
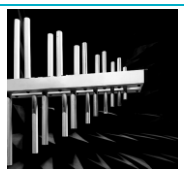
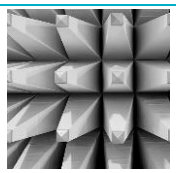

PARTIAL TEST REPORT

Test report no.: 1-6927-23-04-03_TR1-R01

Testing laboratory

cetecom advanced GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: https://www.cetecomadvanced.com
e-mail: mail@cetecomadvanced.com

Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) by the Deutsche Akkreditierungsstelle GmbH (DAkkS).
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12047-01-00.
ISED Testing Laboratory Recognized Listing Number: DE0001
FCC designation number: DE0002

Applicant

Acconeer AB
Västra Varvsgatan 19
211 77 Malmö / SWEDEN
Phone: +46 10 218 92 00
Contact: Mikael Rosenhed
e-mail: mikael.rosenhed@acconeer.com

Manufacturer

Acconeer AB
Västra Varvsgatan 19
211 77 Malmö / SWEDEN

Test standard/s

FCC - Title 47 CFR Part 15	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	**IoT module**
Model name:	**XM126**
FCC ID:	**2AQ6KXM002**
Frequency:	57 GHz – 64 GHz band
Technology tested:	Pulsed Radar
Antenna:	Integrated antennas + Lens (Label “LH122”)
Power supply:	3.3 V DC

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorized:

Thomas Vogler
Lab Manager
Radio Labs

cn=Thomas Vogler, o=cetecom advanced GmbH, ou=VOG-230609, email=thomas.vogler@cetecomadvanced.com, c=DE
2025.03.21 10:30:34 +01'00'

Test performed:

Frank Heussner
Coordinator Area
Radio Labs

cn=Frank Heussner, o=cetecom advanced GmbH, ou=HNR-230605, email=Frank.Heussner@cetecomadvanced.com, c=DE
2025.03.21 10:21:21 +01'00'

1 Table of contents

2 General information

2.1 Notes and disclaimer

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2.2 Application details

Date of receipt of order:	2024-12-10
Date of receipt of test item:	2025-01-07
Start of test:*	2025-01-09
End of test:*	2025-01-13
Person(s) present during the test:	-/-

*Date of each measurement, if not shown in the plot, can be requested. Dates are stored in the measurement software.

2.3 Involved test locations

	Saarbruecken lab		Essen lab
☒	Untertuerkheimer Str. 6-10 66117 Saarbruecken Germany	☐	Im Teelbruch 116 45219 Essen Germany

2.4 Test laboratories sub-contracted

None

2.5 Laboratory listings and recognitions

	Saarbruecken	Essen
FCC	DE0002	DE0003
ISED	DE0001 3462C	DE0001 3462D

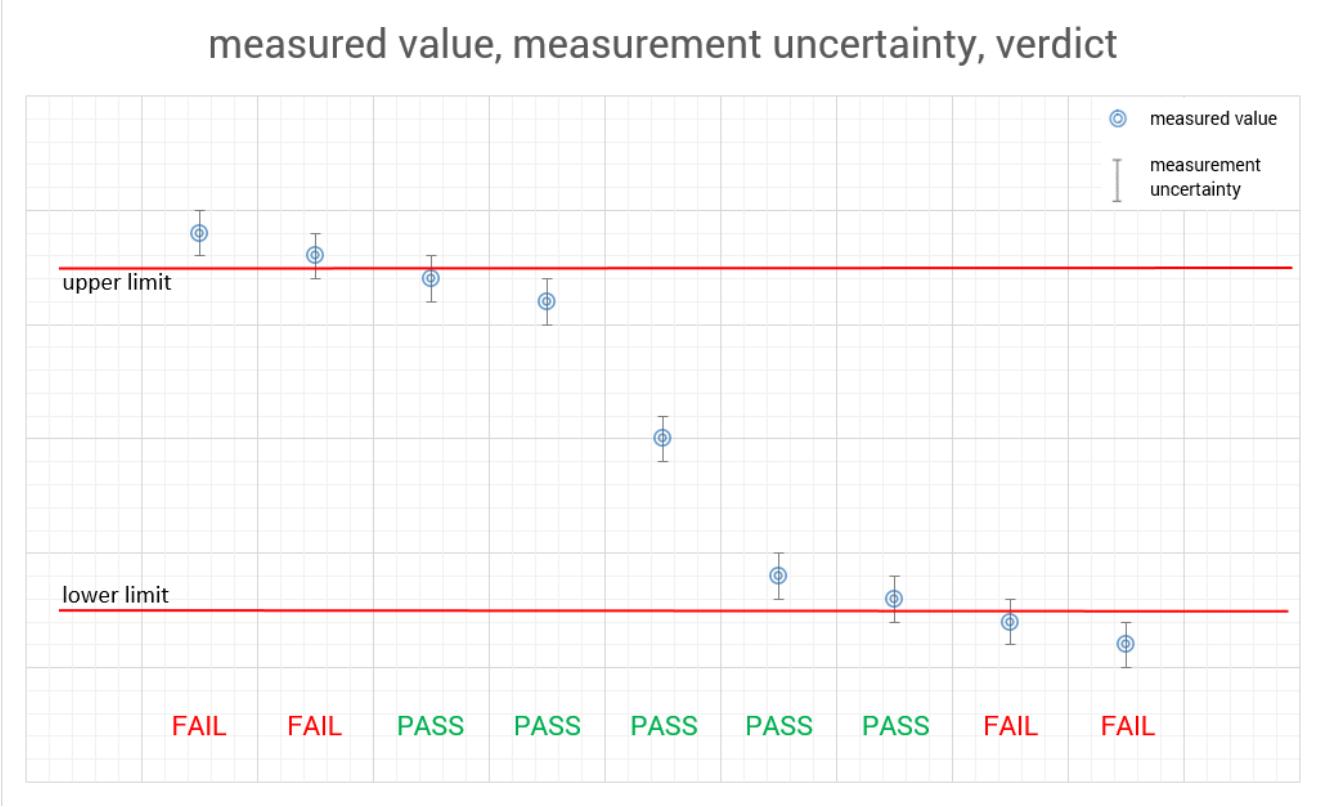
3 Test standard/s, references and accreditations

Test standard	Date	Description
FCC - Title 47 CFR Part 15		FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices

Guidance	Version	Description
ANSI C63.10-2020	-/-	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
57-71 GHz (60 GHz) frequency band	V01	364244 D01 Meas 15.255 Radars v01: RADAR DEVICES CERTIFYING UNDER THE PROVISIONS OF §15.255

4 Reporting statements of conformity – decision rule

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3.
The measurement uncertainty is mentioned in this test report, see chapter 9, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong.



