

FCC C2PC Test Report

FCC ID : 2ABLK-844FX-X

Equipment : GigaCenter

Model No. : 844FB-1 ; 844F-1 ; 844FB-2 ; 844F-2

(refer to item 1.1.1 for more details)

Brand Name : Calix Inc

Applicant : Calix Inc

Address : 1035 N. McDowell Blvd. Petaluma, CA 94954

Standard : 47 CFR FCC Part 15.407

Received Date : Jan. 10, 2017

Tested Date : Feb. 08 ~ Mar. 07, 2017

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: Approved by:

Along Chew/ Assistant Manager Gary Chang / Manager

Testing Laboratory

2732

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Release Record

Report No.	Version	Description	Issued Date
FR712305-01AN	Rev. 01	Initial issue	Apr. 17, 2017

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Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.538MHz 40.96 (Margin -5.04dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5660.00MHz 52.99 (Margin -1.01dB) – AV [dBuV/m at 3m]: 5725.00MHz 72.99 (Margin -1.01dB) – AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: Non-beamforming mode 5250~5350MHz: 23.80 5470~5725MHz: 23.89 Beamforming mode 5250~5350MHz: 23.50 5470~5725MHz: 23.69	Pass
15.407(a)	Peak Power Spectral Density	Meet the requirement of limit	Pass
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

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1 General Description

1.1 Information

This report is issued as a FCC Class II Permissive Change. The modification is only concerned with adding 5250~5350MHz and 5470~5725 MHz band by software setting.

The device has 4 configurations as below table.

RF function is identical to each configuration. Differences between 4 configurations are only non-RF function by depopulation of components without PCB Modifications.

Model Name	844FB-1	844FB-2	844F-1	844F-2	
LAN / WAN function	4 LAN ports	4 LAN ports	4 LAN ports	4 LAN ports	
LAN / WAN full clion		1WAN port		1WAN port	
G.fast function	bonding G.fast	bonding G.fast	Single G.fast	Single G.fast	
Power Supply	1. Adapter	Adapter (DC jack)	1. Adapter	Adapter (DC jack)	
Fower Supply	2. UPS		2. UPS		
Housing Type	Housing 1	Housing 2	Housing 1	Housing 2	
Frequency band (GHz)	2.412 ~ 2.462 / 5.18 ~ 5.24 / 5.26 ~ 5.32 / 5.5 ~ 5.72 / 5.745 ~ 5.825				
Bean forming mode	Supported				
Master or Client Master					
USB function	USB3.0				
VOIP function	VOIP (FXS)				

Note: Four models (844FB-1, 844FB-2, 844F-1 and 844F-2) had been covered during the pretest, and found that 844F-1 was the worst case and was selected for final test.

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information						
Frequency Range (MHz)	•		Channel Number	Transmit Chains (N _{⊤x})	Data Rate / MCS	
5250-5350 5470-5725	а	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	6-54 Mbps	
5250-5350 5470-5725	n (HT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	MCS 0-31	
5250-5350 5470-5725	n (HT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	4	MCS 0-31	
5250-5350 5470-5725	ac (VHT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	4	MCS 0-9	
5250-5350 5470-5725	ac (VHT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	4	MCS 0-9	
5250-5350 5470-5725	ac (VHT80)	5290 5530-5690	58 [1] 106-138 [3]	4	MCS 0-9	

Note 1: RF output power specifies that Maximum Conducted Output Power.

Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.

Note 3: 802.11n/ac supports beamforming mode.

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1.1.2 Antenna Details

Ant.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)	
No.	No.		Connector	5250~5350	5470~5725
1	PCB antenna	Dipole	IPEX	-0.8	-0.5
2	PCB antenna	Dipole	IPEX	-0.8	-0.5
3	PCB antenna	Dipole	IPEX	-0.8	-0.5
4	PCB antenna	Dipole	IPEX	-0.8	-0.5

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter 12Vdc from UPS
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1.1.4 Accessories

	Accessories				
No.	Equipment	Description			
1	AC adapter	Brand: MASS POWER Model: NBS65A120410M2 Power Rating: I/P: 100-240Vac, 50/60Hz, 1.5A O/P: 12Vdc, 4.1A Power Line: DC 1.2m non-shielded without core AC 1.5m non-shielded without core			
2	UPS	Brand: Cyber Power Model: DTC50U12V3-G Power Rating: I/P: 100-240Vac, 50-60Hz, 1.5A O/P: 12Vdc, 50W Power Line: DC 1.2m non-shielded without core AC 2.45m non-shielded without core			

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1.1.5 Channel List

802.11 a / H	T20 / VHT20	HT40 /	VHT40
Channel	Frequency(MHz)	Channel	Frequency(MHz)
52	5260	54	5270
56	5280	62	5310
60	5300	102	5510
64	5320	118	5590
100	5500	134	5670
104	5520	142	5710
108	5540	VH	Т80
112	5560	58	5290
116	5580	106	5530
120	5600	122	5610
124	5620	138	5690
128	5640		
132	5660		
136	5680		
140	5700		
144	5720		

1.1.6 Test Tool and Duty Cycle

Test Tool	Non-beamforming: MTool, Version: 3.0.0.1 Beamforming: LanTest20, Version: 2.0.0.2				
	Mode	Non-Beamforming		Beamforming	
	Wode	Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11a	99.31%	0.03		
Duty Cycle and Duty Footor	HT20	99.26%	0.03		
Duty Cycle and Duty Factor	HT40	98.24%	0.08		
	VHT20	99.26%	0.03	99.57%	0.02
	VHT40	98.24%	0.08	98.25%	0.08
	VHT80	99.24%	0.03	96.82%	0.14

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1.1.7 Power Setting

For Frequency band 5250~5350 MHz						
Modulation Mode	Tost Fraguency (MHz)	Powe	r Set			
Wodulation Wode	Test Frequency (MHz)	Non-Beamforming	Beamforming			
11a	5260	64				
11a	5300	64				
11a	5320	64				
HT20	5260	64	64			
HT20	5300	64	64			
HT20	5320	64	64			
HT40	5270	68	68			
HT40	5310	68	68			
VHT20	5260	64	64			
VHT20	5300	64	64			
VHT20	5320	64	64			
VHT40	5270	68	68			
VHT40	5310	68	68			
VHT80	5290	68	64			

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For Frequency band 5470~5725 MHz						
Modulation Mode	Toot Fraguency (MUz)	Powe	Power Set			
Wodulation Wode	Test Frequency (MHz)	Non-Beamforming	Beamforming			
11a	5500	64				
11a	5580	64				
11a	5700	64				
HT20	5500	64	64			
HT20	5580	64	64			
HT20	5700	64	64			
HT40	5510	64	64			
HT40	5590	68	68			
HT40	5670	68	68			
VHT20	5500	64	64			
VHT20	5580	64	64			
VHT20	5700	64	64			
VHT40	5510	64	64			
VHT40	5590	68	68			
VHT40	5670	68	68			
VHT80	5530	60	60			
VHT80	5610	68	68			

Channel that extends across the 5.725 GHz boundary

For Frequency band 5470~5725 MHz									
Modulation Mode	Test Frequency (MHz)	Powe	Power Set						
Modulation Mode	rest requericy (Wiriz)	Non-Beamforming	Beamforming						
11a	5720	64							
HT20	5720	64	64						
HT40	5710	68	68						
VHT20	5720	64	64						
VHT40	5710	68	68						
VHT80	5690	68	68						

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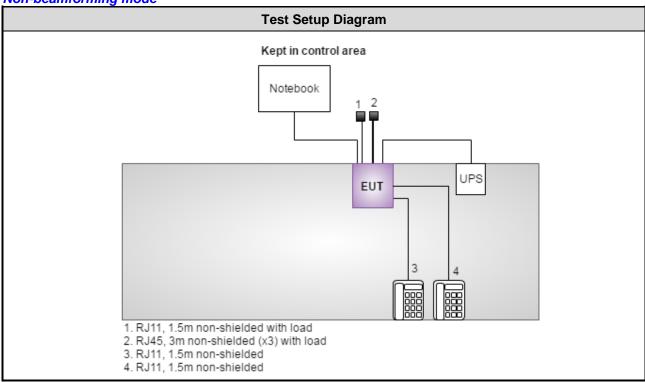
1.2 Local Support Equipment List

	Support Equipment List											
No.	Equipment Brand Model FCC				Signal cable / Length (m)							
1	Notebook	DELL	Latitude E6430	DoC	RJ45, 10m non-shielded.							
2	Telephone	HTT	HTT-806		RJ11, 1.5m non-shielded							
3	Telephone	HTT	HTT-806		RJ11, 1.5m non-shielded							
4	Load	ICC			RJ45, 1m(x3) non-shielded.							
5	Load	ICC			RJ11, 1.5m non-shielded.							
6	Client	ASUS	PCE-AC88	MSQ-PCIE 0U00								

Note: No. 6 was supplied by applicant.

1.3 Test Setup Chart

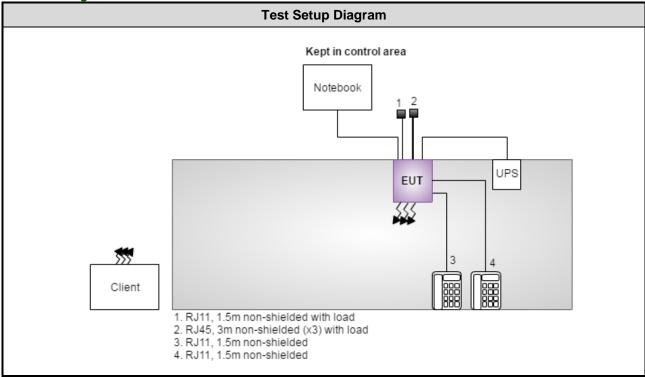
Non-beamforming mode



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1.4 The Equipment List

Test Item	Conducted Emission									
Test Site	Conduction room 1 /	Conduction room 1 / (CO01-WS)								
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until					
Receiver	R&S	ESR3	101657	Dec. 21, 2016	Dec. 20, 2017					
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 08, 2016	Nov. 07, 2017					
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 20, 2016	Dec. 19, 2017					
Measurement Software	AUDIX	e3	6.120210k	NA	NA					
Note: Calibration Int	erval of instruments lis	ted above is one year.		1						

Test Item	Radiated Emission								
Test Site	966 chamber1 / (03C	H01-WS)							
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until				
Spectrum Analyzer	R&S	FSV40	101498	Nov. 25, 2016	Nov. 24, 2017				
Receiver	R&S	ESR3	101658	Nov. 24, 2016	Nov. 23, 2017				
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Aug. 04, 2016	Aug. 03, 2017				
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 21, 2016	Dec. 20, 2017				
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 25, 2016	Oct. 24, 2017				
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2016	Nov. 09, 2017				
Loop Antenna Cable			101354-BW	Dec. 09, 2016	Dec. 08, 2017				
Preamplifier	EMC	EMC02325	980225	Aug. 05, 2016	Aug. 04, 2017				
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2016	Oct. 05, 2017				
Preamplifier	EMC	EMC184045B	980192	Aug. 24, 2016	Aug. 23, 2017				
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 09, 2016	Dec. 08, 2017				
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 09, 2016	Dec. 08, 2017				
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 09, 2016	Dec. 08, 2017				
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	16052	Dec. 09, 2016	Dec. 08, 2017				
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 09, 2016	Dec. 08, 2017				
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 09, 2016	Dec. 08, 2017				
Measurement Software	AUDIX	e3	6.120210g	NA	NA				
Note: Calibration Into	erval of instruments lis	ted above is one year.							

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Test Item	RF Conducted										
Test Site	(TH01-WS)	TH01-WS)									
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until						
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101486	Nov. 15, 2016	Nov. 14, 2017						
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 21, 2016	Nov. 20, 2017						
Power Meter	Anritsu	ML2495A	1241002	Oct. 06, 2016	Oct. 05, 2017						
Power Sensor	Anritsu	MA2411B	1207366	Oct. 06, 2016	Oct. 05, 2017						
AC POWER SOURCE	APC	AFC-500W	F312060012	Oct. 28, 2016	Oct. 27, 2017						
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA						
Note: Calibration Inte	Note: Calibration Interval of instruments listed above is one year.										

1.5 Testing Applied Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.407

ANSI C63.10-2013

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03

FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty							
Parameters	Uncertainty						
Bandwidth	±34.134 Hz						
Conducted power	±0.808 dB						
Frequency error	±34.134 Hz						
Power density	±0.463 dB						
Conducted emission	±2.670 dB						
AC conducted emission	±2.90 dB						
Radiated emission ≤ 1GHz	±3.66 dB						
Radiated emission > 1GHz	±5.63 dB						
Time	±0.1%						
Temperature	±0.6 °C						

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2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By		
AC Conduction	CO01-WS	17°C / 59%	David Chiu		
Radiated Emissions	03CH01-WS	22°C / 62-64%	Vincent Yeh Kevin Lee		
RF Conducted	TH01-WS	22°C / 64%	Brad Wu		

➤ FCC Designation.: TW2732

➤ FCC site registration No.: 181692

➤ IC site registration No.: 10807A-1

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2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

For	For Frequency band 5250-5350 MHz, 5470-5725 MHz									
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration						
Conducted Emissions	VHT40	5310	MCS 0							
Radiated Emissions ≤1GHz	VHT40	5310	MCS 0							
	11a	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	6 Mbps							
	HT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0							
RF Output Power	HT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0							
	VHT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0							
	VHT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0							
	VHT80	5290 / 5530 / 5610 / 5690	MCS 0							
	11a	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	6 Mbps							
Radiated Emissions >1GHz Emission Bandwidth	VHT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0							
Peak Power Spectral Density	VHT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0							
	VHT80	5290 / 5530 / 5610 / 5690	MCS 0	1						
Frequency Stability	Un-modulation	5300								

NOTE:

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The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report.
 Two power supply (Adapter and UPS) had been covered during the pretest, and found that conducted emissions

Two power supply (Adapter and UPS) had been covered during the pretest, and found that conducted emissions with adapter and radiated Emissions with UPS were the worst case for final test.



Beamforming mode

For F	For Frequency band 5250-5350 MHz, 5470-5725 MHz									
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration						
Conducted Emissions	VHT40	5310	MCS 0							
Radiated Emissions ≤1GHz	VHT40	5310	MCS 0							
	HT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0							
	HT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0							
RF Output Power	VHT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0							
	VHT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0							
	VHT80	5290 / 5530 / 5610 / 5690	MCS 0							
Radiated Emissions >1GHz	VHT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0							
Emission Bandwidth Peak Power Spectral Density	VHT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0							
	VHT80	5290 / 5530 / 5690	MCS 0							

NOTE:

- 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.
- 2. Two power supply (Adapter and UPS) had been covered during the pretest, and found that conducted emissions with adapter and radiated Emissions with UPS were the worst case for final test.

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3 Transmitter Test Results

3.1 Conducted Emissions

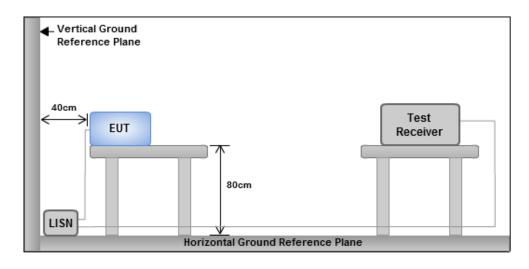
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit								
Frequency Emission (MHz) Quasi-Peak Average								
0.15-0.5	66 - 56 *	56 - 46 *						
0.5-5	56	46						
5-30	60	50						
Note 1: * Decreases with the logarith	m of the frequency.							

3.1.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V/60Hz

3.1.3 Test Setup



Note: 1. Support units were connected to second LISN.

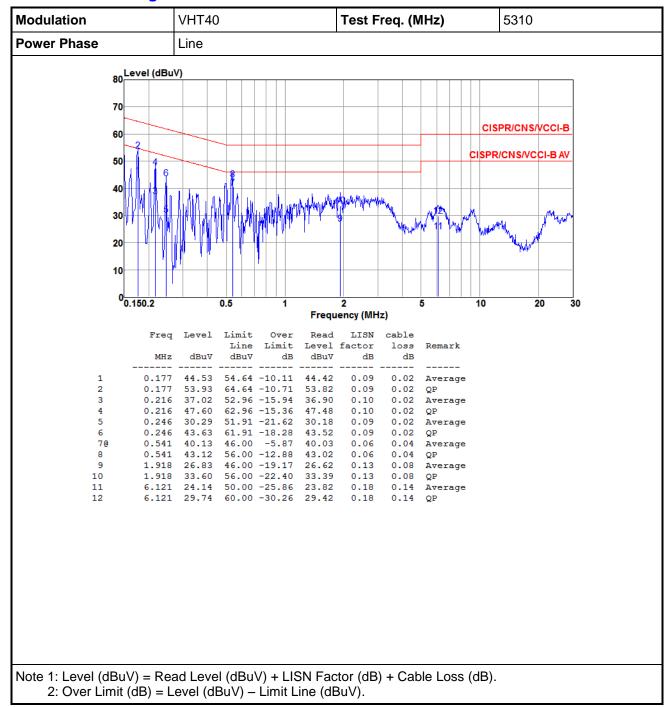
Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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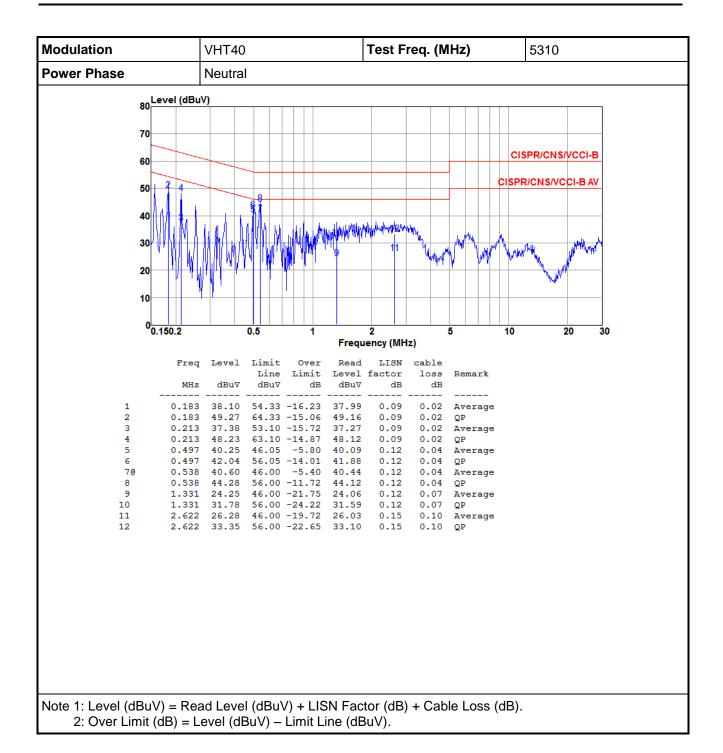
3.1.4 Test Result of Conducted Emissions

Non- beamforming mode



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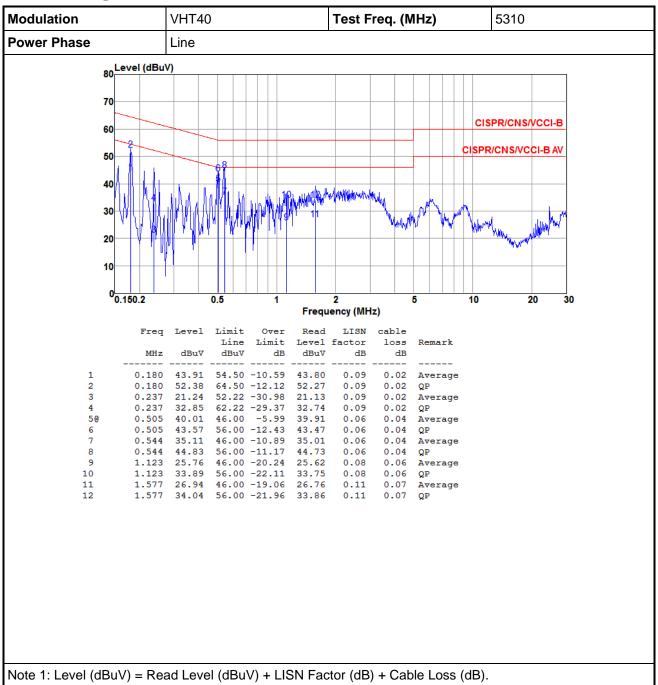




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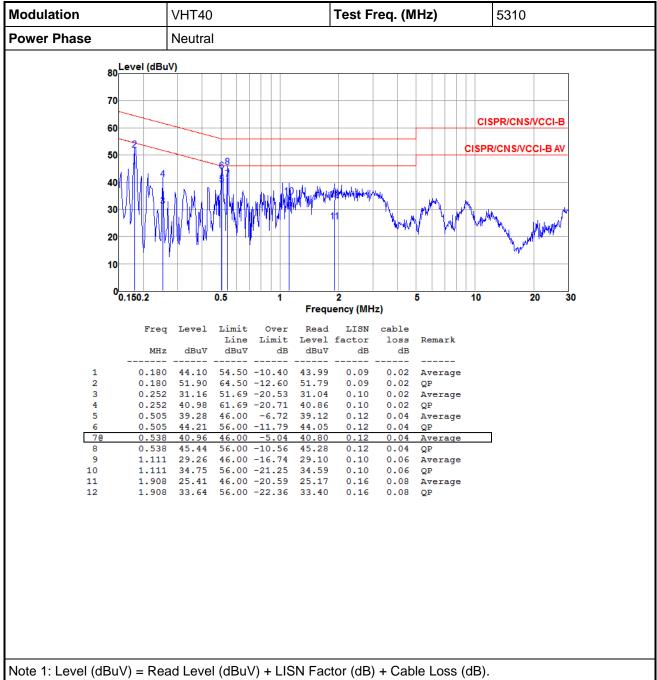
Beamforming mode



