

FCC C2PC Test Report

FCC ID : 2ABLK-814G-1

Equipment : GigaHub

: 814G-1 Model No.

Brand Name : Calix Inc. **Applicant** : Calix Inc.

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

: 47 CFR FCC Part 15.407 Standard

Received Date : Nov. 30, 2017

: Nov. 30, 2017 ~ Feb. 07, 2018 **Tested Date**

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 Cherl Assistant Manager Gary Chang / Manager Testing Laboratory

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Report No.: FR7N3003-01 Report Version: Rev. 01



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Release Record

Report No.	Version	Description	Issued Date
FR7N3003-01	Rev. 01	Initial issue	May 02, 2018

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Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.375MHz 46.32 (Margin -12.07dB) - QP	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5725.00MHz 68.07 (Margin -0.13dB) - PK	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: Non-beamforming mode 5250~5350MHz: 23.66 5470~5725MHz: 23.55 Beamforming mode 5150~5250MHz: 26.10 5250~5350MHz: 21.98 5470~5725MHz: 22.18 5725~5850MHz: 25.86	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 prepared for FCC class II Permissive change (C2PC).

This report is issued as a supplementary report to the original ICC project no. 7N3003. The modifications are concerned as follows:

- ♦ Adding 5250~5350MHz and 5470~5725 MHz band by software setting.
- Support beamforming function by software setting.

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information							
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS		
5150-5250 5250-5350 5470-5725 5725-5850	а	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	6-54 Mbps		
5150-5250 5250-5350 5470-5725 5725-5850	n (HT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	MCS 0-15		
5150-5250 5250-5350 5470-5725 5725-5850	n (HT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-15		
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	MCS 0-9		
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-9		
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT80)	5210 5290 5530-5690 5775	42 [1] 58 [1] 106-138 [3] 155 [1]	2	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.

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1.1.2 Antenna Details

Ant.	Model	Туре	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)					
No.				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850	
1	PCB antenna	Dipole	IPEX	3.6					
2	PCB antenna	Dipole	IPEX	4.0					
3	PCB antenna	Dipole	IPEX		3.6	3.7	3.6	2.0	
4	PCB antenna	Dipole	IPEX		4.1	4.9	5.2	3.8	

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter
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1.1.4 Accessories

	Accessories						
No.	Equipment	Description					
1	AC adapter	Brand: AMIGO Model: AMS157-1202500FU (US)					
2	RJ45 cable	1.5m non-shielded without core					
3	RJ11 cable	1.5m non-shielded without core					

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1.1.5 Channel List

802.11 a /	HT20 / VHT20	HT40	/ VHT40
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	102	5510
56	5280	110	5550
60	5300	118	5590
64	5320	126	5630
100	5500	134	5670
104	5520	142	5710
108	5540	151	5755
112	5560	159	5795
116	5580	V	HT80
120	5600	42	5210
124	5620	58	5290
128	5640	106	5530
132	5660	122	5610
136	5680	138	5690
140	5700	155	5775
144	5720		
149	5745		
153	5765		
157	5785		
161	5805		
165	5825		

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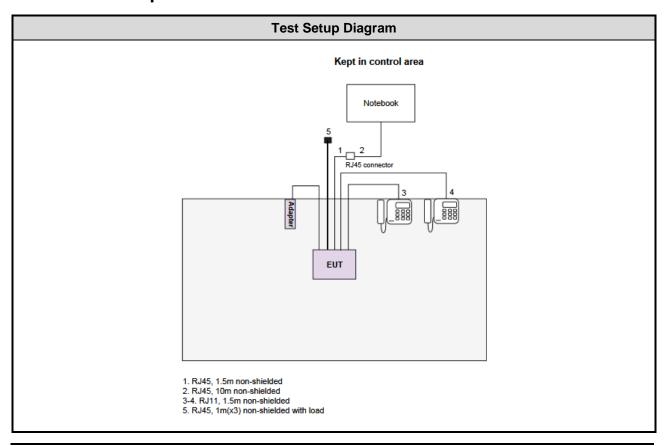
1.1.6 Test Tool and Duty Cycle

Test Tool	Non-beamforming: PUTTY, V0.6 Beamforming: Lan test, V2.0.0.2						
	Mada	Non-beamforming		Beamforming			
	Mode	Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)		
Duty Cycle and Duty Footer	11a	94.67%	0.24				
Duty Cycle and Duty Factor	VHT20	95.07%	0.22	90.63%	0.43		
	VHT40	85.55%	0.68	90.66%	0.43		
	VHT80	75.32%	1.23	92.39%	0.34		

1.2 Local Support Equipment List

Support Equipment List								
No. Equipment Brand Model FCC ID Signal cable / Ler								
1	Notebook	DELL	Latitude E6440	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.			

1.3 Test Setup Chart



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1.4 The Equipment List

Test Item	Radiated Emission be	Radiated Emission below 1GHz test						
Test Site	966 chamber1 / (03CH01-WS)							
Tested Date	Nov. 30, 2017	ov. 30, 2017						
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until			
Receiver	R&S	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018			
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 25, 2017	Jul. 24, 2018			
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2017	Nov. 12, 2018			
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 09, 2016	Dec. 08, 2017			
Preamplifier	EMC	EMC02325	980225	Jul. 28, 2017	Jul. 27, 2018			
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2017	Oct. 05, 2018			
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018			
LF cable 1M	EMC	EMCCFD400-NM-N M-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			

Test Item	Radiated Emission ab	Radiated Emission above 1GHz test						
Test Site	966 chamber1 / (03Cl	66 chamber1 / (03CH01-WS)						
Tested Date	Jan. 17 ~ Feb. 02, 201	Jan. 17 ~ Feb. 02, 2018						
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until			
Spectrum Analyzer	R&S	FSV40	101498	Dec. 04, 2017	Dec. 03, 2018			
Receiver	R&S	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018			
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 20, 2017	Dec. 19, 2018			
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 23, 2017	Nov. 22, 2018			
Preamplifier	EMC	EMC02325	980225	Jul. 28, 2017	Jul. 27, 2018			
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2017	Oct. 05, 2018			
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 07, 2017	Dec. 06, 2018			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 07, 2017	Dec. 06, 2018			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 07, 2017	Dec. 06, 2018			
Measurement Software	AUDIX	e3	6.120210g	NA	NA			
Note: Calibration Inter	rval of instruments listed	d above is one year.	·					

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Test Item	Conducted Emission	Conducted Emission									
Test Site	Conduction room 1 /	Conduction room 1 / (CO01-WS)									
Tested Date	Jan. 29, 2018										
Instrument	Manufacturer	Manufacturer Model No. Serial No. Calibration Date Calibration Until									
Receiver	R&S	ESR3	101657	Jan. 05, 2018	Jan. 04, 2019						
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2017	Nov. 12, 2018						
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 18, 2017	Dec. 17, 2018						
Measurement Software	AUDIX	e3	NA	NA							
Note: Calibration Int	erval of instruments lis	ted above is one year.									

Test Item	RF Conducted										
Test Site	(TH01-WS)	(TH01-WS)									
Tested Date	Jan. 22 ~ Feb. 07, 2018										
Instrument	Manufacturer	Manufacturer Model No. Serial No. Calibration Date Calibration Until									
Spectrum Analyzer	R&S	FSV40	101063	Mar. 15, 2017	Mar. 14, 2018						
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 27, 2017	Nov. 26, 2018						
Power Meter	Anritsu	ML2495A	1241002	Oct. 16, 2017	Oct. 15, 2018						
Power Sensor	Anritsu	MA2411B	1207366	Oct. 16, 2017	Oct. 15, 2018						
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 01, 2017	Nov. 30, 2018						
Measurement Software	Sporton	Sporton Sporton_1 1.3.30 NA NA									
Note: Calibration Inte	rval of instruments liste	d above is one year.			1						

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 v02r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

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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	21°C / 59%	Alex Tsai	
Radiated Emissions	03CH01-WS	25°C / 65%	Akun Chung Roger Lu	
RF Conducted	TH01-WS	20°C / 63-64%	Brad Wu	

FCC Designation No.: TW2732
 FCC site registration No.: 181692
 IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

For Frequency band 5250-5350 MHz, 5470-5725 MHz									
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration					
Conducted Emissions	VHT40	5270	MCS 0						
Radiated Emissions ≤1GHz	VHT40	5270	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						
Frequency Stability	Un-modulation	5320							

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Beamforming mode

Frequency band 5150~5350 MHz / 5470~5725 MHz									
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration					
Conducted Emissions	VHT20	5240	MCS 0						
Radiated Emissions ≤1GHz	VHT20	5240	MCS 0						
	VHT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0						
RF Output Power	VHT40	5190 / 5230/ 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0						
	VHT80	5210 / 5290 / 5530 / 5610 / 5690	MCS 0						
Radiated Emissions >1GHz	VHT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0						
Emission Bandwidth Peak Power Spectral Density	VHT40	5190 / 5230/ 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0						
Tourist Operation Delicity	VHT80	5210 / 5290 / 5530 / 5610 / 5690	MCS 0						

	Frequency band 5725-5850 MHz									
Test item	Modulation Mode	Test Frequency (MHz)	, I Data Rate							
Conducted Emissions	VHT40	5755	MCS 0							
Radiated Emissions ≤1GHz	VHT40	5755	MCS 0							
RF Output Power	VHT20 VHT40 VHT80	5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0							
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	VHT20 VHT40 VHT80	5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0							

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3 Transmitter Test Results

3.1 Conducted Emissions

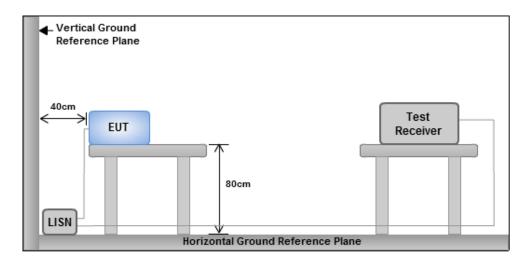
3.1.1 Limit of Conducted Emissions

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 logarithm 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.

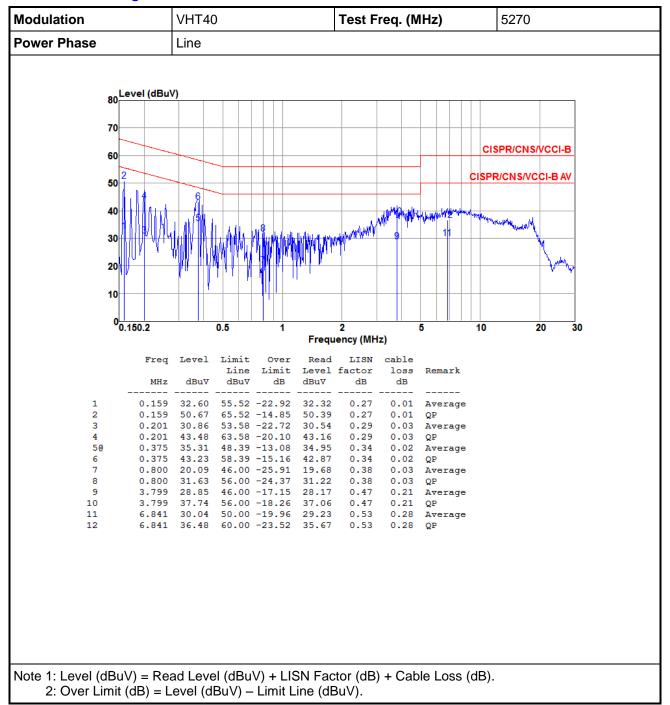
Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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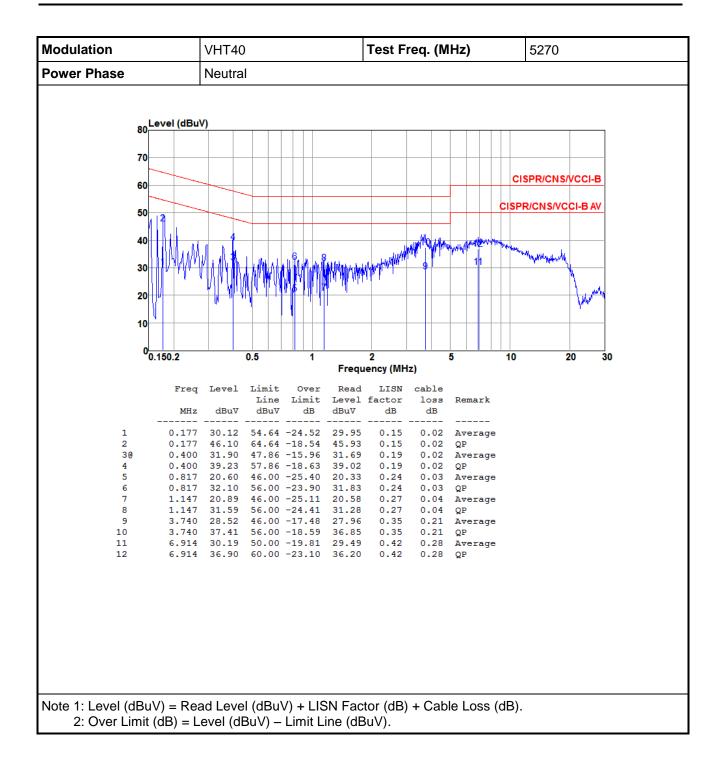
3.1.4 Test Result of Conducted Emissions

Non-beamforming mode



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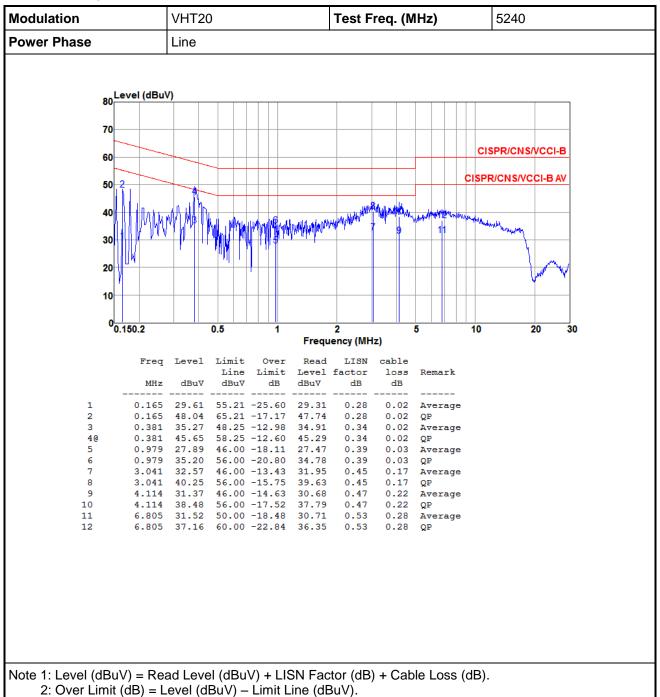




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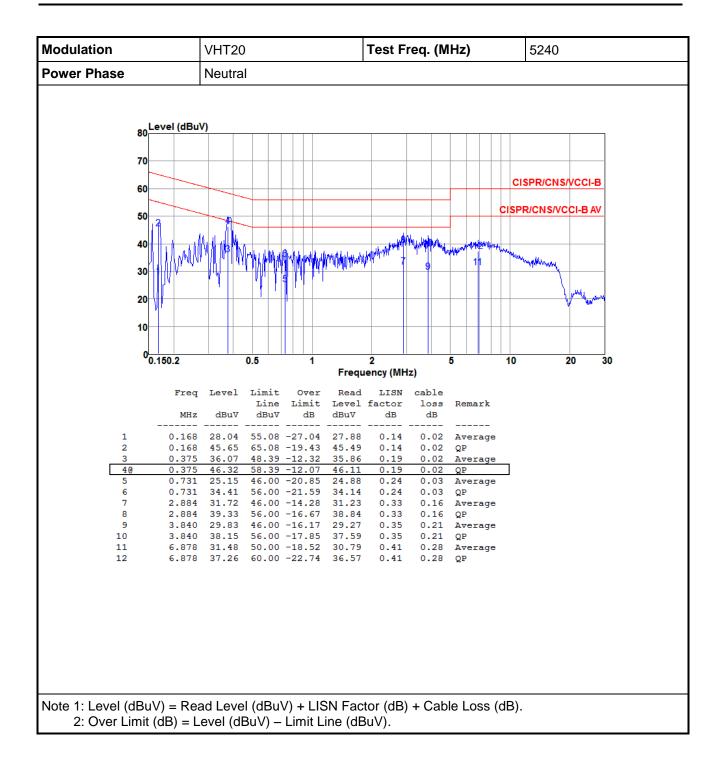


Beamforming mode



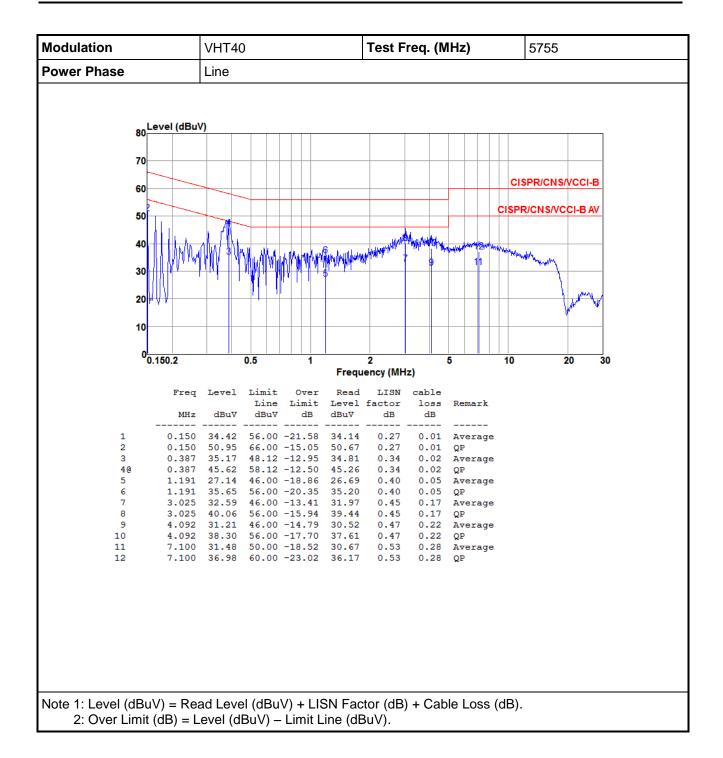
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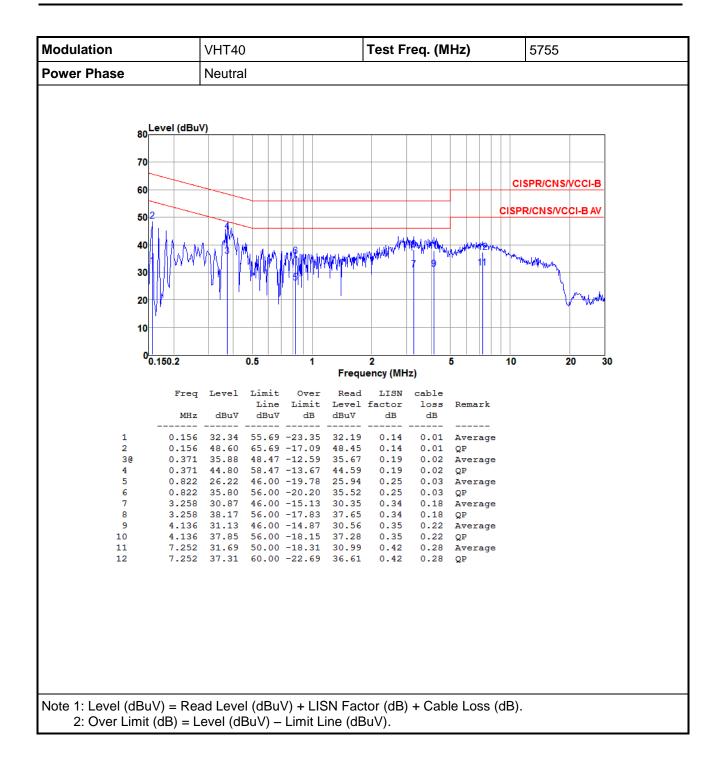
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3.2 Emission Bandwidth

3.2.1 Limit of Emission Bandwidth

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.2.2 Test Procedures

26dB Bandwidth

- 1. Set RBW = approximately 1% of the emission bandwidth.
- 2. Set the VBW > RBW, Detector = Peak.
- 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

6dB Bandwidth

- 1. Set RBW = 100kHz, VBW = 300kHz
- 2. Detector = Peak, Trace mode = max hold.
- 3. Allow the trace to stabilize.
- 4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

3.2.3 Test Setup



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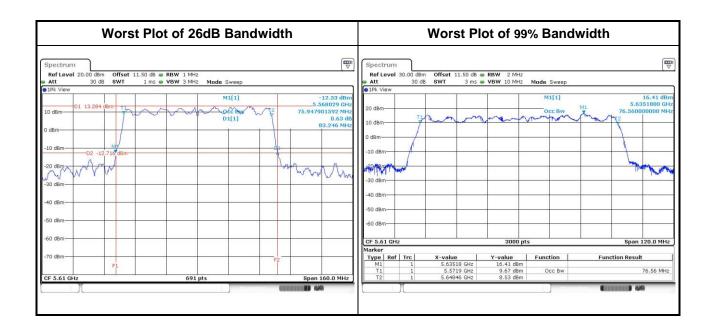
3.2.4 Test Result of Emission Bandwidth

Non-beamforming mode

			For Frequ	iency bar	nd 5250-5	350 MHz,	, 5470-572	25 MHz			
				En	nission B	andwidth					
Mode	N _{TX}	Freq.	26	dB Band	width (M	łz)	99% Bandwidth (MHz)				Power Limit
Wode	INTX	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)
11a	2	5260	20.87	21.28			16.72	16.75			24.00
11a	2	5300	20.64	21.22			16.81	16.75			24.00
11a	2	5320	20.64	21.22			16.72	16.76			24.00
VHT20	2	5260	21.33	21.45			17.78	17.70			24.00
VHT20	2	5300	21.16	21.45			17.70	17.71			24.00
VHT20	2	5320	21.10	21.51			17.77	17.72			24.00
VHT40	2	5270	44.75	44.52			37.14	37.02			24.00
VHT40	2	5310	44.75	44.41			37.14	37.06			24.00
VHT80	2	5290	82.78	83.25			76.24	76.32			24.00
11a	2	5500	20.93	21.28			16.80	16.74			24.00
11a	2	5580	21.04	21.10			16.67	16.75			24.00
11a	2	5700	20.58	21.22			16.72	16.73			24.00
VHT20	2	5500	21.39	21.39			17.63	17.71			24.00
VHT20	2	5580	21.16	21.45			17.62	17.70			24.00
VHT20	2	5700	21.68	21.16			17.70	17.71			24.00
VHT40	2	5510	44.29	43.94			36.92	37.02			24.00
VHT40	2	5590	44.41	44.06			37.02	37.08			24.00
VHT40	2	5670	44.64	43.94			36.92	37.02			24.00
VHT80	2	5530	82.32	83.01			76.08	76.44			24.00
VHT80	2	5610	83.25	83.01			76.20	76.56			24.00

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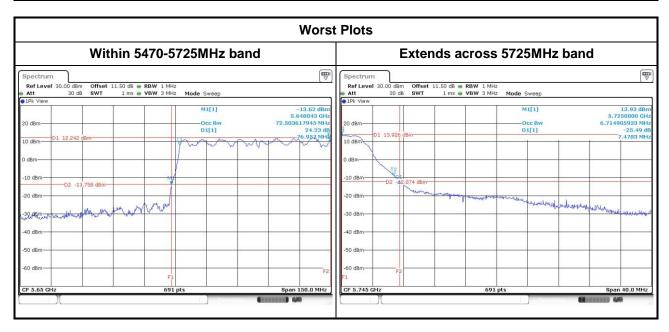
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Channel that extends across the 5.725 GHz boundary

	UNII Emission Bandwidth Result (Within 5470-5725MHz band)											
Mada	Freq.	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power		
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	Limit (dBm)	
11a	2	5720	15.52	15.58			13.50	13.49			22.91	
VHT20	2	5720	15.77	15.77			13.99	13.99		-	22.98	
VHT40	2	5710	37.23	36.93			33.53	33.53			24.00	
VHT80	2	5690	76.96	76.74			73.10	73.14			24.00	

	UNII Emission Bandwidth Result (Extends across 5725MHz band)											
	Freq.	:	26dB Band	width (MHz)		99% Bandv	vidth (MHz)				
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3		
11a	2	5720	5.39	5.54			3.17	3.26				
VHT20	2	5720	5.61	5.61			3.72	3.73				
VHT40	2	5710	7.48	7.30			3.39	3.49				
VHT80	2	5690	6.43	6.43			3.18	3.34				



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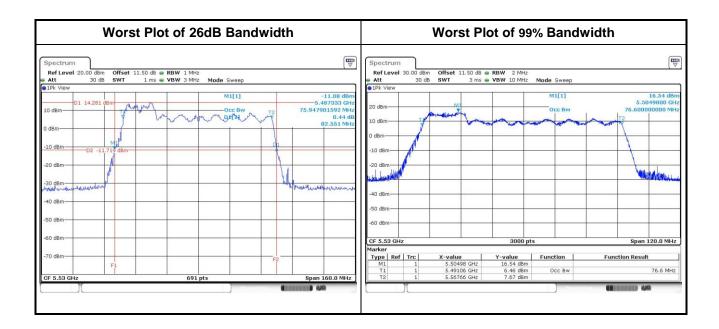
Beamforming mode

	For Frequency band 5150~5250 MHz										
Emission Bandwidth											
Mode	N	Freq.	2	6dB Band	width (MHz	z)	9	99% Bandy	vidth (MHz	:)	
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
VHT20	2	5180	20.99	21.62			17.59	17.76			
VHT20	2	5200	21.62	22.03			17.77	17.85			
VHT20	2	5240	22.03	22.20			17.61	17.80			
VHT40	2	5190	42.55	43.71			36.86	36.64			
VHT40	2	5230	44.17	43.13			37.34	37.14			
VHT80	2	5210	81.86	81.39			76.44	76.20			

