



FCC RADIO TEST REPORT

FCC ID	: PY7-26726G
Equipment	: GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPC and NFC
Brand Name	: Sony
Applicant	: Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Manufacturer	: Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Standard	: FCC Part 15 Subpart C §15.247

The product was received on Dec. 22, 2020 and testing was started from Dec. 30, 2020 and completed on Mar. 03, 2021. We, Sporton International Inc. EMC & Wireless Communications 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 of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Lunis Win

Reviewed by: Louis Wu Sporton International Inc. EMC & Wireless Communications Laboratory No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FR0D2215A	01	Initial issue of report	Mar. 29, 2021



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)	Peak Output Power Pa		-
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	Under limit 6.74 dB at 38.730 MHz
3.9	15.207	AC Conducted Emission Pas		Under limit 10.86 dB at 0.335 MHz
3.10	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang Report Producer: Lucy Wu



1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, DTS/UNII a/b/g/n/ac/ax, NFC, FM Receiver, WPC/WPT, and GNSS.

Standards-related Product Specification				
Antenna Type / Gain	<ant. 0="">: Loop Type Antenna with gain -5.3 dBi</ant.>			
Antenna Type / Gain	<ant. 1="">: Loop Type Antenna with gain -4.9 dBi</ant.>			

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

EUT Information List						
HW Version	Performed Test Item					
А	0.325	QV7200365Z	RF conducted measurement			
	0.325	QV72000U6F	Radiated Spurious Emission			
	1.48	QV7200LU6F	AC Conducted Emission			

Accessory List				
	Model Name : XQZ-UC1			
AC Adapter	S/N :			
	0020W51300039 (for Radiated Spurious Emission)			
	0020W51300024 (for Conducted Emission)			
Fornhana	Model Name : STH40D			
Earphone	S/N : N/A			
Dhuataath Familyana	Model Name : SBH82D			
Bluetooth Earphone	S/N : N/A			
	Model Name : XQZ-UB1			
USB Cable	S/N : N/A			
	Model Name : F7U050			
Wireless Charger	S/N : 26S10EHC828473			

Note:

- 1. Above EUT list used are electrically identical per declared by manufacturer.
- 2. Above the accessories list are used to exercise the EUT during test, and the serial number of each type of accessories is listed in each section of this report.
- 3. For other wireless features of this EUT, test report will be issued separately.

1.2 Modification of EUT

No modifications are made to the EUT during all test items.



1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory			
Test Site Location	No.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. TH05-HY, CO05-HY			

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.		
Test Sile NO.	03CH15-HY (TAF Code: 3786)		
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.		

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

FCC designation No.: TW1190 and TW0007

1.4 Applicable Standards

According to the specifications of 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 DTS Meas. Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01
- ANSI C63.10-2013

Remark:

- 1. All test items were verified and recorded according to the standards and without any deviation during the test.
- 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, pre-scanned in three orthogonal panels X, Y, Z. The worst cases (Y plane for Ant. 0, X Plane for Ant. 1, and WPC Charging Mode) were recorded in this report, 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.

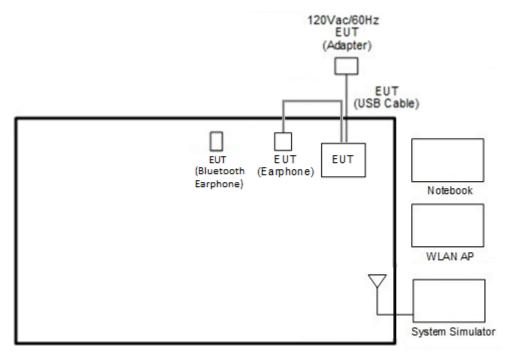
	Summary table of Test Cases					
Test Item		Data Rate / Modulation				
	Bluetooth BR 1Mbps GFSK	Bluetooth EDR 2Mbps π /4-DQPSK	Bluetooth EDR 3Mbps 8-DPSK			
Conducted	Mode 1: CH00_2402 MHz	Mode 4: CH00_2402 MHz	Mode 7: CH00_2402 MHz			
Test Cases	Mode 2: CH39_2441 MHz	Mode 5: CH39_2441 MHz	Mode 8: CH39_2441 MHz			
	Mode 3: CH78_2480 MHz	Mode 6: CH78_2480 MHz	Mode 9: CH78_2480 MHz			
	BI	uetooth EDR 3Mbps 8-DP	SK			
	Mod	e 1: CH00_2402 MHz for 1N	lbps			
	Mod	e 2: CH39_2441 MHz for 1N	lbps			
	Mod	e 3: CH78_2480 MHz for 1N	lbps			
Radiated	Mod	e 4: CH00_2402 MHz for 2N	lbps			
Test Cases	Mod	e 5: CH39_2441 MHz for 2N	lbps			
	Mod	e 6: CH78_2480 MHz for 2N	lbps			
	Mod	e 7: CH00_2402 MHz for 3N	lbps			
	Mode 8: CH39_2441 MHz for 3Mbps					
	Mode 9: CH78_2480 MHz for 3Mbps					
AC Conducted	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (2.4GHz) Link + MPEG4 +					
Emission	Earphone + USE	3 Cable (Charging from AC A	Adapter) + Battery			

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

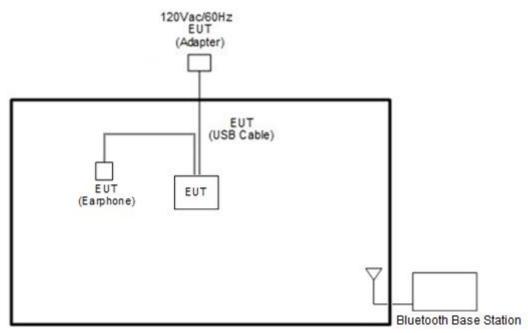


2.3 Connection Diagram of Test System

<AC Conducted Emission>

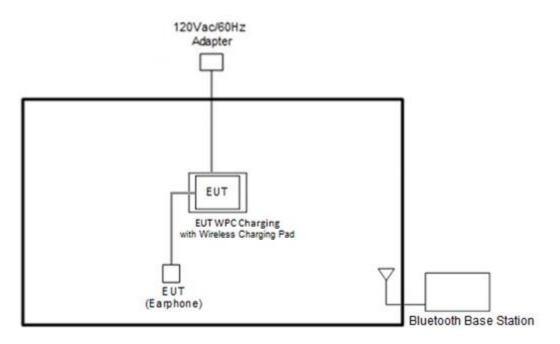


<Bluetooth Tx Mode>





<WPC Charging Mode>



2.4 Support Unit used in test configuration and system

ltem	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
5.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m



2.5 EUT Operation Test Setup

The RF test items, utility "FTMC_bridge V.0.39" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to contact with base station 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

See list of measuring equipment of 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 was connected to the spectrum analyzer by RF cable and attenuator. The path loss was 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



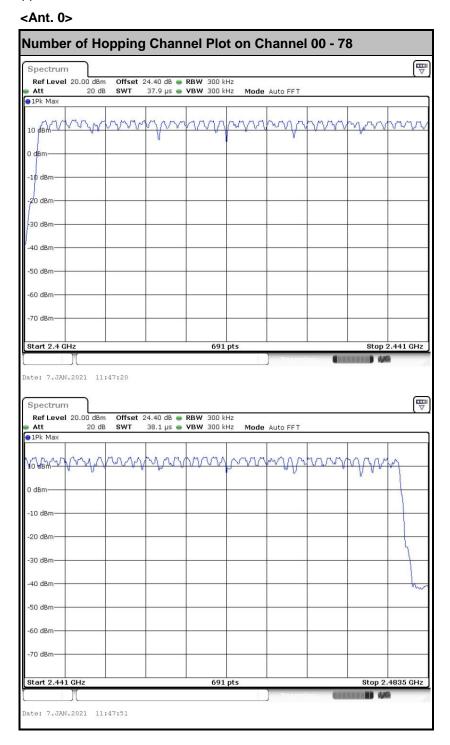
Spectrum Analyzer

EUT



3.1.5 Test Result of Number of Hopping Frequency

Please refer to Appendix A.





