

## 6.5 Conducted Emissions at the Band Edge §15.247(d)

### Test Overview and Limit

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. For the following out of band conducted spurious emissions plots at the band edge, the EUT was set at a data rate of 1Mbps for "b" mode, 6 Mbps for "g" mode, 6 Mbps for "a" mode, 6.5/7.2Mbps for 20MHz BW "n" mode, 13.5/15Mbps for 40MHz "n", and 29.3/32.5Mbps for 80MHz "ac" mode as these settings produced the worst-case emissions.

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure (Section 9.1).

#### Test Procedure Used

KDB 558074 v03r01 – Section 11.3

#### **Test Settings**

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW = 100kHz
- 4. VBW = 1MHz
- 5. Detector = Peak
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = max hold
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 6-5. Test Instrument & Measurement Setup

### Test Notes

#### None

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## Antenna-1 Conducted Emissions at the Band Edge





## Plot 6-74. Band Edge Plot (802.11b - Ch. 11)

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Plot 6-75. Band Edge Plot (802.11g- Ch. 1)



Plot 6-76. Band Edge Plot (802.11g – Ch. 11)

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Plot 6-77. Band Edge Plot (802.11n (2.4GHz) - Ch. 1)



Plot 6-78. Band Edge Plot (802.11n (2.4GHz) - Ch. 11)

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Agilent	t Spectrur	n Analyz	zer - Swept	<b>5A</b>								
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Plot 6-79. Band Edge Plot (802.11a - Ch. 149)



Plot 6-80. Band Edge Plot (802.11a - Ch. 165)

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Plot 6-81. Band Edge Plot (20MHz BW 802.11n (5.8GHz) - Ch. 149)



Plot 6-82. Band Edge Plot (20MHz BW 802.11n (5.8GHz) - Ch. 165)

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Plot 6-83. Band Edge Plot (40MHz BW 802.11n (5.8GHz) - Ch. 151)



Plot 6-84. Band Edge Plot (40MHz BW 802.11n (5.8GHz) - Ch. 159)

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Plot 6-85. Band Edge Plot (80MHz BW 802.11ac (5.8GHz) - Ch. 155)



Plot 6-86. Band Edge Plot (80MHz BW 802.11ac (5.8GHz) – Ch. 155)

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## Antenna-2 Conducted Emissions at the Band Edge

Plot 6-87. Band Edge Plot (802.11b - Ch. 1)



## Plot 6-88. Band Edge Plot (802.11b - Ch. 11)

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Plot 6-89. Band Edge Plot (802.11g- Ch. 1)



Plot 6-90. Band Edge Plot (802.11g - Ch. 11)

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Plot 6-91. Band Edge Plot (802.11n (2.4GHz) - Ch. 1)



Plot 6-92. Band Edge Plot (802.11n (2.4GHz) - Ch. 11)

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Plot 6-93. Band Edge Plot (802.11a – Ch. 149)



Plot 6-94. Band Edge Plot (802.11a - Ch. 165)

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Test Report S/N:	Test Dates:	EUT Type:		Dege 76 of 100			
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Plot 6-95. Band Edge Plot (20MHz BW 802.11n (5.8GHz) - Ch. 149)



Plot 6-96. Band Edge Plot (20MHz BW 802.11n (5.8GHz) - Ch. 165)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager			
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Plot 6-97. Band Edge Plot (40MHz BW 802.11n (5.8GHz) - Ch. 151)



Plot 6-98. Band Edge Plot (40MHz BW 802.11n (5.8GHz) - Ch. 159)

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Plot 6-99. Band Edge Plot (80MHz BW 802.11ac (5.8GHz) - Ch. 155)



Plot 6-100. Band Edge Plot (80MHz BW 802.11ac (5.8GHz) - Ch. 155)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
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## 6.6 Conducted Spurious Emissions §15.247(d)

### Test Overview and Limit

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. For the following out of band conducted spurious emissions plots, the EUT was investigated in all available data rates for "b", "g", "a", "n", and "ac" modes. The worst case spurious emissions for the 2.4GHz band were found while transmitting in "b" mode at 1 Mbps and are shown in the plots below. The worst case spurious emissions for the 5.8GHz band were found while transmitting in "a" mode at 6 Mbps and are shown in the plots below.

