

SIMULTANEOUSLY TRANSMISSION AND CO-LOCATION TEST REPORT

For

WIFI+BT Module

MODEL NUMBER: CDXT11MF6012, CDXT12MF6012

FCC ID: 2AC23-CDXT11

IC: 12290A-CDXT11

REPORT NUMBER: 4791682149.1-1-RF-5

ISSUE DATE: February 25, 2025

Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	February 25, 2025	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Hui Zhou Gaoshengda Technology Co.,LTD
Address: No.6 Qiaoguang Road, Chenjiang Street, Zhongkai High-tech Zone, Huizhou City, Guangdong Province, Huizhou, Guangdong, 516227 China

Manufacturer Information

Company Name: Hui Zhou Gaoshengda Technology Co.,LTD
Address: No.6 Qiaoguang Road, Chenjiang Street, Zhongkai High-tech Zone, Huizhou City, Guangdong Province, Huizhou, Guangdong, 516227 China

EUT Information

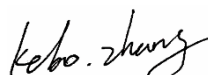
EUT Name: WIFI+BT Module
Model: CDXT11MF6012
Series Model: CDXT12MF6012
Model difference: Please refer to section 5.1
Brand: GSD
Sample Received Date: November 13, 2024
Sample Status: Normal
Sample ID: 8158265
Date of Tested: November 14, 2024 to February 25, 2025

Prepared By:



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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p>A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p>FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p>ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p>
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Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Radiated Emission (Included Fundamental Emission) (1 GHz to 40 GHz)	5.78 dB (1 GHz-18 GHz)
	5.23dB (18 GHz-26 GHz)
	5.64 dB (26 GHz-40 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	WIFI+BT Module
Model	CDXT11MF6012
Series Model	CDXT12MF6012
Model difference	The CDXT12MF6012 model has the same layout and RF performance as the original CDXT11MF6012, except that the DSP module (Digital signal processing) has been removed from the CDXT12MF6012 model. All these changes do not degrade the unwanted emissions of the certified product. We have pre-test two models and select the worst model CDXT11MF6012 to test and perform in the report.
Normal Test Voltage:	DC 5V

5.2. THE TEST CASE CONFIGURATIONS

Simultaneously Transmission Conditions:

Co-Location Conditions:

Condition	Technology (Module CDXT11MF6012)		Support (YES/NO)
1	BLE SISO	WLAN (2.4G) MIMO	YES
2	BLE SISO	WLAN (5G) MIMO	YES

Note 1: For CDXT11MF6012 model, we have pre-test the SISO mode and MIMO mode, only the worst data for MIMO mode were recorded in the report.

Note 2: BLE mode is chosen as BLE mode is worse than BT legacy mode in simultaneously transmission conditions.

For the detailed test description, please refer to the below report number:

Wireless Module	Technology	Report Number
Module CDXT11MF6012	BLE	4791682149.1-1-RF-2
	WLAN (5G)	4791682149.1-1-RF-4
	WLAN (2.4G)	4791682149.1-1-RF-3

6. MEASURING INSTRUMENT AND SOFTWARE USED

Radiated Emissions						
Equipment	Manufacturer	Model No.	Serial No.	Upper Cal.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	/	Sep.28, 2024	Sep.27, 2025
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	/	June 28, 2024	June.27 2027
Preamplifier	HP	8447D	2944A09099	/	Sep.28, 2024	Sep.27, 2025
EMI Measurement Receiver	R&S	ESR26	101377	/	Sep.28, 2024	Sep.27, 2025
Horn Antenna	TDK	HRN-0118	130939	/	Apr.29, 2022	Apr.28, 2025
Preamplifier	TDK	PA-02-0118	TRS-305-00067	/	Sep.28, 2024	Sep.27, 2025
Horn Antenna	Schwarzbeck	BBHA9170	697	/	Jun 30, 2024	Jun 29, 2027
Preamplifier	TDK	PA-02-2	TRS-307-00003	/	Sep.28, 2024	Sep.27, 2025
Preamplifier	TDK	PA-02-3	TRS-308-00002	/	Sep.28, 2024	Sep.27, 2025
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.09, 2024	Dec.08, 2027
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	/	Sep.28, 2024	Sep.27, 2025
Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	/	Sep.28, 2024	Sep.27, 2025
Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	/	Sep.28, 2024	Sep.27, 2025
Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2	/	Sep.28, 2024	Sep.27, 2025
Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	/	Sep.28, 2024	Sep.27, 2025
Band Reject	Wainwright	WRCJV8-	4	/	Sep.28,	Sep.27,