<Ant. 1>

lumber of Ho	opping	Chan	nel Plot		nannei	00 - 7	8	
Spectrum								[^q
Ref Level 20.00 dBm Att 20 dB	Offset 2 SWT		RBW 300 kHz VBW 300 kHz		Auto FFT			
1Pk Max		1						
10 pBm	ww	ww	ww	m	my	www	ww	ww
) dBm				;				
10 dBm								
29 dBm								
30 dBm		r						
40 dBm								
60 dBm								
70 dBm								
Start 2.4 GHz			691 p	ts			Stop	2.441 GHz
							ocop	unit
	27:48) Measuri			•
Spectrum Ref Level 20.00 dBm Att 20 dB			RBW 300 kHz VBW 300 kHz	z	Auto FFT			۵ ۲
Spectrum Ref Level 20.00 dBm Att 20 dB	Offset 2		RBW 300 kH;	z) Meaning Auto FFT	no ()		
Spectrum Ref Level 20.00 dBm Att 20 dB 1Pk Max	Offset 2		RBW 300 kH;	z			h	
Spectrum Ref Level 20.00 dBm Att 20 dB 1Pk Max 0 HBM	Offset 2		RBW 300 kH;	z				
Spectrum Ref Level 20.00 dBm Att 20 dB 11Pk Max 0 dBm 0 dBm 10 dBm	Offset 2		RBW 300 kH;	z				
Spectrum Ref Level 20.00 dBm Att 20 dB 1PK Max 0 dBm 0 dBm 10 dBm 20 dBm	Offset 2		RBW 300 kH;	z				
Spectrum Ref Level 20.00 dBm Att 20 dB 1PK Max 0 dBm 10 dBm 20 dBm 20 dBm 30 dBm	Offset 2		RBW 300 kH;	z	Auto FFT			
Spectrum Ref Level 20.00 dBm Att 20 dB 1Pk Max 20 dBm 0 dBm 20 dBm 10 dBm 20 dBm 30 dBm 30 dBm 40 dBm 40 dBm	Offset 2		RBW 300 kH;	z	Auto FFT			
Spectrum Ref Level 20.00 dBm Att 20 dB 11Pk Max 0 dBm 0 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm	Offset 2		RBW 300 kH;	z				
Spectrum Ref Level 20.00 dBm Att 20 dB JIPK Max O dBm 0 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm 60 dBm	Offset 2		RBW 300 kH;	z				
	Offset 2		RBW 300 kH;	z z Mode			Stop 2	



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

See list of measuring equipment of 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 was connected to the spectrum analyzer by RF cable and attenuator. The path loss was 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

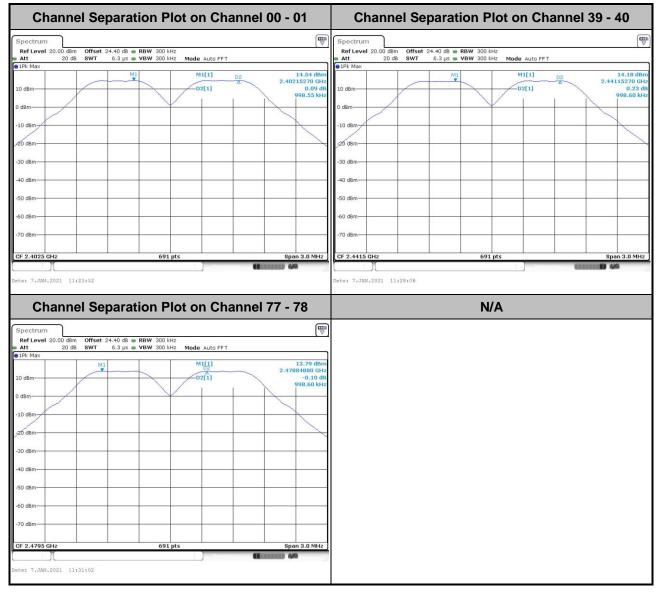
3.2.5 Test Result of Hopping Channel Separation

Please refer to Appendix A.



<Ant. 0>

<1Mbps>





<2Mbps>

Channel Sep	paration Plo			Channe	•				
pectrum									T T
Ref Level 20.00 dBm Offset 2 Att 20 dB SWT 1Pk Max	4.40 dB 👄 RBW 300 kHz 6.3 μs 🖶 VBW 300 kHz	Mode Auto FFT		Ref Level 20.00 dBm Att 20 dB 1Pk Max	Offset 24.40 dB		iode Auto FFT		
	M1	M1[1] D2	14.17 dBm 2.40214830 GHz		M1		M1[1]	2.44084	
0 dBm		D2[1]	0.12 dB 1.00290 MHz	10 dBm			D2[1]	¥.00:	0.21 (290 Mi
ug dBm				-10 dBm					/
0 dBm				-20 dBm-					
0 dBm				-30 dBm					
0 dBm				-40 dBm					
D dBm				-50 dBm					
D dBm				-60 dBm					
) dBm				-70 dBm			_		
2.4025 GHz								- Prop 2	
			Snan 3.0 MHz	CE 2.4415 GHz		691 nts			1.0 M
	691 pts	Nexuring	Span 3.0 MHz	CF 2.4415 GHz		691 pts	Mexandro		8.0 MI
	691 pts	Ne winstag	Span 3.0 MHz	CF 2.4415 GHz	35:56	691 pts	The ward to g		8.0 MI
		Meximina	(11111) 4/2		35:56	691 pts	Mexantino		3.0 MH
Channel Sep	paration Plo	Meximina	(11111) 4/2		35:56		Mexicities		3.0 MH
e: 7.JAN.2021 11:34:14 Channel Sep pectrum Ref Level 20:00 dBm Offset 2 Swyr		ot on Chann	nel 77 - 78		35156				3.0 MH
e: 7.JRN.2021 11:34:14 Channel Sep pectrum Ref Level 20.00 dBm Offset 2 Att 20 dB SwT IPK Max		ot on Chann	nel 77 - 78 		35:56				3.0 MH
e: 7.JAN.2021 11:34:14 Channel Sep Dectrum ter Level 20.00 dBm Offset 2 tit 20 dB SwT Pk Max		ot on Chann	nel 77 - 78		35:56				3.0 MH
ectrum ef Level 20.00 dBm Offset 2 % Max dBm		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		35156				3.0 MH
ectrum ef Level 20.00 dbm Offset 2 the average of the average of		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		35:56				3.0 MF
ectrum et te 20.00 dBm Offset 2 20 dB SWT bk Max dBm dBm		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		33:56				3.0 MH
ef Level 20.00 dBm Offset 2 tt av and a swr sk max dBm dBm dBm dBm dBm dBm dBm		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		35156				3.0 MH
ectrum ef Level 20.00 dbm Offset 2 the average of the average of		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		35:56				3.0 Mi
Channel Sep Channel Commentation Com		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		33:56				9.0 MF
ef Level 20.00 dBm Offset 2 tt av and the set of the s		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		33:56				9.0 MH
e: 7.JAN.2021 11:34:14 Channel Sep Channel Sep Control of the sector of		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		35:56				9.0 MH
e: 7.JRN.2021 11:34:14 Channel Sep pectrum Ref Level 20.00 dBm Offset 2 Att 20 dB SwT IPK Max		Mode Auto FFT	tel 77 - 78 2.47884880 GHz 2.47884880 GHz 0.09 Øb		35:56				1.0 MI



