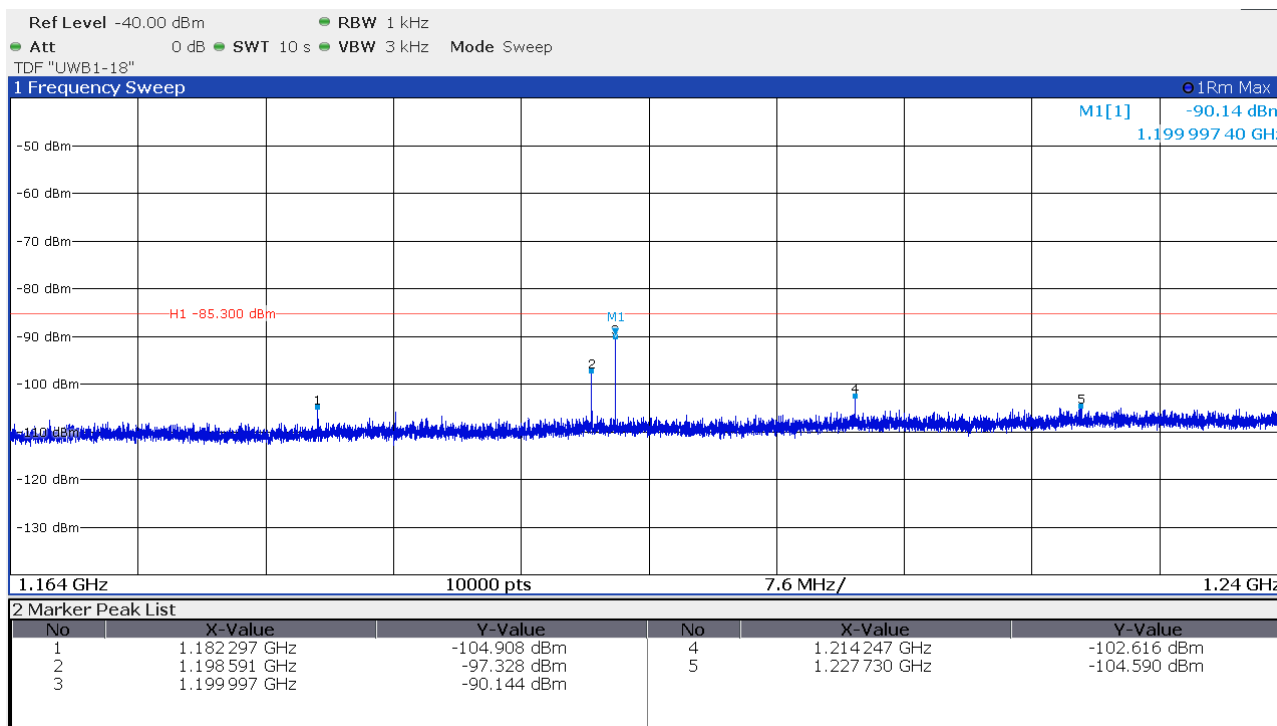
The spectral line is measured following the procedure set out in ANSI C63-10, item 10.3.10. The EUT is set in TX continuous mode while measuring.

Analyser settings:

