



# FCC RADIO TEST REPORT

FCC ID	: UZ7MC945A
Equipment	: Mobile Computer
Brand Name	: ZEBRA
Model Name	: MC945A
Applicant	: Zebra Technologies Corporation 1 Zebra Plaza, Holtsville, NY 11742
Manufacturer	<ul> <li>Zebra Technologies Corporation</li> <li>1 Zebra Plaza, Holtsville, NY 11742</li> </ul>
Standard	: FCC Part 15 Subpart C §15.247

The product was received on Nov. 13, 2023 and testing was performed from Nov. 13, 2023 to Jan. 08, 2024. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



## **Table of Contents**

His	tory o	f this test report	3
Sur	nmary	of Test Result	4
1	Gene	ral Description	5
	1.1	Product Feature of Equipment Under Test	5
	1.2	Modification of EUT	6
	1.3	Testing Location	7
	1.4	Applicable Standards	7
2	Test	Configuration of Equipment Under Test	8
	2.1	Carrier Frequency Channel	8
	2.2	Test Mode	9
	2.3	Connection Diagram of Test System	10
	2.4	Support Unit used in test configuration and system	11
	2.5	EUT Operation Test Setup	11
	2.6	Measurement Results Explanation Example	11
3	Test	Result	12
	3.1	Number of Channel Measurement	
	3.2	Hopping Channel Separation Measurement	
	3.3	Dwell Time Measurement	14
	3.4	20dB and 99% Bandwidth Measurement	
	3.5	Output Power Measurement	16
	3.6	Conducted Band Edges Measurement	17
	3.7	Conducted Spurious Emission Measurement	18
	3.8	Radiated Band Edges and Spurious Emission Measurement	19
	3.9	AC Conducted Emission Measurement	
	3.10	Antenna Requirements	25
4		f Measuring Equipment	
5	Meas	urement Uncertainty	28
Арр	pendix	A. Conducted Test Results	
		B. AC Conducted Emission Test Result	
Арр	pendix	C. Radiated Spurious Emission	
Арр	pendix	D. Radiated Spurious Emission Plots	

Appendix E. Duty Cycle Plots

Appendix F. Setup Photographs



## History of this test report

Report No.	Version	Description	Issue Date
FR3N2802A	01	Initial issue of report	Jan. 31, 2024



## Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(1)	Number of Channels	Pass	-
3.2	15.247(a)(1)	Hopping Channel Separation	Pass	-
3.3	15.247(a)(1)	Dwell Time of Each Channel	Pass	-
3.4	15.247(a)(1)	20dB Bandwidth	Pass	-
3.4	2.1049	99% Occupied Bandwidth	Reporting only	-
3.5	15.247(b)(1) 15.247(b)(4)	Peak Output Power	Pass	-
3.6	15.247(d)	Conducted Band Edges	Pass	-
3.7	15.247(d)	Conducted Spurious Emission	Pass	-
3.8	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	11.09 dB under the limit at 34.86 MHz
3.9	15.207	AC Conducted Emission	Pass	14.87 dB under the limit at 0.29 MHz
3.10	15.203	Antenna Requirement	Pass	-

#### Conformity Assessment Condition:

 The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

#### Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

#### Reviewed by: Keven Cheng

#### **Report Producer: Wilda Wei**

## **1** General Description

## **1.1 Product Feature of Equipment Under Test**

Product Feature				
Equipment Mobile Computer				
Brand Name	ZEBRA			
Model Name	MC945A			
FCC ID	UZ7MC945A			
Sample 1	SE4770 + with Camera			
Sample 2	SE5800 + with Camera			
Sample 3	SE4770 + without Camera			
Sample 4 SE5800 + without Camera				
	WCDMA/HSPA/LTE/5G NR/NFC/GNSS			
	WLAN 11a/b/g/n HT20/HT40			
EUT supports Radios application	WLAN 11ac VHT20/VHT40/VHT80/VHT160			
	WLAN 11ax HE20/HE40/HE80/HE160			
	Bluetooth BR/EDR/LE			
HW Version	DV2			
SW Version	13-10-31.00-TN-U00-PRD-NEM-04			
FW Version	FUSION_QA_6_1.1.0.004_T			
MFD 10NOV23				
EUT Stage Identical Prototype				

Remark: The above EUT's information was declared by manufacturer.

Specification of Accessories					
Adapter USB Wall Charger	Brand Name	Zebra	Model Number	PWR-WUA5V12W0US	
Battery 1 Standard Battery (7000mAh)	Brand Name	Zebra	Model Number	BT-000370	
Battery 2 Standard Battery (7000mAh)	Brand Name	Zebra	Model Number	BT-000370B	
Earphone USB-C Audio Headset	Brand Name	Zebra	Model Number	HDST-USBC-PTT1-01	
USB Cable (Type C to Type A)	Brand Name	Zebra	Model Number	CBL-TC2X-USBC-01	
Holster	Brand Name	Zebra	Model Number	SG-MC9X-SHLSTG-01	
USB Cable (CUP)	Brand Name	Zebra	Model Number	CBL-MC93-USBCHG-01	



Product Specification is subject to this standard			
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz		
Number of Channels	79		
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78		
Maximum Output Power to Antenna	<ant.6> Bluetooth BR (1Mbps): 2.98 dBm (0.0020 W) Bluetooth EDR (2Mbps): 5.17 dBm (0.0033 W) Bluetooth EDR (3Mbps): 5.55 dBm (0.0036 W) <ant.7> Bluetooth BR (1Mbps): 2.48 dBm (0.0018 W) Bluetooth EDR (2Mbps): 4.57 dBm (0.0029 W) Bluetooth EDR (3Mbps): 4.88 dBm (0.0031 W)</ant.7></ant.6>		
99% Occupied Bandwidth	< Ant.6> Bluetooth BR (1Mbps): 0.799 MHz Bluetooth EDR (2Mbps): 1.170 MHz Bluetooth EDR (3Mbps): 1.154 MHz < Ant.7> Bluetooth BR (1Mbps): 0.799 MHz Bluetooth EDR (2Mbps): 1.171 MHz Bluetooth EDR (3Mbps): 1.155 MHz		
Antenna Type / Gain	<ant. 6="">: PIFA Antenna with gain 1.95 dBi <ant. 7="">: PIFA Antenna with gain 2.51 dBi</ant.></ant.>		
Type of Modulation	Bluetooth BR (1Mbps): GFSK Bluetooth EDR (2Mbps): π/4-DQPSK Bluetooth EDR (3Mbps): 8-DPSK		

**Remark:** The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

## **1.2 Modification of EUT**

No modifications made to the EUT during the testing.

TEL: 886-3-327-0868	Page Number	: 6 of 28
FAX: 886-3-327-0855	Issue Date	: Jan. 31, 2024
Report Template No.: BU5-FR15CBT Version 2.4	Report Version	: 01



## **1.3 Testing Location**

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory				
Test Site LocationNo.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978					
Test Site No.	Sporton Site No.				
Test Sile No.	CO05-HY (TAF Code:1190)				
Remark	The Conducted test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.				

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	Sporton International Inc. Wensan Laboratory		
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855		
Test Site No.	Sporton Site No. TH05-HY, 03CH16-HY		

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190 and TW3786

## **1.4 Applicable Standards**

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01
- ANSI C63.10-2013

#### Remark:

- 1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
- 2. The TAF code is not including all the FCC KDB listed without accreditation.
- 3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 2 Test Configuration of Equipment Under Test

## 2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	0	2402	27	2429	54	2456
	1	2403	28	2430	55	2457
	2	2404	29	2431	56	2458
	3	2405	30	2432	57	2459
	4	2406	31	2433	58	2460
	5	2407	32	2434	59	2461
	6	2408	33	2435	60	2462
	7	2409	34	2436	61	2463
	8	2410	35	2437	62	2464
	9	2411	36	2438	63	2465
	10	2412	37	2439	64	2466
	11	2413	38	2440	65	2467
	12	2414	39	2441	66	2468
2400-2483.5 MHz	13	2415	40	2442	67	2469
	14	2416	41	2443	68	2470
	15	2417	42	2444	69	2471
	16	2418	43	2445	70	2472
	17	2419	44	2446	71	2473
	18	2420	45	2447	72	2474
	19	2421	46	2448	73	2475
	20	2422	47	2449	74	2476
	21	2423	48	2450	75	2477
	22	2424	49	2451	76	2478
	23	2425	50	2452	77	2479
	24	2426	51	2453	78	2480
	25	2427	52	2454	-	-
	26	2428	53	2455	-	-

### 2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst plane, and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

Summary table of Test Cases						
Test Item	Data Rate / Modulation					
	Bluetooth BR 1Mbps GFSKBluetooth EDR 2Mbps π/4-DQPSKBluetooth EDR 3Mbps 8-DPSK					
Conducted	Mode 1: CH00_2402 MHz	Mode 4: CH00_2402 MHz	Mode 7: CH00_2402 MHz			
Test Cases	Mode 2: CH39_2441 MHz	Mode 5: CH39_2441 MHz	Mode 8: CH39_2441 MHz			
	Mode 3: CH78_2480 MHz	Mode 6: CH78_2480 MHz	Mode 9: CH78_2480 MHz			
	Bluetooth EDR 3Mbps 8-DPSK					
Radiated		Mode 1: CH00_2402 MHz				
Test Cases	Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz					
AC Conducted	Mode 1 : WLAN (2.4GHz)	Link + Bluetooth Link + B	Battery 1 Standard Battery			
Emission	A) with USB Cable (CUP)					
Emission	(Charging with Adapter USB Wall Charger) for Sample 1					
Remark: 1. For Radiated Test Cases, the worst mode data rate 3Mbps was reported only since the highest						

The following summary table is showing all test modes to demonstrate in compliance with the standard.

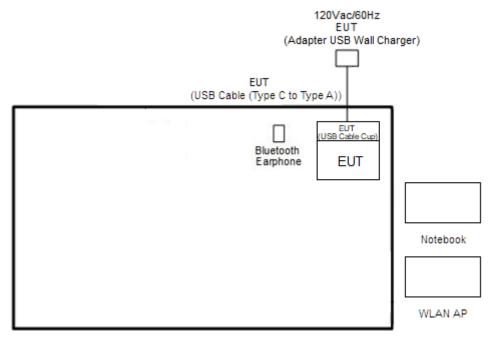
 For Radiated Test Cases, the worst mode data rate 3Mbps was reported only since the highest RF output power in the preliminary tests. The conducted spurious emissions and conducted band edge measurement for other data rates were not worse than 3Mbps, and no other significantly frequencies found in conducted spurious emission.