<3Mbps>

Channel Se	paration Plot on Ch	annel 00 - 01	Channel	Separation P	lot on Channe	el 39 - 40
Spectrum Ref Level 20.00 dBm Offset 2	24.40 dB 🖷 RBW 300 kHz		Spectrum Ref Level 20.00 dBm	Offset 24.40 dB 🖷 RBW 300 k	Lie:	
Att 20 dB SWT 1Pk Max	6.3 µs • VBW 300 kHz Mode Auto FFT			SWT 6.3 µs • VBW 300 k		
10 dBm	M1 M1[1]	D2 14.16 dBm 2.40215270 GHz 0.11 dB	10 dBm	M1	M1[1] D2 D2[1]	13.79 dBm 2.44115270 GHz 0.22 dB
0 dBm		\$ 00290 MHz	0 dBm			3,00290 MHz
-19 dBm			-10 dBm			
-20 dBm-			-20 dBm-			
-30 dBm			-30 dBm			
40 dBm			-40 dBm			
50 dBm			-50 dBm			
60 dBm			-60 dBm			
-70 dBm-			-70 dBm			
CF 2.4025 GHz	691 pts	Span 3.0 MHz	CF 2.4415 GHz	691		Span 3.0 MHz
)[byi pts		CF 2.4415 GH2	091	Terrentino (span 3.0 MHz
ate: 7.JAN.2021 11:39:09			Date: 7.JAN.2021 11:41	:50		
Channel Se	paration Plot on Ch	annel 77 - 78		N	/Α	
Spectrum						
Att 20 dB SWT	24.40 dB 🖷 RBW 300 kHz 6.3 µs 🖶 VBW 300 kHz 🛛 Mode Auto FFT					
1Pk Max	M1[1] D2	13.38 dBm 2.47884440 GHz				
10 dBm	D2[1]	-0.07 dB 1.00290 MHz				
) dBm						
10 dBm						
20 dBm						
30 dBm						
40 dBm						
50 dBm						
60 dBm-						
70 dBm-						
CF 2.4795 GHz	691 pts	Span 3.0 MHz				
te: 7.JAN.2021 11:44:37	Hexau					



<Ant. 1>

<1Mbps>

Channel Sepa	ration Plot on Cha	annel 00 - 01	Channel Sepa	aration Plot on Cl	nannel 39 - 40
Spectrum			Spectrum		Ē
Att 20 dB SWT 6.3	dB ● RBW 300 kHz µs ● VBW 300 kHz Mode Auto FFT		Att 20 dB SWT 6.	0 dB 🖷 RBW 300 kHz 3 µs 🖶 VBW 300 kHz 🛛 Mode Auto FF	
IPk Max dBm dBm	M1 M1[1] D2[1]	D2 14.30 dBm 2.40215270 GHz 0.14 dB 998.60 kHz	10 dBm 0 dBm	M1 M1[1] D2[1]	D2 2.44115270 GHz -0.03 dB 998.60 kHz
-10 dBm-			-10 dBm		
-30 dBm			-30 dBm		
-50 dBm			-50 dBm		
-70 dBm	691 pts	Span 3.0 MHz	-70 dBm CF 2.4415 GHz	691 pts	Span 3.0 MHz)
Date: 7.JAN.2021 16:13:50	ration Plot on Cha	annol 77 - 79	Date: 7,JAN.2021 16:15:33	N/A	
				N/A	
	dB 🖷 RBW 300 kHz				
Att 20 dB SWT 6.3 ID4 Max M1 O dBm O dBm O dBm	us vBW 300 kHz Mode Auto FFT	13.68 dBm 2.47884880 GHz -0.09 dB 998.60 kHz			
-26 dBm					
-40 dBm					
-60 dBm					
CF 2.4795 GHz	691 pts	Span 3.0 MHz			
Date: 7.JAN.2021 16:16:42					



<2Mbps>

Channel Sepa	aration Plot on Cha		Channel Sepa	aration Plot on Chann	
Spectrum			Spectrum		
Att 20 dB SWT 6.	HO dB 🖷 RBW 300 kHz .3 µs 🖶 VBW 300 kHz 🛛 Mode Auto FFT		Att 20 dB SWT 6	0 dB 🖷 RBW 300 kHz .3 µs 🖷 VBW 300 kHz 🛛 Mode Auto FFT	
1Pk Max	M1 M1[1]	D2 13.81 dBm	1Pk Max M1	M1[1]	14.16 dBn
LO dBm		2.40215270 GHz 0.62 dB	10 dBm	<u>L</u> 	2.44084880 GH
		\$,00290 MHz			\$ 00290 MH
) dBm			0 dBm		
10 dBm			-10 dBm		
20 dBm			-20 dBm		
30 dBm-			-30 dBm-		
do ubin			-S0 ubin		
+O dBm			-40 dBm		
0 dBm			-50 dBm		
0 dBm			-60 dBm		
) dBm			-70 dBm		
2.4025 GHz	691 pts	Span 3.0 MHz	CF 2.4415 GHz	691 pts	Span 3.0 MH
)[(11111) 4/9		Mexautino	(mana) 4/2
Channel Sepa	aration Plot on Cha	nnel 77 - 78		N/A	
pectrum					
	0 d8 e RBW 300 kHz .3 µs e VBW 300 kHz Mode Auto FFT				
1Pk Max	M1[1]	13.46 dBm			
D dBm		2.47884880 GHz -0.11 dB			
		998.60 kHz			
dBm					
LØ dBm					
0 dBm-					
0 dBm					
0 dBm					
0 dBm					
0 dBm					
10 d8m					
so dem	691 pts	Span 3.0 MHz			
20 dBm	691 pts	Span 3.0 MHz)			