RBW: 1 kHz, VBW: 3 kHz, Detector: RMS, Sweep time: 1 ms/1kHz,

5.4.4 Test result

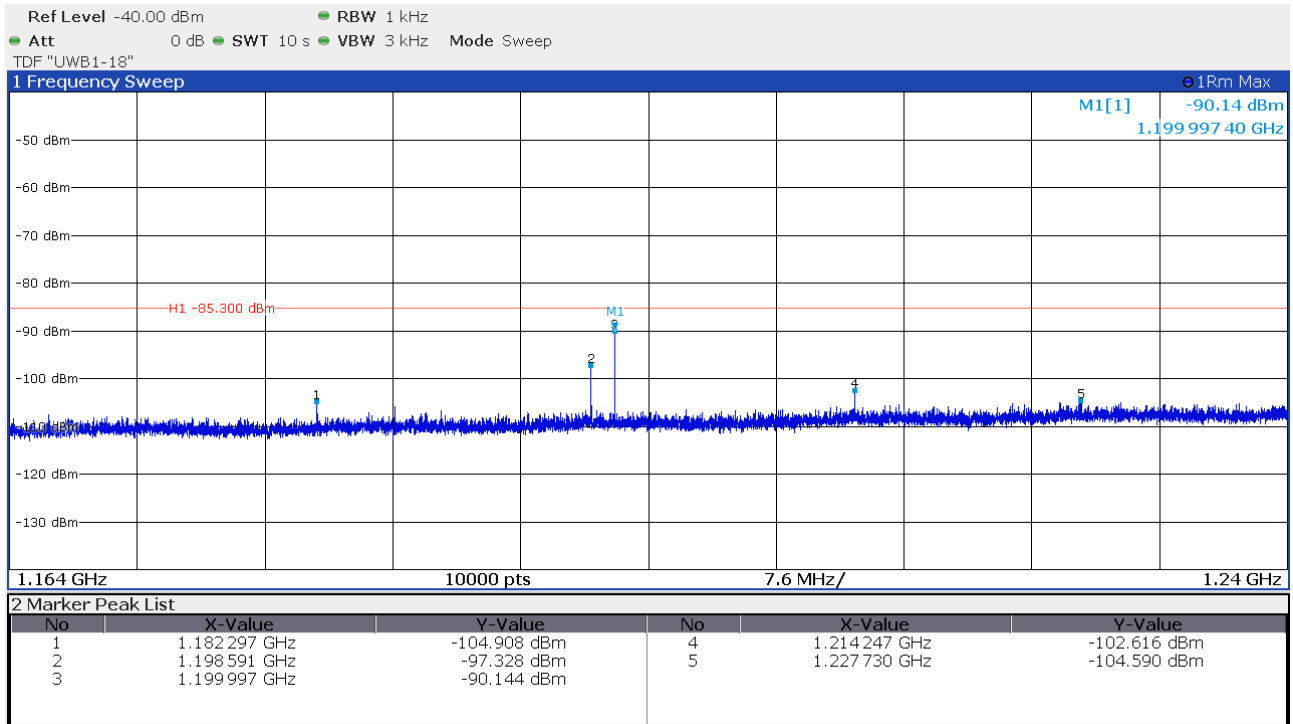
1164 MHz to 1240 MHz (horizontal)



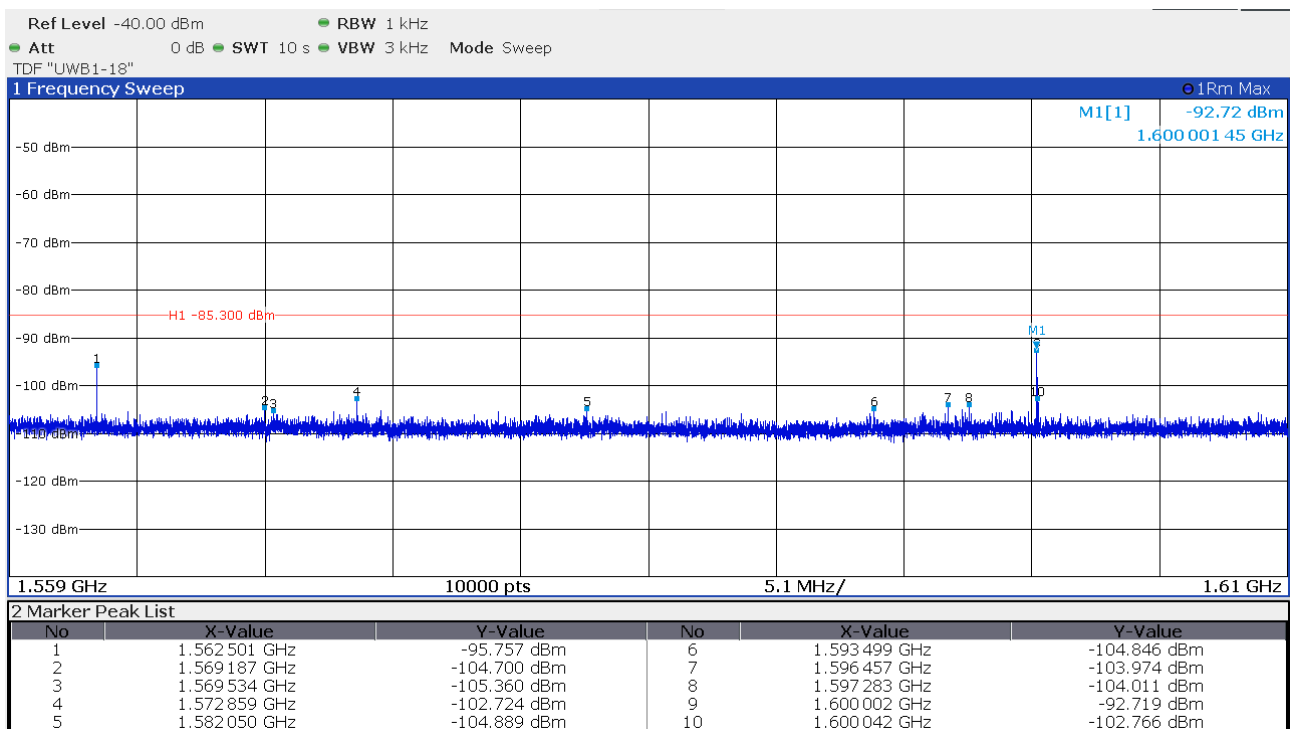
The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: KVV-QPW2K

