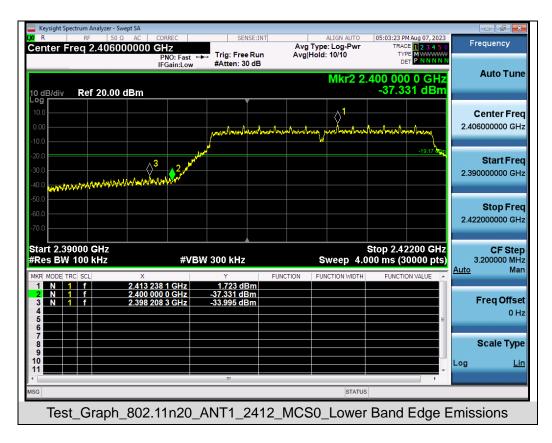






Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands











www. Keysight Spectrum Analyzer - Swept SA				
X R RF 50 Ω AC CORREC	SENSE:IN	T ALIGN AUTO Avg Type: Log-Pwr	11:35:48 AM Aug 08, 2023 TRACE 1 2 3 4 5 6	Frequency
	ast 🛶 Trig: Free Run			
IFGain:I	.ow #Atten: 30 dB			Auto Tune
		Mkr2 2	400 000 0 GHz. -36.385 dBm	riaco rano
10 dB/div Ref 20.00 dBm			-30.365 UBII	
10.0		∧1		Center Freq
0.00	malmahanta	motion and motion	Marahan Marahan	2.406000000 GHz
-10.0		<u>Veren</u>		
-20.0	- West -		-18.73	Start Freq
-30.0	r			2.390000000 GHz
-40.0 Wardenhow harden				
-50.0				
-60.0				Stop Freq
-70.0				2.422000000 GHz
Start 2.39000 GHz #Res BW 100 kHz	≠VBW 300 kHz	Swoon A	Stop 2.42200 GHz 000 ms (30000 pts)	CF Step 3.20000 MHz
		•	,	Auto Man
MKR MODE TRC SCL X 1 N 1 f 2.413 227 4 GH	z 2.071 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	
2 N 1 f 2.400 000 0 GH 3 N 1 f 2.398 849 4 GH				Freq Offset
4	2 -52.514 UBIII			0 Hz
5			E	
7				Scale Type
9				Could Type
10				Log <u>Lin</u>
	m			
MSG		STATU	s	
Test_Graph_802.11n2	0 ANT2 241	2 MCS0 Lowe	r Band Edge E	Emissions

Note: Emissions from 2483.5-2500MHz which fall in the restricted bands had been considered with the radiated emission limits specified.



10. POWER SPECTRAL DENSITY

10.1 MEASUREMENT LIMITS

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than

8 dBm in any 3 kHz band during any time interval of continuous transmission.

10.2 MEASUREMENT PROCEDURE

⊠For Peak power spectral density test:

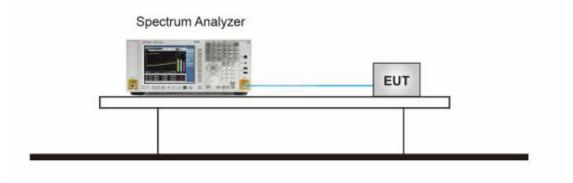
- 1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
- 2. Connect EUT RF output port to the Spectrum Analyzer
- 3. Set the RBW = 20 kHz.
- 4. Set the VBW \geq [3 × RBW].
- 5. Set the Span \geq [1.5 × DTS bandwidth].
- 6. Sweep time=Auto couple.
- 7. Detector function=Peak.
- 8. Trace Mode=Max hold.
- When the measurement bandwidth of Maximum PSD is specified in 3 kHz, add a constant factor 10*log(3kHz/20kHz) = -8.23 dB to the measured result.
- 10. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.
- 11. The indicated level is the peak output power, after any corrections for external cables.

For Average power spectral density test:

- 1. The testing follows the ANSI C63.10 Section 11.10.5 Method AVPSD.
- 2. Connect EUT RF output port to the Spectrum Analyzer.
- 3. Set Span to at least 1.5 times the OBW.
- 4. Set RBW to:3 kHz \leq RBW \leq 100 kHz.
- 5. Set VBW≥[3×RBW].
- 6. Sweep Time=Auto couple.
- 7. Detector function=RMS (i.e., power averaging).
- 8. Trace average at least 100 traces in power averaging (rms) mode.
- When the measurement bandwidth of Maximum PSD is specified in 3 kHz, add a constant factor 10*log(3kHz/20kHz) = -8.23 dB to the measured result.
- 10. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
- 11. Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is 25%.
- 12. Record the test results in the report.