2. For Radiated Test Cases, the tests were performed with Battery 1 and Sample 1.

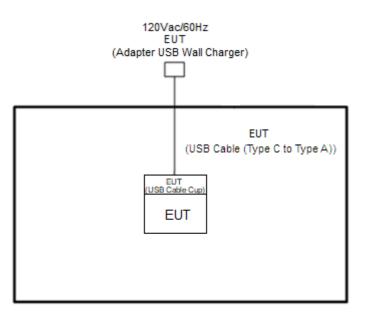


## 2.3 Connection Diagram of Test System





<Bluetooth Tx Mode>





2.4 Support Unit used in test configuration and system	2.4	Support	Unit used	in test o	configuration	and system
--	-----	---------	-----------	-----------	---------------	------------

ltem	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony Ericsson	MW600	PY700A2029	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8m
3.	Notebook	DELL	Latitude 3420	FCC DoC	N/A	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m
4.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

## 2.5 EUT Operation Test Setup

The RF test items, utility "QRCT 4.0.211.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

## 2.6 Measurement Results Explanation Example

#### For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

 $Offset(dB) = RF \ cable \ loss(dB) + attenuator \ factor(dB).$ = 4.2 + 10 = 14.2 (dB)



## 3 Test Result

## 3.1 Number of Channel Measurement

#### 3.1.1 Limits of Number of Hopping Frequency

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

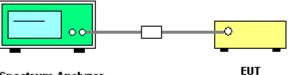
#### 3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.1.3 Test Procedure

- 1. The testing follows ANSI C63.10-2013 clause 7.8.3.
- 2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
- 3. Set the maximum power setting and enable the EUT to transmit continuously.
- 4. Enable the EUT hopping function.
- Use the following spectrum analyzer settings: Span = the frequency band of operation;
   RBW = 300 kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
- 6. The number of hopping frequency used is defined as the number of total channel.
- 7. Record the measurement data derived from spectrum analyzer.

#### 3.1.4 Test Setup



Spectrum Analyzer

### 3.1.5 Test Result of Number of Hopping Frequency

## **3.2 Hopping Channel Separation Measurement**

#### 3.2.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

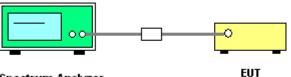
#### **3.2.2 Measuring Instruments**

Please refer to the measuring equipment list in this test report.

#### 3.2.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.2.
- 2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
- 3. Set the maximum power setting and enable the EUT to transmit continuously.
- 4. Enable the EUT hopping function.
- Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels;
   RBW = 300 kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
- 6. Measure and record the results in the test report.

#### 3.2.4 Test Setup



Spectrum Analyzer

### 3.2.5 Test Result of Hopping Channel Separation



### 3.3 Dwell Time Measurement

#### 3.3.1 Limit of Dwell Time

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

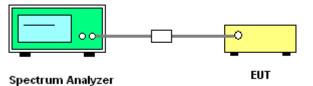
#### 3.3.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.3.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.4.
- 2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
- 3. Set the maximum power setting and enable the EUT to transmit continuously.
- 4. Enable the EUT hopping function.
- 5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
- 6. Measure and record the results in the test report.

#### 3.3.4 Test Setup



#### 3.3.5 Test Result of Dwell Time



### 3.4 20dB and 99% Bandwidth Measurement

#### 3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

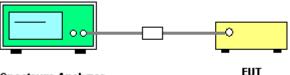
#### 3.4.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.4.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 6.9.2 and 6.9.3.
- 2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
- 3. Set the maximum power setting and enable the EUT to transmit continuously.
- Use the following spectrum analyzer settings for 20 dB Bandwidth measurement.
  Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel;
  RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak;
  Trace = max hold.
- Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
   Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel;
   RBW ≥ 1-5% of the 99% bandwidth; VBW ≥ 3 \* RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.
- 6. Measure and record the results in the test report.

#### 3.4.4 Test Setup



Spectrum Analyzer

#### 3.4.5 Test Result of 20dB Bandwidth

Please refer to Appendix A.

#### 3.4.6 Test Result of 99% Occupied Bandwidth



### 3.5 Output Power Measurement

#### 3.5.1 Limit of Output Power

The maximum peak conducted output power of the intentional radiator shall not exceed the following: 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. If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the

same level in dB comparing to gain minus 6 dBi.

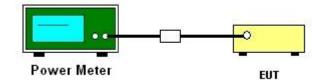
#### 3.5.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.5.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.5.
- 2. The RF output of EUT is connected to the power meter by RF cable and attenuator. The path loss is compensated to the results for each measurement.
- 3. Set the maximum power setting and enable the EUT to transmit continuously.
- 4. Measure the conducted output power with cable loss and record the results in the test report.
- 5. Measure and record the results in the test report.

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Peak Output Power

Please refer to Appendix A.

#### 3.5.6 Test Result of Average Output Power (Reporting Only)



## 3.6 Conducted Band Edges Measurement

#### 3.6.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

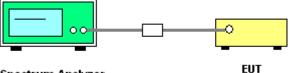
#### 3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.6.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.6.
- 2. Set the maximum power setting and enable the EUT to transmit continuously.
- 3. Set RBW = 100 kHz, VBW = 300 kHz. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
- 4. Enable hopping function of the EUT and then repeat step 2 and 3.
- 5. Measure and record the results in the test report.

#### 3.6.4 Test Setup



Spectrum Analyzer

#### 3.6.5 Test Result of Conducted Band Edges

Please refer to Appendix A.

#### 3.6.6 Test Result of Conducted Hopping Mode Band Edges

### 3.7 Conducted Spurious Emission Measurement

#### 3.7.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

#### 3.7.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.7.3 Test Procedure

- 1. The testing follows ANSI C63.10-2013 clause 7.8.8.
- 2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
- 3. Set the maximum power setting and enable the EUT to transmit continuously.
- Set RBW = 100 kHz, VBW = 300 kHz, scan up through 10th harmonic. All harmonics / spurious must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
- 5. Measure and record the results in the test report.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

#### 3.7.4 Test Setup



Spectrum Analyzer

### 3.7.5 Test Result of Conducted Spurious Emission

## 3.8 Radiated Band Edges and Spurious Emission Measurement

### 3.8.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics / spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency	Frequency Field Strength	
(MHz)	(microvolts/meter)	(meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 - 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.8.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.



#### 3.8.3 Test Procedures

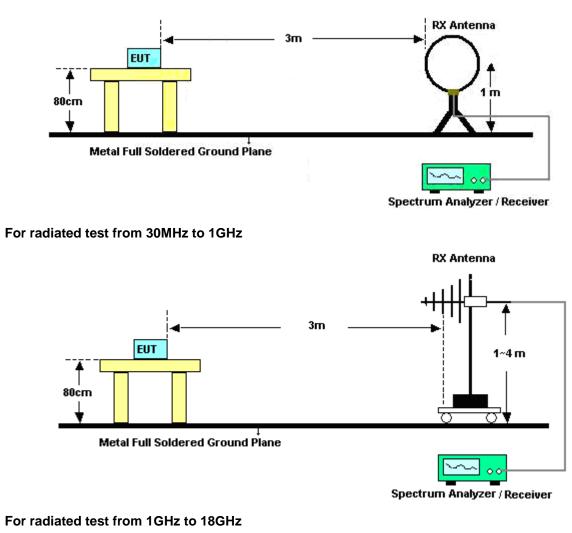
- 1. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
- 2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
- 3. For each suspected emission, the EUT is arranged to its worst case and then tune the Antenna tower (from 1 m to 4 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 to comply with the guidelines.
- 4. Set the maximum power setting and enable the EUT to transmit continuously.
- 5. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW = 100 kHz for f < 1 GHz, RBW = 1 MHz for f>1 GHz ; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
  - $\begin{array}{ll} \mbox{(3)} & \mbox{For average measurement: use duty cycle correction factor method per 15.35(c).} \\ & \mbox{Duty cycle = On time/100 milliseconds} \\ & \mbox{On time = $N_1^*L_1 + N_2^*L_2 + ... + N_{n-1}^*LN_{n-1} + N_n^*L_n} \\ & \mbox{Where $N_1$ is number of type 1 pulses, $L_1$ is length of type 1 pulses, etc.} \end{array}$ 
    - Average Emission Level = Peak Emission Level + 20\*log (Duty cycle)
- 6. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level
- 7. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as "-".
- 8. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as "-".

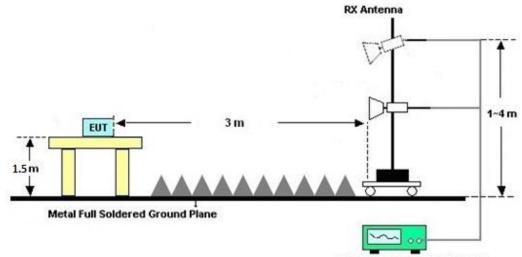
Note: The average levels are calculated from the peak level corrected with duty cycle correction factor (-24.79dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.



#### 3.8.4 Test Setup

For radiated test below 30MHz





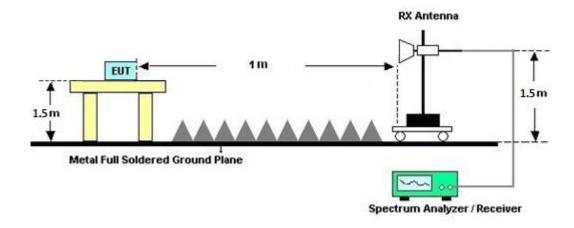
Spectrum Analyzer / Receiver

TEL: 886-3-327-0868
FAX: 886-3-327-0855
Report Template No.: BU5-FR15CBT Version 2.4

Page Number: 21 of 28Issue Date: Jan. 31, 2024Report Version: 01



#### For radiated test above 18GHz



#### 3.8.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result comes out very similar.

#### 3.8.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

#### 3.8.7 Duty Cycle

Please refer to Appendix E.

### 3.8.8 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Please refer to Appendix C and D.



## 3.9 AC Conducted Emission Measurement

#### 3.9.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted	limit (dBµV)
Frequency of emission (MHZ)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

#### 3.9.2 Measuring Instruments

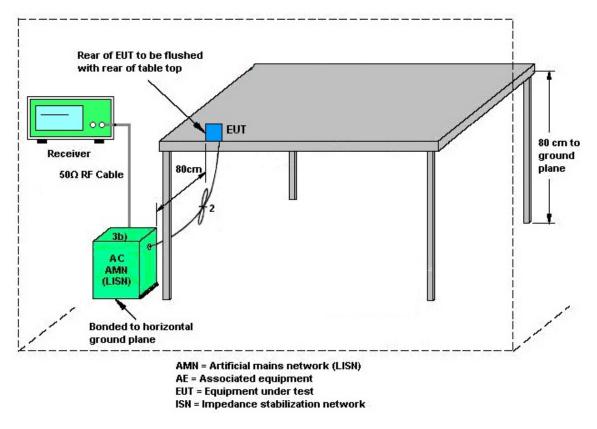
Please refer to the measuring equipment list in this test report.

#### 3.9.3 Test Procedures

- 1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
- 6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
- 7. The frequency range from 150 kHz to 30 MHz is scanned.
- Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.