<3Mbps>

Channel Sep	paration Plot on Ch	annel 00 - 01	Channel S	eparation Plo	ot on Channe	el 39 - 40
Spectrum			Spectrum			
Att 20 dB SWT	4.40 dB 🖷 RBW 300 kHz 6.3 µs 🖶 VBW 300 kHz Mode Auto FF	т	Att 20 dB SWT	et 24.40 dB ● RBW 300 kHz Γ 6.3 µs ● VBW 300 kHz	Mode Auto FFT	
• 1Pk Max	M1 M1[1]	D2 13.84 dBm	1Pk Max	M1	M1[1] D2	14.03 dBn
10 dBm		2.40215270 GHz 0.12 dB	10 dBm		D2[1]	2.44115270 GH -0.04 dl
		998.60 kHz				3,00290 MH
0 dBm			0 dBm			
-10/dBm			-10 dBm-			
-20 dBm			-20 dBm			
-30 dBm-			-30 dBm-			
-40 dBm			-40 dBm			
-50 dBm			-50 dBm			
-60 dBm			-60 dBm			
-70 dBm			-70 dBm			
CF 2.4025 GHz	691 pts	Span 3.0 MHz	CF 2.4415 GHz	691 pts		Span 3.0 MHz
channel Sep	paration Plot on Ch	annel 77 - 78	Date: 7.JAN.2021 16:29:37	N/A		
Spectrum		₩				
Ref Level 20.00 dBm Offset 2 Att 20 dB SWT	4.40 dB e RBW 300 kHz 6.3 µs e VBW 300 kHz Mode Auto FF'					
1Pk Max	M1[1]	13.30 dBm				
10 dBm		2.47884880 GHz 0.32 dB				
		994.20 kHz				
0 dBm						
-10 dBm						
-20 dBm						
30 dBm						
40 dBm-						
-50 dBm-						
-60 dBm						
-70 dBm						
CF 2.4795 GHz	601 ats	Span 3.0 MHz				
GF 2.4795 GHZ	691 pts	Span 3.0 MHz				
ate: 7.JAN.2021 16:30:45	,					



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.

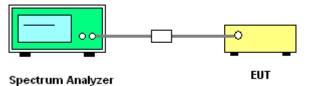
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 7.8.4.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was 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

Please refer to Appendix A.



<ant. 0=""></ant.>	>					<ant. 1=""></ant.>						
	Package Tran	Package Transfer Time Plot										
Spectrum Ref Level 20.00 dBr Att 20 dE SGL IPk Max 10 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm -70 dBm	Offset 24.40 dB RBW 1 M SWT 10 ms VBW 1 M	Hz D3[1]		-0.04 dB 37538 ms 13.84 dBm 782.6 µs	Spectrum Ref Lavel 20.0 Att SGL ID dBm 0 dBm -20 dBm -30 dBm -50 dBm -60 dBm -70 dBm	20 dB 👄 SWT 10 m	B RBW 1 MHz s VBW 1 MHz 22 D3 1 D3	D0[1] M1[1]		0.00 dl 37536 ml 13.26 dbr 826.1 µ		
CF 2.402 GHz	69	L pts		1.0 ms/	CF 2.402 GHz		691 pt	s		1.0 ms/		
Marker Type Ref Trc M1 1 D2 M1 1 D3 M1 1	X-value Y-value 782.6 µs 13.84 d 2.8841 ms 0.61 3.7536 ms -0.04	dB	Function Result	:	Marker Type Ref Tro M1 D2 M1 D3 M1	1 826.1 µs 1 2.8841 ms	Y-value 13.26 dBm 0.70 dB 0.00 dB	Function	Function I	Result		
Date: 30.DEC.2020 1					Date: 30.DEC.202	0 15:55:48		() Re		1) 498		

<Ant. 0>

Remark:

- 1. In normal mode, hopping rate is 1600 hops/s with 6 slots in 79 hopping channels. With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s), Hops Over Occupancy Time comes to (1600 / 6 / 79) x (0.4 x 79) = 106.67 hops.
- 2. In AFH mode, hopping rate is 800 hops/s with 6 slots in 20 hopping channels. With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s), Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.33 hops.
- Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time 3.



3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

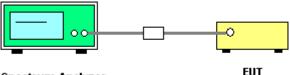
3.4.2 Measuring Instruments

See list of measuring equipment of 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 was connected to the spectrum analyzer by RF cable and attenuator. The path loss was 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

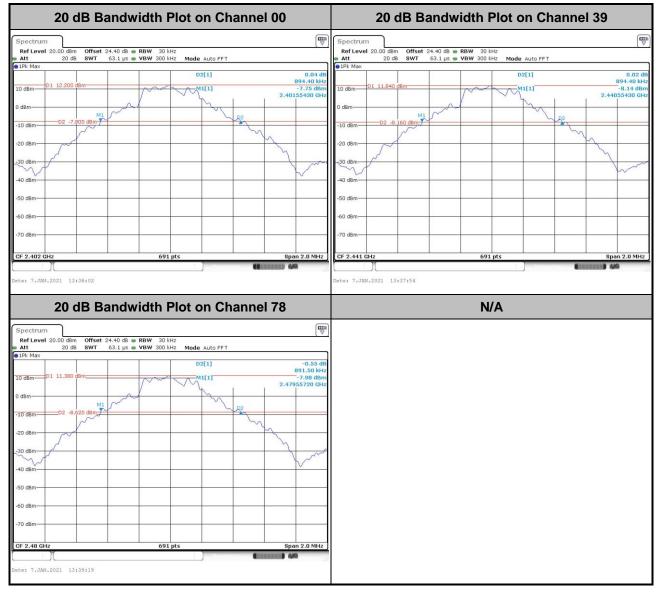
3.4.5 Test Result of 20dB Bandwidth

Please refer to Appendix A.



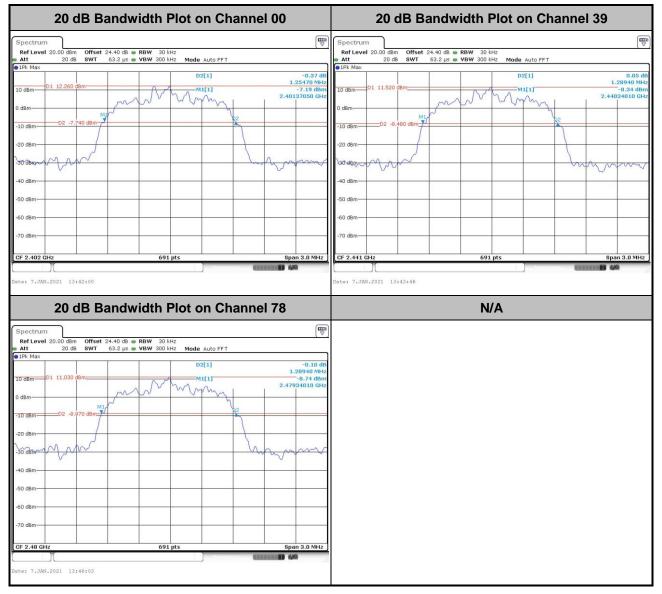
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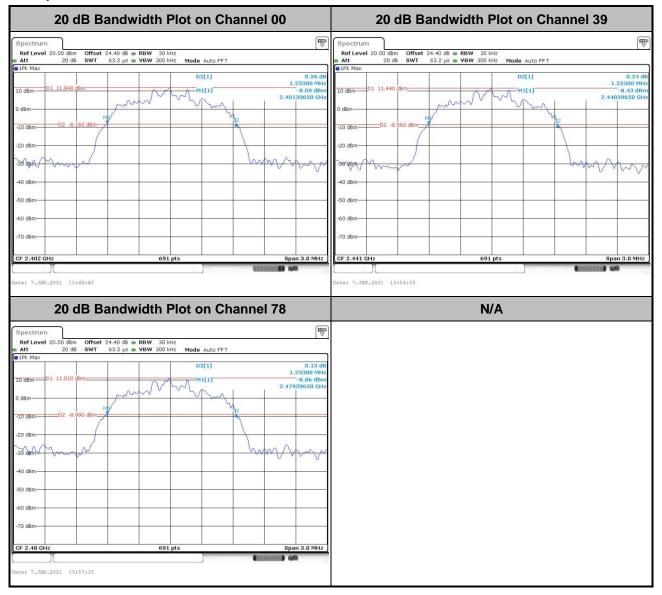


