



Test Report No.: PSU-QSU2306120115RF13



Certificate #6613.01

FCC TEST REPORT

(Part 15, Subpart E)

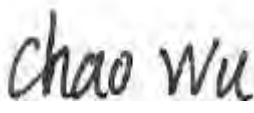
Applicant:	Unplugged Technologies Ltd.
Address:	3 Hakidma St., Yokneam 2066731, Israel

Manufacturer or Supplier:	Unplugged Technologies Ltd.
Address:	3 Hakidma St., Yokneam 2066731, Israel
Product:	UP Phone 1
Brand Name:	UP Phone
Model Name:	UP01
FCC ID:	2BBBCUP01
Date of tests:	Jul. 03, 2023 ~ Oct. 08, 2023

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart E, Section 15.407**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Oct. 08, 2023	 Date: Oct. 08, 2023

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended 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. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; 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.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	6
1 SUMMARY OF TEST RESULTS	7
1.1 MEASUREMENT UNCERTAINTY	8
2 GENERAL INFORMATION	9
2.1 GENERAL DESCRIPTION OF EUT	9
2.2 DESCRIPTION OF TEST MODES	12
2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	14
2.3 DUTY CYCLE OF TEST SIGNAL	20
2.4 DESCRIPTION OF SUPPORT UNITS	21
2.4.1 CONFIGURATION OF SYSTEM UNDER TEST	22
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	23
3 TEST TYPES AND RESULTS	24
3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	24
3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	24
3.1.2 LIMITS OF UNWANTED EMISSION	24
3.1.3 TEST INSTRUMENTS	25
3.1.4 TEST PROCEDURES	27
3.1.5 DEVIATION FROM TEST STANDARD	27
3.1.6 TEST SETUP	28
3.1.7 EUT OPERATING CONDITION	29
3.1.8 TEST RESULTS	30
3.2 CONDUCTED EMISSION MEASUREMENT	274
3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	274
3.2.2 TEST INSTRUMENTS	274
3.2.3 TEST PROCEDURES	274
3.2.4 DEVIATION FROM TEST STANDARD	275
3.2.5 TEST SETUP	275
3.2.6 EUT OPERATING CONDITIONS	275
3.2.7 TEST RESULTS	276
3.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT	278
3.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT	278
3.3.2 TEST SETUP	279
3.3.3 TEST INSTRUMENTS	279
3.3.4 TEST PROCEDURE	281



Test Report No.: PSU-QSU2306120115RF13

3.3.5	DEVIATION FROM TEST STANDARD	283
3.3.6	EUT OPERATING CONDITIONS	283
3.3.7	TEST RESULTS	284
3.4	MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT	285
3.4.1	LIMITS OF MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT	285
3.4.2	TEST SETUP	285
3.4.3	TEST INSTRUMENTS	285
3.4.4	TEST PROCEDURES	286
3.4.5	DEVIATION FROM TEST STANDARD	286
3.4.6	EUT OPERATING CONDITIONS	286
3.4.7	TEST RESULTS	287
3.5	AUTOMATICALLY DISCONTINUE TRANSMISSION	288
3.5.1	LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION	288
3.5.2	TEST INSTRUMENTS	288
3.5.3	TEST RESULT	288
3.6	ANTENNA REQUIREMENTS	289
3.6.1	STANDARD APPLICABLE	289
3.6.2	ANTENNA CONNECTED CONSTRUCTION	289
3.6.3	ANTENNA GAIN	289
4	PHOTOGRAPHS OF THE TEST CONFIGURATION	290
5	MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	291
6	APPENDIX A: RLAN	292
	APPENDIX A:	292
	EMISSION BANDWIDTH	292
	TEST RESULT	292
	TEST GRAPHS	294
	OCCUPIED CHANNEL BANDWIDTH	312
	TEST RESULT	312
	TEST GRAPHS	314
	MIN EMISSION BANDWIDTH	333
	TEST RESULT B4	333
	TEST GRAPHS B4	334
	DUTY CYCLE	341
	TEST RESULT	341
	TEST GRAPHS	342
	MAXIMUM CONDUCTED OUTPUT POWER	348



TEST RESULT	348
MAXIMUM POWER SPECTRAL DENSITY	351
TEST RESULT	351
TEST GRAPHS.....	354
7 APPENDIX B: OFDMA	373
NORMAL AX MODE	373
EMISSION BANDWIDTH	373
TEST RESULT	373
TEST GRAPHS.....	375
OCCUPIED CHANNEL BANDWIDTH.....	393
TEST RESULT	393
TEST GRAPHS.....	395
MIN EMISSION BANDWIDTH.....	413
TEST RESULT B4.....	413
TEST GRAPHS B4	414
DUTY CYCLE.....	420
TEST RESULT	420
TEST GRAPHS.....	422
MAXIMUM CONDUCTED OUTPUT POWER	440
TEST RESULT	440
MAXIMUM POWER SPECTRAL DENSITY	443
TEST RESULT	443
TEST GRAPHS.....	445
RU AX MODE	463
EMISSION BANDWIDTH	463
TEST RESULT	463
TEST GRAPHS.....	467
OCCUPIED CHANNEL BANDWIDTH.....	500
TEST RESULT	500
TEST GRAPHS.....	504
MIN EMISSION BANDWIDTH.....	537
TEST RESULT	537
TEST GRAPHS.....	539
MAXIMUM CONDUCTED OUTPUT POWER	550
TEST RESULT	550
MAXIMUM POWER SPECTRAL DENSITY	556
TEST RESULT	556



Test Report No.: PSU-QSU2306120115RF13

TEST GRAPHS.....	559
DUTY CYCLE.....	592
TEST RESULT	592
TEST GRAPHS.....	594



Test Report No.: PSU-QSU2306120115RF13

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-QSU2306120115RF13	Original release	Oct. 08, 2023



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	TEST LAB
15.407(b)(9)	AC Power Conducted Emission	Compliance	B
15.407(b) (1/2/3/4/5)	Radiated Emission & Band Edge Measurement	Compliance	A/B
15.407(a/1/2/ 3)	Maximum conducted output Power	Compliance	A/B
15.407(a/1/2/ 3)	Peak Power Spectral Density	Compliance	A/B
15.407(i)	26 dB Bandwidth	Compliance	A/B
15.407(e)	6 dB Bandwidth	Compliance	A/B
15.203	Antenna Requirement	Compliance	A/B

NOTE:

1. Except the data of RSE and Band Edge Measurement, other data please refer to the appendix A and Appendix B.
2. WLAN(normal mode& RU-OFDMA)5G supports SISO&MIMO mode, the whole testing have assessed the MIMO mode by referring to their maximum conducted power.
3. RSE had been tested on SISO&MIMO mode of EUT. The worst case was found on MIMO mode, only the worst case data had been reported in the report.

***Test Lab Information Reference**

Lab A:

BV 7Layers Communications Technology (Shenzhen) Co., Ltd

Lab Address:

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

Accredited Test Lab Cert 3939.01

FCC Site Registration No. : 525120; Designation No. : CN1171;

Lab B:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 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	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	UP Phone 1
BRAND NAME	UP Phone
MODEL NAME	UP01
NOMINAL VOLTAGE	3.87Vdc (battery)
MODULATION	OFDM, OFDMA
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 802.11ac: up to 866.6Mbps 802.11ax: up to 1201Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5745 ~ 5825MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n/ac/ax (20MHz)/ 802.11ax(20M SU 242)/802.11ax(20M RU 26/52/106/242) 2 for 802.11n/ac/ax (40MHz)/ 802.11ax(40M SU 484)/ 802.11ax(40M RU 242/484) 1 for 802.11ac/ax (80MHz)/ 802.11ax(80M SU996)/802.11ax(80M RU 484/996) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n/ac/ax (20MHz)/ 802.11ax(20M SU 242)/802.11ax(20M RU 26/52/106/242) 2 for 802.11n/ac/ax (40MHz)/ 802.11ax(40M SU 484)/ 802.11ax(40M RU 242/484) 1 for 802.11ac/ax (80MHz)/ 802.11ax(80M SU 996/802.11ax(80M RU 484/996) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n/ac/ax (20MHz)/ 802.11ax(20M SU 242)/ 802.11ax(20M RU 26/52/106/242) 2 for 802.11n/ac/ax (40MHz)/ 802.11ax(40M SU 484)/ 802.11ax(40M RU 242/484) 1 for 802.11ac/ax (80MHz)/ 802.11ax(80M SU 996)/ 802.11ax(80M RU 484/996)
AVERAGE POWER	158.85 mW for 5180 ~ 5240MHz 130.02 mW for 5260 ~ 5320MHz 260.02 mW for 5745 ~ 5825MHz
ANTENNA TYPE	PIFA Antenna
ANTENNA GAIN	ANT 1: 0.5dBi for 5180 ~ 5240MHz 0.5dBi for 5260 ~ 5320MHz

	0.5dBi for 5745 ~ 5825MHz ANT 2: 0.5dBi for 5180 ~ 5240MHz 0.5dBi for 5260 ~ 5320MHz 0.5dBi for 5745 ~ 5825MHz
HW VERSION	M156-MUB-V2
SW VERSION	NR_D011.13_N_UP01_1.000.01
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitter and two receiver.

MODULATION MODE	TX FUNCTION
802.11a	2TX/2RX
802.11n/802.11ac/ax (20MHz)	2TX/2RX
802.11n/802.11ac/ax (40MHz)	2TX/2RX
802.11ac/ax (80MHz)	2TX/2RX
802.11ax (20MHz RU 26/52/106/ 242)	2TX/2RX
802.11ax (40MHz RU 242/484)	2TX/2RX
802.11ax (80MHz RU 484/996)	2TX/2RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



Test Report No.: PSU-QSU2306120115RF13

List of Accessory:

ACCESSORIES	Brand	MODEL / SPECIFICATION
CPU	MediaTek	MT6893
eMMC 1 (=ROM 1)	Sandisk	SDINFDK4-256G
eMMC 2 (=ROM 2)	Samsung	KLUEG4RHGB-B0E1
eMMC 3 (=ROM 3)	Samsung	KLUEG4RHGB-B0E1
eMMC 4 (=ROM 4)	Samsung	KLUEG4RHGB-B0E1
RAM 1	Hynix	H9HKNNNFBMAVAR-NEH
RAM 2	Samsung	K3UH7H70BM-AGCL
BT/WLAN Module	MediaTek	/
NFC chipset	ST	/
Battery	/	Power Rating: 16.98Wh

2.2 DESCRIPTION OF TEST MODES

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n, 802.11ac/ax (20MHz)/ 802.11ax (20MHz SU 242) /802.11ax (20MHz RU 26/52/106/242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n, 802.11ac/ax (40MHz)/802.11ax (40MHz SU 484) /802.11ax (40MHz RU 242/484):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/802.11ax (80MHz RU 484/996):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
42	5210 MHz		

FOR 5260 ~ 5320MHz

4 channels are provided for 802.11a, 802.11n, 802.11ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/802.11ax (20MHz RU 26/52/106/242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n, 802.11ac/ax (40MHz)/ 802.11ax (40MHz SU 484) /802.11ax (40MHz RU 242/484):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/802.11ax (80MHz RU 484/996):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
58	5290 MHz		

FOR 5745 ~ 5825MHz

5 channels are provided for 802.11a, 802.11n, 802.11ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/802.11ax (20MHz RU 26/52/206/242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n, 802.11ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/802.11ax (40MHz RU 242/484):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
142	5710 MHz	159	5795 MHz
151	5755 MHz		

1 channel is provided for 802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/802.11ax (80MHz RU 484/996):

CHANNEL	FREQUENCY
155	5775 MHz



2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	-	Powered by Adapter with wifi(5G) link
B	-	-	-	√	Powered by Battery with wifi(5G) link
C	-	-	-	-	Powered by USB with wifi(5G) link

Where

RE $\geq$ 1G: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

NOTE: “-” means no effect

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11ax (40MHz SU 484)	5745-5825	142 to 159	159	OFDMA	MCS0



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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 48	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		36 to 48	36, 48	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		38 to 46	38, 46	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		42	42	OFDM, OFDMA	MCS0
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		52 to 64	52, 60, 64	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		54 to 62	54, 62	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		58	58	OFDM, OFDMA	MCS0
A	802.11a	5745-5825	144 to 165	144,149, 157,165	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		144 to 165	144,149, 157,165	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		142 to 159	142,151, 159	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		138 to 155	138,155	OFDM, OFDMA	MCS0



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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11ax (40MHz RU 484)	5745-5825	142 to 159	159	OFDMA	MCS0

BANDEDGE MEASUREMENT:

- ☒ 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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 48	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		36 to 48	36, 48	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		38 to 46	38, 46	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		42	42	OFDM, OFDMA	MCS0
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		52 to 64	52, 60, 64	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		54 to 62	54, 62	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		58	58	OFDM, OFDMA	MCS0
A	802.11a	5745-5825	144 to 165	144, 149, 157, 165	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/		144 to 165	144, 149, 157, 165	OFDM,	MCS0



Test Report No.: PSU-QSU2306120115RF13

	802.11ax (20MHz RU 26/52/106/242)				OFDMA	
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		142 to 159	142, 151, 159	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		138,155	138, 155	OFDM, OFDMA	MCS0

ANTENNA PORT CONDUCTED 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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 48	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		36 to 48	36, 48	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		38 to 46	38, 46	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		42	42	OFDM, OFDMA	MCS0
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		52 to 64	52, 60, 64	OFDM, OFDMA	MCS0
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		54 to 62	54, 62	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		58	58	OFDM, OFDMA	MCS0
A	802.11a	5745-5825	144 to 165	144, 149, 157,165	OFDM	6.0
A	802.11an/ac/ax (20MHz)/ 802.11ax (20MHz SU 242)/ 802.11ax (20MHz RU 26/52/106/242)		144 to 165	144, 149, 157,165	OFDM, OFDMA	MCS0



Test Report No.: PSU-QSU2306120115RF13

	26/52/106/242)					
A	802.11an/ac/ax (40MHz)/ 802.11ax (40MHz SU 484)/ 802.11ax (40MHz RU 242/484)		142 to 159	142, 151, 159	OFDM, OFDMA	MCS0
A	802.11ac/ax (80MHz)/ 802.11ax (80MHz SU 996)/ 802.11ax (80MHz RU 484/996)		138,155	138, 155	OFDM, OFDMA	MCS0



Test Report No.: PSU-QSU2306120115RF13

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	23deg. C, 70%RH	DC 3.87V By Adapter	Chao Wu
RE≥1G	23deg. C, 70%RH	DC 3.87V By Adapter	Chao Wu
PLC	25deg. C, 52%RH	DC 3.87V By Adapter	Chao Wu
APCM	25deg. C, 60%RH	DC 3.87V By Adapter	Chao Wu

2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix A/B Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1/2
5GHZ	11a	96.63
	11n20	96.40
	11n40	93.47
	11ac20	96.43
	11ac40	93.54
	11ac80	88.16
	11ax 20	96.23
	11ax 40	93.10
	11ax 80	87.88
	11ax 20 (RU 26)	99.02
	11ax 20 (RU 52)	99.02
	11ax 20 (RU 106)	97.96
	11ax 20 (RU 242)	95.58
	11ax 40 (RU 242)	95.58
	11ax 40 (RU 484)	91.94
	11ax 80 (RU 484)	91.94
	11ax 80 (RU 996)	85.71

Note:

Duty cycle of test signal is < 98%, duty factor shall be considered.



