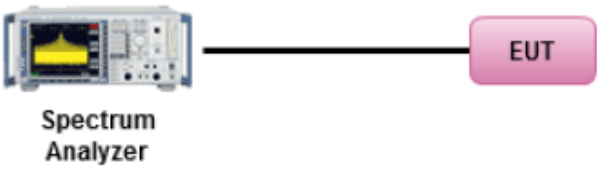
10.5 Band Edge

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247 RSS247(5.5)	d)	For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209 (a) is not required ☐ 20 dB down ☒ 30 dB down	☒
Test Setup			
Test Procedure	558074 D01 DTS Meas Guidance v03r03 Band Edge measurement procedure 1. Set the EUT to maximum power setting and enable the EUT transmit continuously. 2. Band edge emissions must be at least 30 dB down from the highest emission level within the authorized band as a measured. The attunation shall be be 30 dB instead of 20 dB when Peak conducted output power procedure is used. 3. Change modulation and channel bandwidth then repeat step 1 to 2. 4. Measured and record the results in the test report.		
Test Date	09/09/2015	Environmental condition	Temperature 22°C Relative Humidity 46% Atmospheric Pressure 1020mbar
Remark	-		
Result	☒ Pass ☐ Fail		

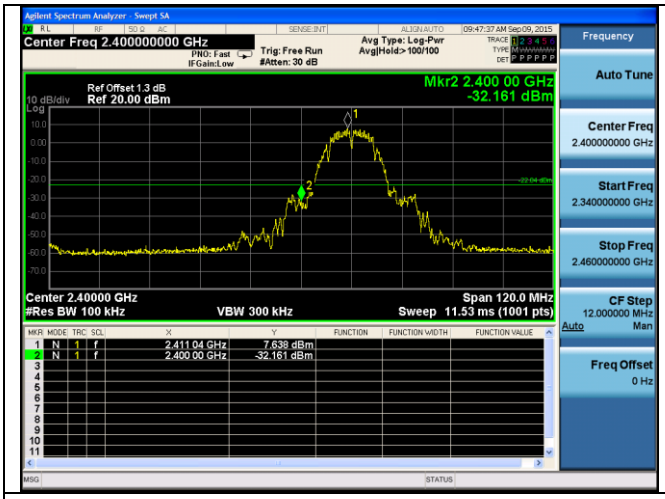
Equipment Setting

TEST	RBW	VBW	Detector	SWEEP	Trace	NOTES
Band Edge	100KHz	≥3 x RBW	Peak	Auto	Max Hold	-

Test Data ☐ Yes ☒ N/A

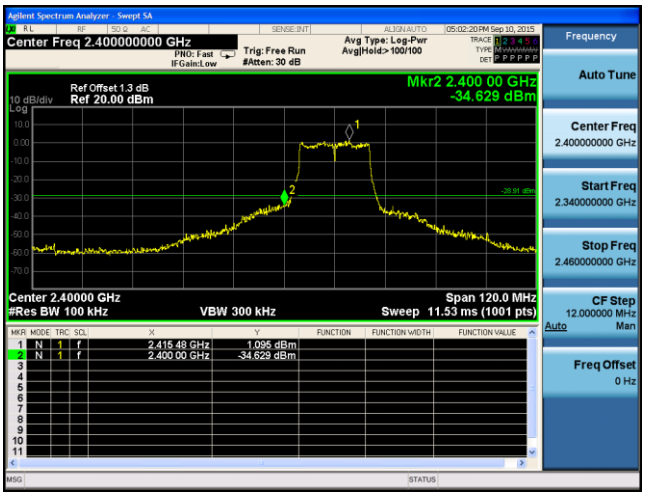
Test Plot ☒ Yes (See below) ☐ N/A

Test Plots

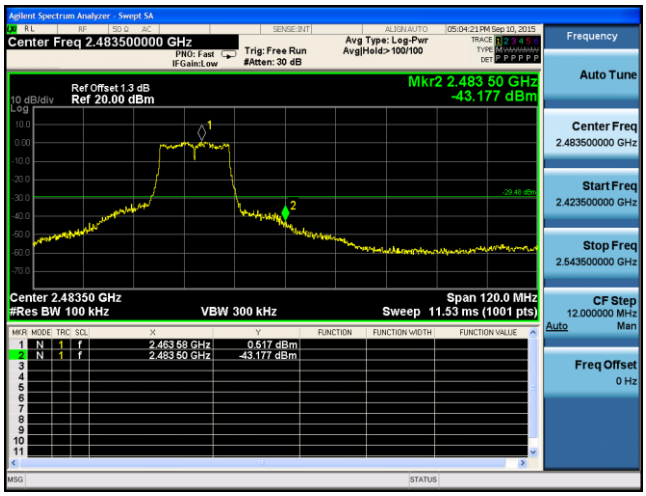


Lower Band Edge-2.4G-802.11b 2412MHz

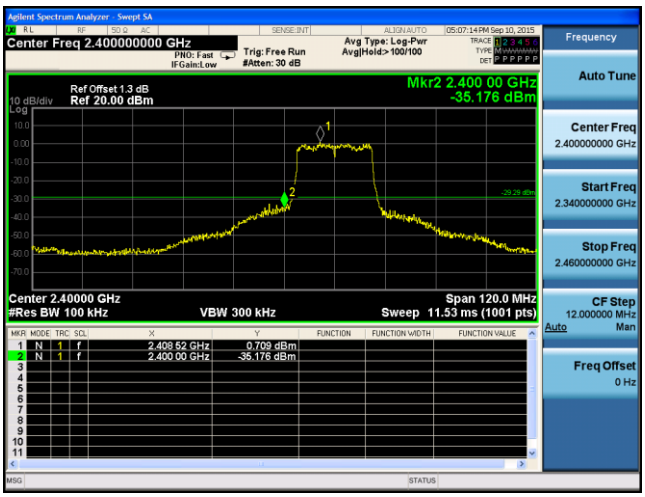
Higher Band Edge-2.4G-802.11b 2462MHz



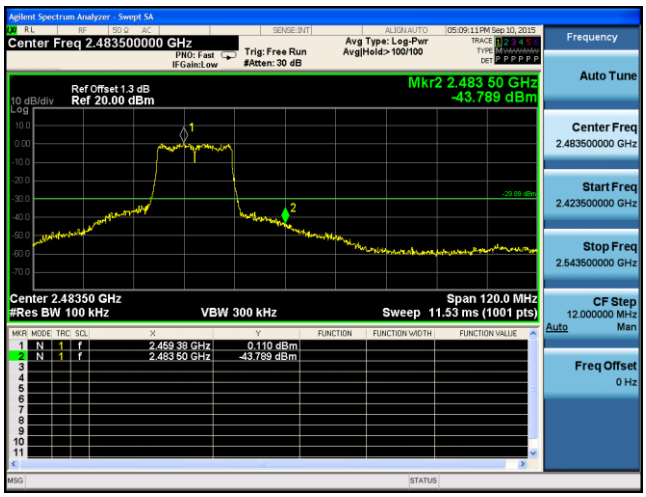
Lower Band Edge-2.4G-802.11g 2412MHz



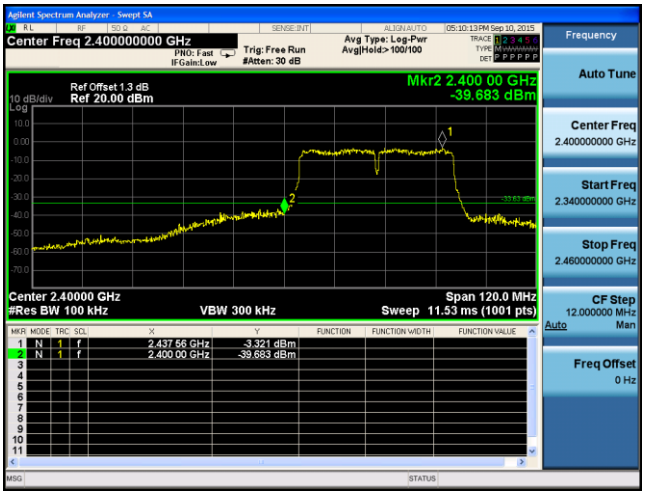
Higher Band Edge-2.4G-802.11g 2462MHz



Lower Band Edge-2.4G-802.11n-20M 2412MHz



Higher Band Edge-2.4G-802.11n-20M 2462MHz

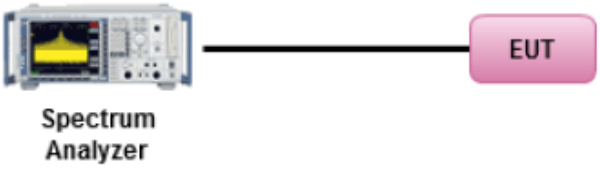


Lower Band Edge-2.4G-802.11n-40M 2422MHz

Higher Band Edge-2.4G-802.11n-40M 2452MHz

10.6 Peak Spectral Density

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247(e) RSS247 (5.2.2)	e)	DSSS: ≤8dBm/3KHz	☒
	f)	DSSS in hybrid sys with FH turned off: ≤8dBm/3KHz	☐
Test Setup			
Test Procedure	558074 D01 DTS Meas Guidance v03r03, 10.2 Method PKPSD (peak PSD) Peak spectral density measurement procedure - Set analyzer center frequency to DTS channel center frequency. - Set the span to 1.5 times the DTS bandwidth. - Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz. - Set the VBW ≥ 3 x RBW. - Detector = Peak - Sweep time = auto couple. - Trace mode = Max Hold - Allow trace to fully stabilize. - Use the peak marker function to determine the maximum amplitude level within the RBW. - If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.		
Test Date	09/09/2015	Environmental condition	Temperature 22°C Relative Humidity 46% Atmospheric Pressure 1020mbar
Remark	-		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
PSD	100KHz	≥3x RBW	1.5x DTS BW	Peak	Auto	Max Hold	-