		F	or Freque	ncy band	I 5250~53	50 MHz, \$	5470-5725	5 MHz			
Mode	N	Freq.	26	dB Band	width (M	łz)	99	9% Bandv	width (MH	lz)	Power Limit
Wode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)
VHT20	2	5260	21.39	21.86			17.59	17.78			24.00
VHT20	2	5300	21.45	21.62			17.73	17.80			24.00
VHT20	2	5320	21.91	21.86			17.59	17.80			24.00
VHT40	2	5270	44.17	44.52			37.20	37.16			24.00
VHT40	2	5310	43.59	43.01			37.40	37.00			24.00
VHT80	2	5290	81.39	81.62			76.08	76.24			24.00
VHT20	2	5500	21.10	21.80			17.75	17.64			24.00
VHT20	2	5580	21.39	21.80			17.63	17.76			24.00
VHT20	2	5700	21.51	21.45			17.63	17.78			24.00
VHT40	2	5510	43.83	43.01			37.42	37.00			24.00
VHT40	2	5590	44.29	44.41			37.10	37.18			24.00
VHT40	2	5670	43.94	44.87			37.04	37.12			24.00
VHT80	2	5530	82.55	81.16			76.60	76.32			24.00
VHT80	2	5610	82.32	81.62			76.24	76.44			24.00

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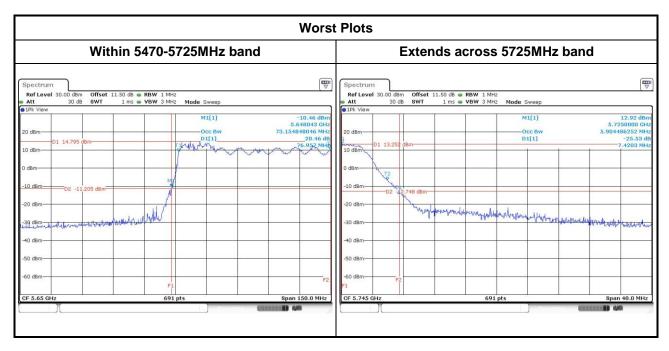
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Channel that extends across the 5.725 GHz boundary

			UNII Emis	sion Ban	dwidth Re	sult (Wit	hin 5470-5	725MHz k	oand)			
Mode	NI	Freq.	26	dB Band	width (MH	z)	9	9% Bandv	vidth (MH	z)	Power Limit	
Wiode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	(dBm)	
VHT20	2	5720	15.71	15.64			13.80	13.88			22.94	
VHT40	2	5710	37.23	37.33			33.59	33.63			24.00	
VHT80	2	5690	76.96	76.96 76.30 73.14 73.14								

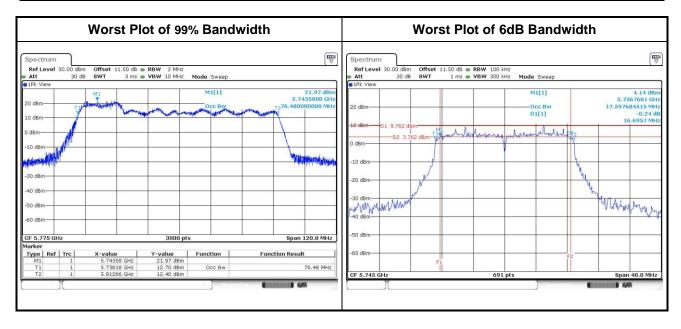
	UNII Emission Bandwidth Result (Extends across 5725MHz band)												
Modo	Mode N _{TX} Freq.	Freq.	:	26dB Band	width (MHz)	99% Bandwidth (MHz)						
Wiode	INTX	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3			
VHT20	2	5720	5.76	6.00			3.79	3.94					
VHT40	2	5710	7.30	7.42			3.57	3.49					
VHT80	2	5690	6.70	6.52			2.74	2.98					



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	For Frequency band 5725-5850 MHz													
	Emission Bandwidth													
			О	BW Band	width (MH	z)	6dB Bandwidth (MHz)							
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	6dB BW Limit (MHz)			
VHT20	2	5745	17.86	17.78			17.39	16.70			0.5			
VHT20	2	5785	17.70	17.85			16.81	17.16			0.5			
VHT20	2	5825	17.74	17.97			16.81	16.87			0.5			
VHT40	2	5755	37.42	37.36			35.59	35.94			0.5			
VHT40	2	5795	37.38	37.34			35.59	35.59			0.5			
VHT80	2	5775	76.48	76.32			54.03	72.58			0.5			



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3.3 RF Output Power

3.3.1 Limit of RF Output Power

	Frequ	iency band 5150-5250 MHz
Оре	erating Mode	Limit
	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
	Indoor access point	Conducted Power: 1 W
	Fixed point-to-point access points	Conducted Power: 1 W
	Client devices	Conducted Power: 250 mW

Free	quency Band (MHz)	Limit
\boxtimes	5250 ~ 5350	250mW or 11dBm+10 log B
	5470 ~ 5725	250mW or 11dBm+10 log B
	5725 ~ 5850	1 W
Note	e: "B" is the 26dB emission bandwidth i	n MHz.

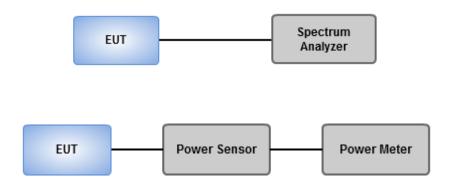
3.3.2 Test Procedures

- 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

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3.3.3 Test Setup



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3.3.4 Test Result of Maximum Conducted Output Power

Non-beamforming mode

	For Frequency band 5250-5350 MHz, 5470-5725 MHz													
		_	C	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	2	5260	19.22	19.40			170.657	22.32	24.00					
11a	2	5300	19.34	19.25			170.041	22.31	24.00					
11a	2	5320	19.24	19.25			168.086	22.26	24.00					
HT20	2	5260	19.52	19.19			172.522	22.37	24.00					
HT20	2	5300	19.31	19.28			170.033	22.31	24.00					
HT20	2	5320	19.22	19.13			165.407	22.19	24.00					
HT40	2	5270	20.54	20.55			226.741	23.56	24.00					
HT40	2	5310	17.42	17.46			110.926	20.45	24.00					
VHT20	2	5260	19.68	19.31			178.207	22.51	24.00					
VHT20	2	5300	19.44	19.41			175.199	22.44	24.00					
VHT20	2	5320	19.34	19.25			170.041	22.31	24.00					
VHT40	2	5270	20.66	20.64			232.290	23.66	24.00					
VHT40	2	5310	17.56	17.58			114.296	20.58	24.00					
VHT80	2	5290	16.51	16.56			90.061	19.55	24.00					
11a	2	5500	19.31	19.36			171.608	22.35	24.00					
11a	2	5580	19.24	19.28			168.669	22.27	24.00					
11a	2	5700	19.52	19.41			176.834	22.48	24.00					
HT20	2	5500	19.45	19.52			177.641	22.50	24.00					
HT20	2	5580	19.08	19.02			160.709	22.06	24.00					
HT20	2	5700	18.91	19.03			157.787	21.98	24.00					
HT40	2	5510	17.24	17.15			104.846	20.21	24.00					
HT40	2	5590	20.53	20.23			218.418	23.39	24.00					
HT40	2	5670	20.12	20.19			207.274	23.17	24.00					
VHT20	2	5500	19.58	19.66			183.252	22.63	24.00					
VHT20	2	5580	19.21	19.13			165.215	22.18	24.00					
VHT20	2	5700	19.02	19.15			162.024	22.10	24.00					
VHT40	2	5510	17.36	17.28			107.907	20.33	24.00					
VHT40	2	5590	20.53	20.23			218.418	23.39	24.00					
VHT40	2	5670	20.25	20.32			213.572	23.30	24.00					
VHT80	2	5530	16.56	16.66			91.634	19.62	24.00					
VHT80	2	5610	20.53	20.34			221.123	23.45	24.00					

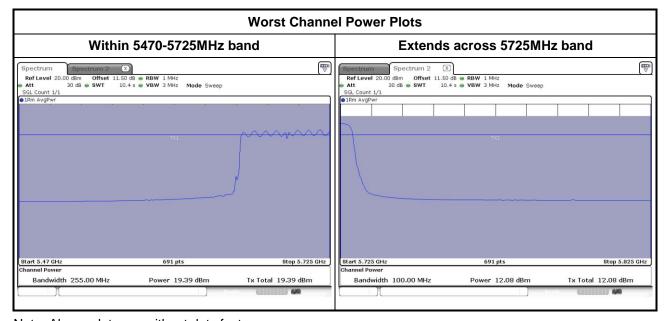
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Channel that extends across the 5.725 GHz boundary

		Max	imum Co	nducted C	Output Po	wer (With	in 5470-5	725MHz b	and)		
			Cond	ducted Po	wer with	out duty fa	actor	Duty	Total	Total	Limit (dBm)
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	factor (dB)	Power (mW)	Power (dBm)	
11a	2	5720	18.30	17.80			21.07	0.24	135.129	21.31	22.91
HT20	2	5720	17.64	17.44			20.55	0.22	119.439	20.77	22.98
HT40	2	5710	19.08	18.76			21.93	0.68	182.526	22.61	24.00
VHT20	2	5720	17.73	17.51			20.63	0.22	121.666	20.85	22.98
VHT40	2	5710	19.18	18.77			21.99	0.68	184.933	22.67	24.00
VHT80	2	5690	19.23	19.39			22.32	1.23	226.518	23.55	24.00

		Maxin	num Cond	lucted Ou	tput Pow	er (Extend	ls across	5725MHz	band)		
		_	Cond	ducted Po	wer with	out duty fa	actor	Duty	Total	Total	Limit (dBm)
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	factor (dB)	Power (mW)	Power (dBm)	
11a	2	5720	11.77	11.69			14.74	0.24	31.481	14.98	30.00
HT20	2	5720	11.89	11.74			14.83	0.22	31.959	15.05	30.00
HT40	2	5710	8.70	8.41			11.57	0.68	16.779	12.25	30.00
VHT20	2	5720	12.08	11.80			14.95	0.22	32.905	15.17	30.00
VHT40	2	5710	8.77	8.69			11.74	0.68	17.460	12.42	30.00
VHT80	2	5690	5.51	6.13			8.84	1.23	10.166	10.07	30.00



Note: Above plots are without duty factor.

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Beamforming mode

		For Frequency	band 5150	~5250 MHz	, 5250~5350	0 MHz, 5470)-5725 MHz		
			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)
VHT20	2	5180	19.01	19.28			164.339	22.16	29.14
VHT20	2	5200	22.64	23.04			385.026	25.85	29.14
VHT20	2	5240	23.11	23.06			406.946	26.10	29.14
VHT40	2	5190	17.35	16.27			96.689	19.85	29.14
VHT40	2	5230	23.28	22.86			406.011	26.09	29.14
VHT80	2	5210	16.48	16.91			93.554	19.71	29.14
VHT20	2	5260	18.8	18.72			150.331	21.77	22.67
VHT20	2	5300	18.85	18.62			149.514	21.75	22.67
VHT20	2	5320	18.66	18.52			144.573	21.60	22.67
VHT40	2	5270	19.05	18.88			157.621	21.98	22.67
VHT40	2	5310	17.48	17.03			106.442	20.27	22.67
VHT80	2	5290	16.37	16.05			83.623	19.22	22.67
VHT20	2	5500	18.81	18.42			145.535	21.63	22.55
VHT20	2	5580	18.86	18.21			143.135	21.56	22.55
VHT20	2	5700	18.91	18.27			144.947	21.61	22.55
VHT40	2	5510	16.82	16.42			91.937	19.63	22.55
VHT40	2	5590	19.69	18.58			165.222	22.18	22.55
VHT40	2	5670	18.92	18.22			144.357	21.59	22.55
VHT80	2	5530	15.95	15.76			77.025	18.87	22.55
VHT80	2	5610	18.31	17.08			118.815	20.75	22.55

Note:

1. For 5150~5250 MHz Directional gain = 10 * $\log((10^{3.6/20}+10^{4.1/20})^2/2) = 6.86$ dBi > 6 dBi Limit shall be reduced to 30 dBm - (6.86 dBi - 6 dBi) = 29.14 dBm

2. For $5250 \sim 5350$ MHz Directional gain = $10 * \log((10^{3.7/20} + 10^{4.9/20})^2/2) = 7.33$ dBi > 6 dBi Limit shall be reduced to 24 dBm - (7.33 dBi - 6 dBi) = 22.67 dBm

3. For 5470-5725 MHz Directional gain = $10 * \log((10^{3.6/20} + 10^{5.2/20})^2/2) = 7.45 \text{ dBi} > 6 \text{ dBi}$ Limit shall be reduced to 24 dBm - (7.45 dBi - 6 dBi) = 22.55 dBm

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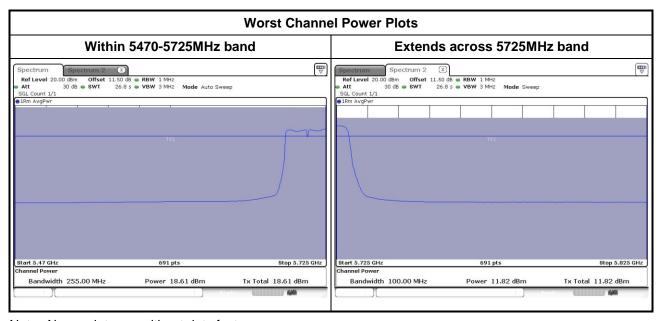


Channel that extends across the 5.725 GHz boundary

	Maximum Conducted Output Power (Within 5470-5725MHz band)													
			Cond	ducted Po	wer with	out duty fa	actor	Duty	Total	Total	Limit (dBm)			
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)	Duty factor (dB)	Power (mW)	Power (dBm)				
VHT20	2	5720	17.30	17.55			20.44	0.43	122.098	20.87	21.49			
VHT40	2	5710	18.61	18.08			21.36	0.43	151.126	21.79	22.55			
VHT80	2	5690	18.31	17.77			21.06	0.34	137.997	21.40	22.55			

Note: Correlated antenna gain is 7.45dBi > 6 dBi. Limit shall be reduced 1.45 dB.

	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)			
VHT20	2	5720	11.28	11.82			14.57	0.43	31.613	15.00	30.00			
VHT40	2	5710	8.83	8.45			11.65	0.43	16.160	12.08	30.00			
VHT80	2	5690	4.94	4.42			7.70	0.34	6.365	8.04	30.00			



Note: Above plots are without duty factor.

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	For Frequency band 5725-5850 MHz										
Mode	N _{TX}	Freq. (MHz)	Conducted Power (dBm)				Total	Total	Limit		
			Chain 0	Chain 1	Chain 2	Chain 3	Power (mW)	Power (dBm)	(dBm)		
VHT20	2	5745	21.68	20.33			255.126	24.07	30.00		
VHT20	2	5785	22.81	22.46			367.183	25.65	30.00		
VHT20	2	5825	22.76	22.8			379.345	25.79	30.00		
VHT40	2	5755	23.11	22.57			385.362	25.86	30.00		
VHT40	2	5795	22.81	22.62			373.795	25.73	30.00		
VHT80	2	5775	20.43	20.01			210.638	23.24	30.00		

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3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency band 5150-5250 MHz						
Operating Mode		Limit				
	Outdoor access point	17 dBm / MHz				
\boxtimes	Indoor access point	17 dBm / MHz				
	Fixed point-to-point access points	17 dBm / MHz				
	Client devices	11 dBm / MHz				

Frequency Band (MHz)		Limit
\boxtimes	5250 ~ 5350	11 dBm / MHz
\boxtimes	5470 ~ 5725	11 dBm / MHz
	5725 ~ 5850	30 dBm /500 kHz

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3.4.2 Test Procedures

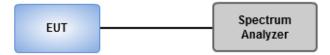
For 5150~5250 MHz, 5250~5350 MHz, 5470~5725 MHz

- - 1. 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
 - 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.

For 5725~5850 MHz

- - 1. Set RBW = 500 kHz, VBW = 2 MHz, Sweep time = auto, Detector = RMS.
 - 2. Trace average 100 traces.
 - Use the peak marker function to determine the maximum amplitude level.
- Method SA-2 Alternative
 - 1. Set RBW = 500 kHz, VBW = 2 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.

3.4.3 Test Setup



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3.4.4 Test Result of Peak Power Spectral Density

Non-beamforming mode

For Frequency band 5250-5350 MHz, 5470-5725 MHz										
	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	2	5260	9.13	0.24	9.37	9.67				
11a	2	5300	9.03	0.24	9.27	9.67				
11a	2	5320	8.92	0.24	9.16	9.67				
VHT20	2	5260	9.33	0.22	9.55	9.67				
VHT20	2	5300	8.97	0.22	9.19	9.67				
VHT20	2	5320	8.96	0.22	9.18	9.67				
VHT40	2	5270	7.17	0.68	7.85	9.67				
VHT40	2	5310	4.22	0.68	4.90	9.67				
VHT80	2	5290	0.18	1.23	1.41	9.67				
11a	2	5500	8.96	0.24	9.20	9.55				
11a	2	5580	8.89	0.24	9.13	9.55				
11a	2	5700	9.01	0.24	9.25	9.55				
11a	2	5720	8.75	0.24	8.99	9.55				
VHT20	2	5500	8.99	0.22	9.21	9.55				
VHT20	2	5580	9.03	0.22	9.25	9.55				
VHT20	2	5700	8.74	0.22	8.96	9.55				
VHT20	2	5720	8.78	0.22	9.00	9.55				
VHT40	2	5510	3.13	0.68	3.81	9.55				
VHT40	2	5590	6.44	0.68	7.12	9.55				
VHT40	2	5670	6.77	0.68	7.45	9.55				
VHT40	2	5710	5.92	0.68	6.60	9.55				
VHT80	2	5530	0.08	1.23	1.31	9.55				
VHT80	2	5610	4.23	1.23	5.46	9.55				
VHT80	2	5690	4.06	1.23	5.29	9.55				

Note:

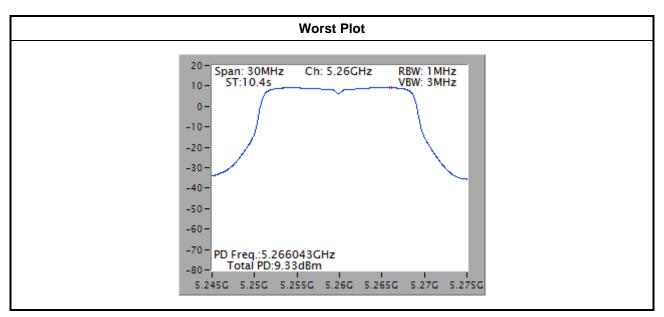
D.F is duty factor.
 Test result is bin-by-bin summing measured value of each TX port.

3. For 5250~5350 MHz Directional gain = $10 * log((10^{3.7/20} + 10^{4.9/20})^2/2) = 7.33 dBi > 6 dBi$ Limit shall be reduced to 11 dBm - (7.33 dBi - 6 dBi) = 9.67 dBm

4. For 5470-5725 MHz Directional gain = $10 * \log((10^{3.6/20} + 10^{5.2/20})^2/2) = 7.45 \text{ dBi} > 6 \text{ dBi}$ Limit shall be reduced to 11 dBm - (7.45 dBi - 6 dBi) = 9.55 dBm

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Note: Above plot is without duty factor.

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Beamforming mode

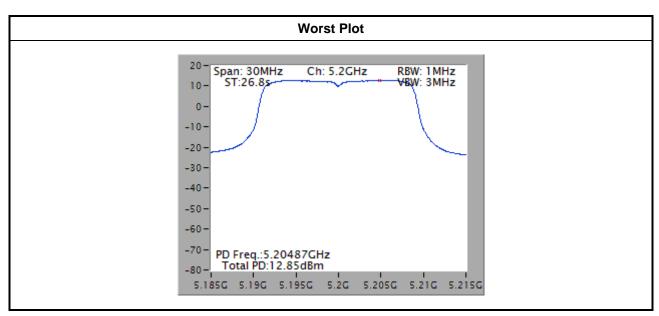
Free	quency	band	5150~5250 MHz, 5250~5350 MHz, 5470~5725 MHz							
(Conditio	on	Peak Power Spectral Density (dBm/MHz)							
Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz) Duty Factor (dB)		PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)				
VHT20	2	5180	8.93	0.43	9.36	16.14				
VHT20	2	5200	12.85	0.43	13.28	16.14				
VHT20	2	5240	12.25	0.43	12.68	16.14				
VHT40	2	5190	3.52	0.43	3.95	16.14				
VHT40	2	5230	9.36	0.43	9.79	16.14				
VHT80	2	5210	1.25	0.34	0.34 1.59					
VHT20	2	5260	8.49	0.43	8.92	9.67				
VHT20	2	5300	8.75	0.43	9.18	9.67				
VHT20	2	5320	8.61	0.43 9.04		9.67				
VHT40	2	5270	5.85	0.43	6.28	9.67				
VHT40	2	5310	4.11	0.43	4.54	9.67				
VHT80	2	5290	1.27	7 0.34 1.61		9.67				
VHT20	2	5500	8.37	0.43	8.80	9.55				
VHT20	2	5580	8.33	0.43	8.76	9.55				
VHT20	2	5700	8.50	0.43	8.93	9.55				
VHT20	2	5720	8.33	0.43	8.76	9.55				
VHT40	2	5510	2.61	0.43	3.04	9.55				
VHT40	2	5590	5.48	0.43	5.91	9.55				
VHT40	2	5670	5.39	0.43	5.82	9.55				
VHT40	2	5710	6.00	0.43	6.43	9.55				
VHT80	2	5530	0.19	0.34	0.53	9.55				
VHT80	2	5610	3.00	0.34	3.34	9.55				
VHT80	2	5690	3.99	0.34	4.33	9.55				

Note:

- 1. D.F is duty factor.
- 2. Test result is bin-by-bin summing measured value of each TX port.
- 3. For 5150~5250 MHz Directional gain = $10 * log((10^{3.6/20} + 10^{4.1/20})^2/2) = 6.86 dBi > 6 dBi$ Limit shall be reduced to 17 dBm (6.86 dBi 6 dBi) = 16.14 dBm
- 4. For 5250~5350 MHz Directional gain = 10 * $\log((10^{3.7/20}+10^{4.9/20})^2/2) = 7.33$ dBi > 6 dBi Limit shall be reduced to 11 dBm (7.33 dBi 6 dBi) = 9.67 dBm
- 5. For 5470-5725 MHz Directional gain = $10 * log((10^{3.6/20} + 10^{5.2/20})^2/2) = 7.45 dBi > 6 dBi$ Limit shall be reduced to 11 dBm (7.45 dBi 6 dBi) = 9.55 dBm

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Note: Above plot is without duty factor.

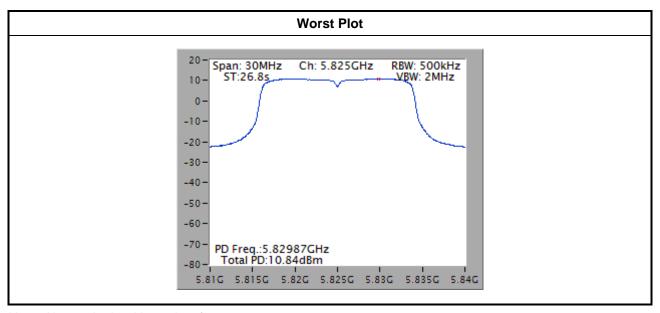
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			For Frequency	band 5725-5850 MH	lz				
Co	ondition	1	Peak Power Spectral Density (dBm/500kHz)						
Modulation N _{TX} Freq. (MHz)		PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)				
VHT20	2	5745	9.43	0.43	9.86	30.00			
VHT20	2	5785	10.70	0.43	11.13	30.00			
VHT20	2	5825	10.84	0.43	11.27	30.00			
VHT40	2	5755	8.03	0.43	8.46	30.00			
VHT40	2	5795	7.93	0.43	8.36	30.00			
VHT80	2	5775	3.04	0.34	3.38	30.00			

Note:

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



Note: Above plot is without duty factor.

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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
5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]
5.725 - 5.850 GHz	15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition,radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see § 15.205(c))

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.