Test Report No.: PSU-QSU2306120115RF13

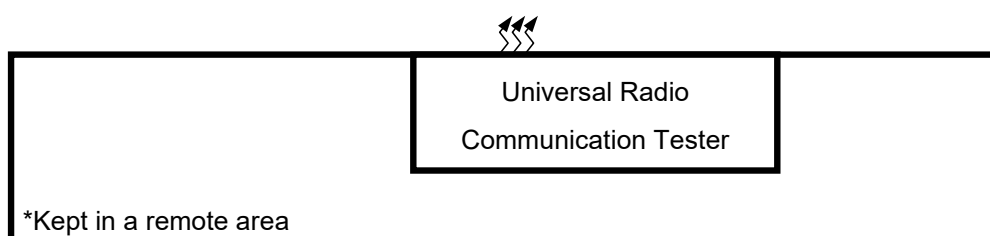
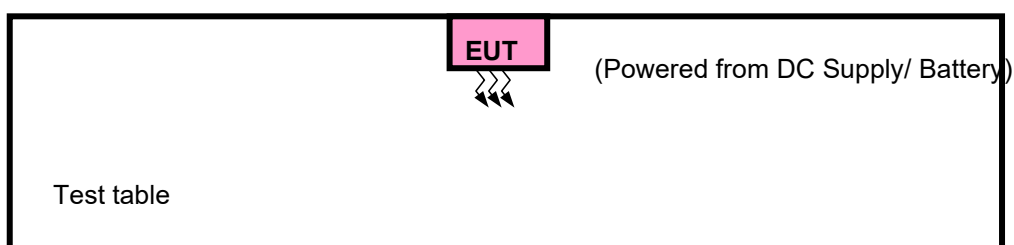
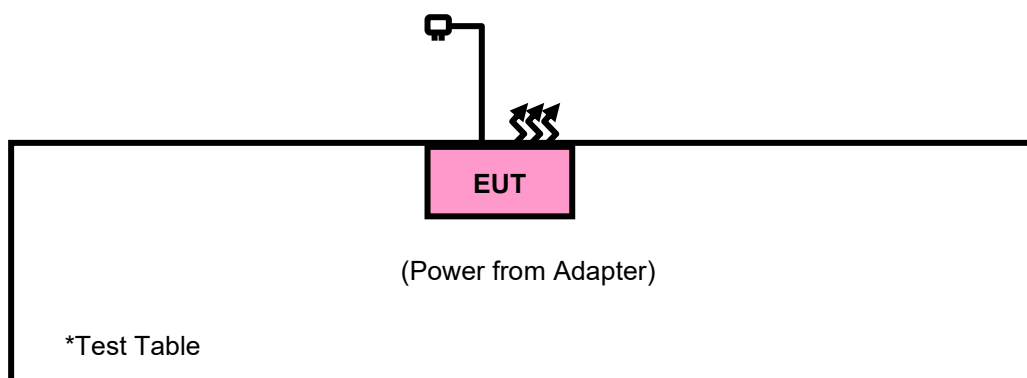
2.4 DESCRIPTION OF SUPPORT UNITS

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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	ThinkPad E14	HRSW00024	N/A
2	Adapter	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

2.4.1 CONFIGURATION OF SYSTEM UNDER TEST





Test Report No.: PSU-QSU2306120115RF13

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

ANSI C63.10-2013

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

3 TEST TYPES AND RESULTS

3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.1.1 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.

3.1.2 LIMITS OF UNWANTED EMISSION

RESTRICTED BANDS	APPLICABLE TO	LIMIT	
	789033 D02 General UNII Test Procedures New Rules v02r01	FIELD STRENGTH AT 3m (dBµV/m)	
		PK : 74	AV : 54
OUT OF THE RESTRICTED BANDS	APPLICABLE TO	EIRP LIMIT (dBm/MHz)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m)
	15.407(b)(1)	PK : -27	PK : 68.2
	15.407(b)(2)		
	15.407(b)(3)		
	15.407(b)(4)	See note 2 (FCC 16-24)	



Test Report No.: PSU-QSU2306120115RF13

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

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

2. All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

3.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 22, 23	May. 21,26
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 18,23	Feb. 17,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 18,23	Feb. 17,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.04, 22	Sep.03, 23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.03, 23	Sep.02, 24
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120-3	3.2.06	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	N/A	May. 06,23	May. 05,24
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 28,23	Mar. 27,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,23	May. 05,24
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,23	May.09,24
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb. 16,24
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 12,22	Aug. 11,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 11,23	Aug. 10,24
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,23	Feb. 13,24
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,23	Feb. 13,24
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,22	Sep.02,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.02,22	Sep.01,24

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.



Test Report No.: PSU-QSU2306120115RF13

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.28,23	Oct.27,23
CABLE	R&S	W12.14	N/A	Apr.28,23	Oct.27,23

- NOTE:**
1. The calibration interval of the above test instruments is 6 months or 24 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in 3m Chamber.
 3. The FCC Site Registration No. is 434559; The Designation No. is CN1325.



3.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height 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.
- d. 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

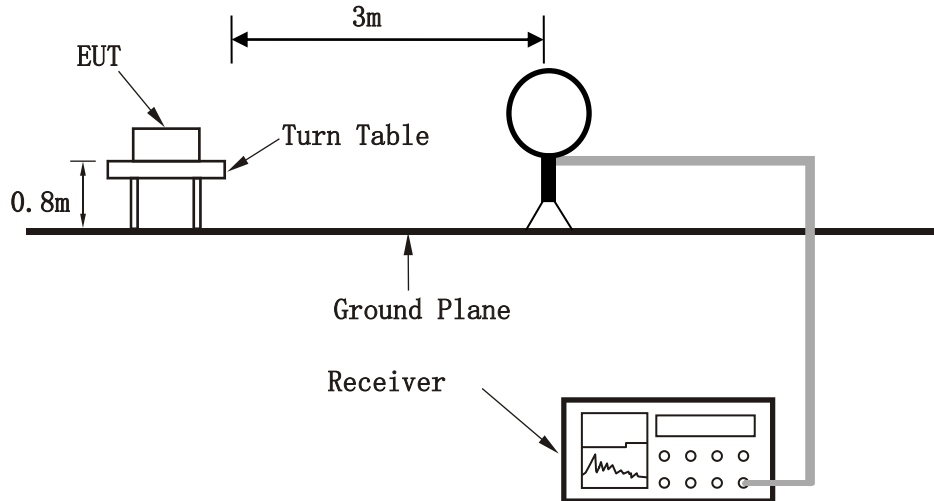
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.1.5 DEVIATION FROM TEST STANDARD

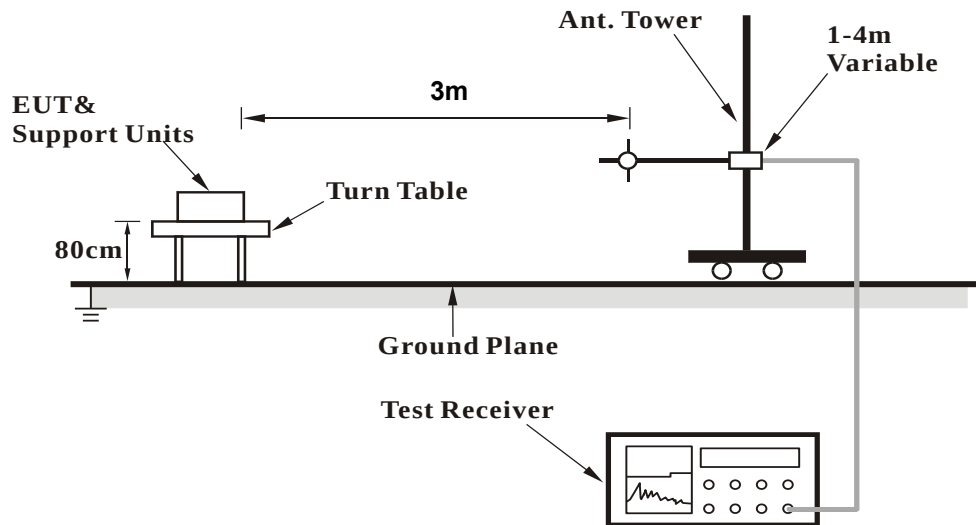
No deviation.

3.1.6 TEST SETUP

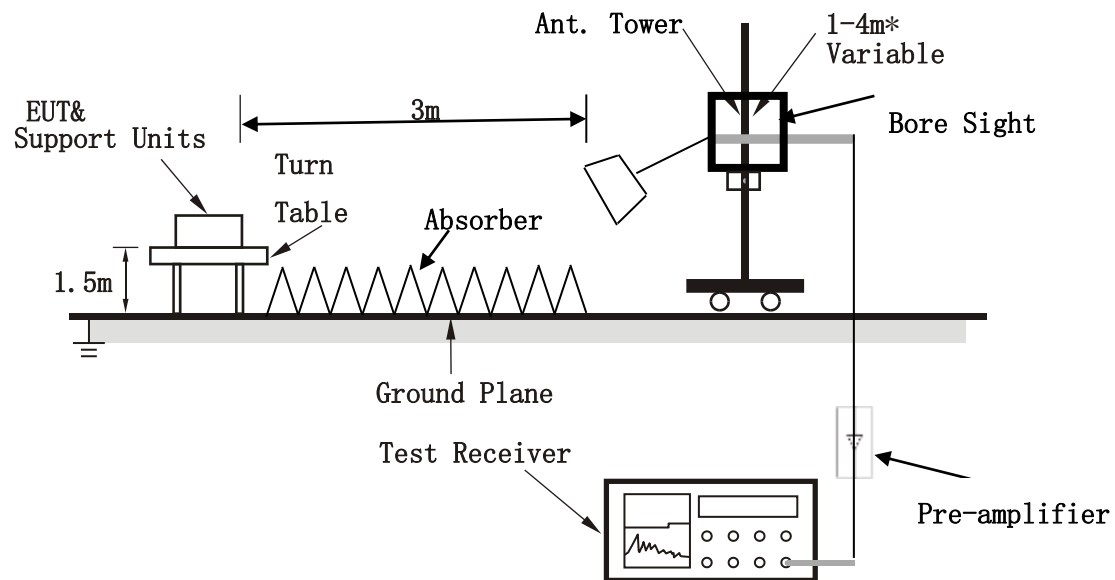
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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

3.1.7 EUT OPERATING CONDITION

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.



Test Report No.: PSU-QSU2306120115RF13

3.1.8 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Band Edge Measurement

Band 1:

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.85	54.92	74	-20.15	34.52	9.92	45.51	100	205	Peak
5150.000	47.86	48.93	54	-6.14	34.52	9.92	45.51	100	205	Average
5180.000	104.04	105.1	74	30.04	34.54	9.91	45.51	100	205	Peak
5180.000	98.63	99.69	/	/	34.54	9.91	45.51	100	205	Average
5350.000	53.79	54.77	/	/	34.68	9.85	45.51	100	205	Peak
5350.000	47.47	48.45	54	-6.53	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.99	54.98	74	-20.01	34.6	9.92	45.51	100	172	Peak
5150.000	48.22	49.21	54	-5.78	34.6	9.92	45.51	100	172	Average
5180.000	99.16	100.16	/	/	34.6	9.91	45.51	100	172	Peak
5180.000	93.51	94.51	/	/	34.6	9.91	45.51	100	172	Average
5350.000	53.57	54.63	74	-20.43	34.6	9.85	45.51	100	172	Peak
5350.000	47.2	48.26	54	-6.8	34.6	9.85	45.51	100	172	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5180MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	55.03	56.1	74	-18.97	34.52	9.92	45.51	100	205	Peak
5150.000	47.74	48.81	54	-6.26	34.52	9.92	45.51	100	205	Average
5200.000	105.11	106.16	/	/	34.56	9.9	45.51	100	205	Peak
5200.000	99.27	100.32	/	/	34.56	9.9	45.51	100	205	Average
5350.000	54.17	55.15	74	-19.83	34.68	9.85	45.51	100	205	Peak
5350.000	47.04	48.02	54	-6.96	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.64	54.63	74	-20.36	34.6	9.92	45.51	100	172	Peak
5150.000	48.27	49.26	54	-5.73	34.6	9.92	45.51	100	172	Average
5200.000	98.87	99.88	/	/	34.6	9.9	45.51	100	172	Peak
5200.000	91.91	92.92	/	/	34.6	9.9	45.51	100	172	Average
5350.000	55.17	56.23	74	-18.83	34.6	9.85	45.51	100	172	Peak
5350.000	47.93	48.99	54	-6.07	34.6	9.85	45.51	100	172	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5200MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.22	54.29	74	-20.78	34.52	9.92	45.51	100	205	Peak
5150.000	47.94	49.01	54	-6.06	34.52	9.92	45.51	100	205	Average
5240.000	104.9	105.93	/	/	34.59	9.89	45.51	100	205	Peak
5240.000	98.47	99.5	/	/	34.59	9.89	45.51	100	205	Average
5350.000	54.08	55.06	74	-19.92	34.68	9.85	45.51	100	205	Peak
5350.000	47.57	48.55	54	-6.43	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.18	55.17	74	-19.82	34.6	9.92	45.51	100	310	Peak
5150.000	49.02	50.01	54	-4.98	34.6	9.92	45.51	100	310	Average
5240.000	100.21	101.23	/	/	34.6	9.89	45.51	100	310	Peak
5240.000	93.86	94.88	/	/	34.6	9.89	45.51	100	310	Average
5350.000	53.84	54.9	74	-20.16	34.6	9.85	45.51	100	310	Peak
5350.000	47.5	48.56	54	-6.5	34.6	9.85	45.51	100	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5240MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

802.11n (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.24	55.31	74	-19.76	34.52	9.92	45.51	100	205	Peak
5150.000	47.55	48.62	54	-6.45	34.52	9.92	45.51	100	205	Average
5180.000	103.63	104.69	/	/	34.54	9.91	45.51	100	205	Peak
5180.000	96.25	97.31	/	/	34.54	9.91	45.51	100	205	Average
5350.000	54.41	55.39	74	-19.59	34.68	9.85	45.51	100	205	Peak
5350.000	47.66	48.64	54	-6.34	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.73	54.72	74	-20.27	34.6	9.92	45.51	100	172	Peak
5150.000	47.68	48.67	54	-6.32	34.6	9.92	45.51	100	172	Average
5180.000	99.28	100.28	/	/	34.6	9.91	45.51	100	172	Peak
5180.000	92.33	93.33	/	/	34.6	9.91	45.51	100	172	Average
5350.000	53.83	54.89	74	-20.17	34.6	9.85	45.51	100	172	Peak
5350.000	47.15	48.21	54	-6.85	34.6	9.85	45.51	100	172	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5180MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.08	54.15	74	-20.92	34.52	9.92	45.51	100	205	Peak
5150.000	47.51	48.58	54	-6.49	34.52	9.92	45.51	100	205	Average
5200.000	103.68	104.73	/	/	34.56	9.9	45.51	100	205	Peak
5200.000	97.43	98.48	/	/	34.56	9.9	45.51	100	205	Average
5350.000	55.02	56	74	-18.98	34.68	9.85	45.51	100	205	Peak
5350.000	47.71	48.69	54	-6.29	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.12	54.11	74	-20.88	34.6	9.92	45.51	100	172	Peak
5150.000	48.69	49.68	54	-5.31	34.6	9.92	45.51	100	172	Average
5200.000	98.49	99.5	/	/	34.6	9.9	45.51	100	172	Peak
5200.000	90.53	91.54	/	/	34.6	9.9	45.51	100	172	Average
5350.000	53.8	54.86	74	-20.2	34.6	9.85	45.51	100	172	Peak
5350.000	47.71	48.77	54	-6.29	34.6	9.85	45.51	100	172	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5200MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.09	54.16	74	-20.91	34.52	9.92	45.51	100	205	Peak
5150.000	48.18	49.25	54	-5.82	34.52	9.92	45.51	100	205	Average
5240.000	104.35	105.38	/	/	34.59	9.89	45.51	100	205	Peak
5240.000	96.57	97.6	/	/	34.59	9.89	45.51	100	205	Average
5350.000	53.32	54.3	74	-20.68	34.68	9.85	45.51	100	205	Peak
5350.000	47.89	48.87	54	-6.11	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.17	55.16	74	-19.83	34.6	9.92	45.51	100	0	Peak
5150.000	47.62	48.68	54	-6.38	34.6	9.85	45.51	100	0	Average
5240.000	97.73	98.75	/	/	34.6	9.89	45.51	100	0	Peak
5240.000	91.21	92.23	/	/	34.6	9.89	45.51	100	0	Average
5350.000	54.4	55.46	74	-19.6	34.6	9.85	45.51	100	0	Peak
5350.000	47.52	48.58	54	-6.48	34.6	9.85	45.51	100	0	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5240MHz: Fundamental frequency.



