



FCC PART 15E TEST REPORT No.24T04Z101872-016

for

Xiaomi Communications Co., Ltd.

Mobile Phone

24116RACCG

FCC ID:2AFZZRACCG

with

Hardware Version: 135100006

Software Version: Xiaomi HyperOS 1.0

Issued Date: 2024-09-20

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: ctl_terminals@caict.ac.cn, website: www.caict.ac.cn



No.24T04Z101872-016

REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04Z101872-016	Rev.0	1st edition	2024-09-20

Note: the latest revision of the test report supersedes all previous version.

CONTENTS

1. TEST LABORATORY	5
1.1. INTRODUCTION & ACCREDITATION	5
1.2. TESTING LOCATION	5
1.3. TESTING ENVIRONMENT	5
1.4. PROJECT DATE	5
1.5. SIGNATURE	5
2. CLIENT INFORMATION	6
2.1. APPLICANT INFORMATION	6
2.2. MANUFACTURER INFORMATION	6
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	7
3.1. ABOUT EUT	7
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	7
3.3. EUT SET-UPS	7
3.4. GENERAL DESCRIPTION	7
3.5. INTERPRETATION OF THE TEST ENVIRONMENT	8
4. REFERENCE DOCUMENTS	8
4.1. DOCUMENTS SUPPLIED BY APPLICANT	8
4.2. REFERENCE DOCUMENTS FOR TESTING	8
5. LABORATORY ENVIRONMENT	8
6. TEST RESULTS	9
6.1. SUMMARY OF TEST RESULTS	9
26DB EMISSION BANDWIDTH	9
6.2. STATEMENTS	9
6.3. TEST CONDITIONS	9
7. TEST FACILITIES UTILIZED	10
8. MEASUREMENT UNCERTAINTY	11
8.1 TRANSMITTER OUTPUT POWER	11
8.2 PEAK POWER SPECTRAL DENSITY	11
8.3 26dB EMISSION BANDWIDTH	11
8.4 BAND EDGES COMPLIANCE	11
8.5 SPURIOUS EMISSIONS	11
8.6 RADIATED UNWANTED EMISSION	11
8.7 AC POWER-LINE CONDUCTED EMISSION	11
ANNEX A: DETAILED TEST RESULTS	12
A.1. MEASUREMENT METHOD	12
A.2. MAXIMUM OUTPUT POWER	13



A.2.1 ANTENNA GAIN 13

A.2.2 MAXIMUM OUTPUT POWER-CONDUCTED 13

A.3. PEAK POWER SPECTRAL DENSITY (CONDUCTED) 17

A.4. 26dB EMISSION BANDWIDTH (CONDUCTED)19

A.5. RADIATED UNWANTED EMISSION 34

A.5.1 LIMITS 34

A.5.2 TEST SETUP 35

A.5.3 TEST PROCEDURES 36

A.5.4 CALCULATION 36

A.6. AC POWERLINE CONDUCTED EMISSION (150KHZ- 30MHZ)62

A.6.1 SUMMARY 62

A.6.2 METHOD OF MEASUREMENT 62

A.6.3 TEST CONDITION62

A.6.4 TEST SETUP 63

A.7. 99% OCCUPIED BANDWIDTH 66

A.8. ANTENNA REQUIREMENT 71

A.9. POWER CONTROL 71

ANNEX B: EUT PARAMETERS 71

ANNEX C: ACCREDITATION CERTIFICATE 72

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Conducted testing Location: CTTL(Huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

Radiated testing Location: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
100191, P. R. China

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2024-08-12

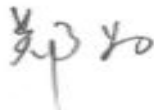
Testing End Date: 2024-09-20

1.5. Signature



Yao Xingyu

(Prepared this test report)



Zheng Wei

(Reviewed this test report)



Pang Shuai

(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: Xiaomi Communications Co., Ltd.
Address: #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District,
Beijing, China, 100085
Contact Name: Zeng Qingyao
Telephone: 010-60606666-8088
Fax: 010-60606666-1101
E-mail: mi-compliance@xiaomi.com

2.2. Manufacturer Information

Company Name: Xiaomi Communications Co., Ltd.
Address: #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District,
Beijing, China, 100085
Contact Name: Zeng Qingyao
Telephone: 010-60606666-8088
Fax: 010-60606666-1101
E-mail: mi-compliance@xiaomi.com

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Mobile Phone
Model name	24116RACCG
FCC ID	2AFZZRACCG
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Nominal Voltage	3.91V
Extreme High Voltage	4.5V
Extreme Low Voltage	3.6V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT02a	865991070018829/ 865991070018837	1351000O6	Xiaomi HyperOS 1.0	2024-08-27
UT06a	865991070068089/ 865991070068097	1351000O6	Xiaomi HyperOS 1.0	2024-09-04

*EUT ID: is used to identify the test sample in the lab internally.
UT02a is used for Conduction test, UT06a is used for Radiation test.

3.3. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1 + Battery + Adapter1 + Cable(type C to USB)	Wi-Fi function only

3.4. General Description

The Equipment under Test (EUT) is a model of Mobile Phone with integrated antenna and inbuilt battery.

It consists of normal options: travel charger, USB cable.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

3.5. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor $k=2$.

Measurement Uncertainty

Parameter	Uncertainty
temperature	0.48°C
humidity	2 %
DC voltages	0.003V

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	2021
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12

5. Laboratory Environment

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. Test Results

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	P
Peak Power Spectral Density	15.407	/	P
26dB Emission Bandwidth	15.403	/	P
Radiated Unwanted Emission	15.407, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P
99% Occupied bandwidth	/	/	P
Transmit Power Control	15.407	/	NA

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

CTTL has evaluated the test cases as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.

This report only deals with the WLAN function among the features described in section 3.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26°C
Voltage	3.91V
Humidity	44%

7. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2025-08-12
2	Vector Signal Analyzer	FSW67	104051	Rohde & Schwarz	1 year	2025-04-01
3	Test Receiver	ESCI	100344	R&S	1 year	2025-04-01
4	LISN	ENV216	101200	R&S	1 year	2025-05-16
5	Attenuator	10dB/2W	/	Rosenberger	/	/
6	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103023	R&S	1 year	2025-06-06
2	EMI Antenna	VULB 9163	01222	SCHWARZBECK	1 year	2025-07-30
3	EMI Antenna	3115	00167250	ETS-Lindgren	1 year	2025-04-11
4	EMI Antenna	3116	2663	R&S	1 year	2025-02-21

Test Software

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V10.60.20	R&S
Conducted Emission	EMC32 V8.53.0	R&S

8. Measurement Uncertainty

8.1 Transmitter Output Power

Measurement Uncertainty: 0.387dB,k=1.96

8.2 Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

8.3 26dB Emission Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4 Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.5 Spurious Emissions

Conducted (k=1.96)

Frequency Range	Uncertainty(dB)
$30\text{MHz} \leq f \leq 2\text{GHz}$	1.22
$2\text{GHz} \leq f \leq 3.6\text{GHz}$	1.22
$3.6\text{GHz} \leq f \leq 8\text{GHz}$	1.22
$8\text{GHz} \leq f \leq 12.75\text{GHz}$	1.51
$12.75\text{GHz} \leq f \leq 26\text{GHz}$	1.51
$26\text{GHz} \leq f \leq 40\text{GHz}$	1.59

8.6 Radiated Unwanted Emission

Frequency Range	Uncertainty(dB) (k=2)
$30\text{MHz} \leq f \leq 1\text{GHz}$	4.72
$1\text{GHz} \leq f \leq 18\text{GHz}$	4.84
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.12

