

Prüfbericht-Nr.: <i>Test report no.:</i>	CN224AD0 001	Auftrags-Nr.: <i>Order no.:</i>	168367617	Seite 1 von 24 <i>Page 1 of 24</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2022-04-20	
Auftraggeber: <i>Client:</i>	Vestel Elektronik Sanayi ve Ticaret A.S. Organize Sanayi Bolgesi, 45030 Manisa TURKEY			
Prüfgegenstand: <i>Test item:</i>	17WFM26 WI-FI + BT combo module			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	V1.0			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 2 February 2017			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2022-04-20	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no:</i>	A003240432-001~008 A003234567-001			
Prüfzeitraum: <i>Testing period:</i>	2022-04-21 - 2022-05-24			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i>	Ausstellungsdatum: <i>Issue date:</i>			
Stellung / Position:	Project Manager	Stellung / Position:	Reviewer	
Sonstiges / Other:	FCC ID: 2AVQS-17WFM26, IC: 25888-17WFM26, HVIN: V1.0, PMN: 17WFM26 WI-FI + BT combo module			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut 3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good 3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable	5 = poor N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.				

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 6dB BANDWIDTH

RESULT: Pass

5.1.5 99% BANDWIDTH

RESULT: Pass

5.1.6 20dB BANDWIDTH

RESULT: Pass

5.1.7 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.8 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.9 TIME OF OCCUPANCY

RESULT: Pass

5.1.10 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH

RESULT: Pass

5.1.11 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.12 AC CONDUCTED EMISSION

RESULT: N/A

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of Test Set-up

Appendix B: Test Results of BR/EDR mode

Appendix C: Test Results of BLE mode

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Registration No.: 694916

ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (TS8997)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
Signal Analyzer	R&S	FSV 40	101441	09.08.2022
OSP	R&S	OSP 150	101017	02.12.2022
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	R&S	WMS32 (V11.00.00)	N/A	N/A
Power Meter	R&S	NRP2	107105	02.12.2022
Wideband Power Sensor	R&S	NRP-Z81	105677	09.08.2022
Shielding Room 8#	Albatross	SR8	APC17151-SR8	22.06.2024
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	10.08.2022
Signal Analyzer	R&S	FSV 40	101439	09.08.2022
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	09.08.2022
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	09.08.2022
Amplifier	R&S	SCU-18F	180070	09.08.2022
Amplifier	R&S	SCU40A	100475	09.08.2022
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	08.08.2022
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	08.08.2022
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	08.08.2022
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	13.09.2022
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	22.06.2024

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF Power (conducted)	± 2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	± 6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	± 6 dB
Temperature	± 1 °C
Humidity	± 5 %
Voltage (DC)	± 1 %
Voltage (AC, <10kHz)	± 2 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B&C of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The Product is WI-FI + BT combo module, which supports Bluetooth, 2.4GHz Wi-Fi 802.11 b/g/n and 5GHz Wi-Fi 802.11a/b/g/n/ac wireless technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	17WFM26 WI-FI + BT combo module
Type Designation:	V1.0
FCC ID:	2AVQS-17WFM26
IC:	25888-17WFM26
Operating Voltage:	DC 5V
Antenna Type:	Integral Antennas
Antenna Gain:	Wi-Fi Antenna 1#: Max gain 3.4dBi for 2.4GHz Wi-Fi Max gain 3.69dBi for 5GHz Wi-Fi Wi-Fi Antenna 2#: Max gain 2.14dBi for 2.4GHz Wi-Fi Max gain 3.68dBi for 5GHz Wi-Fi BT Antenna3#: Max gain 0.29dBi for Bluetooth As for MIMO mode for Antenna 0# and Antenna 1#, Cyclic Delay Diversity mode Employed.
Technical Specification of Bluetooth	
Operating Frequency:	2402 MHz to 2480 MHz
Type of Modulation:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Channel Number:	BDR/EDR:79 channels; BLE:40 Channels
Channel Separation:	BDR/EDR: 1MHz; BLE: 2MHz
Technical Specification of Wi-Fi 802.11 b/g/n	
Operating Frequency:	2412 - 2462 MHz for 802.11b/g/n(HT20) 2422 - 2452 MHz for 802.11n(HT40)
Type of Modulation:	DSSS(DBPSK/DQPSK/CCK) OFDM(BPSK/QPSK/16QAM/64QAM)
Data Rate:	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0 ~ MCS7 for 802.11n
Channel Number:	11 channels for 802.11b/g/n(HT20) 7 channels for 802.11n(HT40)
Channel Separation:	5 MHz

MIMO and SISO mode:	SISO for 802.11b/g, MIMO and SISO for 802.11n, no beamforming.
Technical Specification of Wi-Fi 802.11 a/n/ac	
Operating Frequency:	5180-5320MHz, 5500-5700MHz
Type of Modulation:	OFDM(BPSK/QPSK/16QAM/64QAM/256QAM)
Channels:	5180-5320MHz, 802.11 a/n20/n40/ac20/ac40/ac80 5500-5700MHz, 802.11 a/n20/n40/ac20/ac40/ac80
Channel Separation	5 MHz
MIMO and SISO mode:	SISO for 802.11a, MIMO and SISO for 802.11n/ac, no beamforming.

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth transmitting mode (BR & EDR mode)
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel
- B. On, Bluetooth Transmitting on Hopping channel (BR & EDR mode)
- C. On, BLE transmitting mode (1M bps & 2Mbps)
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- User Manual
- Block Diagram
- Operation Description

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model V1.0 in this report.

Table 3: Test environments

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
NTNV	24.6°C	DC 5.0V	Ambient

Table 4: Test channel and frequency

Mode	Test Channels
BR & EDR	L: 2402MHz; M: 2441MHz; H: 2480MHz
BLE	L: 2402MHz; M: 2440MHz; H: 2480MHz

4.3 Special Accessories and Auxiliary Equipment

Table 5: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	N/A
Test jig	Vestel Elektronik Sanayi ve Ticaret A.S.	17WFM26	N/A	DC 5V

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

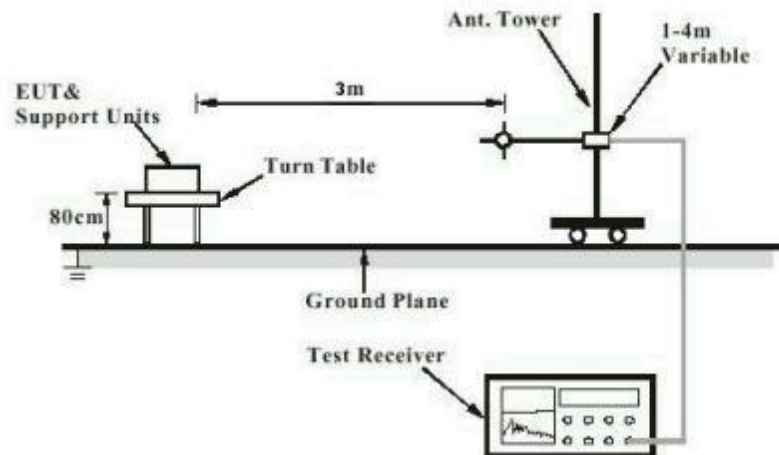


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

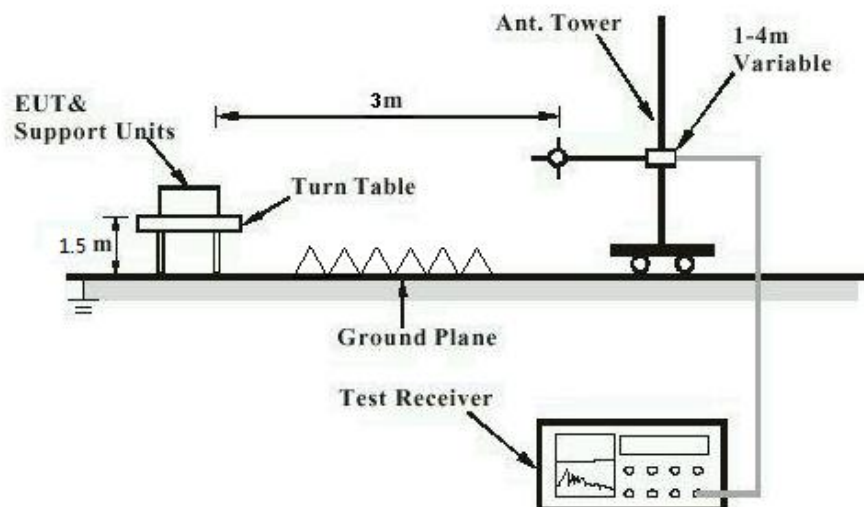
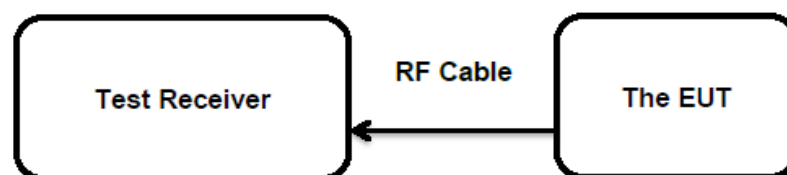


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has an integral antennas with a unique connector, which is designed with permanent attachment and no consideration of replacement. The maximum antenna gain is 0.29 dBi.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

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5.1.2 Maximum Peak Conducted Output Power

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(b)(1)&(3) RSS-247 Clause 5.4(d)
Basic standard	: ANSI C63.10: 2013
Limits	: FHSS < 0.125 Watts, DSSS < 1.0 Watts
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-04-22 to 2022-04-28
Input voltage	: DC 5.0V
Operation mode	: A, C
Test channel	: Low / Middle / High
Ambient temperature	: 24.6 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

Table 6: Test Result of Maximum Peak Conducted Output Power

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
GFSK (BDR)	2402.0	4.90	0.0031	< 0.125
	2441.0	4.60	0.0029	
	2480.0	4.80	0.0030	
Maximum Measured Value		4.90	0.0031	

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
8DPSK (EDR)	2402.0	7.90	0.0062	< 0.125
	2441.0	7.60	0.0058	
	2480.0	7.90	0.0062	
Maximum Measured Value		7.90	0.0062	

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
BLE (1 Mbps)	2402	5.00	0.0032	< 1.0
	2440	4.60	0.0029	
	2480	4.70	0.0030	
Max. Measured Value		5.00	0.0032	

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
BLE (2 Mbps)	2402	5.40	0.0035	< 1.0
	2440	4.70	0.0030	
	2480	5.00	0.0032	
Max. Measured Value		5.40	0.0035	

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G) of Bluetooth: 0.29 dBi
 $e.i.r.p. = P_{(Peak\ power)} + G$, which is far below the 4 W

5.1.3 Conducted Power Spectral Density

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(e) RSS-247 Clause 5.2(b)
Basic standard	: ANSI C63.10: 2013
Limits	: < 8 dBm / 3kHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-04-20
Input voltage	: DC 5.0V
Operation mode	: C
Test channel	: Low / Middle / High
Ambient temperature	: 24.6 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix C.

