



Spect	rum	*								
Ref Le	vel 5	.00 d8m	i N	lode	Auto Sweep					
1 Max	3		101 102		10. 224 83					
10 dBm-						M	2[1]		23	-58,90 dBr .0343820 GH
o dese	-	-5.00	0 dem			M	1[1]		26	
U dBm-							í.	1 1	20	
-10 dBm	-		-							
			1000							
in dem	E)	(D -20)	200 dBm							
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an des										
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-50 dBm	-		-			2.6				
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Start 1	8.0 G	Hz			90003	2 pts			\$	top 26.5 GHz
spuriou	s Emi	ssions	8							
Ran	ae Lo	w I	Range Up	1	RBW	Freque	ncy	Power Abs		ALimit
1	8.000	GH2	21,000 GHz		100.000 kHz	19.94	685 GHz	-59.94 dBm		-200.00 dB
2	1.000	GHz	24.000 GHz		100.000 kHz	23.03	438 GHz	-58.90 dBm		-200.00 dB
2.	4,000	GHZ	26.500 GHz		100.000 kHz	26.02	414 GHz	-58.47 0	1Bm	-200,00 dB
larker										
Type	Ref	Trc	X-value	أنتتمك	Y-value	Funct	tion	Funct	ion Res	sult
FDX			0	0 Hz	-20.20 dB	m	1100 C			
M1		1	26.024141	GHZ	-58.47 dB	TR .				
4.47		1	23.034382	GHZ	~58.90 dB	m				
M2	_									



802.11n40 (MIMO), HT8 - Chain B, CH7F







Spect	rum	-¥-								
Ref Le	vel 5	.00 d8m	6 M	ode As	uto Sweep					
1 Max	8		102 2.2		10. 12. 10					
10 dBm	-						12[1]		22	-58,26 dBr
0.40%	-	-5.00	0 dêm		-		11[1]		22	2088070 CH
U dBm-							I	1	1	
-10 dBn	n		+ +		-		-	-	-	
-20 dBn	E	D -17.7	760 dBm							
-20 000			9							
-30 dBn	0		-		-		-	-	-	
an den	_									
-Ho Gon										
-50 dBn	n		1 1		N.S.	110	-	-	-	
-60 dBa	_				The second se	1			100	
	ili alu	a state from a	a shad be an a shaded of	all here						State of the second s
FRO BI										
Start 1	8.0 G	Hz			90002	pts			S	top 26.5 GHz
Spuriou	is Em	issions	3							
Ran	ge Lo	w	Range Up		RBW	Freque	ancy	Power A	bs	ALimit
	8.000	GH2	21.000 GHz	10	00.000 kHz	20.4	0665 GHz	-59.97	7 dBm	-200.00 dB
1	1.000	GHz	24.000 GHz	10	00.000 kHz	22.3	1321 GHz	-58.03	5 dBm	-200.00 dB
1 2	4 000	GHZ	26.500 GHz	10	30.000 kHz	25.2	1375 GHz	-59.10) dBm	-200,00 dB
1 2 2	4,000									
1 2 2 Marker	4,000				at the lot of	Fund	tion	Fun	ction Re:	sult
1 2 Marker Type	Ref	Trc	X-value	-	Y-Value					
1 2 Marker Type FDX	Ref	Trc	X-value B.C	Hz	-17.76 dB	m				
1 2 2 Marker Type FDX M1	Ref	Trc 1	X-value 8.0 22.296907	Hz GHz	-17.76 dB -58.05 dB	m m				
1 2 Marker Type FDX M1 M2	Ref	Trc 1	X-value 8.0 22.298807 22.21061	Hz GHz GHZ	-17.76 dB -58.05 dB -58.26 dB	n n n				



802.11n40 (MIMO), HT8 – Chain B, CH9F







Spectru	m ∰.								1
Ref Leve	5.00 d8	m Me	ode A	uto Sweep					
1 Max	<i></i>	141 142							
	1					M2[1]			-58.83 dBr
10 dBm		-			-			22	.4151030 GH
0.40	5.0	mab 00		-		MILI			-50.10 dbs
U dBm						T	1	1	-0040210 00
-10 dBm-	-	-			-	-	-	-	
	1288-0110	and the second second							
-20 dbm	FXD -19	.980 dBm							
-30 dBm-							-		
						1			
-40 dBm-									
-50 dBm-	-	-		4.5.4			-	-	
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spurious t	mission	s			1.000			22 11	
Kange	DO CHP	21.000 CH2	1	KBW 000 kHa	Frequ	Ency Cus	Power A	DS dBm	-200.00.40
21.0	00 GHz	24.000 GHz	1	00.000 kHz	20.	86452 GHz	-58.1	8 dBm	-200.00 dB
24.0	00 GHz	26.500 GHz	10	00.000 kHz	24.	24.30520 GHz +58.92 dBm		-200.00 dB	
Marker	and the second se	THE REAL PROPERTY OF	-	5400 - Sec. H-121		and the second second	1.01412		122000
Type	ef Tec	X-value	1	Y-value	Fu	action	Eun	ction Re	sult
FDX		0.0	Hz	~19.98 d	Bm	ission		ouron no	2011
MI	1	21.864521	GHz	-58.18 d	Bm				
M2	1	22.415103	GHZ	~58.83 d	Bm				
	71				i la com		COLUMN TWO IS NOT	440	20100-0010

802.11n40 (MIMO), HT8 – Chain B, CH10F









Spect	rum	*									(m
Ref Le	vel 5	.00 d8m	i N	lode	Auto Sweep						
• 1 Max	8. 10		102 0.2		10						
in the second							M	2[1]			-58,92 dBr
10 dBm	-	12.000					M	1[1]			-58.85 dBr
0 dBm-		5.00	0.dem							. 23	.7941570 GH
						1			1		
-10 dBm	-		+ +			+			-	1	-
-20 dBm	-										
	-	0.213	950 dBm								
-30 dBr	-		-		-	1			-	-	
-40 dBm	-					-					
						I					
-50 dBm					h	12		M1		1	
-60 dBm	-					*	and the second state	Y	turnet beauty		the second s
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Start 1	8.0 G	Hz			9000	2 pt	s			\$	top 26.5 GHz
Spuriou	s Em	issions	3		24,6900						
Ran	ge Lo	W	Range Up	1	RBW	- 3	Freque	ncy	Power A	bs	ALimit
1	8.000	GH2	21.000 GHz		100,000 kHz		20.43	345 GHz	+60.2	4 dBm	-200.00 dB
2	1.000	GHz	24.000 GHz		100.000 kHz		23.79	1416 GHz	-58.8	5 dBm	-200.00 dB
2	4.000	GHZ	26.500 GHz	-	100.000 kHz		24,36	6020 GHz	-59.2	0 dBm	-200,00 dB
Marker											
Type	Ref	Trc	X-value	2011	Y-value	_	Func	tion	Fur	iction Re	sult
FDX			0	0 Hz	-21.95 d	Bm					
MI		1	23,794157	GHZ	-58.85 d	8m 9m					
PM2		4	22.250800	GH2	-90.95 U	om	_				
		212									and the second sec



802.11n40 (MIMO), HT8 – Chain B, CH11F





Spect	rum	*									1
Ref Le	vel 5	.00 dBn	0 N	lode	Auto Sweep						
1 Max	8. sur		565 105		200	10					7.6
10 dBm							M	2[1]		22	-59.17 dBr .3828040 GH
0 dBm-	-	-5.00	i0 dam			M1[1] -59 23.7640				- 59.07 dBr	
-10 dBn	÷				-	-			-		
-20 dBm	+				_	-			-		_
-30 dBm	+				_	-					_
-40 dBm	-	KD -39.	740 dBm		_	-					
-50 dBm						1.12	_	1.4.4	-		-
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Start 1	8.0 G	Hz			9000	12 pt	5			\$	top 26.5 GHz
Spuriou	s Em	issions	El.								1.0000000000000000000000000000000000000
Ran	ge Lo	w	Range Up	1	RBW	2	Freque	ncy	Power Al	os 🛛	∆Limit
1	3.000	GHz	21,000 GHz		100.000 kHz		19.89	9435 GH2	-59.83	dBm	-200.00 dB
2	1.000	GHz	24.000 GHz		100.000 kHz		23.76	406 GHz	-59.07	dBm	-200.00 d8
2	4,000	GHZ	26,500 GHz		100.000 kHz	_	26.48	3721 GHz	-59.57	dBm	-200.00 de
Marker	5										
Туре	Ref	Trc	X-value	414114	Y-value	_	Func	tion	Fund	ction Re	sult
FDX			0	0 Hz	-39.74 d	Bm	1.1140-0.0				
M1		1	23.764058	GHz	-59.07 d	Bm					
M2	_	1	22,382804	GHZ	-59.17 d	sm					
		20							the lot of the lot of the lot of the	10.04%	and the second second



B.4 Power Spectral Density

Test limits:

FCC part	RSS part	Limits
15.247 (e)	RSS-247 Clause 5.2 (2)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test procedure:

The peak power spectral density level in the fundamental emission was measured using the *Method PKPSD (peak PSD)* according to point 10.2 of KDB 558074 D01 DTS Meas Guidance. This method was used for 802.11b, 802.11g, 802.11n20 an 802.11n40 modes.

For MIMO mode, the *Measure and add 10 log*(N_{ANT}) *dB*, (where N_{ANT} is the number of outputs) technique was used according to the Guidance for Emission Testing of Transmitters with Multiple Outputs in the Same Band 662911 D01 Multiple Transmitter Output v02r01.

With this technique, spectrum measurements are performed at each output of the device, and the quantity $10 \log(N_{ANT})$ dB is added to each spectrum value before comparing to the emission limit. Number of outputs = 2.

The setup below was used to measure the power spectral density. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.





Results tables:

Mode	Rate	Measured Duty Cycle [%]	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
			1	2/12	SISO CHAIN A	-6.37
			I	2412	SISO CHAIN B	-6.47
			7	2442	SISO CHAIN A	-4.58
			7	2442	SISO CHAIN B	-4.53
902 11h	1Mbpc	07.4	11	2462	SISO CHAIN A	-6.11
002.110	TNIDPS	97.4	I.I.	2402	SISO CHAIN B	-5.60
			10	2467	SISO CHAIN A	-10.27
			12	2407	SISO CHAIN B	-9.37
			10	2472	SISO CHAIN A	-16.89
			15	2472	SISO CHAIN B	-16.18
			1	2412	SISO CHAIN A	-7.13
			I	2412	SISO CHAIN B	-6.55
			7	2442	SISO CHAIN A	-4.84
802 11a				2442	SISO CHAIN B	-3.38
	6Mbpp	98.1	11	2462	SISO CHAIN A	-7.08
602.1 Tg	equivio			2402	SISO CHAIN B	-5.97
			12	2467	SISO CHAIN A	-11.86
			12	2407	SISO CHAIN B	-15.01
			12	2472	SISO CHAIN A	-27.16
			10	2472	SISO CHAIN B	-26.61
	НТО		1	2412	SISO CHAIN A	-6.58
		00.7		2412	SISO CHAIN B	-7.24
			7	2442	SISO CHAIN A	-2.94
			/	2442	SISO CHAIN B	-2.52
902 11020			44	2462	SISO CHAIN A	-7.81
002.11112U		90.7	11	2402	SISO CHAIN B	-5.90
			10	2467	SISO CHAIN A	-11.18
			12	2407	SISO CHAIN B	-10.72
			10	2472	SISO CHAIN A	-27.18
			15	2472	SISO CHAIN B	-26.33
			25	2422	SISO CHAIN A	-8.77
			ЭГ	2422	SISO CHAIN B	-6.32
			70	2442	SISO CHAIN A	-6.49
			/ Г	2442	SISO CHAIN B	-5.88
802 11-10	ЦТО	07.4	05	2452	SISO CHAIN A	-6.48
002.111140		97.4	9F	2402	SISO CHAIN B	-7.06
			105	2457	SISO CHAIN A	-10.19
			IUF	240 <i>1</i>	SISO CHAIN B	-10.27
			445	2462	SISO CHAIN A	-26.03
			11F	2462	SISO CHAIN B	-25.41

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Rev. 00

MIMO mode	es		PSD Peak [dBm]				
Mode	Rate	Meas. Duty Cycle [%]	СН	Freq. [MHz]	Antenna	Measured Conducted	MIMO Compensated +10·log(N _{ant})
			1	2412	CHAIN A	-8.62	-5.62
			I	2412	CHAIN B	-8.88	-5.88
			7	2442	CHAIN A	-6.32	-3.32
			'		CHAIN B	-4.66	-1.66
802.11n20	нтя	97.0	11	2462	CHAIN A	-8.31	-5.31
	1110	97.0			CHAIN B	-8.26	-5.26
			12	2467	CHAIN A	-14.47	-11.47
					CHAIN B	-15.61	-12.61
			13	2472	CHAIN A	-30.07	-27.07
			10	2772	CHAIN B	-31.11	-28.11
			3F	2422	CHAIN A	-9.11	-6.11
			51	2422	CHAIN B	-7.80	-4.80
			7F	2442	CHAIN A	-6.59	-3.59
			<i>'</i>	2772	CHAIN B	-6.07	-3.07
802 11n/0	нтя	97.2	QE	2452	CHAIN A	-8.35	-5.35
002.11140	1110	57.2	31	2452	CHAIN B	-8.95	-5.95
			10F	2457	CHAIN A	-11.46	-8.46
			101	2407	CHAIN B	-10.63	-7.63
			115	2462	CHAIN A	-28.14	-25.14
			1 11	2402	CHAIN B	-28.28	-25.28



Results screenshot:

802.11b, 1Mbps





















802.11g, 6Mbps



802.11n20, HT0 (SISO)

802.11n20, HT8 (MIMO)

802.11n40, HT0 (SISO)







802.11n40, HT8 (MIMO)





















B.5 Radiated spurious emission

Standard references:

FCC part	RSS part	Limits												
		Radiated emission §15.205(a), must specified in §15.2	ons which fall in t at also comply v 209(a):	he restricted bar vith the radiated	nds, as defined in d emission limits									
		Freq Range (MHz)	Field Stregth (μV/m)	Field Stregth (dBµV/m)	Meas. Distance (m)									
		0.009-0.490	2400/f(kHz)	-	300									
		0.490-1.705	24000/f(kHz)	-	300									
		1.705-30.0	30	-	30									
		30-88	100	40	3									
		88-216	150	43.5	3									
	RSS-247	216-960	200	46	3									
15.247 (d)	Clause 5.5	Above 960	500	54	3									
		The emission li measurements e the frequency b MHz. Radiated e measurements e For average rad there is also a li function correspondent	mits shown in employing CISPF ands 9-90 kHz. emission limits in employing an ave liated emission r mit specified wh onding to 20 dB	the above table quasi-peak de 110-490 kHz a these three bar rage detector. neasurements a en measuring w above the indica	e are based on tector except for and above 1000 ads are based on bove 1000 MHz. ith peak detector ted values in the									

Test procedure:

The setups below were used to measure the radiated spurious emissions.

Depending of the frequency range and bands being tested, different antennas and filters were used. The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

The radiated spurious emissions were measured on the worst case configuration selected from the chapter *B.2 Maximum Output Power and antenna gain* and using the lowest, middle and highest channels.

Radiated Setup < 1GHz





Radiated Setup 1GHz - 18GHz



Radiated Setup > 18GHz





Test Results:



Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.















































Radiated Spurious – 1 GHz to 18 GHz 802.11g, 6Mbps, Chain B













Radiated Spurious – 1 GHz to 18GHz 802.11n20, HT0, Chain A

















Radiated Spurious – 1 GHz to 18GHz













Radiated Spurious – 1 GHz to 18GHz 802.11n20, HT0, Chain A+B







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	120-																																			
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Radiated Spurious – 1 GHz to 18GHz 802.11n40, HT0, Chain A

















Radiated Spurious – 1 GHz to 18GHz 802.11n40, HT0, Chain B







Rev. 00








Radiated Spurious – 1 GHz to 18GHz 802.11n40, HT0, Chain A+B





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2969.00











Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.





Annex C. Test Results BLE

C.1 6dB & 99% Bandwidth

Test limits:

FCC part	RSS part	Limits
	RSS-247	Systems using digital modulation techniques may operate in the
15.247 (a) (2)	Clause 5.2	902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The
	(1)	minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure:

The setup below was used to measure the 6dB & 99% Bandwidth. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables:

Mode	Channel	Frequency [MHz]	6dB BW [MHz]	99% BW [MHz]
	0	2402	0.66	1.13
BLE	19	2440	0.66	1.13
	39	2480	0.67	1.13



Results screenshot:













C.2 Maximum Output Power and antenna gain

Test limits:

FCC part	RSS part	Limits
15.247 (b) (3)	RSS-247 Clause 5.4 (4)	 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. (4) The conducted output power limit specified in paragraph (b) of
		that do not exceed 6 dBi.

Test procedure:

The Maximum peak conducted output power was measured using the $RBW \ge DTS$ bandwidth method defined in paragraph 9.1.1 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The Maximum conducted average output power was measured using the channel integration method according to Method AVGSA-2, defined in paragraph 9.2.2.4 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power. The declared maximum antenna gain is 3dBi.

The setup below was used to measure the maximum conducted output power. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.





Results tables:

				Peak Power	· [dBm]	
Mode	Meas. Duty Cycle [%]	СН	Frequency [MHz]	Measured Conducted Output Power	EIRP	Peak Output Power [mW]
		0	2402	8.26	11.26	6.70
BLE	630	19	2440	8.86	11.86	7.69
		39	2480	9.15	12.15	8.22

Max Value

Min Value

				Average C	Average Output Power* [dBm]					
Mode	Meas. Duty Cycle [%]	сн	Frequency [MHz]	Maximum Conducted Output Power	Maximum Conducted Output Power Duty cycle Compensated	EIRP	Average Output Power [mW]			
		0	2402	6.22	8.23	11.23	6.65			
BLE	63.0	19	2440	6.82	8.83	11.83	7.64			
		39	2480	7.12	9.13	12.13	8.18			

* Output Power RMS values are shown for indicative purpose only



Results screenshot:













C.3 Out-of-band emissions (conducted)

Test limits:

FCC part	RSS part	Limits									
15.247 (d)	RSS-247 Clause 5.5	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 conducted power limits.									
		Radiated emissic §15.205(a), mus specified in §15.2	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):								
		(MHz)	(uV/m)	(dBuV/m)	(m)						
		0.009-0.490	2400/f(kHz)	-	300						
		0.490-1.705	24000/f(kHz)	-	300						
		1.705-30.0	30	-	30						
		30-88	100	40	3						
	000 047	88-216	150	43.5	3						
15 200	KSS-247	216-960	200	46	3						
15.209	(2)	Above 960	500	54	3						
15.209	(2)	The emission li measurements e the frequency b MHz. Radiated e measurements e For average rad there is also a lin function, corresp table.	mits shown in employing CISPF ands 9-90 kHz, emission limits in mploying an ave iated emission r mit specified wh onding to 20 dB	the above table quasi-peak de 110-490 kHz a these three ban rage detector. neasurements al en measuring wi above the indica	e are based on tector except for and above 1000 ds are based on bove 1000 MHz, ith peak detector ited values in the						

Test procedure:

The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

In case of Band Edge measurements falling in restricted bands, the declared Antenna Gain is also compensated in the graph. The declared maximum antenna gain is 3dBi.

For Band Edge measurements falling in restricted bands, the following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

	§15.209(a)		Converted values				
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)			
Above 960	3	500	54.0	-41.2			

The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Note: these PSD_{Peak} values are shown just as a reference for the compliance of the Out-of-band Measurements. Thus the RBW used for these measurements was 100kHz.

Mode	СН	Frequency [MHz]	PSD Peak [dBm]
	0	2402	8.24
BLE	19	2440	8.75
	39	2480	9.02



Band Edge results Screenshot:





Spurious results Screenshot:

BLE, CH0





Spect	rum	-)#-									-
Ref Le	vel 5	.00 dBr	10	Mode	Auto Sweep						
1 Max	3		182 2.5		10	12					
10 dBm	_						M	2[1]		26	-59,95 dBi 0170500 GH
0 dBm-		-5:00	00 dem					-1-1			3425500 GH
-10 dBm	F.	KD -11	.760 dBm		_	+					
-20 dBm	-		-			+					
on dia											
-30 abr	1										
-40 dBm	+		+ +			+		-		+	
-50 dBr							_				
-Se dbii			M1								M2
-60 dBr	in de	lion A. La	and a second second	haile	1000000000000	S. Luna	-		COLUMN TO DO DO	ALLER DOLL	terre in the land
FNDB	1					-					
Start 1	8.0 G	Hz	_		900	02 pt	s		-	\$	top 26.5 GHz
Spuriou	s Em	issions	5								
Ran	ge Lo	w	Range Up	1	RBW	- 3	Freque	ncy	Power A	bs	ALimit
1	8.000	GHz	21.000 GHz		100.000 kHz		20.34255 GHz		-59.69 dBm		-200.00 dB
2	1.000	GHz	24.000 GHz		100.000 kHz		22.87359 GHz		-60.90 dBm		-200.00 dB
- 2	4.000	GHZ	26.500 GH2		100.000 KH2		26.01706 GHz		-59.95 dBm		-200,00 de
Marker									35777		
Туре	Ref	Trc	X-value	0.44	Y-value		Func	tion	Fun	ction Re	sult
FDX M1		1	20 3426	CH7	-11.70	-18-m					
M2		1	26.01705	GHz	-59.95	dBm					
		11				1		-	In succession in	440	55000/0008
-										-	



BLE, CH19





Spectrum	×								
Ref Level	5.00 dBr	n M	ode A	uto Sweep					
1 Max		100 10							
					-	M1[1]			-60.48 dBn
10 dBm				_	_				25.0246740 GH
		m@b 00		-	-				
D dBm				-	+		_		
-10. dBm									
	XD -11	250 dBm					-		
-20 dBm-				-	+		_		
-30 dBm									
COD GDIN									
-40 dBm-		-			+				
-50 dBm					_		_		
CC GDIII								MI	_
-60 dBm	(aldered)	and the second states	1.41		-	and the second	1.00	the party of the Lord Day	the second s
FXD BIN									
Start 18.0 (Hz			9000	2 pt		_		Stop 26.5 GHz
Spurious En	ission								
Range L	www.	Range Up		RBW		Frequency	1	Power Abs	ΔLimit
18.000	1 GHz	21.000 GHz	1	00.000 kHz		20.31255 G	Hz	-60.46 dBm	-200.00 dB
21,000	GHZ	24.000 GHz	1	00.000 kHz	22,79619 GHz			-60.90 dBm	-200,00 dB
24,000	GHZ	26.500 GHz	1	ed.ddd kHz	_	25.02467 G	HZ	-60.48 dBm	-200.00 dB
Marker	100		-		-		<u>-</u>		
Type Ref	Tre	X-value	0.110	Y-value	-	Function	-	Function F	tesult
M1	1	25.024674	GHZ	-11.25 di	Sm Am		-		
	21	and the second s			-			8 410	35010/0010
	110				- 2				



BLE, CH39







spece	rum	× _									1
Ref Le	vel 5	.00 d8r	n Mo	de Au	ito Sweep						
a mex	-			_	1	-	M	1[1]			-59,93 dBr
to date										20	.3359500 GH
10.050		-5.00	10 dBm								
D dBm-	-				-	-	_		-	-	
10 dBr							_				
-TO UDI	-	XD -10.	980 dBm								
-20 dBr	+		-		-	-		-		-	
-30 dBm											
-00 ubii	1										
-40 dBn	×+				-	-		-	-	-	
-50 dBr	-								-		
00 000			M1								
-60 dBn			The Division of the second	- the	mices in and he	dea	1000	a destauration	in and most		and the state of the state
Ba	-				-	-		-			
FFXD -											
Start 1	8.0 G	Hz	365 255		9000	2 pt	\$	· · · · · ·		5	top 26.5 GH:
Spuriou	s Em	issions			1000 Q						1000
Ran	ge Lo	W	Range Up	10	RBW		Freque	ncy	Power A	bs	ALimit
2	t.000	GHZ	24.000 GHz	10	0.000 kHz		20.33	9595 GHZ	-59.9	s dBm	-200.00 de
2	4.000	GHz	26.500 GHz	10	0.000 kHz		24.35	5770 GHz	-60.5	5 dBm	-200.00 dt
Marker		Service setup	Lange and the second					CIVIE CINERAL DE	00000000		
Type	Ref	Tre	X-value	1	Y-value	1	Func	tion	Fun	ction Re	sult
FDX			0.0	Hz	-10.98 d	Bm					
M1		1	20.33595 G	Hz	-59.93 di	Bm					
		10				1.1		-	COLUMN D	440	55000/0006



C.4 Power Spectral Density

Test limits:

FCC part	RSS part	Limits
15.247 (e)	RSS-247 Clause 5.2 (2)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test procedure:

The maximum peak power spectral density level of the fundamental emission was measured using the method PKPSD, defined in paragraph 10.2 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The setup below was used to measure the power spectral density. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

The declared maximum antenna gain is 3dBi.



Results tables:

Mode	СН	Frequency [MHz]	PSD Peak [dBm]
	0	2402	-7.01
BLE	19	2440	-6.35
	39	2480	-6.06



Results screenshot:









C.5 Radiated spurious emission

Standard references:

FCC part	RSS part	Limits			
	RSS-247 Clause 5.5	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):			
		Freq Range (MHz)	Field Stregth (μV/m)	Field Stregth (dBµV/m)	Meas. Distance (m)
		0.009-0.490	2400/f(kHz)	-	300
15.247 (d)		0.490-1.705	24000/f(kHz)	-	300
		1.705-30.0	30	-	30
		30-88	100	40	3
		88-216	150	43.5	3
		216-960	200	46	3
		Above 960	500	54	3
		The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.			

Test procedure:

The setups below were used to measure the radiated spurious emissions.

Depending of the frequency range and bands being tested, different antennas and filters were used. The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

The radiated spurious emissions were measured on the worst case configuration selected from the chapter *C.1* 6dB & 99% Bandwidth

Test limits:

FCC part	RSS part	Limits
15.247 (a) (2)	RSS-247 Clause 5.2 (1)	Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure:

The setup below was used to measure the 6dB & 99% Bandwidth. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.





Results tables:

Mode	Channel	Frequency [MHz]	6dB BW [MHz]	99% BW [MHz]
BLE	0	2402	0.66	1.13
	19	2440	0.66	1.13
	39	2480	0.67	1.13



Results screenshot:











Maximum Output Power and antenna gain and using the lowest, middle and highest channels.

Radiated Setup < 1GHz





Radiated Setup 1GHz - 18GHz



Radiated Setup > 18GHz





Test Results:



Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.