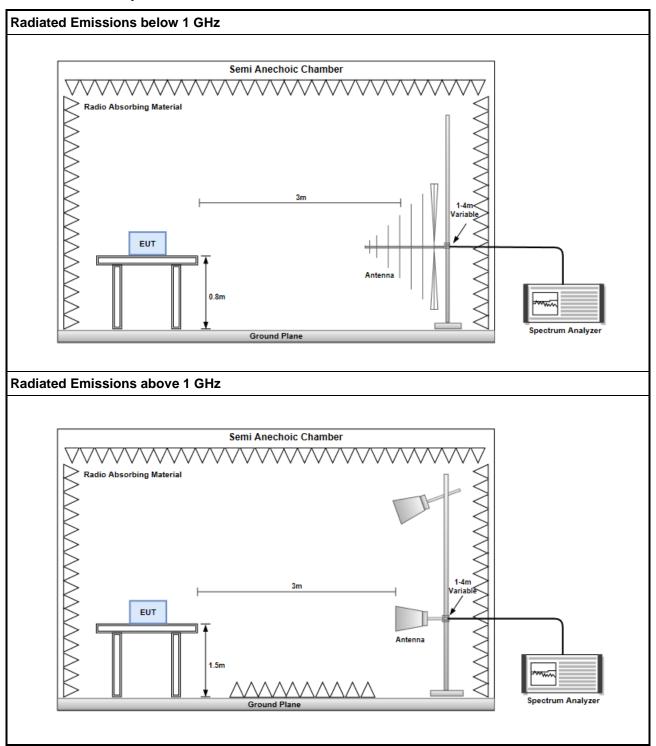
Note:

- 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.
- 3. 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

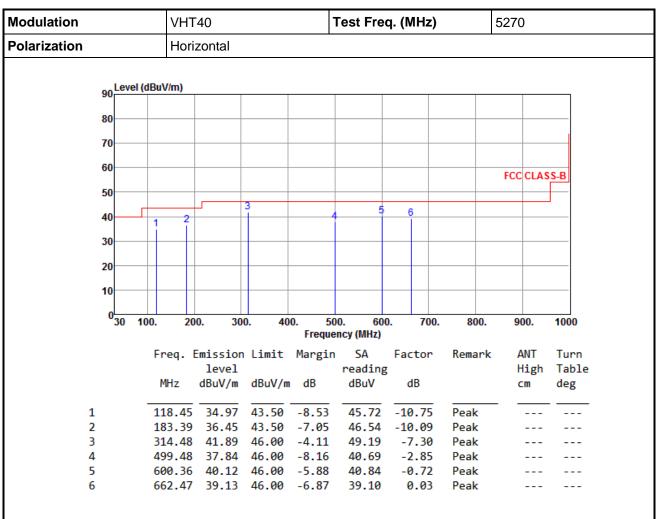


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Non- beamforming mode

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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Modulation			VHT	40		7	Test Fre	q. (MHz)		5270)	
Polarization			Vert	ical		1			•			
	90 ^L	Level (d	dBuV/m)									
	80											
	70											
	60									FCC	CLAS	S-B
	50											
	40	. г			4							'
	40	2	3			5				6		
	30											
	20											
	20											
	10											
	0											
	03	30 10	00. 20	0. 30	0. 40	00. 50 Freque	0. 60(ncy (MHz)	0. 700.	800.	90	00.	1000
			Freq. I	mission	Limit	Margin	SA	Factor	Remark	А	NT	Turn
			•	level		-	reading	5		Н	igh	Table
			MHz	dBuV/m	dBuV/n	ı dB	dBuV	dB		C	m	deg
	1		54.12	36.84	40.00	-3.16	44.88	-8.04	QP .		100	188
	2		70.41			-5.11	45.75		Peak			
	3		113.38	32.16	43.50	-11.34	43.38	-11.22	Peak			
	4		312.37	38.59	46.00	-7.41	45.95	-7.36	Peak			
	5		499.48	37.14	46.00	-8.86	39.99	-2.85	Peak			
•	6		861.49	34.57	46.00	-11.43	31.18	3.39	Peak			

*Factor includes antenna factor, cable loss and amplifier gain

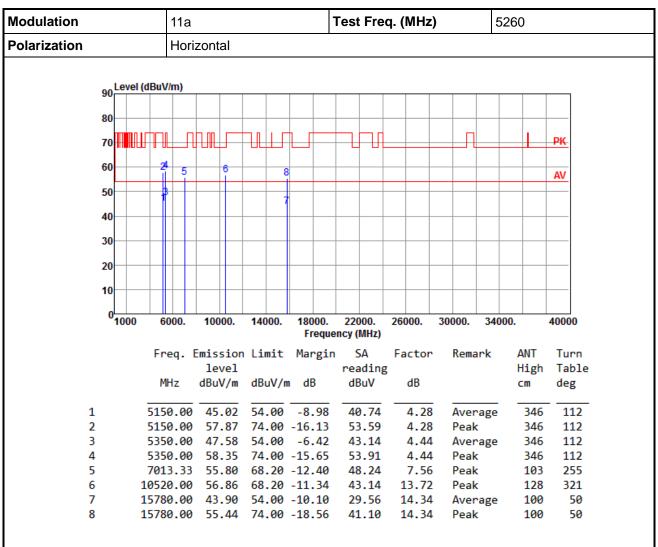
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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



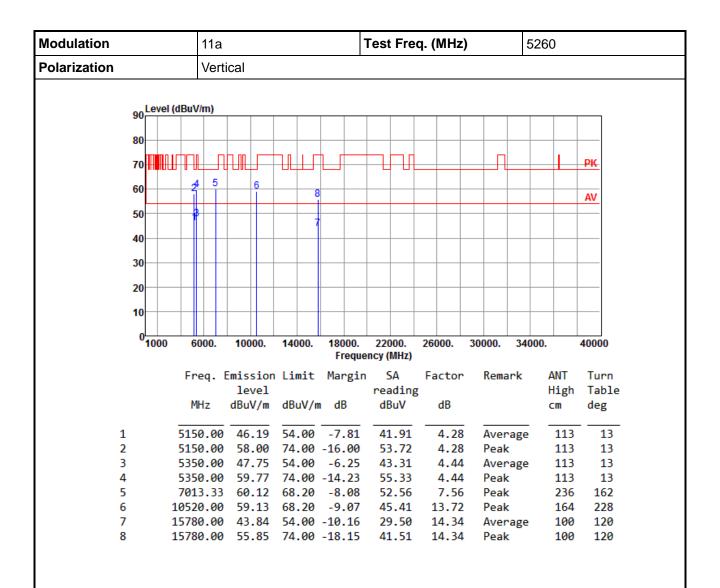
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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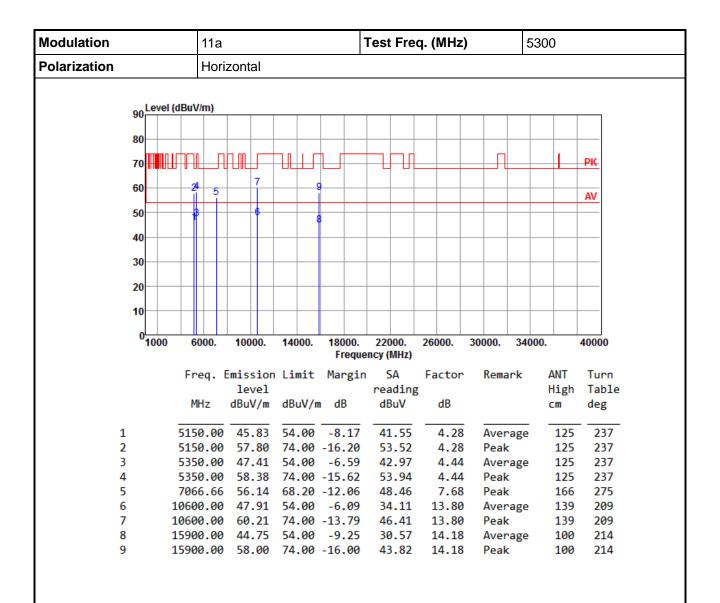


*Factor includes antenna factor, cable loss and amplifier gain

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

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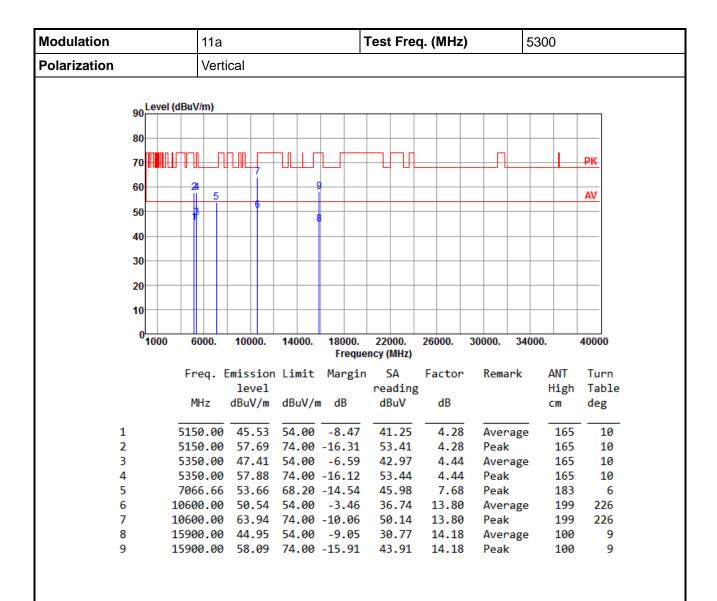


*Factor includes antenna factor, cable loss and amplifier gain

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

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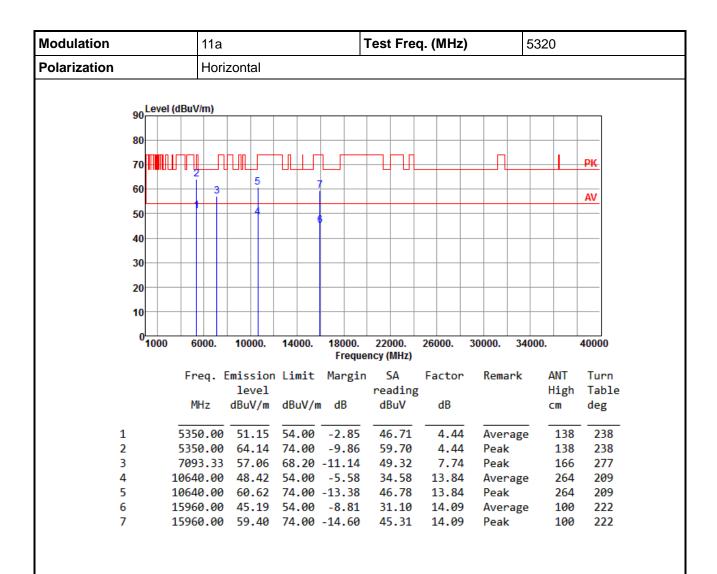


*Factor includes antenna factor, cable loss and amplifier gain

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

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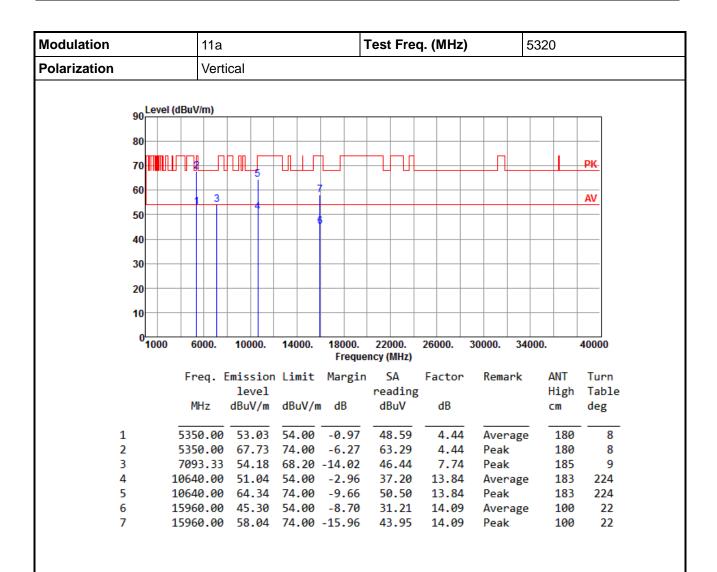


*Factor includes antenna factor, cable loss and amplifier gain

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

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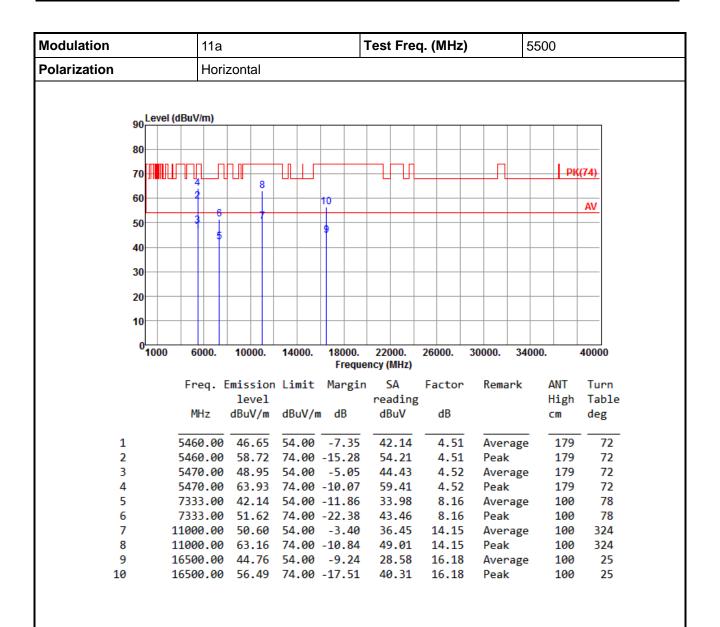


*Factor includes antenna factor, cable loss and amplifier gain

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

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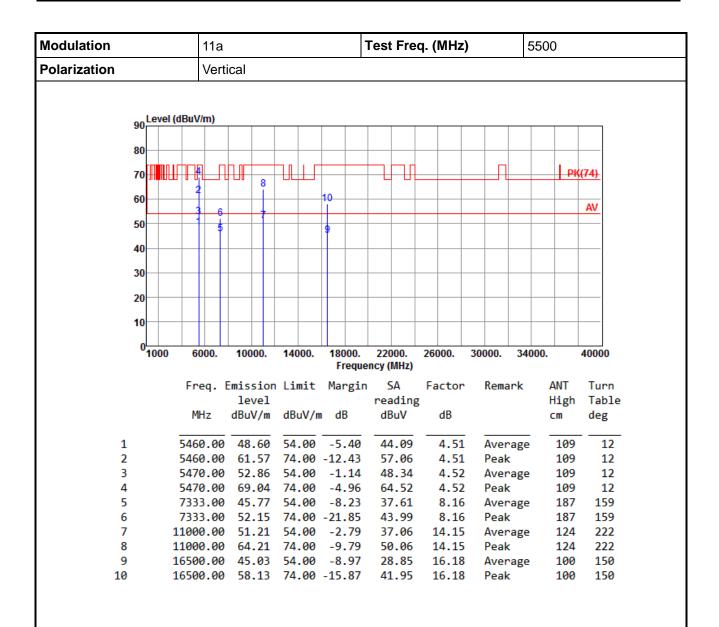


*Factor includes antenna factor, cable loss and amplifier gain

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

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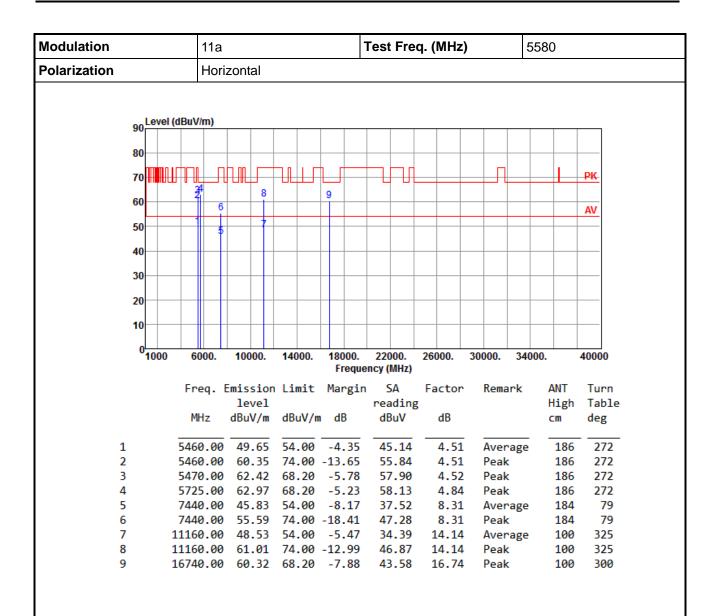


*Factor includes antenna factor, cable loss and amplifier gain

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

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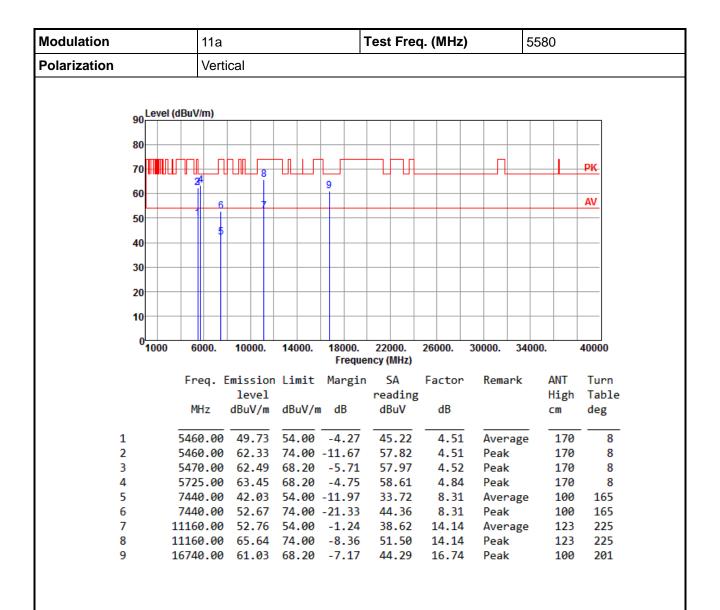


*Factor includes antenna factor, cable loss and amplifier gain

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

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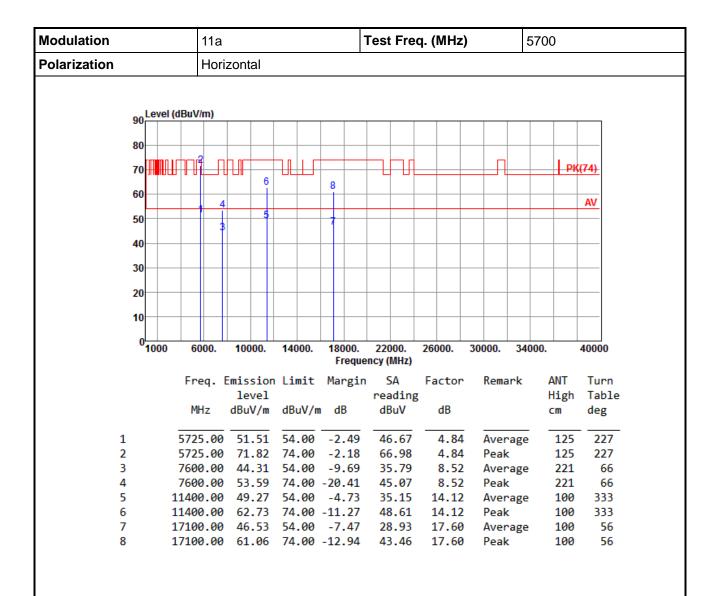


*Factor includes antenna factor, cable loss and amplifier gain

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

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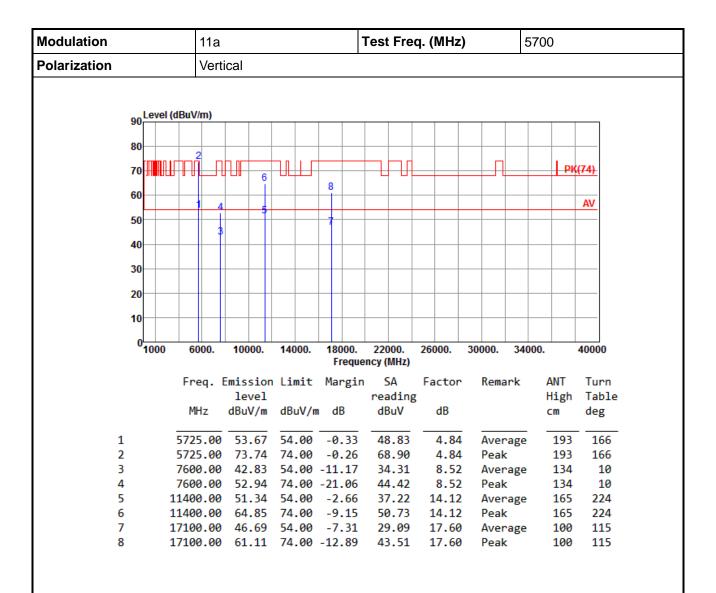


*Factor includes antenna factor, cable loss and amplifier gain

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

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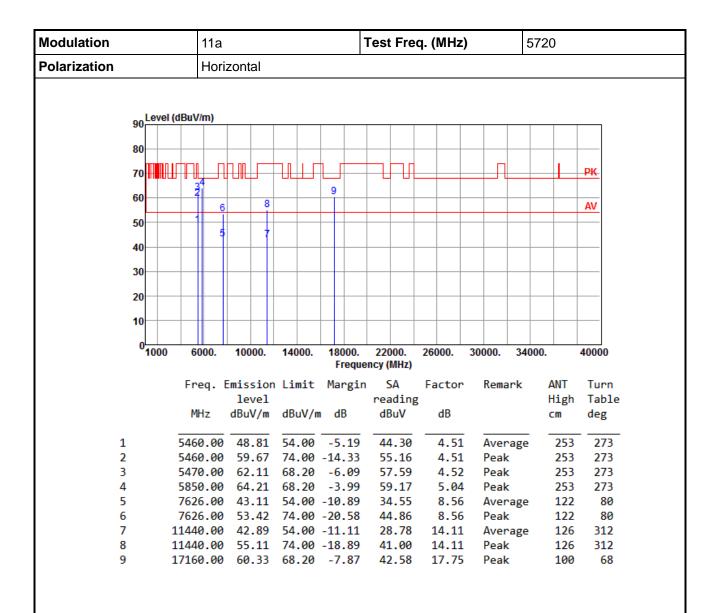


*Factor includes antenna factor, cable loss and amplifier gain

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

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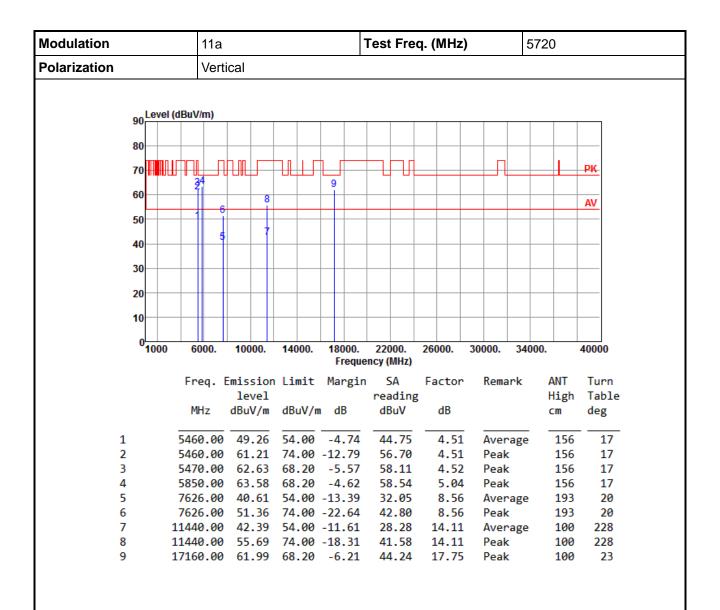


*Factor includes antenna factor, cable loss and amplifier gain

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

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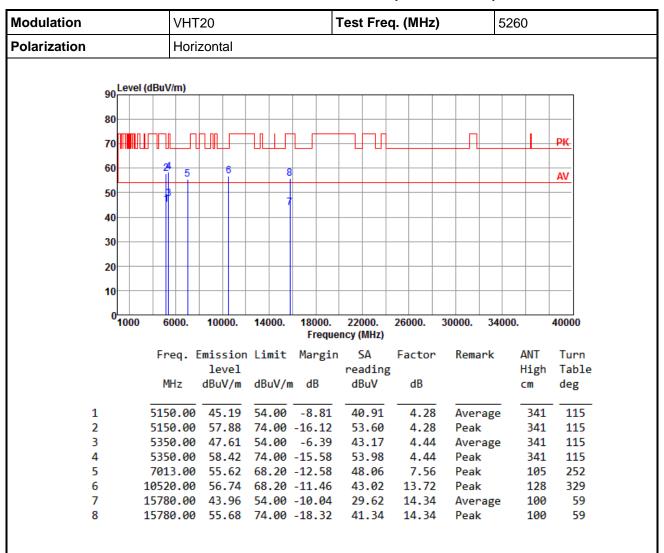
*Factor includes antenna factor, cable loss and amplifier gain

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

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



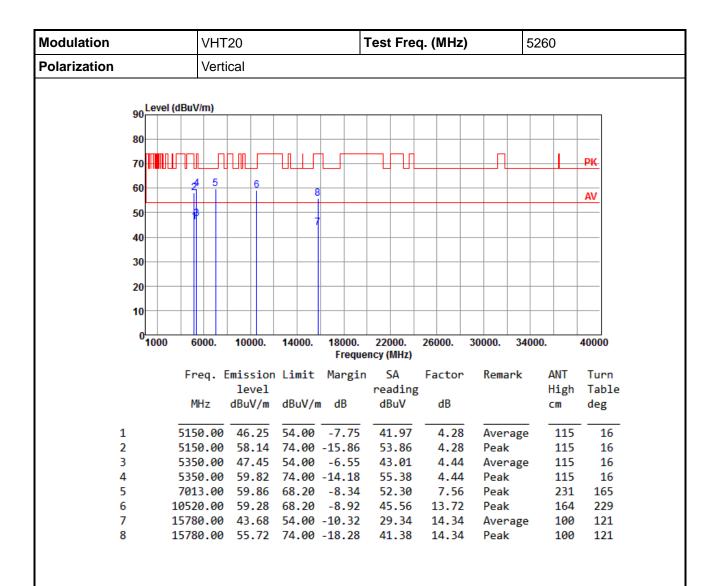
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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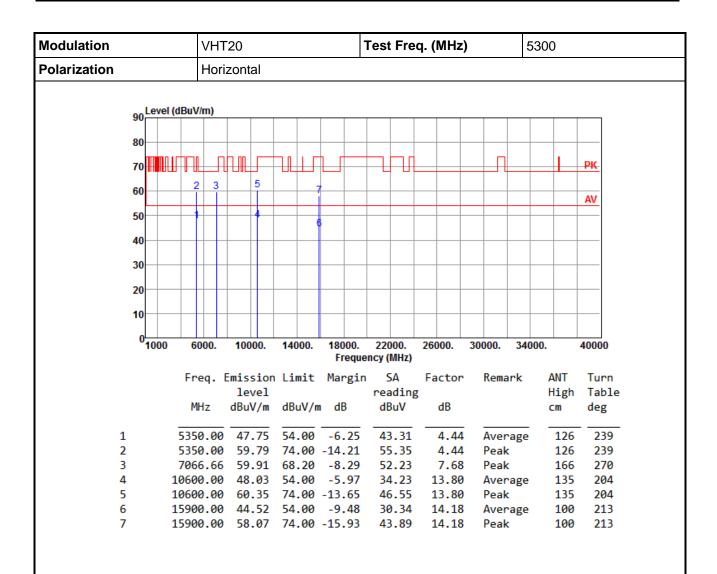


