FCC Measurement/Technical Report on

WLAN and Bluetooth Module on M.2 card

JODY-W377-00B

FCC ID: XPYJODYW377
IC: 8595A-JODYW377

Test Report Reference: MDE_UBLOX_2221_FCC_01

Test Laboratory:
7layers GmbH
Borsigstrasse 11
40880 Ratingen
Germany

DAkkS Deutsche Akkreditierungsstelle
D-PL-12140-01-01
D-PL-12140-01-02
D-PL-12140-01-03

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1 APPLIED STANDARDS AND TEST SUMMARY

1.1 APPLIED STANDARDS

Type of Authorization
Certification for an Intentional Radiator.

Applicable FCC Rules

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 and 15 (10-1-21 Edition). The following subparts are applicable to the results in this test report.

Part 2, Subpart J - Equipment Authorization Procedures, Certification

Part 15, Subpart C – Intentional Radiators

§ 15.201 Equipment authorization requirement

§ 15.207 Conducted limits

§ 15.209 Radiated emission limits; general requirements

§ 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz

Note:
The tests were selected and performed with reference to the FCC Public Notice "Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating under Section 15.247 of the FCC Rules, 558074 D01 15.247 Meas Guidance v05r02, 2019-04-02". ANSI C63.10–2013 is applied.

1.2 FCC-IC CORRELATION TABLE

Correlation of measurement requirements for DTS (e.g. WLAN 2.4 GHz, BT LE) equipment from FCC and IC

DTS equipment

Measurement	FCC reference	IC reference
Conducted emissions on AC Mains	§ 15.207	RSS-Gen Issue 5: 8.8
Occupied bandwidth	§ 15.247 (a) (2)	RSS-247 Issue 2: 5.2 (a)
Peak conducted output power	§ 15.247 (b) (3), (4)	RSS-247 Issue 2: 5.4 (d)
Transmitter spurious RF conducted emissions	§ 15.247 (d)	RSS-Gen Issue 5: 6.13 / 8.9/8.10; RSS-247 Issue 2: 5.5
Transmitter spurious radiated emissions	§ 15.247 (d); § 15.209 (a)	RSS-Gen Issue 5: 6.13 / 8.9/8.10; RSS-247 Issue 2: 5.5
Band edge compliance	§ 15.247 (d)	RSS-247 Issue 2: 5.5
Power density	§ 15.247 (e)	RSS-247 Issue 2: 5.2 (b)
Antenna requirement	§ 15.203 / 15.204	RSS-Gen Issue 5: 8.3
Receiver spurious emissions	–	–

1.3 MEASUREMENT SUMMARY

47 CFR CHAPTER I FCC PART 15 Subpart C §15.247 **§ 15.247 (b) (1) (2)**

Peak Power Output

The measurement was performed according to ANSI C63.10, chapter 11.9.1.3 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Measurement method	Setup	Date	FCC	IC
Bluetooth BDR, high, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth BDR, low, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth BDR, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth EDR 2, high, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth EDR 2, low, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth EDR 2, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth EDR 3, high, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth EDR 3, low, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth EDR 3, mid, conducted	S01_AA01	2022-10-18	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart C §15.247 **§ 15.247 (b) (3)**

Peak Power Output

The measurement was performed according to ANSI C63.10, chapter 11.9.1.3 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Measurement method	Setup	Date	FCC	IC
Bluetooth LE 1 Mbps, high, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth LE 1 Mbps, low, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth LE 1 Mbps, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth LE 2 Mbps, high, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth LE 2 Mbps, low, conducted	S01_AA01	2022-10-18	Passed	Passed
Bluetooth LE 2 Mbps, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 20 MHz MIMO, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 20 MHz MIMO, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 20 MHz MIMO, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 20 MHz, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 20 MHz, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 20 MHz, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 40 MHz MIMO, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 40 MHz MIMO, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 40 MHz MIMO, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 40 MHz, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 40 MHz, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN ax 40 MHz, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN b, high, conducted	S01_AA01	2022-10-18	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart C §15.247 **§ 15.247 (b) (3)**

Peak Power Output

The measurement was performed according to ANSI C63.10, chapter 11.9.1.3 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Measurement method	Setup	Date	FCC	IC
WLAN b, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN b, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN g, high, conducted	S01_AA01	2022-10-27	Passed	Passed
WLAN g, low, conducted	S01_AA01	2022-10-27	Passed	Passed
WLAN g, mid, conducted	S01_AA01	2022-10-27	Passed	Passed
WLAN n 20 MHz MIMO, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 20 MHz MIMO, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 20 MHz MIMO, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 20 MHz, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 20 MHz, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 20 MHz, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 40 MHz MIMO, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 40 MHz MIMO, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 40 MHz MIMO, mid, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 40 MHz, high, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 40 MHz, low, conducted	S01_AA01	2022-10-18	Passed	Passed
WLAN n 40 MHz, mid, conducted	S01_AA01	2022-10-18	Passed	Passed

47 CFR CHAPTER I FCC PART 15 Subpart C §15.247 **§ 15.247 (d)**

Transmitter Spurious Radiated Emissions

The measurement was performed according to ANSI C63.10, chapter 6.4, 6.5, 6.6.5 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Measurement range	Setup	Date	FCC	IC
Bluetooth BDR, mid, 1 GHz - 26 GHz Remark: Conducted Measurement	S01_AA01	2022-12-19	Passed	Passed
Bluetooth BDR, mid, 1 GHz - 26 GHz Remark: Radiated Measurement	S02_AA01	2022-10-26	Passed	Passed
Bluetooth BDR, mid, 30 MHz - 1 GHz Remark: Conducted Measurement	S01_AA01	2022-12-19	Passed	Passed
Bluetooth BDR, mid, 30 MHz - 1 GHz Remark: Radiated Measurement	S02_AA01	2022-10-31	Passed	Passed
Bluetooth BDR, mid, 9 kHz - 30 MHz Remark: Conducted Measurement	S01_AA01	2022-12-19	Passed	Passed
Bluetooth BDR, mid, 9 kHz - 30 MHz Remark: Radiated Measurement	S02_AA01	2022-10-31	Passed	Passed
WLAN b, mid, 1 GHz - 26 GHz Remark: Conducted Measurement	S01_AA01	2022-12-19	Passed	Passed
WLAN b, mid, 1 GHz - 26 GHz Remark: Radiated Measurement	S02_AA01	2022-10-21	Passed	Passed

47 CFR CHAPTER I FCC PART 15 § 15.247 (d)
Subpart C §15.247

Transmitter Spurious Radiated Emissions
The measurement was performed according to ANSI C63.10, chapter 6.4, 6.5, 6.6.5 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Measurement range	Setup	Date	FCC	IC
WLAN b, mid, 30 MHz - 1 GHz Remark: Conducted Measurement	S01_AA01	2022-12-19	Passed	Passed
WLAN b, mid, 30 MHz - 1 GHz Remark: Radiated Measurement	S02_AA01	2022-10-31	Passed	Passed
WLAN b, mid, 9 kHz - 30 MHz Remark: Conducted Measurement	S01_AA01	2022-12-19	Passed	Passed
WLAN b, mid, 9 kHz - 30 MHz Remark: Radiated Measurement	S02_AA01	2022-10-31	Passed	Passed

47 CFR CHAPTER I FCC PART 15 § 15.247 (d)
Subpart C §15.247

Band Edge Compliance Radiated
The measurement was performed according to ANSI C63.10, chapter 6.6.5 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Band Edge	Setup	Date	FCC	IC
Bluetooth BDR, high, high Remark: Radiated Measurement	S02_AA01	2022-10-26	Passed	Passed
Bluetooth EDR 3, high, high Remark: Conducted Measurement	S01_AA01	2022-12-02	Passed	Passed
WLAN ax 20 MHz MIMO, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-08	Passed	Passed
WLAN ax 20 MHz, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-07	Passed	Passed
WLAN ax 40 MHz MIMO, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-08 2022-12-19	Passed	Passed
WLAN ax 40 MHz, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-07 2022-12-19	Passed	Passed
WLAN b, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-02 2022-12-07	Passed	Passed
WLAN b, high, high Remark: Radiated Measurement	S02_AA01	2022-10-20	Passed	Passed
WLAN g, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-02 2022-12-19	Passed	Passed
WLAN n 20 MHz MIMO, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-08	Passed	Passed
WLAN n 20 MHz, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-02 2022-12-07	Passed	Passed
WLAN n 40 MHz MIMO, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-08	Passed	Passed
WLAN n 40 MHz, low+high, low+high Remark: Conducted Measurement	S01_AA01	2022-12-02 2022-12-19	Passed	Passed

N/A: Not applicable
N/P: Not performed

2 REVISION HISTORY / SIGNATURES

Report version control			
Version	**Release date**	**Change Description**	**Version validity**
initial	2023-01-04	--	valid
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COMMENT: The module JODY-W377 mounted to the M.2 card has already been tested against this standard and according to the applicant corresponds to the previous setup in regards to the radio part. Due to this, only spot checks have been performed.
Report Reference: MDE_UBLOX_2030_FCC_01

(responsible for accreditation scope)
Dipl.-Ing. Marco Kullik

(responsible for testing and report)
Dipl.-Ing. Daniel Gall

7 layers GmbH, Borsigstr. 11
40880 Ratingen, Germany
Phone +49 (0)2102 749 0

3 ADMINISTRATIVE DATA

3.1 TESTING LABORATORY

Company Name:	7layers GmbH
Address:	Borsigstr. 11 40880 Ratingen Germany

The test facility is accredited by the following accreditation organisation:

Laboratory accreditation no:	DAkkS D-PL-12140-01-01| -02 | -03
FCC Designation Number:	DE0015
FCC Test Firm Registration:	929146
ISED CAB Identifier	DE0007; ISED#: 3699A
Responsible for accreditation scope:	Dipl.-Ing. Marco Kullik
Report Template Version:	2022-05-25

3.2 PROJECT DATA

Responsible for testing and report:	Dipl.-Ing. Daniel Gall
Employees who performed the tests:	documented internally at 7Layers
Date of Report:	2023-01-04
Testing Period:	2022-10-18 to 2022-12-19

3.3 APPLICANT DATA

Company Name:	u-blox AG
Address:	Zürcherstrasse 68 8800 Thalwil Switzerland
Contact Person:	Filip Kruzela

3.4 MANUFACTURER DATA

Company Name:	please see Applicant Data
Address:	
Contact Person:	

4 TEST OBJECT DATA

4.1 GENERAL EUT DESCRIPTION

Kind of Device product description	WLAN and Bluetooth Module on M.2 card
Product name	JODY-W377-00B
Type	JODY-W377-00B
Declared EUT data by the supplier	
Voltage Type	DC
Voltage Level	3.3 V
Antenna / Gain	External / 2 dBi (No antennas were provided for the tests, radiated measurements were performed with 50 Ohm terminations) Remark by laboratory: Naming of antenna ports for the report: 
Tested Modulation Type	BT Classic: GFSK (BDR), Pi/4 DQPSK (EDR 2), 8DPSK (EDR 3) BT LE: GFSK WLANb: DSSS WLANg/n/ax: OFDM
Specific product description for the EUT	The EUT is a Bluetooth and WLAN module. In the 2.4 GHz band JODY-W377 supports SISO and MIMO Mode for WLAN, while JODY-W374 supports SISO Mode only. Supported technologies are Bluetooth Classic, Bluetooth Low Energy and WLAN b, g, n, ax 20 and 40 MHz bandwidth.
EUT ports (connected cables during testing):	Enclosure Data DC Antenna The EUT is a module on an M.2 card. No cables were connected to the EUT itself except for u.fl to SMA adapter cables that were used for measurement or termination of the ports.

Tested datarates	BT Classic: 1 (BDR), 2 (EDR 2) and 3 Mbps (EDR 3) BT LE: 1 and 2 Mbps WLAN b: 1 Mbps, g: 6 Mbps, n: MCS 0 SISO / MSC8 MIMO, ax: MSC 0
Special software used for testing	Labtool V2.0.0.85-17.80.200.p204 on computer board provided by applicant.
Used output power	BT Classic: max. power in BT Device Under Test Mode BT LE: 10 dBm WLAN:

2.4 GHz

Mode	Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6	Ch.7	Ch.8	Ch.9	Ch.10	Ch.11
b	19	20	21								19
g	14	15	16	17						15	13
n20	14	15	16	17					16	14	13
n20 MIMO	13	14	15							13	12
n40	N/A	N/A	13						12	N/A	N/A
n40 MIMO	N/A	N/A	12						11	N/A	N/A
ax20	13	15		16	17				16	14	12
ax20 MIMO	12	13	14	15	16				14	13	11
ax40	N/A	N/A	13				12			N/A	N/A
ax40 MIMO	N/A	N/A	12				11			N/A	N/A

Note by the laboratory: Settings that differ from original certification marked in yellow.

4.2 EUT MAIN COMPONENTS

Sample Name	**Sample Code**	**Description**
EUT aa01	DE1015168aa01	
Sample Parameter	**Value**	
Serial No.	M186009C3815E240500	
HW Version	05	
SW Version	2.0.0.86-17.80.200.p207	
Comment		

NOTE:The short description is used to simplify the identification of the EUT in this test report.

4.3 ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

Device	**Details (Manufacturer, Type Model, OUT Code)**	**Description**
-	-	-

4.4 AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it.
But nevertheless Auxiliary Equipment can influence the test results.

Device	**Details (Manufacturer, Type Model, HW, SW, S/N)**	**Description**
AUX01	UBLOX, M.2 card universal adapter, Rev. A, - , -	M.2 adapter
AUX02	Toradex, Ixora, V1.2A, - , 10629969	Board Computer for setting modes
AUX03	LogiLink, AU0002E, -, - , -	USB - RS232 adapter for remote control of AUX02
AUX04	Fujitsu Ltd., Lifebook U758 , 2018-07, Win10 Pro Engl. , DSAL009811	Laptop remote controlling AUX02

4.5 EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

Setup	**Combination of EUTs**	**Description and Rationale**
S01_AA01	EUT aa01, AUX04, AUX02, AUX01, AUX03,	Conducted Setup
S02_AA01	EUT aa01, AUX01	Radiated Setup

4.6 OPERATING MODES / TEST CHANNELS

This chapter describes the operating modes of the EUTs used for testing.

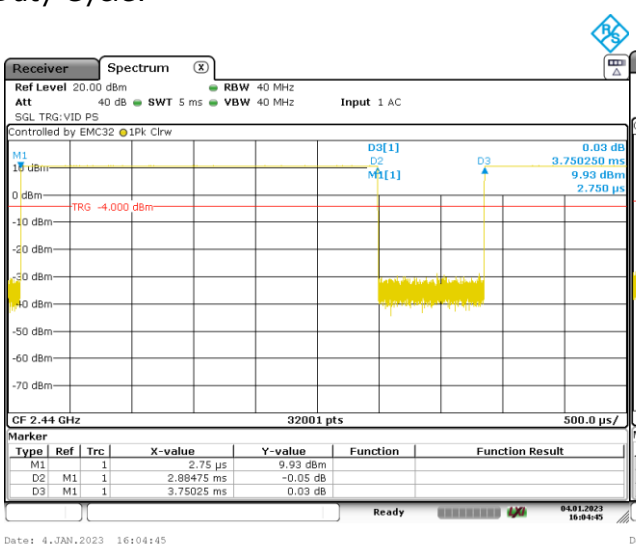
WLAN	**2.4 GHz ISM 2400 - 2483.5 MHz**		
20 MHz Test Channels:	**low**	**mid**	**high**
Channel:	1	6	11
Frequency [MHz]	2412	2437	2462

40 MHz Test Channels:	**low**	**mid**	**high**
Channel:	3	6	9
Frequency [MHz]	2422	2437	2452

BT Test Channels:	2.4 GHz ISM 2400 - 2483.5 MHz		
	low	mid	high
Channel:	0	39	78
Frequency [MHz]	2402	2441	2480

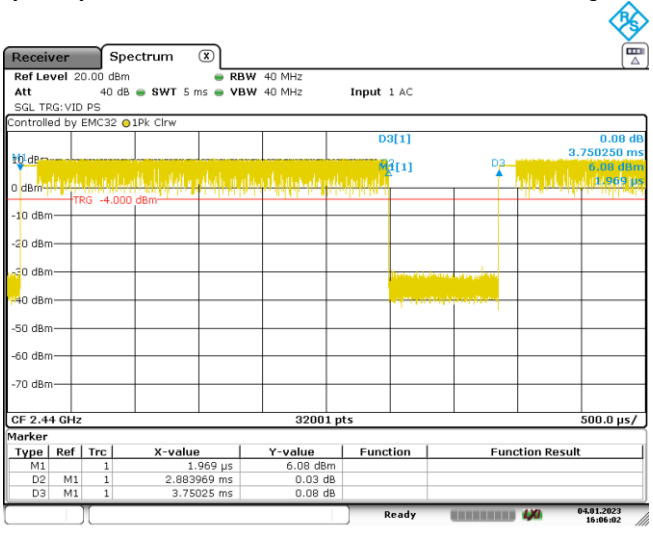
BT LE Test Channels:	2.4 GHz ISM 2400 - 2483.5 MHz		
	low	mid	high
Channel:	0	19	39
Frequency [MHz]	2402	2440	2480

Duty Cycle:

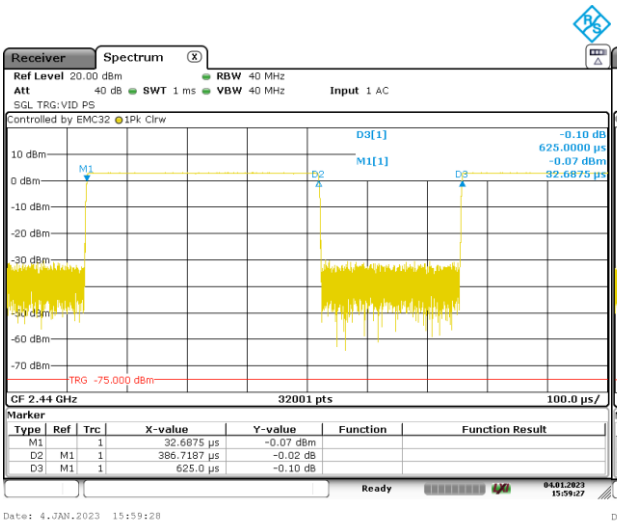


BT GFSK (DH5)

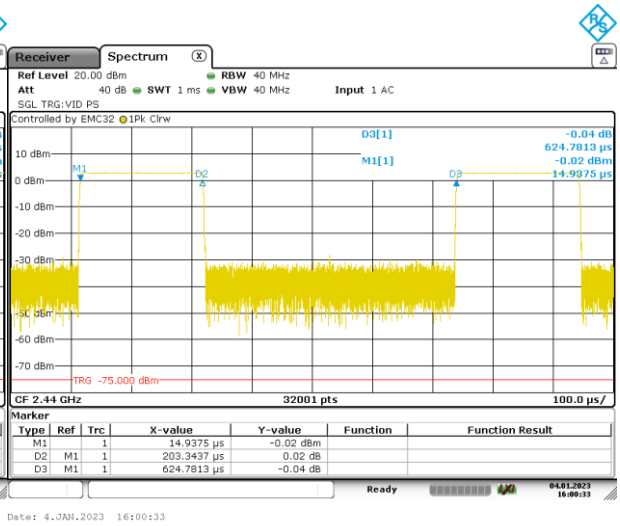
BT DQPSK (2-DH5)



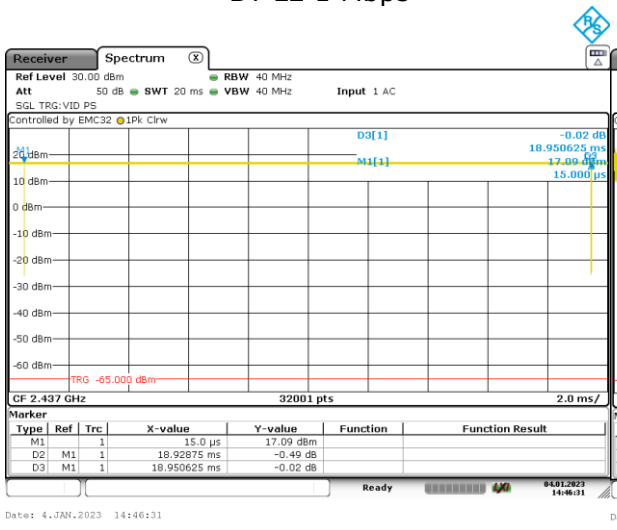
BT 8PSK (3-DH5)