Filter		2350- 2400- 2483.5- 2533.5- 40SS			2024	2025
Software						
Description			Manufacturer	Name		Version
Test Software for Radiated Emissions			Farad	EZ-EMC		Ver. UL-3A1

7. RADIATED TEST RESULTS

LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

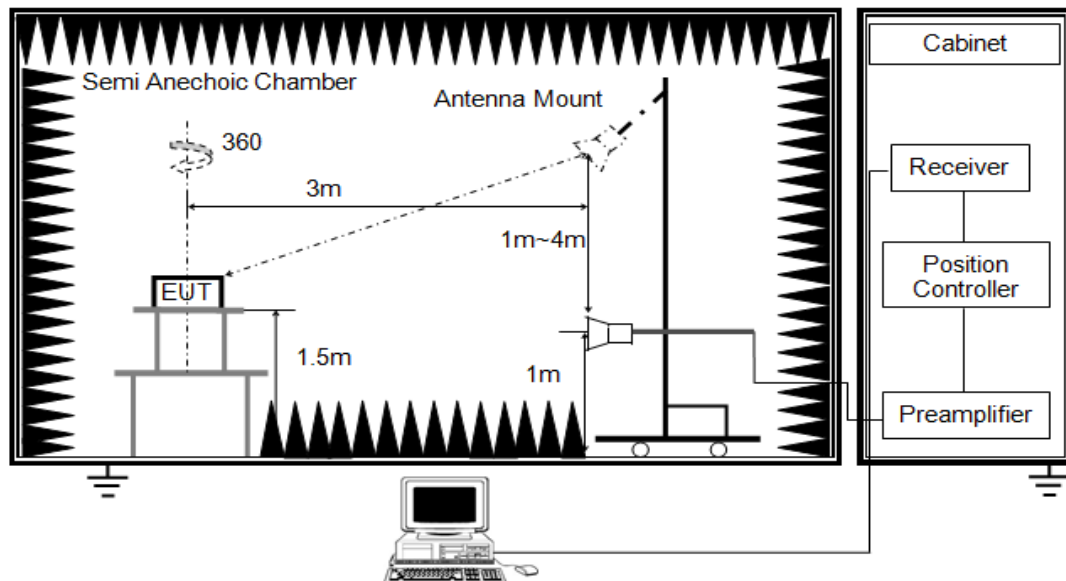
Refer to ISSED RSS-GEN Clause 8.9, Clause 8.10 and ISSED RSS-247 6.2.

Emissions radiated outside of the specified frequency bands above 30MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISSED RSS-247 6.2.

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

Above 1GHz

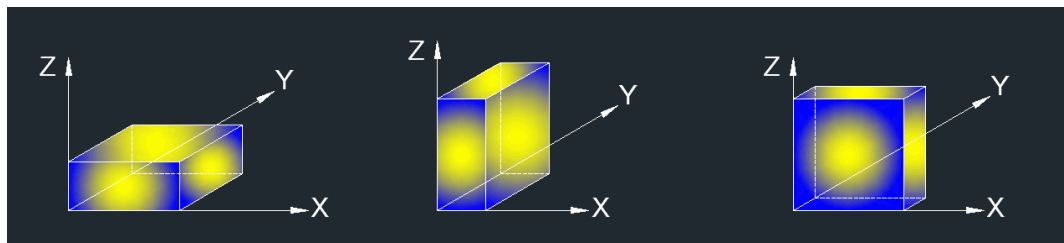


The setting of the spectrum analyser

RBW	1MHz
VBW	PEAK: 3MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 11.11 and 11.12.
2. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (1.5 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements.

X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST ENVIRONMENT

Temperature	25.2°C	Relative Humidity	65%
Atmosphere Pressure	101kPa	Test Voltage	DC 5V

RESULTS

Note: For spurious emissions below 1 GHz and above 18 GHz, pre-scan had done for both condition 1 and 2, the test results are almost the same as other no-co-location modes and no worse emission was found during tested, so do no show in this report.

