

FCC Test Report

Report No.: RFBDYS-WTW-P21030719-1

FCC ID: 2AKCZ-107

Test Model: APL67-107

Received Date: Mar. 26, 2021

Test Date: Apr. 06 ~ Jun. 28, 2021

Issued Date: Sep. 08, 2021

Applicant: SonicWall Inc.

Address: 1033 McCarthy Blvd., Milpitas, CA 95035, USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN

FCC Registration / 788550 / TW0003
Designation Number:



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specifically mentioned, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

Table of Contents

Release Control Record	4
1 Certificate of Conformity.....	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information.....	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	10
3.2.1 Test Mode Applicability and Tested Channel Detail.....	11
3.3 Duty Cycle of Test Signal	14
3.4 Description of Support Units	16
3.4.1 Configuration of System under Test	16
3.5 General Description of Applied Standards and References	16
4 Test Types and Results	18
4.1 Radiated Emission and Bandedge Measurement.....	18
4.1.1 Limits of Radiated Emission and Bandedge Measurement	18
4.1.2 Test Instruments	19
4.1.3 Test Procedures.....	20
4.1.4 Deviation from Test Standard	21
4.1.5 Test Setup.....	21
4.1.6 EUT Operating Conditions.....	22
4.1.7 Test Results	23
4.2 Conducted Emission Measurement	67
4.2.1 Limits of Conducted Emission Measurement	67
4.2.2 Test Instruments	67
4.2.3 Test Procedures.....	68
4.2.4 Deviation from Test Standard	68
4.2.5 Test Setup.....	68
4.2.6 EUT Operating Conditions.....	68
4.2.7 Test Results	69
4.3 Transmit Power Measurement	77
4.3.1 Limits of Transmit Power Measurement	77
4.3.2 Test Setup.....	77
4.3.3 Test Instruments	77
4.3.4 Test Procedure	77
4.3.5 Deviation from Test Standard	77
4.3.6 EUT Operating Conditions.....	77
4.3.7 Test Result.....	78
4.4 Occupied Bandwidth Measurement	83
4.4.1 Test Setup.....	83
4.4.2 Test Instruments	83
4.4.3 Test Procedure	83
4.4.4 Test Result.....	84
4.5 Peak Power Spectral Density Measurement	93
4.5.1 Limits of Peak Power Spectral Density Measurement	93
4.5.2 Test Setup.....	93
4.5.3 Test Instruments	93
4.5.4 Test Procedures.....	93
4.5.5 Deviation from Test Standard	94
4.5.6 EUT Operating Conditions.....	94
4.5.7 Test Results	95
4.6 Frequency Stability.....	105
4.6.1 Limits of Frequency Stability Measurement	105

4.6.2 Test Setup	105
4.6.3 Test Instruments	105
4.6.4 Test Procedure	105
4.6.5 Deviation from Test Standard	106
4.6.6 EUT Operating Condition	106
4.6.7 Test Results	106
4.7 6dB Bandwidth Measurement	108
4.7.1 Limits of 6dB Bandwidth Measurement	108
4.7.2 Test Setup	108
4.7.3 Test Instruments	108
4.7.4 Test Procedure	108
4.7.5 Deviation from Test Standard	108
4.7.6 EUT Operating Condition	108
4.7.7 Test Results	109
5 Pictures of Test Arrangements	113
Annex A - Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)	114
Annex B - Band Edge Measurement	120
Appendix – Information of the Testing Laboratories	128

Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P21030719-1	Original Release	Sep. 08, 2021

1 Certificate of Conformity

Product: Wireless Access Point

Brand: SONICWALL

Test Model: APL67-107

Sample Status: Engineering Sample

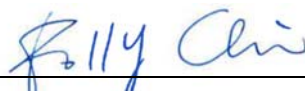
Applicant: SonicWall Inc.

Test Date: Apr. 06 ~ Jun. 28, 2021

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :


Polly Chen / Specialist

Date:

Sep. 08, 2021

Approved by :


Bruce Chen / Senior Engineer

Date:

Sep. 08, 2021

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(8)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.30dB at 0.51879MHz.
15.407(b)(1/2/3/4(i/ii)/8)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.9dB at 5150.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector are I-PEX not a standard connector.

Note:

- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- For U-NII-1 band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Access Point
Brand	SONICWALL
Test Model	APL67-107
Sample Status	Engineering sample
Power Supply Rating	12Vdc from Adapter 54Vdc from POE
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to 600Mbps 802.11ac (VHT20/40/80): up to 800Mbps 802.11ax: up to 2402Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5G traffic radio (Radio 2): 5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 4 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 5 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 Scanning radio (Radio 3): 5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1

Output Power	5G traffic radio (Radio 1): CDD Mode: 5180 ~ 5240MHz: 388.710mW 5745 ~ 5825MHz: 652.367mW Beamforming Mode: 5180 ~ 5240MHz: 343.651mW 5745 ~ 5825MHz: 346.269mW Scanning radio (Radio 3): CDD Mode: 5180 ~ 5240MHz: 16.827mW 5745 ~ 5825MHz: 17.100mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Radio	Modulation Mode	Beamforming Mode	TX Function
5G traffic radio (Radio 1)	802.11a	Not Support	4TX
	802.11n (HT20)	Support	4TX
	802.11n (HT40)	Support	4TX
	802.11ac (VHT20)	Support	4TX
	802.11ac (VHT40)	Support	4TX
	802.11ac (VHT80)	Support	4TX
	802.11ax (HE20)	Support	4TX
	802.11ax (HE40)	Support	4TX
	802.11ax (HE80)	Support	4TX
Scanning radio (Radio 3)	802.11a	Not Support	1TX
	802.11n (HT20)	Not Support	1TX
	802.11n (HT40)	Not Support	1TX
	802.11ac (VHT20)	Not Support	1TX
	802.11ac (VHT40)	Not Support	1TX
	802.11ac (VHT80)	Not Support	1TX

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40/VHT80 on 802.11ac mode and HE20/HE40/HE80 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

2. The EUT consumes power from the following adapter and PoE.

Adapter (Support unit only)	
Brand	Sunny
Model	SYS1546-3612-T3
Input Power	100-240Vac, 1.5A MAX, 50-60Hz
Output Power	12Vdc, 3.0A
Power cord	Non-shielded AC (1.77m) Non-shielded DC (1.86m) with one core

POE (Support unit only)	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 0.8A, 50-60Hz
Output Power	54Vdc, 0.6A
Power cord	Non-shielded AC (0.5m)

3. The following antennas were provided to the EUT.

Antenna Type	PIFA					
Antenna Connector	I-PEX					
Antenna No.	Gain (dBi)					
	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
2G1	3.34	3.54	3.44	-	-	-
2G2	3.51	4.29	4.46	-	-	-
2G3	2.71	2.94	2.96	-	-	-
2G4	2.64	3.69	3.86	-	-	-
5G1	-	-	-	4.94	4.03	4.33
5G2	-	-	-	4.24	3.68	3.66
5G3	-	-	-	3.65	4.82	4.28
5G4	-	-	-	4.44	5.01	5.74
Scan	3.98	2.98	2.74	4.95	3.32	3.79
BLE	3.56	3.13	3.02	-	-	-

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

4. The simultaneous operation mode was determined by client.

No	Mode
1	2GHz traffic radio (Radio 2) + 5GHz traffic radio (Radio 1) + 5GHz Scanning radio (Radio 3) + BLE
2	5GHz traffic radio (Radio 1) + 2GHz Scanning radio (Radio 3) + BLE

* 5GHz traffic radio (Radio 1) and 5GHz Scanning radio (Radio 3) cannot transmit in the same band at same time.

* 2GHz traffic radio (Radio 2) and 2GHz Scanning radio (Radio 3) cannot transmit at same time.

* Spurious emission of the simultaneous operation has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency
42	5210MHz

For 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT power from adapter
B	-	√	√	-	EUT power from PoE

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement
PLC: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum power mode.
3. "-" means no effect.

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	Radio 1
	802.11ax (HE20)		36 to 48	36, 40, 48	OFDMA	MCS0	
	802.11ax (HE40)		38 to 46	38, 46	OFDMA	MCS0	
	802.11ax (HE80)		42	42	OFDMA	MCS0	
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	Radio 1
	802.11ax (HE20)		149 to 165	149, 157, 165	OFDMA	MCS0	
	802.11ax (HE40)		151 to 159	151, 159	OFDMA	MCS0	
	802.11ax (HE80)		155	155	OFDMA	MCS0	
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	Radio 3
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2	
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0	
	802.11ac (VHT80)		42	42	OFDM	29.3	
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	Radio 3
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2	
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0	
	802.11ac (VHT80)		155	155	OFDM	29.3	

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B	802.11ax (HE20)	5745-5825	149 to 165	157	OFDMA	MCS0	Radio 1
A, B	802.11ac (VHT80)	5745-5825	155	155	OFDM	29.3	Radio 3

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B	802.11ax (HE20)	5745-5825	149 to 165	157	OFDMA	MCS0	Radio 1
A, B	802.11ac (VHT80)	5745-5825	155	155	OFDM	29.3	Radio 3

Transmit Power Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	Radio 1
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2	
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0	
	802.11ac (VHT80)		42	42	OFDM	29.3	
	802.11ax (HE20)		36 to 48	36, 40, 48	OFDMA	MCS0	
	802.11ax (HE40)		38 to 46	38, 46	OFDMA	MCS0	
	802.11ax (HE80)		42	42	OFDMA	MCS0	
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2	
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0	
	802.11ac (VHT80)		155	155	OFDM	29.3	
	802.11ax (HE20)		149 to 165	149, 157, 165	OFDMA	MCS0	
	802.11ax (HE40)		151 to 159	151, 159	OFDMA	MCS0	
	802.11ax (HE80)		155	155	OFDMA	MCS0	

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	Radio 3
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2	
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0	
	802.11ac (VHT80)		42	42	OFDM	29.3	
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2	
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0	
	802.11ac (VHT80)		155	155	OFDM	29.3	

Bandwidth, Power Spectral Density and Frequency Stability Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	Radio 1
	802.11ax (HE20)		36 to 48	36, 40, 48	OFDMA	MCS0	
	802.11ax (HE40)		38 to 46	38, 46	OFDMA	MCS0	
	802.11ax (HE80)		42	42	OFDMA	MCS0	
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	
	802.11ax (HE20)		149 to 165	149, 157, 165	OFDMA	MCS0	
	802.11ax (HE40)		151 to 159	151, 159	OFDMA	MCS0	
	802.11ax (HE80)		155	155	OFDMA	MCS0	
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	Radio 3
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	7.2	
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	15.0	
	802.11ac (VHT80)		42	42	OFDM	29.3	
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	7.2	
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	15.0	
	802.11ac (VHT80)		155	155	OFDM	29.3	

Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE $\geq$ 1G	23 deg. C, 66% RH	120Vac, 60Hz	Titan Hsu, Edison Lee
RE<1G	23 deg. C, 66% RH	120Vac, 60Hz 54Vdc	Titan Hsu
PLC	25 deg. C, 75% RH	120Vac, 60Hz 54Vdc	Rex Wang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Jisyong Wang

3.3 Duty Cycle of Test Signal

5G traffic radio (Radio 1)

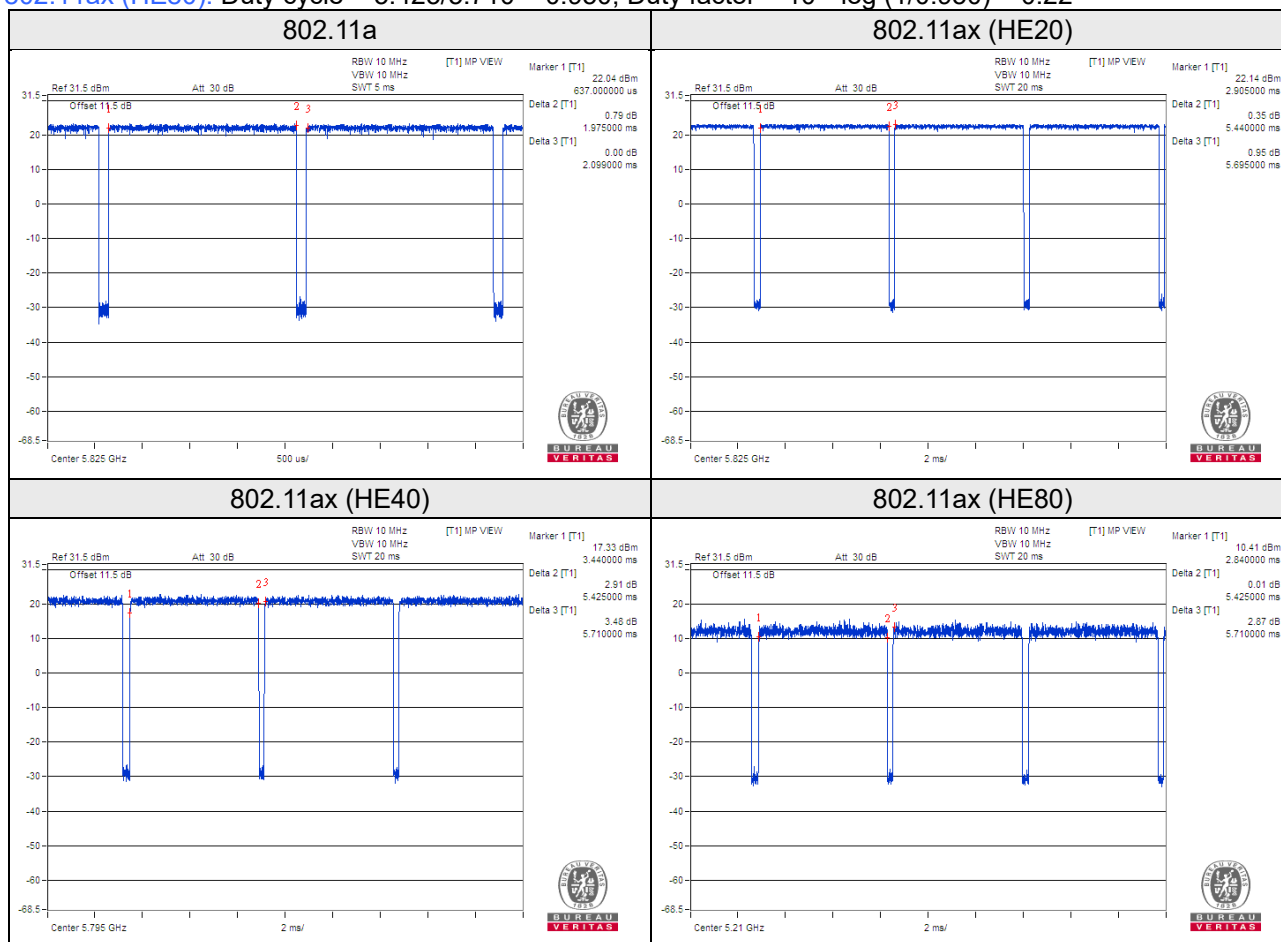
Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = $1.975/2.099 = 0.941$, Duty factor = $10 * \log(1/0.941) = 0.26$

802.11ax (HE20): Duty cycle = $5.440/5.695 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11ax (HE40): Duty cycle = $5.425/5.710 = 0.950$, Duty factor = $10 * \log(1/0.950) = 0.22$

802.11ax (HE80): Duty cycle = $5.425/5.710 = 0.950$, Duty factor = $10 * \log(1/0.950) = 0.22$



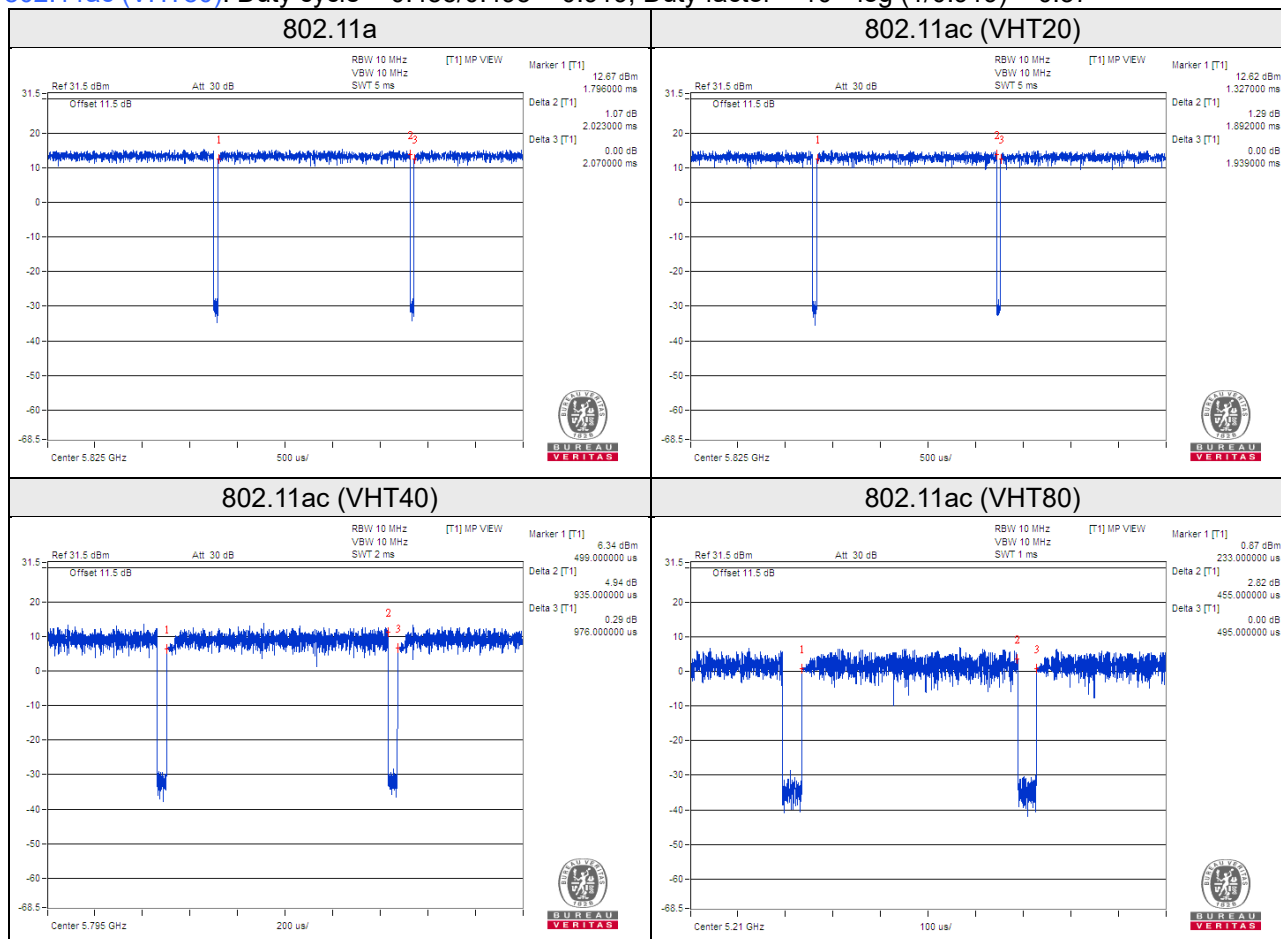
Scanning radio (Radio 3)

802.11a: Duty cycle = $2.023/2.070 = 0.977$, Duty factor = $10 * \log(1/0.977) = 0.10$

802.11ac (VHT20): Duty cycle = $1.892/1.939 = 0.976$, Duty factor = $10 * \log(1/0.976) = 0.11$

802.11ac (VHT40): Duty cycle = $0.935/0.976 = 0.958$, Duty factor = $10 * \log(1/0.958) = 0.19$

802.11ac (VHT80): Duty cycle = $0.455/0.495 = 0.919$, Duty factor = $10 * \log(1/0.919) = 0.37$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Adapter	Sunny	SYS1546-3612-T3	NA	NA	Provided by client
C.	POE	SENAO	EPA5006GAT	NA	NA	Provided by client
D.	Flash	HP	v250W	NA	NA	-

Note:

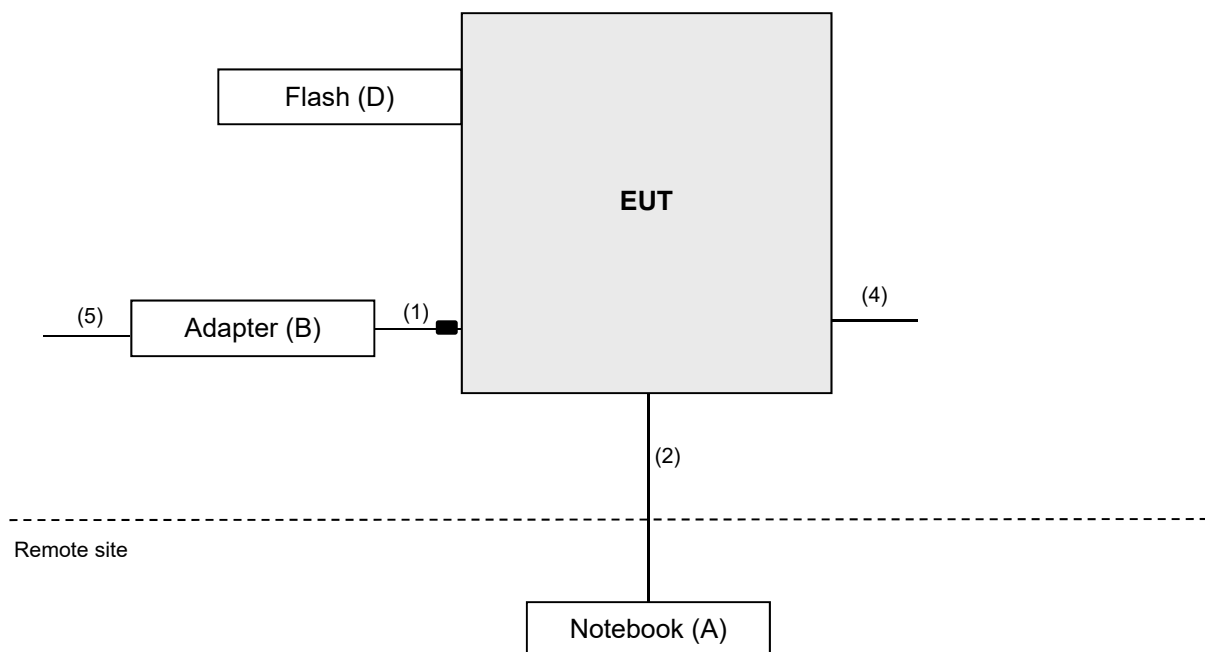
1. All power cords of the above support units are non-shielded (1.8m).
2. Items A acted as communication partner to transfer data.

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Power cable	1	1.86	N	1	Provided by client
2.	LAN	1	7.0	N	0	RJ45, Cat5e
3.	LAN	1	1.5	N	0	RJ45, Cat5e
4.	Console	1	1.5	N	0	-
5.	AC Power cable	1	1.77	N	0	Provided by client
6.	AC Power cable	1	0.5	N	0	Provided by client

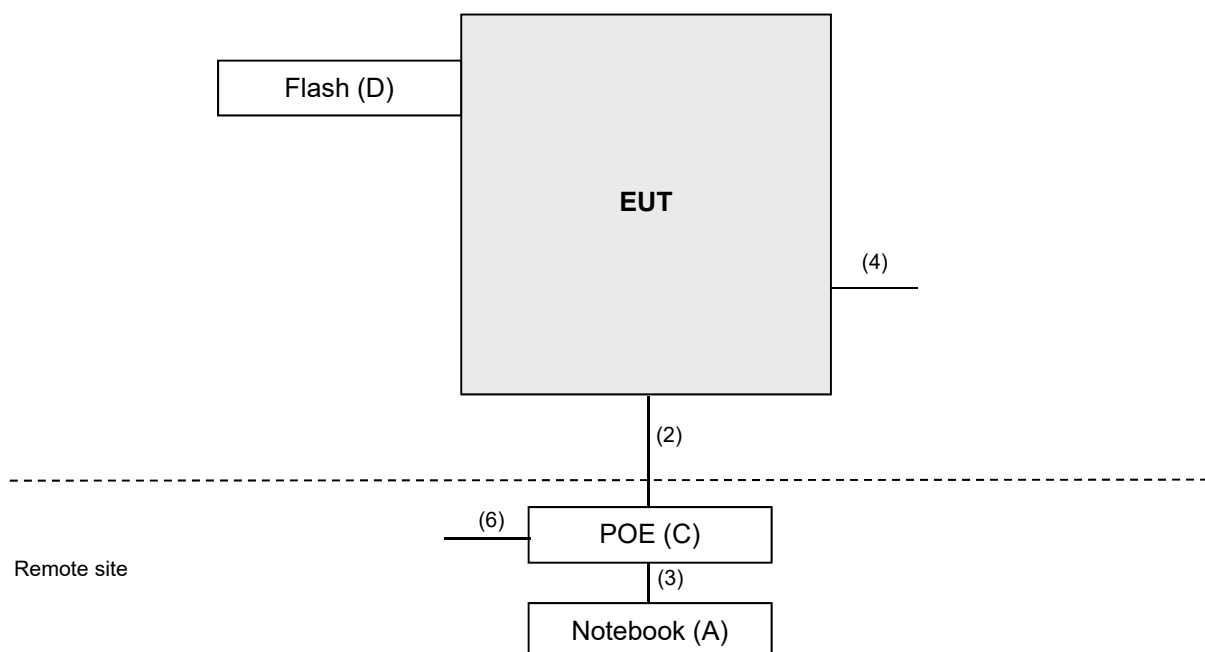
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:

FCC Part 15, Subpart E (15.407)

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK: 74 (dBuV/m)	AV: 54 (dBuV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	☒ 15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2(dBuV/m) ^{*1} PK: 105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK: 122.2 (dBuV/m) ^{*4}
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000}{3} \sqrt{30 P} \quad \mu\text{V/m, where } P \text{ is the eirp (Watts).}$$

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
			Jun. 07, 2021	Jun. 06, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 22, 2021	Mar. 21, 2022
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519 0004/MY55190007/MY 55210005	Jul. 13, 2020	Jul. 12, 2021
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	10115	Feb. 03, 2021	Feb. 02, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

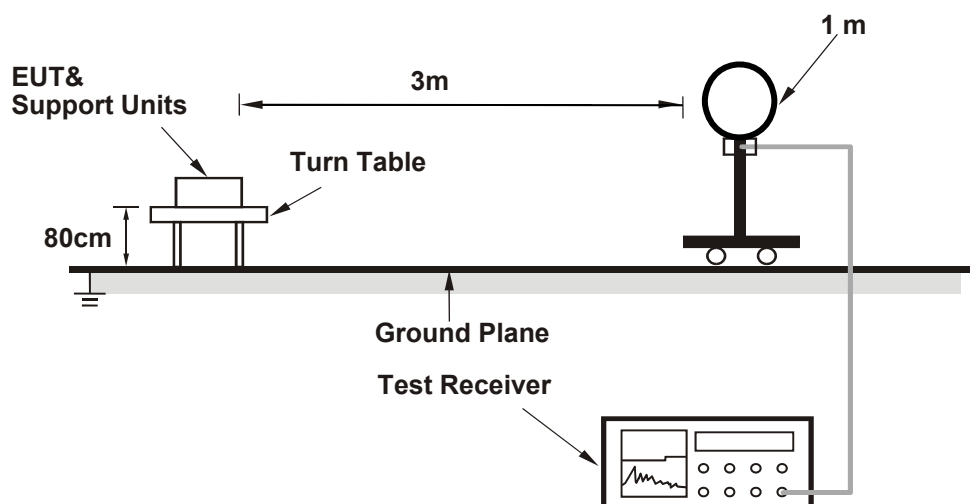
- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5G traffic radio (Radio 1)
 (802.11a: RBW = 1MHz, VBW = 1kHz; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE80): RBW = 1MHz, VBW = 1kHz)
Scanning radio (Radio 3)
 (802.11a: RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT20): RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT40): RBW = 1MHz, VBW = 3kHz; 802.11ac (VHT80): RBW = 1MHz, VBW = 3kHz)
- All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

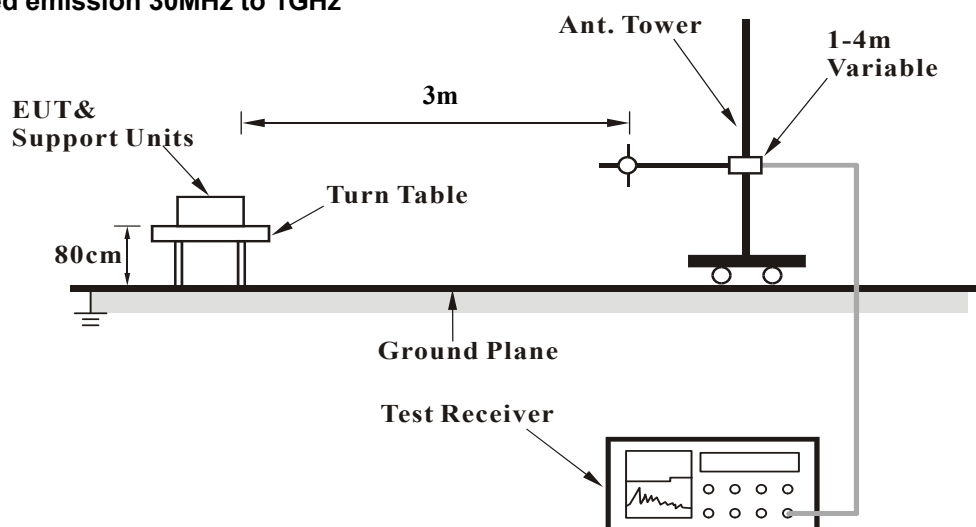
No deviation.