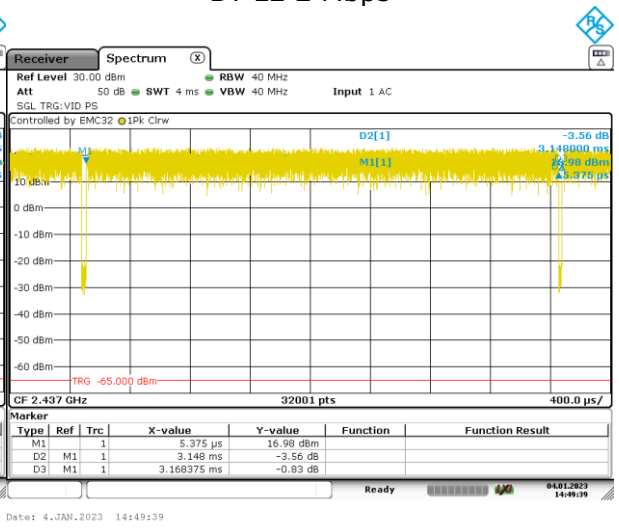
BT LE 1 Mbps



BT LE 2 Mbps

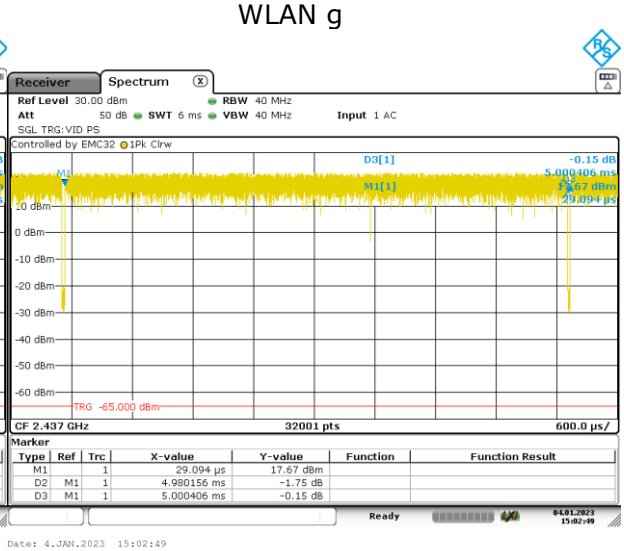


WLAN b



WLAN g

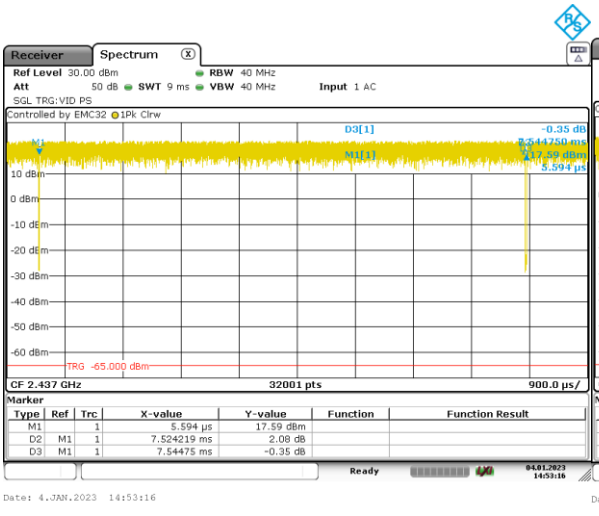
WLAN n20 MHz SISO



WLAN n 20 MHz MIMO

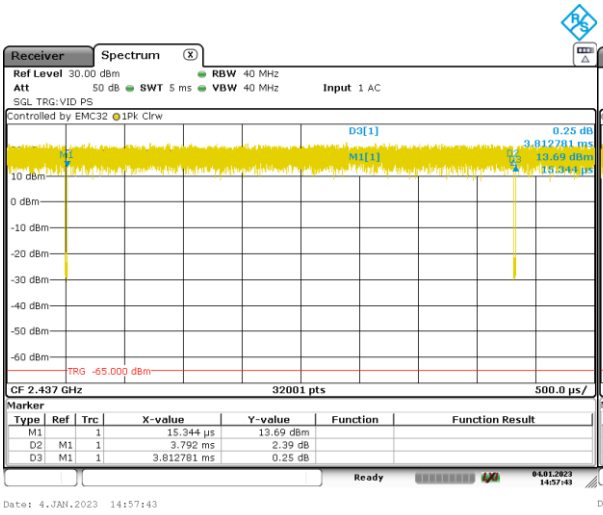
WLAN n 40 MHz SISO

WLAN n 40 MHZ MIMO



WLAN ax 20 MHz SISO

WLAN ax 20 MHz MIMO



WLAN ax 40 MHz SISO

WLAN ax 40 MHz MIMO

Mode	Full Period [ms]	Burst Length [ms]	DC	Resulting Field Level DC Correction [dB]
BT GFSK (1-DH1)	3.75025	2.88475	0.7692	2.3
BT π/4 DQPSK (2-DH1)	3.75025	2.88334	0.7688	2.3
BT 8-DPSK (3-DH1)	3.75025	2.88397	0.7690	2.3
BT LE 1 Mbps	0.625	0.38672	0.6187	4.2
BT LE 2 Mbps	0.62478	0.20334	0.3255	9.7
WLAN b-Mode; 20 MHz; 1 Mbit/s	18.9506	18.9288	0.9988	0.0
WLAN g-Mode; 20 MHz; 6 Mbit/s	3.16838	3.148	0.9936	0.1
WLAN n-Mode; 20 MHz; MCS0	9.94266	9.91231	0.9969	0.0
WLAN n-Mode; 40 MHz; MCS0	5.12263	5.090031	0.9936	0.1
WLAN n-Mode; 20 MHz; MCS0; MIMO	5.00041	4.98016	0.9960	0.0
WLAN n-Mode; 40 MHz; MCS0; MIMO	5.00041	4.98016	0.9960	0.0
WLAN ax-Mode; 20 MHz; MCS0	7.54475	7.52422	0.9973	0.0
WLAN ax-Mode; 40 MHz; MCS0	3.81278	3.792	0.9945	0.0
WLAN ax-Mode; 20 MHz; MCS0; MIMO	3.81634	3.79591	0.9946	0.0
WLAN ax-Mode; 40 MHz; MCS0; MIMO	3.81653	3.79591	0.9946	0.0

4.7 PRODUCT LABELLING

4.7.1 FCC ID LABEL

Please refer to the documentation of the applicant.

4.7.2 LOCATION OF THE LABEL ON THE EUT

Please refer to the documentation of the applicant.

5 TEST RESULTS

5.1 PEAK POWER OUTPUT

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 11.9.1.3

5.1.1 TEST DESCRIPTION

DTS EQUIPMENT:
The Equipment Under Test (EUT) was set up to perform the output power measurements. The results recorded were measured with the modulation which produces the worst-case (highest) output power.

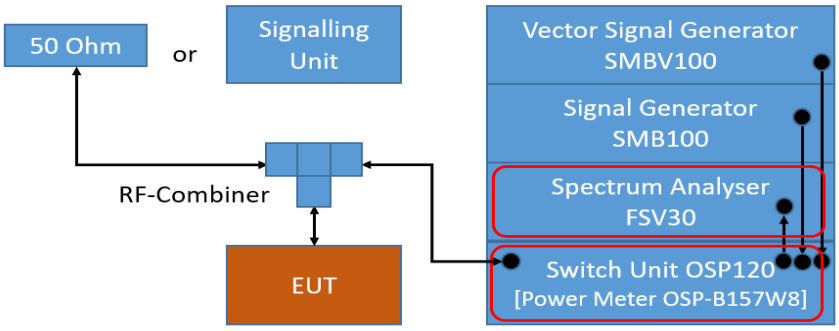
Maximum peak conducted output power (e.g. Bluetooth Low Energy):

The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.
The reference level of the spectrum analyser was set higher than the output power of the EUT.

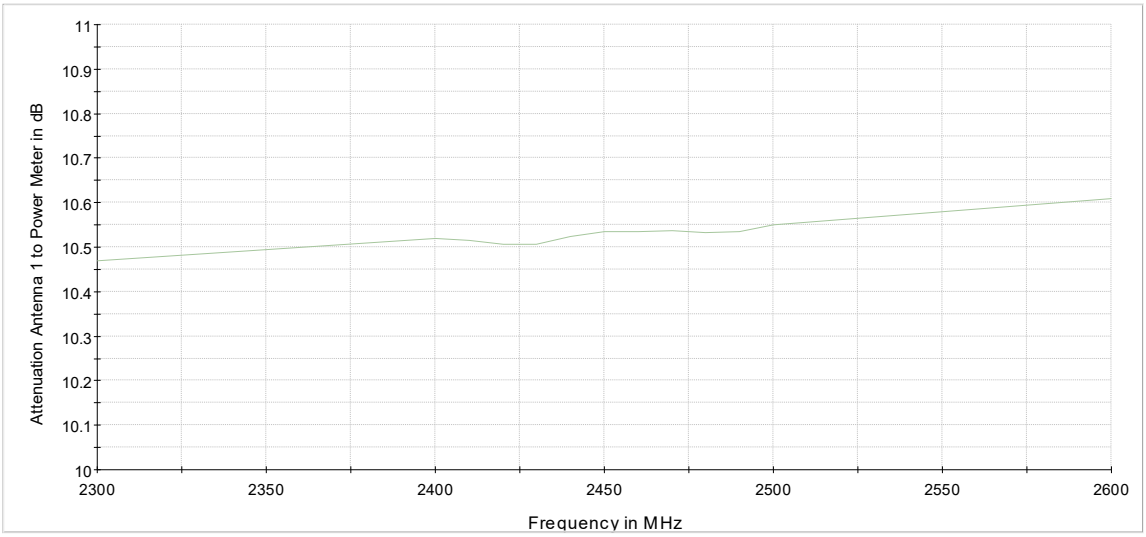
Analyser settings:
- Resolution Bandwidth (RBW): ≥ DTS bandwidth
- Video Bandwidth (VBW): ≥ 3 times RBW or maximum of analyzer
- Span: ≥ 3 times RBW
- Trace: Maxhold
- Sweeps: Till stable (min. 300, max. 15000)
- Sweeptime: Auto
- Detector: Peak

Maximum conducted average output power (e.g. WLAN):

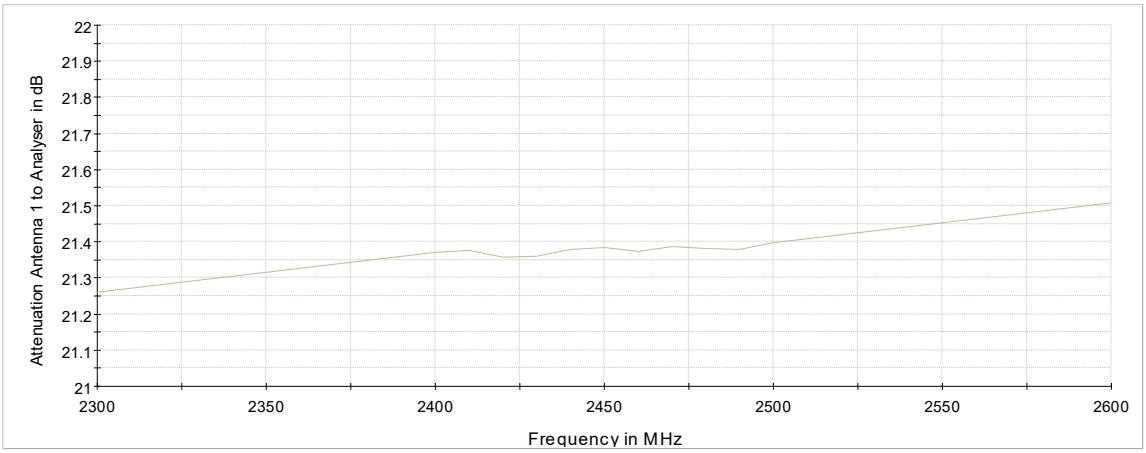
The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.
Measurement is performed using the gated RF average power meter integrated in the OSP 120 module OSP-B157W8 with signal bandwidth >300 MHz.



TS8997; Output Power



Attenuation of the measurement path to Power Meter



Attenuation of the measurement path to Analyser

5.1.2 TEST REQUIREMENTS / LIMITS

DTS devices:
FCC Part 15, Subpart C, §15.247 (b) (3)
For systems using digital modulation techniques in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands: 1 watt.

==> Maximum conducted peak output power: 30 dBm (excluding antenna gain, if antennas with directional gains that do not exceed 6 dBi are used).

Frequency Hopping Systems:
FCC Part 15, Subpart C, §15.247 (b) (1)
For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

FCC Part 15, Subpart C, §15.247 (b) (2)
For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

Used conversion factor: Limit (dBm) = 10 log (Limit (W)/1mW)

5.1.3 TEST PROTOCOL

Ambient temperature: 23–25 °C
Air Pressure: 1000–1010 hPa
Humidity: 30–48 %

BT GFSK (1-DH5)

Band	Ch. No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	0	2402	11.6	30.0	18.4	13.6	-0.4
	39	2441	11.7	30.0	18.3	13.7	-0.5
	78	2480	11.6	30.0	18.4	13.6	-0.4

BT DQPSK (2-DH5)

Band	Ch. No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	0	2402	10.8	30.0	19.2	12.8	-0.3
	39	2441	10.9	30.0	19.1	12.9	-0.4
	78	2480	10.7	30.0	19.3	12.7	-0.3

BT 8-DPSK (3-DH5)

Band	Ch. No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	0	2402	11.1	30.0	18.9	13.1	-0.3
	39	2441	11.2	30.0	18.8	13.2	-0.4
	78	2480	11.0	30.0	19.0	13.0	-0.3

BT LE 1 Mbit/s

Band	Ch. No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	0	2402	8.7	30.0	21.3	10.7	-0.3
	19	2440	8.7	30.0	21.3	10.7	-0.3
	39	2480	8.6	30.0	21.4	10.6	-0.2

BT LE 2 Mbit/s

Band	Ch. No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	0	2402	8.7	30.0	21.3	10.7	-0.3
	19	2440	8.7	30.0	21.3	10.7	-0.3
	39	2480	8.6	30.0	21.4	10.6	-0.3

WLAN b-Mode; 20 MHz; 1 Mbit/s

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	1	2412	19.5	30.0	10.6	21.5	-0.6
	6	2437	21.2	30.0	8.8	23.2	-0.4
	11	2462	19.7	30.0	10.3	21.7	-0.5

WLAN g-Mode; 20 MHz; 6 Mbit/s

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	1	2412	15.1	30.0	14.9	17.1	-0.6
	6	2437	19.0	30.0	11.0	21.0	-0.4
	11	2462	14.7	30.0	15.3	16.7	-0.9

WLAN n-Mode; 20 MHz; MCS0

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	1	2412	15.0	30.0	15.0	17.0	-0.5
	6	2437	17.5	30.0	12.5	19.5	-0.7
	11	2462	14.2	30.0	15.8	16.2	-0.4

WLAN n-Mode; 40 MHz; MCS0

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	3	2422	14.0	30.0	16.0	16.0	-0.8
	6	2437	14.1	30.0	15.9	16.1	-0.4
	9	2452	13.0	30.0	17.0	15.0	-0.1

WLAN ax-Mode; 20 MHz; MCS0

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	1	2412	14.3	30.0	15.7	16.3	-0.7
	6	2437	17.6	30.0	12.4	19.6	0.3
	11	2462	13.4	30.0	16.6	15.4	-0.4

WLAN ax-Mode; 40 MHz; MCS0

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	3	2422	14.4	30.0	15.6	16.4	-0.5
	6	2437	14.5	30.0	15.5	16.5	-0.5
	9	2452	13.2	30.0	16.8	15.2	0.1

WLAN n-Mode; 20 MHz; MCS0; MIMO

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	EIRP [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	1	2412	16.4	30.0	13.6	18.4	0.2
	6	2437	18.8	30.0	11.2	20.8	0.1
	11	2462	15.6	30.0	14.4	17.6	0.2

WLAN n-Mode; 40 MHz; MCS0; MIMO

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	EIRP [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	3	2422	15.6	30.0	14.4	17.6	-0.1
	6	2437	15.5	30.0	14.5	17.5	0.0
	9	2452	14.6	30.0	15.4	16.6	0.1

WLAN ax-Mode; 20 MHz; MCS0; MIMO

Band	Ch. No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	EIRP [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	1	2412	15.9	30.0	14.1	17.9	-0.1
	6	2437	20.1	30.0	9.9	22.1	-0.1
	11	2462	14.9	30.0	15.1	16.9	0.1

WLAN ax-Mode; 20 MHz; MCS0; MIMO

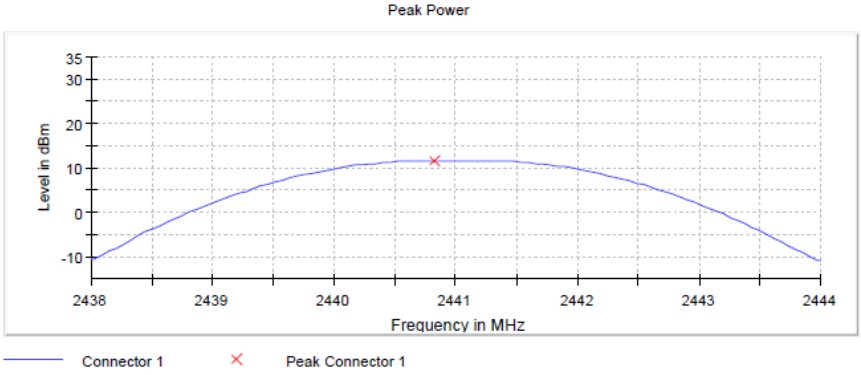
Band	Ch. No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]	Difference to initial JODY-W377 certification 1) [dB]
2.4 GHz ISM	3	2422	16.0	30.0	14.0	18.0	-0.2
	6	2437	16.0	30.0	14.0	18.0	-0.1
	9	2452	14.4	30.0	15.6	16.4	0.5

Remark: **1)** Positive Difference = lower value than in original certification, negative value = higher value than in original certification.
g mode mid channel tested at higher power setting 18 (original certification setting) for comparison purposes.
Please see next sub-clause for the measurement plot. No plots are given for WLAN (power meter measurement).

5.1.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement method = conducted
(S01_AA01)

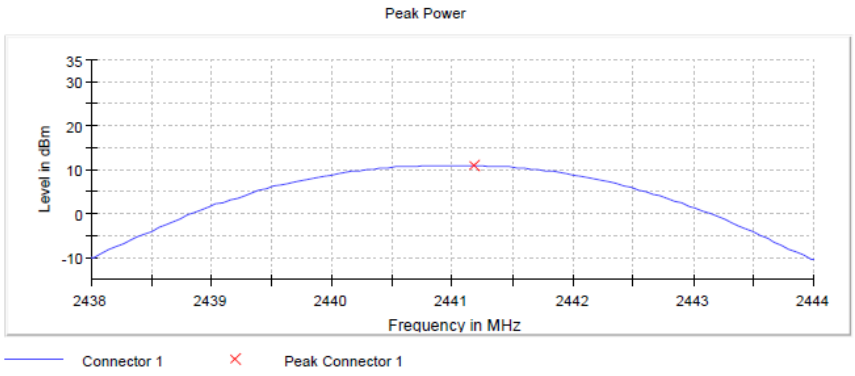
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2441.000000	11.7	21.0	PASS



Setting	Instrument Value
Start Frequency	2.43800 GHz
Stop Frequency	2.44400 GHz
Span	6.000 MHz
RBW	2.000 MHz
VBW	10.000 MHz
SweepPoints	101
Sweeptime	1.000 ms
Reference Level	20.000 dBm
Attenuation	30.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	4 / max. 150
Stable	3 / 3
Max Stable Difference	0.02 dB

Radio Technology = Bluetooth EDR 2, Operating Frequency = mid, Measurement method = conducted
(S01_AA01)

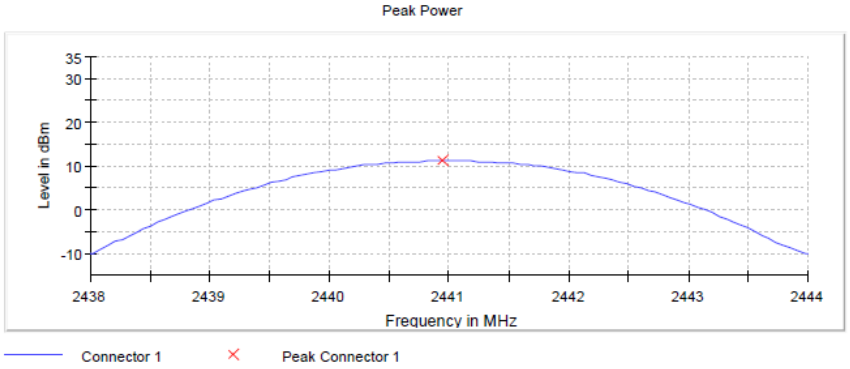
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2441.000000	10.9	21.0	PASS



Setting	Instrument Value
Start Frequency	2.43800 GHz
Stop Frequency	2.44400 GHz
Span	6.000 MHz
RBW	2.000 MHz
VBW	10.000 MHz
SweepPoints	101
Sweeptime	1.000 ms
Reference Level	20.000 dBm
Attenuation	30.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	4 / max. 150
Stable	3 / 3
Max Stable Difference	0.09 dB

Radio Technology = Bluetooth EDR 3, Operating Frequency = mid, Measurement method = conducted
(S01_AA01)

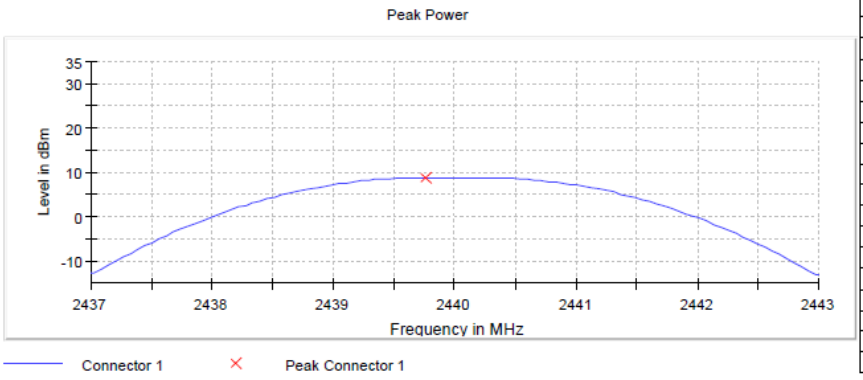
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2441.000000	11.2	21.0	PASS



Setting	Instrument Value
Start Frequency	2.43800 GHz
Stop Frequency	2.44400 GHz
Span	6.000 MHz
RBW	2.000 MHz
VBW	10.000 MHz
SweepPoints	101
Sweeptime	1.000 ms
Reference Level	20.000 dBm
Attenuation	30.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	4 / max. 150
Stable	3 / 3
Max Stable Difference	0.15 dB

Radio Technology = Bluetooth LE 1 Mbps, Operating Frequency = mid, Measurement method = conducted
(S01_AA01)

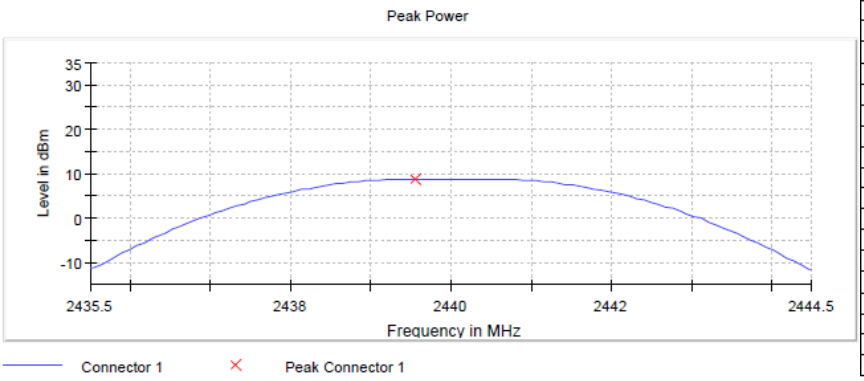
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2440.000000	8.7	30.0	PASS



Setting	Instrument Value
Start Frequency	2.43700 GHz
Stop Frequency	2.44300 GHz
Span	6.000 MHz
RBW	2.000 MHz
VBW	10.000 MHz
SweepPoints	101
Sweeptime	1.000 ms
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	4 / max. 150
Stable	3 / 3
Max Stable Difference	0.01 dB

Radio Technology = Bluetooth LE 2 Mbps, Operating Frequency = mid, Measurement method = conducted
(S01_AA01)

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2440.000000	8.7	30.0	PASS



Setting	Instrument Value
Start Frequency	2.43550 GHz
Stop Frequency	2.44450 GHz
Span	9.000 MHz
RBW	3.000 MHz
VBW	10.000 MHz
SweepPoints	101
Sweeptime	1.000 ms
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	4 / max. 150
Stable	3 / 3
Max Stable Difference	0.01 dB

5.1.5 TEST EQUIPMENT USED

- R&S TS8997

5.2 TRANSMITTER SPURIOUS RADIATED EMISSIONS

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 6.4, 6.5, 6.6.5

5.2.1 TEST DESCRIPTION

Radiated Measurement with 50 Ohm termination at antenna ports

The test set-up was made in accordance to the general provisions of ANSI C63.10 in a typical installation configuration. The measurements were performed according the following sub-chapters of ANSI C63.10:

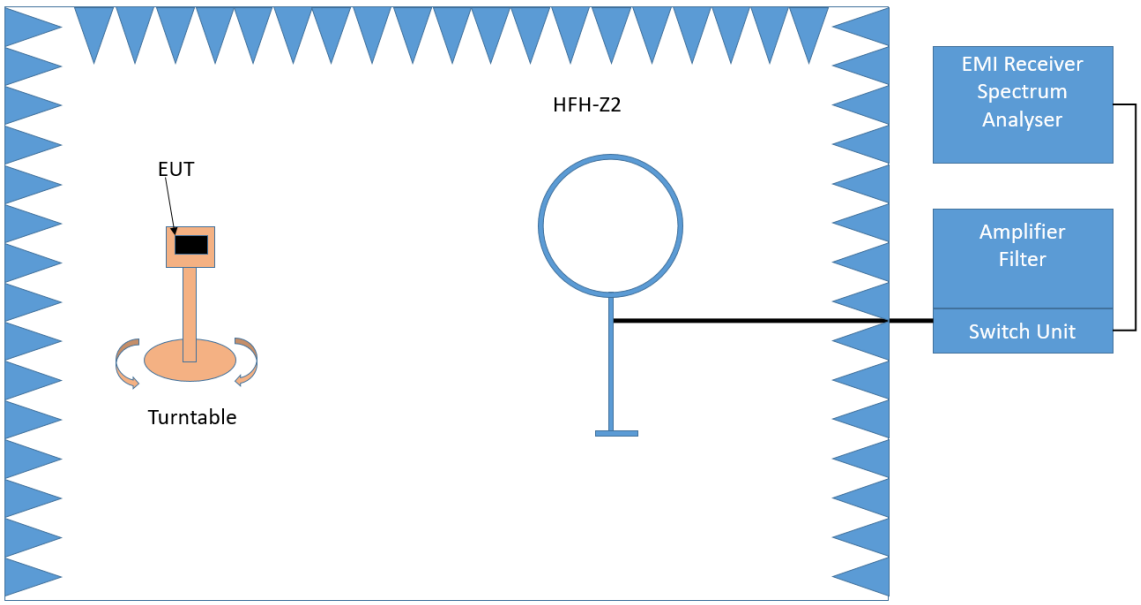
- < 30 MHz: Chapter 6.4
- 30 MHz – 1 GHz: Chapter 6.5
- > 1 GHZ: Chapter 6.6 (procedure according 6.6.5 used)

The measurement procedure is implemented into the EMI test software EMC32 from R&S. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered.