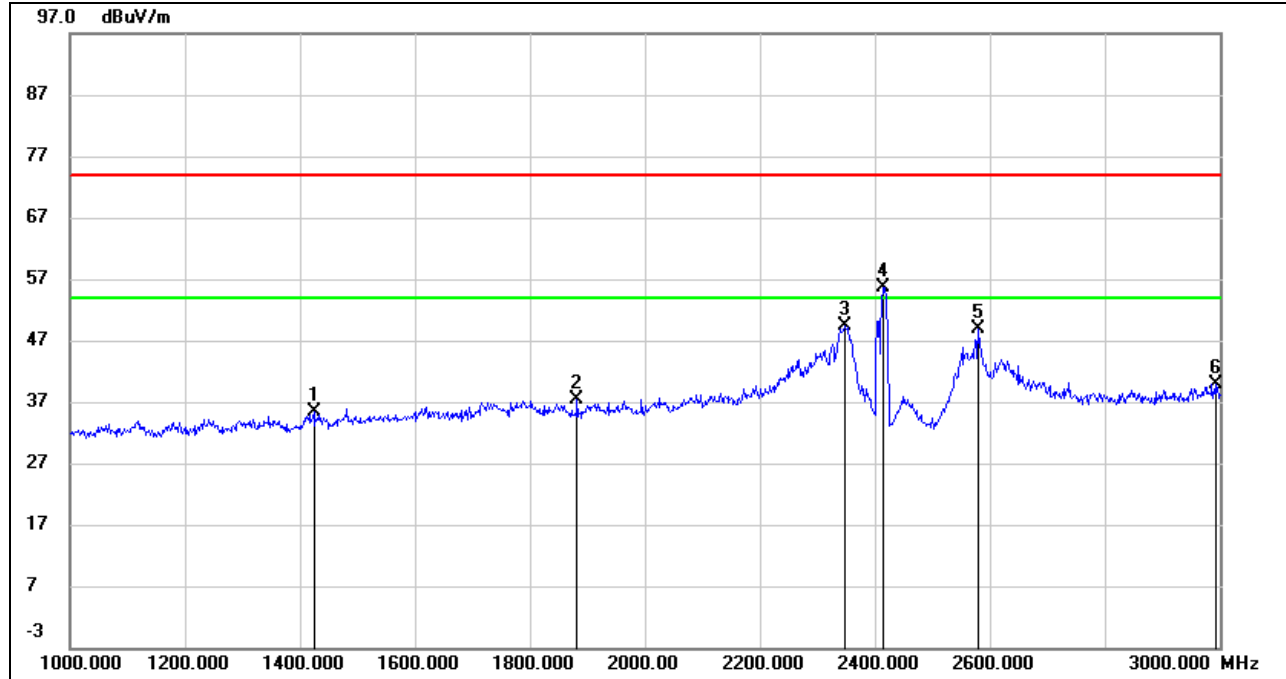
7.1. WORST-CASE TEST RESULTS

7.1.1. CONDITION 1

MODULE CDXT11MF6012 BLE 2M MODE LOW CHANNEL & 802.11G MODE 2.4G LOW CHANNEL

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, HORIZONTAL)

1-3 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1424.000	47.74	-12.33	35.41	74.00	-38.59	peak
2	1882.000	47.50	-10.01	37.49	74.00	-36.51	peak
3	2348.000	58.08	-8.78	49.30	74.00	-24.70	peak
4	2412.000	64.17	-8.53	55.64	/	/	Fundamental
5	2580.000	56.66	-7.85	48.81	74.00	-25.19	peak
6	2992.000	45.94	-6.04	39.90	74.00	-34.10	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

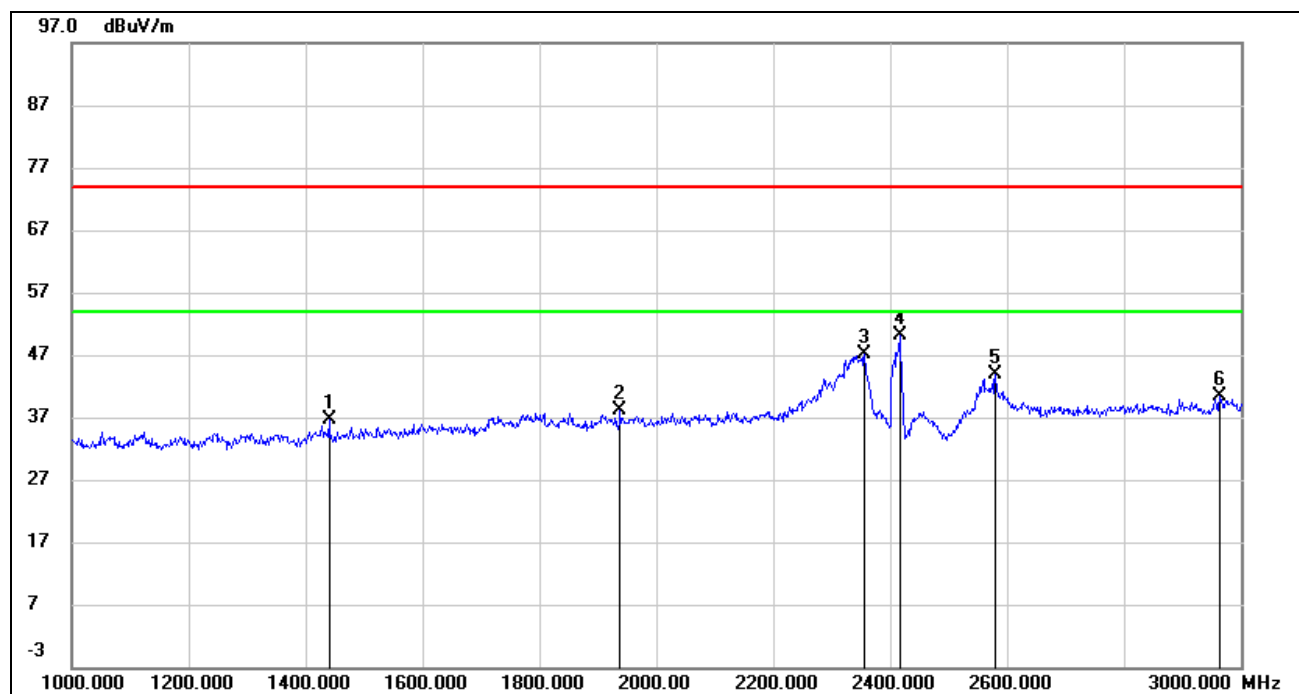
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, VERTICAL)