Test Data ☒ Yes ☐ N/A

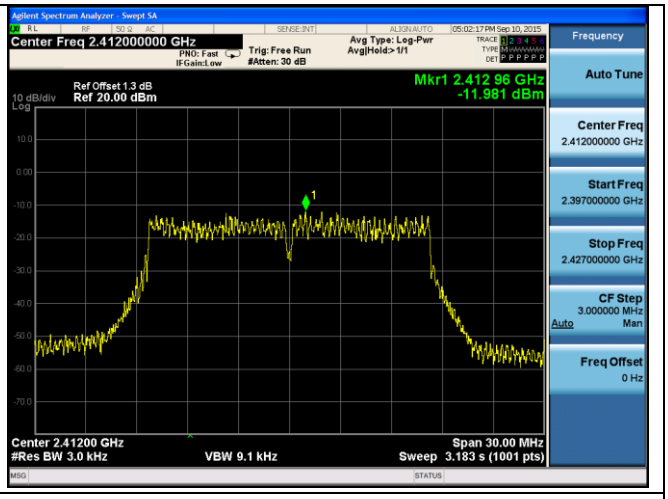
Test Plot ☒ Yes (See below) ☐ N/A

PSD measurement results

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/100KHz)	Limit (dBm/100KHz)	Result
PSD	802.11b	2412	Low	-5.126	≤8	Pass
PSD	802.11b	2437	Mid	-6.777	≤8	Pass
PSD	802.11b	2462	High	-6.672	≤8	Pass
PSD	802.11g	2412	Low	-11.981	≤8	Pass
PSD	802.11g	2437	Mid	-12.580	≤8	Pass
PSD	802.11g	2462	High	-12.826	≤8	Pass
PSD	802.11n-20M	2412	Low	-13.067	≤8	Pass
PSD	802.11n-20M	2437	Mid	-13.291	≤8	Pass
PSD	802.11n-20M	2462	High	-12.208	≤8	Pass
PSD	802.11n-40M	2422	Low	-16.823	≤8	Pass
PSD	802.11n-40M	2437	Mid	-15.290	≤8	Pass
PSD	802.11n-40M	2452	High	-16.224	≤8	Pass