5 Test environment

Temperature	:	T_{nom} T_{max} T_{min}	+22 °C during room temperature tests -/- no high temperature tests -/- no low temperature tests
Relative humidity content	:		49 %
Barometric pressure	:		990 hPa to 1010 hPa
Power supply	:	V_{nom} V_{max} V_{min}	3.3 V DC via external power supply (J2 connector of DUT) -/- V -/- V

6 Test item

6.1 General description

Kind of test item	:	IoT module
Model name	:	XM126
S/N serial number	:	Radiated sample #2
Hardware status	:	R1B
Software status	:	v1.4.0
Firmware status	:	v1.4.0
Frequency band	:	57 GHz – 64 GHz band
Type of modulation	:	Pulse Modulation
Number of modes	:	1
Antenna	:	Integrated antennas + Lens (Label “LH122”)
Power supply	:	3.3 V DC

6.2 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup and EUT photos are included in test report:

- 1-6927-23-04-03_TR1-A101-R01 (External photographs of EUT)
- 1-6927-23-04-03_TR1-A102-R01 (Internal photographs of EUT)
- 1-6927-23-04-03_TR1-A103-R01 (Test set-up photographs)
- Note: The referenced photos show EUT delivered by the customer in this project, not necessarily the exact one used for the specific tests. EUT identification shown in the photos may differ.

Additional measurement reports:

- none

Additional declarations (manufacturer's declarations, declarations of conformity, etc.):

- none

7 Description of the test setup

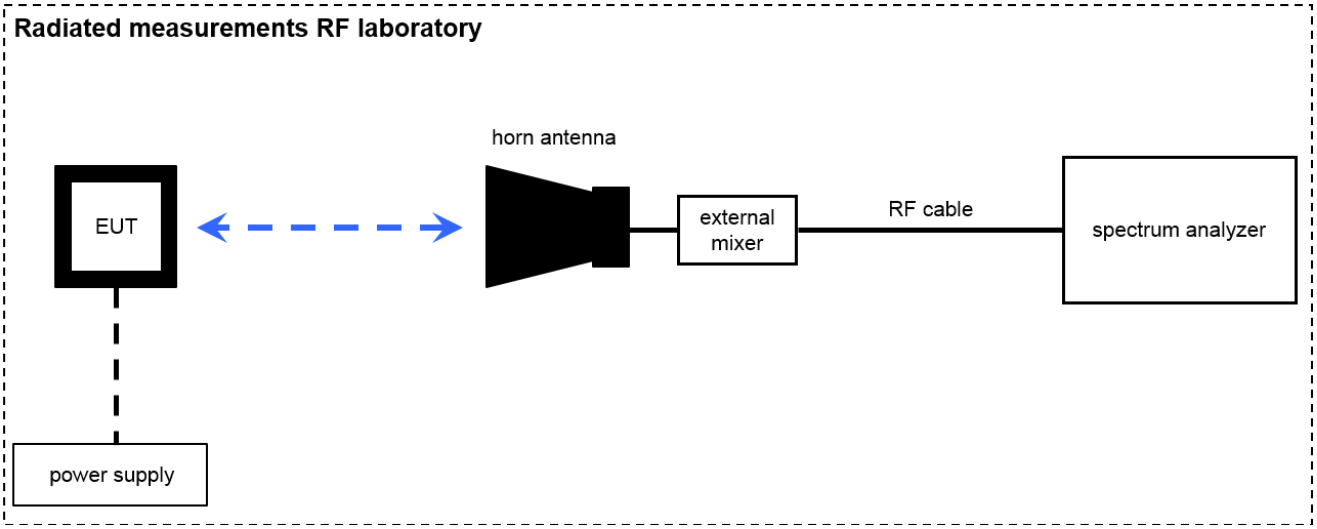
Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, RF generating and signaling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

Agenda: Kind of Calibration

k/cal	calibration / calibrated	EK	limited calibration
Ne/cnn	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
Ev/chk	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress
cpu	check prior usage		

7.1 Radiated measurements > 50/85 GHz



Measurement distance: horn antenna e.g. 75 cm

FS = UR + CA + AF
(FS-field strength; UR-voltage at the receiver; CA-loss signal path & distance correction; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 40.0 [dBµV/m] + (-60.1) [dB] + 36.74 [dB/m] = 16.64 [dBµV/m] (6.79 µV/m)

OP = AV + D - G + CA
(OP-radiated output power; AV-analyzer value; D-free field attenuation of measurement distance;
G-antenna gain+amplifier gain; CA-loss signal path)

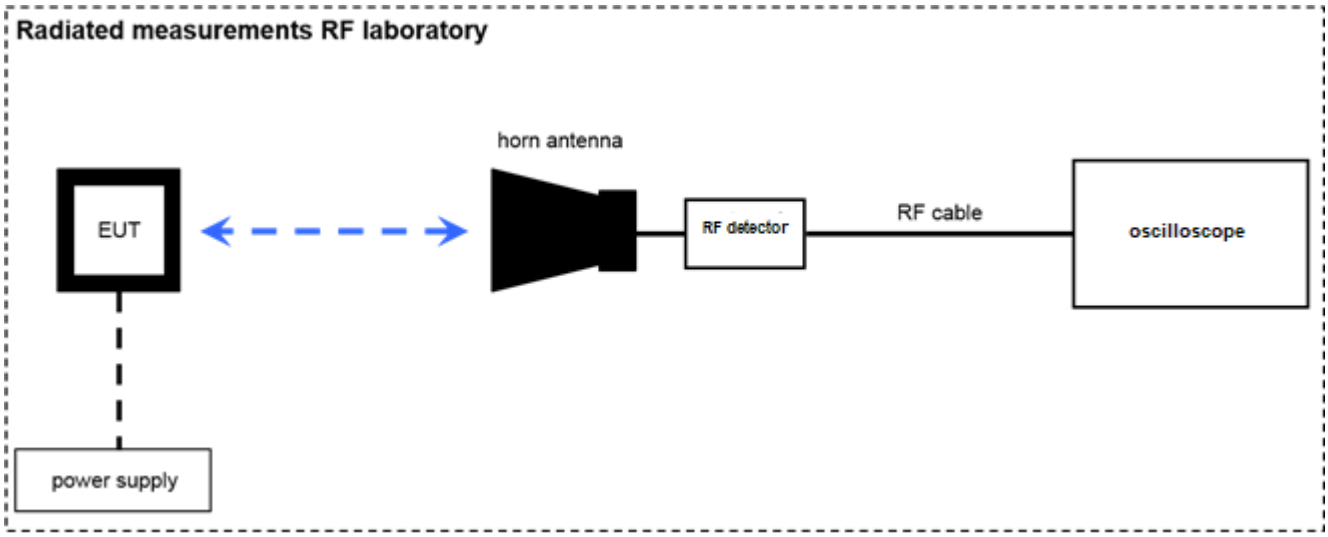
Example calculation:
OP [dBm] = -59.0 [dBm] + 44.0 [dB] - 20.0 [dBi] + 5.0 [dB] = -30 [dBm] (1 µW)

Note: conversion loss of mixer is already included in analyzer value.