Below 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

1. Measurement up to 30 MHz



Test Setup; Spurious Emission Radiated (SAC), 9 kHz – 30 MHz

The Loop antenna HFH2-Z2 is used.

Step 1: pre measurement

- Anechoic chamber
- Antenna distance: 3 m
- Antenna height: 1 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 - 0.15 MHz and 0.15 – 30 MHz
- Frequency steps: 0.05 kHz and 2.25 kHz
- IF–Bandwidth: 0.2 kHz and 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)

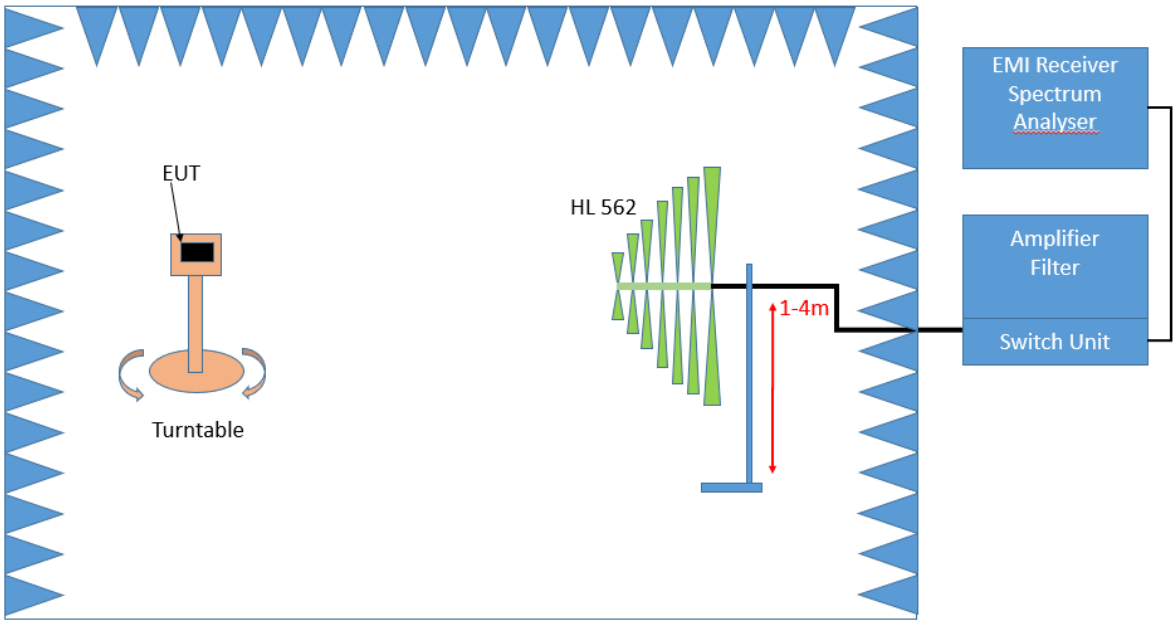
Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: final measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is to find the maximum emission level.

- Detector: Quasi-Peak (9 kHz – 150 kHz, Peak / Average 150 kHz- 30 MHz)
- Frequency range: 0.009 – 30 MHz
- Frequency steps: measurement at frequencies detected in step 1
- IF–Bandwidth: 0.2 - 10 kHz
- Measuring time / Frequency step: 1 s

2. Measurement above 30 MHz and up to 1 GHz



Test Setup; Spurious Emission Radiated (SAC), 30 MHz- 1GHz

Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit.
Settings for step 1:
- Antenna distance: 3 m
- Detector: Peak-Maxhold / Quasipeak (FFT-based)
- Frequency range: 30 – 1000 MHz
- Frequency steps: 30 kHz
- IF–Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms

- Turntable angle range: –180° to 90°
- Turntable step size: 90°
- Height variation range: 1 – 4 m
- Height variation step size: 1.5 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: Adjustment measurement

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by 360°. During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary between 1 – 4 meter. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range: 360 °
- Height variation range:1 – 4 m
- Antenna Polarisation: max. value determined in step 1

Step 3: Final measurement with QP detector

With the settings determined in step 2, the final measurement will be performed:

EMI receiver settings for step 3:

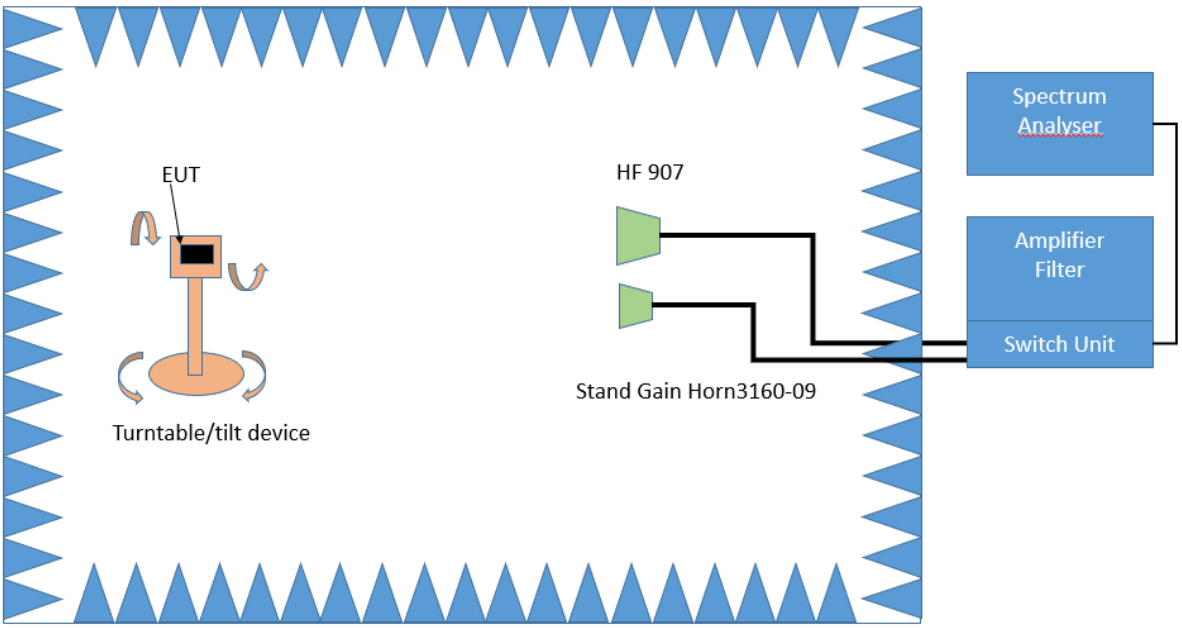
- Detector: Quasi-Peak (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

Above 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.
All steps were performed with one height (1.5 m) of the receiving antenna only.

3. Measurement above 1 GHz



Test Setup; Spurious Emission Radiated (FAC), 1 GHz-26.5 GHz

Step 1:
The EUT is turned during the preliminary measurement across the elevation axis, with a step size of 90 °.
The turn table step size (azimuth angle) for the preliminary measurement is 45 °.
Spectrum analyser settings:
- Detector: Peak, Average
- RBW = 1 MHz
- VBW = 3 MHz

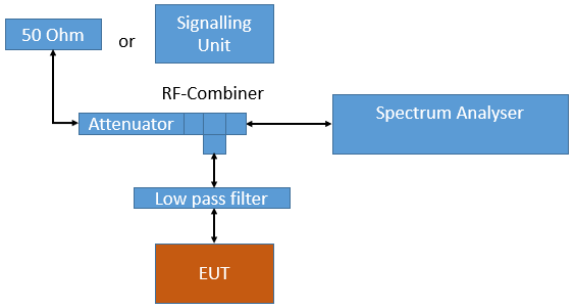
Step 2:
The turn table azimuth will slowly vary by ± 22.5°.
The elevation angle will slowly vary by ± 45°
Spectrum analyser settings:
- Detector: Peak

Step 3:
Spectrum analyser settings for step 3:
- Detector: Peak / CISPR Average
- Measured frequencies: in step 1 determined frequencies
- RBW = 1 MHz
- VBW = 3 MHz
- Measuring time: 1 s

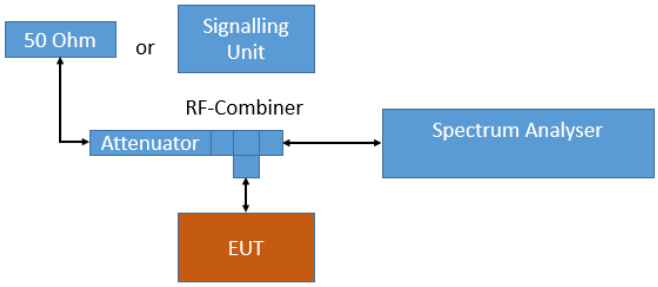
Conducted Measurements at antenna ports

The Equipment Under Test (EUT) was set up to perform the spurious emissions measurements.

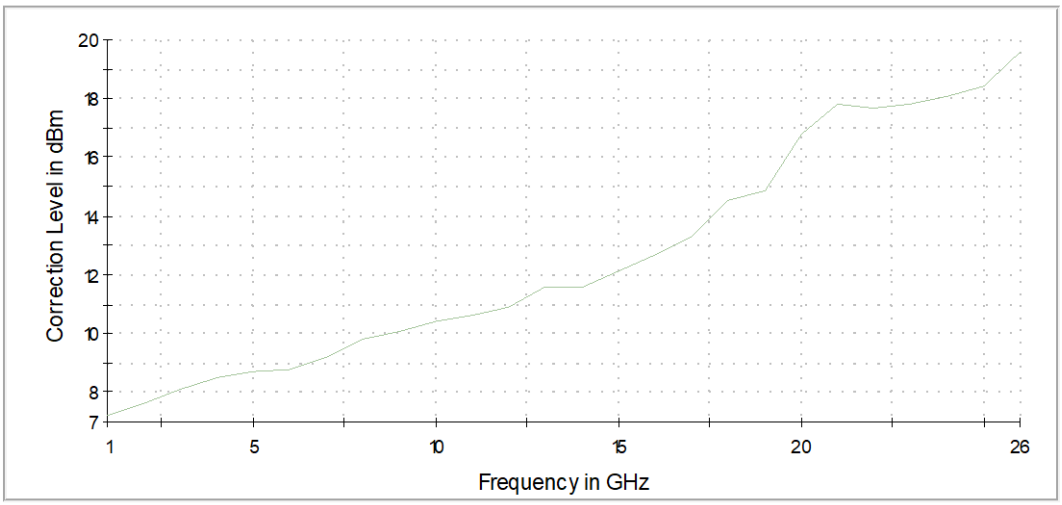
The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.



Measurement <1GHz



Measurement >1GHz



Analyser settings:

- Frequency range: 0.009 – 30 MHz
- Resolution Bandwidth (RBW): 10 kHz
- Video Bandwidth (VBW): 30 kHz
- Trace: Maxhold
- Sweeps: till stable
- Sweep Time: coupled
- Detector: Peak

- Frequency range: 30 – 1000 MHz
- Resolution Bandwidth (RBW): 100 kHz
- Video Bandwidth (VBW): 300 kHz
- Trace: Maxhold
- Sweeps: till stable
- Sweep Time: coupled
- Detector: Peak

- Frequency range: 1000 – 26000 MHz
- Resolution Bandwidth (RBW): 1000 kHz
- Video Bandwidth (VBW): 3000 kHz
- Trace: Maxhold, Average Power
- Sweeps: 500
- Sweep Time: coupled
- Detector: Peak, RMS

For the conducted emissions in restricted bands the Value is measured in dBm and then converted to dBµV/m as given in KDB 558074:

1. Measure the conducted output power in dBm.
2. Add the maximum antenna gain in dBi. (Included in measurement result by offset)
3. Add the appropriate ground reflection factor (included in measurement result by offset)
   6 dB for frequencies ≤ 30 MHz;
   4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and
   0 dB for frequencies > 1000 MHz).
4. Convert the resultant EIRP level to an equivalent electric field strength level using the following relationship:
   $E = EIRP - 20 \log D + 104.8$
   Where E is the electric field strength in dBµV/m,
   EIRP is the equivalent isotropically radiated power in dBm
   D is the specified measurement distance in m

Value [dBµV/m] = Measured value [dBm] (including gain and ground reflection factor) – 20 log D + 104.8

5.2.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart C, §15.247 (d)
... In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
0.009 – 0.49	2400/F(kHz)@300m	3	(48.5 – 13.8)@300m
0.49 – 1.705	24000/F(kHz)@30m	3	(33.8 – 23.0)@30m
1.705 – 30	30@30m	3	29.5@30m

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
30 – 88	100@3m	3	40.0@3m
88 – 216	150@3m	3	43.5@3m
216 – 960	200@3m	3	46.0@3m
960 - 26000	500@3m	3	54.0@3m
26000 - 40000	500@3m	1	54.0@3m

The measured values above 26 GHz are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor: Limit (dBµV/m) = 20 log (Limit (µV/m)/1µV/m)

5.2.3 TEST PROTOCOL

Ambient temperature: 23 - 30 °C
Air Pressure: 990 - 1017 hPa
Humidity: 34 - 40%
BT GFSK (1-DH5)
Applied duty cycle correction (AV): 0 dB

Measurement Method	**Ch. Center Freq. [MHz]**	**Spurious Freq. [MHz]**	**Spurious Level [dBµV/m]**	**Detec-tor**	**RBW [kHz]**	**Limit [dBµV/m]**	**Margin to Limit [dB]**	**Limit Type**
Radiated	2441	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2441	- - -	- - -	- - -	- - -	- - -	- - -	RB

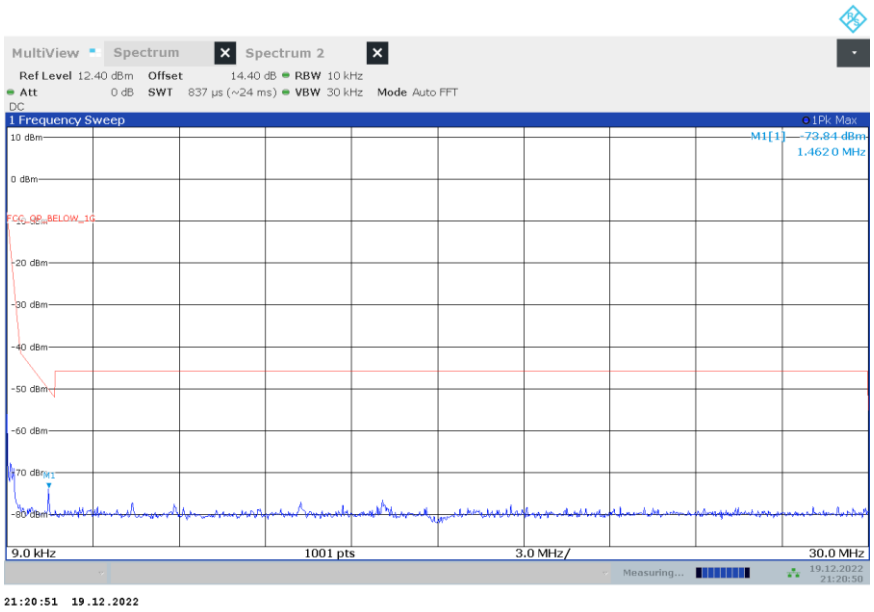
WLAN b-Mode; 20 MHz; 1 Mbit/s
Applied duty cycle correction (AV): 0 dB

Measurement Method	**Ch. Center Freq. [MHz]**	**Spurious Freq. [MHz]**	**Spurious Level [dBµV/m]**	**Detec-tor**	**RBW [kHz]**	**Limit [dBµV/m]**	**Margin to Limit [dB]**	**Limit Type**
Radiated	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB

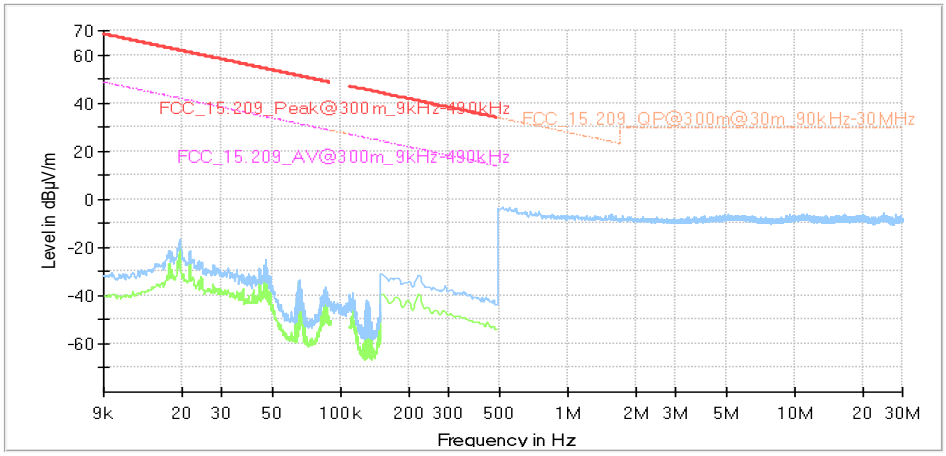
Remark: Please see next sub-clause for the measurement plot.