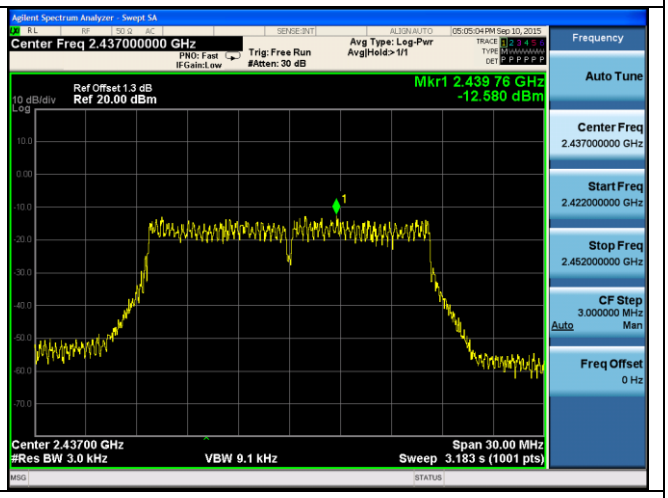
Test Plots

PSD-2.4G-802.11b 2412MHz



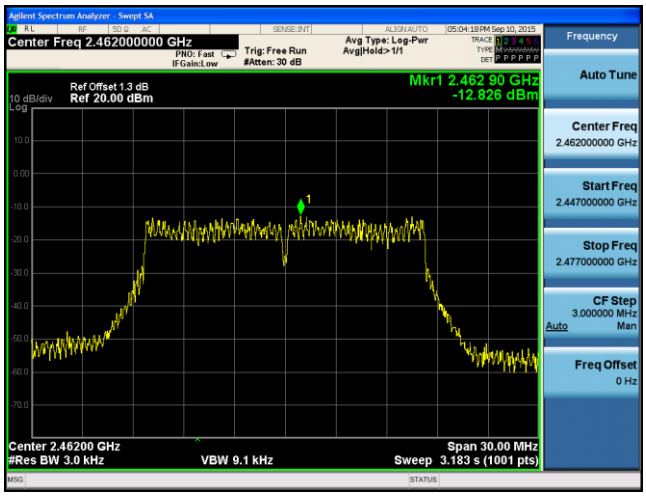
PSD-2.4G-802.11g 2412MHz

PSD-2.4G-802.11b 2437MHz

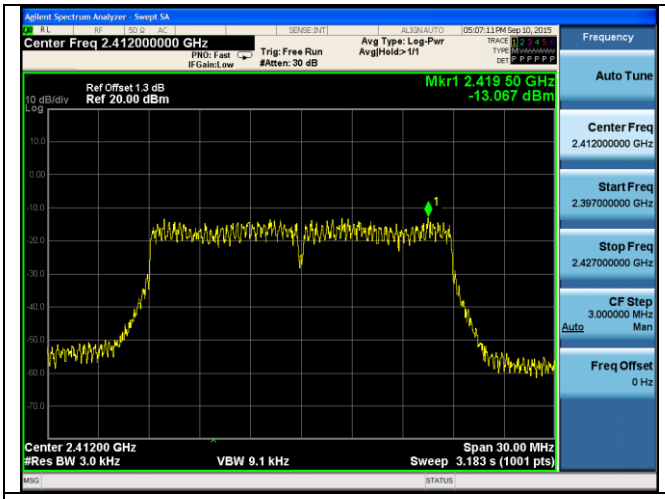


PSD-2.4G-802.11g 2437MHz

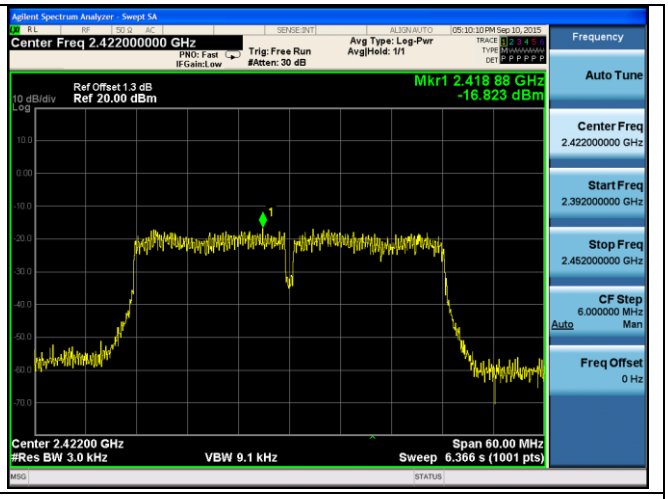
PSD-2.4G-802.11b 2462MHz



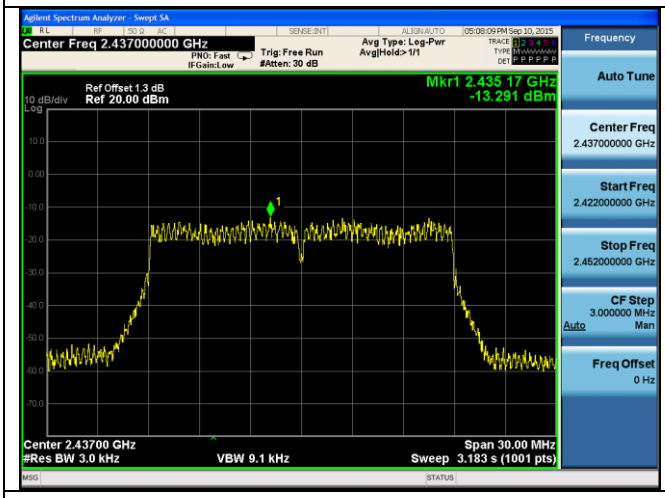
PSD-2.4G-802.11g 2462MHz



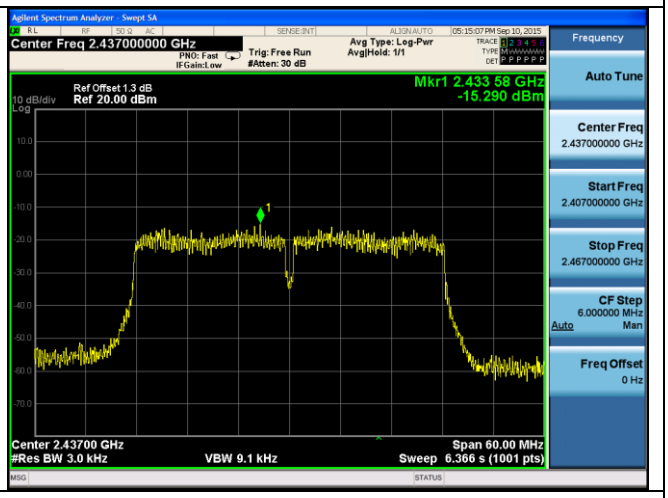
PSD-2.4G-802.11n-20M 2412MHz



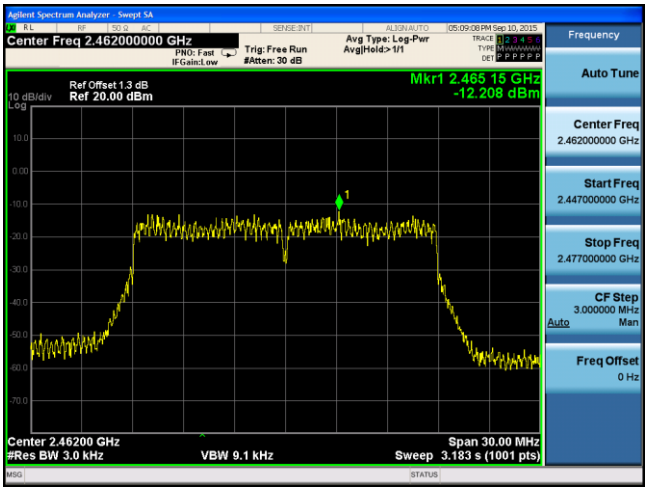
PSD-2.4G-802.11n-40M 2422MHz



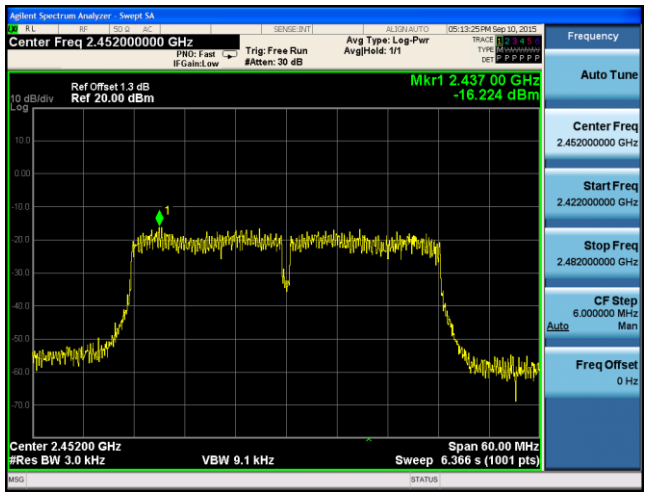
PSD-2.4G-802.11n-20M 2437MHz



PSD-2.4G-802.11n-40M 2437MHz



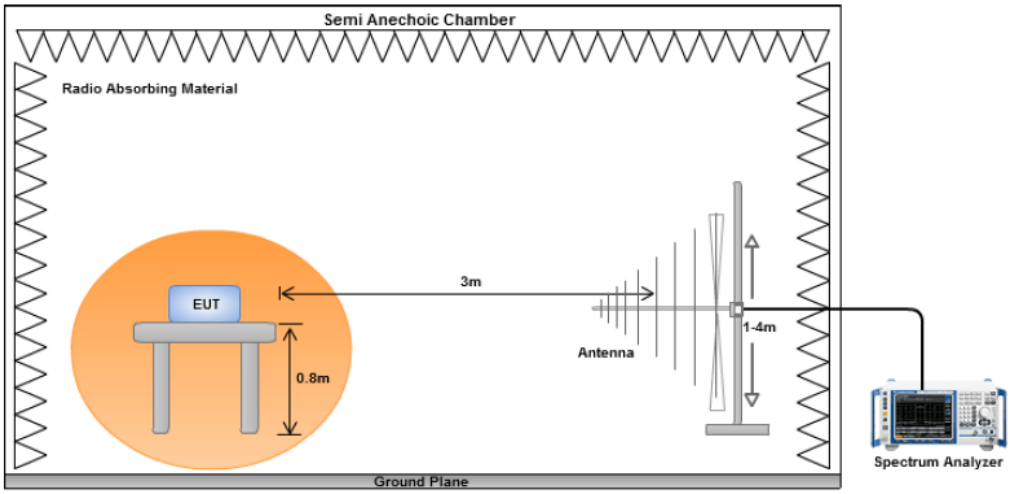
PSD-2.4G-802.11n-20M 2462MHz



PSD-2.4G-802.11n-40M 2452MHz

10.7 Radiated Spurious Emissions below 1GHz

Requirement(s):

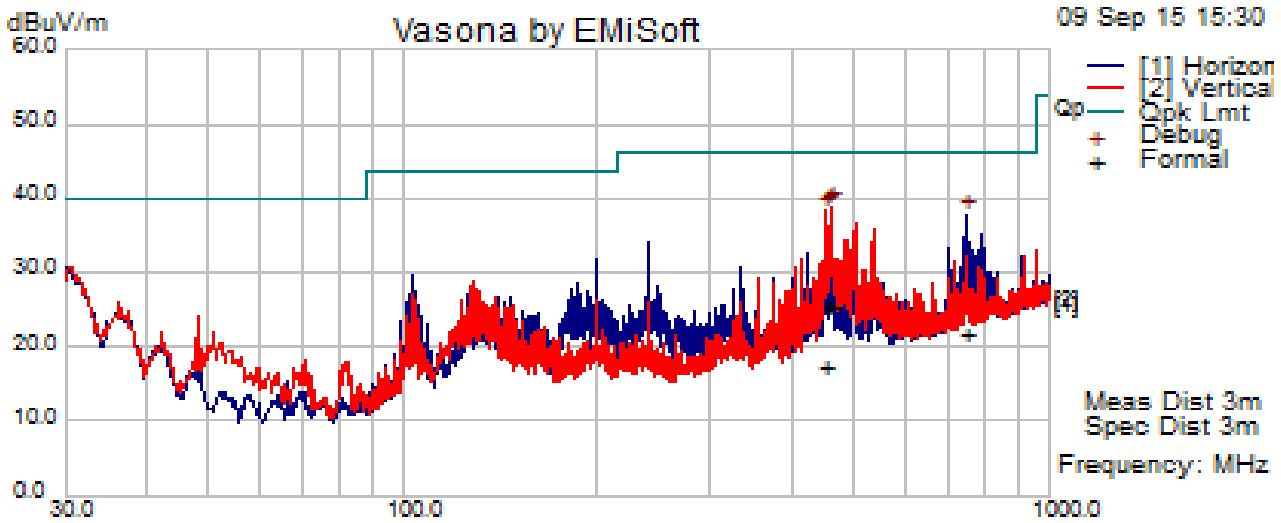
<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.247(d)
RSS247 (5.5)</td><td>a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table></td><td>☒</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 
</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
b. The EUT was then rotated to the direction that gave the maximum emission.
c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. A Quasi-peak measurement was then made for that frequency point.
4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</td></tr>
<tr><td>Remark</td><td colspan="3">The EUT was scanned up to 1GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.</td></tr>
<tr><td>Result</td><td colspan="3">☒ Pass ☐ Fail</td></tr>
</table>

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Radiated Emission Test Results (Below 1GHz) (Omni Directional Antenna)

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	09-Sep-15			
Remarks:	2.4GHz 11b 2437MHz (Omni Directional Antenna)			

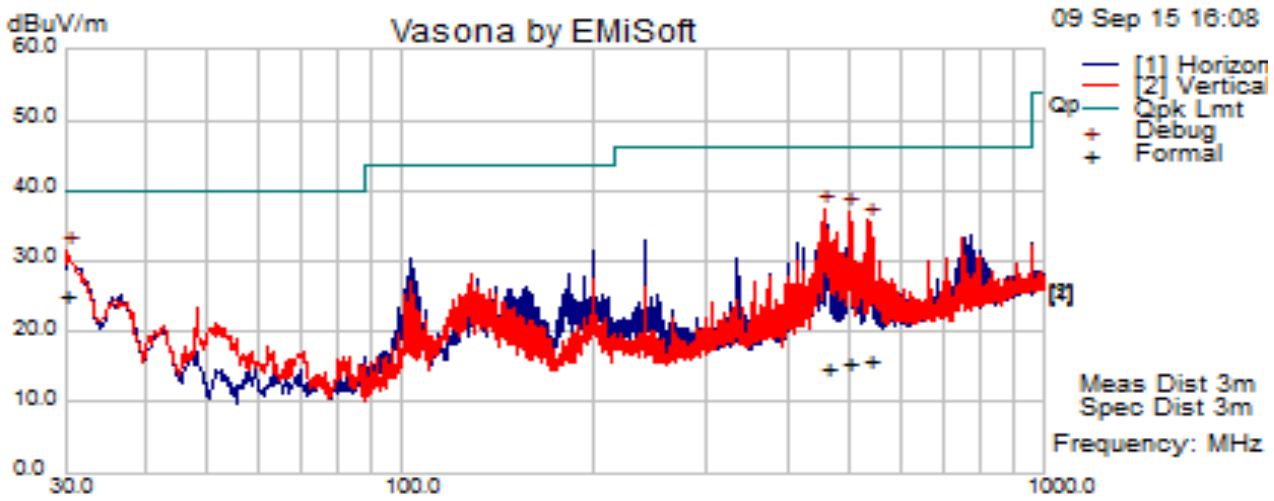


Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
460.08	43.57	3.70	-21.98	25.29	Quasi Max	V	125.00	348.00	46.02	-20.73	Pass
452.93	43.84	3.67	-22.10	25.41	Quasi Max	V	109.00	318.00	46.02	-20.61	Pass
452.18	35.63	3.67	-22.11	17.18	Quasi Max	V	168.00	24.00	46.02	-28.84	Pass
746.24	34.80	4.86	-18.06	21.60	Quasi Max	H	186.00	318.00	46.02	-24.42	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	09-Sep-15			
Remarks:	2.4GHz 11g 2437MHz (Omni Directional Antenna)			

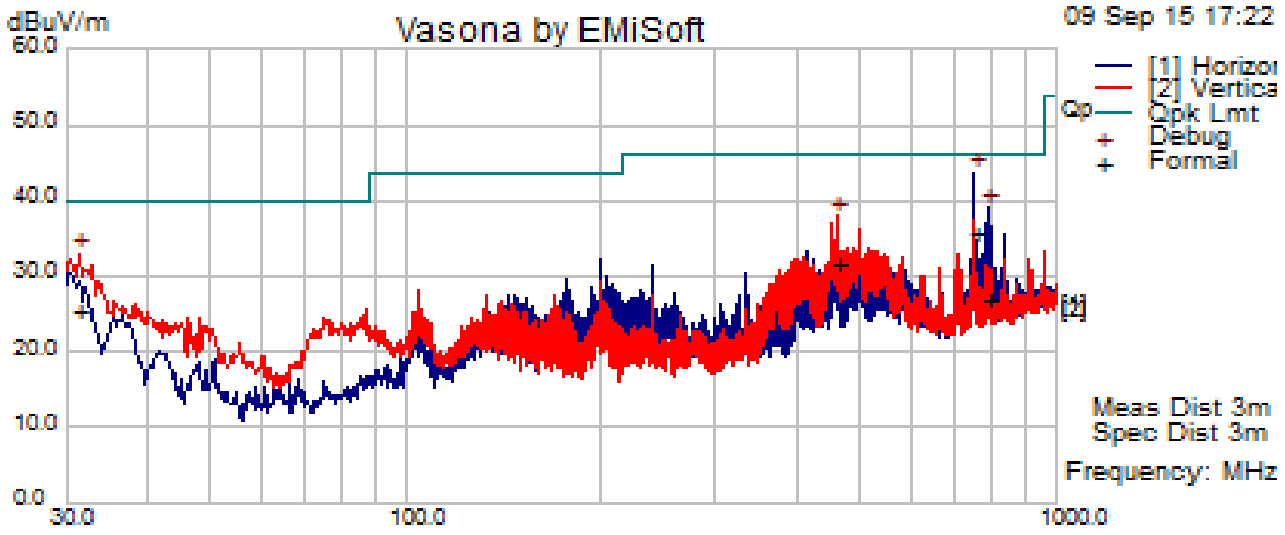


Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
30.00	38.58	0.81	-14.38	25.00	Quasi Max	V	251.00	148.00	40.00	-15.00	Pass
457.47	32.97	3.68	-22.03	14.62	Quasi Max	V	233.00	290.00	46.02	-31.40	Pass
498.14	32.55	4.00	-21.06	15.49	Quasi Max	V	258.00	223.00	46.02	-30.53	Pass
534.95	32.51	4.06	-20.66	15.91	Quasi Max	V	274.00	108.00	46.02	-30.11	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	09-Sep-15			
Remarks:	2.4GHz 11n20 2437MHz (Omni Directional Antenna)			