### 3.9.4 Test Setup



#### 3.9.5 Test Result of AC Conducted Emission



## 3.10 Antenna Requirements

### 3.10.1 Standard Applicable

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

#### 3.10.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Dec. 15, 2023~ Jan. 08, 2024	Sep. 11, 2024	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	1223	18GHz-40GHz	Jul. 10, 2023	Dec. 15, 2023~ Jan. 08, 2024	Jul. 09, 2024	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 04, 2023	Dec. 15, 2023~ Jan. 08, 2024	Dec. 03, 2024	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz to 1GHz	Oct. 07, 2023	Dec. 15, 2023~ Jan. 08, 2024	Oct. 06, 2024	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 23, 2023	Dec. 15, 2023~ Jan. 08, 2024	Mar. 22, 2024	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1GHz	Jul. 03, 2023	Dec. 15, 2023~ Jan. 08, 2024	Jul. 02, 2024	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 07, 2023	Dec. 15, 2023~ Jan. 08, 2024	Dec. 06, 2024	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1GHz~18GHz	Dec. 26, 2022	Dec. 15, 2023~ Dec. 24, 2023	Dec. 25, 2023	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1GHz~18GHz	Dec. 25, 2023	Dec. 25, 2023~ Jan. 08, 2024	Dec. 24, 2024	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Dec. 15, 2023~ Jan. 08, 2024	Jun. 26, 2024	Radiation (03CH16-HY)
Filter	Wainwright	WLK4-1000-1530- 8000-40SS	SN17	1.53GHz Low Pass Filter	Jan. 17, 2023	Dec. 15, 2023~ Jan. 08, 2024	Jan. 16, 2024	Radiation (03CH16-HY)
Filter	Wainwright	WHKX12-2700-30 00-18000-60ST	SN3	3GHz High Pass Filter	Jun. 29, 2023	Dec. 15, 2023~ Jan. 08, 2024	Jun. 28, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Dec. 15, 2023~ Jan. 08, 2024	Mar. 06, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102/SUCOFLEX 104	EC-A5-300-57 57,805935/4,8 02434/4	30MHz~18GHz	Aug. 08, 2023	Dec. 15, 2023~ Jan. 08, 2024	Aug. 07, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,8040 12/2	18-40GHz	Jan. 03, 2023	Dec. 15, 2023~ Jan. 01, 2024	Jan. 02, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,8040 12/2	18-40GHz	Jan. 02, 2024	Jan. 02, 2024~ Jan. 08, 2024	Jan. 01, 2025	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Dec. 15, 2023~ Jan. 08, 2024	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Dec. 15, 2023~ Jan. 08, 2024	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Dec. 15, 2023~ Jan. 08, 2024	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Dec. 15, 2023~ Jan. 08, 2024	N/A	Radiation (03CH16-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 12, 2023	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 20, 2023	Dec. 12, 2023	Sep. 19, 2024	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Oct. 26, 2023	Dec. 12, 2023	Oct. 25, 2024	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 22, 2023	Dec. 12, 2023	Nov. 21, 2024	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Dec. 12, 2023	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBE CK	VTSD 9561-F N	00691	9kHz-200MHz	Jul. 28, 2023	Dec. 12, 2023	Jul. 27, 2024	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 29, 2022	Dec. 12, 2023	Dec. 28, 2023	Conduction (CO05-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07. 2023	Nov. 13, 2023~ Dec. 14, 2023	Nov. 06. 2024	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	15I00041SNO 10 (NO:248)	10MHz~6GHz	Jan. 05, 2023	Nov. 13, 2023~ Dec. 14, 2023	Jan. 04, 2024	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 23, 2023	Nov. 13, 2023~ Dec. 14, 2023	Aug. 22, 2024	Conducted (TH05-HY)



## 5 Measurement Uncertainty

#### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence	3.50 dB
of 95% (U = 2Uc(y))	3.30 GB

#### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	6.50 dB
of 95% (U = 2Uc(y))	0.50 GB

#### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence	
of 95% (U = 2Uc(y))	4.50 dB

#### Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence	4.50 dB
of 95% (U = 2Uc(y))	4.50 dB

#### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence	5.50 dB
of 95% (U = 2Uc(y))	5.50 dB

Report Number : FR3N2802A

## Appendix A. Test Result of Conducted Test Items

Test Engineer:	Wei Shun Hung	Temperature:	21~25	°C
Test Date:	2023/11/13~2023/12/14	Relative Humidity:	51~54	%

<Ant. 6>

	<u>TEST RESULTS DATA</u> 20dB and 99% Occupied Bandwidth and Hopping Channel Separation											
Mod.	Data Rate	NTX		Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail			
DH	1Mbps	1	0	2402	0.852	0.795	1.003	0.5680	Pass			
DH	1Mbps	1	39	2441	0.878	0.799	1.003	0.5855	Pass			
DH	1Mbps	1	78	2480	0.848	0.795	1.012	0.5652	Pass			
2DH	2Mbps	1	0	2402	1.287	1.170	0.994	0.8580	Pass			
2DH	2Mbps	1	39	2441	1.265	1.169	0.990	0.8435	Pass			
2DH	2Mbps	1	78	2480	1.265	1.169	0.994	0.8433	Pass			
3DH	3Mbps	1	0	2402	1.226	1.154	0.994	0.8173	Pass			
3DH	3Mbps	1	39	2441	1.226	1.152	0.999	0.8173	Pass			
3DH	3Mbps	1	78	2480	1.226	1.152	0.990	0.8173	Pass			

	<u>TEST RESULTS DATA</u> Dwell Time											
Mod.	Hopping Channel Number Rate	Hops Over Occupanc y Time (hops)		Dwell Time (sec)	Limits (sec)	Pass/Fail						
3DH5	79	106.670	2.90	0.31	0.4	Pass						
3DH5 (AFH)	20	53.330	2.90	0.15	0.4	Pass						

	<u>TEST RESULTS DATA</u> Peak Power Table												
DH	CH.	NTX	Peak Power	Power Limit	Test								
	0	1	(dBm) 2.47	(dBm) 20.97	Result Pass								
DH1	39	1	2.14	20.97	Pass								
	78	1	2.98	20.97	Pass								
	0	1	4.55	20.97	Pass								
2DH1	39	1	4.62	20.97	Pass								
	78	1	5.17	20.97	Pass								
	0	1	4.79	20.97	Pass								
3DH1	39	1	5.04	20.97	Pass								
	78	1	5.55	20.97	Pass								

				Ave	T RESULTS DATA rage Power Table Reporting Only)	
DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)		
	0	1	1.77	5.19		
DH1	39	1	1.33	5.19		
	78	1	2.40	5.19		
	0	1	2.48	5.13		
2DH1	39	1	2.27	5.13		
	78	1	3.11	5.13		
	0	1	2.48	5.13		
3DH1	39	1	2.28	5.13		
	78	1	3.20	5.13		

		<u>TEST RE</u> Number of He	SULTS DA		
Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail		
79	20	> 15	Pass		

Report Number : FR3N2802A

<Δ	nt.	7>

TEST RESULTS DATA											
20dB and 99% Occupied Bandwidth and Hopping Channel Separation											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail		
DH	1Mbps	1	0	2402	0.848	0.793	1.012	0.5652	Pass		
DH	1Mbps	1	39	2441	0.878	0.799	0.999	0.5855	Pass		
DH	1Mbps	1	78	2480	0.848	0.797	1.003	0.5652	Pass		
2DH	2Mbps	1	0	2402	1.265	1.171	0.986	0.8435	Pass		
2DH	2Mbps	1	39	2441	1.270	1.167	0.994	0.8464	Pass		
2DH	2Mbps	1	78	2480	1.265	1.171	0.999	0.8435	Pass		
3DH	3Mbps	1	0	2402	1.226	1.153	1.007	0.8173	Pass		
3DH	3Mbps	1	39	2441	1.226	1.151	1.298	0.8173	Pass		
3DH	3Mbps	1	78	2480	1.226	1.155	1.012	0.8173	Pass		

#### TEST RESULTS DATA Dwell Time

Mod.	Hopping Channel Number Rate	Hops Over Occupanc y Time (hops)	0	Dwell Time (sec)	Limits (sec)	Pass/Fail
2DH5	79	106.670	2.90	0.31	0.4	Pass
2DH5 (AFH)	20	53.330	2.90	0.15	0.4	Pass

<u>TEST RESULTS DATA</u> Peak Power Table												
DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result							
	0	1	2.48	20.97	Pass							
DH1	39	1	0.99	20.97	Pass							
	78	1	1.78	20.97	Pass							
	0	1	4.57	20.97	Pass							
2DH1	39	1	3.44	20.97	Pass							
Ī	78	1	3.88	20.97	Pass							
	0	1	4.88	20.97	Pass							
3DH1	39	1	3.84	20.97	Pass							
Ī	78	1	4.35	20.97	Pass							

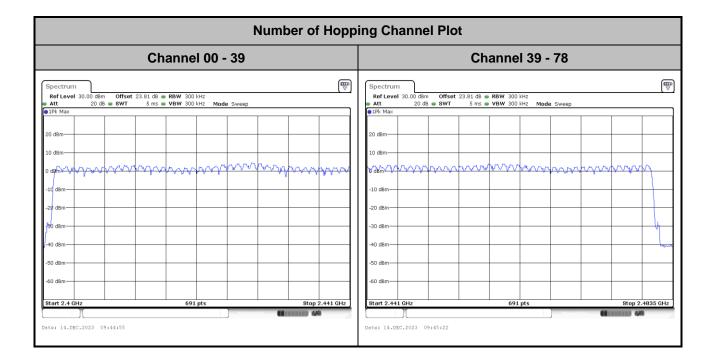
				Ave	ST RESULTS DATA erage Power Table Reporting Only)
DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)	
	0	1	1.92	5.17	
DH1	39	1	0.24	5.17	
	78	1	1.14	5.17	
	0	1	2.53	5.11	
2DH1	39	1	1.12	5.11	
	78	1	1.84	5.11	
	0	1	2.59	5.11	]
3DH1	39	1	1.19	5.11	
	78	1	1.85	5.11	1

		<u>TEST RE</u> Number of He	SULTS DA		
Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail		
79	20	> 15	Pass		



#### <Ant. 6>

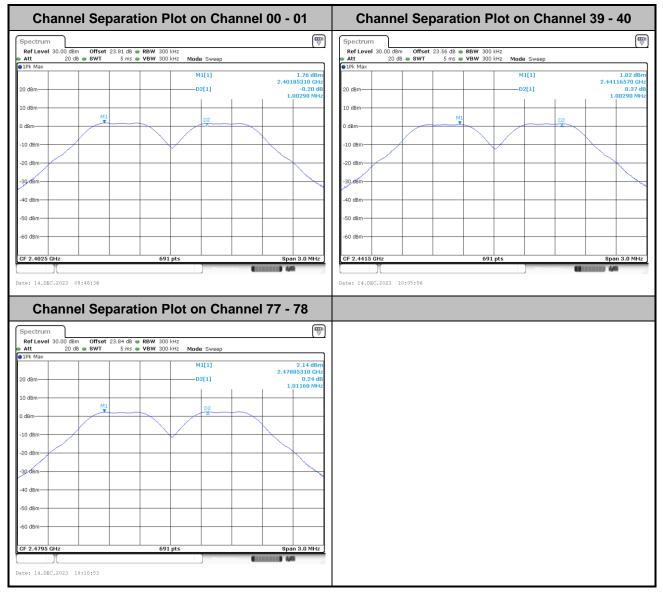
## Number of Hopping Frequency





## Hopping Channel Separation

#### <1Mbps>





## <2Mbps>

<b>Channel Separation</b>	Channel Separation Plot on Channel 39 - 40					
pectrum			Spectrum			(The second seco
RefLevel 30.00 dBm Offset 23.81 dB 🖷 RBW 3 Att 20 dB 🖷 SWT 5 ms 🖷 VBW 3	Ref Level         30.00 dBm         Offset         23.56 dB         RBW         300 kHz           Att         20 dB         SWFT         5 ms         VBW         300 kHz					
k Max			1Pk Max			
	M1[1]	2.77 dBm 2.40187050 GHz			M1[1]	2.13 dB 2.44087050 GF
n	D2[1]	-0.20 dB 994.20 kHz	20 dBm		D2[1]	0.38 d 989.90 ki
M1			10 dBm			
	D2		0 dBm	M1	D2	
3m-			-10 dBm			
3m			-20 dBm			
			-30 dBm			
3m			-40 dBm			
m			-50 dBm			
m			-60 dBm			
.4025 GHz 6	691 pts	Span 3.0 MHz	CF 2.4415 GHz	· · · · ·	691 pts	Span 3.0 MH
Channel Separation	Plot on Chanr	nel 77 - 78	Date: 14.DEC.2023 1	0:36:53		
Channel Separation	Plot on Chanr		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	300 kHz	nel 77 - 78 	Date: 14.DEC.2023 1	0:36:53		
Channel Separation	300 kHz 300 kHz <b>Mode</b> Sweep		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	800 kHz 800 kHz Mode Sweep M1[1]		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	300 kHz 300 kHz <b>Mode</b> Sweep	₩ 3.15 dBm	Date: 14.DEC.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	800 kHz 800 kHz Mode Sweep M1[1]		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.DEC.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		
Channel Separation	000 kHz 000 kHz Mode Sweep M1[1] D2[1]		Date: 14.080.2023 1	0:36:53		