1-3 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1440.000	48.60	-12.06	36.54	74.00	-37.46	peak
2	1938.000	47.50	-9.26	38.24	74.00	-35.76	peak
3	2356.000	55.00	-7.93	47.07	74.00	-26.93	peak
4	2412.000	57.76	-7.71	50.05	/	/	Fundamental
5	2580.000	50.88	-6.97	43.91	74.00	-30.09	peak
6	2964.000	45.40	-4.91	40.49	74.00	-33.51	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

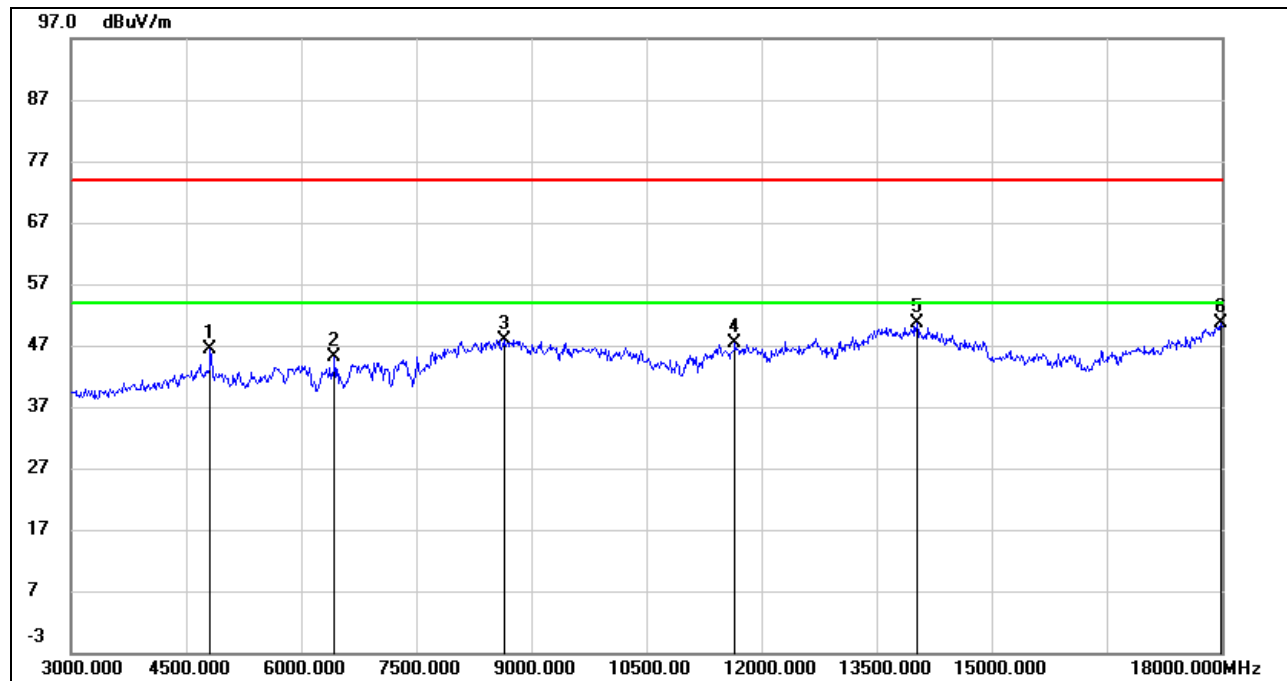
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, HORIZONTAL)

3-18 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	45.76	0.50	46.26	74.00	-27.74	peak
2	6435.000	40.57	4.51	45.08	74.00	-28.92	peak
3	8640.000	38.55	9.36	47.91	74.00	-26.09	peak
4	11655.000	29.02	18.25	47.27	74.00	-26.73	peak
5	14025.000	26.97	23.74	50.71	74.00	-23.29	peak
6	17985.000	21.19	29.49	50.68	74.00	-23.32	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. AVG: $VBW=1/Ton$, where: Ton is the transmitting duration.