8.7 AC Power-line Conducted Emission

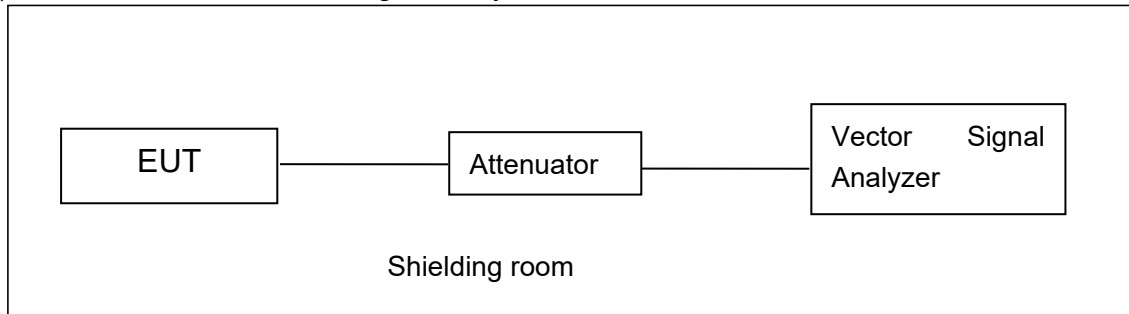
Measurement Uncertainty : 3.08dB,k=2

ANNEX A: Detailed Test Results

A.1. Measurement Method

A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer



A.1.2. Radiated Emission Measurements

Measurement performed according to Clause 6.4, 6.5, 6.6 in ANSI C63.10-2013 and II.G.4, II.G.5, II.G.6 in KDB 789033.

The radiated emission test is performed in semi-anechoic chamber. The EUT was placed on a non-conductive table with 80cm above the ground plane for measurement below 1GHz and 1.5m above the ground plane for measurement above 1GHz. The measurement antenna was placed at a distance of 3 meters from the EUT. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated from 0° to 360° and the measurement antenna is moved from 1m to 4m to get the maximization result. The maximization process was repeated with the EUT positioned in each of its three orthogonal orientations

A.2. Maximum output Power

Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	24dBm
	5250MHz~5350MHz	24dBm or 11+10logB
	5470MHz~5725MHz	24dBm or 11+10logB

Limit use the less value, and B is the 26dB bandwidth.

The measurement method SA-2 is made according to KDB 789033

A.2.1 Antenna Gain

Antenna gain is UNII-1:-1.56dBi, UNII-2A:-1.82dBi, UNII-2C:-1.89dBi, and the value is supplied by the applicant or manufacturer.

A.2.2 Maximum output Power-Conducted

EUT ID: UT02a

Measurement Results:

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	14.18	/	/	/	/	/	/	/
	5200MHz	14.00	/	/	/	/	/	/	/
	5240MHz	14.13	/	/	/	/	/	/	/
	5260MHz	14.10	/	/	/	/	/	/	/
	5280MHz	14.63	/	/	/	/	/	/	/
	5320MHz	14.69	/	/	/	/	/	/	/
	5500MHz	14.94	/	/	/	/	/	/	/
	5580MHz	14.46	/	/	/	/	/	/	/
	5700MHz	15.12	/	/	/	/	/	/	/
5720MHz	14.50	/	/	/	/	/	/	/	

The data rate 6Mbps is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz	13.36	/	/	/	/	/	/	/
	5200MHz	13.91	/	/	/	/	/	/	/
	5240MHz	14.10	/	/	/	/	/	/	/
	5260MHz	14.04	/	/	/	/	/	/	/
	5280MHz	14.11	/	/	/	/	/	/	/
	5320MHz	14.08	/	/	/	/	/	/	/

	5500MHz	14.41	/	/	/	/	/	/	/
	5580MHz	13.76	/	/	/	/	/	/	/
	5700MHz	14.80	/	/	/	/	/	/	/
	5720MHz	13.73	/	/	/	/	/	/	/

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-VHT20 mode

Mode	Frequency	Test Result (dBm)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (VHT20)	5180MHz	13.65	/	/	/	/	/	/	/	/
	5200MHz	13.93	/	/	/	/	/	/	/	/
	5240MHz	14.09	/	/	/	/	/	/	/	/
	5260MHz	14.05	/	/	/	/	/	/	/	/
	5280MHz	14.09	/	/	/	/	/	/	/	/
	5320MHz	14.15	/	/	/	/	/	/	/	/
	5500MHz	14.47	/	/	/	/	/	/	/	/
	5580MHz	13.81	/	/	/	/	/	/	/	/
	5700MHz	14.32	/	/	/	/	/	/	/	/
	5720MHz	14.20	/	/	/	/	/	/	/	/

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz	13.43	/	/	/	/	/	/	/
	5230MHz	14.04	/	/	/	/	/	/	/
	5270MHz	14.10	/	/	/	/	/	/	/
	5310MHz	14.14	/	/	/	/	/	/	/
	5510MHz	13.88	/	/	/	/	/	/	/
	5550MHz	14.22	/	/	/	/	/	/	/
	5670MHz	14.51	/	/	/	/	/	/	/
	5710MHz	14.59	/	/	/	/	/	/	/

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-VHT40 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (VHT40)	5190MHz	12.96	/	/	/	/	/	/	/	/	/
	5230MHz	13.46	/	/	/	/	/	/	/	/	/
	5270MHz	13.61	/	/	/	/	/	/	/	/	/
	5310MHz	13.66	/	/	/	/	/	/	/	/	/
	5510MHz	13.88	/	/	/	/	/	/	/	/	/
	5550MHz	13.73	/	/	/	/	/	/	/	/	/
	5670MHz	13.98	/	/	/	/	/	/	/	/	/
	5710MHz	14.13	/	/	/	/	/	/	/	/	/

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

802.11ac-VHT80 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (VHT80)	5210MHz	12.33	/	/	/	/	/	/	/	/	/
	5290MHz	12.75	/	/	/	/	/	/	/	/	/
	5530MHz	12.81	/	/	/	/	/	/	/	/	/
	5610MHz	12.13	/	/	/	/	/	/	/	/	/
	5690MHz	12.94	/	/	/	/	/	/	/	/	/

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

The duty cycle of all mode are 100%



18:12:29 20.09.2024

Maximum output Power: 11a CH140

Conclusion: PASS

A.3. Peak Power Spectral Density (conducted)

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11
	5250MHz~5350MHz	11
	5470MHz~5725MHz	11

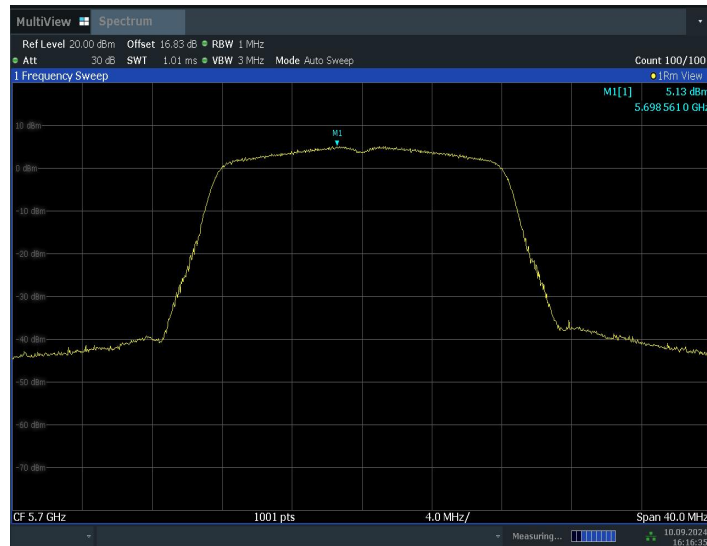
The output power measurement method Section F is made according to KDB 789033

EUT ID: UT02a

Measurement Results:

TestMode	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	5180	3.91	≤11.00	PASS
	5200	3.66	≤11.00	PASS
	5240	4.00	≤11.00	PASS
	5260	3.84	≤11.00	PASS
	5280	4.41	≤11.00	PASS
	5320	4.41	≤11.00	PASS
	5500	4.89	≤11.00	PASS
	5580	4.17	≤11.00	PASS
	5700	5.13	≤11.00	PASS
11N20SISO	5720	4.60	≤11.00	PASS
	5180	2.88	≤11.00	PASS
	5200	3.74	≤11.00	PASS
	5240	3.76	≤11.00	PASS
	5260	3.58	≤11.00	PASS
	5280	3.70	≤11.00	PASS
	5320	3.82	≤11.00	PASS
	5500	4.14	≤11.00	PASS
	5580	3.33	≤11.00	PASS
11N40SISO	5700	4.30	≤11.00	PASS
	5720	3.64	≤11.00	PASS
	5190	0.15	≤11.00	PASS
	5230	0.90	≤11.00	PASS
	5270	1.02	≤11.00	PASS
	5310	0.87	≤11.00	PASS
	5510	0.75	≤11.00	PASS
	5550	1.13	≤11.00	PASS
11AC80SISO	5670	1.02	≤11.00	PASS
	5710	1.66	≤11.00	PASS
	5210	-3.85	≤11.00	PASS
11AC80SISO	5290	-3.80	≤11.00	PASS
	5530	-3.89	≤11.00	PASS

	5610	-3.64	≤11.00	PASS
	5690	-3.57	≤11.00	PASS



16:16:36 10.09.2024

Peak Power Spectral Density:11a CH140

Conclusion: PASS

A.4. 26dB Emission Bandwidth (conducted)

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
-------------------------	---------

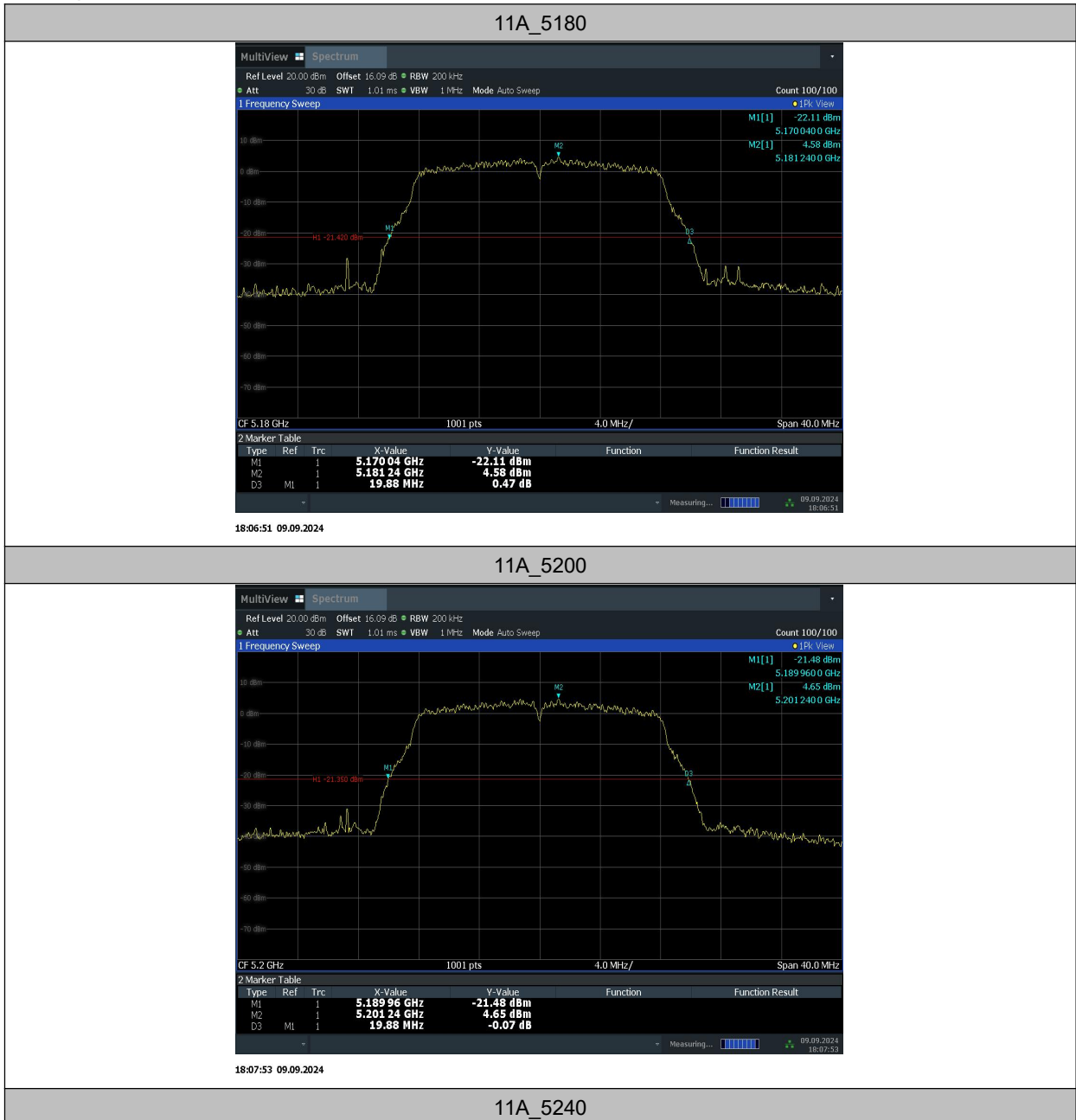
EUT ID: UT02a

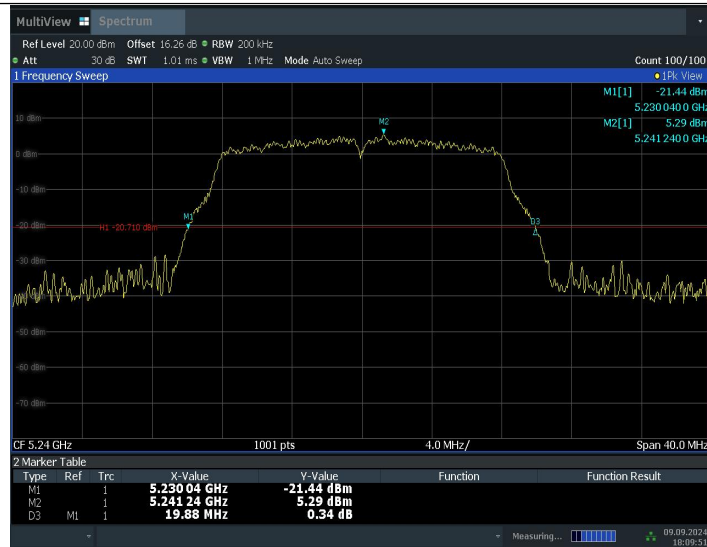
Measurement Result:

TestMode	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	5180	19.88	5170.04	5189.92	---	---
	5200	19.88	5189.96	5209.84	---	---
	5240	19.88	5230.04	5249.92	---	---
	5260	19.96	5249.96	5269.92	---	---
	5280	19.84	5270.04	5289.88	---	---
	5320	19.88	5310.08	5329.96	---	---
	5500	19.88	5490.08	5509.96	---	---
	5580	20.00	5569.92	5589.92	---	---
	5700	19.96	5690.00	5709.96	---	---
	5720	19.96	5709.92	5729.88	---	---
11N20SISO	5180	20.36	5169.84	5190.20	---	---
	5200	20.24	5189.84	5210.08	---	---
	5240	20.16	5229.84	5250.00	---	---
	5260	20.24	5249.88	5270.12	---	---
	5280	20.20	5269.84	5290.04	---	---
	5320	20.24	5309.80	5330.04	---	---
	5500	20.28	5489.80	5510.08	---	---
	5580	20.16	5569.88	5590.04	---	---
	5700	20.20	5689.84	5710.04	---	---
	5720	20.28	5709.80	5730.08	---	---
11N40SISO	5190	41.04	5169.52	5210.56	---	---
	5230	41.04	5209.44	5250.48	---	---
	5270	41.04	5249.44	5290.48	---	---
	5310	41.12	5289.36	5330.48	---	---
	5510	40.88	5489.60	5530.48	---	---
	5550	41.12	5529.28	5570.40	---	---
	5670	41.36	5649.20	5690.56	---	---
	5710	40.96	5689.36	5730.32	---	---
11AC80SISO	5210	81.44	5169.20	5250.64	---	---
	5290	81.60	5249.20	5330.80	---	---