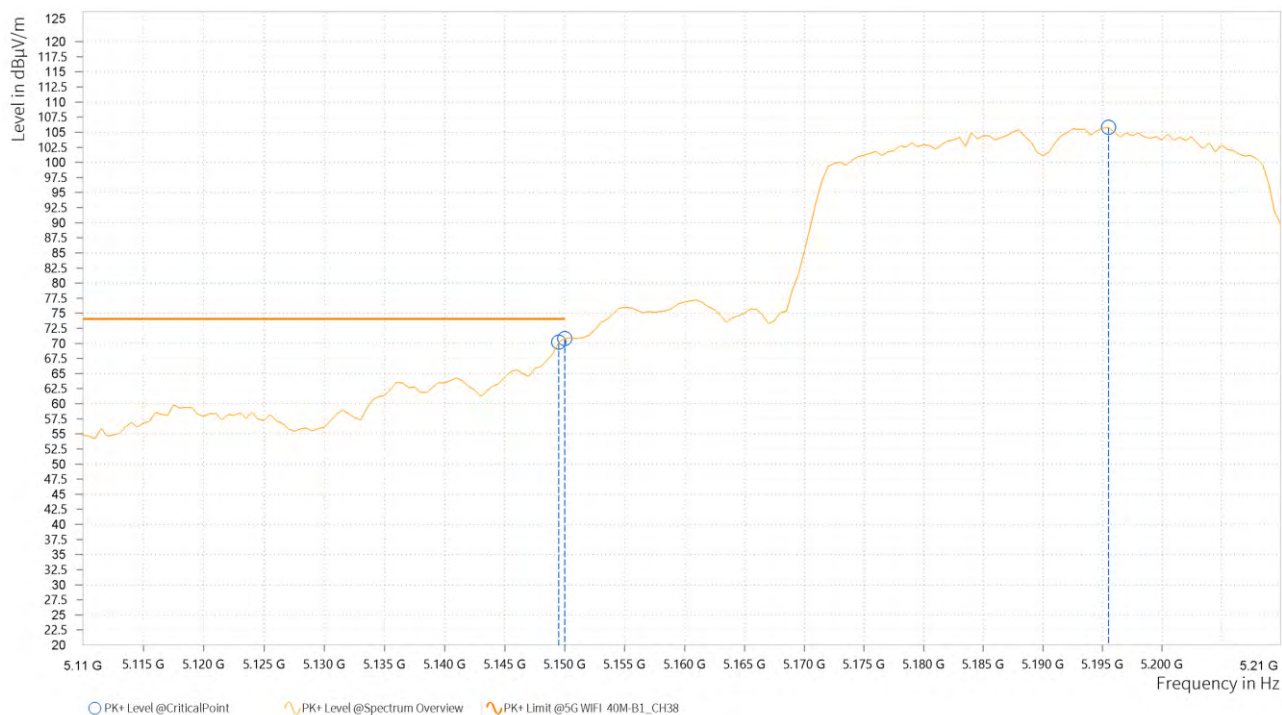
Test Report No.: PSU-QSU2306120115RF13

802.11n (40MHz)

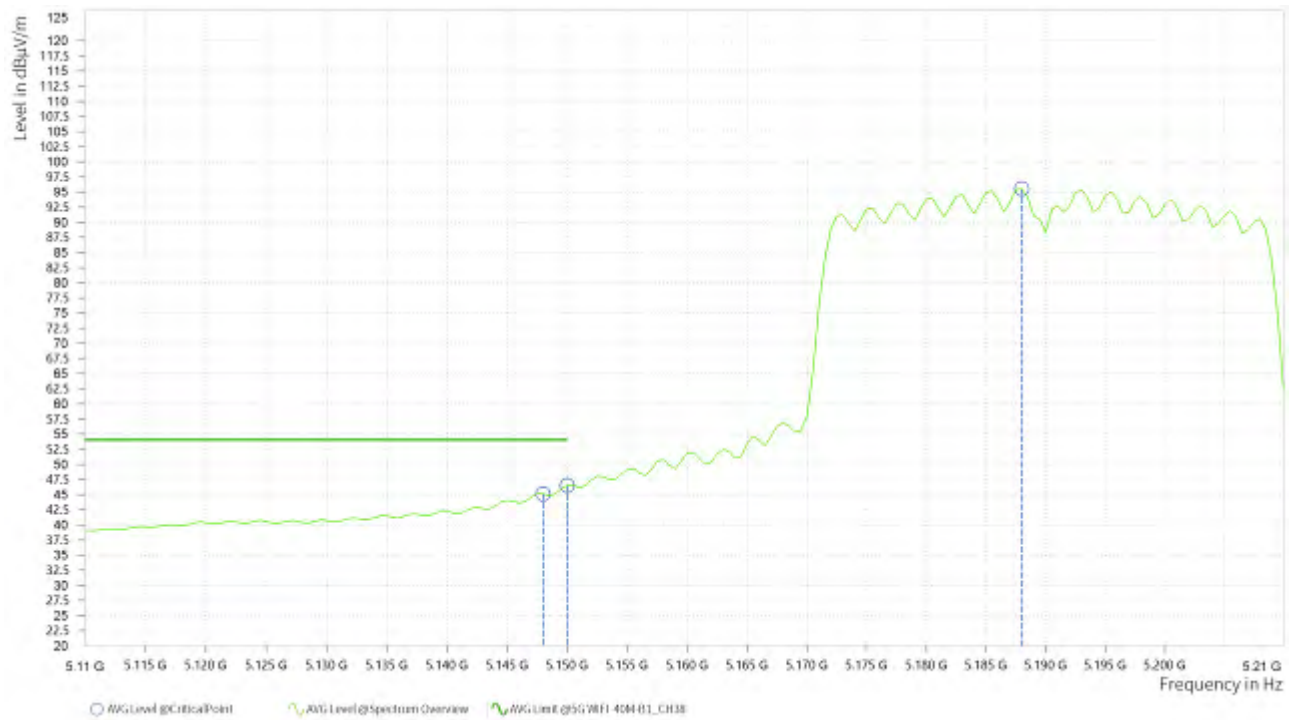
CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	70.20	74.00	3.80	12.75	H	317.6	2
1	5,150.000	70.80	74.00	3.20	12.75	H	317.6	2
1	5,195.500	105.83			12.93	H	317.6	2

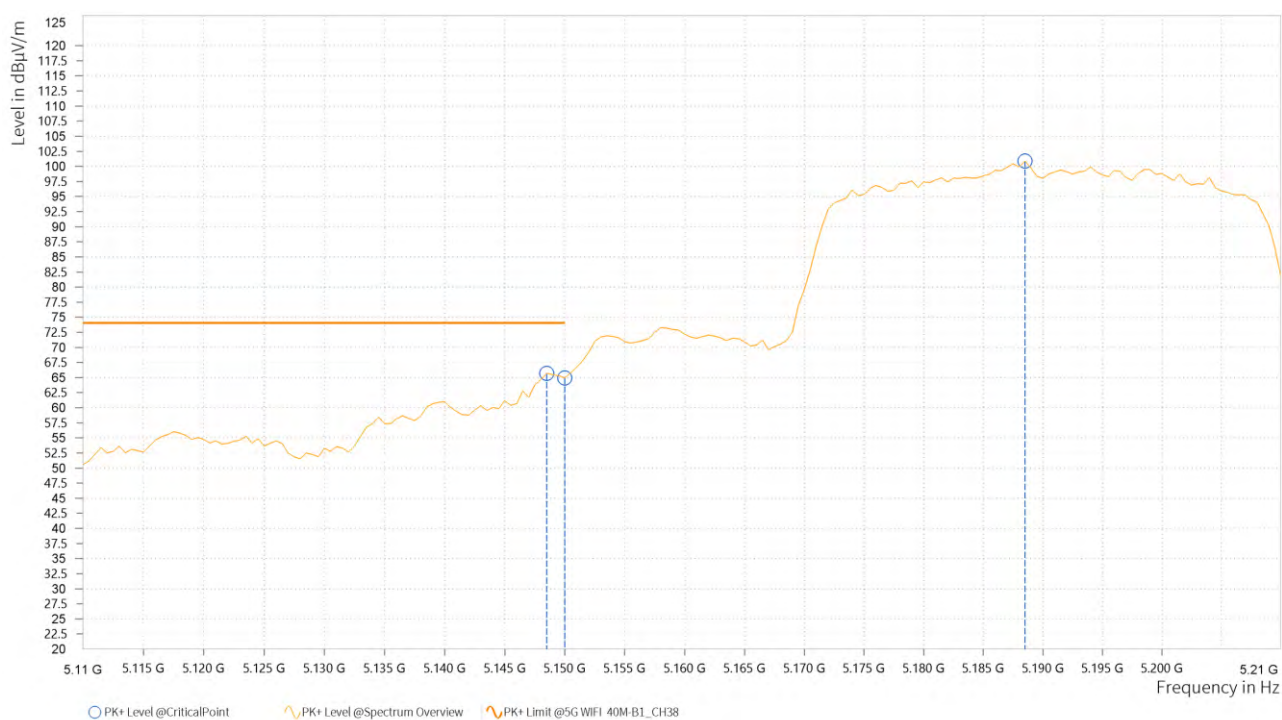


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.000	45.12	54.00	8.88	12.74	H	261.1	1
1	5,150.000	46.53	54.00	7.47	12.75	H	261.1	1
1	5,188.000	95.56			12.90	H	261.1	1



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.500	65.69	74.00	8.31	12.74	V	175.4	2
1	5,150.000	64.94	74.00	9.06	12.75	V	269.8	2
1	5,188.500	100.91			12.90	V	317.7	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.000	40.42	54.00	13.58	12.74	V	271	2
1	5,150.000	40.74	54.00	13.26	12.75	V	271	2
1	5,188.500	88.45			12.90	V	318.8	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5190MHz: Fundamental frequency.

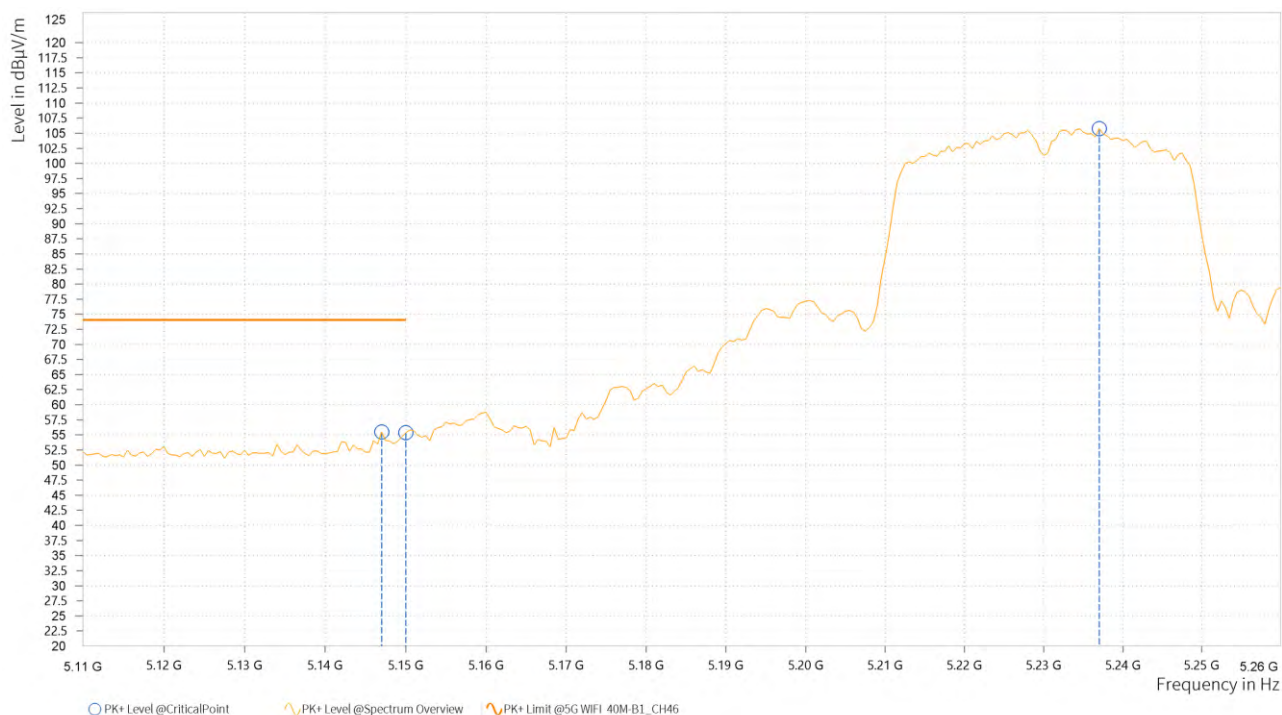


Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,147.000	55.49	74.00	18.51	12.74	H	355	2
2	5,150.000	55.35	74.00	18.65	12.75	H	317.6	2
2	5,237.000	105.78			12.94	H	137.9	1

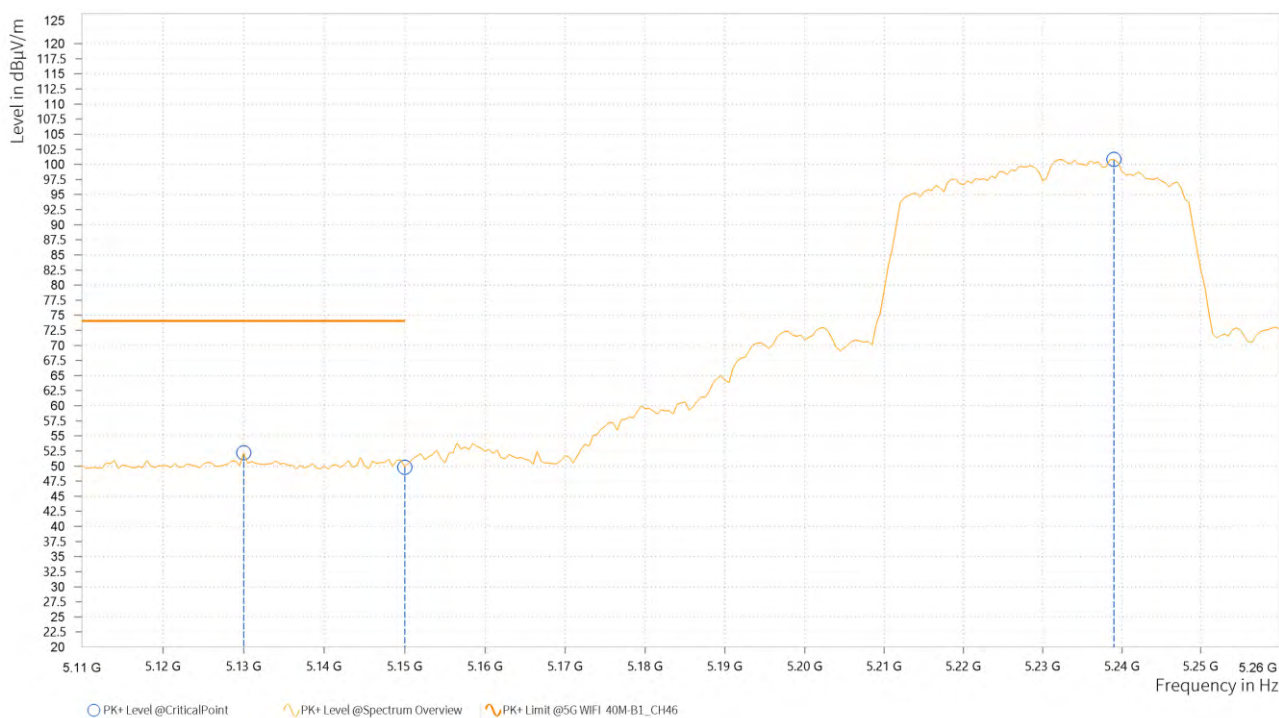


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,144.500	38.94	54.00	15.06	12.73	H	281.4	1
2	5,150.000	39.37	54.00	14.63	12.75	H	281.4	1
2	5,232.500	95.24			12.94	H	233.6	1