5.1.4 6dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(a)(2)
	: RSS-247 Clause 5.2(a)
Basic standard	: ANSI C63.10: 2013
Limits	: > 500 KHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-04-20
Input voltage	: DC 5.0V
Operation mode	: C
Test channel	: Low / Middle / High
Ambient temperature	: 24.6 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix C.

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5.1.5 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard	:	FCC Part 15.247(a) RSS-Gen Clause 6.7
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-04-20
Input voltage	:	DC 5.0V
Operation mode	:	A,C
Test channel	:	Low / Middle / High
Ambient temperature	:	24.6 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B and C.

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5.1.6 20dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard	:	FCC Part 15.247(a)(1)
	:	RSS-Gen Clause 6.7
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-04-20
Input voltage	:	DC 5.0V
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.6 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

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5.1.7 Carrier Frequency Separation

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(a)(1) RSS-247 Clause 5.1(b)
Basic standard	: ANSI C63.10: 2013
Limits	: $\geq 25\text{kHz}$ or 2/3 of 20dB bandwidth, whichever is greater
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-04-21
Input voltage	: DC 5.0V
Operation mode	: B
Test channel	: Low / Middle / High
Ambient temperature	: 24.6 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

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5.1.8 Number of Hopping Frequency

RESULT:

Pass

Test Specification

Test standard	:	FCC part 15.247(a)(1)(iii)
	:	RSS-247 Clause 5.1(d)
Basic standard	:	ANSI C63.10: 2013
Limits	:	≥ 15 non-overlapping channels
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-04-21
Input voltage	:	DC 5.0V
Operation mode	:	B
Ambient temperature	:	24.6 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

5.1.9 Time of Occupancy

RESULT:**Pass****Test Specification**

Test standard	: FCC part 15.247(a)(1)(iii)
	: RSS-247 Clause 5.1(d)
Basic standard	: ANSI C63.10: 2013
Limits	: < 0.4s
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-04-21
Input voltage	: DC 5.0V
Operation mode	: B
Test channel	: Low / Middle / High
Ambient temperature	: 24.6 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

5.1.10 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-04-20
Input voltage	: DC 5.0V
Operation mode	: A,B,C
Test channel	: Low / Middle / High
Ambient temperature	: 24.6 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendixes B & C.

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5.1.11 Radiated Spurious Emission

RESULT:

Pass

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Table 5
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	2022-04-23~2022-04-26
Input voltage	:	DC 5.0V
Operation mode	:	A, C
Test channel	:	Low / Middle / High
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendixes B & C.

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Page 23 of 24**5.1.12 AC Conducted Emission****RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.207(a)
Basic standard	: ANSI C63.10: 2013
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.207(a) RSS-Gen Table 4
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2022-05-21
Input voltage	: 120V/60Hz via PC
Operation mode	: A, C
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

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Appendix B: Test Results of BR & EDR

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Appendix B.1: Test Results of 99% Bandwidth

TestMode	Channel	OCB [MHz]
DH5	2402	0.755
	2441	0.755
	2480	0.755
3DH5	2402	1.180
	2441	1.180
	2480	1.180

BDR (DH5)

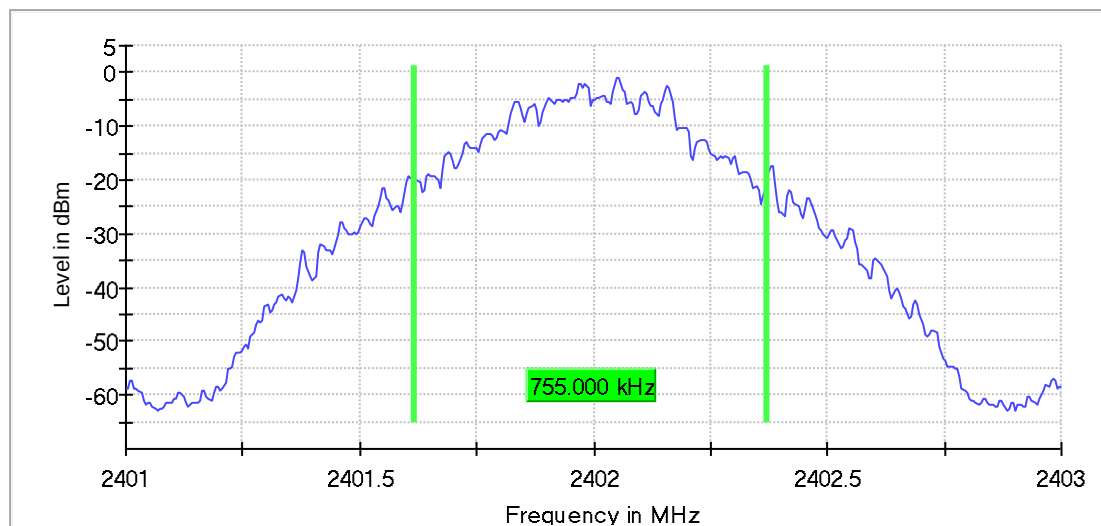
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.755000	---	---	2401.617500	2402.372500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

99 % Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	9 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.13 dB	0.30 dB

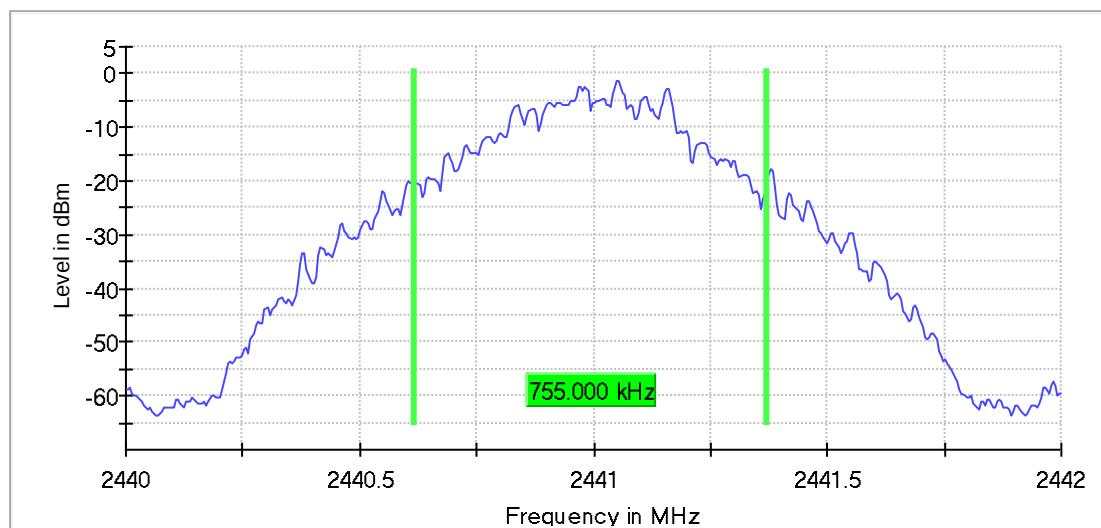
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.755000	---	---	2440.617500	2441.372500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

99 % Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.29 dB	0.30 dB

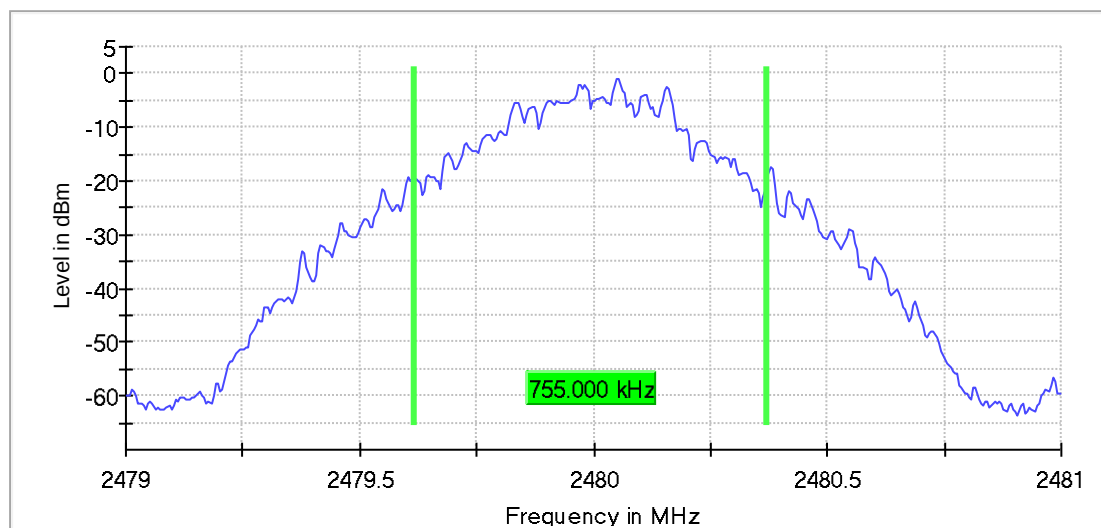
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.755000	---	---	2479.617500	2480.372500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.01 dB	0.30 dB

EDR (3DH5)