	5530	81.60	5489.04	5570.64	---	---
	5610	81.60	5569.20	5650.80	---	---
	5690	81.60	5649.04	5730.64	---	---

Test graphs as below:





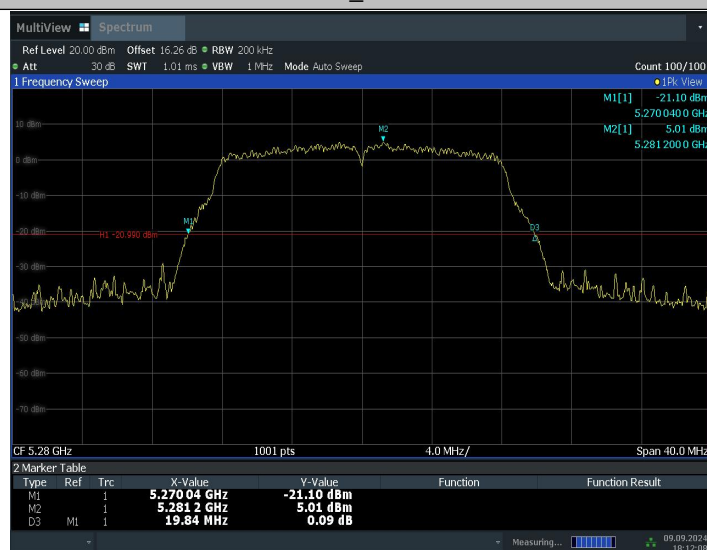
18:09:51 09.09.2024

11A_5260



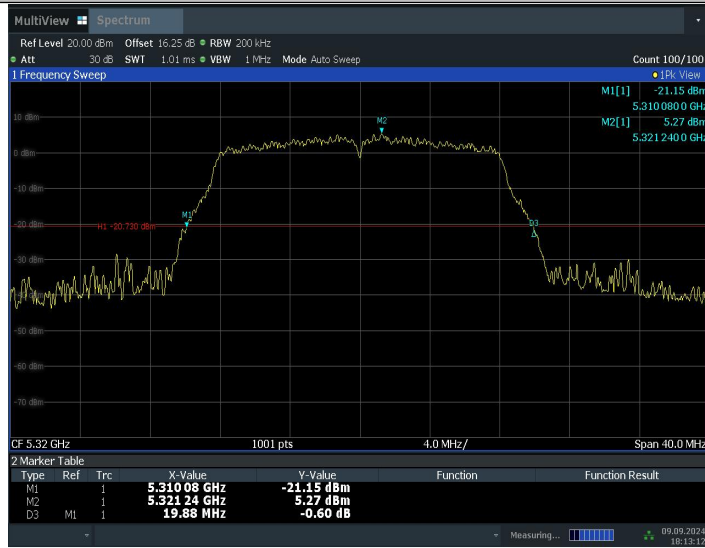
18:11:08 09.09.2024

11A_5280



18:12:09 09.09.2024

11A_5320



18:13:13 09.09.2024

11A_5500



18:14:17 09.09.2024

11A_5580



18:15:17 09.09.2024

11A_5700



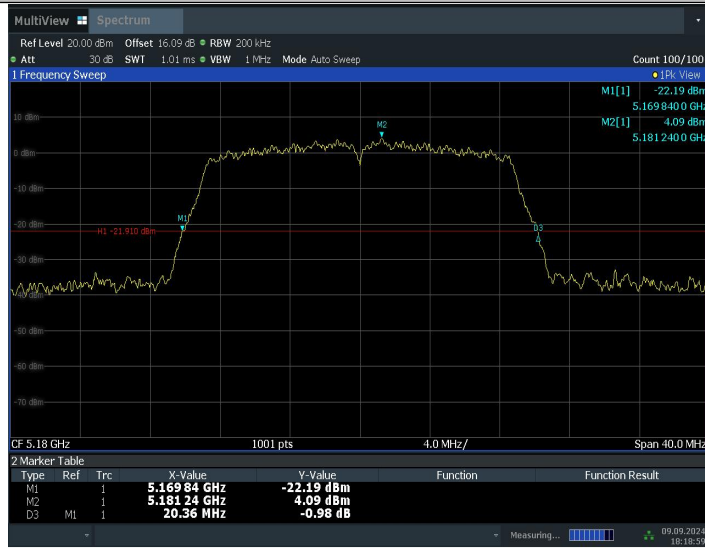
18:16:26 09.09.2024

11A_5720



15:38:23 11.09.2024

11N20SISO_5180



18:18:59 09.09.2024

11N20SISO_5200



15:11:10 09.09.2024

11N20SISO_5240



15:12:15 05.09.2024

11N20SISO_5260



15:13:15 05.09.2024

11N20SISO_5280



15:14:16 05.09.2024

11N20SISO_5320



15:15:20 05.09.2024

11N20SISO_5500



15:16:22 05.09.2024

11N20SISO_5580



18:28:42 09.09.2024

11N20SISO_5700



15:18:19 05.09.2024

11N20SISO_5720



15:41:55 11.09.2024

11N40SISO_5190



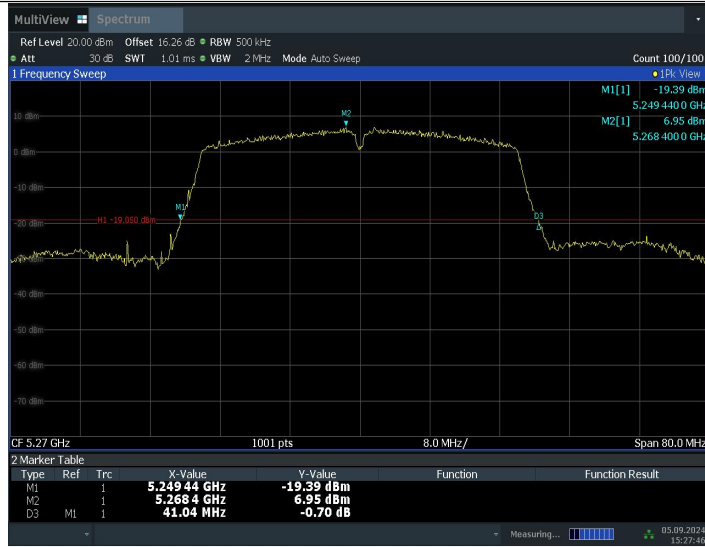
17:06:25 09.09.2024

11N40SISO_5230



15:26:34 09.09.2024

11N40SISO_5270



15:27:47 05.09.2024

11N40SISO_5310



15:28:45 05.09.2024

11N40SISO_5510



15:49:53 11.09.2024

11N40SISO_5550



15:30:51 05.09.2024

11N40SISO_5670



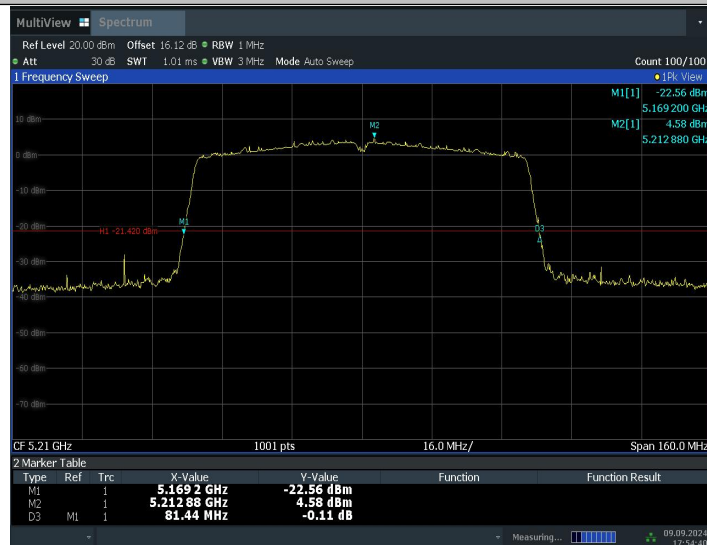
15:31:49 05.09.2024

11N40SISO_5710



15:52:35 11.09.2024

11AC80SISO_5210



17:54:41 09.09.2024

11AC80SISO_5290



17:56:01 09.09.2024

11AC80SISO_5530



17:57:01 09.09.2024

11AC80SISO_5610



17:58:04 09.09.2024

11AC80SISO_5690



Conclusion: PASS

A.5. Radiated Unwanted Emission

A.5.1 Limits

Unwanted Emissions in the unrestricted bands shall not exceed the limits that shown in 15.407:

Standard	Limit
FCC 47 CFR Part 15.407	(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

Frequency (MHz)	Field strength(μ V/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength (μ V/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Note: When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor (as defined in KDB 789033 II.G.2.d).