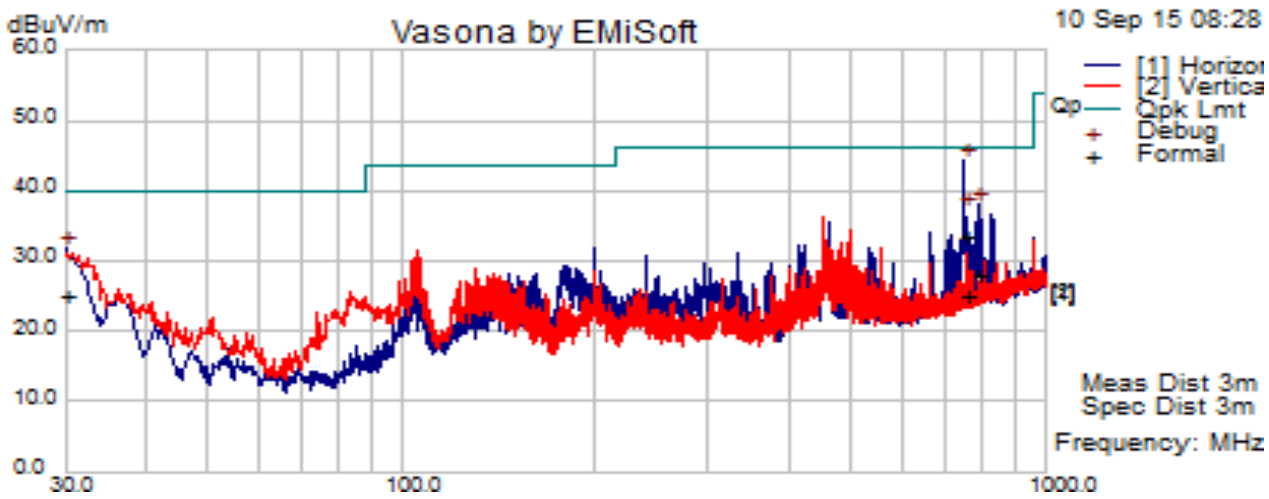


Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
748.59	48.92	4.88	-18.03	35.77	Quasi Max	H	127.00	315.00	46.02	-10.25	Pass
785.43	39.47	4.99	-17.45	27.01	Quasi Max	H	205.00	318.00	46.02	-19.01	Pass
31.26	40.03	0.81	-15.55	25.29	Quasi Max	V	120.00	296.00	40.00	-14.71	Pass
462.02	49.84	3.73	-21.90	31.68	Quasi Max	V	130.00	356.00	46.02	-14.34	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	10-Sep-15			
Remarks:	2.4GHz 11n40 2437MHz (Omni Directional Antenna)			



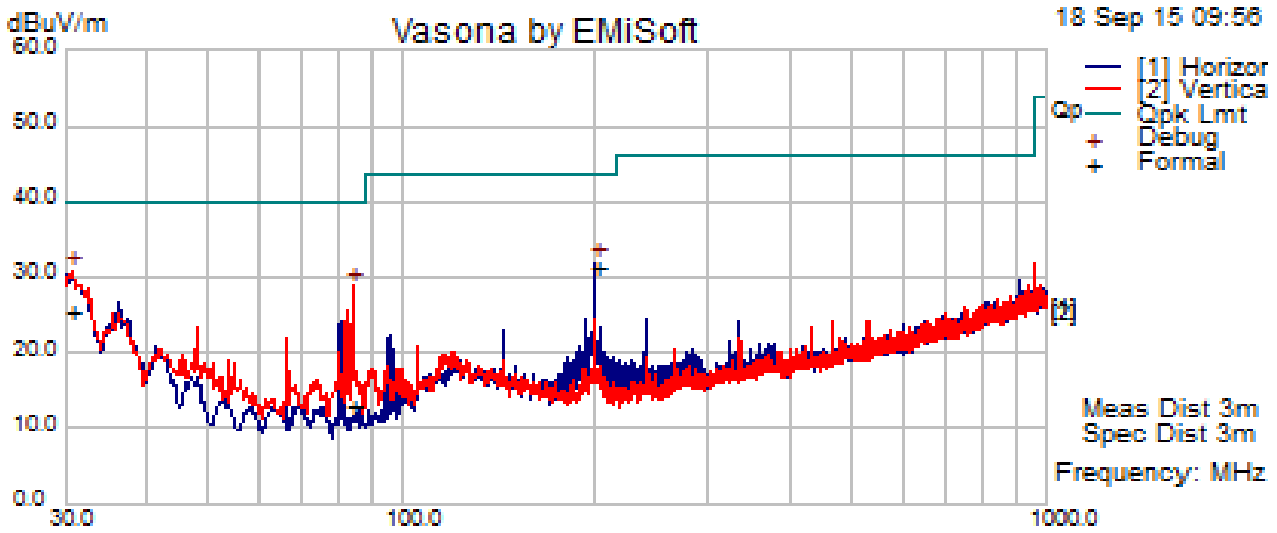
Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
748.26	46.68	4.88	-18.03	33.52	Quasi Max	H	186.00	303.00	46.02	-12.50	Pass
785.28	40.38	4.99	-17.45	27.92	Quasi Max	H	120.00	284.00	46.02	-18.10	Pass
30.00	38.69	0.81	-14.38	25.11	Quasi Max	H	330.00	62.00	40.00	-14.89	Pass
750.13	38.18	4.88	-18.01	25.05	Quasi Max	H	379.00	281.00	46.02	-20.97	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Radiated Emission Test Results (Below 1GHz) (Patch Antenna)

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	18-Sep-15			
Remarks:	2.4GHz 11b 2437MHz (Patch Antenna)			

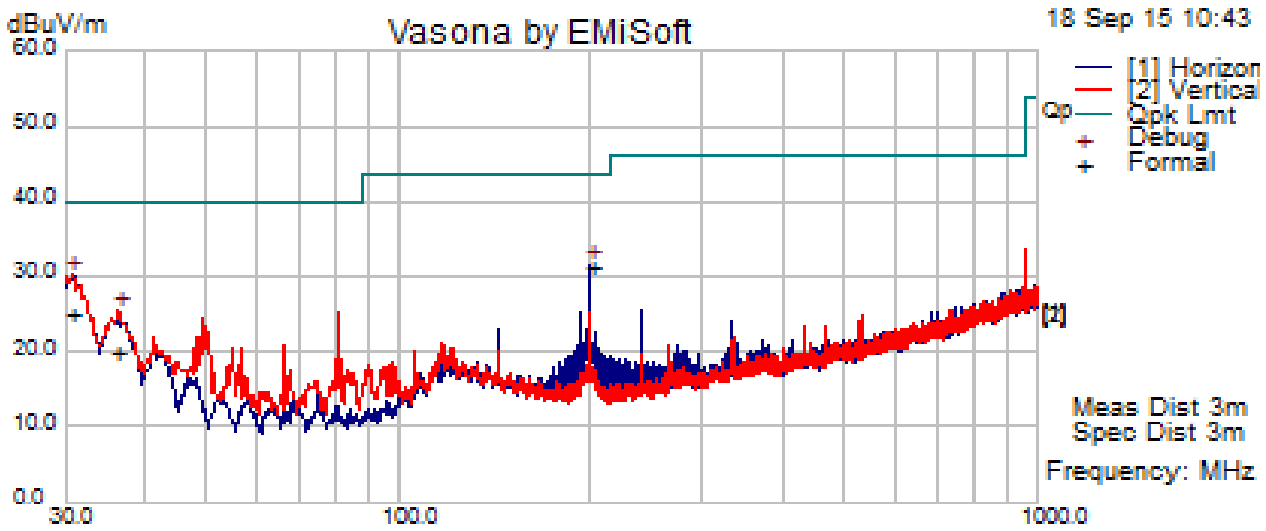


Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
30.75	39.54	0.81	-15.08	25.26	Quasi Max	V	145.00	64.00	40.00	-14.74	Pass
84.07	42.07	1.45	-30.74	12.79	Quasi Max	V	101.00	345.00	40.00	-27.21	Pass
199.52	54.57	2.38	-25.52	31.43	Quasi Max	H	130.00	287.00	43.50	-12.09	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	18-Sep-15			
Remarks:	2.4GHz 11g 2437MHz (Patch Antenna)			

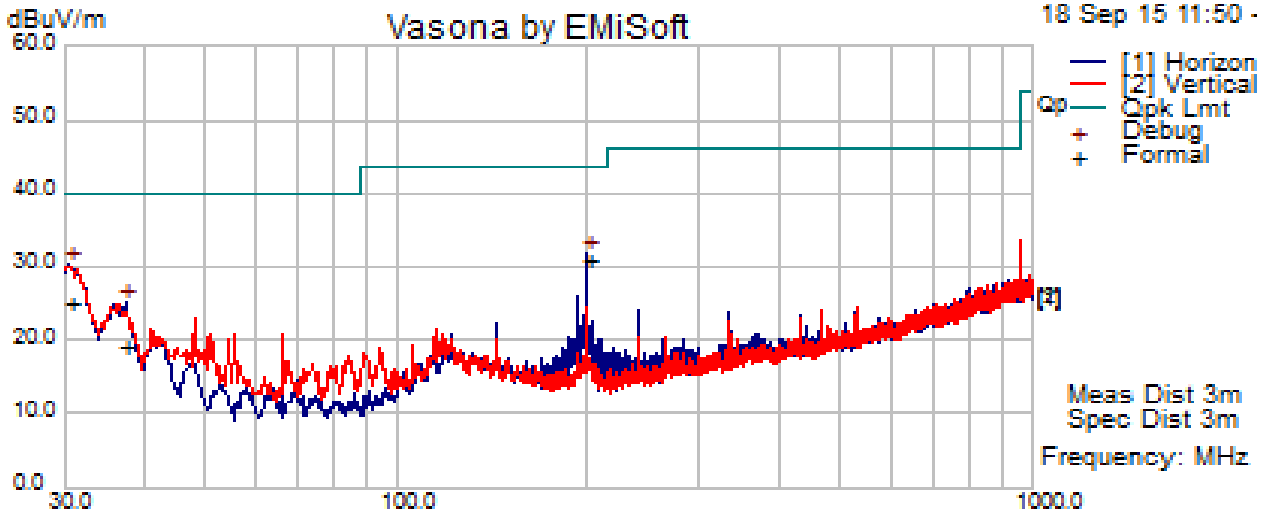


Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
30.76	39.43	0.81	-15.10	25.14	Quasi Max	V	214.00	75.00	40.00	-14.86	Pass
199.49	54.34	2.38	-25.53	31.19	Quasi Max	H	122.00	296.00	43.52	-12.33	Pass
36.18	38.62	0.87	-19.74	19.76	Quasi Max	V	330.00	229.00	40.00	-20.24	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	18-Sep-15			
Remarks:	2.4GHz 11n20 2437MHz (Patch Antenna)			