4.1.5 Test Setup

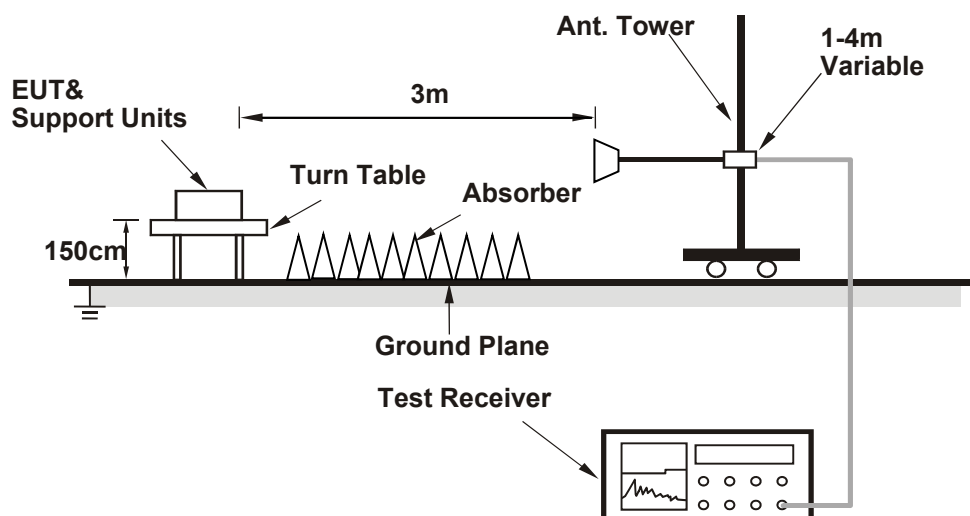
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

5G traffic radio (Radio 1)

RF Mode	TX 802.11a	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	68.1 PK	74.0	-5.9	2.17 H	310	61.7	6.4
2	5150.00	53.0 AV	54.0	-1.0	2.17 H	310	46.6	6.4
3	*5180.00	118.5 PK			2.13 H	307	76.3	42.2
4	*5180.00	109.8 AV			2.13 H	307	67.6	42.2
5	#10360.00	64.2 PK	68.2	-4.0	1.12 H	38	47.7	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	62.6 PK	74.0	-11.4	1.67 V	32	56.2	6.4
2	5150.00	49.3 AV	54.0	-4.7	1.67 V	32	42.9	6.4
3	*5180.00	115.3 PK			1.40 V	10	73.1	42.2
4	*5180.00	105.9 AV			1.40 V	10	63.7	42.2
5	#10360.00	60.4 PK	68.2	-7.8	1.67 V	7	43.9	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	120.2 PK			1.70 H	310	78.1	42.1
2	*5200.00	110.8 AV			1.70 H	310	68.7	42.1
3	#10400.00	63.5 PK	68.2	-4.7	1.09 H	38	47.0	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	114.7 PK			1.69 V	33	72.6	42.1
2	*5200.00	105.6 AV			1.69 V	33	63.5	42.1
3	#10400.00	59.3 PK	68.2	-8.9	1.63 V	13	42.8	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	120.8 PK			2.17 H	306	78.8	42.0
2	*5240.00	110.4 AV			2.17 H	306	68.4	42.0
3	5350.00	58.1 PK	74.0	-15.9	2.19 H	311	51.8	6.3
4	5350.00	44.8 AV	54.0	-9.2	2.19 H	311	38.5	6.3
5	#10480.00	61.6 PK	68.2	-6.6	1.18 H	41	43.5	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	114.7 PK			1.55 V	32	72.7	42.0
2	*5240.00	104.7 AV			1.55 V	32	62.7	42.0
3	5350.00	57.8 PK	74.0	-16.2	1.58 V	40	51.5	6.3
4	5350.00	44.7 AV	54.0	-9.3	1.58 V	40	38.4	6.3
5	#10480.00	60.6 PK	68.2	-7.6	1.64 V	10	42.5	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5632.40	59.2 PK	68.2	-9.0	2.04 H	303	52.9	6.3
2	*5745.00	126.2 PK			2.04 H	303	84.0	42.2
3	*5745.00	116.2 AV			2.04 H	303	74.0	42.2
4	#5971.60	59.8 PK	68.2	-8.4	2.04 H	303	52.6	7.2
5	11490.00	60.2 PK	74.0	-13.8	1.72 H	30	41.6	18.6
6	11490.00	47.7 AV	54.0	-6.3	1.72 H	30	29.1	18.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5636.00	57.7 PK	68.2	-10.5	1.56 V	11	51.4	6.3
2	*5745.00	121.8 PK			1.56 V	11	79.6	42.2
3	*5745.00	112.0 AV			1.56 V	11	69.8	42.2
4	#5966.40	58.8 PK	68.2	-9.4	1.56 V	11	51.5	7.3
5	11490.00	60.5 PK	74.0	-13.5	1.68 V	9	41.9	18.6
6	11490.00	46.8 AV	54.0	-7.2	1.68 V	9	28.2	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5627.20	59.0 PK	68.2	-9.2	1.97 H	317	52.8	6.2
2	*5785.00	124.2 PK			1.97 H	317	82.0	42.2
3	*5785.00	114.5 AV			1.97 H	317	72.3	42.2
4	#5962.00	60.2 PK	68.2	-8.0	1.97 H	317	52.9	7.3
5	11570.00	60.1 PK	74.0	-13.9	1.75 H	32	41.7	18.4
6	11570.00	47.6 AV	54.0	-6.4	1.75 H	32	29.2	18.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5632.00	57.0 PK	68.2	-11.2	1.39 V	23	50.7	6.3
2	*5785.00	121.2 PK			1.39 V	21	79.0	42.2
3	*5785.00	111.8 AV			1.39 V	21	69.6	42.2
4	#5930.80	58.8 PK	68.2	-9.4	1.39 V	23	51.5	7.3
5	11570.00	60.5 PK	74.0	-13.5	1.67 V	8	42.1	18.4
6	11570.00	46.3 AV	54.0	-7.7	1.67 V	8	27.9	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5638.40	59.7 PK	68.2	-8.5	1.99 H	308	53.4	6.3
2	*5825.00	123.1 PK			1.99 H	308	80.8	42.3
3	*5825.00	113.2 AV			1.99 H	308	70.9	42.3
4	#5952.40	59.8 PK	68.2	-8.4	1.99 H	308	52.5	7.3
5	11650.00	59.8 PK	74.0	-14.2	1.75 H	32	41.7	18.1
6	11650.00	47.4 AV	54.0	-6.6	1.75 H	32	29.3	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5641.60	58.2 PK	68.2	-10.0	1.43 V	14	52.0	6.2
2	*5825.00	121.5 PK			1.43 V	14	79.2	42.3
3	*5825.00	111.7 AV			1.43 V	14	69.4	42.3
4	#5966.40	57.7 PK	68.2	-10.5	1.43 V	14	50.4	7.3
5	11650.00	59.6 PK	74.0	-14.4	1.72 V	15	41.5	18.1
6	11650.00	45.3 AV	54.0	-8.7	1.72 V	15	27.2	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	67.6 PK	74.0	-6.4	2.05 H	313	61.2	6.4
2	5150.00	52.6 AV	54.0	-1.4	2.05 H	313	46.2	6.4
3	*5180.00	121.5 PK			2.08 H	312	79.3	42.2
4	*5180.00	109.0 AV			2.08 H	312	66.8	42.2
5	#10360.00	61.3 PK	68.2	-6.9	1.14 H	20	44.8	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.6 PK	74.0	-12.4	1.72 V	41	55.2	6.4
2	5150.00	47.9 AV	54.0	-6.1	1.72 V	41	41.5	6.4
3	*5180.00	117.7 PK			1.70 V	38	75.5	42.2
4	*5180.00	104.6 AV			1.70 V	38	62.4	42.2
5	#10360.00	59.5 PK	68.2	-8.7	1.68 V	11	43.0	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	123.7 PK			2.15 H	306	81.6	42.1
2	*5200.00	110.9 AV			2.15 H	306	68.8	42.1
3	#10400.00	62.3 PK	68.2	-5.9	1.12 H	40	45.8	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	118.6 PK			1.70 V	35	76.5	42.1
2	*5200.00	105.4 AV			1.70 V	35	63.3	42.1
3	#10400.00	59.2 PK	68.2	-9.0	1.72 V	10	42.7	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	122.6 PK			2.27 H	305	80.6	42.0
2	*5240.00	109.3 AV			2.27 H	305	67.3	42.0
3	5350.00	57.9 PK	74.0	-16.1	2.31 H	308	51.6	6.3
4	5350.00	44.9 AV	54.0	-9.1	2.31 H	308	38.6	6.3
5	#10480.00	61.9 PK	68.2	-6.3	1.14 H	40	43.8	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	118.8 PK			1.78 V	36	76.8	42.0
2	*5240.00	105.4 AV			1.78 V	36	63.4	42.0
3	5350.00	57.8 PK	74.0	-16.2	1.81 V	41	51.5	6.3
4	5350.00	44.8 AV	54.0	-9.2	1.81 V	41	38.5	6.3
5	#10480.00	60.8 PK	68.2	-7.4	1.65 V	11	42.7	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5610.40	59.4 PK	68.2	-8.8	1.66 H	311	53.2	6.2
2	*5745.00	128.4 PK			1.66 H	311	86.2	42.2
3	*5745.00	114.6 AV			1.66 H	311	72.4	42.2
4	#5952.00	59.8 PK	68.2	-8.4	1.66 H	311	52.5	7.3
5	11490.00	60.3 PK	74.0	-13.7	1.75 H	32	41.7	18.6
6	11490.00	47.8 AV	54.0	-6.2	1.75 H	32	29.2	18.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5646.00	58.0 PK	68.2	-10.2	1.59 V	20	51.8	6.2
2	*5745.00	124.0 PK			1.59 V	20	81.8	42.2
3	*5745.00	110.8 AV			1.59 V	20	68.6	42.2
4	#5954.40	56.7 PK	68.2	-11.5	1.59 V	20	49.4	7.3
5	11490.00	60.5 PK	74.0	-13.5	1.77 V	5	41.9	18.6
6	11490.00	46.1 AV	54.0	-7.9	1.77 V	5	27.5	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5637.60	59.2 PK	68.2	-9.0	1.68 H	309	52.9	6.3
2	*5785.00	128.8 PK			1.68 H	309	86.6	42.2
3	*5785.00	116.0 AV			1.68 H	309	73.8	42.2
4	#5958.80	59.7 PK	68.2	-8.5	1.68 H	309	52.4	7.3
5	11570.00	60.0 PK	74.0	-14.0	1.73 H	32	41.6	18.4
6	11570.00	47.4 AV	54.0	-6.6	1.73 H	32	29.0	18.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5629.20	57.3 PK	68.2	-10.9	1.40 V	23	51.1	6.2
2	*5785.00	123.9 PK			1.40 V	23	81.7	42.2
3	*5785.00	110.8 AV			1.40 V	23	68.6	42.2
4	#5969.60	58.7 PK	68.2	-9.5	1.40 V	23	51.5	7.2
5	11570.00	59.7 PK	74.0	-14.3	1.84 V	12	41.3	18.4
6	11570.00	45.5 AV	54.0	-8.5	1.84 V	12	27.1	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5635.20	59.4 PK	68.2	-8.8	1.77 H	313	53.1	6.3
2	*5825.00	127.1 PK			1.77 H	313	84.8	42.3
3	*5825.00	113.5 AV			1.77 H	313	71.2	42.3
4	#5929.20	59.7 PK	68.2	-8.5	1.77 H	313	52.4	7.3
5	11650.00	59.9 PK	74.0	-14.1	1.75 H	33	41.8	18.1
6	11650.00	47.3 AV	54.0	-6.7	1.75 H	33	29.2	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5636.40	58.0 PK	68.2	-10.2	1.48 V	10	51.7	6.3
2	*5825.00	123.8 PK			1.48 V	10	81.5	42.3
3	*5825.00	110.4 AV			1.48 V	10	68.1	42.3
4	#5998.00	58.0 PK	68.2	-10.2	1.48 V	10	50.9	7.1
5	11650.00	59.9 PK	74.0	-14.1	1.87 V	13	41.8	18.1
6	11650.00	45.4 AV	54.0	-8.6	1.87 V	13	27.3	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 38 : 5190 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	68.9 PK	74.0	-5.1	2.41 H	284	62.5	6.4
2	5150.00	52.6 AV	54.0	-1.4	2.41 H	284	46.2	6.4
3	*5190.00	119.5 PK			2.28 H	306	77.4	42.1
4	*5190.00	106.8 AV			2.28 H	306	64.7	42.1
5	#10380.00	60.1 PK	68.2	-8.1	1.16 H	41	43.5	16.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.9 PK	74.0	-12.1	1.65 V	38	55.5	6.4
2	5150.00	47.7 AV	54.0	-6.3	1.65 V	38	41.3	6.4
3	*5190.00	114.1 PK			1.62 V	33	72.0	42.1
4	*5190.00	101.4 AV			1.62 V	33	59.3	42.1
5	#10380.00	59.4 PK	68.2	-8.8	1.65 V	8	42.8	16.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 46 : 5230 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	69.0 PK	74.0	-5.0	2.20 H	305	62.6	6.4
2	5150.00	53.0 AV	54.0	-1.0	2.20 H	305	46.6	6.4
3	*5230.00	123.8 PK			2.23 H	306	81.8	42.0
4	*5230.00	111.1 AV			2.23 H	306	69.1	42.0
5	#10460.00	64.2 PK	68.2	-4.0	1.05 H	39	46.5	17.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	62.9 PK	74.0	-11.1	1.65 V	35	56.5	6.4
2	5150.00	48.6 AV	54.0	-5.4	1.65 V	35	42.2	6.4
3	*5230.00	118.6 PK			1.63 V	33	76.6	42.0
4	*5230.00	105.4 AV			1.63 V	33	63.4	42.0
5	#10460.00	61.1 PK	68.2	-7.1	1.72 V	10	43.4	17.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 151 : 5755 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5633.20	61.1 PK	68.2	-7.1	1.59 H	309	54.8	6.3
2	#5650.00	66.5 PK	68.2	-1.7	1.88 H	292	60.3	6.2
3	*5755.00	123.9 PK			1.59 H	309	81.6	42.3
4	*5755.00	112.1 AV			1.59 H	309	69.8	42.3
5	#5954.00	59.5 PK	68.2	-8.7	1.59 H	309	52.2	7.3
6	11510.00	60.3 PK	74.0	-13.7	1.75 H	33	41.7	18.6
7	11510.00	47.8 AV	54.0	-6.2	1.75 H	33	29.2	18.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5646.40	61.8 PK	68.2	-6.4	1.51 V	11	55.6	6.2
2	#5650.00	64.0 PK	68.2	-4.2	1.51 V	24	57.8	6.2
3	*5755.00	120.8 PK			1.51 V	11	78.5	42.3
4	*5755.00	108.3 AV			1.51 V	11	66.0	42.3
5	#5961.60	59.3 PK	68.2	-8.9	1.51 V	11	52.0	7.3
6	11510.00	60.1 PK	74.0	-13.9	1.79 V	19	41.5	18.6
7	11510.00	46.2 AV	54.0	-7.8	1.79 V	19	27.6	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE40)	Channel	CH 159 : 5795 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5632.80	60.9 PK	68.2	-7.3	1.63 H	309	54.6	6.3
2	*5795.00	125.2 PK			1.63 H	309	83.0	42.2
3	*5795.00	112.9 AV			1.63 H	309	70.7	42.2
4	#5925.00	66.9 PK	68.2	-1.3	1.42 H	300	59.6	7.3
5	#5933.60	64.2 PK	68.2	-4.0	1.63 H	309	56.9	7.3
6	11590.00	59.9 PK	74.0	-14.1	1.75 H	33	41.7	18.2
7	11590.00	47.3 AV	54.0	-6.7	1.75 H	33	29.1	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5645.20	57.7 PK	68.2	-10.5	1.53 V	12	51.5	6.2
2	*5795.00	122.2 PK			1.53 V	12	80.0	42.2
3	*5795.00	109.2 AV			1.53 V	12	67.0	42.2
4	#5925.00	66.2 PK	68.2	-2.0	1.57 V	19	58.9	7.3
5	#5957.60	59.1 PK	68.2	-9.1	1.53 V	12	51.8	7.3
6	11590.00	59.3 PK	74.0	-14.7	1.90 V	14	41.1	18.2
7	11590.00	45.3 AV	54.0	-8.7	1.90 V	14	27.1	18.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE80)	Channel	CH 42 : 5210 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	71.4 PK	74.0	-2.6	2.19 H	308	65.0	6.4
2	5150.00	53.1 AV	54.0	-0.9	2.19 H	308	46.7	6.4
3	*5210.00	116.5 PK			2.27 H	306	74.5	42.0
4	*5210.00	104.1 AV			2.27 H	306	62.1	42.0
5	5350.00	59.0 PK	74.0	-15.0	2.20 H	310	52.7	6.3
6	5350.00	45.6 AV	54.0	-8.4	2.20 H	310	39.3	6.3
7	#10420.00	60.8 PK	68.2	-7.4	1.16 H	37	43.8	17.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	62.3 PK	74.0	-11.7	1.55 V	36	55.9	6.4
2	5150.00	47.9 AV	54.0	-6.1	1.55 V	36	41.5	6.4
3	*5210.00	112.1 PK			1.51 V	32	70.1	42.0
4	*5210.00	99.4 AV			1.51 V	32	57.4	42.0
5	5350.00	57.8 PK	74.0	-16.2	1.52 V	33	51.5	6.3
6	5350.00	44.8 AV	54.0	-9.2	1.52 V	33	38.5	6.3
7	#10420.00	59.2 PK	68.2	-9.0	1.62 V	11	42.2	17.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE80)	Channel	CH 155 : 5775 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5632.40	63.7 PK	68.2	-4.5	1.63 H	307	57.4	6.3
2	#5650.00	67.2 PK	68.2	-1.0	1.68 H	321	61.0	6.2
3	*5775.00	119.6 PK			1.63 H	307	77.4	42.2
4	*5775.00	106.6 AV			1.63 H	307	64.4	42.2
5	#5925.00	66.4 PK	68.2	-1.8	1.44 H	304	59.1	7.3
6	#5935.20	61.6 PK	68.2	-6.6	1.63 H	307	54.3	7.3
7	11550.00	59.9 PK	74.0	-14.1	1.75 H	35	41.5	18.4
8	11550.00	47.2 AV	54.0	-6.8	1.75 H	35	28.8	18.4

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5647.20	61.4 PK	68.2	-6.8	1.45 V	12	55.2	6.2
2	#5650.00	64.1 PK	68.2	-4.1	1.50 V	14	57.9	6.2
3	*5775.00	115.0 PK			1.45 V	12	72.8	42.2
4	*5775.00	102.6 AV			1.45 V	12	60.4	42.2
5	#5925.00	62.9 PK	68.2	-5.3	1.00 V	12	55.6	7.3
6	#5926.80	61.6 PK	68.2	-6.6	1.45 V	12	54.3	7.3
7	11550.00	59.6 PK	74.0	-14.4	1.98 V	20	41.2	18.4
8	11550.00	46.3 AV	54.0	-7.7	1.98 V	20	27.9	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Scanning radio (Radio 3)

RF Mode	TX 802.11a	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.2 PK	74.0	-13.8	1.41 H	342	53.8	6.4
2	5150.00	48.6 AV	54.0	-5.4	1.41 H	342	42.2	6.4
3	*5180.00	105.4 PK			1.39 H	359	63.2	42.2
4	*5180.00	95.2 AV			1.39 H	359	53.0	42.2
5	#10360.00	56.9 PK	68.2	-11.3	1.69 H	189	40.4	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.2 PK	74.0	-14.8	1.96 V	346	52.8	6.4
2	5150.00	47.8 AV	54.0	-6.2	1.96 V	346	41.4	6.4
3	*5180.00	104.6 PK			2.24 V	344	62.4	42.2
4	*5180.00	93.5 AV			2.24 V	344	51.3	42.2
5	#10360.00	57.2 PK	68.2	-11.0	1.55 V	201	40.7	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	103.3 PK			1.21 H	336	61.2	42.1
2	*5200.00	92.9 AV			1.21 H	336	50.8	42.1
3	5350.00	64.2 PK	74.0	-9.8	1.56 H	355	57.9	6.3
4	5350.00	52.9 AV	54.0	-1.1	1.56 H	355	46.6	6.3
5	#10400.00	56.6 PK	68.2	-11.6	1.66 H	187	40.1	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	100.4 PK			2.48 V	317	58.3	42.1
2	*5200.00	91.1 AV			2.48 V	317	49.0	42.1
3	5350.00	60.0 PK	74.0	-14.0	2.30 V	325	53.7	6.3
4	5350.00	47.7 AV	54.0	-6.3	2.30 V	325	41.4	6.3
5	#10400.00	57.5 PK	68.2	-10.7	1.49 V	211	41.0	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	101.7 PK			1.47 H	335	59.7	42.0
2	*5240.00	91.7 AV			1.47 H	335	49.7	42.0
3	5350.00	64.5 PK	74.0	-9.5	1.62 H	359	58.2	6.3
4	5350.00	52.8 AV	54.0	-1.2	1.62 H	359	46.5	6.3
5	#10480.00	59.0 PK	68.2	-9.2	1.72 H	199	40.9	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	100.8 PK			2.35 V	329	58.8	42.0
2	*5240.00	91.0 AV			2.35 V	329	49.0	42.0
3	5350.00	58.6 PK	74.0	-15.4	2.31 V	331	52.3	6.3
4	5350.00	46.9 AV	54.0	-7.1	2.31 V	331	40.6	6.3
5	#10480.00	59.0 PK	68.2	-9.2	1.52 V	217	40.9	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5634.40	58.8 PK	68.2	-9.4	1.27 H	352	52.5	6.3
2	*5745.00	103.6 PK			1.27 H	352	61.4	42.2
3	*5745.00	93.9 AV			1.27 H	352	51.7	42.2
4	#6000.00	58.2 PK	68.2	-10.0	1.27 H	352	51.1	7.1
5	11490.00	59.2 PK	74.0	-14.8	1.66 H	198	40.6	18.6
6	11490.00	47.1 AV	54.0	-6.9	1.66 H	198	28.5	18.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5630.40	56.9 PK	68.2	-11.3	2.29 V	353	50.7	6.2
2	*5745.00	100.4 PK			2.29 V	353	58.2	42.2
3	*5745.00	91.4 AV			2.29 V	353	49.2	42.2
4	#5958.80	58.0 PK	68.2	-10.2	2.29 V	353	50.7	7.3
5	11490.00	59.8 PK	74.0	-14.2	1.60 V	208	41.2	18.6
6	11490.00	46.5 AV	54.0	-7.5	1.60 V	208	27.9	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5629.60	61.2 PK	68.2	-7.0	1.39 H	354	55.0	6.2
2	*5785.00	104.6 PK			1.39 H	354	62.4	42.2
3	*5785.00	94.6 AV			1.39 H	354	52.4	42.2
4	#5932.40	58.9 PK	68.2	-9.3	1.39 H	354	51.6	7.3
5	11570.00	59.7 PK	74.0	-14.3	1.71 H	186	41.3	18.4
6	11570.00	46.0 AV	54.0	-8.0	1.71 H	186	27.6	18.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5631.20	58.8 PK	68.2	-9.4	2.37 V	1	52.5	6.3
2	*5785.00	102.6 PK			2.37 V	1	60.4	42.2
3	*5785.00	93.0 AV			2.37 V	1	50.8	42.2
4	#5948.00	58.2 PK	68.2	-10.0	2.37 V	1	50.9	7.3
5	11570.00	59.5 PK	74.0	-14.5	1.59 V	216	41.1	18.4
6	11570.00	46.4 AV	54.0	-7.6	1.59 V	216	28.0	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5629.60	56.7 PK	68.2	-11.5	1.45 H	351	50.5	6.2
2	*5825.00	106.1 PK			1.45 H	351	63.8	42.3
3	*5825.00	95.9 AV			1.45 H	351	53.6	42.3
4	#5978.00	59.0 PK	68.2	-9.2	1.45 H	351	51.9	7.1
5	11650.00	59.0 PK	74.0	-15.0	1.59 H	213	40.9	18.1
6	11650.00	45.7 AV	54.0	-8.3	1.59 H	213	27.6	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5624.00	56.6 PK	68.2	-11.6	2.34 V	3	50.4	6.2
2	*5825.00	103.8 PK			2.34 V	3	61.5	42.3
3	*5825.00	93.5 AV			2.34 V	3	51.2	42.3
4	#5978.80	57.6 PK	68.2	-10.6	2.34 V	3	50.5	7.1
5	11650.00	58.9 PK	74.0	-15.1	1.51 V	199	40.8	18.1
6	11650.00	45.9 AV	54.0	-8.1	1.51 V	199	27.8	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.1 PK	74.0	-13.9	1.43 H	8	53.7	6.4
2	5150.00	48.3 AV	54.0	-5.7	1.43 H	8	41.9	6.4
3	*5180.00	105.0 PK			1.14 H	335	62.8	42.2
4	*5180.00	95.2 AV			1.14 H	335	53.0	42.2
5	#10360.00	57.3 PK	68.2	-10.9	1.66 H	183	40.8	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.7 PK	74.0	-15.3	2.41 V	320	52.3	6.4
2	5150.00	47.3 AV	54.0	-6.7	2.41 V	320	40.9	6.4
3	*5180.00	102.2 PK			2.49 V	323	60.0	42.2
4	*5180.00	92.4 AV			2.49 V	323	50.2	42.2
5	#10360.00	56.8 PK	68.2	-11.4	1.49 V	208	40.3	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	103.1 PK			1.10 H	334	61.0	42.1
2	*5200.00	93.1 AV			1.10 H	334	51.0	42.1
3	5350.00	63.0 PK	74.0	-11.0	1.70 H	354	56.7	6.3
4	5350.00	52.5 AV	54.0	-1.5	1.70 H	354	46.2	6.3
5	#10400.00	57.4 PK	68.2	-10.8	1.69 H	188	40.9	16.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	100.2 PK			2.48 V	333	58.1	42.1
2	*5200.00	90.6 AV			2.48 V	333	48.5	42.1
3	5350.00	59.6 PK	74.0	-14.4	2.33 V	317	53.3	6.3
4	5350.00	46.9 AV	54.0	-7.1	2.33 V	317	40.6	6.3
5	#10400.00	57.4 PK	68.2	-10.8	1.52 V	217	40.9	16.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	101.4 PK			1.25 H	334	59.4	42.0
2	*5240.00	91.2 AV			1.25 H	334	49.2	42.0
3	5350.00	64.5 PK	74.0	-9.5	1.52 H	354	58.2	6.3
4	5350.00	52.8 AV	54.0	-1.2	1.52 H	354	46.5	6.3
5	#10480.00	58.6 PK	68.2	-9.6	1.72 H	188	40.5	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	99.3 PK			2.32 V	335	57.3	42.0
2	*5240.00	89.6 AV			2.32 V	335	47.6	42.0
3	5350.00	58.4 PK	74.0	-15.6	2.20 V	329	52.1	6.3
4	5350.00	45.3 AV	54.0	-8.7	2.20 V	329	39.0	6.3
5	#10480.00	59.1 PK	68.2	-9.1	1.49 V	200	41.0	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5638.80	57.4 PK	68.2	-10.8	1.59 H	349	51.1	6.3
2	*5745.00	104.8 PK			1.59 H	349	62.6	42.2
3	*5745.00	94.6 AV			1.59 H	349	52.4	42.2
4	#5942.00	59.0 PK	68.2	-9.2	1.59 H	349	51.7	7.3
5	11490.00	59.7 PK	74.0	-14.3	1.56 H	181	41.1	18.6
6	11490.00	46.2 AV	54.0	-7.8	1.56 H	181	27.6	18.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5629.60	59.0 PK	68.2	-9.2	2.51 V	360	52.8	6.2
2	*5745.00	102.4 PK			2.51 V	360	60.2	42.2
3	*5745.00	92.9 AV			2.51 V	360	50.7	42.2
4	#5966.80	58.9 PK	68.2	-9.3	2.51 V	360	51.7	7.2
5	11490.00	59.2 PK	74.0	-14.8	1.61 V	231	40.6	18.6
6	11490.00	46.1 AV	54.0	-7.9	1.61 V	231	27.5	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5617.60	59.4 PK	68.2	-8.8	1.52 H	348	53.2	6.2
2	*5785.00	105.2 PK			1.52 H	348	63.0	42.2
3	*5785.00	95.2 AV			1.52 H	348	53.0	42.2
4	#5939.60	59.2 PK	68.2	-9.0	1.52 H	348	51.9	7.3
5	11570.00	59.2 PK	74.0	-14.8	1.66 H	191	40.8	18.4
6	11570.00	46.1 AV	54.0	-7.9	1.66 H	191	27.7	18.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5631.20	59.3 PK	68.2	-8.9	2.58 V	344	53.0	6.3
2	*5785.00	103.2 PK			2.58 V	344	61.0	42.2
3	*5785.00	93.8 AV			2.58 V	344	51.6	42.2
4	#5942.80	59.2 PK	68.2	-9.0	2.58 V	344	51.9	7.3
5	11570.00	60.1 PK	74.0	-13.9	1.58 V	218	41.7	18.4
6	11570.00	46.4 AV	54.0	-7.6	1.58 V	218	28.0	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5638.40	56.5 PK	68.2	-11.7	1.35 H	349	50.2	6.3
2	*5825.00	106.1 PK			1.35 H	349	63.8	42.3
3	*5825.00	95.8 AV			1.35 H	349	53.5	42.3
4	#5978.00	58.6 PK	68.2	-9.6	1.35 H	349	51.5	7.1
5	11650.00	59.4 PK	74.0	-14.6	1.68 H	183	41.3	18.1
6	11650.00	46.0 AV	54.0	-8.0	1.68 H	183	27.9	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5632.00	57.2 PK	68.2	-11.0	2.57 V	1	50.9	6.3
2	*5825.00	105.1 PK			2.57 V	1	62.8	42.3
3	*5825.00	94.7 AV			2.57 V	1	52.4	42.3
4	#5987.20	59.0 PK	68.2	-9.2	2.57 V	1	51.9	7.1
5	11650.00	59.7 PK	74.0	-14.3	1.49 V	208	41.6	18.1
6	11650.00	46.2 AV	54.0	-7.8	1.49 V	208	28.1	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 38 : 5190 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.8 PK	74.0	-15.2	1.18 H	9	52.4	6.4
2	5150.00	48.2 AV	54.0	-5.8	1.18 H	9	41.8	6.4
3	*5190.00	103.3 PK			1.18 H	337	61.2	42.1
4	*5190.00	92.9 AV			1.18 H	337	50.8	42.1
5	#10380.00	57.3 PK	68.2	-10.9	1.69 H	190	40.7	16.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	58.7 PK	74.0	-15.3	2.10 V	348	52.3	6.4
2	5150.00	46.9 AV	54.0	-7.1	2.10 V	348	40.5	6.4
3	*5190.00	99.9 PK			2.12 V	357	57.8	42.1
4	*5190.00	90.3 AV			2.12 V	357	48.2	42.1
5	#10380.00	57.5 PK	68.2	-10.7	1.50 V	312	40.9	16.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 46 : 5230 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	100.9 PK			1.19 H	336	58.9	42.0
2	*5230.00	89.9 AV			1.19 H	336	47.9	42.0
3	5350.00	64.0 PK	74.0	-10.0	1.69 H	360	57.7	6.3
4	5350.00	52.5 AV	54.0	-1.5	1.69 H	360	46.2	6.3
5	#10460.00	58.6 PK	68.2	-9.6	1.72 H	182	40.9	17.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	99.4 PK			2.03 V	353	57.4	42.0
2	*5230.00	89.4 AV			2.03 V	353	47.4	42.0
3	5350.00	60.2 PK	74.0	-13.8	2.08 V	359	53.9	6.3
4	5350.00	48.5 AV	54.0	-5.5	2.08 V	359	42.2	6.3
5	#10460.00	58.5 PK	68.2	-9.7	1.48 V	209	40.8	17.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 151 : 5755 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5600.80	58.5 PK	68.2	-9.7	1.47 H	350	52.3	6.2
2	#5650.00	60.0 PK	68.2	-8.2	1.50 H	351	53.8	6.2
3	*5755.00	101.8 PK			1.47 H	350	59.5	42.3
4	*5755.00	91.2 AV			1.47 H	350	48.9	42.3
5	#5930.40	57.9 PK	68.2	-10.3	1.47 H	350	50.6	7.3
6	11510.00	59.7 PK	74.0	-14.3	1.70 H	183	41.1	18.6
7	11510.00	45.8 AV	54.0	-8.2	1.70 H	183	27.2	18.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5606.80	57.2 PK	68.2	-11.0	2.60 V	354	51.0	6.2
2	#5650.00	58.7 PK	68.2	-9.5	2.43 V	349	52.5	6.2
3	*5755.00	99.7 PK			2.60 V	354	57.4	42.3
4	*5755.00	89.4 AV			2.60 V	354	47.1	42.3
5	#5951.20	58.5 PK	68.2	-9.7	2.60 V	354	51.2	7.3
6	11510.00	59.8 PK	74.0	-14.2	1.50 V	222	41.2	18.6
7	11510.00	45.8 AV	54.0	-8.2	1.50 V	222	27.2	18.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT40)	Channel	CH 159 : 5795 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5639.20	59.2 PK	68.2	-9.0	1.46 H	350	52.9	6.3
2	#5650.00	60.2 PK	68.2	-8.0	1.33 H	359	54.0	6.2
3	*5795.00	102.3 PK			1.46 H	350	60.1	42.2
4	*5795.00	92.2 AV			1.46 H	350	50.0	42.2
5	#5965.20	58.8 PK	68.2	-9.4	1.46 H	350	51.5	7.3
6	11590.00	59.6 PK	74.0	-14.4	1.58 H	172	41.4	18.2
7	11590.00	46.2 AV	54.0	-7.8	1.58 H	172	28.0	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5630.80	59.5 PK	68.2	-8.7	2.58 V	359	53.2	6.3
2	#5650.00	58.9 PK	68.2	-9.3	2.44 V	352	52.7	6.2
3	*5795.00	101.4 PK			2.58 V	359	59.2	42.2
4	*5795.00	90.8 AV			2.58 V	359	48.6	42.2
5	#5956.40	59.4 PK	68.2	-8.8	2.58 V	359	52.1	7.3
6	11590.00	59.5 PK	74.0	-14.5	1.59 V	211	41.3	18.2
7	11590.00	45.7 AV	54.0	-8.3	1.59 V	211	27.5	18.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 42 : 5210 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	62.2 PK	74.0	-11.8	1.25 H	333	55.8	6.4
2	5150.00	38.9 AV	54.0	-15.1	1.25 H	333	32.5	6.4
3	*5210.00	100.6 PK			1.16 H	336	58.6	42.0
4	*5210.00	89.5 AV			1.16 H	336	47.5	42.0
5	5350.00	62.0 PK	74.0	-12.0	1.70 H	357	55.7	6.3
6	5350.00	52.5 AV	54.0	-1.5	1.70 H	357	46.2	6.3
7	#10420.00	57.3 PK	68.2	-10.9	1.73 H	186	40.3	17.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.1 PK	74.0	-13.9	1.77 V	350	53.7	6.4
2	5150.00	48.2 AV	54.0	-5.8	1.77 V	350	41.8	6.4
3	*5210.00	97.3 PK			1.88 V	358	55.3	42.0
4	*5210.00	87.5 AV			1.88 V	358	45.5	42.0
5	5350.00	59.1 PK	74.0	-14.9	1.79 V	353	52.8	6.3
6	5350.00	47.7 AV	54.0	-6.3	1.79 V	353	41.4	6.3
7	#10420.00	57.6 PK	68.2	-10.6	1.57 V	203	40.6	17.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5645.20	58.7 PK	68.2	-9.5	1.78 H	348	52.5	6.2
2	#5650.00	59.5 PK	68.2	-8.7	1.77 H	350	53.3	6.2
3	*5775.00	100.4 PK			1.78 H	348	58.2	42.2
4	*5775.00	89.4 AV			1.78 H	348	47.2	42.2
5	#5925.00	59.4 PK	68.2	-8.8	1.69 H	344	52.1	7.3
6	#5936.80	58.4 PK	68.2	-9.8	1.78 H	348	51.1	7.3
7	11550.00	59.0 PK	74.0	-15.0	1.63 H	186	40.6	18.4
8	11550.00	45.8 AV	54.0	-8.2	1.63 H	186	27.4	18.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5636.00	59.4 PK	68.2	-8.8	2.60 V	360	53.1	6.3
2	#5650.00	59.2 PK	68.2	-9.0	2.41 V	354	53.0	6.2
3	*5775.00	98.8 PK			2.60 V	360	56.6	42.2
4	*5775.00	87.6 AV			2.60 V	360	45.4	42.2
5	#5925.00	59.0 PK	68.2	-9.2	2.55 V	355	51.7	7.3
6	#5970.40	58.6 PK	68.2	-9.6	2.60 V	360	51.4	7.2
7	11550.00	59.5 PK	74.0	-14.5	1.55 V	207	41.1	18.4
8	11550.00	46.4 AV	54.0	-7.6	1.55 V	207	28.0	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz Worst-Case Data:

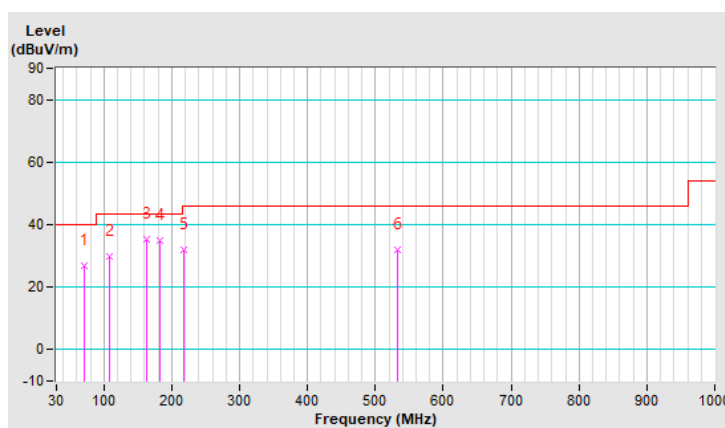
5G traffic radio (Radio 1)

RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	70.77	26.9 QP	40.0	-13.1	1.00 H	8	38.0	-11.1
2	108.72	29.7 QP	43.5	-13.8	1.49 H	6	41.7	-12.0
3	163.55	35.3 QP	43.5	-8.2	1.49 H	241	43.8	-8.5
4	183.23	34.9 QP	43.5	-8.6	1.00 H	206	45.1	-10.2
5	218.38	31.8 QP	46.0	-14.2	1.00 H	192	42.4	-10.6
6	533.28	31.9 QP	46.0	-14.1	1.49 H	178	33.5	-1.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

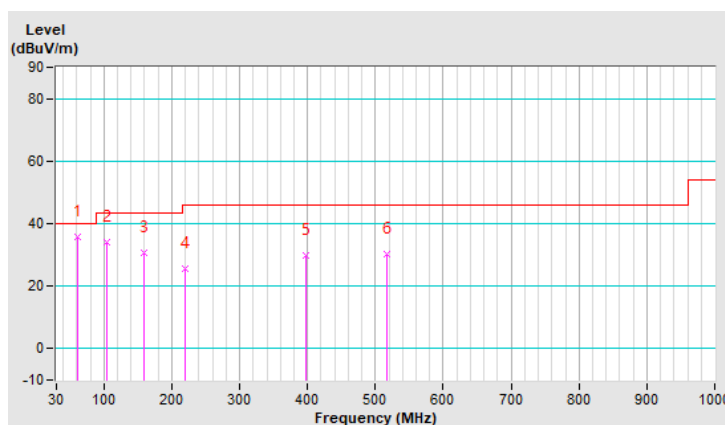


RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.93	35.6 QP	40.0	-4.4	1.00 V	304	45.4	-9.8
2	104.51	34.0 QP	43.5	-9.5	1.00 V	46	46.5	-12.5
3	159.33	30.8 QP	43.5	-12.7	1.00 V	221	39.1	-8.3
4	219.78	25.7 QP	46.0	-20.3	1.49 V	43	36.2	-10.5
5	398.32	30.0 QP	46.0	-16.0	1.00 V	148	34.8	-4.8
6	517.81	30.4 QP	46.0	-15.6	1.00 V	11	32.3	-1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

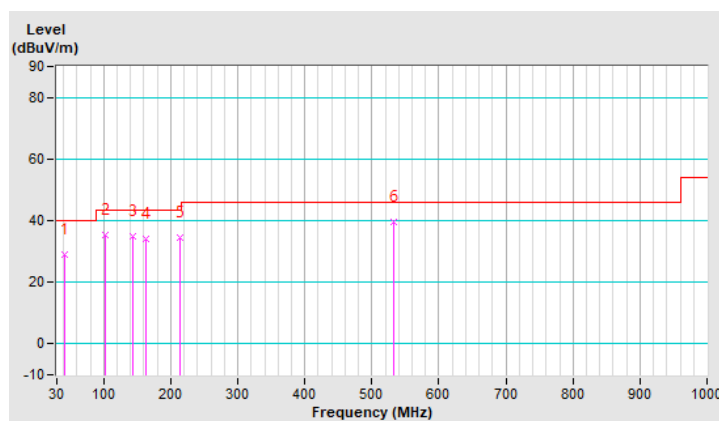


RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.65	28.8 QP	40.0	-11.2	1.50 H	46	38.2	-9.4
2	101.70	35.3 QP	43.5	-8.2	1.50 H	283	48.4	-13.1
3	142.46	34.8 QP	43.5	-8.7	1.50 H	70	43.7	-8.9
4	162.14	34.0 QP	43.5	-9.5	1.50 H	97	42.4	-8.4
5	214.16	34.4 QP	43.5	-9.1	1.00 H	166	45.2	-10.8
6	533.28	39.7 QP	46.0	-6.3	1.50 H	170	41.3	-1.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

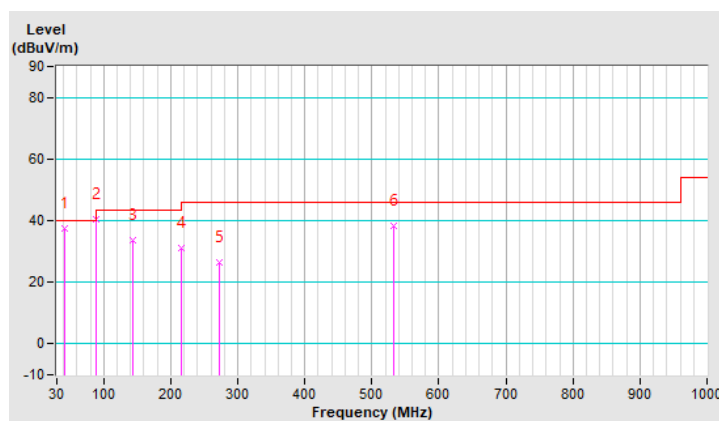


RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.65	37.5 QP	40.0	-2.5	1.49 V	14	46.9	-9.4
2	89.04	40.5 QP	43.5	-3.0	1.00 V	137	54.8	-14.3
3	142.46	33.8 QP	43.5	-9.7	1.00 V	327	42.7	-8.9
4	215.57	31.0 QP	43.5	-12.5	1.49 V	200	41.7	-10.7
5	271.80	26.3 QP	46.0	-19.7	1.00 V	216	33.6	-7.3
6	533.28	38.3 QP	46.0	-7.7	1.00 V	15	39.9	-1.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



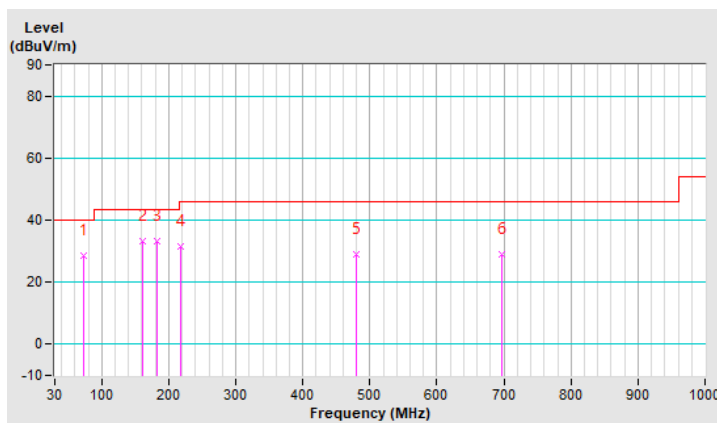
Scanning radio (Radio 3)

RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	72.17	28.5 QP	40.0	-11.5	1.50 H	40	40.0	-11.5
2	160.74	33.3 QP	43.5	-10.2	1.00 H	225	41.7	-8.4
3	183.23	33.2 QP	43.5	-10.3	1.00 H	190	43.4	-10.2
4	216.97	31.6 QP	46.0	-14.4	1.00 H	199	42.2	-10.6
5	479.86	29.0 QP	46.0	-17.0	2.00 H	136	31.6	-2.6
6	696.35	29.0 QP	46.0	-17.0	1.50 H	199	27.2	1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

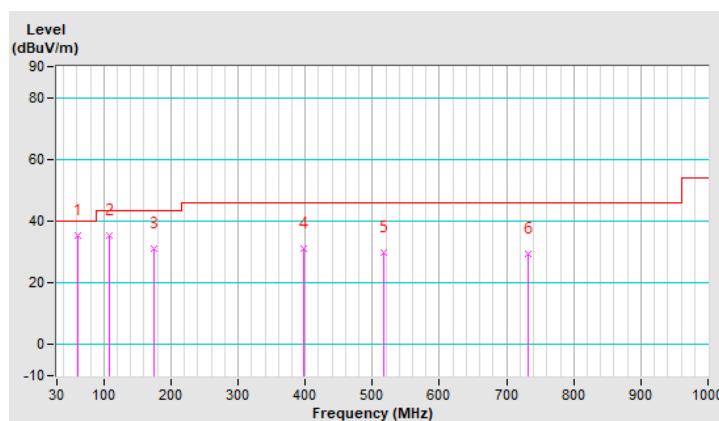


RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.93	35.5 QP	40.0	-4.5	1.50 V	247	45.3	-9.8
2	108.72	35.5 QP	43.5	-8.0	1.00 V	12	47.5	-12.0
3	174.80	31.1 QP	43.5	-12.4	1.00 V	12	40.3	-9.2
4	396.91	31.0 QP	46.0	-15.0	1.00 V	167	35.8	-4.8
5	517.81	29.8 QP	46.0	-16.2	1.50 V	341	31.7	-1.9
6	731.49	29.4 QP	46.0	-16.6	2.00 V	306	26.7	2.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

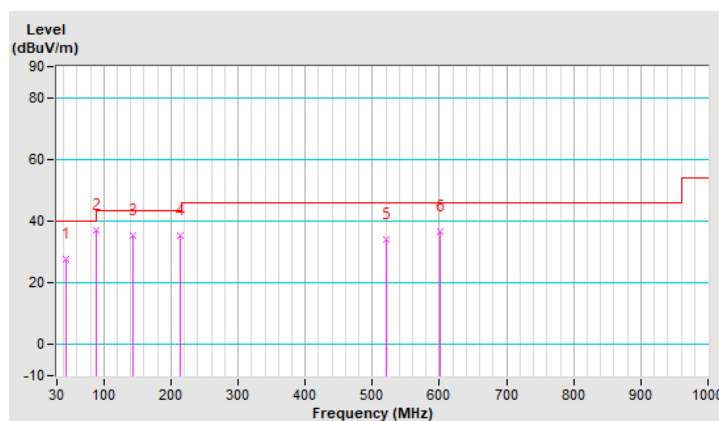


RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	44.06	27.7 QP	40.0	-12.3	1.50 H	79	36.9	-9.2
2	89.04	37.2 QP	43.5	-6.3	1.50 H	148	51.5	-14.3
3	143.87	35.3 QP	43.5	-8.2	1.00 H	95	44.1	-8.8
4	214.16	35.3 QP	43.5	-8.2	1.00 H	5	46.1	-10.8
5	520.62	34.1 QP	46.0	-11.9	1.50 H	170	36.0	-1.9
6	600.75	36.7 QP	46.0	-9.3	1.00 H	273	36.4	0.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

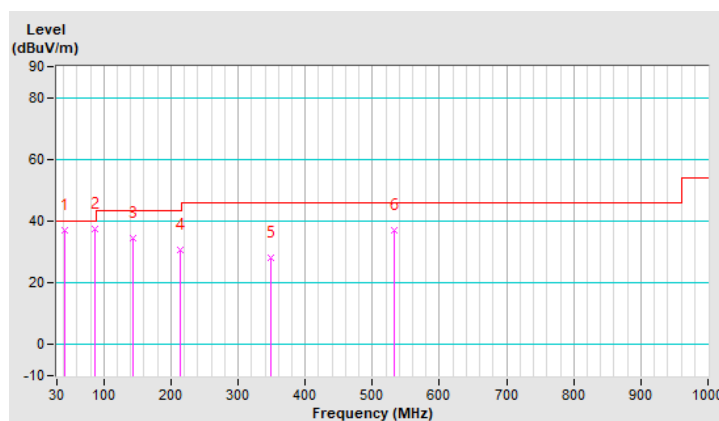


RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.65	37.2 QP	40.0	-2.8	1.00 V	5	46.6	-9.4
2	87.64	37.6 QP	40.0	-2.4	1.00 V	177	52.0	-14.4
3	142.46	34.4 QP	43.5	-9.1	1.00 V	226	43.3	-8.9
4	214.16	30.5 QP	43.5	-13.0	1.49 V	7	41.3	-10.8
5	349.12	28.3 QP	46.0	-17.7	1.00 V	121	34.0	-5.7
6	533.28	37.1 QP	46.0	-8.9	1.00 V	136	38.7	-1.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

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

4.2.2 Test Instruments

Tested date: Apr. 06, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102783	Dec. 21, 2020	Dec. 20, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 18, 2020	Aug. 17, 2021
Software ADT	BV ADT_Conf_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).

3. The VCCI Site Registration No. is C-12047.

4.2.3 Test Procedures

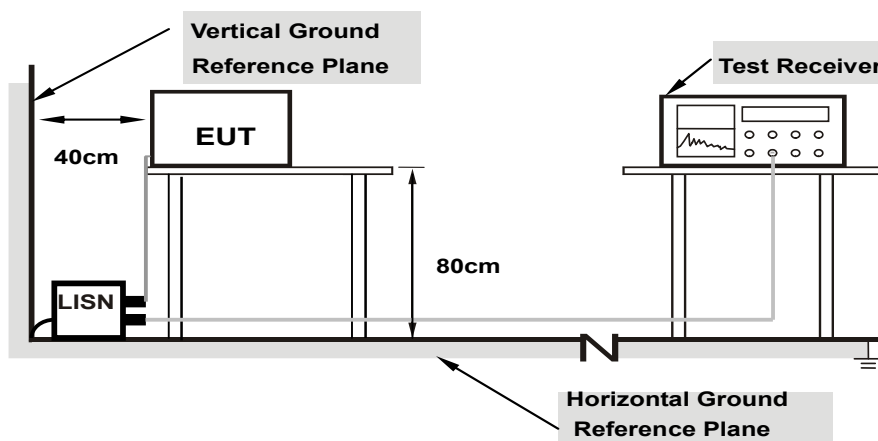
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

5G traffic radio (Radio 1)

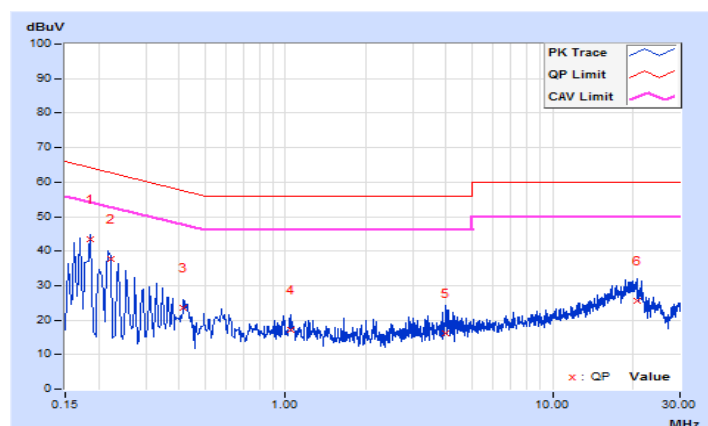
802.11ax (HE20)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18519	10.08	33.42	16.17	43.50	26.25	64.25	54.25	-20.75	-28.00
2	0.22200	10.08	27.48	8.60	37.56	18.68	62.74	52.74	-25.18	-34.06
3	0.41252	10.09	13.52	2.45	23.61	12.54	57.60	47.60	-33.99	-35.06
4	1.04200	10.14	6.90	1.66	17.04	11.80	56.00	46.00	-38.96	-34.20
5	3.96200	10.22	6.02	2.33	16.24	12.55	56.00	46.00	-39.76	-33.45
6	20.62600	10.43	15.09	7.06	25.52	17.49	60.00	50.00	-34.48	-32.51

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

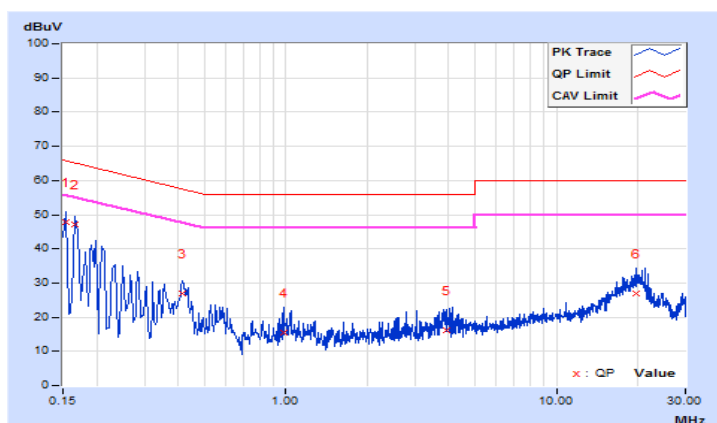


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	37.79	19.99	47.87	30.07	65.78	55.78	-17.91	-25.71
2	0.16535	10.08	37.04	19.23	47.12	29.31	65.19	55.19	-18.07	-25.88
3	0.41252	10.10	16.88	9.29	26.98	19.39	57.60	47.60	-30.62	-28.21
4	0.97800	10.15	5.31	4.66	15.46	14.81	56.00	46.00	-40.54	-31.19
5	3.90600	10.26	6.03	3.28	16.29	13.54	56.00	46.00	-39.71	-32.46
6	19.66600	10.64	16.20	8.36	26.84	19.00	60.00	50.00	-33.16	-31.00

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

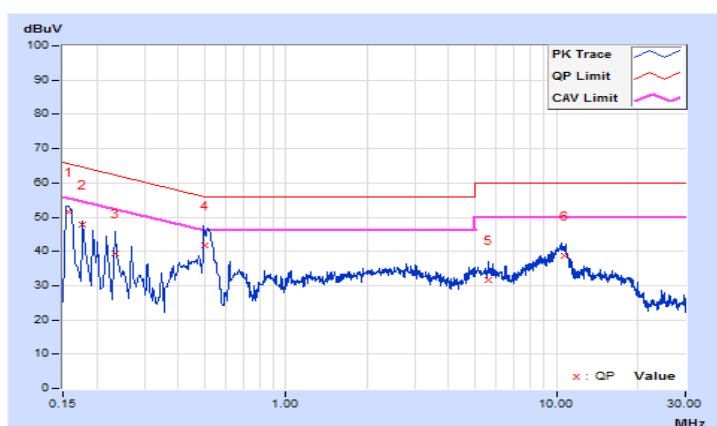


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15687	10.07	41.44	25.79	51.51	35.86	65.63	55.63	-14.12	-19.77
2	0.17615	10.07	37.69	21.52	47.76	31.59	64.67	54.67	-16.91	-23.08
3	0.23289	10.08	29.40	17.29	39.48	27.37	62.35	52.35	-22.87	-24.98
4	0.50200	10.10	31.53	25.33	41.63	35.43	56.00	46.00	-14.37	-10.57
5	5.58200	10.25	21.47	15.45	31.72	25.70	60.00	50.00	-28.28	-24.30
6	10.66600	10.33	28.36	23.26	38.69	33.59	60.00	50.00	-21.31	-16.41