*Factor includes antenna factor, cable loss and amplifier gain

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

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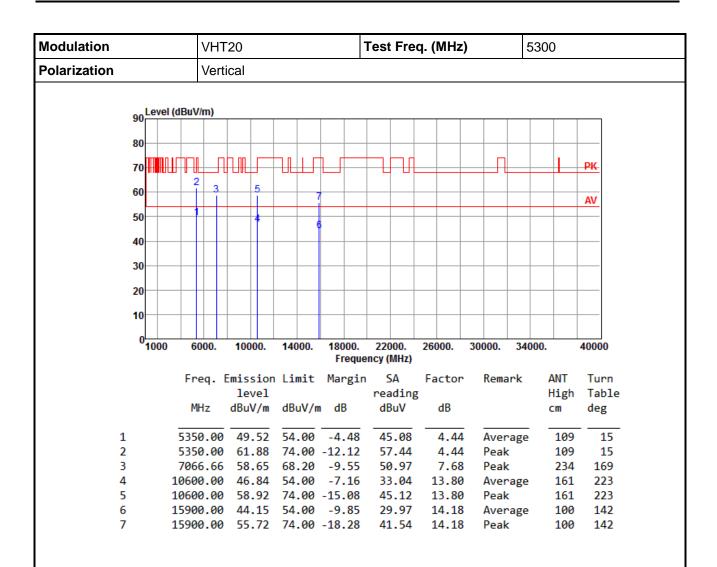


*Factor includes antenna factor, cable loss and amplifier gain

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

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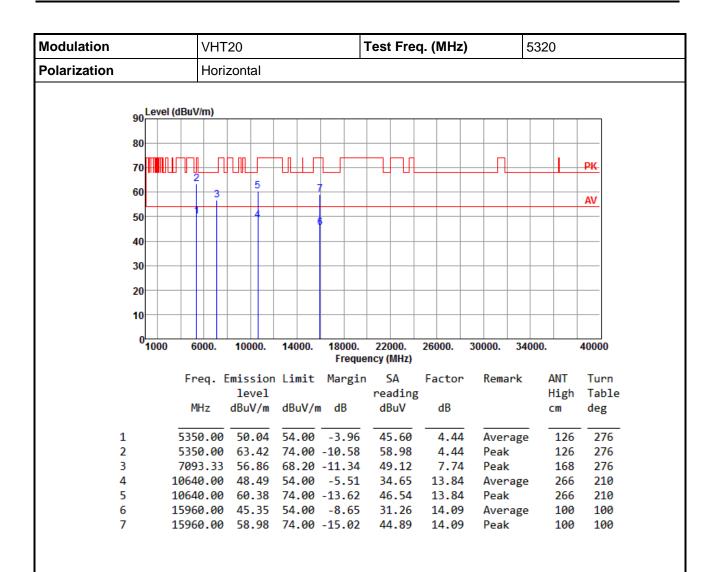


*Factor includes antenna factor, cable loss and amplifier gain

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

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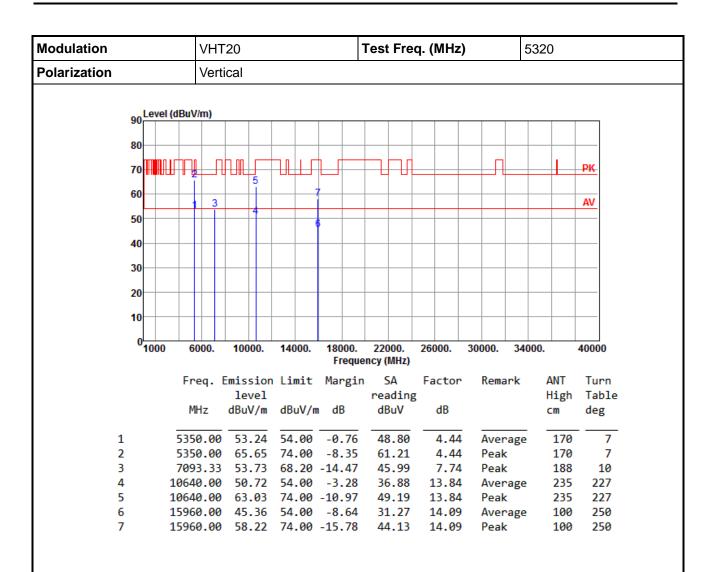


*Factor includes antenna factor, cable loss and amplifier gain

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

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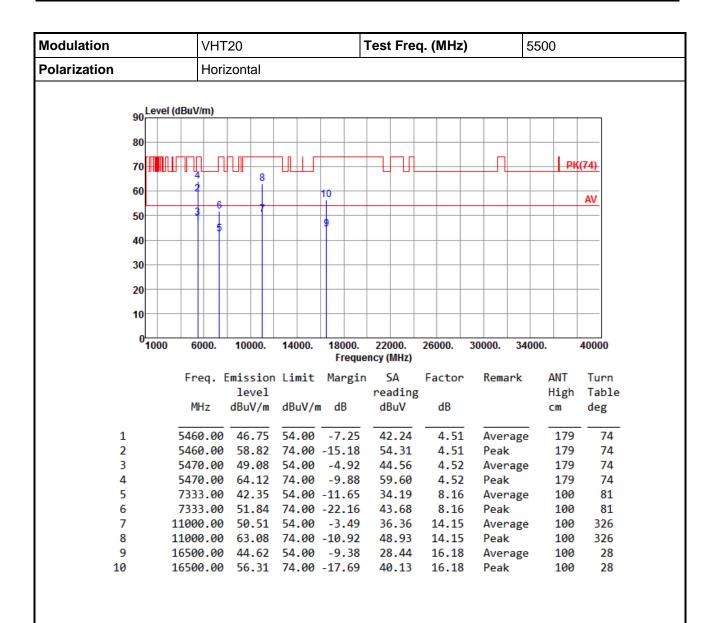


*Factor includes antenna factor, cable loss and amplifier gain

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

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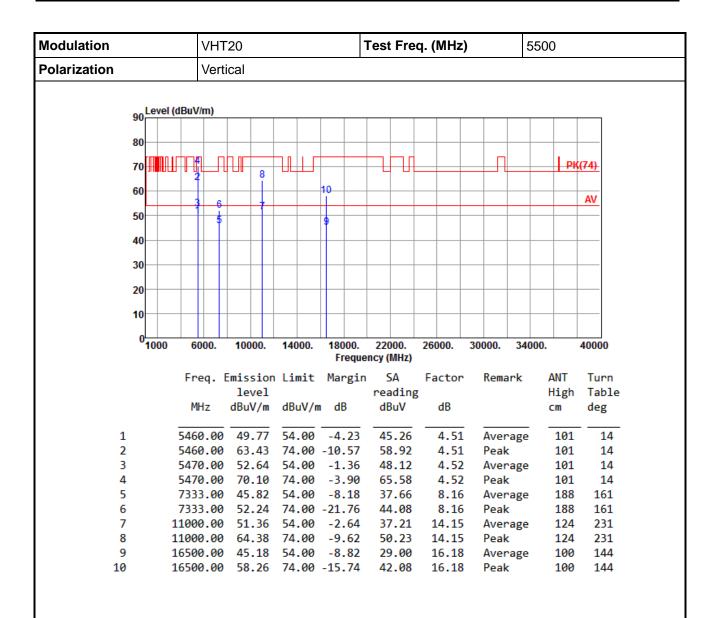


*Factor includes antenna factor, cable loss and amplifier gain

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

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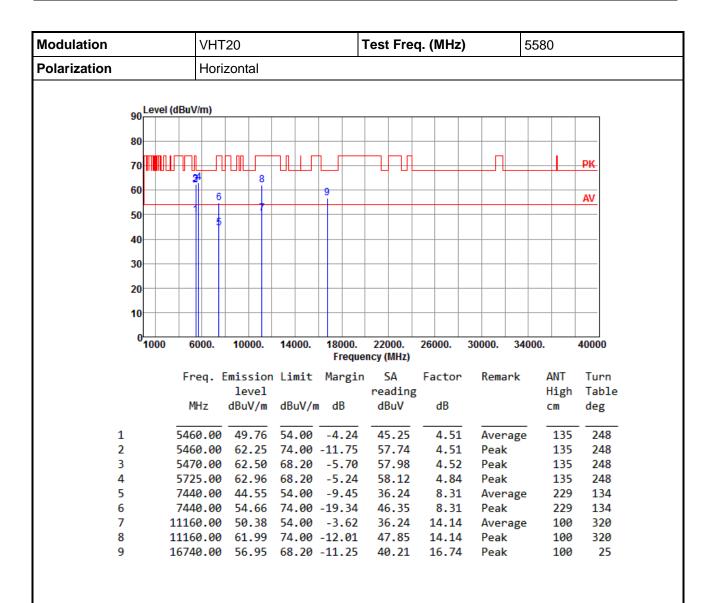


*Factor includes antenna factor, cable loss and amplifier gain

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

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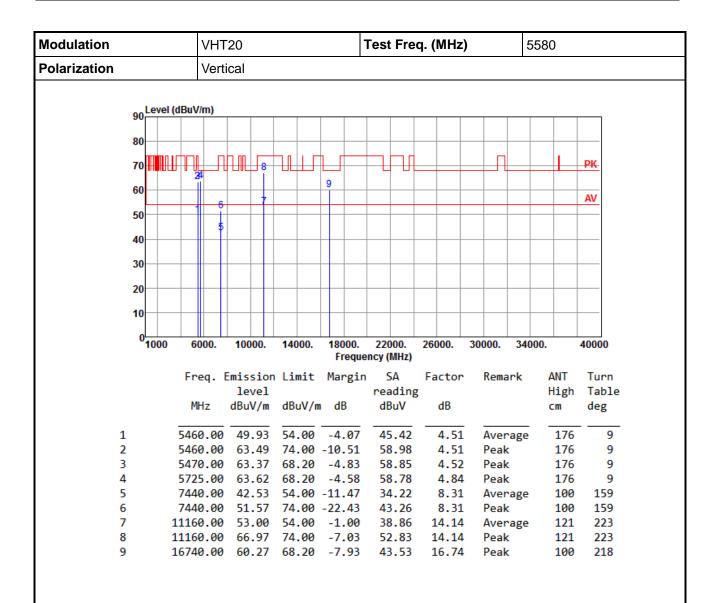


*Factor includes antenna factor, cable loss and amplifier gain

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

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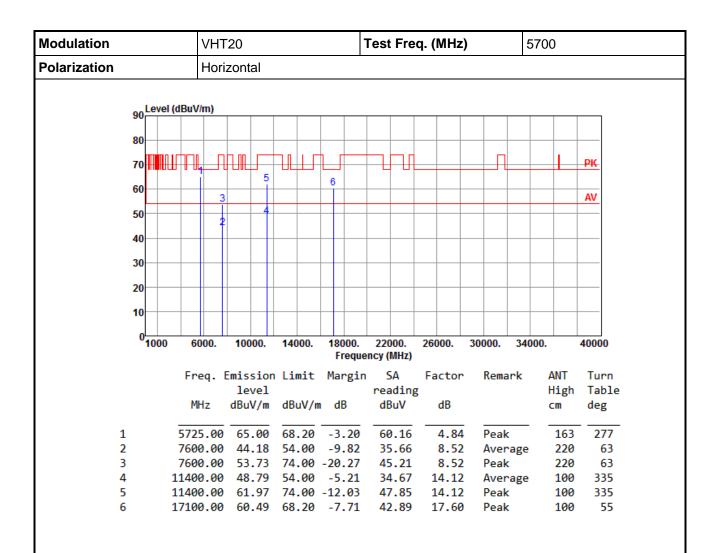


*Factor includes antenna factor, cable loss and amplifier gain

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

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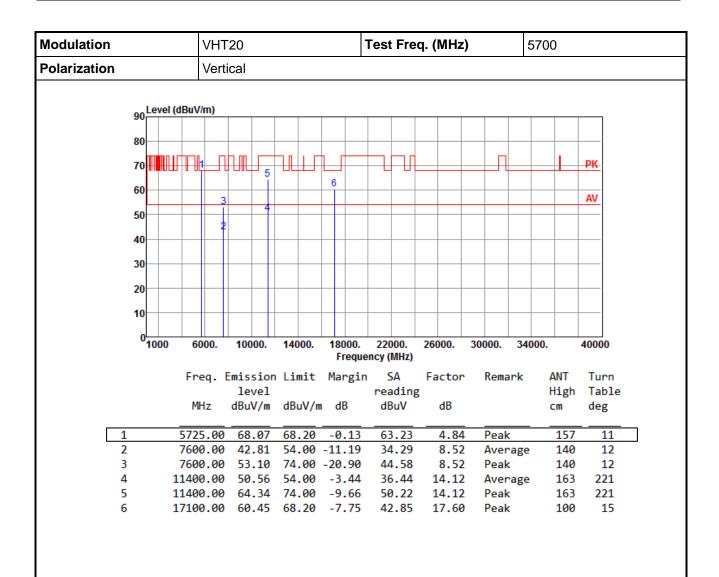


*Factor includes antenna factor, cable loss and amplifier gain

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

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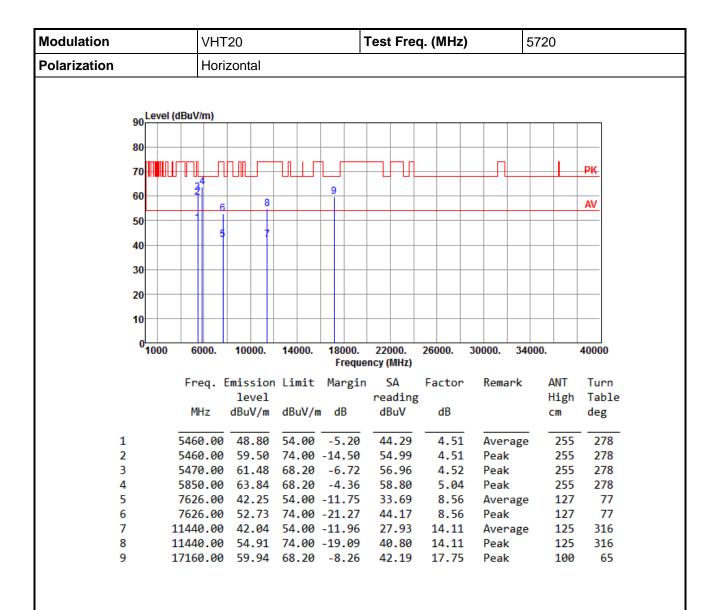


*Factor includes antenna factor, cable loss and amplifier gain

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

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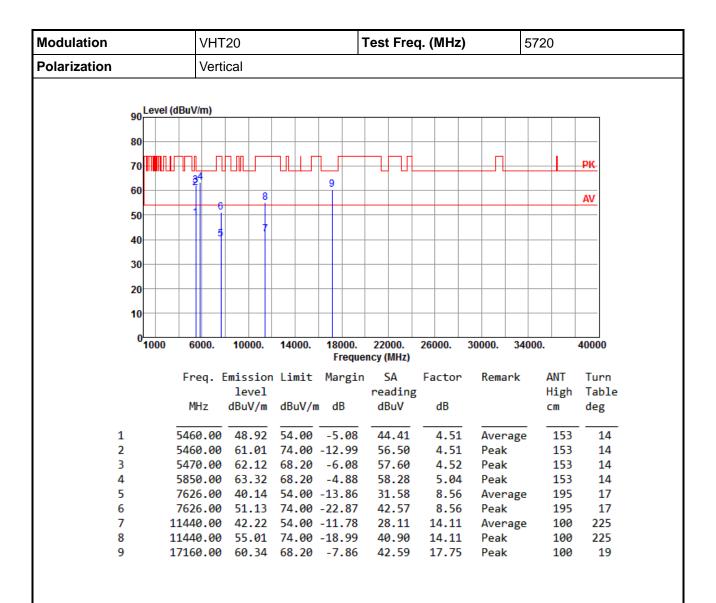


*Factor includes antenna factor, cable loss and amplifier gain

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

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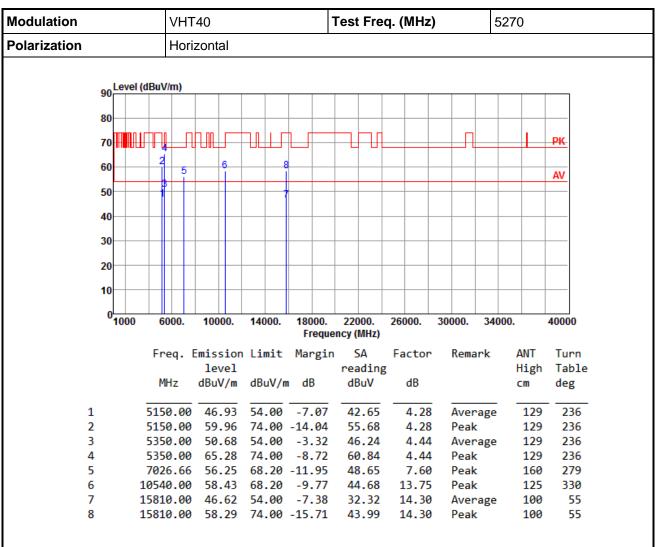
*Factor includes antenna factor, cable loss and amplifier gain

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



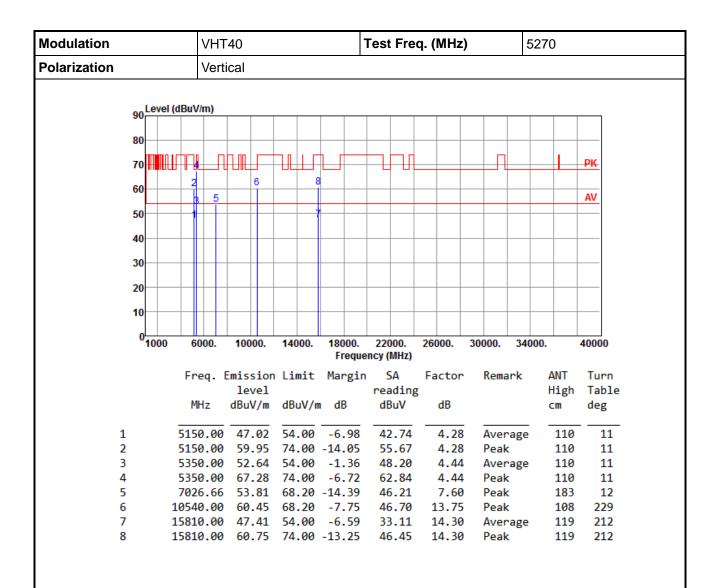
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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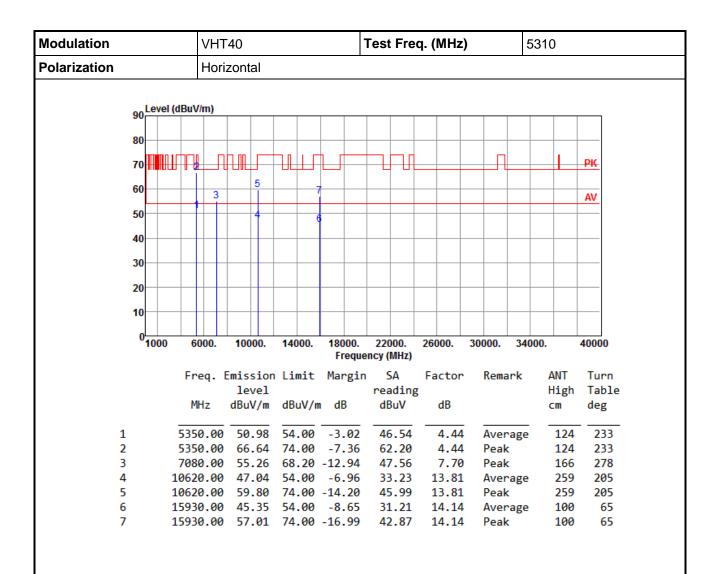


*Factor includes antenna factor, cable loss and amplifier gain

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

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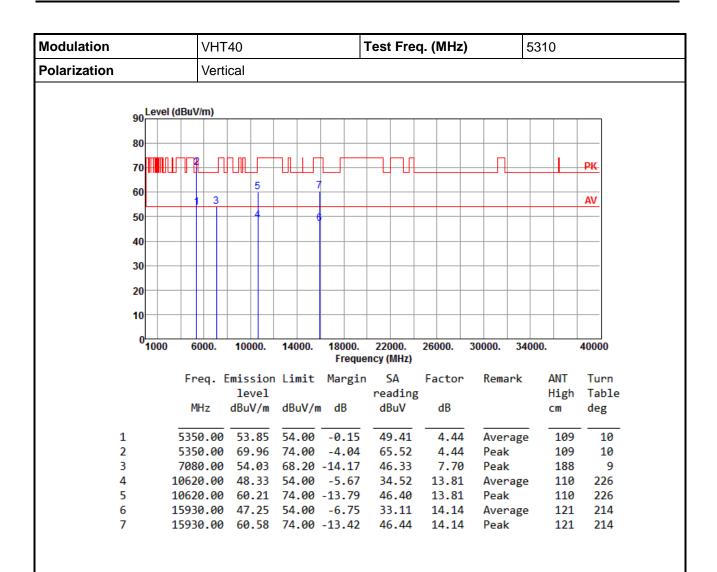


*Factor includes antenna factor, cable loss and amplifier gain

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

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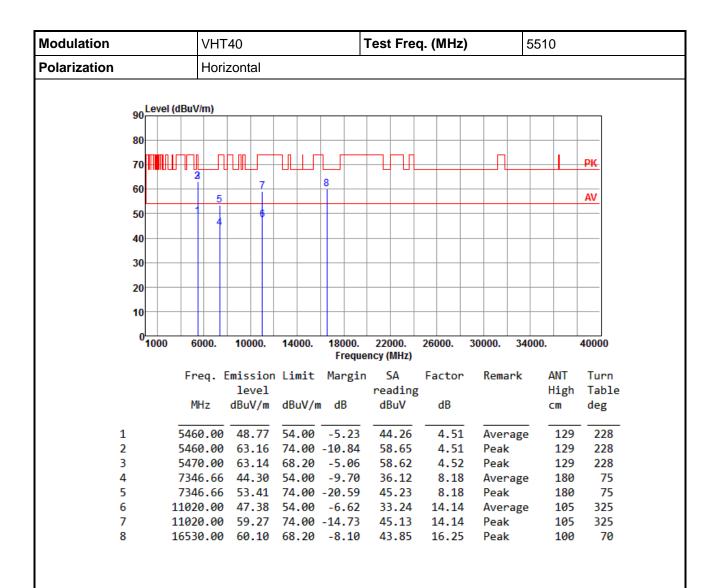


*Factor includes antenna factor, cable loss and amplifier gain

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

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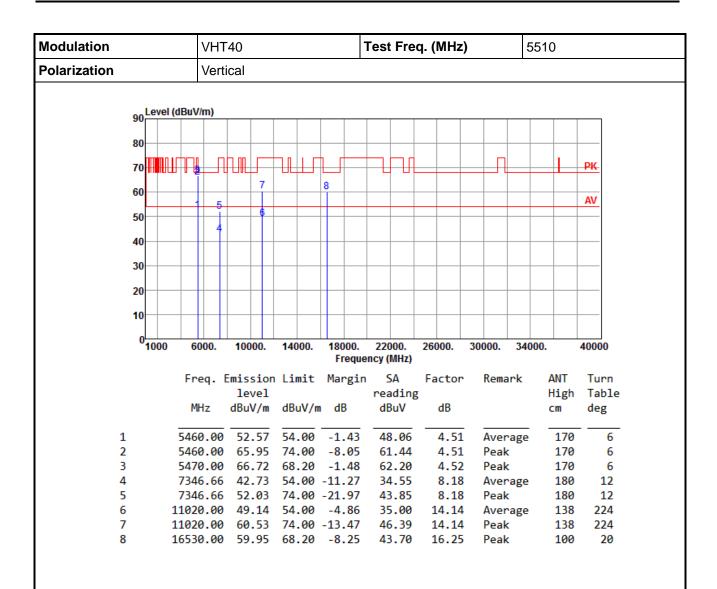


*Factor includes antenna factor, cable loss and amplifier gain

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

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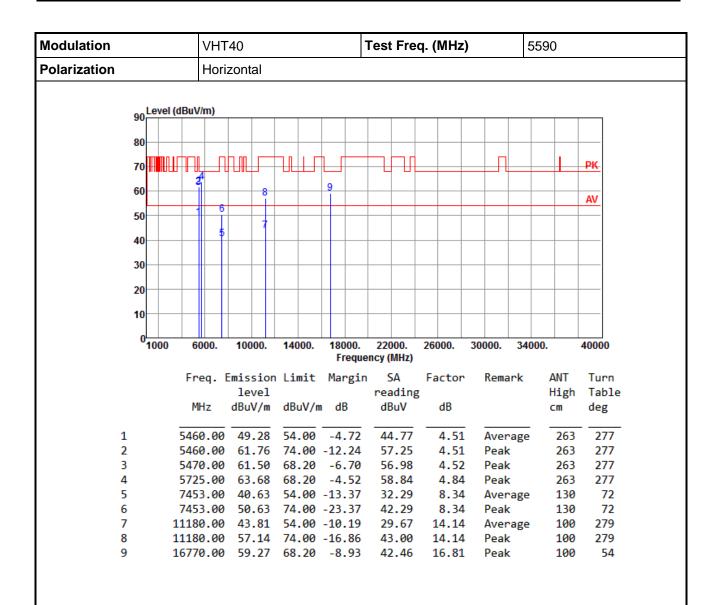


*Factor includes antenna factor, cable loss and amplifier gain

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

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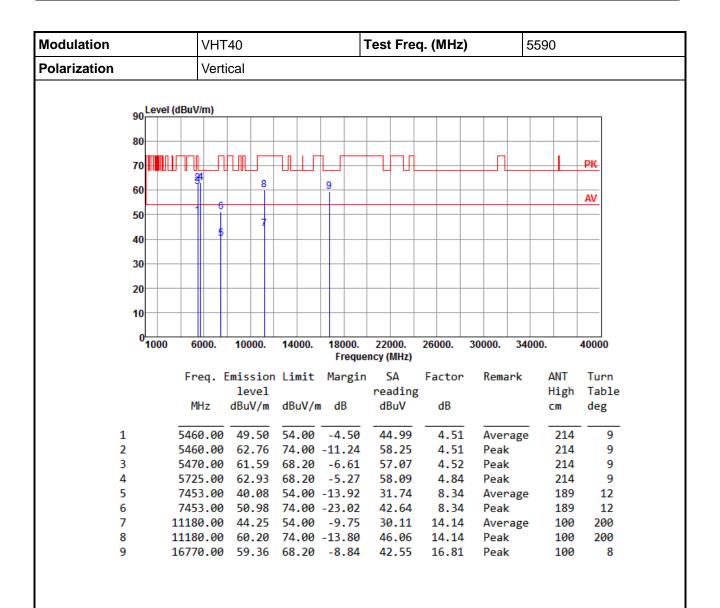