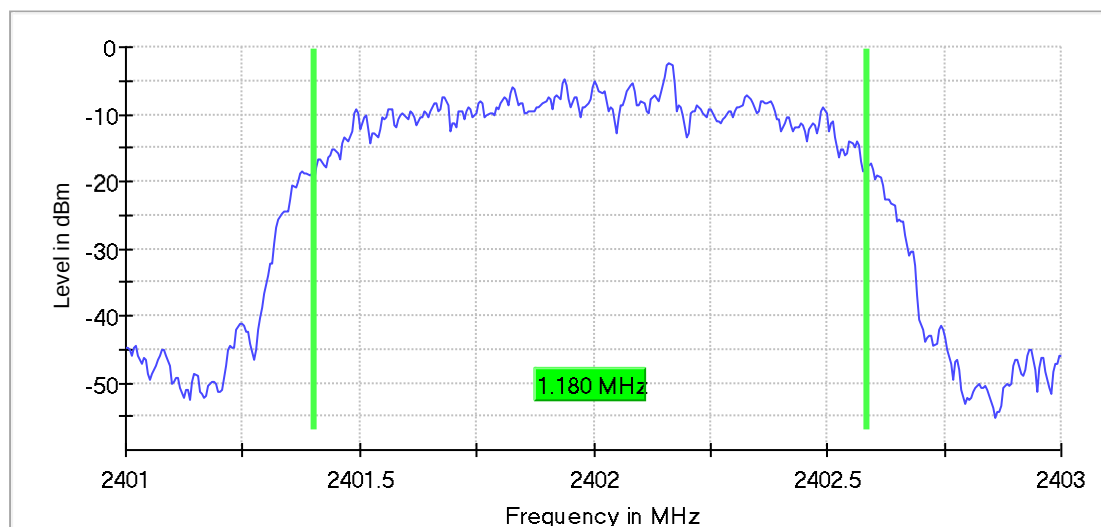
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.180000	---	---	2401.402500	2402.582500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

99 % Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.22 dB	0.30 dB

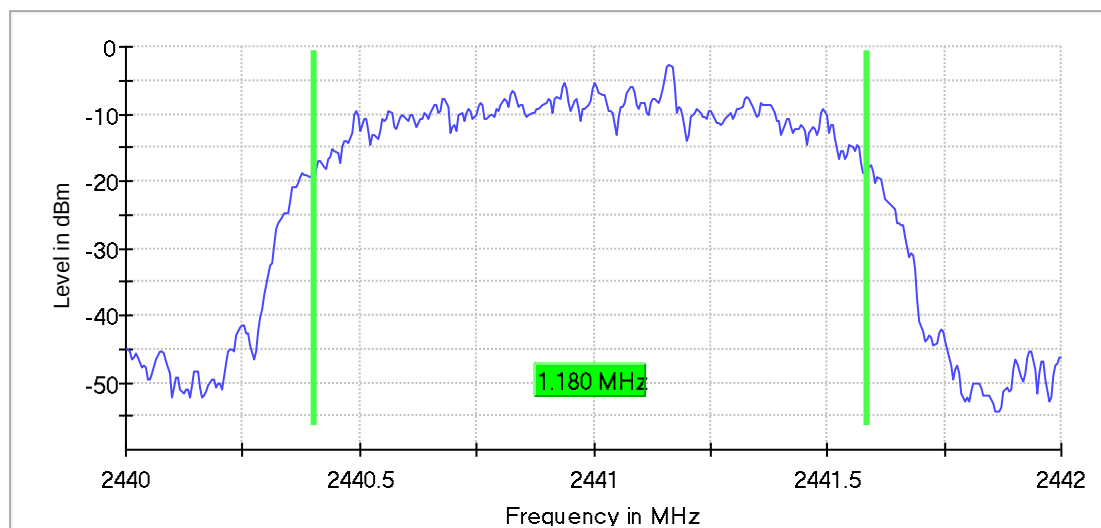
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.180000	---	---	2440.402500	2441.582500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

99 % Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.16 dB	0.30 dB

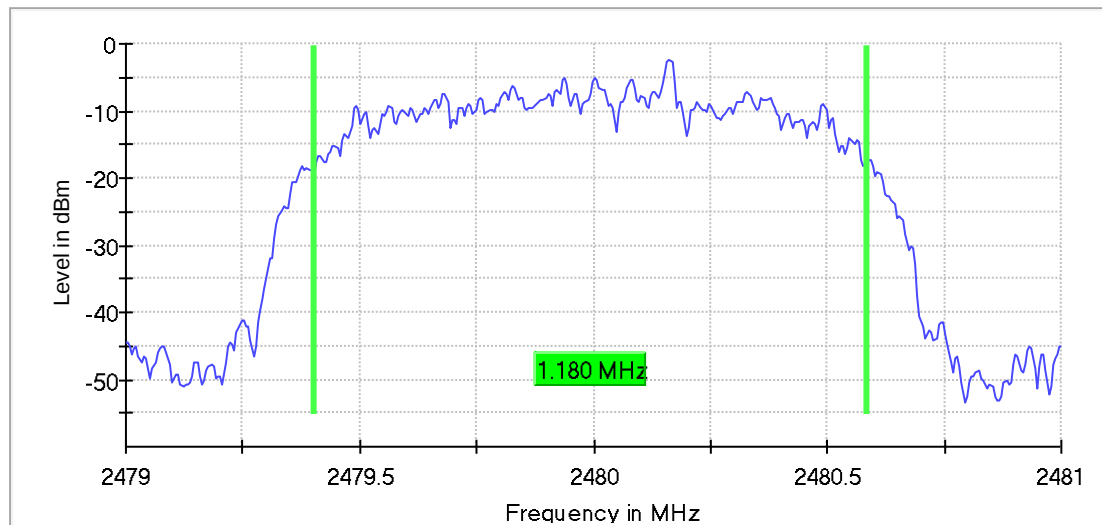
99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.180000	---	---	2479.402500	2480.582500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.24 dB	0.30 dB

Appendix B.2: Test Results of 20dB Bandwidth

TestMode	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]
DH5	2402	0.800	2401.592	2402.396
	2441	0.800	2440.589	2441.396
	2480	0.800	2479.589	2480.396
3DH5	2402	1.270	2401.340	2402.645
	2441	1.270	2440.337	2441.648
	2480	1.270	2479.340	2480.639

BDR (DH5)

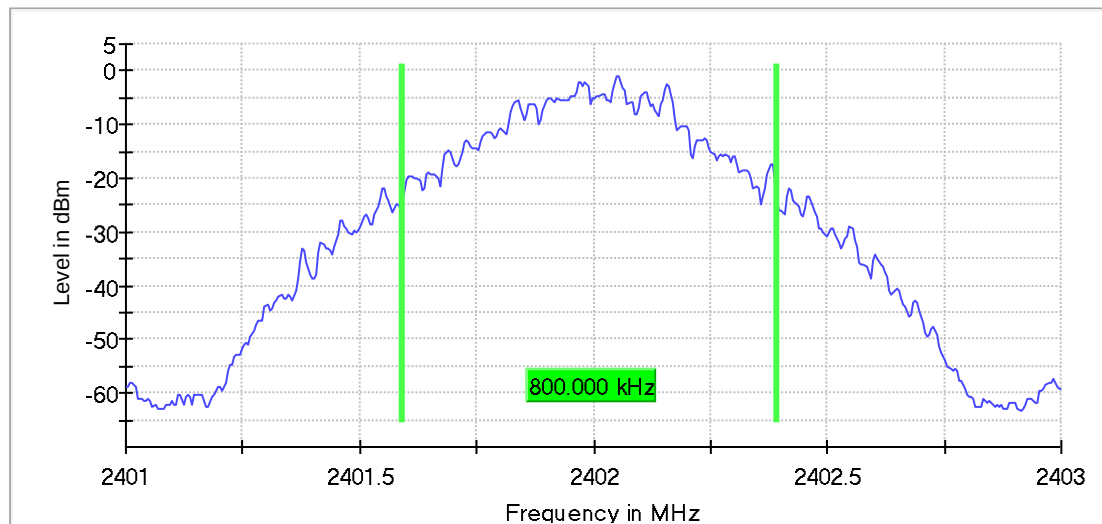
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.800000	---	---	2401.592500	2402.392500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-0.8	PASS

20 dB Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.00 dB	0.50 dB

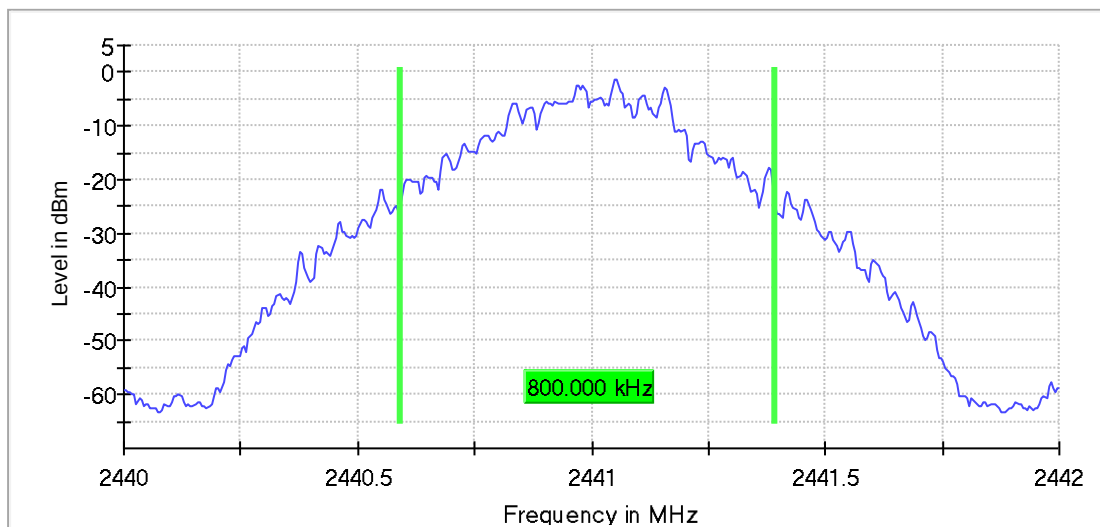
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.800000	---	---	2440.592500	2441.392500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	-1.2	PASS