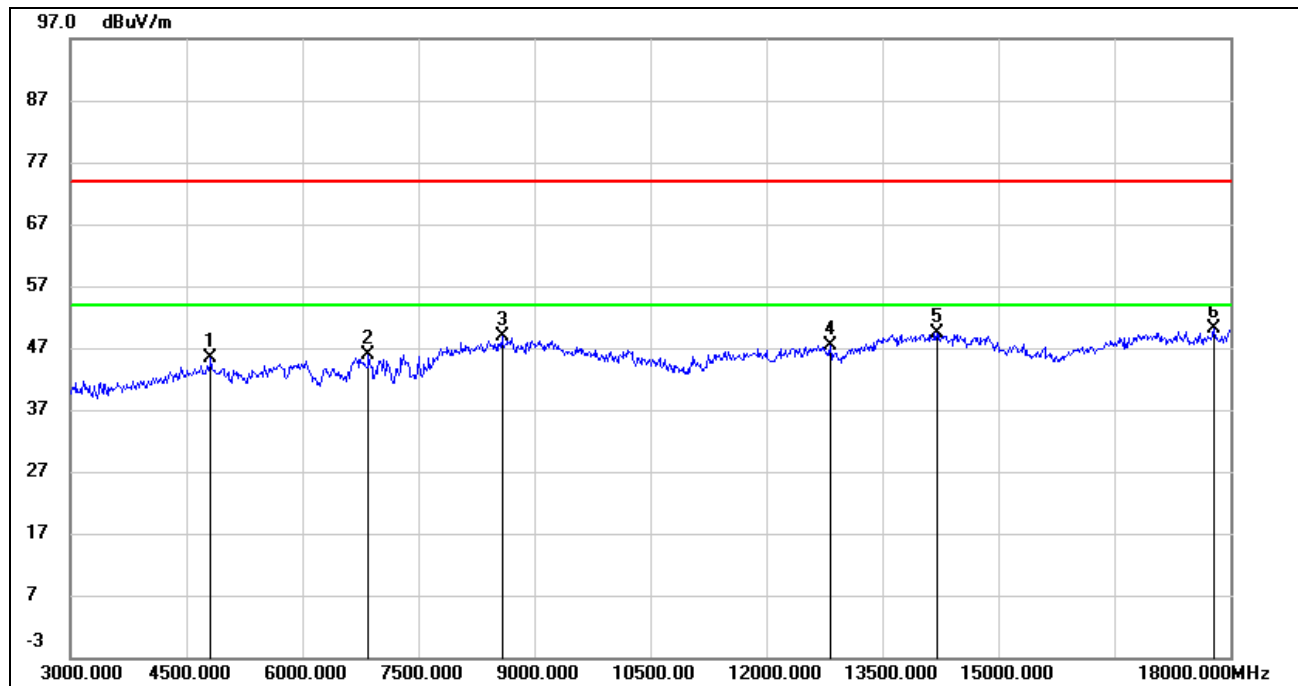
5. For the transmitting duration, please refer to clause 7.1.

6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, VERTICAL)

3-18 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	43.80	1.59	45.39	74.00	-28.61	peak
2	6855.000	38.96	6.88	45.84	74.00	-28.16	peak
3	8580.000	39.09	9.82	48.91	74.00	-25.09	peak
4	12825.000	28.89	18.49	47.38	74.00	-26.62	peak
5	14205.000	27.15	22.26	49.41	74.00	-24.59	peak
6	17790.000	23.82	26.25	50.07	74.00	-23.93	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.