*Factor includes antenna factor, cable loss and amplifier gain

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

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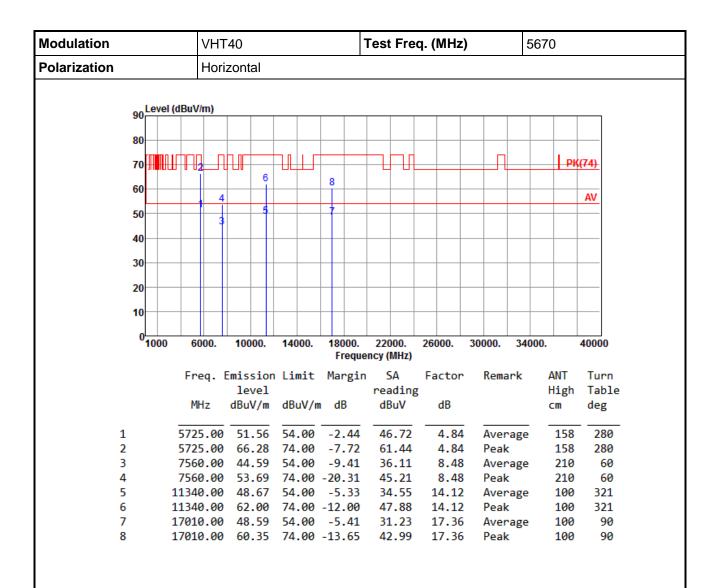


*Factor includes antenna factor, cable loss and amplifier gain

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

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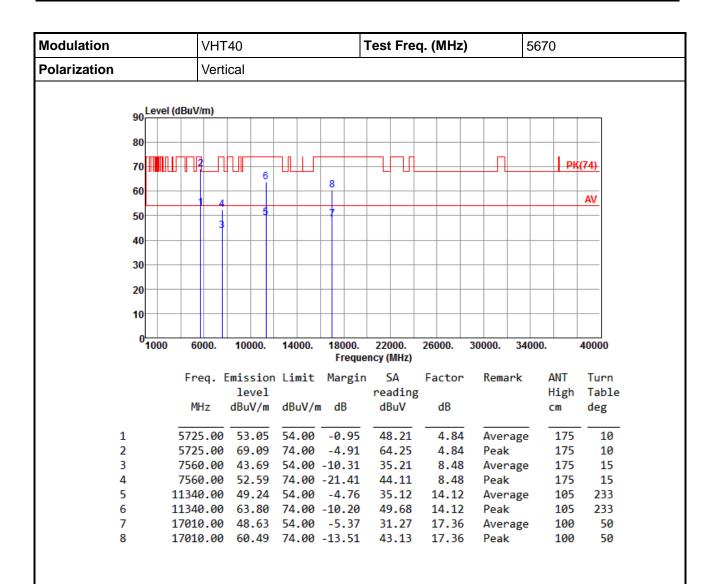


*Factor includes antenna factor, cable loss and amplifier gain

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

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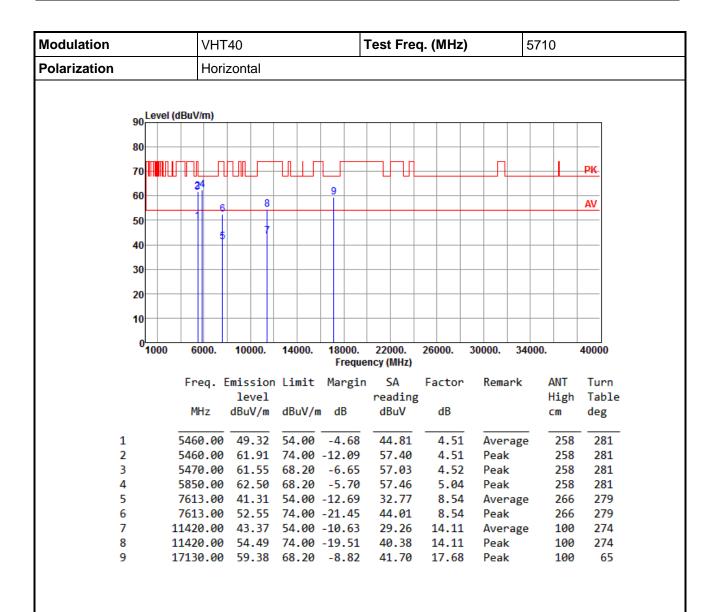


*Factor includes antenna factor, cable loss and amplifier gain

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

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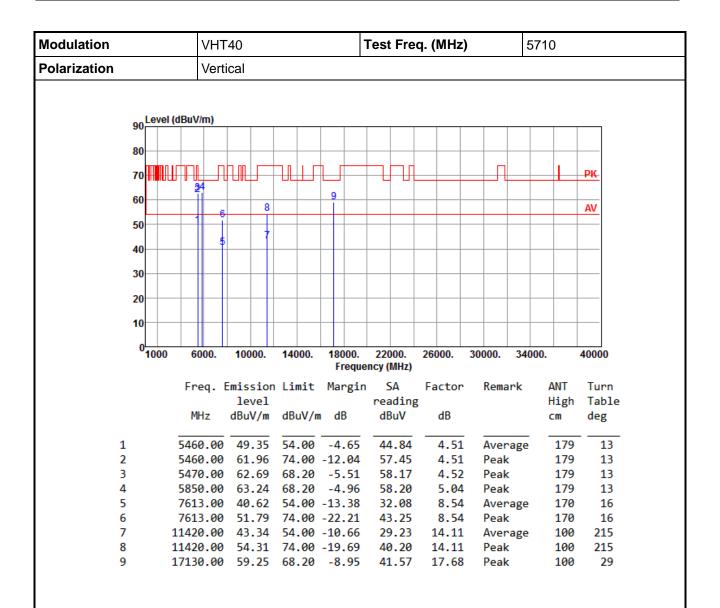


*Factor includes antenna factor, cable loss and amplifier gain

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

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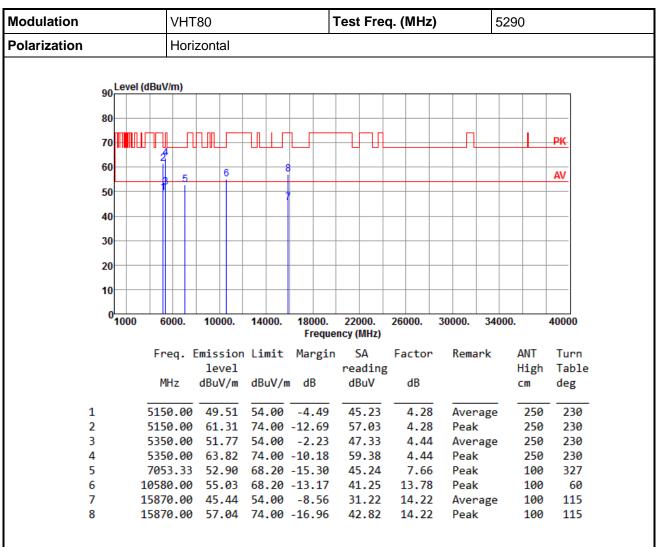
*Factor includes antenna factor, cable loss and amplifier gain

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

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



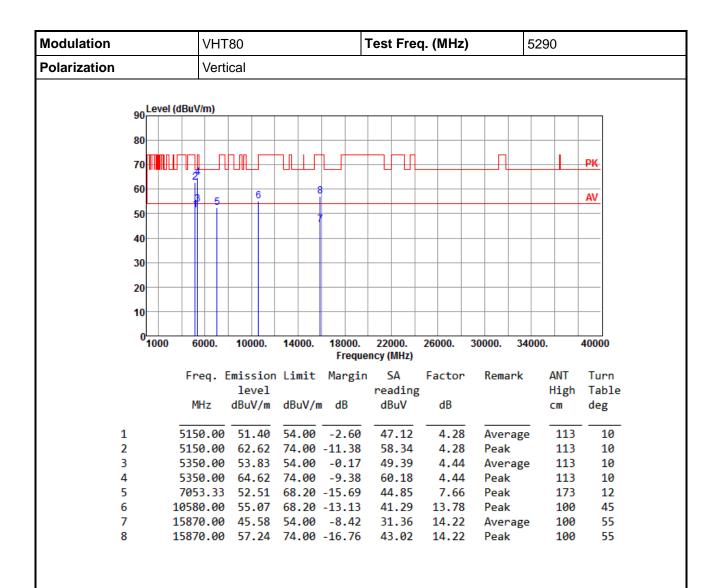
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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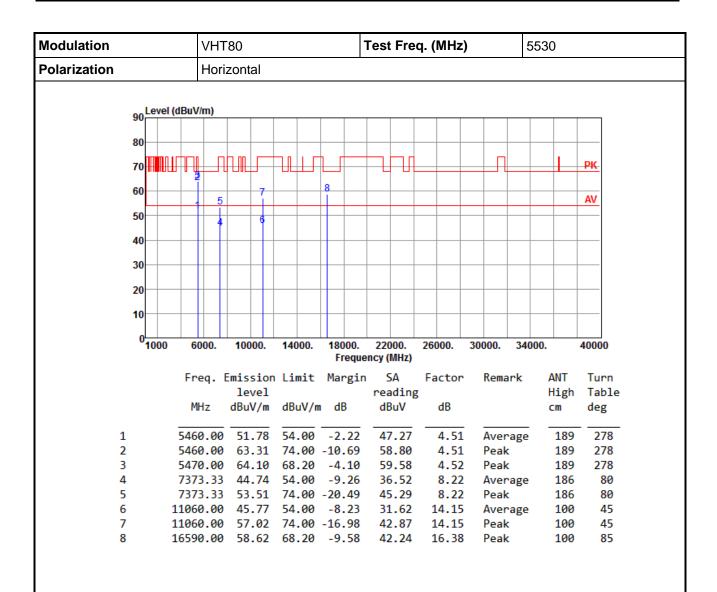


*Factor includes antenna factor, cable loss and amplifier gain

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

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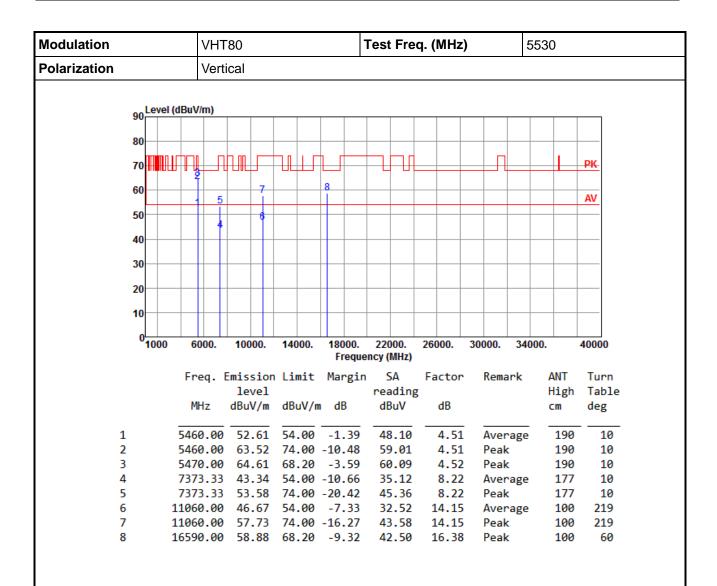


*Factor includes antenna factor, cable loss and amplifier gain

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

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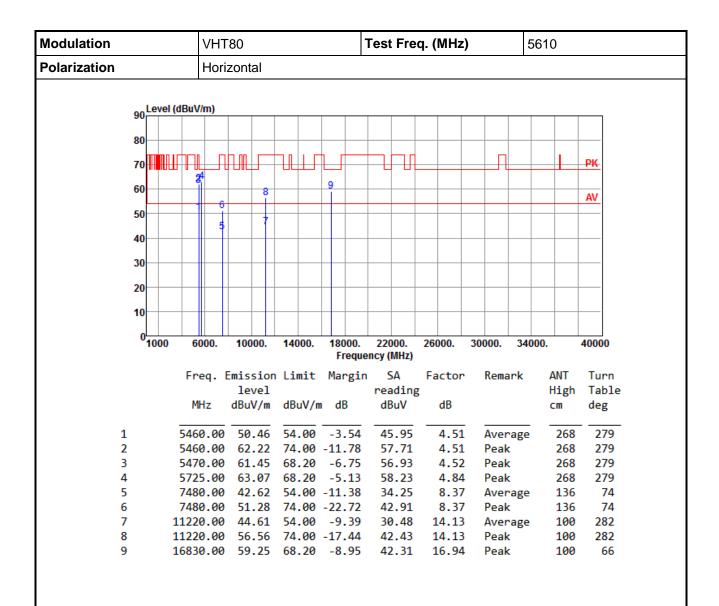


*Factor includes antenna factor, cable loss and amplifier gain

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

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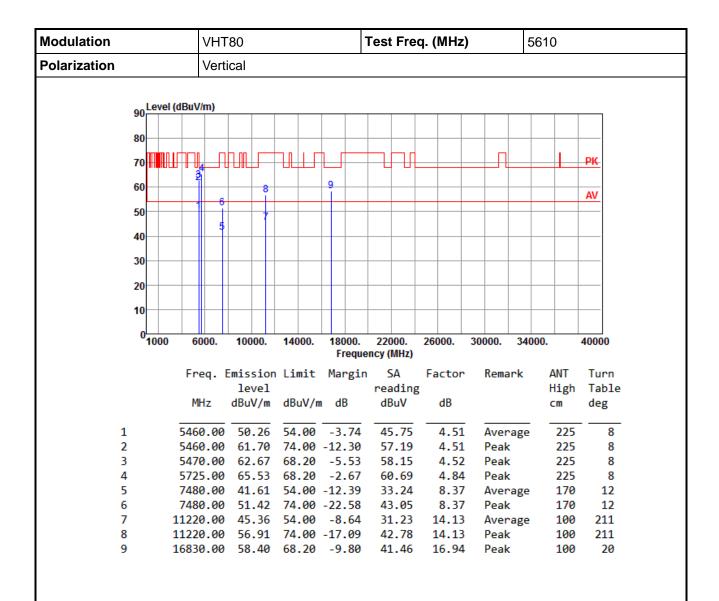


*Factor includes antenna factor, cable loss and amplifier gain

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

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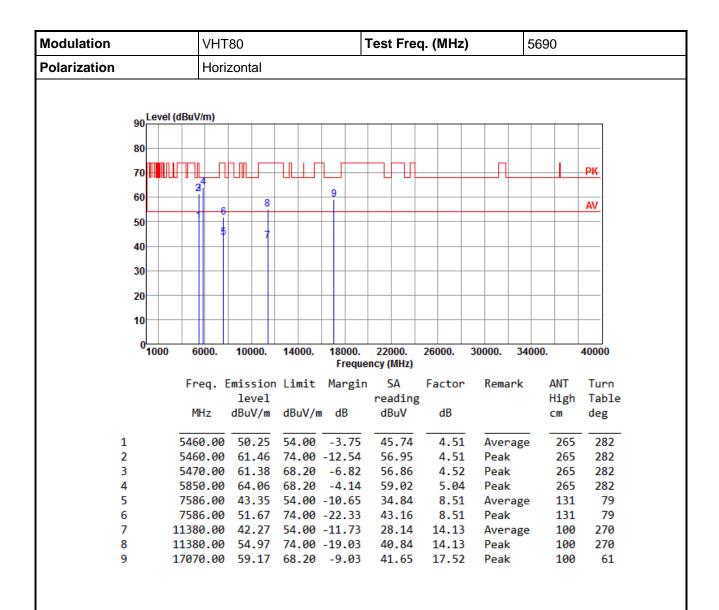


*Factor includes antenna factor, cable loss and amplifier gain

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

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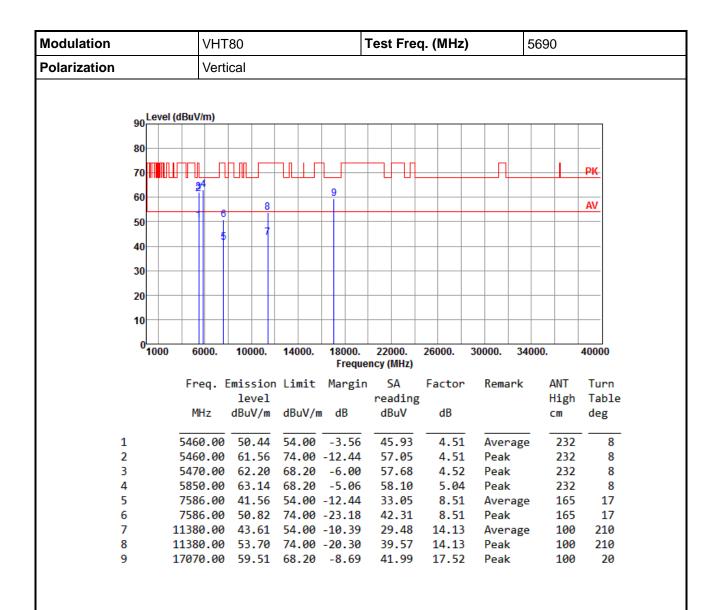


*Factor includes antenna factor, cable loss and amplifier gain

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

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*Factor includes antenna factor, cable loss and amplifier gain

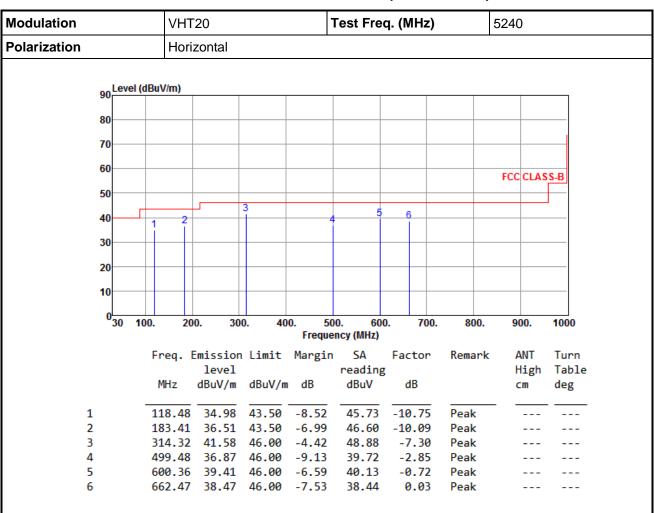
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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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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Modulation			VHT	20		٦	Test Fre	q. (MHz)		5240)	
Polarization			Verti	ical								
	90 Le	vel (dBu	3uV/m)									
	80											
	70											
	60											
										FCC	CLAS	S-B
	50											
	40 -1	2 0			4	5				_		
	30	3								6 		
	30											
	20											
	10											
	030	100.	20	0. 30	0. 40	00. 50 Freque	0. 600 ncy (MHz)	0. 700.	800.	90	00.	1000
		F	rea. F	mission	Limit	Margin		Factor	Remark	Δ	NT	Turn
				level		6=	reading				ligh	Table
		ı	MHz	dBuV/m	dBuV/r	n dB	dBuV	dB		C	m	deg
1	L	_	53.47	36.68	40.00	-3.32	44.68	-8.00	QP		100	187
2	2		70.47			-5.43	45.44	-10.87	Peak			
	3		13.38				43.47		Peak			
	1		12.27				46.14	-7.36	Peak			
-			99.57 61.47	36.74 34.25	46.00	-9.26 -11.75	39.59 30.86	-2.85 3.39	Peak Peak			

*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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Modulation		VHT	40		7	Test Fre	q. (MHz)		5755	
Polarization		Horizontal								
90 <u>Le</u>	vel (dBu\	//m)								
80										
00										
70										
60										
									FCC CLA	SS-B
50				3						
40—	1	2			4	5	6			
30										
20										
10										
0 30	100.	20	0. 300	0. 40		0. 600 ncy (MHz)	0. 700.	. 800.	900.	1000
	Fr	rea. F	mission	Limit			Factor	Remark	ANT	Turn
			level			reading			High	
	M	1Hz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	11	8.32	34.92	43.50	-8.58	45.68	-10.76	Peak		
2	18	33.34		43.50	-7.05	46.53		Peak		
3			41.58		-4.42	48.88	-7.30	Peak		
4		99.48		46.00	-8.49	40.36	-2.85	Peak		
5		0.47	39.41	46.00	-6.59	40.13	-0.72	Peak		
6	66	2.48	38.15	46.00	-7.85	38.12	0.03	Peak		

*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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Modulation		VHT40				Test Freq. (MHz)				5755		
Polarization		Vertical										
90 Lev	el (dBuV	//m)			I							
80												
70												
60												
00									FCC (CLAS	S-B	
50									-			
40 1				4	_							
40	2 3								6			
30												
20												
20												
10												
030												
30	100.	20	0. 30	0. 40		00. 600 ency (MHz)	0. 700.	800.	900	0.	1000	
	Fr	eq. E	mission	Limit	Margin	SA	Factor	Remark	ΔN	NT	Turn	
		•	level			reading	5		Hi	igh	Table	
	М	Hz	dBuV/m	dBuV/n	n dB	dBuV	dB		cr	m	deg	
1		3.48	36.81	40.00	-3.19	44.81	-8.00	QP .		100	190	
2		0.48	34.58		-5.42	45.46	-10.88	Peak	-			
3	11	3.38	32.24			43.46		Peak				
4			38.57			45.93	-7.36	Peak	-			
5		9.48			-9.53	39.32	-2.85	Peak	-			
6	86	1.47	34.21	46.00	-11.79	30.82	3.39	Peak	-			

*Factor includes antenna factor, cable loss and amplifier gain

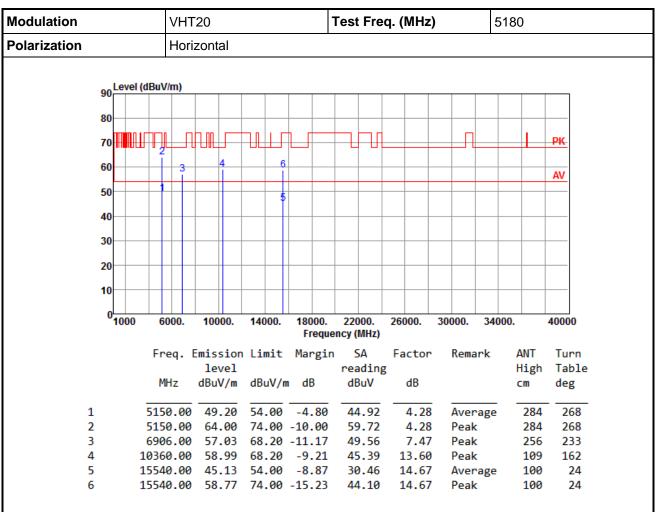
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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



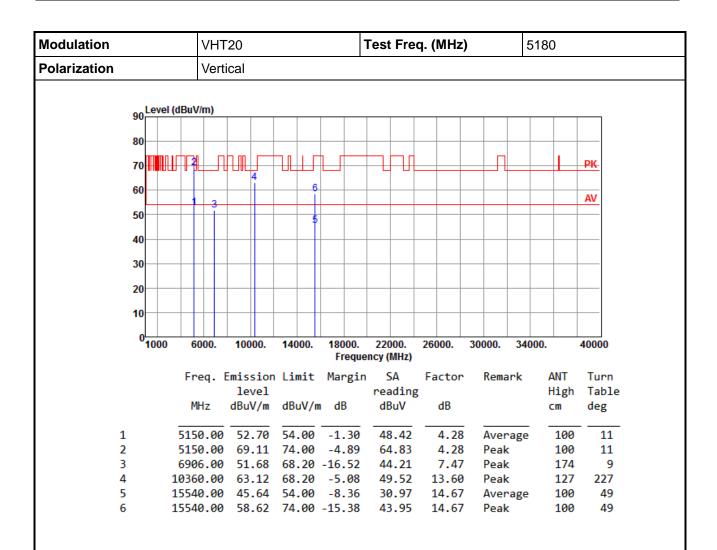
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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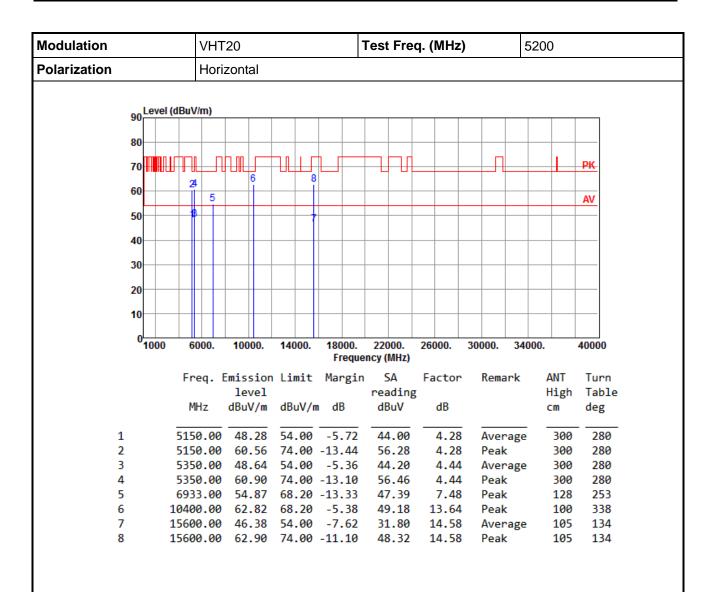


*Factor includes antenna factor, cable loss and amplifier gain

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

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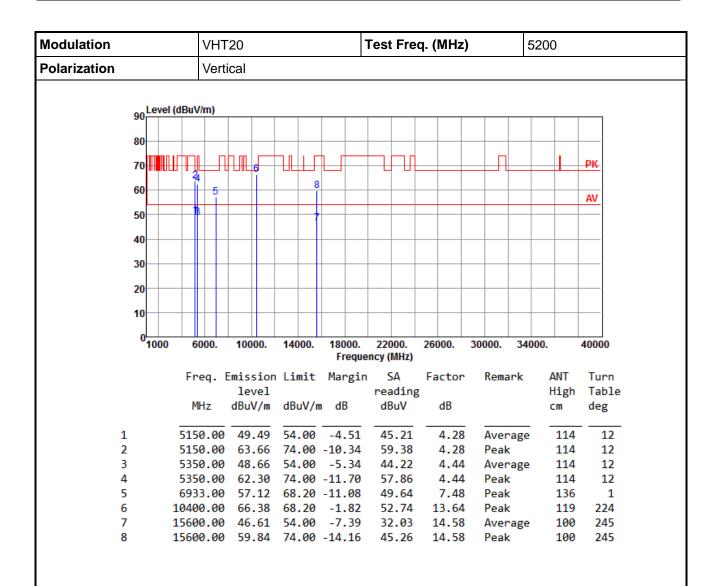