10.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



10.4 MEASUREMENT RESULT

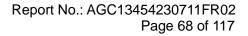
	Test Data of Conducted Output Power Spectral Density_ ANT 1							
Test Mode	Test Channel (MHz)			Limit (dBm/3kHz)	Pass or Fail			
	2412	2.011	-6.228	≪8	Pass			
802.11b	2437	0.807	-7.432	≪8	Pass			
	2462	0.558	-7.681	≪8	Pass			
	2412	-4.123	-12.362	≪8	Pass			
802.11g	2437	-4.599	-12.838	≪8	Pass			
	2462	-4.629	-12.868	≪8	Pass			
	2412	-4.235	-12.474	≪8	Pass			
802.11n20	2437	-4.722	-12.961	≪8	Pass			
	2462	-4.033	-12.272	≪8	Pass			



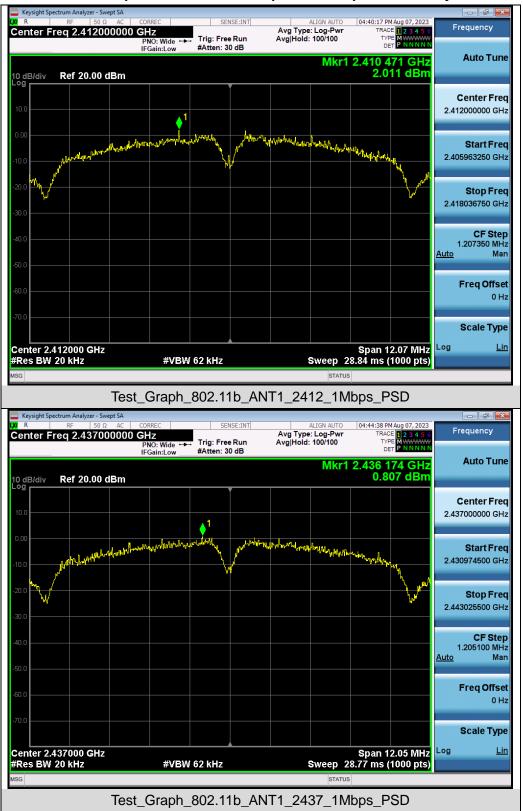
	Test Data of Conducted Output Power Spectral Density_ ANT 2							
Test Mode	Test Channel (MHz)	Power density (dBm/20kHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail			
	2412	1.457	-6.782	≪8	Pass			
802.11b	2437	1.801	-6.438	≪8	Pass			
	2462	2.187	-6.052	≪8	Pass			
	2412	-3.916	-12.155	≪8	Pass			
802.11g	2437	-4.233	-12.472	≤8	Pass			
	2462	-4.795	-13.034	≪8	Pass			
	2412	-3.649	-11.888	≤8	Pass			
802.11n20	2437	-4.243	-12.482	≪8	Pass			
	2462	-4.906	-13.145	≪8	Pass			

Test Data of Conducted Output Power Spectral Density-MIMO								
Test Mode	Test Channel (MHz)							
	2412	-0.92	-9.16	≪8	Pass			
802.11n20	2437	-1.47	-9.70	≪8	Pass			
	2462	-1.44	-9.68	≪8	Pass			

Note: Power density(dBm/3kHz) = Power density(dBm/20kHz) - 10*log(20/3).