2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

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Note 1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB)

2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

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3.2 Emission Bandwidth

3.2.1 Test Procedures

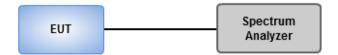
26dB Bandwidth

- 1. Set RBW = approximately 1% of the emission bandwidth.
- 2. Set the VBW > RBW, Detector = Peak.
- 3. Trace mode = max hold.
- 4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

- 1. Set RBW = 1 % to 5 % of the OBW
- 2. Set VBW ≥ 3 RBW
- 3. Sample detection and single sweep mode shall be used
- 4. Use the 99 % power bandwidth function of the instrument

3.2.2 Test Setup



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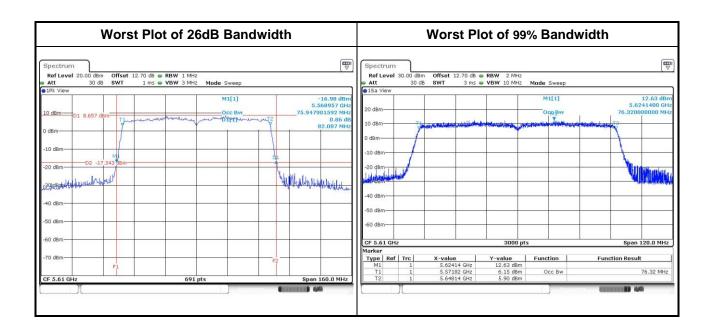
3.2.3 Test Result of Emission Bandwidth

Non-beamforming mode

	Emission Bandwidth										
Mada	N	Freq.	26dB Bandwidth (MHz)			99% Bandwidth (MHz)				Power Limit	
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)
11a	4	5260	21.74	21.51	21.68	21.51	17.04	16.99	16.96	16.85	24.00
11a	4	5300	21.74	21.39	21.62	21.51	17.03	17.01	16.97	16.91	24.00
11a	4	5320	21.68	21.45	21.62	21.39	17.01	16.98	16.90	16.84	24.00
VHT20	4	5260	22.14	21.62	21.57	21.62	18.11	17.93	18.00	17.97	24.00
VHT20	4	5300	21.62	21.68	21.74	21.80	18.12	17.95	18.02	17.97	24.00
VHT20	4	5320	21.91	21.68	21.80	21.68	18.10	17.94	17.97	17.93	24.00
VHT40	4	5270	41.04	40.58	40.70	40.58	36.62	36.68	36.56	36.64	24.00
VHT40	4	5310	40.81	40.70	40.81	40.46	36.60	36.68	36.48	36.60	24.00
VHT80	4	5290	81.86	81.39	81.62	81.62	76.16	76.28	76.04	76.16	24.00
11a	4	5500	21.62	21.45	21.57	21.45	17.01	16.95	16.90	16.83	24.00
11a	4	5580	21.62	21.39	21.45	21.39	17.02	16.96	16.89	16.85	24.00
11a	4	5700	21.57	21.33	21.51	21.39	17.04	16.90	16.79	16.89	24.00
VHT20	4	5500	21.86	21.45	21.68	21.68	18.05	17.91	17.96	17.91	24.00
VHT20	4	5580	21.80	21.62	21.68	21.57	18.06	17.89	17.94	17.91	24.00
VHT20	4	5700	21.91	21.74	21.51	21.74	18.05	17.87	17.91	17.94	24.00
VHT40	4	5510	40.93	40.81	40.70	40.70	36.60	36.58	36.58	36.60	24.00
VHT40	4	5590	41.04	40.70	52.52	49.51	36.60	36.54	36.58	36.62	24.00
VHT40	4	5670	40.93	40.58	41.16	40.81	36.56	36.50	36.60	36.64	24.00
VHT80	4	5530	82.09	81.39	81.86	81.62	76.20	76.12	76.16	76.20	24.00
VHT80	4	5610	82.09	81.86	81.86	81.86	76.16	75.96	76.20	76.32	24.00

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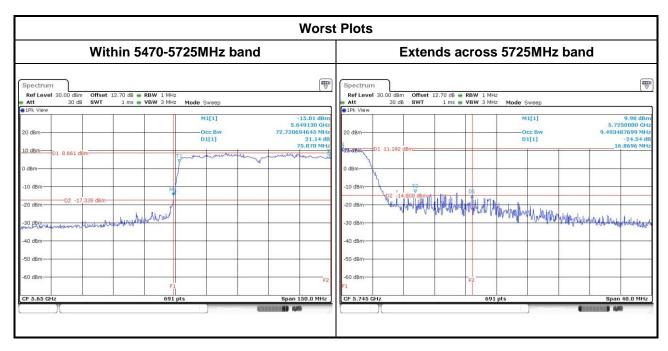
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Channel that extends across the 5.725 GHz boundary

	UNII Emission Bandwidth Result (Within 5470-5725MHz band)										
Mode N _{TX} Freq. (MHz)	N	Frea.	26	26dB Bandwidth (MHz)			99% Bandwidth (MHz)				Power Limit
	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)		
11a	4	5720	15.89	15.89	15.71	15.83	13.60	13.65	13.48	13.56	22.96
VHT20	4	5720	15.95	15.64	15.83	15.77	14.13	14.07	14.05	14.06	22.94
VHT40	4	5710	35.61	35.30	35.61	35.30	33.41	33.31	33.41	33.35	24.00
VHT80	4	5690	75.87	75.87	75.87	75.87	73.18	73.10	73.26	73.18	24.00

	UNII Emission Bandwidth Result (Extends across 5725MHz band)											
Mode	N	N _{TX} Freq.		6dB Band	width (MHz	z)	99% Bandwidth (MHz)					
Wode	INTX	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3		
11a	4	5720	5.91	5.80	5.74	5.61	3.45	3.30	3.31	3.36		
VHT20	4	5720	5.91	5.61	5.93	5.80	3.98	3.81	3.85	3.90		
VHT40	4	5710	10.90	15.54	16.87	11.25	3.17	3.13	3.23	3.21		
VHT80	4	5690	6.61	7.04	7.04	6.35	2.94	2.86	3.02	3.06		

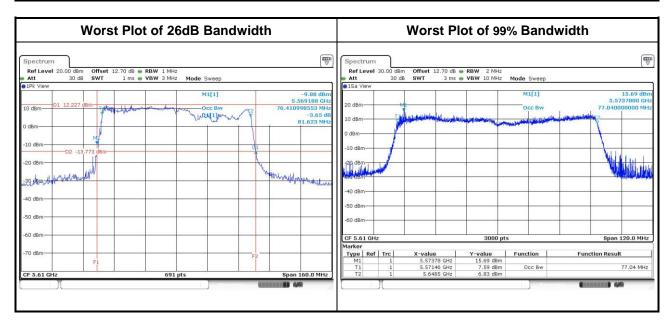


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Beamforming mode

					Emissio	n Bandw	idth				
Mada	N.	Freq.	26	dB Band	width (MH	łz)	99	9% Bandv	vidth (MH	z)	Power Limit
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)
VHT20	4	5260	21.74	21.74	21.51	21.86	18.11	18.08	18.07	18.06	24.00
VHT20	4	5300	21.91	21.97	21.86	21.80	18.12	18.16	18.10	17.87	24.00
VHT20	4	5320	21.80	21.68	21.91	21.86	18.08	18.10	18.13	18.02	24.00
VHT40	4	5270	40.93	40.93	40.93	41.16	36.62	36.48	36.82	36.52	24.00
VHT40	4	5310	40.93	41.28	40.81	40.81	36.66	36.72	36.72	36.80	24.00
VHT80	4	5290	80.70	80.93	80.70	81.16	76.12	76.72	76.48	76.04	24.00
VHT20	4	5500	21.86	21.80	21.68	21.62	17.99	18.11	17.99	17.98	24.00
VHT20	4	5580	21.74	21.74	21.68	21.45	18.05	18.07	17.97	18.01	24.00
VHT20	4	5700	21.74	21.68	21.74	21.33	18.01	18.12	18.04	17.99	24.00
VHT40	4	5510	40.23	41.16	40.93	40.35	36.36	36.58	36.90	36.38	24.00
VHT40	4	5590	41.16	41.16	43.94	40.70	36.62	36.76	36.58	36.38	24.00
VHT40	4	5670	41.39	40.93	41.04	40.93	36.84	36.84	36.32	36.24	24.00
VHT80	4	5530	81.62	80.70	81.39	80.93	76.28	76.64	76.60	76.76	24.00
VHT80	4	5610	81.62	80.93	80.93	81.16	77.04	76.12	76.96	76.68	24.00



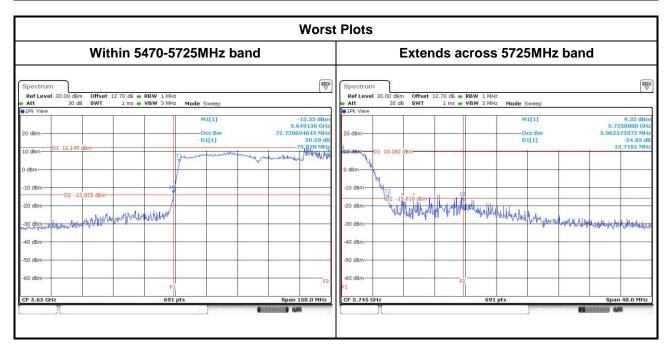
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Channel that extends across the 5.725 GHz boundary

UNII Emission Bandwidth Result (Within 5470-5725MHz band)											
Mada		Freq.	26	z)	Power Limit						
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)
VHT20	4	5720	15.89	16.01	15.89	15.89	14.13	14.13	14.24	13.91	23.01
VHT40	4	5710	35.30	35.41	35.51	35.41	33.29	33.49	33.71	33.07	24.00
VHT80	4	5690	75.22	75.87	75.65	75.87	73.42	73.70	73.74	73.74	24.00

	UNII Emission Bandwidth Result (Extends across 5725MHz band)											
Mode	N	Freq.	2	26dB Band	width (MHz)	99% Bandwidth (MHz)					
wiode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3		
VHT20	4	5720	5.89	5.89	5.96	5.80	3.82	3.97	3.98	4.03		
VHT40	4	5710	14.14	5.62	15.71	5.91	3.19	3.25	3.13	3.59		
VHT80	4	5690	5.57	6.26	5.83	5.65	2.74	2.94	2.62	3.14		



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3.3 RF Output Power

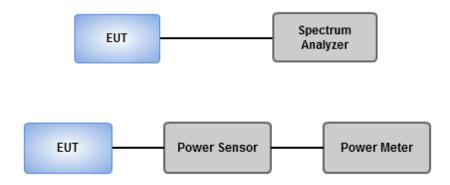
3.3.1 Limit of RF Output Power

Fred	quency Band (MHz)	Limit					
	5250 ~ 5350	250mW or 11dBm+10 log B					
\boxtimes	5470 ~ 5725	250mW or 11dBm+10 log B					
Note	Note: "B" is the 26dB emission bandwidth in MHz.						

3.3.2 Test Procedures

- Power meter (For channel that does not extends across the 5.725 GHz boundary)
 - Measurements is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required
- Spectrum analyzer (For channel that extends across the 5.725 GHz boundary)
- 1. Set RBW=1MHz, VBW=3MHz, Sweep time= Auto, Detector = RMS
- 2. Trace average at least 100 traces in power averaging mode
- 3. Compute power by integrating the spectrum across the 26 dB EBW
- 4. Add 10 log(1/X, X:duty cycle) if duty cycle is <98%)

3.3.3 Test Setup



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3.3.4 Test Result of Maximum Conducted Output Power

Non-beamforming mode

			С	onducted I	Power (dBn	n)	Total	Total	Limit
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Power (mW)	Power (dBm)	(dBm)
11a	4	5260	17.24	17.05	16.62	17.02	199.935	23.01	24.00
11a	4	5300	17.42	16.83	16.56	17.01	198.927	22.99	24.00
11a	4	5320	17.5	16.92	16.64	17	201.689	23.05	24.00
HT20	4	5260	17.50	16.72	16.90	16.64	198.333	22.97	24.00
HT20	4	5300	17.21	16.83	16.64	16.87	195.569	22.91	24.00
HT20	4	5320	17.19	16.97	16.83	17.01	200.563	23.02	24.00
HT40	4	5270	17.65	17.52	17.58	17.81	232.378	23.66	24.00
HT40	4	5310	17.94	17.79	17.60	17.57	237.039	23.75	24.00
VHT20	4	5260	17.54	16.76	16.96	16.68	200.397	23.02	24.00
VHT20	4	5300	17.26	16.86	16.69	16.92	197.610	22.96	24.00
VHT20	4	5320	17.25	16.99	16.85	17.03	201.975	23.05	24.00
VHT40	4	5270	17.68	17.55	17.61	17.85	234.129	23.69	24.00
VHT40	4	5310	17.98	17.84	17.65	17.63	239.773	23.80	24.00
VHT80	4	5290	17.55	17.21	17.28	17.38	217.645	23.38	24.00
11a	4	5500	17.19	17.01	16.95	17.01	202.374	23.06	24.00
11a	4	5580	16.54	17.2	16.86	16.96	195.750	22.92	24.00
11a	4	5700	16.99	16.84	16.95	17.22	200.577	23.02	24.00
HT20	4	5500	16.88	17.01	16.91	17.19	200.438	23.02	24.00
HT20	4	5580	16.71	16.83	16.91	17.33	198.242	22.97	24.00
HT20	4	5700	16.72	16.79	16.78	17.01	192.620	22.85	24.00
HT40	4	5510	16.98	16.82	16.88	16.79	194.478	22.89	24.00
HT40	4	5590	16.61	17.77	17.92	18.02	230.986	23.64	24.00
HT40	4	5670	17.48	17.54	17.82	17.91	235.066	23.71	24.00
VHT20	4	5500	16.91	17.05	16.94	17.25	202.309	23.06	24.00
VHT20	4	5580	16.76	16.87	16.93	17.4	200.336	23.02	24.00
VHT20	4	5700	16.75	16.83	16.81	17.07	194.416	22.89	24.00
VHT40	4	5510	17.02	16.86	16.91	16.84	196.276	22.93	24.00
VHT40	4	5590	17.65	17.81	17.95	18.04	244.658	23.89	24.00
VHT40	4	5670	17.51	17.58	17.87	17.94	237.108	23.75	24.00
VHT80	4	5530	15.62	15.79	15.75	15.81	150.097	21.76	24.00
VHT80	4	5610	17.52	17.16	17.21	17.32	215.046	23.33	24.00

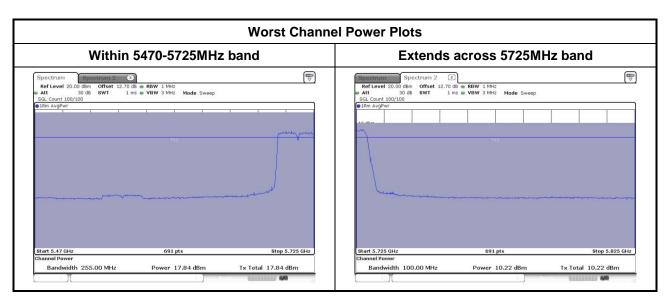
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Channel that extends across the 5.725 GHz boundary

	Maximum Conducted Output Power (Within 5470-5725MHz band)										
			Cond	ducted Po	wer with	out duty fa	actor	Duty	Total	Total	
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	factor (dB)	Power (mW)	Power (dBm)	Limit (dBm)
11a	4	5720	16.05	16.40	16.12	16.19	22.21	0.00	166.440	22.21	22.96
HT20	4	5720	16.18	16.10	16.02	16.16	22.14	0.00	163.533	22.14	22.94
HT40	4	5710	17.41	17.17	17.36	17.79	23.46	0.00	221.768	23.46	24.00
VHT20	4	5720	16.29	16.13	16.14	16.26	22.23	0.00	166.962	22.23	22.94
VHT40	4	5710	17.52	17.19	17.40	17.84	23.51	0.00	224.621	23.51	24.00
VHT80	4	5690	17.23	17.28	17.36	17.40	23.34	0.00	215.705	23.34	24.00

	Maximum Conducted Output Power (Extends across 5725MHz band)										
			Cond	ducted Po	wer with	out duty fa	actor	Duty	Total	Total	
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	factor (dB)	Power (mW)	Power (dBm)	Limit (dBm)
11a	4	5720	9.81	9.36	8.40	9.08	15.21	0.00	33.211	15.21	30.00
HT20	4	5720	10.08	9.80	10.02	10.11	16.02	0.00	40.039	16.02	30.00
HT40	4	5710	6.43	6.57	6.96	7.28	12.84	0.00	19.246	12.84	30.00
VHT20	4	5720	10.01	10.09	9.99	10.22	16.10	0.00	40.729	16.10	30.00
VHT40	4	5710	6.46	6.67	6.97	7.31	12.88	0.00	19.431	12.88	30.00
VHT80	4	5690	2.83	3.24	3.75	3.88	9.47	0.00	8.842	9.47	30.00



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Beamforming mode

			С	onducted I	Power (dBn	n)	Total	Total	Limit
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Power (mW)	Power (dBm)	(dBm)
HT20	4	5260	16.64	16.62	17.02	17.04	192.984	22.86	24.00
HT20	4	5300	16.83	16.35	16.72	16.51	183.107	22.63	24.00
HT20	4	5320	16.49	16.03	17.15	17.04	187.115	22.72	24.00
HT40	4	5270	17.12	17.15	17.03	17.65	212.079	23.26	24.00
HT40	4	5310	17.51	17.24	17.29	17.42	218.118	23.39	24.00
VHT20	4	5260	16.78	16.73	17.11	17.15	198.025	22.97	24.00
VHT20	4	5300	16.95	16.48	16.85	16.62	188.345	22.75	24.00
VHT20	4	5320	16.62	16.16	17.21	17.12	191.349	22.82	24.00
VHT40	4	5270	17.26	17.28	17.12	17.74	217.619	23.38	24.00
VHT40	4	5310	17.62	17.35	17.44	17.51	223.961	23.50	24.00
VHT80	4	5290	16.15	16.29	16.01	16.49	168.238	22.26	24.00
HT20	4	5500	16.41	16.53	16.94	16.65	184.399	22.66	24.00
HT20	4	5580	16.72	16.63	16.71	16.42	183.749	22.64	24.00
HT20	4	5700	16.14	16.38	16.22	16.91	175.536	22.44	24.00
HT40	4	5510	16.49	17.03	16.61	16.75	188.161	22.75	24.00
HT40	4	5590	17.68	17.72	17.21	17.54	227.126	23.56	24.00
HT40	4	5670	17.42	17.28	17.71	17.75	227.251	23.57	24.00
VHT20	4	5500	16.52	16.61	17.02	16.78	188.682	22.76	24.00
VHT20	4	5580	16.85	16.79	16.88	16.53	189.901	22.79	24.00
VHT20	4	5700	16.25	16.49	16.35	17.02	180.237	22.56	24.00
VHT40	4	5510	16.65	17.16	16.73	16.89	194.201	22.88	24.00
VHT40	4	5590	17.81	17.86	17.34	17.65	233.899	23.69	24.00
VHT40	4	5670	17.55	17.39	17.86	17.84	233.621	23.69	24.00
VHT80	4	5530	15.79	15.66	15.73	15.65	148.884	21.73	24.00
VHT80	4	5610	17.44	17.02	17.11	17.21	209.819	23.22	24.00

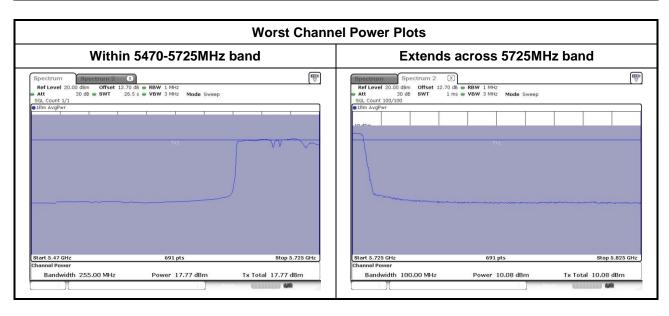
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Channel that extends across the 5.725 GHz boundary

	Maximum Conducted Output Power (Within 5470-5725MHz band)										
			Cond	ducted Po	wer with	out duty fa	ctor	Duty	Total	Total	
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	factor (dB)	Power (mW)	Power (dBm)	Limit (dBm)
HT20	4	5720	15.75	16.03	16.38	16.36	22.16	0.00	164.373	22.16	23.01
HT40	4	5710	17.20	17.11	17.26	17.50	23.29	0.00	213.330	23.29	24.00
VHT20	4	5720	15.76	16.00	16.50	16.78	22.30	0.00	169.793	22.30	23.01
VHT40	4	5710	17.25	17.15	17.41	17.54	23.36	0.00	216.804	23.36	24.00
VHT80	4	5690	16.84	16.95	17.10	17.77	23.20	0.14	215.825	23.34	24.00