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,130.000	52.19	74.00	21.81	12.69	V	21.5	2
2	5,150.000	49.83	74.00	24.17	12.75	V	42.4	1
2	5,239.000	100.82			12.94	V	213.6	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,146.500	36.65	54.00	17.35	12.74	V	174.1	2
2	5,150.000	36.58	54.00	17.42	12.75	V	238.3	1
2	5,231.500	89.15			12.94	V	238.3	1



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5230MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

802.11ac (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.03	55.1	74	-19.97	34.52	9.92	45.51	100	205	Peak
5150.000	47.7	48.77	54	-6.3	34.52	9.92	45.51	100	205	Average
5180.000	103.49	104.55	/	/	34.54	9.91	45.51	100	205	Peak
5180.000	97.74	98.8	/	/	34.54	9.91	45.51	100	205	Average
5350.000	53.82	54.8	74	-20.18	34.68	9.85	45.51	100	205	Peak
5350.000	47.92	48.9	54	-6.08	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.08	55.07	74	-19.92	34.6	9.92	45.51	100	310	Peak
5150.000	48.29	49.28	54	-5.71	34.6	9.92	45.51	100	310	Average
5180.000	99.25	100.25	/	/	34.6	9.91	45.51	100	310	Peak
5180.000	93.75	94.75	/	/	34.6	9.91	45.51	100	310	Average
5350.000	53.65	54.71	74	-20.35	34.6	9.85	45.51	100	310	Peak
5350.000	47.4	48.46	54	-6.6	34.6	9.85	45.51	100	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5180MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.25	55.32	74	-19.75	34.52	9.92	45.51	100	205	Peak
5150.000	47.91	48.98	54	-6.09	34.52	9.92	45.51	100	205	Average
5200.000	103.76	104.81	/	/	34.56	9.9	45.51	100	205	Peak
5200.000	97.82	98.87	/	/	34.56	9.9	45.51	100	205	Average
5350.000	53.39	54.37	74	-20.61	34.68	9.85	45.51	100	205	Peak
5350.000	48.31	49.29	54	-5.69	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.12	55.11	74	-19.88	34.6	9.92	45.51	100	310	Peak
5150.000	48.09	49.08	54	-5.91	34.6	9.92	45.51	100	310	Average
5200.000	97.44	98.45	/	/	34.6	9.9	45.51	100	310	Peak
5200.000	92.62	93.63	/	/	34.6	9.9	45.51	100	310	Average
5350.000	54.2	55.26	74	-19.8	34.6	9.85	45.51	100	310	Peak
5350.000	47.23	48.29	54	-6.77	34.6	9.85	45.51	100	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5200MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.16	55.23	74	-19.84	34.52	9.92	45.51	100	205	Peak
5150.000	48.55	49.62	54	-5.45	34.52	9.92	45.51	100	205	Average
5240.000	103.95	104.98	/	/	34.59	9.89	45.51	100	205	Peak
5240.000	97.14	98.17	/	/	34.59	9.89	45.51	100	205	Average
5350.000	53.87	54.85	74	-20.13	34.68	9.85	45.51	100	205	Peak
5350.000	47.68	48.66	54	-6.32	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.18	55.17	74	-19.82	34.6	9.92	45.51	100	310	Peak
5150.000	48.2	49.19	54	-5.8	34.6	9.92	45.51	100	310	Average
5240.000	98.11	99.13	/	/	34.6	9.89	45.51	100	310	Peak
5240.000	90.71	91.73	/	/	34.6	9.89	45.51	100	310	Average
5350.000	53.64	54.7	74	-20.36	34.6	9.85	45.51	100	310	Peak
5350.000	47.5	48.56	54	-6.5	34.6	9.85	45.51	100	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5240MHz: Fundamental frequency.



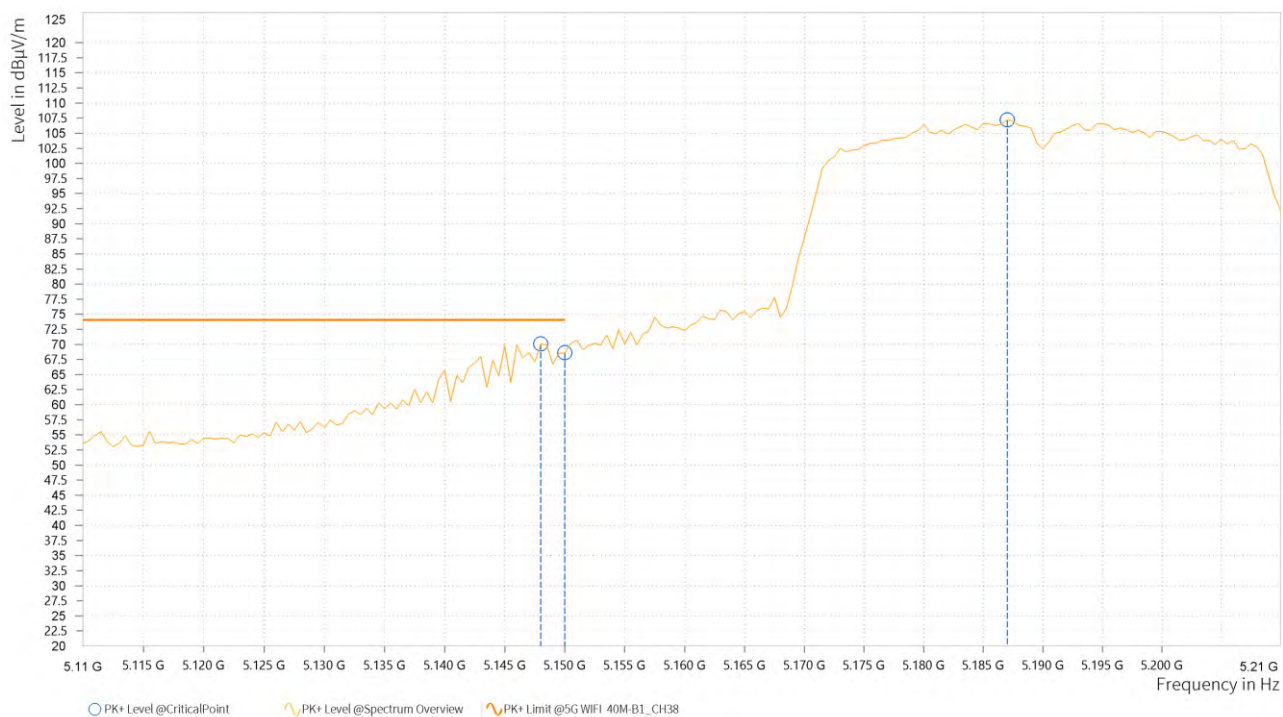
Test Report No.: PSU-QSU2306120115RF13

802.11ac (40MHz)

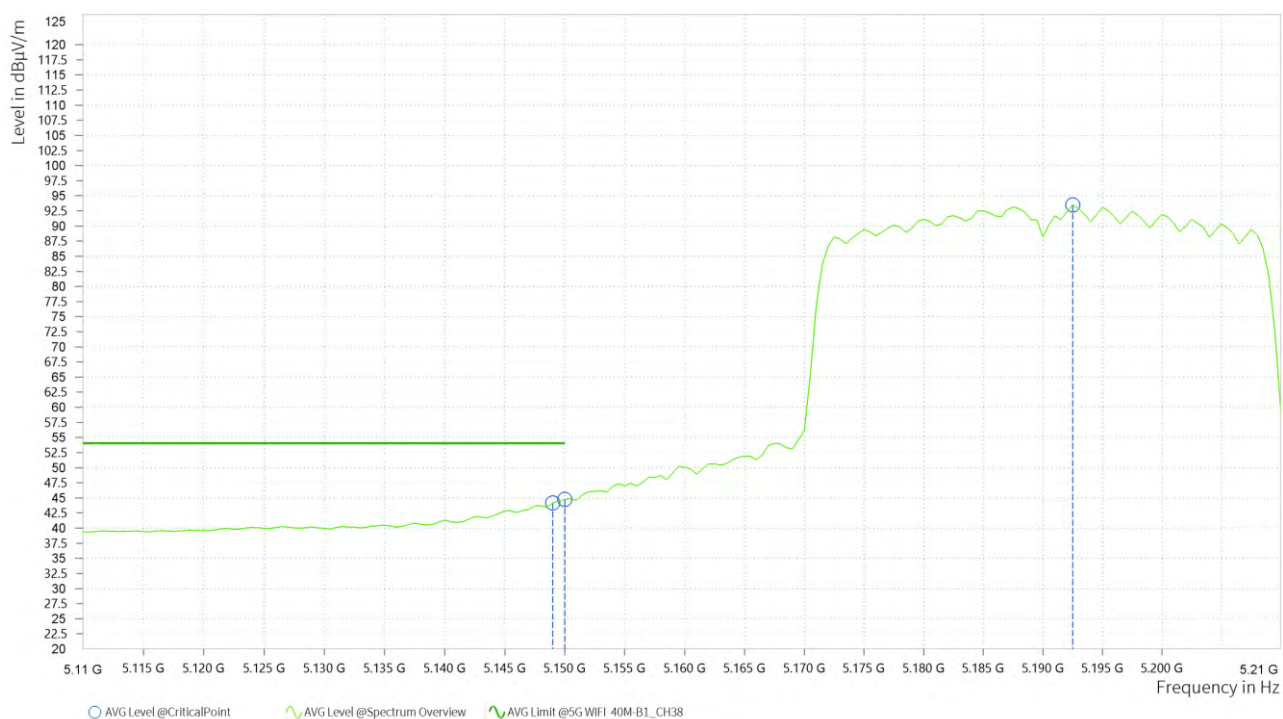
CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.000	70.10	74.00	3.90	12.74	H	315.3	2
1	5,150.000	68.60	74.00	5.40	12.75	H	287.4	1
1	5,187.000	107.22			12.90	H	238.4	1

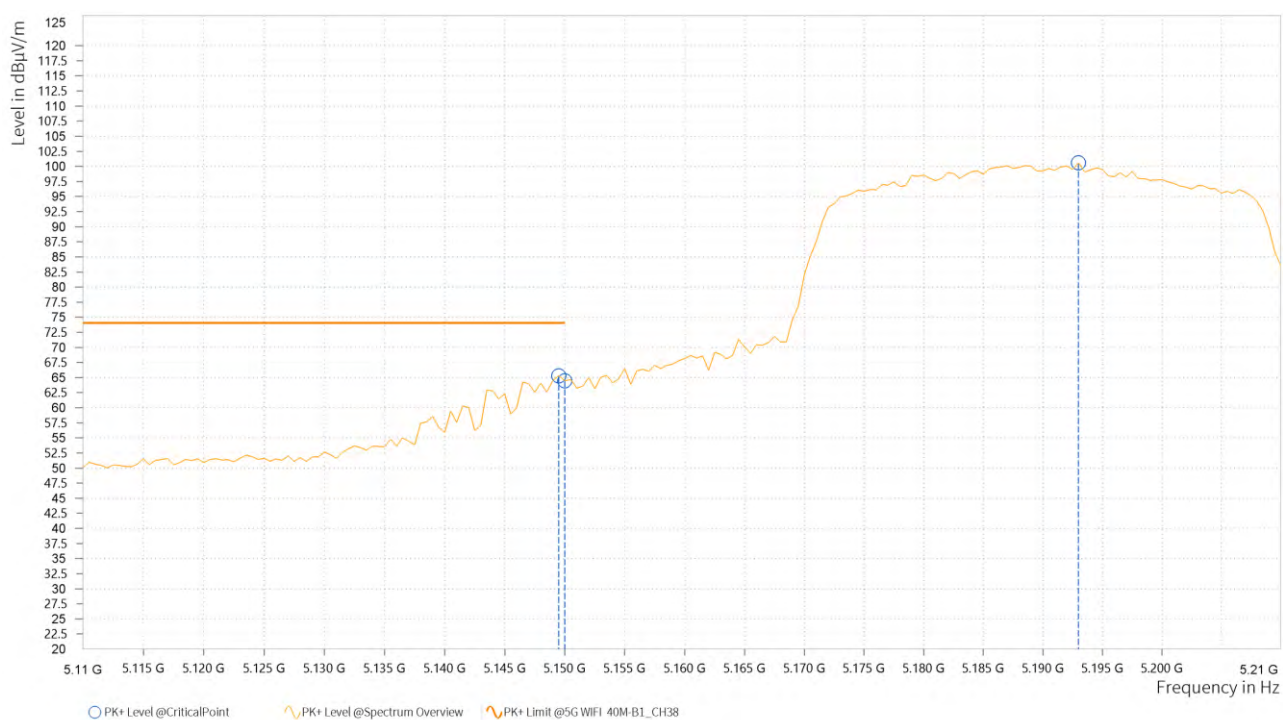


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.000	44.19	54.00	9.81	12.74	H	145.1	1
1	5,150.000	44.75	54.00	9.25	12.75	H	315.2	2
1	5,192.500	93.52			12.92	H	315.2	2

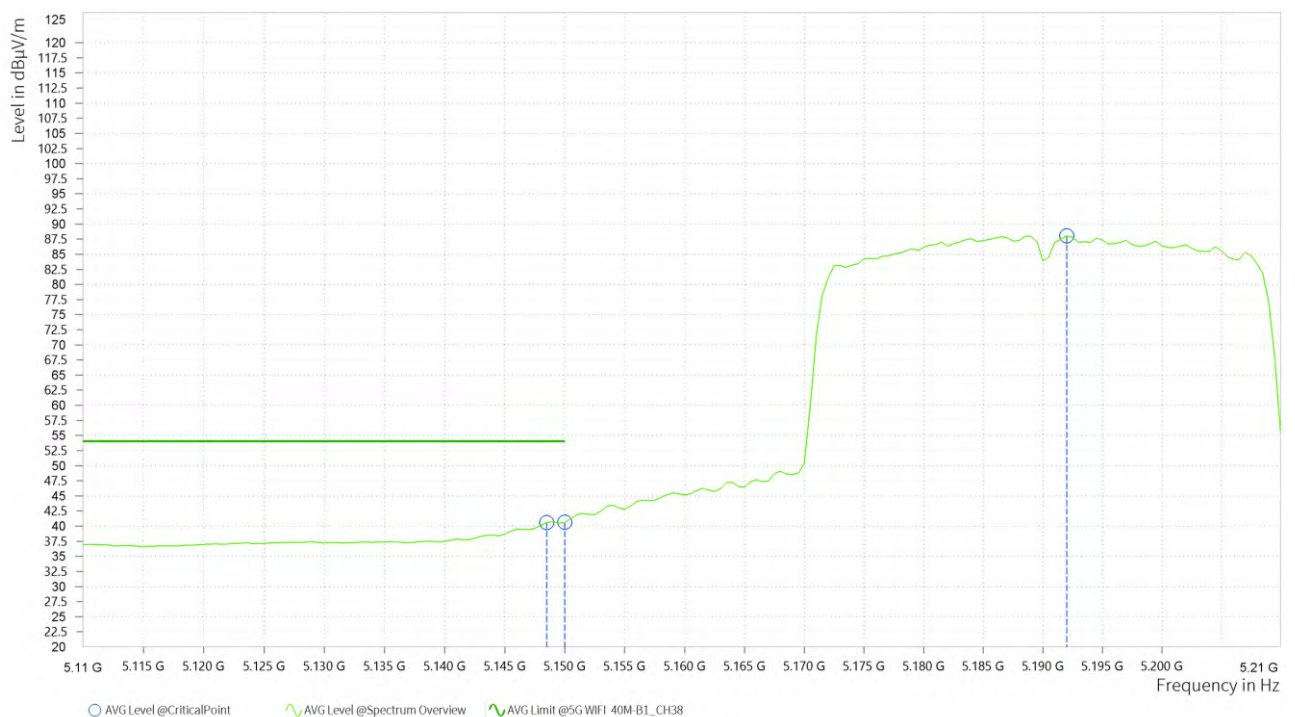


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	65.31	74.00	8.69	12.75	V	267.4	2
1	5,150.000	64.48	74.00	9.52	12.75	V	169.4	2
1	5,193.000	100.59			12.92	V	246.7	1



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.500	40.61	54.00	13.39	12.74	V	253.9	1
1	5,150.000	40.63	54.00	13.37	12.75	V	253.9	1
1	5,192.000	88.03			12.92	V	210.1	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5190MHz: Fundamental frequency.