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

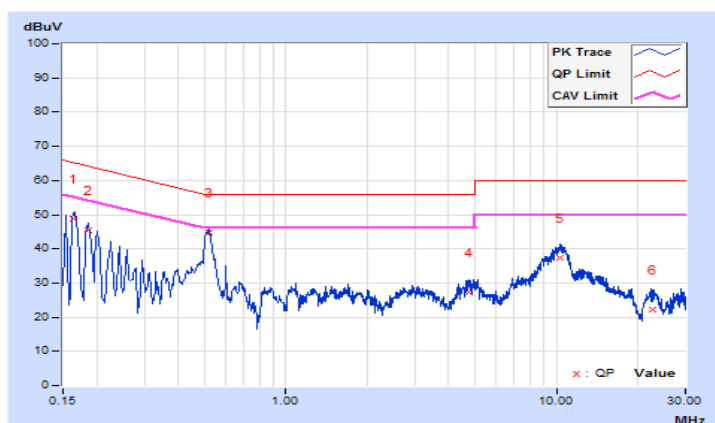


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16319	10.08	38.66	22.66	48.74	32.74	65.30	55.30	-16.56	-22.56
2	0.18519	10.08	35.46	20.68	45.54	30.76	64.25	54.25	-18.71	-23.49
3	0.51800	10.11	34.56	29.38	44.67	39.49	56.00	46.00	-11.33	-6.51
4	4.73000	10.28	16.98	10.25	27.26	20.53	56.00	46.00	-28.74	-25.47
5	10.25800	10.42	27.03	21.49	37.45	31.91	60.00	50.00	-22.55	-18.09
6	22.58600	10.58	11.48	6.25	22.06	16.83	60.00	50.00	-37.94	-33.17

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



Scanning radio (Radio 3)

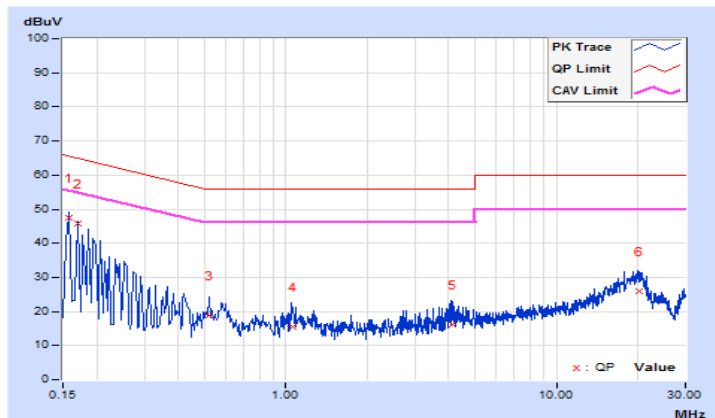
802.11ac (VHT80)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15687	10.07	37.24	17.49	47.31	27.56	65.63	55.63	-18.32	-28.07
2	0.16932	10.07	35.69	17.95	45.76	28.02	64.99	54.99	-19.23	-26.97
3	0.52016	10.10	8.59	1.42	18.69	11.52	56.00	46.00	-37.31	-34.48
4	1.06200	10.14	5.46	1.45	15.60	11.59	56.00	46.00	-40.40	-34.41
5	4.12200	10.22	5.78	2.69	16.00	12.91	56.00	46.00	-40.00	-33.09
6	20.13400	10.45	15.59	7.73	26.04	18.18	60.00	50.00	-33.96	-31.82

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

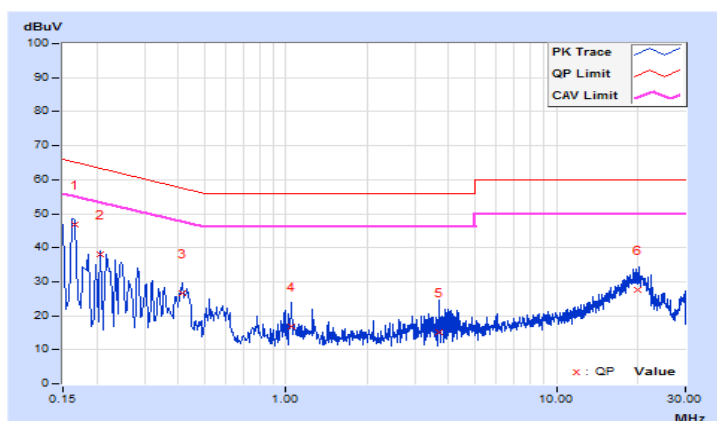


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	10.08	36.70	20.34	46.78	30.42	65.16	55.16	-18.38	-24.74
2	0.20523	10.08	27.94	7.87	38.02	17.95	63.40	53.40	-25.38	-35.45
3	0.41252	10.10	16.50	9.42	26.60	19.52	57.60	47.60	-31.00	-28.08
4	1.04200	10.15	6.64	3.38	16.79	13.53	56.00	46.00	-39.21	-32.47
5	3.66417	10.24	5.05	4.39	15.29	14.63	56.00	46.00	-40.71	-31.37
6	19.85400	10.65	16.80	8.82	27.45	19.47	60.00	50.00	-32.55	-30.53

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

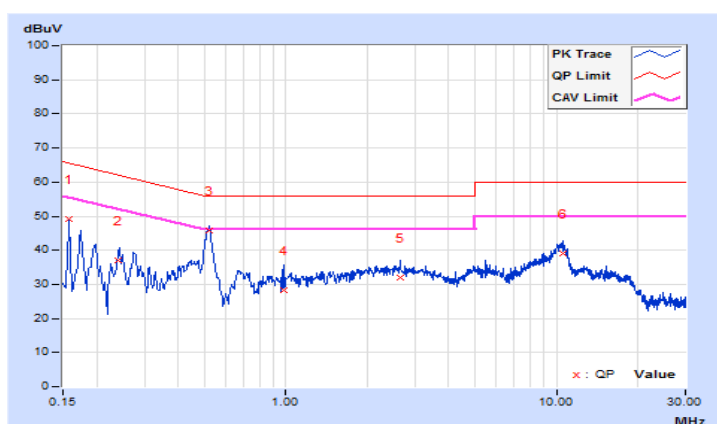


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15687	10.07	39.05	23.31	49.12	33.38	65.63	55.63	-16.51	-22.25
2	0.23911	10.08	26.86	14.48	36.94	24.56	62.13	52.13	-25.19	-27.57
3	0.51879	10.10	35.70	30.60	45.80	40.70	56.00	46.00	-10.20	-5.30
4	0.97800	10.14	18.14	13.13	28.28	23.27	56.00	46.00	-27.72	-22.73
5	2.64299	10.18	21.89	16.54	32.07	26.72	56.00	46.00	-23.93	-19.28
6	10.52200	10.33	28.60	23.53	38.93	33.86	60.00	50.00	-21.07	-16.14

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

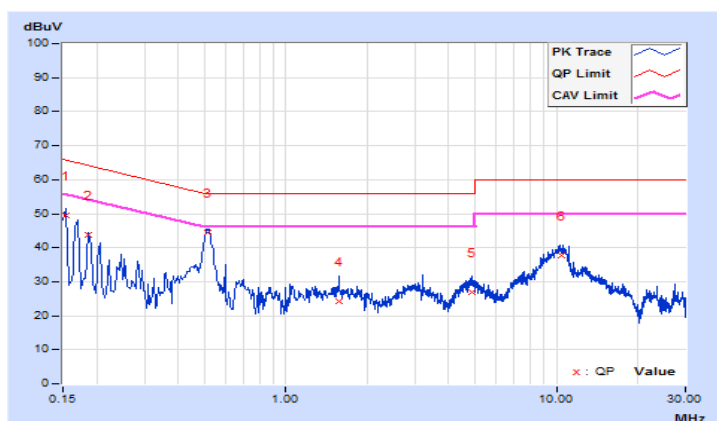


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	39.56	23.78	49.64	33.86	65.78	55.78	-16.14	-21.92
2	0.18519	10.08	33.54	19.43	43.62	29.51	64.25	54.25	-20.63	-24.74
3	0.51606	10.11	34.39	29.29	44.50	39.40	56.00	46.00	-11.50	-6.60
4	1.57287	10.16	14.10	7.04	24.26	17.20	56.00	46.00	-31.74	-28.80
5	4.84600	10.28	16.74	10.12	27.02	20.40	56.00	46.00	-28.98	-25.60
6	10.40600	10.42	27.13	21.74	37.55	32.16	60.00	50.00	-22.45	-17.84

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	-		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	-		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

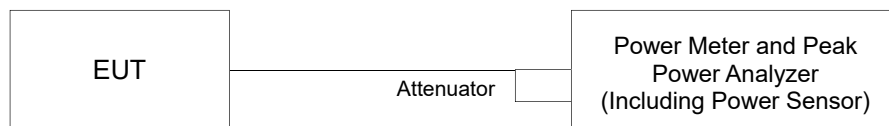
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

5G traffic radio (Radio 1)

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	17.19	16.97	17.05	16.94	202.264	23.06	30.00	Pass
40	5200	17.28	16.84	17.19	17.01	204.357	23.10	30.00	Pass
48	5240	17.13	16.93	17.14	16.97	202.493	23.06	30.00	Pass
149	5745	21.92	22.09	22.11	22.06	640.654	28.07	30.00	Pass
157	5785	21.97	21.93	22.01	22.42	646.790	28.11	30.00	Pass
165	5825	21.57	21.85	21.84	22.02	608.635	27.84	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	17.03	17.05	16.90	16.60	195.852	22.92	30.00	Pass
40	5200	17.43	16.73	17.53	17.03	209.523	23.21	30.00	Pass
48	5240	17.52	16.67	17.62	17.31	214.582	23.32	30.00	Pass
149	5745	21.83	22.00	22.03	22.23	637.592	28.05	30.00	Pass
157	5785	21.90	22.01	22.05	22.41	648.242	28.12	30.00	Pass
165	5825	21.90	21.62	21.90	22.23	622.084	27.94	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	16.68	16.60	16.30	16.10	175.663	22.45	30.00	Pass
46	5230	20.41	19.65	19.46	19.90	388.189	25.89	30.00	Pass
151	5755	21.17	21.41	21.30	21.57	547.720	27.39	30.00	Pass
159	5795	21.80	21.80	21.98	22.25	628.354	27.98	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	16.30	15.78	16.57	16.08	166.447	22.21	30.00	Pass
155	5775	17.70	17.65	17.80	18.10	241.916	23.84	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

802.11ax (HE20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	17.06	17.07	16.92	16.62	196.873	22.94	30.00	Pass
40	5200	17.46	16.78	17.57	17.06	211.325	23.25	30.00	Pass
48	5240	17.56	16.71	17.64	17.35	216.299	23.35	30.00	Pass
149	5745	21.85	22.04	22.09	22.26	643.140	28.08	30.00	Pass
157	5785	21.93	22.03	22.08	22.44	652.367	28.14	30.00	Pass
165	5825	21.92	21.64	21.93	22.25	625.314	27.96	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

802.11ax (HE40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	16.71	16.63	16.32	16.12	176.688	22.47	30.00	Pass
46	5230	20.43	19.61	19.48	19.92	388.710	25.90	30.00	Pass
151	5755	21.21	21.43	21.35	21.61	552.460	27.42	30.00	Pass
159	5795	21.83	21.83	22.01	22.28	632.709	28.01	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

802.11ax (HE80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	16.33	15.81	16.61	16.09	167.519	22.24	30.00	Pass
155	5775	17.73	17.68	17.83	18.13	243.593	23.87	30.00	Pass

Note: For 5180~5240MHz: Max. gain = 4.94dBi < 6dBi, so the power limit is not reduced.

Beamforming Mode

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	17.03	17.05	16.90	16.60	195.852	22.92	25.65	Pass
40	5200	17.43	16.73	17.53	17.03	209.523	23.21	25.65	Pass
48	5240	17.52	16.67	17.62	17.31	214.582	23.32	25.65	Pass
149	5745	19.11	19.28	19.31	19.51	340.834	25.33	25.44	Pass
157	5785	19.18	19.29	19.33	19.39	340.312	25.32	25.44	Pass
165	5825	19.26	18.98	19.26	19.59	338.726	25.30	25.44	Pass

Note:

For 5180~5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.35 - 6) = 25.65\text{dBm}$.

For 5745~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	16.68	16.60	16.30	16.10	175.663	22.45	25.65	Pass
46	5230	19.89	19.11	18.94	19.27	341.840	25.34	25.65	Pass
151	5755	19.11	19.35	19.24	19.51	340.846	25.33	25.44	Pass
159	5795	19.16	19.16	19.34	19.61	342.140	25.34	25.44	Pass

Note:

For 5180~5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.35 - 6) = 25.65\text{dBm}$.

For 5745~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	16.30	15.78	16.57	16.08	166.447	22.21	25.65	Pass
155	5775	17.70	17.65	17.80	18.10	241.916	23.84	25.44	Pass

Note:

For 5180~5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.35 - 6) = 25.65\text{dBm}$.

For 5745~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.

802.11ax (HE20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	17.06	17.07	16.92	16.62	196.873	22.94	25.65	Pass
40	5200	17.46	16.78	17.57	17.06	211.325	23.25	25.65	Pass
48	5240	17.56	16.71	17.64	17.35	216.299	23.35	25.65	Pass
149	5745	19.21	19.40	19.45	19.43	346.269	25.39	25.44	Pass
157	5785	19.29	19.39	19.24	19.47	344.272	25.37	25.44	Pass
165	5825	19.28	19.00	19.29	19.61	340.485	25.32	25.44	Pass

Note:

For 5180~5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.35 - 6) = 25.65\text{dBm}$.

For 5745~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.

802.11ax (HE40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	16.71	16.63	16.32	16.12	176.688	22.47	25.65	Pass
46	5230	19.91	19.09	18.96	19.34	343.651	25.36	25.65	Pass
151	5755	19.15	19.37	19.29	19.55	343.796	25.36	25.44	Pass
159	5795	19.19	19.19	19.37	19.64	344.512	25.37	25.44	Pass

Note:

For 5180~5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.35 - 6) = 25.65\text{dBm}$.

For 5745~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.

802.11ax (HE80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	16.33	15.81	16.61	16.09	167.519	22.24	25.65	Pass
155	5775	17.73	17.68	17.83	18.13	243.593	23.87	25.44	Pass

Note:

For 5180~5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.35 - 6) = 25.65\text{dBm}$.

For 5745~5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.

Scanning radio (Radio 3)

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	16.827	12.26	30.00	Pass
40	5200	10.280	10.12	30.00	Pass
48	5240	10.162	10.07	30.00	Pass
149	5745	16.069	12.06	30.00	Pass
157	5785	16.482	12.17	30.00	Pass
165	5825	15.922	12.02	30.00	Pass

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	16.672	12.22	30.00	Pass
40	5200	10.116	10.05	30.00	Pass
48	5240	10.520	10.22	30.00	Pass
149	5745	16.788	12.25	30.00	Pass
157	5785	16.368	12.14	30.00	Pass
165	5825	16.711	12.23	30.00	Pass

802.11ac (VHT40)

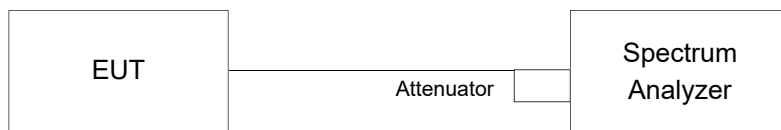
Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	16.634	12.21	30.00	Pass
46	5230	10.691	10.29	30.00	Pass
151	5755	15.922	12.02	30.00	Pass
159	5795	16.106	12.07	30.00	Pass

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	9.376	9.72	30.00	Pass
155	5775	17.100	12.33	30.00	Pass

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.4.4 Test Result

5G traffic radio (Radio 1)

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	16.52	16.52	16.52	16.43
40	5200	16.44	16.44	16.56	16.56
48	5240	16.32	16.44	16.44	16.56
149	5745	24.09	25.65	25.56	26.35
157	5785	27.12	29.04	28.32	28.20
165	5825	26.64	27.72	28.44	26.88

802.11ax (HE20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	18.96	18.96	18.96	19.08
40	5200	19.08	18.96	18.96	18.96
48	5240	18.84	19.08	18.96	18.96
149	5745	22.68	25.92	26.64	26.28
157	5785	27.84	28.44	28.80	27.60
165	5825	27.12	27.48	27.60	28.32

802.11ax (HE40)

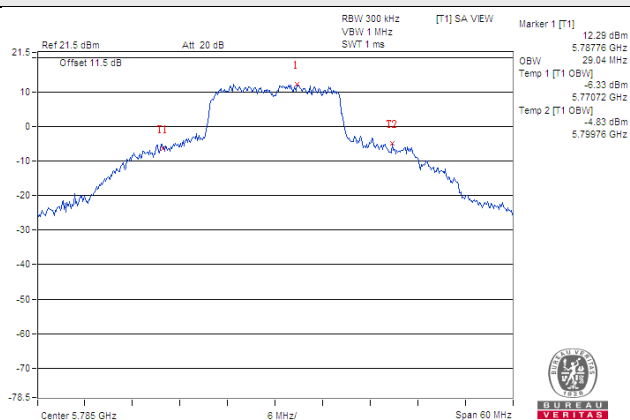
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	37.92	37.92	37.92	38.16
46	5230	39.36	38.88	38.64	38.64
151	5755	41.76	42.00	41.76	41.04
159	5795	51.60	53.76	52.56	51.84

802.11ax (HE80)

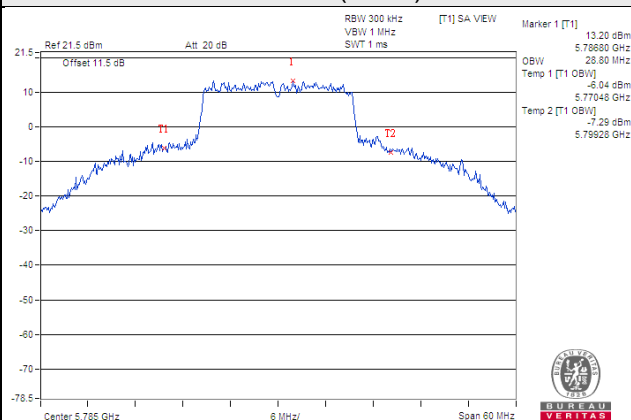
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	77.04	77.28	77.28	77.04
155	5775	77.04	77.28	77.04	77.28

Spectrum Plot of Worst Value

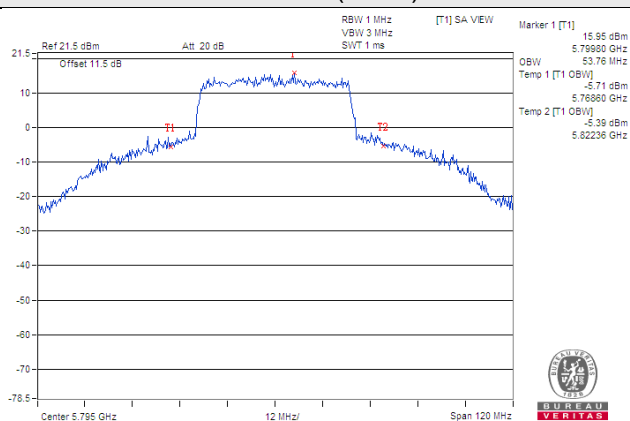
802.11a



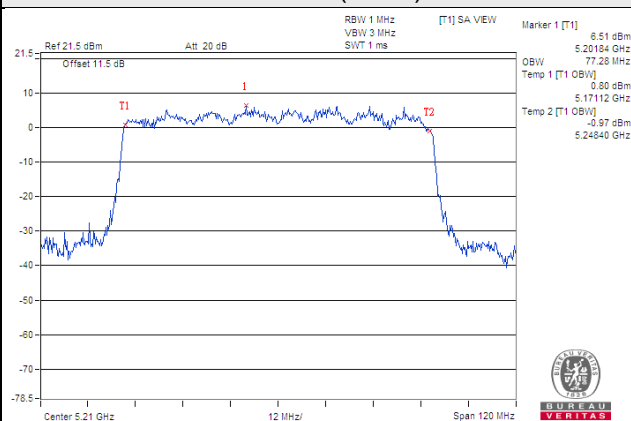
802.11ax (HE20)



802.11ax (HE40)

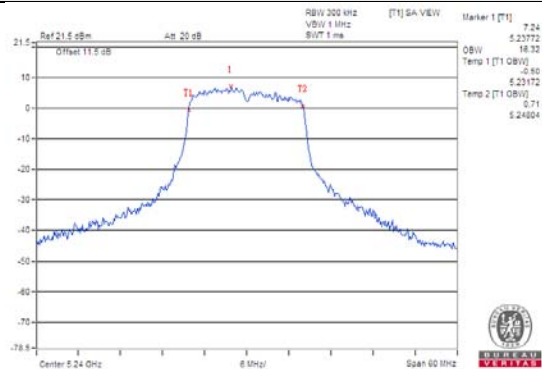


802.11ax (HE80)