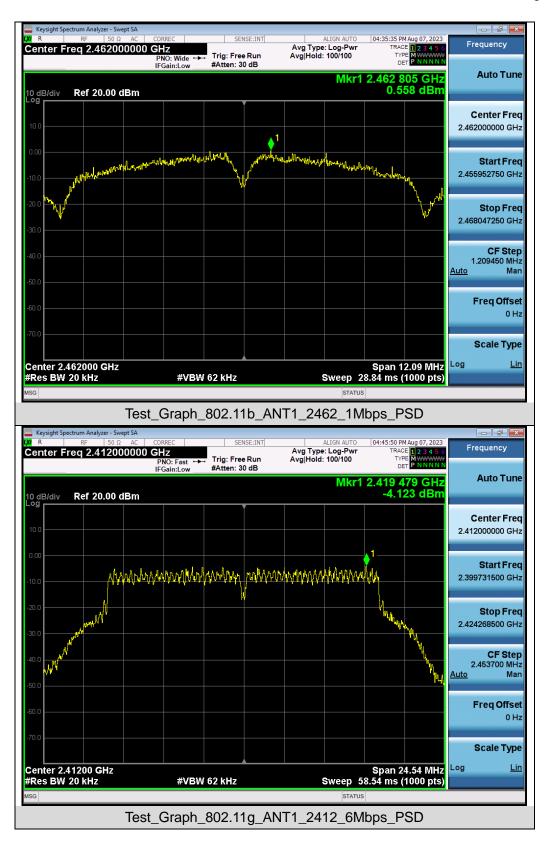




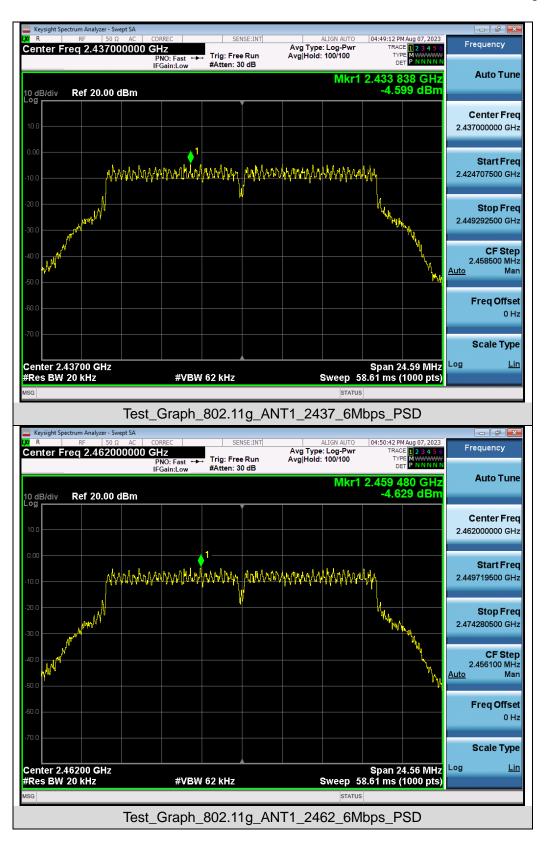


Test Graphs of Conducted Output Power Spectral Density

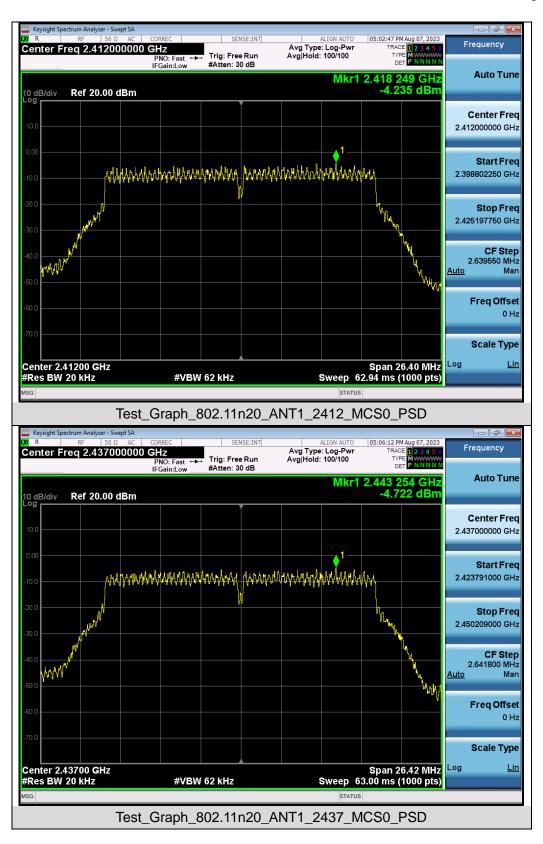


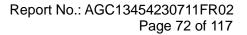




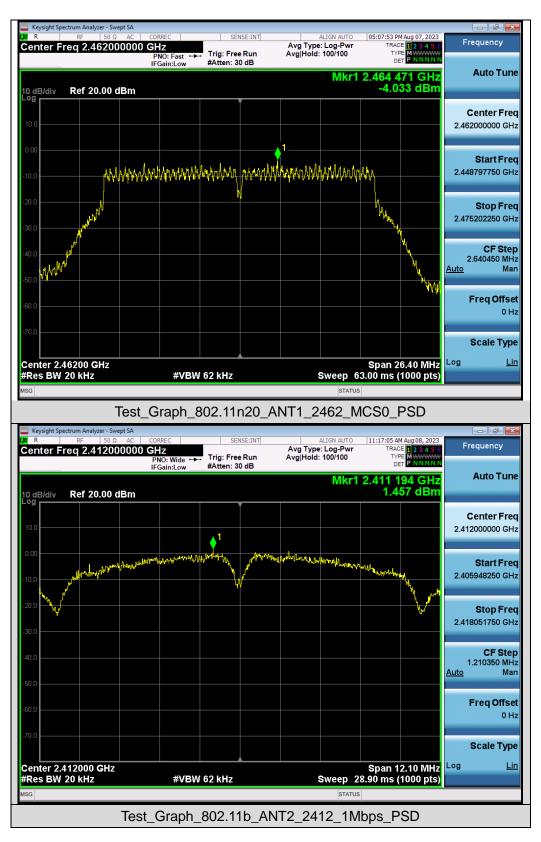










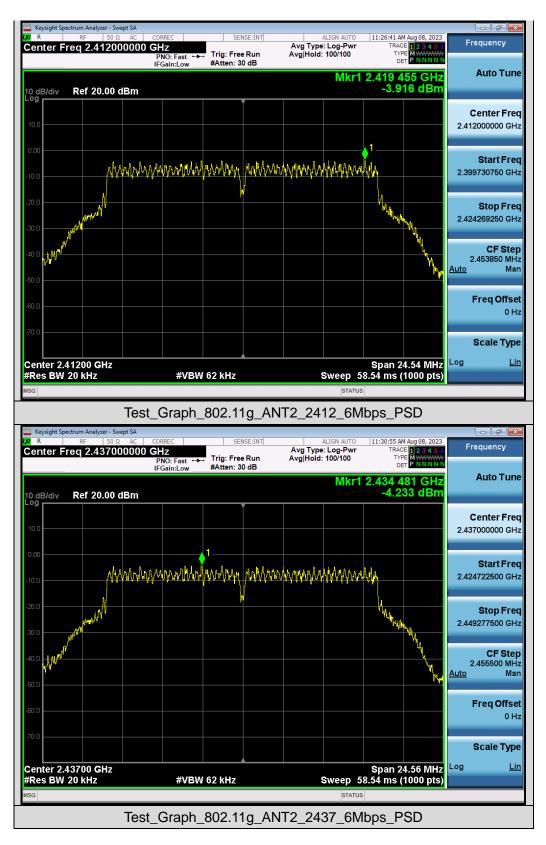






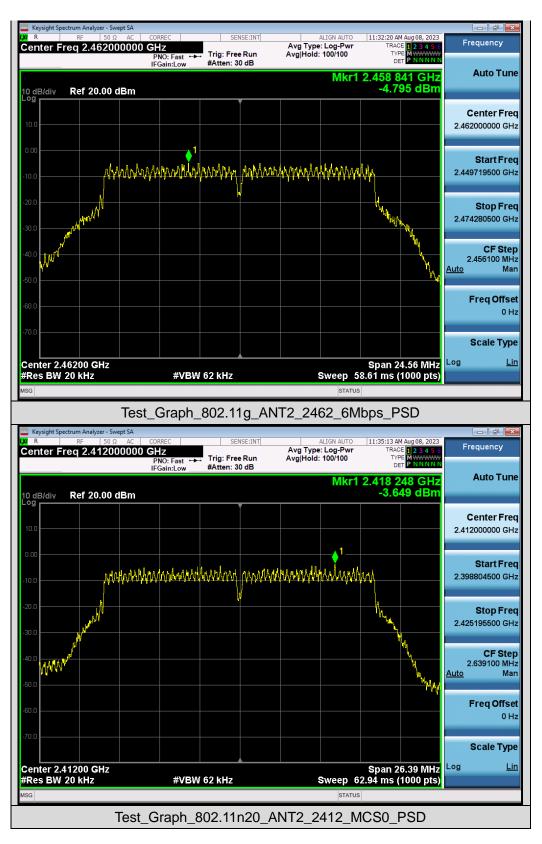
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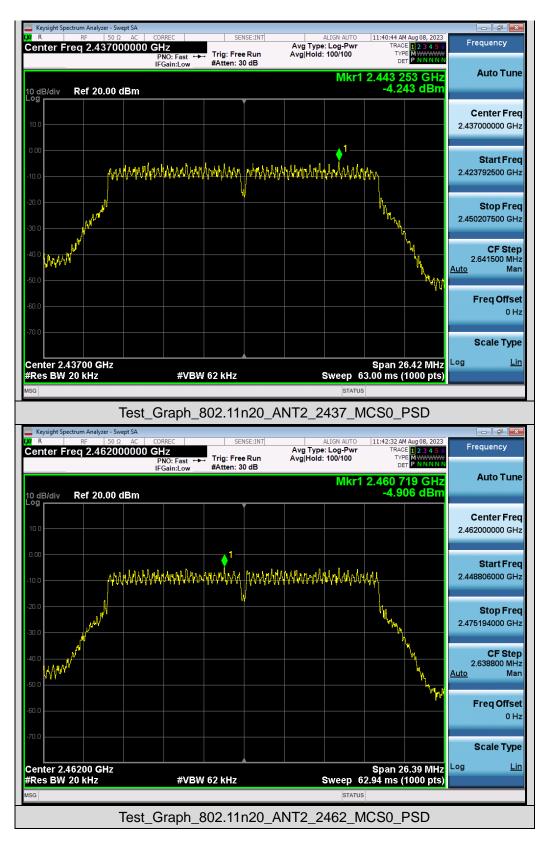


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11. RADIATED EMISSION

11.1 MEASUREMENT LIMITS

15.209(a) Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

11.2 MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.



As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

Spectrum Parameter	Setting	
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP	