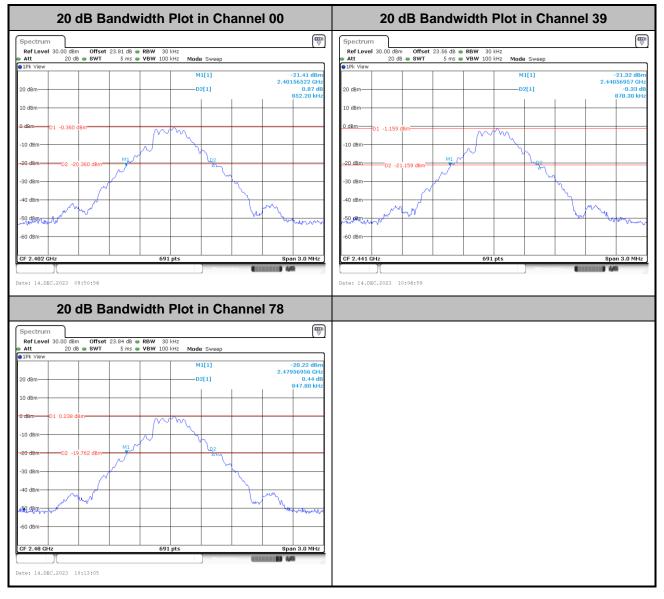
#### <3Mbps>

e etre une			Grantmure			ſ
	1 dB 👄 RBW 300 kHz		Spectrum Ref Level 30.00 dBm	Offset 23.56 dB 👄 RBW 300 kł	Hz	[
	ms 🖶 VBW 300 kHz 🛛 Mode Sw	eep	Att 20 dB		Hz Mode Sweep	
K Max	M1[1]	2.74 dBm	1Pk Max		M1[1]	2.22 d
Bm	D2[1]	2.40187480 GHz -0.22 dE			D2[1]	2.44117000 G 0.35
		994.20 kH	20 0011			998.60
Im M1			10 dBm	M1		
			0 dBm	M.	D2	
Bm			-10 dBm			
3m			-20 dBm			
Bm			-30 dBm			
im			-40 dBm			
			10 0011			
m			-50 dBm			
m			-60 dBm			
4025 GHz	691 pts	Span 3.0 MHz			1-	Span 3.0 Mi
	ration Plot on (	Channel 77 - 78	Date: 14.DEC.2023 11:0	<b>691 p</b>		(mmm) 44
Channel Sepa	ration Plot on (	feasuring.	Date: 14.DEC.2023 11:0		(S	
Channel Sepa	4 dB 🖷 RBW 300 kHz	Channel 77 - 78	Date: 14.DEC.2023 11:0		Secondary	(mmm) 44
Channel Sepa	4 dB <b>● RBW</b> 300 kHz 5 ms <b>● VBW</b> 300 kHz <b>Mode</b> Sw	Channel 77 - 78	Date: 14.DEC.2023 11:0		G Presention	44
Channel Sepa	4 dB 🖷 RBW 300 kHz	Channel 77 - 78	Dete: 14.DEC.2023 11:0		G Personna	44
Channel Sepa ctrum Level 30.00 dBm Offset 23.8- 20 dB SWT S	4 dB <b>● RBW</b> 300 kHz 5 ms <b>● VBW</b> 300 kHz <b>Mode</b> Sw	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		() Teanning	44
Channel Sepa ctrum Level 30.00 dBm Offset 23.8- 20 dB swr S	4 dB ● RBW 300 kHz ms ● VBW 300 kHz Mode Sw M1[1]	Channel 77 - 78 هوه 3.26 dBr 2.47886610 0H	Dete: 14.DEC.2023 11:0			44
Channel Sepa ctrum Level 30.00 dBm Offset 23.0- 20 dB SWT S Max	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0			44
Channel Sepa ctrum Level 30.00 dBm Offset 23.0- 20 dB SWT S Max	4 dB ● RBW 300 kHz ms ● VBW 300 kHz Mode Sw M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		G Measuring	((((((((((((((((((((((((((((((((((((((
Channel Sepa ctrum Level 30.00 dBm Offset 23.8- 20 dB SWT S Max Max	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		() Measuring	<b>(1999)</b> 44
Channel Sepa trum 20 dB • SWT 23.9 Max m m Max	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		()	44
Channel Sepa trum 20 dB • SWT 23.9 Max m m Max	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		() Measuring	44
Channel Sepa ctrum Level 30.00 dBm Offset 23.0 20 dB SWT 23.0 Max	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		()	4/2
Channel Sepa trum Level 30.00 dBm Offset 23.9- 20 dB • SWT 3 Max m Max m M1 am M1 am M1	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		() Measuring	44
Channel Sepa ctrum Lavel 30.00 dBm Offset 23.9- 20 dB • SWT S Max m M1 m M1 Bm Bm Bm	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0			
Channel Sepa	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0			
Channel Sepa	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		G Measures	
Channel Sepa	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		G Measuring	
ctrum f Level 30.00 d8m Offset 23.8 20 d8 • SWT 5 Max 8m	t dB • RBW 300 kHz ms • VBW 300 kHz Mode Sw • M1[1]	Channel 77 - 78 (۳) еер 3.26 dBr 2.47986610 dH 0.21 dE	Dete: 14.DEC.2023 11:0		G Measuring	4/3