A.5.2 Test setup

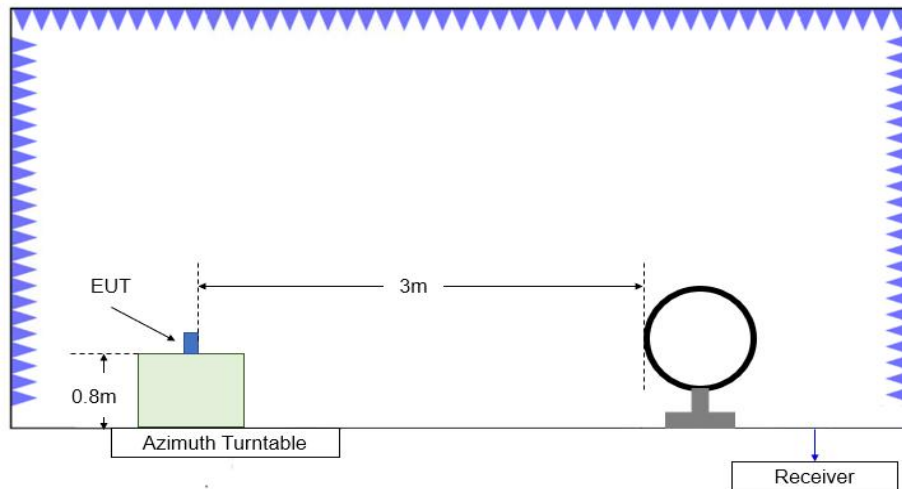


Figure A.5.1. Test Site Diagram (9kHz-30MHz)

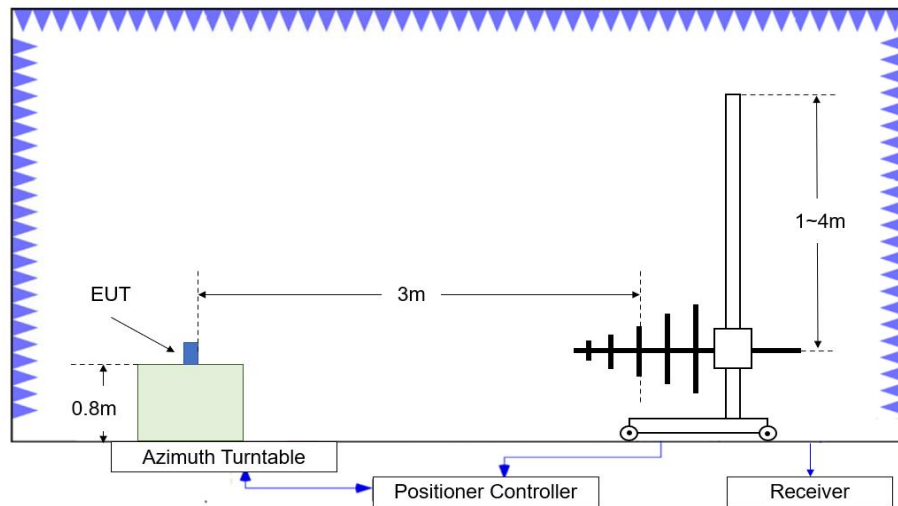


Figure A.5.2. Test Site Diagram (30MHz-1GHz)

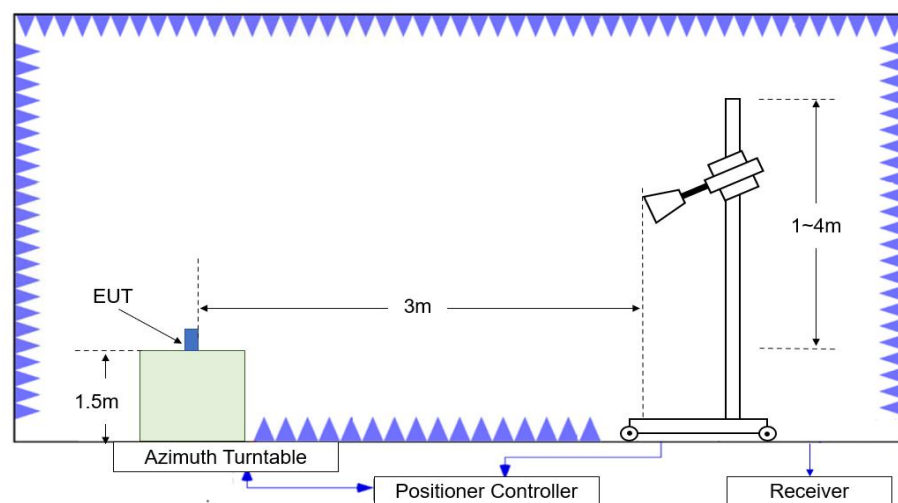


Figure A.5.3. Test Site Diagram (1GHz-40GHz)

A.5.3 Test Procedures

Radiated unwanted emissions from the EUT were measured according to ANSI C63.10 and KDB 789033 D02 v02r01.

Test setting

Frequency of emission (MHz)	RBW/VBW
30-1000	100kHz/300kHz
1000-4000	1MHz/3MHz
4000-18000	1MHz/3MHz
18000-26500	1MHz/3MHz
26500-40000	1MHz/3MHz

A.5.4 Calculation

1. The measurement results reported below is calculated by:

Measurement Results (dB μ V/m) = $P_{\text{measurement}}$ (dB μ V) + Cable Loss (dB) + Antenna Factor (dB/m)

Where: $P_{\text{measurement}}$ is the field strength recorded from the instrument

2. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log(D) + 104.77$$

Where:

E is the field strength in dB μ V/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dBm

Test note

1. The EUT is operating at its maximum duty cycle and its maximum power control level.
2. Investigation has been done on all modes and modulations/data rates. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.
3. Spurious emissions for all channels were investigated and almost the same below 1GHz. According to FCC 47 CFR §15.31, emission levels are not report much lower than the limit by over 20dB
4. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept.
5. EUT in each of three orthogonal axis emissions had been tested out only the worst case (axis data) recorded in the report.
6. Measurement frequencies were performed from 9 kHz to the 10th harmonic of highest fundamental frequency or 40GHz, whichever is lower.
7. No spurious emissions were detected within 20dB of the limit below 30MHz. OFS and semi-chamber comparison testing had been performed and the result came out very similar. (KDB 414788)