	Maximum Conducted Output Power (Extends across 5725MHz band)										
			Con	ducted Po	wer with	out duty fa	actor	Duty	Total	Total	
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	factor (dB)	Power (mW)	Power (dBm)	Limit (dBm)
HT20	4	5720	10.08	8.76	9.10	8.18	15.11	0.00	32.407	15.11	30.00
HT40	4	5710	7.42	5.14	4.92	6.35	12.10	0.00	16.206	12.10	30.00
VHT20	4	5720	9.95	9.61	9.51	9.27	15.61	0.00	36.413	15.61	30.00
VHT40	4	5710	7.98	6.32	8.16	6.29	13.30	0.00	21.368	13.30	30.00
VHT80	4	5690	4.01	2.60	3.28	2.57	9.18	0.14	8.544	9.32	30.00



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3.4 Peak Power Spectral Density

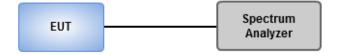
3.4.1 Limit of Peak Power Spectral Density

Free	quency Band (MHz)	Limit
	5250 ~ 5350	11 dBm / MHz
\boxtimes	5470 ~ 5725	11 dBm / MHz

3.4.2 Test Procedures

- Method SA-1 (Non- Beamforming: all modes / Beamforming: VHT20/VHT40)
 - Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
 - 2. Trace average 100 traces.
 - 3. Use the peak marker function to determine the maximum amplitude level.
- Method SA-2 Alternative (Beamforming: 11ac VHT80)
 - 1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
 - 2. Set sweep time ≥ 10 * (number of points in sweep) * (total on/off period of the transmitted signal).
 - 3. Perform a single sweep.
 - 4. Use the peak marker function to determine the maximum amplitude level.
 - 5. Add 10 $\log(1/x)$, where x is the duty cycle if duty cycle < 98%

3.4.3 Test Setup



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3.4.4 Test Result of Peak Power Spectral Density

Non-beamforming mode

Condition			Peak Power Spectral Density (dBm/MHz)				
Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)	
11a	4	5260	10.57	0.00	10.57	11	
11a	4	5300	10.53	0.00	10.53	11	
11a	4	5320	10.63	0.00	10.63	11	
VHT20	4	5260	10.65	0.00	10.65	11	
VHT20	4	5300	10.33	0.00	10.33	11	
VHT20	4	5320	10.59	0.00	10.59	11	
VHT40	4	5270	8.40	0.00	8.40	11	
VHT40	4	5310	6.86	0.00	6.86	11	
VHT80	4	5290	3.42	0.00	3.42	11	
11a	4	5500	10.88	0.00	10.88	11	
11a	4	5580	10.08	0.00	10.08	11	
11a	4	5700	10.68	0.00	10.68	11	
11a	4	5720	10.72	0.00	10.72	11	
VHT20	4	5500	10.32	0.00	10.32	11	
VHT20	4	5580	10.24	0.00	10.24	11	
VHT20	4	5700	10.20	0.00	10.20	11	
VHT20	4	5720	10.32	0.00	10.32	11	
VHT40	4	5510	5.77	0.00	5.77	11	
VHT40	4	5590	6.79	0.00	6.79	11	
VHT40	4	5670	6.50	0.00	6.50	11	
VHT40	4	5710	6.46	0.00	6.46	11	
VHT80	4	5530	1.26	0.00	1.26	11	
VHT80	4	5610	3.24	0.00	3.24	11	
VHT80	4	5690	2.94	0.00	2.94	11	

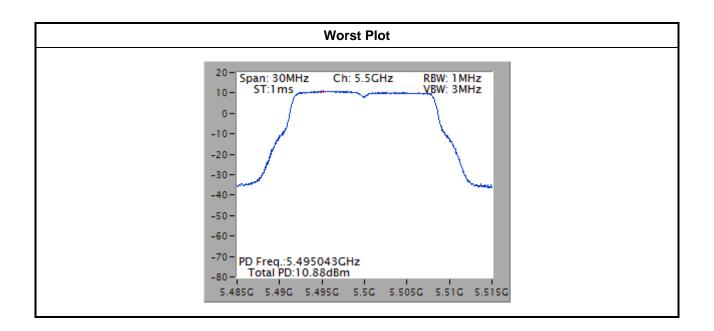
Note:

1. D.F is duty factor.

2. Test results are bin-by-bin summing measured value of each TX port.

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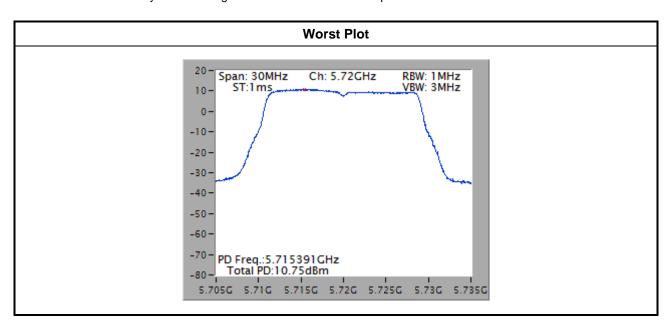


Beamforming mode

(Conditio	on	Peak Power Spectral Density (dBm/MHz)				
Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)	
VHT20	4	5260	10.17	0.00	10.17	11	
VHT20	4	5300	10.23	0.00	10.23	11	
VHT20	4	5320	10.53	0.00	10.53	11	
VHT40	4	5270	8.08	0.00	8.08	11	
VHT40	4	5310	6.63	0.00	6.63	11	
VHT80	4	5290	2.57	0.14	2.71	11	
VHT20	4	5500	10.12	0.00	10.12	11	
VHT20	4	5580	10.32	0.00	10.32	11	
VHT20	4	5700	10.06	0.00	10.06	11	
VHT20	4	5720	10.75	0.00	10.75	11	
VHT40	4	5510	6.43	0.00	6.43	11	
VHT40	4	5590	6.53	0.00	6.53	11	
VHT40	4	5670	5.91	0.00	5.91	11	
VHT40	4	5710	8.39	0.00	8.39	11	
VHT80	4	5530	2.39	0.14	2.53	11	
VHT80	4	5610	3.72	0.14	3.86	11	
VHT80	4	5690	4.79	0.14	4.93	11	

Note:

- 1. D.F is duty factor.
- 2. Test results are bin-by-bin summing measured value of each TX port.



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3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge Emissions

Restricted Band Emissions Limit											
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)								
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300								
0.490~1.705	24000/F(kHz)	33.8 - 23	30								
1.705~30.0	30	29	30								
30~88	100	40	3								
88~216	150	43.5	3								
216~960	200	46	3								
Above 960	500	54	3								

Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2**:

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

Un-restricted band emissions above 1GHz Limit									
Operating Band	Limit								
5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]								
5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]								

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

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3.5.2 Test Procedures

- 1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

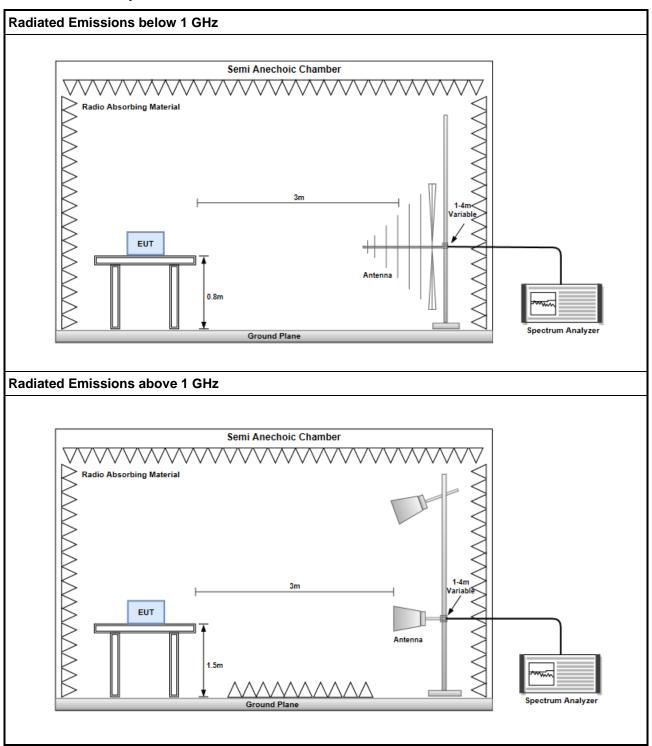
Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

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3.5.3 Test Setup

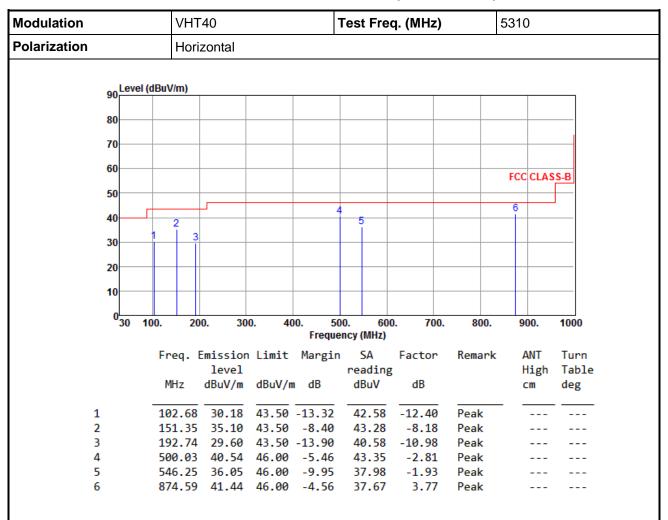


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Non- beamforming mode

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

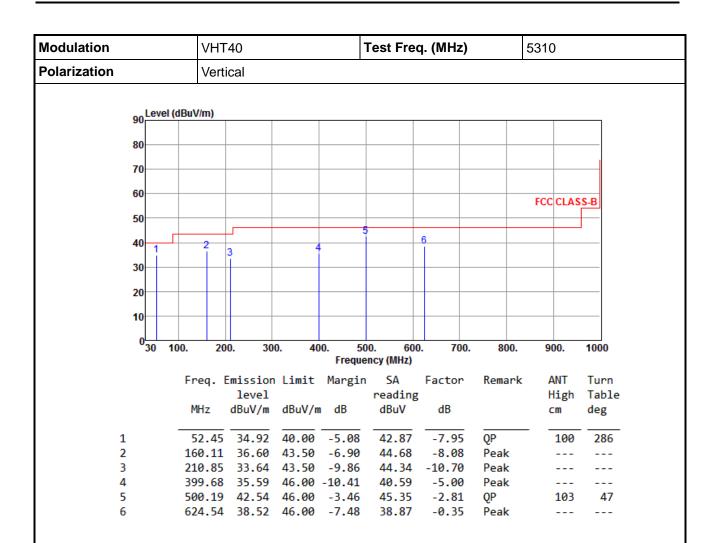
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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*Factor includes antenna factor, cable loss and amplifier gain

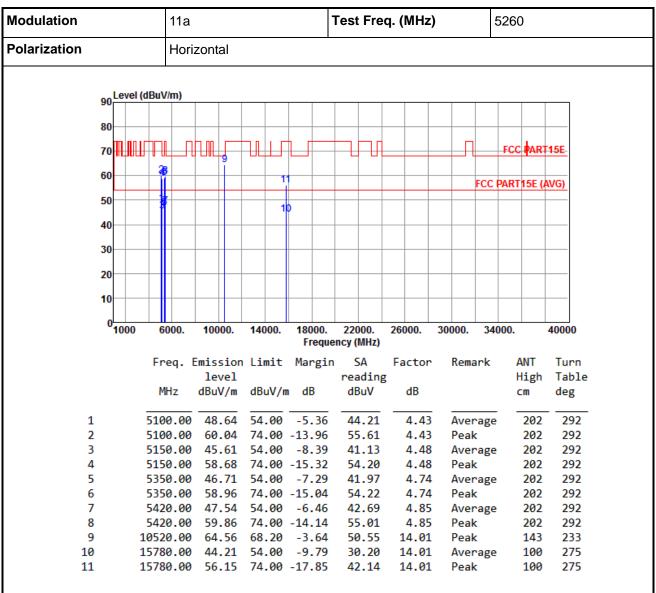
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a



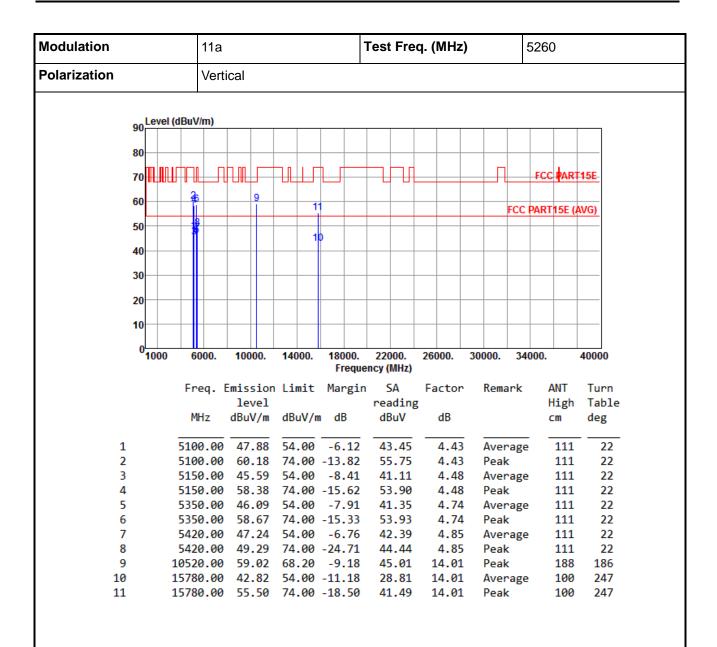
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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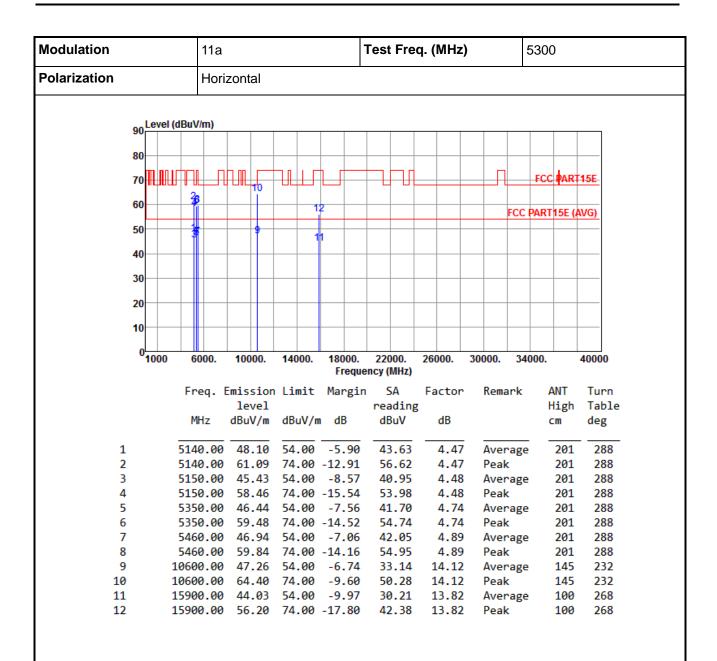


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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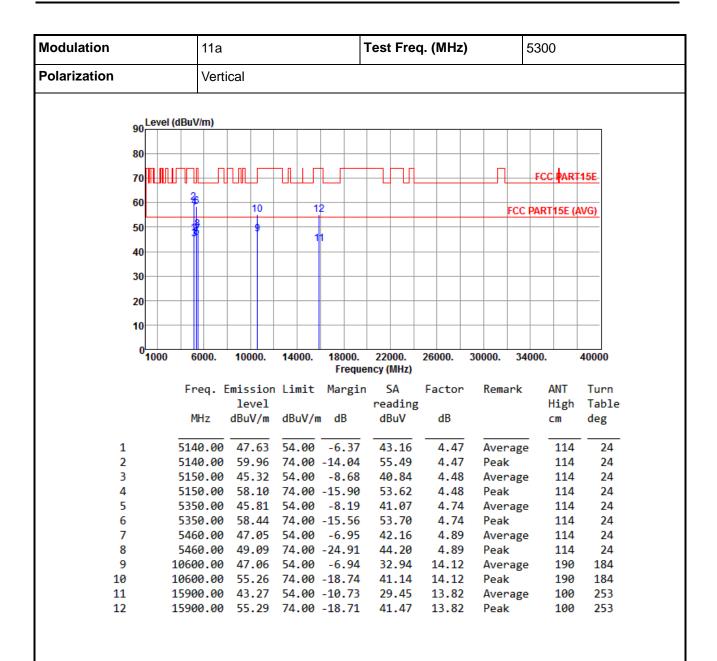


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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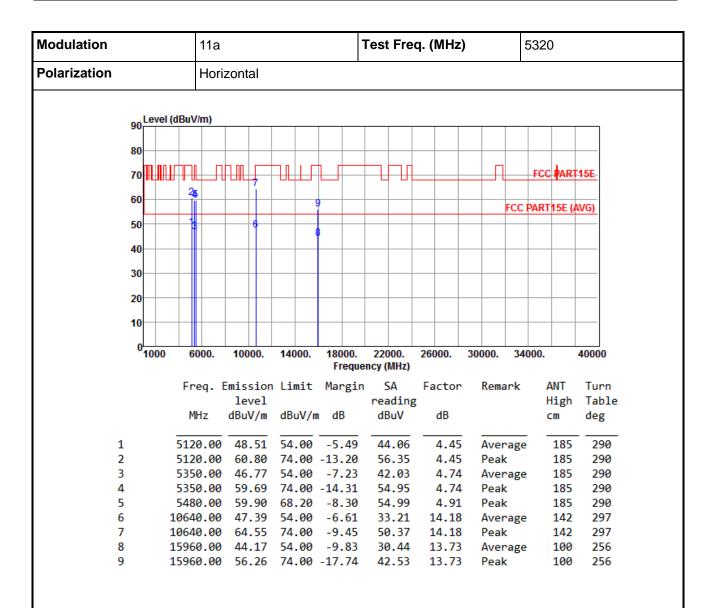


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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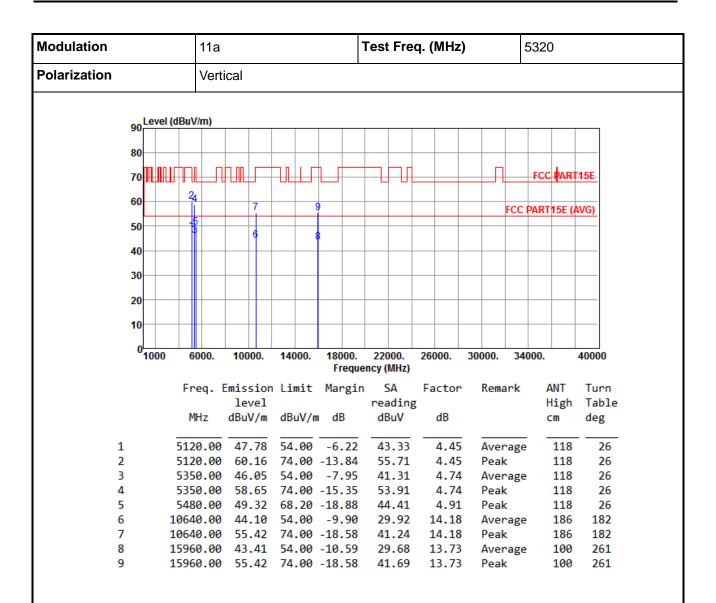


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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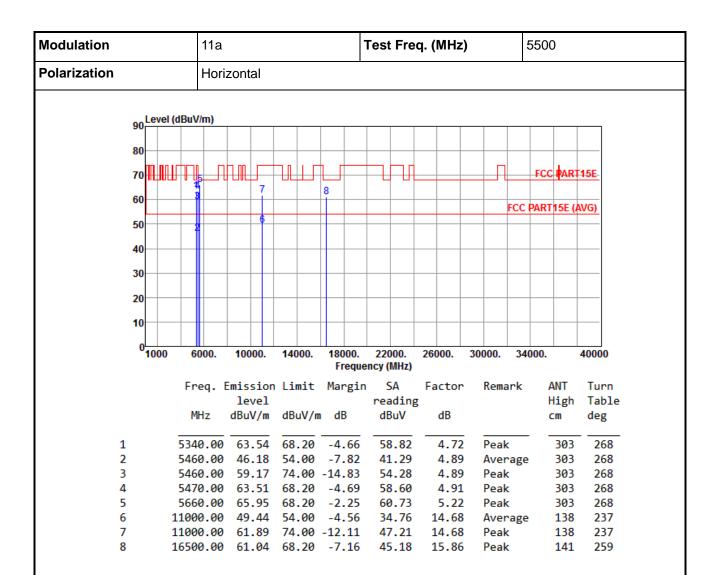