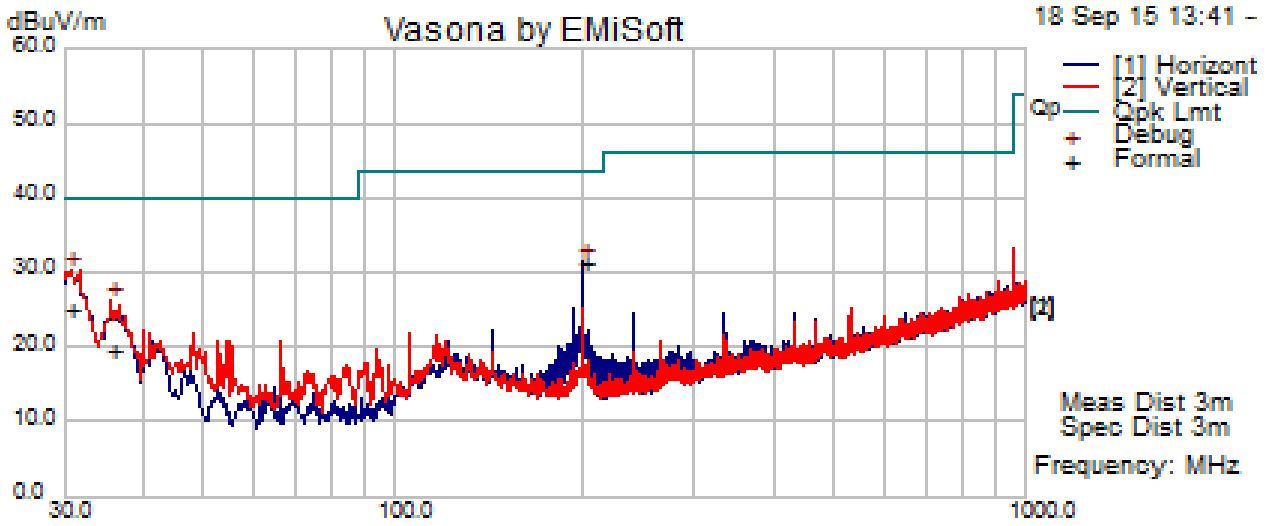


Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
30.70	39.31	0.81	-15.04	25.07	Quasi Max	H	251.00	20.00	40.00	-14.93	Pass
199.50	54.15	2.38	-25.53	31.00	Quasi Max	H	117.00	307.00	43.52	-12.52	Pass
37.14	38.78	0.87	-20.48	19.17	Quasi Max	H	355.00	252.00	40.00	-20.83	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	25.7	Result	
	Humidity (%)	29		
	Atmospheric (mPa):			
Mains Power:	110VAC, 60Hz			
Tested by:	Teody Manasala			
Test Date:	18-Sep-15			
Remarks:	2.4GHz 11n40 2437MHz (Patch Antenna)			



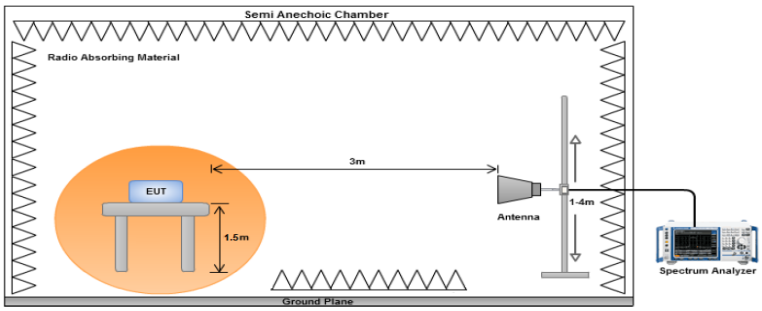
Quasi Max Measurement

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
30.51	39.20	0.81	-14.86	25.15	Quasi Max	V	358.00	114.00	40.00	-14.85	Pass
199.50	54.46	2.38	-25.52	31.32	Quasi Max	H	115.00	296.00	43.52	-12.20	Pass
35.75	38.00	0.87	-19.39	19.48	Quasi Max	V	284.00	264.00	40.00	-20.52	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

10.8 Radiated Spurious Emissions between 1GHz – 25GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§15.247(d), RSS247 (5.5)	a)	For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required ☐ 20 dB down ☒ 30 dB down	☒
	b)	or restricted band, emission must also comply with the radiated emission limits specified in 15.209	☒
Test Setup			
Procedure		1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. An average measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.	
Remark		The EUT was scanned up to 25GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case. There isn't outstanding emission found at the edge of restricted frequency.	
Result		☒ Pass ☐ Fail	

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
Radiated Spurious Emission	1MHz	3MHz	1GHz - 25 GHz	Peak	Auto	Max hold	PK Measurement
Radiated Spurious Emission	1MHz	10Hz	1GHz - 25 GHz	Peak	Auto	Max hold	Ave Measurement

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Radiated Emission Test Results (Above 1GHz) Omni Directional Antenna

Above 1GHz-25GHz – 802.11b – 2412MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17710.42	41.10	13.00	10.61	64.71	Peak Max	H	192.00	17.00	74.00	-9.29	Pass
14526.43	42.51	13.15	8.35	64.01	Peak Max	V	183.00	129.00	74.00	-9.99	Pass
4118.80	39.47	5.93	11.71	57.11	Peak Max	H	174.00	29.00	74.00	-16.89	Pass
17710.42	27.10	13.00	10.61	50.71	Average Max	H	192.00	17.00	54.00	-3.29	Pass
14526.43	29.15	13.15	8.35	50.64	Average Max	V	183.00	129.00	54.00	-3.36	Pass
4118.80	25.77	5.93	11.71	43.41	Average Max	H	174.00	29.00	54.00	-10.59	Pass

Above 1GHz-25GHz- 802.11b - 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
14575.47	42.57	13.23	8.22	64.02	Peak Max	V	253.00	278.00	74.00	-9.98	Pass
17710.91	40.56	13.00	10.61	64.17	Peak Max	V	228.00	353.00	74.00	-9.83	Pass
4066.56	39.23	5.89	11.93	57.05	Peak Max	H	151.00	208.00	74.00	-16.95	Pass
14575.47	29.54	13.23	8.22	50.99	Average Max	V	253.00	278.00	54.00	-3.01	Pass
17710.91	27.13	13.00	10.61	50.75	Average Max	V	228.00	353.00	54.00	-3.25	Pass
4066.56	26.11	5.89	11.93	43.93	Average Max	H	151.00	208.00	54.00	-10.07	Pass

Above 1GHz-25GHz – 802.11b – 2462MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
4081.67	38.63	5.90	11.87	56.40	Peak Max	H	201.00	302.00	74.00	-17.60	Pass
14660.78	42.51	13.39	7.99	63.88	Peak Max	H	240.00	119.00	74.00	-10.12	Pass
17930.19	39.47	13.00	10.84	63.31	Peak Max	V	290.00	111.00	74.00	-10.69	Pass
4081.67	25.59	5.90	11.87	43.36	Average Max	H	201.00	302.00	54.00	-10.64	Pass
14660.78	29.00	13.39	7.99	50.37	Average Max	H	240.00	119.00	54.00	-3.63	Pass
17930.19	26.79	13.00	10.84	50.63	Average Max	V	290.00	111.00	54.00	-3.37	Pass

Above 1GHz-25GHz- 802.11g - 2412MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1750.48	37.59	3.04	9.40	50.03	Peak Max	V	271.00	250.00	74.00	-23.97	Pass
17896.31	39.73	13.00	10.80	63.54	Peak Max	V	149.00	21.00	74.00	-10.46	Pass
4050.91	38.86	5.87	12.00	56.74	Peak Max	V	219.00	107.00	74.00	-17.26	Pass
1750.48	24.77	3.04	9.40	37.21	Average Max	V	271.00	250.00	54.00	-16.79	Pass
17896.31	26.83	13.00	10.80	50.63	Average Max	V	149.00	21.00	54.00	-3.37	Pass
4050.91	25.87	5.87	12.00	43.74	Average Max	V	219.00	107.00	54.00	-10.26	Pass

Above 1GHz-25GHz – 802.11g – 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
11951.69	41.35	12.21	8.51	62.06	Peak Max	V	166.00	239.00	74.00	-11.94	Pass
4082.97	38.75	5.90	11.86	56.52	Peak Max	V	247.00	156.00	74.00	-17.48	Pass
17727.24	41.50	13.00	10.63	65.13	Peak Max	V	189.00	120.00	74.00	-8.87	Pass
11951.69	28.39	12.21	8.51	49.11	Average Max	V	166.00	239.00	54.00	-4.89	Pass
4082.97	25.50	5.90	11.86	43.27	Average Max	V	247.00	156.00	54.00	-10.73	Pass
17727.24	27.20	13.00	10.63	50.83	Average Max	V	189.00	120.00	54.00	-3.17	Pass

Above 1GHz-25GHz- 802.11g - 2462MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1734.25	39.50	3.02	9.38	51.90	Peak Max	H	219.00	13.00	74.00	-22.10	Pass
17845.09	39.49	13.00	10.75	63.24	Peak Max	V	184.00	36.00	74.00	-10.76	Pass
3979.07	38.24	5.82	12.15	56.21	Peak Max	H	255.00	40.00	74.00	-17.79	Pass
1734.25	25.48	3.02	9.38	37.88	Average Max	H	219.00	13.00	54.00	-16.12	Pass
17845.09	26.72	13.00	10.75	50.47	Average Max	V	184.00	36.00	54.00	-3.53	Pass
3979.07	25.21	5.82	12.15	43.18	Average Max	H	255.00	40.00	54.00	-10.82	Pass