Measurement Results:
Average Results:
802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17918.050	45.12	-26.18	45.95	25.35	54.00	8.88	H
17904.850	45.08	-26.18	45.95	25.31	54.00	8.92	V
14495.400	38.85	-28.77	41.90	25.72	54.00	15.15	V
14498.150	38.67	-28.77	41.90	25.54	54.00	15.33	H
5149.820	46.17	-27.28	34.00	39.45	54.00	7.83	H
5149.100	46.15	-27.28	34.00	39.43	54.00	7.85	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17911.450	45.10	-26.18	45.95	25.33	54.00	8.90	V
17938.950	45.00	-26.18	45.95	25.23	54.00	9.00	H
14484.950	38.53	-28.77	41.90	25.40	54.00	15.47	H
14495.950	38.49	-28.77	41.90	25.36	54.00	15.51	H
5350.336	47.21	-27.12	34.20	40.13	54.00	6.79	H
5351.264	46.72	-27.12	34.20	39.64	54.00	7.28	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17923.550	45.37	-26.18	45.95	25.60	54.00	8.63	V
17920.250	45.02	-26.18	45.95	25.25	54.00	8.98	H
14493.750	38.90	-28.77	41.90	25.77	54.00	15.10	H
14498.700	38.70	-28.77	41.90	25.57	54.00	15.30	H
5458.660	44.95	-27.10	34.20	37.85	54.00	9.05	H
5459.815	44.87	-27.10	34.20	37.77	54.00	9.13	H

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17914.750	44.97	-26.18	45.95	25.20	54.00	9.03	V
17916.400	44.90	-26.18	45.95	25.13	54.00	9.10	H
14490.450	38.72	-28.77	41.90	25.59	54.00	15.28	V
14495.950	38.72	-28.77	41.90	25.59	54.00	15.28	H
11775.100	36.98	-31.80	39.20	29.58	54.00	17.02	V
11761.900	36.75	-31.80	39.20	29.35	54.00	17.25	V

802.11n-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17924.650	45.10	-26.18	45.95	25.33	54.00	8.90	H
17932.350	44.86	-26.18	45.95	25.09	54.00	9.14	V
14499.250	38.60	-28.77	41.90	25.47	54.00	15.40	H
14497.050	38.54	-28.77	41.90	25.41	54.00	15.46	H
5149.760	47.08	-27.28	34.00	40.36	54.00	6.92	H
5149.360	46.11	-27.28	34.00	39.39	54.00	7.89	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17930.700	44.95	-26.18	45.95	25.18	54.00	9.05	V
17947.200	44.95	-26.18	45.95	25.18	54.00	9.05	H
14497.050	38.89	-28.77	41.90	25.76	54.00	15.11	V
14483.300	38.54	-28.77	41.90	25.41	54.00	15.46	H
5350.768	46.87	-27.12	34.20	39.79	54.00	7.13	H
5350.192	46.84	-27.12	34.20	39.76	54.00	7.16	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17894.950	45.01	-26.18	45.95	25.24	54.00	8.99	V
17903.200	44.98	-26.18	45.95	25.21	54.00	9.02	V
14493.750	38.98	-28.77	41.90	25.85	54.00	15.02	H
14487.700	38.78	-28.77	41.90	25.65	54.00	15.22	H
5451.100	43.07	-27.10	34.20	35.97	54.00	10.93	H
5456.650	43.00	-27.10	34.20	35.90	54.00	11.00	H

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17918.050	44.84	-26.18	45.95	25.07	54.00	9.16	V
17916.950	44.82	-26.18	45.95	25.05	54.00	9.18	H
14483.850	38.76	-28.77	41.90	25.63	54.00	15.24	V
14496.500	38.73	-28.77	41.90	25.60	54.00	15.27	V
11828.450	36.71	-31.76	39.20	29.27	54.00	17.29	H
11824.600	36.68	-31.76	39.20	29.24	54.00	17.32	V

802.11n-HT40

Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17919.700	45.15	-26.18	45.95	25.38	54.00	8.85	V
17910.900	44.88	-26.18	45.95	25.11	54.00	9.12	H
14480.000	38.85	-28.77	41.90	25.72	54.00	15.15	H
14497.600	38.74	-28.77	41.90	25.61	54.00	15.26	H
5149.040	48.30	-27.28	34.00	41.58	54.00	5.70	H
5149.400	47.84	-27.28	34.00	41.12	54.00	6.16	H

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17923.550	45.19	-26.18	45.95	25.42	54.00	8.81	H
17921.350	44.89	-26.18	45.95	25.12	54.00	9.11	H
8496.000	38.82	-33.91	37.30	35.43	54.00	15.18	V
14497.600	38.71	-28.77	41.90	25.58	54.00	15.29	H
5350.672	47.66	-27.12	34.20	40.58	54.00	6.34	H
5350.288	47.63	-27.12	34.20	40.55	54.00	6.37	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17907.050	44.96	-26.18	45.95	25.19	54.00	9.04	V
17920.800	44.95	-26.18	45.95	25.18	54.00	9.05	H
14499.250	38.84	-28.77	41.90	25.71	54.00	15.16	V
14495.950	38.79	-28.77	41.90	25.66	54.00	15.21	V
5458.225	43.52	-27.10	34.20	36.42	54.00	10.48	H
5457.880	43.34	-27.10	34.20	36.24	54.00	10.66	H

Channel 134

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17905.950	44.84	-26.18	45.95	25.07	54.00	9.16	H
17889.450	44.70	-26.18	45.95	24.93	54.00	9.30	V
14498.150	39.05	-28.77	41.90	25.92	54.00	14.95	H
14497.600	38.81	-28.77	41.90	25.68	54.00	15.19	V
11844.400	36.68	-31.54	39.15	29.07	54.00	17.32	H
11354.900	36.58	-32.12	38.85	29.85	54.00	17.42	H

802.11ac-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17914.750	45.01	-26.18	45.95	25.24	54.00	8.99	H
17916.950	44.81	-26.18	45.95	25.04	54.00	9.19	V
14486.600	38.71	-28.77	41.90	25.58	54.00	15.29	H
14498.700	38.64	-28.77	41.90	25.51	54.00	15.36	H
5149.600	45.46	-27.28	34.00	38.74	54.00	8.54	H
5147.840	45.41	-27.29	34.00	38.70	54.00	8.59	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17897.700	44.89	-26.18	45.95	25.12	54.00	9.11	V
17916.400	44.83	-26.18	45.95	25.06	54.00	9.17	H
14497.600	38.65	-28.77	41.90	25.52	54.00	15.35	H
14492.650	38.60	-28.77	41.90	25.47	54.00	15.40	V
5350.112	45.69	-27.12	34.20	38.61	54.00	8.31	H
5350.160	45.49	-27.12	34.20	38.41	54.00	8.51	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17925.200	44.93	-26.18	45.95	25.16	54.00	9.07	H
17914.200	44.92	-26.18	45.95	25.15	54.00	9.08	V
14470.100	38.70	-28.77	41.90	25.57	54.00	15.30	H
14499.250	38.66	-28.77	41.90	25.53	54.00	15.34	V
5458.825	43.91	-27.10	34.20	36.81	54.00	10.09	H
5459.260	43.83	-27.10	34.20	36.73	54.00	10.17	H

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17921.900	44.84	-26.18	45.95	25.07	54.00	9.16	V
17915.300	44.79	-26.18	45.95	25.02	54.00	9.21	H
14489.350	38.69	-28.77	41.90	25.56	54.00	15.31	V
14491.000	38.62	-28.77	41.90	25.49	54.00	15.38	V
11870.250	37.05	-31.54	39.15	29.44	54.00	16.95	V
11847.700	36.98	-31.54	39.15	29.37	54.00	17.02	V

802.11ac-HT40
Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17938.400	45.08	-26.18	45.95	25.31	54.00	8.92	H
17907.600	44.91	-26.18	45.95	25.14	54.00	9.09	V
14488.250	38.79	-28.77	41.90	25.66	54.00	15.21	H
14492.100	38.55	-28.77	41.90	25.42	54.00	15.45	H
5148.580	47.41	-27.28	34.00	40.69	54.00	6.59	H
5149.860	47.37	-27.28	34.00	40.65	54.00	6.63	H