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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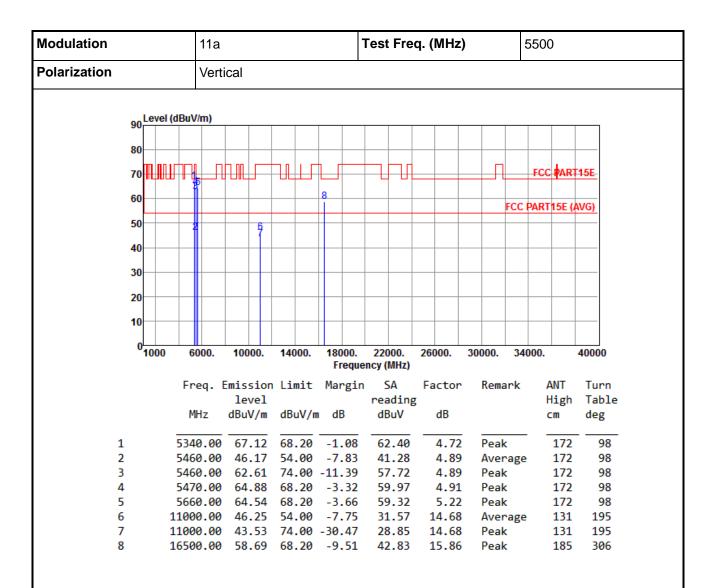


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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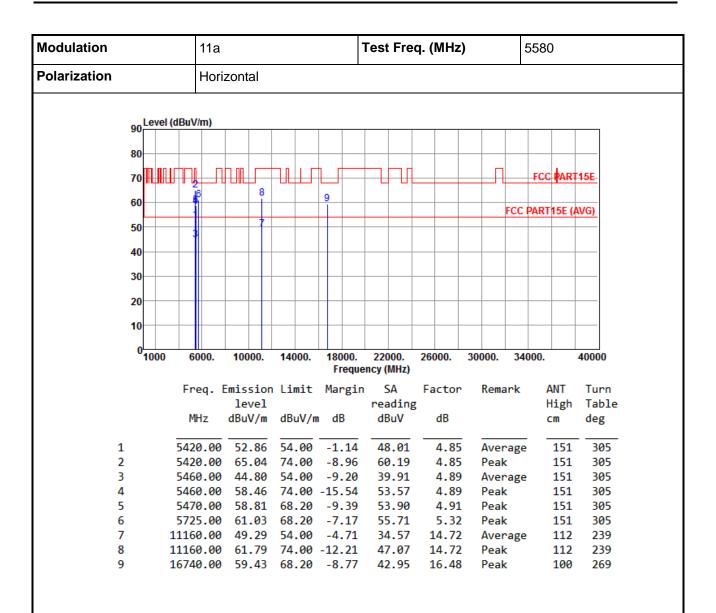


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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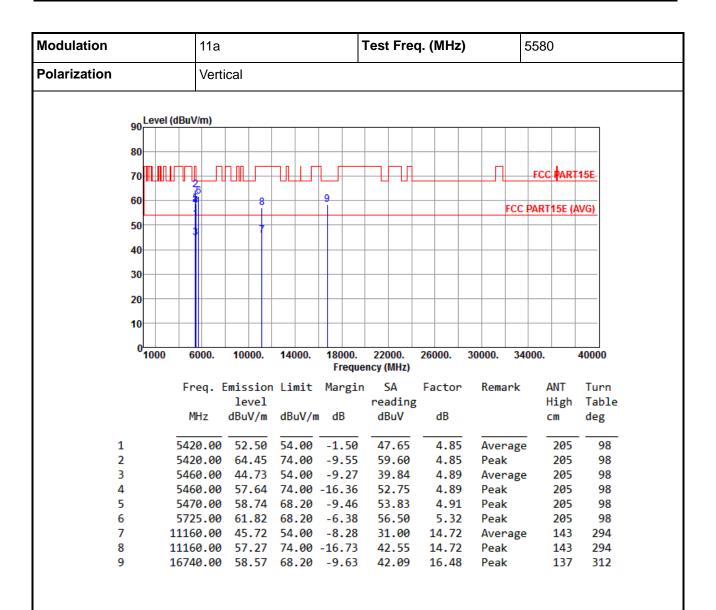


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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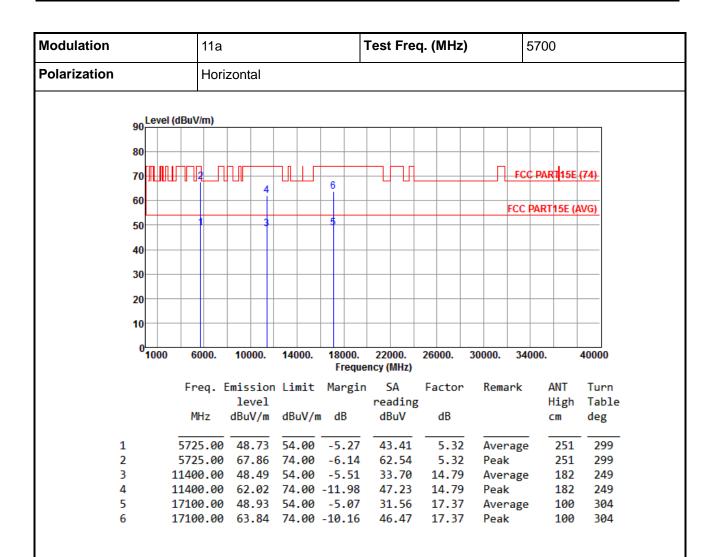


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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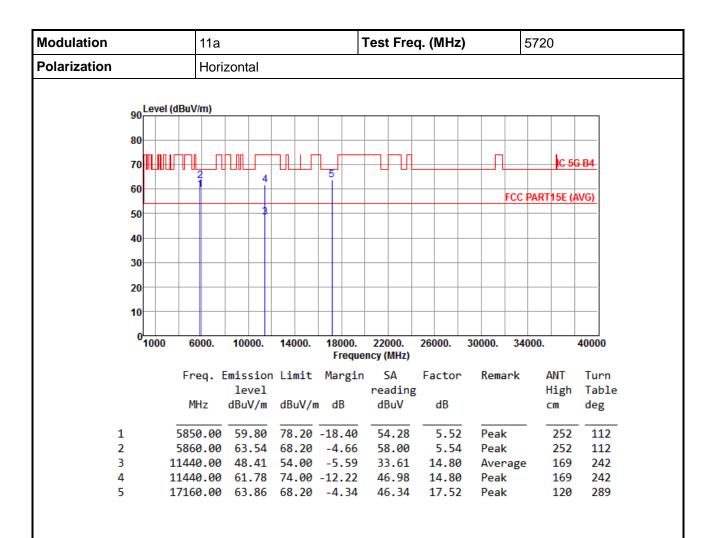
Modulation		11a						-	Test Freq. (MHz)						5700			
Polarization		Verti	cal															
90 Level	(dBuV	//m)																
80																		
70	IJ ╟╫	<u>_</u>			74	Н	6			Щ					FCC	C PAR	115E	(74)
60				4			_								FCC	DADT	15E (A	W(C)
50		4					5								FCC	PARI	IDE (/	AVG)
				1														
40																		
30																		
20							_											
10																		
01000	6	000.	100	00.	140	00.		000. reque	220 ncv (260	000.	300	000.	340	000.		40000
	Fr	eq. E	miss	sior	ı Lim	it				Α	Fa	actor	•	Rema	ark	4	ANT	Turn
		•		/el						ding	3					H	ligh	Tabl
	М	Hz	dBu\	//m	dBu	V/m	d	В	dB	uV		dB				(m	deg
1	572	5.00	47	.47	54.	00	-6	.53	42	.15	_	5.32	2	Aver	rage	-	179	
2		5.00	64.	.92	74.	00	-9	.08	59	.60		5.32	2	Peak	(179	68
		0.00		.46	54.			.54		.67		14.79		Aver	_	!	237	145
		0.00						.17		.04 .13		L4.79 L7.37		Peak Aver			237 189	145 236
		0.00						.62		.01		L7.37 L7.37		Peak	_		189	236

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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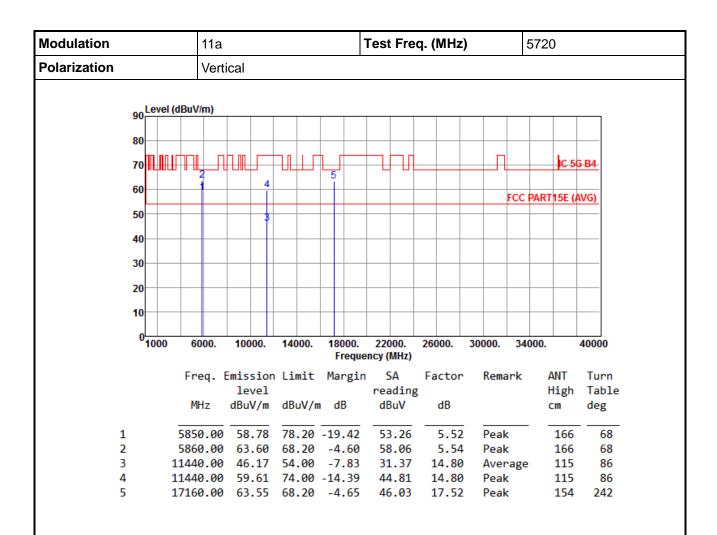


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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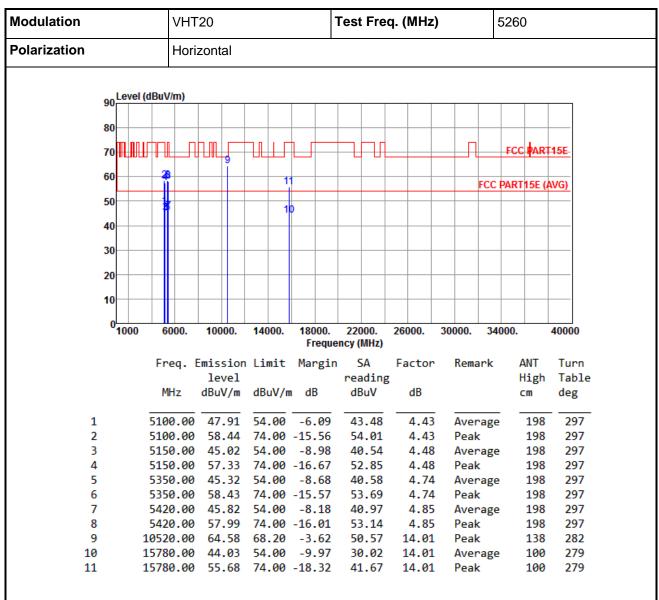
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20



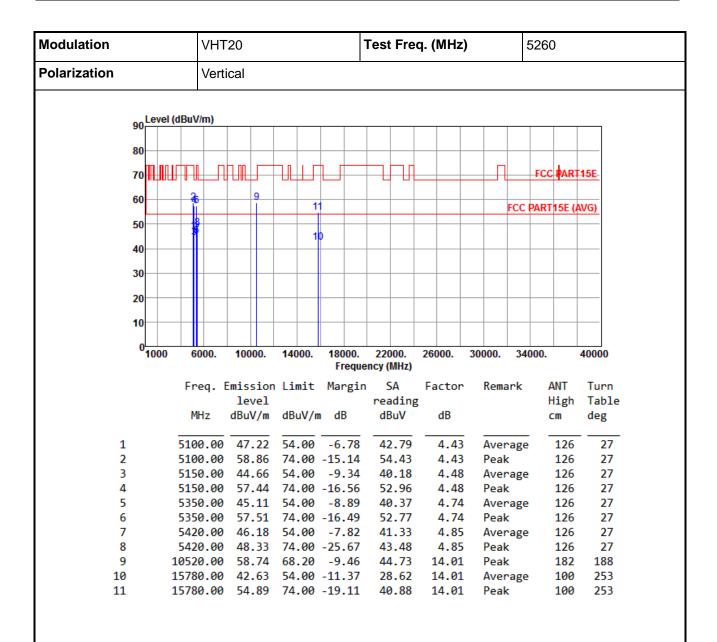
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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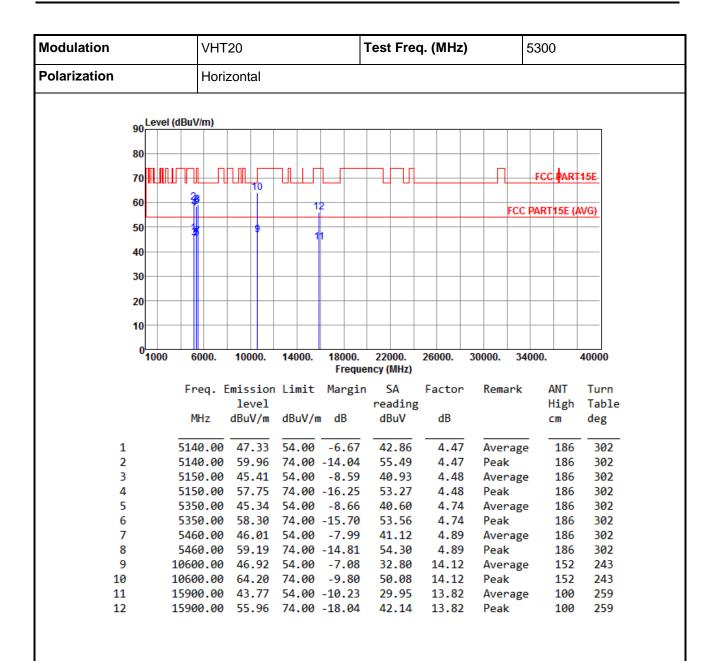


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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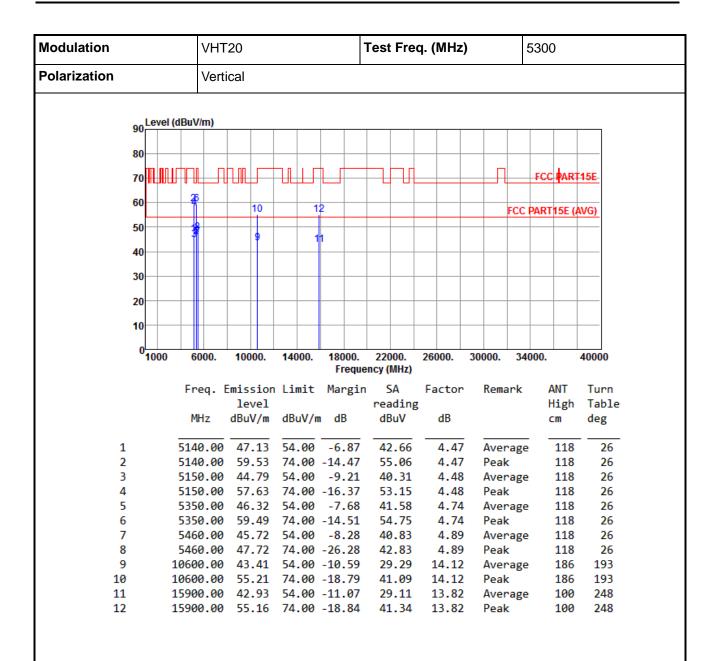


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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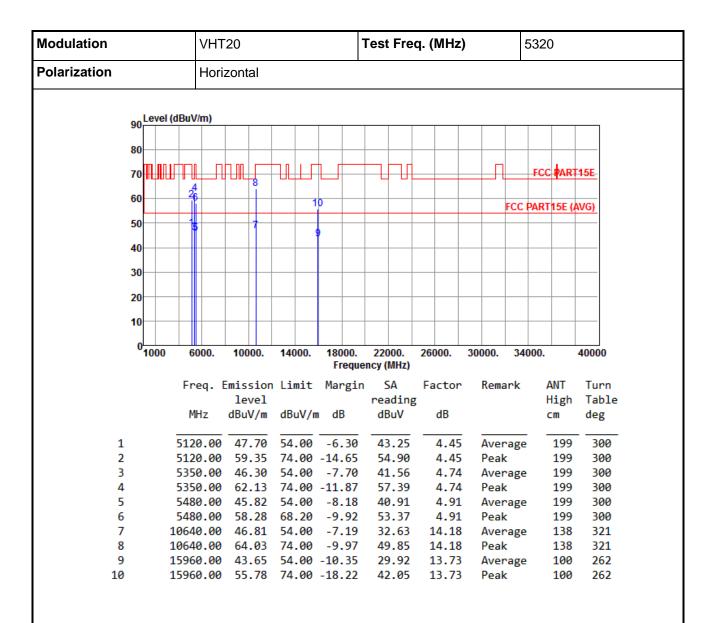


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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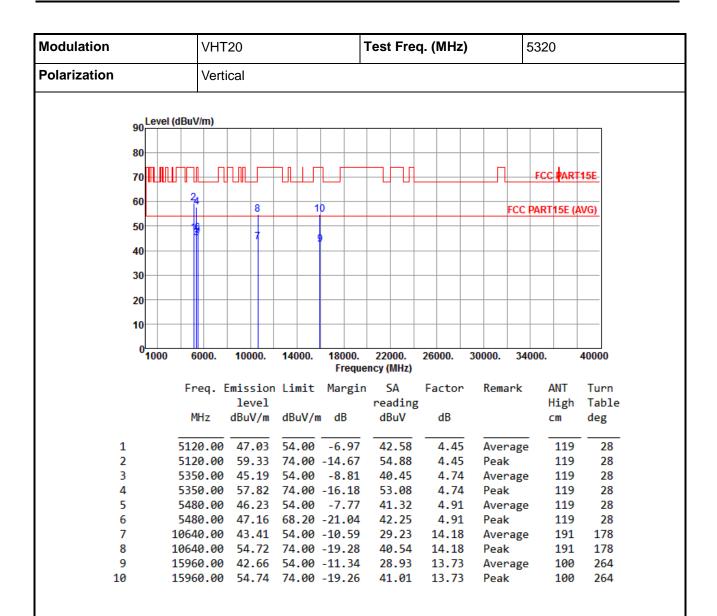


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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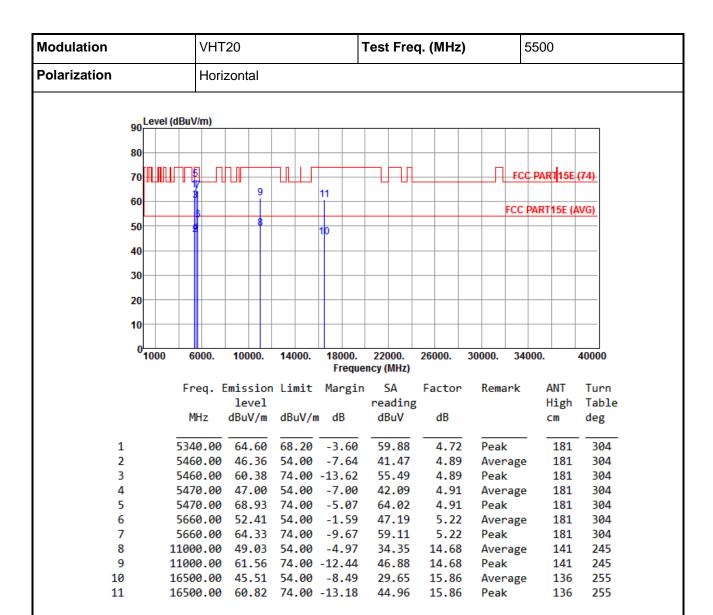


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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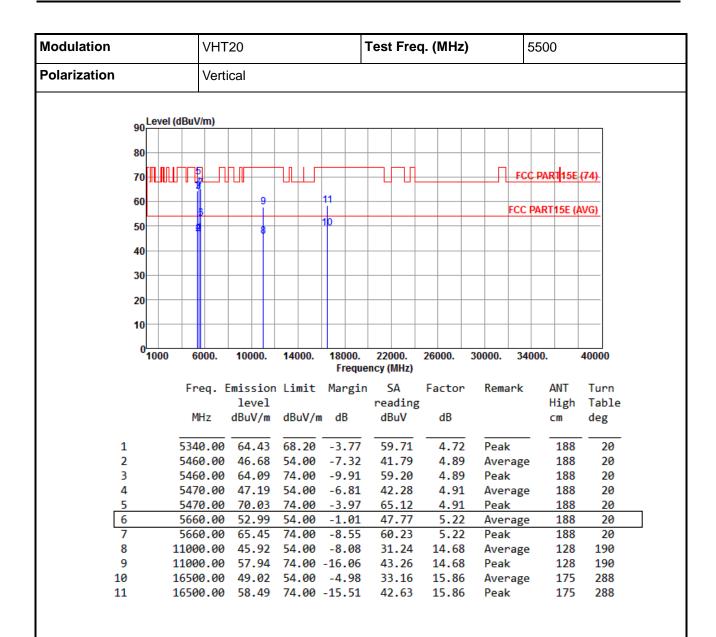


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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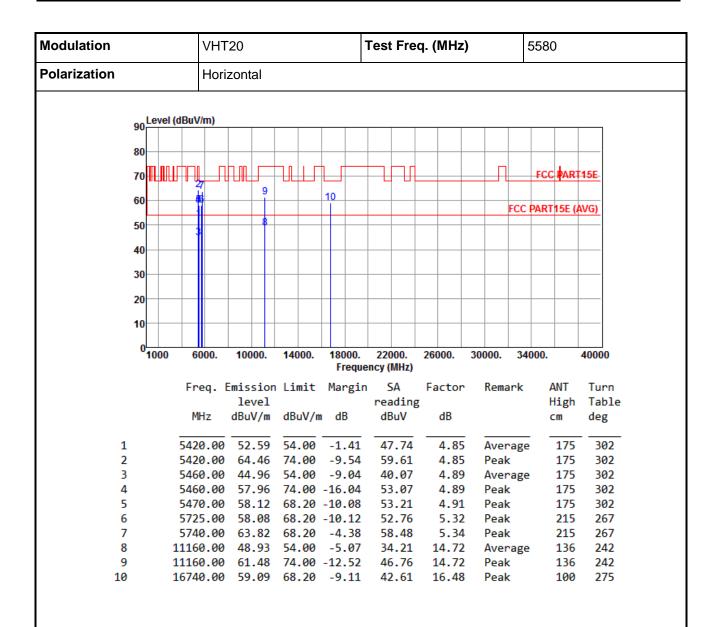