Above 1GHz-25GHz- 802.11n20 - 2412MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17762.63	40.55	13.00	10.67	64.22	Peak Max	V	148.00	128.00	74.00	-9.78	Pass
14797.87	42.28	13.63	7.63	63.53	Peak Max	H	297.00	83.00	74.00	-10.47	Pass
4030.40	39.45	5.86	12.09	57.40	Peak Max	H	154.00	117.00	74.00	-16.60	Pass
17762.63	26.90	13.00	10.67	50.57	Average Max	V	148.00	128.00	54.00	-3.43	Pass
14797.87	29.34	13.63	7.63	50.59	Average Max	H	297.00	83.00	54.00	-3.41	Pass
4030.40	26.17	5.86	12.09	44.12	Average Max	H	154.00	117.00	54.00	-9.88	Pass

Above 1GHz-25GHz – 802.11n20 – 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17863.05	39.61	13.00	10.77	63.38	Peak Max	V	168.00	190.00	74.00	-10.62	Pass
11627.47	41.09	12.17	8.14	61.40	Peak Max	H	259.00	0.00	74.00	-12.60	Pass
4064.34	39.48	5.89	11.94	57.31	Peak Max	H	167.00	88.00	74.00	-16.69	Pass
17863.05	26.78	13.00	10.77	50.55	Average Max	V	168.00	190.00	54.00	-3.45	Pass
11627.47	28.33	12.17	8.14	48.64	Average Max	H	259.00	0.00	54.00	-5.36	Pass
4064.34	26.05	5.89	11.94	43.88	Average Max	H	167.00	88.00	54.00	-10.12	Pass

Above 1GHz-25GHz- 802.11n20 - 2462MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
14898.52	43.23	13.80	7.36	64.40	Peak Max	V	150.00	323.00	74.00	-9.60	Pass
3282.64	41.70	5.50	10.20	57.40	Peak Max	H	174.00	112.00	74.00	-16.60	Pass
17658.20	40.42	13.00	10.56	63.98	Peak Max	V	175.00	65.00	74.00	-10.02	Pass
14898.52	29.37	13.80	7.36	50.54	Average Max	V	150.00	323.00	54.00	-3.46	Pass
3282.64	31.11	5.50	10.20	46.81	Average Max	H	174.00	112.00	54.00	-7.19	Pass
17658.20	27.08	13.00	10.56	50.64	Average Max	V	175.00	65.00	54.00	-3.36	Pass

Above 1GHz-25GHz- 802.11n40 - 2422MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
14763.54	42.16	13.57	7.72	63.44	Peak Max	V	233.00	278.00	74.00	-10.56	Pass
17744.08	40.01	13.00	10.65	63.66	Peak Max	V	244.00	133.00	74.00	-10.34	Pass
3929.56	39.27	5.79	11.97	57.04	Peak Max	V	294.00	219.00	74.00	-16.96	Pass
14763.54	29.22	13.57	7.72	50.51	Average Max	V	233.00	278.00	54.00	-3.49	Pass
17744.08	26.96	13.00	10.65	50.61	Average Max	V	244.00	133.00	54.00	-3.39	Pass
3929.56	25.89	5.79	11.97	43.65	Average Max	V	294.00	219.00	54.00	-10.35	Pass

Above 1GHz-25GHz – 802.11n40 – 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
14627.69	42.49	13.33	8.08	63.89	Peak Max	H	148.00	121.00	74.00	-10.11	Pass
17846.82	39.36	13.00	10.75	63.11	Peak Max	H	176.00	63.00	74.00	-10.89	Pass
4203.51	38.08	6.00	11.34	55.43	Peak Max	V	223.00	107.00	74.00	-18.57	Pass
14627.69	29.29	13.33	8.08	50.69	Average Max	H	148.00	121.00	54.00	-3.31	Pass
17846.82	26.65	13.00	10.75	50.40	Average Max	H	176.00	63.00	54.00	-3.60	Pass
4203.51	25.25	6.00	11.34	42.59	Average Max	V	223.00	107.00	54.00	-11.41	Pass

Above 1GHz-25GHz- 802.11n40 - 2452MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1732.39	39.37	3.02	9.38	51.77	Peak Max	V	234.00	264.00	74.00	-22.23	Pass
17745.84	41.23	13.00	10.65	64.88	Peak Max	V	202.00	96.00	74.00	-9.12	Pass
14592.82	41.82	13.27	8.17	63.25	Peak Max	V	233.00	336.00	74.00	-10.75	Pass
1732.39	25.13	3.02	9.38	37.52	Average Max	V	234.00	264.00	54.00	-16.48	Pass
17745.84	26.88	13.00	10.65	50.53	Average Max	V	202.00	96.00	54.00	-3.47	Pass
14592.82	29.31	13.27	8.17	50.75	Average Max	V	233.00	336.00	54.00	-3.25	Pass

Radiated Emission Test Results (Above 1GHz) Patch Antena

Above 1GHz-25GHz- 802.11b - 2412MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17759.95	37.45	13.00	10.66	61.12	Peak Max	H	179.00	121.00	74.00	-12.88	Pass
4166.66	34.79	5.97	11.50	52.26	Peak Max	V	201.00	223.00	74.00	-21.74	Pass
14626.22	39.36	13.32	8.08	60.76	Peak Max	H	186.00	139.00	74.00	-13.24	Pass
17759.95	24.25	13.00	10.66	47.92	Average Max	H	179.00	121.00	54.00	-6.08	Pass
4166.66	21.75	5.97	11.50	39.22	Average Max	V	201.00	223.00	54.00	-14.78	Pass
14626.22	26.60	13.32	8.08	48.01	Average Max	H	186.00	139.00	54.00	-5.99	Pass

Above 1GHz-25GHz- 802.11b - 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17760.21	36.67	13.00	10.67	60.34	Peak Max	V	266.00	19.00	74.00	-13.66	Pass
6075.05	40.18	7.11	10.89	58.18	Peak Max	V	247.00	121.00	74.00	-15.82	Pass
4067.48	35.22	5.89	11.93	53.04	Peak Max	V	286.00	96.00	74.00	-20.96	Pass
17760.21	24.26	13.00	10.67	47.93	Average Max	V	266.00	19.00	54.00	-6.07	Pass
6075.05	27.13	7.11	10.89	45.13	Average Max	V	247.00	121.00	54.00	-8.87	Pass
4067.48	22.38	5.89	11.93	40.20	Average Max	V	286.00	96.00	54.00	-13.80	Pass

Above 1GHz-25GHz- 802.11b - 2462MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
4133.29	35.33	5.94	11.64	52.92	Peak Max	H	271.00	95.00	74.00	-21.08	Pass
14832.79	39.90	13.69	7.53	61.13	Peak Max	H	267.00	165.00	74.00	-12.87	Pass
17863.11	37.43	13.00	10.77	61.20	Peak Max	H	211.00	20.00	74.00	-12.80	Pass
4133.29	22.36	5.94	11.64	39.95	Average Max	H	271.00	95.00	54.00	-14.05	Pass
14832.79	26.61	13.69	7.53	47.84	Average Max	H	267.00	165.00	54.00	-6.16	Pass
17863.11	24.13	13.00	10.77	47.90	Average Max	H	211.00	20.00	54.00	-6.10	Pass

Above 1GHz-25GHz- 802.11g - 2412MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17933.66	36.64	13.00	10.84	60.48	Peak Max	H	194.00	129.00	74.00	-13.52	Pass
14046.13	39.66	12.73	7.45	59.84	Peak Max	V	218.00	120.00	74.00	-14.16	Pass
1747.63	34.90	3.03	9.40	47.33	Peak Max	H	246.00	272.00	74.00	-26.67	Pass
17933.66	24.12	13.00	10.84	47.96	Average Max	H	194.00	129.00	54.00	-6.04	Pass
14046.13	27.05	12.73	7.45	47.23	Average Max	V	218.00	120.00	54.00	-6.77	Pass
1747.63	21.43	3.03	9.40	33.86	Average Max	H	246.00	272.00	54.00	-20.14	Pass

Above 1GHz-25GHz- 802.11g - 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1716.58	34.82	3.00	9.36	47.18	Peak Max	H	227.00	135.00	74.00	-26.82	Pass
14591.31	39.46	13.26	8.17	60.90	Peak Max	V	209.00	239.00	74.00	-13.10	Pass
17691.85	36.94	13.00	10.60	60.53	Peak Max	H	150.00	28.00	74.00	-13.47	Pass
1716.58	21.52	3.00	9.36	33.88	Average Max	H	227.00	135.00	54.00	-20.12	Pass
14591.31	26.62	13.26	8.17	48.06	Average Max	V	209.00	239.00	54.00	-5.94	Pass
17691.85	24.40	13.00	10.60	48.00	Average Max	H	150.00	28.00	54.00	-6.00	Pass

Above 1GHz-25GHz- 802.11g - 2462MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
14525.84	39.78	13.15	8.35	61.27	Peak Max	H	276.00	360.00	74.00	-12.73	Pass
17931.40	36.64	13.00	10.84	60.48	Peak Max	H	215.00	148.00	74.00	-13.52	Pass
1001.12	36.23	2.44	9.68	48.34	Peak Max	H	159.00	111.00	74.00	-25.66	Pass
14525.84	26.39	13.15	8.35	47.88	Average Max	H	276.00	360.00	54.00	-6.12	Pass
17931.40	24.10	13.00	10.84	47.94	Average Max	H	215.00	148.00	54.00	-6.06	Pass
1001.12	23.38	2.44	9.68	35.50	Average Max	H	159.00	111.00	54.00	-18.50	Pass

Above 1GHz-25GHz- 802.11n-20M - 2412MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
9858.64	38.14	11.54	8.26	57.94	Peak Max	H	267.00	73.00	74.00	-16.06	Pass
17827.80	37.18	13.00	10.73	60.91	Peak Max	V	295.00	284.00	74.00	-13.09	Pass
4211.47	33.96	6.01	11.31	51.28	Peak Max	V	196.00	25.00	74.00	-22.72	Pass
9858.64	24.92	11.54	8.26	44.72	Average Max	H	267.00	73.00	54.00	-9.28	Pass
17827.80	24.20	13.00	10.73	47.94	Average Max	V	295.00	284.00	54.00	-6.06	Pass
4211.47	21.36	6.01	11.31	38.68	Average Max	V	196.00	25.00	54.00	-15.32	Pass

