FCC Measurement/Technical Report on

WLAN and Bluetooth Module JODY-W5

FCC ID: XPYJODYW562
IC: 8595A-JODYW562

Test Report Reference: MDE_UBLOX_2317_FCC_01

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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 (10-1-23 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 & AMD 1 & AMD 2: 8.8
Occupied bandwidth	§ 15.247 (a) (2)	RSS-247 Issue 3: 5.2 (a)
Peak conducted output power	§ 15.247 (b) (3), (4)	RSS-247 Issue 3: 5.4 (d)
Transmitter spurious RF conducted emissions	§ 15.247 (d)	RSS-Gen Issue 5 & AMD 1 & AMD 2: 6.13 / 8.9/8.10; RSS-247 Issue 3: 5.5
Transmitter spurious radiated emissions	§ 15.247 (d); § 15.209 (a)	RSS-Gen Issue 5 & AMD 1 & AMD 2: 6.13 / 8.9/8.10; RSS-247 Issue 3: 5.5
Band edge compliance	§ 15.247 (d)	RSS-247 Issue 3: 5.5
Power density	§ 15.247 (e)	RSS-247 Issue 3: 5.2 (b)
Antenna requirement	§ 15.203 / 15.204	RSS-Gen Issue 5 & AMD 1 & AMD 2: 8.3
Receiver spurious emissions	–	–

1.3 MEASUREMENT SUMMARY

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Conducted Emissions at AC Mains
The measurement was performed according to ANSI C63.10, chapter 6.2 **Final Result**

OP-Mode	Setup	Date	FCC	IC
Operating mode, Connection to AC mains				
worst case, via ancillary/auxiliary equipment	S06_AC02	2024-10-16	Passed	Passed

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

Occupied Bandwidth (6 dB)
The measurement was performed according to ANSI C63.10, chapter 11.8.1 **Final Result**

OP-Mode	Setup	Date	FCC	IC
Radio Technology, Operating Frequency				
Bluetooth BDR, high	S01_AA01	2024-02-19	Passed	Passed
Bluetooth BDR, low	S01_AA01	2024-02-19	Passed	Passed
Bluetooth BDR, mid	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, high	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, low	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, mid	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, high	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, low	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, mid	S01_AA01	2024-02-19	Passed	Passed
Bluetooth LE 1 Mbps, high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, low	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, mid	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, low	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, mid	S01_AA01	2024-03-12	Passed	Passed
WLAN ax 20 MHz, high	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, low	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 40 MHz, high	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, low	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, mid	S01_AD02	2024-08-06	Passed	Passed
WLAN b, high	S01_AD02	2024-08-05	Passed	Passed
WLAN b, low	S01_AD02	2024-08-05	Passed	Passed
WLAN b, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN g, high	S01_AD02	2024-08-05	Passed	Passed
WLAN g, low	S01_AD02	2024-08-05	Passed	Passed
WLAN g, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, high	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, low	S01_AD02	2024-08-05	Passed	Passed

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

Occupied Bandwidth (6 dB)

The measurement was performed according to ANSI C63.10, chapter 11.8.1 **Final Result**

OP-Mode Radio Technology, Operating Frequency	Setup	Date	FCC	IC
WLAN n 20 MHz, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN n 40 MHz, high	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, low	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, mid	S01_AD02	2024-08-06	Passed	Passed

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Occupied Bandwidth (99%)

The measurement was performed according to ANSI C63.10, chapter 6.9.3 **Final Result**

OP-Mode Radio Technology, Operating Frequency	Setup	Date	FCC	IC
Bluetooth BDR, high	S01_AA01	2024-02-19	N/A	Performed
Bluetooth BDR, low	S01_AA01	2024-02-19	N/A	Performed
Bluetooth BDR, mid	S01_AA01	2024-02-19	N/A	Performed
Bluetooth EDR 2, high	S01_AC02	2024-10-17	N/A	Performed
Bluetooth EDR 2, low	S01_AC02	2024-10-17	N/A	Performed
Bluetooth EDR 2, mid	S01_AC02	2024-10-17	N/A	Performed
Bluetooth EDR 3, high	S01_AC02	2024-10-17	N/A	Performed
Bluetooth EDR 3, low	S01_AC02	2024-10-17	N/A	Performed
Bluetooth EDR 3, mid	S01_AC02	2024-10-17	N/A	Performed
Bluetooth LE 1 Mbps, high	S01_AD02	2024-10-10	N/A	Performed
Bluetooth LE 1 Mbps, low	S01_AD02	2024-10-10	N/A	Performed
Bluetooth LE 1 Mbps, mid	S01_AD02	2024-10-10	N/A	Performed
Bluetooth LE 2 Mbps, high	S01_AA01	2024-03-12	N/A	Performed
Bluetooth LE 2 Mbps, low	S01_AA01	2024-03-12	N/A	Performed
Bluetooth LE 2 Mbps, mid	S01_AA01	2024-03-12	N/A	Performed
WLAN ax 20 MHz, high	S01_AD02	2024-08-05	N/A	Performed
WLAN ax 20 MHz, low	S01_AD02	2024-08-05	N/A	Performed
WLAN ax 20 MHz, mid	S01_AD02	2024-08-05	N/A	Performed
WLAN ax 40 MHz, high	S01_AD02	2024-08-06	N/A	Performed
WLAN ax 40 MHz, low	S01_AD02	2024-08-06	N/A	Performed
WLAN ax 40 MHz, mid	S01_AD02	2024-08-06	N/A	Performed
WLAN b, high	S01_AD02	2024-08-05	N/A	Performed
WLAN b, low	S01_AD02	2024-08-05	N/A	Performed
WLAN b, mid	S01_AD02	2024-08-05	N/A	Performed
WLAN g, high	S01_AD02	2024-08-05	N/A	Performed
WLAN g, low	S01_AD02	2024-08-05	N/A	Performed
WLAN g, mid	S01_AD02	2024-08-05	N/A	Performed
WLAN n 20 MHz, high	S01_AD02	2024-08-05	N/A	Performed
WLAN n 20 MHz, low	S01_AD02	2024-08-05	N/A	Performed

47 CFR CHAPTER I FCC PART 15 Subpart C §15.247	IC RSS-Gen & IC TRC-43; Ch. 6.7 & Ch. 8
Occupied Bandwidth (99%) The measurement was performed according to ANSI C63.10, chapter 6.9.3	**Final Result**

OP-Mode Radio Technology, Operating Frequency	Setup	Date	FCC	IC
WLAN n 20 MHz, mid	S01_AD02	2024-08-05	N/A	Performed
WLAN n 40 MHz, high	S01_AD02	2024-08-06	N/A	Performed
WLAN n 40 MHz, low	S01_AD02	2024-08-06	N/A	Performed
WLAN n 40 MHz, mid	S01_AD02	2024-08-06	N/A	Performed

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 BDR, high, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth BDR, low, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth BDR, mid, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, high, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, low, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, mid, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, high, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, low, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, mid, conducted	S01_AA01	2024-02-19	Passed	Passed
Bluetooth LE 1 Mbps, high, conducted	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, low, conducted	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, mid, conducted	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, high, conducted	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, low, conducted	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, mid, conducted	S01_AA01	2024-03-12	Passed	Passed
WLAN ax 20 MHz, high, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, low, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, mid, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 40 MHz, high, conducted	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, low, conducted	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, mid, conducted	S01_AD02	2024-08-06	Passed	Passed
WLAN b, high, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN b, low, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN b, mid, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN g, high, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN g, low, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN g, mid, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, high, conducted	S01_AD02	2024-08-05	Passed	Passed

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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 n 20 MHz, low, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, mid, conducted	S01_AD02	2024-08-05	Passed	Passed
WLAN n 40 MHz, high, conducted	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, low, conducted	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, mid, conducted	S01_AD02	2024-08-06	Passed	Passed

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Spurious RF Conducted Emissions

The measurement was performed according to ANSI C63.10, chapter 11.11 **Final Result**

OP-Mode Radio Technology, Operating Frequency	Setup	Date	FCC	IC
Bluetooth BDR, high	S01_AA01	2024-02-22	Passed	Passed
Bluetooth BDR, low	S01_AA01	2024-02-22	Passed	Passed
Bluetooth BDR, mid	S01_AA01	2024-02-22	Passed	Passed
Bluetooth EDR 2, high	S01_AA01	2024-02-22	Passed	Passed
Bluetooth EDR 2, low	S01_AA01	2024-02-22	Passed	Passed
Bluetooth EDR 2, mid	S01_AA01	2024-02-22	Passed	Passed
Bluetooth EDR 3, high	S01_AA01	2024-02-22	Passed	Passed
Bluetooth EDR 3, low	S01_AA01	2024-02-22	Passed	Passed
Bluetooth EDR 3, mid	S01_AA01	2024-02-22	Passed	Passed
Bluetooth LE 1 Mbps, high	S01_AA01	2024-02-22	Passed	Passed
Bluetooth LE 1 Mbps, low	S01_AA01	2024-02-22	Passed	Passed
Bluetooth LE 1 Mbps, mid	S01_AA01	2024-02-22	Passed	Passed
Bluetooth LE 2 Mbps, high	S01_AA01	2024-02-22	Passed	Passed
Bluetooth LE 2 Mbps, low	S01_AA01	2024-02-22	Passed	Passed
Bluetooth LE 2 Mbps, mid	S01_AA01	2024-02-22	Passed	Passed
WLAN ax 20 MHz, high	S01_AD02	2024-09-13	Passed	Passed
WLAN ax 20 MHz, low	S01_AD02	2024-09-13	Passed	Passed
WLAN ax 20 MHz, mid	S01_AD02	2024-09-13	Passed	Passed
WLAN ax 40 MHz, high	S01_AD02	2024-09-13	Passed	Passed
WLAN ax 40 MHz, low	S01_AD02	2024-09-13	Passed	Passed
WLAN ax 40 MHz, mid	S01_AD02	2024-09-13	Passed	Passed
WLAN b, high	S01_AD02	2024-09-13	Passed	Passed
WLAN b, low	S01_AD02	2024-09-13	Passed	Passed
WLAN b, mid	S01_AD02	2024-09-13	Passed	Passed
WLAN g, high	S01_AD02	2024-09-13	Passed	Passed
WLAN g, low	S01_AD02	2024-09-13	Passed	Passed
WLAN g, mid	S01_AD02	2024-09-13	Passed	Passed

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Spurious RF Conducted Emissions

The measurement was performed according to ANSI C63.10, chapter 11.11 **Final Result**

OP-Mode Radio Technology, Operating Frequency	Setup	Date	FCC	IC
WLAN n 20 MHz, high	S01_AD02	2024-09-13	Passed	Passed
WLAN n 20 MHz, low	S01_AD02	2024-09-13	Passed	Passed
WLAN n 20 MHz, mid	S01_AD02	2024-09-13	Passed	Passed
WLAN n 40 MHz, high	S01_AD02	2024-09-13	Passed	Passed
WLAN n 40 MHz, low	S01_AD02	2024-09-13	Passed	Passed
WLAN n 40 MHz, mid	S01_AD02	2024-09-13	Passed	Passed

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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, high, 1 GHz - 26 GHz	S01_AD02	2024-09-13	Passed	Passed
Bluetooth BDR, high, 1 GHz - 26 GHz	S02_AB01	2024-05-07	Passed	Passed
Bluetooth BDR, high, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
Bluetooth BDR, high, 30 MHz - 1 GHz	S02_AA01	2024-03-25	Passed	Passed
Bluetooth BDR, low, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth BDR, low, 1 GHz - 26 GHz	S02_AB01	2024-05-07	Passed	Passed
Bluetooth BDR, low, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
Bluetooth BDR, low, 30 MHz - 1 GHz	S02_AA01	2024-03-25	Passed	Passed
Bluetooth BDR, mid, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth BDR, mid, 1 GHz - 26 GHz	S02_AB01	2024-05-07	Passed	Passed
Bluetooth BDR, mid, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
Bluetooth BDR, mid, 30 MHz - 1 GHz	S02_AA01	2024-03-25	Passed	Passed
Bluetooth BDR, mid, 9 kHz - 30 MHz	S01_AD02	2024-09-11	Passed	Passed
Bluetooth BDR, mid, 9 kHz - 30 MHz	S02_AA01	2024-03-14	Passed	Passed
Bluetooth EDR 2, high, 1 GHz - 26 GHz	S01_AC02	2024-10-22	Passed	Passed
Bluetooth EDR 2, high, 1 GHz - 26 GHz Remark: only 1-8 GHz tested	S02_AB01	2024-05-13	Passed	Passed
Bluetooth EDR 2, low, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth EDR 2, mid, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth EDR 3, high, 1 GHz - 26 GHz	S01_AC02	2024-10-22	Passed	Passed
Bluetooth EDR 3, high, 1 GHz - 26 GHz Remark: only 1-8 GHz tested	S02_AB01	2024-05-13	Passed	Passed
Bluetooth EDR 3, low, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth EDR 3, mid, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth LE 1 Mbps, high, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth LE 1 Mbps, low, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth LE 1 Mbps, mid, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed

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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 LE 1 Mbps, mid, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
Bluetooth LE 2 Mbps, high, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth LE 2 Mbps, low, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
Bluetooth LE 2 Mbps, mid, 1 GHz - 26 GHz	S01_AD02	2024-09-06	Passed	Passed
WLAN ax 20 MHz, high, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN ax 20 MHz, low, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN ax 20 MHz, mid, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN ax 40 MHz, high, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN ax 40 MHz, low, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN ax 40 MHz, mid, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN b, high, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN b, high, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
WLAN b, high, 30 MHz - 1 GHz	S02_AA01	2024-03-25	Passed	Passed
WLAN b, low, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN b, low, 1 GHz - 26 GHz	S02_AA01	2024-04-30	Passed	Passed
WLAN b, low, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
WLAN b, low, 30 MHz - 1 GHz	S02_AA01	2024-03-25	Passed	Passed
WLAN b, mid, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN b, mid, 30 MHz - 1 GHz	S01_AD02	2024-09-11	Passed	Passed
WLAN b, mid, 30 MHz - 1 GHz	S02_AA01	2024-03-25	Passed	Passed
WLAN b, mid, 9 kHz - 30 MHz	S01_AD02	2024-09-11	Passed	Passed
WLAN b, mid, 9 kHz - 30 MHz	S02_AA01	2024-03-14	Passed	Passed
WLAN g, high, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN g, low, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN g, mid, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN n 20 MHz, high, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN n 20 MHz, low, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN n 20 MHz, mid, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed
WLAN n 40 MHz, high, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN n 40 MHz, low, 1 GHz - 26 GHz	S01_AD02	2024-10-10	Passed	Passed
WLAN n 40 MHz, mid, 1 GHz - 26 GHz	S01_AD02	2024-08-07	Passed	Passed

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Band Edge Compliance Conducted

The measurement was performed according to ANSI C63.10, chapter 11.11 **Final Result**

OP-Mode Radio Technology, Operating Frequency, Band Edge	Setup	Date	FCC	IC
Bluetooth BDR, high, high	S01_AA01	2024-02-19	Passed	Passed
Bluetooth BDR, low, low	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, high, high	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 2, low, low	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, high, high	S01_AA01	2024-02-19	Passed	Passed
Bluetooth EDR 3, low, low	S01_AA01	2024-02-19	Passed	Passed
Bluetooth LE 1 Mbps, high, high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, low, low	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, high, high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, low, low	S01_AA01	2024-03-12	Passed	Passed
WLAN ax 20 MHz, high, high	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, low, low	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 40 MHz, high, high	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, low, low	S01_AD02	2024-08-06	Passed	Passed
WLAN b, high, high	S01_AD02	2024-08-05	Passed	Passed
WLAN b, low, low	S01_AD02	2024-08-05	Passed	Passed
WLAN g, high, high	S01_AD02	2024-08-05	Passed	Passed
WLAN g, low, low	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, high, high	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, low, low	S01_AD02	2024-08-05	Passed	Passed
WLAN n 40 MHz, high, high	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, low, low	S01_AD02	2024-08-06	Passed	Passed

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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, low/high, low/high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth BDR, high, high	S02_AB01	2024-05-07	Passed	Passed
Bluetooth EDR 2, low/high, low/high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth EDR 2, high, high	S02_AB01	2024-05-13	Passed	Passed
Bluetooth EDR 3, low/high, low/high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth EDR 3, high, high	S02_AB01	2024-05-13	Passed	Passed
Bluetooth LE 1 Mbps, low/high, low/high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, high, high	S02_AC02	2024-06-06	Passed	Passed
Bluetooth LE 2 Mbps, high, high	S01_AD02	2024-09-13	Passed	Passed

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

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 LE 2 Mbps, low, low	S01_AD02	2024-10-24	Passed	Passed
Bluetooth LE 2 Mbps, high, high	S02_AC02	2024-06-06	Passed	Passed
WLAN ax 20 MHz, low/high, low/high	S01_AD02	2024-07-12	Passed	Passed
WLAN ax 40 MHz, low/high, low/high	S01_AD02	2024-07-12	Passed	Passed
WLAN b, low/high, low/high	S01_AD02	2024-07-03	Passed	Passed
WLAN b, high, high	S02_AC02	2024-08-23	Passed	Passed
WLAN g, low/high, low/high	S01_AD02	2024-07-12	Passed	Passed
WLAN g, high, high	S02_AC02	2024-08-23	Passed	Passed
WLAN n 20 MHz, low/high, low/high	S01_AD02	2024-07-12	Passed	Passed
WLAN n 20 MHz, high, high	S02_AC02	2024-08-23	Passed	Passed
WLAN n 40 MHz, low/high, low/high	S01_AD02	2024-07-12	Passed	Passed
WLAN n 40 MHz, high, high	S02_AC02	2024-08-23	Passed	Passed

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

Power Density

The measurement was performed according to ANSI C63.10, chapter 11.10.2 **Final Result**

OP-Mode Radio Technology, Operating Frequency	Setup	Date	FCC	IC
Bluetooth LE 1 Mbps, high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, low	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 1 Mbps, mid	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, high	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, low	S01_AA01	2024-03-12	Passed	Passed
Bluetooth LE 2 Mbps, mid	S01_AA01	2024-03-12	Passed	Passed
WLAN ax 20 MHz, high	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, low	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 20 MHz, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN ax 40 MHz, high	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, low	S01_AD02	2024-08-06	Passed	Passed
WLAN ax 40 MHz, mid	S01_AD02	2024-08-06	Passed	Passed
WLAN b, high	S01_AD02	2024-08-05	Passed	Passed
WLAN b, low	S01_AD02	2024-08-05	Passed	Passed
WLAN b, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN g, high	S01_AD02	2024-08-05	Passed	Passed
WLAN g, low	S01_AD02	2024-08-05	Passed	Passed
WLAN g, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, high	S01_AD02	2024-08-05	Passed	Passed
WLAN n 20 MHz, low	S01_AD02	2024-08-05	Passed	Passed

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

Power Density

The measurement was performed according to ANSI C63.10, chapter 11.10.2 **Final Result**

OP-Mode	Setup	Date	FCC	IC
Radio Technology, Operating Frequency				
WLAN n 20 MHz, mid	S01_AD02	2024-08-05	Passed	Passed
WLAN n 40 MHz, high	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, low	S01_AD02	2024-08-06	Passed	Passed
WLAN n 40 MHz, mid	S01_AD02	2024-08-06	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	2024-11-15	--	valid
--	--	--	--

COMMENT: -

(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:	2023-09-29

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:	2024-11-15
Testing Period:	2024-02-19 to 2024-10-24

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
Product name	JODY-W5
Type	JODY-W562-00A
Declared EUT data by the supplier	
Voltage Type	DC
Voltage Level	1.8 V + 3.3 V
Antenna / Gain	External / 4.1 dBi (No antennas were provided for the tests, radiated measurements were performed with 50 Ohm terminations)
Tested Modulation Type	BT Classic: GFSK (BDR), Pi/4 DQPSK (EDR 2), 8DPSK (EDR 3) BT LE: GFSK WLANb: DSSS WLANg/n: OFDM
Specific product description for the EUT	The EUT is a Bluetooth and WLAN module. In the 2.4 GHz band it supports SISO Mode only. Supported technologies in the 2.4 GHz band 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 with solder pads for surface mounting, so no cables were connected to the EUT itself.
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/ax: MCS 0
Special software used for testing	Labtool on computer board provided by applicant
Used output power	Bluetooth Classic: Max. Power in Bluetooth device under test mode with setting 114 3 (Power Class 1). 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¤										
g¤	15¤	16¤	17¤		18¤			17¤	16¤	15¤	14¤
n20¤	15¤	16¤			17¤				16¤	15¤	14¤
n40¤	N/A¤	N/A¤	13¤					12¤	11¤	N/A¤	N/A¤
ax20¤	14¤		15¤		16¤	17¤		15¤		13¤	12¤
ax40¤	N/A¤	N/A¤	14¤	13¤					12¤	N/A¤	N/A¤

4.2 EUT MAIN COMPONENTS

Sample Name	Sample Code	Description
EUT aa01	DE1015185aa01	Type JODY-W562-00A on M.2 KEY-E board
Sample Parameter	**Value**	
Serial No.	BU520BA36D796380200	
HW Version	3	
SW Version	v2.0.0.31-18.99.2.p66.20	
Comment		

Sample Name	Sample Code	Description
EUT ab01	DE1015185ab01	Type JODY-W562-00A on M.2 KEY-E board
Sample Parameter	**Value**	
Serial No.	BU520BA36D7974C0200	
HW Version	3	
SW Version	v2.0.0.31-18.99.2.p66.20	
Comment		

Sample Name	Sample Code	Description
EUT ac02	DE1015185ac02	Type JODY-W562-00A on M.2 KEY-E board
Sample Parameter	**Value**	
Serial No.	BU520BA36D796200200	
HW Version	3	
SW Version	v2.0.0.31-18.99.2.p66.20	
Comment		

Sample Name	Sample Code	Description
EUT ad02	DE1015185ad02	Type JODY-W562-00A on M.2 KEY-E board
Sample Parameter	**Value**	
Serial No.	BU520BA36D798100200	
HW Version	3	
SW Version	v2.0.0.31-18.99.2.p66.20	
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**
AUX 01	UBLOX, JODY Carrier Board M.2 Adapter, REV. A, - , -	M.2 Adapter board
AUX 02	UBLOX, JODY-Carrier Board, Rev. D, - , 10000002459130006001	Jody Carrier Board
AUX 03	NXP, i.MX 8M MINI on 8MMINI-BB, REV A5, -, TR23390231	Computer Board
AUX 04	EDACPOWER ELEC., EA1045CR, -, - , -	AC Adapter
AUX 05	UBLOX, JODY-Carrier Board, Rev. D, - , 10000003369561020001	Jody Carrier Board
AUX 06	UBLOX, JODY-Carrier Board, Rev. D, - , 10000003369561002002	Jody Carrier Board
AUX 07	NXP, i.MX 8M MINI on 8MMINI-BB, REV A2, -, NT19151052	Computer Board
AUX 08	NXP, i.MX 8M MINI on 8MMINI-BB, REV A2, -, NT19150864	Computer Board
ACDC1	Agilent, E3631A, -, -, MY40018563	120 V 60 Hz AC laboratory power supply

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, AUX 02, AUX 04, AUX 03, AUX 01	Conducted Setup
S02_AA01	EUT aa01, AUX 02, AUX 01	Radiated Setup
S02_AB01	EUT ab01, AUX 02, AUX 01	Radiated Setup
S02_AC02	EUT ac02, AUX 01, AUX 05	Radiated Setup
S01_AC02	EUT ac02, AUX 04, AUX 07, AUX 01, AUX 05	Conducted Setup
S01_AD02	EUT ad02, AUX 04, AUX 08, AUX 01, AUX 06	Conducted Setup
S06_AC02	EUT ac02, AUX 01, AUX 05, ACDC1	AC conducted 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

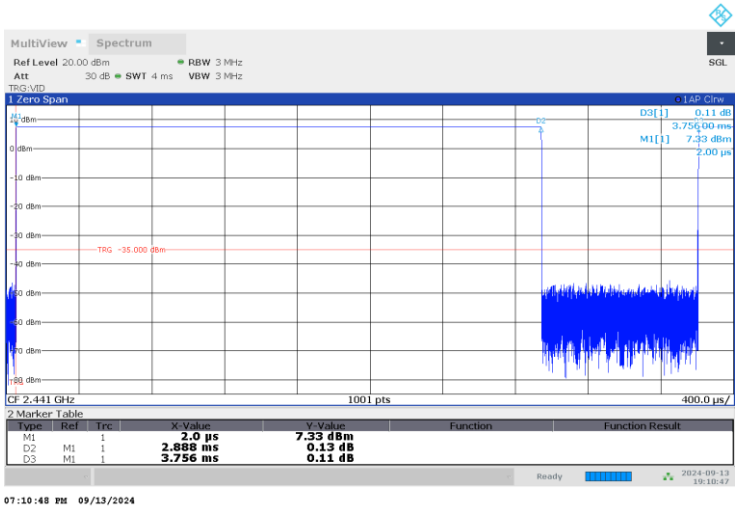
40 MHz Test Channels:	**low**	**mid**	**high**
Channel:	3	6	9
Frequency [MHz]	2422	2437	2452

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

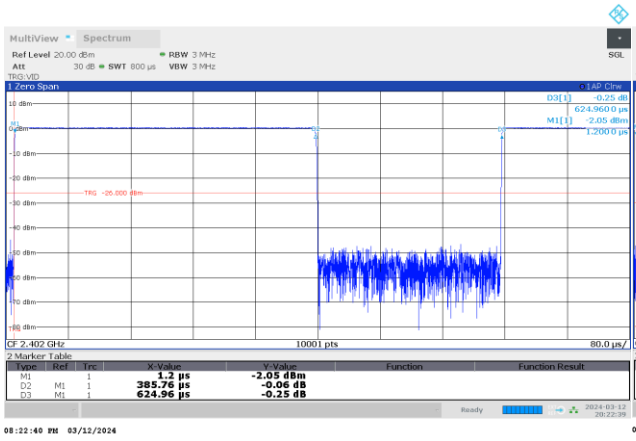
	2.4 GHz ISM 2400 - 2483.5 MHz		
BT LE Test Channels:	**low**	**mid**	**high**
Channel:	0	19	39
Frequency [MHz]	2402	2440	2480

Duty Cycle:

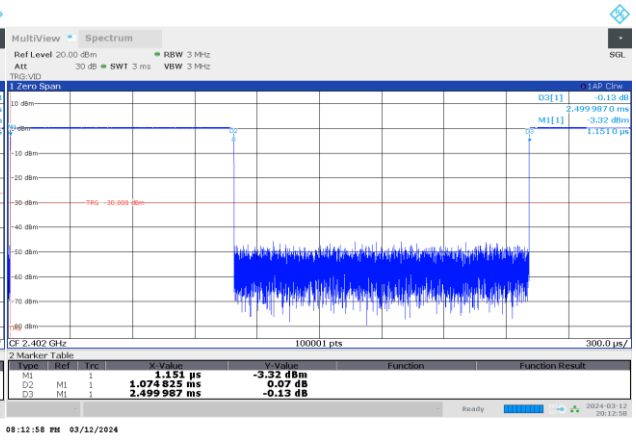
Mode	Duty Cycle
BT Classic (DH5 in local TX)	~ 77 %
BT LE 1Mbps	~ 62 %
BT LE 2 Mbps	~ 43 %
WLAN	~ 99 %



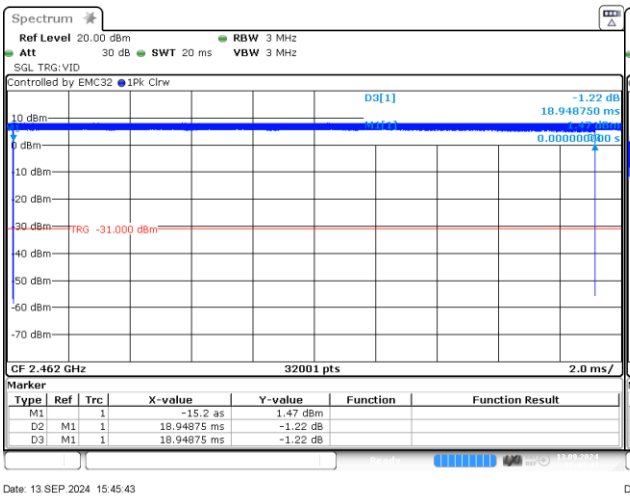
BT Classic DH5 packets



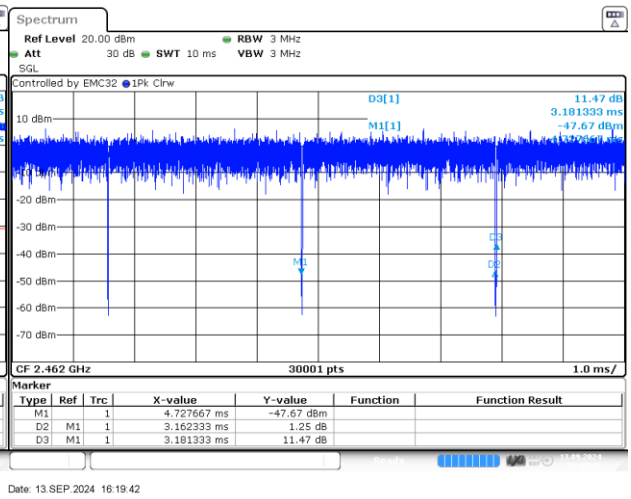
BT LE 1Mbps



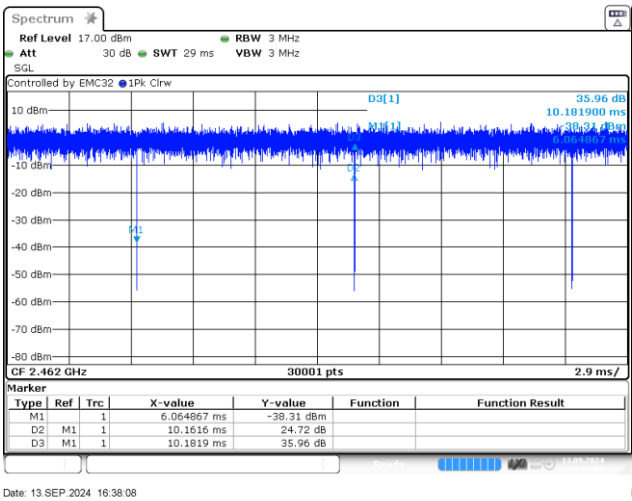
BT LE 2 Mbps



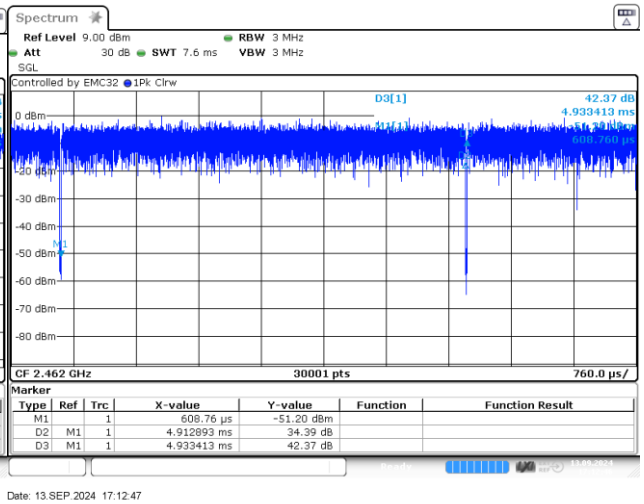
WLAN b



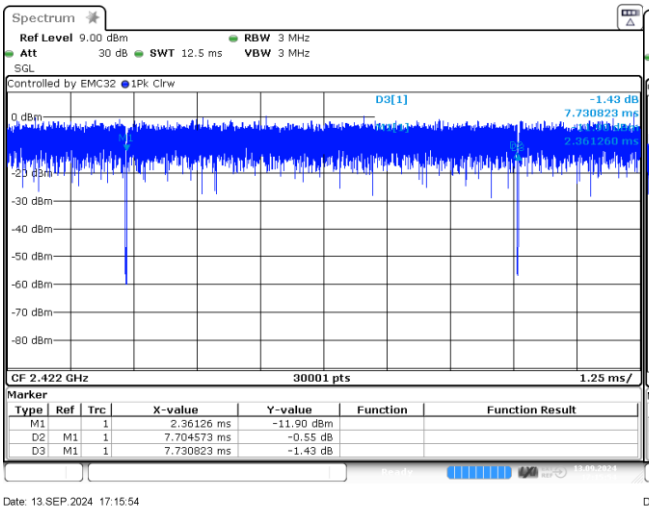
WLAN g



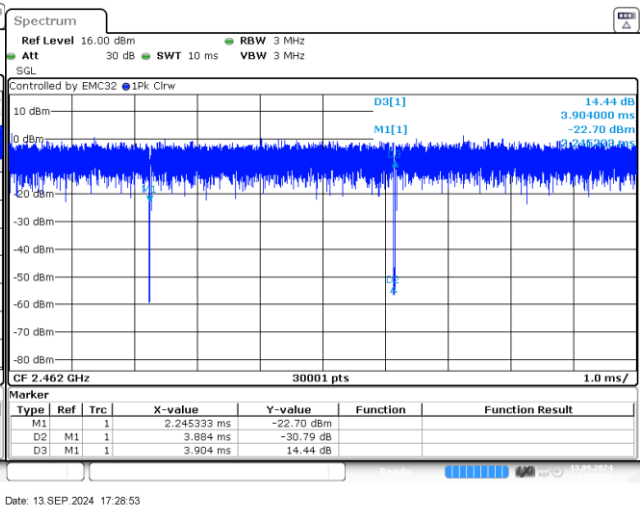
WLAN n 20 MHz



WLAN n 40 MHz



WLAN ax 20 MHz



WLAN ax 40 MHz

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

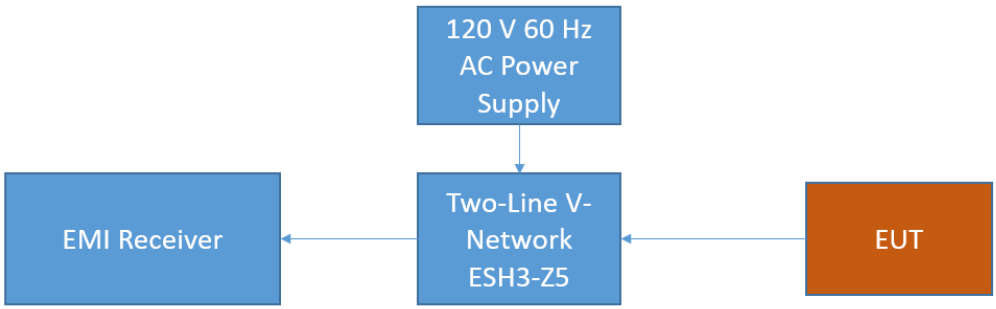
5.1 CONDUCTED EMISSIONS AT AC MAINS

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 6.2

5.1.1 TEST DESCRIPTION

The test set-up was made in accordance to the general provisions of ANSI C 63.10
The Equipment Under Test (EUT) was setup in a shielded room to perform the conducted emissions measurements in a typical installation configuration. The EUT was powered from 50µH || 50 Ohm Line Impedance Stabilization Network (LISN). The LISN's unused connections were terminated with 50 Ohm loads.