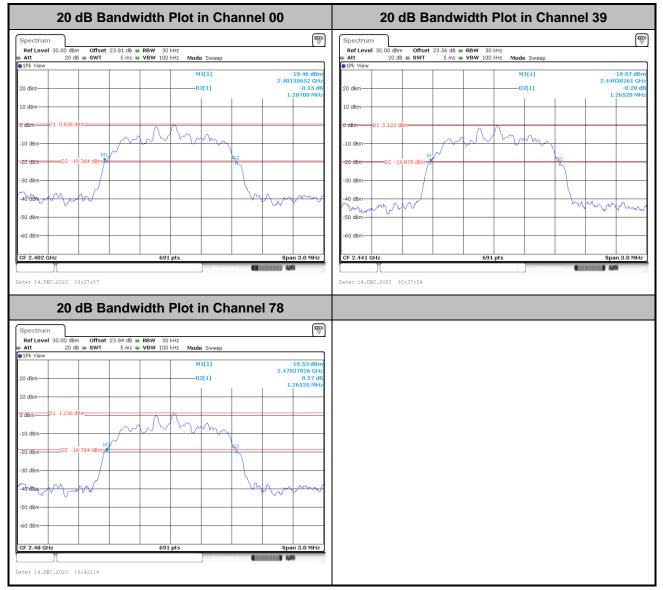
## 20dB Bandwidth

#### <1Mbps>

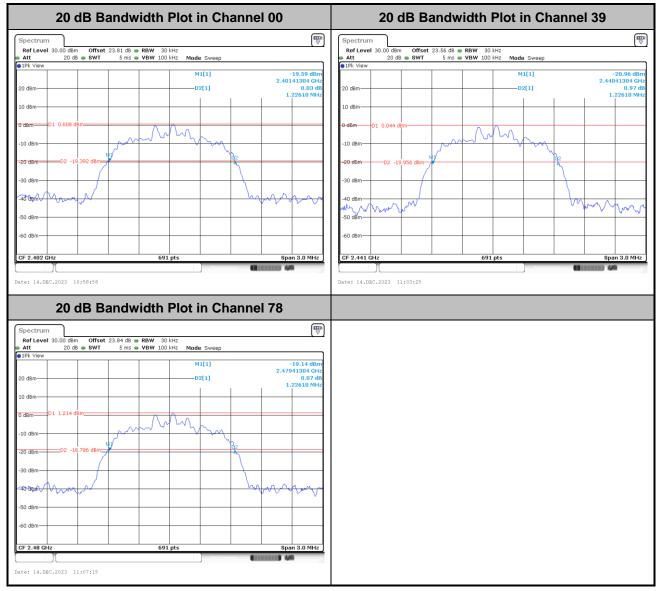




#### <2Mbps>



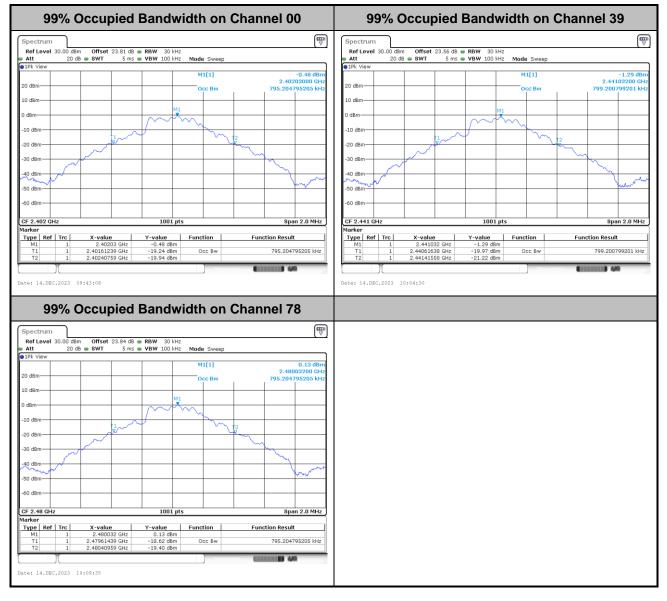




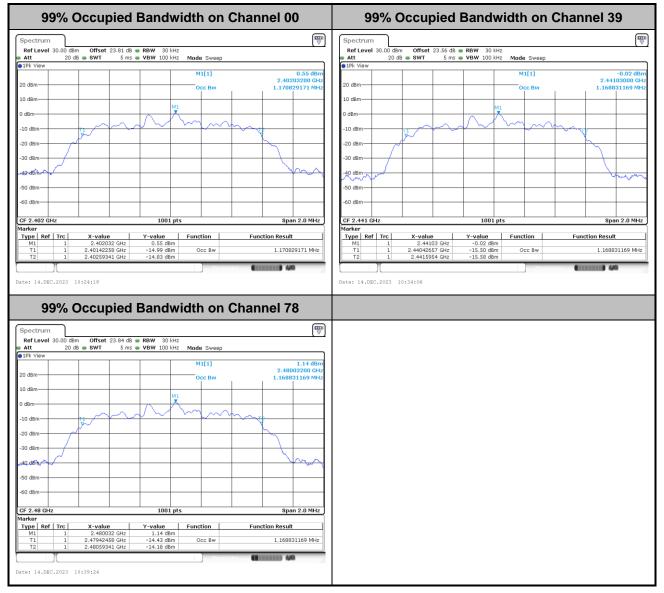




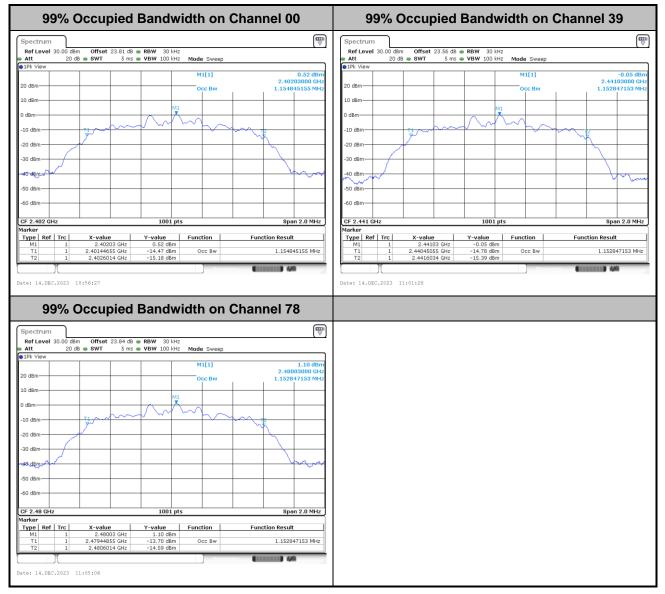
## 99% Occupied Bandwidth





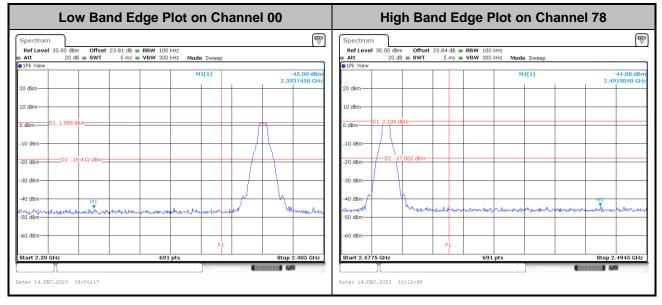








# Band Edges





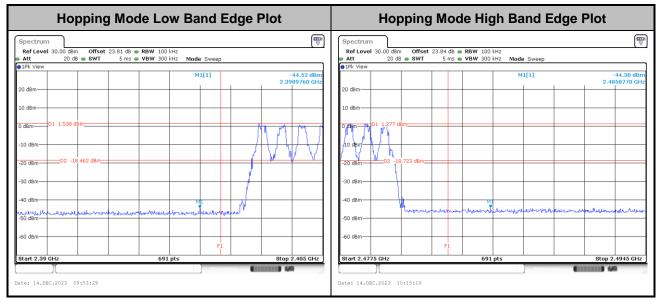
Low Bai	n <mark>d Edge Plot on</mark> Ch	annel 00	High Band Edge Plot	on Channel 78
Spectrum Ref Level 30.00 dBm Offset Att 20 dB SWT	23.81 dB ● RBW 100 kHz 5 ms ● VBW 300 kHz Mode Sweep		Spectrum           Ref Level 30.00 dBm         Offset 23.84 dB • RBW 100 kHz           • Att         20 dB • SWT         5 ms • VBW 300 kHz	₩ode Sweep
20 dBm	M1[1]	-44.77 dBm 2.3995840 GHz	1Pk View 20 d8m	M1[1] -43.80 dBm 2.4902070 GHz
10 dBm D1 2.612 dBm			10 d8m-01 3.203 d8m	
-10 dBm			-10 dBm	
-30 dBm		h h	-30 dago	
	M3 Evel-your have the the the the the the the the the th	bechuic		with rest of the second s
-60 dBm	691 pts	Stop 2.405 GHz	-60 dBm F1 Start 2.4775 GHz 691 pts	Stop 2.4945 GHz
Date: 14.DEC.2023 10:27:37	Neasu		Date: 14.DEC.2023 10:41:58	CERTERING 4/6



Low Ban	d Edge Plot on Chan	nel 00	High Band Edge Plo	ot on Channel 78
Spectrum Ref Level 30.00 dBm Offset 23 Att 20 dB SWT	.81 dB ● RBW 100 kHz 5 ms ● VBW 300 kHz Mode Sweep		Spectrum           Ref Level 30.00 dBm         Offset 23.84 dB         RBW 100 kHz           Att         20 dB         SWT         5 ms         VBW 300 kHz	
9 1Pk View	indue on oop		IPk View	indud onroop
	M1[1]	-44.72 dBm 2.3997790 GHz		M1[1] -44.02 dBm 2.4866640 GHz
20 dBm-			20 dBm	
10 dBm			10 dBm	
0 dBm-01 2.634 dBm-		-A.	D dBm 0 dBm	
-10 dBm			-10 dBm	
-20 dBm D2 -17.366 dBm			-20 dBm	
-30 dBm		they are	-30 dBm	
-40 dBm	M1		-40 dBm	mi Inumproveletion terretering and the second
-50 dBm	wathing	with	-50 dBm	
-60 dBm	F1		-60 dBm	
Start 2.39 GHz	691 pts	Stop 2.405 GHz	Start 2.4775 GHz 691 pts	Stop 2.4945 GHz
	Measuring		United and the second s	Measuring
Date: 14.DEC.2023 10:58:40			Date: 14.DEC.2023 11:07:02	



# Hopping Mode Band Edges





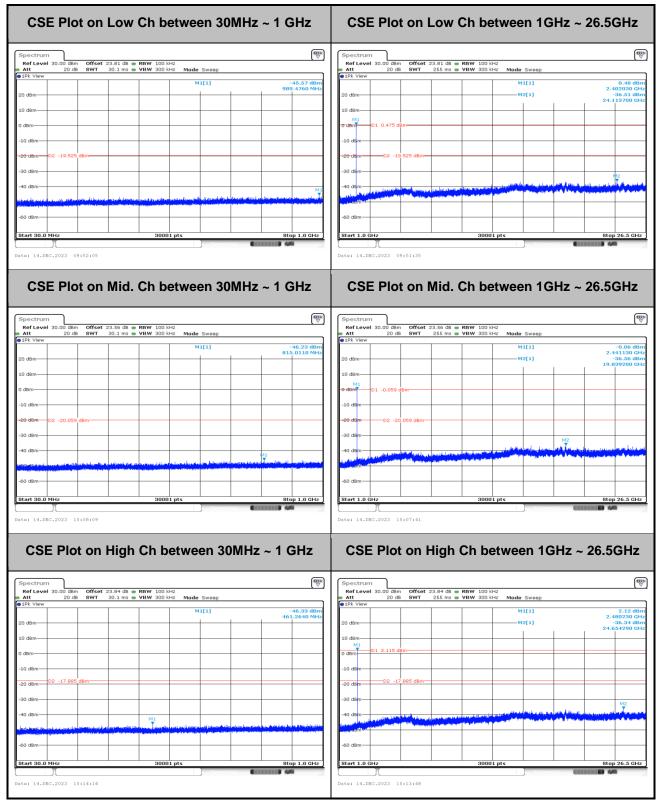
Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
Spectrum         Image: Construction of the construct	Spectrum         Image: Construction of the second sec
20 dBm         M1[1]         -44.53 dBm           20 dBm         2,3941790 GHz           10 dBm         2,3941790 GHz           -10 dBm         -41.53 dBm           -20 dBm         -41.53 dBm           -10 dBm         -41.53 dBm           -20 dBm         -41.53 dBm           -10 dBm         -41.53 dBm           -20 dBm         -41.54 dBm           -20 dBm         -41.54 dBm           -30 dBm         -40.55 dBm           -30 dBm         -40.55 dBm	M1[1]        43.12 dBm           20 dBm         2.4859260 GHz           10 dBm         01 3.029 dBm           -10 dBm
-60 dBm F1 Start 2.39 GHz 691 pts Stop 2.405 GHz Date: 14.DEC.2023 10:30:25	-60 d8m F1 Start 2.4775 GHz 691 pts Stop 2.4945 GHz Date: 14.DEC.2023 10:43:59



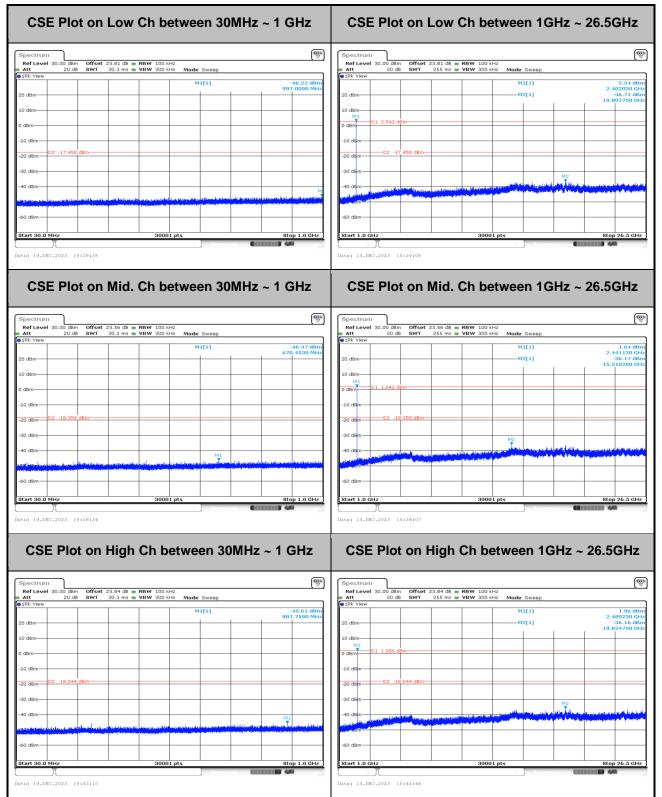
Hopping	Mode Low Band Ed	Норріі	ng Mode High	Band Edge P	lot	
Spectrum Ref Level 30.00 dBm Offset 23	.81 dB 🖷 <b>RBW</b> 100 kHz		Spectrum Ref Level 30.00 dBm Off	fset 23.84 dB 👄 RBW 100 kHz		
Att 20 dB SWT	5 ms 🖷 VBW 300 kHz Mode Sweep		Att 20 dB SV	VT 5 ms 👄 VBW 300 kHz	Mode Sweep	
• 1Pk View			1Pk View			
	M1[1]	-44.58 dBm 2.3970010 GHz			M1[1]	-43.86 dBm 2.4918550 GHz
20 dBm			20 dBm			
10 dBm			10 dBm			
0 dBm-01 2.485 dBm-		Mr. Martha J	0 8 m D1 2.260 dBm			
-10 dBm		h. Jak Mar. Am	-10 dBm			
-20 dBm D2 -17.515 dBm		N I	-20 dBm D2 -17.740 dE	Bm		
-30 dBm		Tuh	-30 dBm			
-40 dBm	Manufacture Manufacture			all poly of the shall be a shall	mennamental platesty and	M1.
-50 dBm			-50 dBm			
-60 dBm	F1		-60 dBm	F1		
Start 2.39 GHz	691 pts	Stop 2.405 GHz	Start 2.4775 GHz	691 pts		Stop 2.4945 GHz
T T	Measuring	6	1 I	00200	Measuring	449
Date: 14.DEC.2023 11:00:39			Date: 14.DEC.2023 11:09:1	0		