20 dB Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.01 dB	0.50 dB

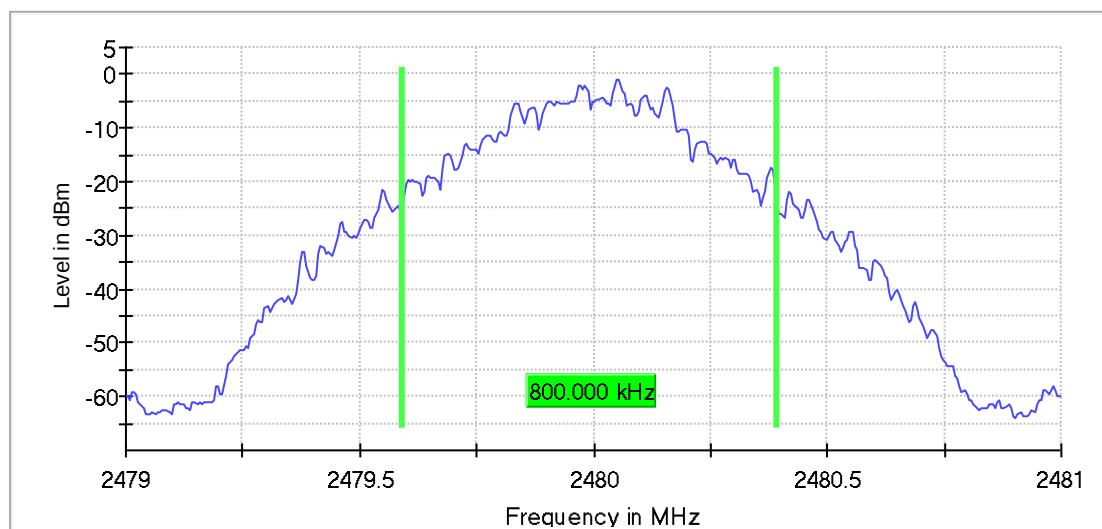
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.800000	---	---	2479.592500	2480.392500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-0.9	PASS

20 dB Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.10 dB	0.50 dB

EDR (3DH5)

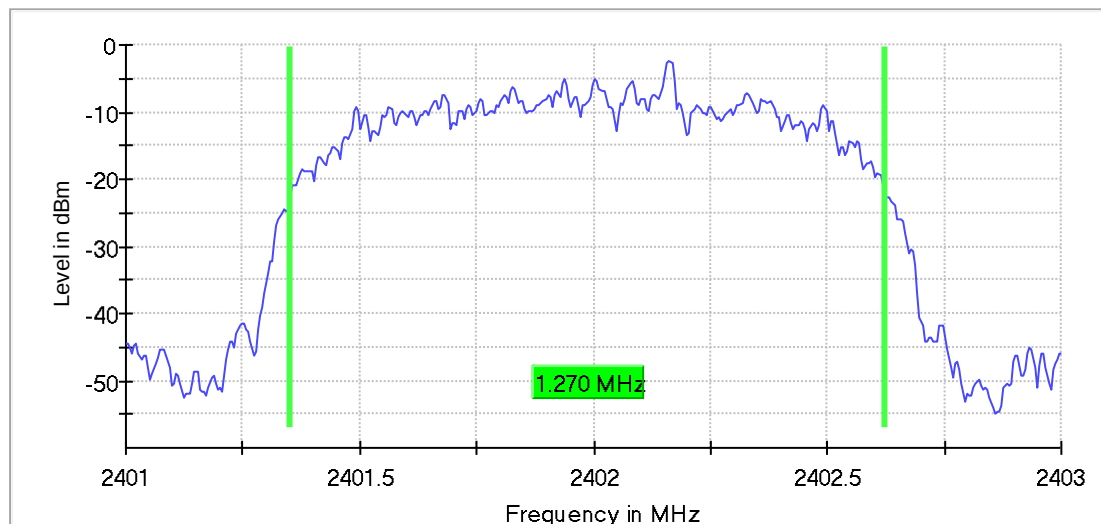
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.270000	---	---	2401.352500	2402.622500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-2.4	PASS

20 dB Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	12 / max. 150	max. 150
Stable	5 / 5	5

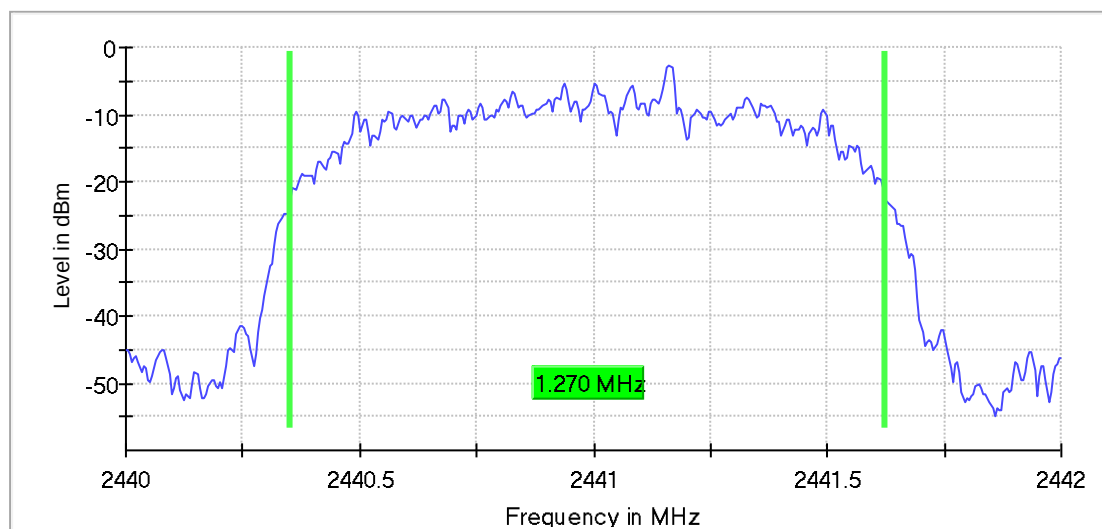
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.270000	---	---	2440.352500	2441.622500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	-2.6	PASS

20 dB Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.20 dB	0.50 dB

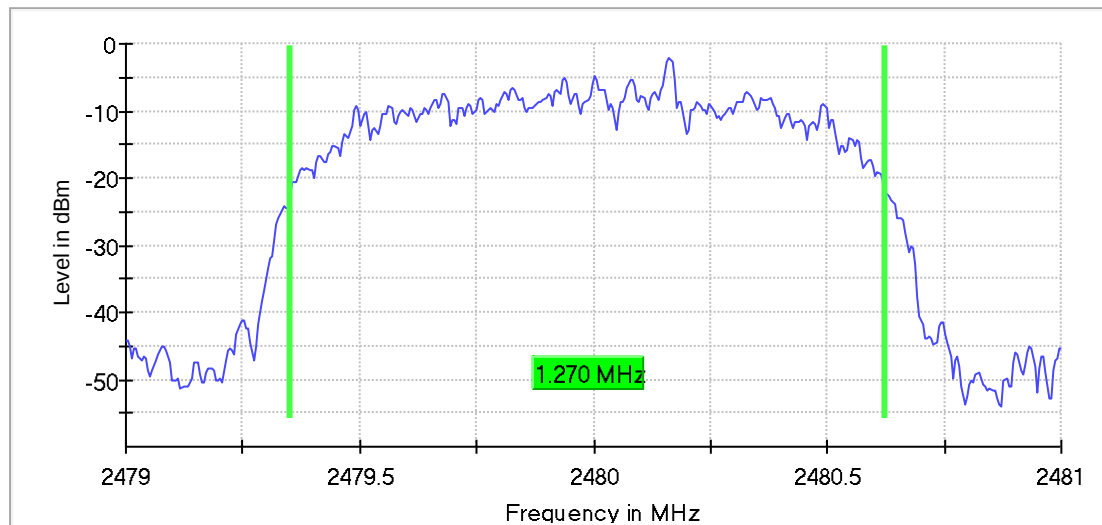
20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.270000	---	---	2479.352500	2480.622500

(continuation of the "20 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-2.2	PASS

20 dB Bandwidth



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweptime	189.648 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	9 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.36 dB	0.50 dB

Appendix B.3: Test Results of Carrier Frequency Separation

TestMode	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Hop	0.980	≥0.800	PASS
3DH5	Hop	0.980	≥0.847	PASS

BDR (DH5):

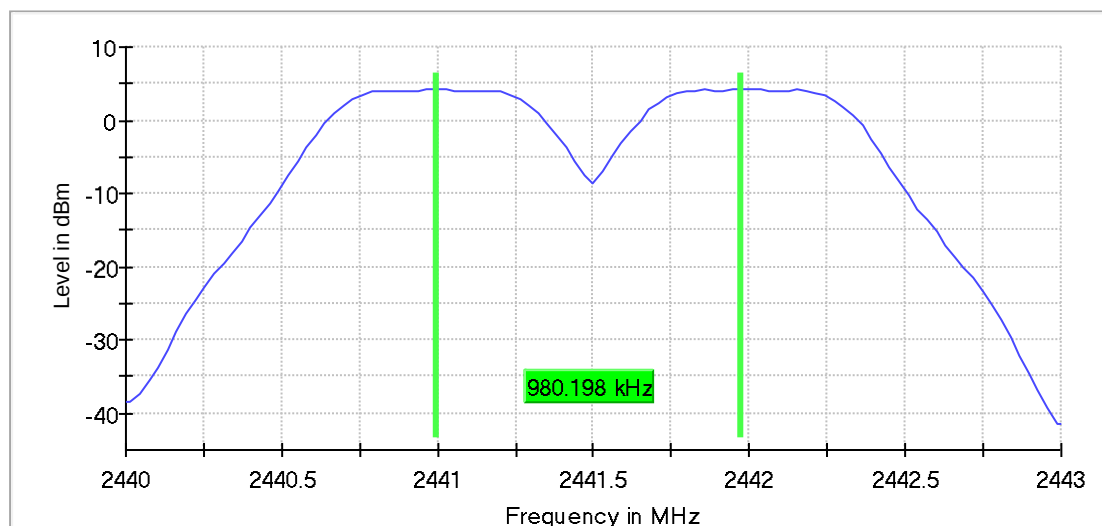
Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2441.000000	0.980198	0.800	---	2440.995050	2441.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	16 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.09 dB	0.50 dB