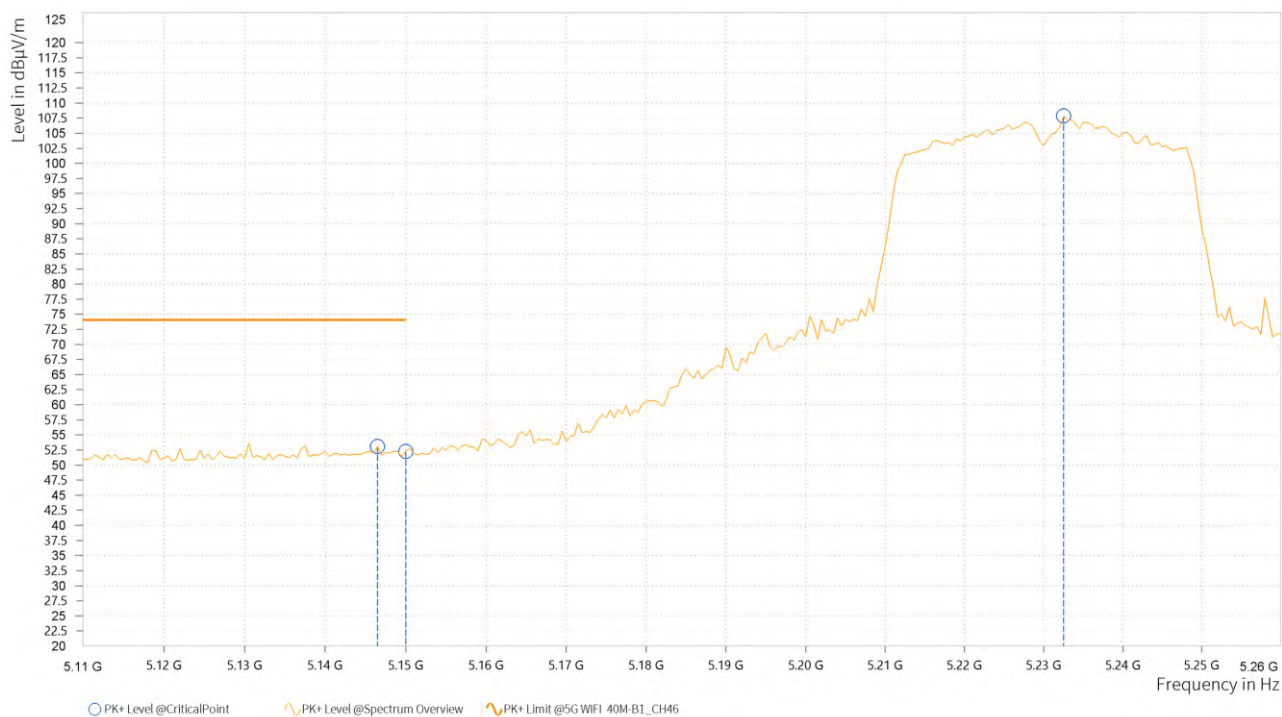


Test Report No.: PSU-QSU2306120115RF13

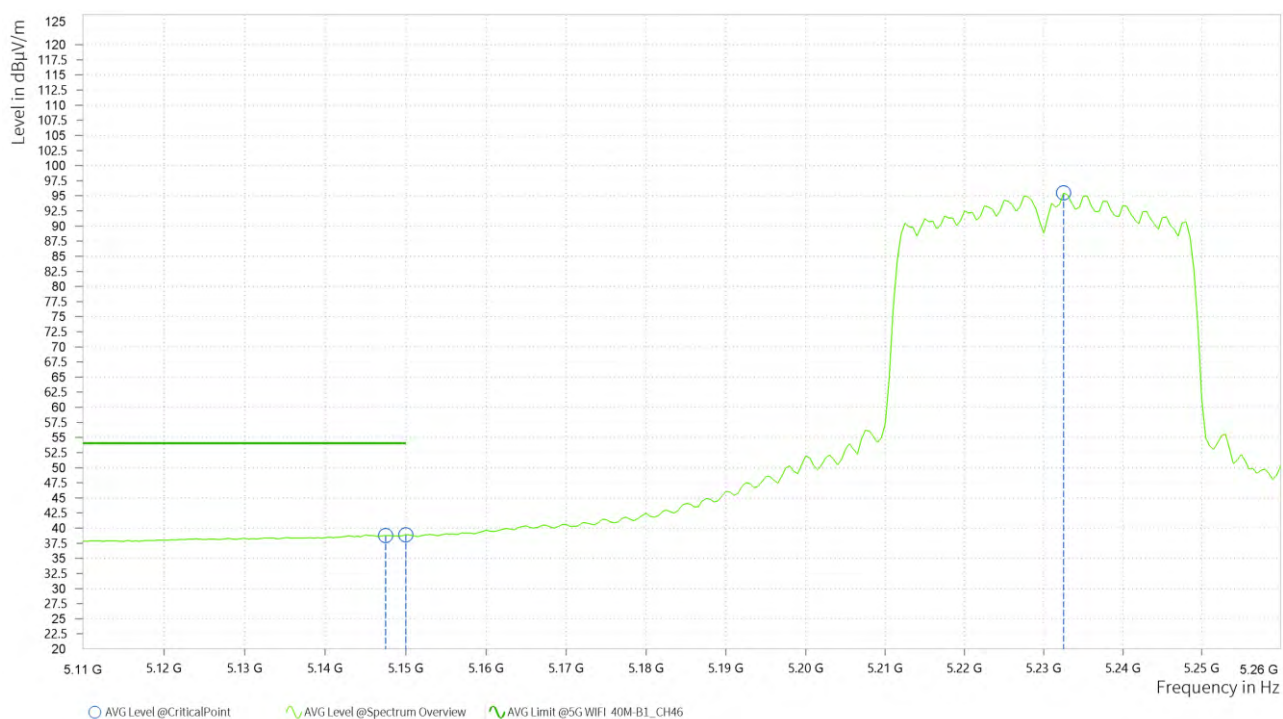
CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,146.500	53.09	74.00	20.91	12.74	H	317.6	2
2	5,150.000	52.27	74.00	21.73	12.75	H	240.9	1
2	5,232.500	107.86			12.94	H	240.9	1

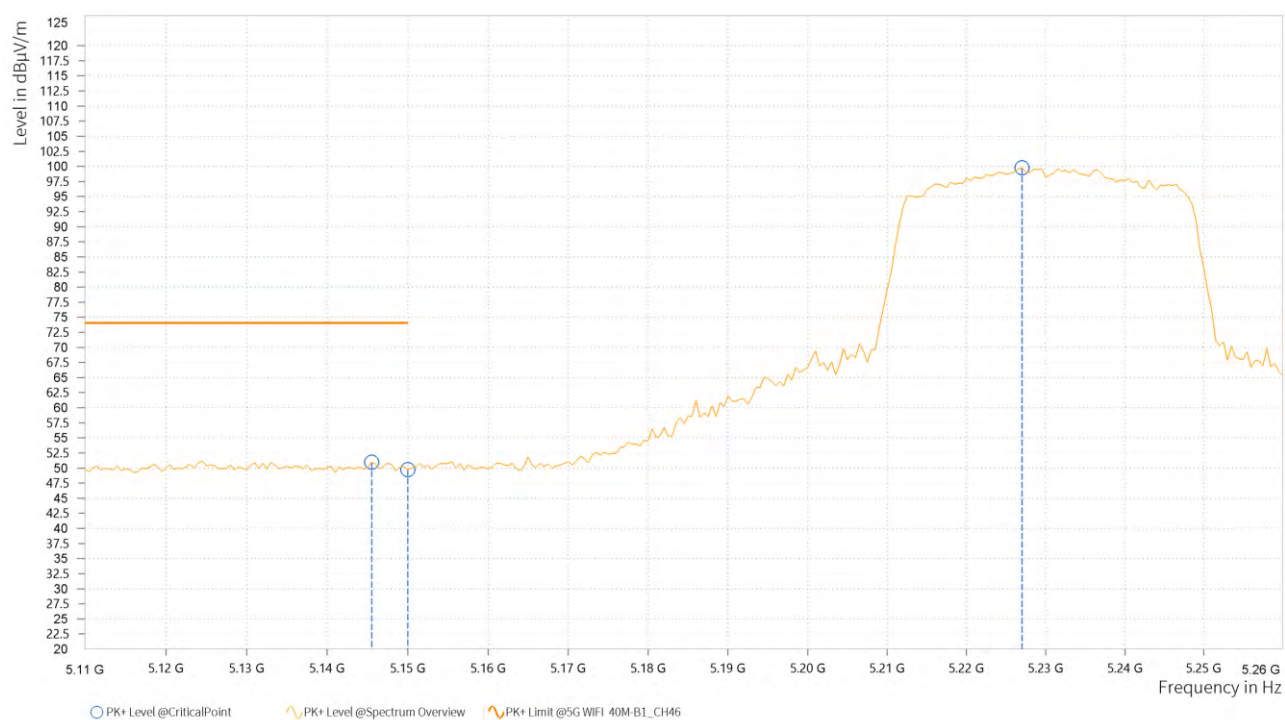


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,147.500	38.79	54.00	15.21	12.74	H	287.4	1
2	5,150.000	38.91	54.00	15.09	12.75	H	287.4	1
2	5,232.500	95.47			12.94	H	217	1



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,145.500	50.96	74.00	23.04	12.73	V	348.8	1
2	5,150.000	49.74	74.00	24.26	12.75	V	1	2
2	5,227.000	99.79			12.94	V	253.9	1



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,145.500	36.70	54.00	17.30	12.73	V	62.7	1
2	5,150.000	36.57	54.00	17.43	12.75	V	62.7	1
2	5,228.500	88.35			12.94	V	315.2	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5230MHz: Fundamental frequency.



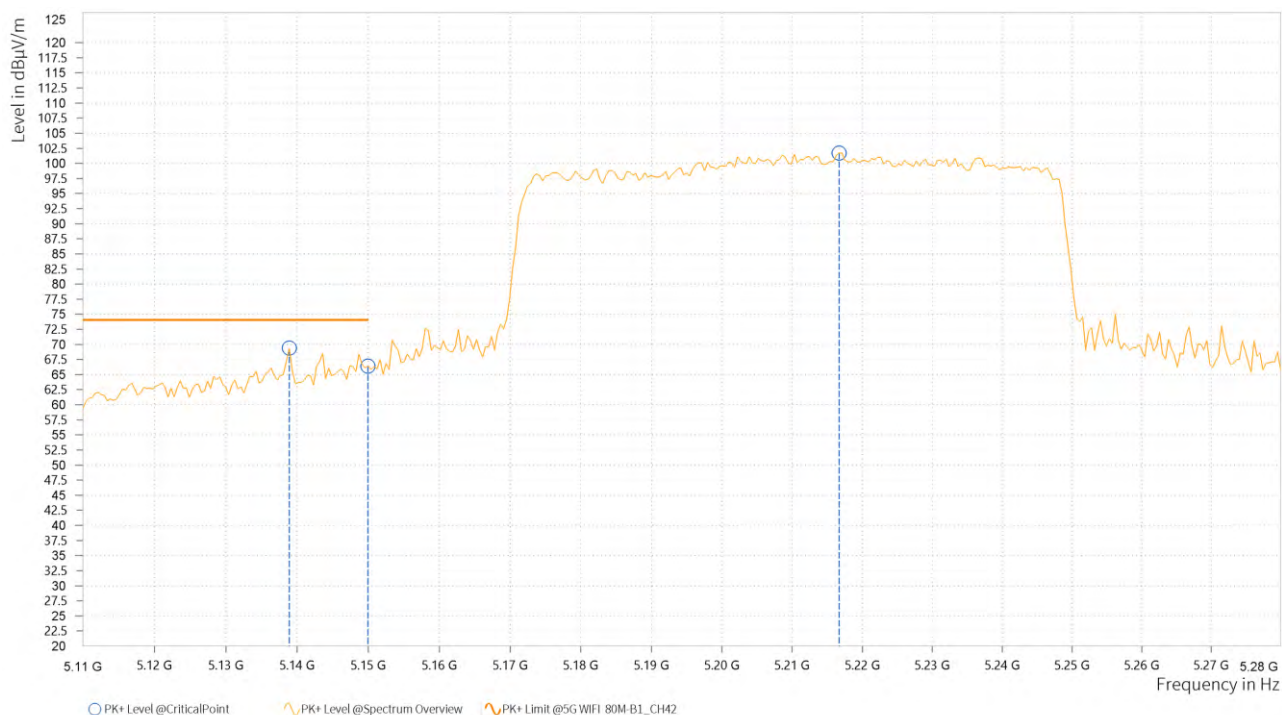
Test Report No.: PSU-QSU2306120115RF13

802.11ac (80MHz)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,138.900	69.38	74.00	4.62	12.71	H	297	2
1	5,149.950	66.41	74.00	7.59	12.75	H	145.1	2
1	5,216.675	101.74			12.94	H	221.7	2

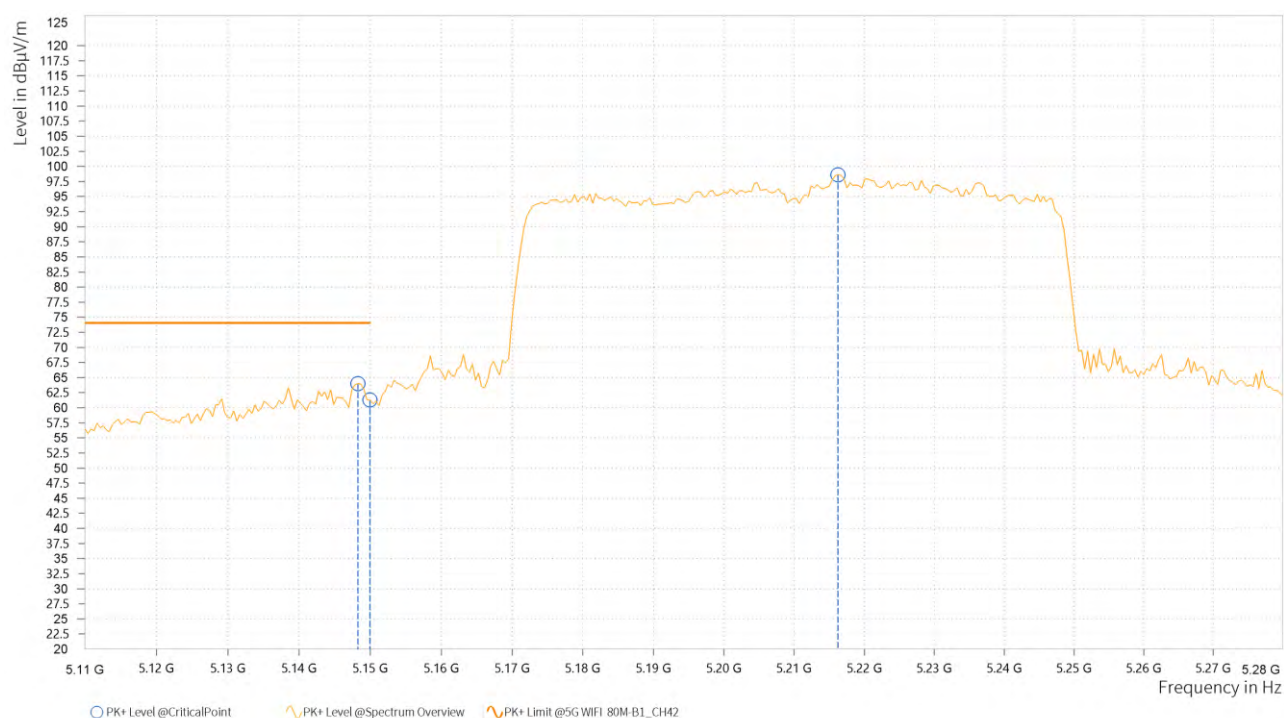


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.100	49.90	54.00	4.10	12.74	H	169	1
1	5,149.950	48.49	54.00	5.51	12.75	H	169	1
1	5,214.550	88.96			12.94	H	169	1



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.250	64.01	74.00	9.99	12.74	V	359.1	1
1	5,149.950	61.30	74.00	12.70	12.75	V	289	2
1	5,216.250	98.61			12.94	V	212.4	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.525	43.25	54.00	10.75	12.75	V	287.7	2
1	5,149.950	43.10	54.00	10.90	12.75	V	85.4	1
1	5,223.050	84.67			12.94	V	212.4	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5210MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

5G WIFI-SU

802.11ax (20MHz) (SU242):

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.000	68.93	74.00	5.07	12.74	H	170.3	1
1	5,150.000	67.12	74.00	6.88	12.75	H	301.8	1
1	5,182.500	110.35			12.88	H	170.3	1



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	41.33	54.00	12.67	12.75	H	164.2	1
1	5,150.000	41.25	54.00	12.75	12.75	H	164.2	1
1	5,177.500	94.95			12.86	H	164.2	1



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	60.47	74.00	13.53	12.75	V	261.4	2
1	5,150.000	63.36	74.00	10.64	12.75	V	250.4	1
1	5,179.000	105.33			12.87	V	250.4	1



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	37.07	54.00	16.93	12.75	V	251.6	1
1	5,150.000	37.22	54.00	16.78	12.75	V	251.6	1
1	5,179.000	89.68			12.87	V	251.6	1



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5180MHz: Fundamental frequency.