FCC Conducted Emissions on AC

The measurement procedure consists of two steps. It is implemented into the EMI test software EMC-32 from R&S.

Step 1: Preliminary scan
Intention of this step is, to determine the conducted EMI-profile of the EUT.
EMI receiver settings:
- Detector: Peak – Maxhold & Average
- Frequency range: 150 kHz – 30 MHz
- Frequency steps: 2.5 kHz
- IF–Bandwidth: 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)
- Measurement on phase + neutral lines of the power cords

On basis of this preliminary scan the highest amplitudes and the corresponding frequencies relative to the limit are identified. Emissions above the limit and emissions which are in the 10 dB range below the limit are considered.

Step 2: Final measurement
Intention of this step is, to determine the highest emissions with the settings defined in the test specification for the frequencies identified in step 1.
EMI receiver settings:
- Detector: Quasi-Peak & (CISPR) Average

- IF Bandwidth: 9 kHz
- Measuring time: 1 s / frequency

At each frequency determined in step 1, four measurements are performed in the following combinations:
1) Neutral lead - reference ground (PE grounded)
2) Phase lead - reference ground (PE grounded)
3) Neutral lead - reference ground (PE floating)
4) Phase lead - reference ground (PE floating)

The highest value is reported.

5.1.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart C, §15.207

Frequency (MHz)	QP Limits (dBµV)	AV Limits (dBµV)
0.15 – 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

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

5.1.3 TEST PROTOCOL

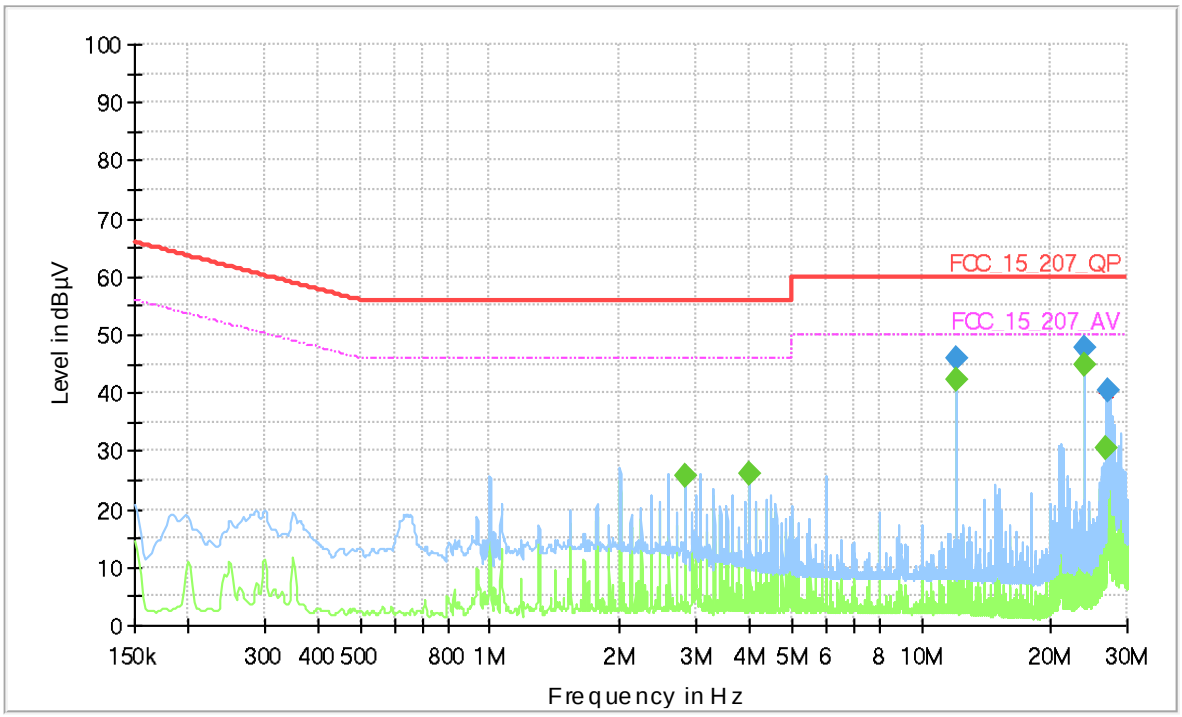
Temperature: 25 °C
Air Pressure: 1003 hPa
Humidity: 47 %

Power line	PE	Frequency [MHz]	Measured value QP [dBµV]	Measured value AV [dBµV]	Limit [dBµV]	Margin [dB]
N	GND	12.0053	46.0	-	60.0	14.0
N	GND	12.0053	-	42.3	50.0	7.7
N	FLO	24.0090	47.8	-	60.0	12.2
N	FLO	24.0090	-	44.7	50.0	5.3

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

5.1.4 MEASUREMENT PLOT

Operating mode = worst case, Connection to AC mains = via ancillary/auxiliary equipment (S06_AC02)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Line	PE	Corr. (dB)
2.832000	---	25.91	46.00	20.09	1000.0	9.000	N	GND	10.3
4.002000	---	26.22	46.00	19.78	1000.0	9.000	N	GND	10.3
12.005250	---	42.34	50.00	7.66	1000.0	9.000	N	GND	10.7
12.005250	46.03	---	60.00	13.97	1000.0	9.000	N	GND	10.7
24.009000	47.84	---	60.00	12.16	1000.0	9.000	N	FLO	11.2
24.009000	---	44.70	50.00	5.30	1000.0	9.000	N	FLO	11.2
26.832750	---	30.36	50.00	19.64	1000.0	9.000	L1	GND	11.2
27.186000	40.28	---	60.00	19.72	1000.0	9.000	L1	GND	11.2

5.1.5 TEST EQUIPMENT USED

- Conducted Emissions FCC

5.2 OCCUPIED BANDWIDTH (6 DB)

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 11.8.1

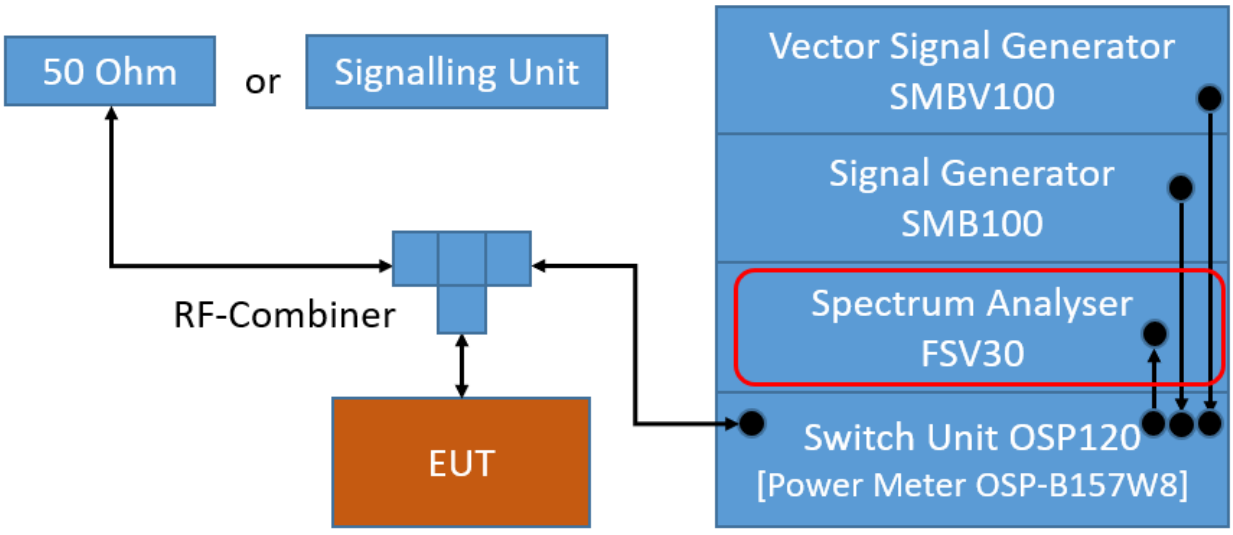
5.2.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the occupied bandwidth measurements.
The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.
The results recorded were measured with the modulation which produce the worst-case (smallest) emission bandwidth.

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:

- Resolution Bandwidth (RBW): 100 kHz
- Video Bandwidth (VBW): 300 kHz
- Span: Two times nominal bandwidth
- Trace: Maxhold
- Sweeps: Till stable (min. 500, max. 15000)
- Sweeptime: Auto
- Detector: Peak



TS8997; Channel Bandwidth

5.2.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart C, §15.247 (a) (2)
Systems using digital modulation techniques may operate in the 902-928 MHz and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.2.3 TEST PROTOCOL

Ambient temperature:	25 - 27 °C
Air Pressure:	1001 - 1010 hPa
Humidity:	40 - 56 %

BT GFSK (1-DH5)

Band / Mode	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	0	2402	0.540	0.5	0.040
	39	2441	0.540	0.5	0.040
	78	2480	0.540	0.5	0.040

BT π/4 DQPSK (2-DH5)

Band / Mode	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	0	2402	1.100	0.5	0.600
	39	2441	1.100	0.5	0.600
	78	2480	1.100	0.5	0.600

BT 8-DPSK (3-DH5)

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	0	2402	1.120	0.5	0.620
	39	2441	1.100	0.5	0.600
	78	2480	1.100	0.5	0.600

BT LE 1 Mbit/s

Band / Mode	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	0	2402	0.814	0.5	0.314
	19	2440	0.814	0.5	0.314
	39	2480	0.814	0.5	0.314

BT LE 2 Mbit/s

Band / Mode	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	0	2402	1.428	0.5	0.928
	19	2440	1.554	0.5	1.054
	39	2480	1.512	0.5	1.012

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

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	1	2412	10.2	0.5	9.7
	6	2437	10.2	0.5	9.7
	11	2462	10.2	0.5	9.7

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

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	1	2412	16.5	0.5	16.0
	6	2437	16.5	0.5	16.0
	11	2462	16.5	0.5	16.0

WLAN n-Mode; 20 MHz; MCS0

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	1	2412	17.4	0.5	16.9
	6	2437	17.6	0.5	17.1
	11	2462	17.6	0.5	17.1

WLAN n-Mode; 40 MHz; MCS0

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	3	2422	35.8	0.5	35.3
	6	2437	35.8	0.5	35.3
	9	2452	35.8	0.5	35.3

WLAN ax-Mode; 20 MHz; MCS0

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	1	2412	18.6	0.5	18.1
	6	2437	18.5	0.5	18.0
	11	2462	18.5	0.5	18.0

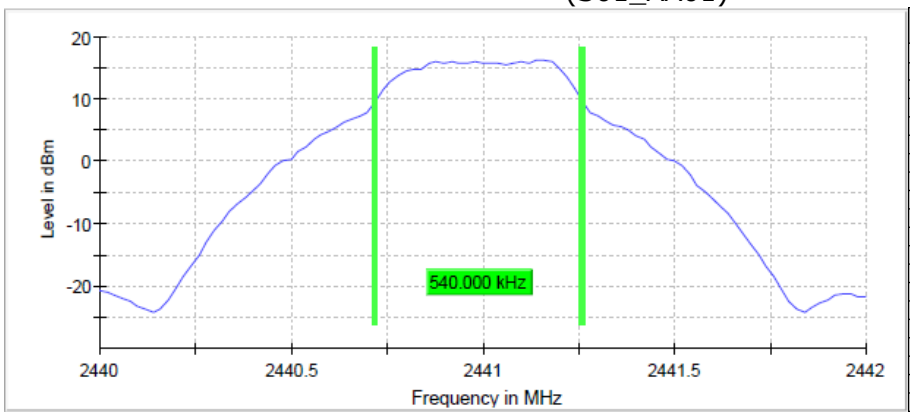
WLAN ax-Mode; 40 MHz; MCS0

Band	Channel No.	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Margin to Limit [MHz]
2.4 GHz ISM	3	2422	37.2	0.5	36.7
	6	2437	37.4	0.5	36.9
	9	2452	37.2	0.5	36.7

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

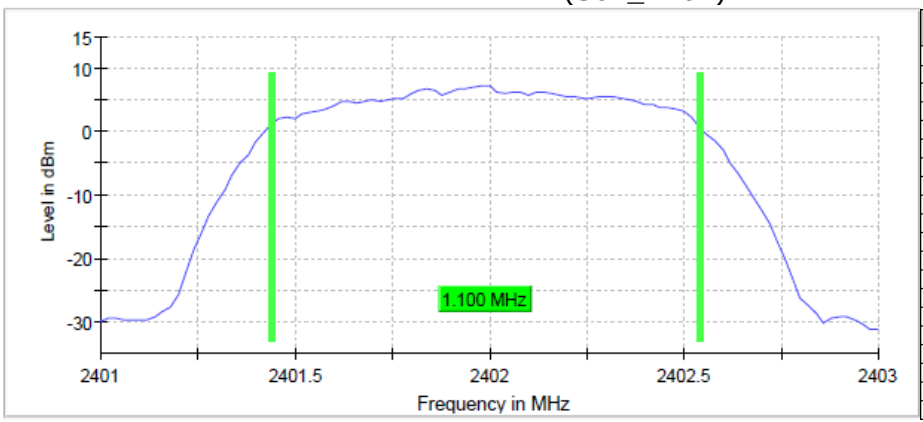
5.2.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

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



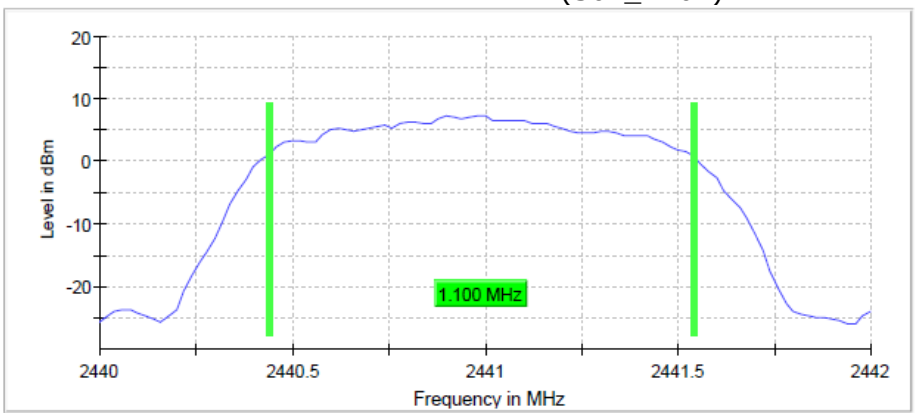
Setting	Instrument Value
Start Frequency	2.44000 GHz
Stop Frequency	2.44200 GHz
Span	2.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	101
Sweeptime	41.830 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	9 / max. 150
Stable	5 / 5
Max Stable Difference	0.24 dB

Radio Technology = Bluetooth EDR 2, Operating Frequency = low
(S01_AA01)



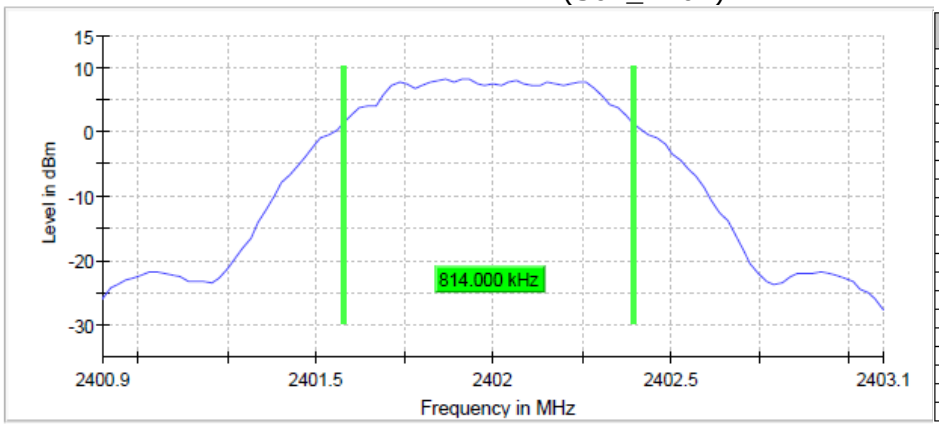
Setting	Instrument Value
Start Frequency	2.40100 GHz
Stop Frequency	2.40300 GHz
Span	2.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	101
Sweeptime	41.830 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	24 / max. 150
Stable	5 / 5
Max Stable Difference	0.03 dB

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



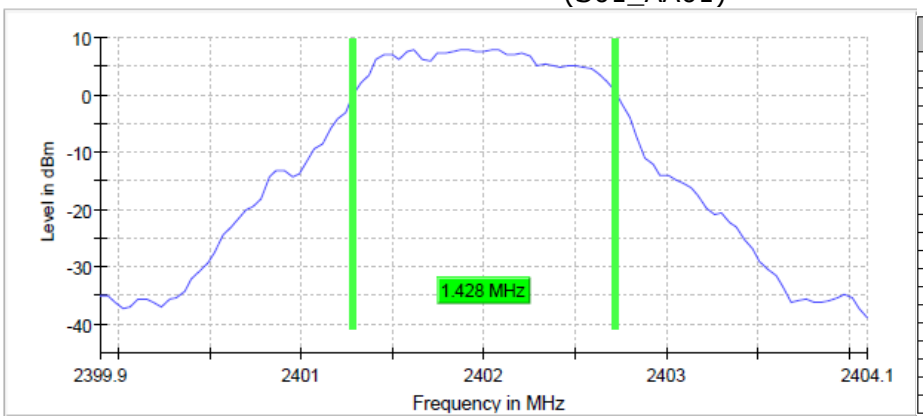
Setting	Instrument Value
Start Frequency	2.44000 GHz
Stop Frequency	2.44200 GHz
Span	2.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	101
Sweeptime	41.830 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	16 / max. 150
Stable	5 / 5
Max Stable Difference	0.02 dB

Radio Technology = Bluetooth LE 1 Mbps, Operating Frequency = low
(S01_AA01)



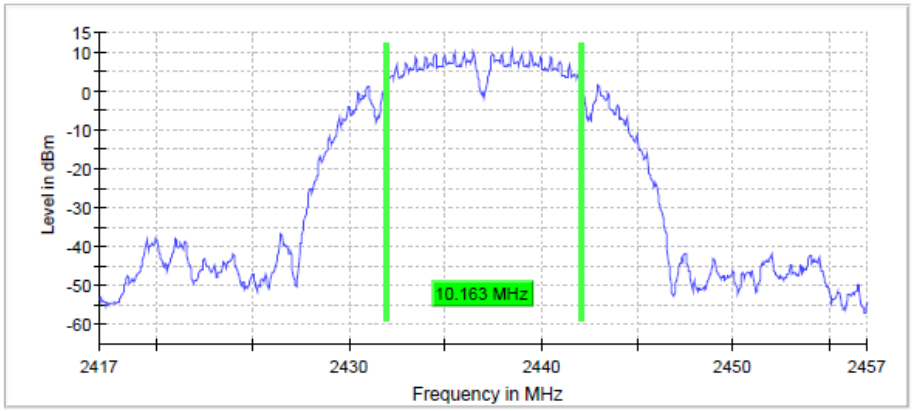
Setting	Instrument Value
Start Frequency	2.40090 GHz
Stop Frequency	2.40310 GHz
Span	2.200 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	101
Sweeptime	41.970 µs
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	9 / max. 150
Stable	5 / 5
Max Stable Difference	0.08 dB

Radio Technology = Bluetooth LE 2 Mbps, Operating Frequency = low
(S01_AA01)



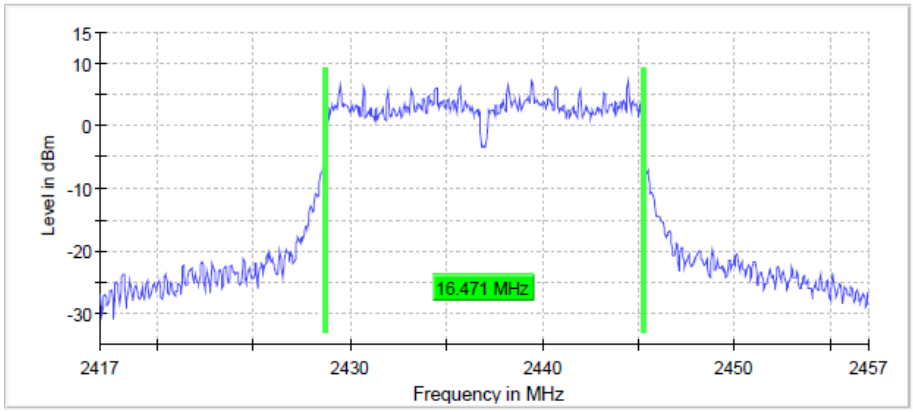
Setting	Instrument Value
Start Frequency	2.39990 GHz
Stop Frequency	2.40410 GHz
Span	4.200 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	101
Sweeptime	41.900 µs
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	12 / max. 150
Stable	5 / 5
Max Stable Difference	0.00 dB

Radio Technology = WLAN b, Operating Frequency = mid
(S01_AD02)



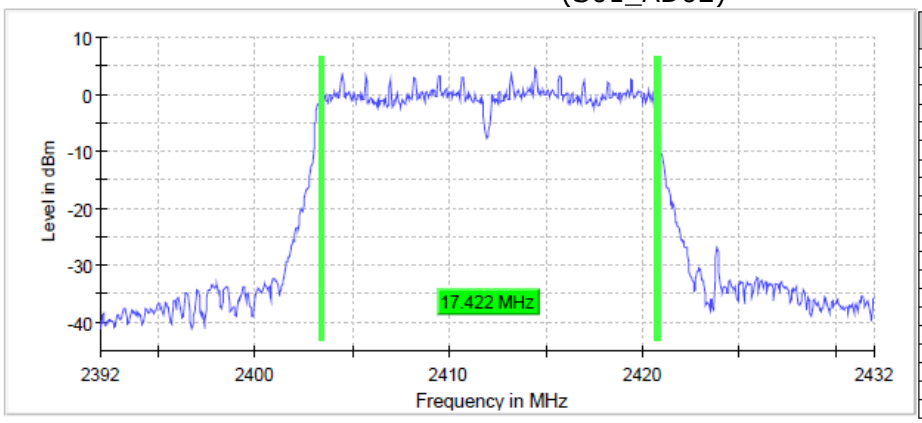
Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	800
Sweeptime	1.040 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	14 / max. 150
Stable	5 / 5
Max Stable Difference	0.42 dB

Radio Technology = WLAN g, Operating Frequency = mid
(S01_AD02)



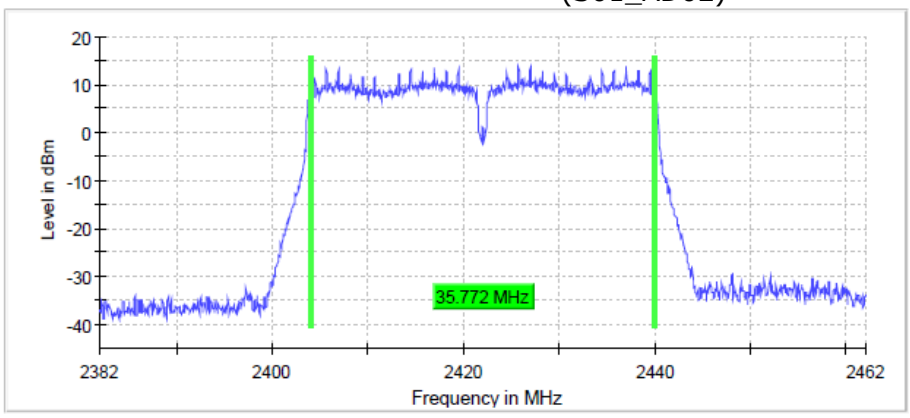
Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	800
Sweeptime	1.040 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	42 / max. 150
Stable	5 / 5
Max Stable Difference	0.20 dB

Radio Technology = WLAN n 20 MHz, Operating Frequency = low
(S01_AD02)



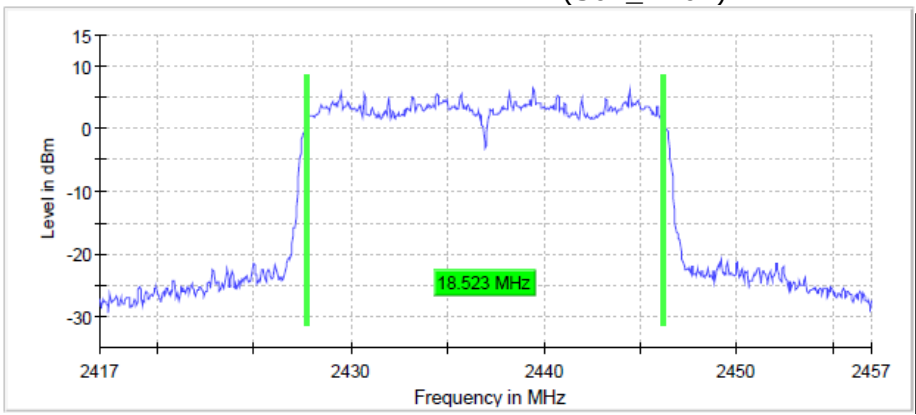
Setting	Instrument Value
Start Frequency	2.39200 GHz
Stop Frequency	2.43200 GHz
Span	40.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	800
Sweeptime	1.040 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	48 / max. 150
Stable	5 / 5
Max Stable Difference	0.25 dB

Radio Technology = WLAN n 40 MHz, Operating Frequency = low
(S01_AD02)



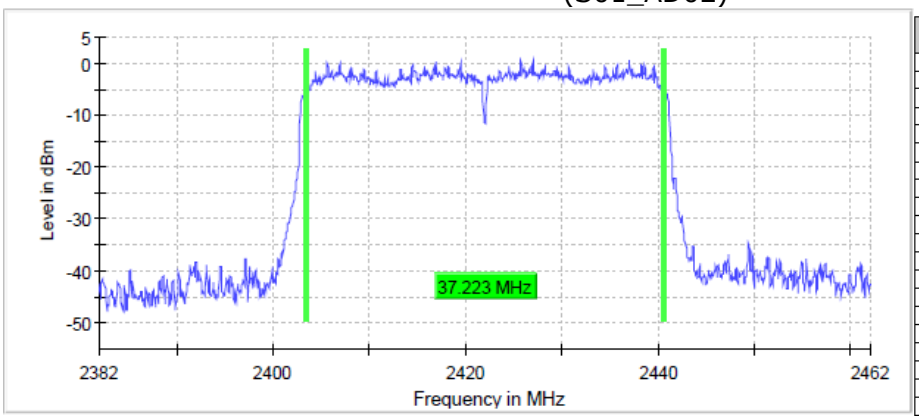
Setting	Instrument Value
Start Frequency	2.38200 GHz
Stop Frequency	2.46200 GHz
Span	80.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	1600
Sweeptime	1.600 ms
Reference Level	10.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	81 / max. 150
Stable	5 / 5
Max Stable Difference	0.35 dB

Radio Technology = WLAN ax 20 MHz, Operating Frequency = mid
(S01_AD02)



Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	800
Sweeptime	1.040 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	102 / max. 150
Stable	5 / 5
Max Stable Difference	0.00 dB

Radio Technology = WLAN ax 40 MHz, Operating Frequency = low
(S01_AD02)



Setting	Instrument Value
Start Frequency	2.38200 GHz
Stop Frequency	2.46200 GHz
Span	80.000 MHz
RBW	100.000 kHz
VBW	300.000 kHz
SweepPoints	1600
Sweeptime	1.600 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	121 / max. 150
Stable	5 / 5
Max Stable Difference	0.00 dB

5.2.5 TEST EQUIPMENT USED

- R&S TS8997

5.3 OCCUPIED BANDWIDTH (99%)

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 6.9.3

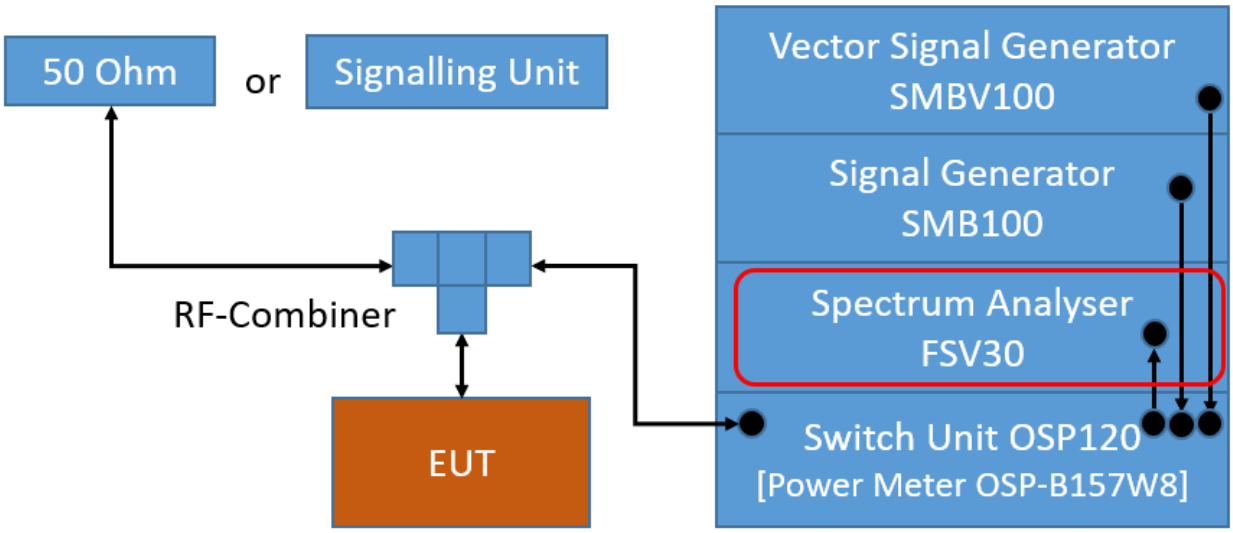
5.3.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the occupied bandwidth measurements.
The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.