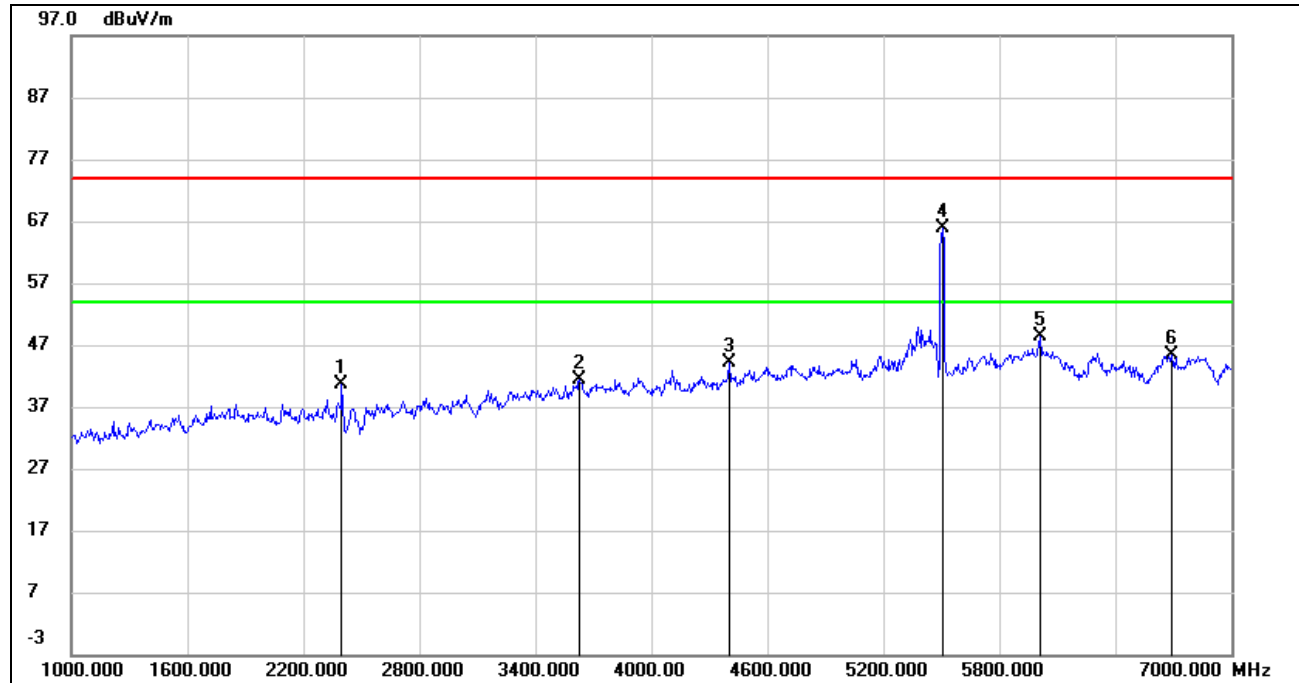
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

7.1.2. CONDITION 2

MODULE CDXT11MF6012 BLE 2M MODE LOW CHANNEL & 802.11AX20 MODE 5G 100 CHANNEL

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, HORIZONTAL)

1-7 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2398.000	49.24	-8.59	40.65	74.00	-33.35	peak
2	3628.000	44.58	-3.23	41.35	74.00	-32.65	peak
3	4402.000	45.19	-1.00	44.19	74.00	-29.81	peak
4	5500.000	62.56	3.27	65.83	/	/	Fundamental
5	6010.000	42.65	5.67	48.32	74.00	-25.68	peak
6	6694.000	39.05	6.33	45.38	74.00	-28.62	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