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1		Signal- and Spectrum Analyzer 2 Hz - 85 GHz	Signal- and Spectrum Analyzer 2 Hz - 85 GHz FSW85	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101333	300005568 -0000	cal	27.09.2024	27.09.2025
2	n.a.	Std. Gain Horn Antenna 49.9-75.8 GHz	Std. Gain Horn Antenna 49.9-75.8 GHz 2524-20	Flann	*	300001983 -0000	cnn	-/-	-/-
3	n.a.	Low Noise Amplifier, Waveguide, 50-75 GHz	Low Noise Amplifier, Waveguide, 50-75 GHz AFB-V30LN-02	Ducommun Incorporated	1026151-01	300005899 -0000	cpu	-/-	-/-

7.2 Radiated power measurements using RF detector according to ANSI C63.10-2020



Note: EUT is replaced by reference source for substitution measurement

Measurement distance: horn antenna e.g. 50 cm

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	n.a.	Synthesized Sweeper 10 MHz - 40 GHz	Synthesized Sweeper 10 MHz - 40 GHz 83640A	Hewlett Packard	3119A00458	300002266 -0000	cal	-/-	31.12.2025
2	n.a.	Std. Gain Horn Antenna 49.9-75.8 GHz	Std. Gain Horn Antenna 49.9-75.8 GHz 2524-20	Flann	*	300001983 -0000	cnn	-/-	-/-
3	n.a.	Thermal Power Sensor, DC-110GHz, 300nW-100mW	Thermal Power Sensor, DC-110GHz, 300nW-100mW NRP-Z58	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100913	300004808 -0000	cal	19.12.2023	31.12.2025
4	n.a.	WG Rotary Attenuator	WG Rotary Attenuator 25110 UG-385/U-AC	Flann Microwave	266740	300005798 -0000	cpu	-/-	-/-
5	n.a.	Std. Gain Horn Antenna 49.9-75.8 GHz	Std. Gain Horn Antenna 49.9-75.8 GHz 2524-20	Flann	*	300001986 -0000	cnn	-/-	-/-
6	n.a.	SG Extension Module 50 - 75 GHz	SG Extension Module 50 - 75 GHz E8257DV15	VDI	US54250124	300005541 -0000	cpu	-/-	-/-
7	n.a.	Low Noise Amplifier, Waveguide, 50-75 GHz	Low Noise Amplifier, Waveguide, 50-75 GHz AFB-V30LN-02	Ducommun Incorporated	1026151-01	300005899 -0000	cpu	-/-	-/-
8	n.a.	V-Band Positive Amplitude Detector	V-Band Positive Amplitude Detector SFD-503753-15SF-P1	Sage Millimeter Inc.	07353-1	300006118 -0000	cpu	-/-	-/-
9	n.a.	Digital Phosphor Oscilloscope	Digital Phosphor Oscilloscope DPO7254	Tektronix UK Ltd. / Berkshire	B022702	300003573	cal	04.12.2024	04.12.2026

8 Sequence of testing

8.1 Sequence of testing radiated spurious above 50 GHz with external mixers

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet.
- The measurement distance is as appropriate for far field (e.g. 0.25 m).
- The EUT is set into operation.

Premeasurement

- The test antenna with external mixer is handheld and moved carefully over the EUT to cover the EUT's whole sphere and different polarizations of the antenna.
- Caution is taken to reduce the possible overloading of the external mixer.

Final measurement

- The final measurement is performed at the position and antenna orientation causing the highest emissions with Peak and RMS detector (as described in ANSI C 63.4).
- As external mixers may generate false images care is taken to ensure that any emission measured by the spectrum analyzer does indeed originate in the EUT. Signal identification feature of spectrum analyzer is used to eliminate false mixer images (i.e., it is not the fundamental emission or a harmonic falling precisely at the measured frequency).
- Final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement and the limit is stored.

9 Measurement uncertainty

Test case	Uncertainty
Equivalent isotropically radiated power (e.i.r.p.)	Conducted value ± 1 dB Radiated value ± 3.5 dB
Permitted range of operating frequencies	± 100 kHz
Conducted unwanted emissions in the spurious domain (up to 18 GHz)	± 1 dB
Radiated unwanted emissions in the spurious domain (up to 18 GHz)	± 3.5 dB
Conducted unwanted emissions in the spurious domain (18 to 40 GHz)	± 4 dB
Radiated unwanted emissions in the spurious domain (18 to 40 GHz)	± 4 dB
Conducted unwanted emissions in the spurious domain (40 to 50 GHz)	± 4.5 dB
Radiated unwanted emissions in the spurious domain (40 to 50 GHz)	± 4.5 dB
Conducted unwanted emissions in the spurious domain (above 50 GHz)	± 5 dB
Radiated unwanted emissions in the spurious domain (above 50 GHz)	± 5 dB
DC and low frequency voltages	± 3 %
Temperature	± 1 °C
Humidity	± 3 %

10 Summary of measurement results

☒	**No deviations from the technical specifications were ascertained**
☐	There were deviations from the technical specifications ascertained
☒	**This test report is only a partial test report.** **The content and verdict of the performed test cases are listed below.**

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC 47 CFR Part 15 (dated 2023-08-23)	see below	2025-03-21	-/-