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP	
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP	
Start Stap Frequency	1GHz~26.5GHz	
Start ~Stop Frequency	1MHz/3MHz for Peak, 1MHz/3MHz for Average	

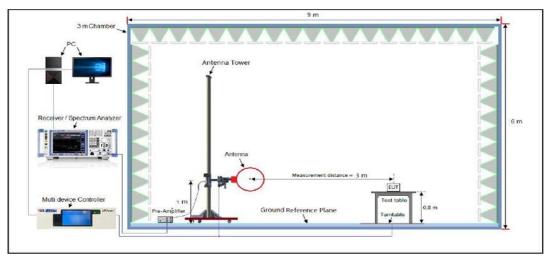
The following table is the setting of spectrum analyzer and receiver.

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

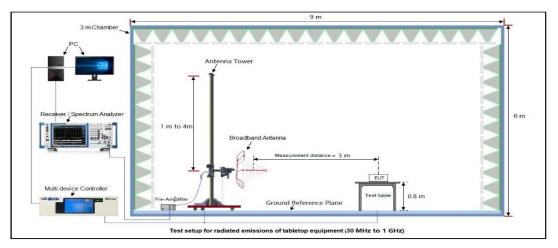


11.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

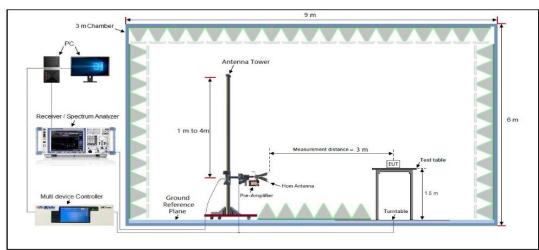
RADIATED EMISSION TEST SETUP 9KHz-30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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 Tel: +86-755 2523 4088
 E-mail: agc@agccert.com



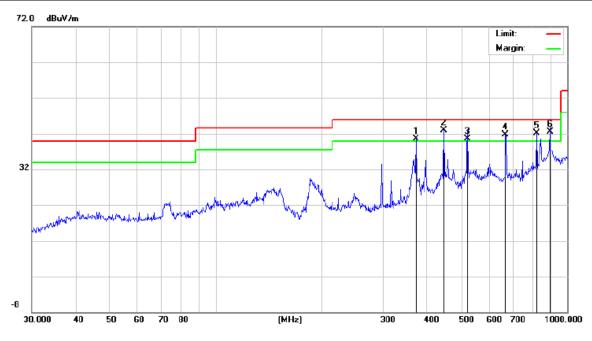
11.4 MEASUREMENT RESULT

Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with 2412MHz	Antenna	Horizontal