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:

- Resolution Bandwidth (RBW): 1 to 5 % of the OBW
- Video Bandwidth (VBW): ≥ 3 times the RBW
- Span: 1.5 to 5 times the OBW
- Trace: Maxhold
- Sweeps: Till stable (min. 500, max. 75000)
- Sweeptime: Auto
- Detector: Peak



TS8997; Channel Bandwidth

5.3.2 TEST REQUIREMENTS / LIMITS

No applicable limit.

5.3.3 TEST PROTOCOL

Ambient temperature: 25 - 27 °C
Air Pressure: 1001 - 1010 hPa
Humidity: 40 - 56 %

BT GFSK (1-DH5)

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	0	2402	0.877
	39	2441	0.872
	78	2480	0.882

BT π/4 DQPSK (2-DH5)

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	0	2402	1.185
	39	2441	1.185
	78	2480	1.185

BT 8-DPSK (3-DH5)

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	0	2402	1.195
	39	2441	1.185
	78	2480	1.185

BT LE 1 Mbit/s

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	0	2402	1.030
	19	2440	1.030
	39	2480	1.030

BT LE 2 Mbit/s

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	0	2402	1.526
	19	2440	2.048
	39	2480	2.048

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

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	1	2412	13.5
	6	2437	13.5
	11	2462	13.5

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

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	1	2412	16.7
	6	2437	16.7
	11	2462	16.7

WLAN n-Mode; 20 MHz; MCS0

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	1	2412	17.7
	6	2437	17.7
	11	2462	17.7

WLAN n-Mode; 40 MHz; MCS0

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	3	2422	36.4
	6	2437	36.4
	9	2452	36.4

WLAN ax-Mode; 20 MHz; MCS0

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	1	2412	18.7
	6	2437	18.9
	11	2462	18.8

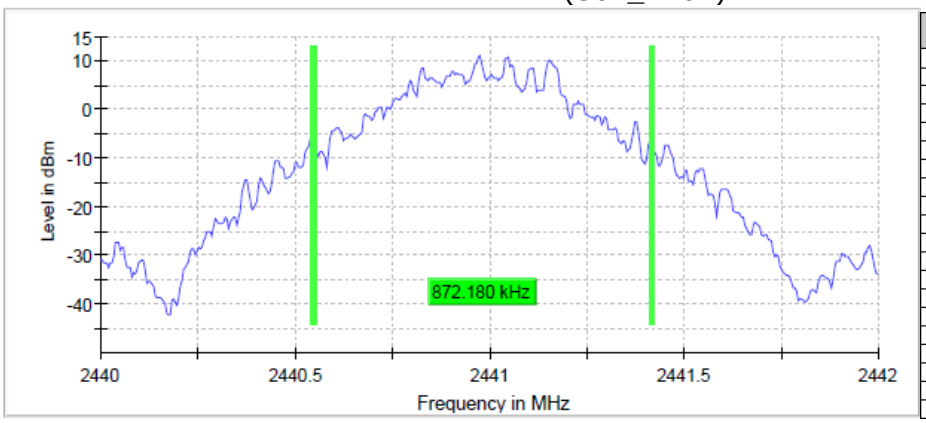
WLAN ax-Mode; 40 MHz; MCS0

Band	Channel No.	Frequency [MHz]	99 % Bandwidth [MHz]
2.4 GHz ISM	3	2422	37.6
	6	2437	37.9
	9	2452	37.9

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

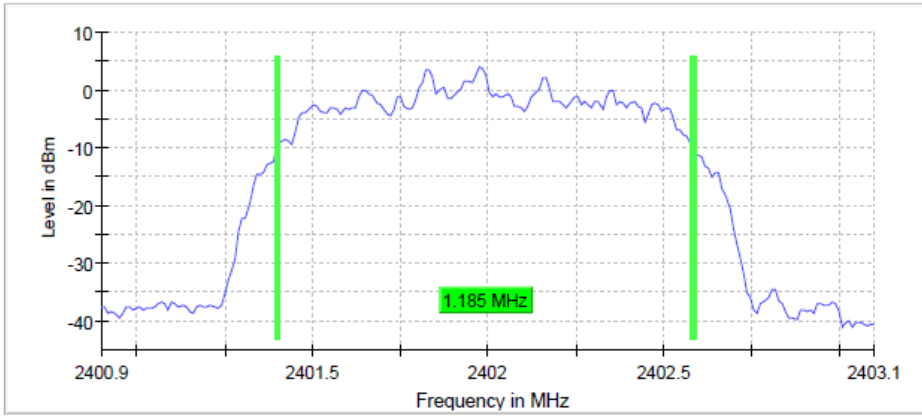
5.3.4 MEASUREMENT PLOT (EXAMPLE PLOT, SHOWING WORST CASE, IF APPLICABLE)

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



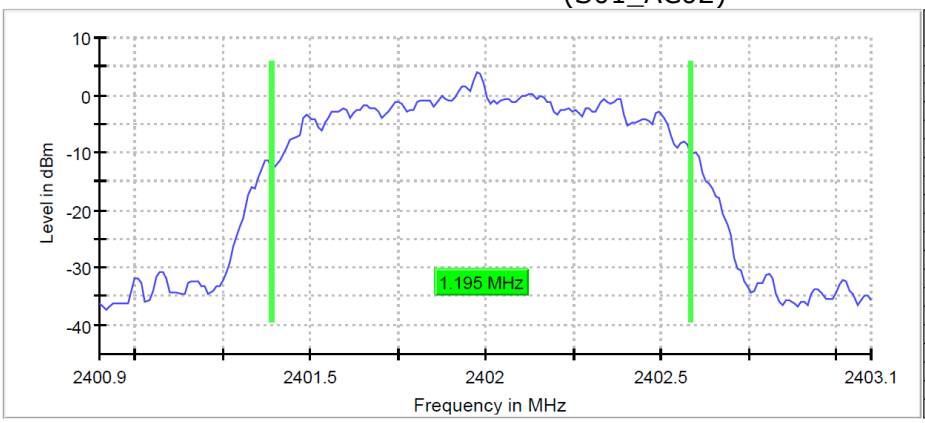
Setting	Instrument Value
Start Frequency	2.44000 GHz
Stop Frequency	2.44200 GHz
Span	2.000 MHz
RBW	10.000 kHz
VBW	30.000 kHz
SweepPoints	400
Sweeptime	419.000 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	13 / max. 150
Stable	3 / 3
Max Stable Difference	0.11 dB

Radio Technology = Bluetooth EDR 2, Operating Frequency = low
(S01_AC02)



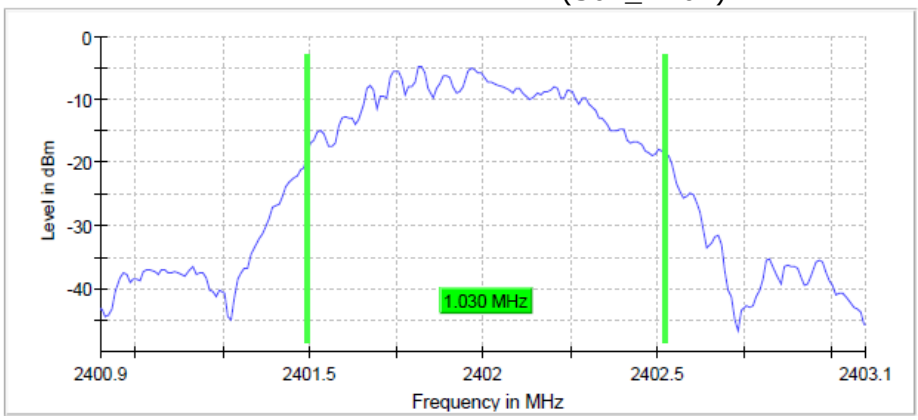
Setting	Instrument Value
Start Frequency	2.40090 GHz
Stop Frequency	2.40310 GHz
Span	2.200 MHz
RBW	20.000 kHz
VBW	100.000 kHz
SweepPoints	220
Sweeptime	210.000 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	11 / max. 150
Stable	3 / 3
Max Stable Difference	0.03 dB

Radio Technology = Bluetooth EDR 3, Operating Frequency = low
(S01_AC02)



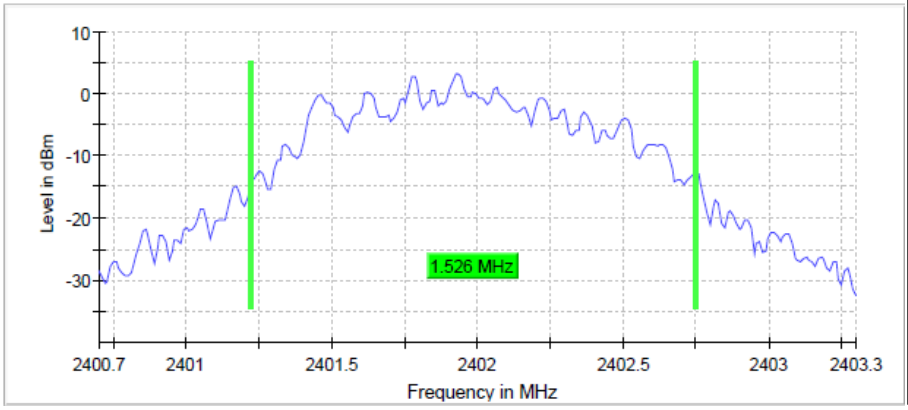
Setting	Instrument Value
Start Frequency	2.40090 GHz
Stop Frequency	2.40310 GHz
Span	2.200 MHz
RBW	20.000 kHz
VBW	100.000 kHz
SweepPoints	220
Sweeptime	210.000 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	8 / max. 150
Stable	3 / 3
Max Stable Difference	0.10 dB

Radio Technology = Bluetooth LE 1 Mbps, Operating Frequency = low
(S01_AD02)



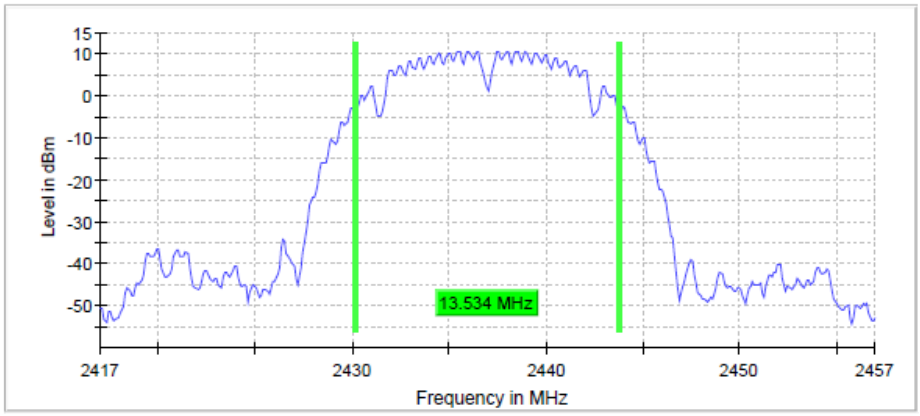
Setting	Instrument Value
Start Frequency	2.40090 GHz
Stop Frequency	2.40310 GHz
Span	2.200 MHz
RBW	20.000 kHz
VBW	100.000 kHz
SweepPoints	220
Sweeptime	94.727 µs
Reference Level	0.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	5 / max. 150
Stable	3 / 3
Max Stable Difference	0.11 dB

Radio Technology = Bluetooth LE 2 Mbps, Operating Frequency = low
(S01_AA01)



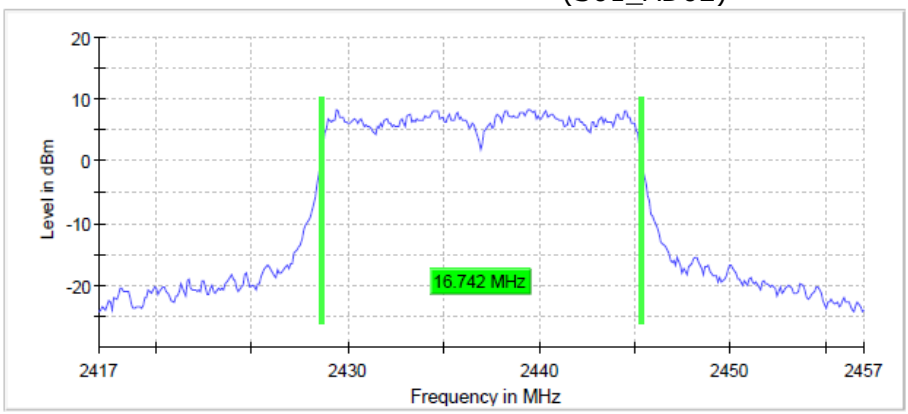
Setting	Instrument Value
Start Frequency	2.40070 GHz
Stop Frequency	2.40330 GHz
Span	2.600 MHz
RBW	20.000 kHz
VBW	100.000 kHz
SweepPoints	260
Sweeptime	210.000 µs
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	7 / max. 150
Stable	3 / 3
Max Stable Difference	0.04 dB

Radio Technology = WLAN b, Operating Frequency = mid
(S01_AD02)



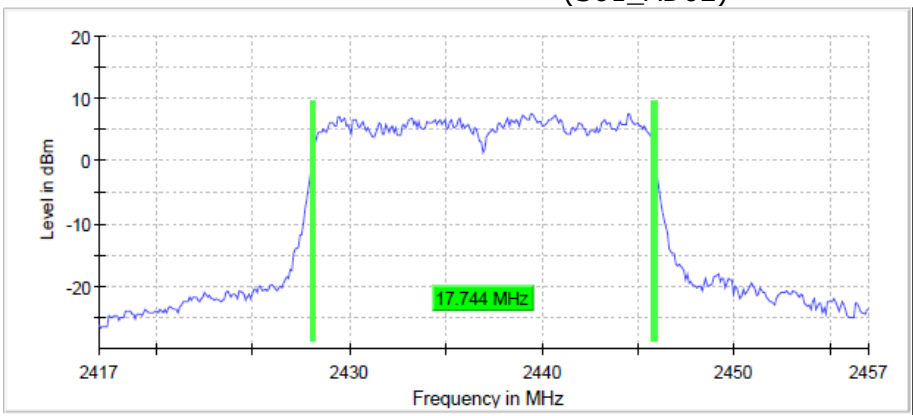
Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	200.000 kHz
VBW	1.000 MHz
SweepPoints	400
Sweeptime	1.000 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	7 / max. 150
Stable	3 / 3
Max Stable Difference	0.22 dB

Radio Technology = WLAN g, Operating Frequency = mid
(S01_AD02)



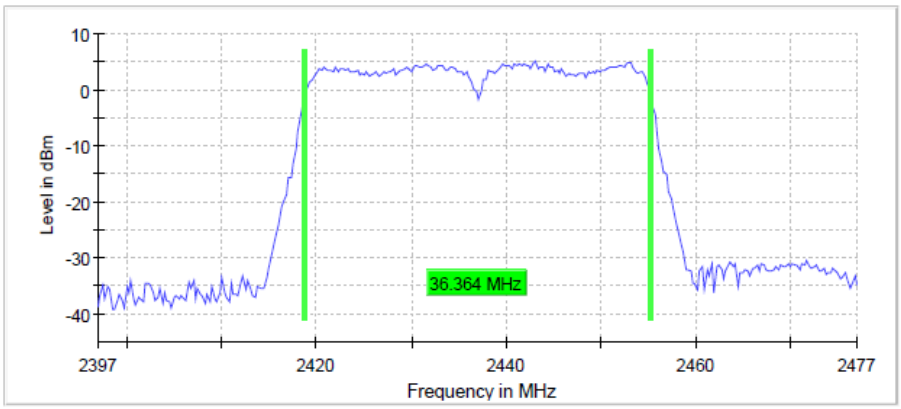
Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	200.000 kHz
VBW	1.000 MHz
SweepPoints	400
Sweeptime	1.000 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	47 / max. 150
Stable	3 / 3
Max Stable Difference	0.22 dB

Radio Technology = WLAN n 20 MHz, Operating Frequency = mid
(S01_AD02)



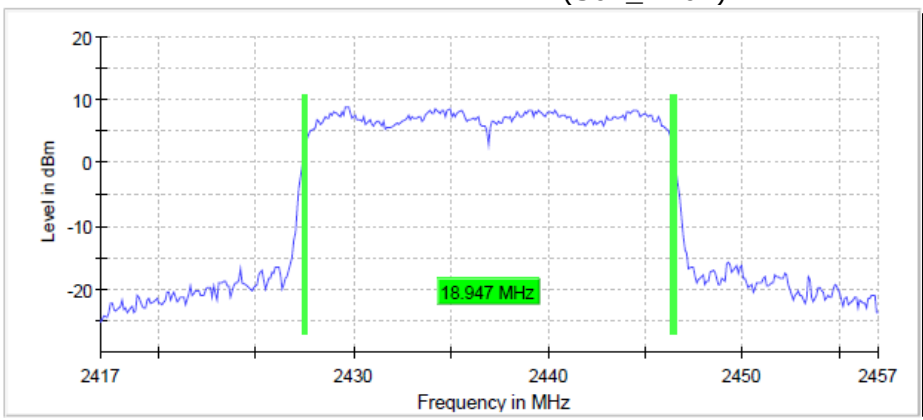
Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	200.000 kHz
VBW	1.000 MHz
SweepPoints	400
Sweeptime	1.000 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	53 / max. 150
Stable	3 / 3
Max Stable Difference	0.16 dB

Radio Technology = WLAN n 40 MHz, Operating Frequency = mid
(S01_AD02)



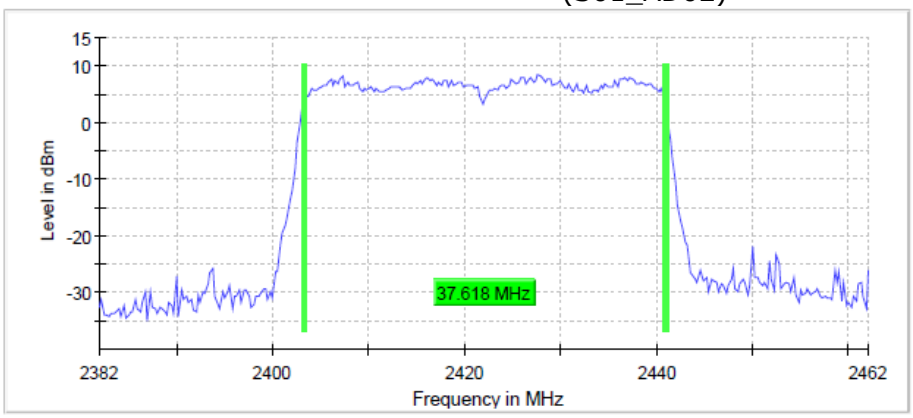
Setting	Instrument Value
Start Frequency	2.39700 GHz
Stop Frequency	2.47700 GHz
Span	80.000 MHz
RBW	500.000 kHz
VBW	2.000 MHz
SweepPoints	320
Sweeptime	1.000 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	70 / max. 150
Stable	3 / 3
Max Stable Difference	0.09 dB

Radio Technology = WLAN ax 20 MHz, Operating Frequency = mid
(S01_AD02)



Setting	Instrument Value
Start Frequency	2.41700 GHz
Stop Frequency	2.45700 GHz
Span	40.000 MHz
RBW	200.000 kHz
VBW	1.000 MHz
SweepPoints	400
Sweeptime	1.000 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	116 / max. 150
Stable	3 / 3
Max Stable Difference	0.00 dB

Radio Technology = WLAN ax 40 MHz, Operating Frequency = low
(S01_AD02)



Setting	Instrument Value
Start Frequency	2.38200 GHz
Stop Frequency	2.46200 GHz
Span	80.000 MHz
RBW	500.000 kHz
VBW	2.000 MHz
SweepPoints	320
Sweeptime	1.000 ms
Reference Level	0.000 dBm
Attenuation	10.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	Sweep
Preamp	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	101 / max. 150
Stable	3 / 3
Max Stable Difference	0.00 dB

5.3.5 TEST EQUIPMENT USED

- R&S TS8997

5.4 PEAK POWER OUTPUT

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 11.9.1.1, 11.9.2.3.2

5.4.1 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):

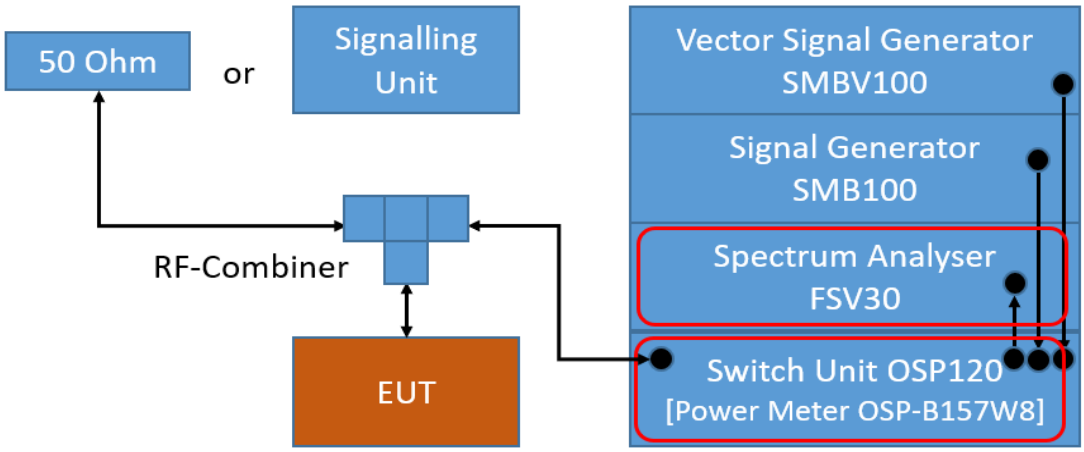
The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.
The reference level of the spectrum analyser was set higher than the output power of the EUT.

Analyser settings:

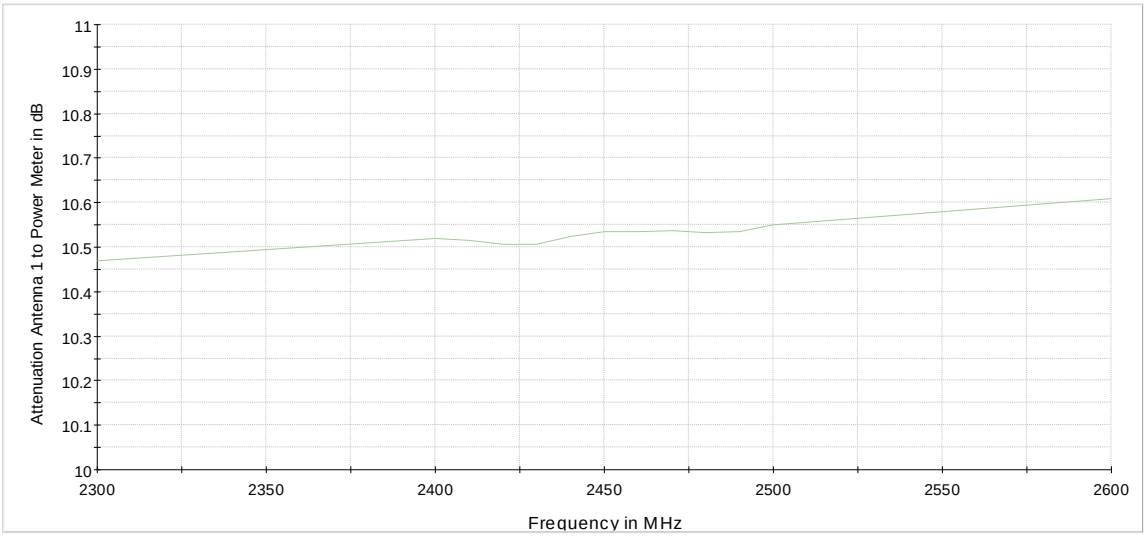
- Resolution Bandwidth (RBW): ≥ DTS bandwidth
- Video Bandwidth (VBW): ≥ 3 times RBW or maximum of analyzer
- Span: ≥ 3 times RBW
- Trace: Maxhold
- Sweeps: Till stable (min. 300, max. 15000)
- Sweeptime: Auto
- Detector: Peak

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

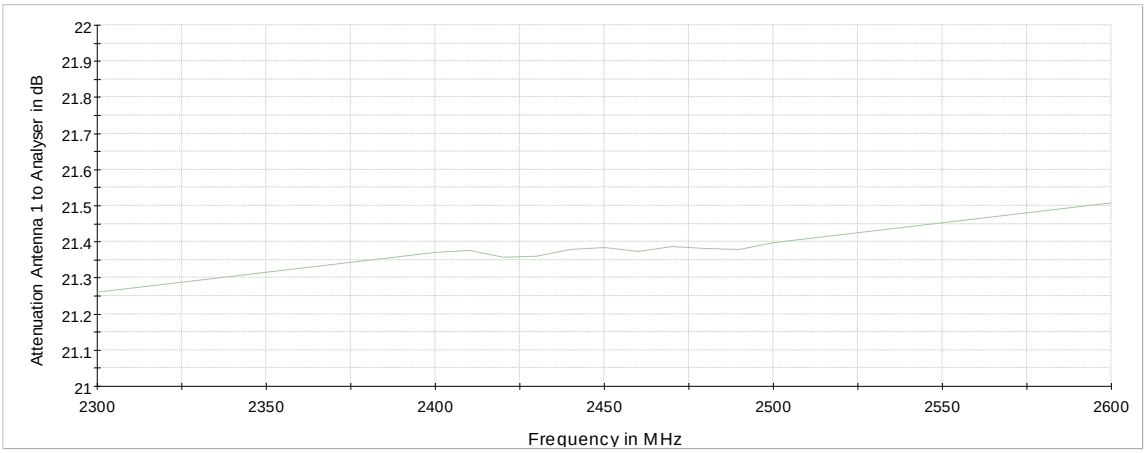
The EUT was connected to the test system as described in the block diagram below. The complete attenuation of the measurement path is known and considered.
Measurement is performed using the gated RF average power meter integrated in the OSP 120 module OSP-B157W8 with signal bandwidth >300 MHz.



