

7.5 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, 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, and 6.5/7.2Mbps for "n" 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 7.4).

Test Procedure Used

KDB 558074 D01 v03r05 - 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 x 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 7-4. Test Instrument & Measurement Setup

Test Notes

None

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Antenna-1 Conducted Emissions at the Band Edge





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Plot 7-100. Band Edge Plot (802.11g - Ch. 11)

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Plot 7-101. Band Edge Plot (802.11n (2.4GHz) - Ch. 1)



Plot 7-102. Band Edge Plot (802.11n (2.4GHz) - Ch. 11)

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Plot 7-103. Band Edge Plot (40MHz 802.11n/ac - Ch. 3)



Plot 7-104. Band Edge Plot (40MHz 802.11n/ac - Ch. 10)

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Antenna-2 Conducted Emissions at the Band Edge





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Plot 7-107. Band Edge Plot (802.11g- Ch. 1)



Plot 7-108. Band Edge Plot (802.11g - Ch. 11)

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Plot 7-109. Band Edge Plot (802.11n (2.4GHz) - Ch. 1)



Plot 7-110. Band Edge Plot (802.11n (2.4GHz) - Ch. 11)

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Plot 7-111. Band Edge Plot (40MHz 802.11n/ac - Ch. 3)





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Antenna-3 Conducted Emissions at the Band Edge





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Plot 7-116. Band Edge Plot (802.11g - Ch. 11)

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Plot 7-117. Band Edge Plot (802.11n (2.4GHz) - Ch. 1)



Plot 7-118. Band Edge Plot (802.11n (2.4GHz) – Ch. 11)

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Plot 7-119. Band Edge Plot (40MHz 802.11n/ac - Ch. 3)



Plot 7-120. Band Edge Plot (40MHz 802.11n/ac - Ch. 10)

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Antenna-4 Conducted Emissions at the Band Edge





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Plot 7-124. Band Edge Plot (802.11g - Ch. 11)

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Plot 7-125. Band Edge Plot (802.11n (2.4GHz) - Ch. 1)



Plot 7-126. Band Edge Plot (802.11n (2.4GHz) – Ch. 11)

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Plot 7-127. Band Edge Plot (40MHz 802.11n/ac - Ch. 3)



Plot 7-128. Band Edge Plot (40MHz 802.11n/ac - Ch. 10)

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7.6 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, 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", and "n" 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 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 D01 v03r05.

Test Procedure Used

KDB 558074 D01 v03r05 – Section 11.3 KDB 662911 D01 v02r01 – Section E)3)b)

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 25GHz (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 7-5. Test Instrument & Measurement Setup

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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.
- 4. Conducted spurious emissions are only shown for 20MHz bandwidth channels since they were determined to be the worst case.
- 5. The conducted spurious emissions were measured to relative limits. Therefore, in accordance with KDB 662911 D01 v02r01 Section E)3)b), it was unnecessary to show compliance through the summation of test results of the individual outputs.

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Antenna-1 Conducted Spurious Emission (20MHz BW)





Plot 7-130. Conducted Spurious Plot (802.11b - Ch. 1)

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Plot 7-132. Conducted Spurious Plot (802.11b – Ch. 6)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-133. Conducted Spurious Plot (802.11b - Ch. 11)



Plot 7-134. Conducted Spurious Plot (802.11b – Ch. 11)

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Antenna-2 Conducted Spurious Emission (20MHz BW)





Plot 7-136. Conducted Spurious Plot (802.11b - Ch. 1)

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Plot 7-138. Conducted Spurious Plot (802.11b – Ch. 6)

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Plot 7-139. Conducted Spurious Plot (802.11b - Ch. 11)



Plot 7-140. Conducted Spurious Plot (802.11b - Ch. 11)

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Antenna-3 Conducted Spurious Emission (20MHz BW)





Plot 7-142. Conducted Spurious Plot (802.11b - Ch. 1)

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														0 Hz
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													Log	Lin
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Plot 7-144. Conducted Spurious Plot (802.11b – Ch. 6)

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🔤 Keysi	ight Spect	rum Analyzer	- Swept SA	4									
LXI RL		RF 5	50Ω A0	COF	RREC	SEI	NSE:INT	#Avg Tvp	ALIGN AUTO	0 01:14:05 P	M Dec 05, 2016	F	requency
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-4.50											DL1 -17.86 dBm	3	Start Freq 0.000000 MHz
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MSG									STA	TUS			

Plot 7-145. Conducted Spurious Plot (802.11b - Ch. 11)



Plot 7-146. Conducted Spurious Plot (802.11b – Ch. 11)

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Antenna-4 Conducted Spurious Emission (20MHz BW)





Plot 7-148. Conducted Spurious Plot (802.11b - Ch. 1)

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🔤 Keysig	ght Spectrum Analy	/zer - Swept S	A								
L <mark>XI</mark> RL	RF	50 Ω A	IC COI	RREC	SEN	NSE:INT	#Ava Tva	ALIGN AUT	0 01:37:52 P	MDec 05, 2016	Frequency
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10 dB/c	Ref Off div Ref 1	set 0.5 dB 5.50 dB	3 m						Mkr1 2.66 -38.	6 1 GHz 78 dBm	Auto Fulk
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4.50											5.01500000 GH.
-4.50											Start Free 30 000000 MH
-14.5										DL1 -17.88 dBm	
-24.5											Stop Free 10.000000000 GH:
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MSG								STA	TUS		





Plot 7-150. Conducted Spurious Plot (802.11b – Ch. 6)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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🔤 Ke	ysight Spe	ctrum Analyzer	- Swept SA										
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445												3	0.000000 MHz
-14.5											DL1 -18.04 dBm		
-24.5													
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													Freg Offset
-64.5													0 Hz
-74.5													
													ocale Type
Star	t 30 N	IHz								Stop 10	.000 GHz	Log	Lin
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MSG									STA	TUS			

Plot 7-151. Conducted Spurious Plot (802.11b - Ch. 11)



Plot 7-152. Conducted Spurious Plot (802.11b – Ch. 11)

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7.7 Radiated Spurious Emission Measurements – Above 1 GHz §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, 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 7-25 per Section 15.209.