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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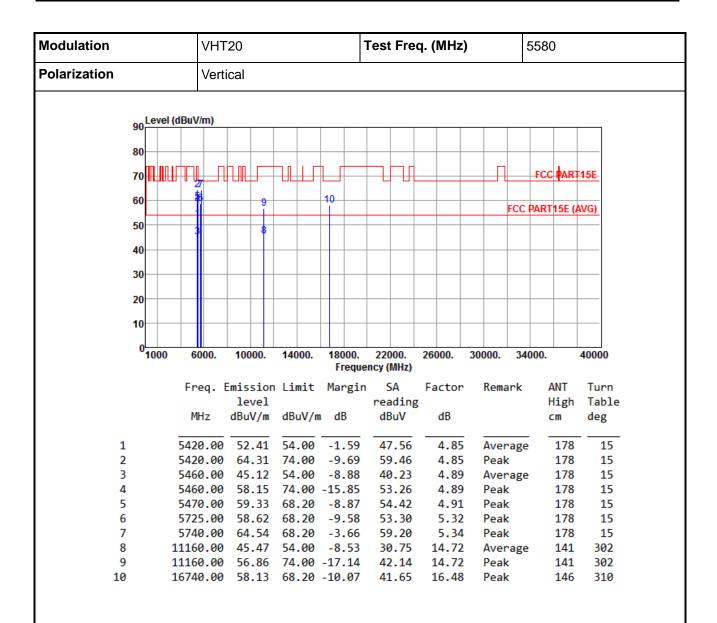


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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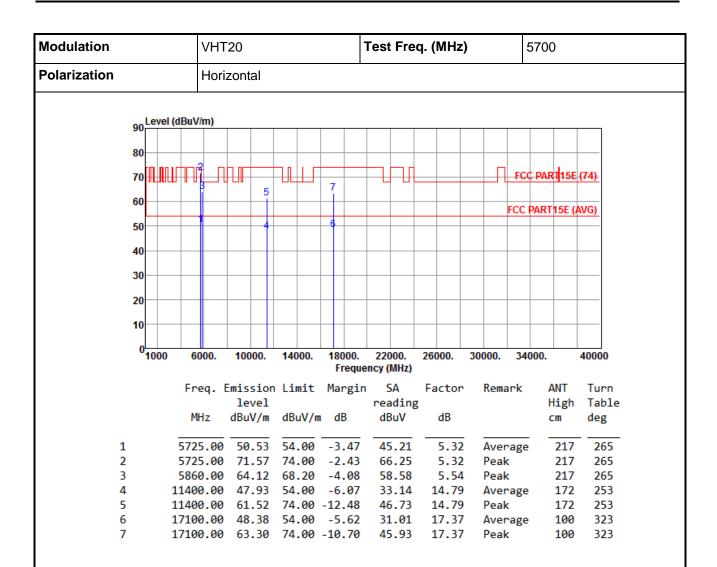


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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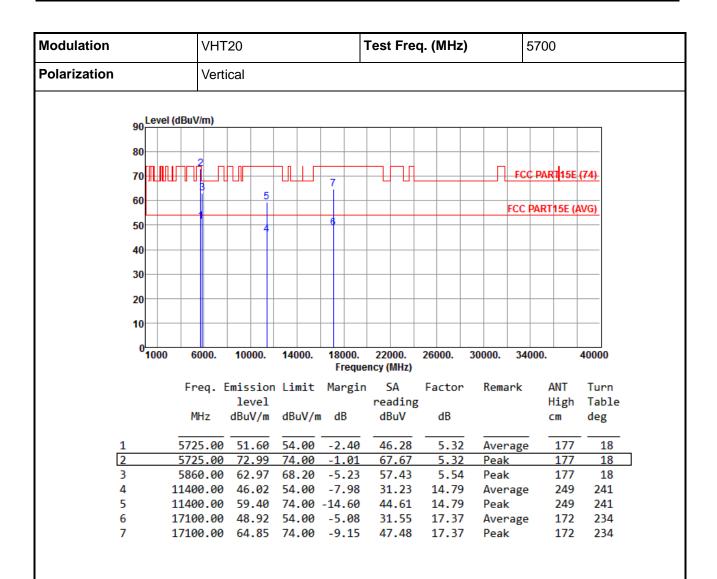


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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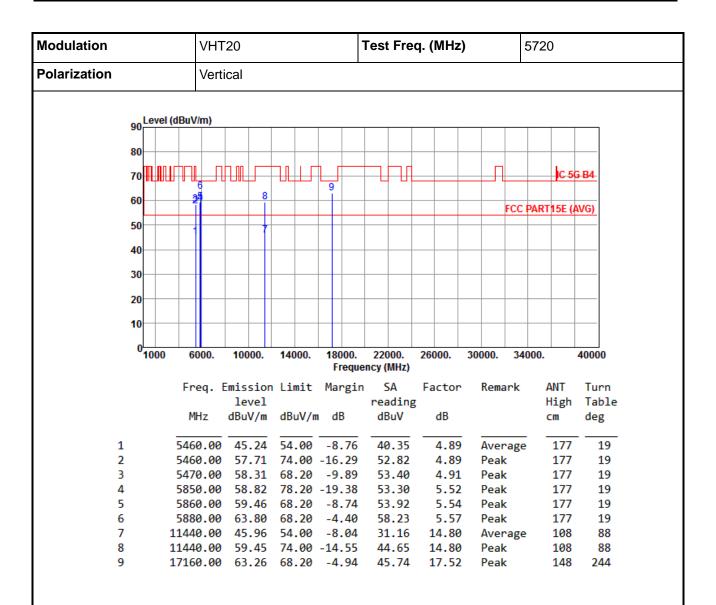


Modulation	VHT20			Test Fre	q. (MHz)	5720				
Polarization	Horizontal	Horizontal								
90 Level (dBuV	//m)									
90										
80										
70							IC 50	G-B4		
	4	8 24	9							
60 2	1					FCC	PART15E (A	AVG)		
50		7				1 1				
40										
30										
20										
10										
0 <mark>1000 60</mark>	000. 10000	14000		22000. ency (MHz)	26000.	30000. 34	000.	40000		
En	eq. Emissi	on Limit			Factor	Remark	ANT	Turn		
	leve		. Hai gill	reading		Kelliai K	High	Table		
Mi	Hz dBuV/	n dBuV,	/m dB	dBuV	dB		cm	deg		
1 5466	0.00 45.2	54.00	-8.77	40.34	4.89	Average	216	271		
	0.00 43.2		-6.77	52.76	4.89	Peak	216	271		
	0.00 57.7		-10.41	52.88	4.91	Peak	216	264		
	0.00 58.8		-19.38	53.30	5.52	Peak	216	264		
	0.00 59.6			54.10	5.54	Peak	216	264		
	0.00 65.9			60.34	5.57	Peak	216	264		
	0.00 48.2			33.46	14.80	Average		234		
8 11446	0.00 61.5	1 /4 00	1 -12.46	46.74	14.80	Peak	175	234		
	0.00 63.5			46.07	17.52	Peak	116	265		

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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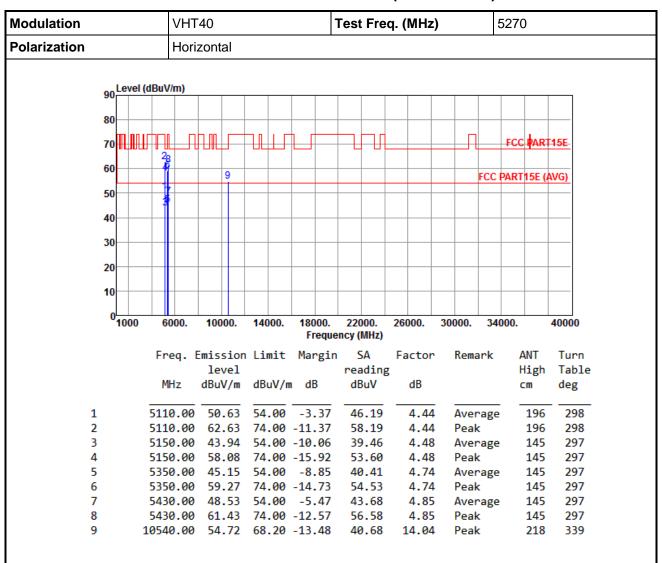
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40



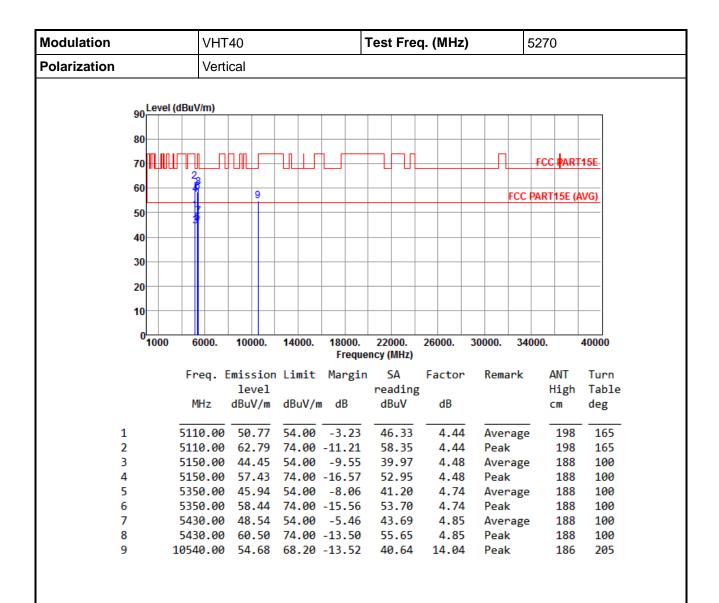
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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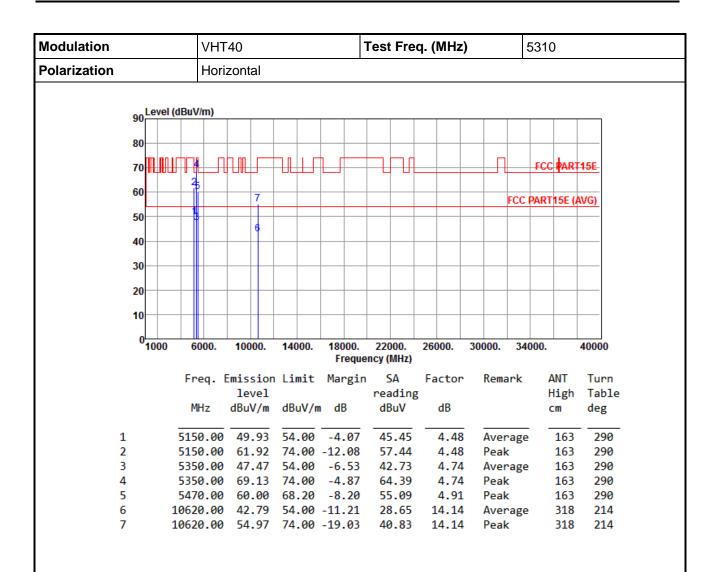


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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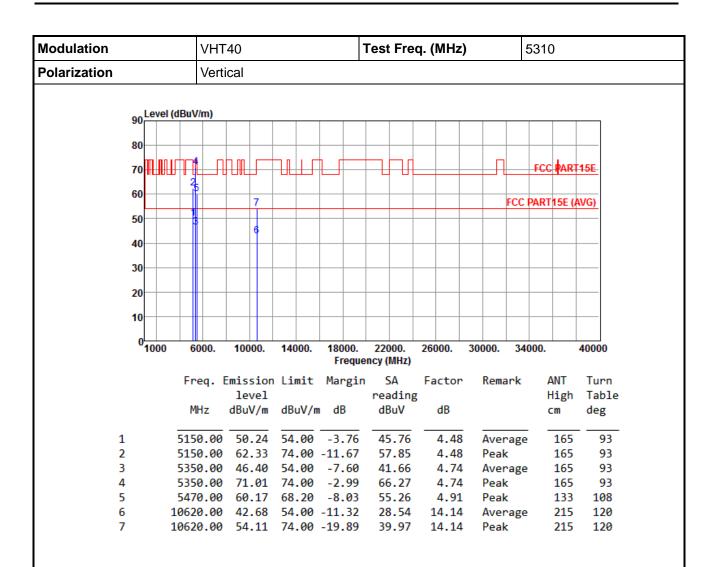


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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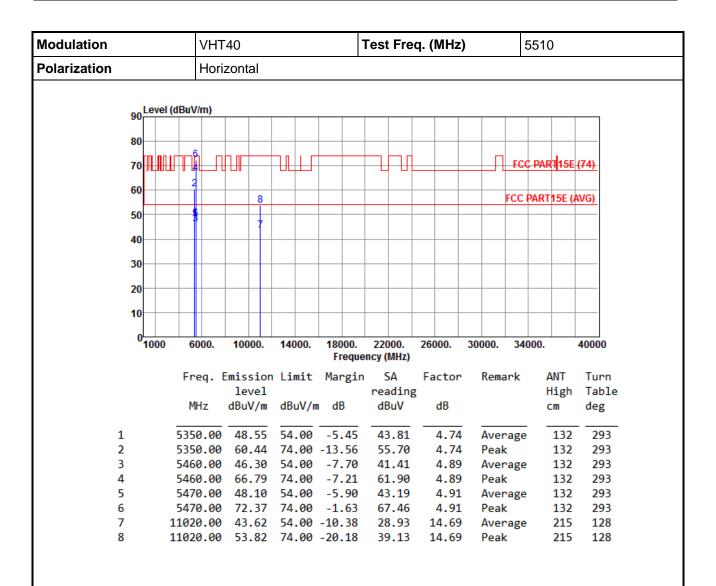


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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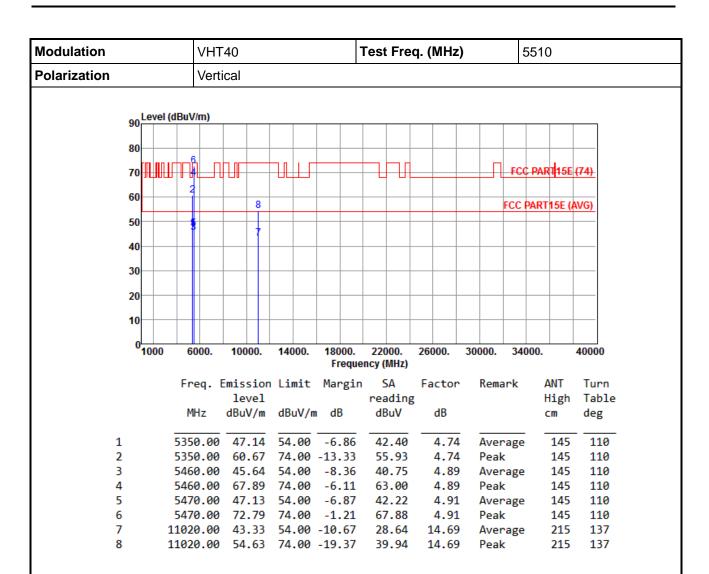


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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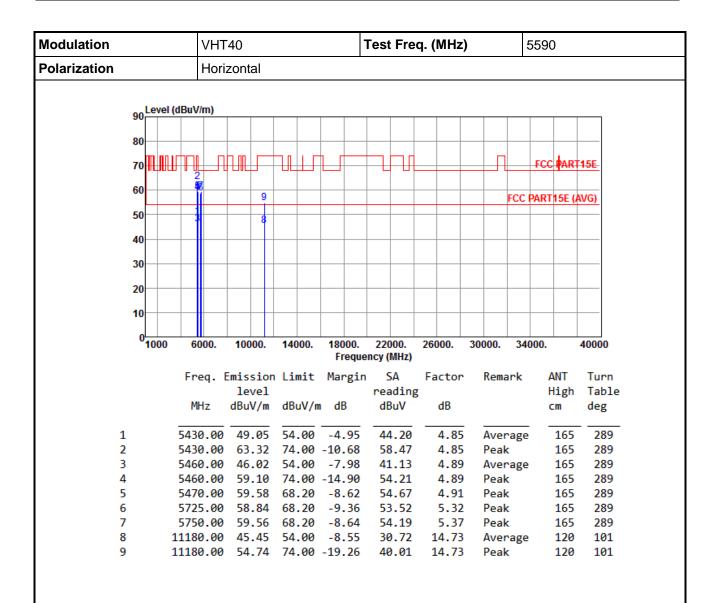


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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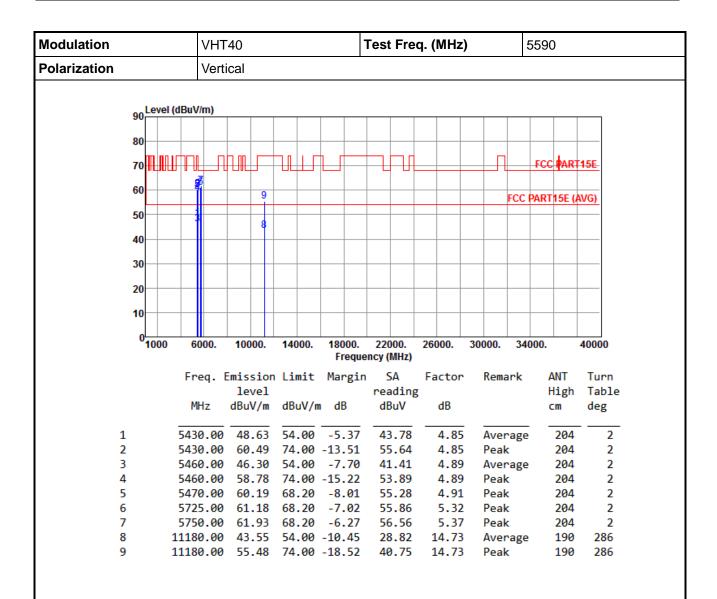


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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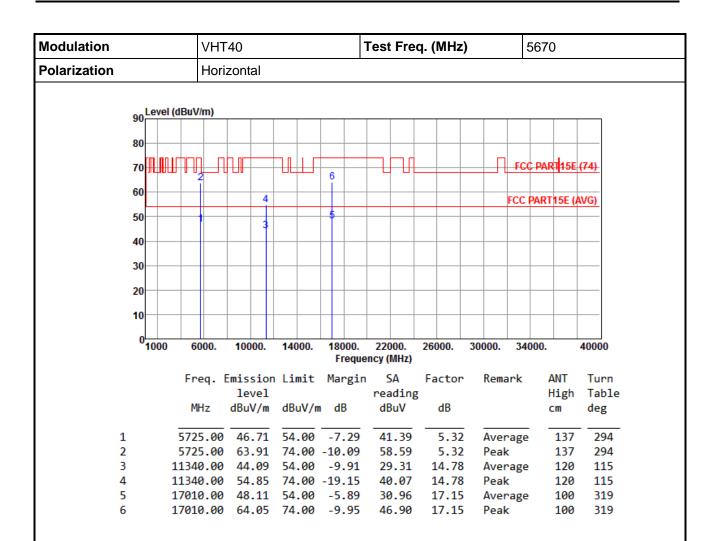


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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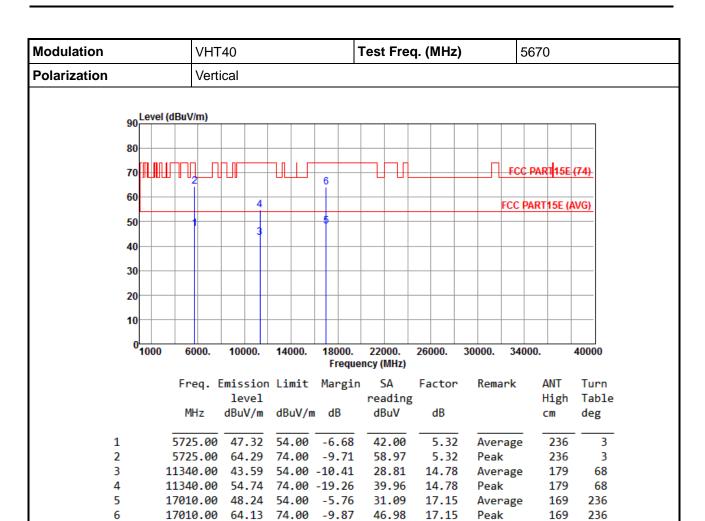