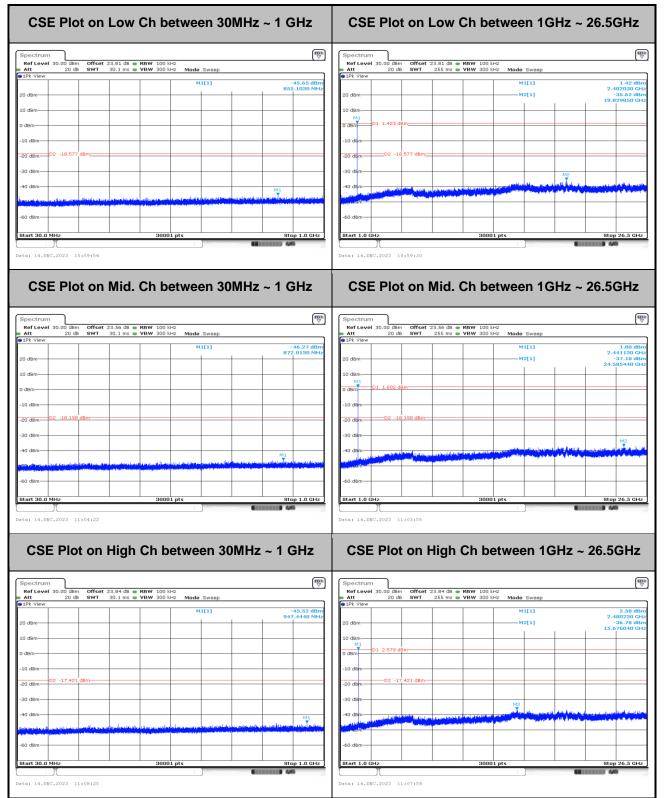
# **Conducted Spurious Emission**







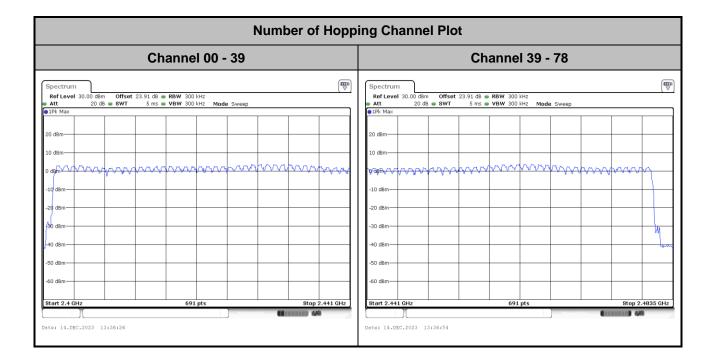






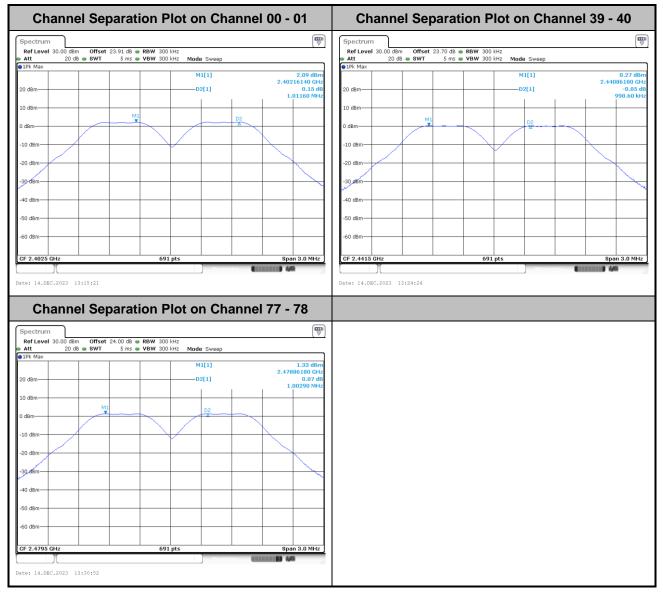
### <Ant. 7>

# Number of Hopping Frequency





# Hopping Channel Separation





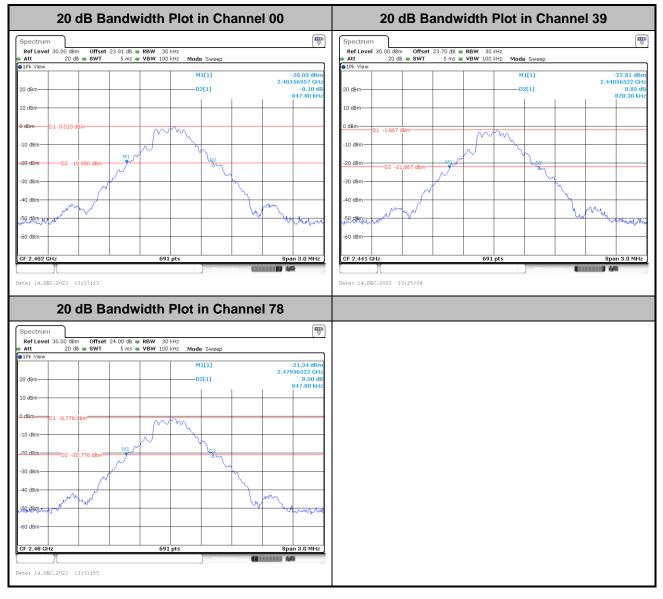
ctrum				Spectrum			(
f Level 30.00 dBm Offset :	23.91 dB 👄 RBW 300 kHz		(♥)	Ref Level 30.00 dBr		BW 300 kHz	
20 dB 👄 SWT	5 ms 👄 VBW 300 kHz	Mode Sweep		e Att 20 d	B 🖶 SWT 5 m s 🖶 V	BW 300 kHz Mode Sweep	
		M1[1]	3.03 dBm 2.40186610 GHz			M1[1]	1.50 d 2.44086180 (
Bm		D2[1]	0.08 dB	20 dBm		D2[1]	-0.05
Jm		I I	985.50 kHz	10 dBm			994.20
m M1		D2		10 dBm	M1	D2	
				0 dBm			
Im-				-10 dBm			
m				-20 dBm			
m				-30 dBm			
m				-40 dBm			
n				-50 dBm			
n				-60 dBm			
025 GHz	691 pt		Span 3.0 MHz			691 pts	Span 3.0 M
	paration Plo	Measuring	nel 77 - 78	CF 2.4415 GHz	3155159		
Channel Sep		ot on Chann	(mmm) 44		3:55:59	More State	CINERIA 44
Channel Sep		ot on Chann	nel 77 - 78		3155159	) ***	
Channel Sep	24.00 dB 🖷 RBW 300 kHz	ot on Chann	el 77 - 78		3:55:59	)	Canada 44
Channel Sep	24.00 dB 🖷 RBW 300 kHz	ot on Chann Mode Sweep M1[1]	el 77 - 78 (₩) 2.37 dBm 2.4786610 CHz		3:55:59		Canada da
Channel Sep trum Level 30.00 dBm Offset : 20 dB = SWT	24.00 dB 🖷 RBW 300 kHz	ot on Chann	nel 77 - 78		3:55:59		Canada 44
trum Level 30.00 dBm Offset : 20 dB = SWT	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		Canada da
Channel Sep	24.00 dB 🖷 RBW 300 kHz	ot on Chann Mode Sweep M1[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3:55:59		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3155159		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3155159		
Channel Sep	24.00 dB 🖷 RBW 300 kHz	Mode Sweep M1[1] D2[1]	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3155159		
20 dB • SWT Max	24.00 dB 🖷 RBW 300 kHz	Mode Sweep           MI[1]           D2[1]           D2           0           0	el 77 - 78 <sup>™</sup> 2.37 dbm 2.47866610 CH2 0.02 dbm 0.02 dbm		3155159		



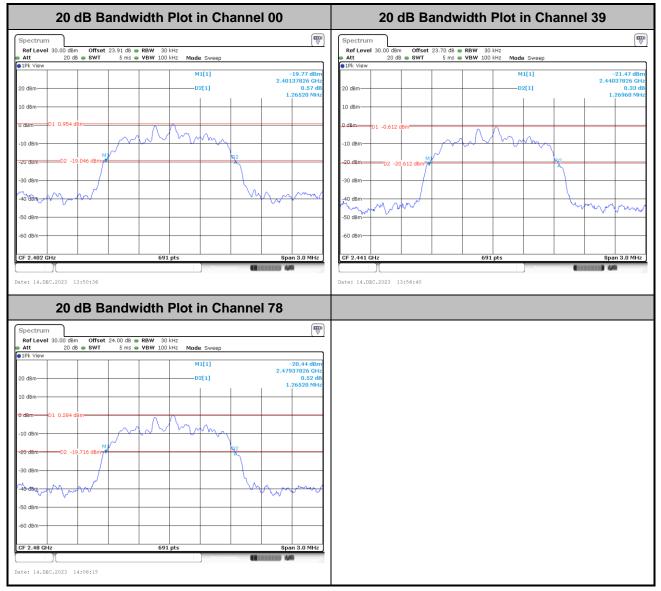
Channel Separation Plot on Channel 00 - 0	01 Channel Separation Plot on Channel 39 - 40
Spectrum	Image: Spectrum         Image: Spectrum
RefLevel 30.00 dBm Offset 23.91 dB 👄 RBW 300 kHz	Ref Level 30.00 dBm Offset 23.70 dB  RBW 300 kHz
Att 20 dB SWT 5 ms VBW 300 kHz Mode Sweep  Pk Max	Att 20 dB SWT 5 ms VBW 300 kHz Mode Sweep      IPk Max
20 dBm D2[1]	3.02 dBm 16140 GHz 0.15 dB 20 dBm D2(1) -0.01 d
	30720 MHz 1.29810 MH
10 dBm M1 D2	10 dBm
0 dBm	0 dBm
-10 dBm	-10 dBm
-29, dBm	-20 gBm
-30 dBm	
-40 dBm	-40 dBm
-50 dBm-	-50 dBm-
-60 dBm	
CF 2.4025 GHz 691 pts Span	n 3.0 MHz GF 2.4415 GHz 691 pts Span 3.0 MHz
Channel Separation Plot on Channel 77 - 7	/8
Spectrum	
Ref Level 30.00 dBm Offset 24.00 dB . RBW 300 kHz	
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz           # Nt         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           # IP! Max	
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz           Att         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           #IPK Max         M1[1]         2.4788	2.37 dBm 85750 OHz
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           #1Pk Max	2.37 dBm
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz           Att         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           1Pk Max         M1[1]         2.4788           20 dBm         D2[1]         1.0           10 dBm         Image: Control of the system         Image: Control of the system	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz           Att         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           @1Pk Max	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         SWIT         5 ms         VBW 300 kHz         Mode Sweep           91Pk Max         M1[1]         2.4708           20 dBm         D2[1]         1.0           10 dBm         M1         D2	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz           Att         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           91Pk Max         M1[1]         2.4768           20 dBm         D2[1]         1.0           10 dBm         M1         D2           -10 dBm         M1         D2	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         8 WT         5 ms         VBW 300 kHz         Mode Sweep           IPk Max         M1[1]         2.4708           20 dBm         D2[1]         1.0           10 dBm         M1         D2           -10 dBm         20 dBm         20 dBm	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz           Att         20 dB         SWT         5 ms         VBW 300 kHz           IPk Max         M1[1]         2.4768           20 dBm         D2[1]         1.0           10 dBm         M1         D2           -10 dBm         0         0	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         8WT         5 ms         VBW 300 kHz         Mode Sweep           1Pk Max         M1[1]         2.4708         2.4708           20 dBm         D2[1]         1.0           10 dBm         M1         D2           0 dBm         20 dBm         2.4708	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         8 WT         5 ms         VBW 300 kHz         Mode Sweep           IPk Max         M1[1]         2.4788           20 dBm         D2[1]         1.0           10 dBm         M1         D2           -10 dBm	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         8WT         5 ms         VBW 300 kHz         Mode Sweep           IPk Max         M1[1]         2.4788         0 dBm         02[1]         1.0           10 dBm         M1         02         0         0         0.00           10 dBm         M1         02         0         0         0.00           -10 dBm         -0         -0         -0         -0         -0           -30 dBm         -0         -0         -0         -0         -0           -50 dBm         -0         -0         -0         -0         -0         -0	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         SWT         5 ms         VBW 300 kHz         Mode Sweep           IPk Max         M1[1]         2.4788           20 dBm         D2[1]         1.0           10 dBm         M1         D2           -10 dBm	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           Att         20 dB         9WT         5 ms         VBW 300 kHz         Mode Sweep           IPk Max         MI[1]         2.4788           20 dBm         D2[1]         1.0           10 dBm         D2         0           -10 dBm         -         -           -30 dBm         -         -           -40 dBm         -         -           -50 dBm         -         -	2.37 dBm 8730 CHz 0.05 dB
Ref Level 30.00 dBm         Offset 24.00 dB         RBW 300 kHz         Mode Sweep           @ 10k Max         20 dB         9 WT         5 ms         VBW 300 kHz         Mode Sweep           @ 10k Max         M1[1]         2.4788           20 dBm         02[1]         1.0           10 dBm         02         0           -10 dBm         -         -           -30 dBm         -         -           -60 dBm         -         -	2.37 dBm 85730 CHz 0.05 db 1160 MHz



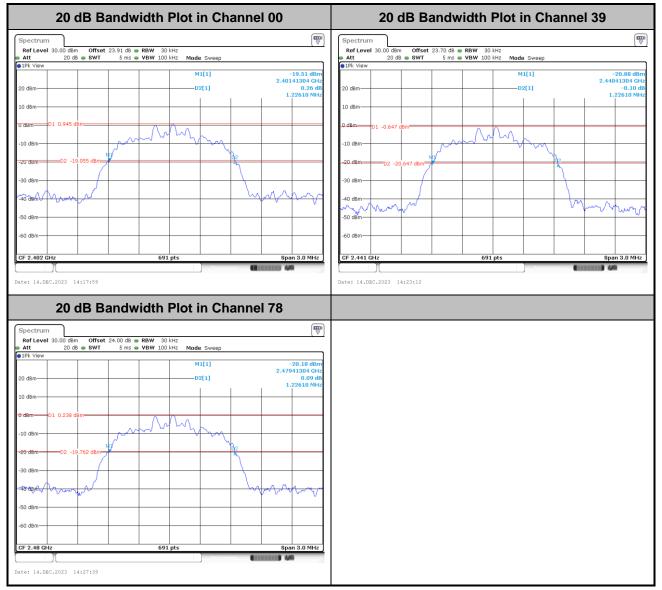
# 20dB Bandwidth







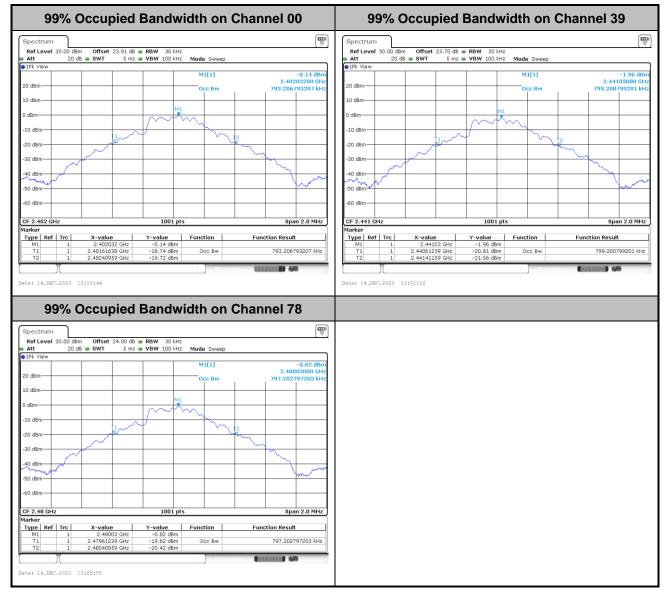




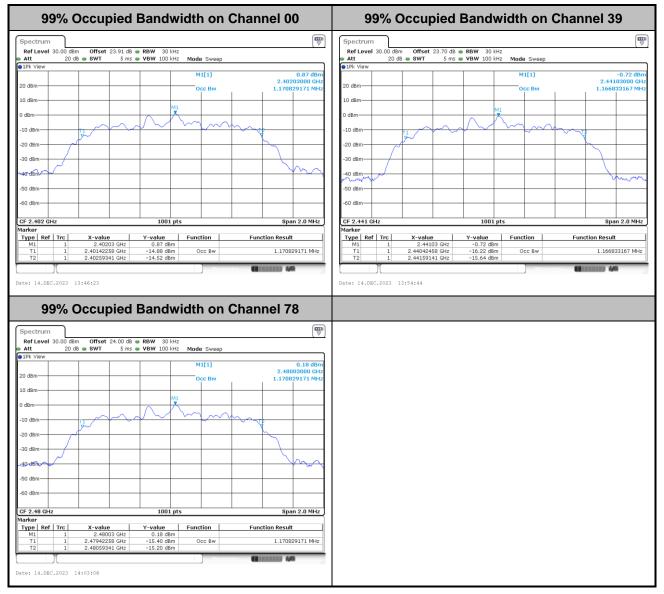




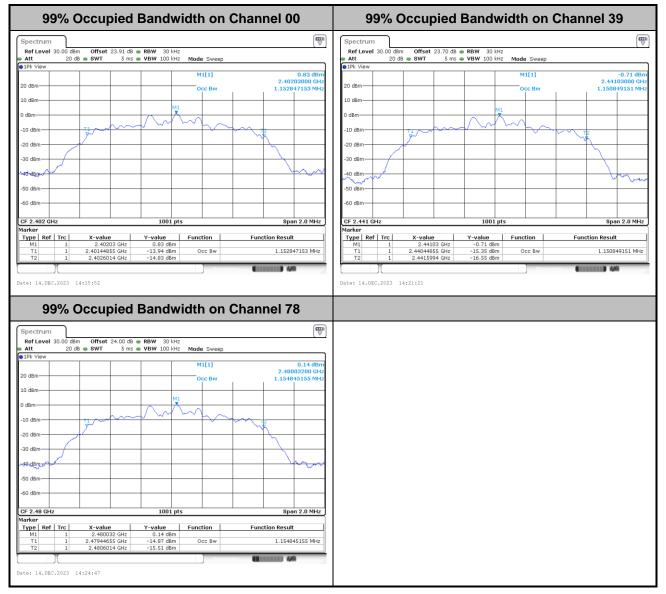
## 99% Occupied Bandwidth





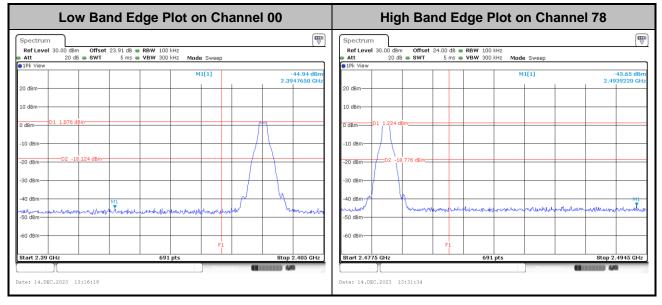








# Band Edges





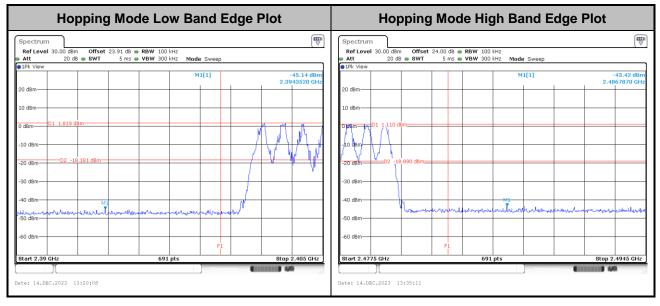
Low Ba	nd Edge Plot or	n Channel 00	High Band Edge Plot on Chan	nel 78
Spectrum Ref Level 30.00 dBm Offset Att 20 dB SWT	23.91 dB ● RBW 100 kHz 5 ms ● VBW 300 kHz Mode	(₩ ♥	Spectrum           Ref Level 30.00 dBm         Offset 24.00 dB • RBW 100 kHz           • Att         20 dB • SWT           5 ms • VBW 300 kHz	
Pk View	3 113 - 7 BH 300 KH2 MOUE	sweep	1Pk View	]
	M	1[1] -44.82 dBm 2.3926590 GHz	M1[1]	-44.07 dBm 2.4891740 GHz
20 dBm			20 dBm	
10 dBm			10 dBm-	
0 dBm 0 dBm		~~~	0 dBm 01 2,246 dBm	
-10 dBm			-10 dBm	
-20 dBm			-20 dBm D2 -17.754 dBm	
-30 dBm		- had had	-30 dBm	
-40 dBm			40 dem	Automatica and attended
-50 dBm	mound land	uturulu/ Montenar	-50 dBm	
-60 dBm		F1	-60 dBm	
Start 2.39 GHz	691 pts	Stop 2.405 GHz	Start 2.4775 GHz 691 pts	Stop 2.4945 GHz
atart 2.09 anz	pat hrs	Stop 2.403 GHz	Ball 2.1775 GHZ B91 pts	atop 2.4943 GHz
Date: 14.DEC.2023 13:50:04			Date: 14.DEC.2023 14:05:55	



Low Ba	nd Edge Plot on Cha	nnel 00	High Band	Edge Plot on Chan	nel 78
Spectrum Ref Level 30.00 dBm Offset	: 23.91 dB • RBW 100 kHz 5 ms • VBW 300 kHz Mode Sweep			dB <b>● RBW</b> 100 kHz ms <b>● VBW</b> 300 kHz <b>Mode</b> Sweep	
1Pk View	o no 🖕 Pon coo kine inidae oweep	]	Pk View	is the soo with mode sweep	1
	M1[1]	-44.61 dBm 2.3985200 GHz		M1[1]	-44.37 dBm 2.4938230 GHz
20 dBm			20 dBm		
10 dBm			10 dBm		
0 dBm-01 2.867 dBm-0		~~~	0 dBm D1 2.251 dBm		
-10 dBm			-10 dBm		
-20 dBm D2 -17.133 dBm			-20 dBm D2 -17.749 dBm		
-30 dBm		w hand	-30 dBm		
-40 dBm	M1 M1	Herenne	-40 dBm	worken and a second the second theme	MIL Marken Marken Mill
-50 dBm	da en derestre alle bereinen werd anderen		-50 dBm		
-60 dBm	F1		-60 dBm		
Start 2.39 GHz	691 pts	Stop 2.405 GHz	Start 2.4775 GHz	691 pts	Stop 2.4945 GHz
, r	Measurin		T T	Measuring	f
Date: 14.DEC.2023 14:17:43			Date: 14.DEC.2023 14:27:20		



# Hopping Mode Band Edges





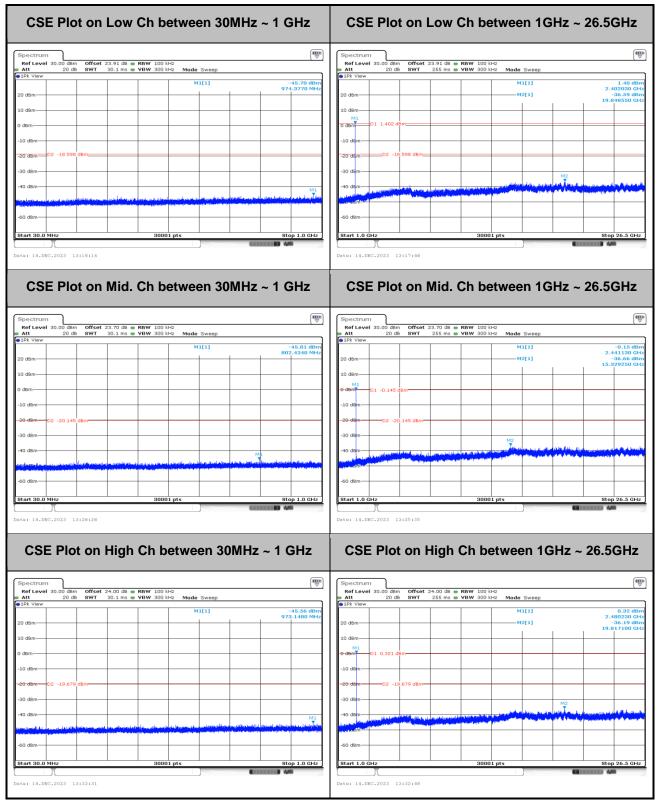
Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
Spectrum         Image: Construction of the sector of	Spectrum         (The sector)           Ref Level 30.00 dBm         Offset 24.00 dB • RBW 100 kHz           Att         20 dB • SWT         5 ms • VBW 300 kHz           Mode Sweep         (The sector)
20 dBm         M1[1]         -44.95 dBm           20 dBm         2.3994540 GHz         2.3994540 GHz           10 dBm         01 2.097 dBm         0         0           -10 dBm         01 2.097 dBm         0         0           -20 dBm         0         0         0           -30 dBm         0         0         0           -60 dBm         0         0         0           -60 dBm         0         0         0	M1[1]        44.29 dBm           20 dBm         2.4835150 GHz           10 dBm         2.4835150 GHz           0 bBm         0           -10 dBm         -           -20 dBm         -           -10 dBm         -           -20 dBm         -           -30 dBm         -           -50 dBm         -           -50 dBm         -
Stort 2.39 GHz         691 pts         Stop 2.405 GHz           Date: 14.DBC.2023         13:53:51	Start 2.4775 GHz         691 pts         Stop 2.4945 GHz           Date: 14.0EC.2023         14:08:10         400



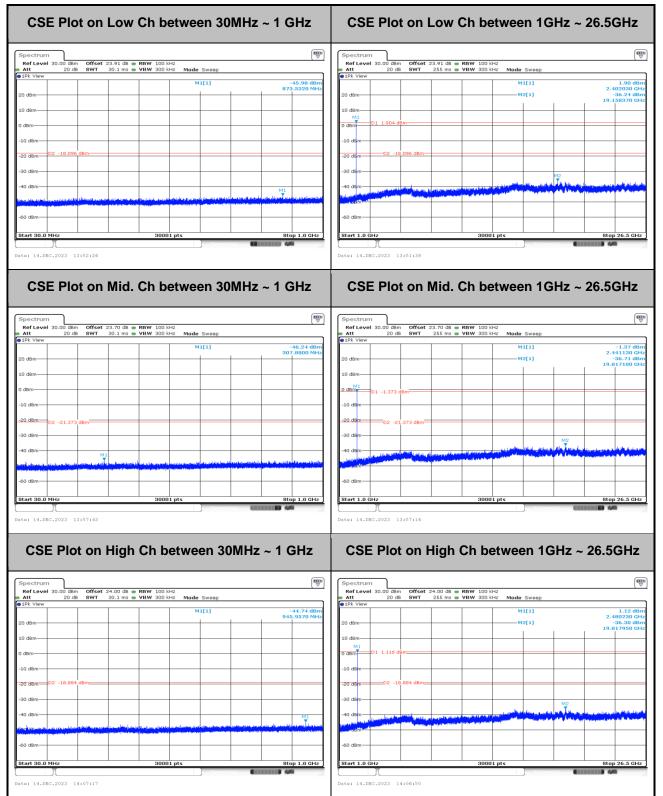
Hopping Mo	Ho	opping Mo	de High E	Band Edg	e Plot		
Spectrum Ref Level 30.00 dBm Offset 23.91 d	18 <b>• RBW</b> 100 kHz		Spectrum Ref Level 30.00 c	iBm Offset 24.00 dB	RBW 100 kHz		
	ns 🖷 VBW 300 kHz Mode Sweep			dB 🖷 SWT 5 ms	VBW 300 kHz N	lode Sweep	
IPk View	M1[1]	-44.95 dBm 2.3942000 GHz	● 1Pk View			M1[1]	-43.62 dBm 2.4894200 GHz
20 dBm			20 dBm				
0 dBm-01 2.998 dBm		Haly Many May	DI 2.16	4 dBm			
-10 dBm			-10 dBm	-17.836 dBm			
-30 d8m			-30 dBm	1			
-40 dBm	www.www.www.www.www.		-40 dBm	bornomme	wounderwo	mannahoon	moundhan
-60 d8m			-60 dBm	F1			
Start 2.39 GHz	691 pts	Stop 2.405 GHz	Start 2.4775 GHz		691 pts		Stop 2.4945 GHz
Date: 14.DEC.2023 14:19:45			Date: 14.DEC.2023	14:29:35			



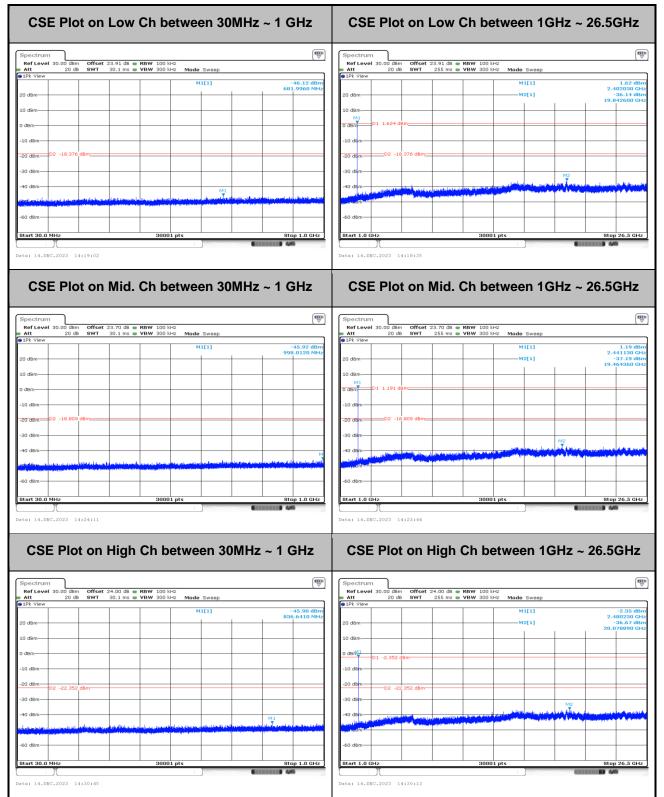
# **Conducted Spurious Emission**











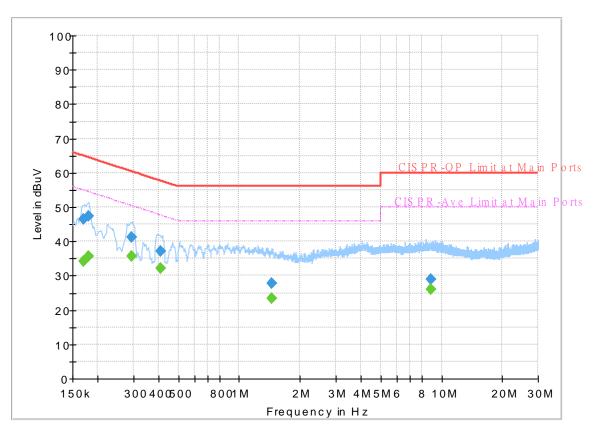


## Appendix B. AC Conducted Emission Test Results

Toot Engineer	Engineer : Calvin Wang	Temperature :	<b>23~26</b> ℃
Test Engineer.	Calvin Wang	Relative Humidity :	45~55%

### **EUT Information**

Report NO : Test Mode : Test Voltage : Phase : 3N2802 Mode 1 120Vac/60Hz Line



FullSpectrum

### Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170250		34.20	54.95	20.75	L1	OFF	19.9
0.170250	46.54		64.95	18.41	L1	OFF	19.9
0.179250		35.68	54.52	18.84	L1	OFF	19.9
0.179250	47.49		64.52	17.03	L1	OFF	19.9
0.294000		35.54	50.41	14.87	L1	OFF	19.9
0.294000	41.28		60.41	19.13	L1	OFF	19.9
0.408750		32.17	47.67	15.50	L1	OFF	19.9
0.408750	37.17		57.67	20.50	L1	OFF	19.9
1.441500		23.52	46.00	22.48	L1	OFF	19.9
1.441500	27.69		56.00	28.31	L1	OFF	19.9
8.835000		26.10	50.00	23.90	L1	OFF	20.1
8.835000	28.93		60.00	31.07	L1	OFF	20.1