Radiated emission from 30MHz to 1000MHz

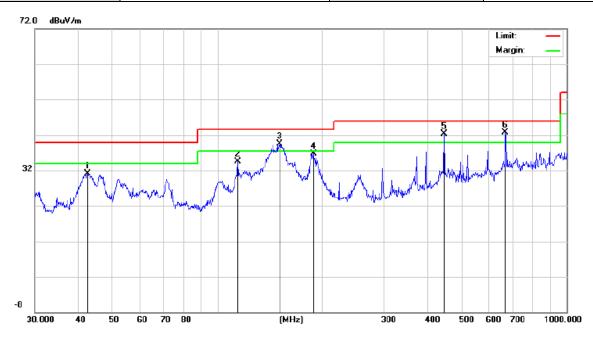


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	İ	372.0045	22.51	17.96	40.47	46.00	-5.53	peak
2	*	446.4141	17.94	24.88	42.82	46.00	-3.18	peak
3	ļ	520.8881	15.37	25.14	40.51	46.00	-5.49	QP
4	ļ	668.1422	17.76	23.99	41.75	46.00	-4.25	peak
5	İ	818.8341	15.40	26.71	42.11	46.00	-3.89	peak
6	İ	893.8567	11.56	31.03	42.59	46.00	-3.41	QP

RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with 2412MHz	Antenna	Vertical



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		42.4508	14.17	16.92	31.09	40.00	-8.91	peak
2		114.5146	17.73	16.74	34.47	43.50	-9.03	peak
3	İ	150.5378	21.31	18.20	39.51	43.50	-3.99	peak
4		188.4124	18.47	18.25	36.72	43.50	-6.78	peak
5	İ	446.4141	16.40	25.81	42.21	46.00	-3.79	peak
6	*	668.1422	15.22	27.58	42.80	46.00	-3.20	peak

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measure-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

3. All test modes had been pre-tested. All the antennas have been tested. The 802.11b mode of antenna 1 is the worst case and recorded in the report.



Radiated emission above 1GHz

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2412MHz	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4824.000	52.49	0.08	52.57	74.00	-21.43	peak
4824.000	43.96	0.08	44.04	54.00	-9.96	AVG
7236.000	50.40	2.21	52.61	74.00	-21.39	peak
7236.000	41.22	2.21	43.43	54.00	-10.57	AVG
Remark:						
Factor = Anter	na Factor + Cabl	e Loss – Pre-a	mplifier.			

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2412MHz	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4824.000	50.58	0.08	50.66	74.00	-23.34	peak
4824.000	42.95	0.08	43.03	54.00	-10.97	AVG
7236.000	49.98	2.21	52.19	74.00	-21.81	peak
7236.000	40.60	2.21	42.81	54.00	-11.19	AVG
emark:						

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2437MHz	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4874.000	52.14	0.14	52.28	74.00	-21.72	peak
4874.000	37.42	0.14	37.56	54.00	-16.44	AVG
7311.000	51.69	2.36	54.05	74.00	-19.95	peak
7311.000	35.32	2.36	37.68	54.00	-16.32	AVG
Remark:	11					1
Factor = Anter	nna Factor + Cabl	e Loss – Pre-a	amplifier.			

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2437MHz	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4874.000	50.99	0.14	51.13	74.00	-22.87	peak
4874.000	38.90	0.14	39.04	54.00	-14.96	AVG
7311.000	50.01	2.36	52.37	74.00	-21.63	peak
7311.000	36.25	2.36	38.61	54.00	-15.39	AVG
Remark:			•		•	•
-actor = Anter	nna Factor + Cabl	e Loss – Pre-a	mplifier.			

RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2462MHz	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4924.000	51.98	0.22	52.20	74.00	-21.80	peak
4924.000	42.46	0.22	42.68	54.00	-11.32	AVG
7386.000	49.74	2.64	52.38	74.00	-21.62	peak
7386.000	51.94	2.64	54.58	54.00	0.58	AVG
Remark:						
Factor = Anter	nna Factor + Cabl	e Loss – Pre-a	amplifier.			

EUT	Portable Smart Projector 480P	Projector 480P Model Name	
Temperature	25°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2462MHz	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4924.000	49.08	0.22	49.30	74.00	-24.70	peak
4924.000	41.25	0.22	41.47	54.00	-12.53	AVG
7386.000	47.59	2.64	50.23	74.00	-23.77	peak
7386.000	38.31	2.64	40.95	54.00	-13.05	AVG
Remark:	1					
Factor = Anter	nna Factor + Cabl	e Loss – Pre-a	amplifier.			

RESULT: PASS

Note:

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over= Limit-Measure.

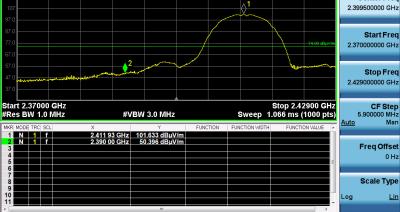
The "Factor" value can be calculated automatically by software of measurement system.

All test modes had been pre-tested. All the antennas have been tested. The 802.11b mode of antenna 1 is the worst case and recorded in the report.