TS8997; Output Power



Attenuation of the measurement path to Power Meter



Attenuation of the measurement path to Analyser

5.4.2 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)

5.4.3 TEST PROTOCOL

Ambient temperature: 25 - 27 °C
Air Pressure: 1001 - 1010 hPa
Humidity: 40 - 56 %

BT GFSK (1-DH5)

Band	Channel No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	0	2402	17.1	30.0	12.9	21.2
	39	2441	17.2	30.0	12.8	21.3
	78	2480	17.1	30.0	12.9	21.2

BT π/4 DQPSK (2-DH5)

Band	Channel No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	0	2402	10.8	30.0	19.2	14.9
	39	2441	10.8	30.0	19.2	14.9
	78	2480	10.7	30.0	19.3	14.8

BT 8-DPSK (3-DH5)

Band	Channel No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	0	2402	11.1	30.0	18.9	15.2
	39	2441	11.1	30.0	18.9	15.2
	78	2480	11.0	30.0	19.0	15.1

BT LE 1 Mbit/s

Band	Channel No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	0	2402	10.4	30.0	19.6	14.5
	19	2440	10.3	30.0	19.7	14.4
	39	2480	10.2	30.0	19.8	14.3

BT LE 2 Mbit/s

Band	Channel No.	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	0	2402	10.4	30.0	19.6	14.5
	19	2440	10.5	30.0	19.5	14.6
	39	2480	10.4	30.0	19.6	14.5

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

Band	Channel No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	1	2412	19.2	30.0	10.8	23.3
	6	2437	19.7	30.0	10.3	23.8
	11	2462	19.6	30.0	10.4	23.7

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

Band	Channel No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	1	2412	15.1	30.0	14.9	19.2
	6	2437	18.4	30.0	11.6	22.5
	11	2462	14.6	30.0	15.4	18.7

WLAN n-Mode; 20 MHz; MCS0

Band	Channel No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	1	2412	15.2	30.0	14.8	19.3
	6	2437	17.5	30.0	12.5	21.6
	11	2462	14.5	30.0	15.5	18.6

WLAN n-Mode; 40 MHz; MCS0

Band	Channel No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	3	2422	13.2	30.0	16.8	17.3
	6	2437	13.6	30.0	16.4	17.7
	9	2452	12.1	30.0	17.9	16.2

WLAN ax-Mode; 20 MHz; MCS0

Band	Channel No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	1	2412	14.3	30.0	15.7	18.4
	6	2437	17.7	30.0	12.3	21.8
	11	2462	13.1	30.0	16.9	17.2

WLAN ax-Mode; 40 MHz; MCS0

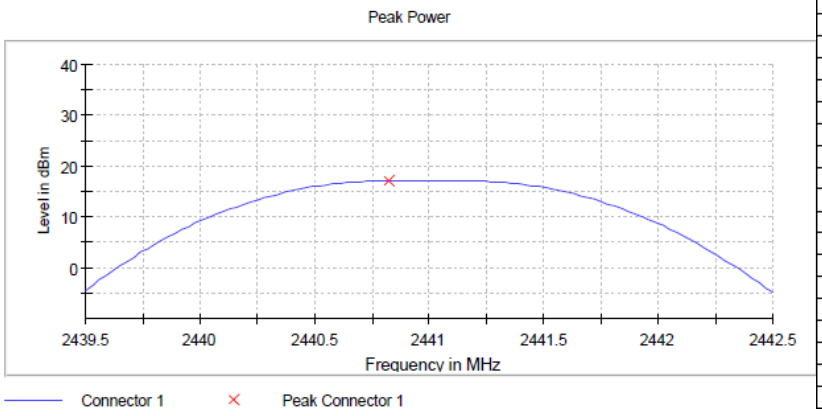
Band	Channel No.	Frequency [MHz]	Maximum Average Power [dBm]	Limit [dBm]	Margin to Limit [dB]	E.I.R.P [dBm]
2.4 GHz ISM	3	2422	14.6	30.0	15.4	18.7
	6	2437	13.9	30.0	16.1	18.0
	9	2452	13.5	30.0	16.5	17.6

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

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

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

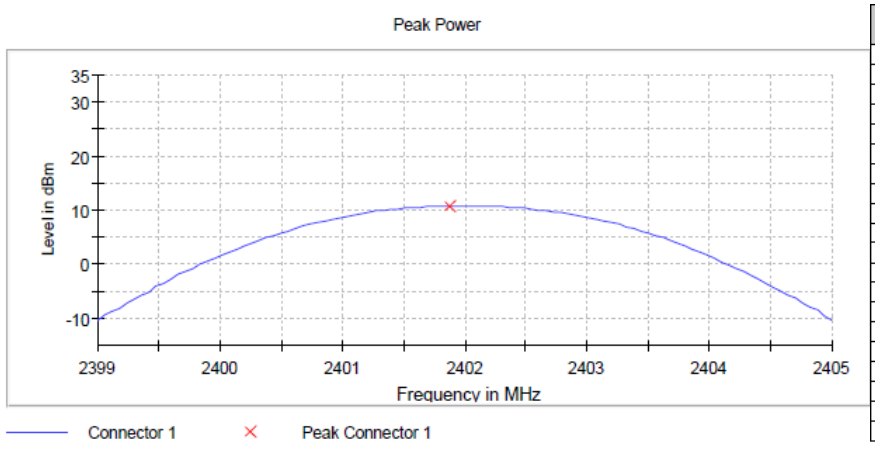
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2441.000000	17.2	30.0	PASS



Setting	Instrument Value
Start Frequency	2.43950 GHz
Stop Frequency	2.44250 GHz
Span	3.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	4.210 µs
Reference Level	20.000 dBm
Attenuation	30.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	4 / max. 150
Stable	3 / 3
Max Stable Difference	0.04 dB

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

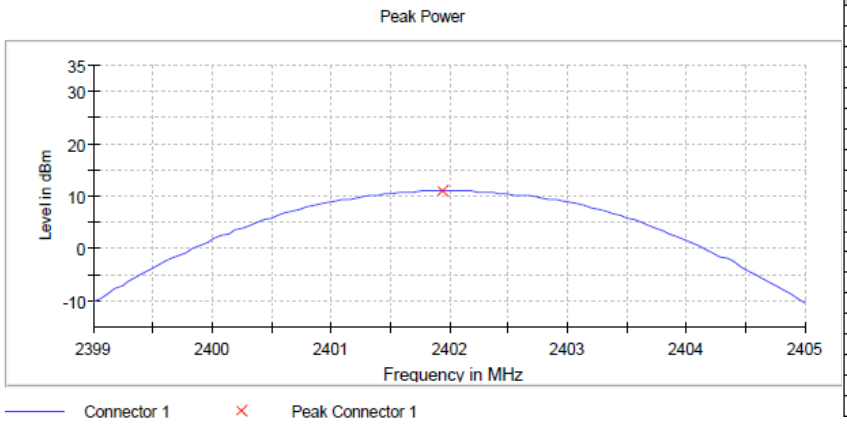
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	10.8	30.0	PASS



Setting	Instrument Value
Start Frequency	2.39900 GHz
Stop Frequency	2.40500 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	0.11 dB

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

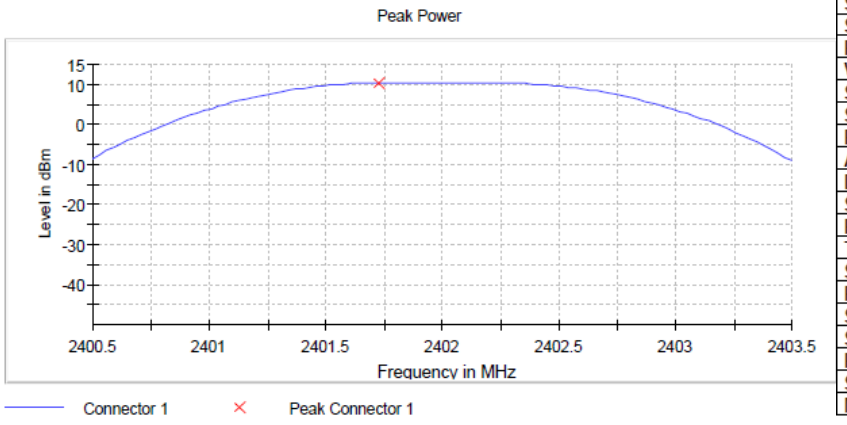
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	11.1	30.0	PASS



Setting	Instrument Value
Start Frequency	2.39900 GHz
Stop Frequency	2.40500 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	0.14 dB

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

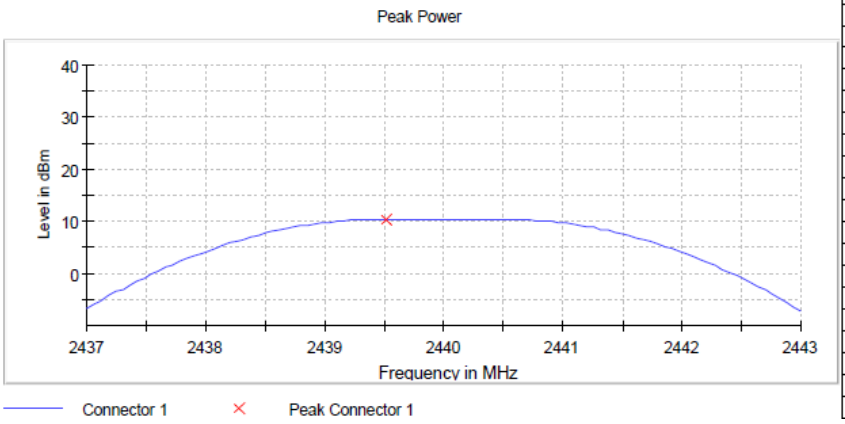
DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	10.4	30.0	PASS



Setting	Instrument Value
Start Frequency	2.40050 GHz
Stop Frequency	2.40350 GHz
Span	3.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	101
Sweeptime	4.210 µs
Reference Level	10.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	100
Filter	3 dB
Trace Mode	Max Hold
Sweeptype	FFT
Preamp	off
Stablemode	Trace
Stablevalue	0.50 dB
Run	5 / max. 150
Stable	3 / 3
Max Stable Difference	0.05 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	10.5	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	0.05 dB

5.4.5 TEST EQUIPMENT USED

- R&S TS8997

5.5 SPURIOUS RF CONDUCTED EMISSIONS

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10, chapter 11.11

5.5.1 TEST DESCRIPTION

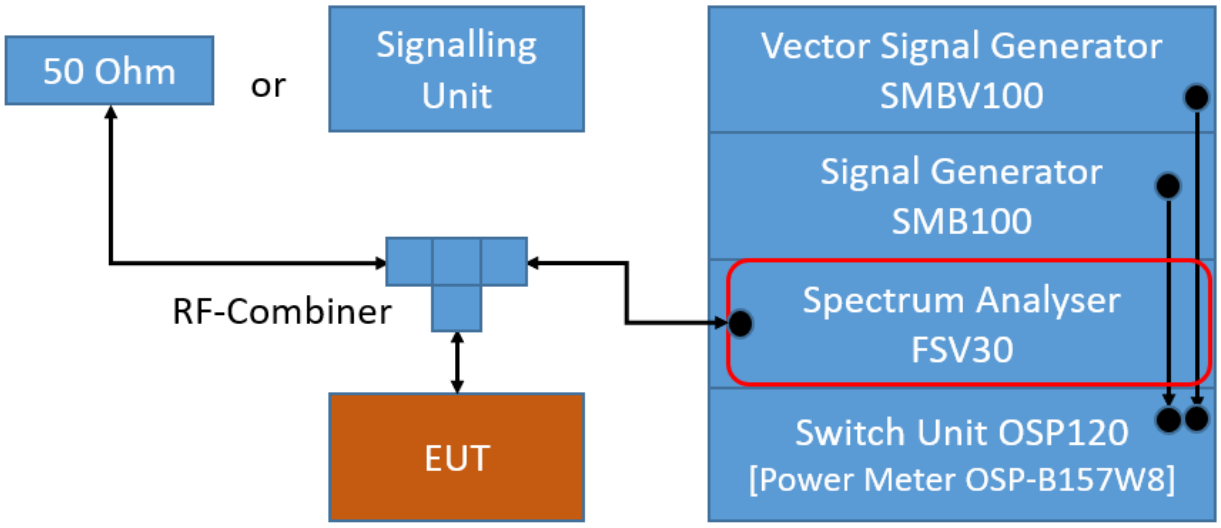
The Equipment Under Test (EUT) was set up to perform the spurious emissions measurements.

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.

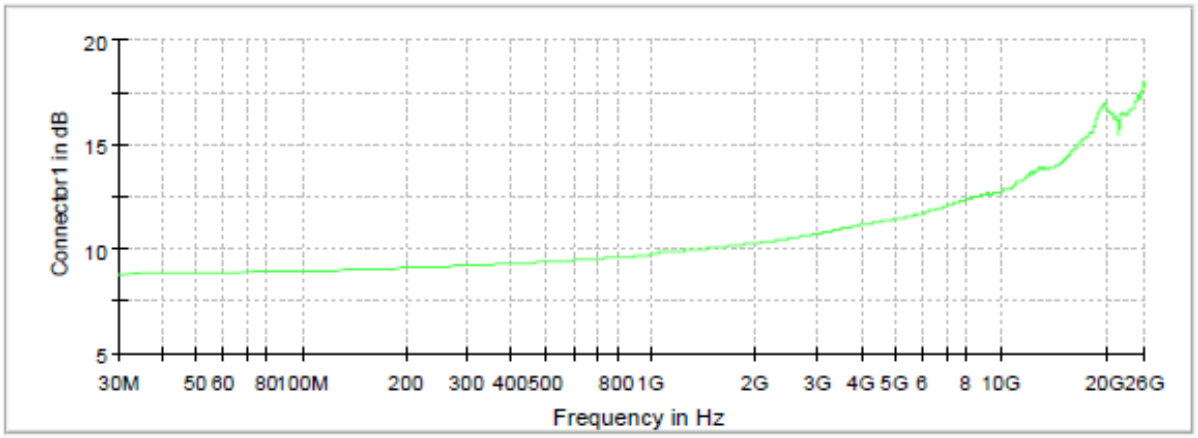
Analyser settings:

- Frequency range: 30 – 26000 MHz
- Resolution Bandwidth (RBW): 100 kHz
- Video Bandwidth (VBW): 300 kHz
- Trace: Maxhold
- Sweeps: Till Stable (max. 120)
- Sweep Time: Auto
- Detector: Peak

The reference value for the measurement of the spurious RF conducted emissions is determined during the test "band edge compliance conducted". This value is used to calculate the 20 dBc or 30 dBc limit.



TS8997; Spurious RF Conducted Emissions



Attenuation of the measurement part

5.5.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart C, §15.247 (c)
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.5.3 TEST PROTOCOL

Ambient temperature: 25 - 27 °C
Air Pressure: 1001 - 1010 hPa
Humidity: 40 - 56 %

BT GFSK (1-DH5)

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
0	2402	2493.5	-48.0	PEAK	100	16.5	-3.5	44.5
39	2441	21970.6	-51.7	PEAK	100	16.5	-3.5	48.2
78	2480	26000.0	-24.9	PEAK	100	16.2	-3.8	21.1

BT π/4 DQPSK (2-DH5)

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
0	2402	4803.2	-55.8	PEAK	100	7.6	-12.4	43.4
39	2441	25990.0	-58.5	PEAK	100	8.7	-11.3	47.2
78	2480	25440.1	-48.3	PEAK	100	4.7	-15.3	33.0

BT 8-DPSK (3-DH5)

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
0	2402	4803.2	-56.2	PEAK	100	2.2	-17.8	38.4
39	2441	25300.1	-58.0	PEAK	100	8.9	-11.1	46.9
78	2480	25970.0	-48.1	PEAK	100	7.9	-12.1	36.0

BT LE 1 Mbit/s

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
0	2402	2513.5	-52.2	PEAK	100	10.0	-10.0	42.2
19	2440	2513.5	-56.4	PEAK	100	9.5	-10.5	45.9
39	2480	2493.5	-48.6	PEAK	100	9.5	-10.5	38.1

BT LE 2 Mbit/s

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
0	2402	2390.0	-51.0	PEAK	100	9.2	-10.8	40.2
19	2440	2513.5	-56.9	PEAK	100	6.6	-13.4	43.5
39	2480	25990.0	-48.4	PEAK	100	6.4	-13.6	34.8

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

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
1	2412	25705.2	-37.8	PEAK	100	7.5	-22.5	15.3
6	2437	26000.0	-28.2	PEAK	100	7.9	-22.1	6.1
11	2462	25325.4	-37.5	PEAK	100	8.7	-21.3	16.2

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

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
1	2412	25975.0	-37.8	PEAK	100	3.4	-26.6	11.2
6	2437	25975.0	-37.3	PEAK	100	5.9	-24.1	13.2
11	2462	25985.0	-37.9	PEAK	100	0.0	-30.0	7.9

WLAN n-Mode; 20 MHz; MCS0

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
1	2412	2395.0	-35.7	PEAK	100	1.5	-28.5	7.2
6	2437	25195.5	-37.8	PEAK	100	2.4	-27.6	10.2
11	2462	25985.0	-37.7	PEAK	100	-1.1	-31.1	6.6

WLAN n-Mode; 40 MHz; MCS0

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
3	2422	25295.4	-37.5	PEAK	100	-5.0	-35.0	2.5
6	2437	25295.4	-37.7	PEAK	100	-4.4	-34.4	3.3
9	2452	25985.0	-37.6	PEAK	100	-3.8	-33.8	3.8

WLAN ax-Mode; 20 MHz; MCS0

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
1	2412	25985.0	-38.2	PEAK	100	-1.4	-31.4	6.8
6	2437	25285.4	-36.9	PEAK	100	5.3	-24.7	12.2
11	2462	25315.4	-37.4	PEAK	100	-2.4	-32.4	5.0

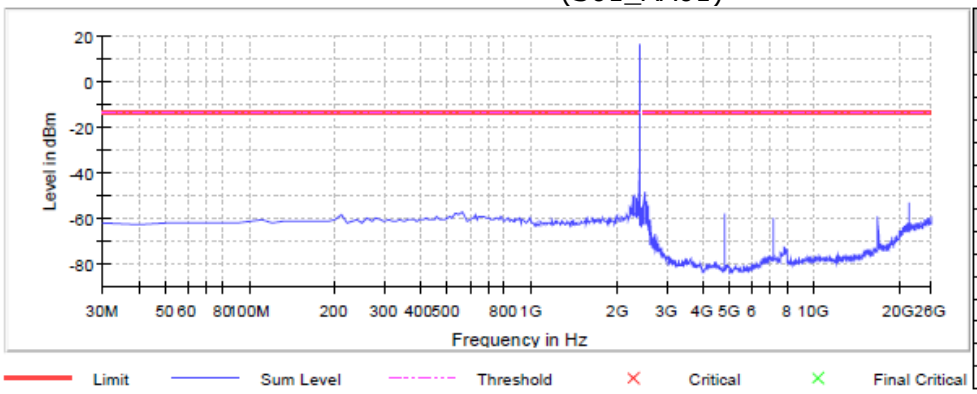
WLAN ax-Mode; 40 MHz; MCS0

Channel No	Channel Center Freq. [MHz]	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Ref. Level [dBm]	Limit [dBm]	Margin to Limit [dB]
3	2422	25385.4	-37.5	PEAK	100	-3.5	-33.5	4.0
6	2437	25295.4	-38.0	PEAK	100	-1.1	-31.1	6.9
9	2452	25965.0	-37.9	PEAK	100	-4.4	-34.4	3.5

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

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

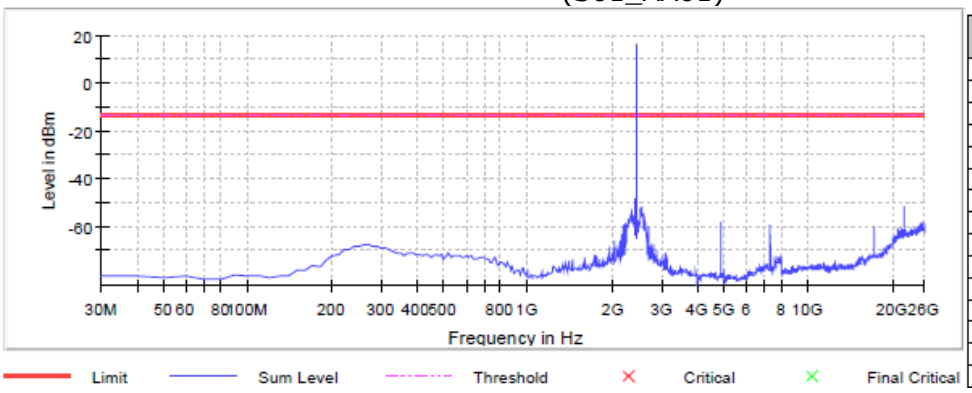
Radio Technology = Bluetooth BDR, Operating Frequency = low
(S01_AA01)



Frequency (MHz)	Level (dBm)
2493.498512	-48.0
2310.000000	-49.7
2290.000000	-49.9
2350.000000	-50.8
2270.000000	-51.7
2533.492560	-51.9
21620.651786	-52.5
2370.000000	-53.4
2543.491071	-53.9
2573.486607	-54.2
2230.000000	-55.3
2240.000000	-56.2
560.000000	-56.7
2260.000000	-57.2
2360.000000	-57.2

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

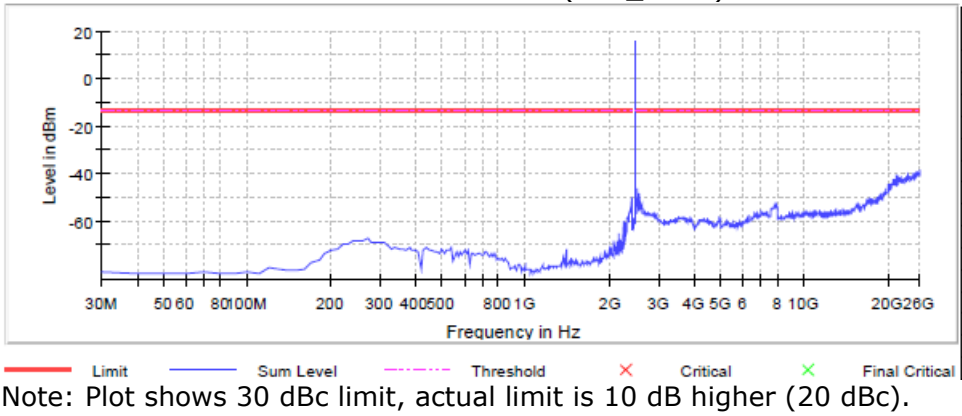
Radio Technology = Bluetooth BDR, Operating Frequency = mid
(S01_AA01)



Frequency (MHz)	Level (dBm)
21970.599702	-51.7
2513.495536	-52.3
2533.492560	-52.4
2523.494048	-52.8
2340.000000	-53.9
2553.489583	-54.3
2330.000000	-54.4
2593.483631	-54.5
2390.000000	-55.2
2583.485119	-55.6
2370.000000	-55.8
2563.488095	-55.8
2543.491071	-56.3
2320.000000	-56.5
2290.000000	-57.3

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

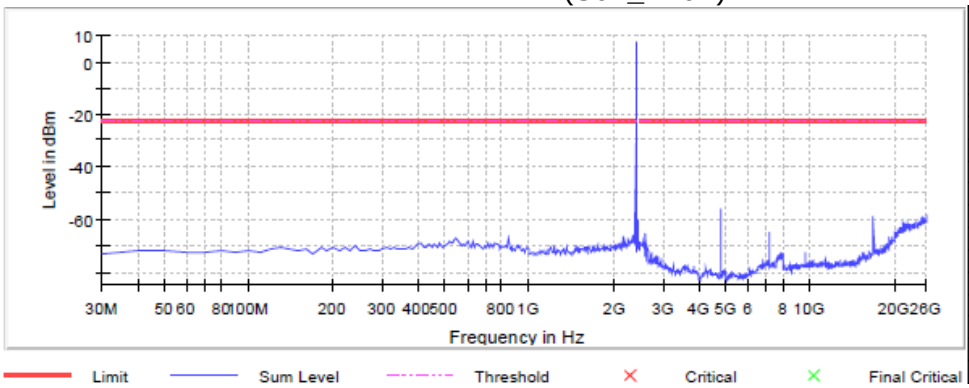
Radio Technology = Bluetooth BDR, Operating Frequency = high
(S01_AA01)



Frequency (MHz)	Level (dBm)
26000.000000	-38.7
25170.123512	-39.1
25680.047619	-39.2
25890.016369	-39.2
25260.110119	-39.2
25240.113095	-39.3
25670.049107	-39.3
25280.107143	-39.3
25910.013393	-39.3
25990.001488	-39.3
25370.093750	-39.4
25700.044643	-39.4
25350.096726	-39.4
25460.080357	-39.4
25270.108631	-39.4

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

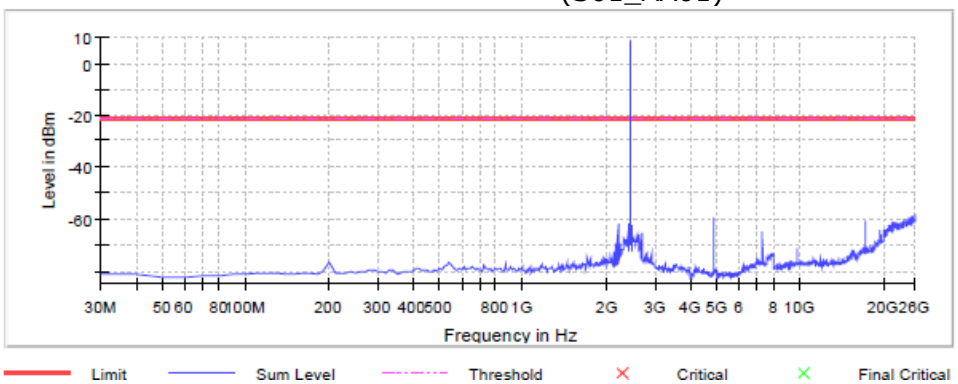
Radio Technology = Bluetooth EDR 2, Operating Frequency = low
(S01_AA01)



Frequency (MHz)	Level (dBm)
4803.154762	-55.8
26000.000000	-58.4
16811.367560	-58.8
25190.120536	-58.9
25990.001488	-58.9
25290.105655	-58.9
25960.005952	-59.0
25980.002976	-59.1
24920.160714	-59.3
25860.020833	-59.3
25320.101190	-59.6
25310.102679	-59.6
25380.092262	-59.6
25230.114583	-59.6
25640.053571	-59.7

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

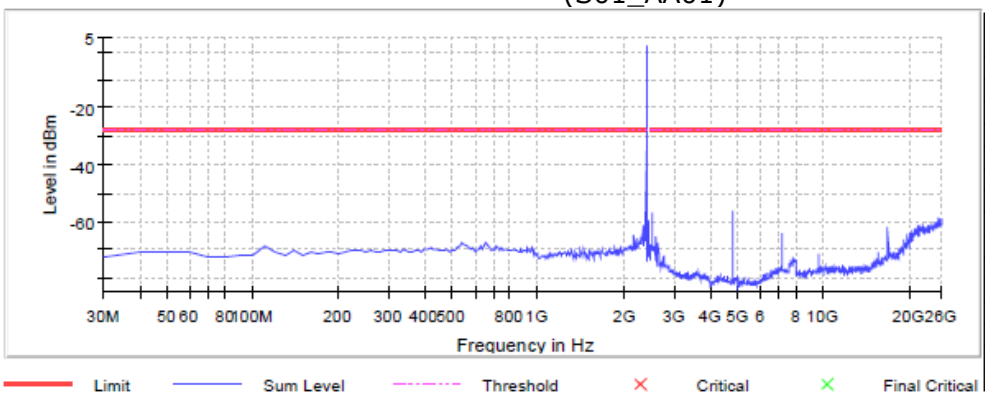
Radio Technology = Bluetooth EDR 2, Operating Frequency = mid
(S01_AA01)



Frequency (MHz)	Level (dBm)
25990.001488	-58.5
25970.004464	-58.6
25980.002976	-58.8
26000.000000	-58.9
25210.117560	-59.0
25230.114583	-59.0
25650.052083	-59.0
25280.107143	-59.1
25240.113095	-59.1
4873.144345	-59.2
25250.111607	-59.2
25290.105655	-59.2
25960.005952	-59.4
25270.108631	-59.4
25310.102679	-59.5

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

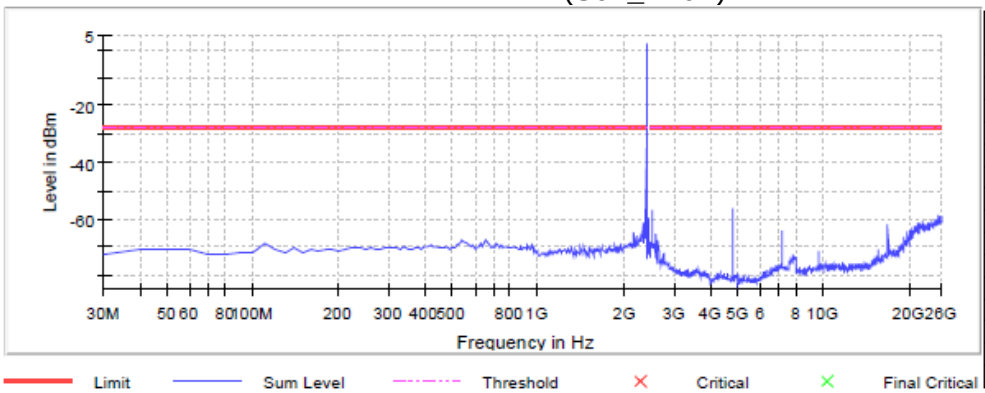
Radio Technology = Bluetooth EDR 2, Operating Frequency = high
(S01_AA01)



Frequency (MHz)	Level (dBm)
4803.154762	-56.2
2513.495536	-56.6
25300.104167	-58.6
26000.000000	-59.0
25730.040179	-59.1
25980.002976	-59.2
25280.107143	-59.4
25430.084821	-59.4
25310.102679	-59.4
25960.005952	-59.5
25940.008929	-59.6
25290.105655	-59.7
25330.099702	-59.7
25970.004464	-59.8
25950.007440	-59.8

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

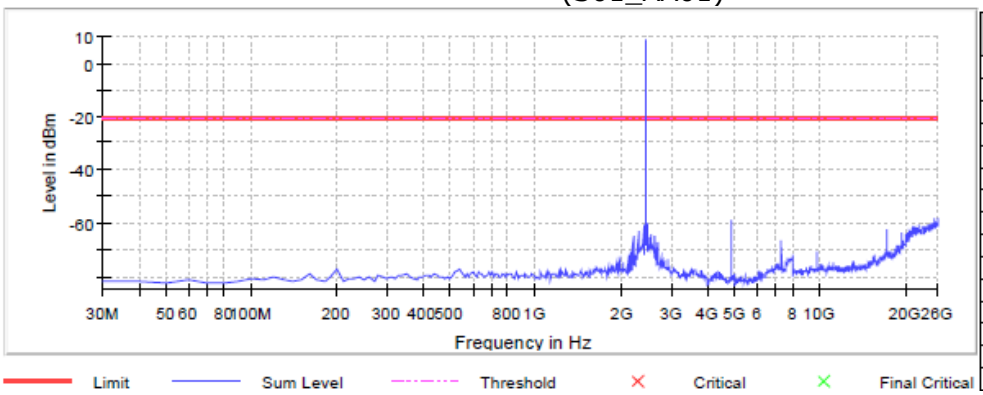
Radio Technology = Bluetooth EDR 3, Operating Frequency = low
(S01_AA01)



Frequency (MHz)	Level (dBm)
4803.154762	-56.2
2513.495536	-56.6
25300.104167	-58.6
26000.000000	-59.0
25730.040179	-59.1
25980.002976	-59.2
25280.107143	-59.4
25430.084821	-59.4
25310.102679	-59.4
25960.005952	-59.5
25940.008929	-59.6
25290.105655	-59.7
25330.099702	-59.7
25970.004464	-59.8
25950.007440	-59.8

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

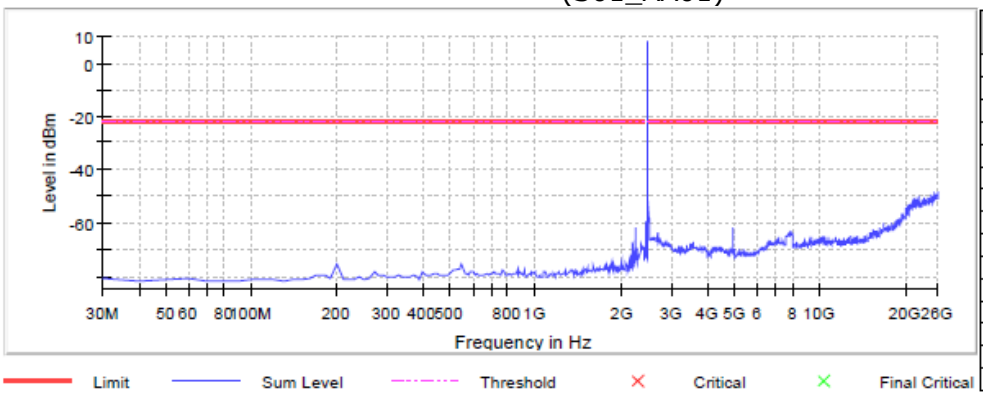
Radio Technology = Bluetooth EDR 3, Operating Frequency = mid
(S01_AA01)