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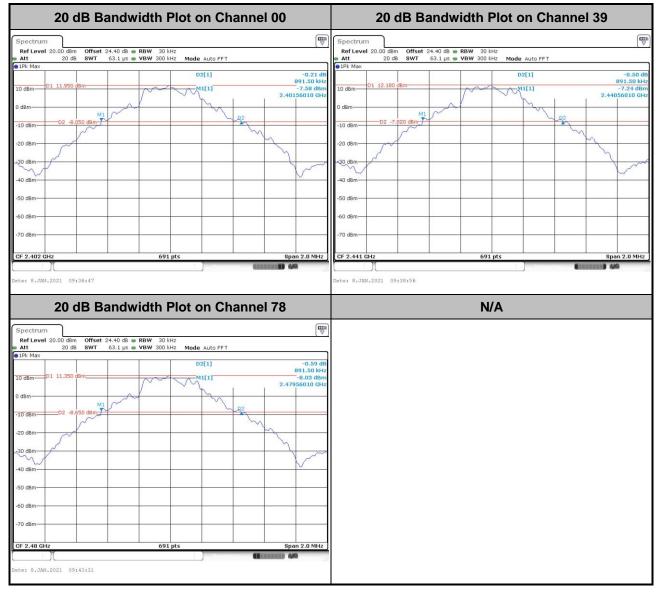
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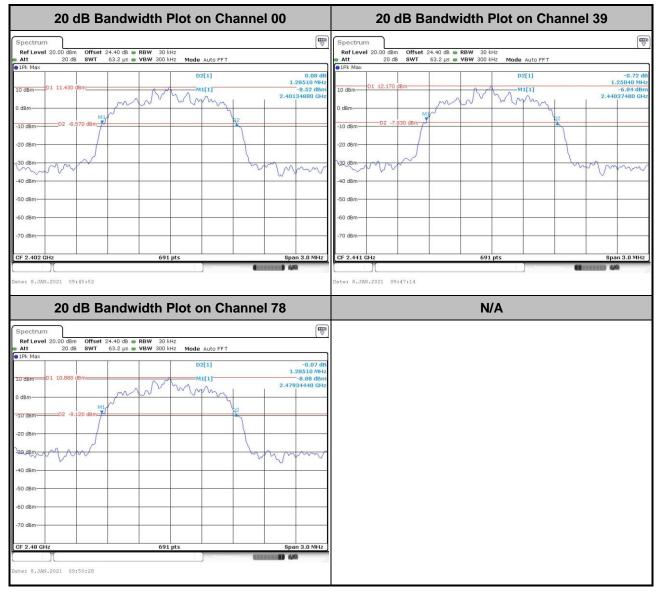
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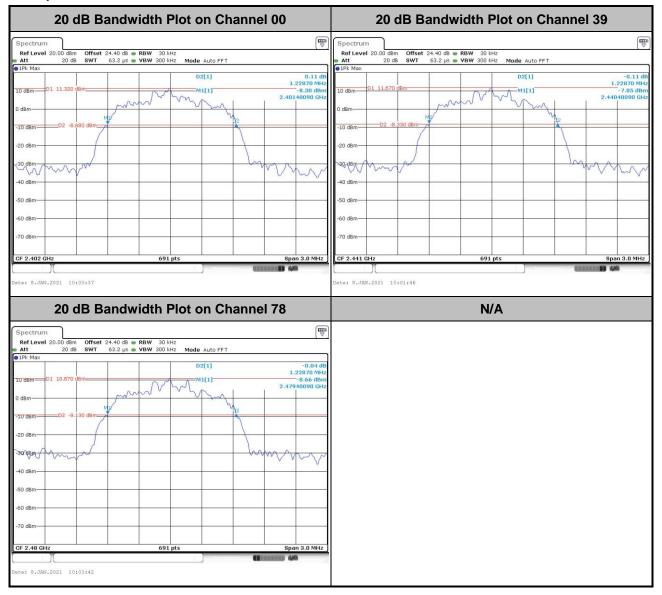


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<3Mbps>



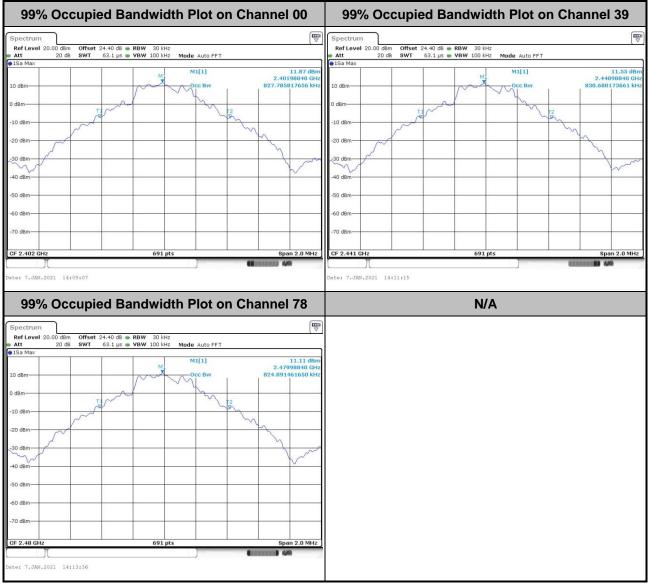


3.4.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

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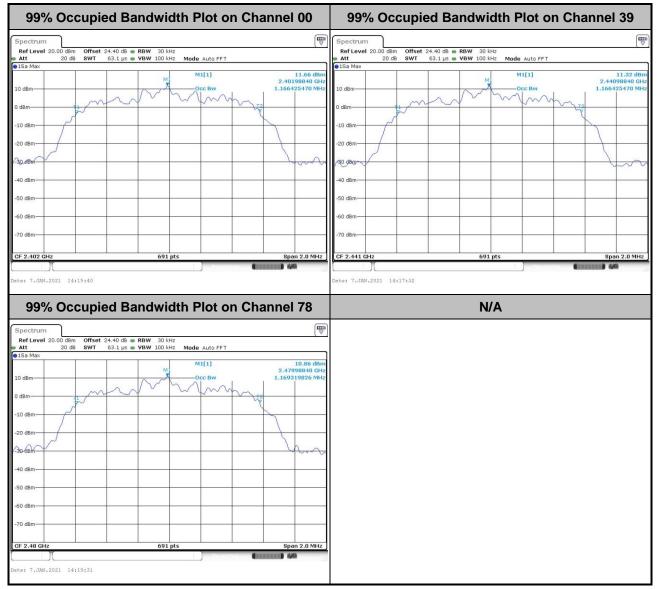
<1Mbps>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