Above 1GHz-25GHz- 802.11n-20M - 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17692.64	37.20	13.00	10.60	60.79	Peak Max	V	231.00	125.00	74.00	-13.21	Pass
4030.70	35.58	5.86	12.09	53.53	Peak Max	V	200.00	59.00	74.00	-20.47	Pass
13980.16	40.61	12.68	7.36	60.64	Peak Max	V	271.00	198.00	74.00	-13.36	Pass
17692.64	24.35	13.00	10.60	47.95	Average Max	V	231.00	125.00	54.00	-6.05	Pass
4030.70	22.74	5.86	12.09	40.69	Average Max	V	200.00	59.00	54.00	-13.31	Pass
13980.16	27.00	12.68	7.36	47.03	Average Max	V	271.00	198.00	54.00	-6.97	Pass

Above 1GHz-25GHz- 802.11n-20 - 2462MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17862.08	36.78	13.00	10.77	60.55	Peak Max	H	205.00	116.00	74.00	-13.45	Pass
14592.77	39.33	13.27	8.17	60.77	Peak Max	V	289.00	273.00	74.00	-13.23	Pass
4098.43	35.22	5.91	11.79	52.93	Peak Max	V	240.00	246.00	74.00	-21.07	Pass
17862.08	24.05	13.00	10.77	47.82	Average Max	H	205.00	116.00	54.00	-6.18	Pass
14592.77	26.54	13.27	8.17	47.98	Average Max	V	289.00	273.00	54.00	-6.02	Pass
4098.43	22.21	5.91	11.79	39.92	Average Max	V	240.00	246.00	54.00	-14.08	Pass

Above 1GHz-25GHz- 802.11n-40M - 2422MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
4031.88	35.32	5.86	12.09	53.27	Peak Max	V	219.00	221.00	74.00	-20.73	Pass
17930.53	36.38	13.00	10.84	60.22	Peak Max	H	297.00	59.00	74.00	-13.78	Pass
14762.49	39.01	13.57	7.72	60.29	Peak Max	H	204.00	107.00	74.00	-13.71	Pass
4031.88	22.47	5.86	12.09	40.41	Average Max	V	219.00	221.00	54.00	-13.59	Pass
17930.53	24.05	13.00	10.84	47.89	Average Max	H	297.00	59.00	54.00	-6.11	Pass
14762.49	26.37	13.57	7.72	47.65	Average Max	H	204.00	107.00	54.00	-6.35	Pass

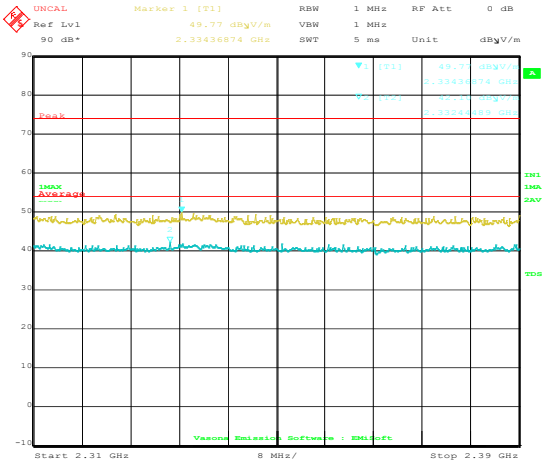
Above 1GHz-25GHz- 802.11n-40M - 2437MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
4064.22	35.09	5.89	11.94	52.92	Peak Max	H	249.00	178.00	74.00	-21.08	Pass
17931.90	36.90	13.00	10.84	60.74	Peak Max	H	184.00	116.00	74.00	-13.26	Pass
14832.80	39.12	13.69	7.53	60.35	Peak Max	V	219.00	71.00	74.00	-13.65	Pass
4064.22	22.31	5.89	11.94	40.14	Average Max	H	249.00	178.00	54.00	-13.86	Pass
17931.90	24.04	13.00	10.84	47.88	Average Max	H	184.00	116.00	54.00	-6.12	Pass
14832.80	26.51	13.69	7.53	47.73	Average Max	V	219.00	71.00	54.00	-6.27	Pass

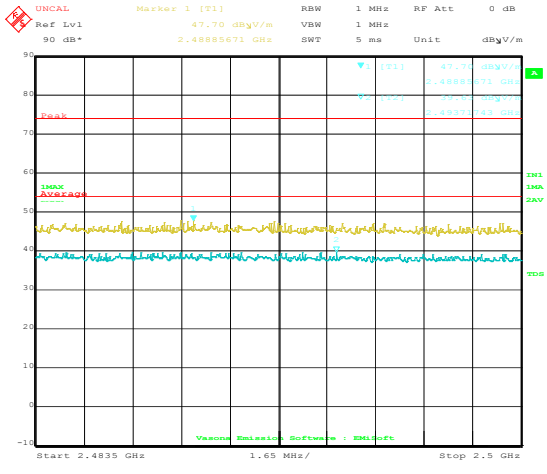
Above 1GHz-25GHz- 802.11n-40 - 2452MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17865.58	36.52	13.00	10.77	60.30	Peak Max	H	194.00	319.00	74.00	-13.70	Pass
1749.05	34.25	3.04	9.40	46.69	Peak Max	H	180.00	217.00	74.00	-27.31	Pass
4133.13	36.11	5.94	11.64	53.70	Peak Max	H	227.00	236.00	74.00	-20.30	Pass
17865.58	24.04	13.00	10.77	47.82	Average Max	H	194.00	319.00	54.00	-6.18	Pass
1749.05	21.23	3.04	9.40	33.67	Average Max	H	180.00	217.00	54.00	-20.33	Pass
4133.13	22.30	5.94	11.64	39.89	Average Max	H	227.00	236.00	54.00	-14.11	Pass

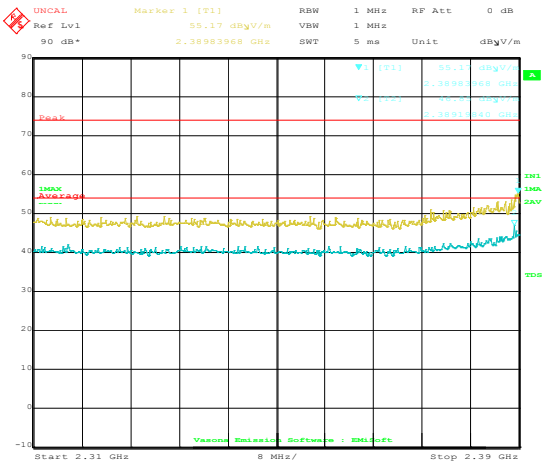
Restricted Band Measurement Plot (Omnidirectional Antenna)



