

74.00 -33.23

74.00 -34.27

peak

peak

[TestMode: TX highest channel]; [Polarity: Vertical]

Test Result: Pass

1 *

2

2483.500

2500.000

44.73

43.73

-3.96

-4.00

40.77

39.73



Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	ТХ
Test Mode (Final Test)	ТХ
Tester	Aiden
Temperature	25°C
Humidity	60%

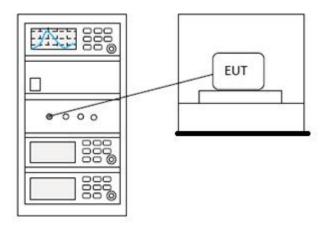
14 CONDUCTED BAND EDGES MEASUREMENT

14.1 LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak
Limit: conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).



14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 TEST DATA

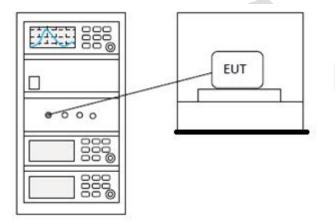
Pass: Please Refer To Appendix: Appendix1 For Details



15 MINIMUM 6DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.7
Test Mode (Pre-Scan)	ТХ
Test Mode (Final Test)	ТХ
Tester	Aiden
Temperature	25°C
Humidity	60%

15.1 BLOCK DIAGRAM OF TEST SETUP



15.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details



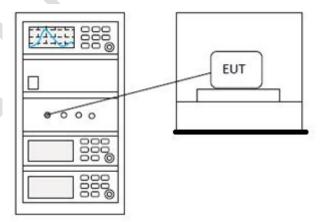
16 CONDUCTED PEAK OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5
Test Mode (Pre-Scan)	ТХ
Test Mode (Final Test)	ТХ
Tester	Aiden
Temperature	25°C
Humidity	60%

16.1 LIMITS

Frequency range(MHz)	Output power of the intentional radiator(watt)
	1 for ≥50 hopping channels
902-928	0.25 for 25≤ hopping channels <50
	1 for digital modulation
	1 for \geq 75 non-overlapping hopping channels
2400-2483.5	0.125 for all other frequency hopping systems
	1 for digital modulation
5725 5950	1 for frequency hopping systems and digital
5725-5850	modulation

16.2 BLOCK DIAGRAM OF TEST SETUP





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16.3 EST DATA

Pass: Please Refer To Appendix: Appendix1 For Details



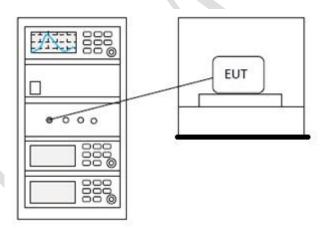
17 POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.10.2
Test Mode (Pre-Scan)	ТХ
Test Mode (Final Test)	ТХ
Tester	Aiden
Temperature	25°C
Humidity	60%

17.1 LIMITS

Limit: \leq 8dBm in any 3 kHz band during any time interval of continuous transmission

17.2 BLOCK DIAGRAM OF TEST SETUP



17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details



18 APPENDIX

Appendix1

18.1 MAXIMUM CONDUCTED OUTPUT POWER

Condition	Mode	Frequency	Antenna	Conducted	Limit	Verdict
		(MHz)		Power (dBm)	(dBm)	
NVNT	BLE 1M	2402	Antl	1.919	30	Pass
NVNT	BLE 1M	2442	Ant1	0.252	30	Pass
NVNT	BLE 1M	2480	Ant1	0.056	30	Pass