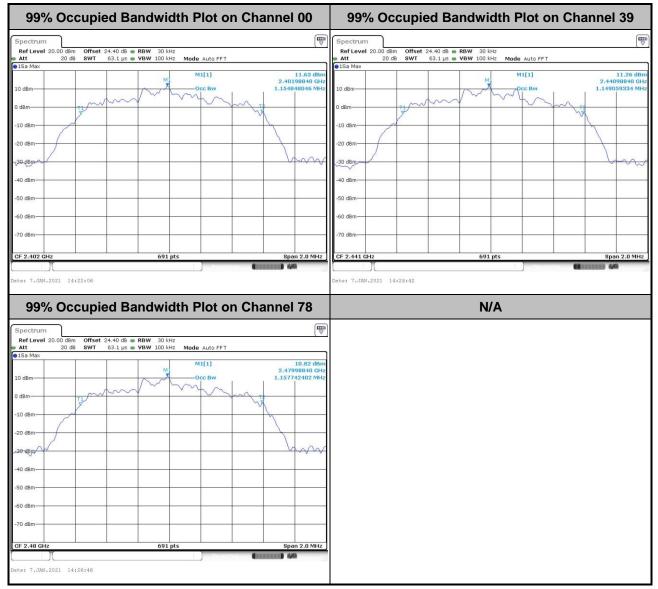


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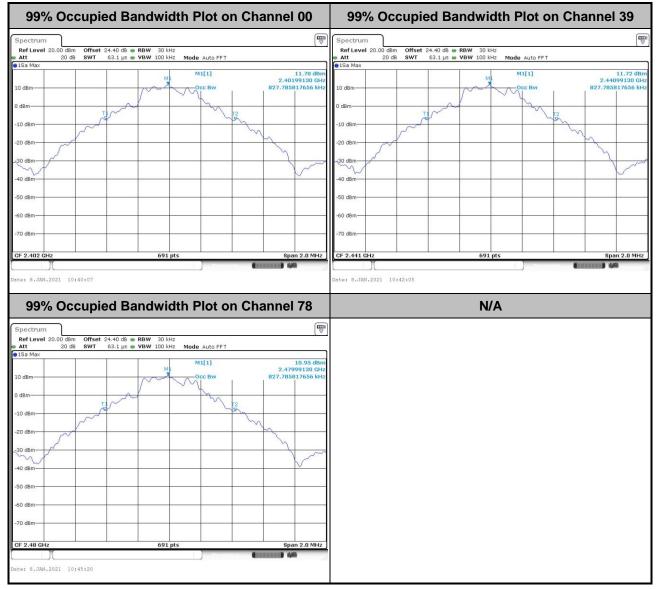
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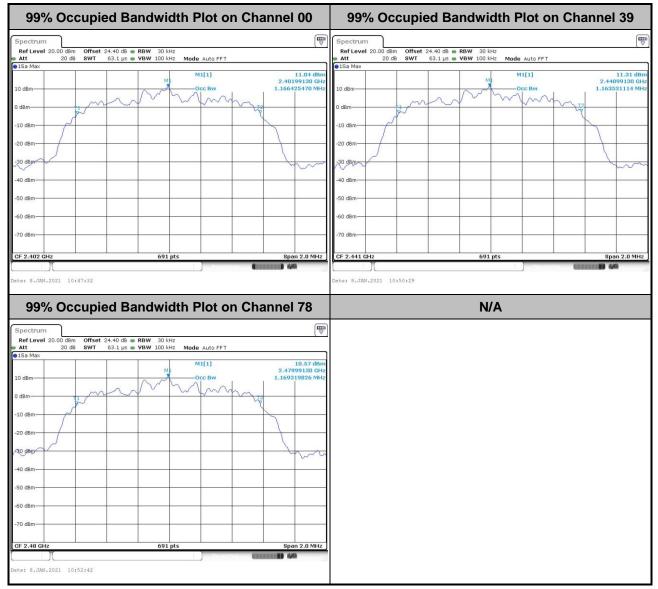
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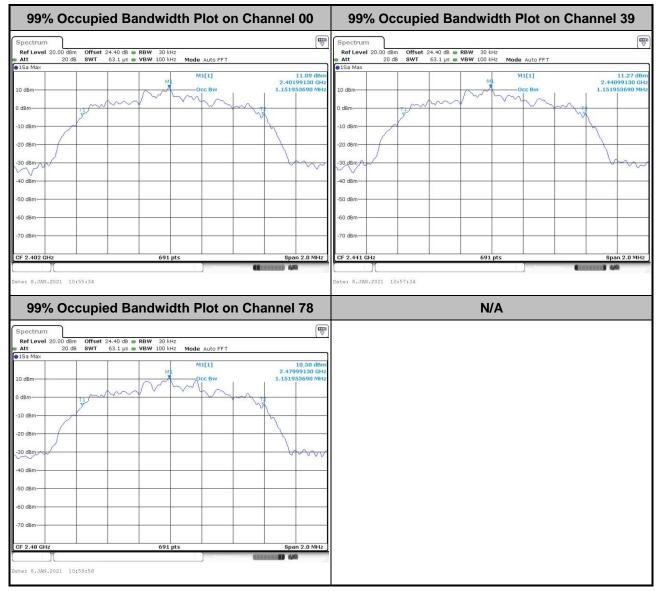


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3.5 Output Power Measurement

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.

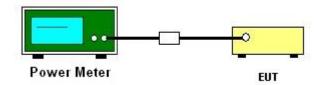
3.5.2 Measuring Instruments

See list of measuring equipment of 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 was connected to the power meter by RF cable and attenuator. The path loss was 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)

Please refer to Appendix A.



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.

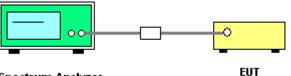
3.6.2 Measuring Instruments

See list of measuring equipment of 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



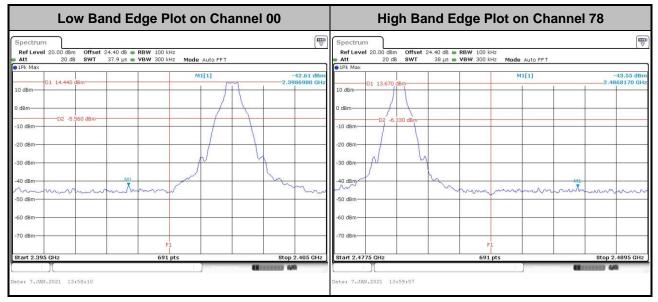
Spectrum Analyzer



3.6.5 Test Result of Conducted Band Edges

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Low Band Edge Plot on Channel 00	High Band Edge Plot on Channel 78			
Spectrum Image: Constraint of the section	main main <thmain< th=""> main main <th< th=""></th<></thmain<>			
	10 dBm 2.4843680 GH -10 dBm -20 dBm -30 dBm -30 dBm			
-70 dBm F1 Start 2.395 GHz 691 pts Stop 2.405 GH	-70 dBm- F1 start 2.4775 GHz 691 pts Start 2.4775 GHz 691 pts			