1164 MHz to 1240 MHz (vertical)

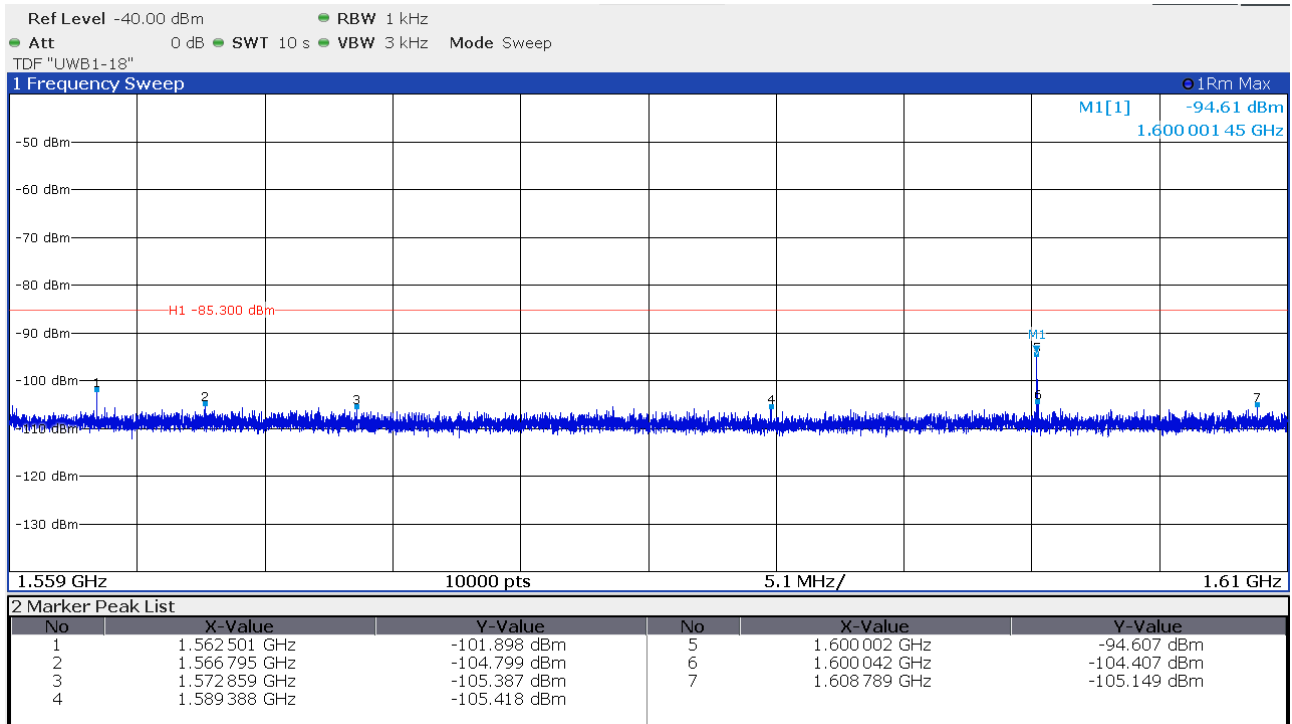


1559 MHz to 1610 MHz (horizontal)



FCC ID: KVV-QPW2K

1559 MHz to 1610 MHz (vertical)



Limit according §15.519(c) in the frequency

Frequency in MHz	EIRP in dBm
1164-1240	-85.3
1559-1610	-85.3

The requirements are **FULFILLED**.

Remarks: None.

FCC ID: KVV-QPW2K**5.5 Peak Power radiated**

For test instruments and accessories used see section 6 Part **CPR 3**.

5.5.1 Description of the test location

Test location: Anechoic chamber 1

5.5.2 Photo documentation of the test set-up – see ATTACHMENT B**5.5.3 Applicable standard**

According to FCC Part 15, Section 15.517(e):

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, f_m . That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in §15.521.