Test result for band edge emission at restricted b	bands_ATN 1
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EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2412MHz	Antenna	Horizontal



Test Graph for Average Measurement



RESULT: PASS



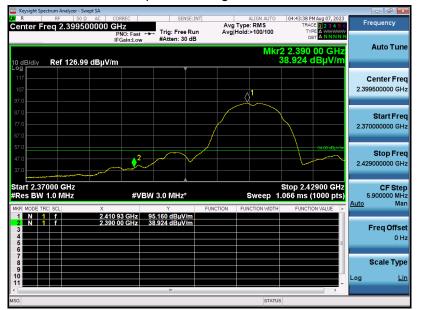
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EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1_2412MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



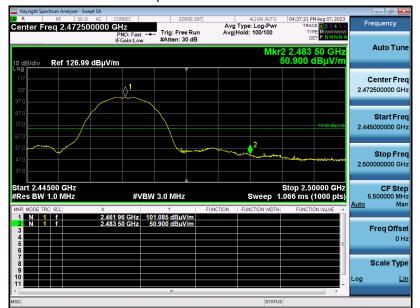
RESULT: PASS



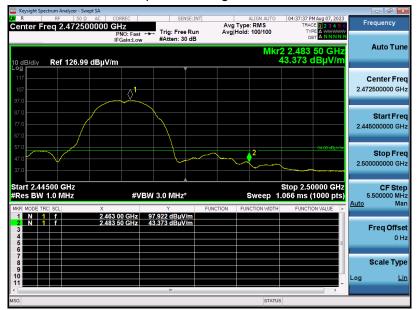
Report No.: AGC13454230711FR02 Page 87 of 117

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1_2462MHz	Antenna	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS



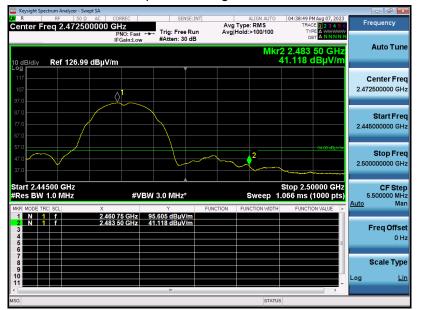
Report No.: AGC13454230711FR02 Page 88 of 117

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1_2462MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS



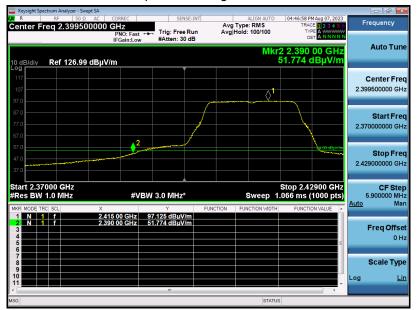
Report No.: AGC13454230711FR02 Page 89 of 117

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6_2412MHz	Antenna	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS



Report No.: AGC13454230711FR02 Page 90 of 117

EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6_2412MHz	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS



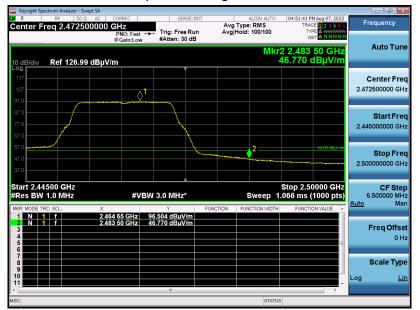
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EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6_2462MHz	Antenna	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2462MHz	Antenna	Vertical



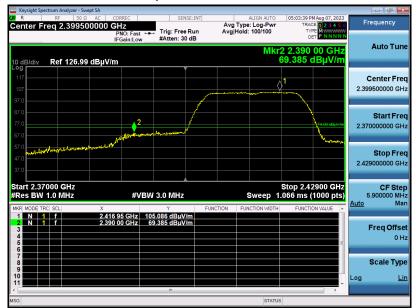
Test Graph for Average Measurement



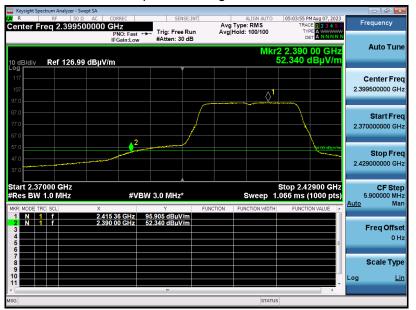
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Horizontal



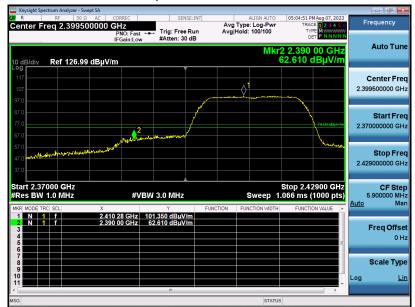
Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



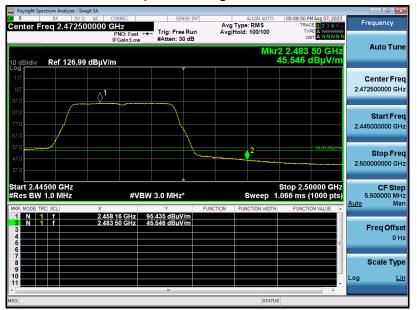
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



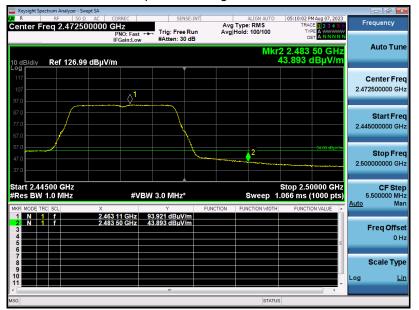
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Vertical