5.2.4 MEASUREMENT PLOT

Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S01_AA01)



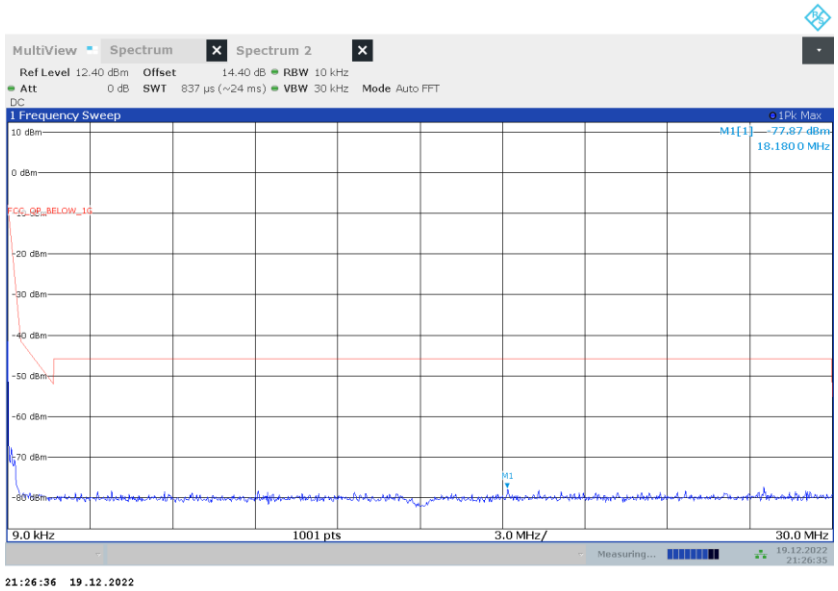
Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S02_AA01)



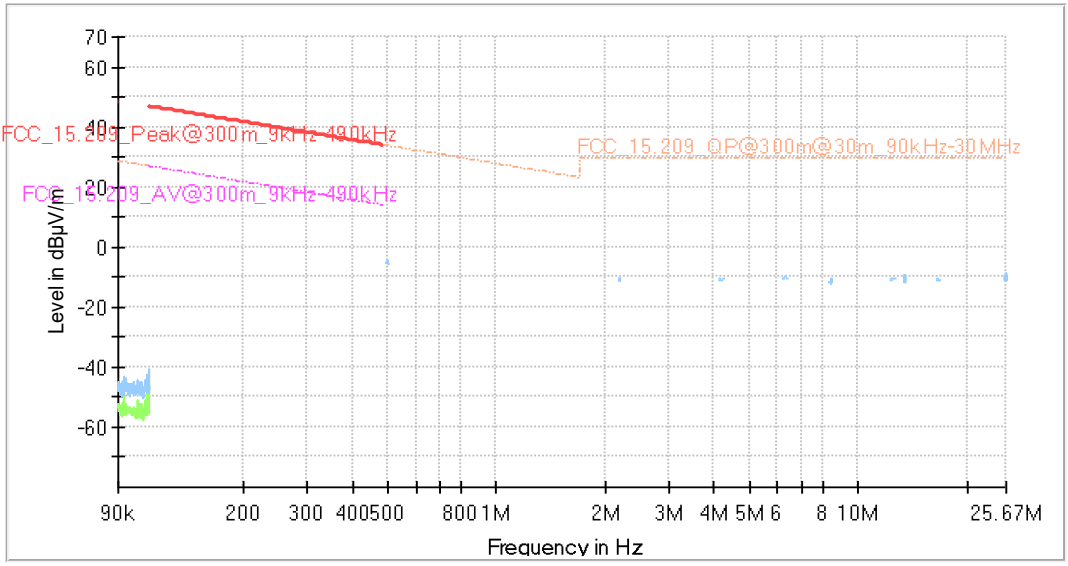
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S01_AA01)



Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S02_AA01)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
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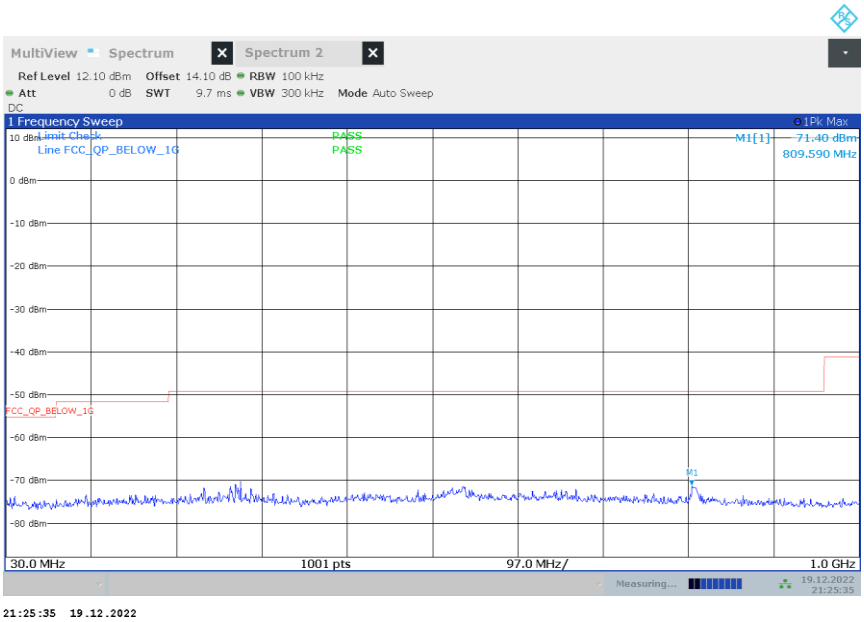
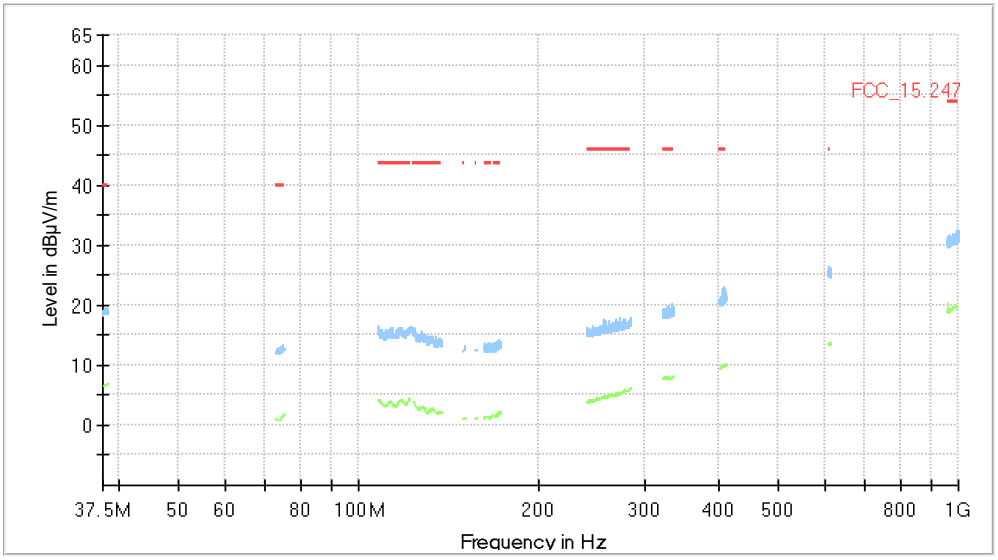
Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 30 MHz - 1 GHz
(S01_AA01)



Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 30 MHz - 1 GHz
(S02_AA01)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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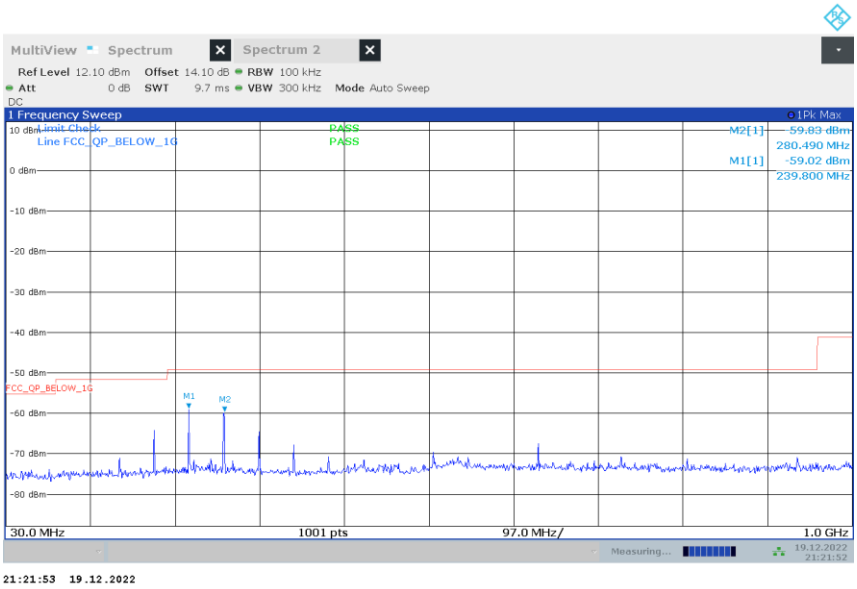
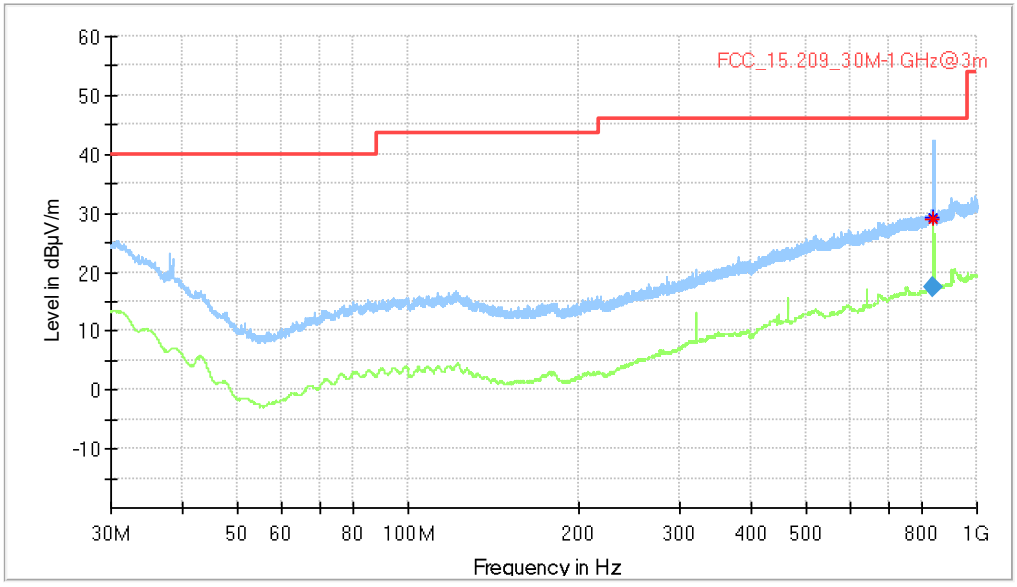
Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 30 MHz - 1 GHz
(S01_AA01)



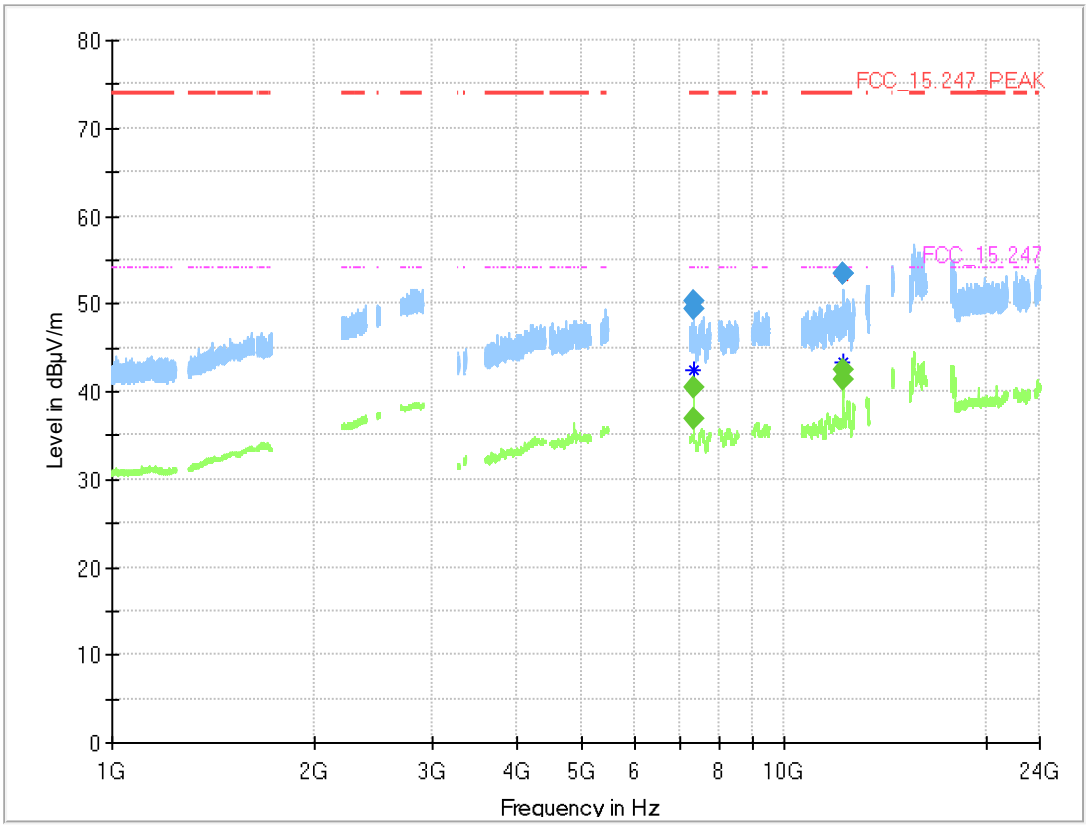
Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 30 MHz - 1 GHz
(S02_AA01)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
839.220000	17.53	46.00	28.47	1000.0	120.000	165.0	V	-167.0	24.9

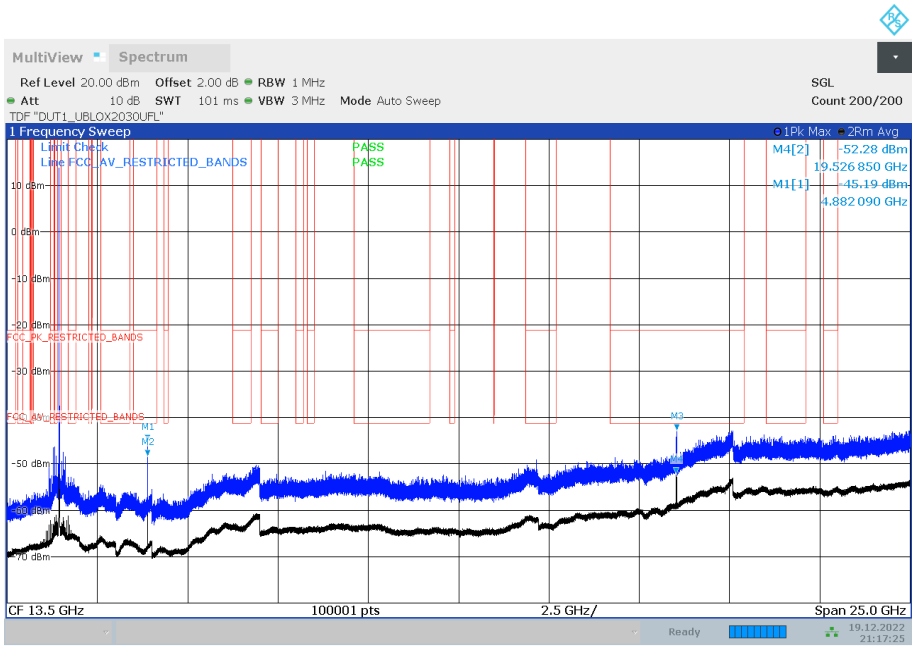
Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S02_AA01)



Final_Result

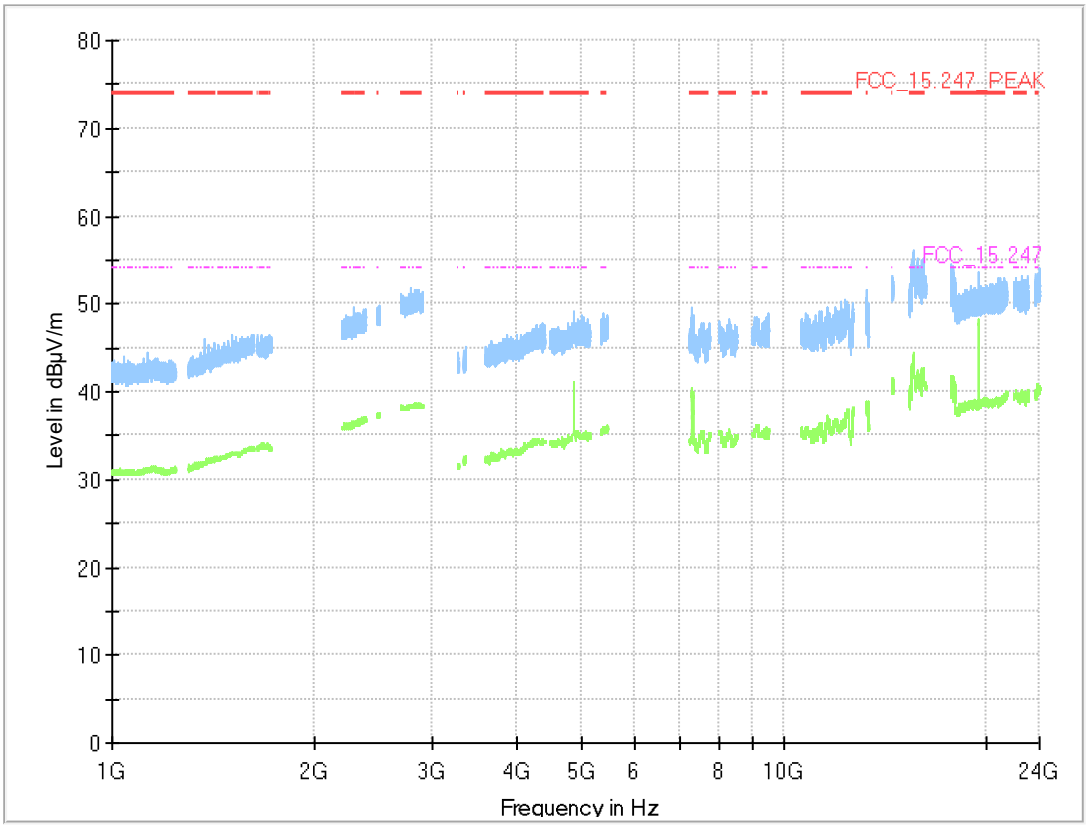
Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
7322.125	---	36.9	54.00	17.09	1000.0	1000.000	150.0	H	58.0	96.0	-13.2
7322.125	49.5	---	74.00	24.53	1000.0	1000.000	150.0	H	58.0	96.0	-13.2
7323.125	---	40.3	54.00	13.66	1000.0	1000.000	150.0	H	50.0	94.0	-13.2
7323.125	50.2	---	74.00	23.81	1000.0	1000.000	150.0	H	50.0	94.0	-13.2
12204.085	---	41.4	54.00	12.61	1000.0	1000.000	150.0	H	24.0	105.0	-8.0
12204.085	53.3	---	74.00	20.68	1000.0	1000.000	150.0	H	24.0	105.0	-8.0
12204.190	---	42.5	54.00	11.47	1000.0	1000.000	150.0	H	20.0	105.0	-8.0
12204.190	53.5	---	74.00	20.51	1000.0	1000.000	150.0	H	20.0	105.0	-8.0

Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AA01)



21:17:26 19.12.2022

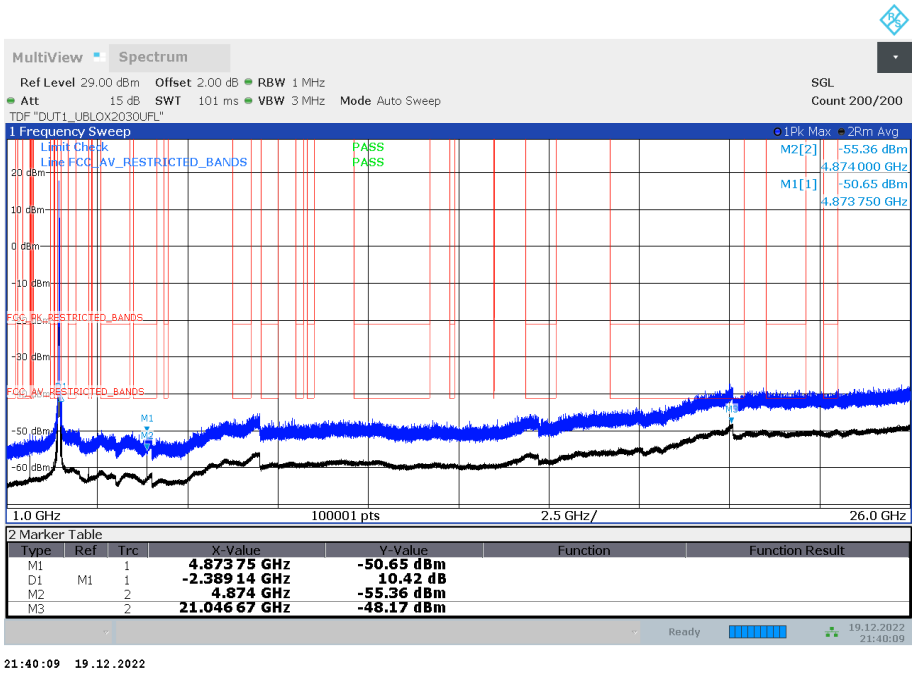
Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S02_AA01)



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---		---	---	---

Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AA01)



5.2.5 TEST EQUIPMENT USED

- Radiated Emissions FAR 2.4 GHz FCC
- Radiated Emissions SAC H-Field
- Radiated Emissions SAC up to 1 GHz
- R&S TS8997

5.3 BAND EDGE COMPLIANCE RADIATED

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 6.6.5

5.3.1 TEST DESCRIPTION

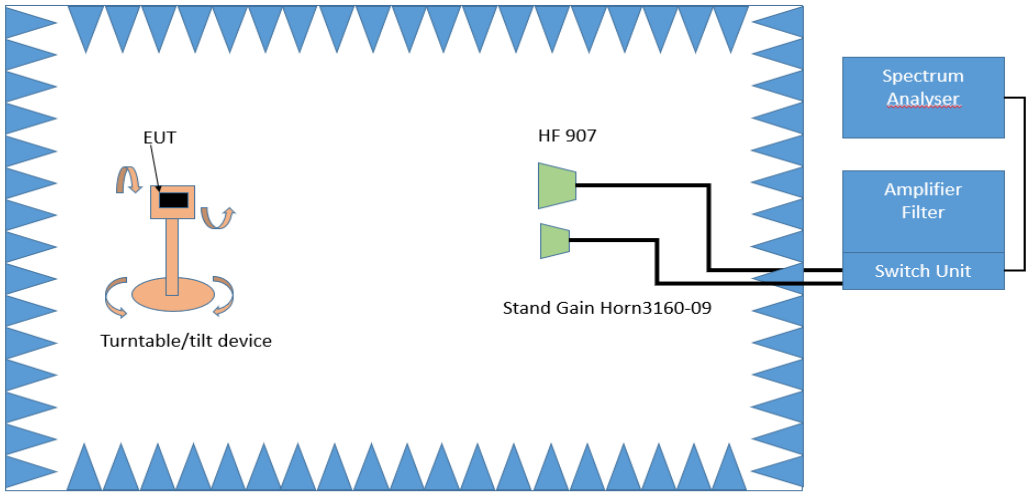
Radiated Measurement with 50 Ohm termination at antenna ports

The test set-up was made in accordance to the general provisions of ANSI C63.10 in a typical installation configuration. The measurements were performed according the following sub-chapter of ANSI C63.10:

- Chapter 6.10.5

The Equipment Under Test (EUT) was set up on a non-conductive support (tilt device) at 1.5 m height in the fully-anechoic chamber.
All steps were performed with one height (1.5 m) of the receiving antenna only (procedure according ANSI C63.10, chapter 6.6.5.