Power NVNT BLE 1M 2402MHz Ant1







Power NVNT BLE 1M 2442MHz Ant1

Power NVNT BLE 1M 2480MHz Ant1





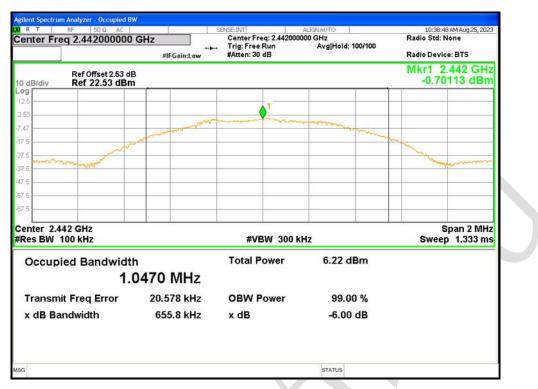
18.2 -6DB BANDWIDTH

Condition	Mode	Frequency	Antenna	-6 dB Bandwidth	Limit -6 dB	Verdict
		(MHz)		(MHz)	Bandwidth (MHz)	
NVNT	BLE 1M	2402	Ant1	0.6566	0.5	Pass
NVNT	BLE 1M	2442	Ant1	0.6558	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.6539	0.5	Pass

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1







-6dB Bandwidth NVNT BLE 1M 2442MHz Ant1

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1





18.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.0353
NVNT	BLE 1M	2442	Ant1	1.0387
NVNT	BLE 1M	2480	Ant1	1.0458

OBW NVNT BLE 1M 2402MHz Ant1







OBW NVNT BLE 1M 2442MHz Ant1

OBW NVNT BLE 1M 2480MHz Ant1





18.4 MAXIMUM POWER SPECTRAL DENSITY LEVEL

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-13.368	8	Pass
NVNT	BLE 1M	2442	Ant1	-14.855	8	Pass
NVNT	BLE 1M	2480	Ant1	-15.951	8	Pass

PSD NVNT BLE 1M 2402MHz Ant1







PSD NVNT BLE 1M 2442MHz Ant1





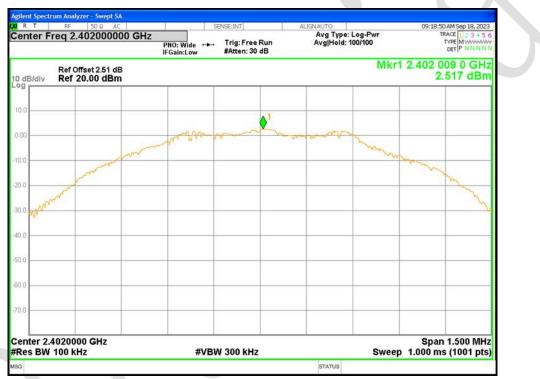
PSD NVNT BLE 1M 2480MHz Ant1



Condition	Mode	Frequency	Antenna	Max Value	Limit	Verdict
		(MHz)		(dBc)	(dBc)	
NVNT	BLE 1M	2402	Ant1	-47.69	-20	Pass
NVNT	BLE 1M	2442	Ant1	-46.46	-20	Pass
NVNT	BLE 1M	2480	Ant1	-45.71	-20	Pass

18.5 CONDUCTED RF SPURIOUS EMISSION

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref





		RF	50 Q A0	2	5	ENSE:INT	ALIGNAUTO		09:20:15	AM Sep 18, 2023
entei	Fre	eq 13	3.265000	F	PNO: Fast +++ Gain:Low	Trig: Free Run #Atten: 30 dB	Avg 1 Avg H	Type: Log-Pwr Iold: 30/30	TR T	ACE 123456 YPE MUNICIPAL P NNNN
dB/d	iv		ffset 2.51 d 20.00 dBr							412 GHz 684 dBm
		-					-			
.00		V								
0.0										
0.0										-17 48 dBm
0.0										
10.0				3						2/
0.0			\Diamond		05		- da		and an arran	man
0.0	whenh	work	mande	mon and	mensioners	my about an and	washing when the			
0.0										
tart 3	0 M	Hz							Stop	26.50 GHz
Res E	SW 1	100 k	Hz		#VB	W 300 kHz		Swe	ep 2.530 s	(1001 pts)
KR MOD	E TRO			×	Y	FUNCTION	FUNCTION WIDTH	H EL	NCTION VALUE	^
1 N 2 N		f		2.412 GHz 26.447 GHz	2.684					
3 N		f		4.795 GHz 7.230 GHz	-49.055	dBm				
5 N		f		9.506 GHz	-55.921					
4 N 5 N 6 7 8 9										
8										
										_
0										2.2
9 10 11										