Test specification clause	Test case	Temperature conditions	Power supply	Pass	Fail	NA	NP	Remark
47 CFR 15.215(b) & (c), 47 CFR 15.255(f)	Occupied bandwidth & Frequency stability	Nominal	Nominal	☒ (BW)	☐	☐	☐	BW complies, frequency stability test not performed
47 CFR 15.255(b)(3) & (c)	Radiated power (EIRP)	Nominal	Nominal	☒	☐	☐	☐	complies
47 CFR 15.255(c)(2) 47 CFR 15.255(e)	Peak transmitter conducted output power	Nominal	Nominal	☐	☐	☒	☐	-/-
47 CFR 15.255(b)(3), 47 CFR 15.255(c)	Time domain requirements	Nominal	Nominal	☐	☐	☐	☒	-/-
47 CFR 15.255(d)	Spurious emissions radiated	Nominal	Nominal	☐	☐	☐	☒	-/-
47 CFR 15.207	Conducted emissions < 30 MHz (AC power line)	Nominal	Nominal	☐	☐	☐	☒	-/-

Note: NA = Not applicable; NP = Not performed

11 Additional comments

Reference documents:

- None

Special test descriptions:

- None

Configuration descriptions:

- "XM126 certification - User guidelines v1.2.pdf" provided by customer

Test devices (EUT):

- EUT1:
  - The BT test mode is used.
  - Includes:
    - XM122/XM126 Certification PCB PB47 v1.0 (see 1-6927-23-04-03_TR1-A102-R01)
    - XM126 PB46 v1.1 (see 1-6927-23-04-03_TR1-A102-R01))

Additional test modes:

☐ No test modes available

☒ Special test modes/special software (see description below)

Description of special test modes as declared by customer:

- See „XM126 certification - User guidelines v1.2.pdf"
- Used mode is "BT test mode"
- BT (in BT test mode) and 60 GHz radar is active simultaneously

Details on test mode settings:

According to the customer's instructions, the following steps and commands were used to configure the test mode:

- output_power pos8dBm
- start_channel 40
- start_tx_modulated_carrier

Software provided by the manufacturer:

- none

12 Basic information of the DUT & selection of applicable rule parts

Basic information of the DUT:

General: see chapter “6 Test item”

Operation condition:

- ☐ Operation on aircraft (47 CFR 15.255(b))
  - ☐ Unmanned aircraft (47 CFR 15.255(b)(3))
  - ☐ Not unmanned aircraft
- ☒ No operation on aircraft

Note: Operation under the provisions of this section is not permitted for equipment used on satellites (47 CFR 15.255(a)).

Kind of DUT:

- ☐ Devices other than field disturbance sensors and other than fixed point-to-point transmitters located outdoors
- ☐ Fixed point-to-point transmitters located outdoors
- ☒ Field disturbance sensors/radars
  - ☒ Pulsed field disturbance sensors/radars
  - ☐ Other than pulsed field disturbance sensors/radars

Frequency band:

- ☐ Operating within band 59.3 – 71.0 GHz (47 CFR 15.255(b)(2)(iii))
- ☐ Operating within band 60 – 64 GHz (47 CFR 15.255(b)(3))
- ☐ Operating within band 57 – 71 GHz (47 CFR 15.255(c)(1) / (c)(2))
- ☐ Operating within band 57.0 – 59.4 GHz (47 CFR 15.255(c)(2)(i))
- ☐ Operating within band 57.0 – 61.56 GHz (47 CFR 15.255(c)(2)(ii))
- ☒ Operating within band 57 – 64 GHz (47 CFR 15.255(c)(2)(iii) / (c)(3))
- ☐ Operating within band 61.0 – 61.5 GHz (47 CFR 15.255(c)(2)(v))

Note: See results in chapter 13.1

13 Measurement results

13.1 Occupied bandwidth & emission bandwidth & frequency stability

Description:

Measurement of the bandwidth and the frequency stability of the wanted signal (fundamental emission) under temperature and supply voltage variations.

Limits and provisions:

Bandwidth & Applicable limits of designated frequency band			
Applicable	**Rule part**	**Method of bandwidth measurement**	**Limit of designated frequency band**
☐	15.255(b)(2)(iii)	20 dB bandwidth or 99% bandwidth	59.3 - 71.0 GHz
☐	15.255(b)(3)	20 dB bandwidth or 99% bandwidth	60 - 64 GHz
☐	15.255(c)(1)(i)	20 dB bandwidth or 99% bandwidth	57 - 71 GHz
☐	15.255(c)(1)(ii)	20 dB bandwidth or 99% bandwidth	57 - 71 GHz
☐	15.255(c)(2)	20 dB bandwidth or 99% bandwidth	57 - 71 GHz
☐	15.255(c)(2)(i)	20 dB bandwidth or 99% bandwidth	57.0 - 59.4 GHz
☐	15.255(c)(2)(ii)	20 dB bandwidth or 99% bandwidth	57.0 - 61.56 GHz
☐	15.255(c)(2)(iii)	20 dB bandwidth or 99% bandwidth	57.0 - 64.0 GHz
☐	15.255(c)(2)(v)	20 dB bandwidth or 99% bandwidth	61.0 - 61.5 GHz
☒	15.255(c)(3)	10 dB bandwidth	57 - 64 GHz
☐	15.255(e)(2)	6 dB emission bandwidth (EBW_{6dB})	None (required for calculation in chapter 13.3)

Note:

- Definition of 6dB emission bandwidth (15.255(e)(2)): the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kilohertz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (e.g., for frequency hopping devices).

Measurement:

Measurement parameter	
Detector:	Pos-Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Trace-Mode:	Max Hold

Measurement procedures:

- Bandwidth: ANSI C63.10-2020 6.9 / 9.3 / 9.4
- Frequency stability: ANSI C63.10-2020 6.8 / 9.5

Measurement results:

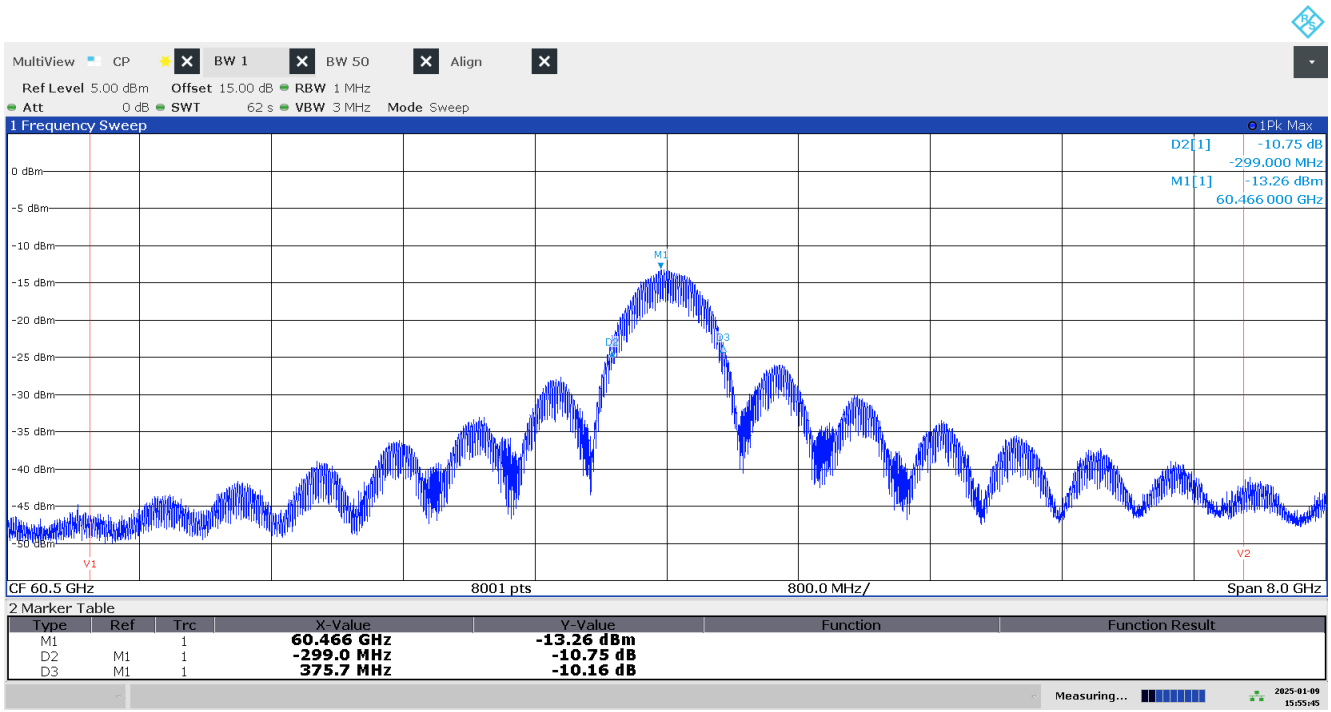
10 dB bandwidth at normal conditions:

EUT	Mode	Test condition	f_L [GHz]	f_H [GHz]	Bandwidth [MHz]
1	BT test	T_{nom} / V_{nom}	60.167	60.842	675

Verdict: Compliant

Frequency stability (15.255(f)): not performed

Plot 1: 10 dB bandwidth at normal condition



13.2 Radiated power (EIRP)

Description:

Measurement of the maximum radiated E.I.R.P. of the wanted signal.

Limits and provisions:

Applicable limits of radiated power (EIRP)			
Applicable	**Rule part**	**Limit average EIRP**	**Limit peak EIRP**
☐	15.255(b)(3)	none	20 dBm
☐	15.255(c)(1)(i)	40 dBm (see note 1)	43 dBm
☐	15.255(c)(1)(ii)	Calculation depending on EUT antenna gain (see note 1, 2.1 & 2.3)	Depending on EUT antenna gain (see note 1, 2.2 & 2.3)
☐	15.255(c)(2)	none	10 dBm
☐	15.255(c)(2)(i)	none	20 dBm (indoor) 30 dBm (outdoor)
☐	15.255(c)(2)(ii)	none	3 dBm (general) 20 dBm (+ off-time requirement)
☐	15.255(c)(2)(iii)(A)	none	14 dBm (+ off-time requirement)
☐	15.255(c)(2)(iii)(B)	none	20 dBm (+ off-time requirement)
☐	15.255(c)(2)(v)	40 dBm (within 61-61.5 GHz) (see note 1) 10 dBm (outside 61-61.5 GHz, but within 57-71GHz) (see note 1)	43 dBm (within 61.0-61.5 GHz) 13 dBm (outside 61-61.5 GHz, but within 57-71GHz)
☒	15.255(c)(3)	13 dBm (average EIRP during any 0.3 µs time window) (+ time domain requirement) 5 dBm (average integrated EIRP within 61.5–64.0 GHz in any 0.3 µs time window)	applicable average limit + 20 dB

Note:

1. Measured during the transmit interval
2. Calculation depending on EUT antenna gain:
   - 2.1. The average power of any emission shall not exceed 82 dBm, and shall be reduced by 2 dB for every dB that the antenna gain is less than 51 dBi.
   - 2.2. The peak power of any emission shall not exceed 85 dBm, and shall be reduced by 2 dB for every dB that the antenna gain is less than 51 dBi.
   - 2.3. Reducing the transmit power based on the antenna gain shall not require that the power levels be reduced below the limits specified in 15.255(c)(1)(i).

Measurement:

RF detector:

Measurement parameter	
Detector:	Pos-Peak (RF-Detector)
Video bandwidth:	≥ 10 MHz

Measurement procedures:
- Fundamental emission using a RF detector: ANSI C63.10-2020 9.9

Spectrum analyzer:

Measurement parameter	
Detector:	RMS
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Trace-Mode:	Max Hold

Measurement procedures:
- Fundamental emission using a spectrum analyzer: ANSI C63.10-2020 9.8

Measurement results:

Parameter		Measurement result				Limit
		EUT / Mode				
		BT test mode	-/-	-/-	-/-	
Peak EIRP ($P_{Peak,EIRP}$)	[dBm]	22.6	-/-	-/-	-/-	33 dBm
Average EIRP during any 0.3 µs time window ($P_{avg0.3µs,EIRP}$)	[dBm]	6.7	-/-	-/-	-/-	13 dBm
Average integrated EIRP within 61.5–64.0 GHz in any 0.3 µs time window	[dBm]	-10.2	-/-	-/-	-/-	5 dBm

Note:
- Test conditions: T_{nom} / V_{nom}
- Details on measurements: see below

Verdict: Compliant

RF detector: Description of the E.I.R.P. measurement by substitution method

1) EUT emission measured with RF-detector:
   - Measurement distance: d_{EUT}
   - Readout of the measured voltage on the oscilloscope:
     - Maximum value: $V_{max,EUT}$
     - Average value (average over worst 0.3µs): $V_{avg0.3µs,EUT}$

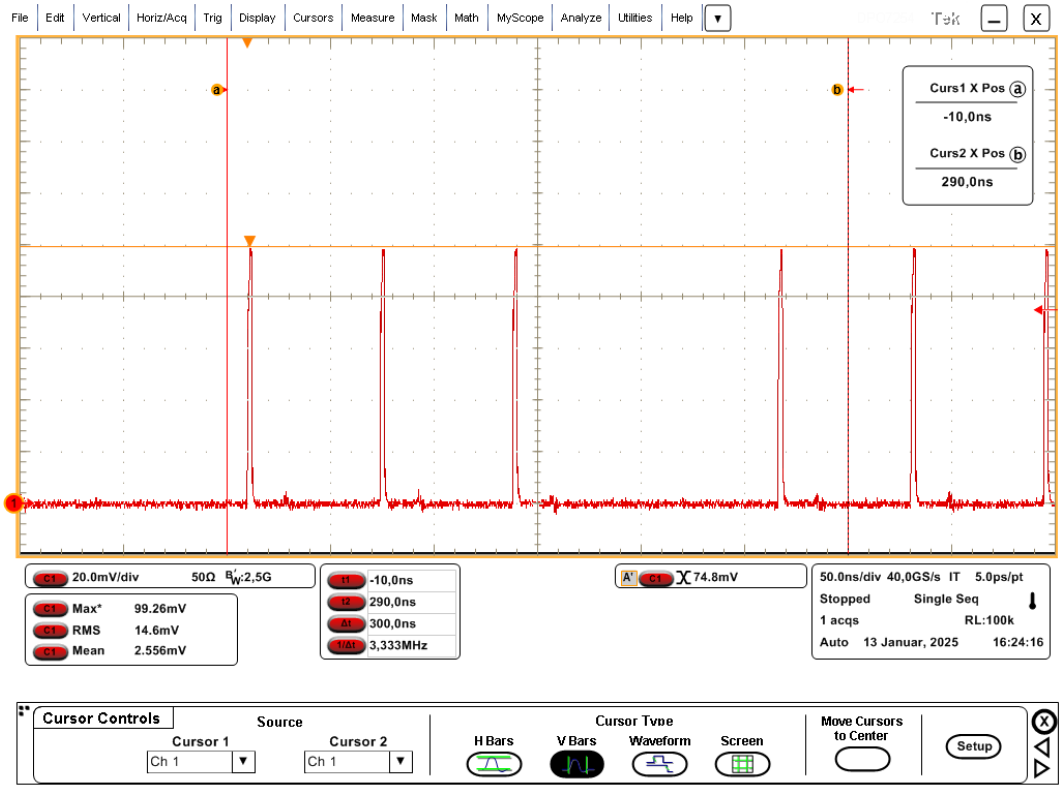
2) Substitution of EUT by a cw reference source with a frequency of f_{REF} and a fixed output power of P_{REF}
   - Positioning of the cw reference source at distance: d_{EUT}
   - Adjustment of the readout value on oscilloscope via the variable attenuator of the source:
     - $V_{max,REF} = V_{max,EUT}$
     - $V_{avg0.3µs,REF} = V_{avg,0.3µs,EUT}$

3) Measurement of the conducted output powers $P_{cond,REF}$ of the cw reference source (without horn antenna) using the power meter:
   - $P_{max,cond,REF}$
   - $P_{avg0.3µs,cond,REF}$

4) Calculation of the E.I.R.P. of the EUT taking into account the gain of the substitution antenna G_{REF}:
   - Peak EIRP: $P_{Peak, E.I.R.P.} = P_{max,cond,REF} + G_{REF}$
   - Average E.I.R.P. (average over worst 0.3µs): $P_{avg0.3µs,E.I.R.P.} = P_{avg0.3µs,cond,REF} + G_{REF}$

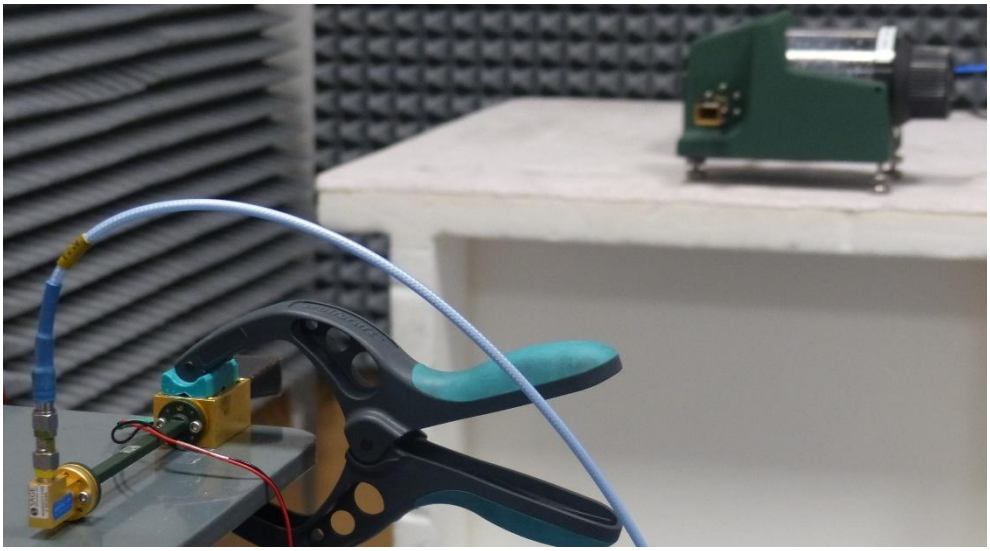
Measurement step	Measurement parameter		EUT Mode			
			BT test mode	-/-	-/-	-/-
1	d_{EUT}	[m]	1	-/-	-/-	-/-
	$V_{max,EUT}$	[mV]	99.3	-/-	-/-	-/-
	$V_{avg0.3µs,EUT}$	[mV]	2.6	-/-	-/-	-/-
2	f_{REF}	[GHz]	60.5	-/-	-/-	-/-
3	$P_{max,cond,REF}$	[dBm]	2.7	-/-	-/-	-/-
	$P_{avg0.3µs,cond,REF}$	[dBm]	-13.2	-/-	-/-	-/-
4	G_{REF}	[dBi]	19.9	-/-	-/-	-/-
	$P_{Peak,E.I.R.P.}$	[dBm]	22.6	-/-	-/-	-/-
	$P_{avg0.3µs,E.I.R.P.}$	[dBm]	6.7	-/-	-/-	-/-

Plot 2: EUT emission, $V_{max,EUT}$, $V_{avg0.3\mu s,EUT}$



Note: Gating used to measure $V_{avg0.3\mu s,EUT}$

RF Detector: Setup of the substitution

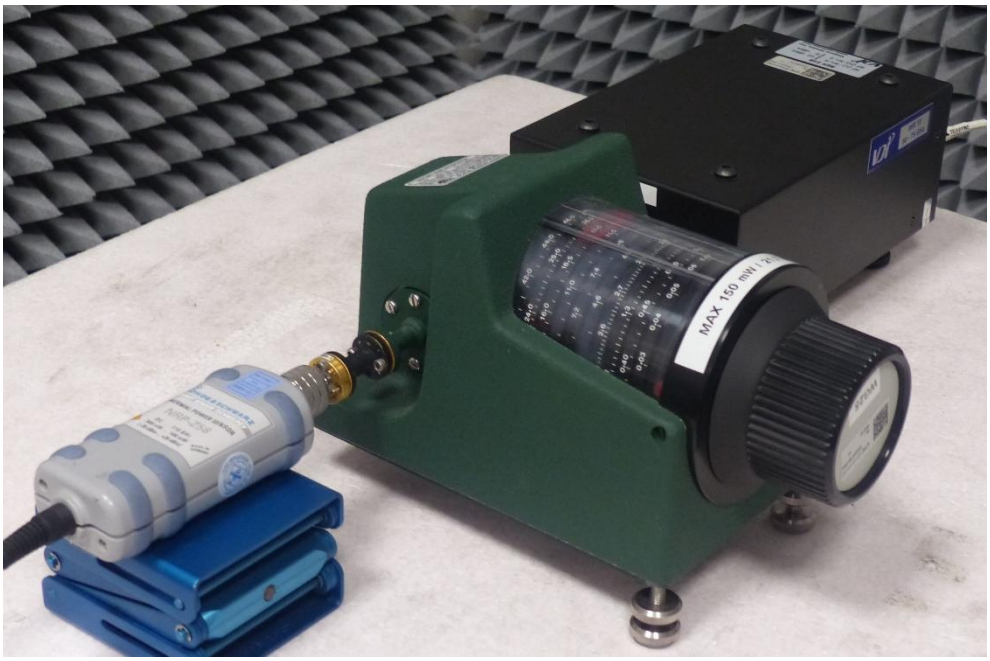


Receiver:

- RF-Detector (V-Band Amplitude Detector)
- Low noise waveguide amplifier
- Horn Antenna 50-75 GHz

Transmitter (Reference source):

- Signal generator (not in picture)
- SG Extension Module 50 - 75 GHz (behind Rotary Attenuator)
- Rotary Attenuator
- Horn Antenna 50-75 GHz

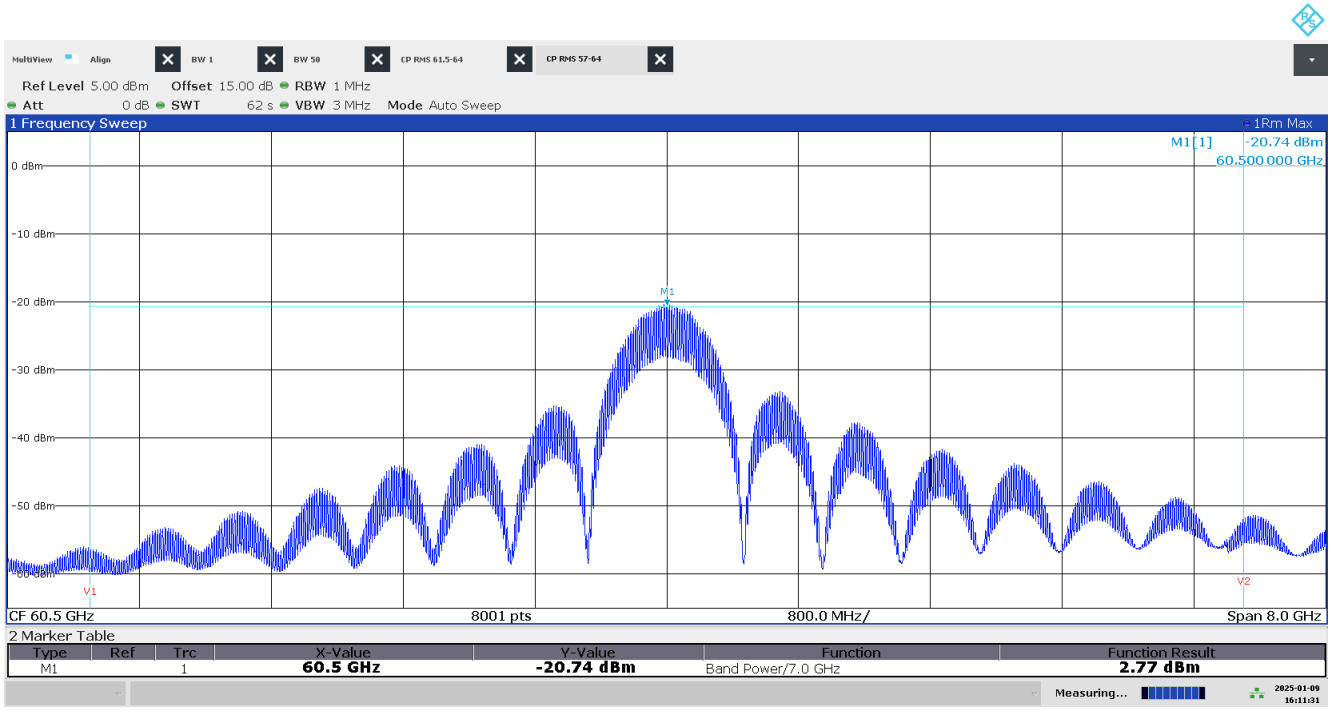


Measurement of the conducted output power of the reference source:

- Power meter
- Rotary Attenuator
- SG Extension Module 50 - 75 GHz (connected to Signal Generator)

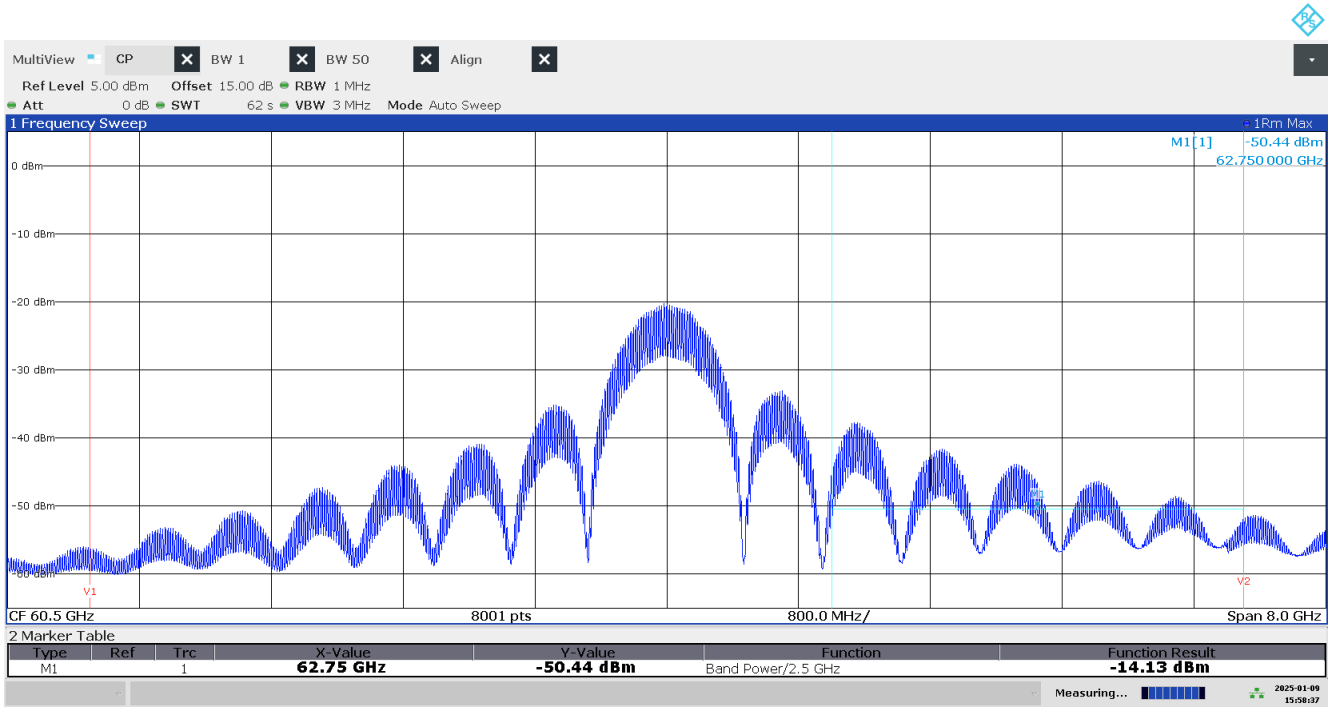
Spectrum analyzer: Measurement results (15.255(c)(3))

Plot 3: Average EIRP (relative) during whole cycle time within 57-64 GHz



Note: Not necessarily the correct absolute level, only for relative comparison

Plot 4: Average EIRP (relative) during whole cycle time within 61.5-64 GHz



Note: Not necessarily the correct absolute level, only for relative comparison

Calculation of average integrated EIRP within 61.5–64.0 GHz in any 0.3 µs time window:

Parameter			Measurement result EUT / Mode				Method
			BT test mode	-/-	-/-	-/-	
P_1	Average EIRP (relative) during whole cycle time within 57-64 GHz	[dBm]	2.8	-/-	-/-	-/-	Spectrum analyzer
P_2	Average EIRP (relative) during whole cycle time within 61.5-64 GHz	[dBm]	-14.1	-/-	-/-	-/-	Spectrum analyzer
P_3	Delta ($P_1 - P_2$)	[dB]	16.9	-/-	-/-	-/-	Calculation
P_4	Average EIRP during any 0.3 µs time window ($P_{avg0.3µs,EIRP}$)	[dBm]	6.7	-/-	-/-	-/-	RF detector
P_5	Average integrated EIRP within 61.5–64.0 GHz in any 0.3 µs time window	[dBm]	-10.2	-/-	-/-	-/-	Calculation

Notes:

- (Parameter P_3) = (Parameter P_1) – (Parameter P_2):
  Delta = (Average EIRP during whole cycle time within 57-64 GHz) – (Average EIRP during whole cycle time within 61.5-64 GHz)

- (Parameter P_5) = (Parameter P_4) - (Parameter P_3):
  (Average integrated EIRP within 61.5–64.0 GHz in any 0.3 µs time window) = (Average EIRP during any 0.3 µs time window) - Delta

13.3 Peak transmitter conducted output power

Description:

Measurement or calculation of the transmitter conducted output power.

Limits and provisions:

Applicable limits of peak transmitter conducted output power		
Applicable	**Rule part**	**Limit peak transmitter conducted output power**
☐	15.255(c)(2)	-10 dBm
☐	15.255(e)(1)	500 mW
☐	15.255(e)(2)	500 mW * (EBW_{6dB}/100 MHz)
☒	other	none

Note:
- EBW_{6dB} (6 dB emission bandwidth): see chapter 13.1

Results:

EUT	Mode	Test condition	Peak E.I.R.P.	Gain of EUT antenna G_{EUT}	Peak transmitter conducted output power	Limit Peak transmitter conducted output power
-/-	-/-	-/-	-/-	-/-	-/-	-/-

Note:
- Peak transmitter conducted output power = Peak E.I.R.P – Gain of EUT antenna G_{EUT}
- Peak EIRP: see chapter 13.2

Verdict: Not applicable

14 Glossary

EUT	Equipment under test
DUT	Device under test
UUT	Unit under test
GUE	GNSS User Equipment
ETSI	European Telecommunications Standards Institute
EN	European Standard
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
IC	Industry Canada
PMN	Product marketing name
HMN	Host marketing name
HVIN	Hardware version identification number
FVIN	Firmware version identification number
EMC	Electromagnetic Compatibility
HW	Hardware
SW	Software
Inv. No.	Inventory number
S/N or SN	Serial number
C	Compliant
NC	Not compliant
NA	Not applicable
NP	Not performed
PP	Positive peak
QP	Quasi peak
AVG	Average
OC	Operating channel
OCW	Operating channel bandwidth
OBW	Occupied bandwidth
OOB	Out of band
DFS	Dynamic frequency selection
CAC	Channel availability check
OP	Occupancy period
NOP	Non occupancy period
DC	Duty cycle
PER	Packet error rate
CW	Clean wave
MC	Modulated carrier
WLAN	Wireless local area network
RLAN	Radio local area network
DSSS	Dynamic sequence spread spectrum
OFDM	Orthogonal frequency division multiplexing
FHSS	Frequency hopping spread spectrum
GNSS	Global Navigation Satellite System
C/N_0	Carrier to noise-density ratio, expressed in dB-Hz

15 Document history

Version	Applied changes	Date of release
TR01-R01	Initial release	2025-03-21

########## END OF TEST REPORT ##########