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation				VHT	40					•	Test	Fre	q. ((MHz)		571	0	
Polarization				Hori	zont	al													
		Lovol	(dDuV	//m)															
	90	Level	(dBuV	111)															
	80																		
	70							Ш	L			\Box				Д		IC 5	G B4
	60			8		5			6							F.C.	2 04 07		11/61
						1			\vdash							FCC	C PART	15E (AVG)
	50					4													
	40																		
	20																		
	30																		
	20																_		
	10																		
	10																		
	0	1000	6	000.	100	000.	140	00.		000. Freque	220 ncy (26	000.	30000). 3	4000.		40000
			En	eq. I	-mic	cior	ı Lin	ni+					Fa	actor	Ro	mark		ANT	Turn
				-q. 1		vel				6-11		nding				ui N		High	
			М	Hz	dBu	V/m	dΒι	ıV/n	n c	ΙB		BuV	,	dB				cm	deg
	1		585	0.00	-60	.30	78.	20	-17	7.90	-54	.78	-	5.52	Pe	ak		141	298
	2			0.00		.67				7.53		.13		5.54		ak		141	
	3		587	0.00	59	.50	68.	20	-8	3.70	53	.95		5.55	Pe	ak		141	298
	4		1142	0.00	45	.16	54.	00	-8	3.84		.36	1	14.80	Αv	erag	e	150	
	5		1142							.41		.79		14.80		ak		150	
•	5		1713	0.00	56	.93	68.	20	-11	.27	39	.48	1	17.45	Pe	ak		100	267

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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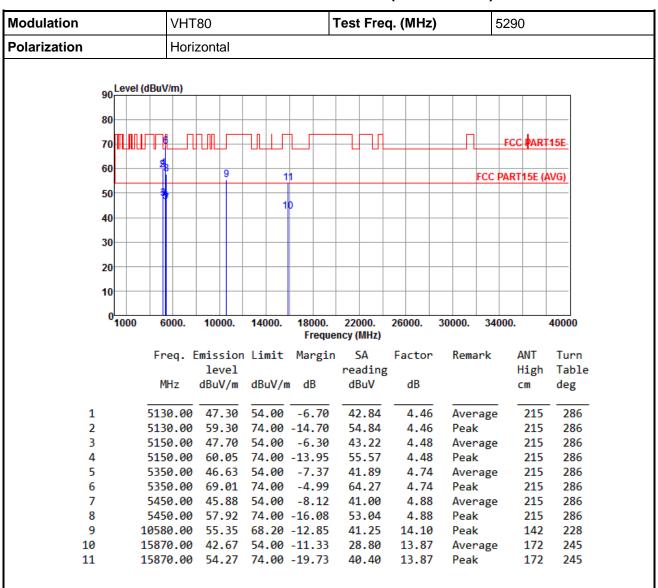
Modulation				VH٦	۲40					-	Test	Fre	q. ((MHz))		5710)	
Polarization				Vert	ical					ı									
	90 l	Level	(dBu\	//m)															
	80																		
					ПП			Ш	L							<u> </u>		IC 5	G B4
	60	_		3		5			6							FCC	PART	15E (AVG)
	50	+				4			H										
	40	_																	
	30																		
	20																		
	10																		
	0,	1000	6	000.	100	000.	140	000.		3000. Freque		000. MHz)	26	000.	30000.	34	000.		40000
			Fr	eq.			ı Li	mit	Ma	argin		A		actor	Rem	ark	_	ANT	Turn
			M	lHz		vel V/m	dB	uV/r	n /	IR.		ding BuV	3	dB				digh cm	Table deg
				1112	ubu	v / III	ub	uv/i		JD	u	uv		ub				-111	ueg
	1			0.00		.01				5.19		.49		5.52				188	_
	2			0.00		.99		. 20		5.21		.45		5.54				188	
	3			0.00		.62		.20		7.58		.07		5.55				188	
	4 5			0.00 0.00		.63		.00		3.77 9.37		.43		14.80 14.80		rage	2	144	
	5			0.00								.83		14.80 17.45				144 128	

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80



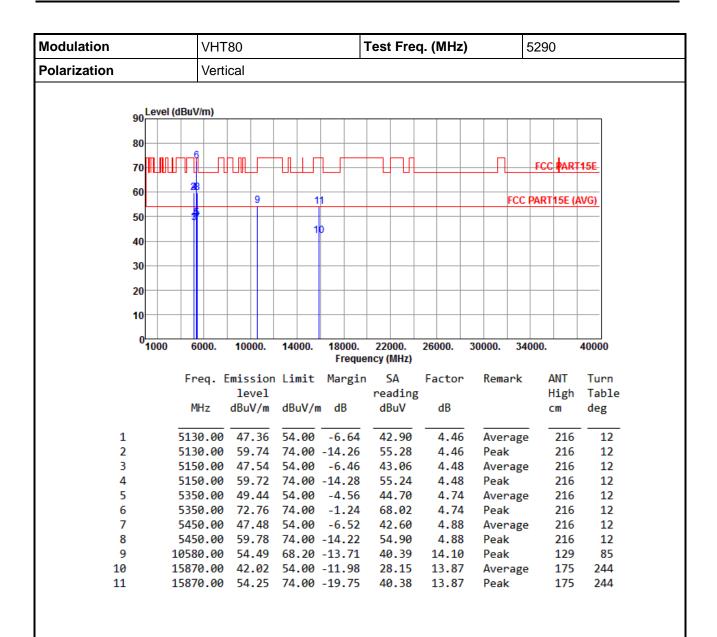
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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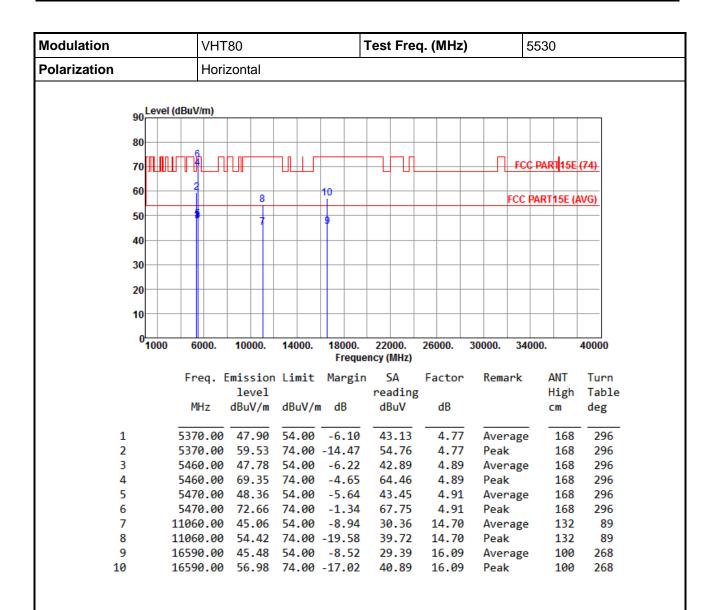


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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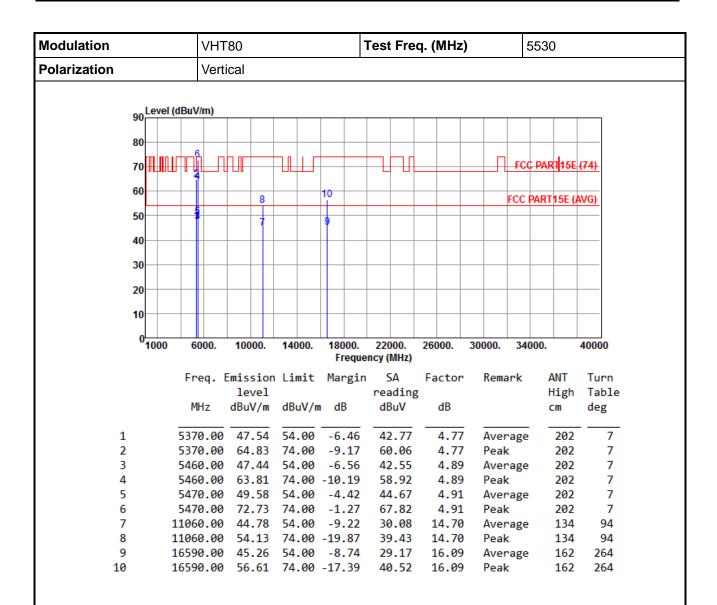


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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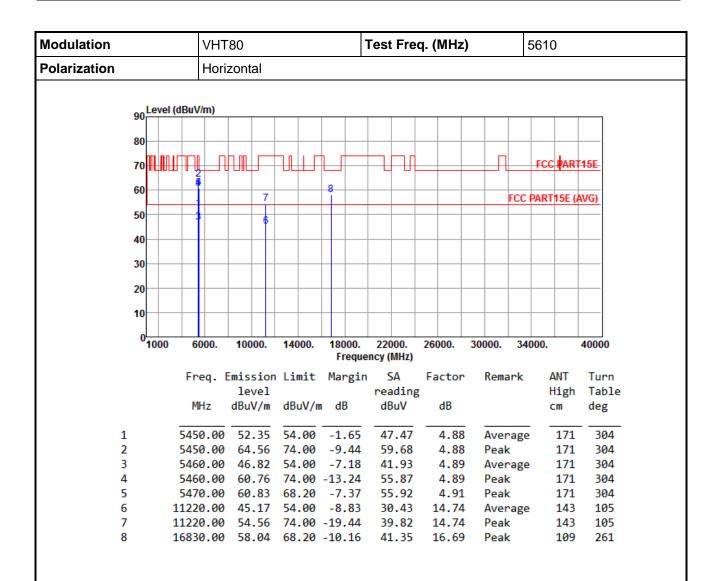


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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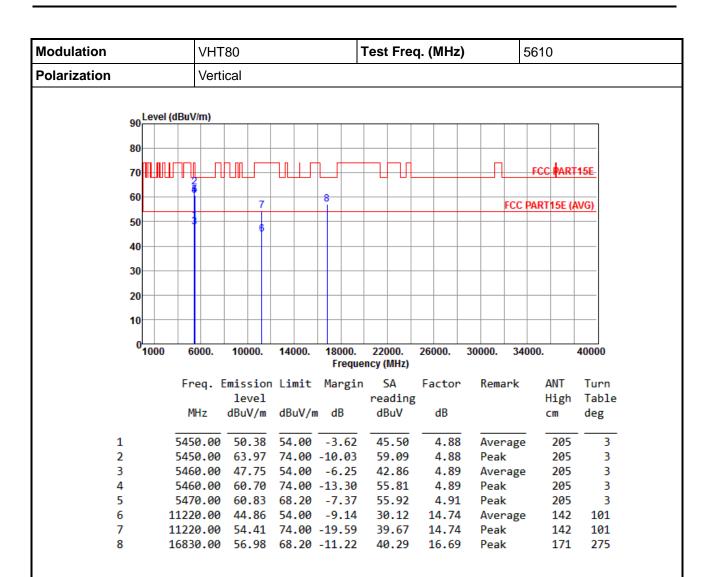


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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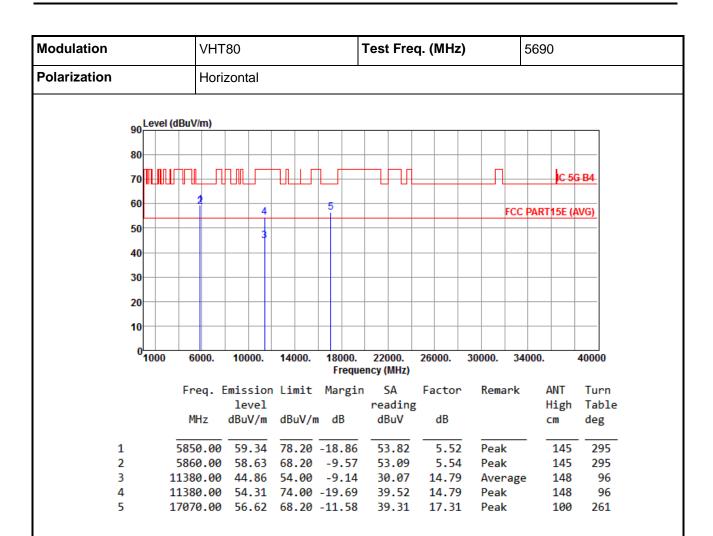


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation				VH	Γ80					-	Test	Fre	q. (N	MHz))		5	690	0	
Polarization				Vert	ical															
	90	Leve	(dBuV	//m)																
	00																			
	80																			
	70	Ш		₩			74				$-\sqcup$	Щ			_				IC 5	G B4
	60	Щ		4					5											
		\vdash				4			-i							F	CC P	PART	15E (/	AVG)
	50					3			\vdash						\top					
	40														_	_				
	20																			
	30																			
	20																			
	10														_					
	0	1000	6	000.	100	000.	140	00.		000. reque	220 ncy (I		260	00.	3000	00.	340	00.		40000
			Fr	eq.	Emis	sion	Lim	it	Ma	rgin	S	Α	Fac	ctor	R	ema	rk	1	ANT	Tur
					le	vel					rea	ding						H	High	
			М	Hz	dBu	V/m	dBu	V/n	ı d	В	dB	uV	(dB				(cm .	deg
	1		585	0.00	59	.22	78.	20	-18	.98	53	.70	_	5.52	P	eak		-	222	
	2			0.00		.14	68.					.60		5.54		eak			222	1
	3		1138	0.00	44	.63	54.			.37	29	.84	14	4.79		ver	age		141	10
	4		1138				74.					.23		4.79		eak			141	10
	5		1707	0.00	56	.38	68.	20	-11	.82	39	.07	17	7.31	P	'eak			133	26

*Factor includes antenna factor, cable loss and amplifier gain

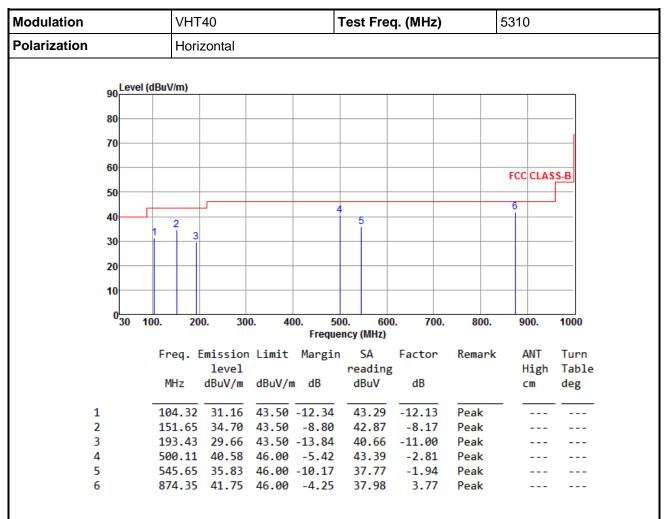
Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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Beamforming mode

3.5.9 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

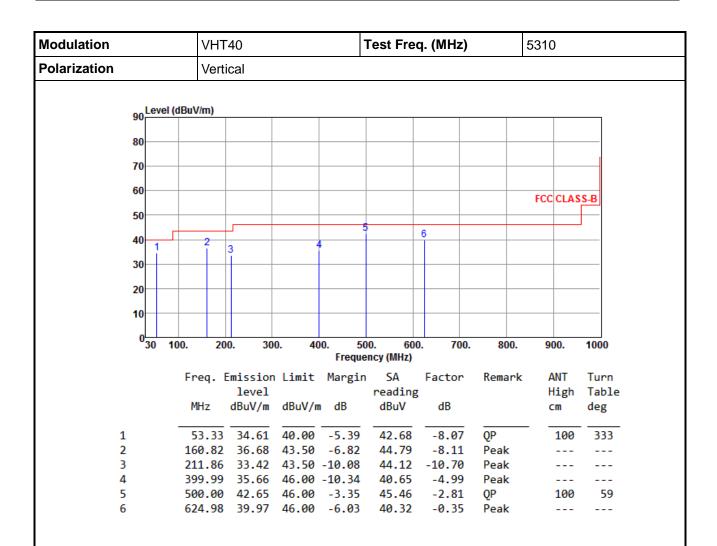
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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*Factor includes antenna factor, cable loss and amplifier gain

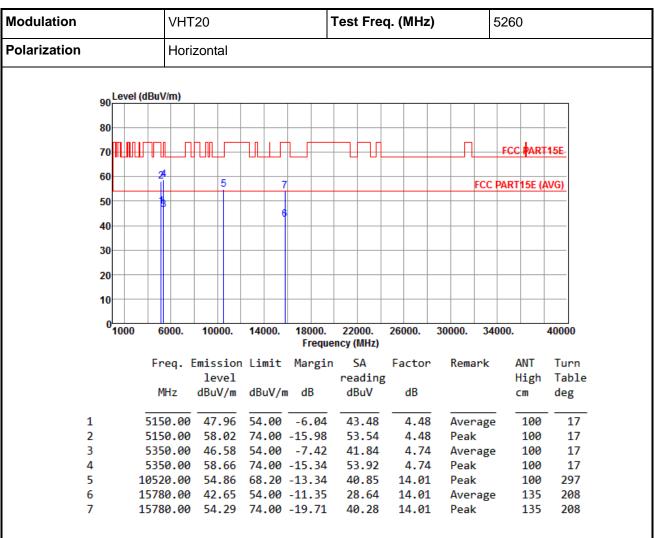
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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3.5.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20



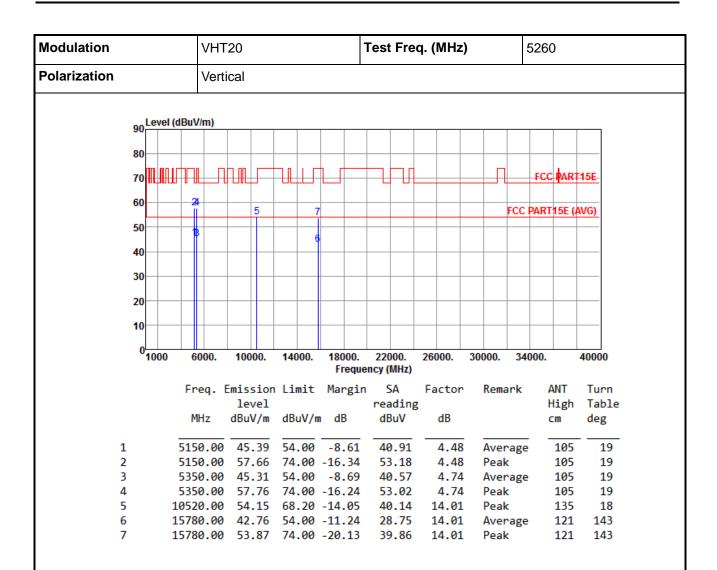
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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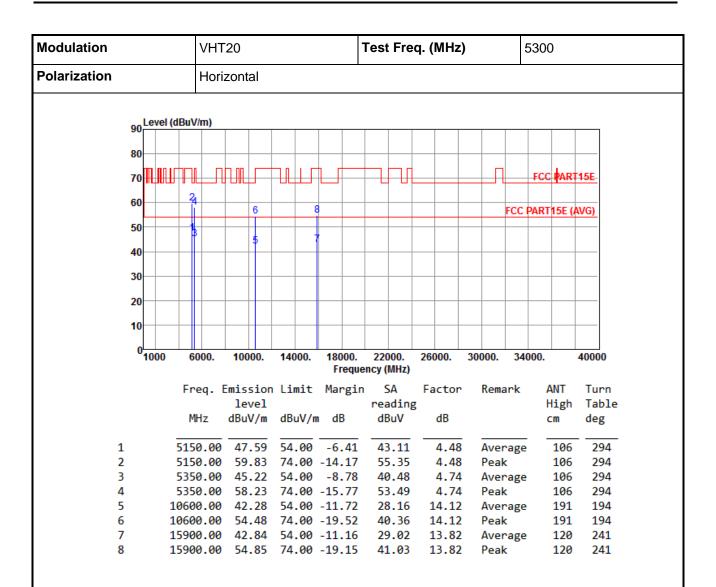


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation			VHT	20					1	Гest	Fre	q. (MHz	:)		5	5300	0	
Polarization			Vert	ical															
	90 Lev	el (dBu	V/m)																
	80																		
	70						_				\Box				П		FCC	PART	15E
			4		_										Γ'			ļ .	
	60		i i		6		8	3								FCC I	PART	15E (/	AVG)
	50		В																
	40				5														
	30																		
	20																		
	10																		
	0						_	400											
	~100	10 6	5000.	100	00.	1400	U.	1800 Fre		220 ncy (l		260	000.	300	000.	340	000.		4000
		Fr	req.	Emis	sion	Lim	it	Mar	gin	S	Α	Fa	actor		Rema	ark	1	ΔNT	Tur
					vel						ding	3					H	High	Tab
		M	1Hz	dBu\	V/m	dBu\	//n	n dB		dB	uV		dB				(cm	deg
:	l	515	50.00	46	.87	54.0	90	-7.	13	42	.39	_	4.48	3	Aver	rage	-	103	28
	2		50.00		.36			-13.			.88		4.48		Peak			103	28
	3		50.00					-7.			.42		4.74			rage		103	28
	1 -		50.00					-14.			.58		4.74		Peak			103	28
	5		90.00 90.00								.11 .28		L4.12 L4.12		Aver Peak	rage		189 189	17 17
) 7		90.00								.00		.4.12 13.82			age		100	24
	3		90.00								.92		13.82		Peak	_		100	24