*Factor includes antenna factor, cable loss and amplifier gain

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

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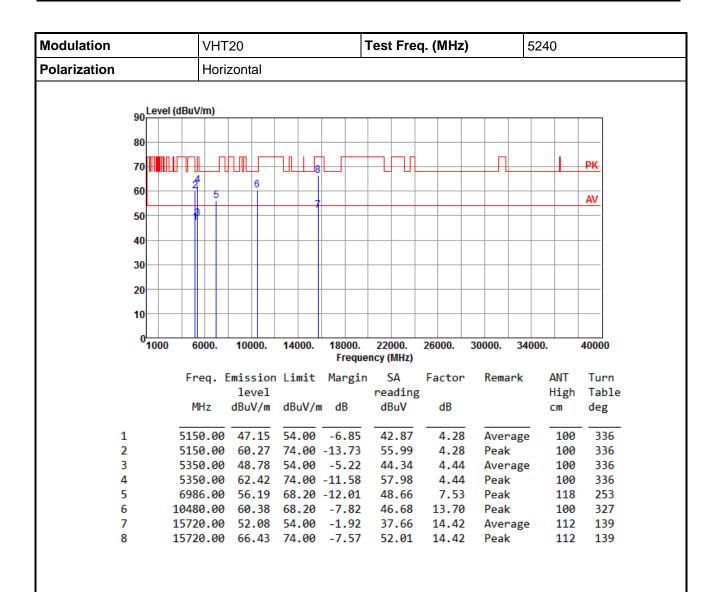


*Factor includes antenna factor, cable loss and amplifier gain

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

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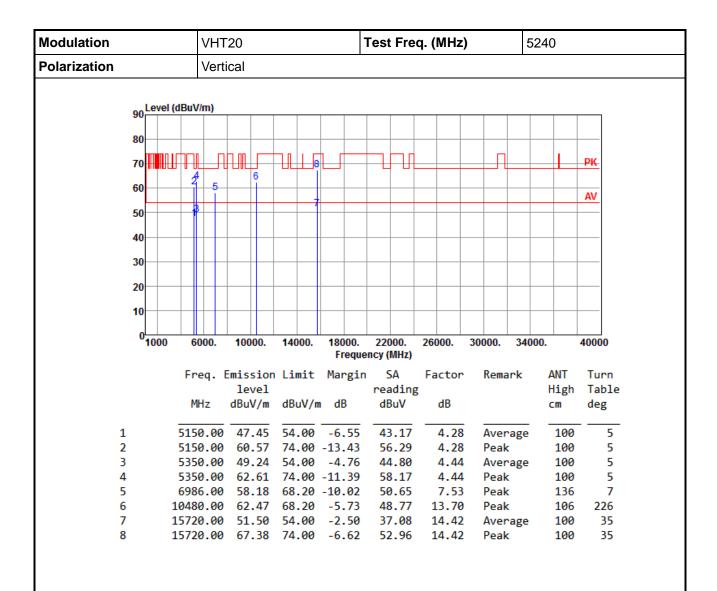


*Factor includes antenna factor, cable loss and amplifier gain

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

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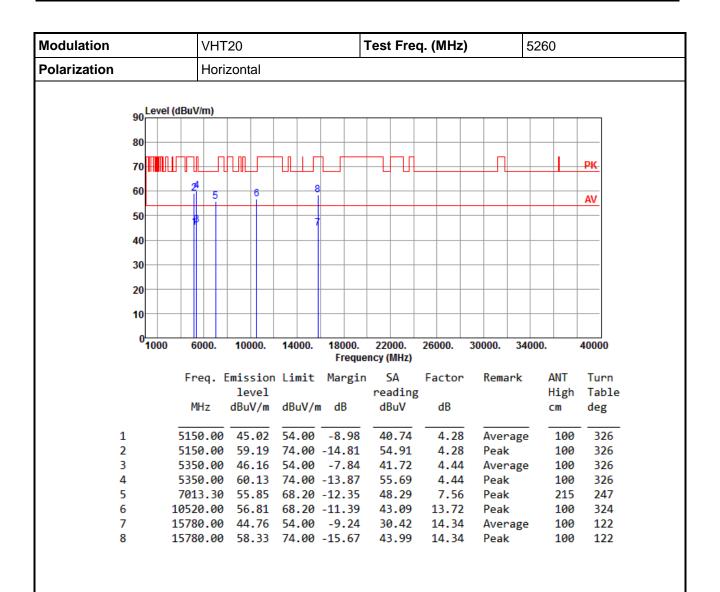


*Factor includes antenna factor, cable loss and amplifier gain

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

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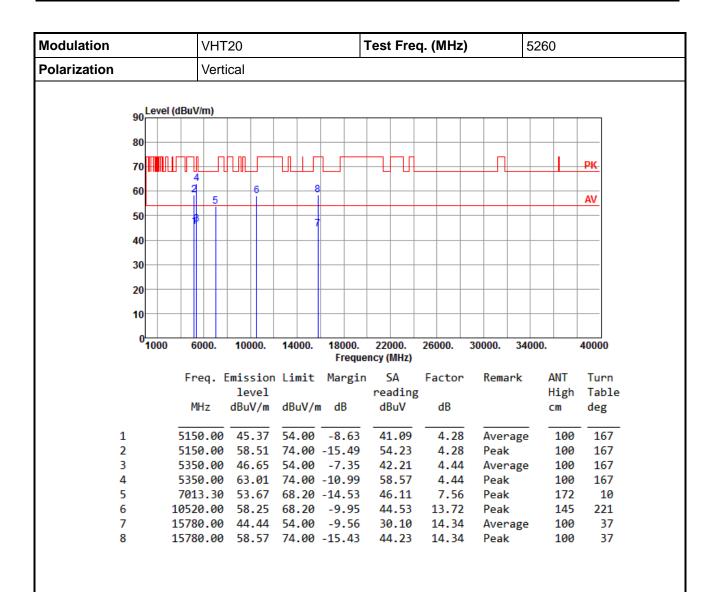


*Factor includes antenna factor, cable loss and amplifier gain

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

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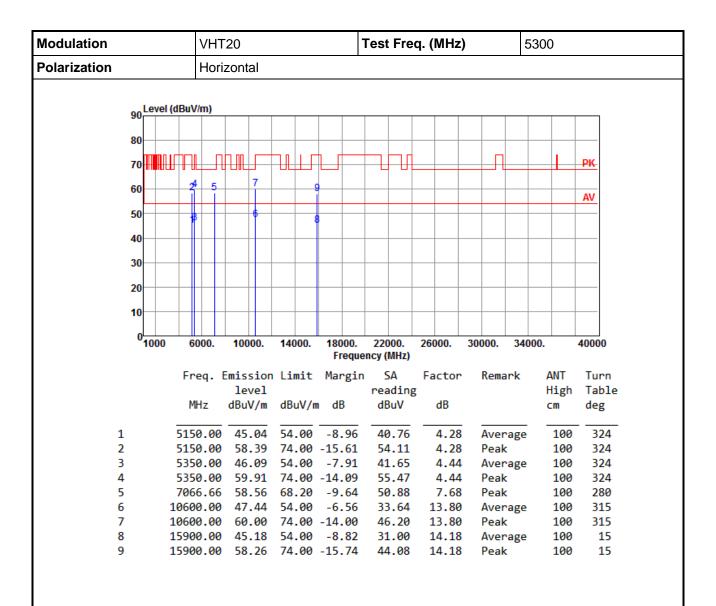


*Factor includes antenna factor, cable loss and amplifier gain

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

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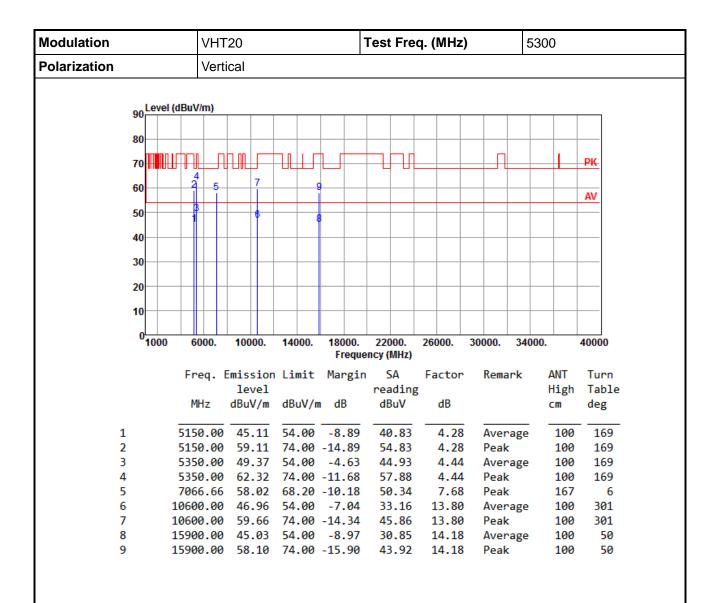


*Factor includes antenna factor, cable loss and amplifier gain

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

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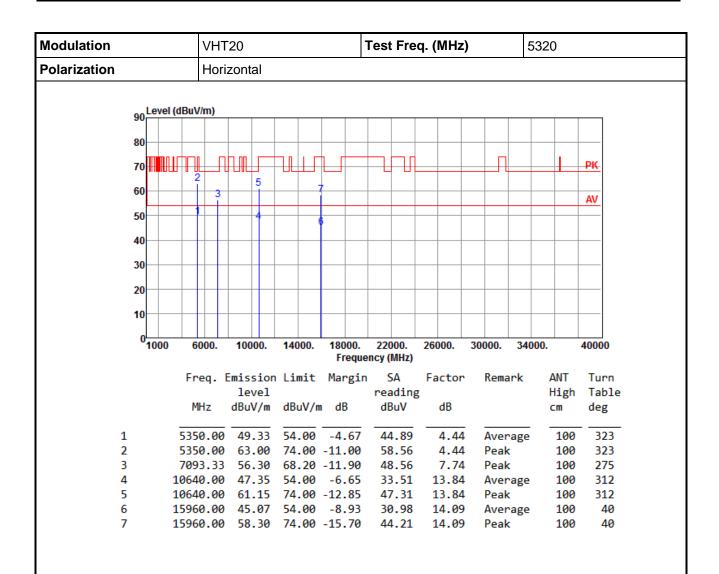


*Factor includes antenna factor, cable loss and amplifier gain

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

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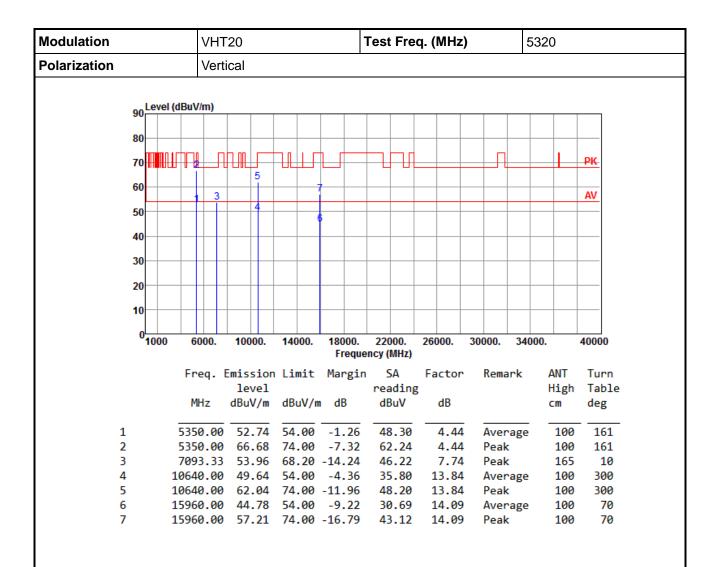


*Factor includes antenna factor, cable loss and amplifier gain

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

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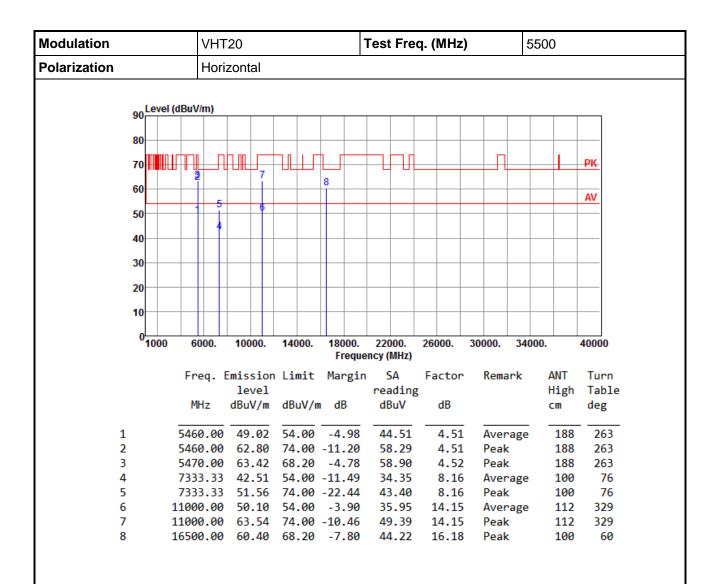


*Factor includes antenna factor, cable loss and amplifier gain

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

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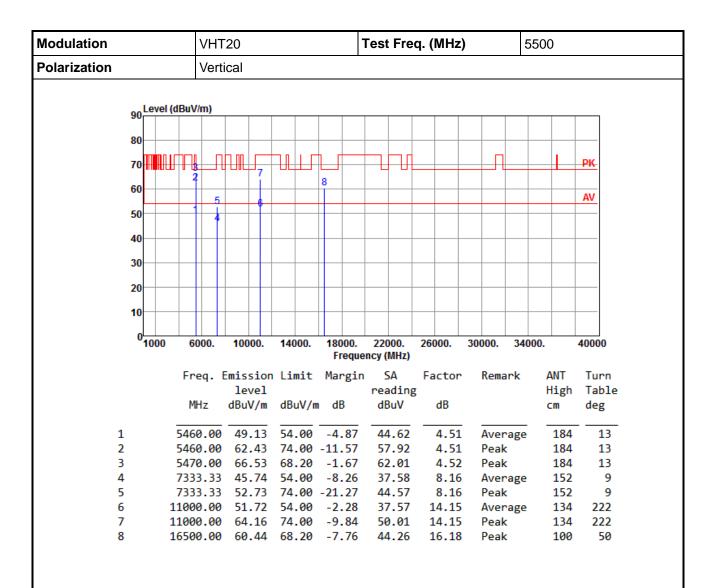


*Factor includes antenna factor, cable loss and amplifier gain

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

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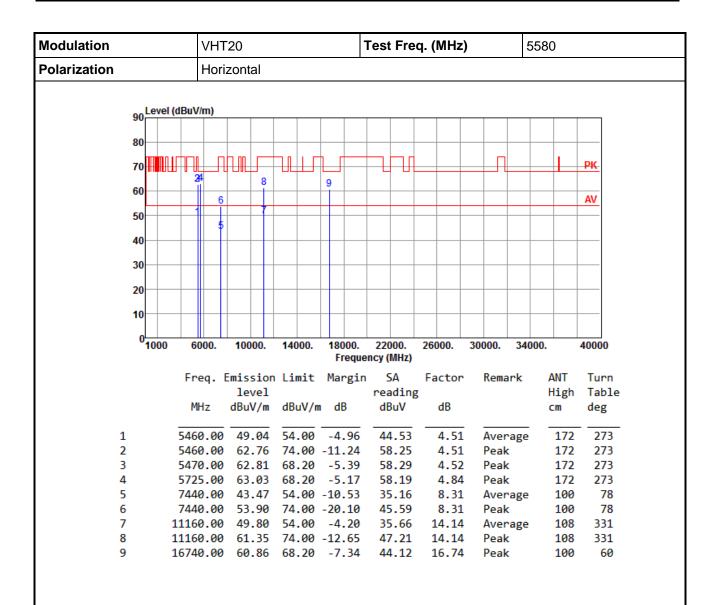


*Factor includes antenna factor, cable loss and amplifier gain

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

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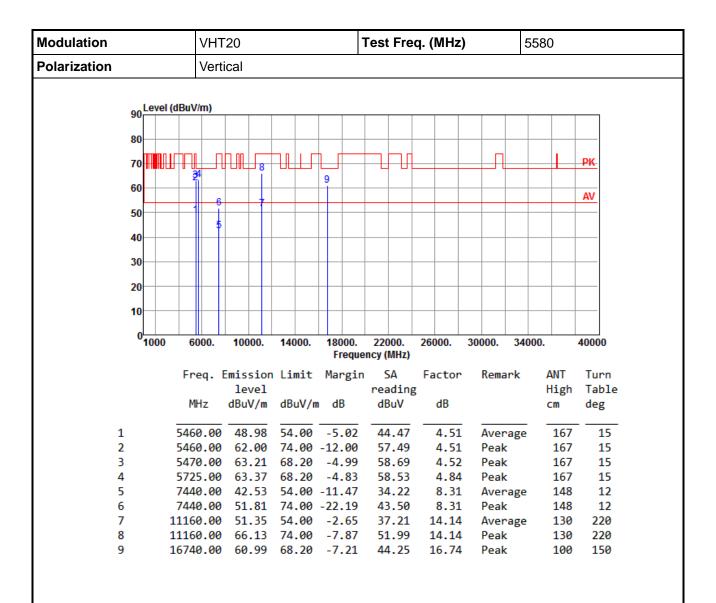


*Factor includes antenna factor, cable loss and amplifier gain

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

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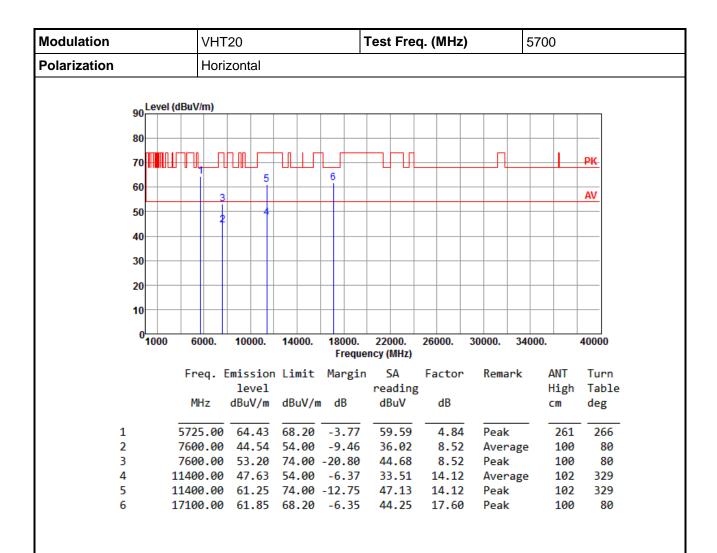


*Factor includes antenna factor, cable loss and amplifier gain

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

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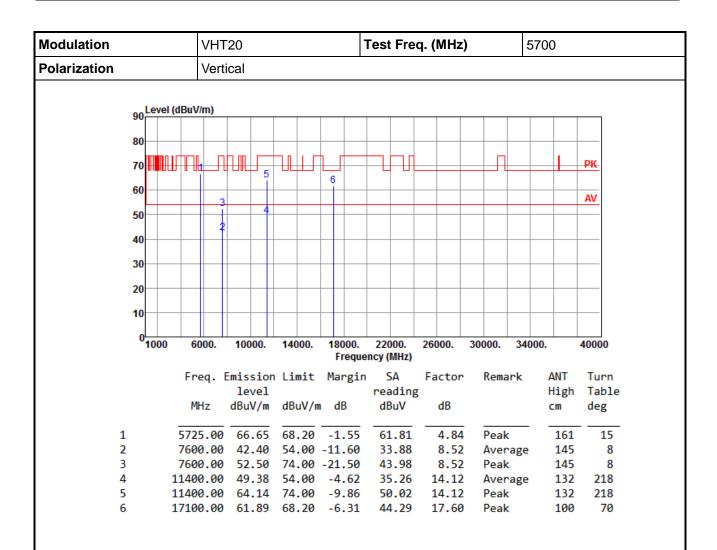


*Factor includes antenna factor, cable loss and amplifier gain

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

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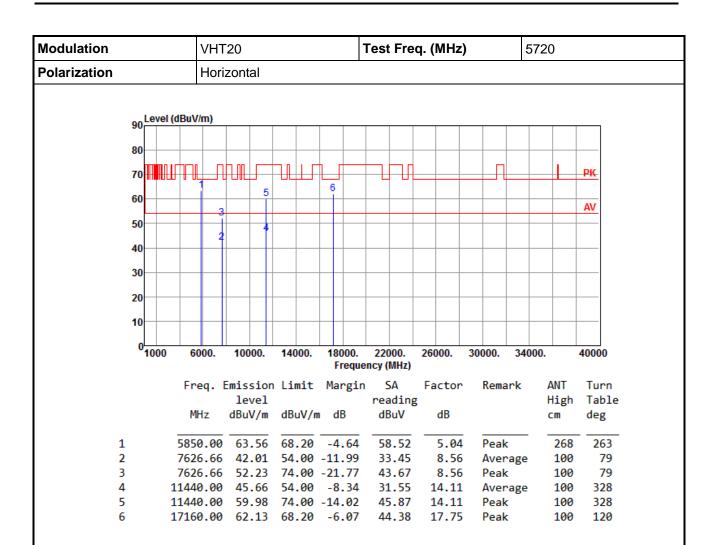


*Factor includes antenna factor, cable loss and amplifier gain

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

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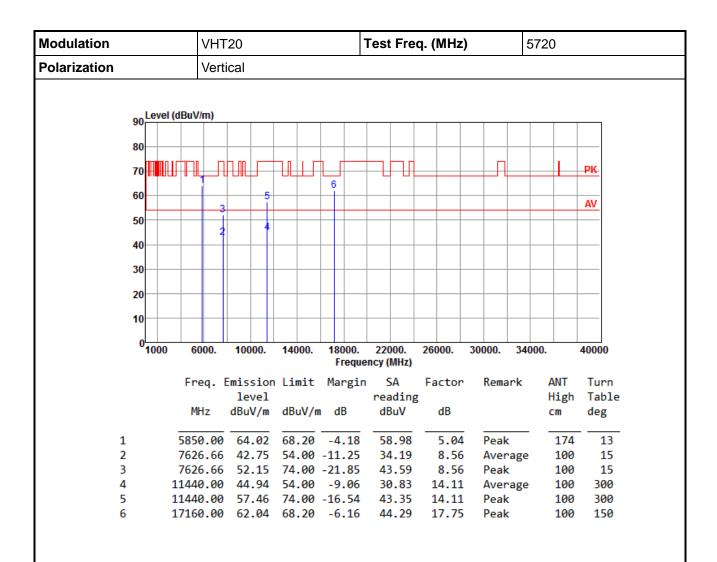


*Factor includes antenna factor, cable loss and amplifier gain

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

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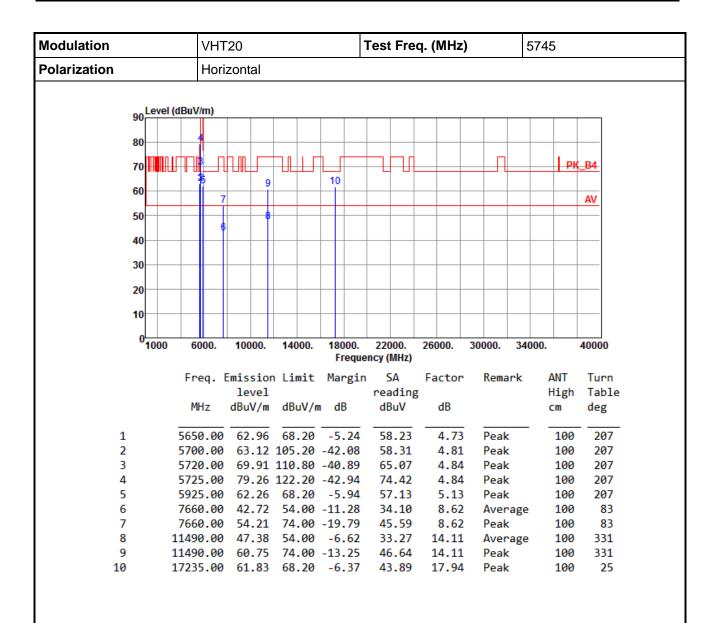


*Factor includes antenna factor, cable loss and amplifier gain

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

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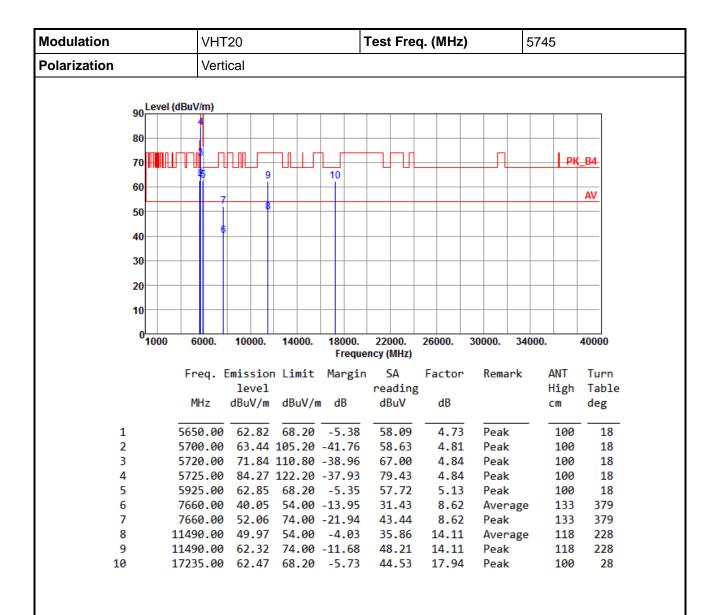