3. Measurement above 1 GHz



Test Setup; Spurious Emission Radiated (FAC), 1 GHz-26.5 GHz

Step 1:
The EUT is turned during the preliminary measurement across the elevation axis, with a step size of 90 °.
The turn table step size (azimuth angle) for the preliminary measurement is 45 °.
Spectrum analyser settings:
- Detector: Peak, Average
- RBW = 1 MHz
- VBW = 3 MHz

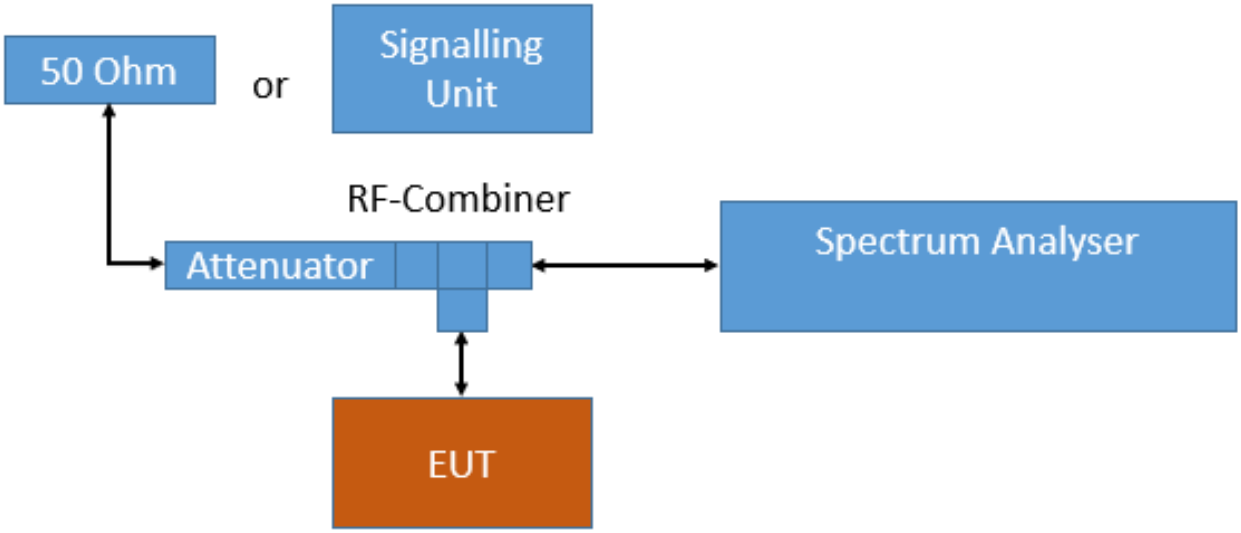
Step 2:
The turn table azimuth will slowly vary by ± 22.5°.
The elevation angle will slowly vary by ± 45°
Spectrum analyser settings:
- Detector: Peak

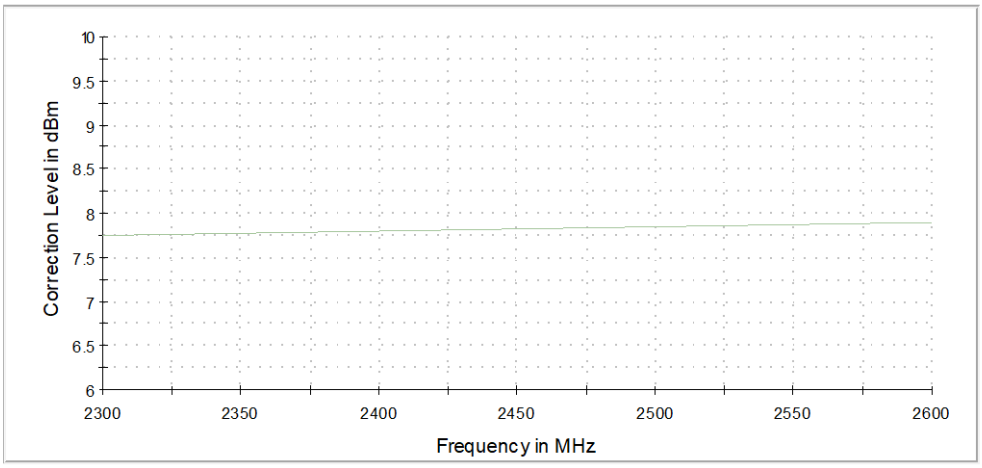
Step 3:
Spectrum analyser settings for step 3:
- Detector: Peak / CISPR Average
- Measured frequencies: in step 1 determined frequencies
- RBW = 1 MHz
- VBW = 3 MHz
- Measuring time: 1 s

Conducted Measurements at antenna ports

The Equipment Under Test (EUT) was set up to perform the spurious emissions measurements.

The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.





Analyser settings:

- Frequency range: 2350 – 2500 MHz
- Resolution Bandwidth (RBW): 1000 kHz
- Video Bandwidth (VBW): 3000 kHz
- Trace: Maxhold, Average Power
- Sweeps: 10000
- Sweep Time: coupled
- Detector: Peak, RMS

For the conducted emissions in restricted bands the Value is measured in dBm and then converted to dBµV/m as given in KDB 558074:

1. Measure the conducted output power in dBm.
2. Add the maximum antenna gain in dBi. (Included in measurement result by offset)
3. Add the appropriate ground reflection factor (0 for measured range)
   6 dB for frequencies ≤ 30 MHz;
   4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and
   0 dB for frequencies > 1000 MHz).
4. Convert the resultant EIRP level to an equivalent electric field strength level using the following relationship:
   E = EIRP – 20 log D + 104.8
   Where E is the electric field strength in dBµV/m,
   EIRP is the equivalent isotropically radiated power in dBm
   D is the specified measurement distance in m

Value [dBµV/m] = Measured value [dBm] (including gain and ground reflection factor) – 20 log D + 104.8

5.3.2 TEST REQUIREMENTS / LIMITS

For band edges connected to a restricted band, the limits are specified in Section 15.209(a)

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
0.009 – 0.49	2400/F(kHz)@300m	3	(48.5 – 13.8)@300m
0.49 – 1.705	24000/F(kHz)@30m	3	(33.8 – 23.0)@30m
1.705 – 30	30@30m	3	29.5@30m

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limits (dBµV/m)
30 – 88	100@3m	3	40.0@3m
88 – 216	150@3m	3	43.5@3m
216 – 960	200@3m	3	46.0@3m
960 - 26000	500@3m	3	54.0@3m
26000 - 40000	500@3m	1	54.0@3m

The measured values above 26 GHz are corrected with an inverse linear distance extrapolation factor (20 dB/decade).

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor: Limit (dBµV/m) = 20 log (Limit (µV/m)/1µV/m)

5.3.3 TEST PROTOCOL

Ambient temperature: 23 - 30 °C
Air Pressure: 990 - 1017 hPa
Humidity: 34 - 40%
BT GFSK (1-DH5)
Applied duty cycle correction (AV): 2.3 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Radiated	2480	2483.5	59.2	PEAK	1000	74.0	25.8
Radiated	2480	2483.5	37.0	AV	1000	54.0	19.2

BT 8-DPSK (3-DH5)
Applied duty cycle correction (AV): 2.3 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2402	2483.5	- - -	PEAK	1000	74.0	- - -
Conducted	2402	2483.5	- - -	AV	1000	54.0	- - -
Conducted	2480	2483.5	57.8	PEAK	1000	74.0	16.2
Conducted	2480	2483.5	45.1	AV	1000	54.0	8.9

WLAN b-Mode; 20 MHz; 1 Mbit/s
Applied duty cycle correction (AV): 0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Radiated	2462	2483.5	48.2	PEAK	1000	74.0	25.8
Radiated	2462	2483.5	34.7	AV	1000	54.0	19.3
Conducted	2412	2483.5	58.6	PEAK	1000	74.0	15.4
Conducted	2412	2483.5	51.8	AV	1000	54.0	2.2
Conducted	2417	2483.5	58.3	PEAK	1000	74.0	15.7
Conducted	2417	2483.5	51.3	AV	1000	54.0	2.7
Conducted	2457	2483.5	59.1	PEAK	1000	74.0	14.9
Conducted	2457	2483.5	51.3	AV	1000	54.0	2.7
Conducted	2462	2483.5	55.6	PEAK	1000	74.0	18.5
Conducted	2462	2483.5	49.1	AV	1000	54.0	4.9

WLAN g-Mode; 20 MHz; 6 Mbit/s
Applied duty cycle correction (AV): 0.1 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2412	2483.5	71.2	PEAK	1000	74.0	2.8
Conducted	2412	2483.5	50.6	AV	1000	54.0	3.4
Conducted	2417	2483.5	70.5	PEAK	1000	74.0	3.5
Conducted	2417	2483.5	51.4	AV	1000	54.0	2.6
Conducted	2422	2483.5	73.1	PEAK	1000	74.0	0.9
Conducted	2422	2483.5	53.1	AV	1000	54.0	0.9
Conducted	2427	2483.5	69.2	PEAK	1000	74.0	4.8
Conducted	2427	2483.5	51.9	AV	1000	54.0	2.1
Conducted	2447	2483.5	66.1	PEAK	1000	74.0	7.9
Conducted	2447	2483.5	51.1	AV	1000	54.0	2.9
Conducted	2452	2483.5	69.0	PEAK	1000	74.0	5.0
Conducted	2452	2483.5	53.3	AV	1000	54.0	0.7
Conducted	2457	2483.5	67.9	PEAK	1000	74.0	6.1
Conducted	2457	2483.5	51.6	AV	1000	54.0	2.5
Conducted	2462	2483.5	66.3	PEAK	1000	74.0	7.7
Conducted	2462	2483.5	48.6	AV	1000	54.0	5.4

WLAN n-Mode; 20 MHz; MCS0
Applied duty cycle correction (AV): 0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2412	2483.5	71.2	PEAK	1000	74.0	2.8
Conducted	2412	2483.5	50.1	AV	1000	54.0	3.9
Conducted	2417	2483.5	72.8	PEAK	1000	74.0	1.2
Conducted	2417	2483.5	53.2	AV	1000	54.0	0.8
Conducted	2422	2483.5	72.2	PEAK	1000	74.0	1.8
Conducted	2422	2483.5	53.1	AV	1000	54.0	0.9
Conducted	2427	2483.5	65.5	PEAK	1000	74.0	8.6
Conducted	2427	2483.5	52.5	AV	1000	54.0	1.6
Conducted	2447	2483.5	64.6	PEAK	1000	74.0	9.4
Conducted	2447	2483.5	51.0	AV	1000	54.0	3.0
Conducted	2452	2483.5	71.2	PEAK	1000	74.0	2.8
Conducted	2452	2483.5	52.0	AV	1000	54.0	2.0
Conducted	2457	2483.5	68.4	PEAK	1000	74.0	5.7
Conducted	2457	2483.5	49.3	AV	1000	54.0	4.7
Conducted	2462	2483.5	46.4	PEAK	1000	74.0	27.6
Conducted	2462	2483.5	36.7	AV	1000	54.0	17.3

WLAN n-Mode; 40 MHz; MCS0
Applied duty cycle correction (AV): 0.1 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2422	2483.5	70.2	PEAK	1000	74.0	3.8
Conducted	2422	2483.5	49.3	AV	1000	54.0	4.7
Conducted	2447	2483.5	68.8	PEAK	1000	74.0	5.2
Conducted	2447	2483.5	52.3	AV	1000	54.0	1.7
Conducted	2452	2483.5	67.7	PEAK	1000	74.0	6.3
Conducted	2452	2483.5	51.4	AV	1000	54.0	2.6

WLAN ax-Mode; 20 MHz; MCS0
Applied duty cycle correction (AV): 0.0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2412	2390.0	60.4	PEAK	1000	74.0	13.6
Conducted	2412	2390.0	49.3	AV	1000	54.0	4.7
Conducted	2417	2390.0	68.9	PEAK	1000	74.0	5.1
Conducted	2417	2390.0	53.9	AV	1000	54.0	0.1
Conducted	2422	2390.0	63.0	PEAK	1000	74.0	11.0
Conducted	2422	2390.0	50.3	AV	1000	54.0	3.8
Conducted	2427	2390.0	64.8	PEAK	1000	74.0	9.2
Conducted	2427	2390.0	51.6	AV	1000	54.0	2.4
Conducted	2432	2390.0	65.4	PEAK	1000	74.0	8.6
Conducted	2432	2390.0	51.8	AV	1000	54.0	2.2
Conducted	2447	2483.5	64.1	PEAK	1000	74.0	9.9
Conducted	2447	2483.5	52.1	AV	1000	54.0	1.9
Conducted	2452	2483.5	63.7	PEAK	1000	74.0	10.3
Conducted	2452	2483.5	52.0	AV	1000	54.0	2.0
Conducted	2457	2483.5	67.8	PEAK	1000	74.0	6.2
Conducted	2457	2483.5	50.7	AV	1000	54.0	3.3
Conducted	2462	2483.5	62.2	PEAK	1000	74.0	11.9
Conducted	2462	2483.5	47.3	AV	1000	54.0	6.7

WLAN ax-Mode; 40 MHz; MCS0
Applied duty cycle correction (AV): 0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2422	2483.5	58.7	PEAK	1000	74.0	15.3
Conducted	2422	2483.5	49.2	AV	1000	54.0	4.8
Conducted	2437	2483.5	70.9	PEAK	1000	74.0	3.1
Conducted	2437	2483.5	49.9	AV	1000	54.0	4.2
Conducted	2452	2483.5	52.1	PEAK	1000	74.0	22.0
Conducted	2452	2483.5	44.1	AV	1000	54.0	9.9

WLAN n-Mode; 20 MHz; MCS0; MIMO
Applied duty cycle correction (AV): 0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2412	2483.5	63.3	PEAK	1000	74.0	10.7
Conducted	2412	2483.5	50.7	AV	1000	54.0	3.3
Conducted	2417	2483.5	68.8	PEAK	1000	74.0	5.2
Conducted	2417	2483.5	52.1	AV	1000	54.0	1.9
Conducted	2422	2483.5	63.6	PEAK	1000	74.0	10.4
Conducted	2422	2483.5	51.8	AV	1000	54.0	2.2
Conducted	2452	2483.5	66.1	PEAK	1000	74.0	7.9
Conducted	2452	2483.5	51.2	AV	1000	54.0	2.8
Conducted	2457	2483.5	66.2	PEAK	1000	74.0	7.8
Conducted	2457	2483.5	49.5	AV	1000	54.0	4.5
Conducted	2462	2483.5	60.2	PEAK	1000	74.0	13.8
Conducted	2462	2483.5	49.6	AV	1000	54.0	4.4

WLAN n-Mode; 40 MHz; MCS0; MIMO
Applied duty cycle correction (AV): 0.0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2422	2483.5	59.5	PEAK	1000	74.0	14.5
Conducted	2422	2483.5	50.7	AV	1000	54.0	3.3
Conducted	2447	2483.5	67.9	PEAK	1000	74.0	6.1
Conducted	2447	2483.5	53.4	AV	1000	54.0	0.6
Conducted	2452	2483.5	62.5	PEAK	1000	74.0	11.5
Conducted	2452	2483.5	51.9	AV	1000	54.0	2.1

WLAN ax-Mode; 20 MHz; MCS0; MIMO
Applied duty cycle correction (AV): 0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2412	2483.5	64.7	PEAK	1000	74.0	9.3
Conducted	2412	2483.5	50.6	AV	1000	54.0	3.4
Conducted	2417	2483.5	67.2	PEAK	1000	74.0	6.8
Conducted	2417	2483.5	51.0	AV	1000	54.0	3.0
Conducted	2422	2483.5	66.4	PEAK	1000	74.0	7.6
Conducted	2422	2483.5	50.9	AV	1000	54.0	3.1
Conducted	2427	2483.5	67.0	PEAK	1000	74.0	7.0
Conducted	2427	2483.5	51.6	AV	1000	54.0	2.4
Conducted	2432	2483.5	67.8	PEAK	1000	74.0	6.2
Conducted	2432	2483.5	51.5	AV	1000	54.0	2.5
Conducted	2447	2483.5	67.0	PEAK	1000	74.0	7.0
Conducted	2447	2483.5	52.7	AV	1000	54.0	1.3
Conducted	2452	2483.5	64.8	PEAK	1000	74.0	9.2
Conducted	2452	2483.5	50.5	AV	1000	54.0	3.5
Conducted	2457	2483.5	68.1	PEAK	1000	74.0	5.9
Conducted	2457	2483.5	51.5	AV	1000	54.0	2.5
Conducted	2462	2483.5	58.4	PEAK	1000	74.0	15.6
Conducted	2462	2483.5	48.8	AV	1000	54.0	5.2

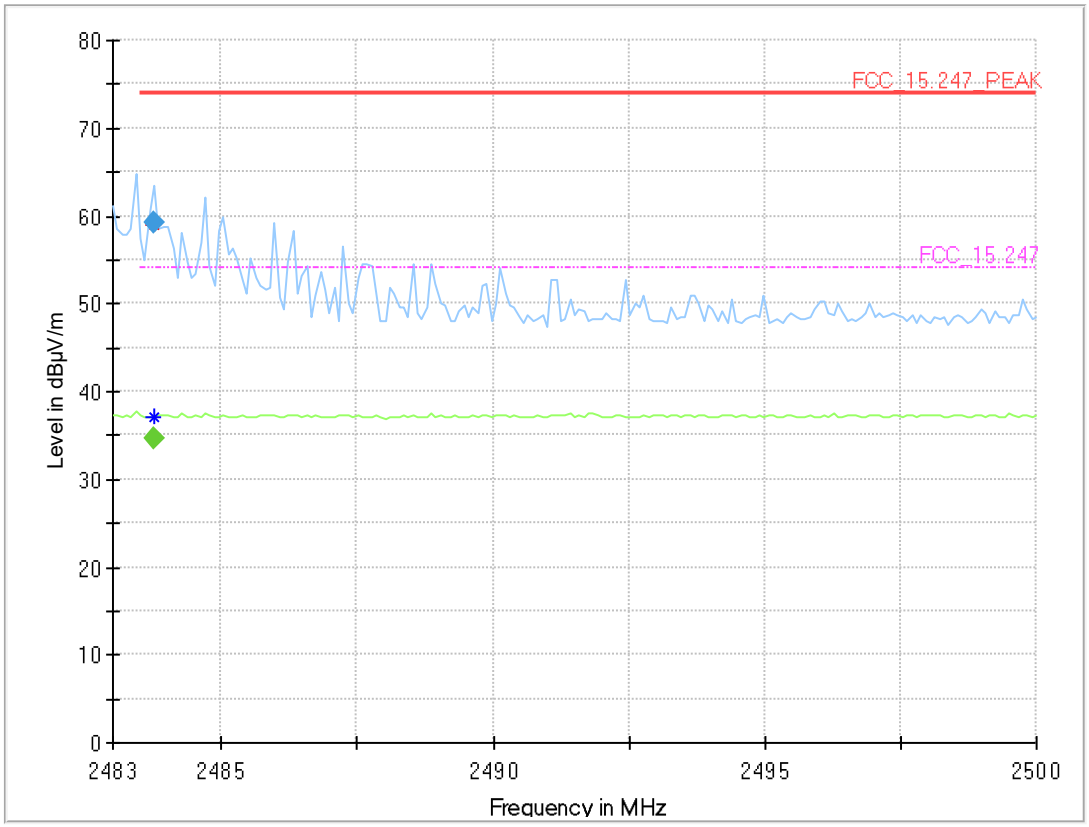
WLAN ax-Mode; 40 MHz; MCS0; MIMO
Applied duty cycle correction (AV): 0.0 dB

Test Method	Ch. Center Freq. [MHz]	Band Edge Freq. [MHz]	Spurious Level [dBµV/m]	Detec-tor	RBW [kHz]	Limit [dBµV/m]	Margin to Limit [dB]
Conducted	2422	2483.5	60.1	PEAK	1000	74.0	13.9
Conducted	2422	2483.5	50.5	AV	1000	54.0	3.5
Conducted	2437	2483.5	63.7	PEAK	1000	74.0	10.3
Conducted	2437	2483.5	51.1	AV	1000	54.0	2.9
Conducted	2452	2483.5	66.1	PEAK	1000	74.0	7.9
Conducted	2452	2483.5	50.2	AV	1000	54.0	3.8

Remark: Please see next sub-clause for the measurement plot.

5.3.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

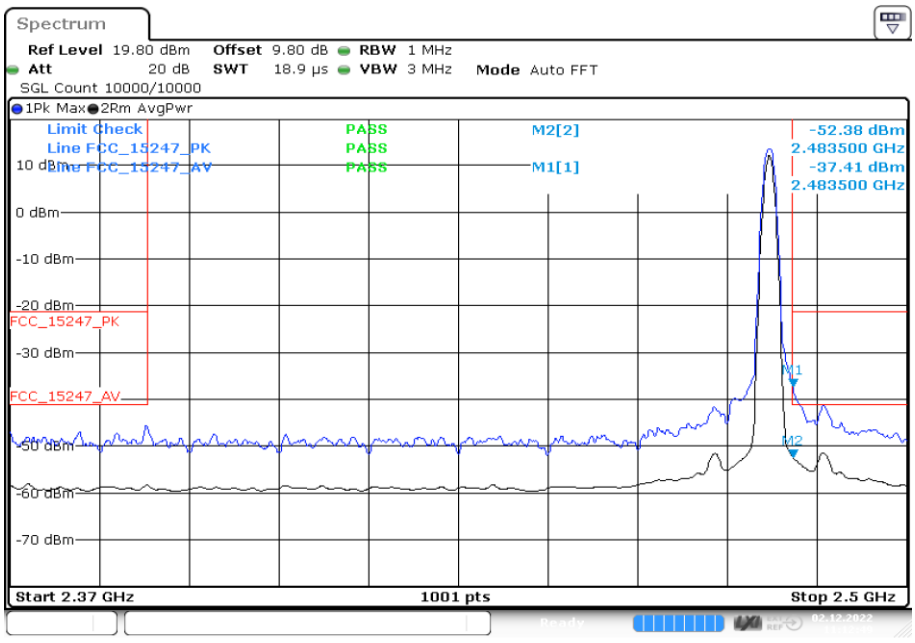
Radio Technology = Bluetooth BDR, Operating Frequency = high, Band Edge = high (S02_AA01)



Final_Result

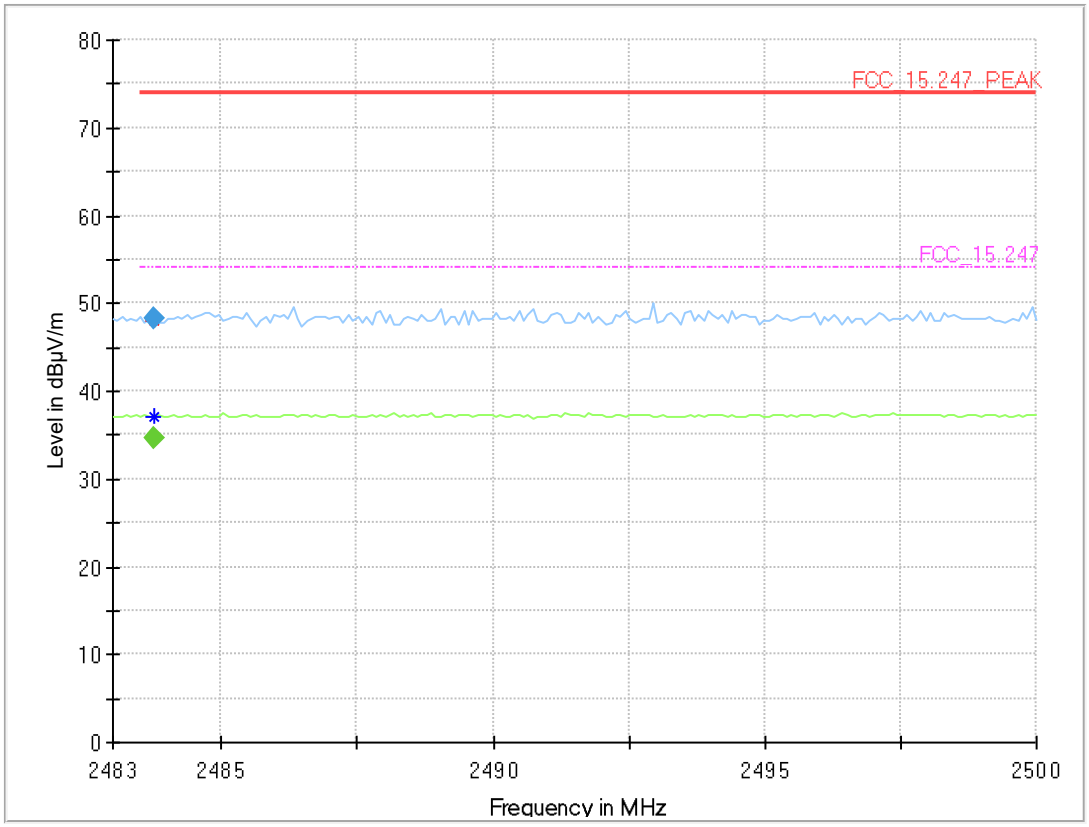
Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
2483.765	---	34.7	54.00	19.25	1000.0	1000.000	150.0	H	-178.0	79.0	5.3
2483.765	59.2	---	74.00	14.77	1000.0	1000.000	150.0	H	-178.0	79.0	5.3

Radio Technology = Bluetooth EDR 3, Operating Frequency = high, Band Edge = high (S01_AA01)



Date: 2.DEC.2022 11:12:50

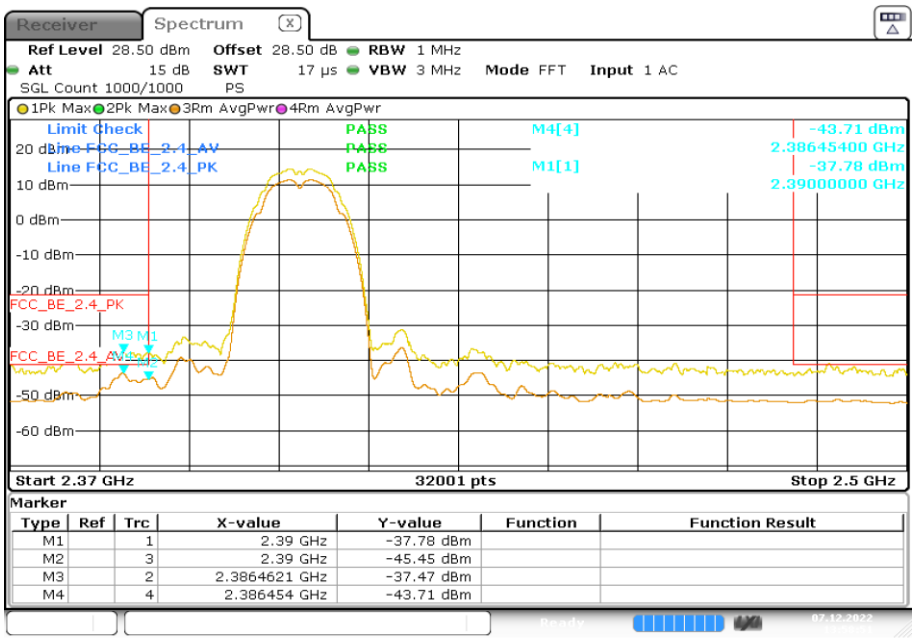
Radio Technology = WLAN b, Operating Frequency = high, Band Edge = high (S02_AA01)



Final_Result

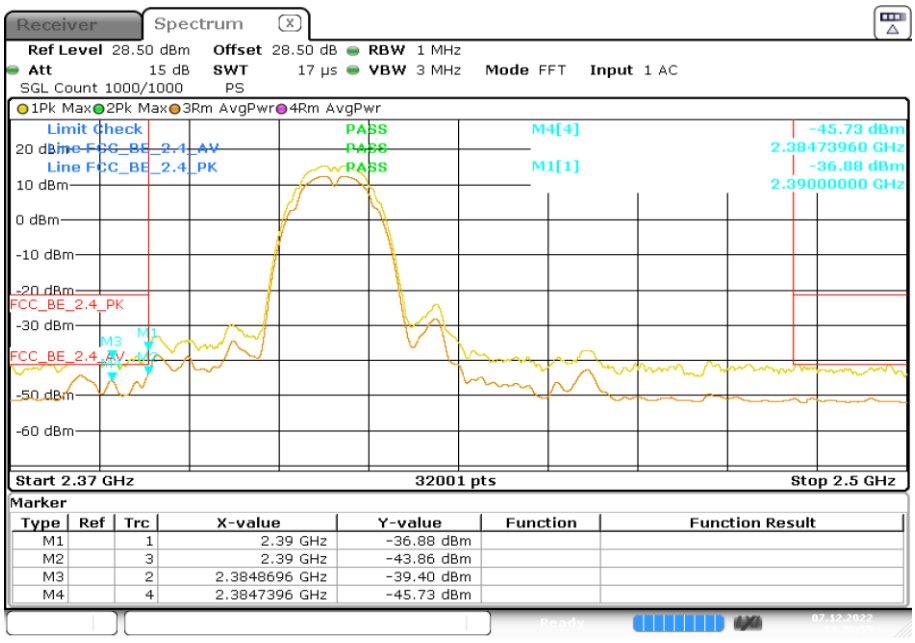
Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
2483.765	---	34.7	54.00	19.30	1000.0	1000.000	150.0	V	41.0	105.0	5.3
2483.765	48.2	---	74.00	25.83	1000.0	1000.000	150.0	V	41.0	105.0	5.3

Radio Technology = WLAN b, Operating Frequency = high, Band Edge = high (S01_AA01)



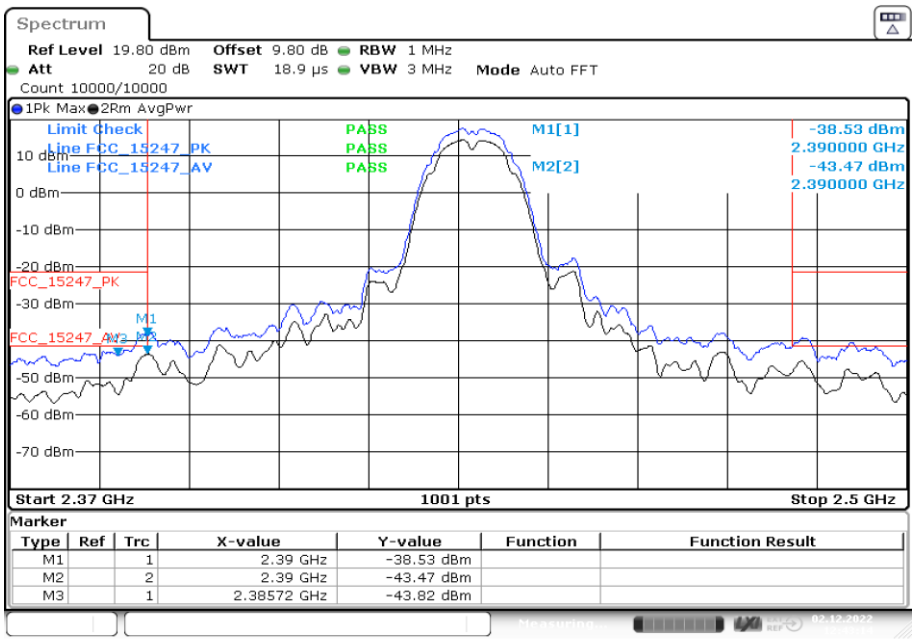
Date: 7.DEC.2022 13:58:52

WLAN TX on CH. 1



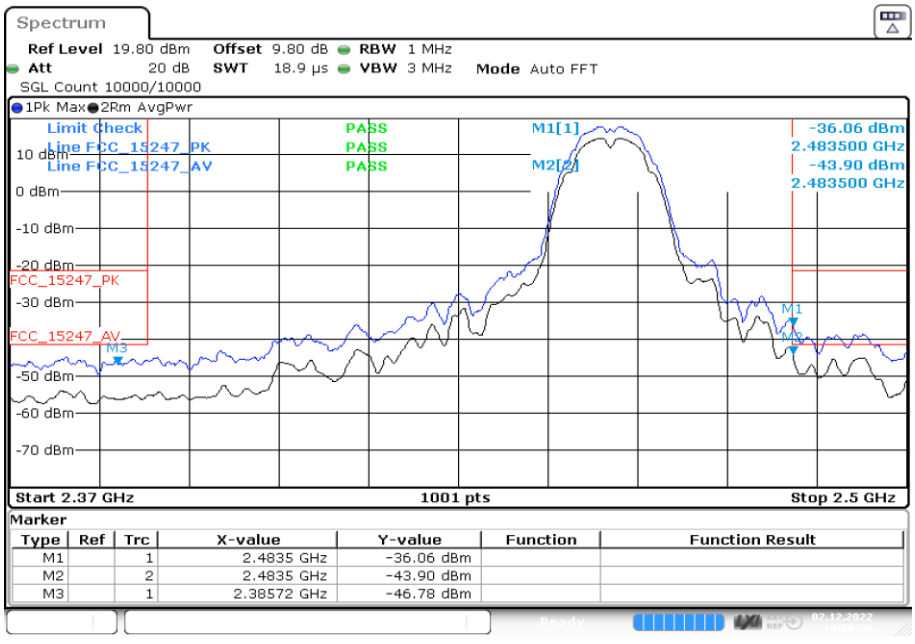
Date: 7.DEC.2022 14:20:59

WLAN TX on CH. 2



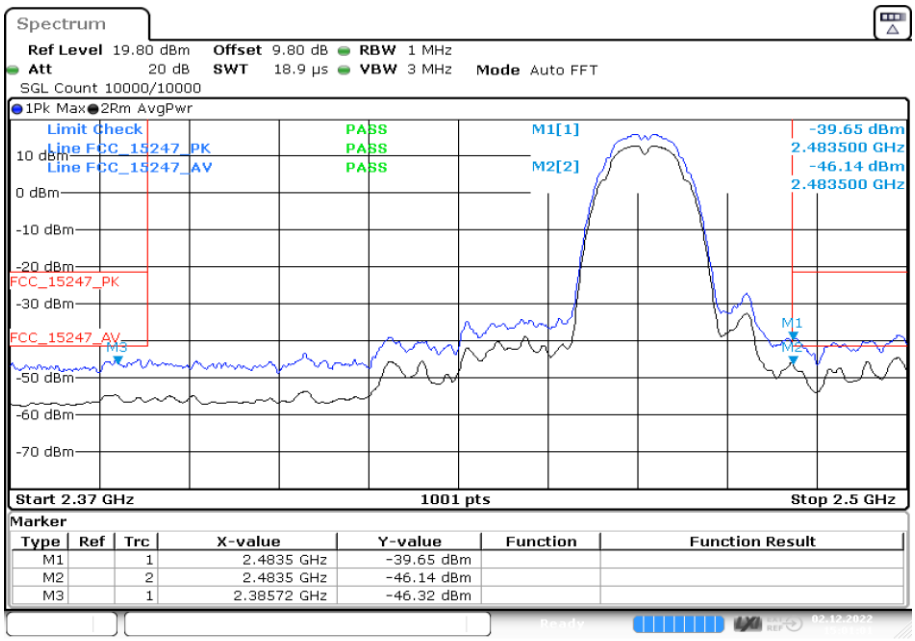
Date: 2.DEC.2022 12:43:14

WLAN TX on CH. 6



Date: 2.DEC.2022 14:56:19

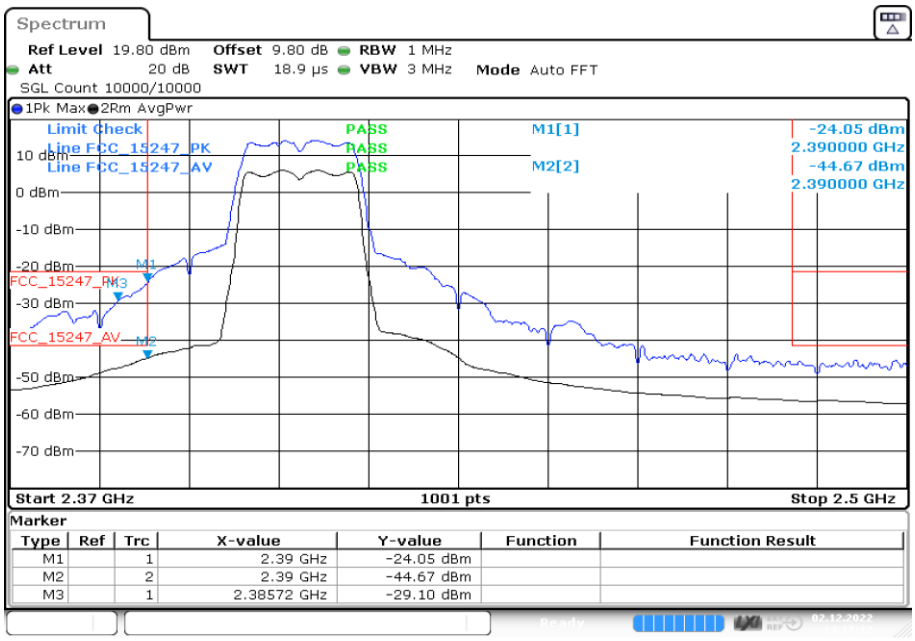
WLAN TX on CH. 10



Date: 2.DEC.2022 15:01:02

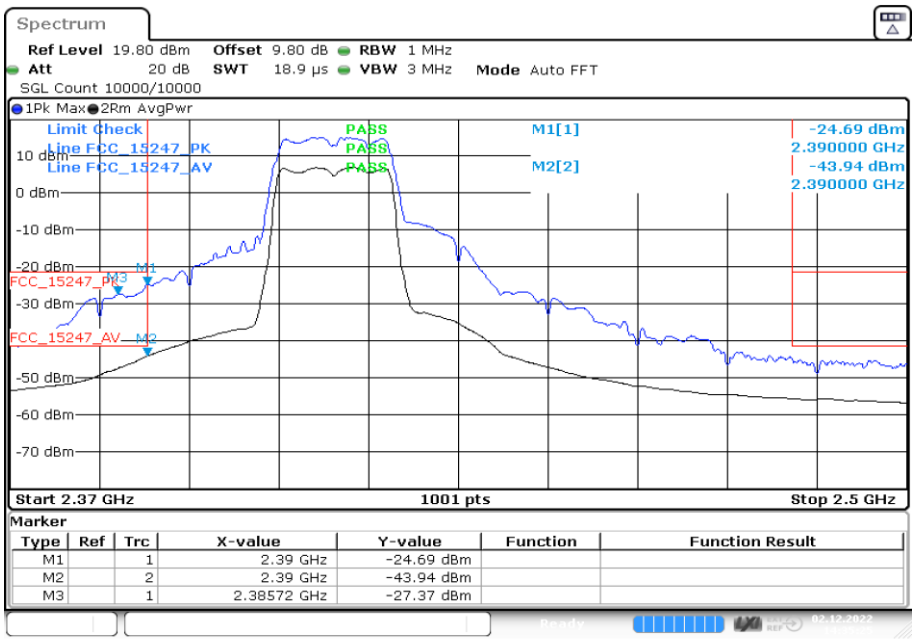
WLAN TX on CH. 11

Radio Technology = WLAN g, Operating Frequency = high, Band Edge = high (S01_AA01)



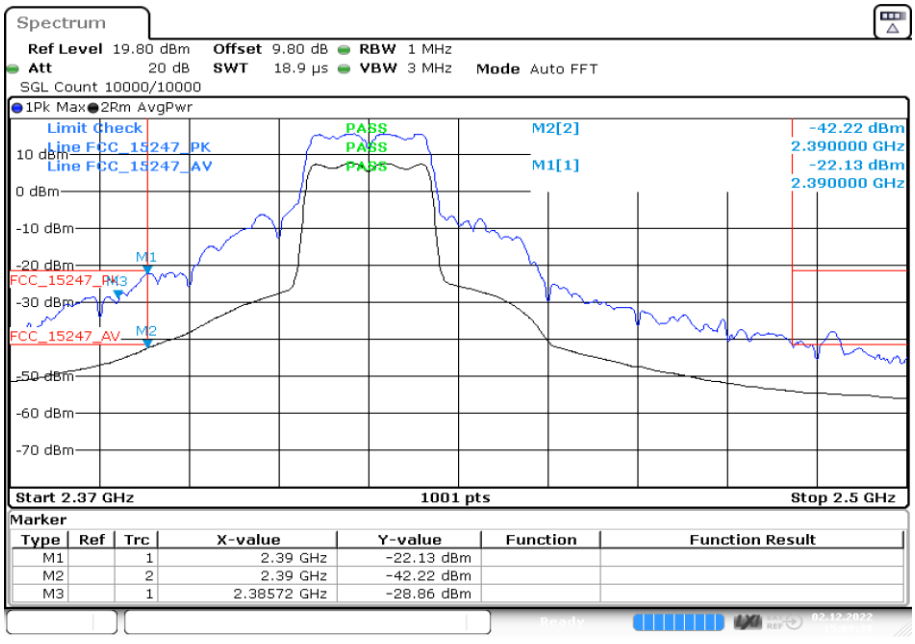
Date: 2.DEC.2022 14:17:13

WLAN TX on CH. 1



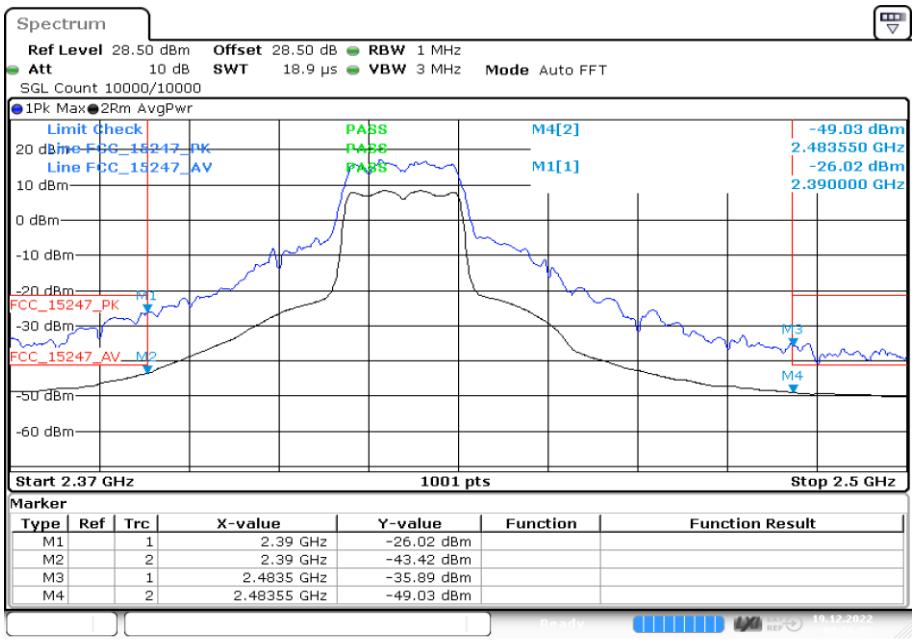
Date: 2.DEC.2022 14:35:25

WLAN TX on CH. 2



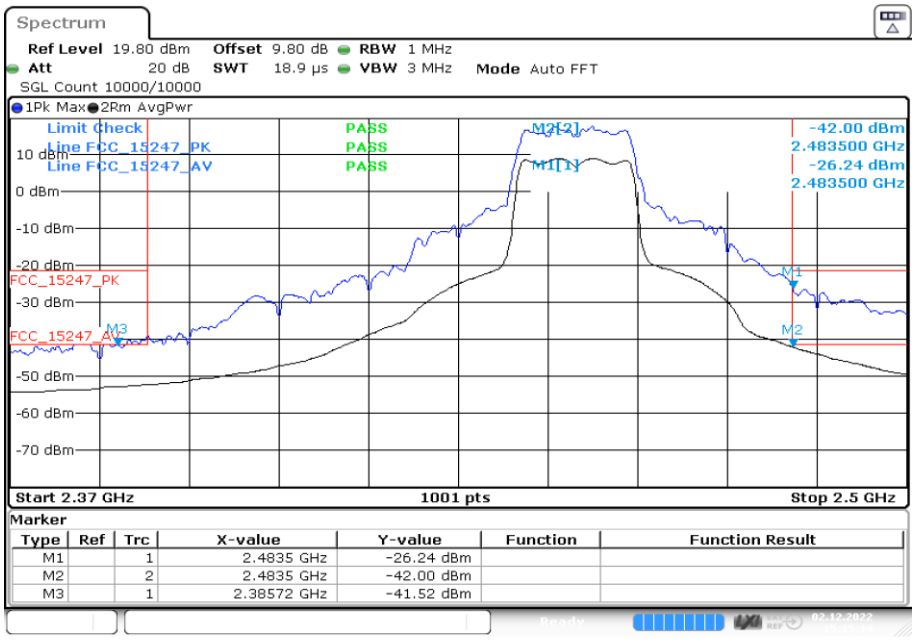
Date: 2.DEC.2022 15:09:38

WLAN TX on CH. 3



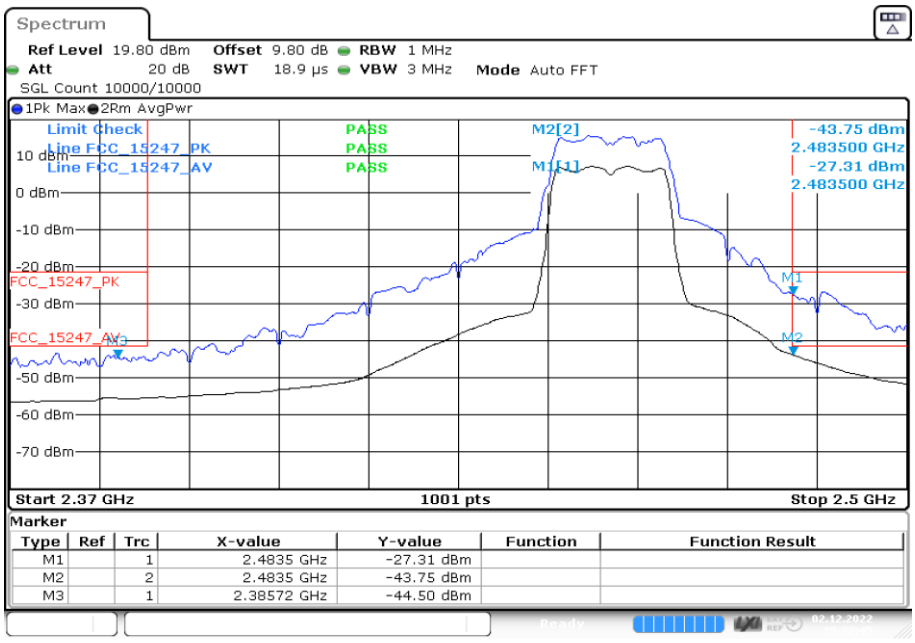
Date: 19.DEC.2022 08:56:53

WLAN TX on CH. 4



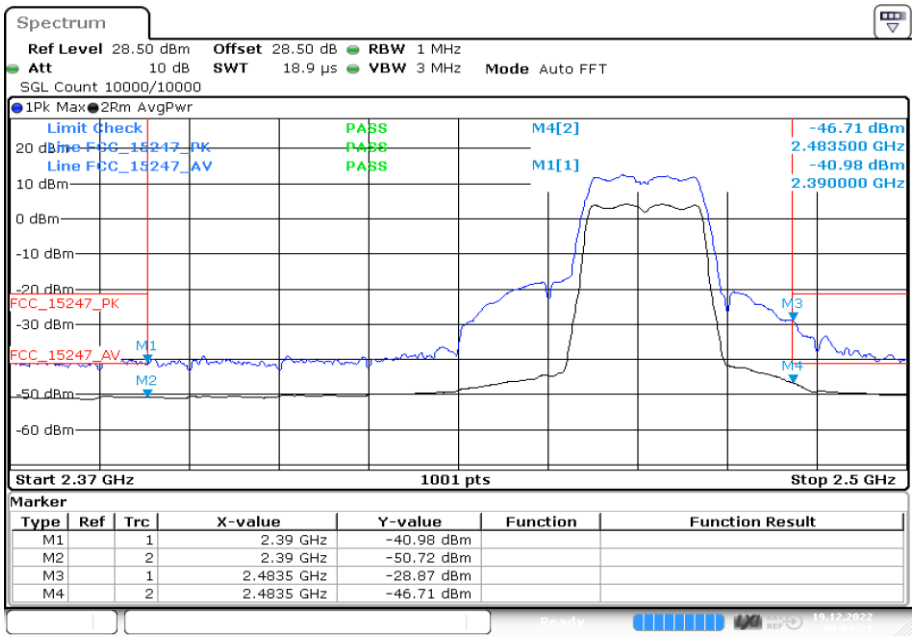
Date: 2.DEC.2022 15:15:15

WLAN TX on CH. 9



Date: 2.DEC.2022 15:22:46

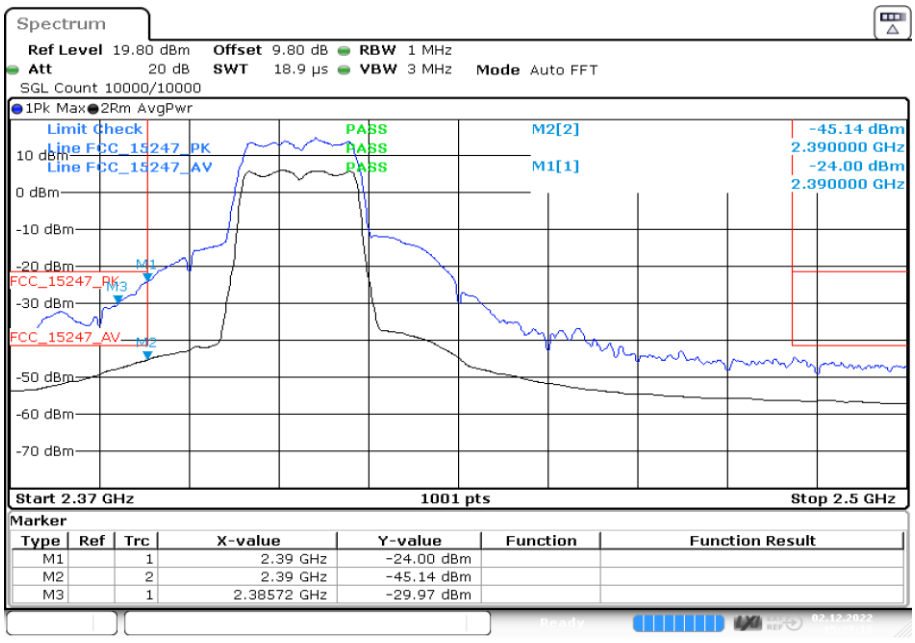
WLAN TX on CH. 10



Date: 19.DEC.2022 09:04:21

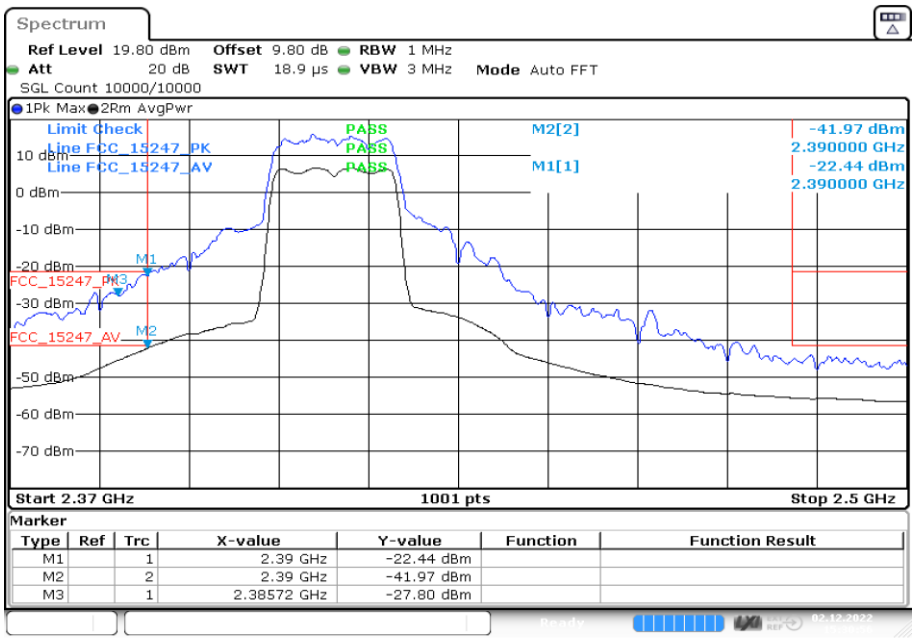
WLAN TX on CH. 11

Radio Technology = WLAN n 20 MHz, Operating Frequency = high, Band Edge = high (S01_AA01)



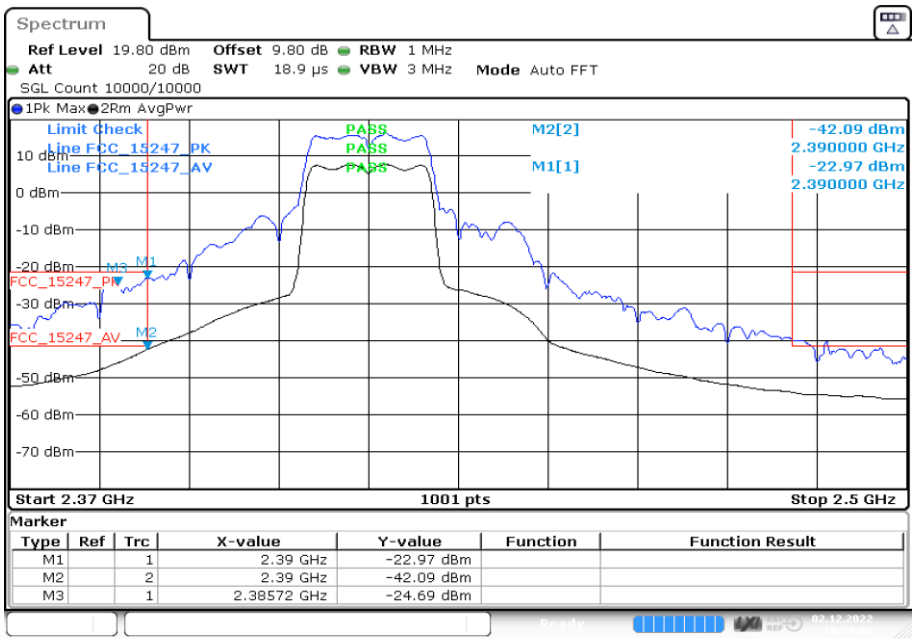
Date: 2.DEC.2022 15:27:19

WLAN TX on CH. 1



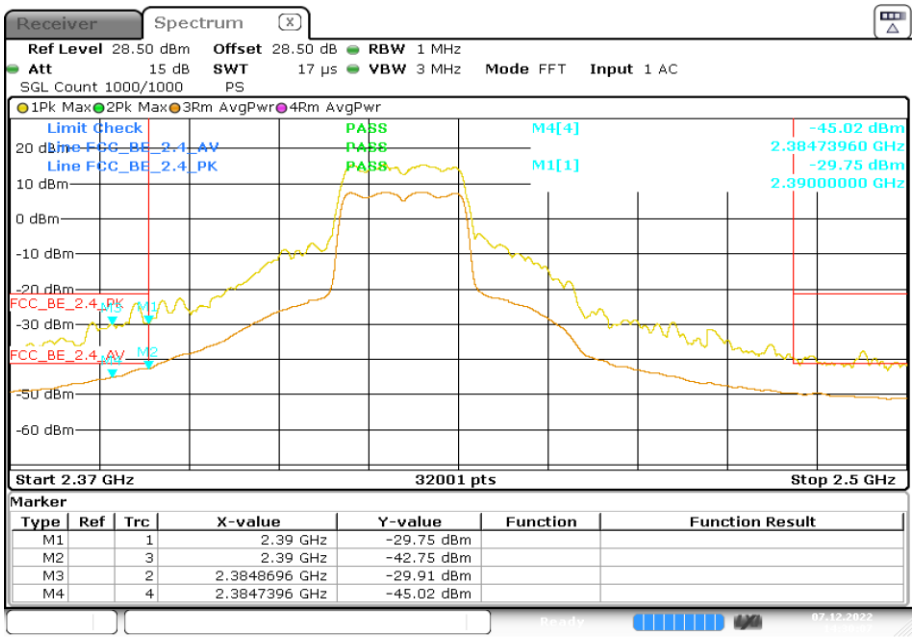
Date: 2.DEC.2022 15:30:56

WLAN TX on CH. 2



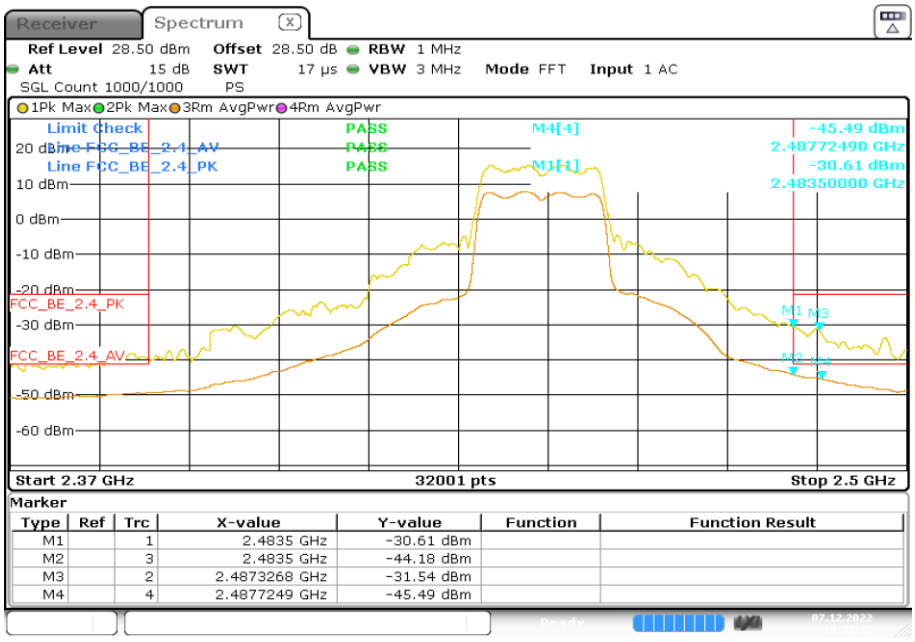
Date: 2.DEC.2022 15:34:02

WLAN TX on CH. 3



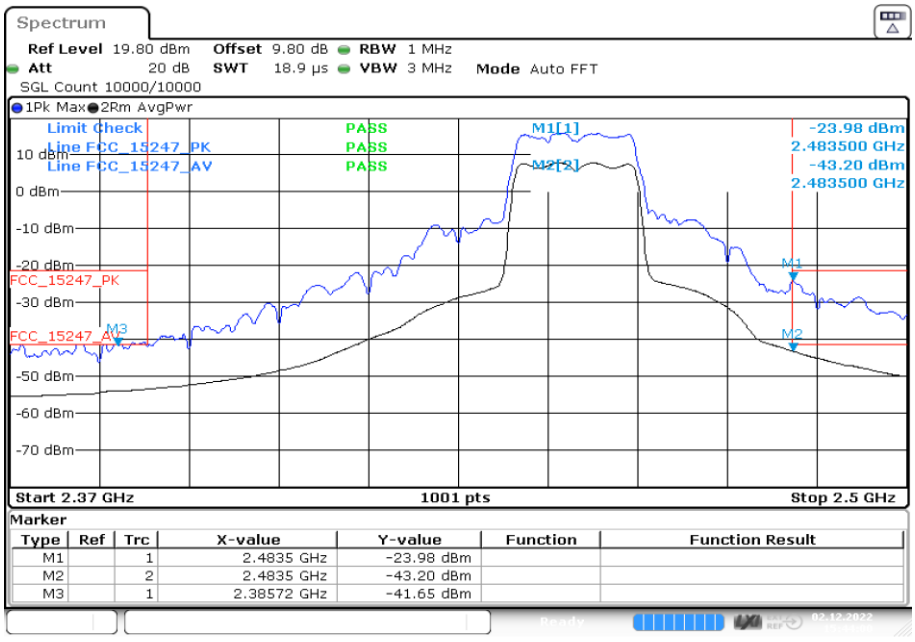
Date: 7.DEC.2022 14:30:07

WLAN TX on CH. 4



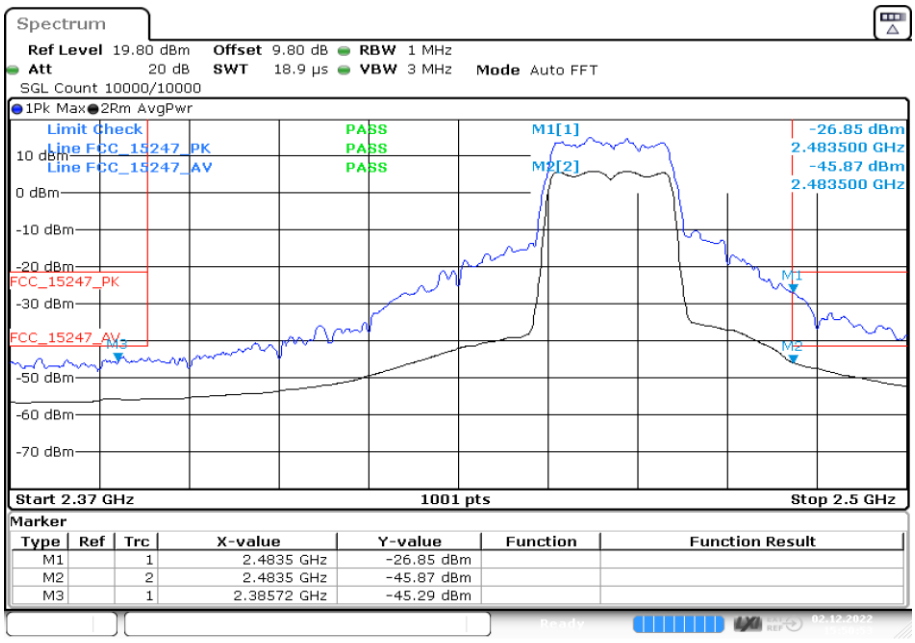
Date: 7.DEC.2022 14:32:40

WLAN TX on CH. 8



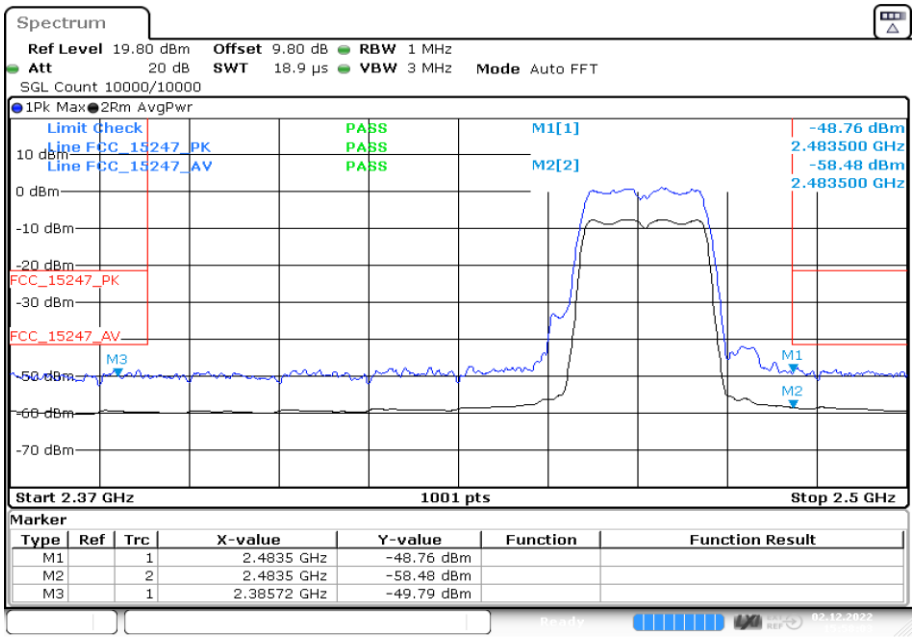
Date: 2.DEC.2022 15:44:01

WLAN TX on CH. 9



Date: 2.DEC.2022 15:50:53

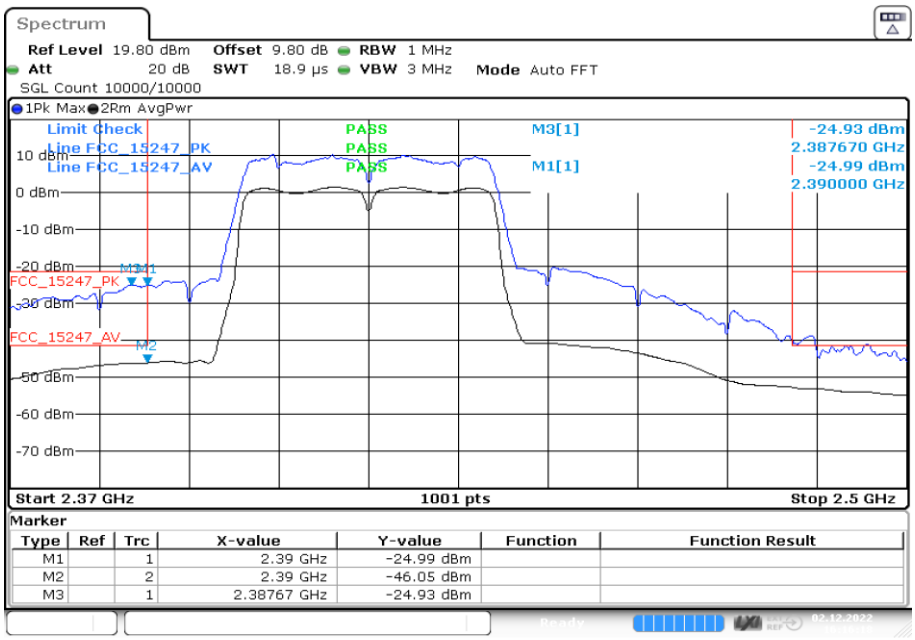
WLAN TX on CH. 10



Date: 2.DEC.2022 15:58:03

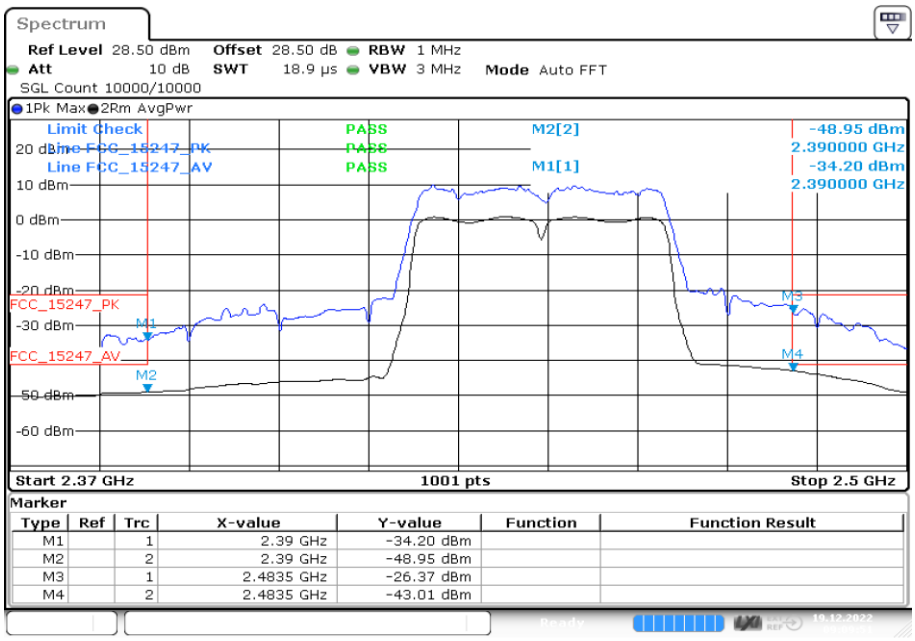
WLAN TX on CH. 11

Radio Technology = WLAN n 40 MHz, Operating Frequency = high, Band Edge = high (S01_AA01)



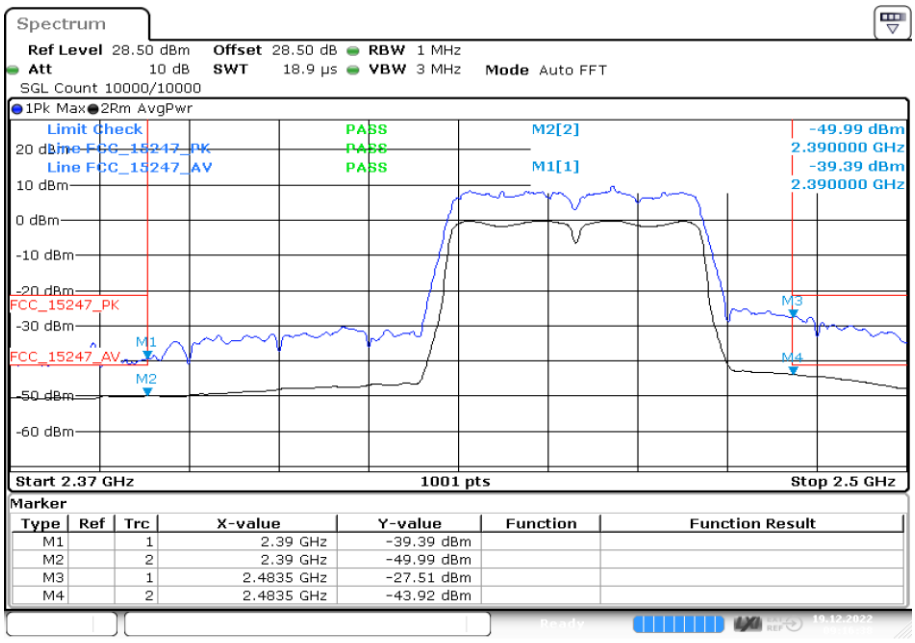
Date: 2.DEC.2022 16:16:18

WLAN TX on CH. 3



Date: 19.DEC.2022 09:09:51

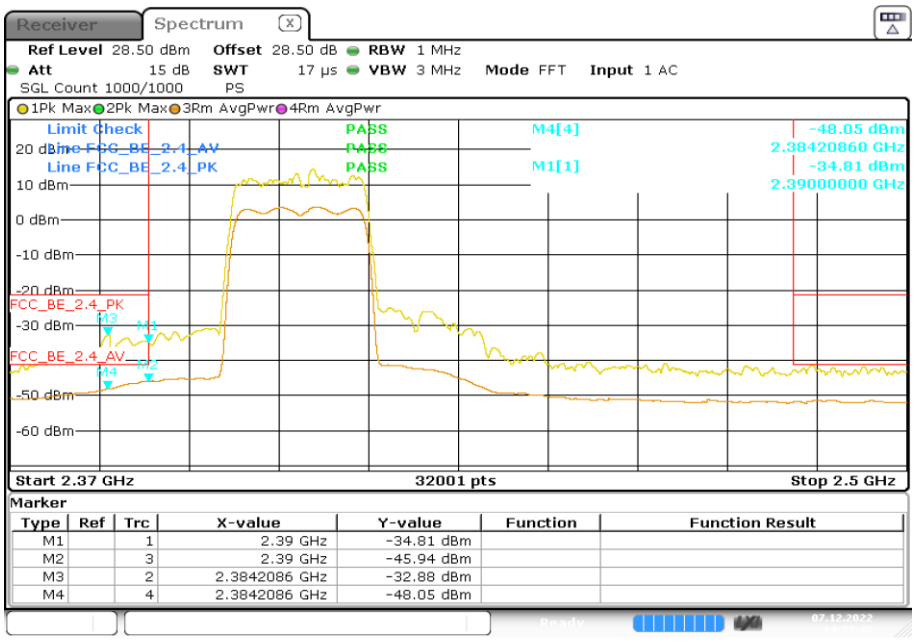
WLAN TX on CH. 8



Date: 19.DEC.2022 09:16:38

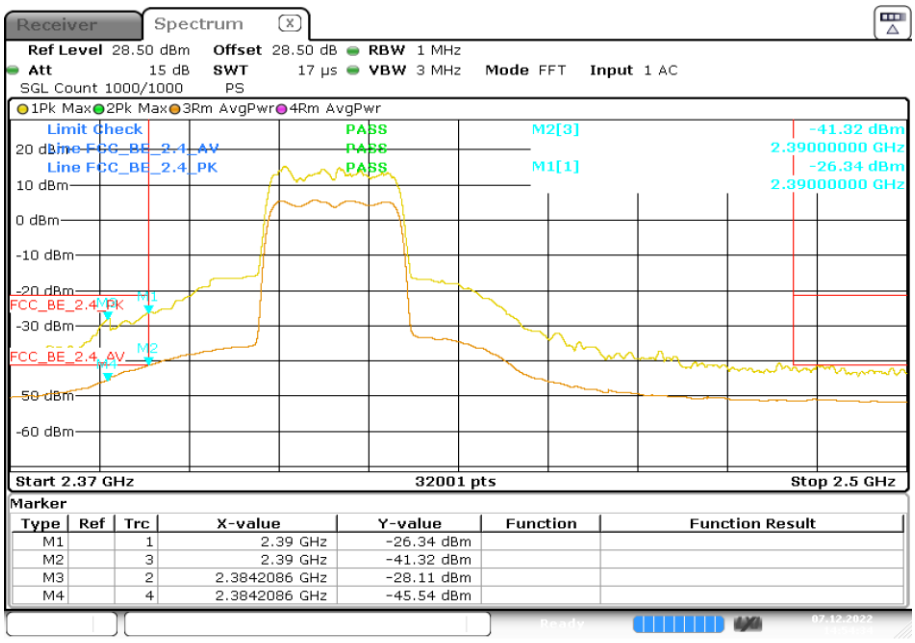
WLAN TX on CH. 9

Radio Technology = WLAN ax 20 MHz, Operating Frequency = high, Band Edge = high (S01_AA01)



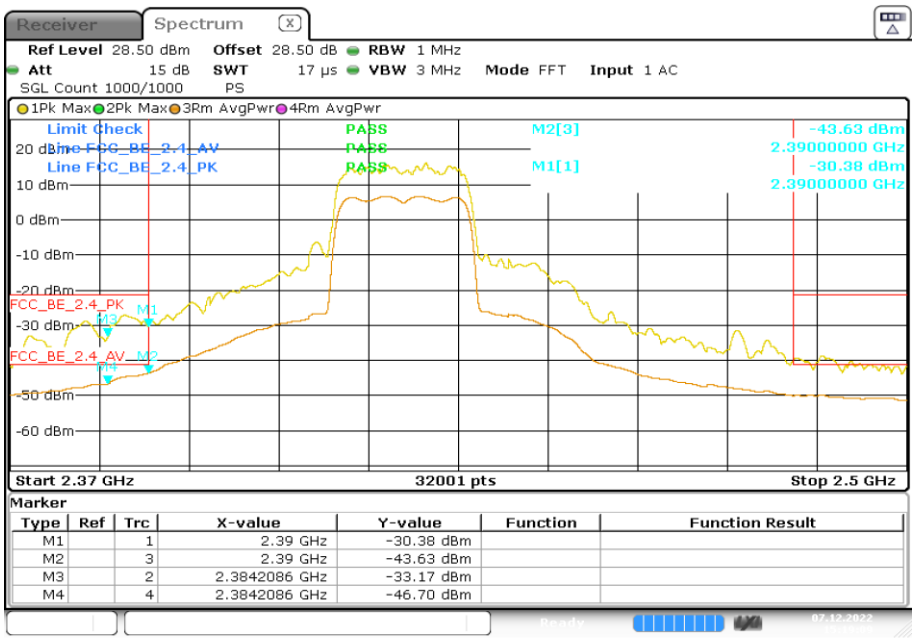
Date: 7.DEC.2022 14:37:41

WLAN TX on CH. 1



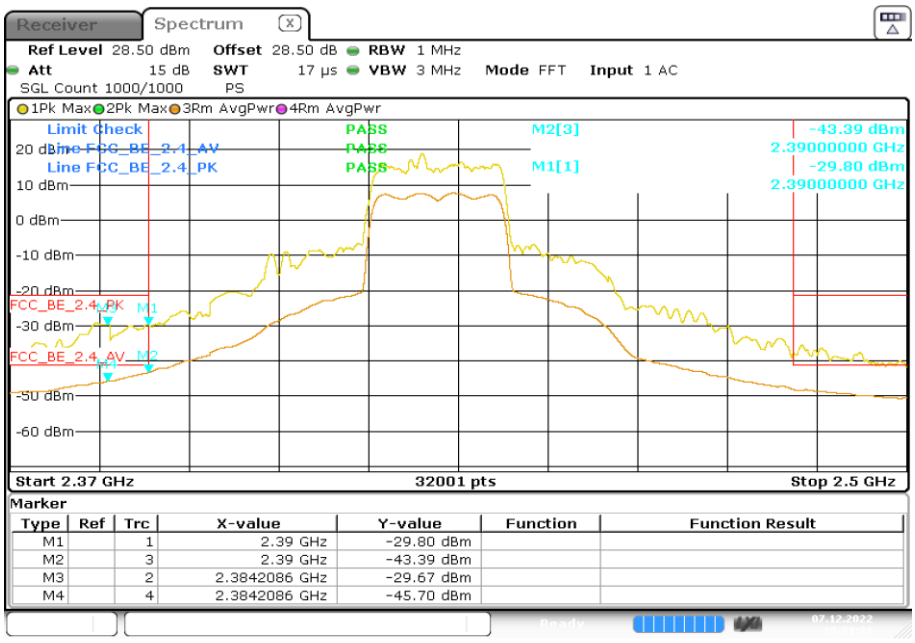
Date: 7.DEC.2022 14:54:35

WLAN TX on CH. 2



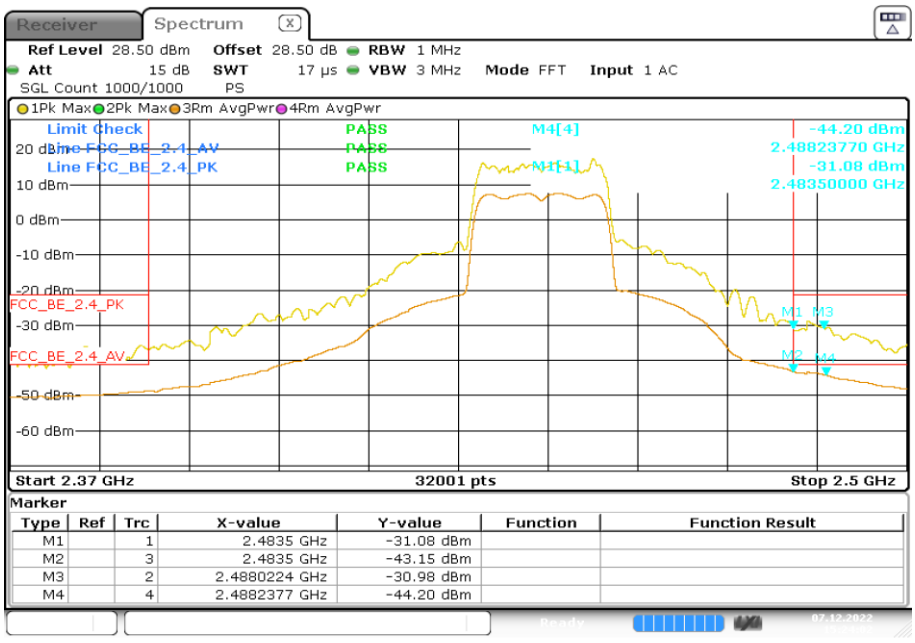
Date: 7.DEC.2022 15:19:09

WLAN TX on CH. 4



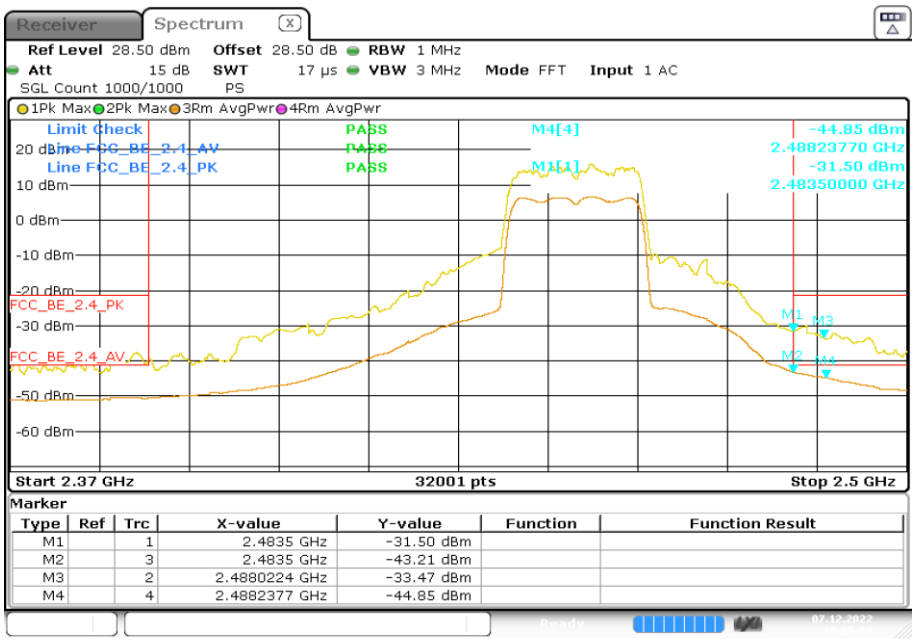
Date: 7.DEC.2022 15:21:30

WLAN TX on CH. 5



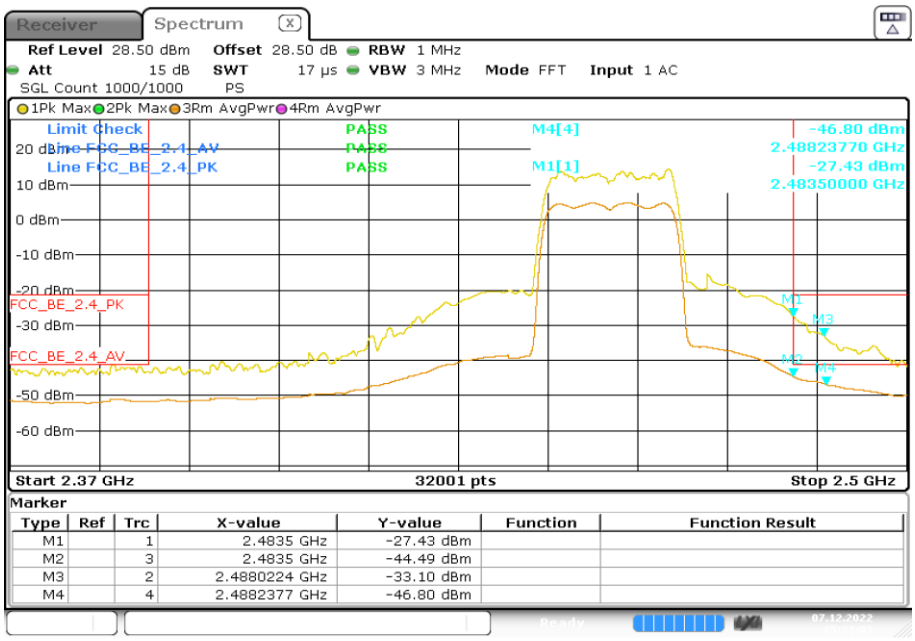
Date: 7.DEC.2022 15:24:01

WLAN TX on CH. 8



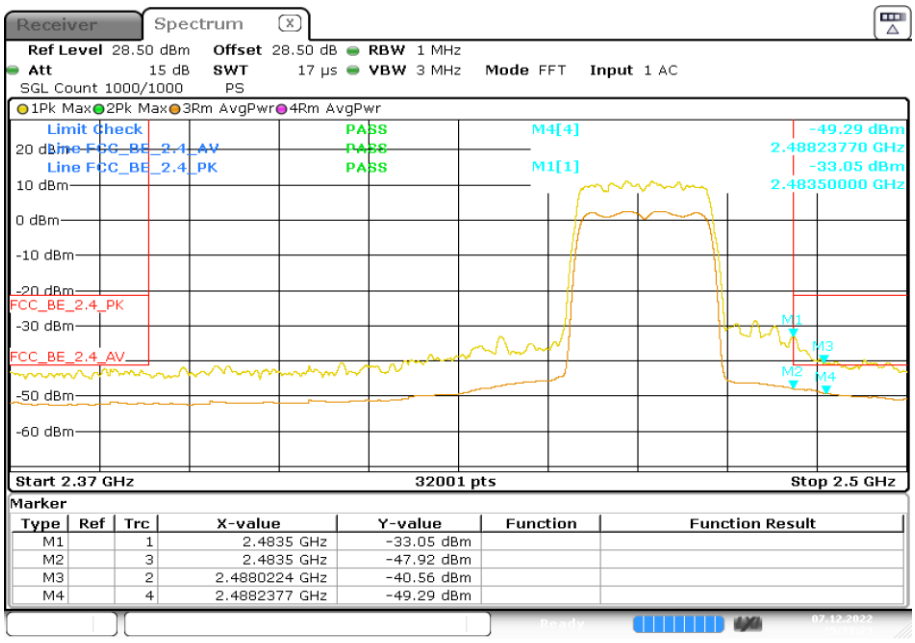
Date: 7.DEC.2022 15:25:59

WLAN TX on CH. 9



Date: 7.DEC.2022 15:31:03

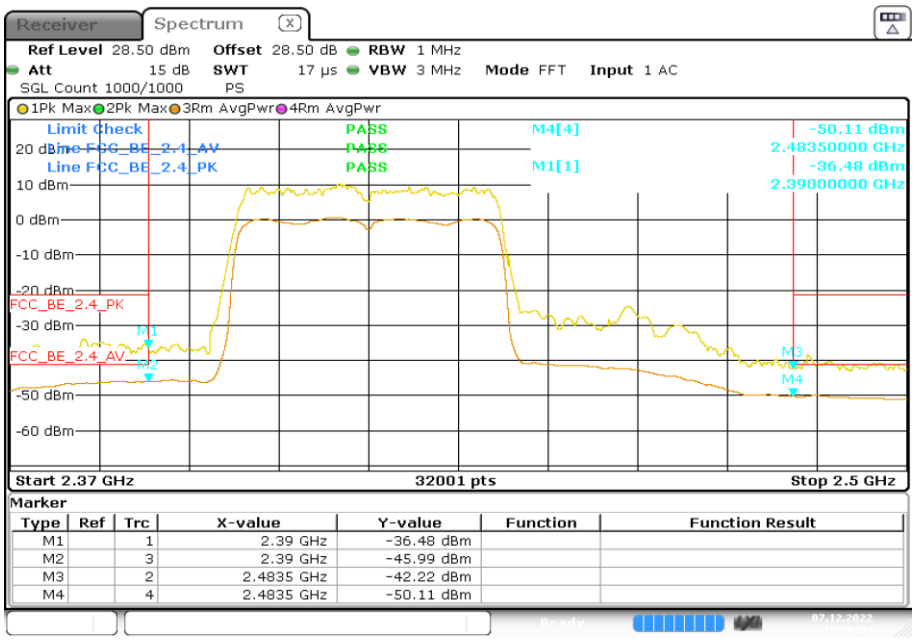
WLAN TX on CH. 10



Date: 7.DEC.2022 15:33:22

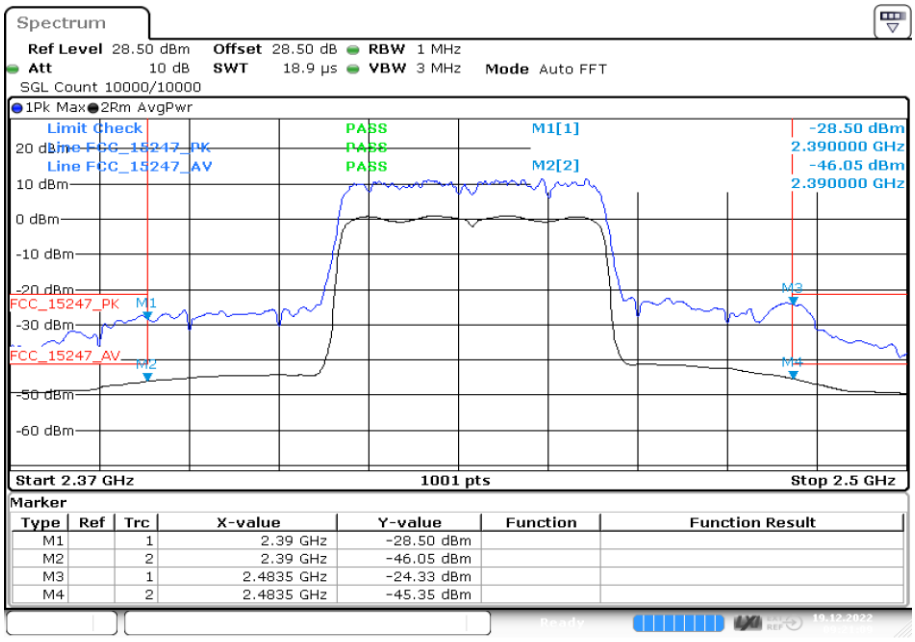
WLAN TX on CH. 11

Radio Technology = WLAN ax 40 MHz, Operating Frequency = high, Band Edge = high (S01_AA01)



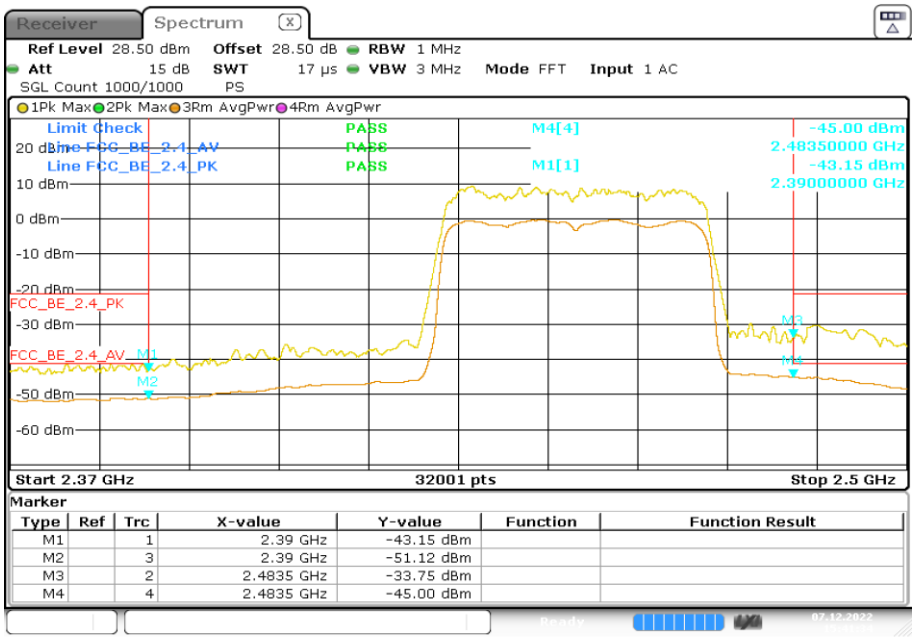
Date: 7.DEC.2022 15:36:34

WLAN TX on CH. 3



Date: 19.DEC.2022 09:21:09

WLAN TX on CH. 6



Date: 7.DEC.2022 15:41:34

WLAN TX on CH. 9