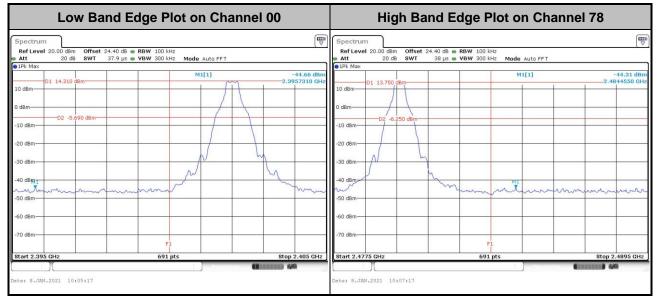


Low Band Edge Plot on Channel 00	High Band Edge Plot on Channel 78
Spectrum Image: Construction of the sector of	Spectrum (₩) Ref Level 20.00 dBm Offset 24.40 dB ● RBW 100 kHz (₩) Att 20 dB SWT 38 µs ● VBW 300 kHz Mode Auto FFT IPM Max (100 kHz) (100 kHz) (100 kHz)
01 14:340 dBm	0 dBm 01 13.580 dBm 2.4885540 GHz
-10 dBm	-10 dBm
-30 dBm	-30 dBm
-50 d8m	-50 dBm
-70 dBm	-70 dBm F1
Start 2.395 GHz 691 pts Stop 2.405 GHz	Start 2.4775 GHz 691 pts Stop 2.4895 GHz
Date: 7.JAN.2021 13:59:16	Date: 7.JAN.2021 14:00:58



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Low Band Edge Plot on Channel 00	High Band Edge Plot on Channel 78
Spectrum Image: Construction of the sector of	Spectrum Image: Constraint of the second secon
01 13.810 dBm M1[1] -41.20 dBm 10 dBm 2.3995370 GHz 2.3995370 GHz 0 dBm 0 0 0 -10 dBm -02 -6.190 dBm -0 -20 dBm -0 -0 -0 -20 dBm -0 -0 -0 -30 dBm -0 -0 -0 -30 dBm -0 -0 -0 -30 dBm -0 -0 -0 -70 dBm -0 -0 -0 -70 dBm -1 -1 -1 Stort 2.395 GHz 691 pts Stop 2.405 GHz	01 13.330 dBm M1[1] -44.24 dBm 10 dBm 2.4892760 GHz <
Date: 5.JAN.2021 10:06:13	Date: 9.JAN.2021 10:07:53



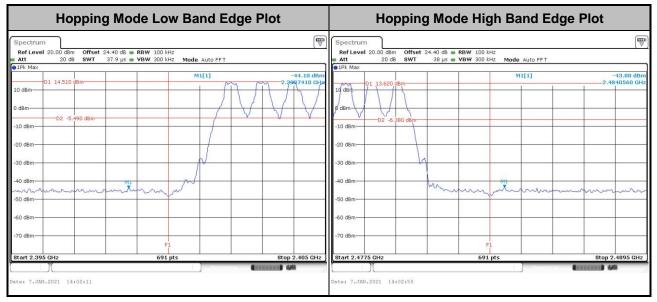
Low Band Edge Plot on Channel 00	High Band Edge Plot on Channel 78
Spectrum Image: Constraint of the sector of t	Spectrum mm Ref Level 20.00 dBm Offset 24.40 dB ● RBW 100 kHz ™ Att 20 dB SWT 38 µs ● VBW 300 kHz Mode Auto FFT ●1Pk Max ■ ■ ■
01 13.900 dBm -41.48 dBm 10 dBm -2.3995220 GHz 0 dBm -2.3995220 GHz 0 dBm -0 dBm -10 dBm -0 dBm -20 dBm -0 dBm	OI 13.450 dBm M1[1] 43.98 dBm 10 dBm -2.4852710 GHz - 0 dBm -2.4852710 GHz - -10 dBm -2.6550 dBm - - -20 dBm - - - -
-30 dBm	-30 dBm -40 dBm -50 dBm -60 dBm
-70 dBm F1 Start 2.395 GHz 691 pts Stop 2.405 GHz	-70 dBm F1 Start 2.4775 GHz 691 pts Stop 2.4895 GHz
Date: 8.JAN.2021 10:06:39	Date: 8.JAN.2021 10:08:26



3.6.6 Test Result of Conducted Hopping Mode Band Edges

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Hopping Mode Low Band Edge Plot		Plot	Hopping Mode High Band Edge Plot					
	dB ⊕ RBW 100 kHz µs ⊕ VBW 300 kHz Mode Auto FFT M1[1]	Generation Spect Spect Ref L → Att → Att → IPk M	evel 20.00 dBm C 20 dB S	Dffset 24.40 d8 ⊜ SWT 38 µs ⊜	VBW 300 kHz Mo	de Auto FFT		-43,80 dBm
01 14.350 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm			D2 -6.640 (ABM ABM				
-60 dBm	F1 691 pts			51	F1 691 pts	Massiufin	Stop 2	2.4895 GHz



Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
Spectrum Image: Constraint of the sector of t	Ref Level 20.00 dBm Offset 24.40 dB RBW 100 kHz Att 20 dB SWT 36 µs VBW 300 kHz Max 0 dB Max 36 µs VBW 300 kHz
01 14.660 dBm 2.99 (2210 GH 0 dBm 0	19 08ha -2.4850800 GHz 0 dBm -2.0 dBm -10 dBm -20 dBm -20 dBm -30 dBm
	-50 dBm -50 dBm -70 dBm -70 dBm F1 Start 2.4775 GHz Start 2.4775 GHz Start 2.4775 GHz Start 2.4775 GHz Start 2.4775 GHz Start 2.4775 GHz Start 2.4775 GHz



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Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
Spectrum Image: Spectrum Ref Level 20.00 dBm Offset 24.40 dB RBW 100 kHz Att 20 dB SWT 37.9 µs VBW 300 kHz Mode Auto FFT •1Pk Max M1[1] -44.37 dBm 2.90(870 GFP) 0 dBm 01 14.430 dBm M1[1] -44.37 dBm -10 dBm -02 -5.570 dBm -04 dBm -04 dBm -30 dBm -04 dBm -04 dBm -04 dBm -60 dBm -04 dBm -04 dBm -04 dBm	Spectrum Toppring mode night build a get intervention Reflexvel 20.00 dim Offset 24.40 dil e RBW 100 kHz Att 20 dil sivri 38 µs e VBW 300 kHz Max Milli -44.61 dilm 10/dBh 01 13.720 dilm 2.4872860 GHz 40 dilm 02 -6.280 dilm 10 -30 dilm 0 10 -40 dilm 0 10 -40 dilm 0 10
-70 dBm F1 Start 2.395 GHz 691 pts Stop 2.405 GHz Date: 8.JWL2021 10:09:40	-70 dBm F1 Start 2.4775 GHz 691 pts Stop 2.4895 GHz Date: 8.784.2021 10:11:18

Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
Spectrum RefLevel 20.00 dBm Offset 24.40 dB ● RBW 100 kHz	Spectrum (♥ RefLevel 20.00 dBm Offset 24.40 dB ● RBW 100 kHz
■ Att 20 dB SWT 37.9 µs ■ VBW 300 kHz Mode Auto FFT	Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
0 dBm 02 -6.100 dBm	19 LPk Max 10 dBm 10
-60 dBmF1 F1F1F1F1F1F1F1F1F1F1F1F1F1F1F1F1F1 F1	-70 dBm -70 dBm F1 Start 2.4775 GHz 691 pts Stop 2.4995 GHz
Date: 8.JAN.2021 10:36:26	Date: 8.JAN.2021 10:35:41