EDR (3DH5):

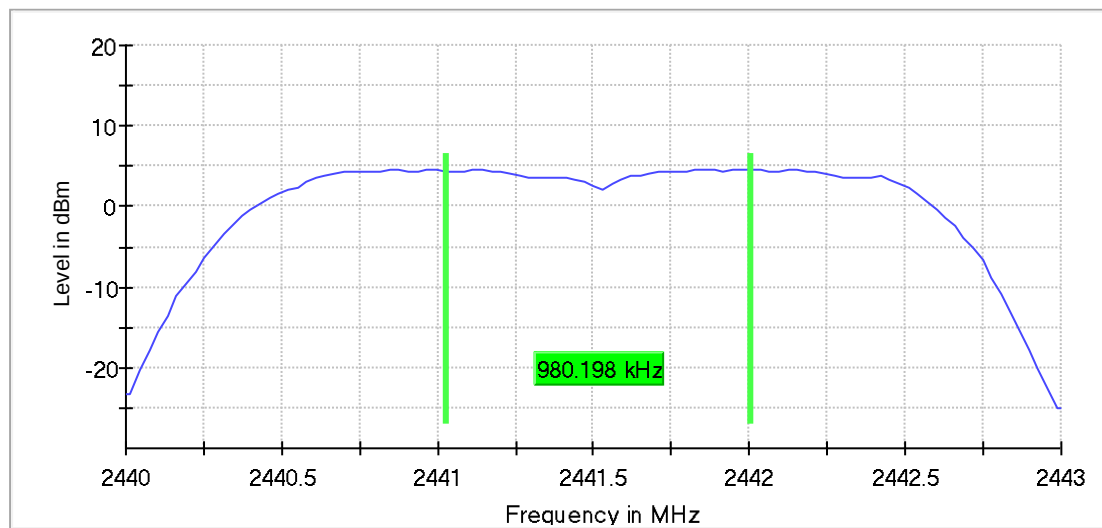
Result

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2441.000000	0.980198	0.846667	---	2441.024752	2442.004950

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	13 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.00 dB	0.50 dB

Appendix B.4: Test Results of Number of Hopping Frequency

TestMode	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Hop	79	≥15	PASS
3DH5	Hop	79	≥15	PASS



Appendix B.5: Test Results of Time of Occupancy

DH1:

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2441.000000	PASS	162	63.400	-10.0

Periode

Min (ms)	Max (ms)	Mean (ms)
12.500	787.480	193.707

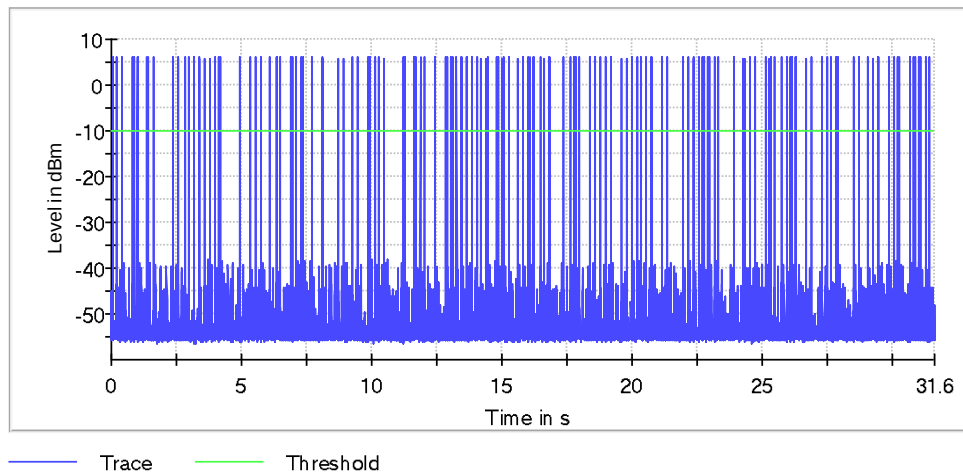
Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
0.38	0.39	400.000	0.000	0.389

DwellTime

Min (ms)	Max (ms)	Mean (ms)
0.38	0.39	0.389

Time of Channel Occupancy



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

DH3: Result

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2441.000000	PASS	166	274.680	-10.0

Periode

Min (ms)	Max (ms)	Mean (ms)
5.000	787.480	188.950

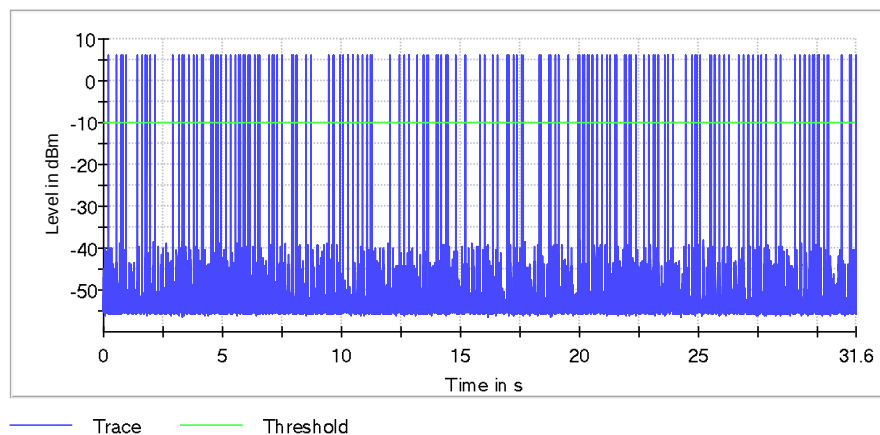
Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
1.640	1.650	400.000	0.000	1.645

DwellTime

Min (ms)	Max (ms)	Mean (ms)
1.640	1.650	1.645

Time of Channel Occupancy(2)



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

DH5:

Result

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2441.000000	PASS	82	240.140	-10.0

Periode

Min (ms)	Max (ms)	Mean (ms)
20.000	1214.970	385.300

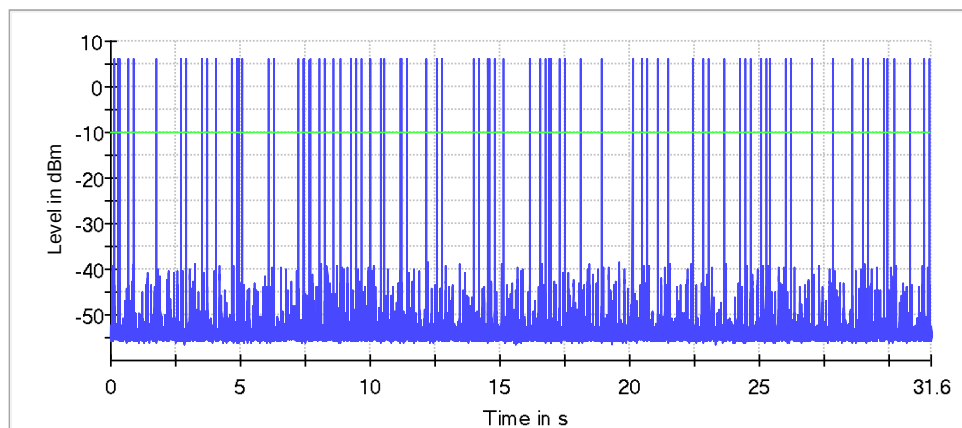
Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
2.890	2.900	400.000	0.000	2.893

DwellTime

Min (ms)	Max (ms)	Mean (ms)
2.890	2.900	2.893

Time of Channel Occupancy(3)



— Trace — Threshold

Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

3DH1:

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2441.000000	PASS	165	65.870	-10.0

Periode

Min (ms)	Max (ms)	Mean (ms)
5.000	787.480	190.239

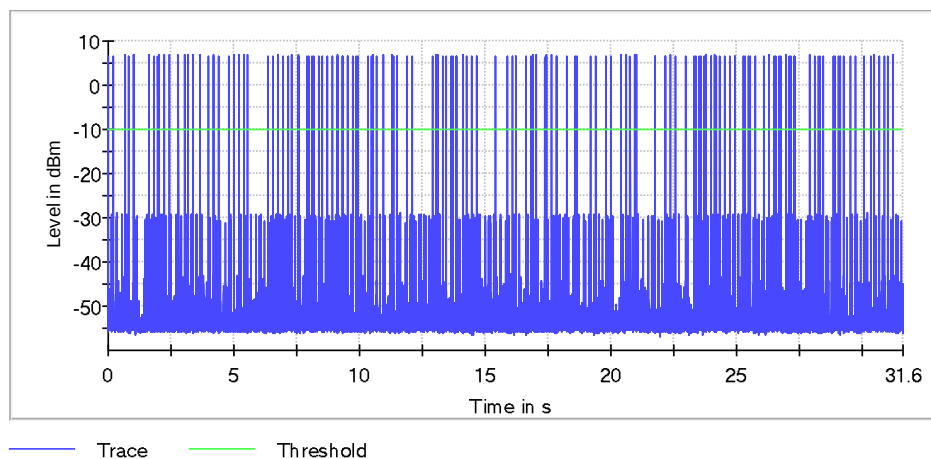
Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
0.39	0.40	400.000	0.000	0.397

DwellTime

Min (ms)	Max (ms)	Mean (ms)
0.39	0.40	0.397

Time of Channel Occupancy



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

3DH3:

Result

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2441.000000	PASS	165	273.430	-10.0