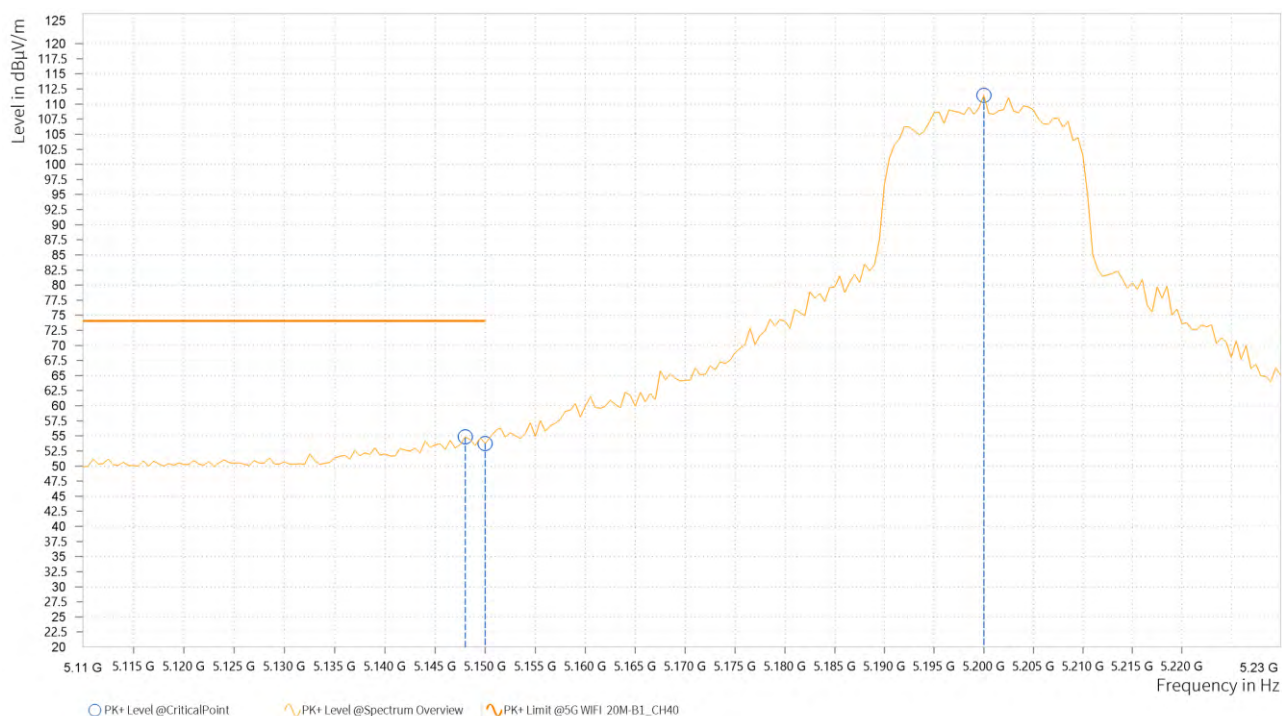


Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,148.000	54.82	74.00	19.18	12.74	H	310.4	2
2	5,150.000	53.75	74.00	20.25	12.75	H	310.4	2
2	5,200.000	111.47			12.95	H	154.7	1

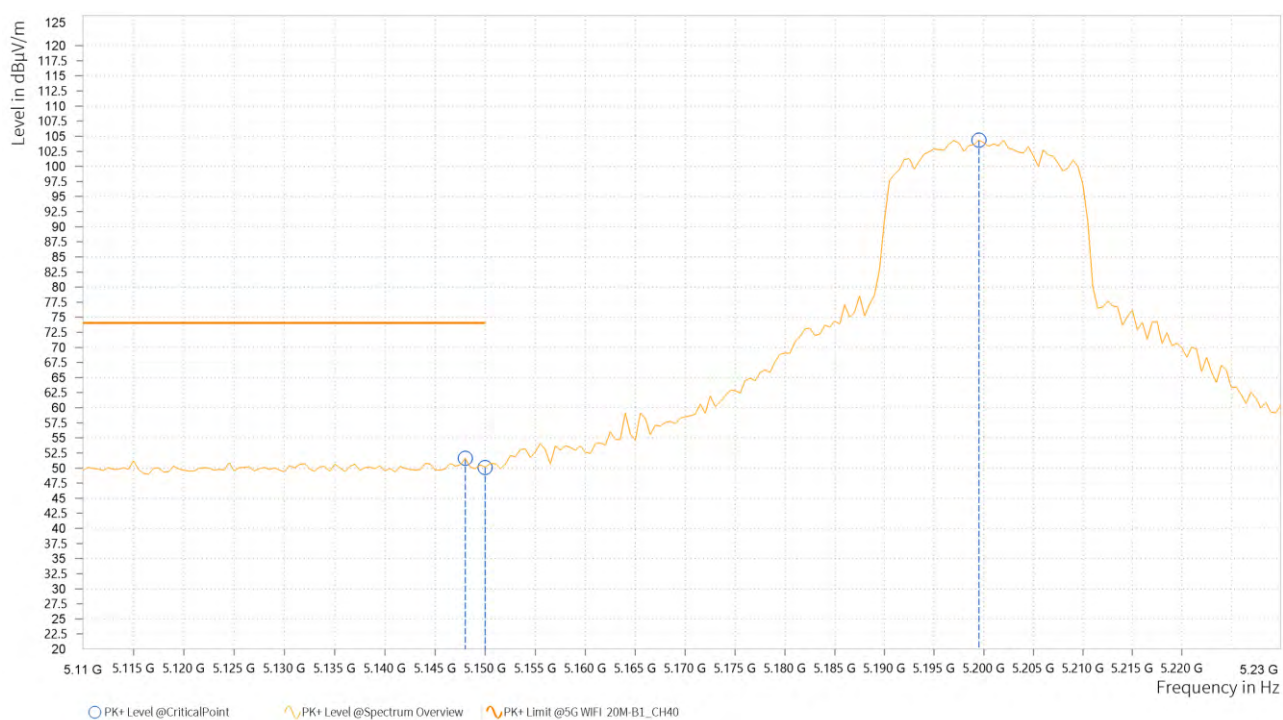


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,148.000	38.00	54.00	16.00	12.74	H	268.3	1
2	5,150.000	38.07	54.00	15.93	12.75	H	268.3	1
2	5,201.000	95.12			12.95	H	268.3	1

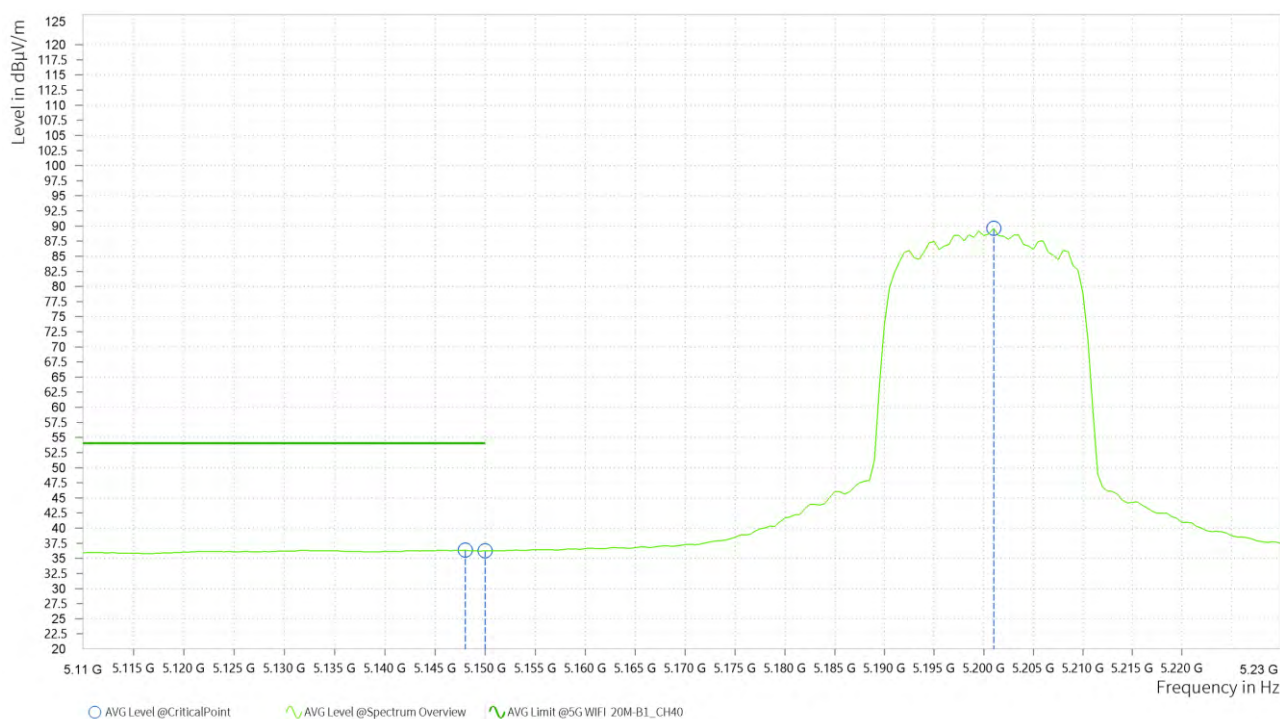


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,148.000	51.64	74.00	22.36	12.74	V	311.6	2
2	5,150.000	50.12	74.00	23.88	12.75	V	1.1	2
2	5,199.500	104.36			12.94	V	1	1



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,148.000	36.34	54.00	17.66	12.74	V	208.5	1
2	5,150.000	36.26	54.00	17.74	12.75	V	296.1	2
2	5,201.000	89.62			12.95	V	208.5	1



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
2. 5200MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

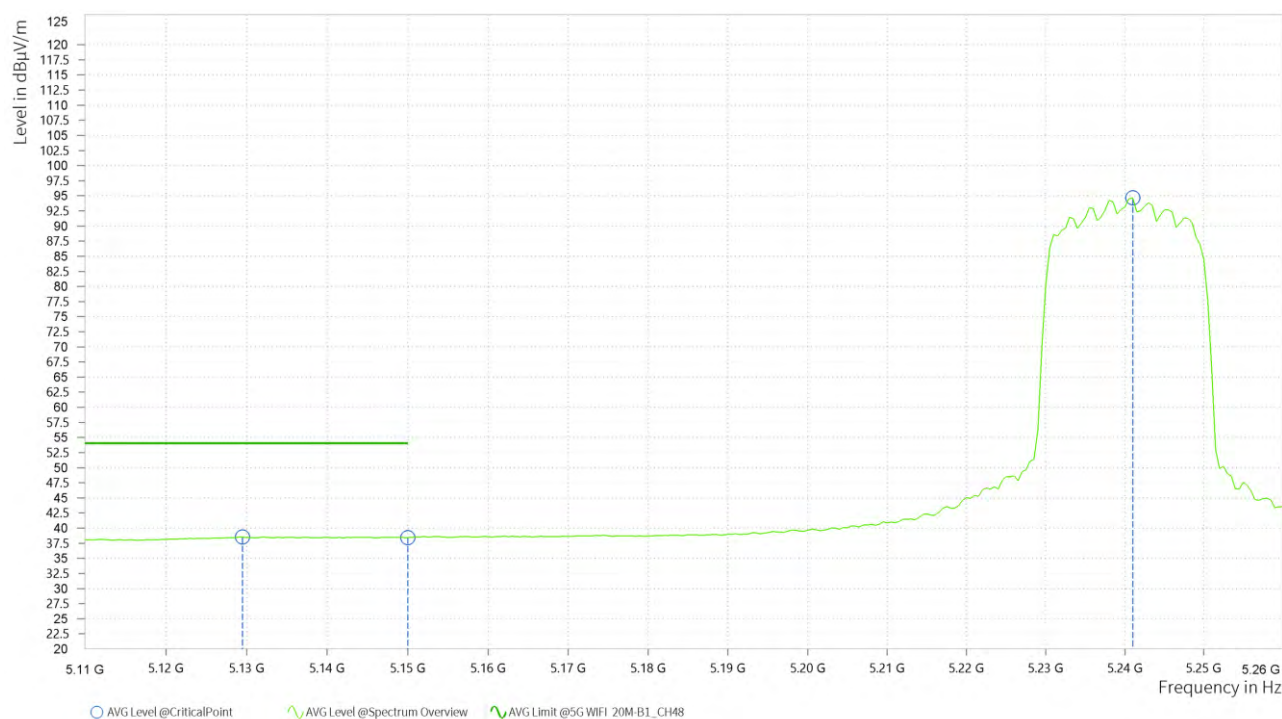
CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	5,112.500	53.38	74.00	20.62	12.64	H	1.3	2
3	5,150.000	52.02	74.00	21.98	12.75	H	355.7	2
3	5,237.500	109.96			12.94	H	314	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	5,129.500	38.52	54.00	15.48	12.69	H	237.5	2
3	5,150.000	38.43	54.00	15.57	12.75	H	237.5	2
3	5,241.000	94.67			12.94	H	355.7	2