Frequency (MHz)	Level (dBm)
25300.104167	-58.0
25980.002976	-58.5
25990.001488	-58.5
25340.098214	-58.9
4873.144345	-58.9
26000.000000	-59.3
25760.035714	-59.3
25970.004464	-59.5
25240.113095	-59.6
25310.102679	-59.6
25940.008929	-59.6
25380.092262	-59.7
25410.087798	-59.7
25280.107143	-59.8
25350.096726	-59.8

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

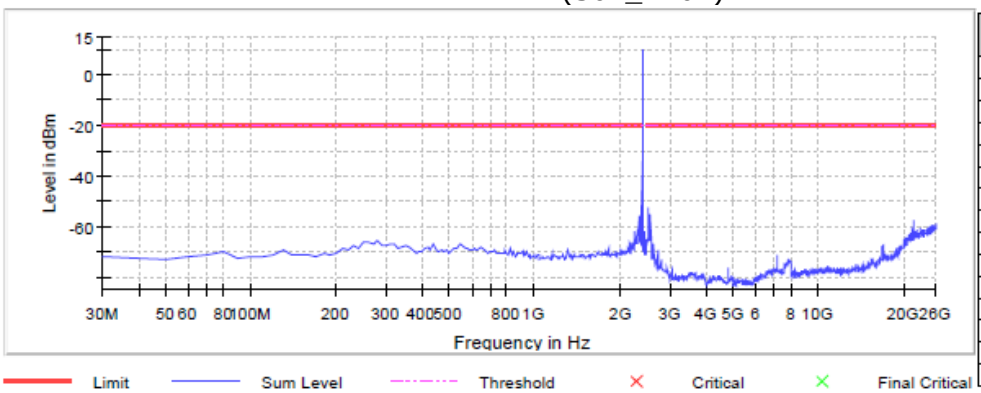
Radio Technology = Bluetooth EDR 3, Operating Frequency = high
(S01_AA01)



Frequency (MHz)	Level (dBm)
25970.004464	-48.1
26000.000000	-48.2
25280.107143	-48.5
25310.102679	-48.7
25990.001488	-48.8
25370.093750	-48.8
25980.002976	-48.9
25290.105655	-49.0
25460.080357	-49.1
25220.116071	-49.2
25880.017857	-49.2
25830.025298	-49.2
25750.037202	-49.2
25620.056548	-49.3
25890.016369	-49.3

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

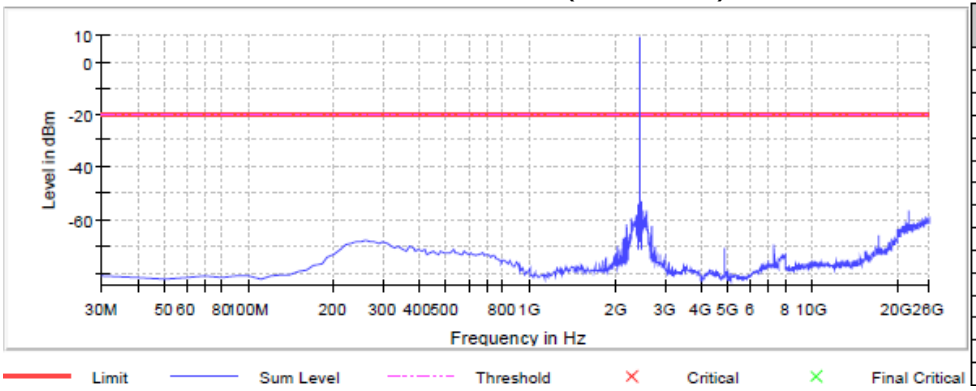
Radio Technology = Bluetooth LE 1 Mbps, Operating Frequency = low
(S01_AA01)



Frequency (MHz)	Level (dBm)
2513.495536	-52.2
2553.489583	-54.8
2370.000000	-55.0
2380.000000	-55.4
2330.000000	-55.9
2390.000000	-56.9
21620.651786	-57.6
26000.000000	-58.9
25410.087798	-59.2
25310.102679	-59.4
25970.004464	-59.5
25930.010417	-59.5
25320.101190	-59.5
25510.072917	-59.6
25550.066964	-59.8

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

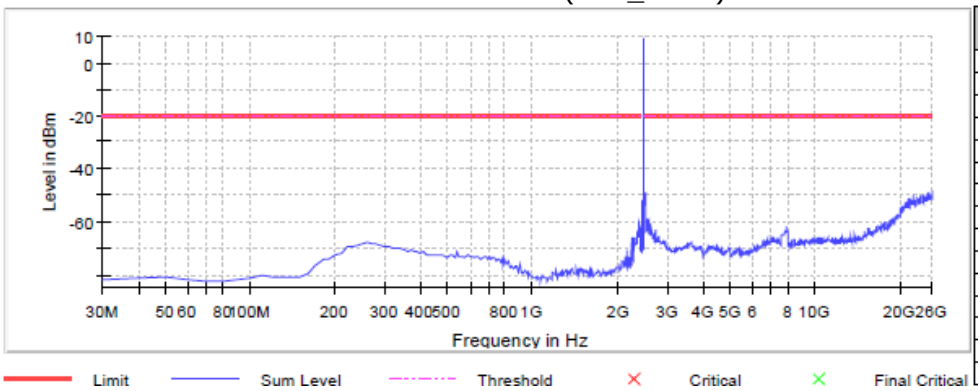
Radio Technology = Bluetooth LE 1 Mbps, Operating Frequency = mid
(S01_AA01)



Frequency (MHz)	Level (dBm)
2513.495536	-56.4
21960.601190	-56.6
2573.486607	-56.8
2360.000000	-58.1
26000.000000	-58.7
25290.105655	-58.8
25440.083333	-58.8
24520.220238	-59.2
25990.001488	-59.2
2280.000000	-59.3
25300.104167	-59.3
25270.108631	-59.4
21970.599702	-59.5
25570.063988	-59.6
2493.498512	-59.7

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

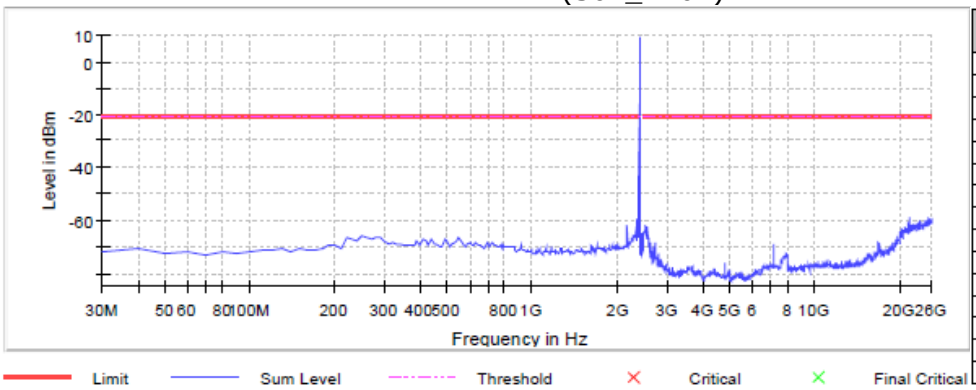
Radio Technology = Bluetooth LE 1 Mbps, Operating Frequency = high
(S01_AA01)



Frequency (MHz)	Level (dBm)
25960.005952	-48.1
2493.498512	-48.6
25250.111607	-48.6
26000.000000	-48.8
25190.120536	-49.1
25270.108631	-49.1
25980.002976	-49.1
25280.107143	-49.4
24970.153274	-49.4
25990.001488	-49.4
25230.114583	-49.4
25970.004464	-49.5
25300.104167	-49.5
25310.102679	-49.6
25950.007440	-49.7

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

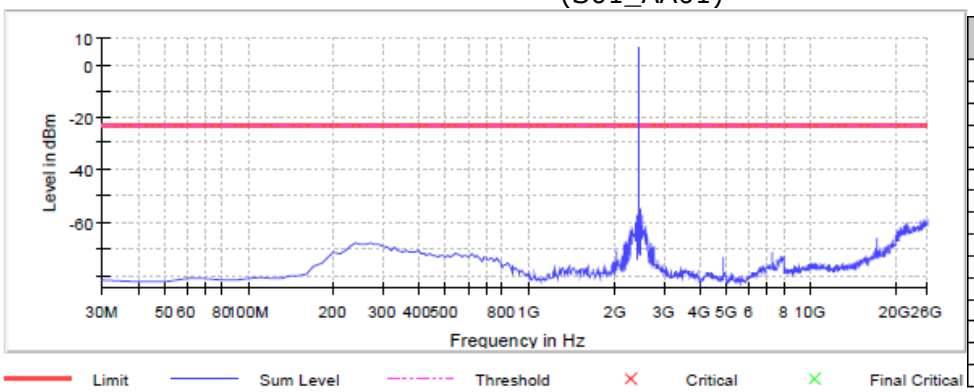
Radio Technology = Bluetooth LE 2 Mbps, Operating Frequency = low
(S01_AA01)



Frequency (MHz)	Level (dBm)
2390.000000	-51.1
2380.000000	-51.7
25300.104167	-58.6
21620.651786	-58.8
25270.108631	-59.2
25360.095238	-59.2
26000.000000	-59.2
2350.000000	-59.4
25380.092262	-59.5
25210.117560	-59.5
25640.053571	-59.5
25220.116071	-59.5
25970.004464	-59.6
25240.113095	-59.7
25990.001488	-59.7

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

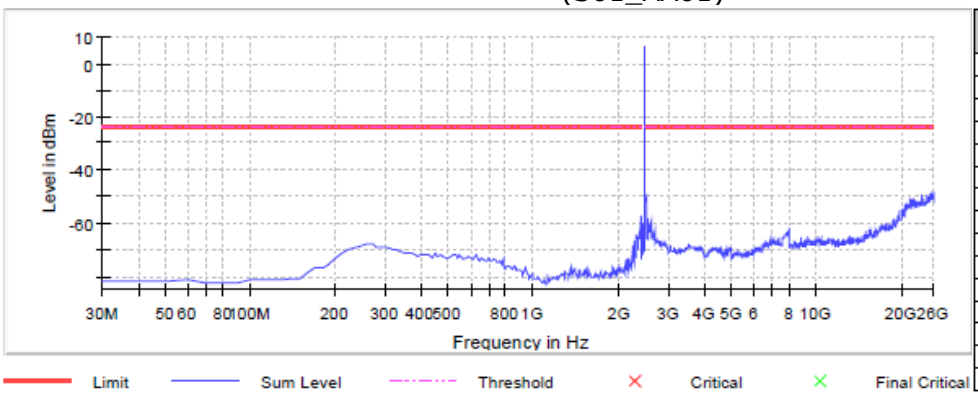
Radio Technology = Bluetooth LE 2 Mbps, Operating Frequency = mid
(S01_AA01)



Frequency (MHz)	Level (dBm)
2513.495536	-56.9
25970.004464	-58.6
25400.089286	-58.9
25980.002976	-59.0
25260.110119	-59.2
25320.101190	-59.4
25880.017857	-59.4
25200.119048	-59.4
25360.095238	-59.4
25290.105655	-59.5
25270.108631	-59.5
25310.102679	-59.6
25720.041667	-59.6
25150.126488	-59.6
25940.008929	-59.7

Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

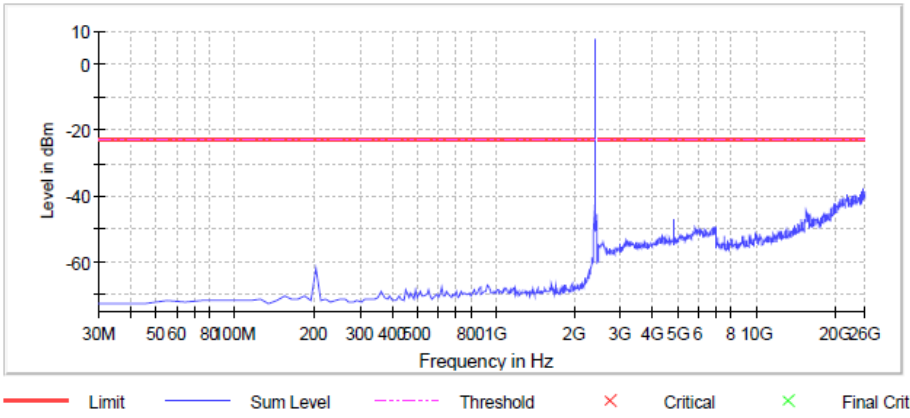
Radio Technology = Bluetooth LE 2 Mbps, Operating Frequency = high
(S01_AA01)



Frequency (MHz)	Level (dBm)
25990.001488	-48.4
25300.104167	-48.6
25900.014881	-49.0
25260.110119	-49.0
25370.093750	-49.1
25840.023810	-49.1
26000.000000	-49.2
25970.004464	-49.2
25980.002976	-49.2
25890.016369	-49.3
24710.191964	-49.3
25820.026786	-49.4
25290.105655	-49.6
23540.366071	-49.6
25240.113095	-49.6

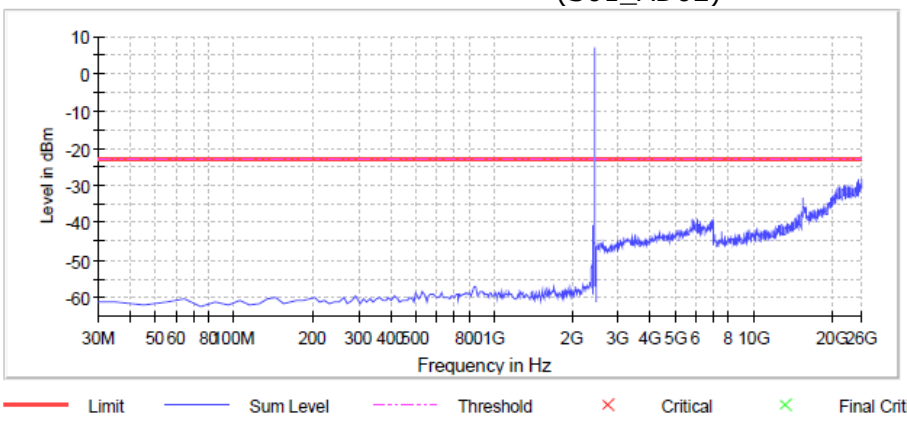
Note: Plot shows 30 dBc limit, actual limit is 10 dB higher (20 dBc).

Radio Technology = WLAN b, Operating Frequency = low
(S01_AD02)



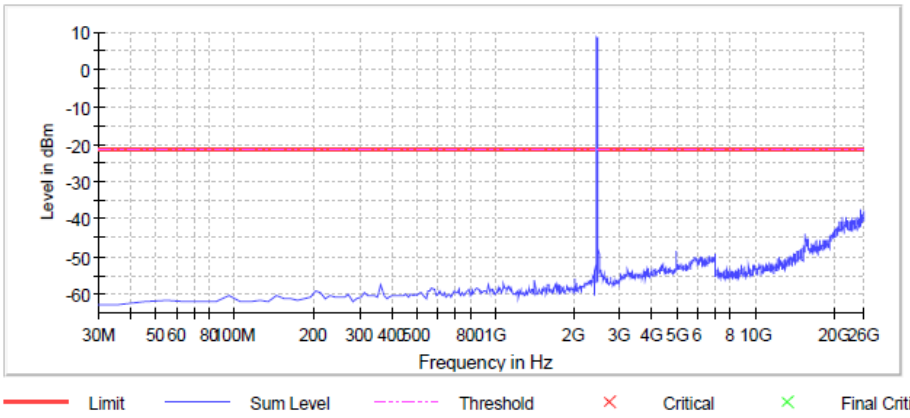
Frequency (MHz)	Level (dBm)
25705.169252	-37.8
25305.398746	-38.5
25285.410221	-38.5
25265.421696	-38.5
25245.433170	-38.6
25355.370059	-38.7
25255.427433	-38.7
26000.000000	-38.8
25365.364322	-38.8
25275.415958	-38.8
25595.232363	-38.8
25995.002869	-38.8
25975.014343	-38.9
25315.393009	-39.0
25925.043030	-39.0

Radio Technology = WLAN b, Operating Frequency = mid
(S01_AD02)



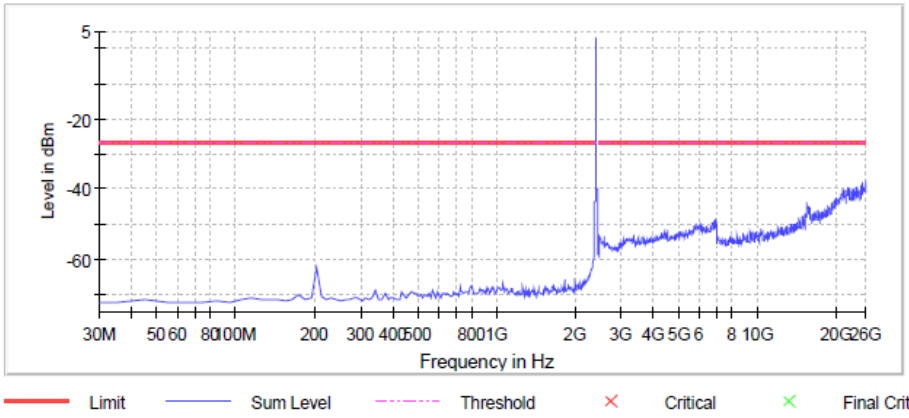
Frequency (MHz)	Level (dBm)
26000.000000	-28.2
25995.002869	-28.2
25985.008606	-28.4
25265.421696	-28.5
25225.444645	-28.9
25365.364322	-28.9
25845.088929	-28.9
25215.450382	-29.0
25295.404484	-29.1
24795.691351	-29.2
25305.398746	-29.3
25315.393009	-29.3
25285.410221	-29.4
25325.387272	-29.4
25355.370059	-29.5

Radio Technology = WLAN b, Operating Frequency = high
(S01_AD02)



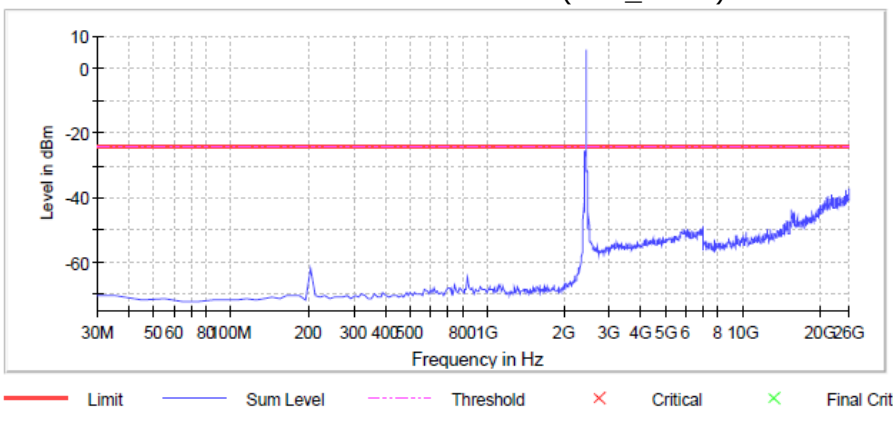
Frequency (MHz)	Level (dBm)
25325.387272	-37.5
25985.008606	-37.9
25315.393009	-38.2
26000.000000	-38.4
25295.404484	-38.4
25275.415958	-38.4
25995.002869	-38.4
25235.438908	-38.4
25965.020081	-38.5
25225.444645	-38.6
25665.192201	-38.7
25855.083192	-38.7
25265.421696	-38.8
25925.043030	-38.8
25975.014343	-38.8

Radio Technology = WLAN g, Operating Frequency = low
(S01_AD02)



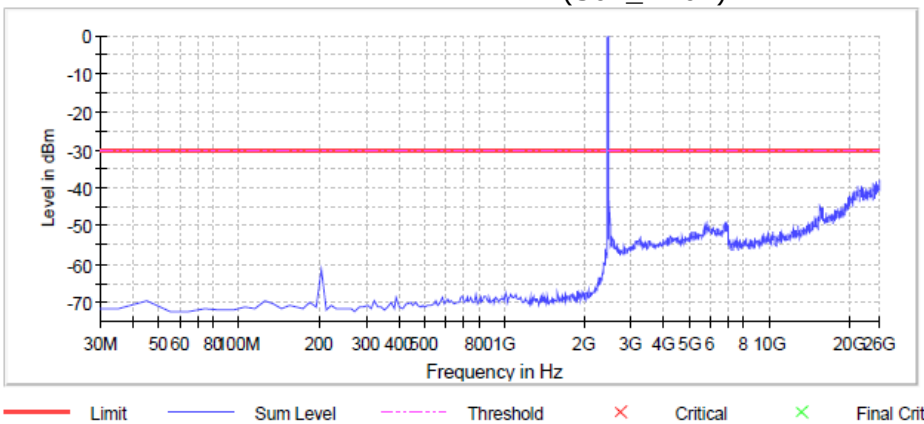
Frequency (MHz)	Level (dBm)
25975.014343	-37.8
25985.008606	-37.9
25295.404484	-38.1
25335.381534	-38.2
25275.415958	-38.4
26000.000000	-38.4
25995.002869	-38.5
25955.025818	-38.5
25325.387272	-38.6
25965.020081	-38.6
25265.421696	-38.7
25285.410221	-38.7
25315.393009	-38.8
24815.679877	-39.0
25305.398746	-39.0

Radio Technology = WLAN g, Operating Frequency = mid
(S01_AD02)



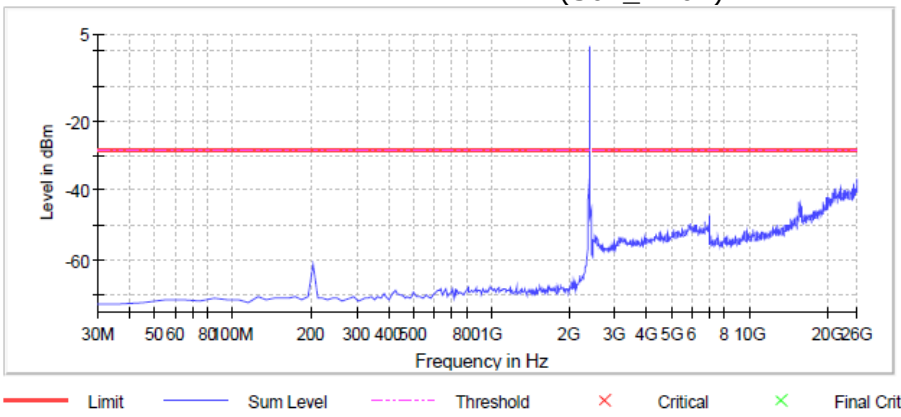
Frequency (MHz)	Level (dBm)
25975.014343	-37.3
25245.433170	-37.5
25285.410221	-38.3
26000.000000	-38.4
25995.002869	-38.4
25295.404484	-38.5
25845.088929	-38.5
25935.037293	-38.6
25305.398746	-38.6
25225.444645	-38.7
25315.393009	-38.8
25345.375797	-38.8
25985.008606	-38.9
25185.467595	-38.9
25265.421696	-39.0

Radio Technology = WLAN g, Operating Frequency = high
(S01_AD02)



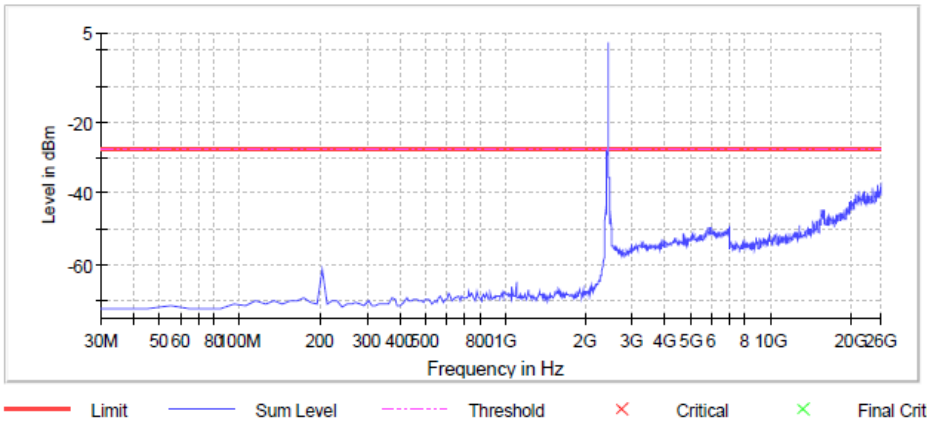
Frequency (MHz)	Level (dBm)
25985.008606	-37.9
25225.444645	-38.2
26000.000000	-38.3
25995.002869	-38.4
25925.043030	-38.6
25325.387272	-38.8
24505.857735	-38.9
25375.358585	-39.0
25215.450382	-39.0
25365.364322	-39.0
25965.020081	-39.1
25295.404484	-39.1
25765.134828	-39.1
25315.393009	-39.1
25275.415958	-39.1

Radio Technology = WLAN n 20 MHz, Operating Frequency = low
(S01_AD02)



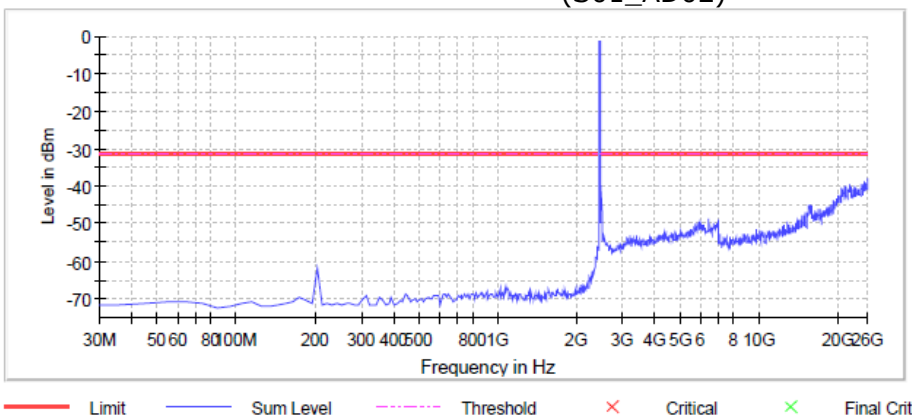
Frequency (MHz)	Level (dBm)
2395.021008	-35.7
26000.000000	-36.9
25995.002869	-37.0
25305.398746	-38.0
25285.410221	-38.2
25985.008606	-38.3
25255.427433	-38.3
25205.456120	-38.5
25215.450382	-38.5
25335.381534	-38.5
25235.438908	-38.8
25245.433170	-38.8
25295.404484	-38.9
25935.037293	-39.0
25895.060242	-39.0

Radio Technology = WLAN n 20 MHz, Operating Frequency = mid
(S01_AD02)



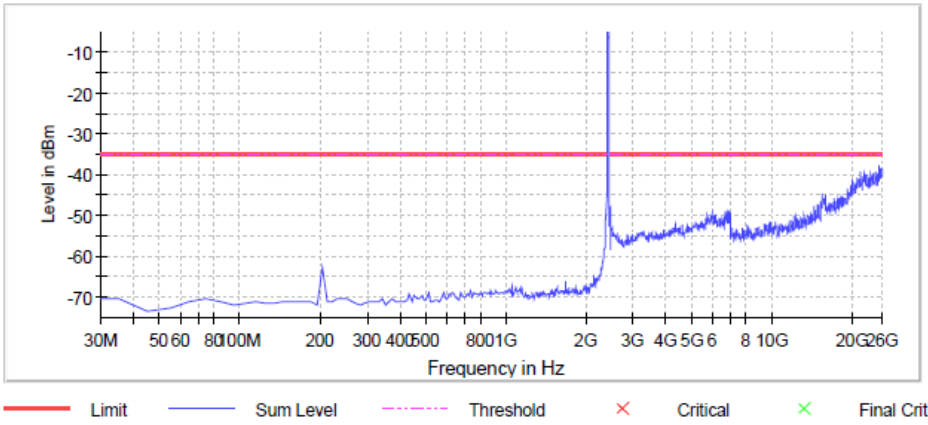
Frequency (MHz)	Level (dBm)
25195.461857	-37.8
25815.106141	-37.9
25285.410221	-38.1
25265.421696	-38.1
26000.000000	-38.1
25275.415958	-38.1
25295.404484	-38.1
25155.484807	-38.2
25995.002869	-38.2
25935.037293	-38.4
25255.427433	-38.5
25305.398746	-38.5
24046.121653	-38.6
25925.043030	-38.7
25335.381534	-38.7

Radio Technology = WLAN n 20 MHz, Operating Frequency = high
(S01_AD02)



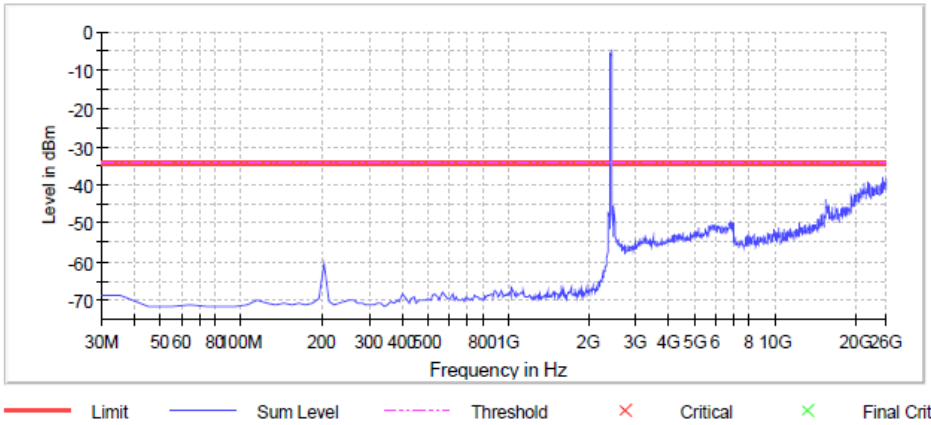
Frequency (MHz)	Level (dBm)
25985.008606	-37.7
25935.037293	-38.4
25945.031555	-38.4
26000.000000	-38.5
25285.410221	-38.6
25995.002869	-38.6
25225.444645	-38.6
2488.497131	-38.6
25335.381534	-38.7
25325.387272	-38.9
25975.014343	-38.9
25345.375797	-39.0
25275.415958	-39.0
25305.398746	-39.0
25265.421696	-39.0

Radio Technology = WLAN n 40 MHz, Operating Frequency = low
(S01_AD02)