*Factor includes antenna factor, cable loss and amplifier gain

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

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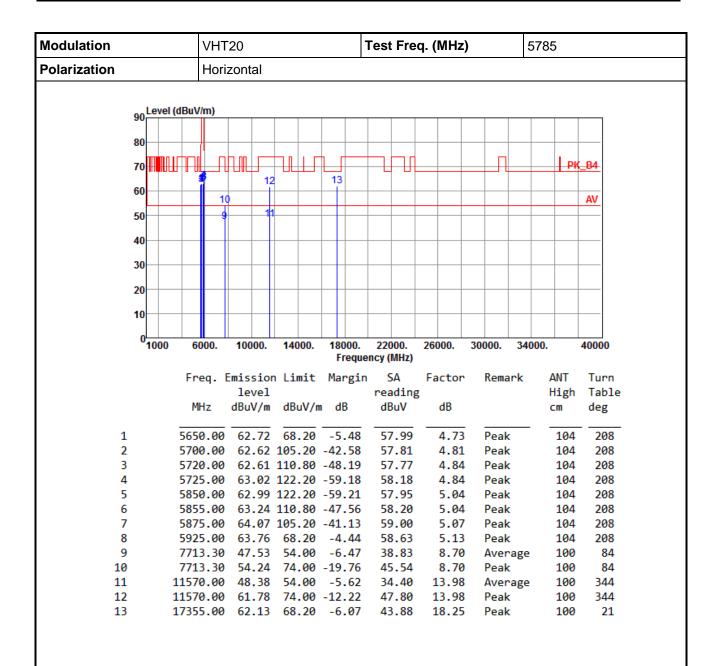


*Factor includes antenna factor, cable loss and amplifier gain

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

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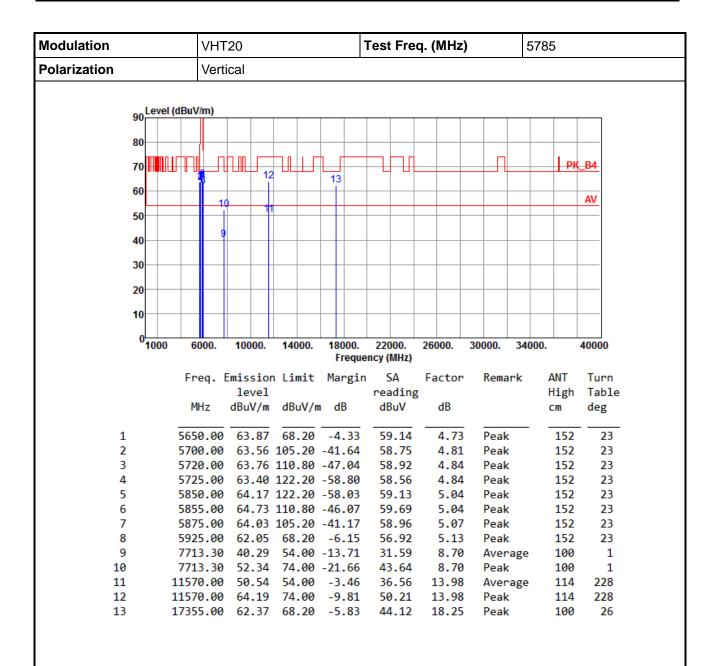


*Factor includes antenna factor, cable loss and amplifier gain

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

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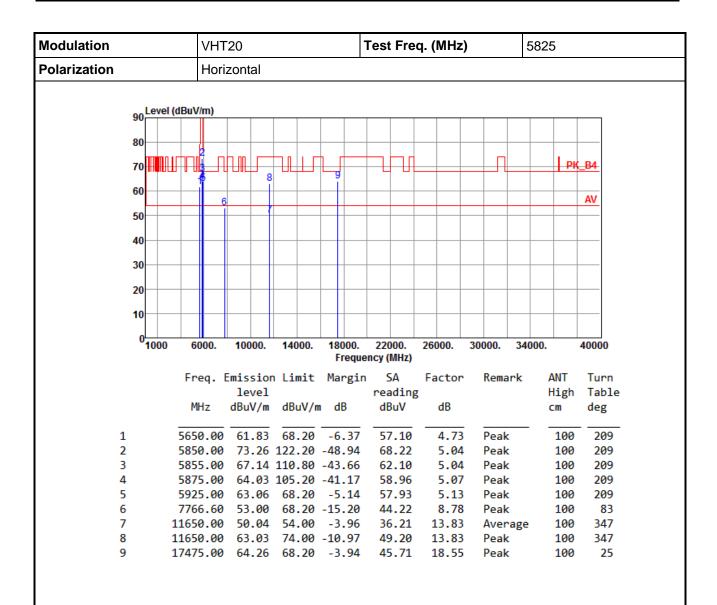


*Factor includes antenna factor, cable loss and amplifier gain

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

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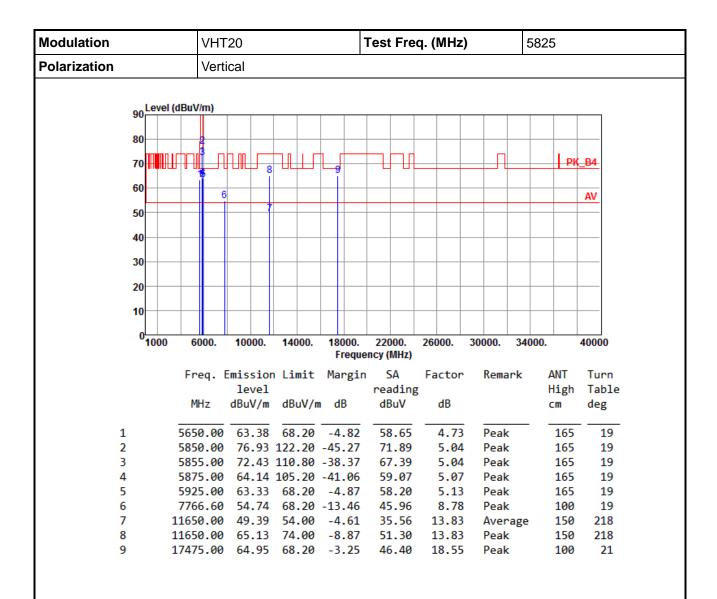


*Factor includes antenna factor, cable loss and amplifier gain

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

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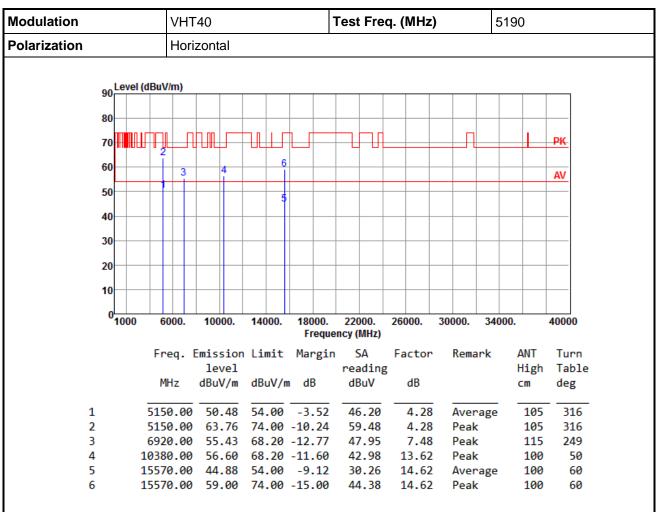
*Factor includes antenna factor, cable loss and amplifier gain

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

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



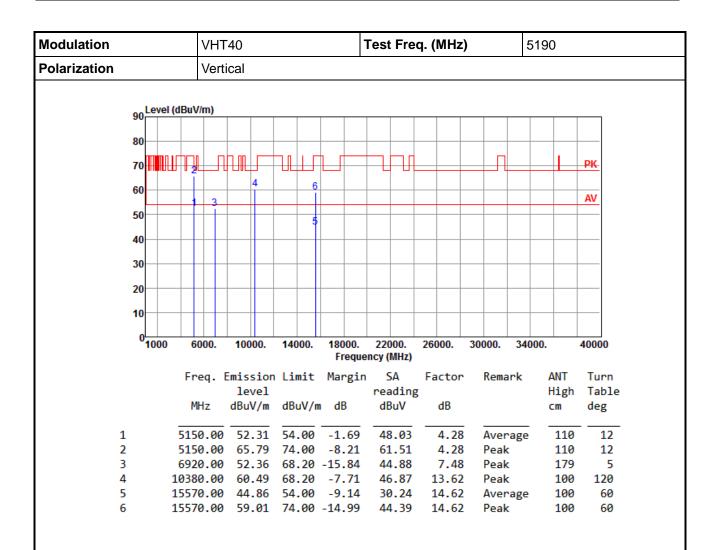
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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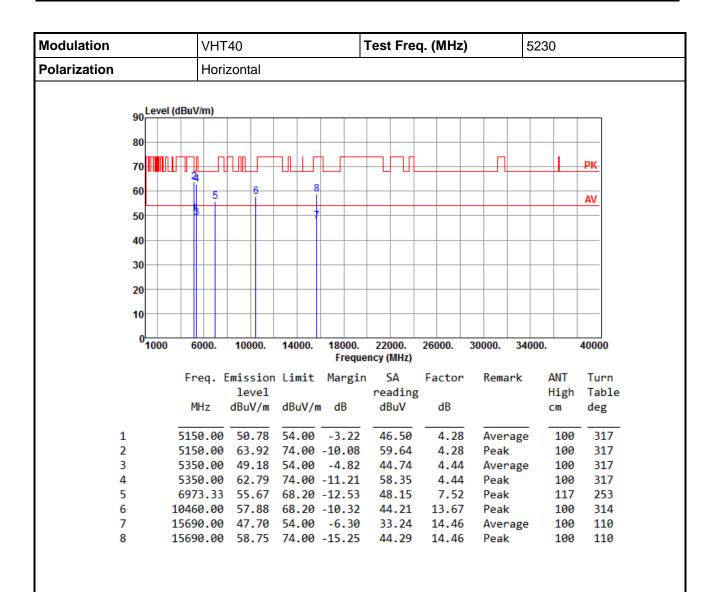


*Factor includes antenna factor, cable loss and amplifier gain

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

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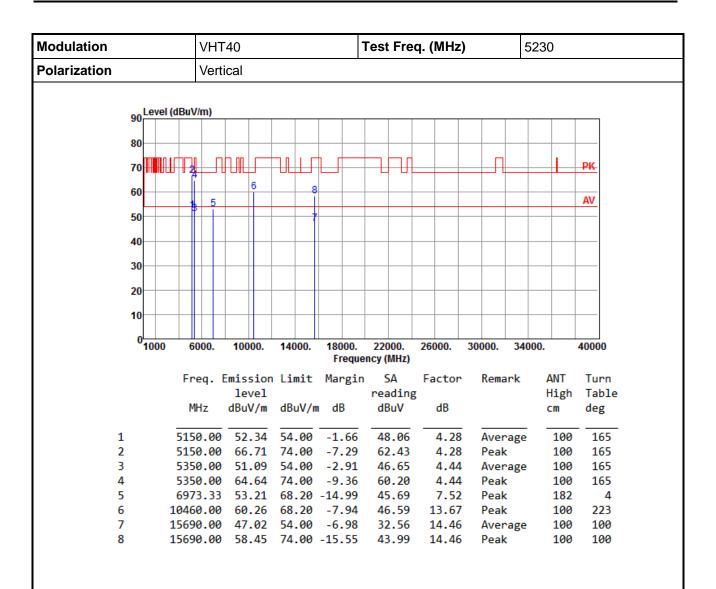


*Factor includes antenna factor, cable loss and amplifier gain

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

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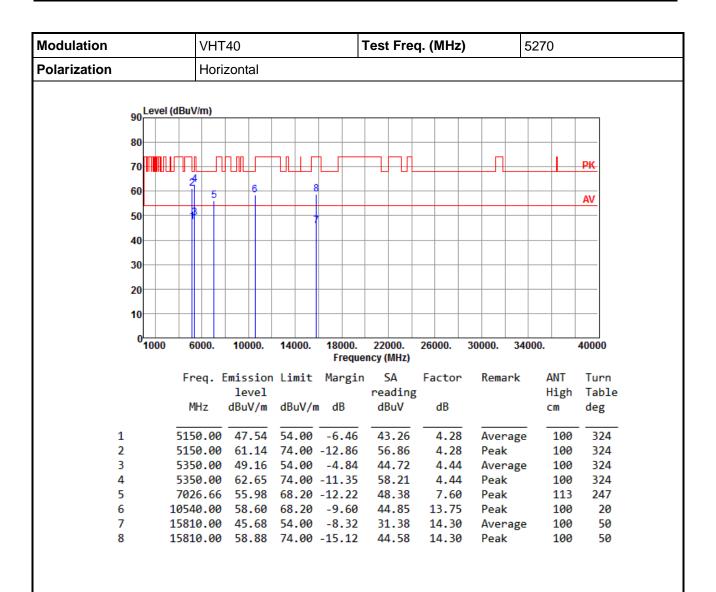


*Factor includes antenna factor, cable loss and amplifier gain

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

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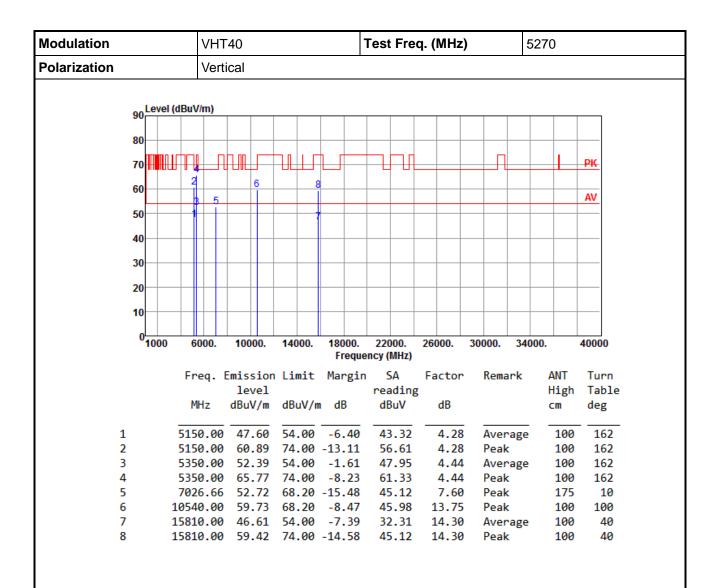


*Factor includes antenna factor, cable loss and amplifier gain

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

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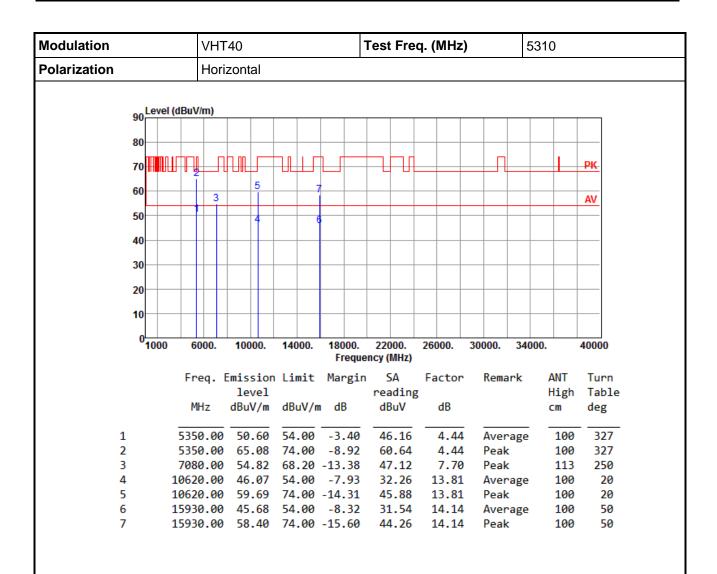


*Factor includes antenna factor, cable loss and amplifier gain

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

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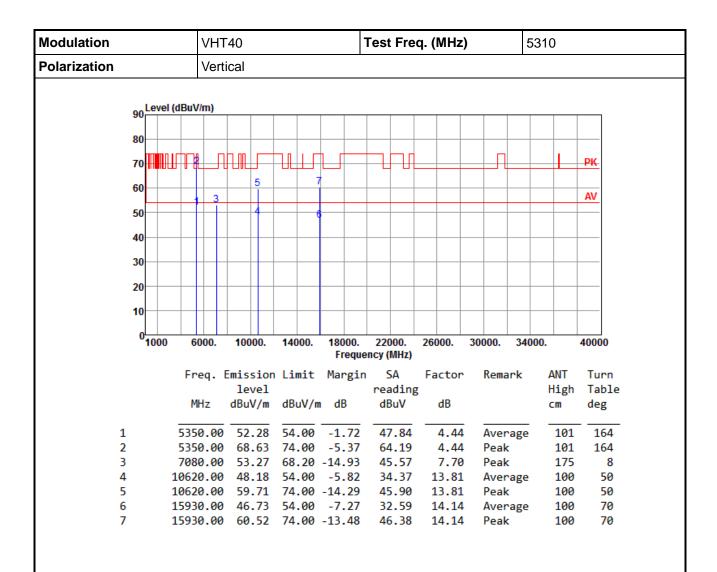


*Factor includes antenna factor, cable loss and amplifier gain

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

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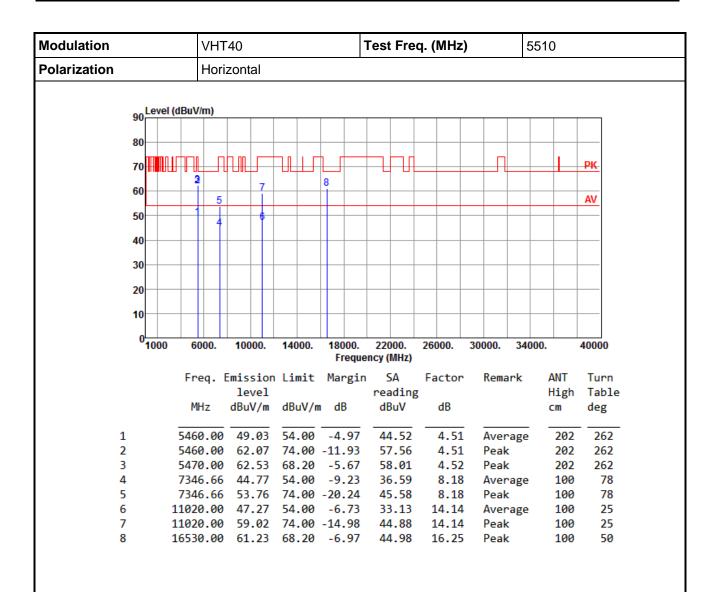


*Factor includes antenna factor, cable loss and amplifier gain

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

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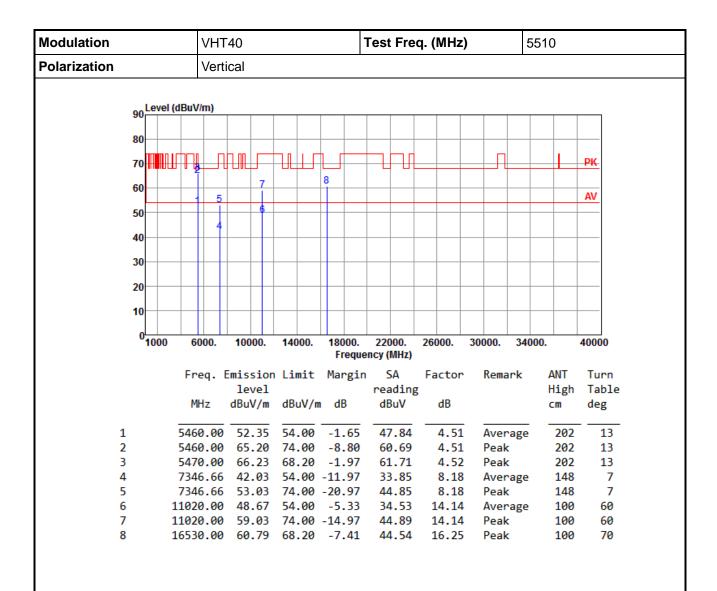


*Factor includes antenna factor, cable loss and amplifier gain

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

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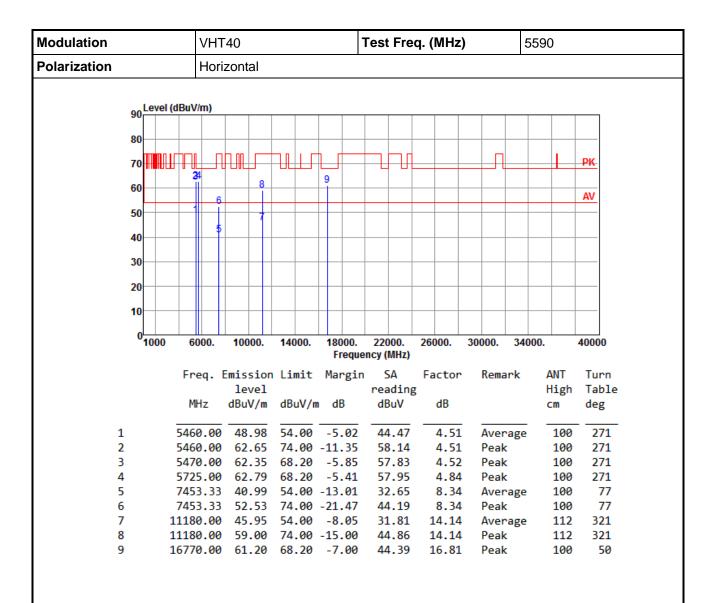


*Factor includes antenna factor, cable loss and amplifier gain

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

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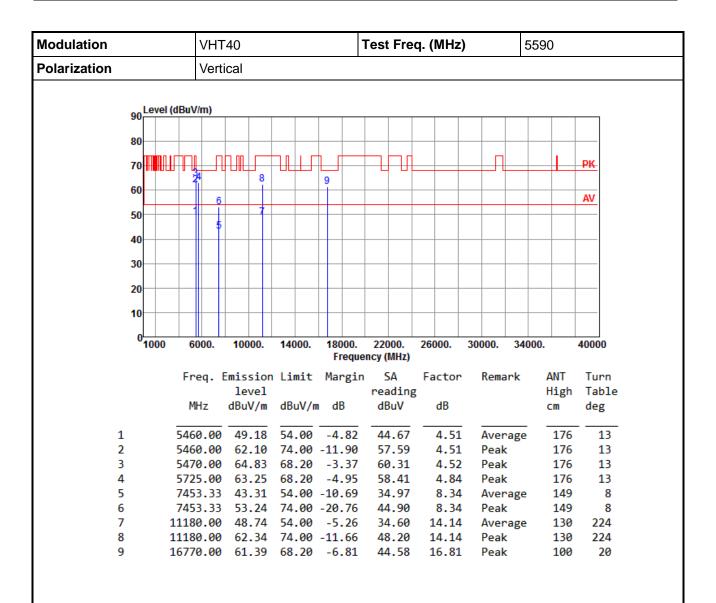


*Factor includes antenna factor, cable loss and amplifier gain

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

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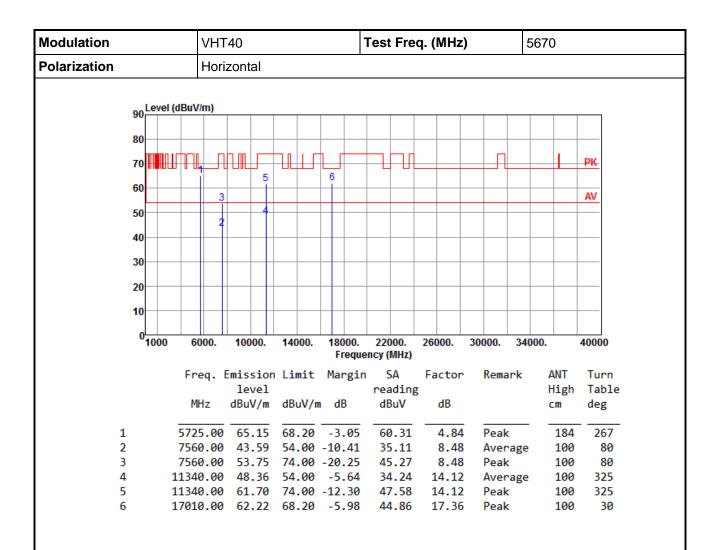


*Factor includes antenna factor, cable loss and amplifier gain

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

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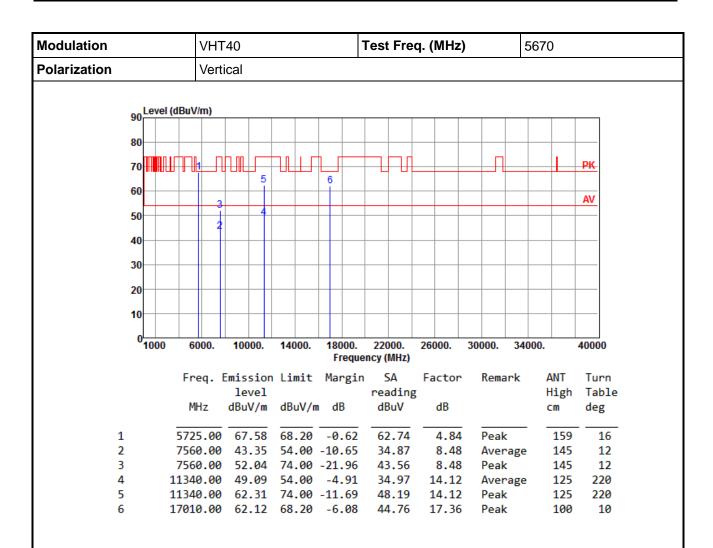