Test Graph for Average Measurement

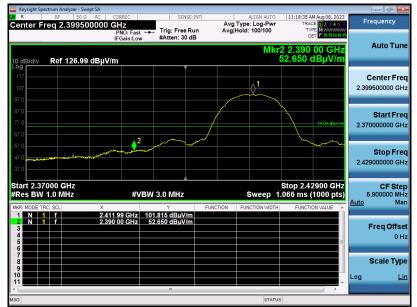


RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2412MHz	Antenna	Horizontal

Test result for band edge emission at restricted bands_ ANT 2



Test Graph for Average Measurement



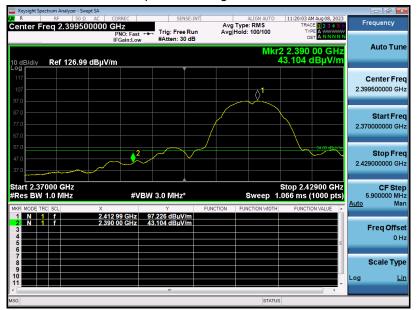
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2462MHz	Antenna	Horizontal



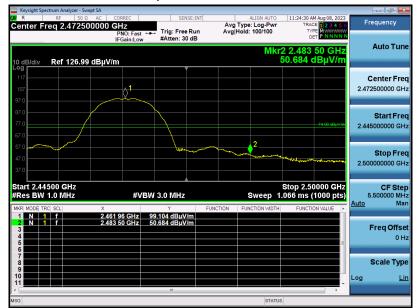
Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2462MHz	Antenna	Vertical



Test Graph for Average Measurement



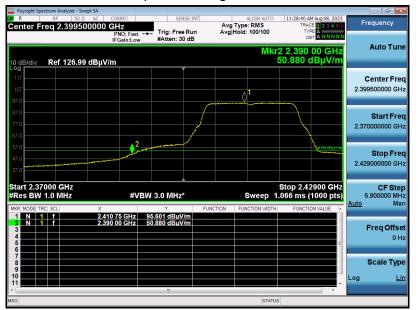
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2412MHz	Antenna	Horizontal



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2412MHz	Antenna	Vertical



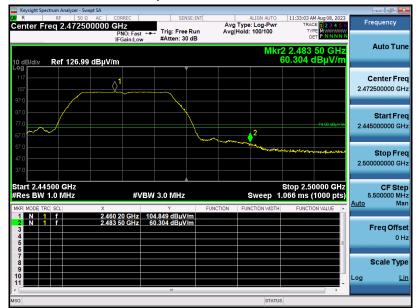
Test Graph for Average Measurement



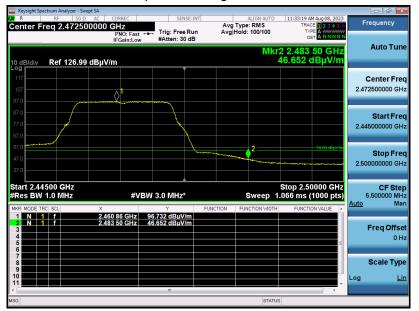
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11g with data rate 6 2462MHz	Antenna	Vertical



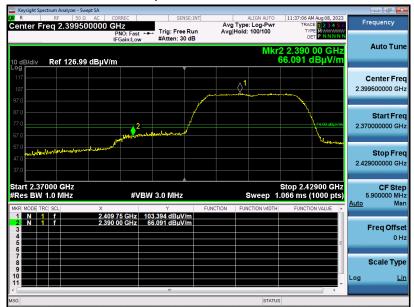
Test Graph for Average Measurement



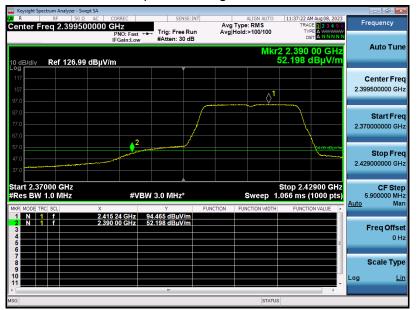
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Horizontal



Test Graph for Average Measurement



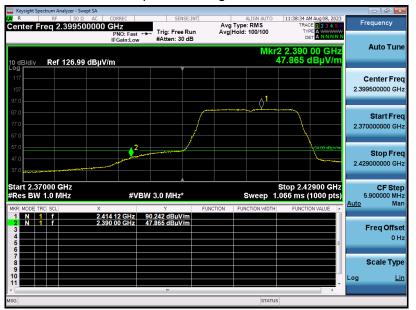
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



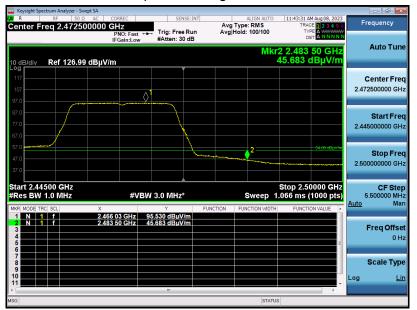
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Vertical