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission

Tx. Spurious NVNT BLE 1M 2442MHz Ant1 Ref





nt	T I	RF	50 Q AC		SE	INSE:INT	AL	IGNAUTO		09:22:43	AM Sep 18, 2023
	er F	req 1	13.265000000 0		Fast +++	Trig: Free Ru #Atten: 30 dB	n	Avg Type: Avg Hold: 1	Log-Pwr 0/10	TF	TYPE NNNNN DET PNNNNN
dBi g F	/div		Offset 2.53 dB f 20.00 dBm								439 GHz 642 dBm
0			1								
00			<u>}</u>								
10											
1.0		_									-18.68 dBm
1.0											
0.0			1								2/
0.0			\Diamond	04	05				Annual Res	man & shares	mont
0.0	in	mound	homenturing	- Ver	un lung	echosperiment		and a second and a second a se			
0.0				-							
~~[
		MHz / 100	kHz		#VBW	/ 300 kHz			Swe		26.50 GHz (1001 pts)
Res		Contractor in the local distribution of	×		Y	FUNCTIO	IN FUNCT	ION WIDTH	EL	NCTION VALUE	^
KR MI	N	RC SCL	2.43	9 GHz 7 GHz	0.642 d -45.146 d						
1 1 2 1 3 1		f f f	2.43 26.44 4.87	7 GHz 4 GHz	-45.146 d -50.408 d	Bm Bm					
1 1 2 1 3 1	N	f	2.43 26.44 4.87 7.49	7 GHz	-45.146 d	Bm Bm Bm					
1 1 2 1 3 1	2222	f f f	2.43 26.44 4.87 7.49	7 GHz 4 GHz 5 GHz	-45.146 d -50.408 d -55.569 d	Bm Bm Bm					
KE MU 2 1 3 1 4 1	2222	f f f	2.43 26.44 4.87 7.49	7 GHz 4 GHz 5 GHz	-45.146 d -50.408 d -55.569 d	Bm Bm Bm					
1 1 2 1 3 1 4 1 5 1 6 7 8 9 0	2222	f f f	2.43 26.44 4.87 7.49	7 GHz 4 GHz 5 GHz	-45.146 d -50.408 d -55.569 d	Bm Bm Bm					
1 1 2 1 3 1	2222	f f f	2.43 26.44 4.87 7.49	7 GHz 4 GHz 5 GHz	-45.146 d -50.408 d -55.569 d	Bm Bm Bm					

Tx. Spurious NVNT BLE 1M 2442MHz Ant1 Emission

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref





	Т		RF	50 Q AC		SENSE:	INT	ALIGNAUTO		09:25:11A	M Sep 18, 2023
en	ter	Fre	q 13	3.265000000	PNC		ig: Free Run tten: 30 dB	Avg Type Avg Hold	e: Log-Pwr : 10/10	T)	CE 123456 PE MUMUUUU
) dE	3/div			ffset 2.58 dB 20.00 dBm						Mkr1 2.4 0.3	192 GHz 11 dBm
9 1.0											
0.00											
0.0						· · · · · ·					
20.0											-18.67 dBm
30.0											^2
10.0				3	4	0.5			Landa St.	a cine	inner
0.0	1	0.00	ha	ener unations	~ V	- Andrew	montere	with the second second	a budger and all and and	- Alexandre	
0.0	- and	0-100									
0.0											
	t 30 s BV			Hz	I	#VBW 30	00 kHz		Swee	Stop 2 p 2.530 s	26.50 GHz (1001 pts)
_	MODE	TRC		×		Y	FUNCTION	FUNCTION WIDTH	EUN	CTION VALUE	^
1 2 3	NN		f		.492 GHz	0.311 dBm -44.381 dBm					
2	NN		f	4	.953 GHz .442 GHz	-52.619 dBm -55.143 dBm					
3	N		f f		.442 GHZ	-55.705 dBm					
4 5											
5 6 7											
545678											
4 5 6 7 8 9											
3 4 5 6 7 8 9 10											~

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



18.6 BAND EDGE

Condition	Mode	Frequency	Antenna	Max Value	Limit	Verdict
		(MHz)		(dBc)	(dBc)	
NVNT	BLE 1M	2402	Ant1	-58.03	-30	Pass
NVNT	BLE 1M	2480	Ant1	-56.54	-30	Pass

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref

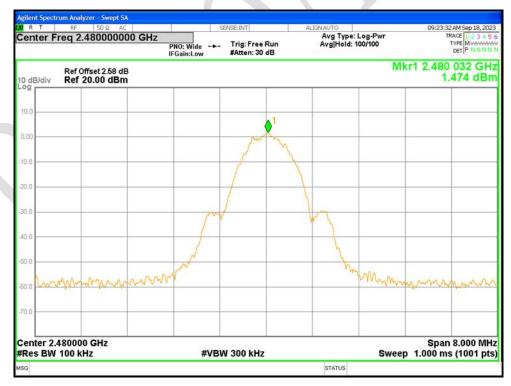




R	Т		RF	50 Q	AC	SENSE:	INT	ALIGNAUTO		09:18:2	8 AM Sep 18, 2023
ent	er	Fre	q 2.3	356000			ig: Free Run tten: 30 dB	Avg Type Avg Hold:	: Log-Pwr 100/100	1	RACE 123456 TYPE MUMMUM DET P NNNN
0 dB	∕div			ffset 2.51 20.00 dB							01 8 GHz 880 dBm
10.0			-								A1-
0.00											X
10.0											1
20.0			-								-17.31 dBm
30.0											
40.0											
50.0			_		04					A3	\wedge^2
60.0	NA.M		North	whiper mes	mananduran	monteneddor	munder Windowson	the manufacture and the second	Ar Armanian	mohuman	and the
70.0	_		-								
			00 GI 00 ki			#VBW 30	00 kHz		Swee	Stop 2 p 9.600 m	.40600 GHz s (1001 pts)
MKR MI		TRC			X	Y		FUNCTION WIDTH		FUNCTION VALUE	^
2 1	N N		f f		2.401 8 GHz 2.400 0 GHz	1.880 dBm -55.463 dBm					
3 1	N N		f		2.390 0 GHz 2.330 8 GHz	-59.241 dBm -55.347 dBm					
5											
4 1 5 7 8 9 10											
9											
10 11											
SG								STATUS			

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission

Band Edge NVNT BLE 1M 2480MHz Ant1 Ref





R	Т		RF 50	Ω AC			SENSE:INT		AL	IGNAUTO		09:23:3	5 AM Sep 18, 2023
en	ter	Fre	eq 2.5260	00000		PNO: Fast ++ FGain:Low		Free Run n: 30 dB		Avg Type Avg Hold	e: Log-Pwr : 100/100		TYPE NNNNN DET PNNNNN
) d	B/div		Ref Offset : Ref 20.00										80 1 GHz 716 dBm
0.0		♦ ¹											
0.0		4										2	-18.53 dBm
0.0													
0.0 0.0	\uparrow		~A ⁴										
0.0	no	4	Oren	worms	maria	ul newspace in the	athorn	any north	gloup	renetheren	Lingung	nayonalityphone	and proper and
	t 2.4		00 GHz 00 kHz			#VE	W 300	kHz			Swe	Stop 2 ep 9.600 m	.57600 GHz s (1001 pts)
R	MODE	TRC	SCL	×		Y Y	1	FUNCTION	FUNCT	ION WIDTH		FUNCTION VALUE	~
1 2 3	NNN	1	f f		2.480 1 GHz 2.483 5 GHz 2.500 0 GHz	-58.113	dBm						
4 5 6	N		f		2.484 8 GHz	-55.079	dBm						
234567890													
10 11													~
G										STATUS			

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



APPENDIX A: PHOTOGRAPHS OF TEST SETUP





APPENDIX B: PHOTOGRAPHS OF EUT

Reference to the test report No. BLA-EMC-202308-A6801

----END OF REPORT----

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