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the procedure in Section 11.1 of KDB 558074 v03r01.

#### Test Procedure Used

KDB 558074 v03r01 – Section 11.3

### Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 25GHz for 2.4GHz frequencies and 40GHz for 5GHz frequencies (separated into two plots per channel)
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 6-6. Test Instrument & Measurement Setup

	A POTEST	ECC Pt 15 247 802 11a/b/g/n/ac MEASUREMENT REPORT		Reviewed by:
FCC ID: A3LSMT700		(CERTIFICATION)	SAMSONE	Quality Manager
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### Test Notes

- 1. RBW was set to 1MHz rather than 100kHz in order to increase the measurement speed.
- 2. The display line shown in the following plots denotes the limit at 30dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 30dB below the level of the fundamental in a 1MHz bandwidth.
- 3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.

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## **Antenna-1 Conducted Spurious Emissions**







Plot 6-102. Conducted Spurious Plot (802.11b - Ch. 1)

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Plot 6-103. Conducted Spurious Plot (802.11b - Ch. 6)



Plot 6-104. Conducted Spurious Plot (802.11b - Ch. 6)

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Plot 6-105. Conducted Spurious Plot (802.11b - Ch. 11)



Plot 6-106. Conducted Spurious Plot (802.11b - Ch. 11)

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Agilent Spectrum Analyzer - Swept SA						
LXI RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN A	UTO 04:32:43 PM	Apr 25, 2014	Amplitude
Ref Level 5.00 dBm	PNO: Fast 🕠	Trig: Free Run	worg type. Gut	TYP		
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-85.0						
-03.0						More
						1 of 2
Start 30 MHz				Stop 20.	000 GHz	1012
#Res BW 1.0 MHz	#VBW 3	.0 MHz	Sweep	o 34.67 ms (4)	0001 pts)	
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Plot 6-107. Conducted Spurious Plot (802.11a – Ch. 149)



Plot 6-108. Conducted Spurious Plot (802.11a – Ch. 149)

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Agilent	Spectrum	Analyzer - Sw	ept SA								
<b>l,XI</b> RI	L	RF 51	DQ DC	CORREC	SEI	ISE:INT	#Ava Typ	ALIGN AUTO	0 04:34:50 P	MApr 25, 2014	Frequency
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Plot 6-109. Conducted Spurious Plot (802.11a – Ch. 157)



Plot 6-110. Conducted Spurious Plot (802.11a – Ch. 157)

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Agilent Spec	trum Analyzer - Swept SA							
L <mark>XI</mark> RL	RF 50 Q DC	CORREC	SENSE:I		ALIGNAUTO	04:49:47 PM Ap	r 25, 2014	Frequency
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Plot 6-111. Conducted Spurious Plot (802.11a – Ch. 165)



Plot 6-112. Conducted Spurious Plot (802.11a - Ch. 165)

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## **Antenna-2 Conducted Spurious Emissions**







Plot 6-114. Conducted Spurious Plot (802.11b - Ch. 1)

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Agilent	t Spectrun	a Analyze	r - Swept S	5A									
<b>lxi</b> R	L	RF	50 Ω	DC	COR	REC	SE	ENSE:INT		ALIGN AUT	0 05:26:17	M Apr 25, 2014	Frequency
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Plot 6-115. Conducted Spurious Plot (802.11b - Ch. 6)



Plot 6-116. Conducted Spurious Plot (802.11b - Ch. 6)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager	
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Agilent	t Spectrun	n Analyz	er - Swept	SA									
L <mark>XI</mark> R	L	RF	50 Ω	DC	CORREC		SE	NSE:INT		ALIGN AUT	0 05:29:13	PM Apr 25, 2014	Frequency
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					PNO:	Fast ⊆	Atten: 26	6 dB				DET P N N N N N	
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Plot 6-117. Conducted Spurious Plot (802.11b - Ch. 11)



Plot 6-118. Conducted Spurious Plot (802.11b – Ch. 11)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager	
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Plot 6-119. Conducted Spurious Plot (802.11a - Ch. 149)



Plot 6-120. Conducted Spurious Plot (802.11a - Ch. 149)

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Plot 6-121. Conducted Spurious Plot (802.11a - Ch. 157)