Test Graph for Average Measurement



RESULT: PASS

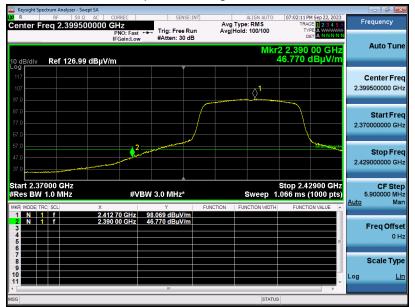


EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Horizontal

Test result for band edge emission at restricted bands_ MIMO



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2412MHz	Antenna	Vertical



Test Graph for Average Measurement



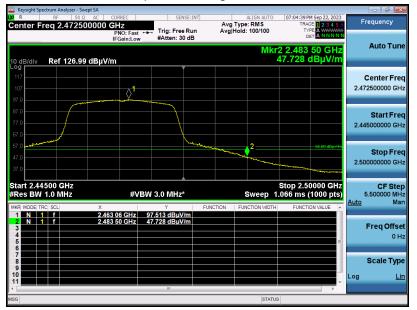
RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Horizontal



Test Graph for Average Measurement



RESULT: PASS



EUT	Portable Smart Projector 480P	Model Name	VA-SP008
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20 with data rate 6.5 2462MHz	Antenna	Vertical



Test Graph for Average Measurement



RESULT: PASS



12. LINE CONDUCTED EMISSION TEST

12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

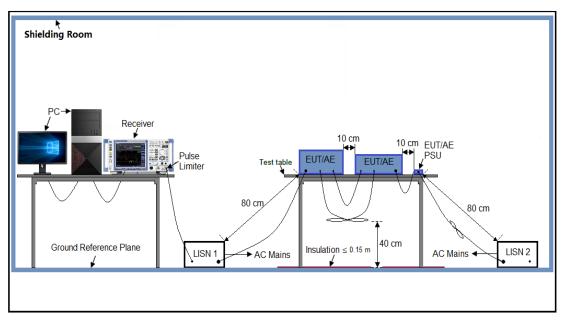
Framman	Maximum RF Line Voltage				
Frequency	Q.P (dBµV)	Average (dBµV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 12V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 Ohm load; the second scan had Line 1 connected to a 50 Ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

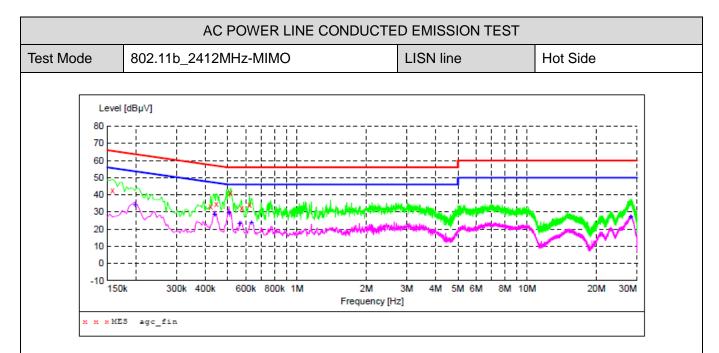
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case was reported on the Summary Data page.

12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST





MEASUREMENT RESULT: "agc_fin"

2023/8/3 20:34 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.158000 0.422000 0.446000 0.514000 0.574000 0.622000	42.40 33.30 34.60 40.90 32.40 34.40	6.1 6.1 6.2 6.2 6.2	66 57 57 56 56 56		QP QP QP	L1 L1 L1 L1 L1 L1

MEASUREMENT RESULT: "agc fin2"

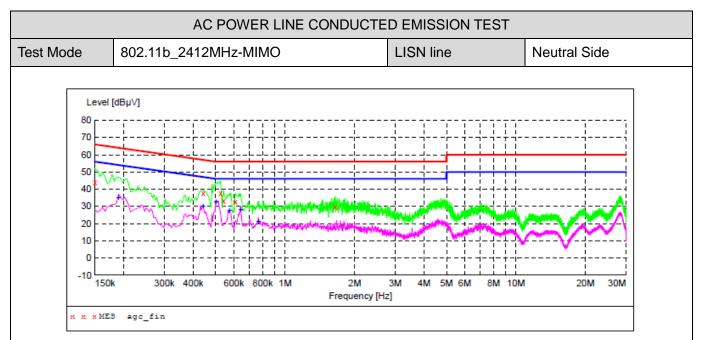
2023/8/3 20:34 Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.198000 0.438000 0.506000 0.562000 0.634000 28.162000	34.10 28.70 29.90 23.30 23.90 27.20	6.1 6.2 6.2 6.2 8.2	54 47 46 46 50	19.6 18.4 16.1 22.7 22.1 22.8	AV AV AV AV	L1 L1 L1 L1 L1 L1

RESULT: PASS

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MEASUREMENT RESULT: "agc_fin"

2023/8/3 20:3 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000 0.442000 0.526000 0.542000 0.610000 1.646000	43.90 37.90 37.80 33.10 32.60 29.80	6.1 6.2 6.2 6.2 6.2	66 57 56 56 56	18.2 22.9	QP QP QP	N N N N N

MEASUREMENT RESULT: "agc_fin2"

2023/8/3 20:37 Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.190000	35.30	6.1	54	18.7		N
0.442000	30.30	6.1	47	16.7		N
0.502000	32.50	6.2	46	13.5		N
0.574000	27.80	6.2	46	18.2		N
0.642000	28.10	6.2	46	17.9		N
0.766000	21.20	6.2	46	24.8	AV	Ν

RESULT: PASS



APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC13454230711AP01

APPENDIX II: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC13454230711AP02

----END OF REPORT----



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3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

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6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

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