Periode

Min (ms)	Max (ms)	Mean (ms)
5.000	787.480	187.846

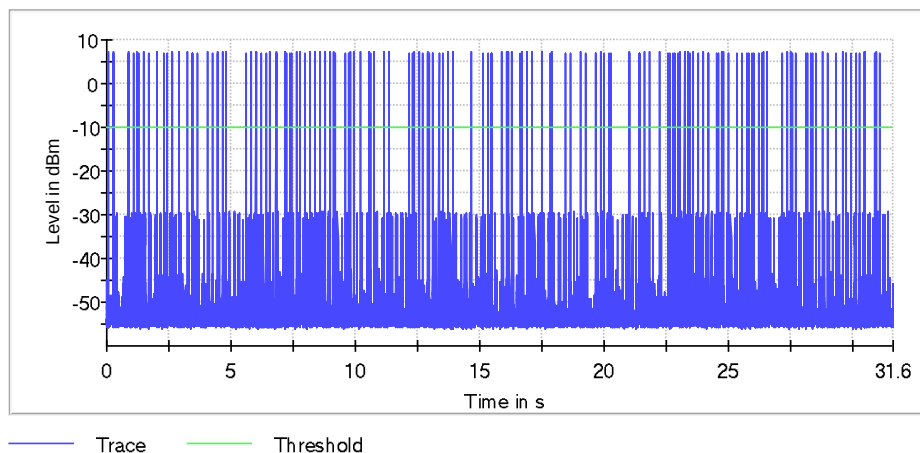
Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
1.640	1.650	400.000	0.000	1.647

DwellTime

Min (ms)	Max (ms)	Mean (ms)
1.640	1.650	1.647

Time of Channel Occupancy(2)



Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

3DH5:

Result

DUT Frequency (MHz)	Result	Number of Hops	Average time of occupancy (ms)	Threshold (dBm)
2441.000000	PASS	80	234.800	-10.0

Periode

Min (ms)	Max (ms)	Mean (ms)
20.000	1214.970	380.181

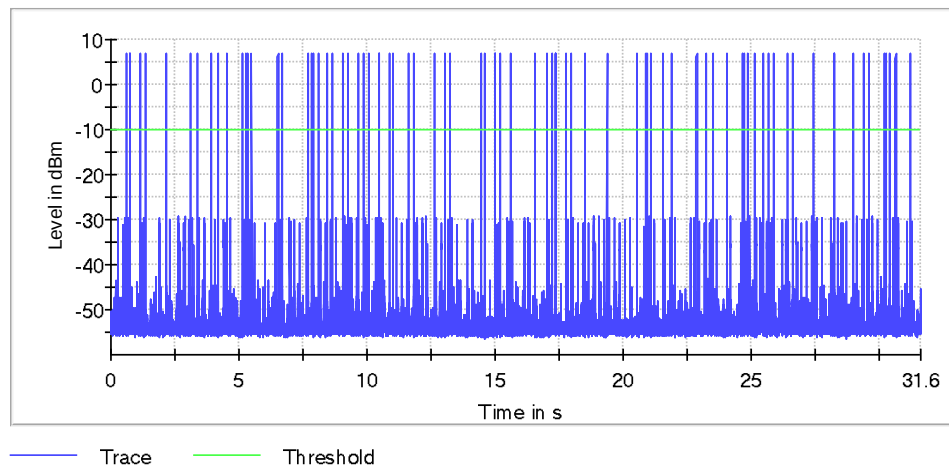
Transmit Time per Hop

Min (ms)	Max (ms)	Limit Max for Max (ms)	Limit Min for Max (ms)	Mean (ms)
2.890	2.900	400.000	0.000	2.899

DwellTime

Min (ms)	Max (ms)	Mean (ms)
2.890	2.900	2.899

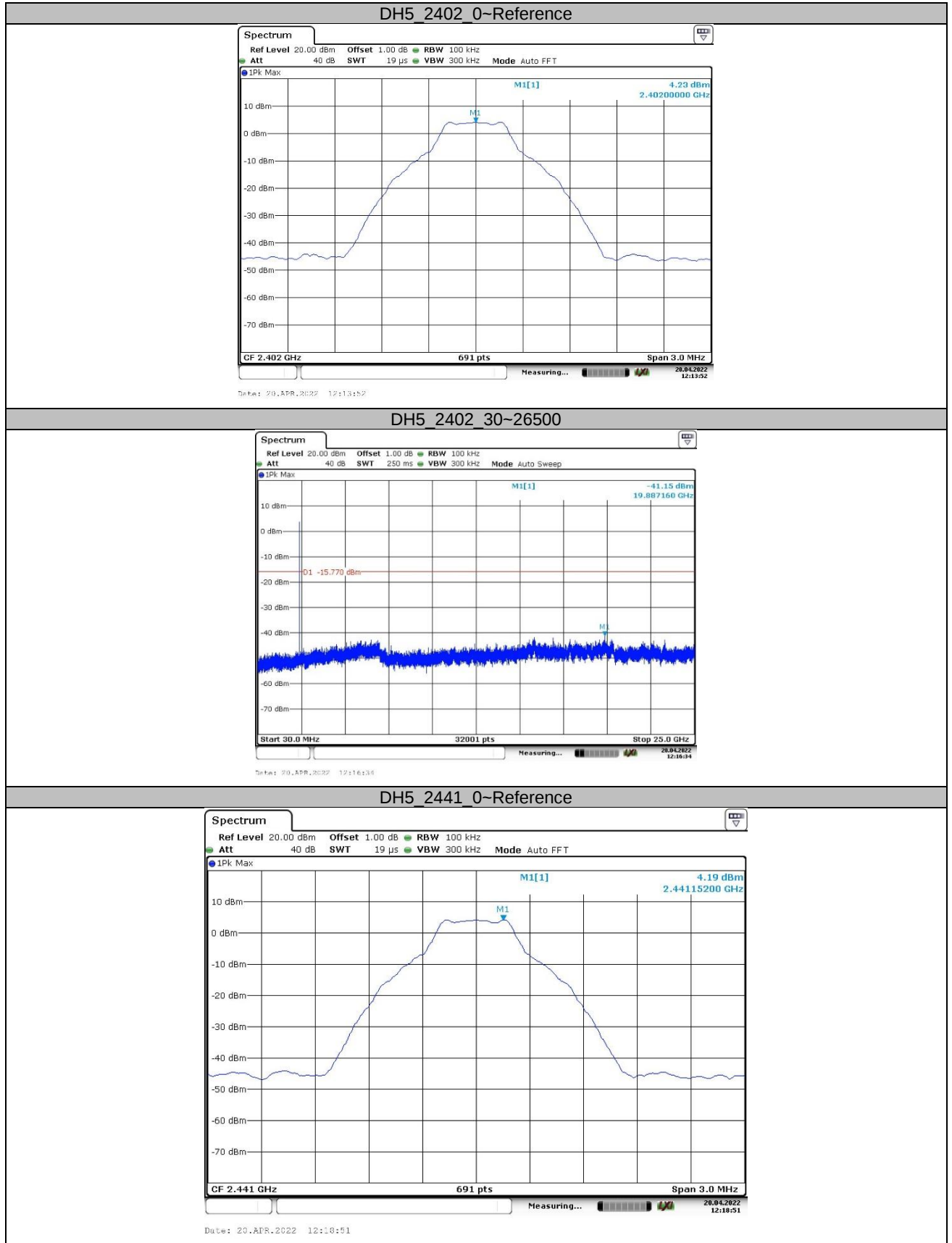
Time of Channel Occupancy(3)



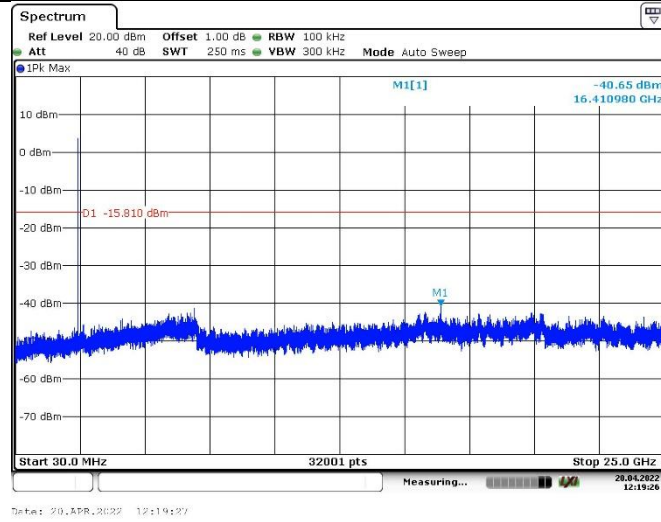
Measurement

Setting	Instrument Value	Target Value
Center Frequency	2.44100 GHz	2.44100 GHz
Span	ZeroSpan	ZeroSpan
RBW	500.000 kHz	~ 500.000 kHz
VBW	1.000 MHz	~ 1.500 MHz
SweepPoints	30001	~ 30001
SweepTime	31.600 s	31.600 s
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