Plot 6-122. Conducted Spurious Plot (802.11a – Ch. 157)

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FCC ID: A3LSMT700	TREINTERING LANGENTOFY, INC.	(CERTIFICATION)	SAMSONE	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 02 of 122
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Plot 6-123. Conducted Spurious Plot (802.11a - Ch. 165)



Plot 6-124. Conducted Spurious Plot (802.11a - Ch. 165)

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## 6.7 Radiated Spurious Emission Measurements §15.247(d) §15.205 & §15.209

### **Test Overview and Limit**

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

## All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 6-31 per Section 15.209.

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 6-31. Radiated Limits

## Test Procedures Used

KDB 558074 v03r01 – Section 12.1, 12.7

## Test Settings

## Average Field Strength Measurements per Section 12.2.5.1 of KDB 558074 v03r01

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = power average (RMS)
- 5. Number of measurement points = 1001 (Number of points must be  $\geq 2 \times \text{span/RBW}$ )
- 6. Sweep time = auto
- 7. Trace (RMS) averaging was performed over at least 100 traces

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## Peak Field Strength Measurements per Section 12.2.4 of KDB 558074 v03r01

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

## Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 6-7. Test Instrument & Measurement Setup

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### Test Notes

- The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 v03r01 were not used to evaluate this device for compliance to radiated limits. All radiated spurious emissions levels were measured in a radiated test setup.
- 2. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-10.
- 3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- 4. This unit was tested with its standard battery.
- 5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- 6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

### Sample Calculations

## **Determining Spurious Emissions Levels**

- ο Field Strength Level [dBµV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dBμV/m] Limit [dBμV/m]

## Radiated Band Edge Measurement Offset

• The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:

Offset (dB) = (Antenna Factor + Cable Loss + 10 dB Attenuator) – Preamplifier Gain

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# Antenna-1 Radiated Spurious Emission Measurements §15.247(d) §15.205 & §15.209

802.11b
1 Mbps
3 Meters
2412MHz
01

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	-99.27	Avg	Н	Н	42.16	49.89	53.98	-4.08
4824.00	-92.86	Peak	Н	Н	42.16	56.30	73.98	-17.67
12060.00	-114.89	Avg	Н	Н	51.82	43.93	53.98	-10.05
12060.00	-103.59	Peak	Н	Н	51.82	55.23	73.98	-18.75

## Table 6-32. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11b	
1 Mbps	
3 Meters	
2437MHz	
06	

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	-98.40	Avg	Н	Н	42.37	50.97	53.98	-3.01
4874.00	-93.22	Peak	Н	Н	42.37	56.15	73.98	-17.83
7311.00	-114.84	Avg	Н	Н	43.89	36.04	53.98	-17.94
7311.00	-102.94	Peak	Н	Н	43.89	47.94	73.98	-26.04
12185.00	-115.83	Avg	Н	Н	52.47	43.64	53.98	-10.34
12185.00	-103.52	Peak	Н	Н	52.47	55.95	73.98	-18.03

Table 6-33. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
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Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	-101.78	Avg	Н	Н	41.56	46.78	53.98	-7.20
4924.00	-94.48	Peak	Н	Н	41.76	54.28	73.98	-19.70
7386.00	-113.78	Avg	Н	Н	44.00	37.22	53.98	-16.76
7386.00	-102.31	Peak	Н	Н	44.00	48.69	73.98	-25.29
12310.00	-115.28	Avg	Н	Н	53.56	45.28	53.98	-8.70
12310.00	-102.97	Peak	Н	Н	53.56	57.59	73.98	-16.39

## Table 6-34. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a
6 Mbps
1 & 3 Meters
5745MHz
149

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3830.00	-105.73	Avg	Н	Н	47.18	0.00	48.45	53.98	-5.53
3830.00	-99.85	Peak	Н	Н	47.18	0.00	54.33	73.98	-19.65
11490.00	-109.42	Avg	Н	Н	48.14	0.00	45.72	53.98	-8.26
11490.00	-97.27	Peak	Н	Н	48.14	0.00	57.87	73.98	-16.11
22980.00	-106.38	Avg	V	V	44.46	-9.54	35.54	53.98	-18.44
22980.00	-100.79	Peak	V	V	44.46	-9.54	41.13	73.98	-32.85