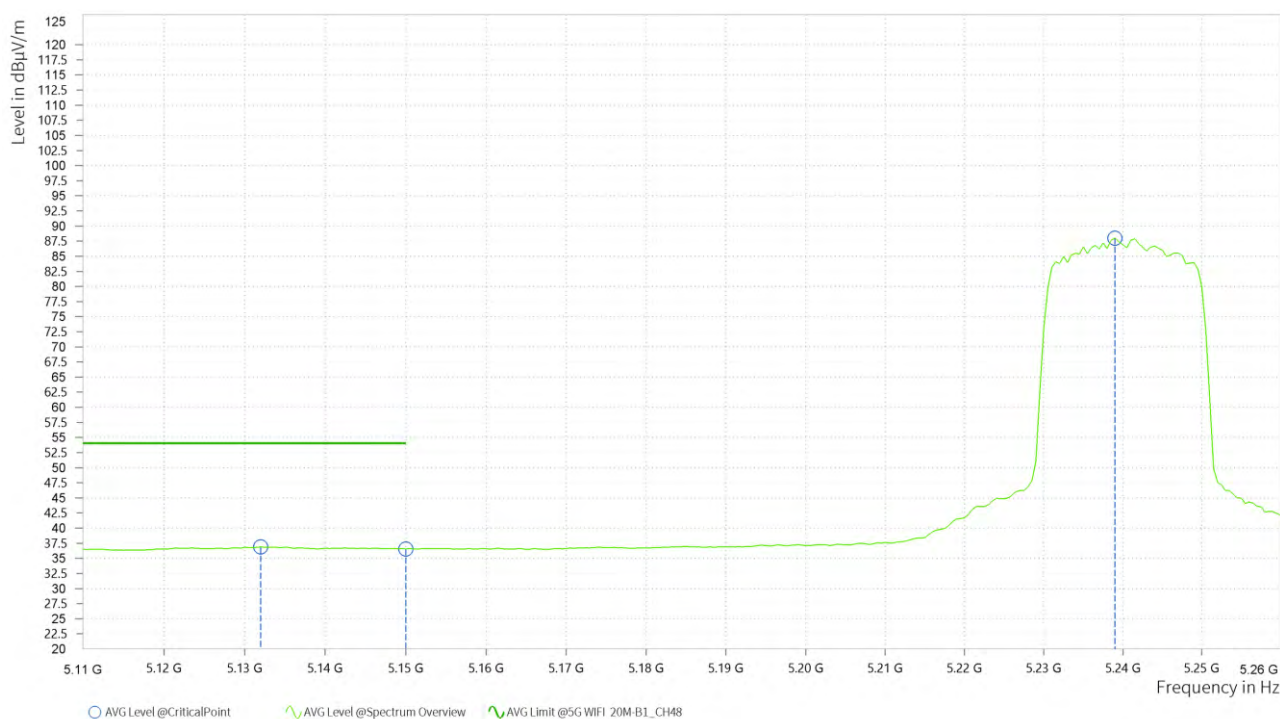


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	5,121.500	51.47	74.00	22.53	12.66	V	206.2	1
3	5,150.000	50.58	74.00	23.42	12.75	V	1	2
3	5,239.500	104.37			12.94	V	48.4	1



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	5,132.000	36.89	54.00	17.11	12.69	V	359	2
3	5,150.000	36.56	54.00	17.44	12.75	V	359	2
3	5,239.000	88.01			12.94	V	350.3	2



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
2. 5240MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

802.11ax (40MHz)(SU242):

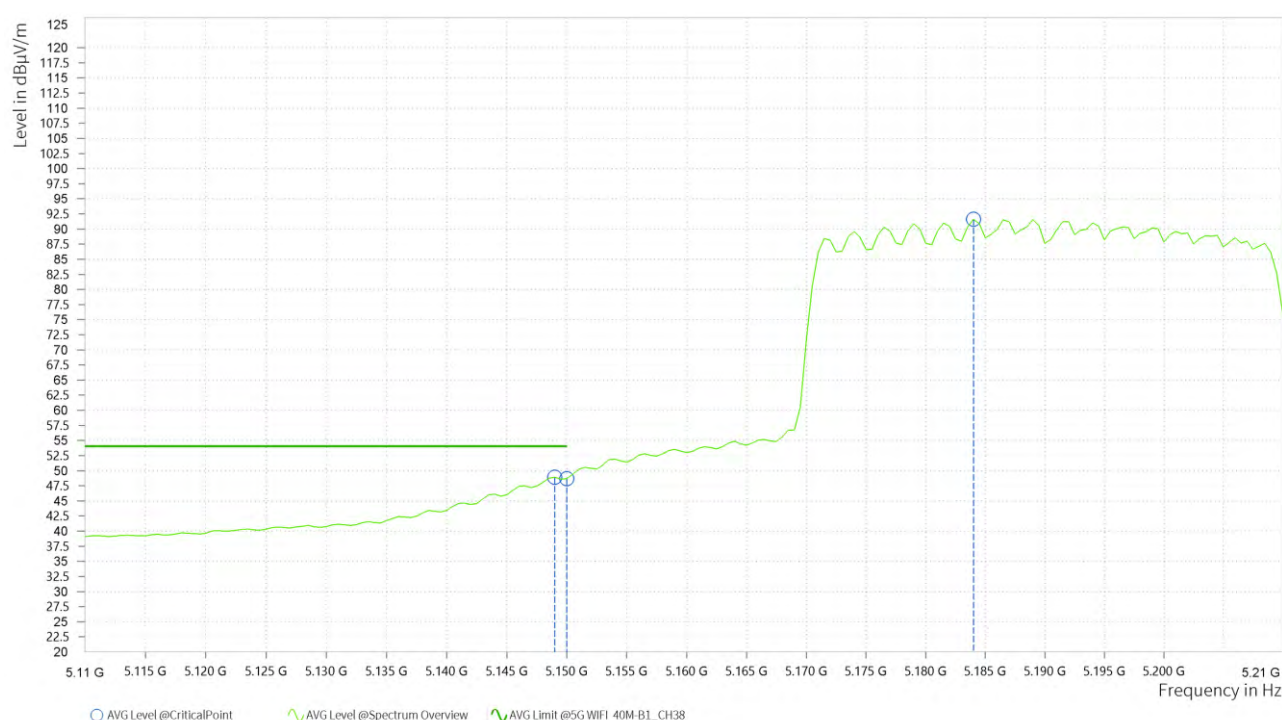
CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	69.18	74.00	4.82	12.75	H	262.3	1
1	5,150.000	67.83	74.00	6.17	12.75	H	204.1	2
1	5,189.000	110.12			12.91	H	262.3	1

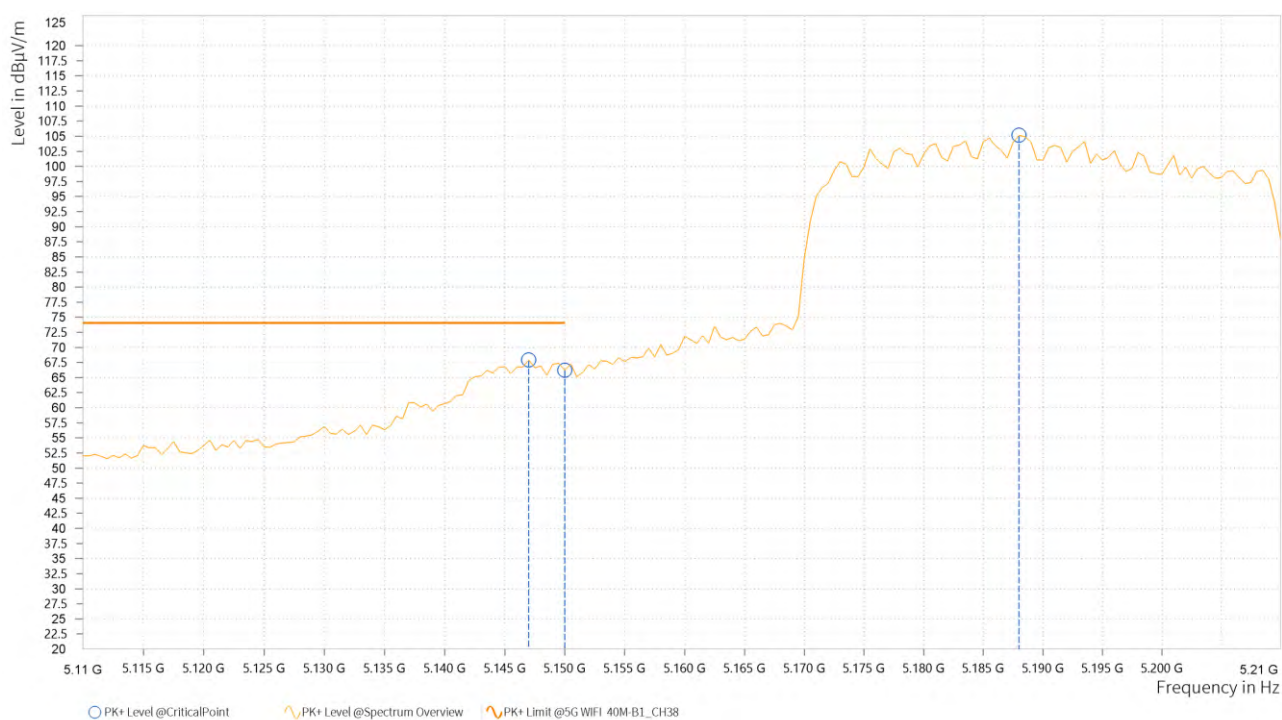


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.000	48.91	54.00	5.09	12.74	H	268.3	1
1	5,150.000	48.68	54.00	5.32	12.75	H	268.3	1
1	5,184.000	91.64			12.89	H	268.3	1

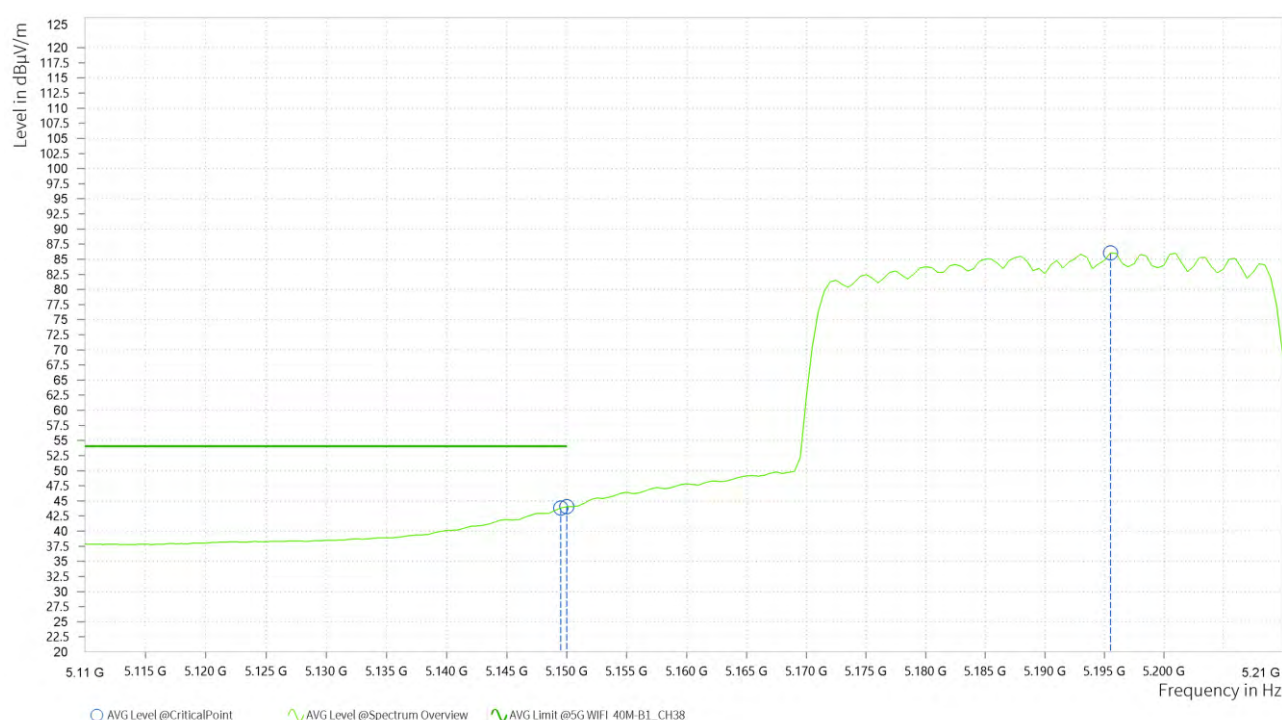


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,147.000	67.92	74.00	6.08	12.74	V	199.3	2
1	5,150.000	66.22	74.00	7.78	12.75	V	199.3	2
1	5,188.000	105.15			12.90	V	199.3	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,149.500	43.83	54.00	10.17	12.75	V	310.4	2
1	5,150.000	44.04	54.00	9.96	12.75	V	310.4	2
1	5,195.500	86.05			12.93	V	201.7	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5190MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,147.500	52.92	74.00	21.08	12.74	H	204	2
2	5,150.000	52.43	74.00	21.57	12.75	H	204	2
2	5,227.500	108.10			12.94	H	311.5	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,149.500	38.73	54.00	15.27	12.75	H	298.4	2
2	5,150.000	38.63	54.00	15.37	12.75	H	298.4	2
2	5,228.000	89.94			12.94	H	355.6	2

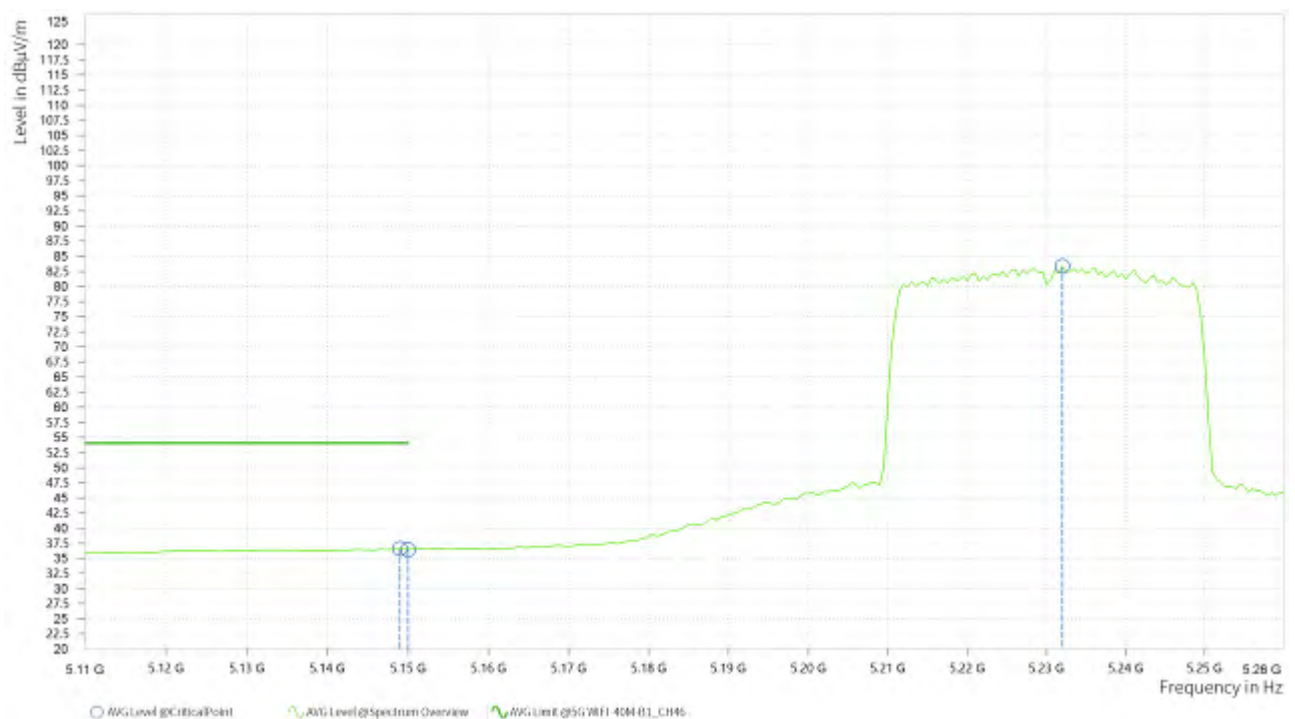


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,122.500	51.41	74.00	22.59	12.67	V	274.3	1
2	5,150.000	50.25	74.00	23.75	12.75	V	1	1
2	5,229.500	104.26			12.94	V	204.1	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	5,149.000	36.58	54.00	17.42	12.74	V	230.3	2
2	5,150.000	36.45	54.00	17.55	12.75	V	230.3	2
2	5,232.000	83.37			12.94	V	0.9	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5230MHz: Fundamental frequency.