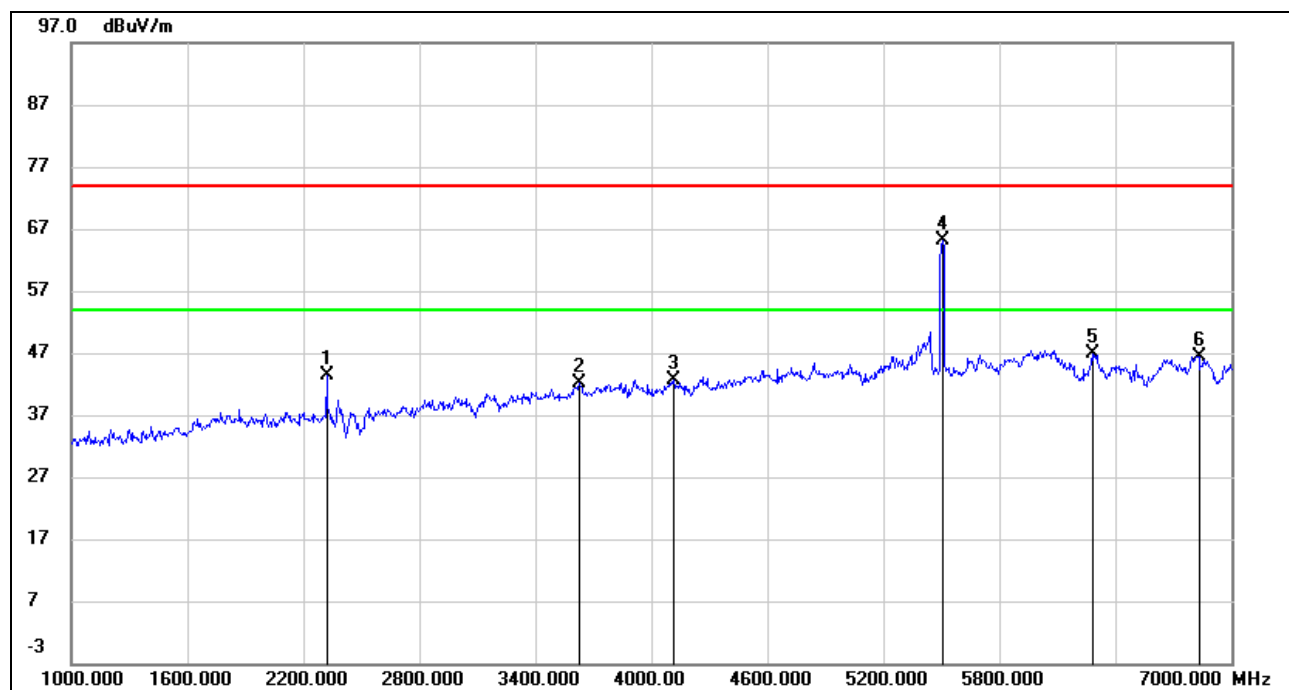
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, VERTICAL)

1-7 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2320.000	51.52	-8.05	43.47	74.00	-30.53	peak
2	3628.000	44.35	-2.20	42.15	74.00	-31.85	peak
3	4114.000	43.62	-0.93	42.69	74.00	-31.31	peak
4	5500.000	60.71	4.47	65.18	/	/	Fundamental
5	6280.000	39.75	7.04	46.79	74.00	-27.21	peak
6	6832.000	38.98	7.45	46.43	74.00	-27.57	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

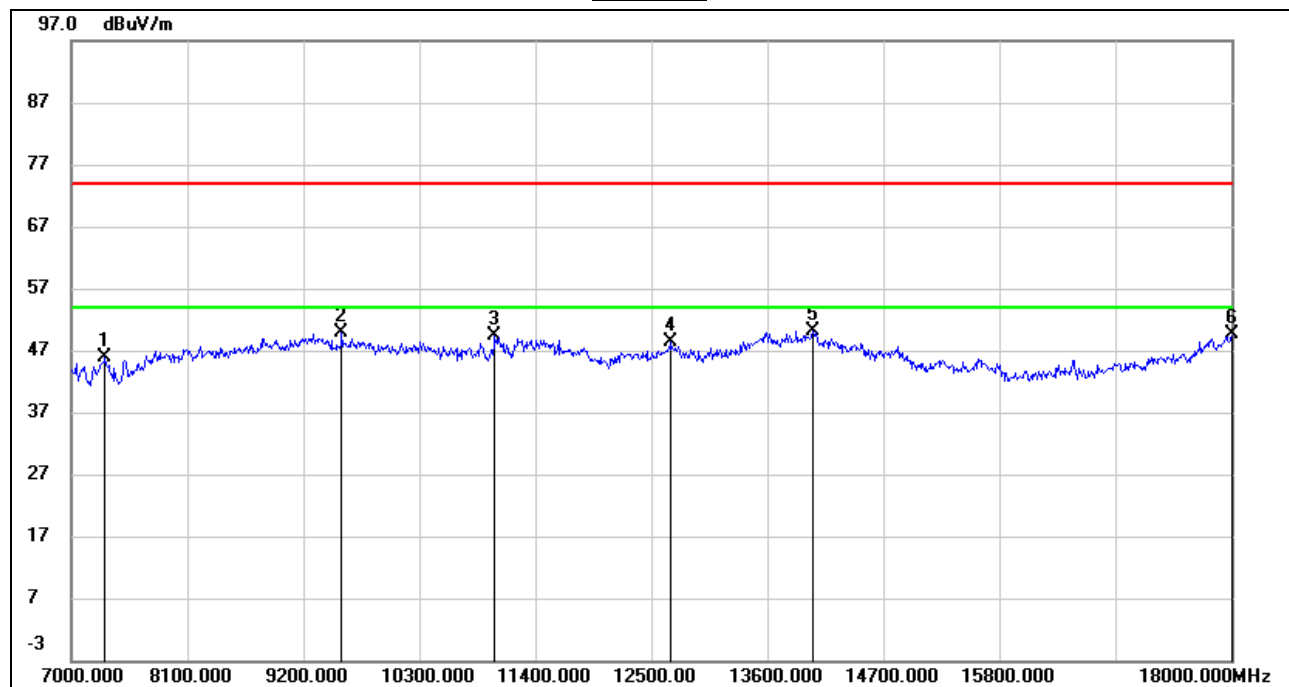
3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, HORIZONTAL)

7-18 GHz

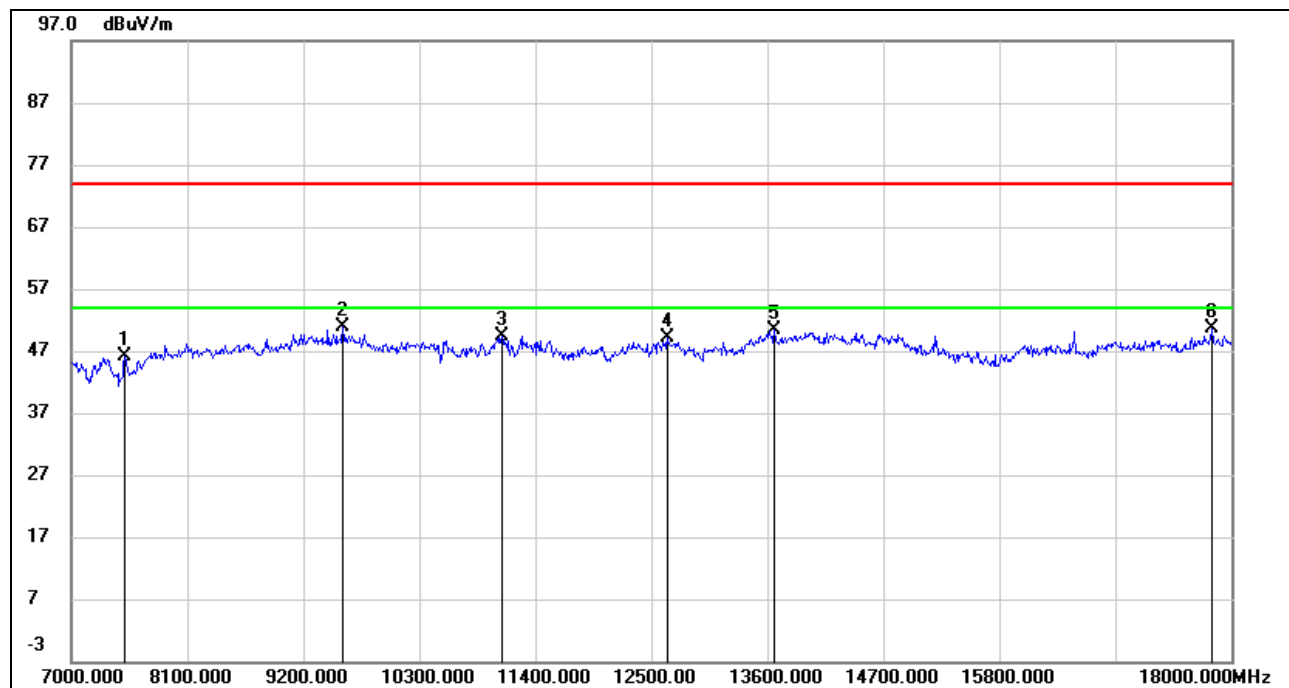


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7319.000	38.12	7.66	45.78	74.00	-28.22	peak
2	9563.000	36.63	13.23	49.86	74.00	-24.14	peak
3	11015.000	34.25	15.14	49.39	74.00	-24.61	peak
4	12687.000	28.91	19.52	48.43	74.00	-25.57	peak
5	14029.000	26.66	23.49	50.15	74.00	-23.85	peak
6	18000.000	20.03	29.61	49.64	74.00	-24.36	peak

- Note:
1. Peak Result = Reading Level + Correct Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Peak: Peak detector.
 4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
 5. For the transmitting duration, please refer to clause 7.1.
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION, VERTICAL)

7-18 GHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7506.000	37.86	8.34	46.20	74.00	-27.80	peak
2	9574.000	37.74	13.21	50.95	74.00	-23.05	peak
3	11081.000	34.91	14.59	49.50	74.00	-24.50	peak
4	12654.000	30.78	18.39	49.17	74.00	-24.83	peak
5	13666.000	29.65	20.74	50.39	74.00	-23.61	peak
6	17813.000	24.28	26.24	50.52	74.00	-23.48	peak

Note: 1. Peak Result = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for HPF losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

END OF REPORT