## Table 6-35. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT	SAMSUNE	Reviewed by:
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Worst Case Mode:	802.11a			
Worst Case Transfer Rate:	6 Mbps			
Distance of Measurements:	1 & 3 Meters			
Operating Frequency:	5785MHz			
Channel:	157			

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3856.67	-109.09	Avg	н	Н	47.22	0.00	45.12	53.98	-8.86
3856.67	-99.23	Peak	н	Н	47.22	0.00	54.98	73.98	-19.00
11570.00	-110.43	Avg	Н	Н	48.39	0.00	44.96	53.98	-9.02
11570.00	-97.91	Peak	Н	Н	48.39	0.00	57.48	73.98	-16.50

Table 6-36. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 & 3 Meters	
5825MHz	
165	

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3883.35	-105.34	Avg	н	Н	48.42	0.00	50.08	53.98	-3.89
3883.35	-92.31	Peak	н	Н	48.42	0.00	63.11	73.98	-10.86
11650.00	-109.58	Avg	н	Н	48.42	0.00	45.84	53.98	-8.13
11650.00	-97.39	Peak	н	Н	48.42	0.00	58.03	73.98	-15.94

Table 6-37. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager		
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# Antenna-2 Radiated Spurious Emission Measurements §15.247(d) §15.205 & §15.209

802.11b
1 Mbps
3 Meters
2412MHz
01

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	-100.57	Avg	н	Н	42.16	48.59	53.98	-5.38
4824.00	-96.27	Peak	Н	Н	42.16	52.89	73.98	-21.08
12060.00	-115.75	Avg	н	Н	51.82	43.07	53.98	-10.91
12060.00	-103.57	Peak	н	Н	51.82	55.25	73.98	-18.73

## Table 6-38. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11b	
1 Mbps	
3 Meters	
2437MHz	
06	

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	-100.61	Avg	Н	Н	42.37	48.76	53.98	-5.22
4874.00	-97.34	Peak	Н	Н	42.37	52.03	73.98	-21.95
7311.00	-114.34	Avg	Н	Н	43.89	36.54	53.98	-17.44
7311.00	-102.07	Peak	Н	Н	43.89	48.81	73.98	-25.17
12185.00	-115.53	Avg	Н	Н	52.47	43.94	53.98	-10.04
12185.00	-105.52	Peak	Н	Н	52.47	53.95	73.98	-20.03

Table 6-39. Radiated Measurements

				Deviewed by
FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 100 of 100
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Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11
-	

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	-100.67	Avg	н	Н	42.45	48.78	53.98	-5.20
4924.00	-96.54	Peak	н	Н	42.45	52.91	73.98	-21.07
7386.00	-114.02	Avg	н	Н	44.00	36.98	53.98	-17.00
7386.00	-101.91	Peak	н	Н	44.00	49.09	73.98	-24.89
12310.00	-115.44	Avg	н	Н	53.56	45.12	53.98	-8.86
12310.00	-102.41	Peak	н	Н	53.56	58.15	73.98	-15.83

Table 6-40. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11a	
6 Mbps	
1 & 3 Meters	
5745MHz	
149	

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3830.00	-104.36	Avg	Н	Н	47.18	0.00	49.82	53.98	-4.16
3830.00	-97.55	Peak	Н	Н	47.18	0.00	56.63	73.98	-17.35
11490.00	-104.86	Avg	Н	Н	48.14	0.00	50.28	53.98	-3.70
11490.00	-92.28	Peak	Н	Н	48.14	0.00	62.86	73.98	-11.12
22980.00	-107.08	Avg	V	V	44.46	-9.54	34.84	53.98	-19.14
22980.00	-102.06	Peak	V	V	44.46	-9.54	39.86	73.98	-34.12

## Table 6-41. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5785MHz
Channel:	157

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3856.67	-104.78	Avg	Н	Н	47.22	0.00	49.43	53.98	-4.55
3856.67	-97.63	Peak	н	Н	47.22	0.00	56.58	73.98	-17.40
11570.00	-104.67	Avg	Н	Н	48.39	0.00	50.72	53.98	-3.26
11570.00	-91.61	Peak	н	Н	48.39	0.00	63.78	73.98	-10.20

Table 6-42. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3883.35	-105.88	Avg	Н	Н	47.25	0.00	48.37	53.98	-5.61
3883.35	-98.64	Peak	н	н	47.25	0.00	55.61	73.98	-18.37
11650.00	-104.62	Avg	н	Н	48.42	0.00	50.80	53.98	-3.17
11650.00	-89.86	Peak	н	Н	48.42	0.00	65.56	73.98	-8.41

Table 6-43. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
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## MIMO Radiated Spurious Emission Measurements §15.247(d) §15.205 & §15.209

802.11n
MCS8
3 Meters
2412MHz
01

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	-109.76	Avg	Н	Н	42.16	39.40	53.98	-14.57
4824.00	-97.59	Peak	н	Н	42.16	51.57	73.98	-22.40
12060.00	-114.32	Avg	н	Н	51.82	44.50	53.98	-9.48
12060.00	-101.33	Peak	Н	Н	51.82	57.49	73.98	-16.49

## Table 6-44. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11n	
MCS8	
3 Meters	
2437MHz	
06	

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	-111.39	Avg	Н	Н	42.37	37.98	53.98	-16.00
4874.00	-99.05	Peak	Н	Н	42.37	50.32	73.98	-23.66
7311.00	-114.74	Avg	Н	Н	43.89	36.14	53.98	-17.84
7311.00	-102.30	Peak	Н	Н	43.89	48.58	73.98	-25.40
12185.00	-115.94	Avg	н	Н	52.47	43.53	53.98	-10.45
12185.00	-103.62	Peak	Н	Н	52.47	55.85	73.98	-18.13

Table 6-45. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager	
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Worst Case Mode:	802.11n
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	2462MHz
Channel:	11

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	-110.35	Avg	н	Н	42.45	39.10	53.98	-14.88
4924.00	-98.38	Peak	н	Н	42.45	51.07	73.98	-22.91
7386.00	-114.08	Avg	н	Н	44.00	36.92	53.98	-17.06
7386.00	-102.28	Peak	н	Н	44.00	48.72	73.98	-25.26
12310.00	-115.45	Avg	н	Н	53.56	45.11	53.98	-8.87
12310.00	-103.46	Peak	н	Н	53.56	57.10	73.98	-16.88

Table 6-46. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11n
MCS8
1 & 3 Meters
5745MHz
149

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correctio n Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3830.00	-105.27	Avg	H	Н	47.18	0.00	48.91	53.98	-5.07
3830.00	-99.73	Peak	Н	Н	47.18	0.00	54.45	73.98	-19.53
11490.00	-116.84	Avg	Н	Н	48.14	0.00	38.30	53.98	-15.68
11490.00	-104.95	Peak	н	Н	48.14	0.00	50.19	73.98	-23.79
22980.00	-103.60	Avg	V	V	44.46	-9.54	38.32	53.98	-15.66
22980.00	-100.11	Peak	V	V	44.46	-9.54	41.81	73.98	-32.17

Table 6-47. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
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802.11n
MCS8
1 & 3 Meters
5785MHz
157

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correctio n Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3856.67	-105.99	Avg	Н	Н	47.22	0.00	48.22	53.98	-5.76
3856.67	-99.56	Peak	Н	Н	47.22	0.00	54.65	73.98	-19.33
11570.00	-116.83	Avg	н	Н	48.39	0.00	38.56	53.98	-15.42
11570.00	-104.38	Peak	Н	Н	48.39	0.00	51.01	73.98	-22.97

Table 6-48. Radiated Measurements

Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel:

802.11n
MCS8
1 & 3 Meters
5825MHz
165

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correctio n Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
3883.35	-106.06	Avg	Н	Н	47.25	0.00	48.19	53.98	-5.79
3883.35	-99.83	Peak	н	н	47.25	0.00	54.42	73.98	-19.56
11650.00	-116.37	Avg	Н	Н	48.42	0.00	39.05	53.98	-14.92
11650.00	-103.95	Peak	Н	Н	48.42	0.00	51.47	73.98	-22.50

Table 6-49. Radiated Measurements

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 105 of 100
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The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.



Date: 7.MAY.2014 21:21:58

#### Plot 6-125. Radiated Restricted Lower Band Edge Measurement (Average)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 106 of 100
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Date: 18.APR.2014 16:09:42

## Plot 6-126. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSONG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 107 of 100
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Date: 7.MAY.2014 21:41:42

### Plot 6-127. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 109 of 100
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Date: 7.MAY.2014 21:42:31

## Plot 6-128. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 100 of 100
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# 6.9 Antenna-2 Radiated Restricted Band Edge Measurements §15.205 §15.209

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.



Date: 18.APR.2014 16:20:35



FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 110 of 122
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Date: 18.APR.2014 16:21:05

## Plot 6-130. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 111 of 100
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Date: 18.APR.2014 16:25:15

### Plot 6-131. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 112 of 122
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Date: 7.MAY.2014 21:47:52

## Plot 6-132. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 112 of 100
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The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.



Date: 18.APR.2014 16:34:48



FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 114 of 100
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Date: 18.APR.2014 16:35:31

## Plot 6-134. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSONG	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 115 of 100
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Date: 18.APR.2014 16:30:26

### Plot 6-135. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 116 of 100
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Date: 7.MAY.2014 21:51:48

## Plot 6-136. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 117 of 100
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#### Line-Conducted Test Data 6.11 §15.207



FCC Part 15 Class B Voltage on Mains QP.LimitLine Final Result 1-QPK FCC Part 15 Class B Voltage on Mains AV.LimitLine Final Result 2-AVG Preview Result 1-PK+

Plot 6-137.	Line	Conducted	Plot with	802.11b	(L1)	)
-------------	------	-----------	-----------	---------	------	---

Frequency	Line	Corr.	QuasiPeak	Limit	Margin	Average	Limit	Margin
MHz	Line	dB	dBµV	dBµV	dB	dBµV	dBµV	dB
0.150	L1	0.2	49.30	66.00	16.70	31.50	56.00	24.50
0.283	L1	0.1	42.80	60.70	17.90	26.10	50.70	24.60
0.438	L1	0.1	38.80	57.10	18.30	18.70	47.10	28.40
0.870	L1	0.1	33.30	56.00	22.70	17.60	46.00	28.40
0.985	L1	0.1	28.60	56.00	27.40	12.40	46.00	33.60
1.435	L1	0.1	27.50	56.00	28.50	12.70	46.00	33.30
		Table 6-5	0. Line Cor	nducted Da	ata with 80	2.11b (L1)	-	

Notes:

- 1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11b mode using 1Mbps on Channel 6. The emissions found were not affected by the choice of channel used during testing.
- 2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
- 3. Factor (dB) = Cable loss (dB) + LISN insertion factor (dB)
- 4. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Factor (dB)
- 5. Margin (dB) = QP/AV Limit (dB $\mu$ V) QP/AV Level (dB $\mu$ V)
- 6. Traces shown in plot are made using a peak detector.
- 7. Deviations to the Specifications: None.

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNE	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 119 of 100
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## Line-Conducted Test Data §15.207



FCC Part 15 Class B Voltage on Mains QP.LimitLine FCC Part 15 Class B Voltage on Mains AV.LimitLine Preview Result 1-PK+ Final Result 1-QPK Final Result 2-AVG

Plot 6-138.	Line	Conducted	Plot with	802.11b	(N)
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Frequency	Line	Corr.	QuasiPeak	Limit	Margin	Average	Limit	Margin
MHz	Line	dB	dBµV	dBµV	dB	dBµV	dBµV	dB
0.886	Ν	0.1	38.80	56.00	17.20	17.40	46.00	28.60
1.010	Ν	0.1	33.40	56.00	22.60	16.60	46.00	29.40
1.327	Ν	0.1	34.60	56.00	21.40	13.90	46.00	32.10
1.412	Ν	0.1	35.00	56.00	21.00	17.00	46.00	29.00
2.031	Ν	0.2	33.30	56.00	22.70	15.50	46.00	30.50
2.063	N	0.2	31.90	56.00	24.10	14.10	46.00	31.90
p		Table 6-5	1. Line Co	nducted D	ata with 80	02.11b (N)		-

Notes:

- 1.All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11b mode using 1Mbps on Channel 6. The emissions found were not affected by the choice of channel used during testing.
- 2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
- 3.Factor (dB) = Cable loss (dB) + LISN insertion factor (dB)
- 4.QP/AV Level (dB $\mu$ V) = QP/AV Analyzer/Receiver Level (dB $\mu$ V) + Factor (dB)
- 5. Margin (dB) = QP/AV Limit (dB $\mu$ V) QP/AV Level (dB $\mu$ V)
- 6. Traces shown in plot are made using a peak detector.
- 7. Deviations to the Specifications: None.

FCC ID: A3LSM1700		(CERTIFICATION)	SAMSONC	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 110 of 100
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## **Line-Conducted Test Data** §15.207



FCC Part 15 Class B Voltage on Mains QP.LimitLine Final Result 1-QPK FCC Part 15 Class B Voltage on Mains AV.LimitLine Final Result 2-AVG Preview Result 1-PK+

Plot 6-139. Li	ne Conducted	l Plot with	802.11a	(L1)
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Frequency	Line	Corr.	QuasiPeak	Limit	Margin	Average	Limit	Margin
MHz	Line	dB	dBµV	dBµV	dB	dBµV	dBµV	dB
0.697	L1	0.1	32.40	56.00	23.60	16.70	46.00	29.30
0.870	L1	0.1	30.80	56.00	25.20	13.30	46.00	32.70
1.100	L1	0.1	28.40	56.00	27.60	12.60	46.00	33.40
1.397	L1	0.1	21.70	56.00	34.30	7.40	46.00	38.60
1.725	L1	0.1	24.20	56.00	31.80	9.80	46.00	36.20
4.927	L1	0.2	22.60	56.00	33.40	11.30	46.00	34.70
	-	Table 6-5	2. Line Cor	nducted Da	ata with 80	2.11a (L1)	-	-

Notes:

1.All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 157. The emissions found were not affected by the choice of channel used during testing.

2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.

3.Factor (dB) = Cable loss (dB) + LISN insertion factor (dB)

4.QP/AV Level (dB $\mu$ V) = QP/AV Analyzer/Receiver Level (dB $\mu$ V) + Factor (dB)

5.Margin (dB) = QP/AV Limit (dB $\mu$ V) – QP/AV Level (dB $\mu$ V)

6.Traces shown in plot are made using a peak detector.

7. Deviations to the Specifications: None.

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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## Line-Conducted Test Data §15.207



FCC Part 15 Class B Voltage on Mains QP.LimitLine FCC Part 15 Class B Voltage on Mains AV.LimitLine Preview Result 1-PK+

Plot 6-140.	Line	Conducted	Plot with	802.11a	(N)
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Frequency	Line	Corr.	QuasiPeak	Limit	Margin	Average	Limit	Margin
MHz		dB	dBµV	dBµV	dB	dBµV	dBµV	dB
0.688	Ν	0.1	35.60	56.00	20.40	16.50	46.00	29.50
0.870	Ν	0.1	39.70	56.00	16.30	21.30	46.00	24.70
1.016	Ν	0.1	33.00	56.00	23.00	15.80	46.00	30.20
1.183	Ν	0.1	26.80	56.00	29.20	8.80	46.00	37.20
1.325	Ν	0.1	33.20	56.00	22.80	12.70	46.00	33.30
1.471	Ν	0.1	34.50	56.00	21.50	13.80	46.00	32.20
Table 6-53. Line Conducted Data with 802.11a (N)								

Notes:

- 1.All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 157. The emissions found were not affected by the choice of channel used during testing.
- 2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
- 3.Factor (dB) = Cable loss (dB) + LISN insertion factor (dB)
- 4.QP/AV Level (dB $\mu$ V) = QP/AV Analyzer/Receiver Level (dB $\mu$ V) + Factor (dB)
- 5. Margin (dB) = QP/AV Limit (dB $\mu$ V) QP/AV Level (dB $\mu$ V)
- 6. Traces shown in plot are made using a peak detector.
- 7. Deviations to the Specifications: None.

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSONG	Reviewed by: Quality Manager
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#### CONCLUSION 7.0

The data collected relate only the item(s) tested and show that the Samsung Portable Tablet FCC ID: A3LSMT700 is in compliance with Part 15C of the FCC Rules.

FCC ID: A3LSMT700		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSONE	Reviewed by: Quality Manager	
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