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation		_		VH٦	Γ20				1	est	Fre	q. (MHz))		5320)	
Polarization				Hor	izont	al			<u>'</u>						ı			
	90 ^L	.evel	(dBu\	//m)				_										
	80-							_										
	70							ф			$\neg \Pi$					FCC	PART	[15E-
			- " '			4		٦,		Ĭ							ļ	
	60							6							FCC	PART	15E (/	AVG)
	50	+	-			3		+							-	-		
	40							1										
	30							4										
	20																	
	10	+						+							+	+		
	0	000		000.	400		14000	Д	18000.	220	00	200	000.	20000		1000.		40000
	1	000	0	000.	100	000.	14000).	Freque			200	000.	30000	. 34	1000.		40000
			Fr	eq.	Emis	sion	Limi	t	Margin	S	Α	Fa	actor	Rei	nark	-	ANT	Turn
						vel					ding	3				H	High	Table
			M	ΙΗz	dBu	V/m	dBuV	/m	dB	dB	uV		dB			(cm	deg
	1		535	0.00	-16	/11	5/ 0		-7.59	/11	.67	_	4.74	Δν.	erage		100	297
	2			0.00		.53	74.0		-7.47		.79		4.74			-	100	297
	3		1064	10.00	46	.55	54.0		-7.45		.37		4.18		erage	2	215	143
	4		1064	10.00	62	.93	74.0	0 -	-11.07	48	.75	1	4.18	Pe	ak		215	143
!	5		1596	0.00	43	.58	54.0	0 -	-10.42		.85		13.73		erage	2	100	248
(5		1596	0.00	55	.69	74.0	0 -	-18.31	41	.96	1	13.73	Pe	ak		100	248

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation				VH	IT2	0						Гest	Fre	q. (MHz)		Ę	5320)		
Polarization				Ve	rtica	al					1											
				ı																		
	90 ^L	evel	(dBu	V/m)	_																	ı
	80																					
	70	Ш	Ш		Ш	╨	\vdash	14	Ш				$-\coprod$			_	ᅫ		FCC	PAR	T15E	
	60																					
	L	_			_	_	4		-	3								FCC	PART	15E (AVG)	
	50	+		1	+	\dashv	3															
	40	+		-	_	_	Ш															
	20																					
	30-																					
	20	+			+	\dashv																
	10					_																
	⁰ 1	000		6000.		1000	00.	140	00.		000. reque	220 ncy (26	000.	3000	00.	340	000.		4000	0
			F	rea.	Em	iss	ion	Lin	nit	Ma	rgin	9	Α	Fa	actor	R	lema	ırk	1	ANT	Tu	rn
						lev					. 6		ding						_	digh		ble
			ı	MHz	d	BuV	//m	dBu	ıV/n	ı d	В		luV		dB					:m	de	g
	1		53	50.0	 0	46.	60	54.	.00	-7	.40	41	.86	-	4.74	_ Α	ver	age	-	109		19
	2			50.0		67.				-6			.64		4.74	P	eak			109		19
	3			40.0				54.					.85		14.18			age		182		91
	4		106	40.0	0	54.	92	74.	.00	-19	.08	40	.74	1	L4.18	P	'eak			182	1	91

28.86

13.73

13.73

Average

Peak

121

121

249

249

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain

15960.00 42.59 54.00 -11.41

15960.00 54.88 74.00 -19.12 41.15

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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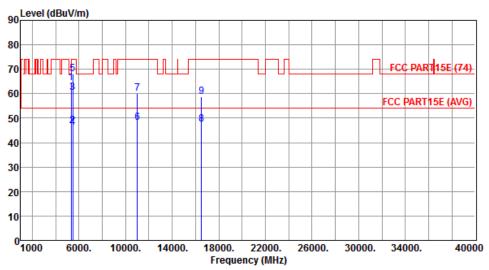
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Modulation	VHT20	Test Freq. (MHz)	5500
Polarization	Horizontal		



	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		CM	deg
1	5340.00	64.41	68.20	-3.79	59.69	4.72	Peak	158	300
2	5460.00	46.88	54.00	-7.12	41.99	4.89	Average	158	300
3	5460.00	60.54	74.00	-13.46	55.65	4.89	Peak	158	300
4	5470.00	46.31	54.00	-7.69	41.40	4.91	Average	158	300
5	5470.00	68.07	74.00	-5.93	63.16	4.91	Peak	158	300
6	11000.00	48.16	54.00	-5.84	33.48	14.68	Average	140	253
7	11000.00	60.22	74.00	-13.78	45.54	14.68	Peak	140	253
8	16500.00	47.42	54.00	-6.58	31.56	15.86	Average	131	295
9	16500.00	58.63	74.00	-15.37	42.77	15.86	Peak	131	295

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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Modulation				VHT	20					-	Гest	Fre	q. (MHz)		5	5500)		
Polarization				Verti	ical					1											
	90	Level (dBuV	/m)																	1
	80															\dashv					
	70		Щ								1	П				Д	FCC	PAR	1 1 15E	(74)	
	60		_			7			9							F	CC I	PART	15E (AVG)	
	50					6			*										,		
	40															_					
	30															\dashv					
	20															+					
	10															\dashv					
	0	1000	60	000.	100	00.	1400	00.		000. reque	220 ncy (I		260	000.	3000	0.	340	000.		4000] 00
			Fr	eq. E			Lim	it	Ма	rgin				ctor	Re	ema	rk		NT.		rn
			М	Hz		vel V/m	dBu	V/m	ı d	В	rea dB	ding uV		dB					ligh :m	Ta de	ble g
:	1		534	0.00	66	.69	68.	20	-1	.51	61	.97	_	4.72	Pe	eak		-	129		18
	2		546	0.00	48	.17	54.	00	-5	.83	43	. 28		4.89	A۱	ver	age		129		18
	3		546	0.00	62	.04	74.	00	-11	.96	57	.15		4.89	Pe	eak			139		18

41.13

59.25

31.43

40.75

32.28

41.68

4.91

4.91

14.68

14.68

15.86

15.86

Average

Average

Average

Peak

Peak

Peak

171

171

131

131

123

123

95

95

194

194

208

208

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain

5470.00 46.04 54.00 -7.96

5470.00 64.16 74.00 -9.84

11000.00 46.11 54.00 -7.89

11000.00 55.43 74.00 -18.57

16500.00 48.14 54.00 -5.86

16500.00 57.54 74.00 -16.46

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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5

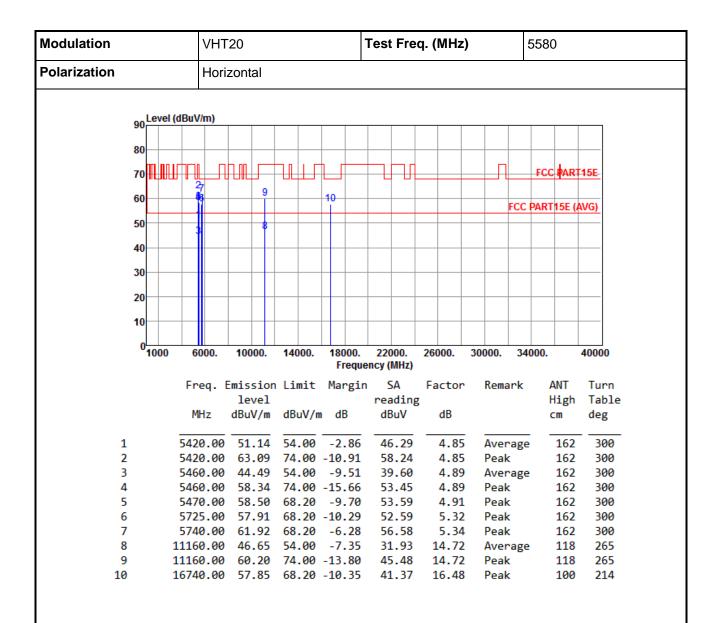
6

7

8

9



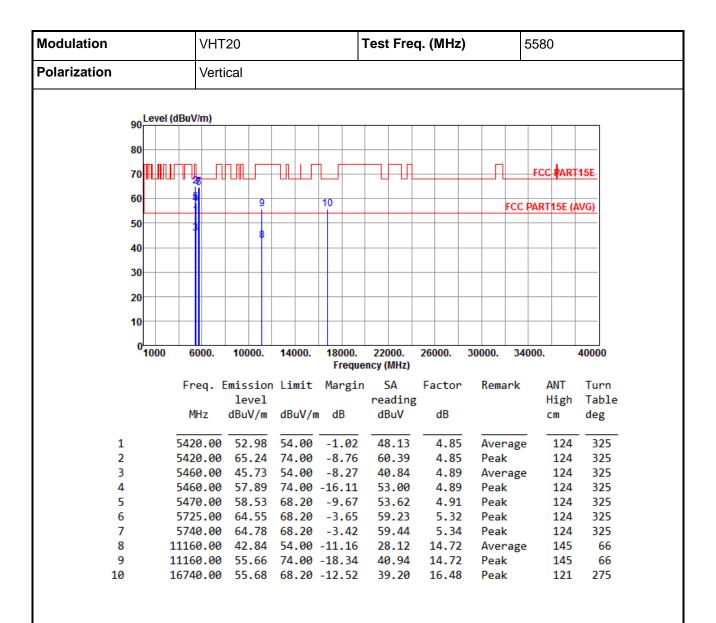


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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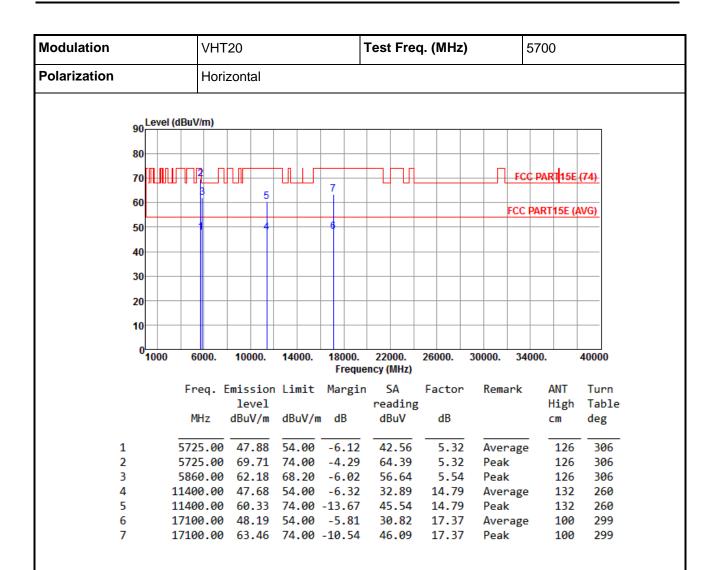


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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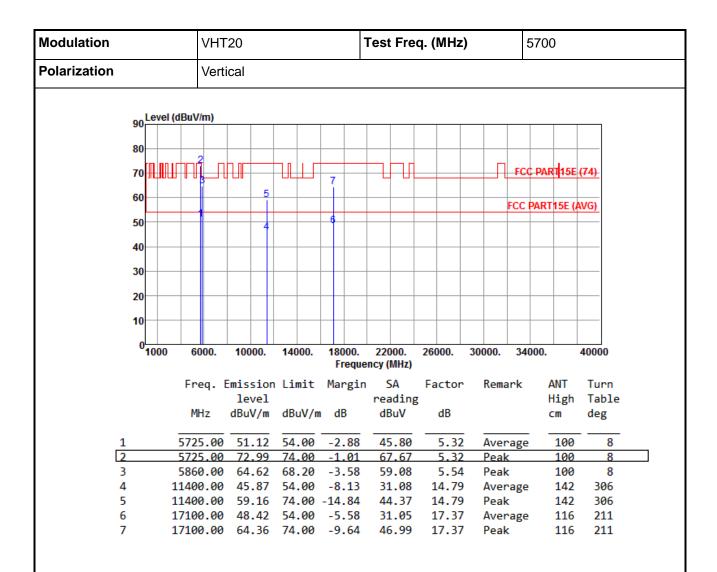


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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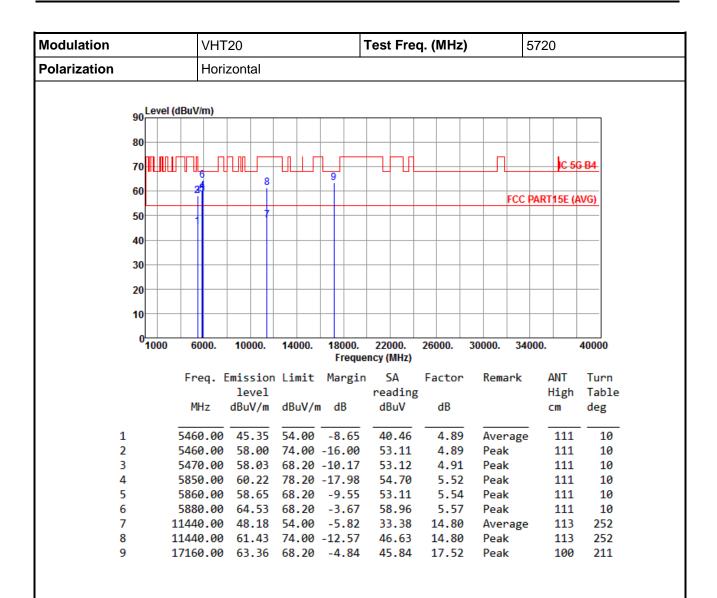


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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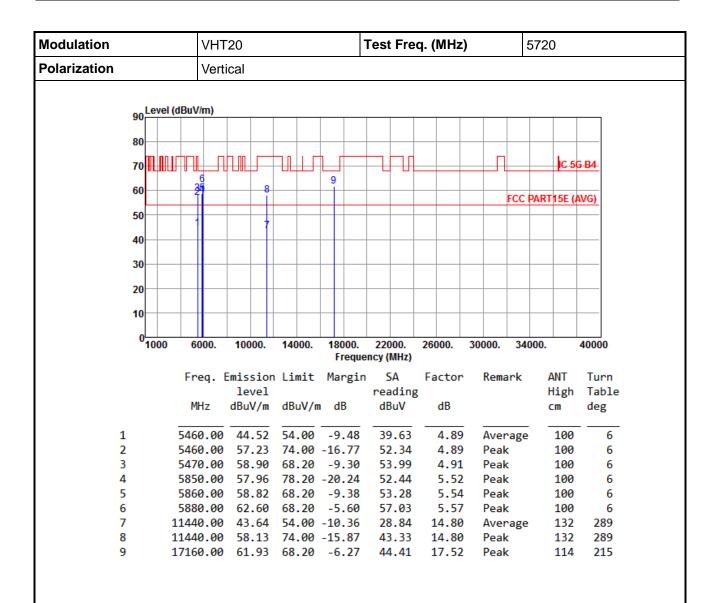


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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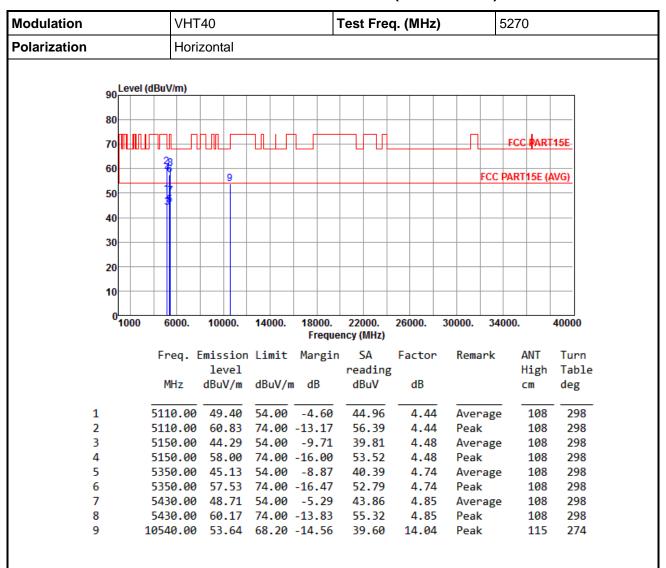
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3.5.11 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40



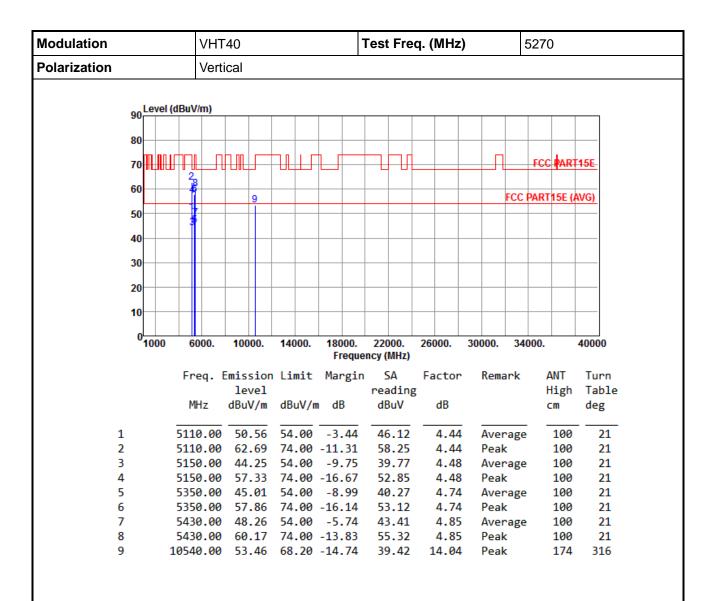
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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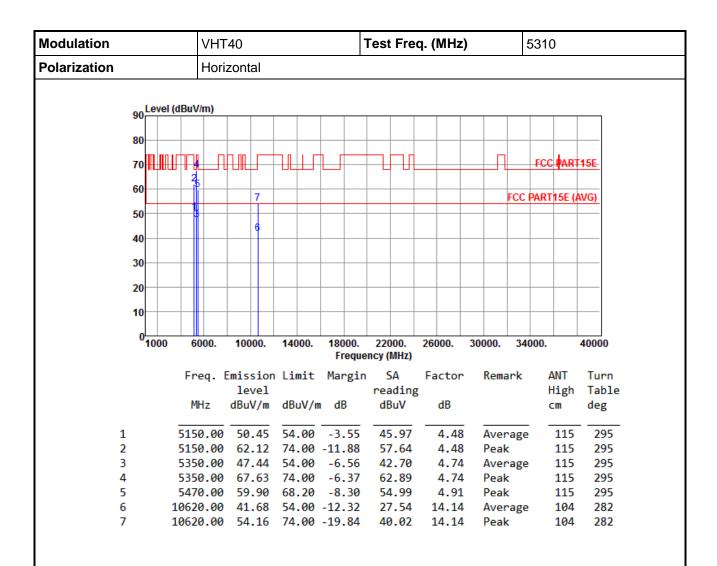


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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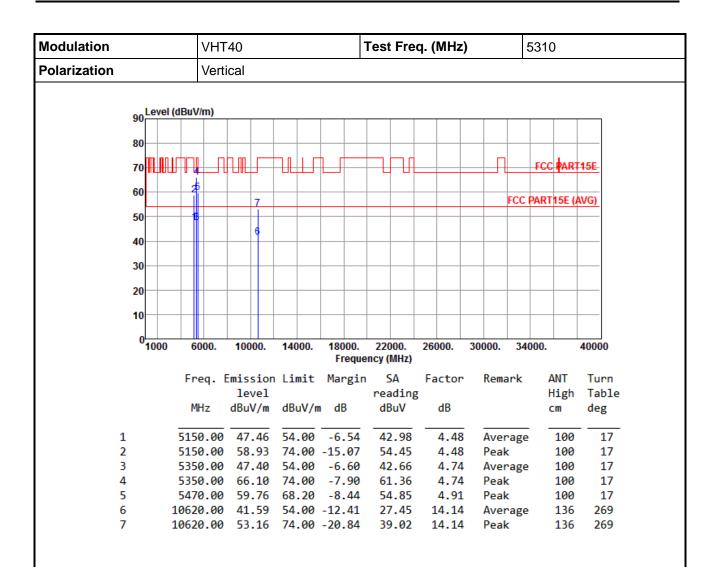


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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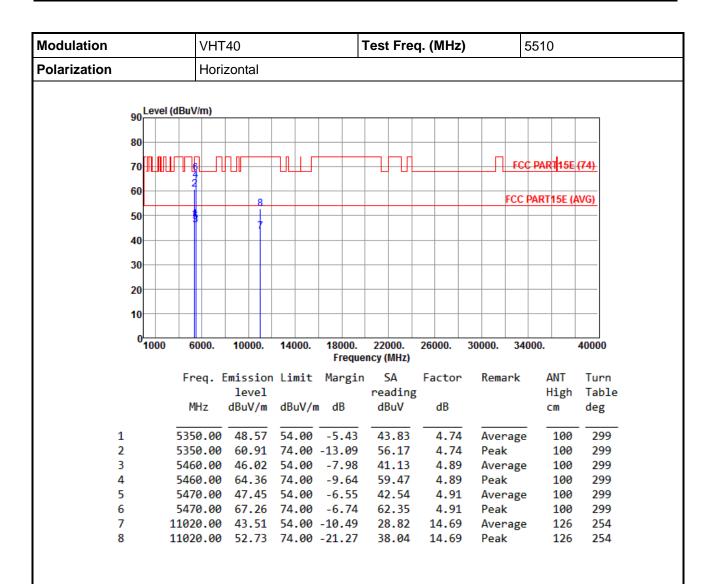