Appendix B.6: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth



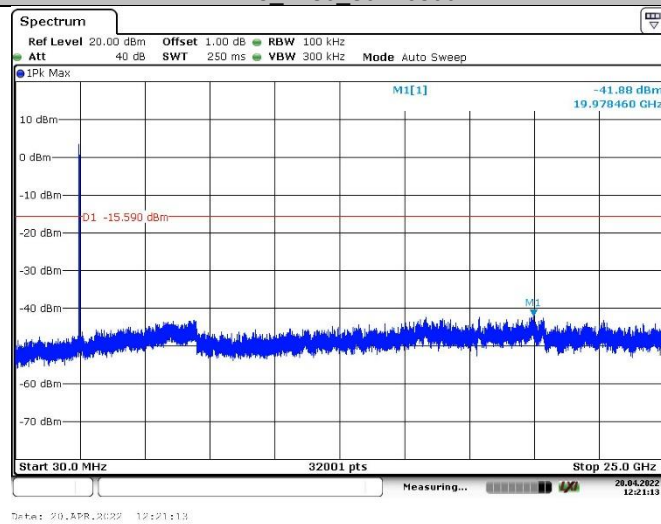
DH5_2441 30-26500



DH5_2480 0-Reference



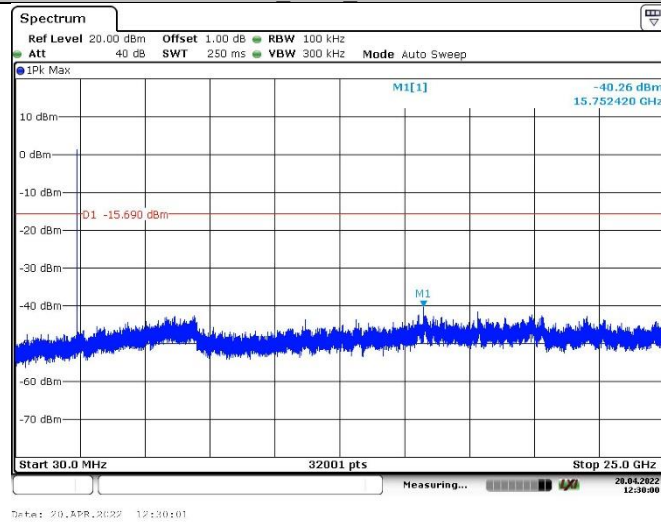
DH5_2480 30-26500



3DH5_2402_0~Reference



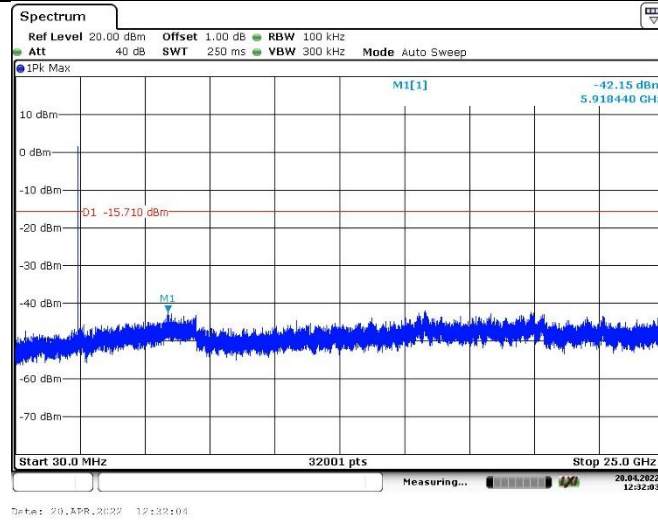
3DH5_2402_30~26500



3DH5_2441_0~Reference



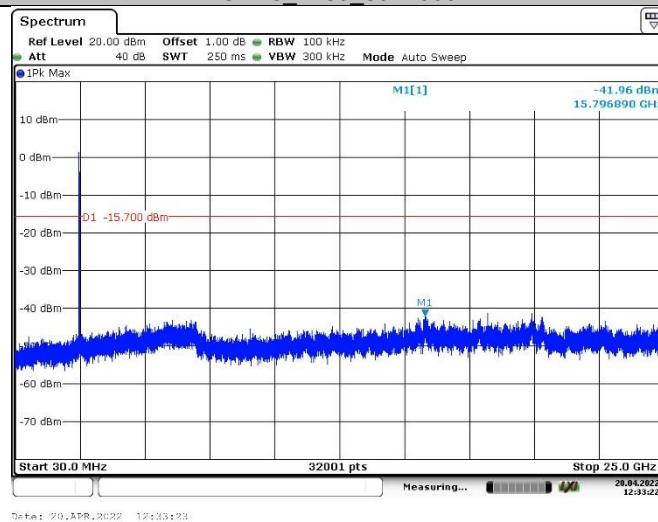
3DH5_2441_30~26500



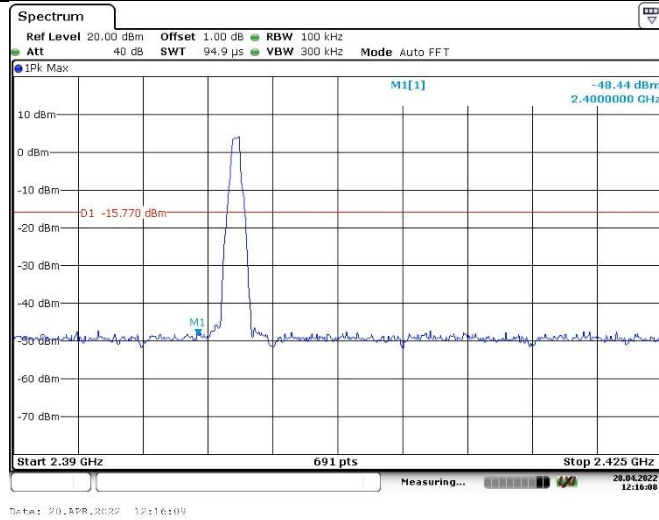
3DH5_2480_0~Reference



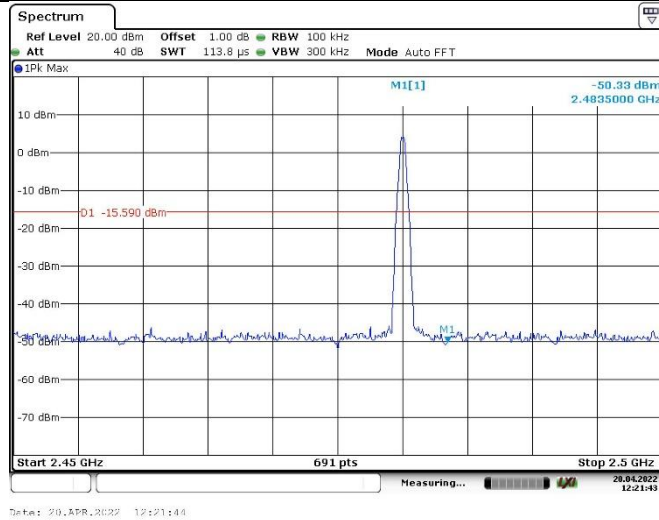
3DH5_2480_30~1000



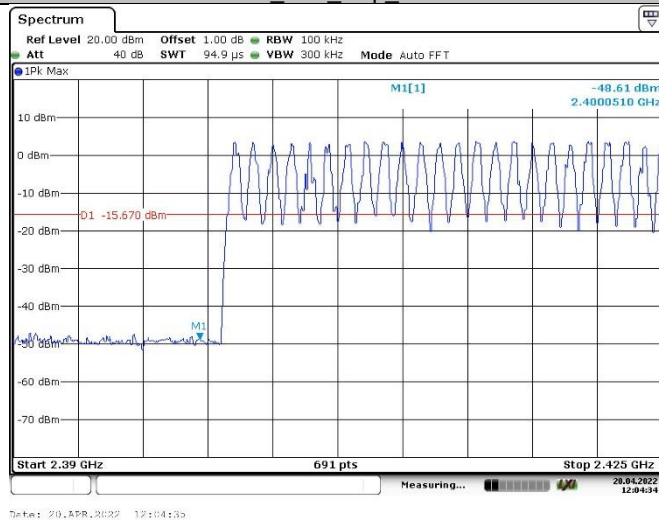
DH5_Low_2402_Peak



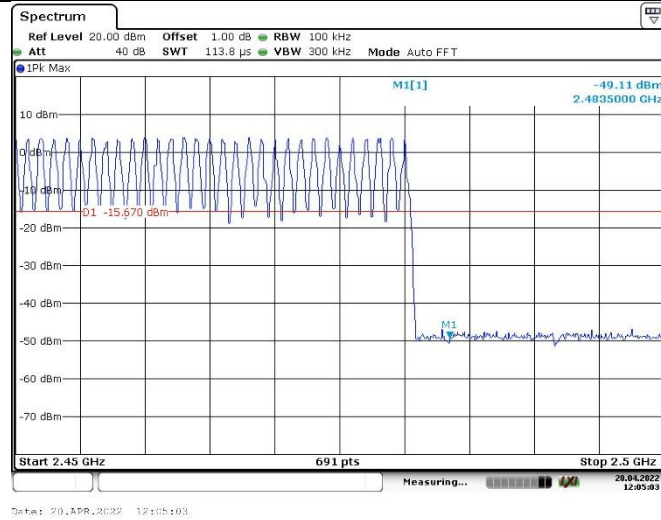
DH5_High_2480_Peak



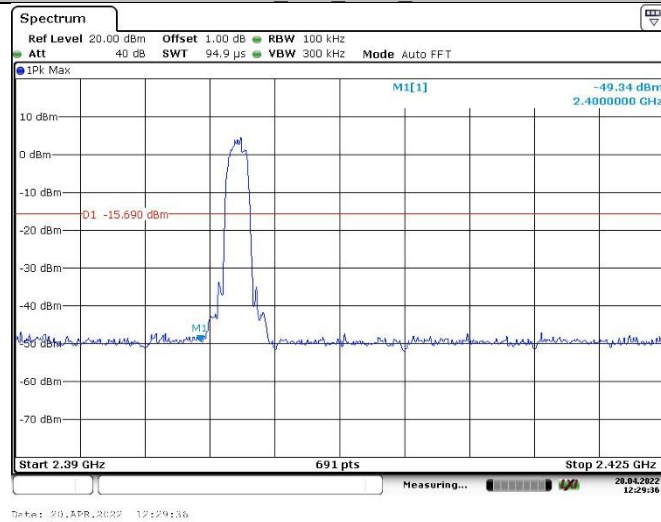
DH5_Low_Hop Peak



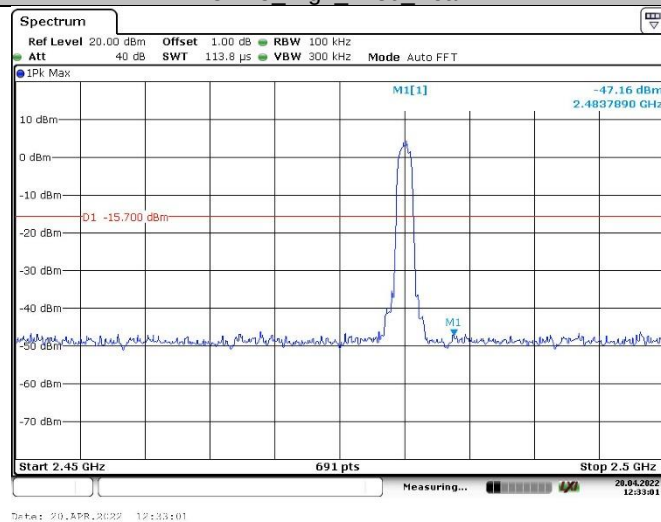
DH5_High_Hop_2480_Peak



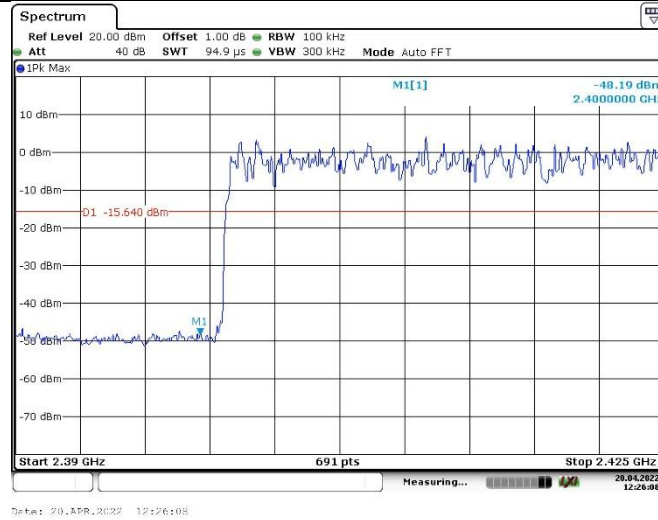
3DH5_Low_2402_Peak



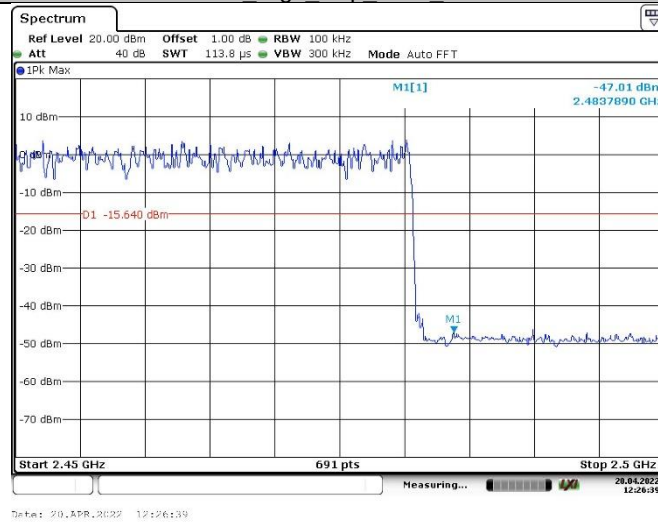
3DH5_High_2480_Peak



3DH5 Low Hop 2402 Peak



3DH5 High Hop 2480 Peak



Appendix B.7: Test Results of Radiated Spurious Emissions

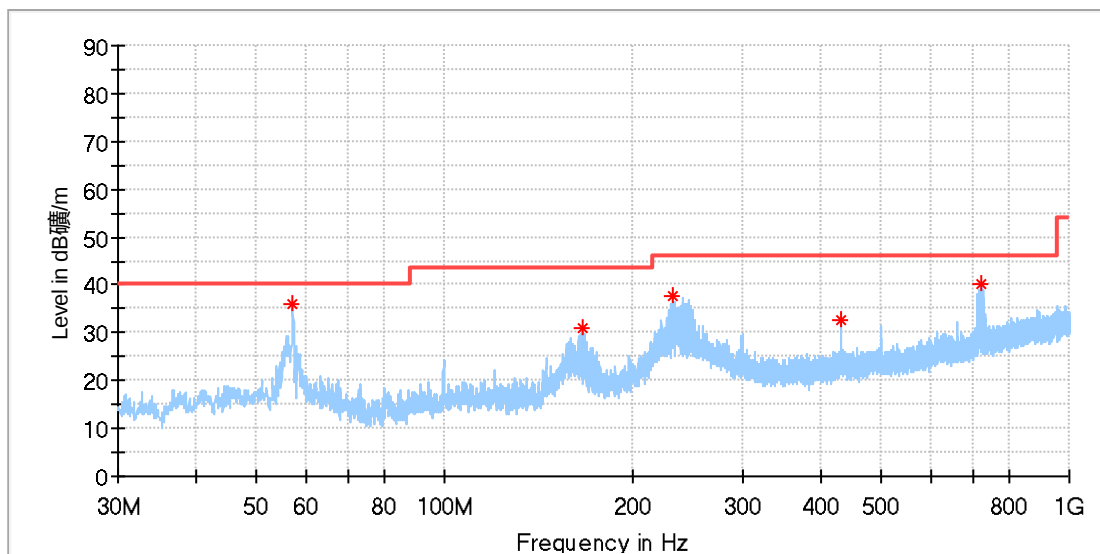
Note 1: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported. The highest emissions are the fundamental.

Note 2: This testing was carried out on different modulations, but only the worst case was presented in this report.

30MHz - 1GHz

EUT Information

EUT Name:	WI-FI + BT combo module
Model:	17WFM26
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	168367617/A003240432-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