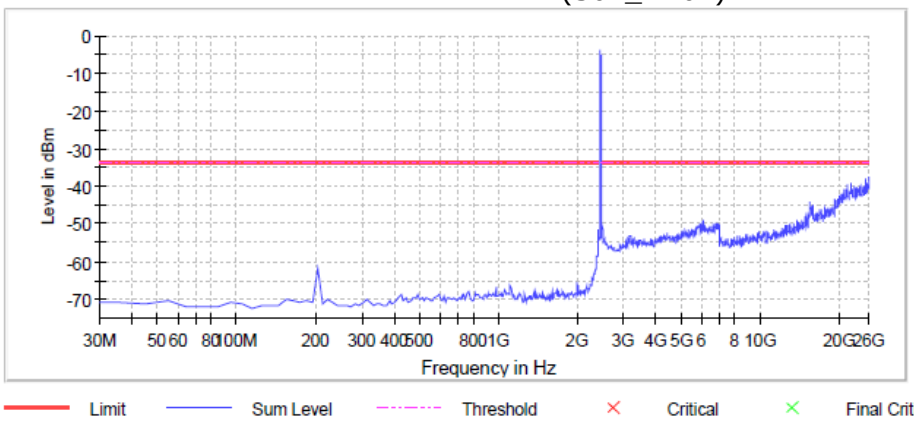
Frequency (MHz)	Level (dBm)
25295.404484	-37.5
25335.381534	-37.6
25235.438908	-37.6
25305.398746	-37.8
25215.450382	-38.2
25705.169252	-38.4
25965.020081	-38.4
26000.000000	-38.5
25995.002869	-38.6
25265.421696	-38.6
25245.433170	-38.6
25325.387272	-38.7
25895.060242	-38.8
25255.427433	-38.9
25315.393009	-39.0

Radio Technology = WLAN n 40 MHz, Operating Frequency = mid
(S01_AD02)



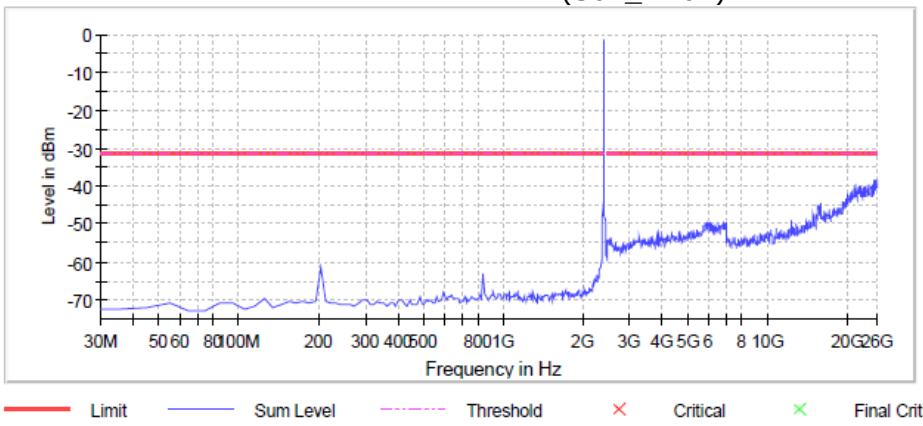
Frequency (MHz)	Level (dBm)
25295.404484	-37.7
26000.000000	-38.2
25995.002869	-38.3
25195.461857	-38.3
25285.410221	-38.4
25965.020081	-38.4
25305.398746	-38.5
25985.008606	-38.7
25975.014343	-38.9
25235.438908	-38.9
25325.387272	-38.9
25275.415958	-39.0
25735.152040	-39.1
22287.131428	-39.1
25265.421696	-39.2

Radio Technology = WLAN n 40 MHz, Operating Frequency = high
(S01_AD02)



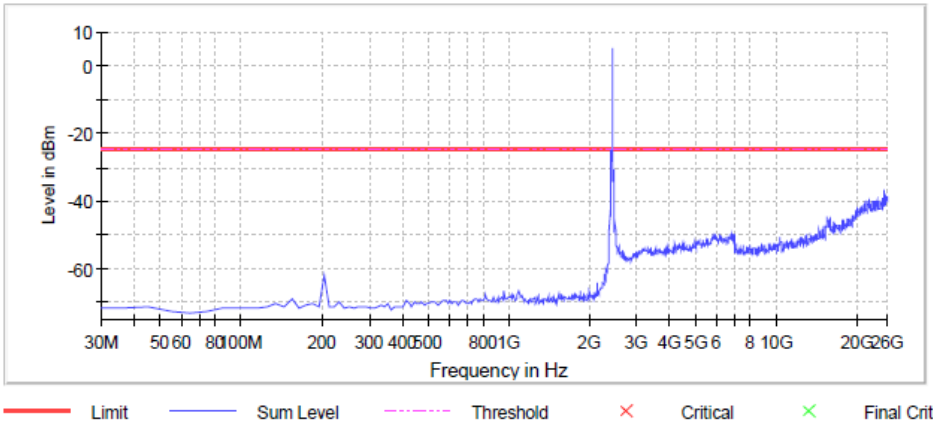
Frequency (MHz)	Level (dBm)
25985.008606	-37.6
25965.020081	-38.0
25315.393009	-38.0
25305.398746	-38.1
25945.031555	-38.2
26000.000000	-38.3
25245.433170	-38.3
25275.415958	-38.4
25995.002869	-38.4
25285.410221	-38.4
25255.427433	-38.7
25325.387272	-38.8
25265.421696	-38.8
25465.306949	-39.0
25975.014343	-39.1

Radio Technology = WLAN ax 20 MHz, Operating Frequency = low
(S01_AD02)



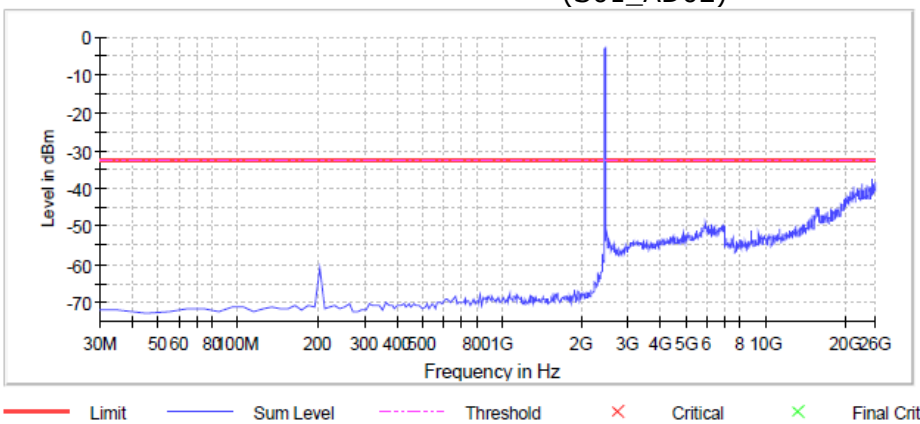
Frequency (MHz)	Level (dBm)
25985.008606	-38.2
25275.415958	-38.2
25775.129091	-38.3
26000.000000	-38.3
25995.002869	-38.4
25405.341373	-38.4
25315.393009	-38.5
25375.358585	-38.5
25295.404484	-38.6
25245.433170	-38.6
25305.398746	-38.6
25215.450382	-38.6
25265.421696	-38.6
25825.100404	-38.7
25975.014343	-38.8

Radio Technology = WLAN ax 20 MHz, Operating Frequency = mid
(S01_AD02)



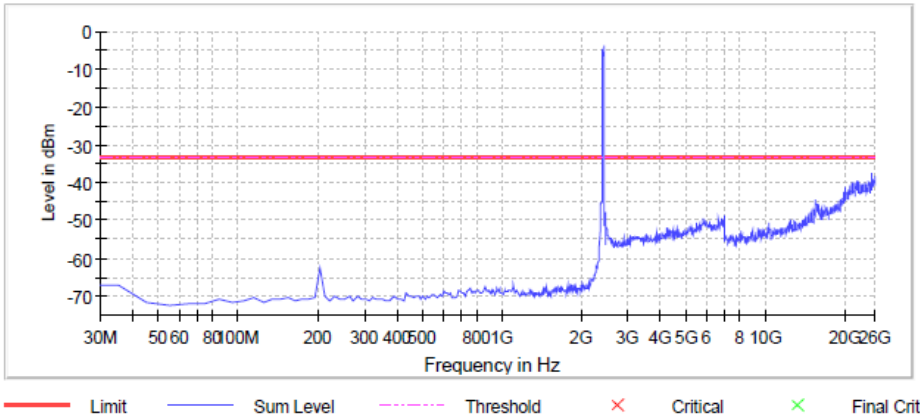
Frequency (MHz)	Level (dBm)
25285.410221	-36.9
25195.461857	-38.1
25305.398746	-38.1
25295.404484	-38.3
26000.000000	-38.6
25995.002869	-38.7
25245.433170	-38.7
25335.381534	-38.7
25255.427433	-38.7
25955.025818	-38.8
25805.111878	-38.8
25315.393009	-38.9
25265.421696	-39.0
25705.169252	-39.1
25895.060242	-39.1

Radio Technology = WLAN ax 20 MHz, Operating Frequency = high
(S01_AD02)



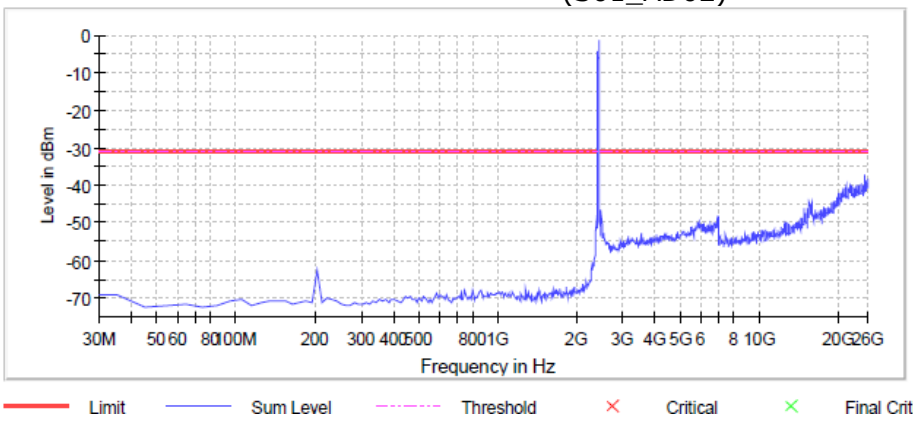
Frequency (MHz)	Level (dBm)
25315.393009	-37.4
25245.433170	-38.3
25255.427433	-38.3
25325.387272	-38.4
26000.000000	-38.4
25275.415958	-38.5
25995.002869	-38.5
25345.375797	-38.6
25285.410221	-38.6
25405.341373	-38.7
25775.129091	-38.7
25945.031555	-38.7
25975.014343	-38.8
25935.037293	-38.8
25305.398746	-38.9

Radio Technology = WLAN ax 40 MHz, Operating Frequency = low
(S01_AD02)



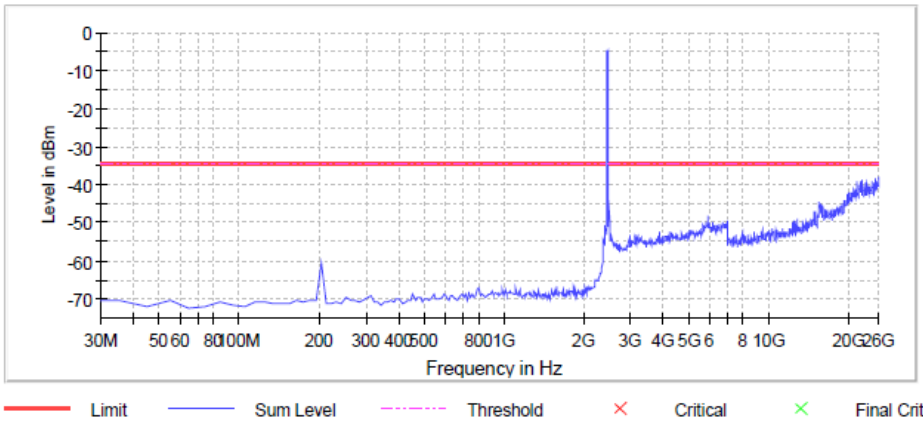
Frequency (MHz)	Level (dBm)
25385.352847	-37.5
25285.410221	-38.2
25985.008606	-38.3
25975.014343	-38.3
25955.025818	-38.4
25265.421696	-38.4
26000.000000	-38.5
25995.002869	-38.5
25295.404484	-38.5
25305.398746	-38.6
25175.473332	-38.6
25335.381534	-38.6
25215.450382	-38.7
25225.444645	-38.8
25275.415958	-38.8

Radio Technology = WLAN ax 40 MHz, Operating Frequency = mid
(S01_AD02)



Frequency (MHz)	Level (dBm)
25295.404484	-37.1
25245.433170	-38.0
25915.048768	-38.3
25275.415958	-38.3
25305.398746	-38.5
25285.410221	-38.6
25955.025818	-38.7
25325.387272	-38.7
25315.393009	-38.7
25745.146303	-38.8
25965.020081	-38.8
26000.000000	-38.8
25995.002869	-38.9
25985.008606	-39.0
25395.347110	-39.1

Radio Technology = WLAN ax 40 MHz, Operating Frequency = high
(S01_AD02)



Frequency (MHz)	Level (dBm)
25965.020081	-37.9
25955.025818	-38.1
25315.393009	-38.3
26000.000000	-38.3
25265.421696	-38.3
25975.014343	-38.3
25995.002869	-38.4
25925.043030	-38.4
25275.415958	-38.5
25295.404484	-38.6
25285.410221	-38.6
25335.381534	-38.9
22377.079792	-38.9
25225.444645	-38.9
25255.427433	-38.9

5.5.5 TEST EQUIPMENT USED

- R&S TS8997

5.6 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, 11.12

5.6.1 TEST DESCRIPTION

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:

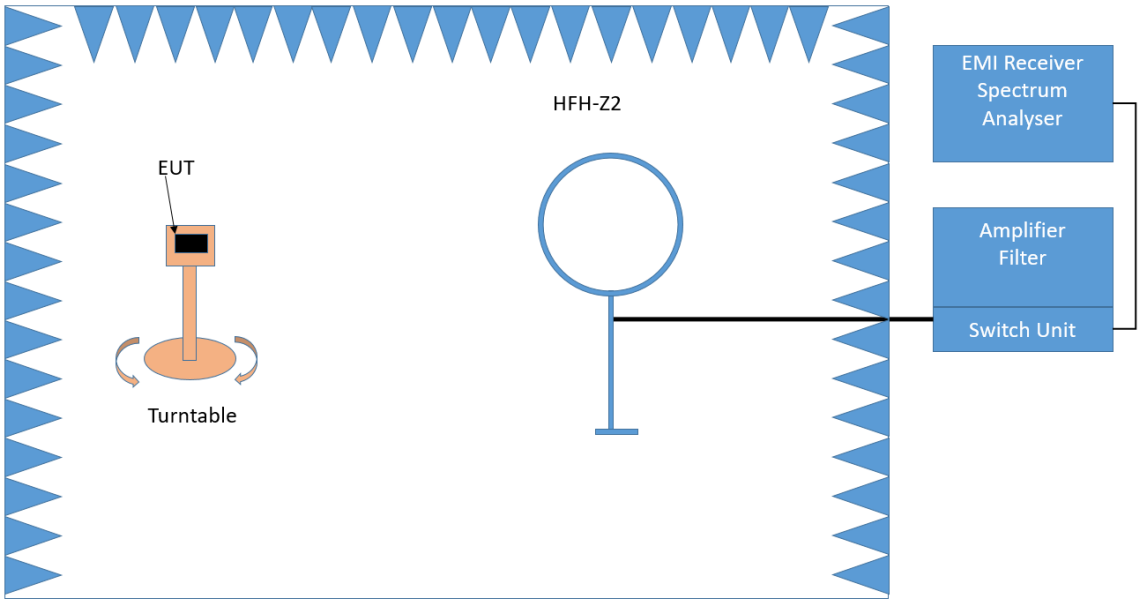
- < 30 MHz: Chapter 6.4
- 30 MHz – 1 GHz: Chapter 6.5
- > 1 GHZ: Chapter 6.6 (procedure according 6.6.5 used)

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

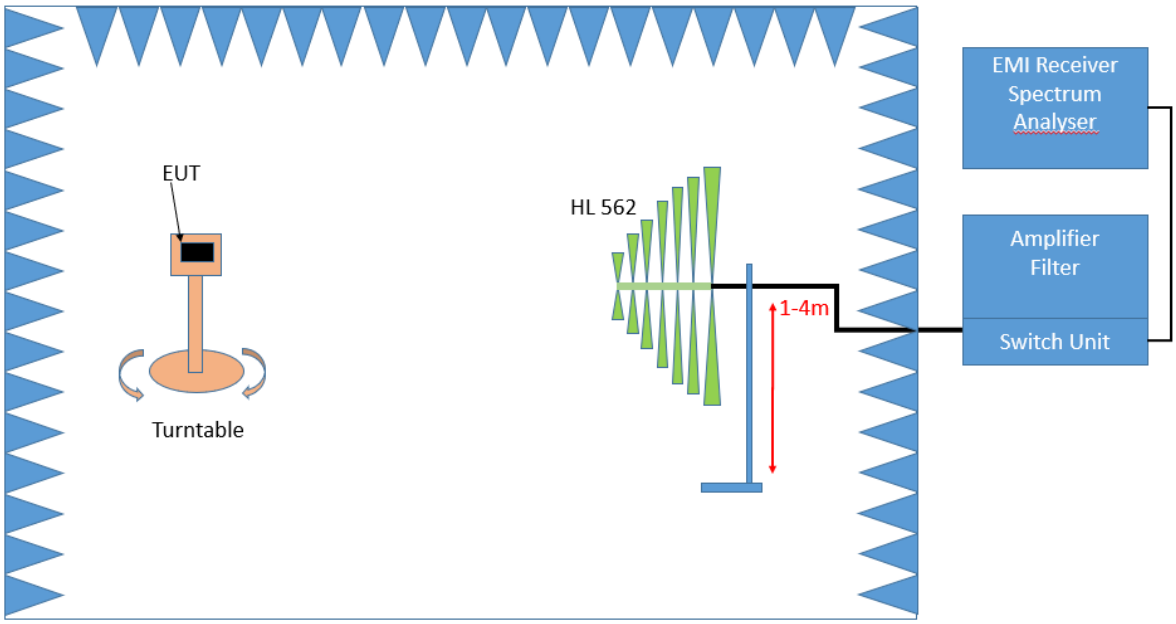
- Antenna distance: 3 m
- Antenna height: 1 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 - 0.15 MHz and 0.15 – 30 MHz
- Frequency steps: 0.05 kHz and 2.25 kHz
- IF–Bandwidth: 0.2 kHz and 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)

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:

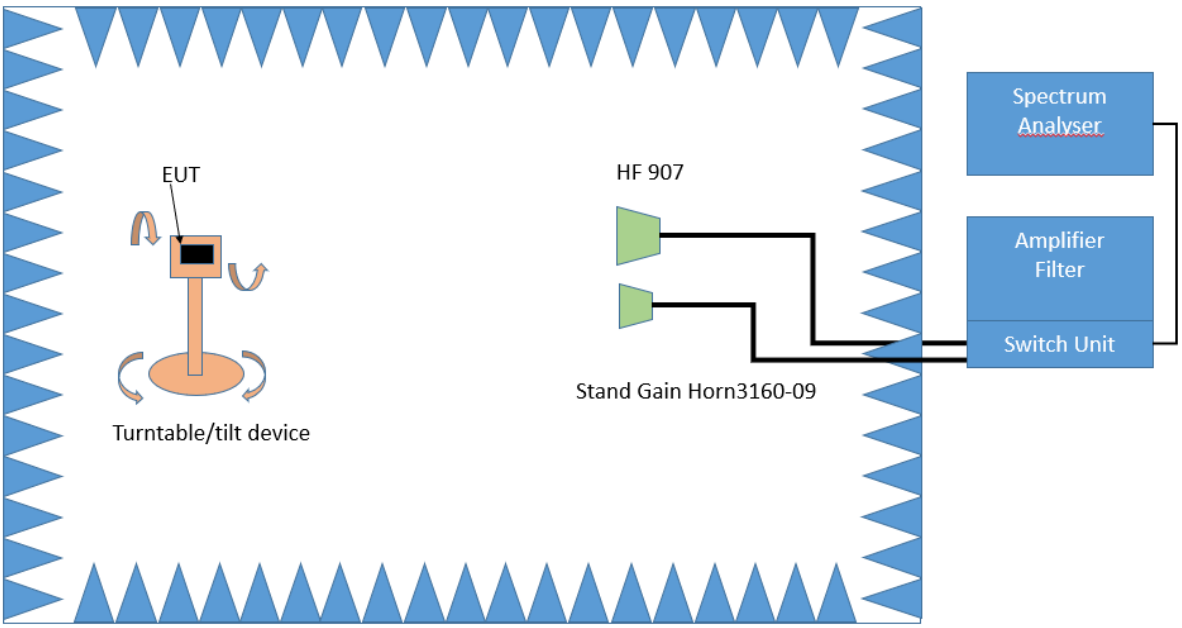
- Detector: Quasi-Peak (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

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

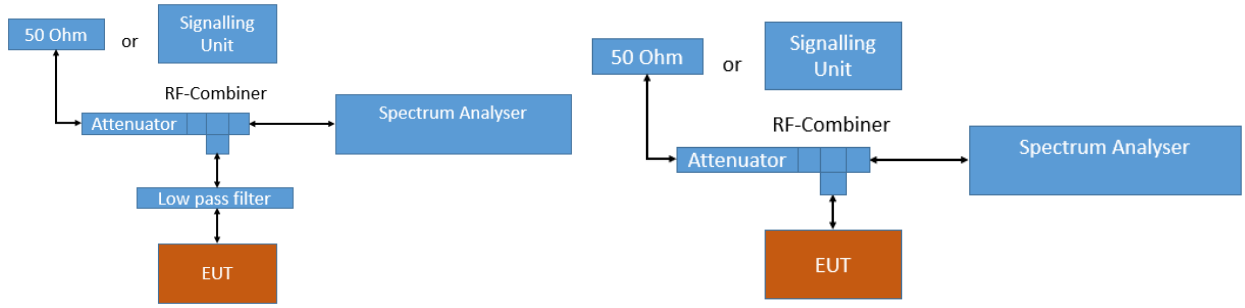
Step 2:
The turn table azimuth will slowly vary by ± 22.5°.
The elevation angle will slowly vary by ± 45°
Spectrum analyser settings:
- Detector: Peak

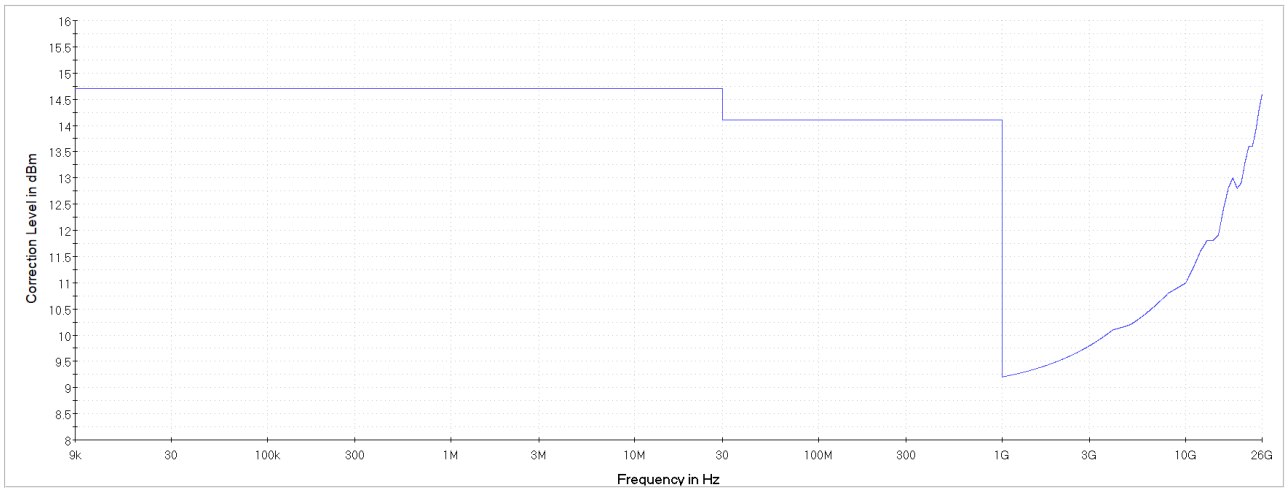
Step 3:
Spectrum analyser settings for step 3:
- Detector: Peak / CISPR Average
- Measured frequencies: in step 1 determined frequencies
- RBW = 1 MHz
- VBW = 3 MHz
- Measuring time: 1 s

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.





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 transducer factor)
   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

5.6.2 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)

5.6.3 TEST PROTOCOL

Ambient temperature: 22 °C
Air Pressure: 1007 hPa
Humidity: 40 %

BT GFSK (1-DH5)
Applied duty cycle correction (AV): 2.3 dB

Meas. 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	2402	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2402	- - -	- - -	- - -	- - -	- - -	- - -	RB
Radiated	2441	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2441	- - -	- - -	- - -	- - -	- - -	- - -	RB
Radiated	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB

BT π/4 DQPSK (2-DH5)
Applied duty cycle correction (AV): 2.3 dB

Meas. 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
Conducted	2402	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2441	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB
Radiated	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB

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

Meas. 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
Conducted	2402	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2441	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB
Radiated	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB

BT LE 1 Mbit/s
Applied duty cycle correction (AV): 4.2 dB

Meas. 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
Conducted	2402	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2440	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB

BT LE 2 Mbit/s
Applied duty cycle correction (AV): 7.3 dB

Meas. 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
Conducted	2402	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2440	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2480	- - -	- - -	- - -	- - -	- - -	- - -	RB

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

Meas. 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	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Radiated	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Radiated	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB

WLAN g-Mode; 20 MHz; 6 Mbit/s
Applied duty cycle correction (AV): 0 dB

Meas. 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
Conducted	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB

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

Meas. 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
Conducted	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB

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

Meas. 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
Conducted	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB

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

Meas. 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
Conducted	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB

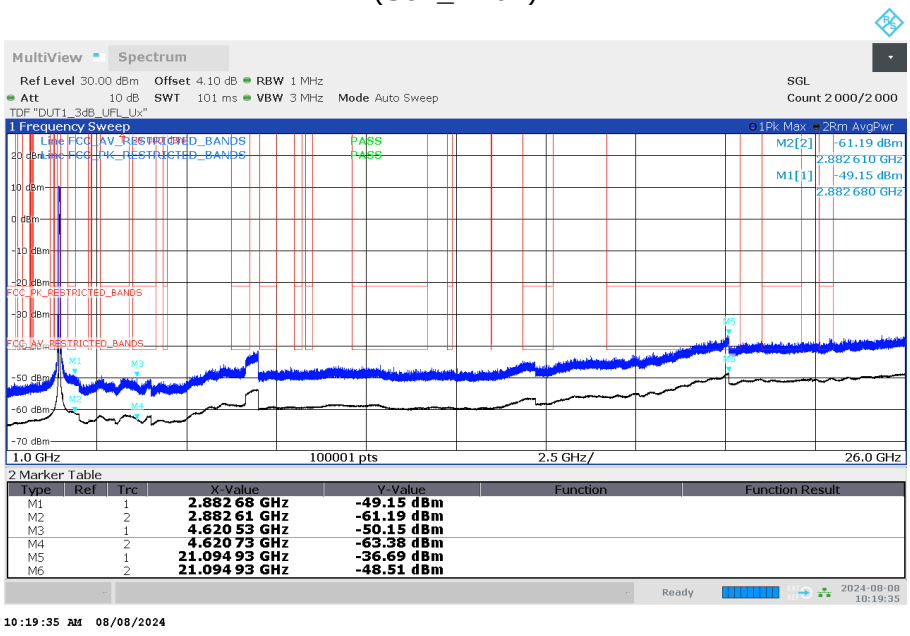
WLAN ax-Mode; 40 MHz; MCS0
Applied duty cycle correction (AV): 0 dB

Meas. 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
Conducted	2412	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2437	- - -	- - -	- - -	- - -	- - -	- - -	RB
Conducted	2462	- - -	- - -	- - -	- - -	- - -	- - -	RB

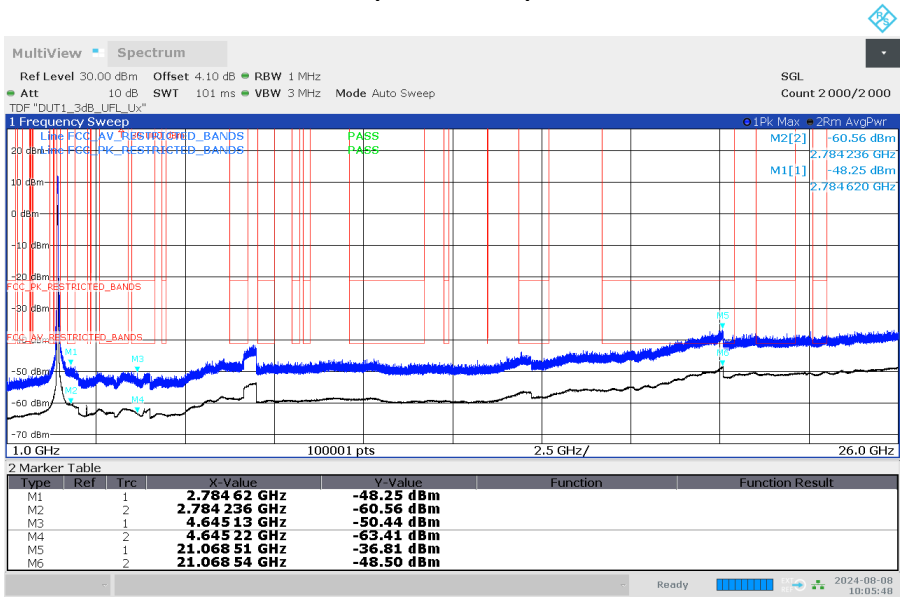
Remark: Please see next sub-clause for the measurement plot.
Only non-noise level peak values above AV limit or AV peak values closer 6 dB to limit are listed in the tables above.
Since the radiated enclosure plots above 1 GHz did only show noise level and the conducted measurements also had no peak detector values above AV limit, only spot checks were performed for radiated measurements.

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

Radio Technology = WLAN n 40 MHz, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S01_AD02)

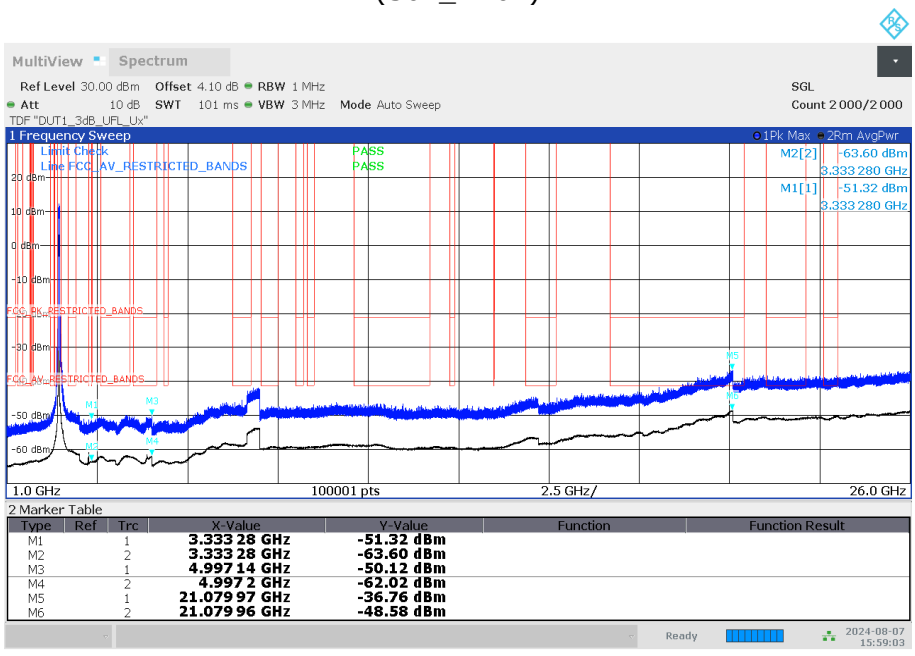


Radio Technology = WLAN n 40 MHz, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



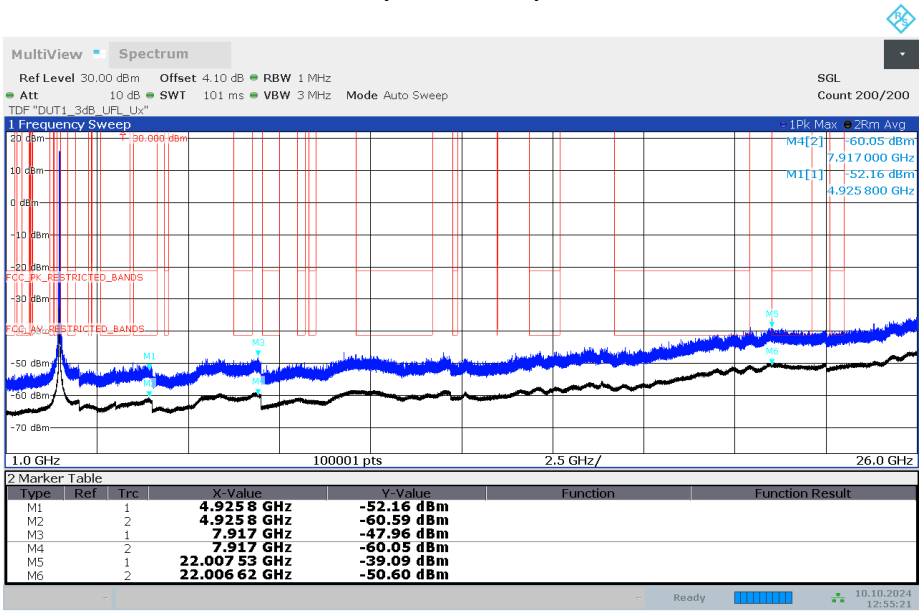
10:05:48 AM 08/08/2024

Radio Technology = WLAN n 40 MHz, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



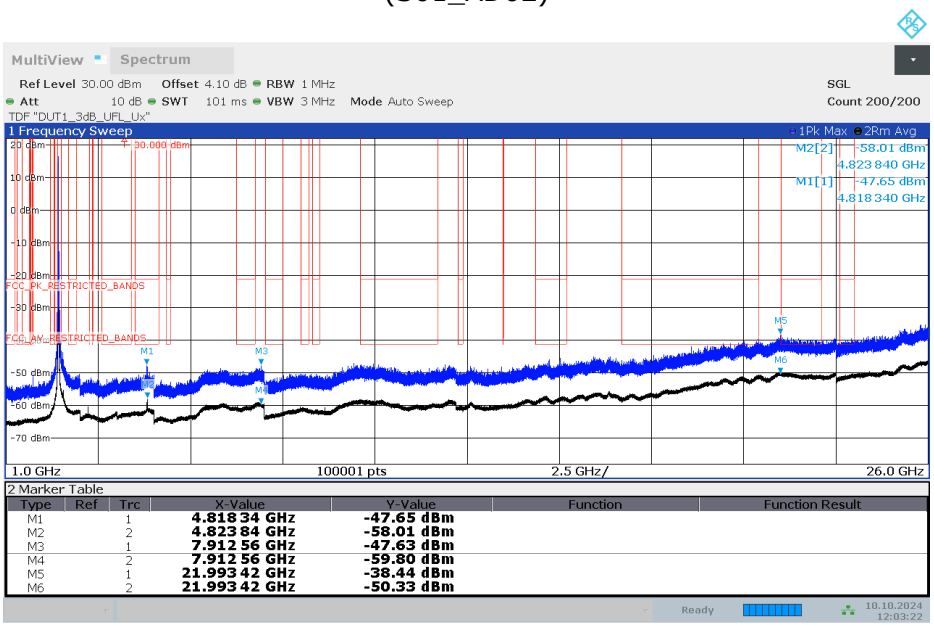
03:59:03 PM 08/07/2024

Radio Technology = WLAN g, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



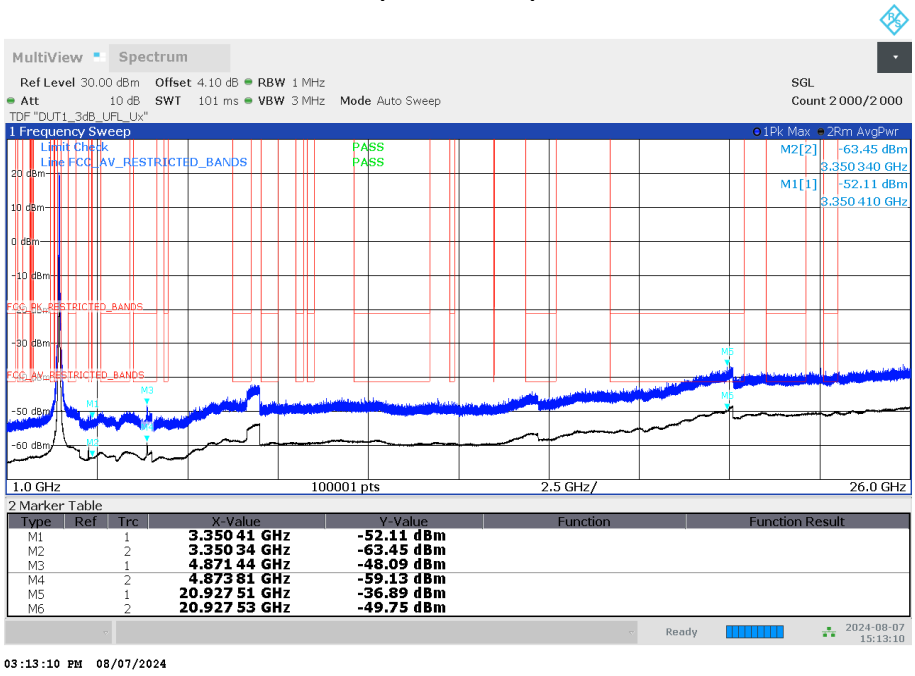
12:55:21 10.10.2024

Radio Technology = WLAN g, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



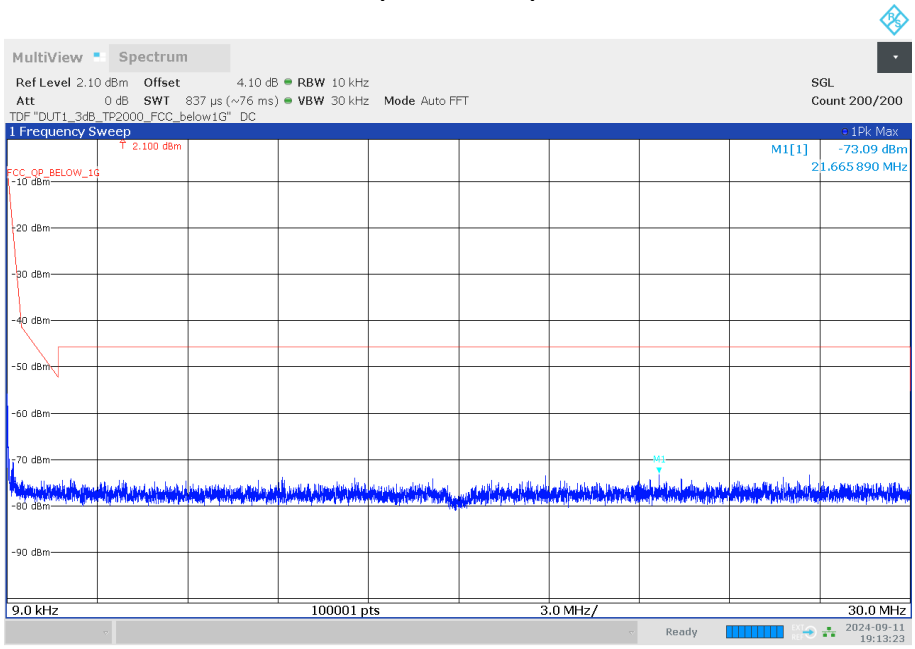
12:03:23 10.10.2024

Radio Technology = WLAN g, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



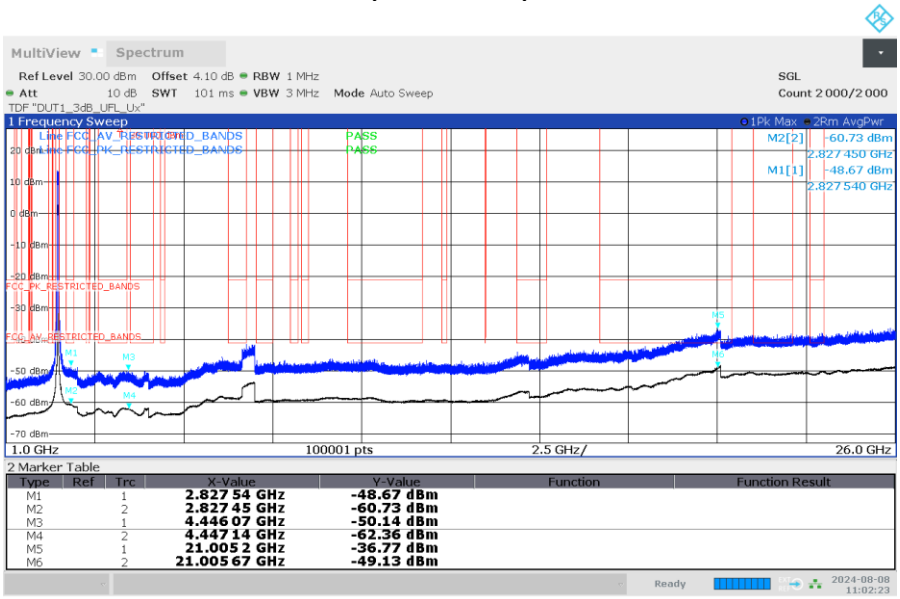
03:13:10 PM 08/07/2024

Radio Technology = WLAN b, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S01_AD02)



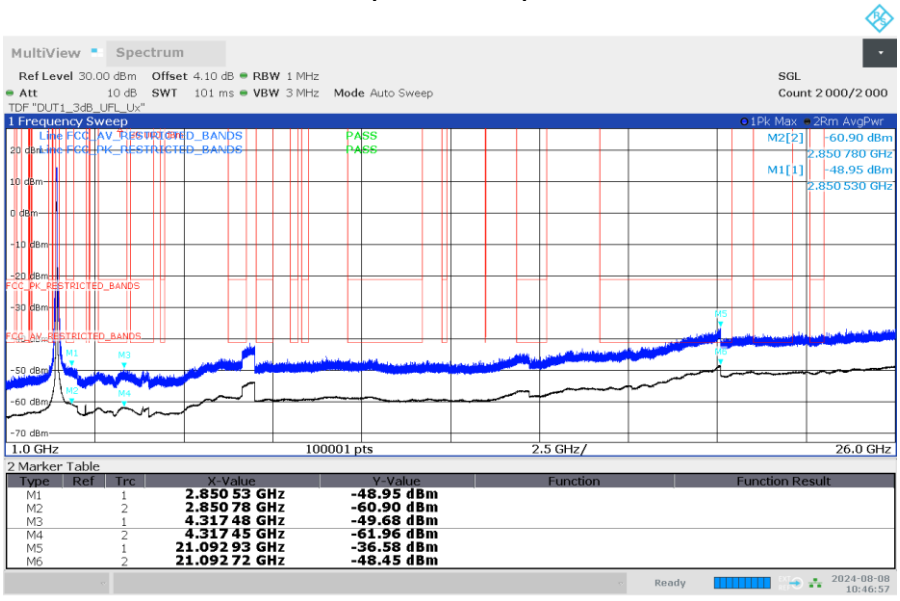
07:13:24 PM 09/11/2024

Radio Technology = WLAN ax 40 MHz, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



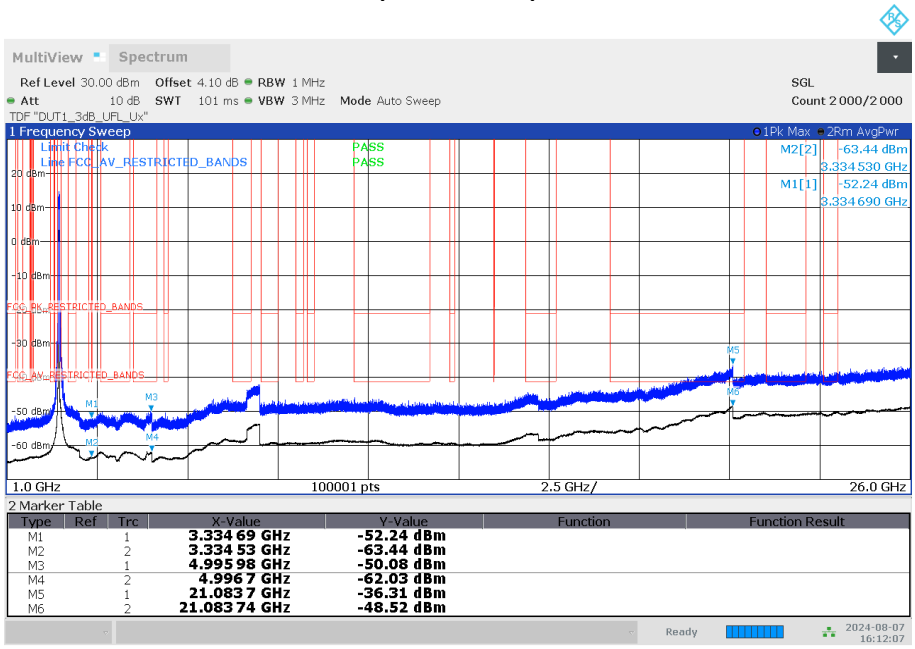
11:02:23 AM 08/08/2024

Radio Technology = WLAN ax 40 MHz, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



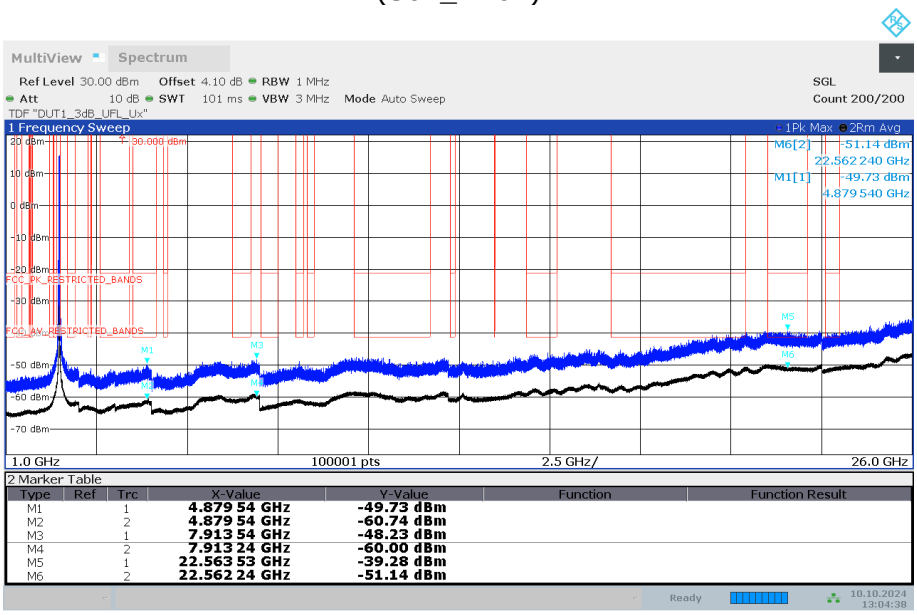
10:46:57 AM 08/08/2024

Radio Technology = WLAN ax 40 MHz, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



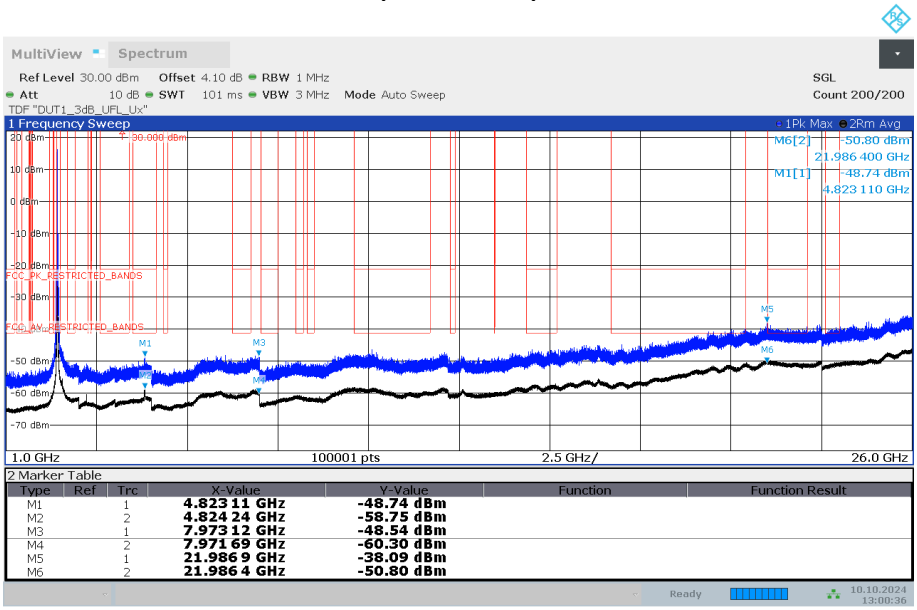
04:12:07 PM 08/07/2024

Radio Technology = WLAN n 20 MHz, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



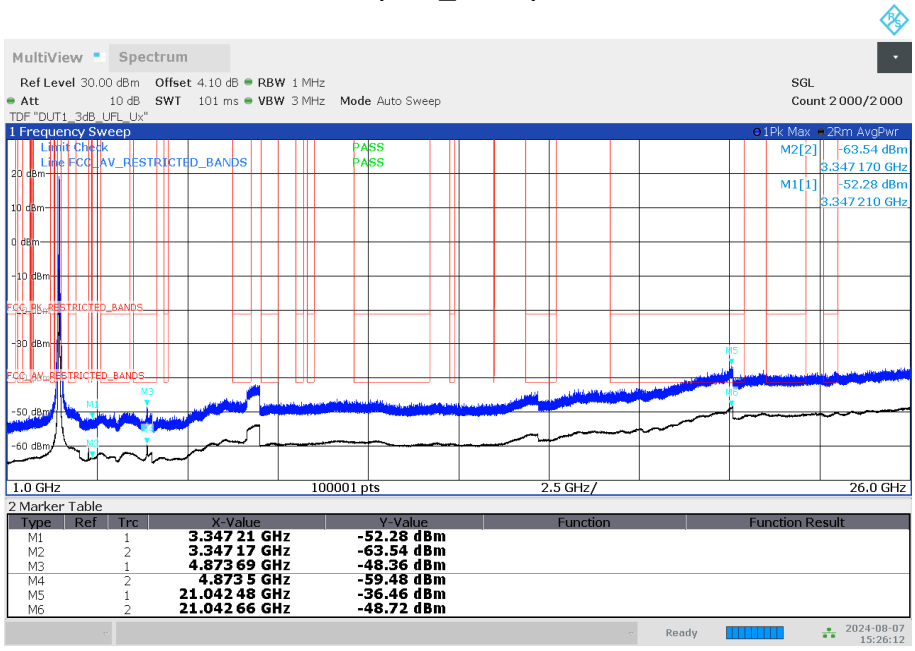
13:04:38 10.10.2024

Radio Technology = WLAN n 20 MHz, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



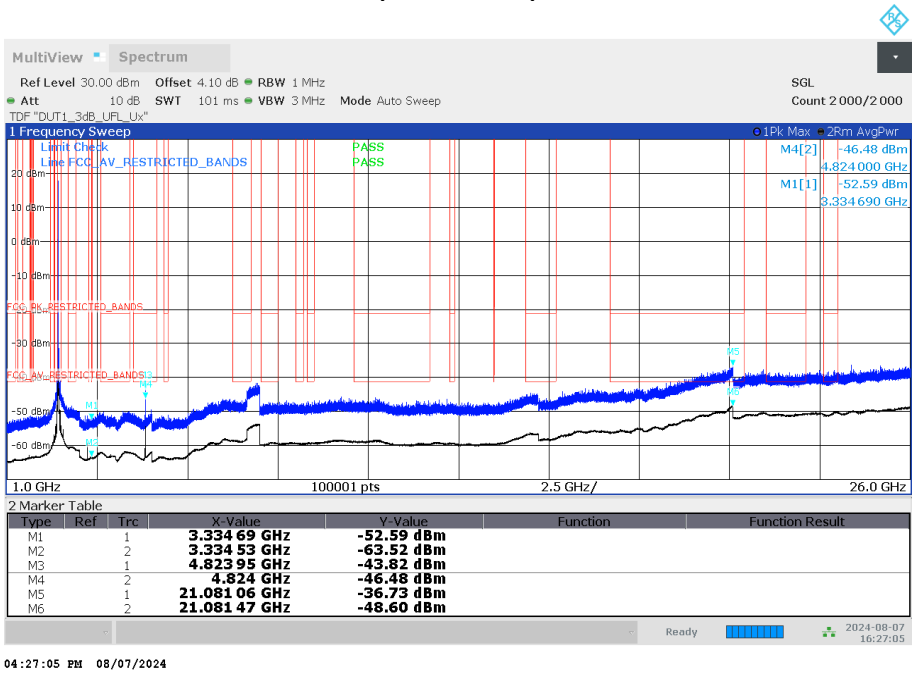
13:00:36 10.10.2024

Radio Technology = WLAN n 20 MHz, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



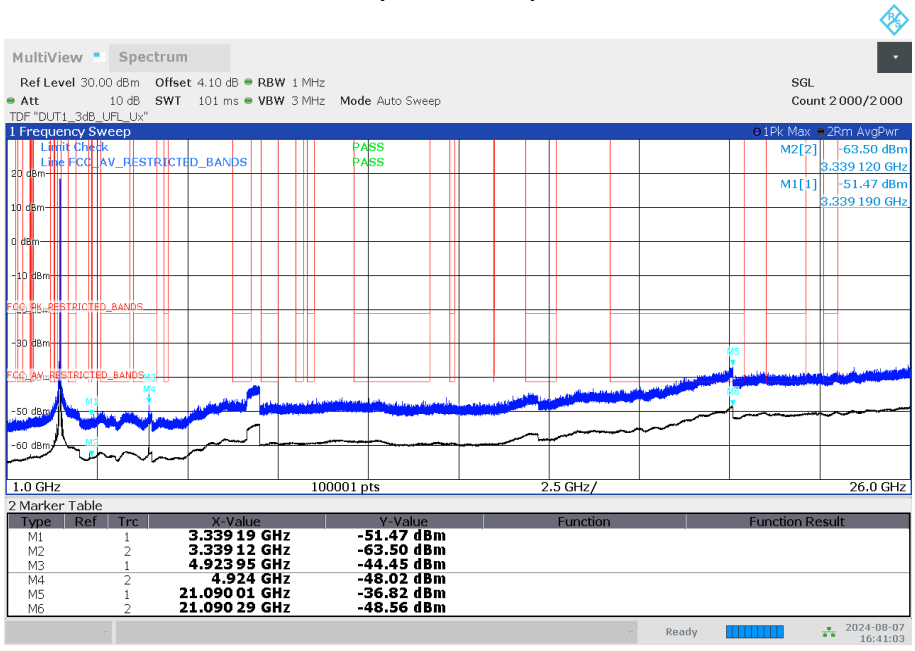
03:26:12 PM 08/07/2024

Radio Technology = WLAN b, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



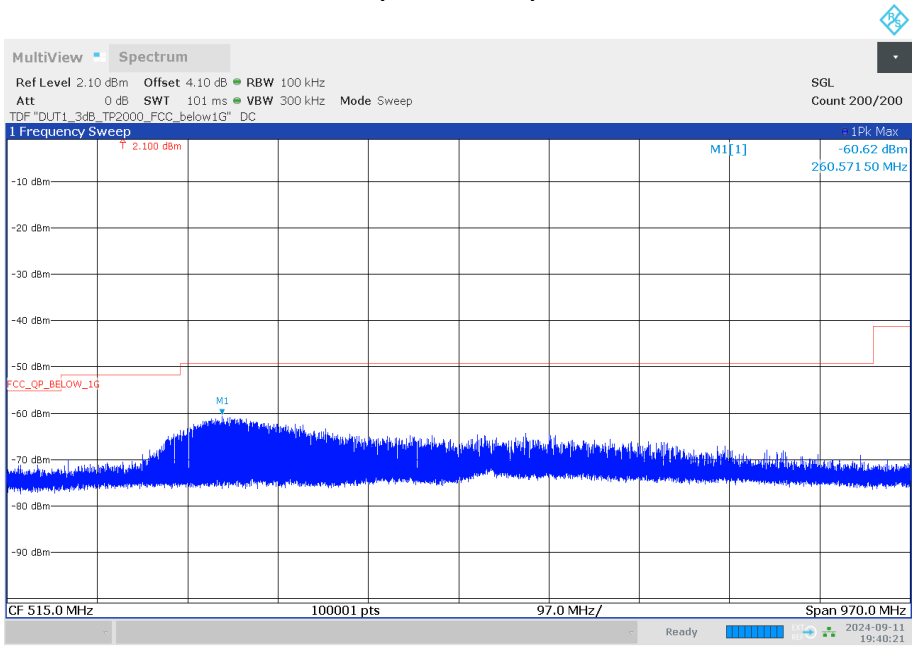
04:27:05 PM 08/07/2024

Radio Technology = WLAN b, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S01_AD02)

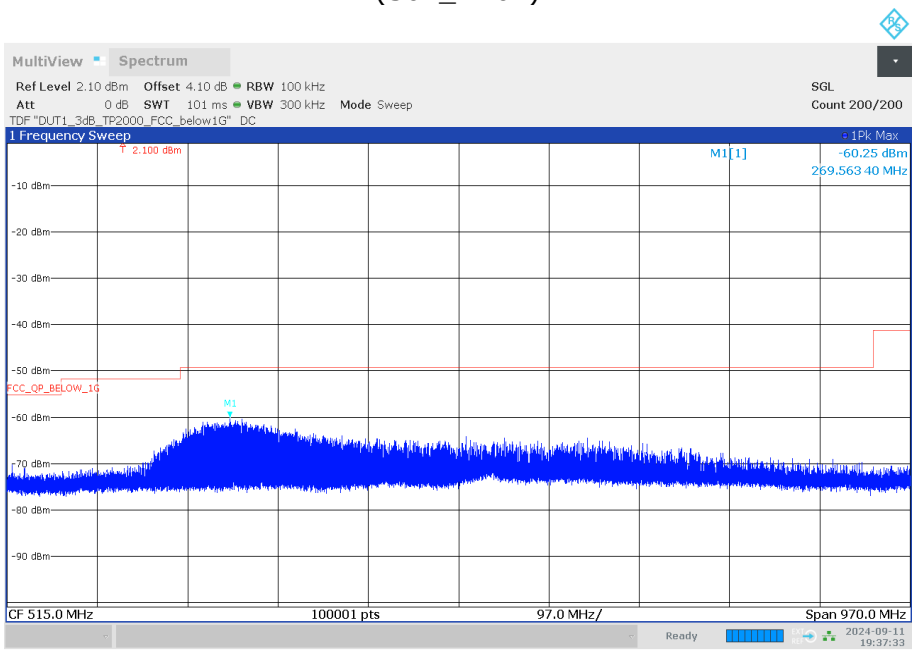


04:41:04 PM 08/07/2024

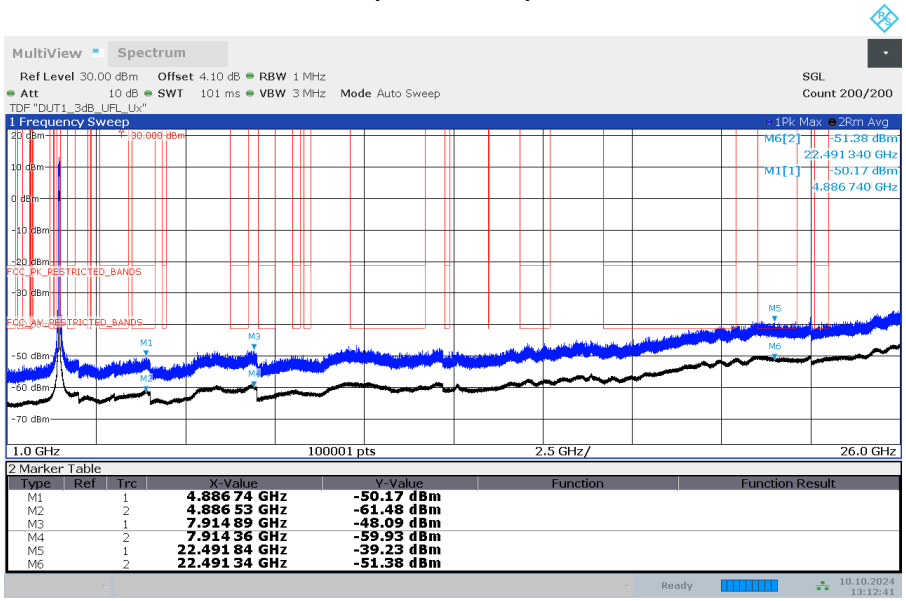
Radio Technology = Bluetooth BDR, Operating Frequency = high, Measurement range = 30 MHz - 1 GHz
(S01_AD02)



Radio Technology = Bluetooth BDR, Operating Frequency = low, Measurement range = 30 MHz - 1 GHz
(S01_AD02)