*Factor includes antenna factor, cable loss and amplifier gain

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

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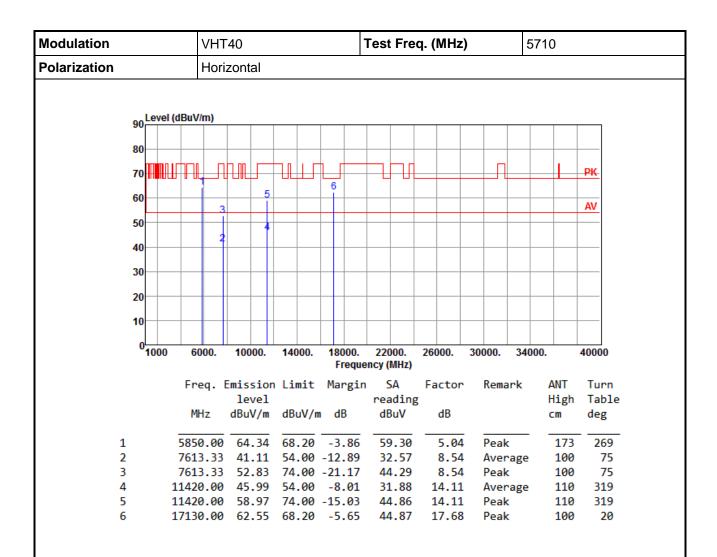


*Factor includes antenna factor, cable loss and amplifier gain

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

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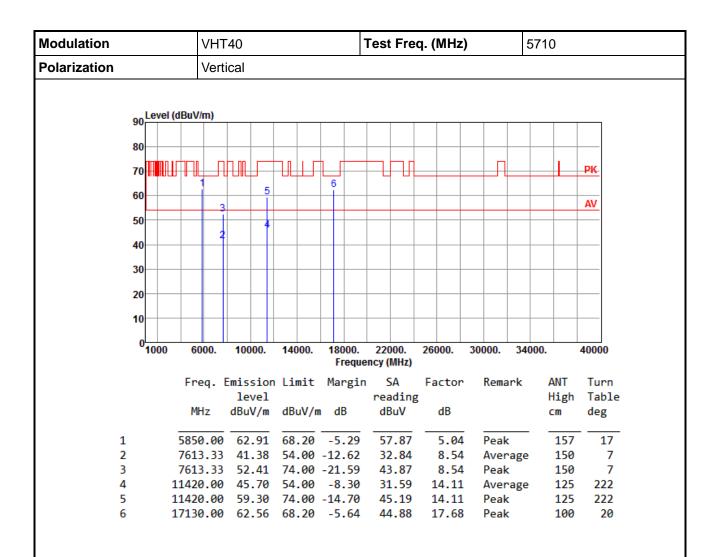


*Factor includes antenna factor, cable loss and amplifier gain

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

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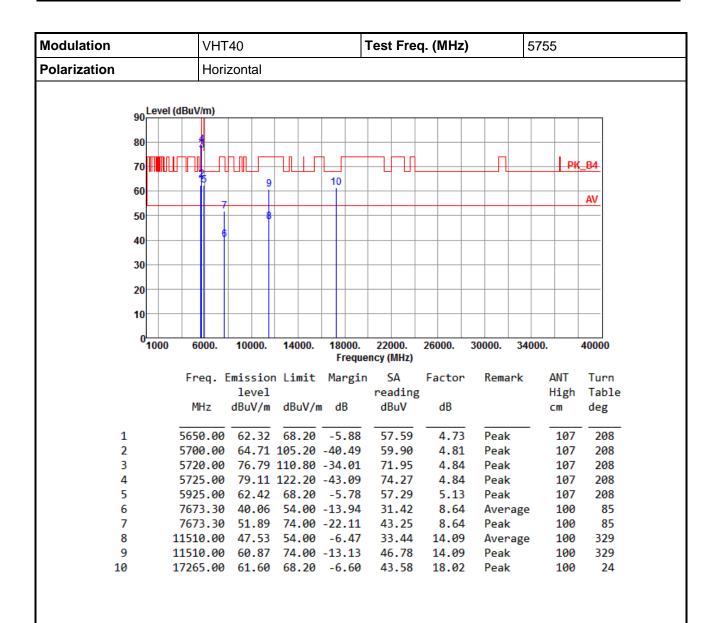


*Factor includes antenna factor, cable loss and amplifier gain

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

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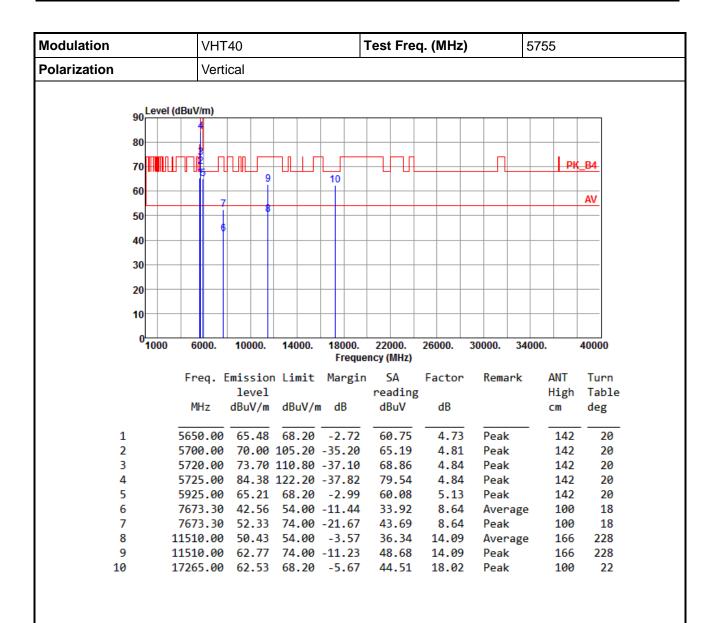


*Factor includes antenna factor, cable loss and amplifier gain

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

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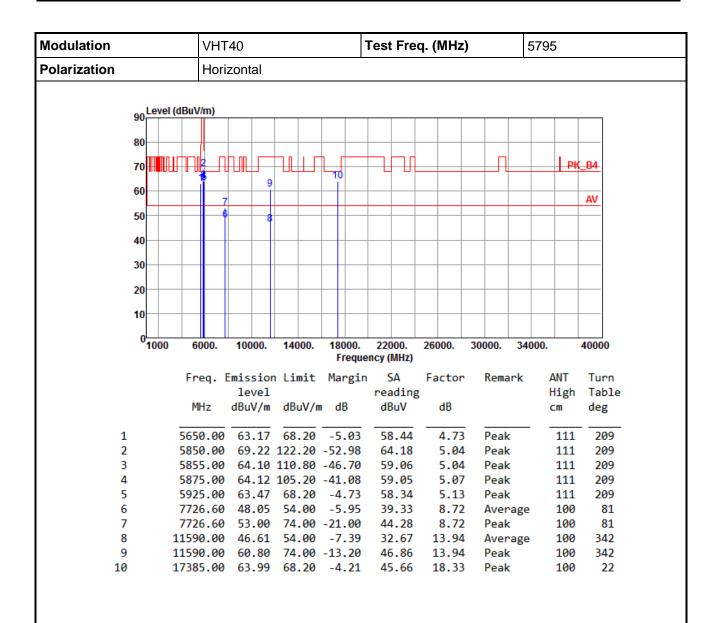


*Factor includes antenna factor, cable loss and amplifier gain

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

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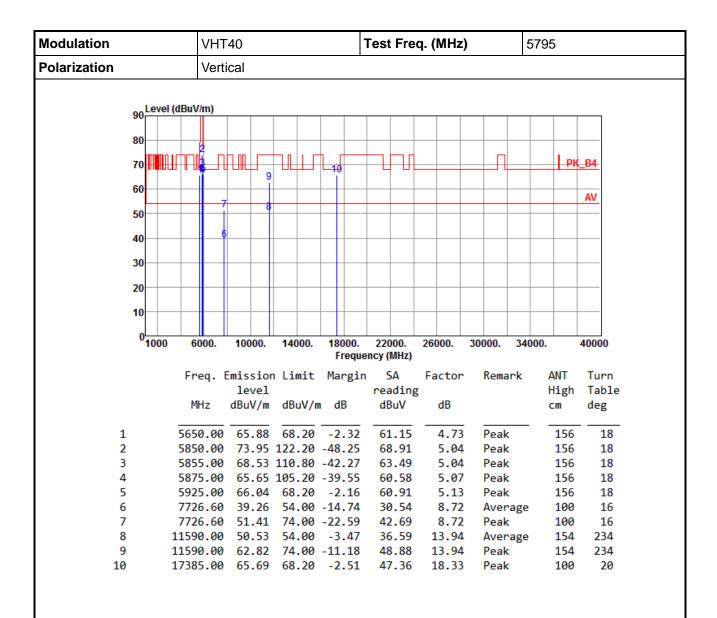


*Factor includes antenna factor, cable loss and amplifier gain

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

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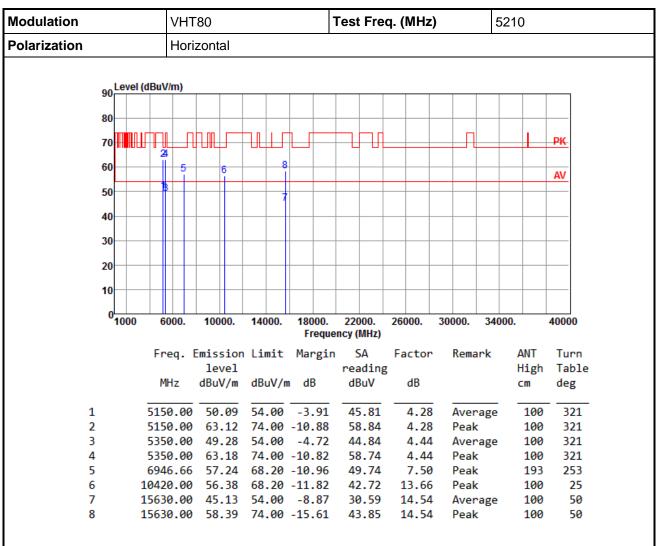
*Factor includes antenna factor, cable loss and amplifier gain

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

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



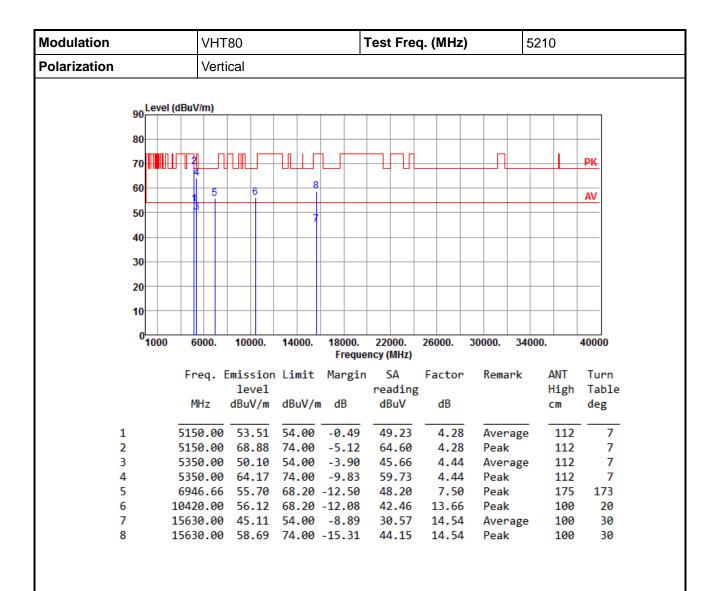
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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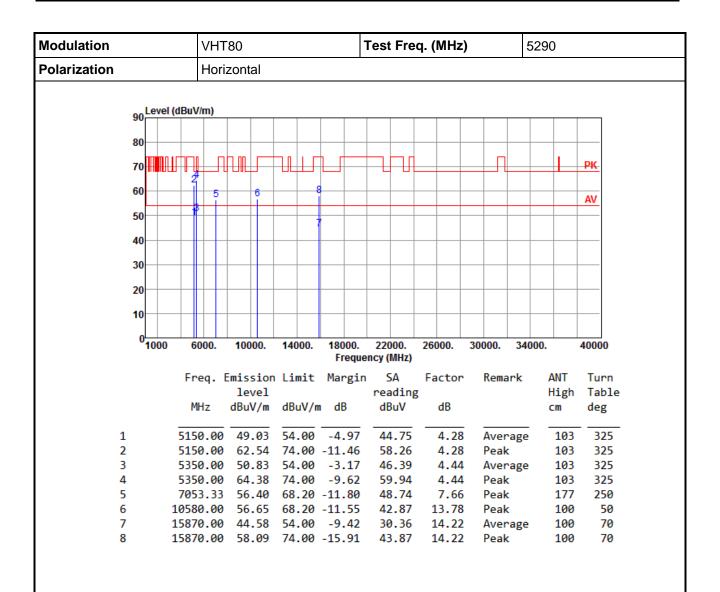


*Factor includes antenna factor, cable loss and amplifier gain

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

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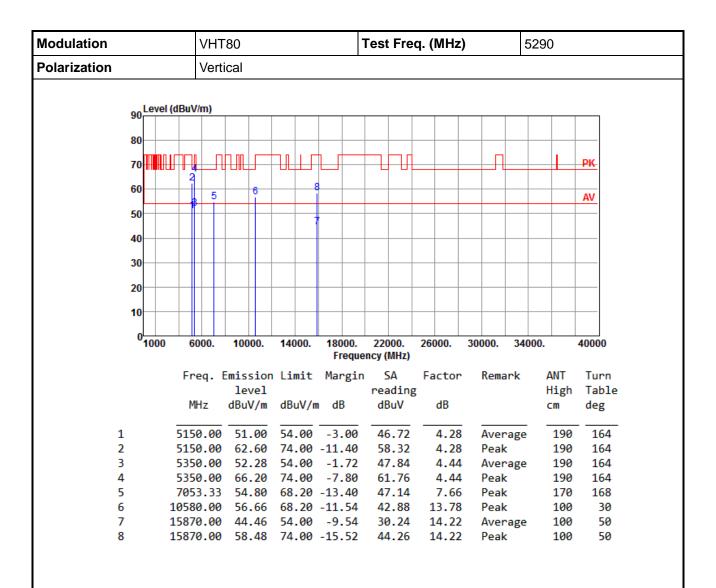


*Factor includes antenna factor, cable loss and amplifier gain

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

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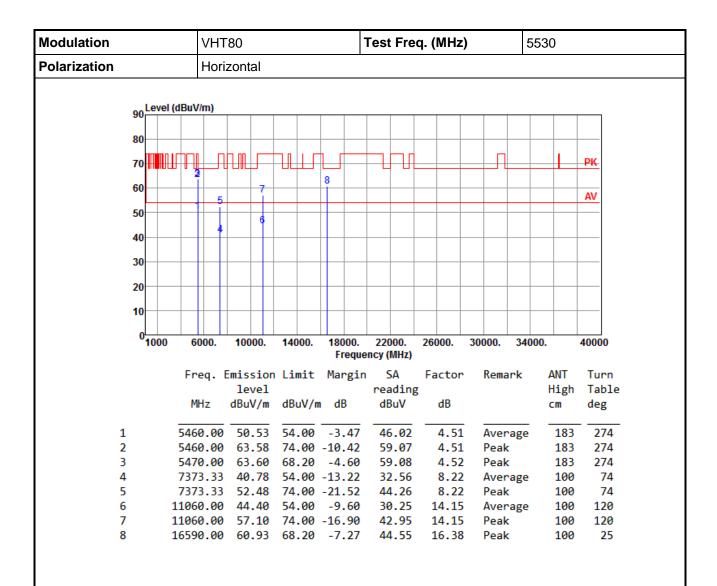


*Factor includes antenna factor, cable loss and amplifier gain

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

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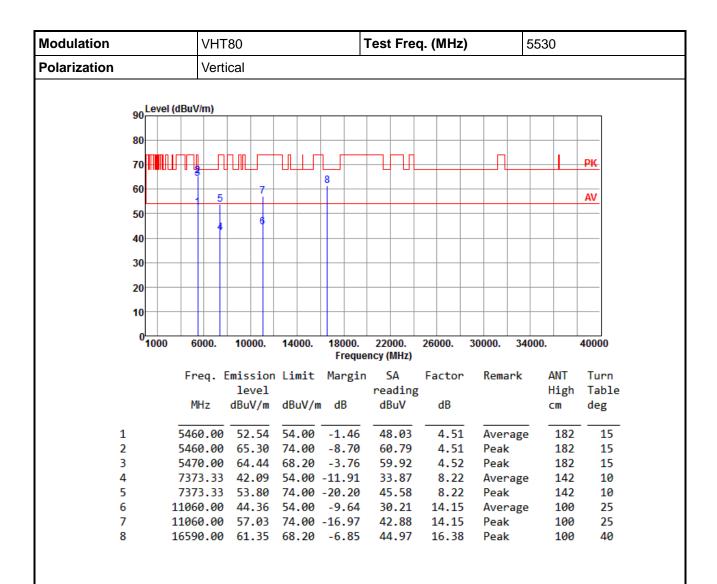


*Factor includes antenna factor, cable loss and amplifier gain

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

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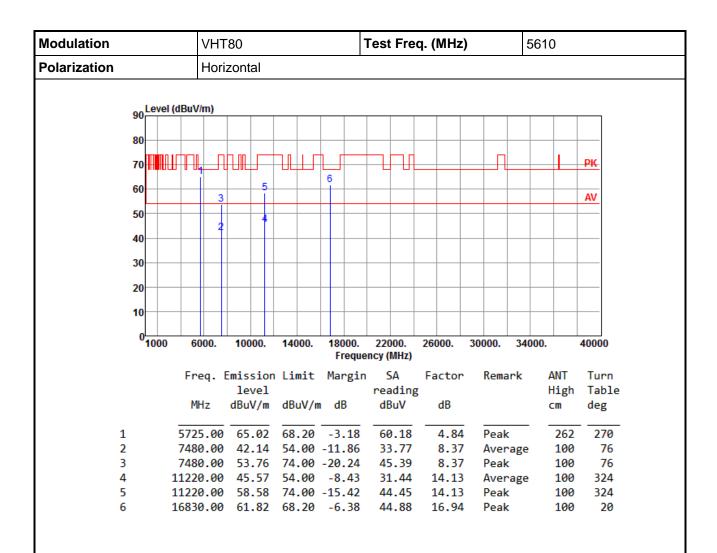


*Factor includes antenna factor, cable loss and amplifier gain

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

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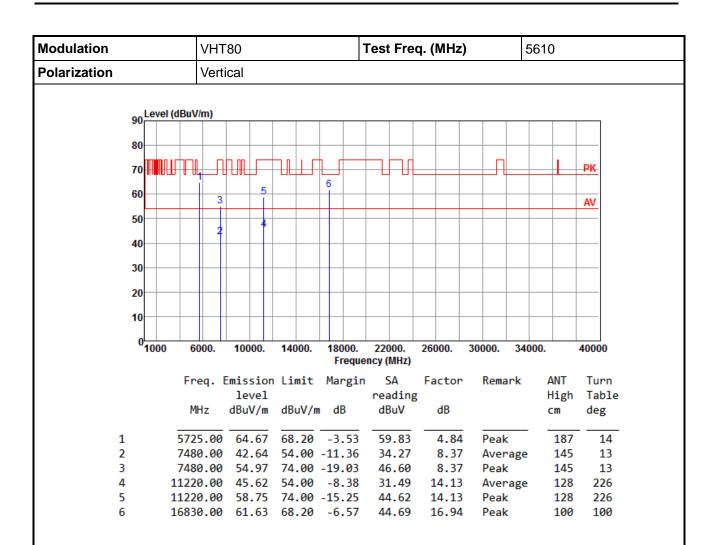


*Factor includes antenna factor, cable loss and amplifier gain

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

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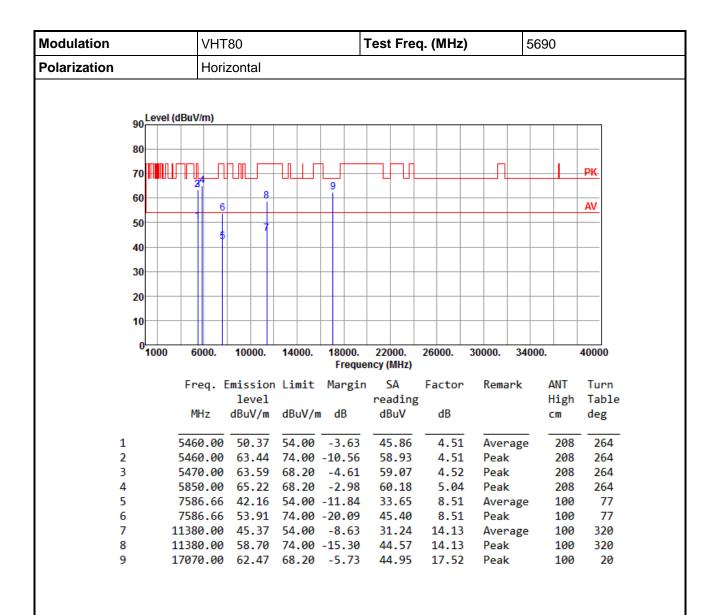


*Factor includes antenna factor, cable loss and amplifier gain

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

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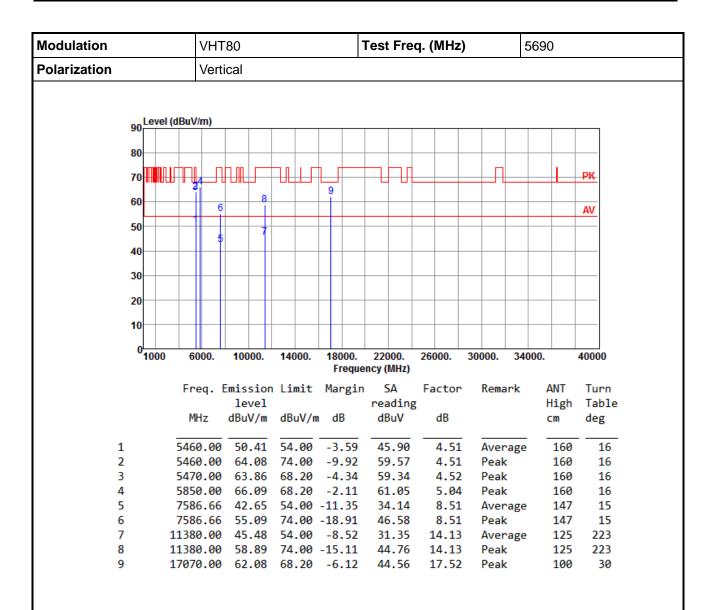


*Factor includes antenna factor, cable loss and amplifier gain

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

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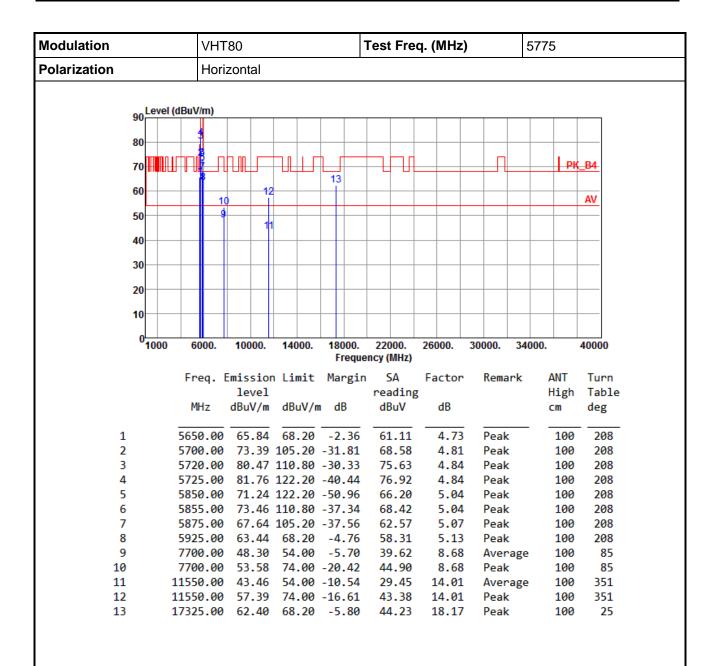


*Factor includes antenna factor, cable loss and amplifier gain

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

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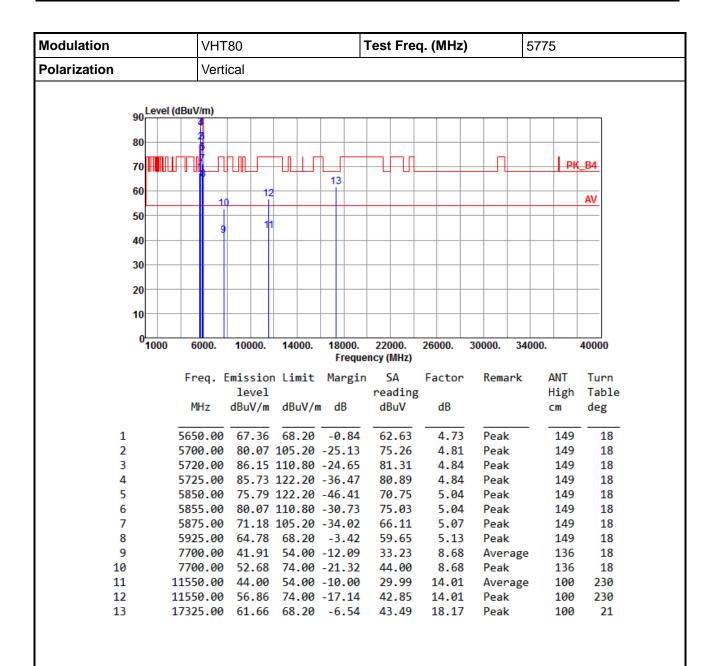


*Factor includes antenna factor, cable loss and amplifier gain

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

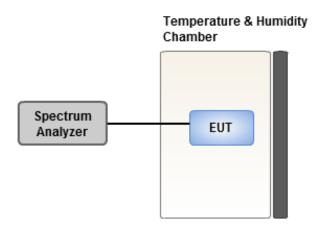
3.6.1 Limit of Frequency Stability

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.
- 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 minutes	10 minutes
T20°CVmax	5.19	5.56	6.03	5.33
T20°CVmin	4.21	4.65	4.23	4.22
T50CVnom	3.30	4.13	3.43	3.65
T40°CVnom	3.78	4.18	3.98	4.01
T30°CVnom	3.44	3.79	3.35	4.24
T20°CVnom	2.36	2.05	1.99	2.49
T10°CVnom	2.01	2.22	2.79	2.57
T0°CVnom	3.40	3.77	2.91	3.20
T-10°CVnom	2.47	2.82	3.02	2.99
T-20°CVnom	0.94	1.73	0.91	1.46
T-30°CVnom	0.22	1.04	-0.13	-0.18
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 50		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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