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17917.500	44.98	-26.18	45.95	25.21	54.00	9.02	H
17915.300	44.80	-26.18	45.95	25.03	54.00	9.20	V
14470.650	38.77	-28.77	41.90	25.64	54.00	15.23	H
13284.850	38.59	-30.02	40.60	28.01	54.00	15.41	H
5352.000	49.69	-27.12	34.20	42.61	54.00	4.31	H
5350.240	49.52	-27.12	34.20	42.44	54.00	4.48	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17913.100	45.40	-26.18	45.95	25.63	54.00	8.60	V
17922.450	44.92	-26.18	45.95	25.15	54.00	9.08	H
14487.150	38.86	-28.77	41.90	25.73	54.00	15.14	V
13284.300	38.64	-30.02	40.60	28.06	54.00	15.36	V
5459.800	43.47	-27.10	34.20	36.37	54.00	10.53	H
5459.365	43.15	-27.10	34.20	36.05	54.00	10.85	H

Channel 134

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17908.700	44.79	-26.18	45.95	25.02	54.00	9.21	V
17901.550	44.77	-26.18	45.95	25.00	54.00	9.23	H
14491.000	38.90	-28.77	41.90	25.77	54.00	15.10	H
14491.550	38.63	-28.77	41.90	25.50	54.00	15.37	V
11776.750	36.81	-31.80	39.20	29.41	54.00	17.19	V
11837.800	36.62	-31.54	39.15	29.01	54.00	17.38	H

802.11ac-HT80
Channel 42

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17909.800	44.94	-26.18	45.95	25.17	54.00	9.06	H
17919.150	44.84	-26.18	45.95	25.07	54.00	9.16	H
14498.150	38.73	-28.77	41.90	25.60	54.00	15.27	H
14481.100	38.59	-28.77	41.90	25.46	54.00	15.41	V
5149.220	45.62	-27.28	34.00	38.90	54.00	8.38	H
5149.820	45.54	-27.28	34.00	38.82	54.00	8.46	H

Channel 58

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17921.350	44.96	-26.18	45.95	25.19	54.00	9.04	H
17924.100	44.90	-26.18	45.95	25.13	54.00	9.10	V
13303.000	38.66	-30.02	40.60	28.08	54.00	15.34	V
14486.600	38.64	-28.77	41.90	25.51	54.00	15.36	H
5350.544	45.90	-27.12	34.20	38.82	54.00	8.10	H
5350.240	45.46	-27.12	34.20	38.38	54.00	8.54	H

Channel 106

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17917.500	45.05	-26.18	45.95	25.28	54.00	8.95	V
17924.100	44.99	-26.18	45.95	25.22	54.00	9.01	V
14492.100	38.80	-28.77	41.90	25.67	54.00	15.20	H
13256.800	38.50	-29.90	40.50	27.90	54.00	15.50	H
5453.995	44.94	-27.10	34.20	37.84	54.00	9.06	H
5457.745	44.89	-27.10	34.20	37.79	54.00	9.11	H

Channel 122

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17929.050	45.07	-26.18	45.95	25.30	54.00	8.93	V
17921.350	44.98	-26.18	45.95	25.21	54.00	9.02	H
14484.400	38.85	-28.77	41.90	25.72	54.00	15.15	V
13300.250	38.56	-30.02	40.60	27.98	54.00	15.44	H
11859.250	36.84	-31.54	39.15	29.23	54.00	17.16	V
11382.950	36.73	-32.12	38.85	30.00	54.00	17.27	H

PEAK Results:
802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17936.200	55.84	-26.18	45.95	36.07	74.00	18.16	H
17893.300	55.68	-26.18	45.95	35.91	74.00	18.32	H
14161.000	51.75	-28.90	41.70	38.95	68.20	16.45	V
13751.800	51.52	-29.40	41.10	39.82	68.20	16.68	V
5148.280	63.91	-27.29	34.00	57.20	74.00	10.09	H
5148.380	63.88	-27.29	34.00	57.17	74.00	10.12	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17954.350	56.36	-26.18	45.95	36.59	74.00	17.64	H
17903.200	56.00	-26.18	45.95	36.23	74.00	18.00	V
14090.050	52.10	-28.90	41.70	39.30	68.20	16.10	H
14154.950	51.66	-28.86	41.70	38.82	68.20	16.54	H
5356.304	67.81	-27.12	34.20	60.73	74.00	6.19	H
5355.248	66.92	-27.12	34.20	59.84	74.00	7.08	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17923.550	56.70	-26.18	45.95	36.93	74.00	17.30	V
17907.050	55.97	-26.18	45.95	36.20	74.00	18.03	V
13651.700	51.80	-29.68	40.90	40.58	68.20	16.40	H
14234.700	51.76	-28.94	41.75	38.95	68.20	16.44	V
5458.915	58.35	-27.10	34.20	51.25	74.00	15.65	H
5469.265	63.14	-27.10	34.20	56.04	68.20	5.06	H

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17947.200	55.91	-26.18	45.95	36.14	74.00	18.09	H
17919.150	55.76	-26.18	45.95	35.99	74.00	18.24	V
14197.300	51.12	-28.90	41.70	38.32	68.20	17.08	H
14172.550	51.11	-28.90	41.70	38.31	68.20	17.09	H
5728.453	63.24	-26.99	34.10	56.13	68.20	4.96	H
5725.302	63.16	-26.99	34.10	56.05	68.20	5.04	H

802.11n-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17929.600	55.48	-26.18	45.95	35.71	74.00	18.52	H
17887.800	55.46	-26.18	45.95	35.69	74.00	18.54	V
14135.150	51.59	-28.86	41.70	38.75	68.20	16.61	H
14189.600	51.21	-28.90	41.70	38.41	68.20	16.99	V
5149.920	66.54	-27.28	34.00	59.82	74.00	7.46	H
5149.080	66.48	-27.28	34.00	59.76	74.00	7.52	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17911.450	55.63	-26.18	45.95	35.86	74.00	18.37	V
17888.350	55.50	-26.18	45.95	35.73	74.00	18.50	V
14108.200	51.76	-28.90	41.70	38.96	68.20	16.44	V
14121.950	51.55	-28.86	41.70	38.71	68.20	16.65	V
5350.096	67.95	-27.12	34.20	60.87	74.00	6.05	H
5350.128	67.64	-27.12	34.20	60.56	74.00	6.36	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17870.200	55.43	-26.18	45.95	35.66	74.00	18.57	H
17968.100	55.40	-26.18	45.95	35.63	74.00	18.60	H
13735.300	51.32	-29.40	41.10	39.62	68.20	16.88	V
14133.500	51.14	-28.86	41.70	38.30	68.20	17.06	V
5458.675	54.54	-27.10	34.20	47.44	74.00	19.46	H
5466.205	59.22	-27.10	34.20	52.12	68.20	8.98	H

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17825.100	55.64	-26.18	45.95	35.87	74.00	18.36	V
17905.400	55.35	-26.18	45.95	35.58	74.00	18.65	H
13738.600	51.69	-29.40	41.10	39.99	68.20	16.51	H
14080.700	51.53	-28.90	41.70	38.73	68.20	16.67	V
5734.858	61.82	-26.99	34.10	54.71	68.20	6.38	H
5725.127	61.65	-26.99	34.10	54.54	68.20	6.55	H

802.11n-HT40

Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17943.900	55.84	-26.18	45.95	36.07	74.00	18.16	V
17929.600	55.78	-26.18	45.95	36.01	74.00	18.22	V
13700.650	52.41	-29.51	41.00	40.92	68.20	15.79	V
13589.550	51.58	-29.86	40.80	40.64	68.20	16.62	H
5149.940	68.83	-27.28	34.00	62.11	74.00	5.17	H
5149.860	68.74	-27.28	34.00	62.02	74.00	5.26	H

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17938.950	56.42	-26.18	45.95	36.65	74.00	17.58	V
17929.600	55.28	-26.18	45.95	35.51	74.00	18.72	V
14135.700	51.22	-28.86	41.70	38.38	68.20	16.98	V
14141.200	51.04	-28.86	41.70	38.20	68.20	17.16	H
5350.048	67.95	-27.12	34.20	60.87	74.00	6.05	H
5350.064	67.87	-27.12	34.20	60.79	74.00	6.13	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17927.400	56.26	-26.18	45.95	36.49	74.00	17.74	H
17935.650	55.95	-26.18	45.95	36.18	74.00	18.05	V
14166.500	51.88	-28.90	41.70	39.08	68.20	16.32	V
14203.900	51.66	-28.90	41.70	38.86	68.20	16.54	V
5458.330	58.21	-27.10	34.20	51.11	74.00	15.79	H
5469.895	64.58	-27.10	34.20	57.48	68.20	3.62	H