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-25. Radiated Limits

Test Procedures Used

KDB 558074 D01 v03r05 - Section 12.1, 12.2.7

Test Settings

Average Field Strength Measurements per Section 12.2.5.1 of KDB 558074 D01 v03r05

- 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

Peak Field Strength Measurements per Section 12.2.4 of KDB 558074 D01 v03r05

- 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

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Test Setup

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



Figure 7-6. Test Instrument & Measurement Setup

Test Notes

- The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 D01 v03r05 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 7-25.
- 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.
- 7. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions

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produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.

- 8. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.
- 9. Radiated spurious emissions are only shown for 20MHz bandwidth channels since they were determined to be the worst case.
- 10. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 11. Emission at 1.7GHz, within 20dB of the limit was investigated, and does not originate from the EUT.

Sample Calculations

Determining Spurious Emissions Levels

- 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 7.7 was calculated using the formula:

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

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7.7.1 Antenna-1 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209







Plot 7-154. Radiated Spurious Plot above 1GHz (802.11b – Ch. 1, Ant. Pol. V)

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Plot 7-156. Radiated Spurious Plot above 1GHz (802.11b – Ch. 6, Ant. Pol. V)

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Plot 7-158. Radiated Spurious Plot above 1GHz (802.11b – Ch. 11, Ant. Pol. V)

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Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz) §15.209





MultiView 🖽 Sp	pectrum					
Ref Level 100.00 d = Att	BµV 0 dB SWT 34 ms ≑	RBW 1 MHz VBW 3 MHz Mode Aut	o Sweep			
1 Frequency Sweep						1Pk Max
Limit Check		PASS				
LineHIGH FREQ	OTUA Ç	PASS				
90 dBµV					 	
80 dBµV						
HIGH FREQ AUTO						
70 dbµv						
60 dB1N						
50 dBuV						and there are all all and
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				and the second second		
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30 dBµV						
20 dBub/						
to supr						
10 dBµV						
18.0 GHz		20001 pts		850.0 MHz/		26.5 GHz
					44	07.02 2012

13:45:40 07.02.2017

Plot 7-160. Radiated Spurious Plot above 18GHz (Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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Antenna-1 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	н	122	238	-66.38	0.55	41.17	53.98	-12.81
4824.00	Peak	н	122	238	-56.64	0.55	50.91	73.98	-23.07
12060.00	Avg	н	-	-	-71.15	14.41	50.26	53.98	-3.72
12060.00	Peak	н	-	-	-58.47	14.41	62.94	73.98	-11.04

Table 7-26. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	н	184	228	-64.87	0.75	42.88	53.98	-11.10
4874.00	Peak	Н	184	228	-55.88	0.75	51.87	73.98	-22.11
7311.00	Avg	Н	-	-	-69.45	9.57	47.12	53.98	-6.86
7311.00	Peak	н	-	-	-57.24	9.57	59.33	73.98	-14.65
12185.00	Avg	н	-	-	-72.27	15.57	50.30	53.98	-3.68
12185.00	Peak	н	-	-	-57.21	15.57	65.36	73.98	-8.62

Table 7-27. Radiated Measurements

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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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	Avg	н	110	220	-65.55	0.96	42.41	53.98	-11.57
4924.00	Peak	н	110	220	-56.53	0.96	51.43	73.98	-22.55
7386.00	Avg	н	-	-	-68.97	10.35	48.38	53.98	-5.60
7386.00	Peak	н	-	-	-57.45	10.35	59.90	73.98	-14.08
12310.00	Avg	Н	-	-	-72.02	15.20	50.18	53.98	-3.80
12310.00	Peak	Н	-	-	-57.22	15.20	64.98	73.98	-9.00

 Table 7-28. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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7.7.2 Antenna-2 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209







Plot 7-162. Radiated Spurious Plot above 1GHz (802.11b – Ch. 1, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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Plot 7-164. Radiated Spurious Plot above 1GHz (802.11b – Ch. 6, Ant. Pol. V)

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Plot 7-165. Radiated Spurious Plot above 1GHz (802.11b - Ch. 11, Ant. Pol. H)



Plot 7-166. Radiated Spurious Plot above 1GHz (802.11b – Ch. 11, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz) §15.209





MultiView 🕀	Spectrum								v
Ref Level 100.00	dBµV 0 dB SWT	= RBW 34 ms = VBW	1 MHz 3 MHz Mode /	Auto Sweep					
1 Frequency Swee	2p								1Pk Max
Limit Check			PAS	5					
LineHIGH FRI	EQ AUTO		PAS	8					
90 dBµV									
80 dBµV									
HIGH FREQ AUTO									
70 dBµV									
60 dBµV-									
50 dB/4/							li.		a state and a local state of the
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30 dBµV									
20 49:44									
en meler									
10 dBµV							-		
18.0 GHz			20001 et		05	0.0 MHz/			26.5.04-
10.0 012			20001 pc		0.0	0.0 MHZ/			20.3 GHZ
								100 C	

13:52:39 07.02.2017



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Antenna-2 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	н	110	257	-63.26	0.55	44.29	53.98	-9.69
4824.00	Peak	н	110	257	-55.54	0.55	52.01	73.98	-21.97
12060.00	Avg	н	-	-	-70.98	14.41	50.43	53.98	-3.55
12060.00	Peak	н	-	-	-58.19	14.41	63.22	73.98	-10.76

Table 7-29. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	Н	130	267	-65.03	0.75	42.72	53.98	-11.26
4874.00	Peak	н	130	267	-55.45	0.75	52.30	73.98	-21.68
7311.00	Avg	Н	-	-	-68.94	9.57	47.63	53.98	-6.35
7311.00	Peak	н	-	-	-57.95	9.57	58.62	73.98	-15.36
12185.00	Avg	н	-	-	-71.72	15.57	50.85	53.98	-3.13
12185.00	Peak	н	-	-	-57.09	15.57	65.48	73.98	-8.50

 Table 7-30. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 121 of 106
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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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	Avg	Н	124	256	-66.98	0.96	40.98	53.98	-13.00
4924.00	Peak	н	124	256	-58.01	0.96	49.95	73.98	-24.03
7386.00	Avg	н	-	-	-71.93	10.35	45.42	53.98	-8.56
7386.00	Peak	н	-	-	-60.46	10.35	56.89	73.98	-17.09
12310.00	Avg	Н	-	-	-72.85	15.20	49.35	53.98	-4.63
12310.00	Peak	Н	-	-	-60.69	15.20	61.51	73.98	-12.47

Table 7-31. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 122 of 106
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7.7.3 Antenna-3 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209







Plot 7-170. Radiated Spurious Plot above 1GHz (802.11b – Ch. 1, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 122 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 123 01 190
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Plot 7-172. Radiated Spurious Plot above 1GHz (802.11b – Ch. 6, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 124 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 124 01 190
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Plot 7-174. Radiated Spurious Plot above 1GHz (802.11b – Ch. 11, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 125 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 125 01 196
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Antenna-3 Radiated Spurious Emissions Measurements (Above 18GHz) §15.209



Plot 7-175. Radiated Spurious Plot above 18GHz (Pol. H)

MultiView	Spectrum								
Ref Level 10 Att TDF	0.00 dBµV 0 dB SW1	= RBW 34 ms = VBW	1 MHz 3 MHz Mode A	Auto Sweep					
1 Frequency S	weep								IPk Max
Limit Che	ck		PAS	5					
LineHIGH	FREQ AUTO		PASS	8. C					
DO dBubb									
90 0000									1
984211 104704									
B0 dBµV									
HIGH FRED ALTO		-			-		-		
70 dBµV						-			-
60 dBuV-									
							1		and the second by
SU depo-	Las Anderstand	State of the Astron	ing. the later and	the late of the late of	Series and the held law	and house and the	and support the first		
	As and the state of the state o	and the second se				a vision of the later of the later			
40 dBµV									
20 48-44									
30 0600									
2312003									
20 dBµV									-
10 dBµV		<u> </u>							
18.0 GHz			20001 pts	5	85	0.0 MHz/			26.5 GHz
	Л						1949 - 1949 - 1948 - 1948 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 - 1949 -	44	and an

14:00:21 07.02.2017

Plot 7-176. Radiated Spurious Plot above 18GHz (Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 126 of 106
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Antenna-3 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	Н	195	342	-56.78	0.55	50.77	53.98	-3.21
4824.00	Peak	н	195	342	-47.90	0.55	59.65	73.98	-14.33
12060.00	Avg	Н	-	-	-72.71	14.41	48.70	53.98	-5.28
12060.00	Peak	н	-	-	-57.85	14.41	63.56	73.98	-10.42

Table 7-32. Radiated Measurements

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

1 Mbps
3 Meters
2437MHz
06

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	Н	115	208	-57.63	0.75	50.12	53.98	-3.86
4874.00	Peak	Н	115	208	-51.53	0.75	56.22	73.98	-17.76
7311.00	Avg	Н	-	-	-71.45	9.57	45.12	53.98	-8.86
7311.00	Peak	Н	-	-	-60.60	9.57	55.97	73.98	-18.01
12185.00	Avg	Н	-	-	-71.59	15.57	50.98	53.98	-3.00
12185.00	Peak	Н	-	-	-59.64	15.57	62.93	73.98	-11.05

Table 7-33. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 127 of 106
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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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	Avg	н	227	323	-67.05	0.96	40.91	53.98	-13.07
4924.00	Peak	Н	227	323	-58.29	0.96	49.67	73.98	-24.31
7386.00	Avg	Н	-	-	-71.34	10.35	46.01	53.98	-7.97
7386.00	Peak	Н	-	-	-59.00	10.35	58.35	73.98	-15.63
12310.00	Avg	Н	-	-	-71.37	15.20	50.83	53.98	-3.15
12310.00	Peak	Н	-	-	-60.44	15.20	61.76	73.98	-12.22

Table 7-34. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 129 of 106
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7.7.4 Antenna-4 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209







Plot 7-178. Radiated Spurious Plot above 1GHz (802.11b – Ch. 1, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 120 of 106
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Plot 7-180. Radiated Spurious Plot above 1GHz (802.11b – Ch. 6, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 120 of 106
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Plot 7-181. Radiated Spurious Plot above 1GHz (802.11b - Ch. 11, Ant. Pol. H)



Plot 7-182. Radiated Spurious Plot above 1GHz (802.11b – Ch. 11, Ant. Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 121 of 106
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Antenna-4 Radiated Spurious Emissions Measurements (Above 18GHz) §15.209





MultiView	Spectrum								v
Ref Level 10 Att TDF	Vu8b 00.0 TWB 8b 0	= RBW 34 ms ≠ VBW	1 MHz 3 MHz Mode /	Auto Sweep					
1 Frequency S	weep								1Pk Max
Limit Che	ck		PAS	i					
LineHIGH	FREQ AUTO		PAS						
90 dBµV		~							
80 dBµV									
HIGH FREQ AUTO						-			
70 00µV									
60 dBµV									-
50 dBuV						and the second sec		and the state of the	and the second date
A state of the sta		A STATE OF THE OWNER OF THE OWNER OF	the stands in the factor		A STATE OF THE OWNER	A CONTRACTOR OF THE OWNER	and the second second	and a grant of the state of the	
40 dBµV									
30 dBµV									
20 dBµV									
10 d8t/V-									
18.0 GHz			20001 pts		85	0.0 MHz/			26.5 GHz
1	JI.						1	4,4	07.02.2017

14:08:42 07.02.2017



FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 122 of 106
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Antenna-4 Radiated Spurious Emission Measurements (20MHz BW) §15.247(d) §15.205 & §15.209

Worst Case Mode:	802.11b
Worst Case Transfer Rate:	1 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	2412MHz
Channel:	01

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4824.00	Avg	н	110	257	-63.26	0.55	44.29	53.98	-9.69
4824.00	Peak	н	110	257	-55.54	0.55	52.01	73.98	-21.97
12060.00	Avg	н	-	-	-70.98	14.41	50.43	53.98	-3.55
12060.00	Peak	н	-	-	-58.19	14.41	63.22	73.98	-10.76

Table 7-35. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4874.00	Avg	н	130	267	-65.03	0.75	42.72	53.98	-11.26
4874.00	Peak	Н	130	267	-55.45	0.75	52.30	73.98	-21.68
7311.00	Avg	н	-	-	-68.94	9.57	47.63	53.98	-6.35
7311.00	Peak	Н	-	-	-57.95	9.57	58.62	73.98	-15.36
12185.00	Avg	н	-	-	-71.72	15.57	50.85	53.98	-3.13
12185.00	Peak	н	-	-	-57.09	15.57	65.48	73.98	-8.50

 Table 7-36. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 122 of 106
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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]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4924.00	Avg	н	124	256	-66.98	0.96	40.98	53.98	-13.00
4924.00	Peak	н	124	256	-58.01	0.96	49.95	73.98	-24.03
7386.00	Avg	н	-	-	-71.93	10.35	45.42	53.98	-8.56
7386.00	Peak	н	-	-	-60.46	10.35	56.89	73.98	-17.09
12310.00	Avg	н	-	-	-72.85	15.20	49.35	53.98	-4.63
12310.00	Peak	н	-	-	-60.69	15.20	61.51	73.98	-12.47

 Table 7-37. Radiated Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 124 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 134 01 190
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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.

	Worst C	rst Case Mode:				802.110	9			-			
	Worst C	Case Tra	nsfer	Rate:	_	6 Mbps				-			
	Distanc	e of Mea	asurer	nents:	_	3 Meters				_			
	Operati	ng Freq	uency	:	_	2412MHz							
	Channe	Channel:				1				_			
RS	Ref 11	4.8 dBuV		* Att	- 1	0 dB	* RBW 1 * VBW 3 SWT 2	.00 kHz 800 kHz 2.5 ms	Μ	larke	er 1 [T1 40 2.39000] .07 dBµV 0000 GHz	
	0ff	set 7.8	dB		 T.	TMTT CHE		3	C	H PW	r 50	.17 dBµV	Ĩ
					-								A SGI
1 RM AVG	-100												LVI
	-90												
	-80												PS
	-70												
	- 60 - 3WP	100 0	F 16										
	FCC15C2	AV											3DI AC
	-50												ĺ
	watthe war	hermond	www.wh	m www.M	Andread	Mar Mart	where where	mond	~~~	an w	mune	a manual and	
	-30												
	-20												-
	Center	2.3895 (GHz			200	kHz/				Spa	an 2 MHz	1

Date: 1.DEC.2016 10:05:17

Plot 7-185. Radiated Restricted Lower Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT	SAMPHING	Approved by:		
		(CERTIFICATION)	SAMSUNG	Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dogo 125 of 106		
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 155 01 190		
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Date: 1.DEC.2016 10:07:27

Plot 7-186. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 126 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 130 01 190
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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: 9.FEB.2017 17:13:41

Plot 7-187. Radiated Restricted Lower Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 127 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 137 01 190
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Date: 17.FEB.2017 08:45:30

Plot 7-188. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 129 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 136 01 190
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Date: 1.DEC.2016 10:18:48

Plot 7-189. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 120 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 139 01 190
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11/22/2016





Date: 1.DEC.2016 10:19:09

Plot 7-190. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 140 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 140 01 190
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Date: 9.FEB.2017 14:04:55

Plot 7-191. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 141 of 106
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Date: 17.FEB.2017 08:38:16

Plot 7-192. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 142 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 142 01 190
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11/22/2016



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

	Worst C	Case Mo	de:		802	2.11g						
	Worst C	Case Tra	nsfer	Rate:	6 N	1bps						
	Distanc	e of Mea	asurer	nents:	3 N	3 Meters 2412MHz						
	Operati	ng Freq	uency	:	241							
	Channe	Channel:			1							
RS	Ref 11-	4.8 dBµV		* Att	10 dB	* RI * VI SI	BW 100 BW 300 WT 2.5	kHz kHz ms	Marke	er 1 [T 4 2.3900	1] 0.77 dBµV 00000 GHz	
	Offs 110	set 7.8	dB		LIMIT	CHECK	PASS		CH PV	R 4	9.91 dBµV]
												A SGI
1 RM [,] AVG	-100											
	-90											-
	-80								_			PS
	-70											-
	- 60 - 3MP	100-	e 10									
	FCC15CA	V										3DI AC
	-50											
	~4Qture	mana	an you	win marks	mmm	marrie Mrs.		Mar Market	hand a war	man		1
	-30											-
	-20											
	Center	2.3895 (GHz			200 kHz/				Sı	oan 2 MHz	

Date: 1.DEC.2016 10:33:32

Plot 7-193. Radiated Restricted Lower Band Edge Measurement (Average)

	C DOTEOT			Approved by:		
FCC ID: A3LETWV530		(CERTIFICATION)	SAMSUNG	Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dego 142 of 106		
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 145 01 196		
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Date: 1.DEC.2016 10:35:03

Plot 7-194. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 144 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 144 01 190
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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.

	Worst Case Mode:	802.11n/ac (40MHz BW)	_
	Worst Case Transfer Rate:	MCS8	_
	Distance of Measurements:	3 Meters	_
	Operating Frequency:	2422MHz	_
	Channel:	3	_
Res la construcción de la constr	Ref 106.2 dBuV *Att	* RBW 100 kHz r * VBW 300 kHz 10 dB SWT 2.5 ms	Marker 1 [T1] 41.30 dBµV 2.390000000 GHz
	Offset -0.8 dB	LIMIT CHECK PASS	CH PWR 50.73 dBµV
			S ⁴
1 RM * AVG	90		
	80		
	-70		P
	60		
	FCC15CAV		
		n	
	40 m Marsh m m Marsh	- And - A construction - And	
	30		
	20		
	Center 2.3895 GHz	200 kHz/	Span 2 MHz

Date: 13.FEB.2017 14:29:10



FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 145 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 145 01 190
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Date: 17.FEB.2017 08:46:22

Plot 7-196. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 146 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 140 01 190
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Date: 1.DEC.2016 10:25:48

Plot 7-197. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 147 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 147 01 190
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Date: 1.DEC.2016 10:26:20

Plot 7-198. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 149 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 146 01 190
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Date: 13.FEB.2017 13:09:56



	PCTEST	FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT		Approved by:
TOOID. ABLE TWV550	V ENGINEERING LABORATORT, INC.	(CERTIFICATION)	Shinsente	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 140 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 149 01 190
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Date: 17.FEB.2017 08:40:15

Plot 7-200. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 150 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 150 01 190
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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.

	Worst Case Mode:	802.11g		
	Worst Case Transfer Rate:	6 Mbps		
	Distance of Measurements:	3 Meters		
	Operating Frequency:	2412MHz		
	Channel:	1		
R S	Ref 114.8 dBuV *Att	* RBW 100 kHz Ma * VBW 300 kHz 10 dB SWT 2.5 ms	rker 1 [T1] 41.17 dBµV 2.390000000 GHz	
	Offset 7.8 dB	dH	ΡWR 50.37 dBμV	
	-110	LIMIT CHECK PASS		A
1 RM *	-100		s	GL
	-90		Ľ	.VL
	80		P	s
	70			
	60-5WF 100 of 100		3	DB
	FCC15CAV		A	.c
			monoral	
	communities and and and and and and and	an the second and second and the second s		
	-30			
	20			
	Center 2.3895 GHz	200 kHz/	Span 2 MHz	

Date: 1.DEC.2016 10:43:06

Plot 7-201. Radiated Restricted Lower Band Edge Measurement (Average)

	FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT	CANCUNC	Approved by:	
FCC ID. ASLETWV550	TROINZERING LABORATORY, INC.	(CERTIFICATION)	SAMSUNG	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 151 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 151 01 190
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Date: 1.DEC.2016 10:44:15

Plot 7-202. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 152 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 152 01 190
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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: 13.FEB.2017 16:38:04

Plot 7-203. Radiated Restricted Lower Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 152 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 155 01 190
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Date: 17.FEB.2017 08:49:41

Plot 7-204. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 154 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 154 01 190
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Date: 1.DEC.2016 10:49:39

Plot 7-205. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 155 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 155 01 190
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Date: 1.DEC.2016 10:50:19

Plot 7-206. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 156 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 156 01 196
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Date: 13.FEB.2017 15:18:48

Plot 7-207. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 157 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 157 01 190
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Date: 13.FEB.2017 15:19:22

Plot 7-208. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 159 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 156 01 190
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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.

	Worst Case Mode:	802.11g	
	Worst Case Transfer Rate:	6 Mbps	
	Distance of Measurements:	3 Meters	
	Operating Frequency:	2412MHz	
	Channel:	1	
P S	Ref 114.9 dBuV *Att	* RBW 100 kHz Ma * VBW 300 kHz 10 dB SWT 2.5 ms	arker 1 [T1] 39.45 dBµV 2.39000000 GHz
	Offset 7.9 dB	LEMIT CHECK PASS	I PWR 49.43 dBµV
			A
1 RM AVG	* 100-		LVL
	90		
	-80		PS
	70		
	-60 SWP 100 of 100 FCC15CAV		3DB AC
	- 50		man
	Anoun manual and manual and	and the second	
	30		
	20		
	Center 2.3895 GHz	200 kHz/	Span 2 MHz

Date: 1.DEC.2016 11:16:49

Plot 7-209. Radiated Restricted Lower Band Edge Measurement (Average)

				Annual had
	PCTEST	FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT	SAMSUME	Approved by:
FOCID. ASLL TWV550		(CERTIFICATION)	SAMISONO	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 150 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 159 01 190
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Date: 1.DEC.2016 11:17:09

Plot 7-210. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 160 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 100 01 190
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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: 13.FEB.2017 17:39:47



FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 161 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 101 01 190
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Date: 13.FEB.2017 17:40:29

Plot 7-212. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 162 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 162 01 196
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Date: 1.DEC.2016 11:10:56

Plot 7-213. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 162 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 103 01 190
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Date: 1.DEC.2016 11:11:13

Plot 7-214. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 164 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 104 01 190
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Date: 13.FEB.2017 16:52:52

Plot 7-215. Radiated Restricted Upper Band Edge Measurement (Average)

	PCTEST	FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT	SAMSHING	Approved by:
FOCID. ASLL TWV550		(CERTIFICATION)	SAMSUNG	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 165 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 105 01 190
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Date: 13.FEB.2017 16:53:47

Plot 7-216. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 166 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 100 01 190
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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.

	Worst Case Mode:	802.11n (20MHz BW)	
	Worst Case Transfer Rate:	MCS8	
	Distance of Measurements:	3 Meters	
	Operating Frequency:	2412MHz	
	Channel:	1	
P S	Ref 114.8 dBuV * Att	* RBW 100 kHz Ma * VBW 300 kHz 10 dB SWT 2.5 ms	rker 1 [T1] 39.97 dBµV 2.390000000 GHz
	Offset 7.8 dB	LIMIT CHECK PASS	PWR 49.78 dBµV
_			A
I RM AVG			LVI
	90		
	80		PS
	70		
	- 60 - 3WP 100 of 100 FCC15CAV		3DE
	- 20	warman warman warman war	Marada a Arow was
	-30		
	-20		
	Center 2.3895 GHz	200 kHz/	Span 2 MHz

Date: 5.DEC.2016 09:44:45

Plot 7-217. Radiated Restricted Lower Band Edge Measurement (Average)

	1			
	PCTEST	FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT	SAMPHING.	Approved by:
FCC ID: ASLETWV550		(CERTIFICATION)	SAMSUNG	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 167 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 107 01 190
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Date: 5.DEC.2016 09:46:07

Plot 7-218. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 169 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 100 01 190
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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.

Worst Case Mode:	802.11n/ac (40MHz BW)	_
Worst Case Transfer Rate:	MCS8	_
Distance of Measurements:	3 Meters	_
Operating Frequency:	2422MHz	_
Channel:	3	_
Ref 105.9 dBuV *Att	* RBW 100 kHz 1 * VBW 300 kHz 10 dB SWT 2.5 ms	Marker 1 [T1] 38.87 dBµV 2.39000000 GHz
Offset -1.1 dB	LIMIT CHECK PASS	CH PWR 50.71 dBµV
		sc sc
90		11
80		
-70		
- 60		
FCC15CAV		
50 SWP 100 of 100		31 AC
Var war war war war	man manufarment and a second	Jun Mar Mar
-30		
10		
	Worst Case Mode: Worst Case Transfer Rate: Distance of Measurements: Operating Frequency: Channel: Ref 105.9 dBµV *Att Offset -1.1 dB 100 * Att Offset -1.1 dB 100 * Att 00 80 * Att 00 Fcc15cAV 50 SWP 100 of 100 40 * Att 00 * Att	Worst Case Mode: 802.11n/ac (40MHz BW) Worst Case Transfer Rate: MCS8 Distance of Measurements: 3 Meters Operating Frequency: 2422MHz Channel: 3 Ref 105.9 dBµv * Att 10 dB 90 IMIT CHECK 90

Date: 13.FEB.2017 20:04:00



FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 160 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 109 01 190
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Date: 13.FEB.2017 20:04:52

Plot 7-220. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 170 of 106
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Date: 5.DEC.2016 09:52:40

Plot 7-221. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 171 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 171 01 190
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11/22/2016





Date: 1.FEB.2017 12:36:25

Plot 7-222. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 172 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 172 01 190
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Date: 13.FEB.2017 19:01:51

Plot 7-223. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dece 172 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Page 175 01 196
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Date: 13.FEB.2017 19:10:57

Plot 7-224. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 174 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 174 01 190
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7.9 Radiated Spurious Emissions Measurements – Below 1GHz §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, 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 7-38 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 7-38. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 120kHz (for emissions from 30MHz 1GHz)
- 3. Detector = quasi-peak
- 4. Sweep time = auto couple
- 5. Trace mode = max hold
- 6. Trace was allowed to stabilize

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 175 of 106
0Y1611161808.A3L	11/23/2016-02/17/2017	Indoor Access Point		Fage 175 01 190
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Test Setup

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



Figure 7-7. Radiated Test Setup < 30Mhz



Figure 7-8. Radiated Test Setup < 1GHz

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Test Notes

- 1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-38.
- 2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
- 3. This unit was tested with its standard battery.
- 4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- 5. Emissions were measured at a 3 meter test distance.
- 6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
- 7. No spurious emissions were detected within 20dB of the limit below 30MHz.
- The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
- The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

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Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz) §15.209



Plot 7-225. Radiated Spurious Plot below 1GHz (Pol. H)



Plot 7-226. Radiated Spurious Plot below 1GHz (Pol. V)

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Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz) §15.209



Plot 7-227. Radiated Spurious Plot below 1GHz (Pol. H)



Plot 7-228. Radiated Spurious Plot below 1GHz (Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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Antenna-3 Radiated Spurious Emissions Measurements (Below 1GHz) §15.209



Plot 7-229. Radiated Spurious Plot below 1GHz (Pol. H)



Plot 7-230. Radiated Spurious Plot below 1GHz (Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Antenna-4 Radiated Spurious Emissions Measurements (Below 1GHz) §15.209



Plot 7-231. Radiated Spurious Plot below 1GHz (Pol. H)



Plot 7-232. Radiated Spurious Plot below 1GHz (Pol. V)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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7.10 Line-Conducted Test Data §15.207

Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

All conducted emissions must not exceed the limits shown in the table below, per Section 15.207.

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

Table 7-39. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 6.2

Test Settings

Quasi-Peak Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the spurious emission of interest
- 2. RBW = 9kHz (for emissions from 150kHz 30MHz)
- 3. Detector = quasi-peak
- 4. Sweep time = auto couple
- 5. Trace mode = max hold
- 6. Trace was allowed to stabilize

Average Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the spurious emission of interest
- 2. RBW = 9kHz (for emissions from 150kHz 30MHz)
- 3. Detector = RMS
- 4. Sweep time = auto couple
- 5. Trace mode = max hold
- 6. Trace was allowed to stabilize

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Test Setup

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





Test Notes

- All modes of operation were investigated and the worst-case emissions are reported using mid channel. The emissions found were not affected by the choice of channel used during testing.
- 2. The limit for an intentional radiator from 150kHz to 30MHz are specified in 15.207.
- 3. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
- 4. QP/AV Level (dB μ V) = QP/AV Analyzer/Receiver Level (dB μ V) + Corr. (dB)
- 5. Margin (dB) = QP/AV Limit (dB μ V) QP/AV Level (dB μ V)
- 6. Traces shown in plot are made using a peak detector.
- 7. Deviations to the Specifications: None.

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Antenna 1 Line-Conducted Test Data

<u>§15.207</u>







Plot 7-234. Line Conducted Plot with 802.11b (N)

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Antenna 2 Line-Conducted Test Data

<u>§15.207</u>







Plot 7-236. Line Conducted Plot with 802.11b (N)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Antenna 3 Line-Conducted Test Data

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Plot 7-238. Line Conducted Plot with 802.11b (N)

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Antenna 4 Line-Conducted Test Data

§15.207



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Plot 7-240. Line Conducted Plot with 802.11b (N)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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and the second of the second second

VBW 90 kHz

OFF

OPD LL1A

19.158 dB | -11.629 dB

-10.106 dB -11.029 dB -20.231 dB -12.176 dB -14.079 dB -8.140 dB -13.466 dB -7.472 dB -14.125 dB -8.230 dB

-16.089 dB -10.358 dB

AVG112A

STATUS 1. DC Coupled

Why My the Martin

AVG AMPTD

42.808 dBµV

42.808 dBμV 40.719 dBμV 41.860 dBμV 42.528 dBμV 41.770 dBμV 39.642 dBμV

OPD AMPTD

᠋᠋᠃ᡁᡀᡀᡁᡁ

Start 150 kHz

Res BW 9 kHz

TRO

EREO

1 🔳 1 181.07 kHz 45.278 dBµV

 1
 1
 181.07 kHz
 49.276 dBpV

 2
 1
 218.00 kHz
 42.664 dBpV

 3
 1
 6.0016 MHz
 45.921 dBpV

 4
 1
 6.9895 MHz
 46.534 dBpV

 5
 1
 7.2495 MHz
 45.875 dBpV

 6
 1
 7.8015 MHz
 43.911 dBpV

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Dwell Time 96.07 µs (# 4 kHz)

OFF

Stop 30 MHz

9.00 kHz (CISPR)

9.00 kHz (CISPR) 9.00 kHz (CISPR) 9.00 kHz (CISPR) 9.00 kHz (CISPR)

9.00 kHz (CISPR)



8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Indoor Access Point FCC ID: A3LETWV530** is in compliance with Part 15C of the FCC Rules.

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APPENDIX A. 802.11G DUAL TX

A.1 Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MOI	<u>DE (TX)</u>				
15.247(b)(3)	Transmitter Output Power	< 1 Watt		PASS	Section A.2
15.247(e)	Transmitter Power Spectral Density	< 8dBm / 3kHz Band	CONDUCTED	PASS	Section A.3
15.205 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	RADIATED	PASS	Section A.4

Table A.1-1. Summary of Test Results

Notes:

- 1) This device employs dual transmission in 802.11a and 802.11g modes using Cyclic Delay Diversity. For all test cases, the device was set to transmit from both antennas simultaneously. The data in this section demonstrates compliance to the dual-transmission requirements specified in KDB 662911 v02r01.
- 2) All data found in this section is compiled from plots found in the main body of this test report.
- Since this device is able to transmit the same data through all of its antennas in a given symbol period, then, by the definition specified in KDB 662911 v02r01 Section F)1), the transmission symbols are correlated.
- 4) For CDD operation where Nss = 1, the array gain for power density measurements is equal to $10\log(N_{ANT}/N_{SS})$ dB and the array gain for power measurements is 0dB.
- 5) For conducted spurious emissions, per KDB 662911 v02r01 Section E)3)b), the emissions on each individual output complied with its corresponding relative limit for that output, so additional testing was not required for 4x transmission operation.

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A.2 Output Power Measurement §15.247(b.3)

Test Overview

Using the "Measure and Sum" technique, the measured conducted power values were summed in linear power units then converted back to dBm. Original measured values are found in Section 7.3 of this report.

			Discotional		2.4GHz C	onducted Pov	Max Permissible				
Freq [MHz]	Channel	Detector	Directional Gain [dBi]		IEEE	Transmission	Mode		Conducted Power	Adjusted Limit	Margin [dB]
			Gain [GDi]	ANT1	ANT2	ANT3	ANT4	MIMO	[dBm]	[ubiii]	
2412	1	AVG	7.83	13.99	14.24	14.22	14.23	20.19	30.00	28.17	-7.98
		PEAK	7.83	20.66	20.66	20.47	20.64	26.63	30.00	28.17	-1.54
2437	6	AVG	7.68	14.28	14.44	14.11	14.27	20.30	30.00	28.32	-8.02
		PEAK	7.68	20.79	20.66	20.43	20.54	26.63	30.00	28.32	-1.69
2462	11	AVG	7.32	12.22	12.44	12.22	12.34	18.33	30.00	28.68	-10.35
		PEAK	7.32	19.70	19.64	19.34	19.64	25.60	30.00	28.68	-3.08

Table A2-1. Dual Tx 802.11g-mode Conducted Output Power Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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A.3 Power Spectral Density §15.247(e)

Test Overview

Using the "Measure and Sum" technique, the measured conducted power density values were summed in linear power units then converted back to dBm. Original measured values are found in Section 7.4 of this report.

Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]	Pass / Fail
2412	1	g	6	0.54	8.00	-7.46	Pass
2437	6	g	6	-0.92	8.00	-8.92	Pass
2462	11	g	6	-0.23	8.00	-8.23	Pass

Table A3-1. 802.11g Antenna-1 Conducted Power Density Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]	Pass / Fail
2412	1	g	6	-0.79	8.00	-8.79	Pass
2437	6	g	6	-0.18	8.00	-8.18	Pass
2462	11	g	6	-0.57	8.00	-8.57	Pass

 Table A3-2. 802.11g Antenna-2 Conducted Power Density Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]	Pass / Fail
2412	1	g	6	-0.61	8.00	-8.61	Pass
2437	6	g	6	-0.30	8.00	-8.30	Pass
2462	11	g	6	-0.09	8.00	-8.09	Pass

 Table A3-1. 802.11g Antenna-3 Conducted Power Density Measurements

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Spectral Density [dBm] Maximum Permissible Power Density [dBm / 3kHz]		Margin [dB]	Pass / Fail
2412	1	g	6	-0.14	8.00	-8.14	Pass
2437	6	g	6	-0.53	8.00	-8.53	Pass
2462	11	g	6	-0.78	8.00	-8.78	Pass

Table A3-2. 802.11g Antenna-4 Conducted Power Density Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Directional Gain [dBi]	ANT 1 Power Spectral Density [dBm]	ANT 2 Power Spectral Density [dBm]	ANT 3 Power Spectral Density [dBm]	ANT 4 Power Spectral Density [dBm]	Summed MIMO Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Adjusted Limit	Margin [dB]	Pass / Fail
2412	1	g	6.5/7.2 (MCS0)	7.83	0.54	-0.79	-0.61	-0.14	5.80	8.00	6.17	-0.37	Pass
2437	6	g	6.5/7.2 (MCS0)	7.68	-0.92	-0.18	-0.30	-0.53	5.55	8.00	6.32	-0.77	Pass
2462	11	g	6.5/7.2 (MCS0)	7.32	-0.23	-0.57	-0.09	-0.78	5.61	8.00	6.68	-1.07	Pass

Table A3-3.802.11g Dual Tx Conducted Power Density Measurements

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A.4 Dual Tx 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 on both outputs in 802.11g mode.



Date: 17.JAN.2017 08:24:57

Plot A4-1. Radiated Restricted Lower Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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Dual Tx Radiated Restricted Band Edge Measurements §15.205 §15.209



Date: 17.JAN.2017 08:25:32

Plot A4-2. Radiated Restricted Lower Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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Dual Tx Radiated Restricted Band Edge Measurements $\underline{\$15.205\ \$15.209}$



Date: 17.JAN.2017 08:36:15

Plot A4-3. Radiated Restricted Upper Band Edge Measurement (Average)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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Dual Tx Radiated Restricted Band Edge Measurements §15.205 §15.209



Date: 17.JAN.2017 08:37:03

Plot A4-4. Radiated Restricted Upper Band Edge Measurement (Peak)

FCC ID: A3LETWV530		FCC Pt. 15.247 802.11b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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