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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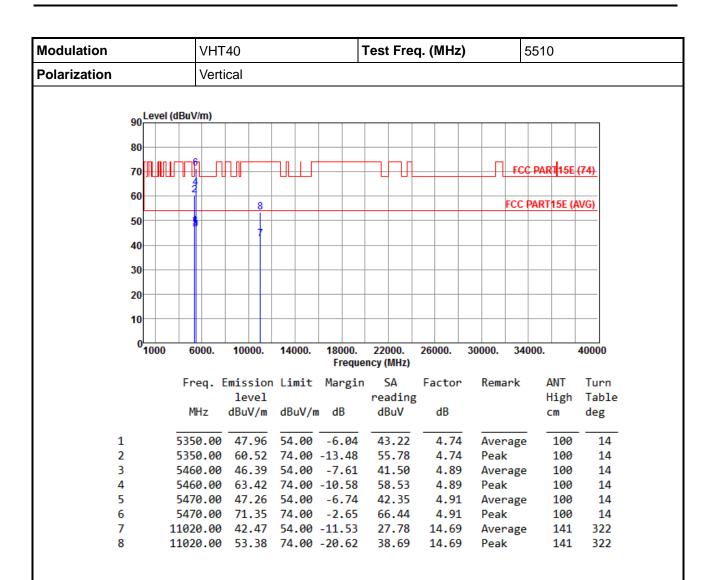


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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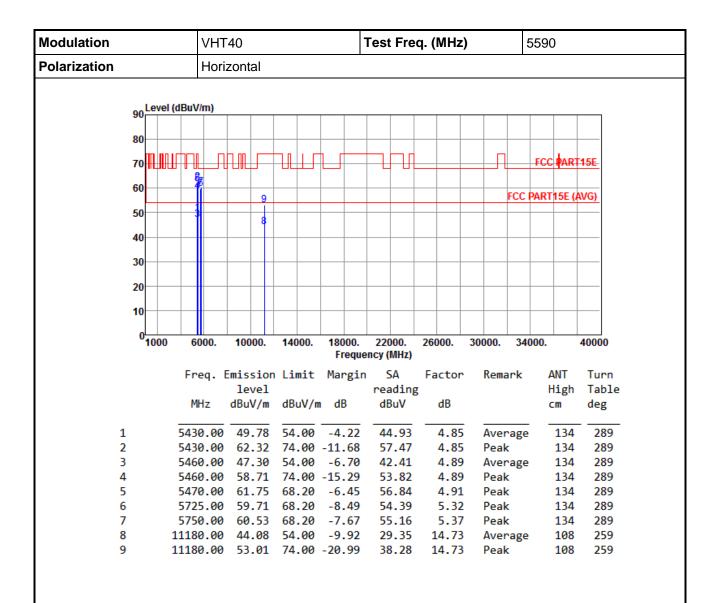


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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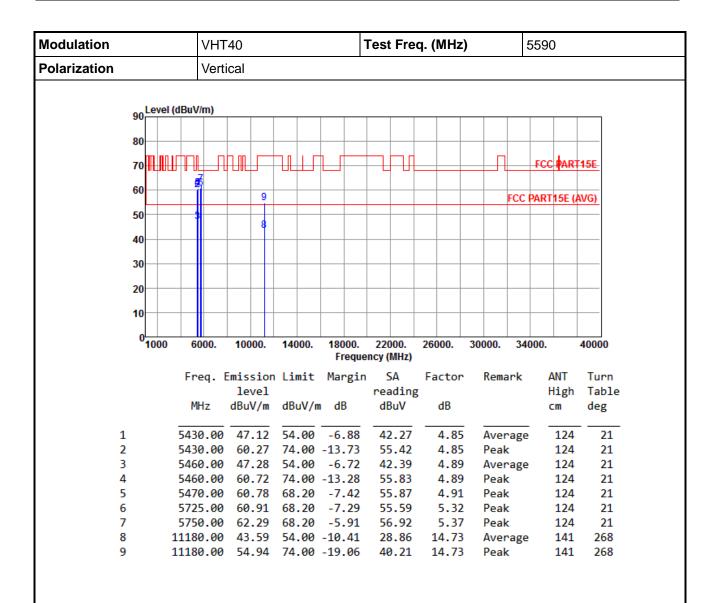


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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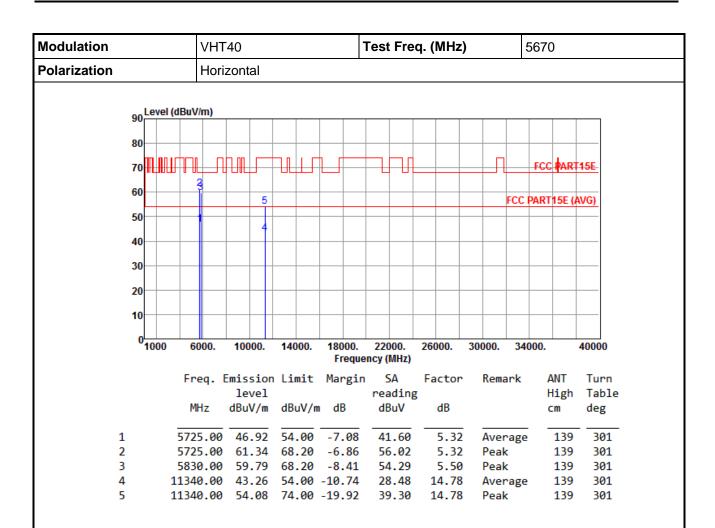


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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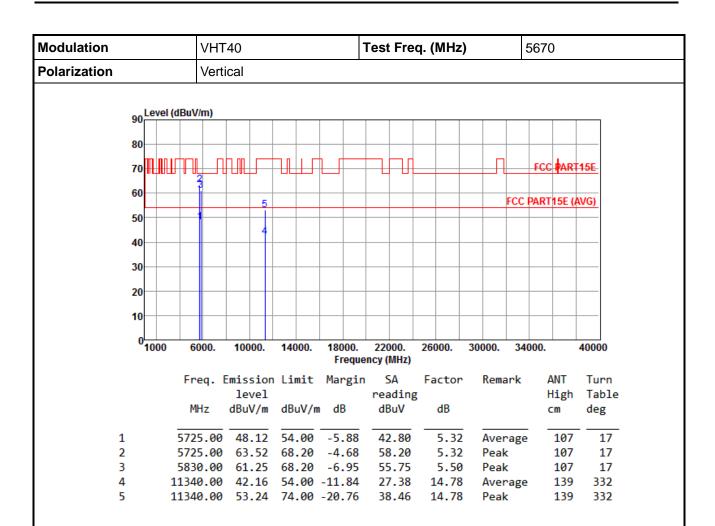


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation				VHT	40					-	Γest	Fre	q. (MHz)		,	571	0	
Polarization				Hori	zont	al											1			
	90 L	evel	(dBuV	/m)						T								T		
	80-																			
		m nn		_			_ , ,				<u> </u>	- ,				_			l	L
	70			+	Π		$\exists \mathbb{L}$	#	H		ш	ш				ш			IC 5	G B4
	60	_	-	3		5			6	-							FCC	DADI	Γ15E (MVC)
	50					Ĭ											FCC	PAK	I I DE (AVG)
	50					4														
	40	+	_						\vdash			_							+	
	30-																			
	20																			
	10	-																	-	-
	ا																			
	~ 1	000	60	000.	100	000.	140	00.		000. reque	220 ncy (I		260	000.	30	000.	34	000.		4000
			Fr	eq.	Emis	sior	ı Lin	nit	Ма	rgin	S	Д	Fa	ctor		Rema	ark		ANT	Tui
						vel						ding						I	High	
			M	Hz	dBu	V/m	dBu	uV/n	ı d	В	dB	uV		dB					CM	de
	1		585	0.00	61	. 24	78.	20	-16	. 96	- 55	.72	_	5.52		Peal	k		134	30
	2			0.00						.34		.32		5.54		Peal			134	
	3		587	0.00	60	.18	68.	. 20	-8	.02	54	.63		5.55		Peal	k		134	
	4		1142			.09	54.			.91		. 29		4.80		Ave	_	2	277	
!	5		1142	0.00	54	.73	74.	.00	-19	.27	39	.93	1	4.80	ı	Peal	K		277	3(

17130.00 56.79 68.20 -11.41 39.34 17.45 Peak

100

257

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Polarization			VI	40				Test Fre	q. (MHz)	57	10	
			Vert	ical							ı		
	90 Lev	el (dBu	V/m)										
	80												
	70					Ш				\Box		IC 5	G-B4
	60		3		5		6				CC PAI	RT15E (/	AVG)
	50				1						OU IA	102 (
	40				+								
	30				+								
	20				+								
	10				+								
	0 <mark>100</mark>	0 6	6000.	1000	00.	14000.	18000. Frequ	22000. ency (MHz)	26000.	30000.	34000).	40000
		Fr	req.			Limit	Margin		Factor	Rema	rk	ANT	Turn
		N	ИHz	lev dBuV		dBuV/r	n dB	reading dBuV	dB			High cm	Table deg
1		585	50.00	60.	73	78.20	-17.47	55.21	5.52	Peak	_	130	9
2			50.00				-7.26	55.40	5.54			130	9
3							-8.88	53.77	5.55			130	9
4							-10.14	29.06	14.80		_	153	299
5 6							-20.73 -12.58	38.47 38.17	14.80 17.45			153 113	299 205

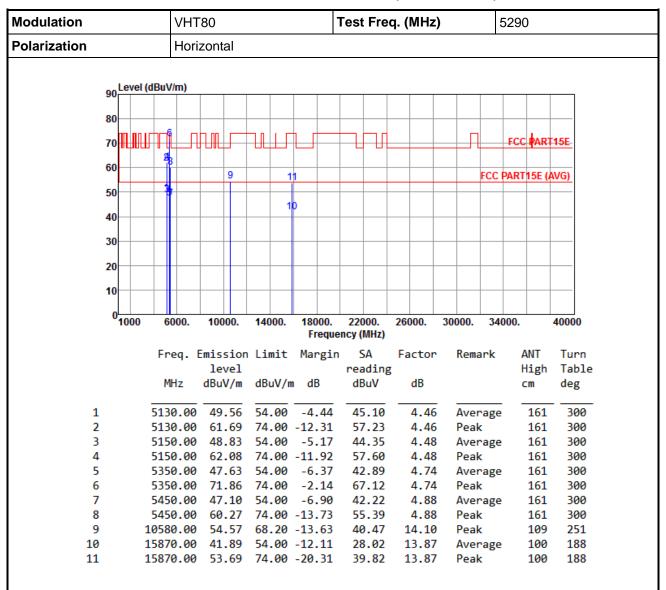
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

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3.5.12 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80



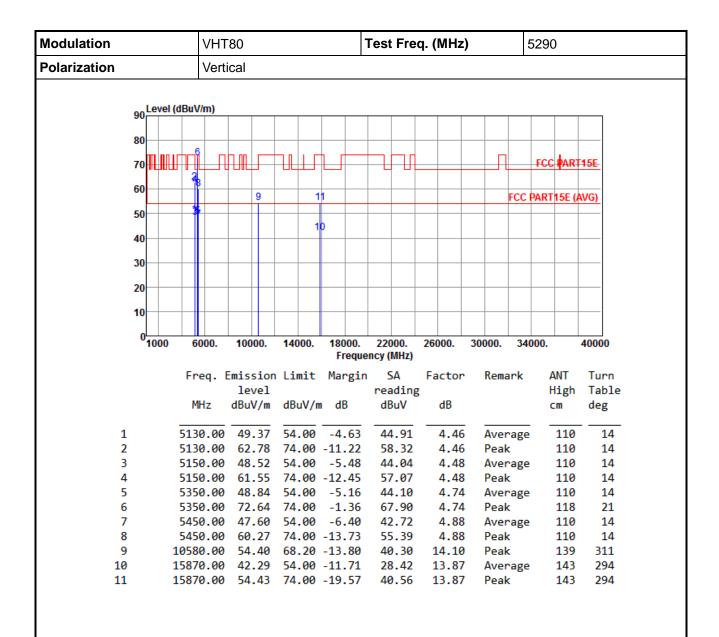
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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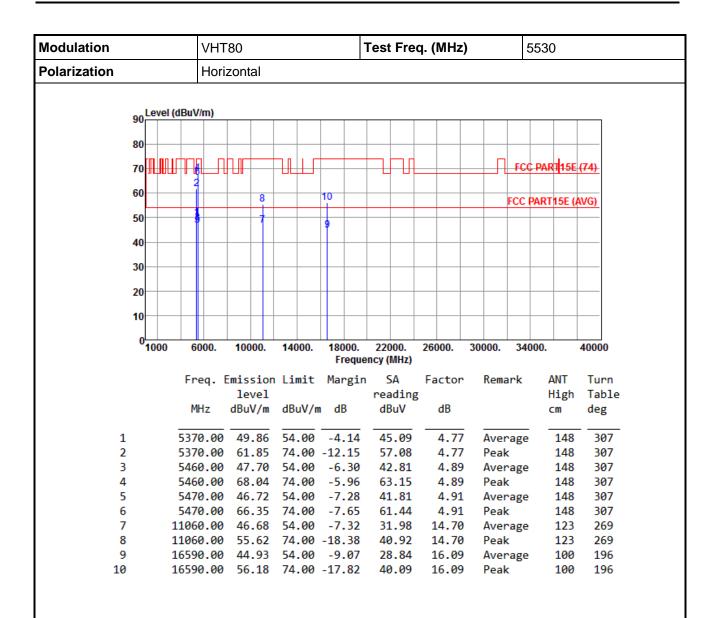


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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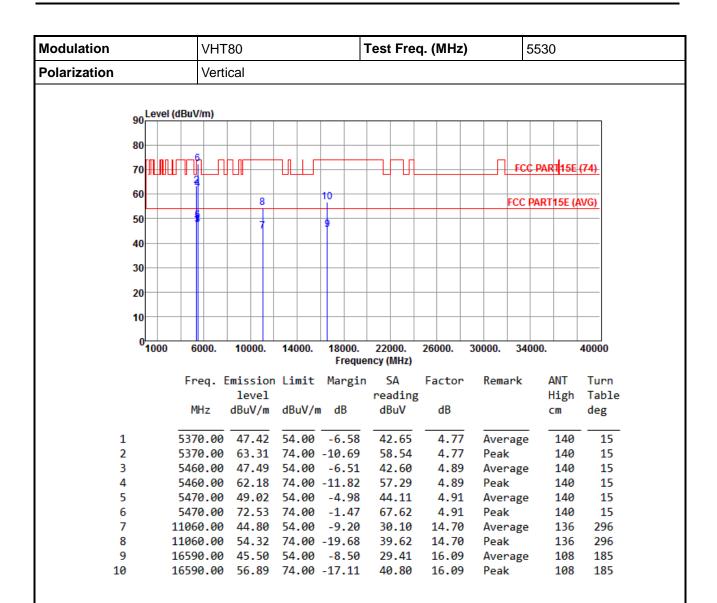


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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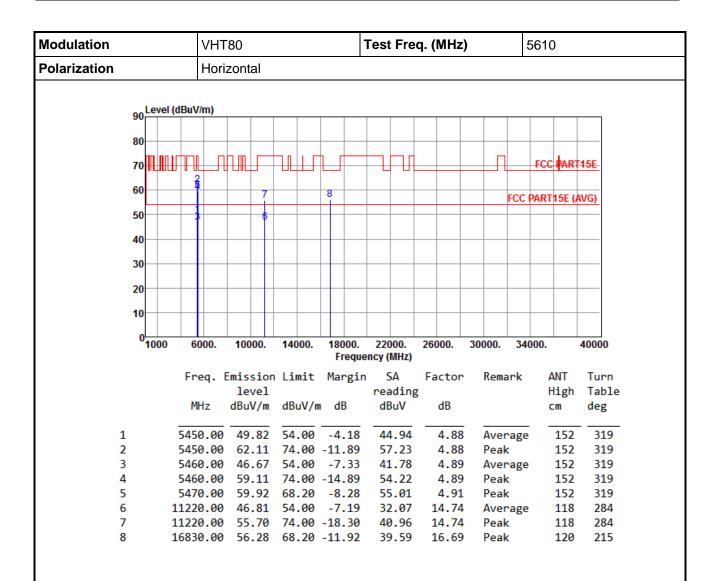


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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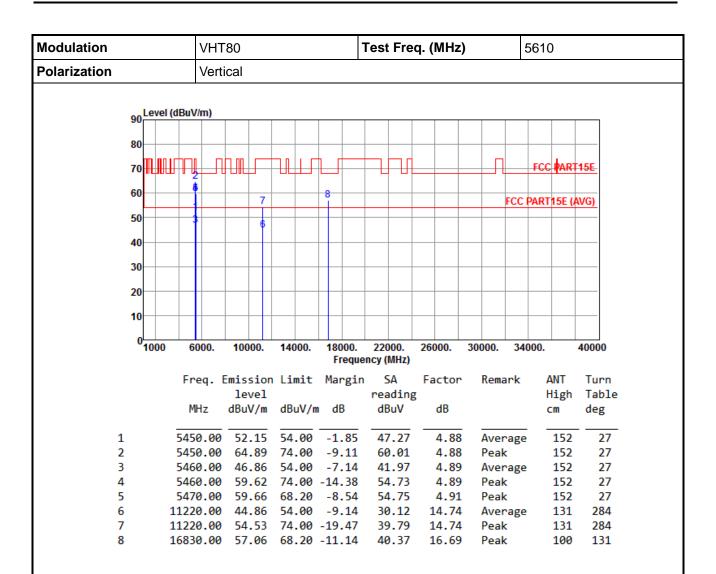


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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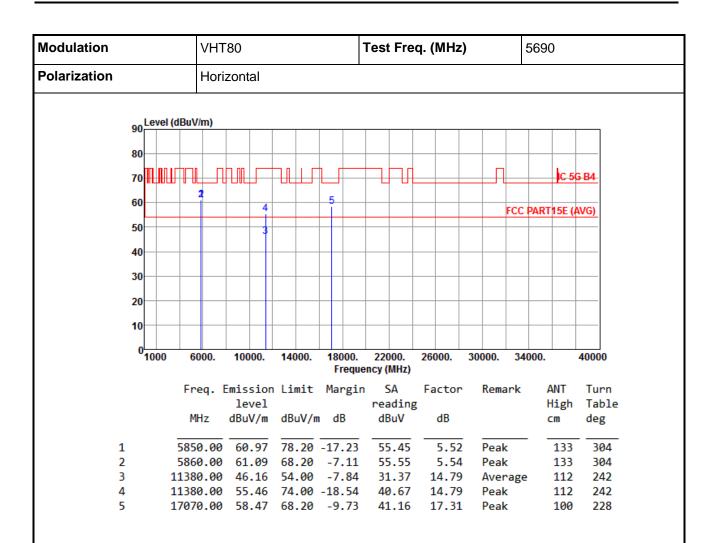


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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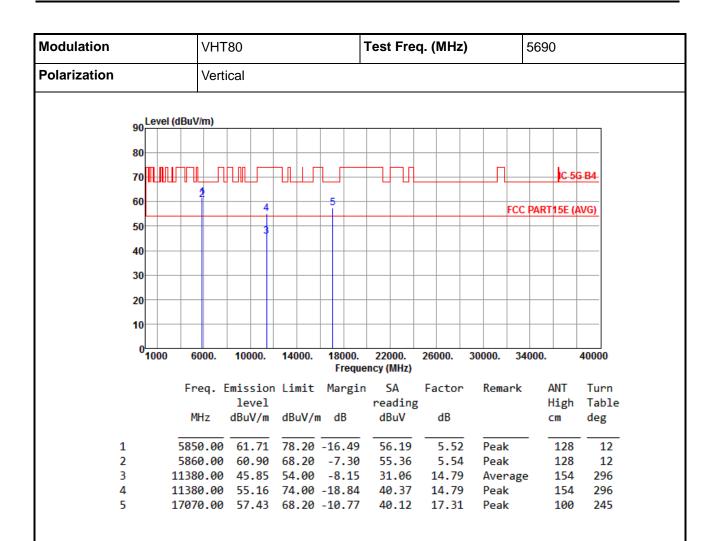


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3.6 Frequency Stability

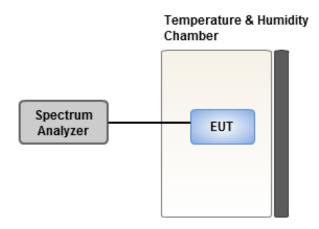
3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2 Test Procedures

- 1. The EUT is installed in an environment test chamber with external power source.
- 2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.
- 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
- 4. When temperature is stabled, measure the frequency stability.
- 5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.

3.6.3 Test Setup



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3.6.4 Test Result of Frequency Stability

Frequency: 5320 MHz	Frequency Drift (ppm)											
Temperature (°C)	0 minute	2 minutes	5 mir	nutes	10 minutes							
T20°CVmax	0.20	0.88	0.0	00	0.54							
T20°CVmin	0.21	0.73	0.3	25	0.24							
T50°CVnom	-0.20	0.37	0.3	29	0.57							
T40°CVnom	-0.24	0.35	-0.	.30	-0.05							
T30°CVnom	0.62	1.04	0.9	54	0.65							
T20°CVnom	0.26	-0.20	0.70		0.32							
T10°CVnom	0.55	0.54	0.0	65	1.05							
T0°CVnom	0.38	0.34	1.	14	0.44							
T-10°CVnom	0.31	0.16	0.21		0.67							
T-20°CVnom	-0.49	0.01	-0.17		-0.51							
T-30°CVnom	-0.39	-0.30	-0.	.40	-0.44							
Vnom [Vac]: 120	Vı	max [Vac]: 138	V	Vmin [Vac]: 102								
Tnom [°C]: 20	Tr	max [°C]: 50	Т	Tmin [°C]: -30								

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4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640 No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City,

Taiwan, R.O.C.

Kwei Shan

Tel: 886-3-271-8666 No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666 Fax: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

==END===

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