Hopping Mode Low Band Edge Plot	Hopping Mode High Band Edge Plot
Spectrum Image: Spectrum Ref Level 20.00 dBm Offset 24.40 dB RBW 100 HHz Att 20 dB SWT 37.9 µs VBW 300 HHz Mode Auto FFT •1Pk Max •13.840 dBm •13.56 dBm •13.56 dBm •13.56 dBm 10 dBm •13.840 dBm •113.840 dBm •113.840 dBm •113.940 dBm -10 dBm •10 dBm •10 dBm •10 dBm •10 dBm •10 dBm -30 dBm •10 dBm •10 dBm •10 dBm •10 dBm •10 dBm -60 dBm •10 dBm •10 dBm •10 dBm •10 dBm •10 dBm	Incorporting in Decirc Fright Decirc Lege Friet Spectrum Image: Colspan="2">Image: Colspan="2">Image: Colspan="2" Image: Colspa="2" Image: Colspa="" Image: Colspan="2" Image: Colspan="2" Imag
-70 dBm F1 Stop 2.405 GHz Stop 2.405 GHz Date: 8.JW.2021 10:37:29	-70 dBm F1 Start 2.4775 GHz 691 pts Stop 2.4895 GHz Date: #.JAN.2021 10:38:18

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.

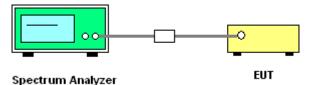
3.7.2 Measuring Instruments

See list of measuring equipment of 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 was connected to the spectrum analyzer by RF cable and attenuator. The path loss was 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

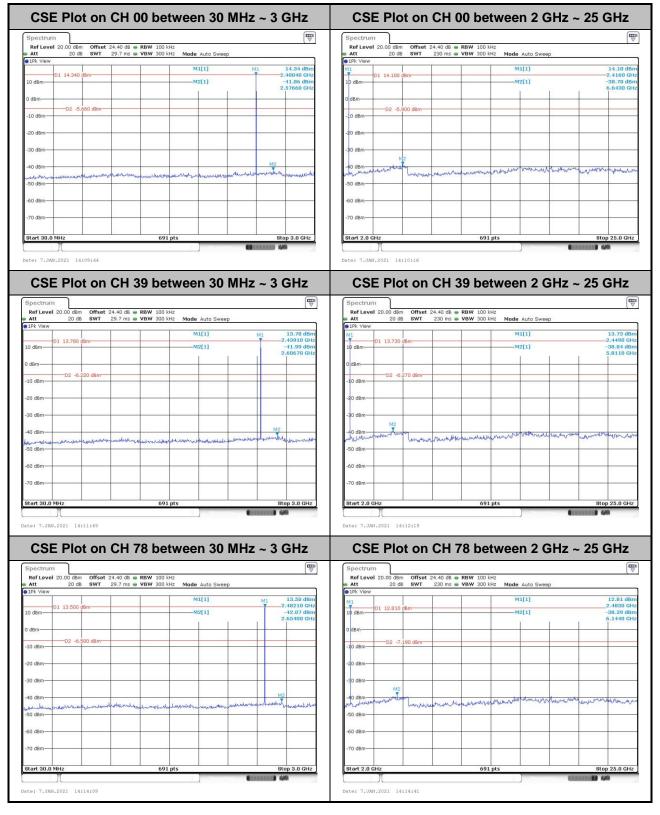




3.7.5 Test Result of Conducted Spurious Emission

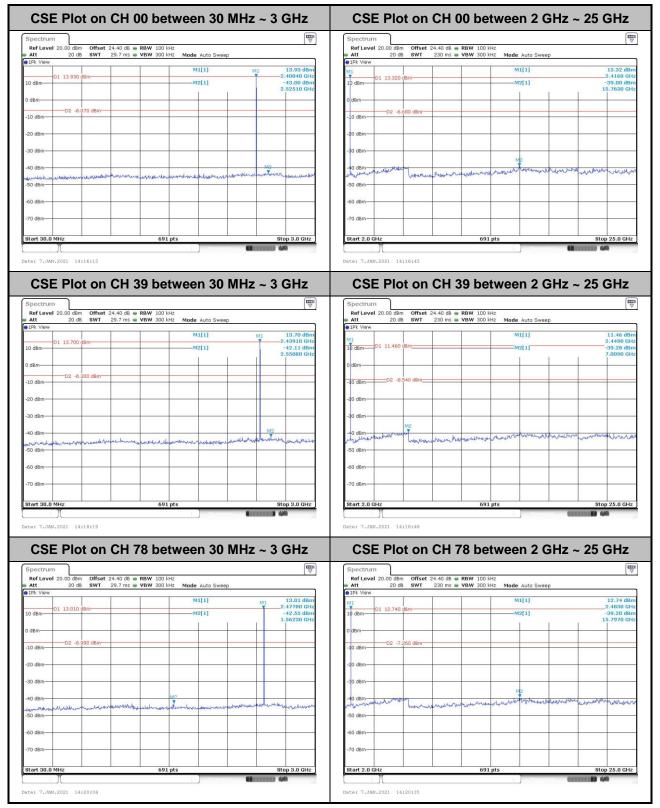
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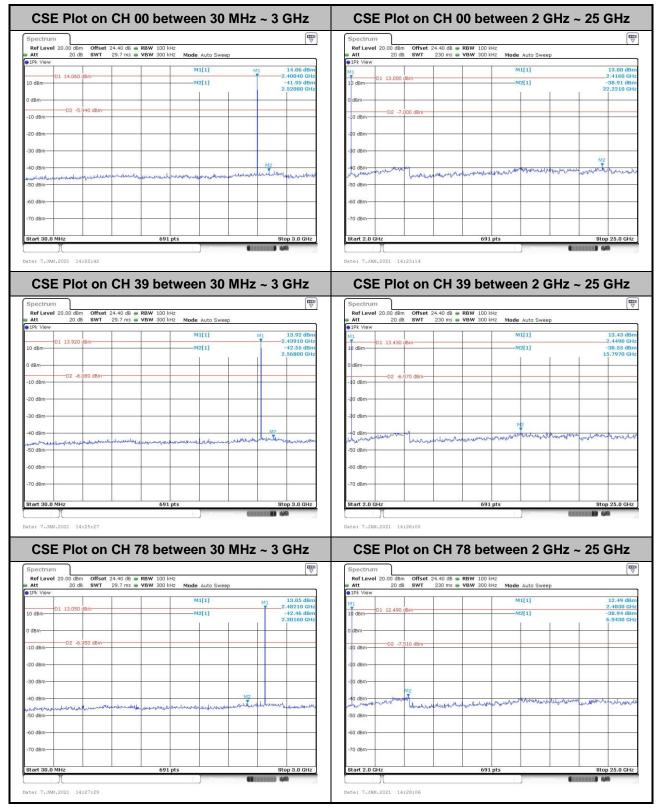




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- : 01







- : 50 of 64 : Mar. 29, 2021
- : 01