5.5.4 Description of Measurement

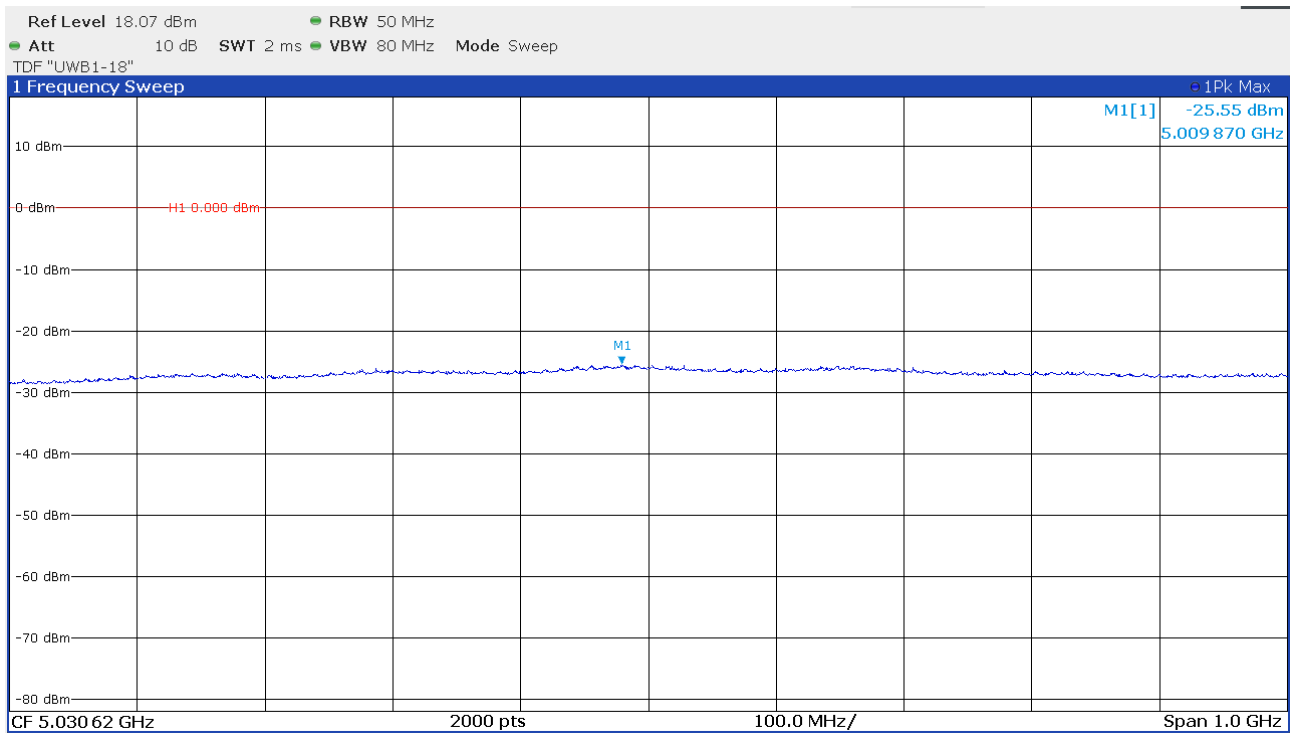
The peak power is measured following the procedure set out in ANSI C63-10, item 10.3.5. The EUT is set in TX continuous mode while measuring.

Analyser settings:

RBW: 50 MHz, VBW: 80 MHz, Detector: Peak, Trace Mode: Max hold

FCC ID: KVVW-QPW2K

5.5.5 Test result



Min. limit margin: -25.6 dB at 5009.87 MHz

The requirements are **FULFILLED**.

Remarks: None.

FCC ID: KVV-QPW2K

5.6 Antenna application

5.6.1 Applicable standard

According to FCC Part 15C, Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit that broken antennas can be replaced by the user, but the use of a standard antenna jack is prohibited.

The EUT has an integrated antenna. No other antenna can be used with the device.

All supplied antennas meet the requirements of part 15.203 and 15.204.

Remarks: None.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: KVV-QPW2K

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
A 4	BAT-EMC 3.21.0.24	01-02/68-13-001				
	ESCI	02-02/03-15-001	17/06/2023	17/06/2022		
	ESH 2 - Z 5	02-02/20-05-004	31/10/2022	31/10/2019	22/09/2022	22/03/2022
	N-4000-BNC	02-02/50-05-138				
	ESH 3 - Z 2	02-02/50-05-155	13/11/2022	13/11/2019	08/09/2022	08/03/2022
CPR 3	FSW43	02-02/11-21-001	08/05/2022	08/04/2021		
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	311702-02/24-05-009	28/06/2022	28/06/2021			
	BAM 4.5-P	02-02/50-17-024				
	NCD	02-02/50-17-025				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				
	BAT-EMC 3.21.0.24	02-02/68-13-001				
SER 2	ESW26	02-02/03-17-002	10/02/2023	10/02/2022		
	VULB 9168	02-02/24-05-005	20/12/2022	20/12/2021	07/07/2022	07/07/2021
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
	50F-003 N 3 dB	02-02/50-21-010				
SER 3	FSW43	02-02/11-21-001	08/05/2022	08/04/2021		
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	LNA-40-18004000-33-5P	02-02/17-20-002				
	311702-02/24-05-009	28/06/2022	28/06/2021			
	BBHA 9170	02-02/24-05-013	19/05/2023	19/05/2020	10/03/2023	10/03/2022
	BAM 4.5-P	02-02/50-17-024				
	NCD	02-02/50-17-025				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				
	KMS116-GL140SE-KMS116-	02-02/50-20-026				
	BAT-EMC 3.21.0.24	02-02/68-13-001				

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.