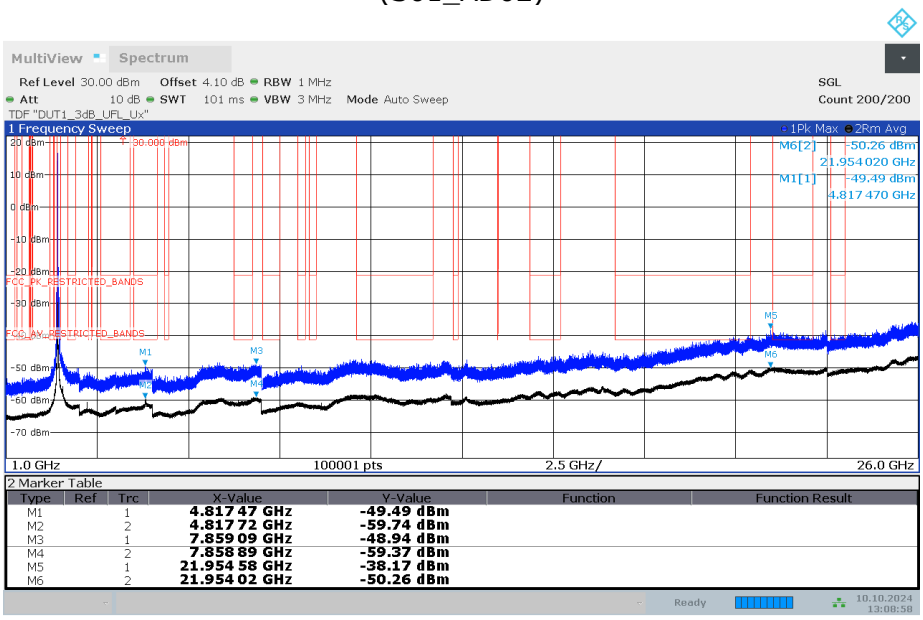


Radio Technology = WLAN ax 20 MHz, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



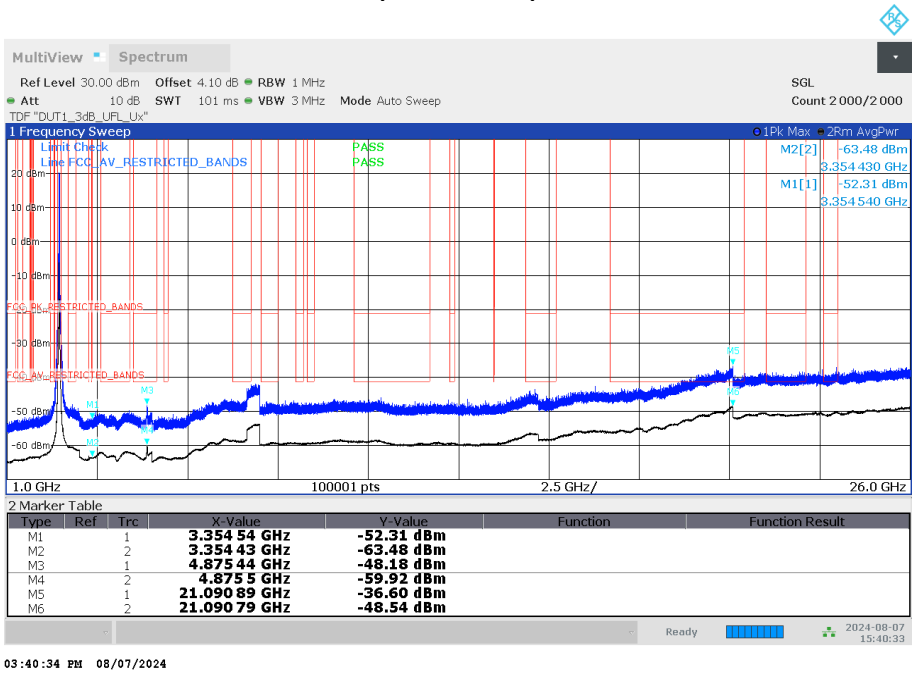
13:12:42 10.10.2024

Radio Technology = WLAN ax 20 MHz, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



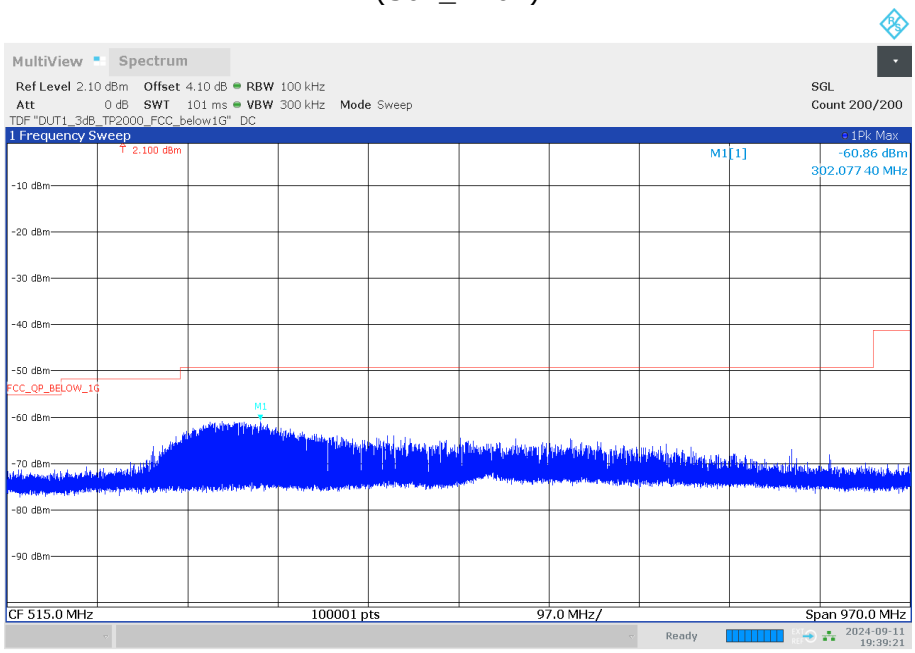
13:08:59 10.10.2024

Radio Technology = WLAN ax 20 MHz, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S01_AD02)



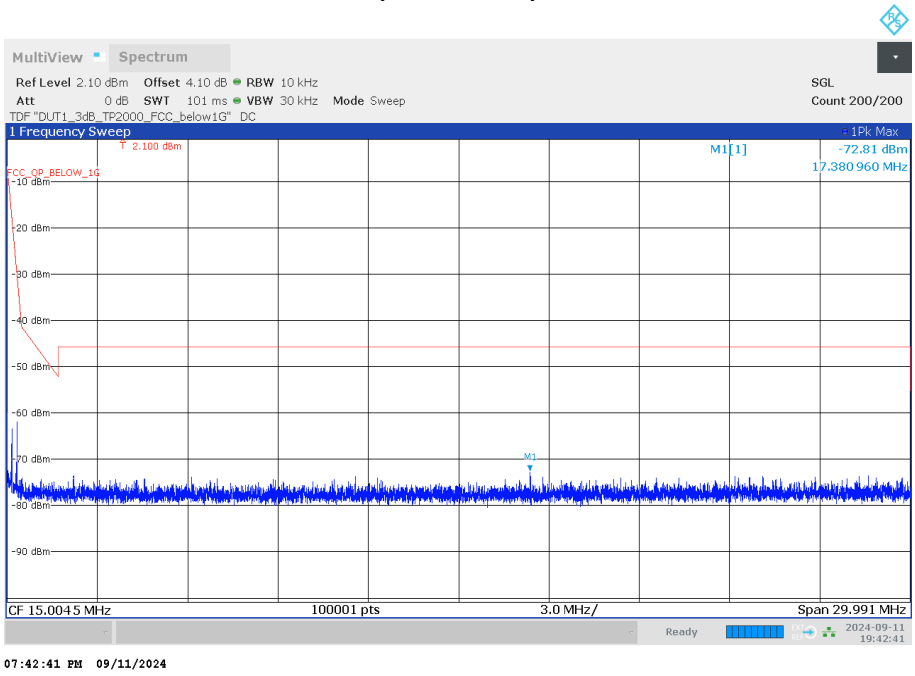
03:40:34 PM 08/07/2024

Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 30 MHz - 1 GHz
(S01_AD02)

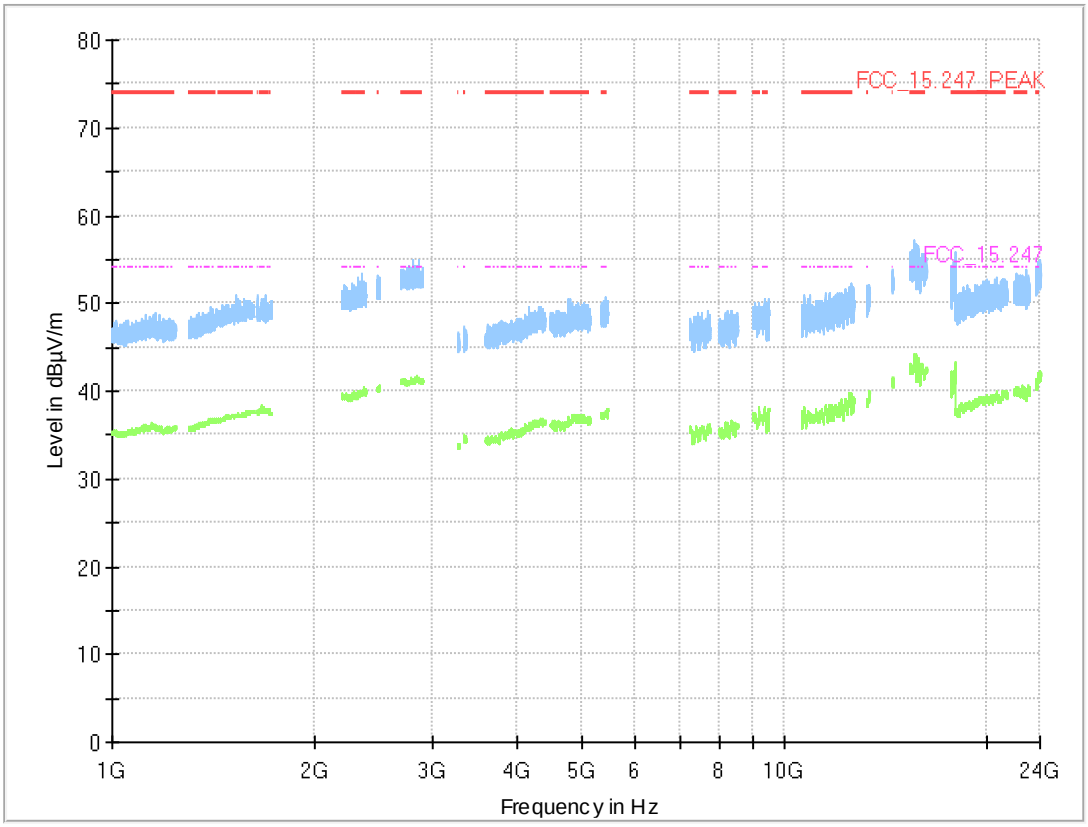


07:39:21 PM 09/11/2024

Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S01_AD02)



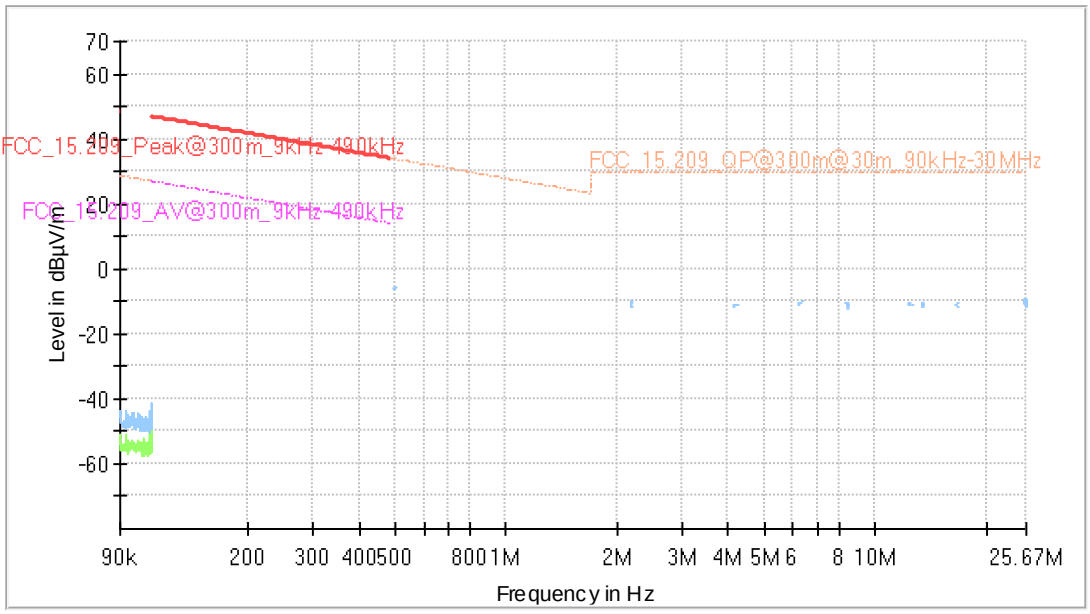
Radio Technology = WLAN b, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S01_AA01)



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 = 9 kHz - 30 MHz
(S01_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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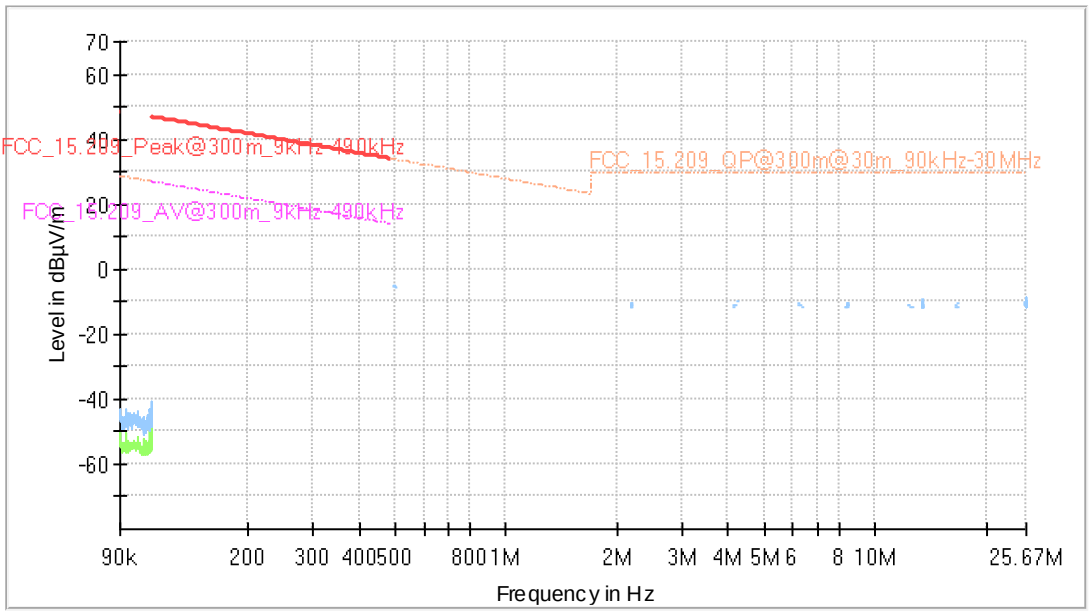
Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 9 kHz - 30 MHz
(S01_AA01)



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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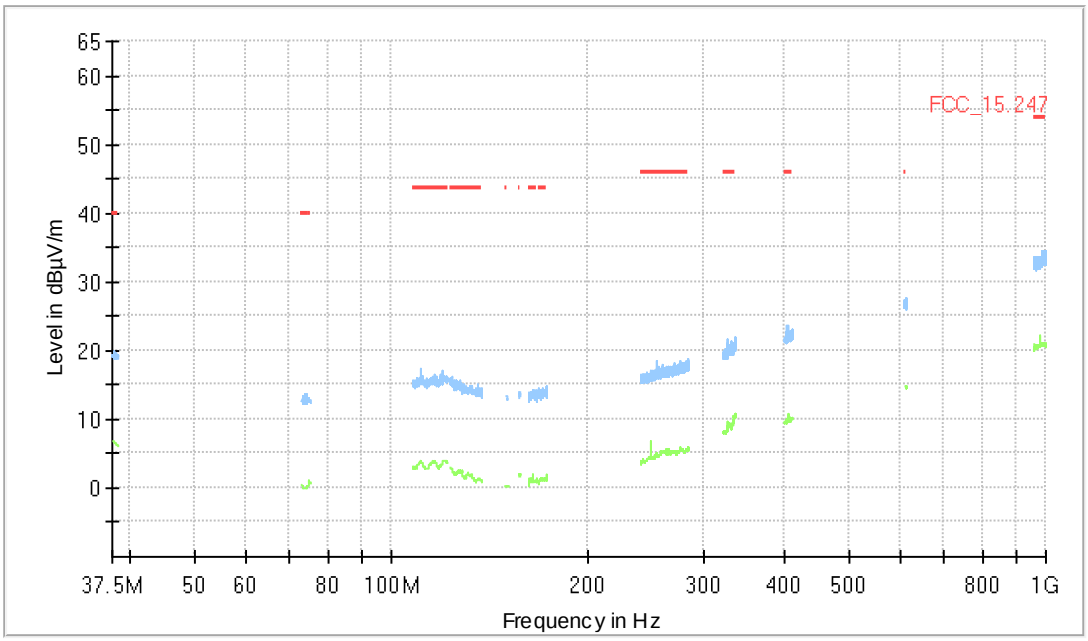
Radio Technology = Bluetooth BDR, Operating Frequency = high, Measurement range = 30 MHz - 1 GHz
(S01_AA01)



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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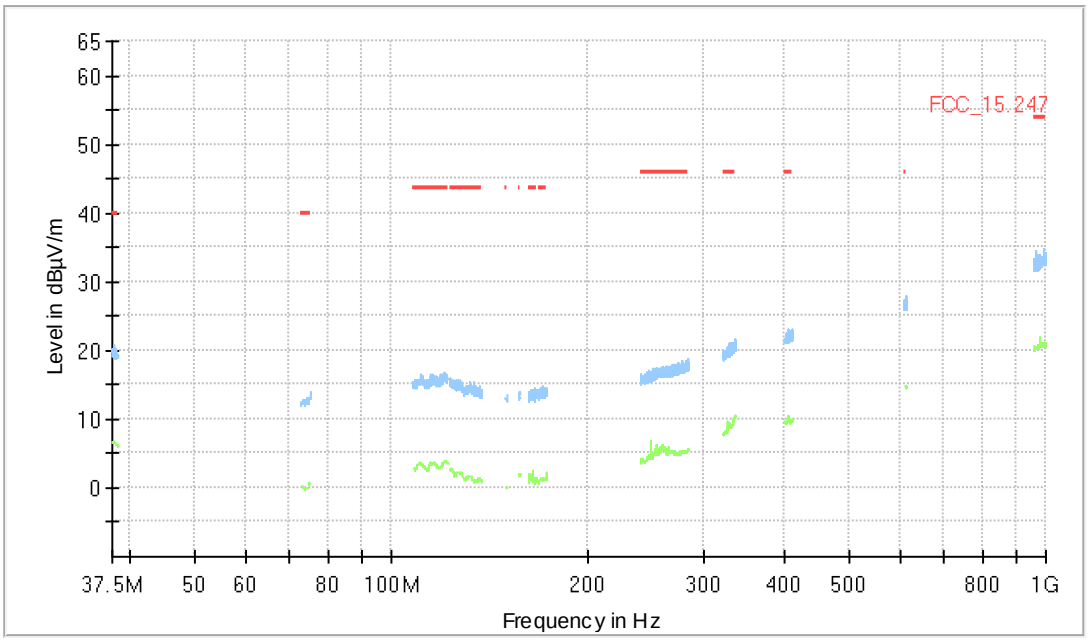
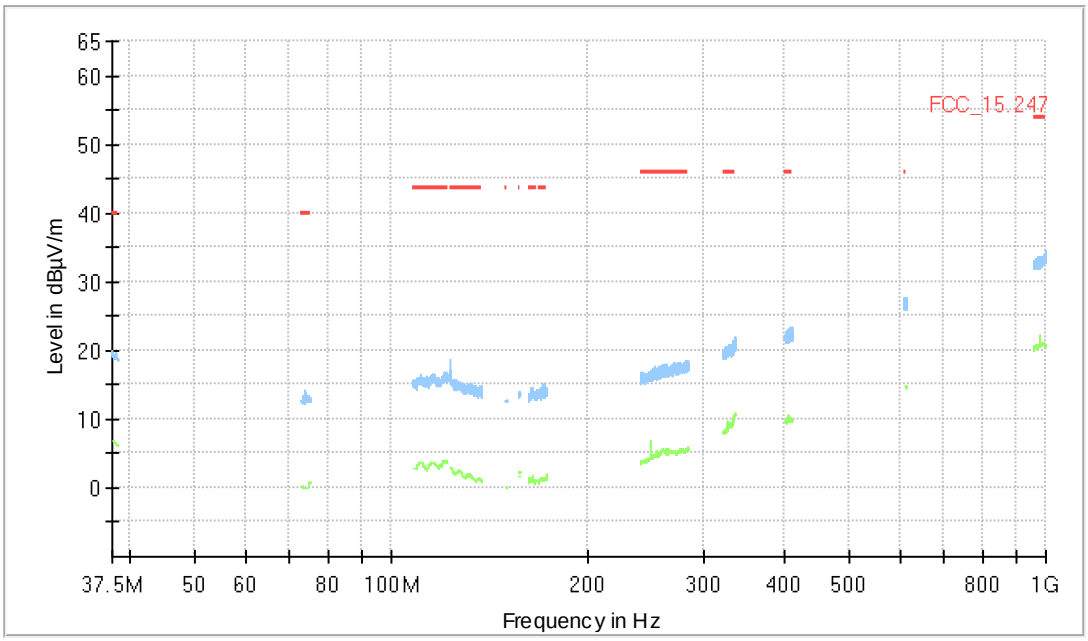
Radio Technology = Bluetooth BDR, Operating Frequency = low, Measurement range = 30 MHz - 1 GHz
(S01_AA01)



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)
---	---	---	---	---	---	---		---	---

Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 30 MHz - 1 GHz
(S01_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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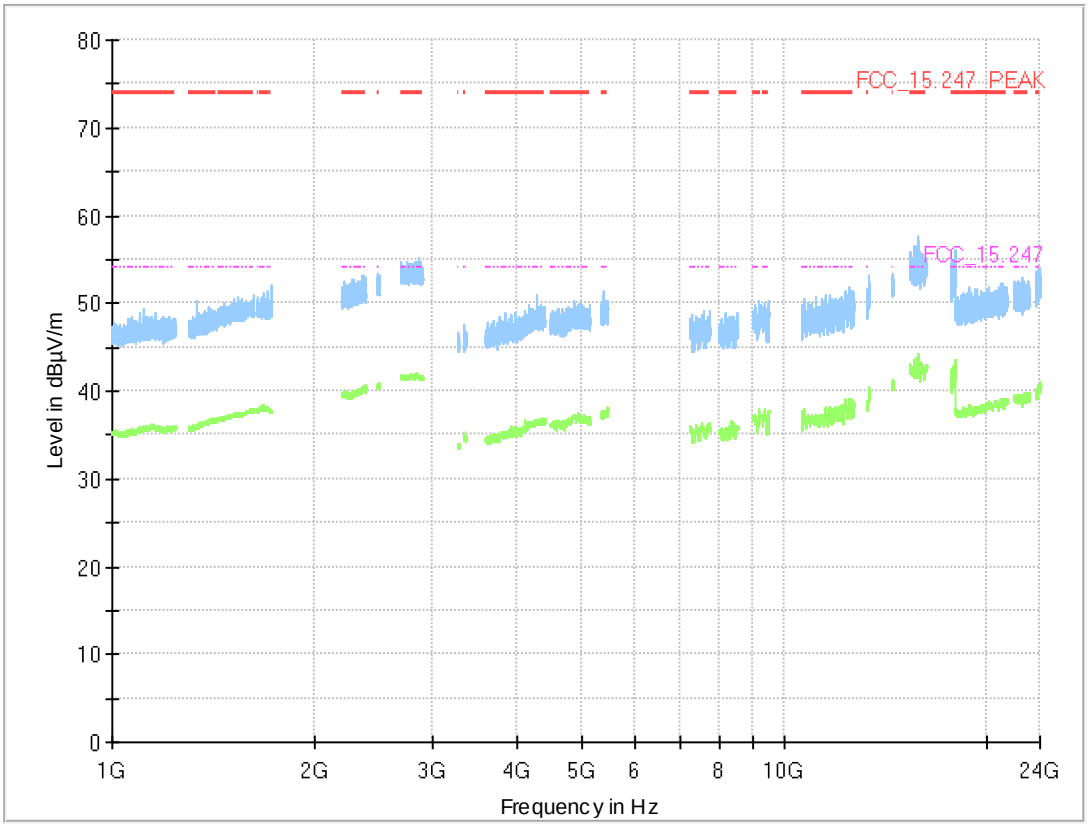
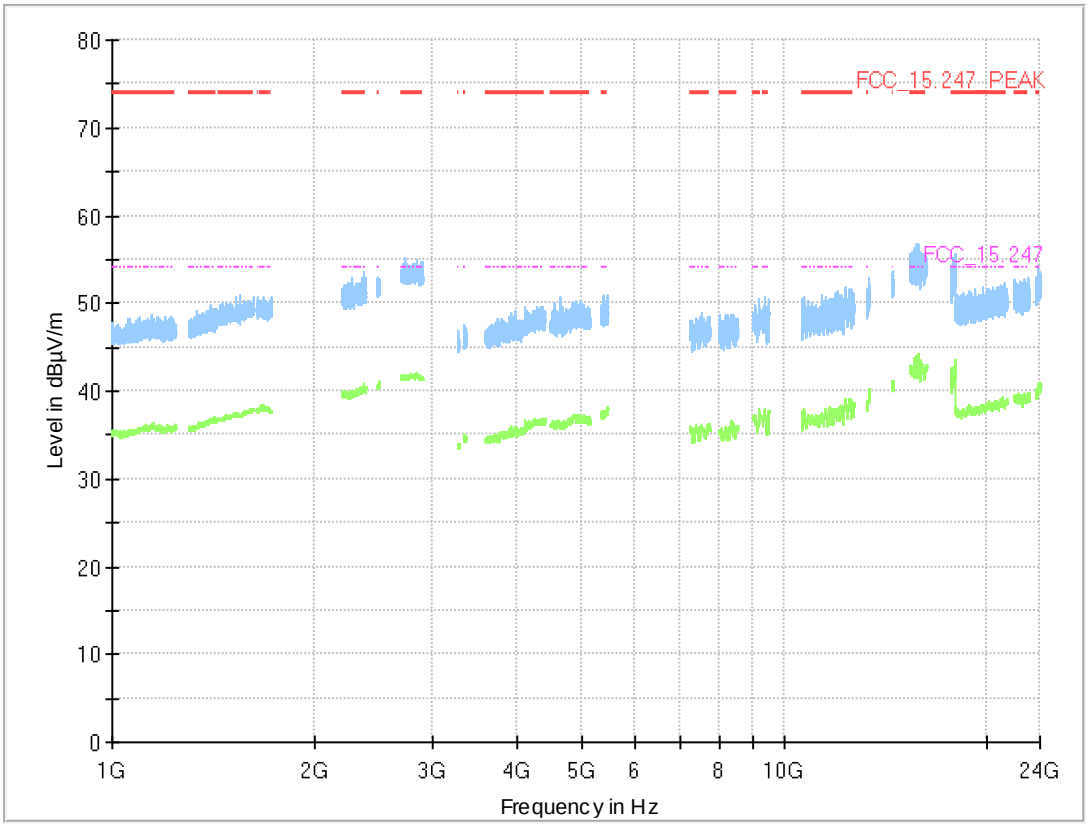
Radio Technology = Bluetooth BDR, Operating Frequency = low, Measurement range = 1 GHz - 26 GHz
(S02_AB01)



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)
---	---	---	---	---	---	---	---		---	---	---

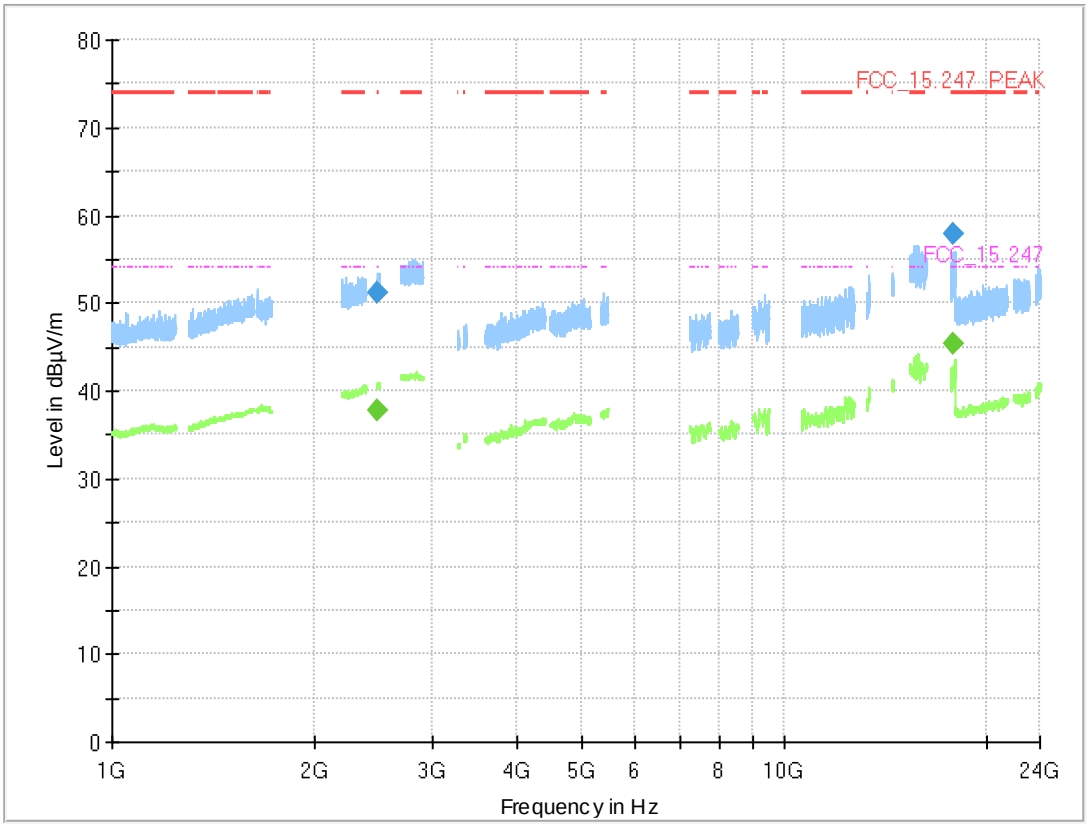
Radio Technology = Bluetooth BDR, Operating Frequency = mid, Measurement range = 1 GHz - 26 GHz
(S02_AB01)



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 = Bluetooth BDR, Operating Frequency = high, Measurement range = 1 GHz - 26 GHz
(S02_AB01)



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)
2484.408	---	37.8	54.00	16.19	1000.0	1000.000	150.0	V	35.0	105.0	7.8
2484.408	51.2	---	74.00	22.79	1000.0	1000.000	150.0	V	35.0	105.0	7.8
17786.400	---	45.3	54.00	8.66	1000.0	1000.000	150.0	V	146.0	-2.0	2.5
17786.400	58.0	---	74.00	16.03	1000.0	1000.000	150.0	V	146.0	-2.0	2.5