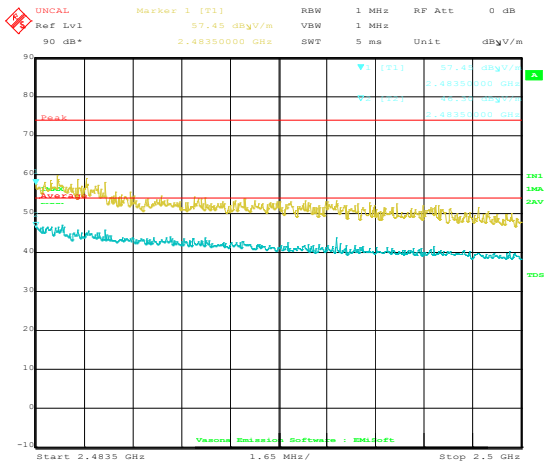
Restricted Band 802.11b 2412MHz



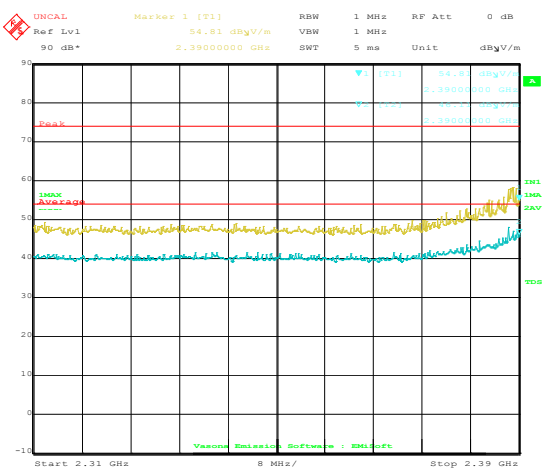
Restricted Band 802.11b 2462MHz



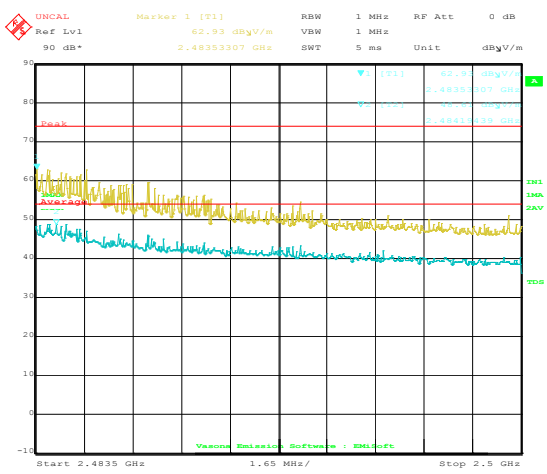
Restricted Band 802.11g 2412MHz



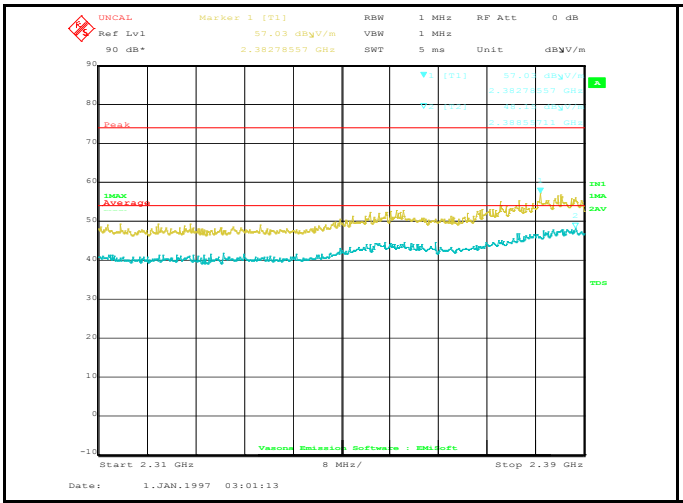
Restricted Band 802.11g 2462MHz



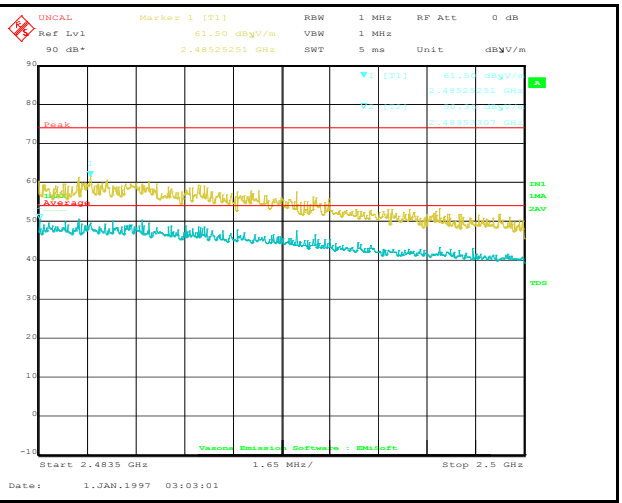
Restricted Band 802.11n-20M 2412MHz



Restricted Band 802.11n-20M 2462MHz

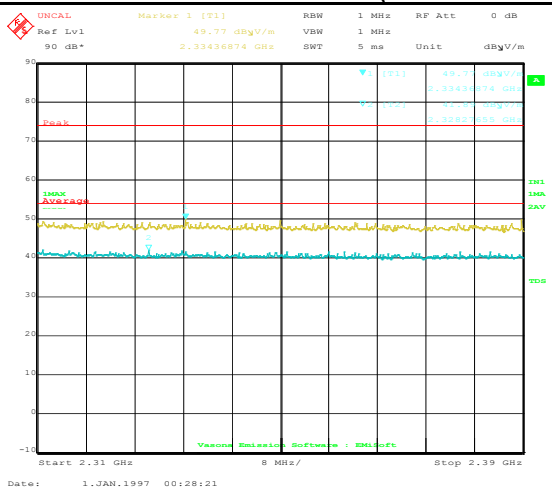


Restricted Band 802.11n-40M 2422MHz

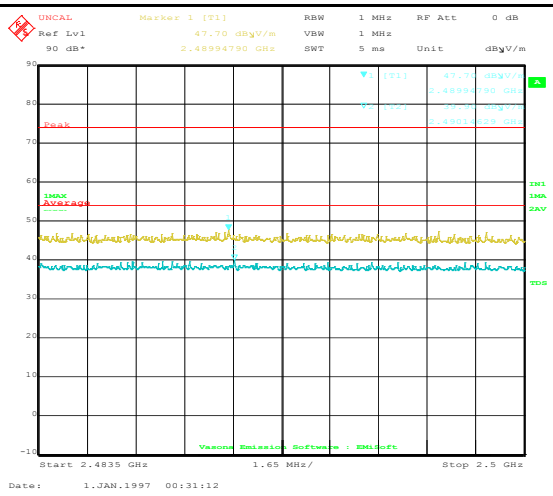


Restricted Band 802.11n-40M 2452MHz

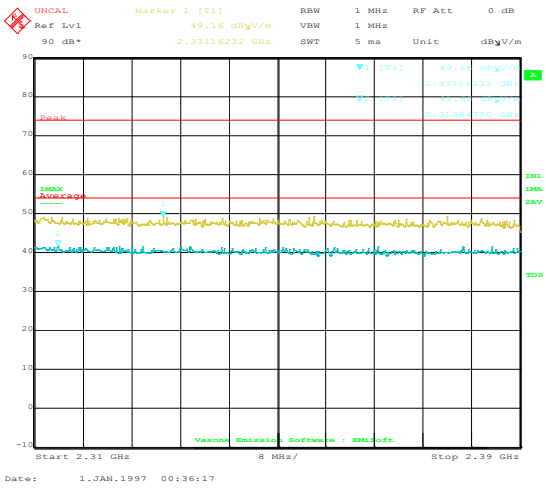
Restricted Band Measurement Plot (Patch Antenna)



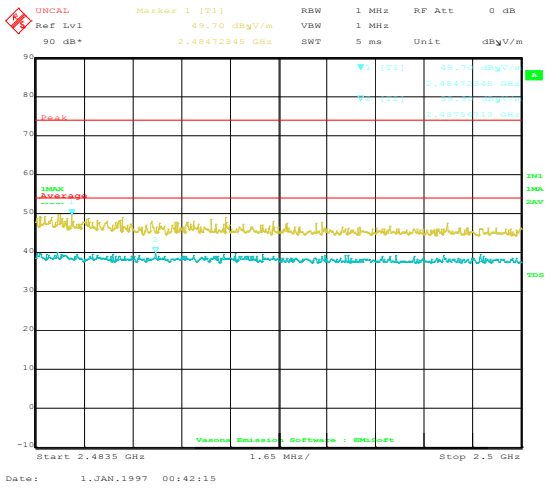
Restricted Band 802.11b 2412MHz



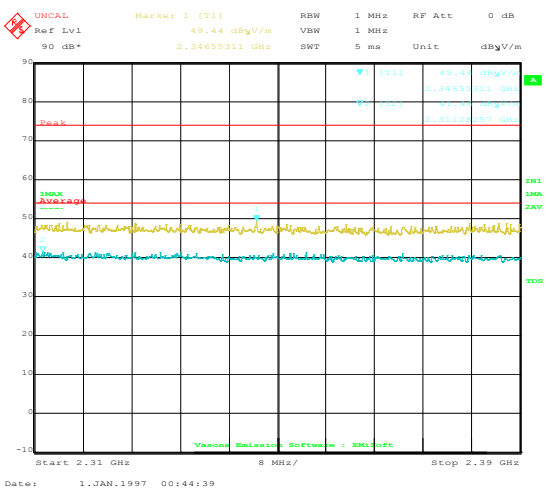
Restricted Band 802.11b 2462MHz



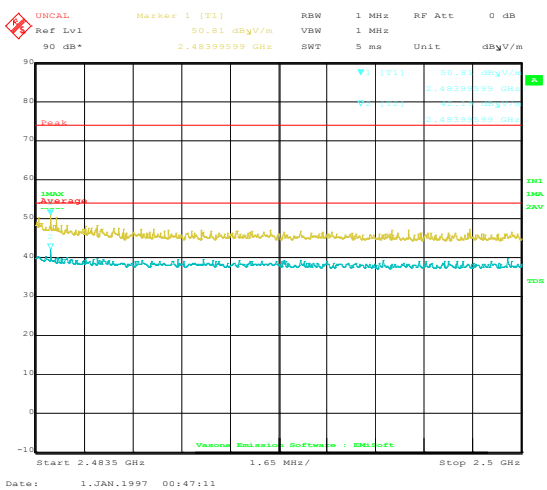
Restricted Band 802.11g 2412MHz



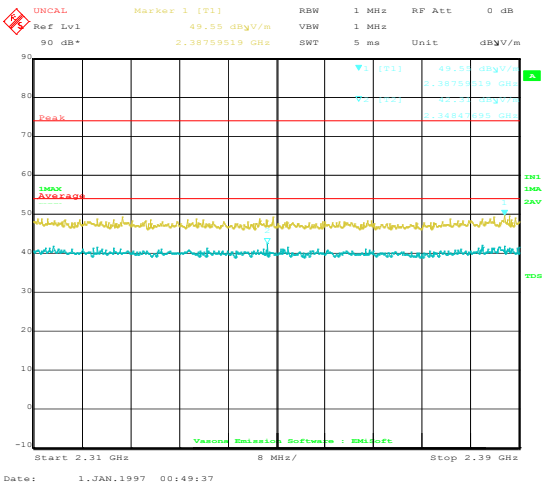
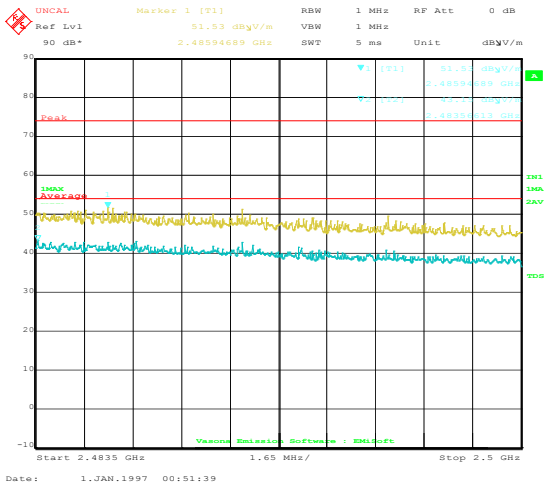
Restricted Band 802.11g 2462MHz



Restricted Band 802.11n-20M 2412MHz



Restricted Band 802.11n-20M 2462MHz

	
Restricted Band 802.11n-40M 2422MHz	**Restricted Band 802.11n-40M 2452MHz**

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Conducted Emissions						
R & S Receiver	ESIB 40	100179	05/23/2015	1 Year	05/23/2016	☑
CHASE LISN	MN2050B	1018	08/07/2015	1 Year	08/07/2016	☑
Radiated Emissions						
R & S Receiver	ESL6	100178	05/27/2015	1 Year	05/27/2016	☑
R & S Receiver	ESIB 40	100179	05/23/2015	1 Year	05/23/2016	☑
ETS-Lingren Loop Antenna	6512	00049120	05/12/2015	1 Year	05/12/2016	☑
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	08/12/2015	1 Year	08/12/2016	☑
3 Meters SAC	3M	N/A	08/08/2015	1 Year	08/08/2016	☑
10 Meters SAC	10M	N/A	09/05/2015	1 Year	09/05/2016	☑
RF Conducted Measurement						
Spectrum Analyzer	N9010A	10SL0219	08/20/2015	1 Year	08/20/2016	☑
R & S Receiver	ESIB 40	100179	05/23/2015	1 Year	05/23/2016	☑
Test Equity Environment Chamber	1007H	61201	07/31/2015	1 Year	07/31/2016	☑
USB RF Power Sensor	7002-006	10SL0190	09/03/2015	1 Year	09/03/2016	☑

Annex B. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		**Radio & Telecommunications Terminal Equipment:** EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
Hong Kong OFCA		**(Phase II)** OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		**Radio:** Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		**Radio**: A1. Terminal equipment for purpose of calling **Telecom**: B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		**EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI **EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS
		Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68
		Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measurement
Australia CAB Recognition		**EMC:** AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4
		Radio communications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771
		Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016,AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2