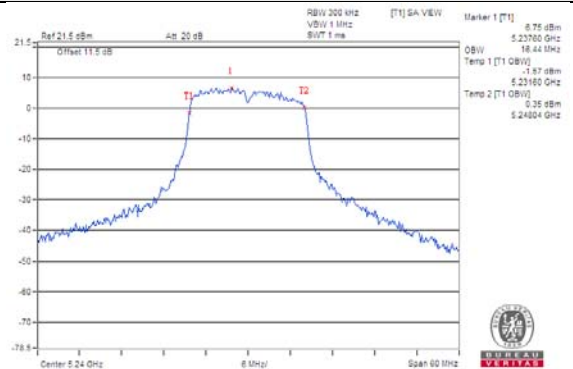


Spectrum Plot for near By DFS Band

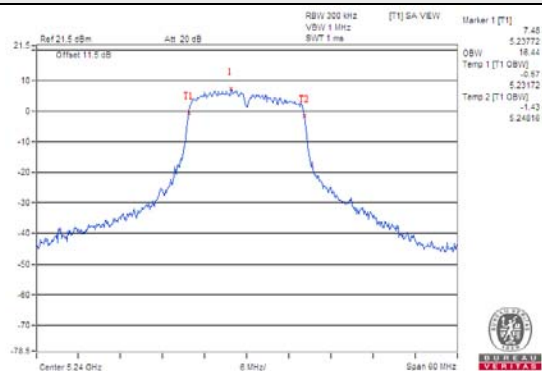
802.11a / Chain 0 / CH 48



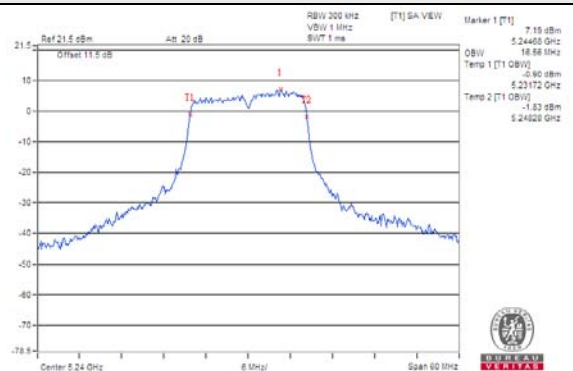
802.11a / Chain 1 / CH 48



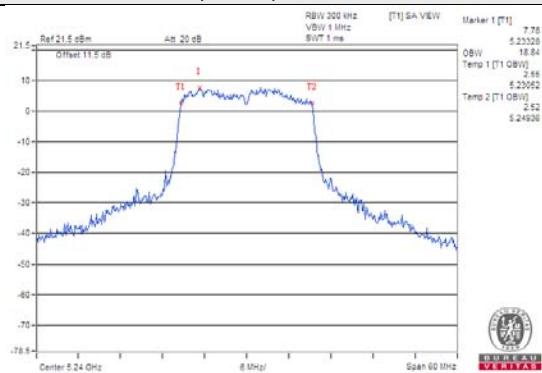
802.11a / Chain 2 / CH 48



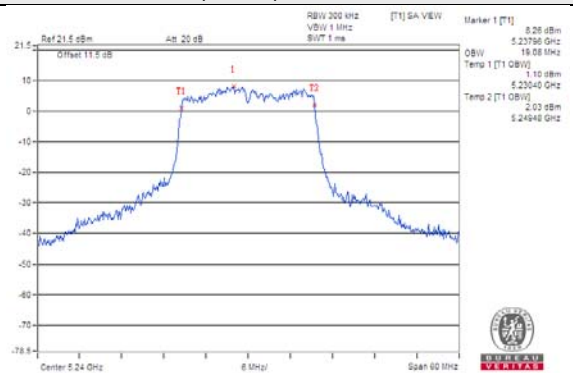
802.11a / Chain 3 / CH 48



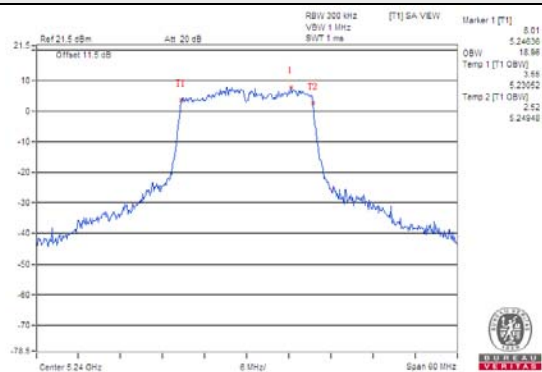
802.11ax (HE20) / Chain 0 / CH 48



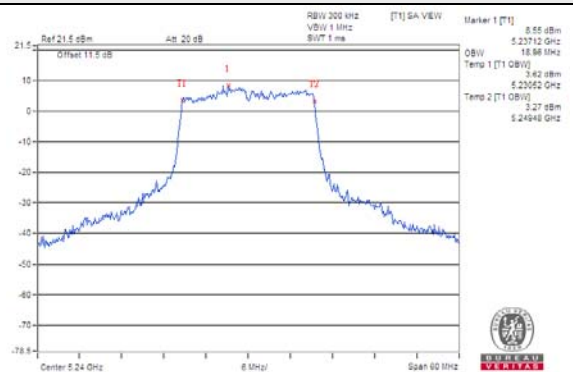
802.11ax (HE20) / Chain 1 / CH 48



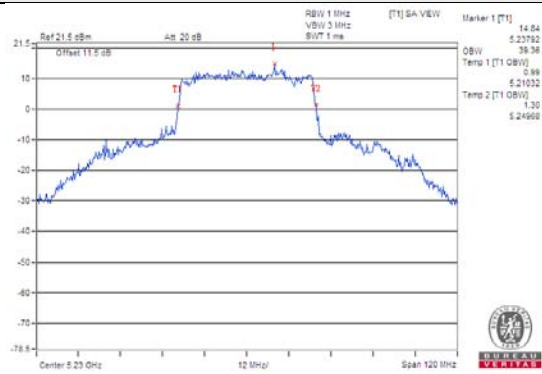
802.11ax (HE20) / Chain 2 / CH 48



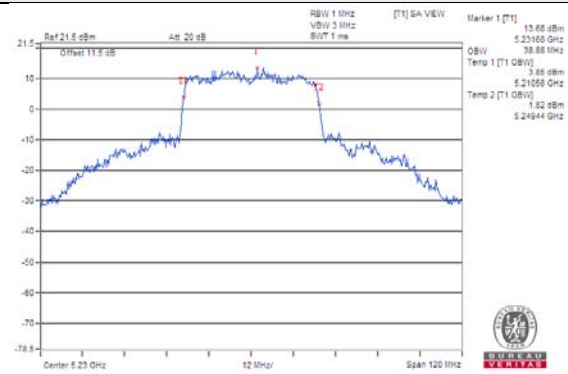
802.11ax (HE20) / Chain 3 / CH 48



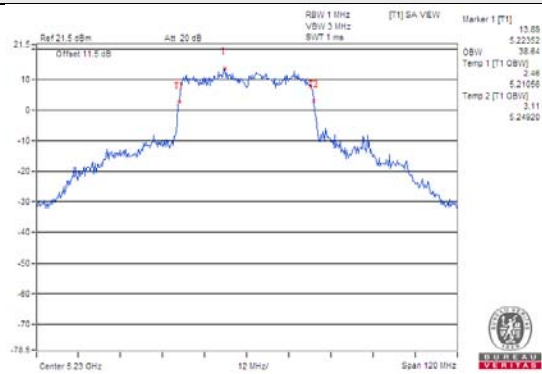
802.11ax (HE40) / Chain 0 / CH 46



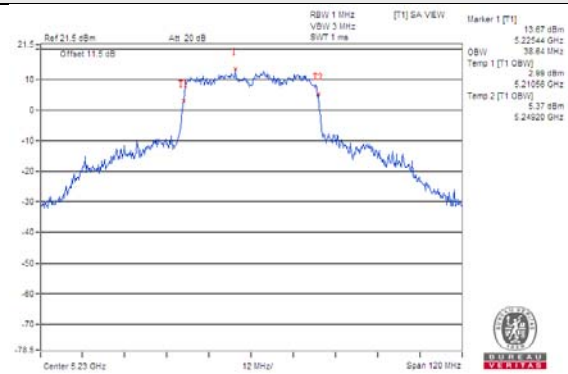
802.11ax (HE40) / Chain 1 / CH 46



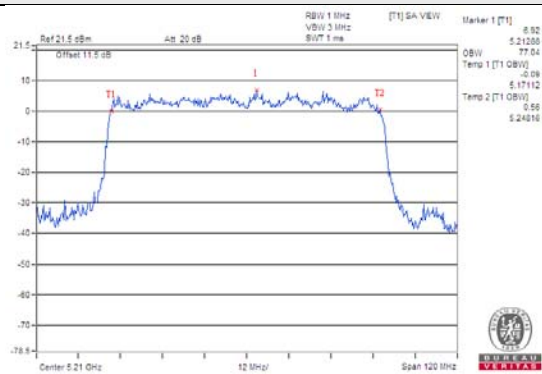
802.11ax (HE40) / Chain 2 / CH 46



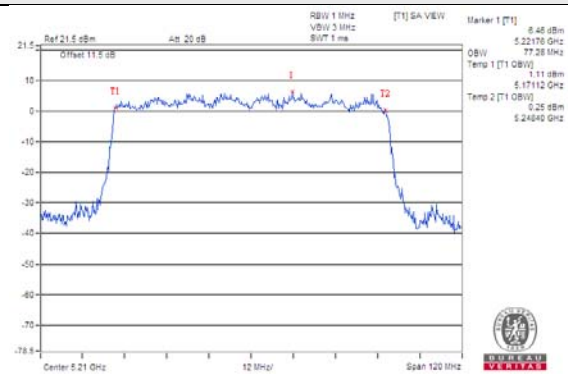
802.11ax (HE40) / Chain 3 / CH 46



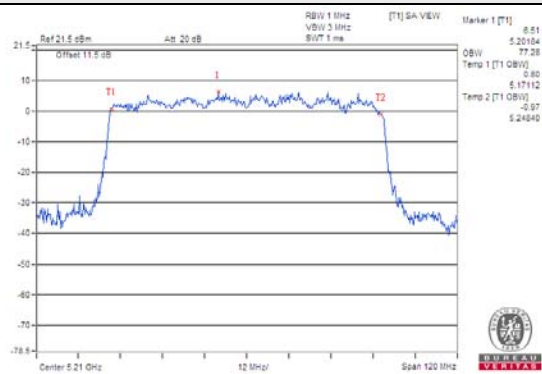
802.11ax (HE80) / Chain 0 / CH 42



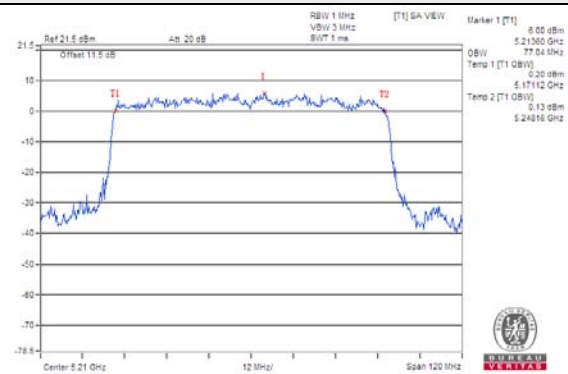
802.11ax (HE80) / Chain 1 / CH 42



802.11ax (HE80) / Chain 2 / CH 42

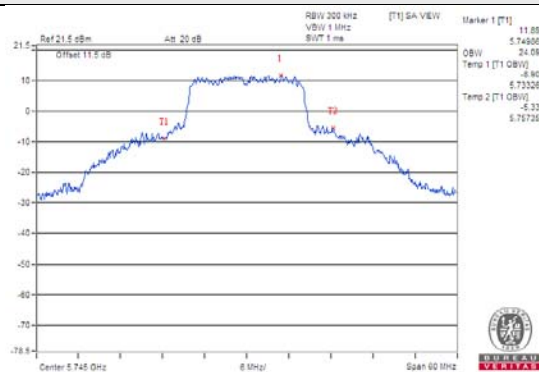


802.11ax (HE80) / Chain 3 / CH 42

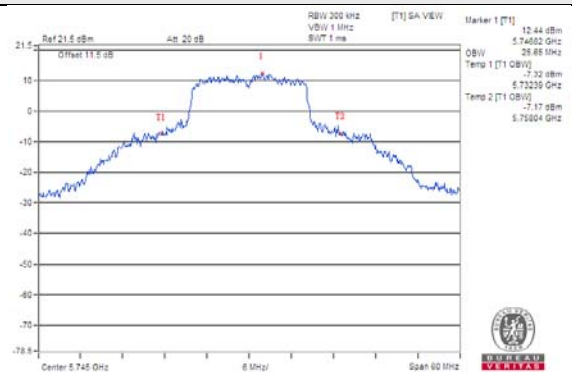


Spectrum Plot for near By DFS Band

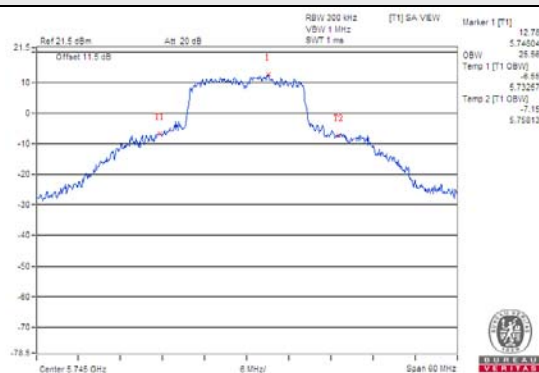
802.11a / Chain 0 / CH 149



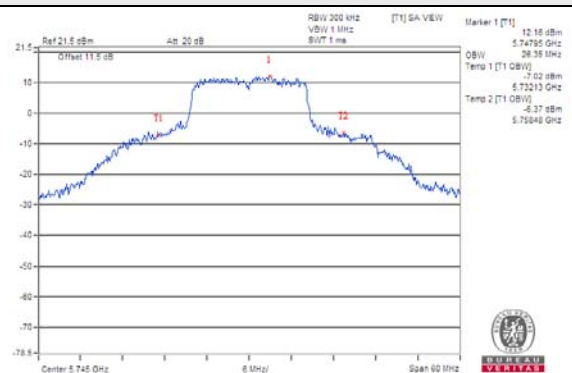
802.11a / Chain 1 / CH 149



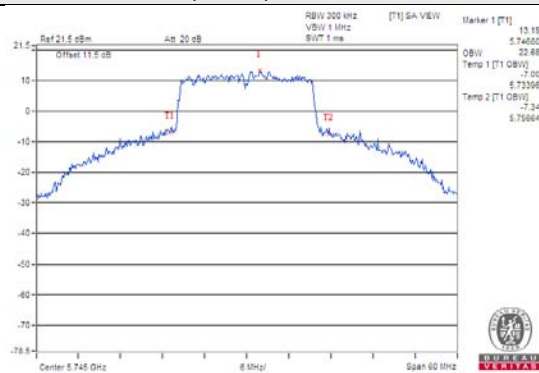
802.11a / Chain 2 / CH 149



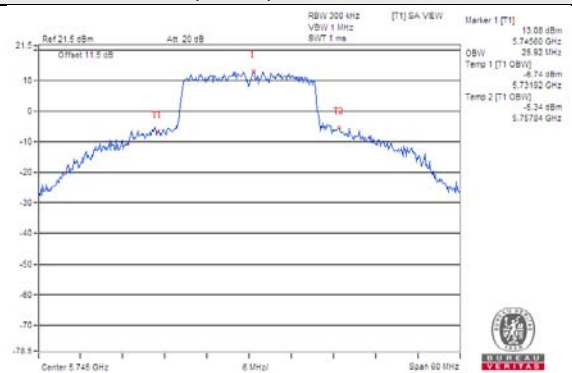
802.11a / Chain 3 / CH 149



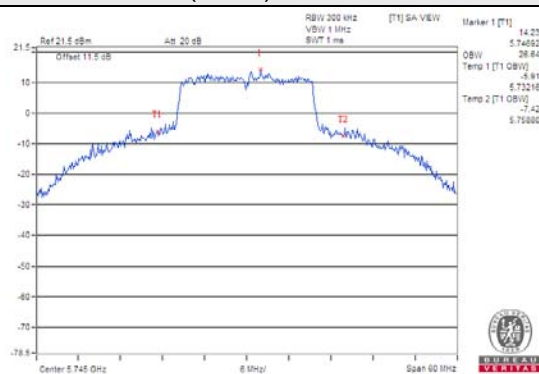
802.11ax (HE20) / Chain 0 / CH 149



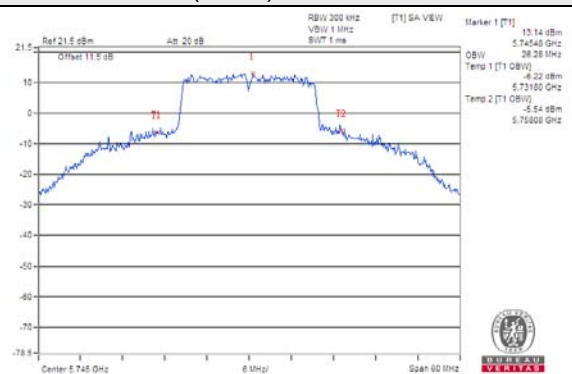
802.11ax (HE20) / Chain 1 / CH 149



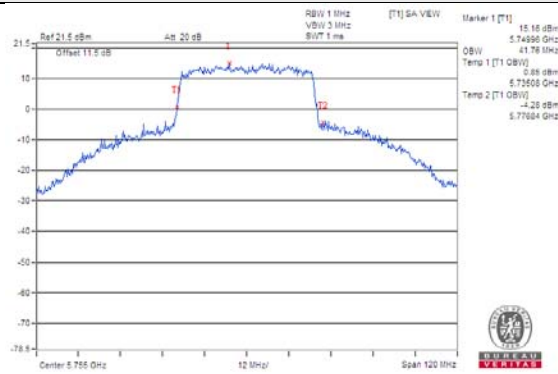
802.11ax (HE20) / Chain 2 / CH 149



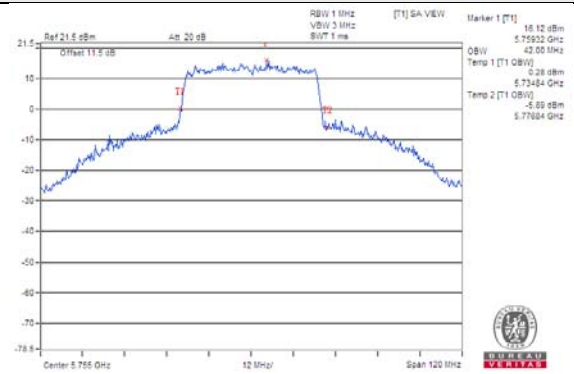
802.11ax (HE20) / Chain 3 / CH 149



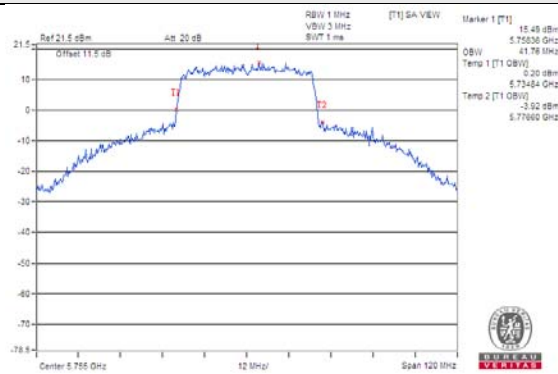
802.11ax (HE40) / Chain 0 / CH 151



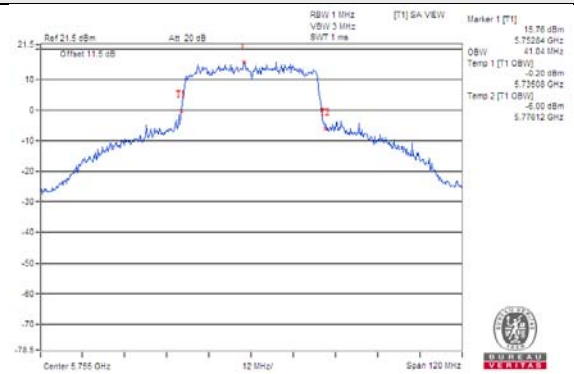
802.11ax (HE40) / Chain 1 / CH 151



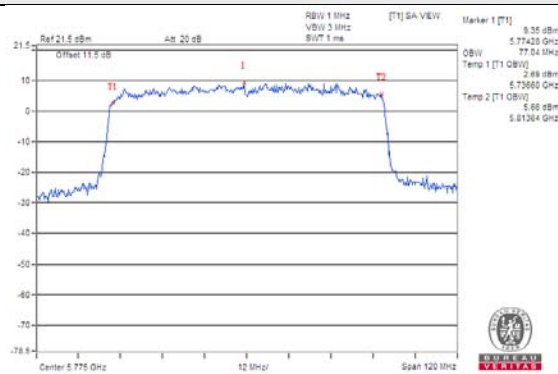
802.11ax (HE40) / Chain 2 / CH 151



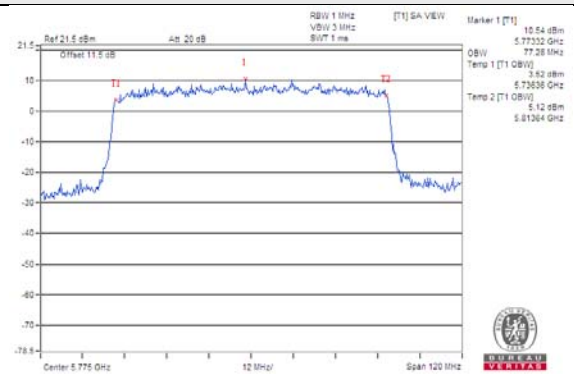
802.11ax (HE40) / Chain 3 / CH 151



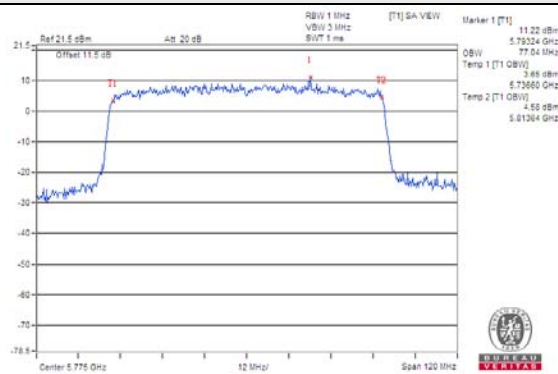
802.11ax (HE80) / Chain 0 / CH 155



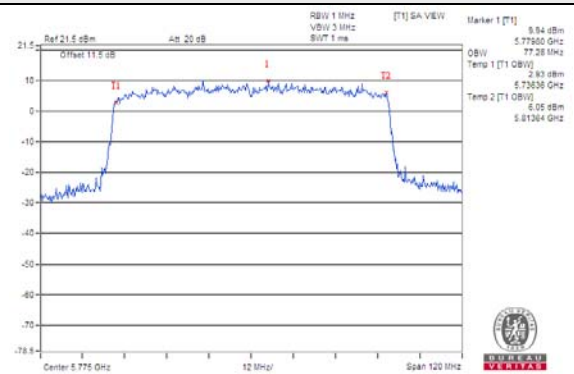
802.11ax (HE80) / Chain 1 / CH 155



802.11ax (HE80) / Chain 2 / CH 155



802.11ax (HE80) / Chain 3 / CH 155



Scanning radio (Radio 3)

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
36	5180	16.92
40	5200	17.04
48	5240	17.04
149	5745	16.95
157	5785	16.92
165	5825	16.92

802.11ac (VHT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
36	5180	18.08
40	5200	18.08
48	5240	18.08
149	5745	18.12
157	5785	18.12
165	5825	18.12

802.11ac (VHT40)

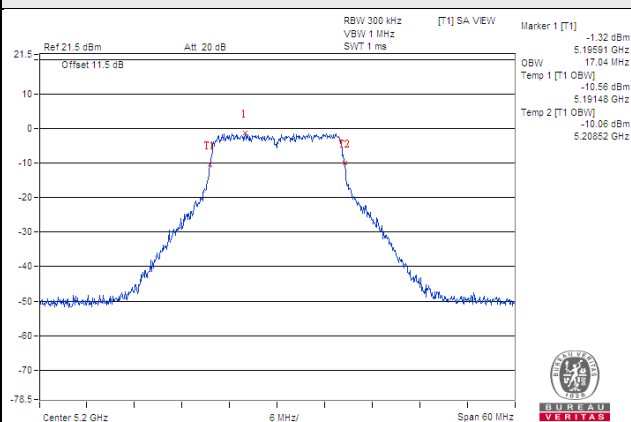
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
38	5190	37.39
46	5230	37.04
151	5755	37.44
159	5795	37.44

802.11ac (VHT80)

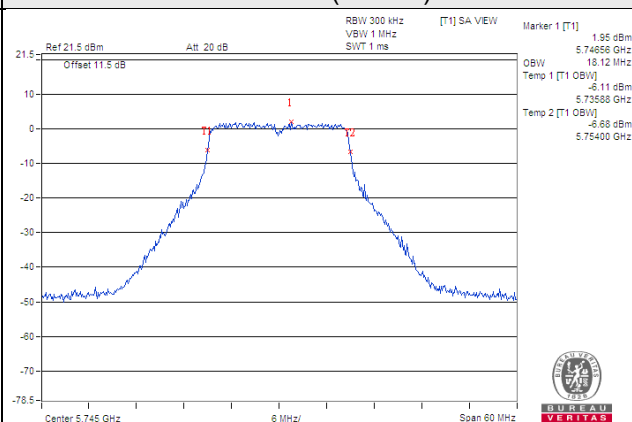
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
42	5210	76.17
155	5775	76.80

Spectrum Plot of Worst Value

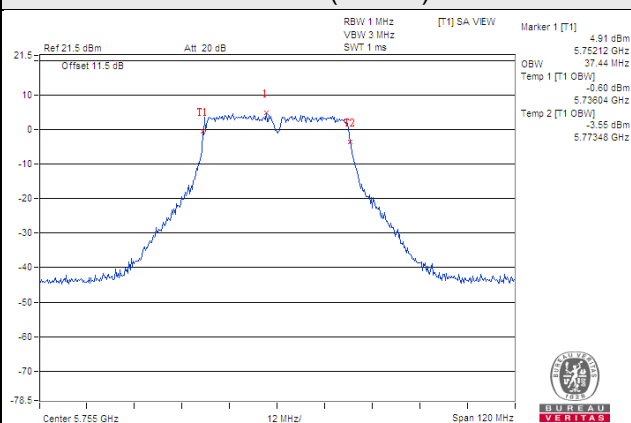
802.11a



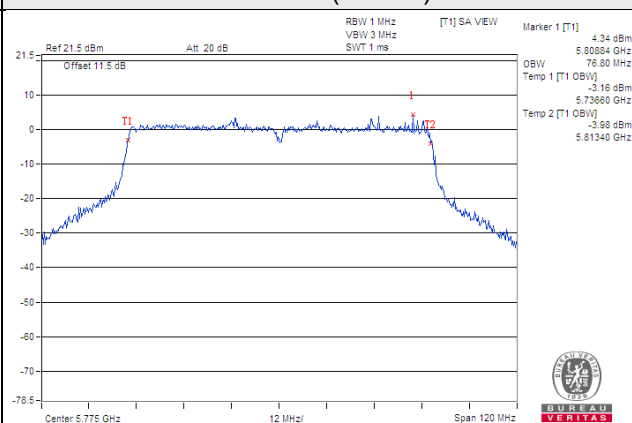
802.11ac (VHT20)



802.11ac (VHT40)

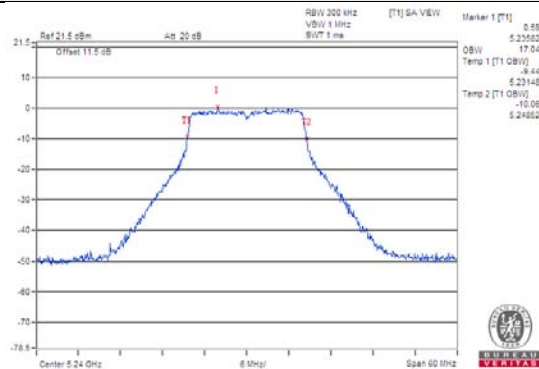


802.11ac (VHT80)

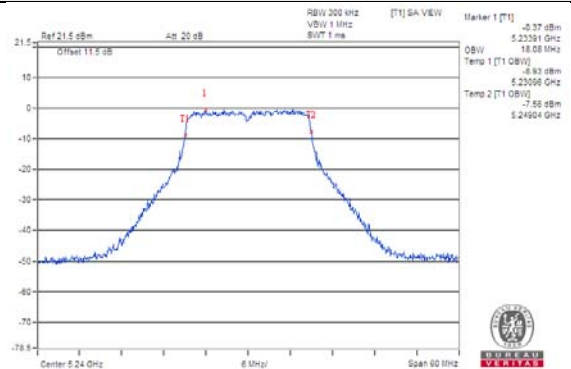


Spectrum Plot for near By DFS Band

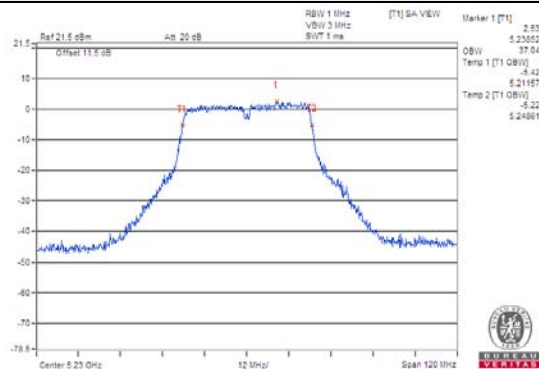
802.11a / CH 48



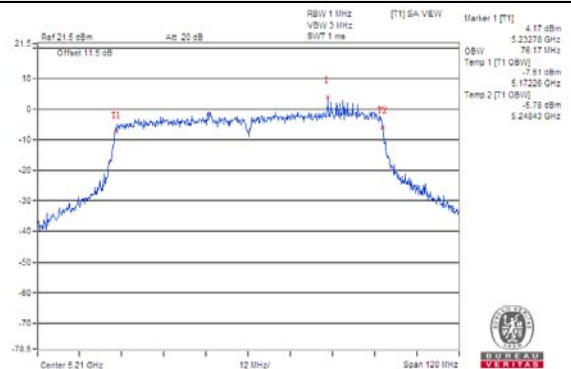
802.11ac (VHT20) / CH 48



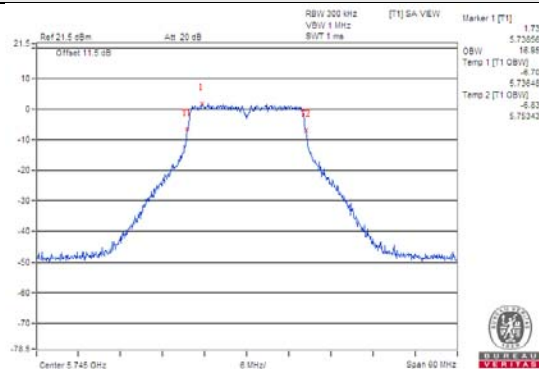
802.11ac (VHT40) / CH 46



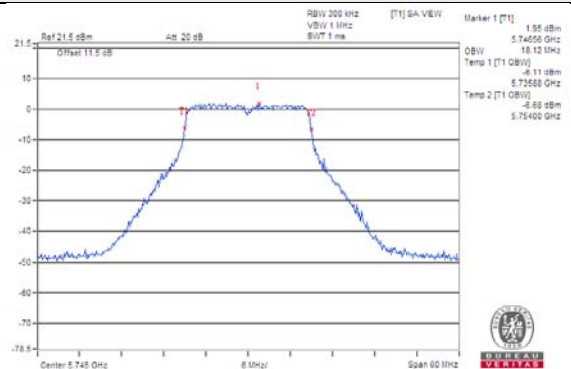
802.11ac (VHT80) / CH 42



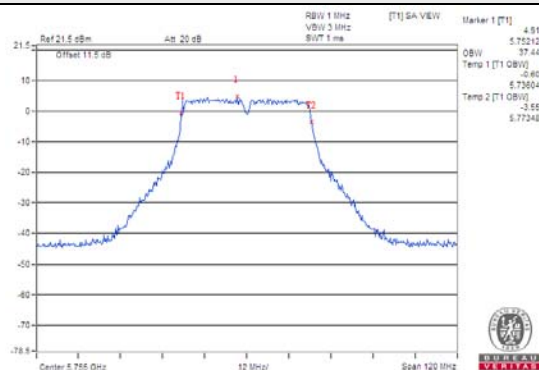
802.11a / CH 149



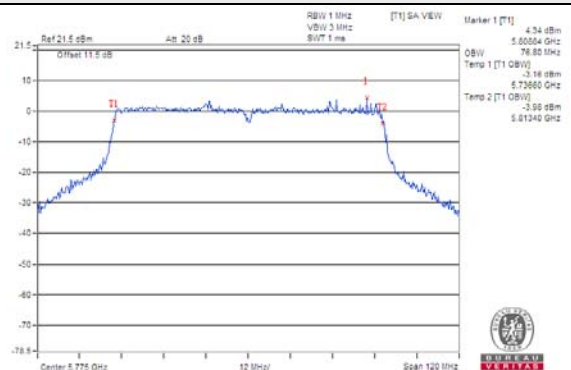
802.11ac (VHT20) / CH 149



802.11ac (VHT40) / CH 151



802.11ac (VHT80) / CH 155

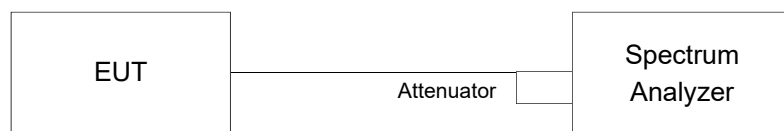


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Mobile and Portable client device	11dBm/ MHz
U-NII-2A	-		11dBm/ MHz
U-NII-2C	-		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1 band:

Using method SA-2

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
- Set Channel power measure = 1MHz
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz} / 300 \text{ kHz})$
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

5G traffic radio (Radio 1)

For U-NII-1 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	5.52	5.63	5.61	5.62	0.26	11.88	12.65	Pass
40	5200	5.41	5.56	5.49	5.52	0.26	11.78	12.65	Pass
48	5240	5.54	5.56	5.59	5.54	0.26	11.84	12.65	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.35 - 6) = 12.65\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	5.40	5.51	5.30	5.53	0.20	11.66	12.65	Pass
40	5200	5.53	5.56	5.20	5.41	0.20	11.65	12.65	Pass
48	5240	5.45	5.27	5.51	5.43	0.20	11.64	12.65	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.35 - 6) = 12.65\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	-1.49	-1.11	-1.04	-1.54	0.22	4.95	12.65	Pass
46	5230	0.34	1.81	1.85	1.95	0.22	7.78	12.65	Pass

Note:

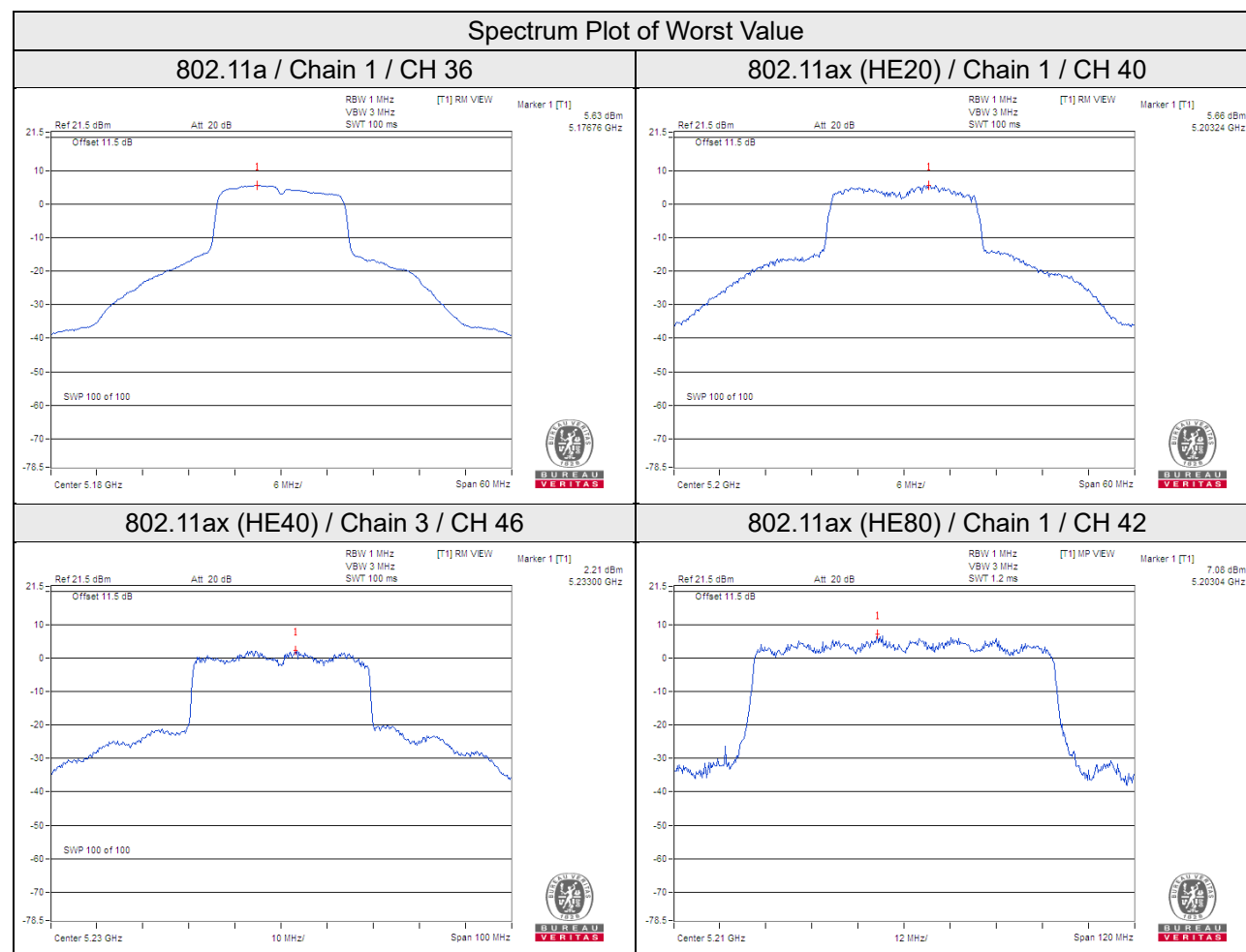
1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.35 - 6) = 12.65\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-5.54	-4.91	-5.21	-5.01	0.22	1.08	12.65	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.35 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $17 - (10.35 - 6) = 12.65 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	-0.76	1.46	6.02	0.26	7.74	25.44	Pass
	157	5785	-0.29	1.93	6.02	0.26	8.21	25.44	Pass
	165	5825	-0.50	1.72	6.02	0.26	8.00	25.44	Pass
1	149	5745	-0.45	1.77	6.02	0.26	8.05	25.44	Pass
	157	5785	-0.35	1.87	6.02	0.26	8.15	25.44	Pass
	165	5825	-0.72	1.50	6.02	0.26	7.78	25.44	Pass
2	149	5745	-0.42	1.80	6.02	0.26	8.08	25.44	Pass
	157	5785	-0.18	2.04	6.02	0.26	8.32	25.44	Pass
	165	5825	-0.58	1.64	6.02	0.26	7.92	25.44	Pass
3	149	5745	-0.40	1.82	6.02	0.26	8.10	25.44	Pass
	157	5785	-0.06	2.16	6.02	0.26	8.44	25.44	Pass
	165	5825	-0.54	1.68	6.02	0.26	7.96	25.44	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (NANT) dB.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	-2.24	-0.02	6.02	0.20	6.20	25.44	Pass
	157	5785	-2.06	0.16	6.02	0.20	6.38	25.44	Pass
	165	5825	-2.05	0.17	6.02	0.20	6.39	25.44	Pass
1	149	5745	-2.20	0.02	6.02	0.20	6.24	25.44	Pass
	157	5785	-2.00	0.22	6.02	0.20	6.44	25.44	Pass
	165	5825	-2.11	0.11	6.02	0.20	6.33	25.44	Pass
2	149	5745	-2.04	0.18	6.02	0.20	6.40	25.44	Pass
	157	5785	-1.86	0.36	6.02	0.20	6.58	25.44	Pass
	165	5825	-2.00	0.22	6.02	0.20	6.44	25.44	Pass
3	149	5745	-2.21	0.01	6.02	0.20	6.23	25.44	Pass
	157	5785	-1.83	0.39	6.02	0.20	6.61	25.44	Pass
	165	5825	-1.92	0.30	6.02	0.20	6.52	25.44	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (NANT) dB.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-5.72	-3.50	6.02	0.22	2.74	25.44	Pass
	159	5795	-4.97	-2.75	6.02	0.22	3.49	25.44	Pass
1	151	5755	-5.54	-3.32	6.02	0.22	2.92	25.44	Pass
	159	5795	-4.71	-2.49	6.02	0.22	3.75	25.44	Pass
2	151	5755	-5.53	-3.31	6.02	0.22	2.93	25.44	Pass
	159	5795	-4.90	-2.68	6.02	0.22	3.56	25.44	Pass
3	151	5755	-5.43	-3.21	6.02	0.22	3.03	25.44	Pass
	159	5795	-4.66	-2.44	6.02	0.22	3.80	25.44	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (NANT) dB.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

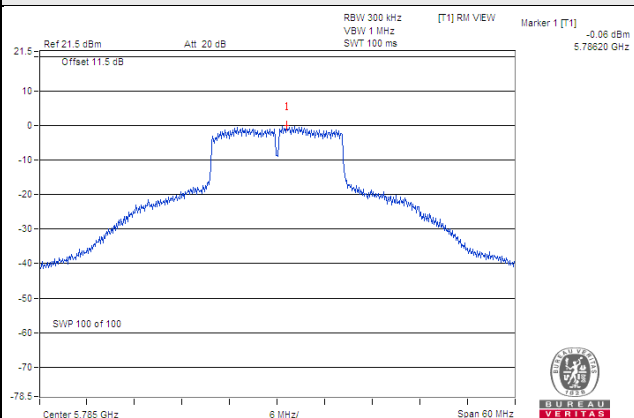
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-11.80	-9.58	6.02	0.22	-3.34	25.44	Pass
1	155	5775	-11.73	-9.51	6.02	0.22	-3.27	25.44	Pass
2	155	5775	-11.52	-9.30	6.02	0.22	-3.06	25.44	Pass
3	155	5775	-11.67	-9.45	6.02	0.22	-3.21	25.44	Pass

Note:

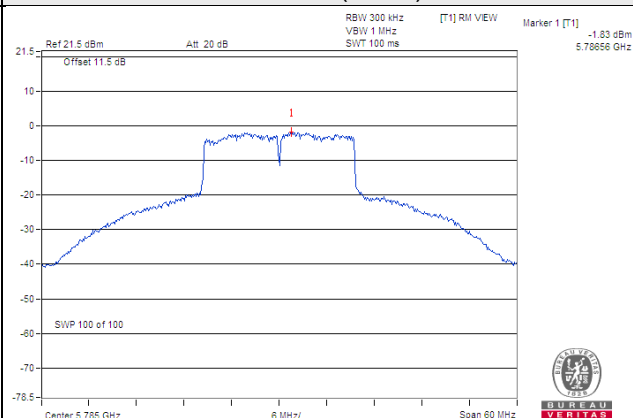
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (NANT) dB.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.56\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.56 - 6) = 25.44\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

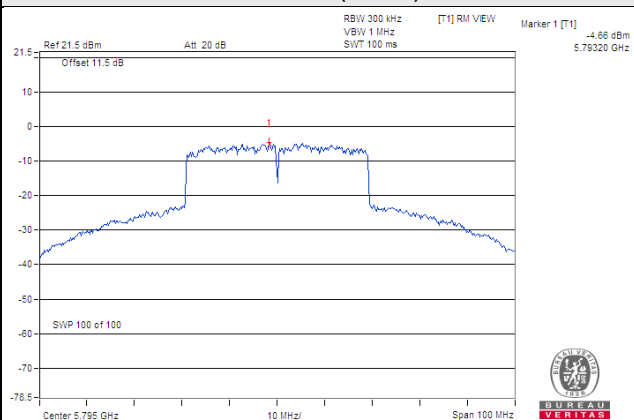
802.11a



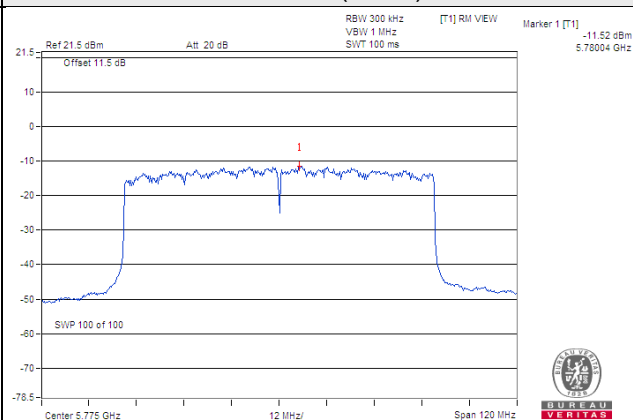
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Scanning radio (Radio 3)

For U-NII-1 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	-2.68	0.10	-2.58	17.00	Pass
40	5200	-5.14	0.10	-5.04	17.00	Pass
48	5240	-4.08	0.10	-3.98	17.00	Pass

Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 4.95 dBi < 6dBi, so the power density limit no need to reduced.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	-3.27	0.11	-3.16	17.00	Pass
40	5200	-4.68	0.11	-4.57	17.00	Pass
48	5240	-4.55	0.11	-4.44	17.00	Pass

Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 4.95 dBi < 6dBi, so the power density limit no need to reduced.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
38	5190	-6.25	0.19	-6.06	17.00	Pass
46	5230	-7.67	0.19	-7.48	17.00	Pass

Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 4.95 dBi < 6dBi, so the power density limit no need to reduced.

802.11ac (VHT80)

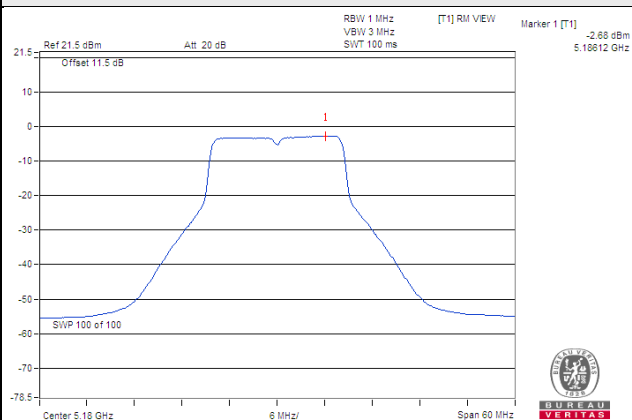
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
42	5210	-11.23	0.37	-10.86	17.00	Pass

Note:

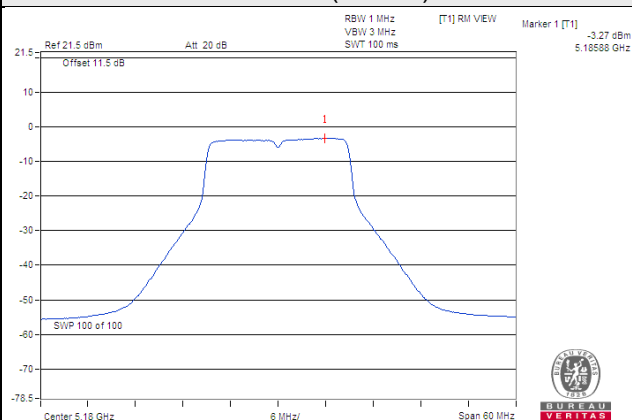
1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 4.95 dBi < 6dBi, so the power density limit no need to reduced.

Spectrum Plot of Worst Value

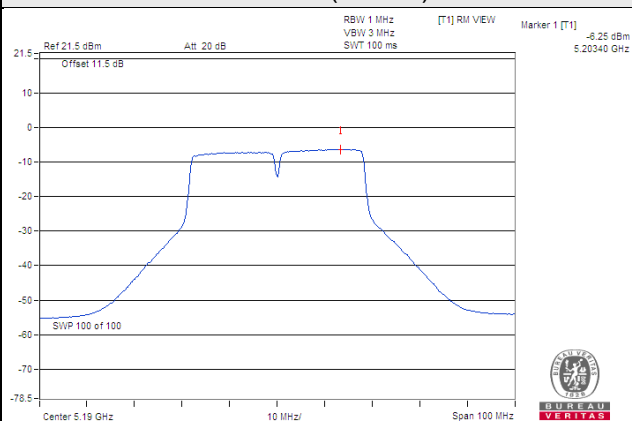
802.11a



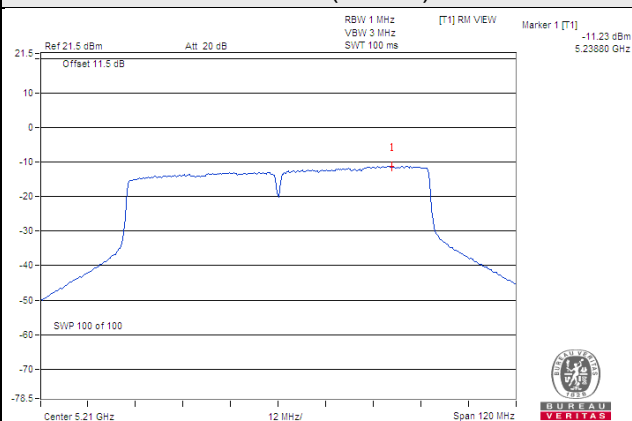
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



For U-NII-3 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-10.85	-8.63	0.10	-8.53	30.00	Pass
157	5785	-10.80	-8.58	0.10	-8.48	30.00	Pass
165	5825	-10.61	-8.39	0.10	-8.29	30.00	Pass

Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 3.79 dBi < 6dBi, so the power density limit no need to reduced.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-10.79	-8.57	0.11	-8.46	30.00	Pass
157	5785	-11.00	-8.78	0.11	-8.67	30.00	Pass
165	5825	-10.57	-8.35	0.11	-8.24	30.00	Pass

Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 3.79 dBi < 6dBi, so the power density limit no need to reduced.

802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
151	5755	-14.74	-12.52	0.19	-12.33	30.00	Pass
159	5795	-14.26	-12.04	0.19	-11.85	30.00	Pass

Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 3.79 dBi < 6dBi, so the power density limit no need to reduced.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
155	5775	-17.92	-15.70	0.37	-15.33	30.00	Pass

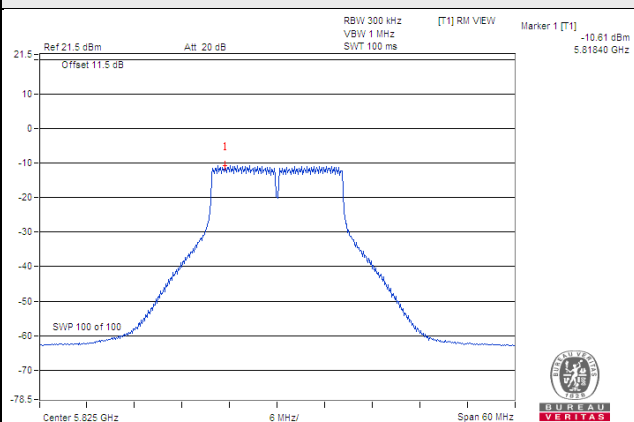
Note:

1. Refer to section 3.3 for duty cycle spectrum plot.
2. Max. Antenna Gain 3.79 dBi < 6dBi, so the power density limit no need to reduced.

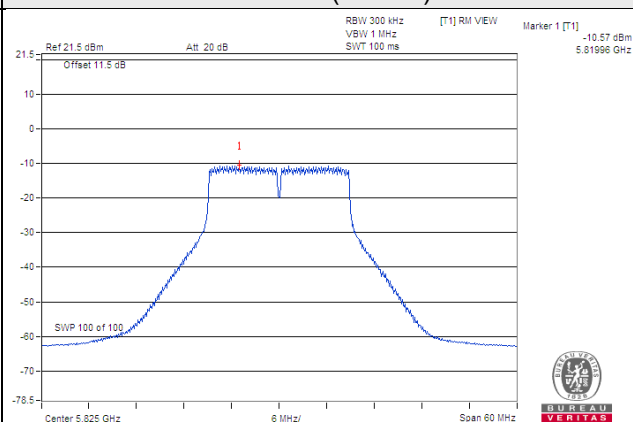
.

Spectrum Plot of Worst Value

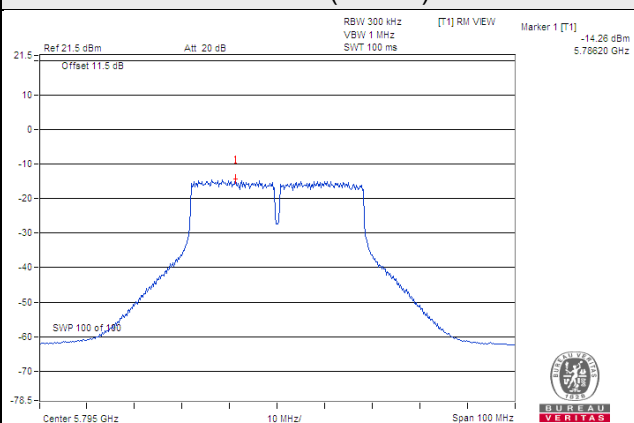
802.11a



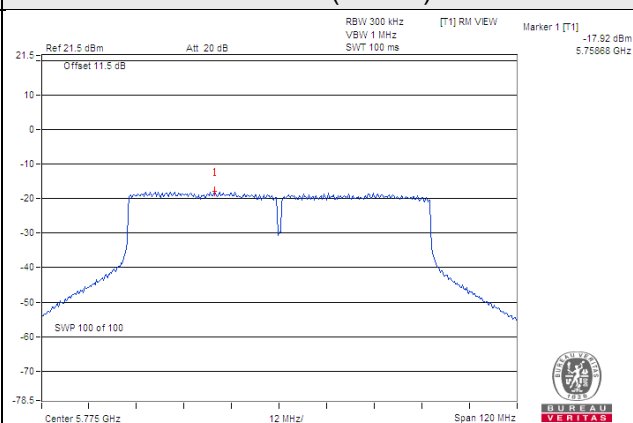
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)

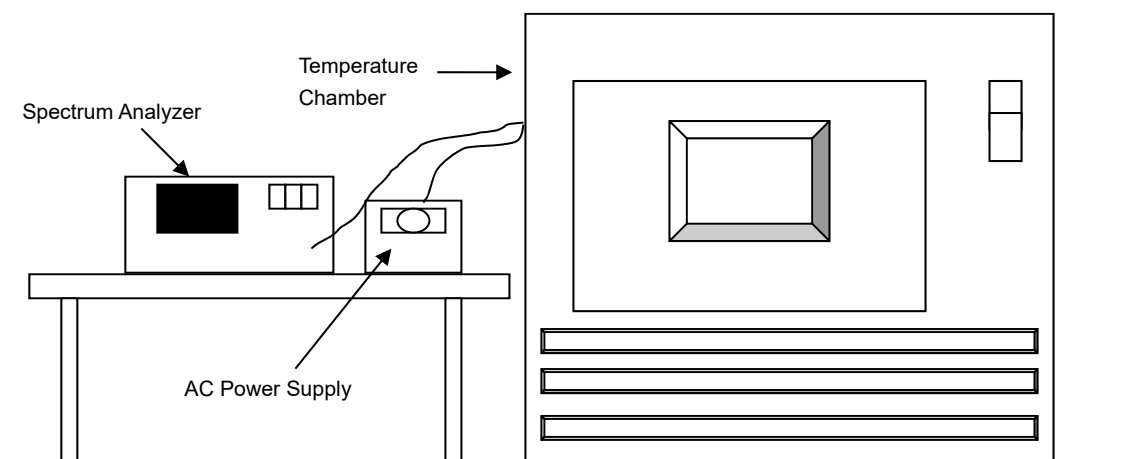


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 Test Setup



4.6.3 Test Instruments

Tested date: Apr. 21, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
Standard Temperature And Humidity Chamber GIANT FORCE	GTH-120-40-CP-AR	MAA1306-019	Sep. 09, 2020	Sep. 08, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2020	Jun. 22, 2021
AC Power Supply Extch	CFW-105	E000603	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 Test Results

5G traffic radio (Radio 1)

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	120	5179.9874	PASS	5179.9843	PASS	5179.9847	PASS	5179.9827	PASS
30	120	5180.0092	PASS	5180.0066	PASS	5180.009	PASS	5180.0068	PASS
20	120	5180.0152	PASS	5180.0166	PASS	5180.0185	PASS	5180.0159	PASS
10	120	5180.0011	PASS	5180.0025	PASS	5180.0014	PASS	5180.0022	PASS
0	120	5180.025	PASS	5180.0258	PASS	5180.0224	PASS	5180.0231	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0148	PASS	5180.0175	PASS	5180.0181	PASS	5180.0164	PASS
	120	5180.0152	PASS	5180.0166	PASS	5180.0185	PASS	5180.0159	PASS
	102	5180.0146	PASS	5180.0159	PASS	5180.0188	PASS	5180.0166	PASS

Scanning radio (Radio 3)

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
40	120	5180.0104	PASS	5180.0108	PASS	5180.0094	PASS	5180.0072	PASS
30	120	5179.9747	PASS	5179.9749	PASS	5179.9739	PASS	5179.9727	PASS
20	120	5180.0026	PASS	5179.9984	PASS	5180.0028	PASS	5179.9999	PASS
10	120	5179.9970	PASS	5179.9987	PASS	5179.9991	PASS	5179.9989	PASS
0	120	5180.0200	PASS	5180.0193	PASS	5180.0243	PASS	5180.0203	PASS

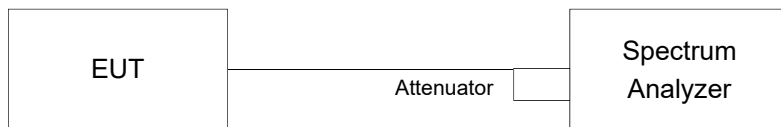
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0018	PASS	5179.9987	PASS	5180.0028	PASS	5179.9996	PASS
	120	5180.0026	PASS	5179.9984	PASS	5180.0028	PASS	5179.9999	PASS
	102	5180.0034	PASS	5179.9989	PASS	5180.0027	PASS	5180.0009	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

5G traffic radio (Radio 1)

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	16.08	15.77	15.76	16.35	0.50	Pass
157	5785	15.55	15.79	16.36	15.80	0.50	Pass
165	5825	16.37	16.09	15.78	15.55	0.50	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	18.96	18.89	18.84	18.79	0.50	Pass
157	5785	18.94	18.77	18.61	18.74	0.50	Pass
165	5825	18.77	18.76	18.69	18.73	0.50	Pass

802.11ax (HE40)

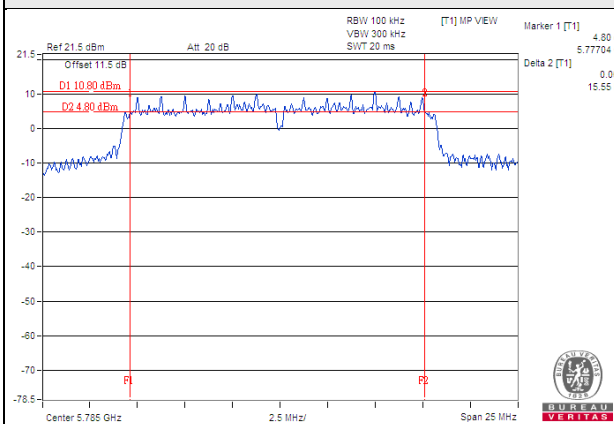
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	38.14	38.07	38.03	37.87	0.50	Pass
159	5795	37.77	38.13	37.08	37.84	0.50	Pass

802.11ax (HE80)

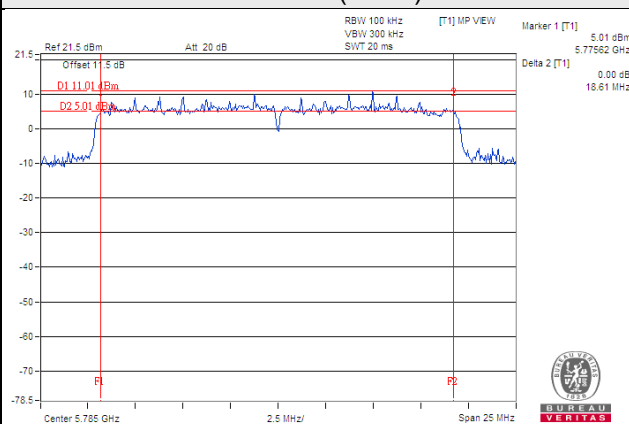
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	77.95	76.49	76.29	77.49	0.50	Pass

Spectrum Plot of Worst Value

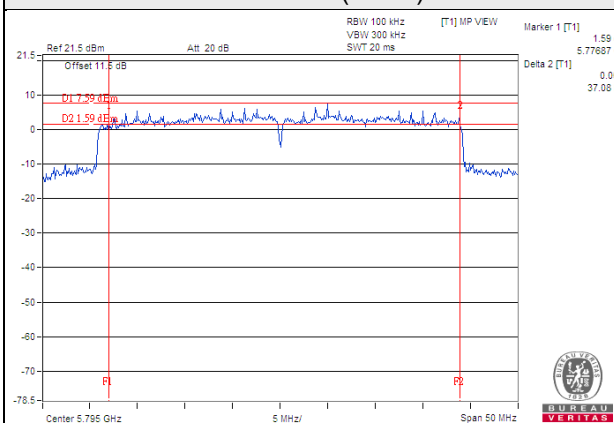
802.11a



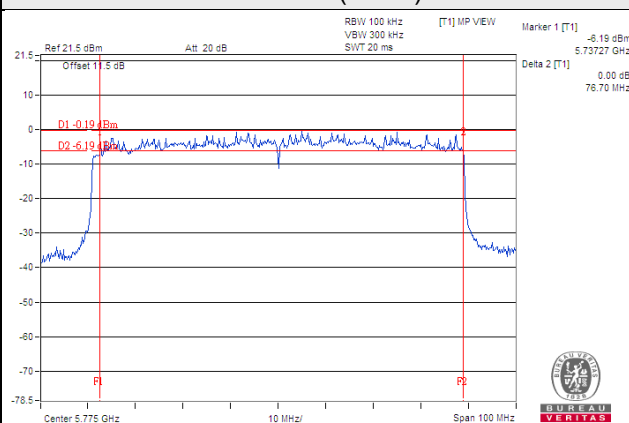
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Scanning radio (Radio 3)

802.11a

Chan.	Freq. (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.37	0.50	Pass
157	5785	16.40	0.50	Pass
165	5825	16.40	0.50	Pass

802.11ac (VHT20)

Chan.	Freq. (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.62	0.50	Pass
157	5785	17.60	0.50	Pass
165	5825	17.61	0.50	Pass

802.11ac (VHT40)

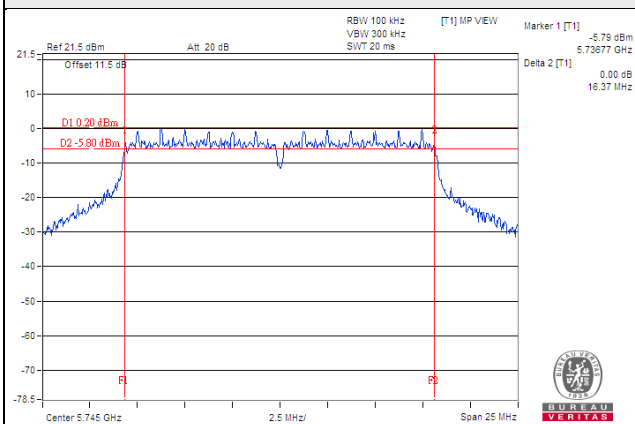
Chan.	Freq. (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	36.39	0.50	Pass
159	5795	36.46	0.50	Pass

802.11ac (VHT80)

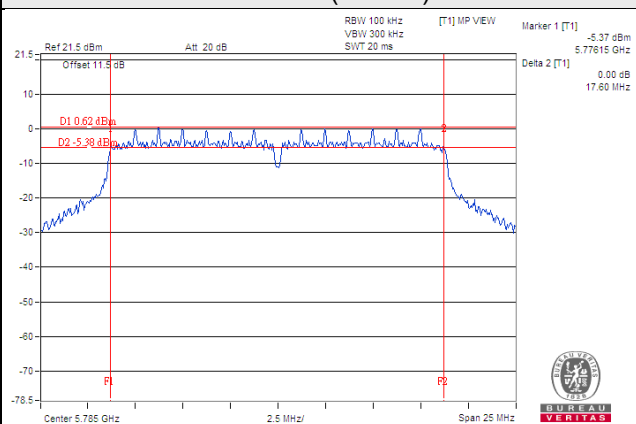
Chan.	Freq. (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.93	0.50	Pass

Spectrum Plot of Worst Value

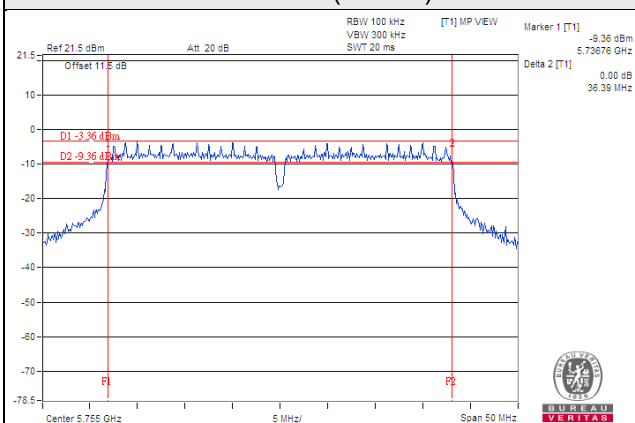
802.11a



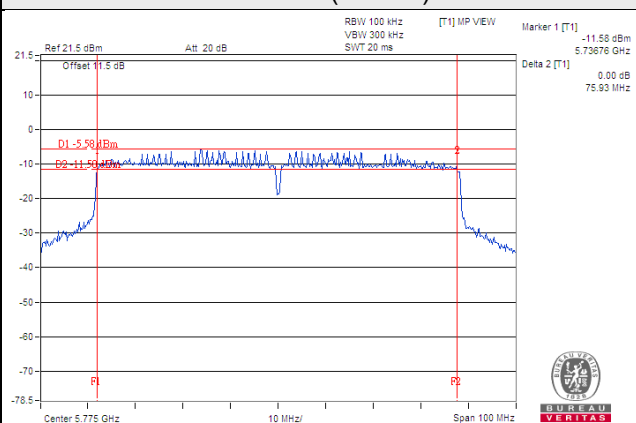
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

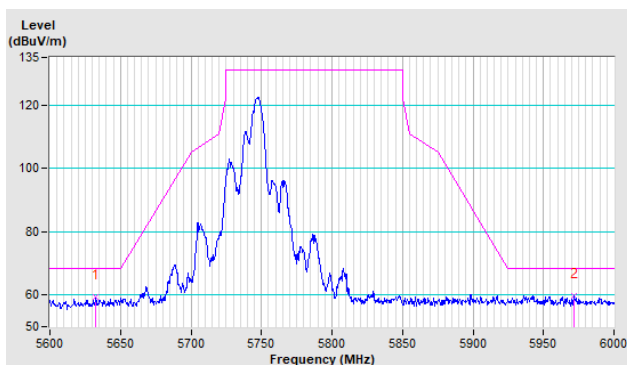
Annex A - Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

5G traffic radio (Radio 1)

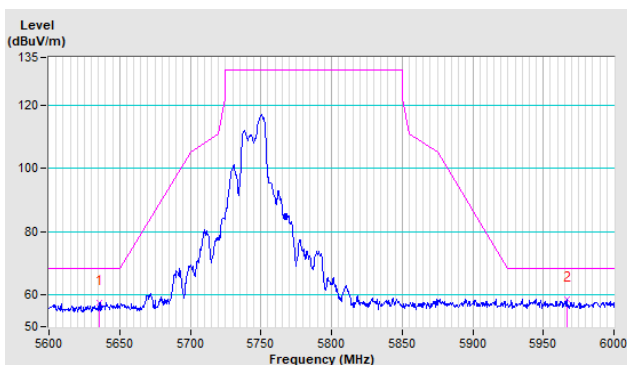
802.11a

CH 149 5745 MHz

Horizontal

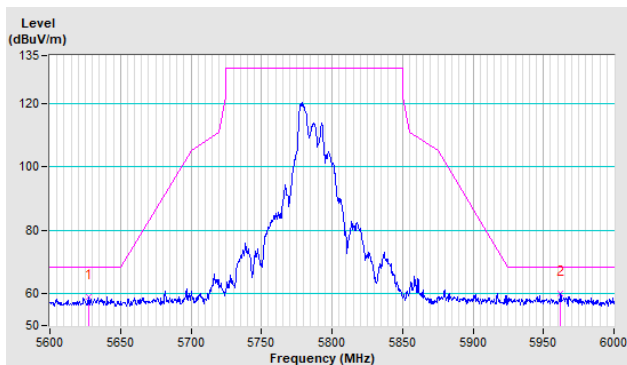


Vertical

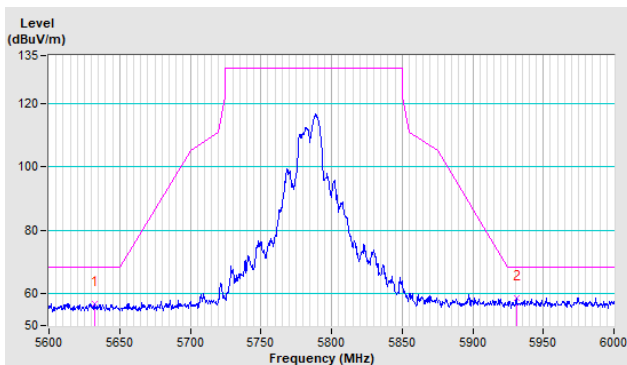


CH 157 5785 MHz

Horizontal

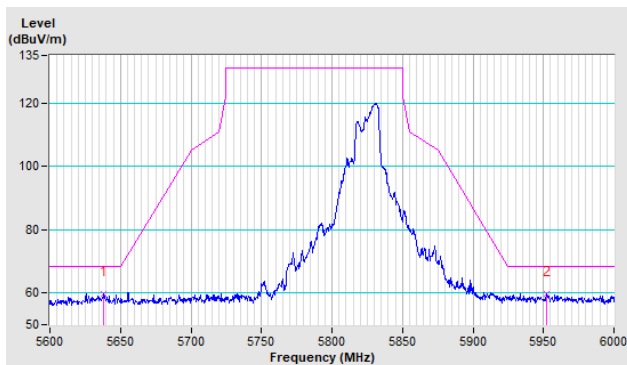


Vertical

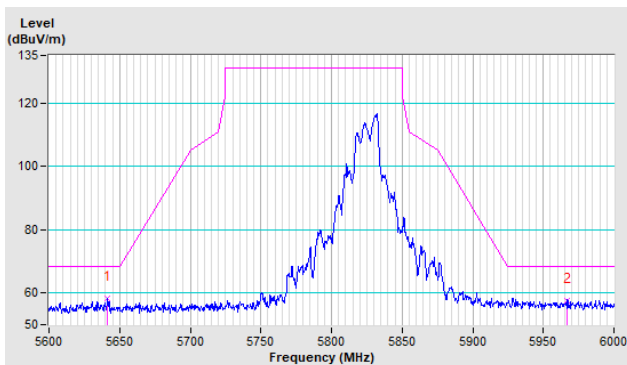


CH 165 5825 MHz

Horizontal



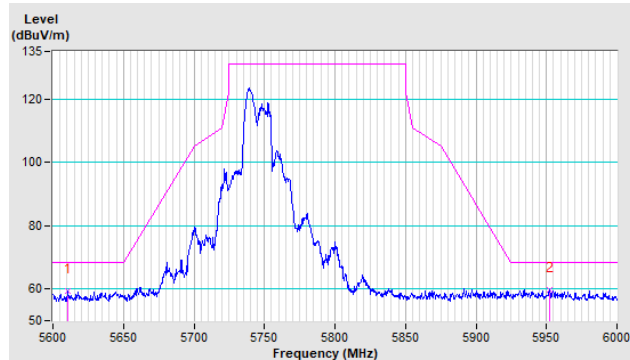
Vertical



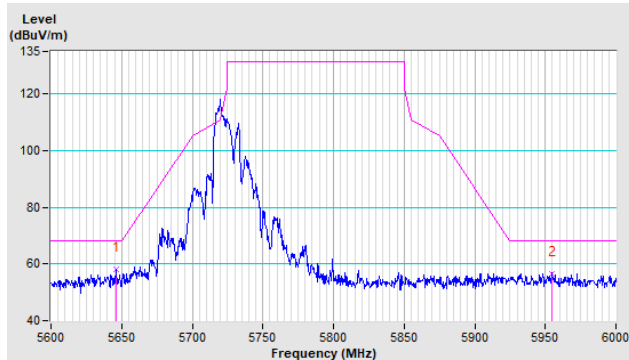
802.11ax (HE20)

CH 149 5745 MHz

Horizontal

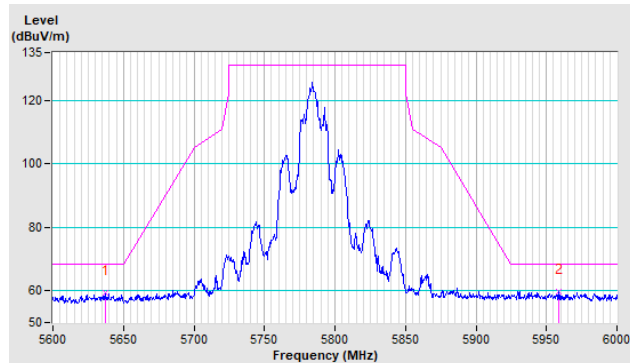


Vertical

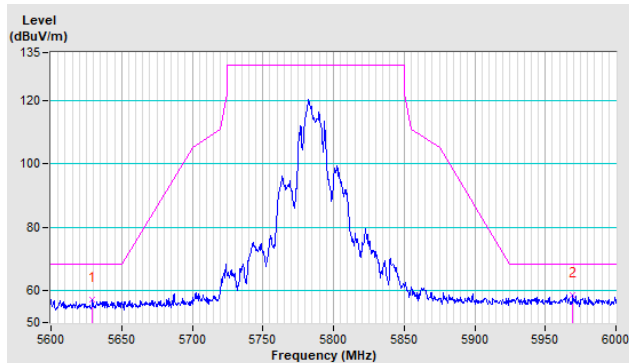


CH 157 5785 MHz

Horizontal

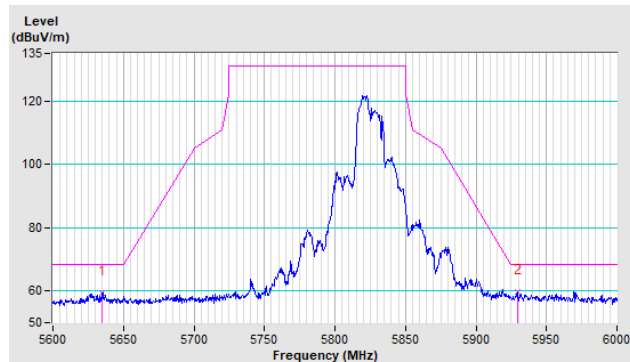


Vertical

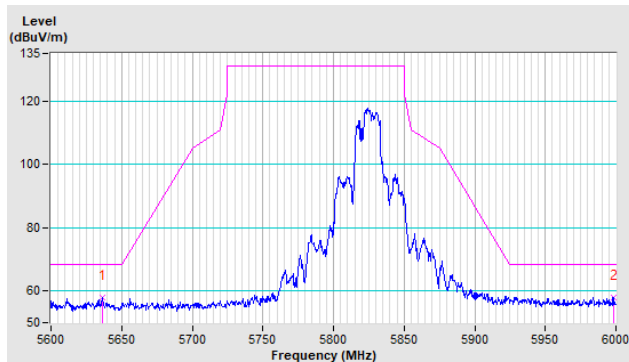


CH 165 5825 MHz

Horizontal



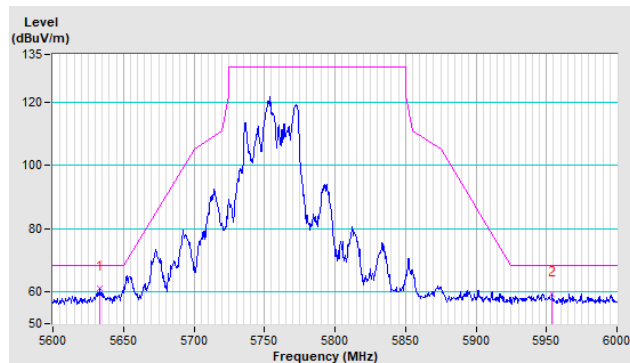
Vertical



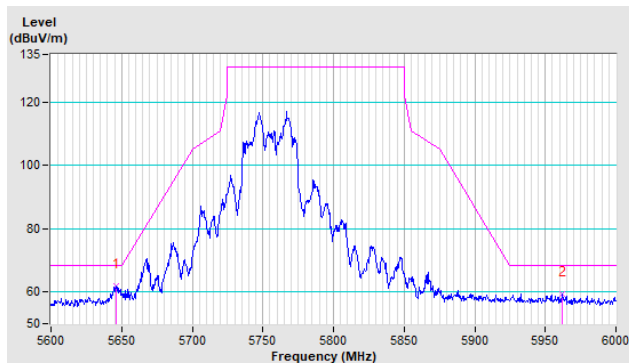
802.11ax (HE40)

CH 151 5755 MHz

Horizontal

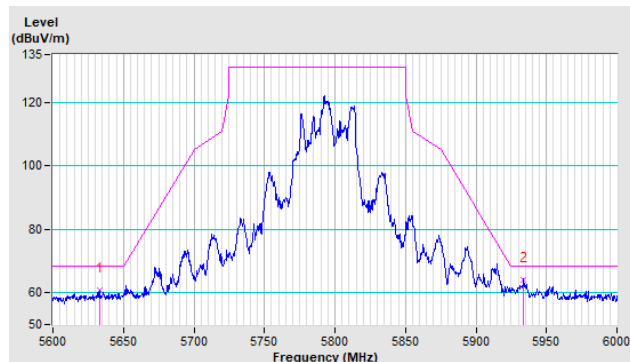


Vertical

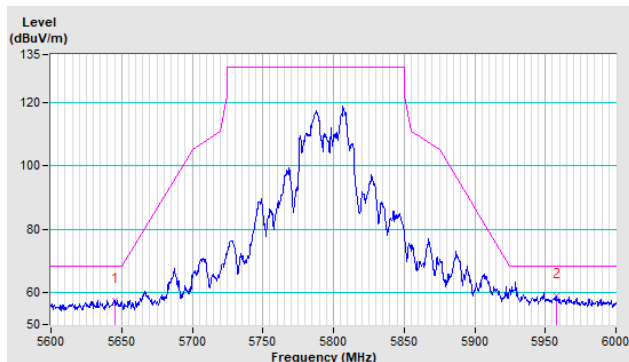


CH 159 5795 MHz

Horizontal



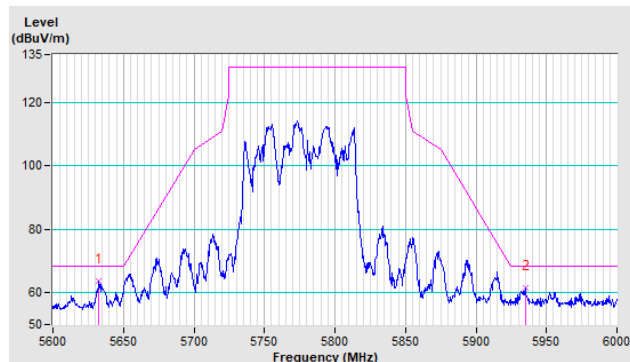
Vertical



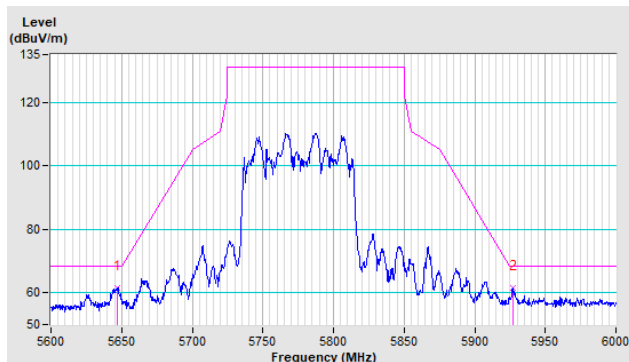
802.11ax (HE80)

CH 155 5775 MHz

Horizontal



Vertical

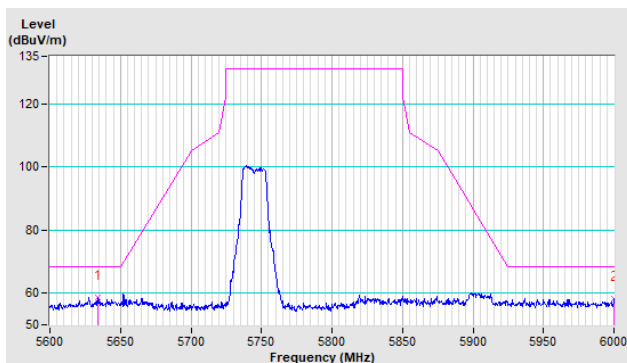


Scanning radio (Radio 3)

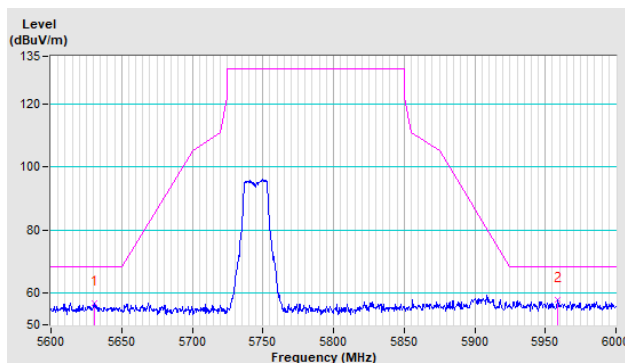
802.11a

CH 149 5745 MHz

Horizontal

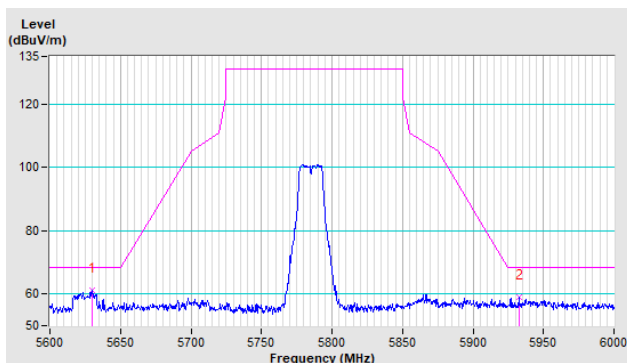


Vertical

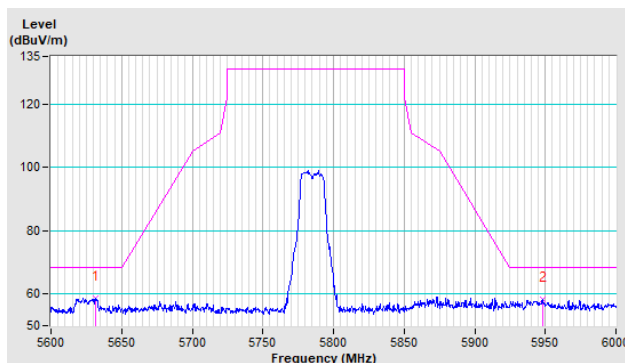


CH 157 5785 MHz

Horizontal

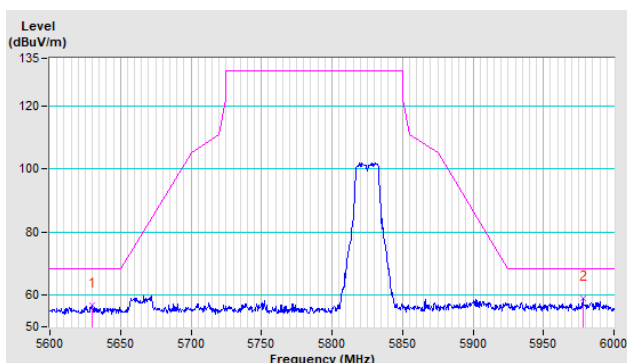


Vertical

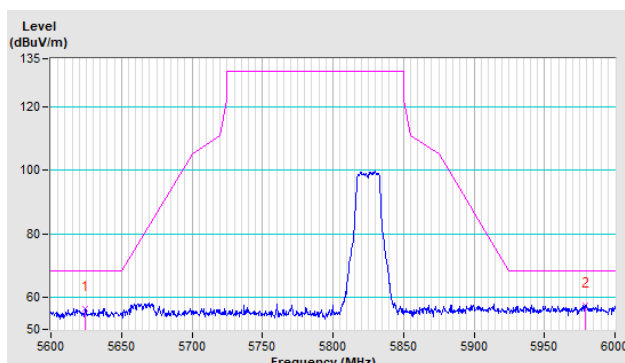


CH 165 5825 MHz

Horizontal



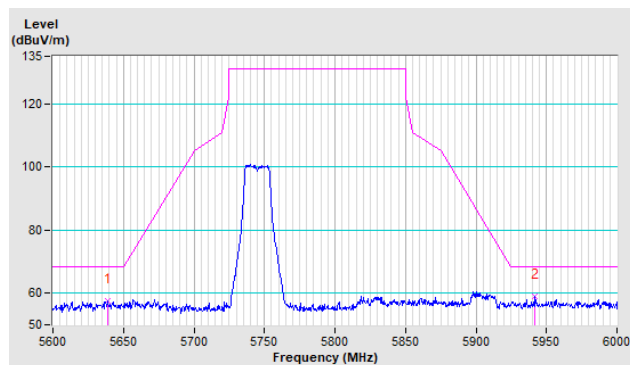
Vertical



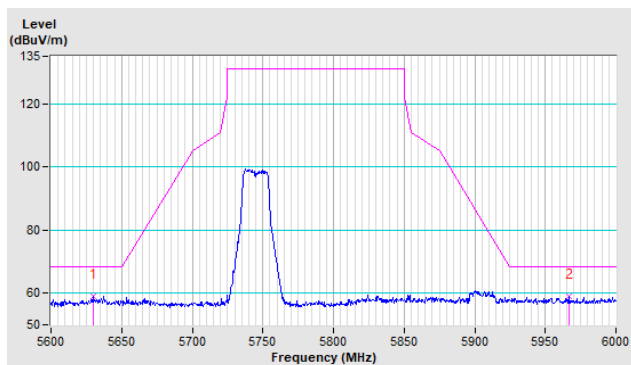
802.11ac (VHT20)

CH 149 5745 MHz

Horizontal

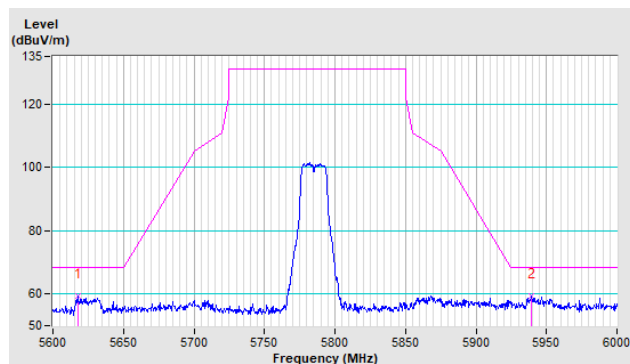


Vertical

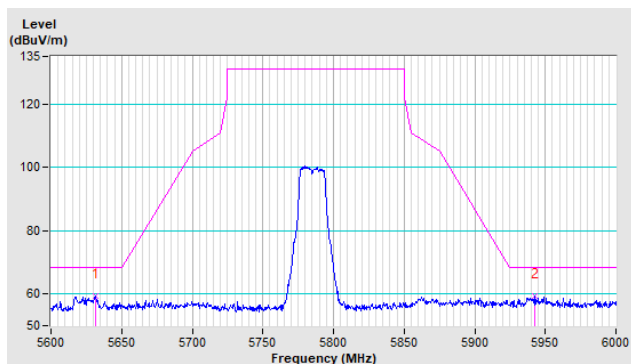


CH 157 5785 MHz

Horizontal

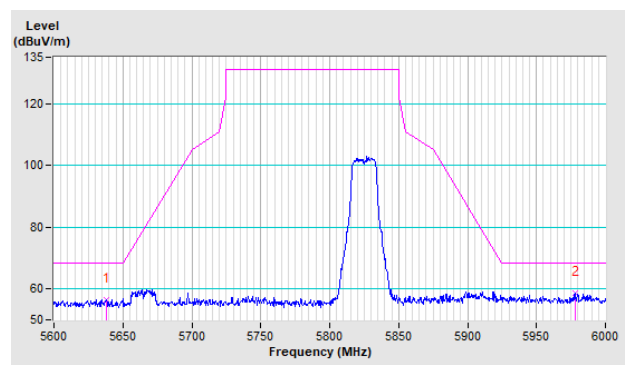


Vertical

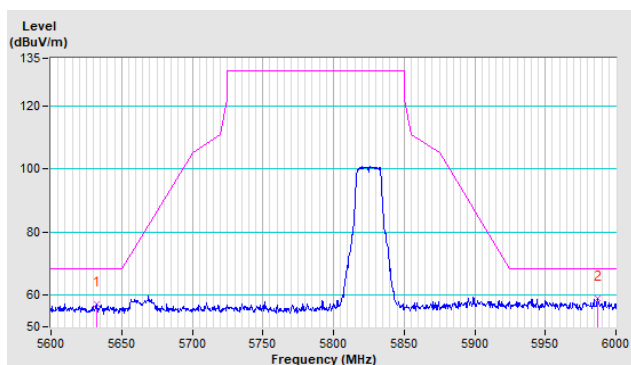


CH 165 5825 MHz

Horizontal



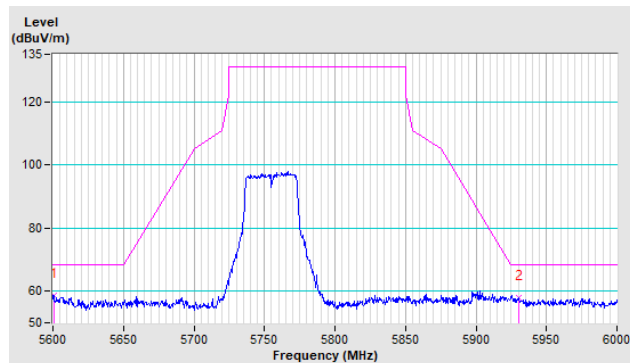
Vertical



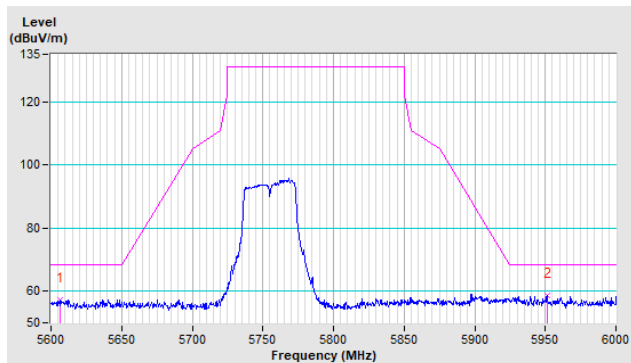
802.11ac (VHT40)

CH 151 5755 MHz

Horizontal

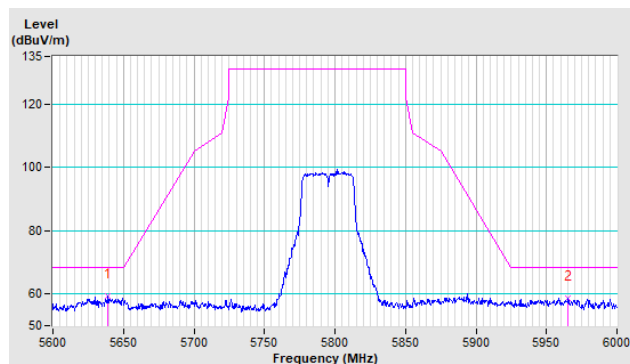


Vertical

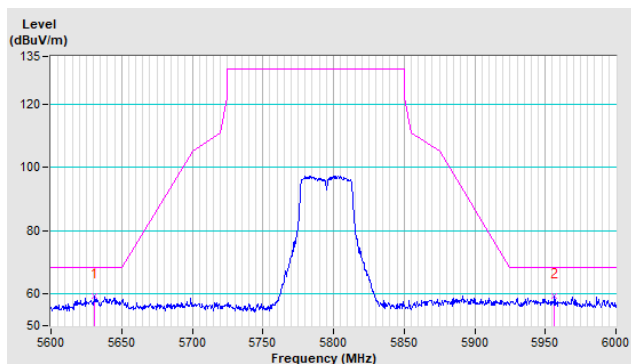


CH 159 5795 MHz

Horizontal



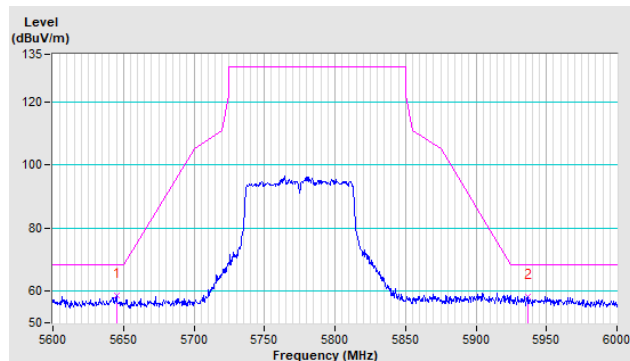
Vertical



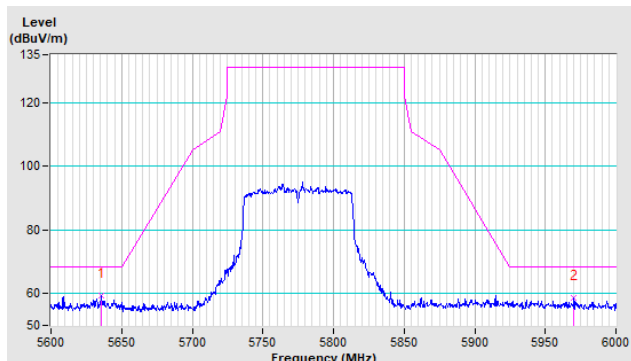
802.11ac (VHT80)

CH 155 5775 MHz

Horizontal

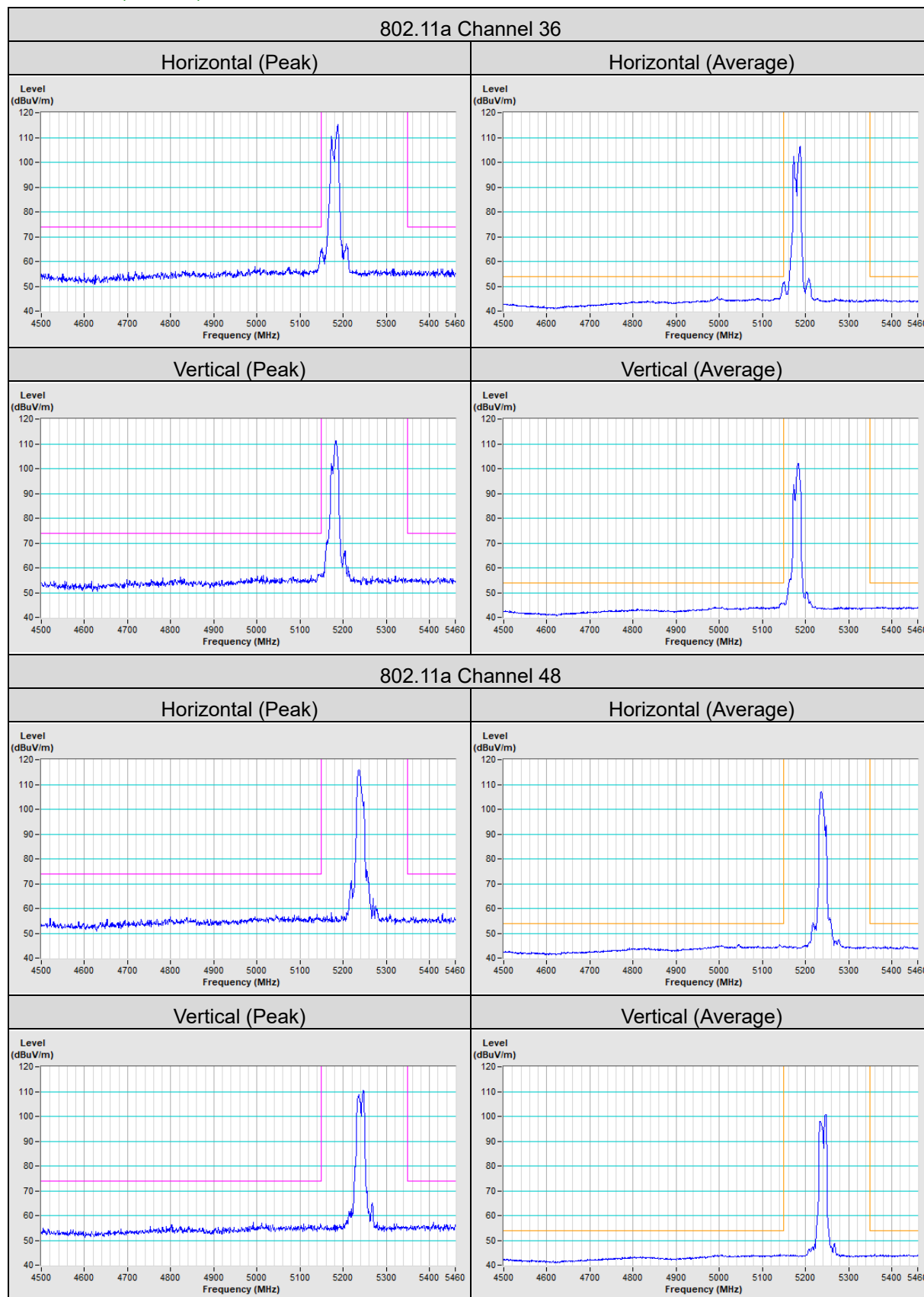


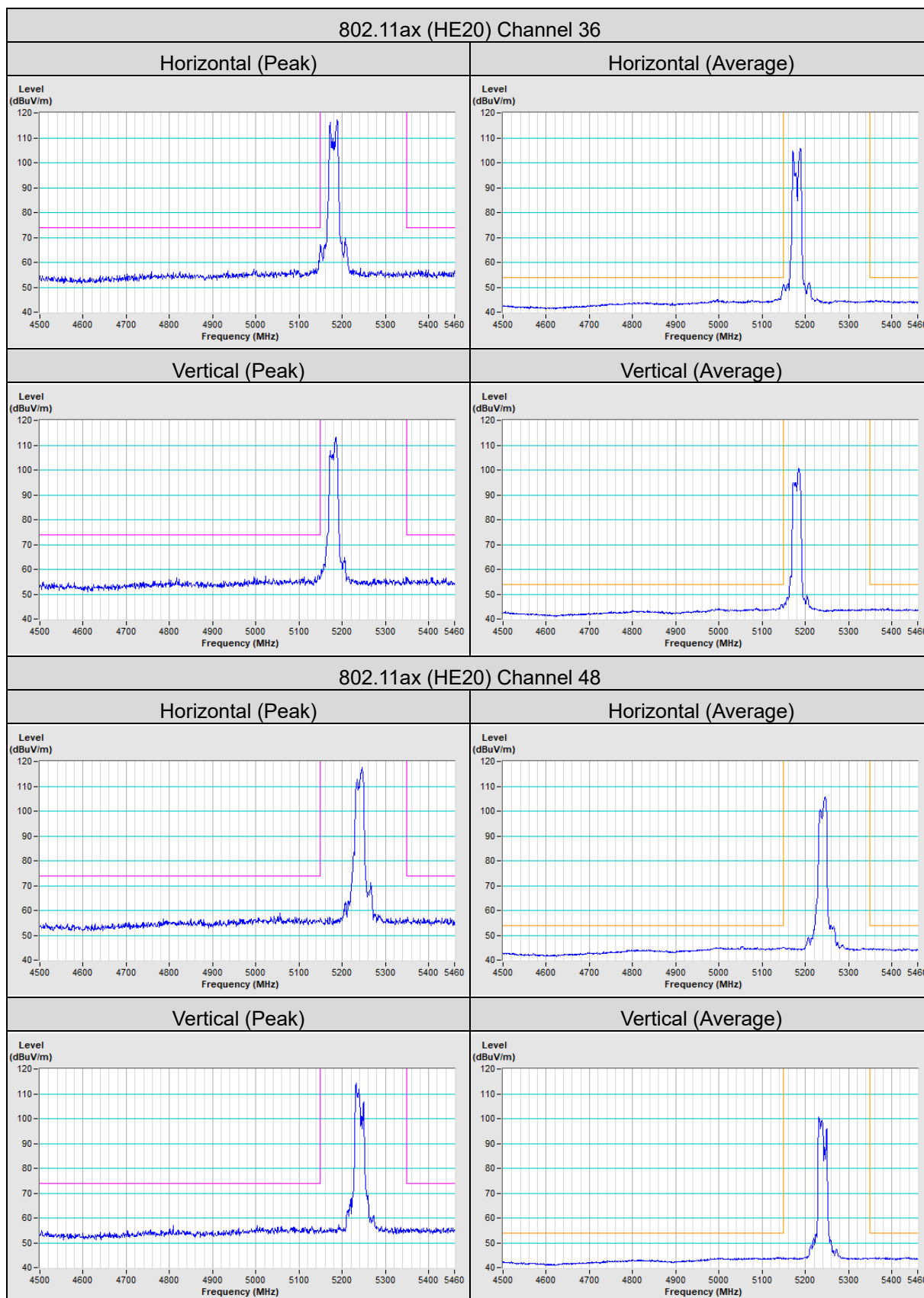
Vertical

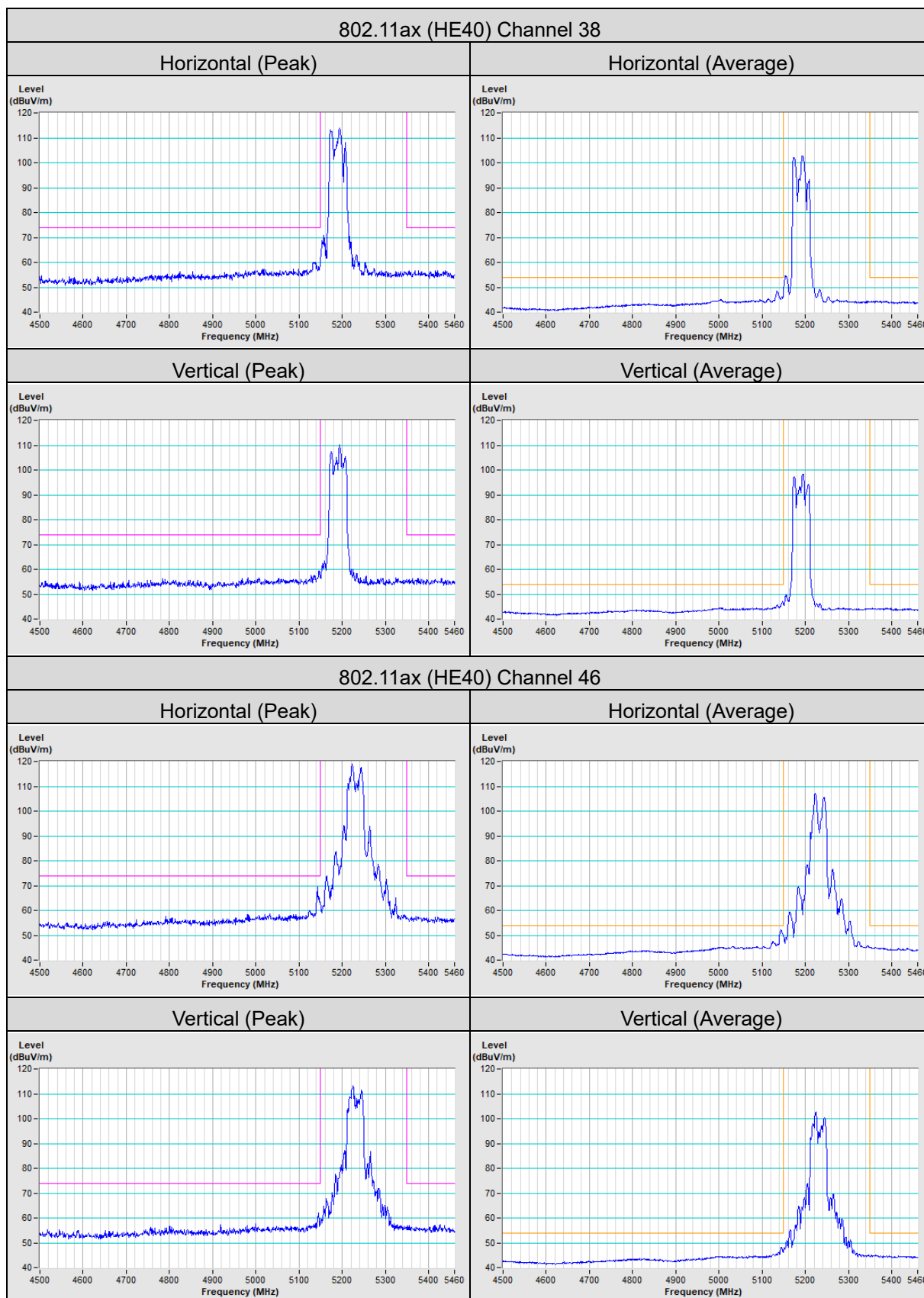


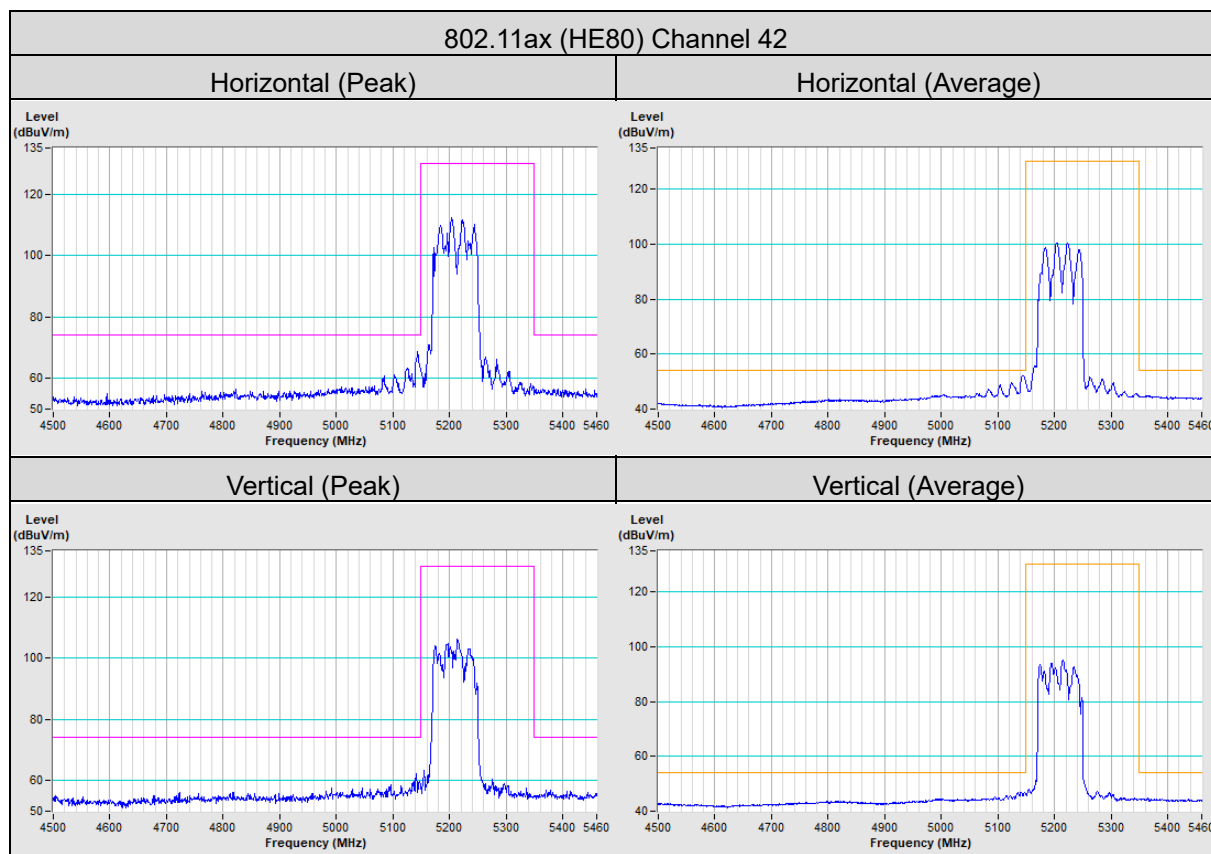
Annex B - Band Edge Measurement

5G traffic radio (Radio 1)

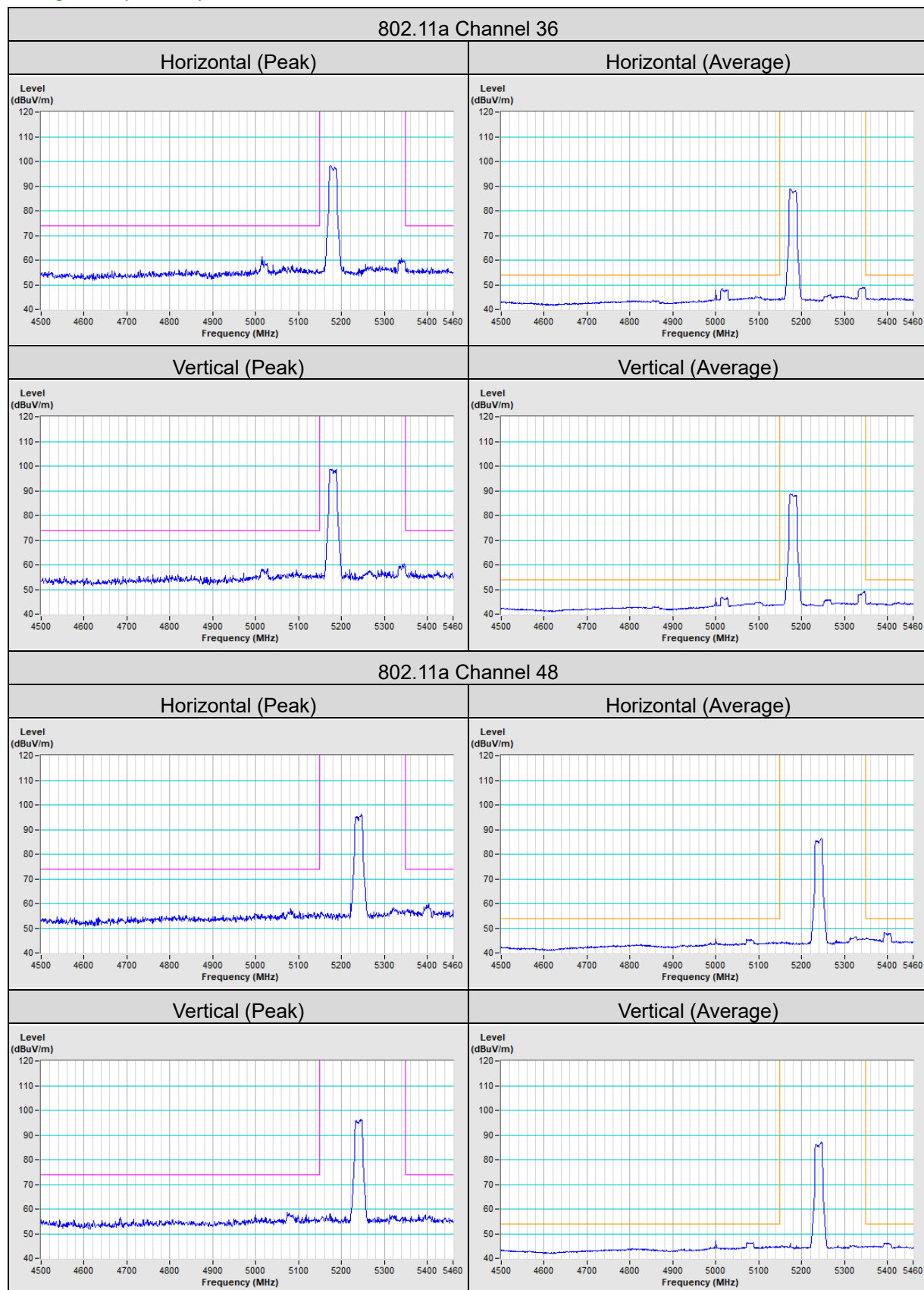


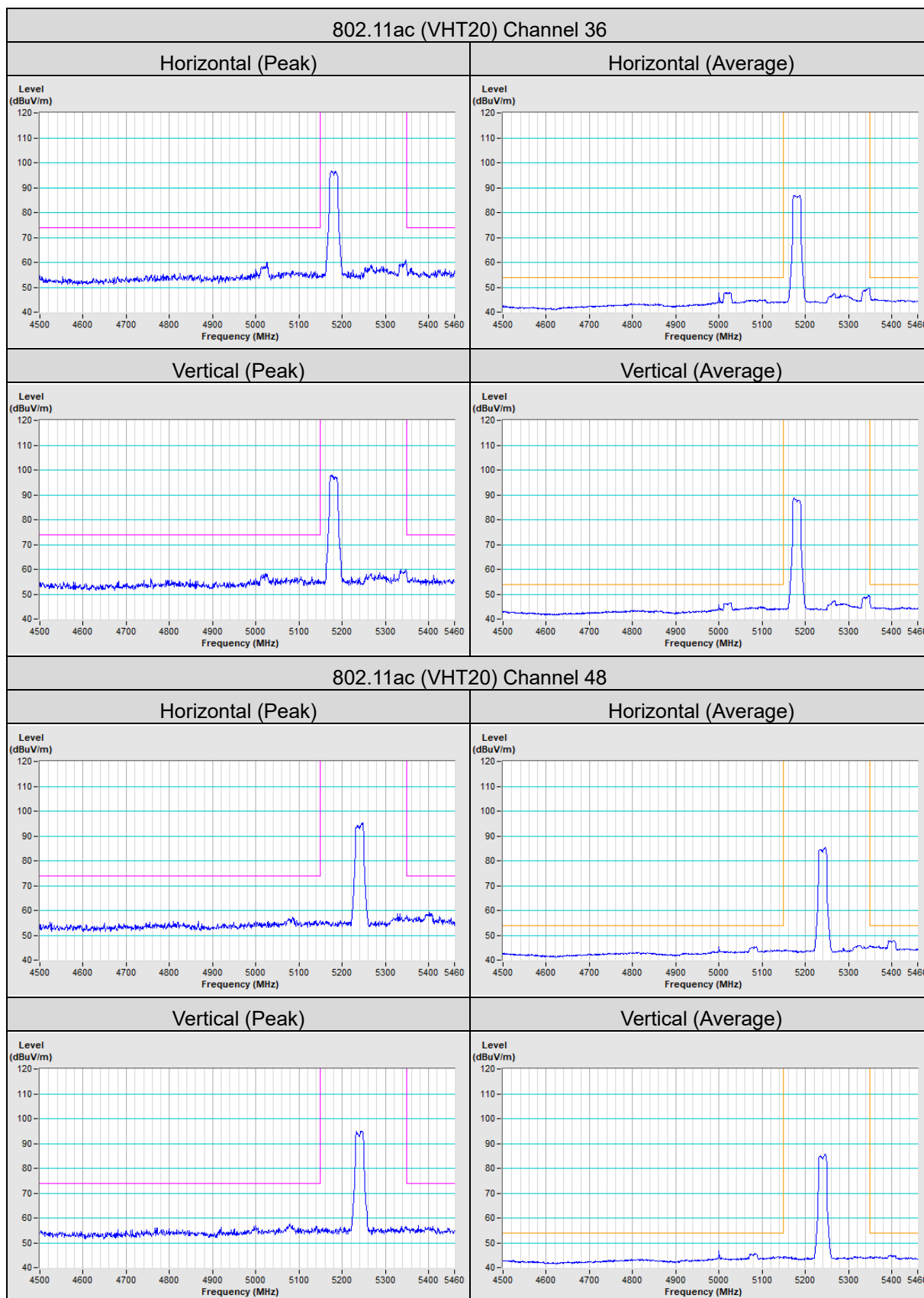


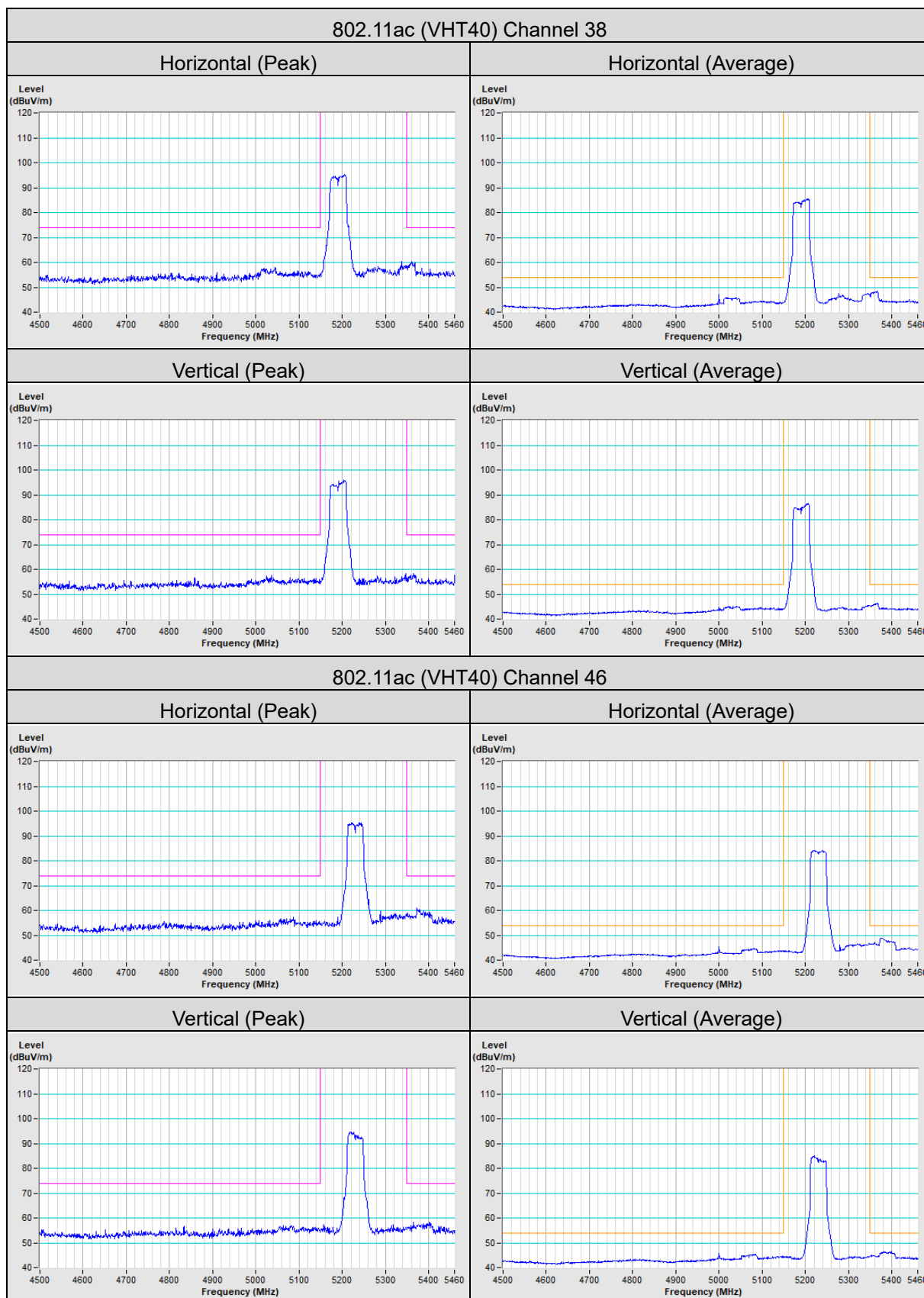


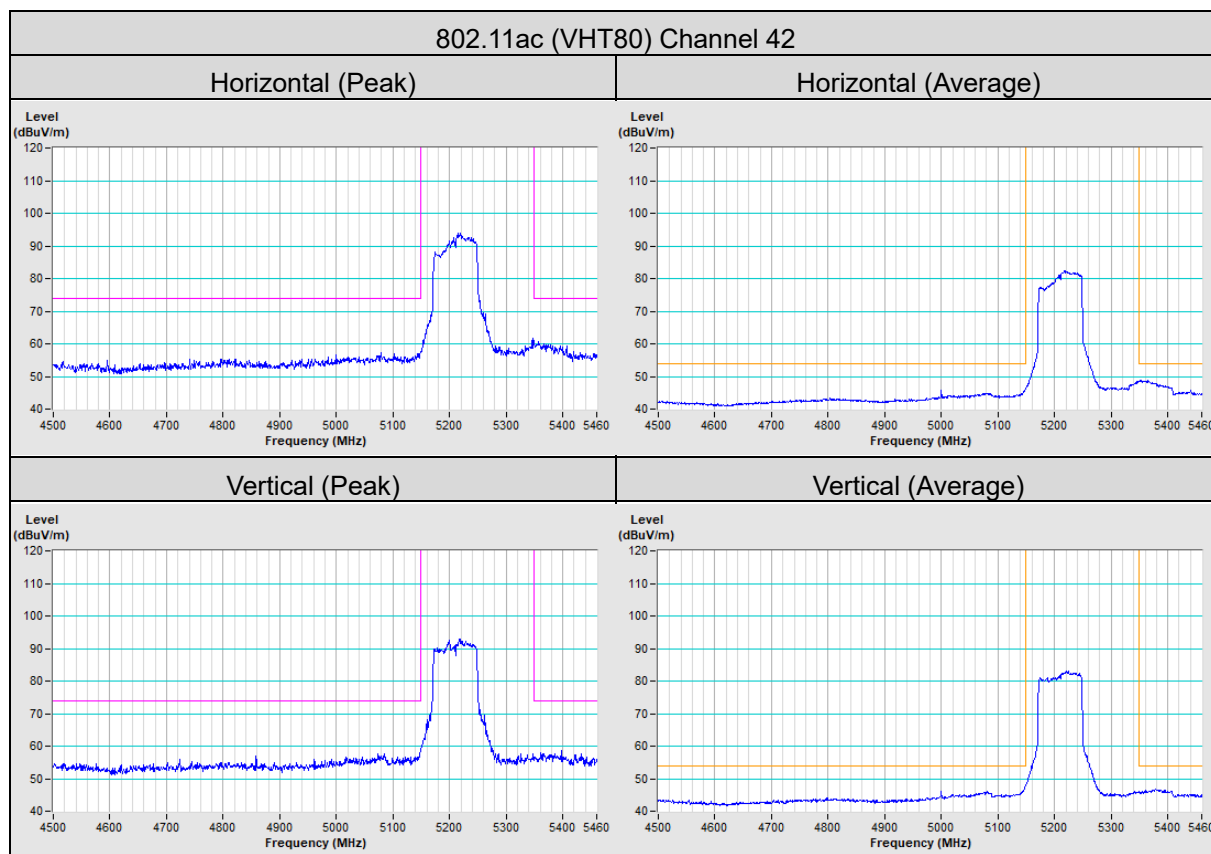


Scanning radio (Radio 3)









Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---