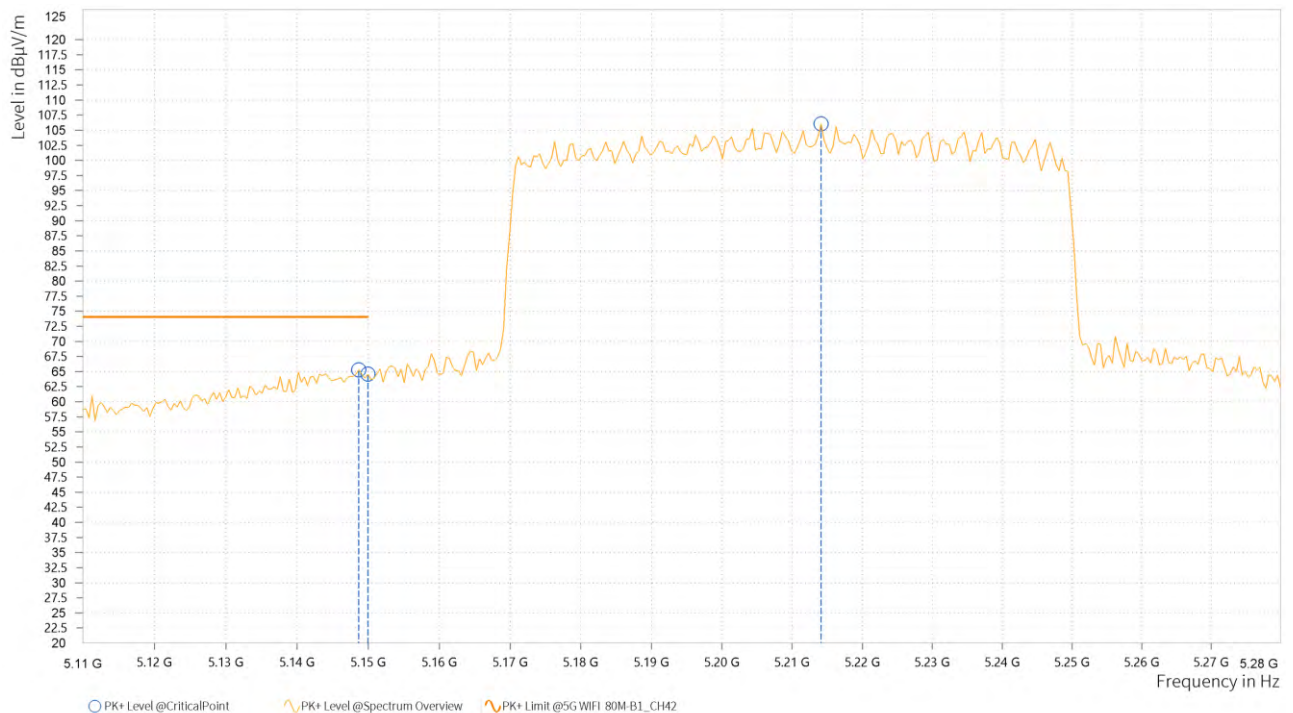
Test Report No.: PSU-QSU2306120115RF13

802.11ax (80MHz)(SU242):

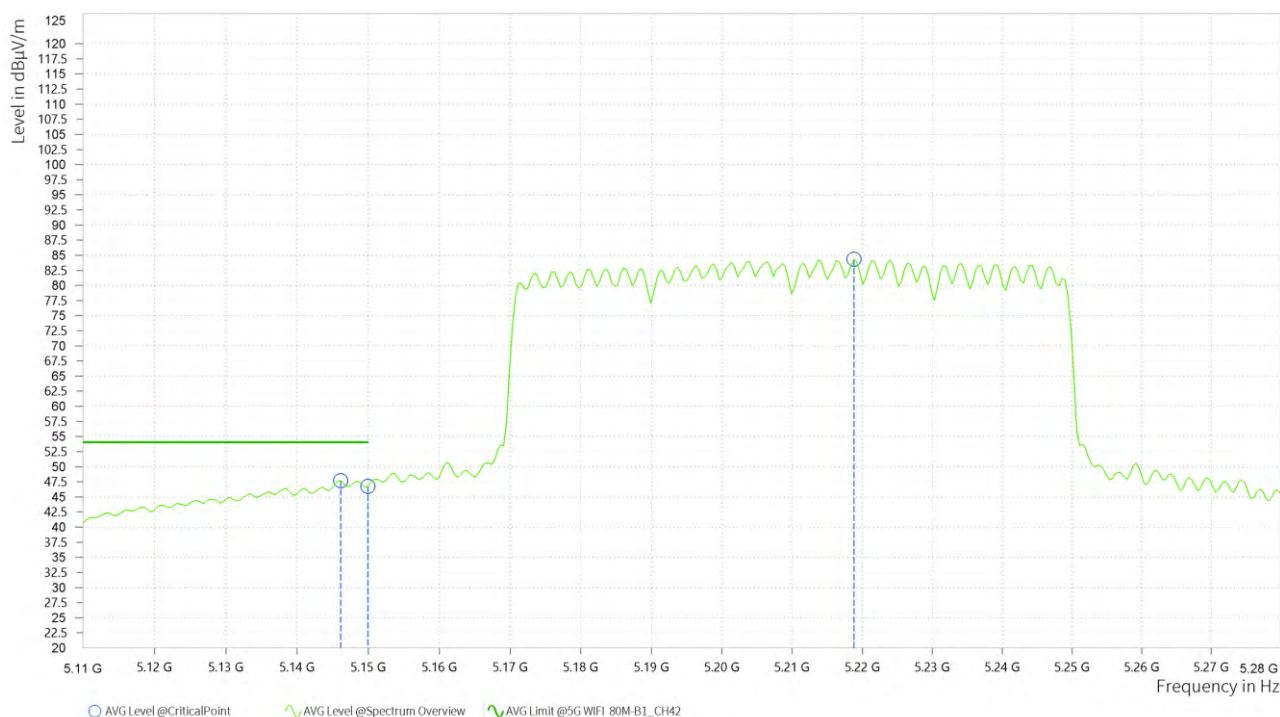
CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.675	65.29	74.00	8.71	12.74	H	271	2
1	5,149.950	64.55	74.00	9.45	12.75	H	271	2
1	5,214.130	106.07			12.94	H	245.7	1

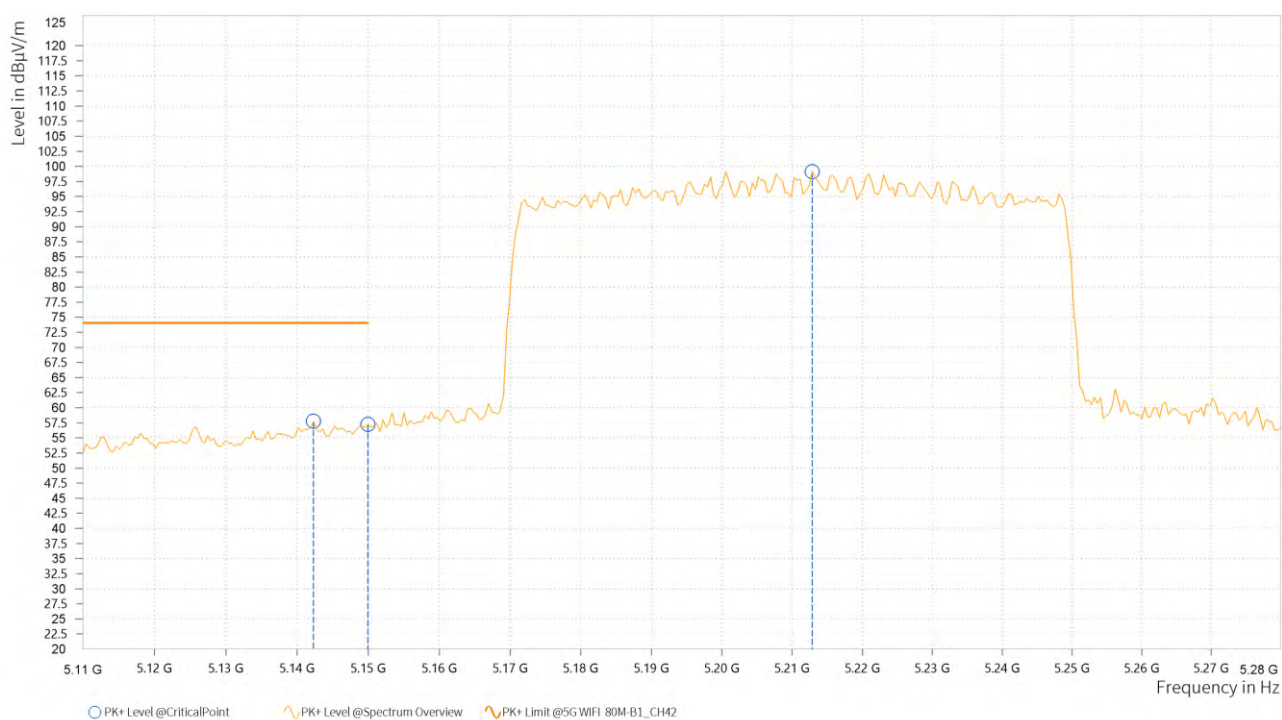


Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,146.125	47.72	54.00	6.28	12.74	H	237.2	1
1	5,149.950	46.75	54.00	7.25	12.75	H	237.2	1
1	5,218.800	84.33			12.94	H	237.2	1



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,142.300	57.77	74.00	16.23	12.72	V	359.1	1
1	5,149.950	57.22	74.00	16.78	12.75	V	126.4	2
1	5,212.850	99.15			12.94	V	205.3	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,144.850	43.40	54.00	10.60	12.73	V	259.9	1
1	5,149.950	43.18	54.00	10.82	12.75	V	259.9	1
1	5,215.825	79.48			12.94	V	205.3	2



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value- Emission level.
- 5210MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

5G WIFI-RU

802.11ax (20MHz) (RU26):

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.8	54.87	74	-20.2	34.52	9.92	45.51	100	205	Peak
5150.000	47.86	48.93	54	-6.14	34.52	9.92	45.51	100	205	Average
5180.000	107.58	108.64	/	/	34.54	9.91	45.51	100	205	Peak
5180.000	100.09	101.15	/	/	34.54	9.91	45.51	100	205	Average
5350.000	53.46	54.44	74	-20.54	34.68	9.85	45.51	100	205	Peak
5350.000	47.84	48.82	54	-6.16	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.55	54.54	74	-20.45	34.6	9.92	45.51	100	0	Peak
5150.000	47.91	48.9	54	-6.09	34.6	9.92	45.51	100	0	Average
5180.000	102.88	103.88	/	/	34.6	9.91	45.51	100	0	Peak
5180.000	94.85	95.85	/	/	34.6	9.91	45.51	100	0	Average
5350.000	52.99	54.05	74	-21.01	34.6	9.85	45.51	100	0	Peak
5350.000	47.25	48.31	54	-6.75	34.6	9.85	45.51	100	0	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5180MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

802.11ax (20MHz) (RU52):

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.09	55.16	74	-19.91	34.52	9.92	45.51	100	205	Peak
5150.000	47.52	48.59	54	-6.48	34.52	9.92	45.51	100	205	Average
5180.000	107.26	108.32	/	/	34.54	9.91	45.51	100	205	Peak
5180.000	99.79	100.85	/	/	34.54	9.91	45.51	100	205	Average
5350.000	53.78	54.76	74	-20.22	34.68	9.85	45.51	100	205	Peak
5350.000	47.19	48.17	54	-6.81	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	53.48	54.47	74	-20.52	34.6	9.92	45.51	100	300	Peak
5150.000	47.78	48.77	54	-6.22	34.6	9.92	45.51	100	300	Average
5180.000	103.23	104.23	/	/	34.6	9.91	45.51	100	300	Peak
5180.000	95.69	96.69	/	/	34.6	9.91	45.51	100	300	Average
5350.000	53.64	54.7	74	-20.36	34.6	9.85	45.51	100	300	Peak
5350.000	47.43	48.49	54	-6.57	34.6	9.85	45.51	100	300	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5180MHz: Fundamental frequency.



Test Report No.: PSU-QSU2306120115RF13

802.11ax (20MHz) (RU106):

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	55.91	56.98	74	-18.09	34.52	9.92	45.51	100	205	Peak
5150.000	50.04	51.11	54	-3.96	34.52	9.92	45.51	100	205	Average
5180.000	109.52	110.58	/	/	34.54	9.91	45.51	100	205	Peak
5180.000	101.19	102.25	/	/	34.54	9.91	45.51	100	205	Average
5350.000	54.68	55.66	74	-19.32	34.68	9.85	45.51	100	205	Peak
5350.000	47.11	48.09	54	-6.89	34.68	9.85	45.51	100	205	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150.000	54.1	55.09	74	-19.9	34.6	9.92	45.51	100	0	Peak
5150.000	48.48	49.47	54	-5.52	34.6	9.92	45.51	100	0	Average
5180.000	104.23	105.23	/	/	34.6	9.91	45.51	100	0	Peak
5180.000	95.74	96.74	/	/	34.6	9.91	45.51	100	0	Average
5350.000	54.85	55.91	74	-19.15	34.6	9.85	45.51	100	0	Peak
5350.000	47.81	48.87	54	-6.19	34.6	9.85	45.51	100	0	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5180MHz: Fundamental frequency.



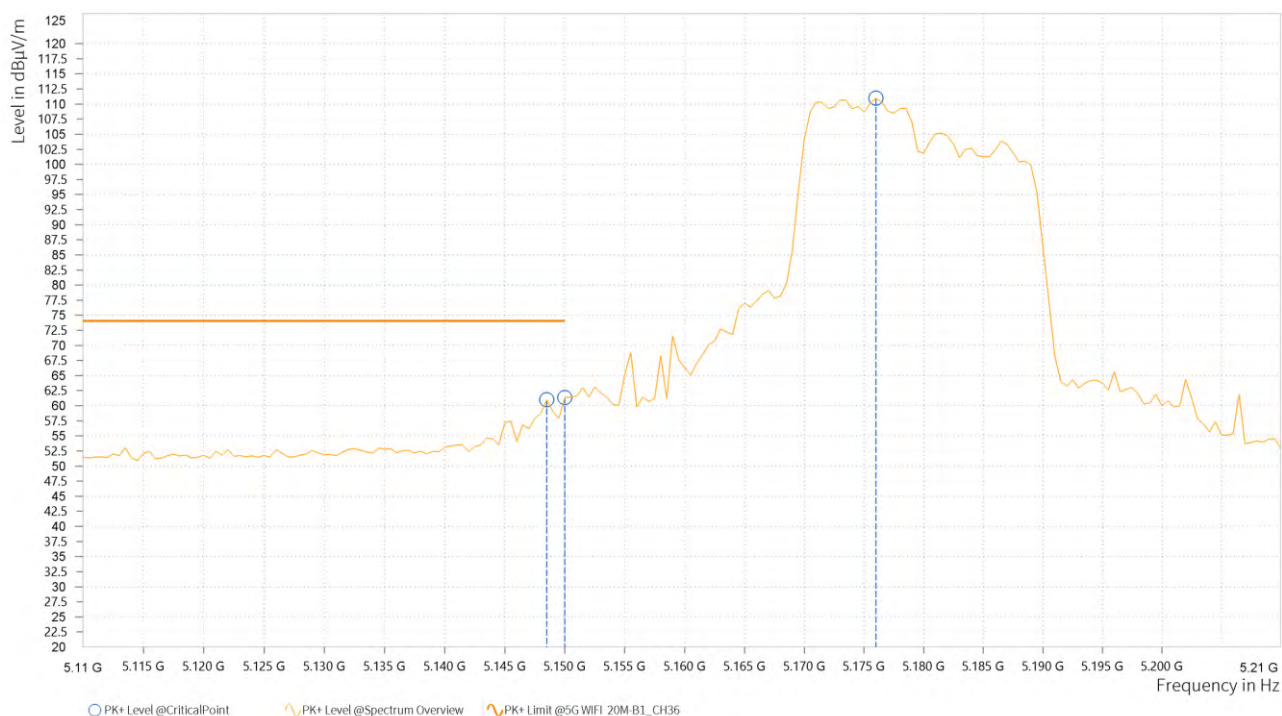
Test Report No.: PSU-QSU2306120115RF13

802.11ax (20MHz) (RU26):

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.500	61.00	74.00	13.00	12.74	H	317.7	2
1	5,150.000	61.36	74.00	12.64	12.75	H	359	2
1	5,176.000	110.96			12.86	H	224.4	2



Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	5,148.000	39.84	54.00	14.16	12.74	H	218.4	2
1	5,150.000	39.83	54.00	14.17	12.75	H	314	2
1	5,174.500	97.74			12.85	H	241.9	1