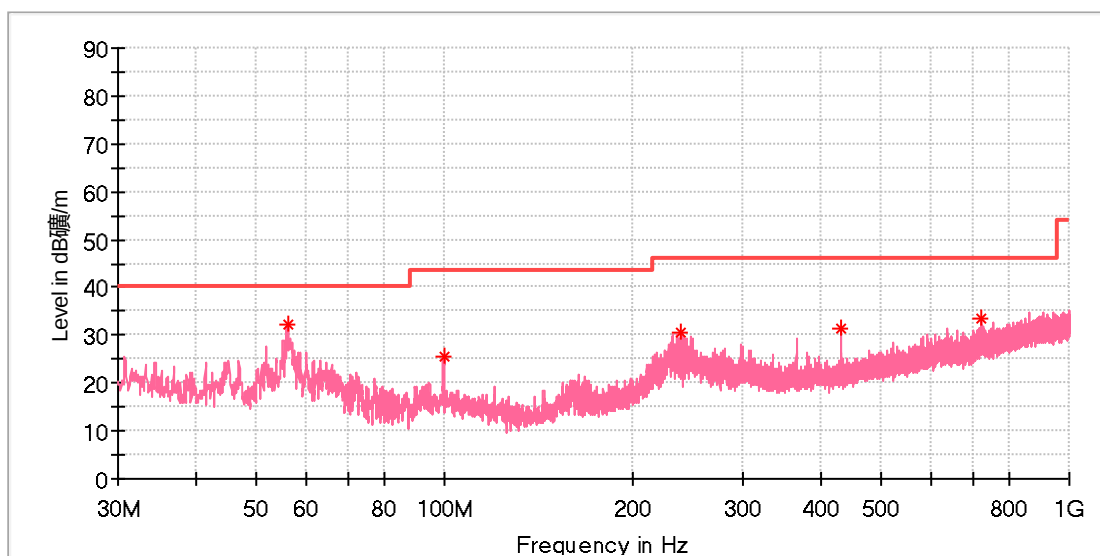
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
57.063000	35.97	40.00	4.03	100.0	H	291.0	-18.7
165.994000	31.12	43.50	12.38	100.0	H	17.0	-21.4
232.633000	37.76	46.00	8.24	100.0	H	252.0	-17.9
432.016500	32.79	46.00	13.21	100.0	H	112.0	-13.3
721.513000	40.14	46.00	5.86	100.0	H	223.0	-7.6

Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EUT Information

EUT Name:	WI-FI + BT combo module
Model:	17WFM26
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	168367617/A003240432-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
56.141500	32.24	40.00	7.76	100.0	V	221.0	-18.6
99.743000	25.65	43.50	17.85	100.0	V	349.0	-19.0
238.889500	30.49	46.00	15.51	100.0	V	299.0	-17.8
432.016500	31.30	46.00	14.70	100.0	V	214.0	-13.3
721.125000	33.52	46.00	12.48	100.0	V	183.0	-7.6

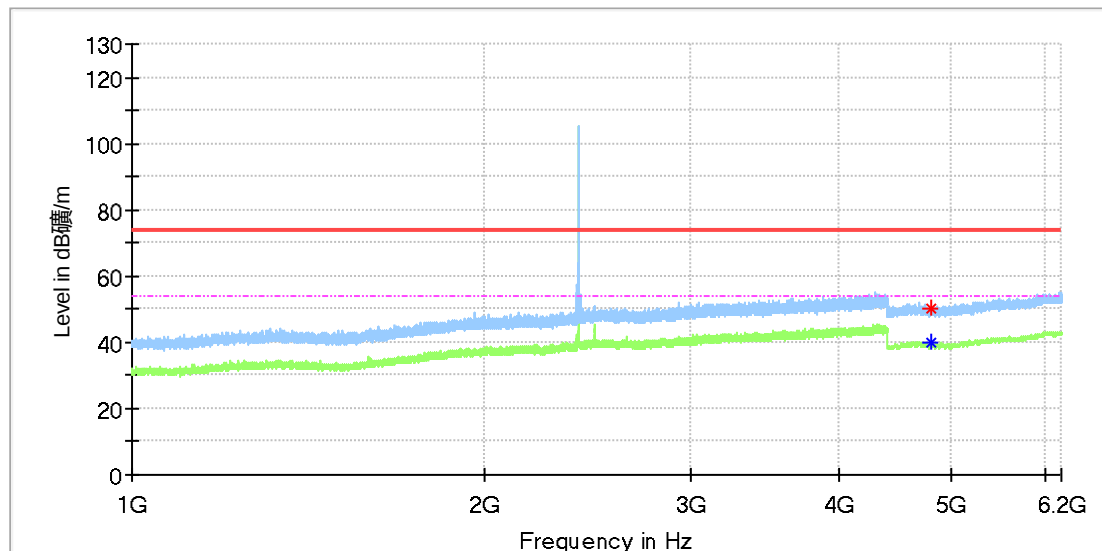
Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---

Above 1GHz

EUT Information

EUT Name:	WI-FI + BT combo module
Model:	17WFM26
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	168367617/A003240432-001
Test Voltage::	DC 5V From USB
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4803.500000	50.17	---	74.00	23.83	100.0	H	71.0	11.8
4804.000000	---	39.90	54.00	14.10	100.0	H	21.0	11.8

Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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