Channel 134

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17885.050	55.53	-26.18	45.95	35.76	74.00	18.47	H
17826.200	55.50	-26.18	45.95	35.73	74.00	18.50	V
14058.150	51.59	-28.94	41.60	38.93	68.20	16.61	V
13822.750	51.55	-29.34	41.25	39.64	68.20	16.65	H
5729.765	60.33	-26.99	34.10	53.22	68.20	7.87	H
5725.198	58.91	-26.99	34.10	51.80	68.20	9.29	H

802.11ac-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17906.500	55.71	-26.18	45.95	35.94	74.00	18.29	H
17909.250	55.69	-26.18	45.95	35.92	74.00	18.31	H
14152.200	51.62	-28.86	41.70	38.78	68.20	16.58	V
14109.300	51.57	-28.86	41.70	38.73	68.20	16.63	H
5146.760	62.47	-27.29	34.00	55.76	74.00	11.53	H
5149.440	61.87	-27.28	34.00	55.15	74.00	12.13	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17936.750	55.54	-26.18	45.95	35.77	74.00	18.46	H
17912.000	55.40	-26.18	45.95	35.63	74.00	18.60	H
13736.950	51.16	-29.40	41.10	39.46	68.20	17.04	V
14058.150	51.05	-28.94	41.60	38.39	68.20	17.15	V
5352.368	63.48	-27.12	34.20	56.40	74.00	10.52	H
5351.616	62.95	-27.12	34.20	55.87	74.00	11.05	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17899.900	55.75	-26.18	45.95	35.98	74.00	18.25	V
17941.150	55.72	-26.18	45.95	35.95	74.00	18.28	V
14137.900	51.42	-28.86	41.70	38.58	68.20	16.78	H
14118.650	51.25	-28.86	41.70	38.41	68.20	16.95	V
5459.860	57.05	-27.10	34.20	49.95	74.00	16.95	H
5468.575	64.79	-27.10	34.20	57.69	68.20	3.41	H

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17907.050	56.10	-26.18	45.95	36.33	74.00	17.90	H
17943.900	55.68	-26.18	45.95	35.91	74.00	18.32	V
13704.500	51.72	-29.51	41.00	40.23	68.20	16.48	H
14117.000	51.58	-28.86	41.70	38.74	68.20	16.62	H
5725.863	60.36	-26.99	34.10	53.25	68.20	7.84	H
5725.547	59.27	-26.99	34.10	52.16	68.20	8.93	H

802.11ac-HT40

Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17930.700	55.78	-26.18	45.95	36.01	74.00	18.22	H
17912.000	55.71	-26.18	45.95	35.94	74.00	18.29	H
14161.000	51.82	-28.90	41.70	39.02	68.20	16.38	V
14163.200	51.75	-28.90	41.70	38.95	68.20	16.45	H
5146.480	64.89	-27.29	34.00	58.18	74.00	9.11	H
5149.640	64.50	-27.28	34.00	57.78	74.00	9.50	H

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17840.500	55.99	-26.18	45.95	36.22	74.00	18.01	V
17915.850	55.47	-26.18	45.95	35.70	74.00	18.53	H
14158.250	52.11	-28.86	41.70	39.27	68.20	16.09	H
14215.450	51.54	-28.94	41.75	38.73	68.20	16.66	H
5350.368	70.15	-27.12	34.20	63.07	74.00	3.85	H
5351.392	68.01	-27.12	34.20	60.93	74.00	5.99	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17929.600	55.86	-26.18	45.95	36.09	74.00	18.14	H
17892.750	55.80	-26.18	45.95	36.03	74.00	18.20	V
13688.000	51.74	-29.51	41.00	40.25	68.20	16.46	H
13608.250	51.65	-29.86	40.80	40.71	68.20	16.55	V
5456.545	56.40	-27.10	34.20	49.30	74.00	17.60	H
5466.070	60.82	-27.10	34.20	53.72	68.20	7.38	H

Channel 134

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17923.550	55.94	-26.18	45.95	36.17	74.00	18.06	V
17960.400	55.85	-26.18	45.95	36.08	74.00	18.15	H
13731.450	51.78	-29.40	41.10	40.08	68.20	16.42	H
13527.400	51.38	-29.90	40.75	40.53	68.20	16.82	V
5727.035	60.16	-26.99	34.10	53.05	68.20	8.04	H
5728.837	57.68	-26.99	34.10	50.57	68.20	10.52	H

802.11ac-HT80

Channel 42

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17924.650	56.67	-26.18	45.95	36.90	74.00	17.33	H
17912.550	56.12	-26.18	45.95	36.35	74.00	17.88	H
14137.900	51.31	-28.86	41.70	38.47	68.20	16.89	V
14130.750	51.21	-28.86	41.70	38.37	68.20	16.99	H
5148.740	57.39	-27.28	34.00	50.67	74.00	16.61	H
5149.860	57.23	-27.28	34.00	50.51	74.00	16.77	H

Channel 58

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17923.550	56.07	-26.18	45.95	36.30	74.00	17.93	V
17912.550	55.86	-26.18	45.95	36.09	74.00	18.14	V
14075.750	51.72	-28.90	41.70	38.92	68.20	16.48	H
14143.400	51.64	-28.86	41.70	38.80	68.20	16.56	V
5352.656	58.87	-27.12	34.20	51.79	74.00	15.13	H
5380.672	58.46	-27.12	34.20	51.38	74.00	15.54	H

Channel 106

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17909.250	56.09	-26.18	45.95	36.32	74.00	17.91	V
17920.800	55.34	-26.18	45.95	35.57	74.00	18.66	H
13744.100	51.28	-29.40	41.10	39.58	68.20	16.92	H
14147.800	51.24	-28.86	41.70	38.40	68.20	16.96	H
5443.930	61.71	-27.13	34.30	54.54	74.00	12.29	H
5469.085	59.28	-27.10	34.20	52.18	68.20	8.92	H

Channel 122

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17915.850	56.60	-26.18	45.95	36.83	74.00	17.40	V
17905.950	55.85	-26.18	45.95	36.08	74.00	18.15	H
13757.300	51.30	-29.40	41.10	39.60	68.20	16.90	H
13763.900	51.29	-29.37	41.20	39.46	68.20	16.91	H
5821.535	52.98	-26.97	34.10	45.85	68.20	15.22	V
5818.735	52.95	-26.97	34.10	45.82	68.20	15.25	H

Conclusion: PASS

Band edge compliance

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.1	P
	5320 MHz	Fig.2	P
	5500 MHz	Fig.3	P
	5700 MHz	Fig.4	P
802.11n HT20	5180 MHz	Fig.5	P
	5320 MHz	Fig.6	P
	5500 MHz	Fig.7	P
	5700 MHz	Fig.8	P
802.11n HT40	5190 MHz	Fig.9	P
	5310 MHz	Fig.10	P
	5510 MHz	Fig.11	P
	5670 MHz	Fig.12	P
802.11ac HT20	5180 MHz	Fig.13	P
	5320 MHz	Fig.14	P
	5500 MHz	Fig.15	P
	5700 MHz	Fig.16	P
802.11ac HT40	5190 MHz	Fig.17	P
	5310 MHz	Fig.18	P
	5510 MHz	Fig.19	P
	5670 MHz	Fig.20	P
802.11ac HT80	5210MHz	Fig.21	P
	5290MHz	Fig.22	P
	5530MHz	Fig.23	P
	5610MHz	Fig.24	P

Conclusion: PASS

Test graphs as below: