FCC PART 15E
TEST REPORT
No.24T04Z200172-002

for

Samsung Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE/5GNR Mobile Phone with Bluetooth, WLAN

SM-A166P/DS

FCC ID: ZCASMA166P

with

Hardware Version: REV1.0

Software Version: A166P.001

Issued Date: 2024-08-26

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.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04Z200172-002	Rev.0	1st edition	2024-08-26

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

CONTENTS

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 (BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing, P. R. China 100176

CTTL (Huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

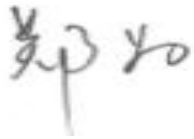
Testing Start Date: 2024-07-16

Testing End Date: 2024-08-26

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:	Samsung Electronics Co., Ltd.
Address:	19 Chapin Rd.,Building D Pine Brook, NJ 07058
Contac Persont:	Jenni Chun
Contact Email:	j1.chun@samsung.com
Telephone:	+1-201-937-4203

2.2. Manufacturer Information

Company Name:	Samsung Electronics Co., Ltd.
Address:	Samsung R5, Maetan dong 129, Samsung ro Youngtong gu, Suwon city 443 742, Korea
Contac Persont:	조성훈 (Sunghoon Cho)
Contact Email:	ggobi.cho@samsung.com
Telephone:	+82-10-2722-4159
Fax:	/

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

3.1. About EUT

Description	Multi-band GSM/WCDMA/LTE/5GNR Mobile Phone with Bluetooth, WLAN
Model name	SM-A166P/DS
FCC ID	ZCASMA166P
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Nominal Voltage	3.88V
Extreme High Voltage	4.47V
Extreme Low Voltage	3.60V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT06a	2404200172UT06a	REV1.0	A166P.001	2024-07-17
UT20a	2404200172UT20a	REV1.0	A166P.001	2024-07-26

*EUT ID: is used to identify the test sample in the lab internally.

UT06a is used for Conduction test, UT20a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Name	Model	Manufacturer
AE1	Battery	W3-S-S	SCUD (FUJIAN) Electronics Co., Ltd.
AE2*	Adapter	EP-TA800	DONGGUAN SOLUM ELECTRONICS CO.,LTD
AE3-1	Date Cable1 C-C	EP-DN980BWE	R.e.tech Electronics (Huizhou) Co., Ltd.
AE3-2	Date Cable2 C-C	EP-DN980BWE	Cresyn Electronics(Dongguan)co;Ltd.
AE3-3	Date Cable3 C-C	EP-DN980BWE	Cresyn electronics(Dongguan)Co;Ltd.

*AE ID: is used to identify the test sample in the lab internally.

*AE2 is not the AE for EUT, provided by the client for relevant tests.

3.4. General Description

The Equipment under Test (EUT) is a model of Multi-band GSM/WCDMA/LTE/5GNR Mobile Phone with Bluetooth, WLAN 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	3.88V
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	2025-04-06
3	Attenuator	10dB/2W	/	Rosenberger	/	/
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103144	R&S	1 year	2024-11-26
2	Test Receiver	FSV30	101047	R&S	1 year	2024-10-08
3	Test Receiver	ESU26	100376	R&S	1 year	2025-06-06
4	Loop Antenna	HFH2-Z2	829324/007	R&S	1 year	2025-01-04
5	EMI Antenna	VULB9163	01222	Schwarzbeck	1 year	2025-07-30
6	EMI Antenna	3117	00139065	ETS-Lindgren	1 year	2024-10-22
7	EMI Antenna	LB-180400-25-C-KF	2110084000006	A-INFO	1 year	2025-05-15

AC Power Line Conducted Emission

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	LISN	ENV216	101459	R&S	1 year	2025-05-16
2	Test Receiver	ESCI	100766	R&S	1 year	2025-04-18

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)
30MHz ≤ f ≤ 2GHz	1.22
2GHz ≤ f ≤3.6GHz	1.22
3.6GHz ≤ f ≤8GHz	1.22
8GHz ≤ f ≤12.75GHz	1.51
12.75GHz ≤ f ≤26GHz	1.51
26GHz ≤ f ≤40GHz	1.59

8.6 Radiated Unwanted Emission

Frequency Range	Uncertainty(dB) (k=2)
9kHz-30MHz	4.92
30MHz ≤ f ≤ 1GHz	5.73
1GHz ≤ f ≤18GHz	5.62
18GHz ≤ f ≤40GHz	3.52

8.7 AC Power-line Conducted Emission

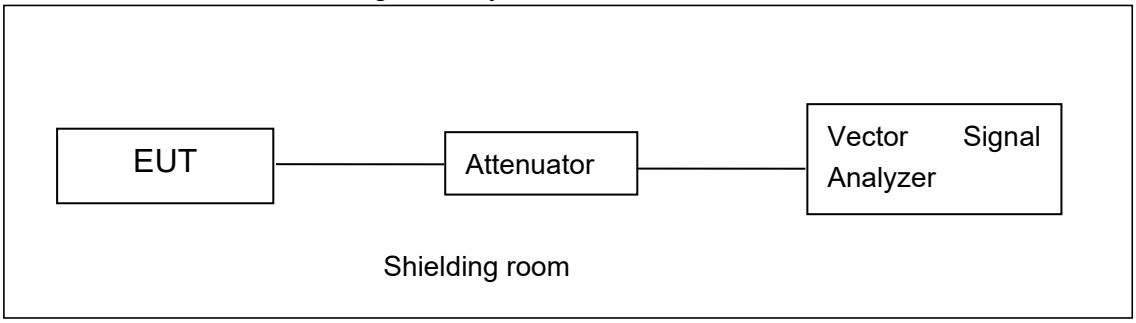
Measurement Uncertainty: 3.10dB, k=2

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 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 measurementmethod SA-2 is made according to KDB 789033

A.2.1 Antenna Gain

Antenna gain is -2.0dBi and the value is supplied by the applicant or manufacturer.

A.2.2 Maximum output Power-Conducted

EUT ID: UT06a

Measurement Results:

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	18.03	17.96	17.97	16.87	16.67	16.24	16.03	15.59
	5200MHz	18.73	/	/	/	/	/	/	/
	5240MHz	18.90	/	/	/	/	/	/	/
	5260MHz	18.30	/	/	/	/	/	/	/
	5280MHz	18.97	/	/	/	/	/	/	/
	5320MHz	16.99	/	/	/	/	/	/	/
	5500MHz	15.67	/	/	/	/	/	/	/
	5580MHz	18.20	/	/	/	/	/	/	/
	5700MHz	14.86	/	/	/	/	/	/	/
	5720MHz	18.76	/	/	/	/	/	/	/

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	17.42	16.78	16.80	16.70	16.31	15.47	15.72	15.01
	5200MHz	17.61	/	/	/	/	/	/	/
	5240MHz	17.86	/	/	/	/	/	/	/
	5260MHz	17.72	/	/	/	/	/	/	/
	5280MHz	17.49	/	/	/	/	/	/	/
	5320MHz	16.91	/	/	/	/	/	/	/

	5500MHz	15.63	/	/	/	/	/	/	/	
	5580MHz	17.04	/	/	/	/	/	/	/	
	5700MHz	14.66	/	/	/	/	/	/	/	
	5720MHz	17.98	/	/	/	/	/	/	/	

The data rate MSC0 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	17.07	16.87	16.81	16.63	16.29	15.44	15.34	14.74	12.80
	5200MHz	17.05	/	/	/	/	/	/	/	/
	5240MHz	17.29	/	/	/	/	/	/	/	/
	5260MHz	17.22	/	/	/	/	/	/	/	/
	5280MHz	17.38	/	/	/	/	/	/	/	/
	5320MHz	16.65	/	/	/	/	/	/	/	/
	5500MHz	15.64	/	/	/	/	/	/	/	/
	5580MHz	17.13	/	/	/	/	/	/	/	/
	5700MHz	14.62	/	/	/	/	/	/	/	/
	5720MHz	17.02	/	/	/	/	/	/	/	/

The data rate MSC0 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	16.46	16.39	16.42	16.36	16.31	15.87	15.78	15.38
	5230MHz	17.68	/	/	/	/	/	/	/
	5270MHz	17.69	/	/	/	/	/	/	/
	5310MHz	15.54	/	/	/	/	/	/	/
	5510MHz	14.16	/	/	/	/	/	/	/
	5550MHz	17.65	/	/	/	/	/	/	/
	5670MHz	17.70	/	/	/	/	/	/	/
	5710MHz	17.99	/	/	/	/	/	/	/

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	16.21	16.18	16.12	16.08	16.02	15.57	15.88	15.23	13.19	10.99
	5230MHz	17.17	/	/	/	/	/	/	/	/	/
	5270MHz	17.18	/	/	/	/	/	/	/	/	/
	5310MHz	16.15	/	/	/	/	/	/	/	/	/
	5510MHz	14.19	/	/	/	/	/	/	/	/	/
	5550MHz	17.26	/	/	/	/	/	/	/	/	/
	5670MHz	17.11	/	/	/	/	/	/	/	/	/
	5710MHz	17.55	/	/	/	/	/	/	/	/	/

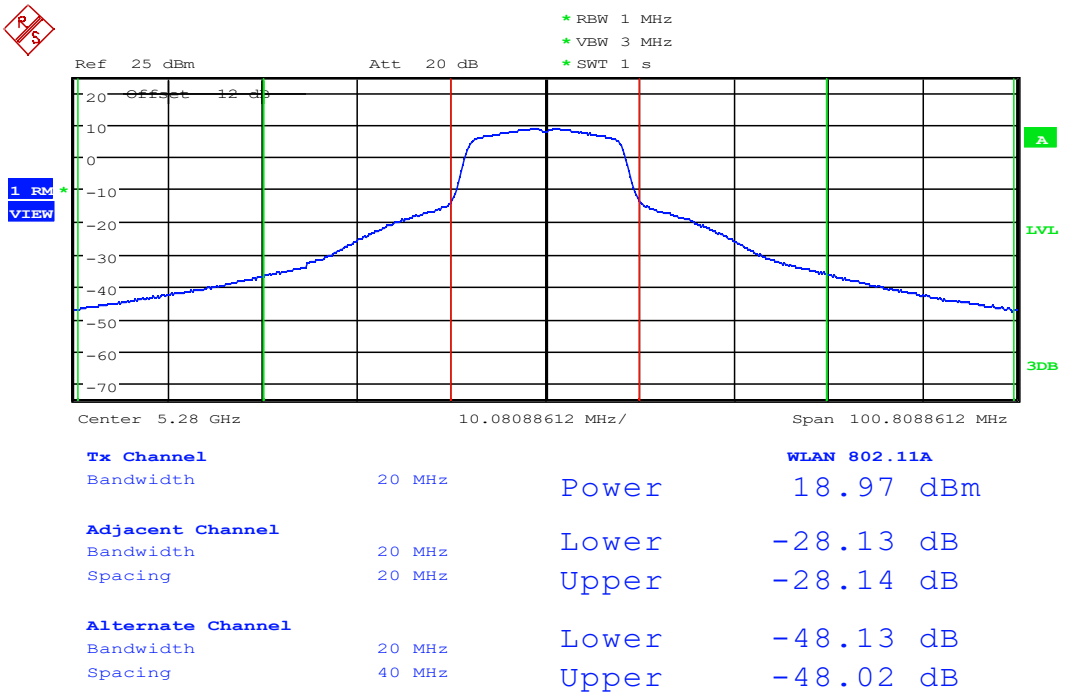
The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

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	16.15	16.02	15.86	15.72	15.52	15.63	15.35	15.29	13.11	11.32
	5290MHz	15.20	/	/	/	/	/	/	/	/	/
	5530MHz	14.14	/	/	/	/	/	/	/	/	/
	5610MHz	17.01	/	/	/	/	/	/	/	/	/
	5690MHz	17.22	/	/	/	/	/	/	/	/	/

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

The duty cycle of all mode are 100%.



Maximum output Power：11a CH56

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

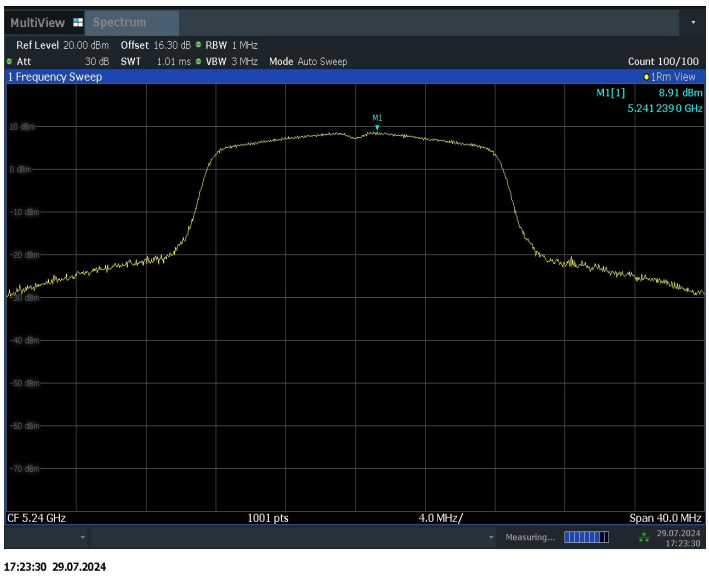
The output power measurement method Section F is made according to KDB 789033

EUT ID: UT06a

Test Result

TestMode	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	5180	7.70	≤11.00	PASS
	5200	8.66	≤11.00	PASS
	5240	8.91	≤11.00	PASS
	5260	8.23	≤11.00	PASS
	5280	8.72	≤11.00	PASS
	5320	6.71	≤11.00	PASS
	5500	5.91	≤11.00	PASS
	5580	7.87	≤11.00	PASS
	5700	5.00	≤11.00	PASS
	5720	8.56	≤11.00	PASS
11N20SISO	5180	6.92	≤11.00	PASS
	5200	7.28	≤11.00	PASS
	5240	7.43	≤11.00	PASS
	5260	7.31	≤11.00	PASS
	5280	7.07	≤11.00	PASS
	5320	6.37	≤11.00	PASS
	5500	5.52	≤11.00	PASS
	5580	6.66	≤11.00	PASS
	5700	4.76	≤11.00	PASS
	5720	7.78	≤11.00	PASS
11N40SISO	5190	3.22	≤11.00	PASS
	5230	4.52	≤11.00	PASS
	5270	4.51	≤11.00	PASS
	5310	2.20	≤11.00	PASS
	5510	0.84	≤11.00	PASS
	5550	4.50	≤11.00	PASS
	5670	4.54	≤11.00	PASS
	5710	4.85	≤11.00	PASS
11AC80SISO	5210	-0.69	≤11.00	PASS
	5290	-1.50	≤11.00	PASS

	5530	-2.30	≤11.00	PASS
	5610	0.59	≤11.00	PASS
	5690	1.17	≤11.00	PASS



Peak Power Spectral Density：11a CH48

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: UT06a

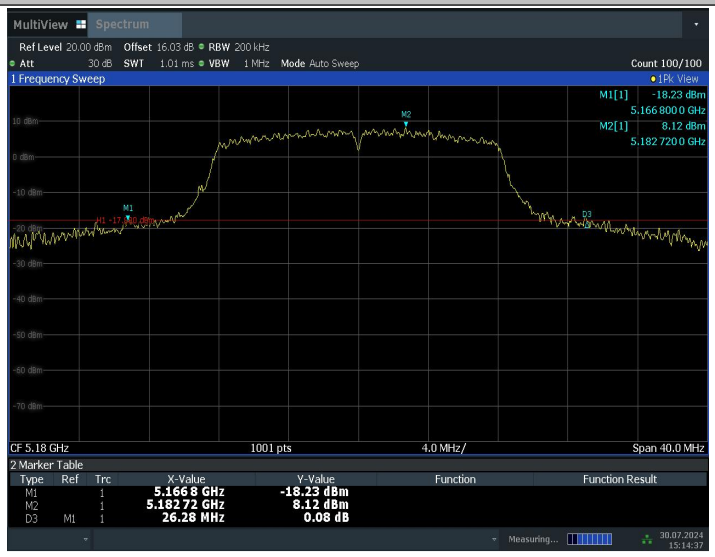
Test Result

TestMode	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	5180	26.28	5166.80	5193.08	---	---
	5200	27.60	5185.84	5213.44	---	---
	5240	25.84	5227.04	5252.88	---	---
	5260	28.24	5245.76	5274.00	---	---
	5280	26.36	5268.04	5294.40	---	---
	5320	20.44	5309.84	5330.28	---	---
	5500	20.12	5490.00	5510.12	---	---
	5580	28.24	5566.76	5595.00	---	---
	5700	20.32	5689.88	5710.20	---	---
	5720	28.24	5706.16	5734.40	---	---
11N20	5180	25.20	5167.96	5193.16	---	---
	5200	20.84	5189.52	5210.36	---	---
	5240	26.00	5227.12	5253.12	---	---
	5260	27.80	5246.80	5274.60	---	---
	5280	25.44	5267.76	5293.20	---	---
	5320	23.04	5309.52	5332.56	---	---
	5500	20.48	5489.76	5510.24	---	---
	5580	24.88	5567.92	5592.80	---	---
	5700	20.40	5689.76	5710.16	---	---
	5720	27.60	5707.00	5734.60	---	---
11N40	5190	49.68	5161.20	5210.88	---	---
	5230	56.96	5204.16	5261.12	---	---
	5270	54.08	5241.36	5295.44	---	---
	5310	40.96	5289.44	5330.40	---	---
	5510	41.12	5489.44	5530.56	---	---
	5550	52.72	5521.36	5574.08	---	---
	5670	58.00	5640.24	5698.24	---	---
	5710	53.36	5682.72	5736.08	---	---
11AC80	5210	90.24	5160.56	5250.80	---	---

	5290	81.44	5249.20	5330.64	---	---
	5530	81.60	5489.04	5570.64	---	---
	5610	106.40	5558.80	5665.20	---	---
	5690	104.64	5634.64	5739.28	---	---

Test Graphs

11A_5180



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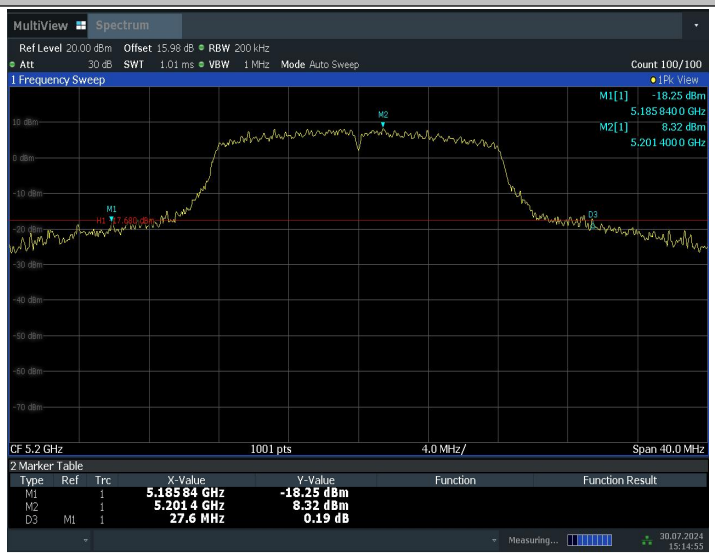
11A_5200



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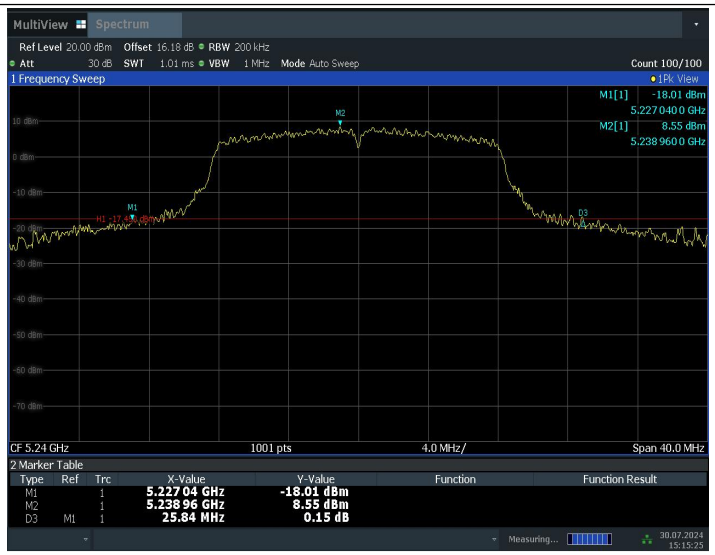

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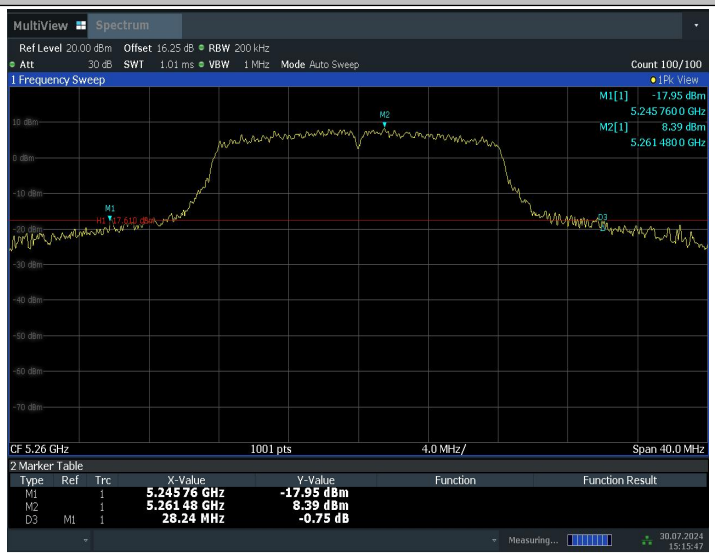
11A_5260



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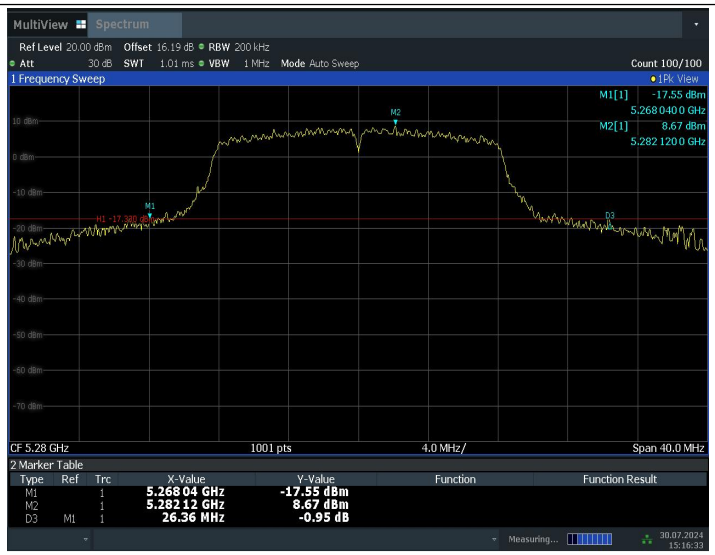

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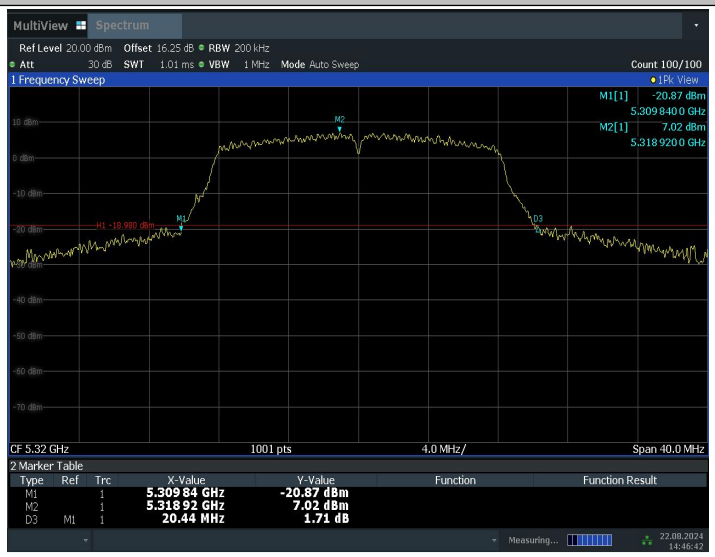

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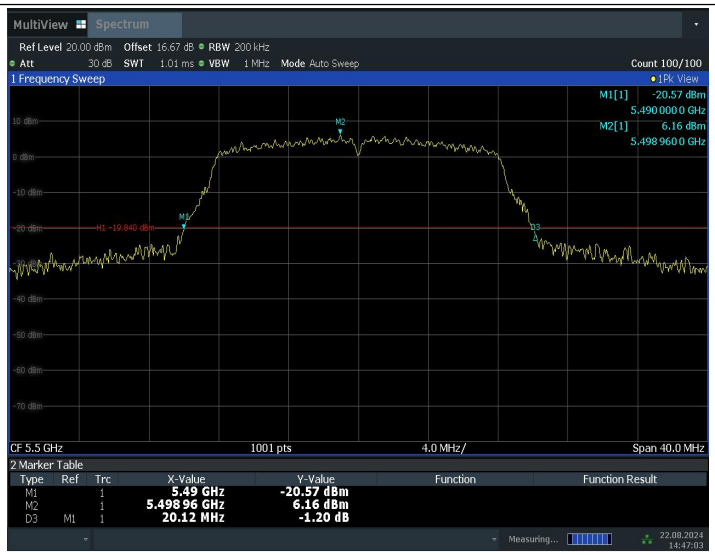

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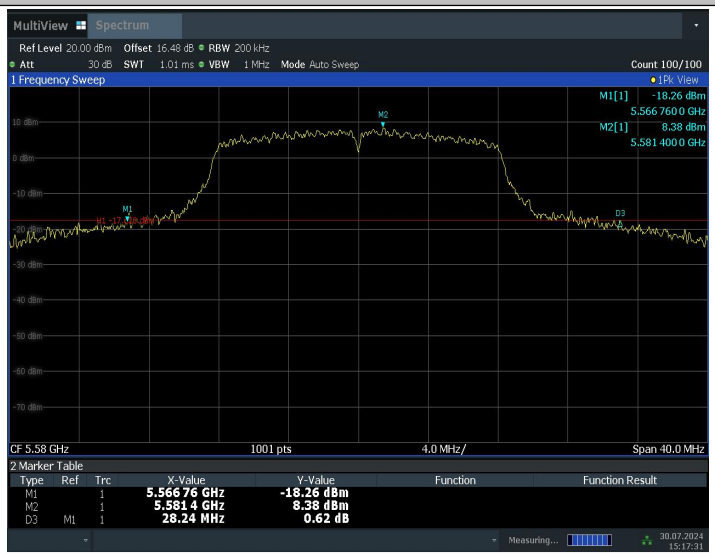

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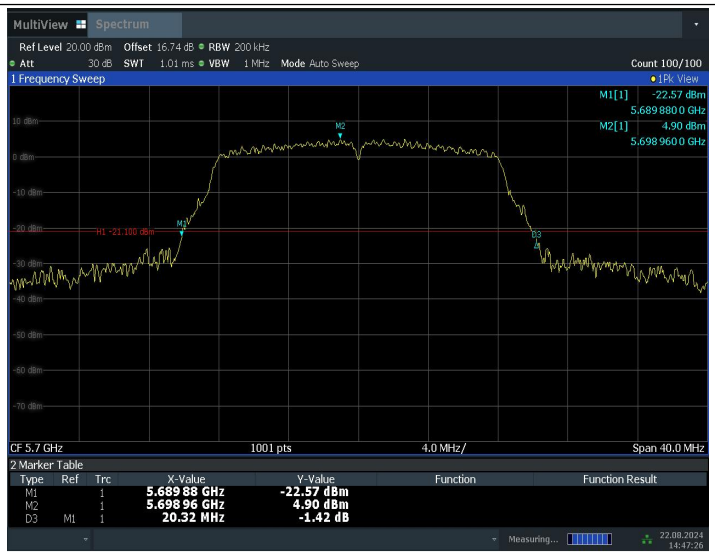

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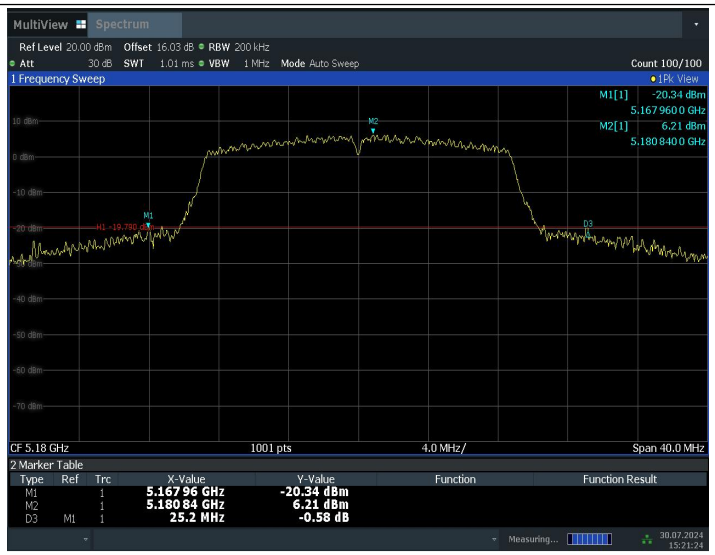

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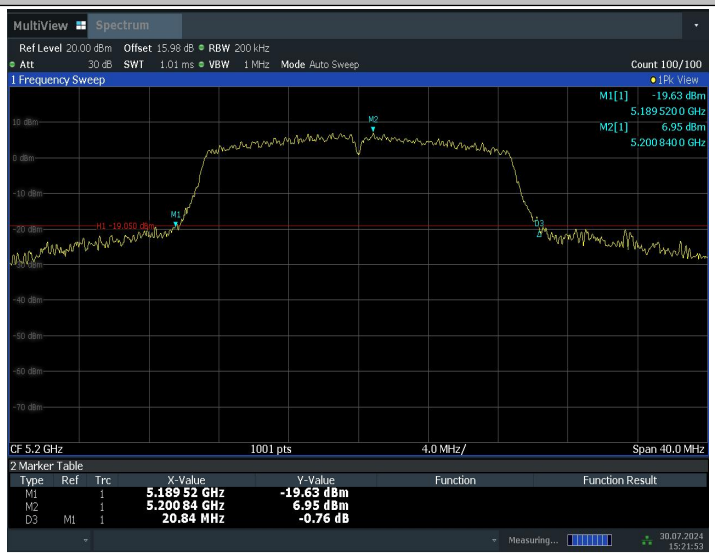

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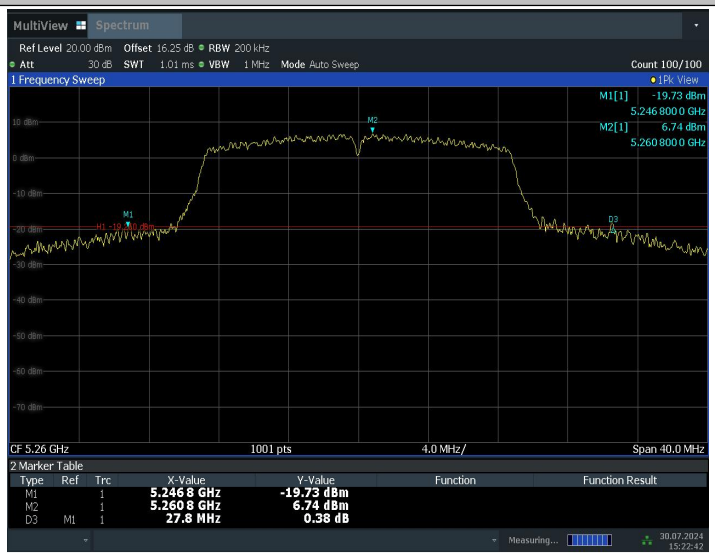

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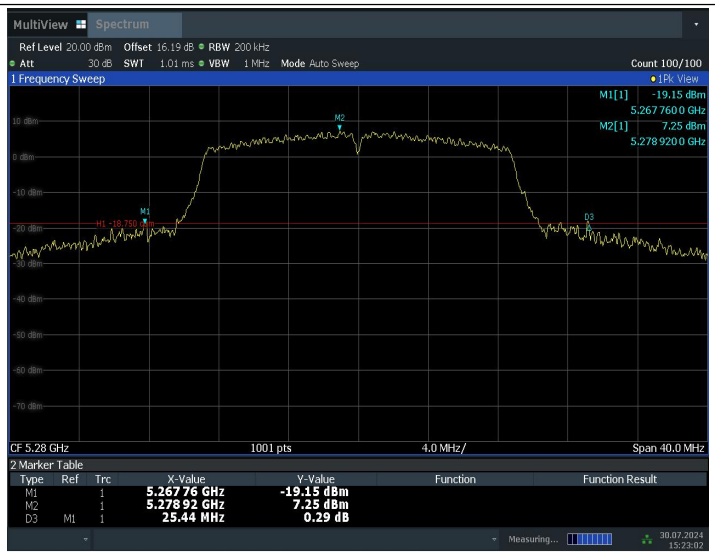

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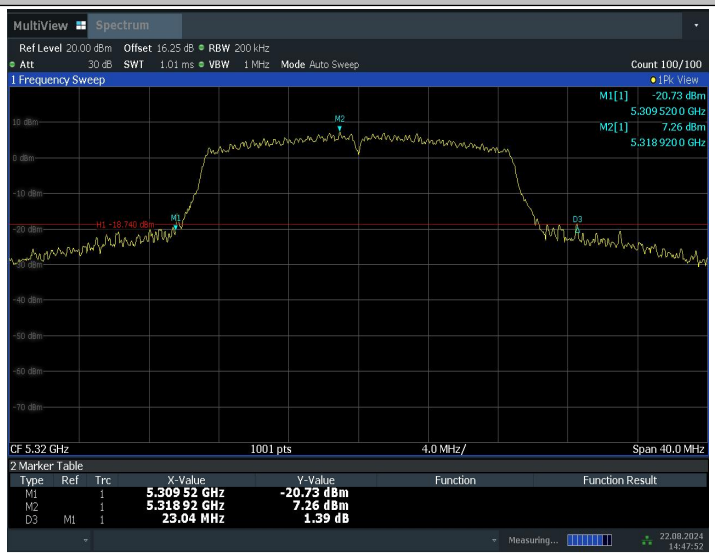

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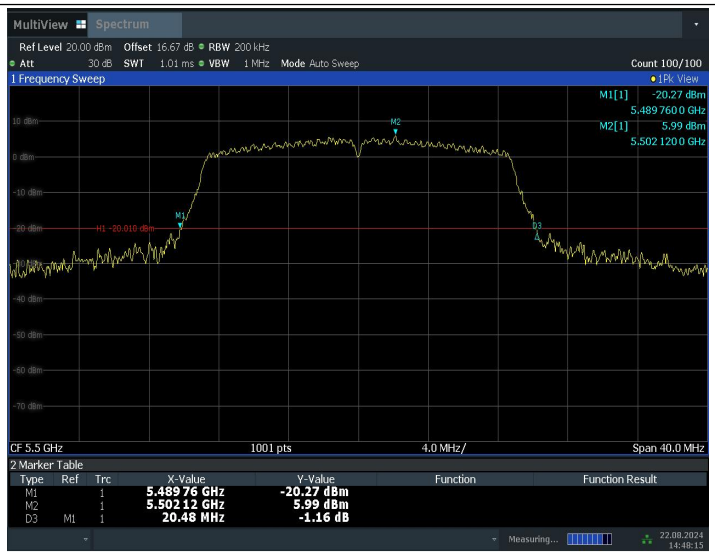

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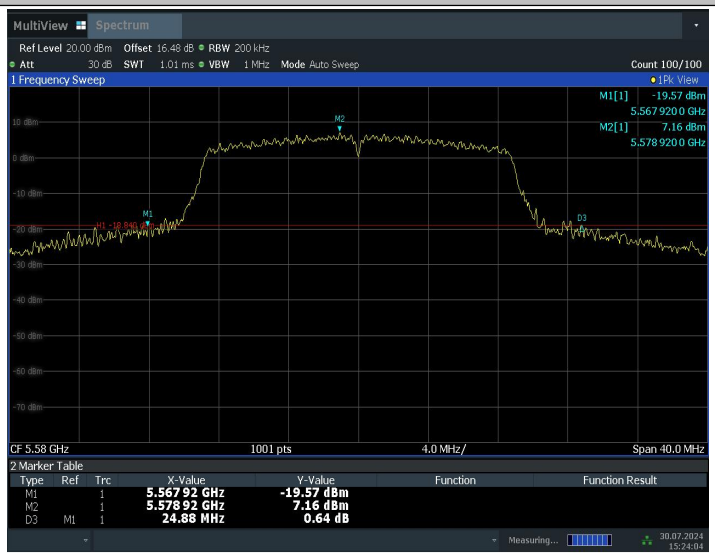

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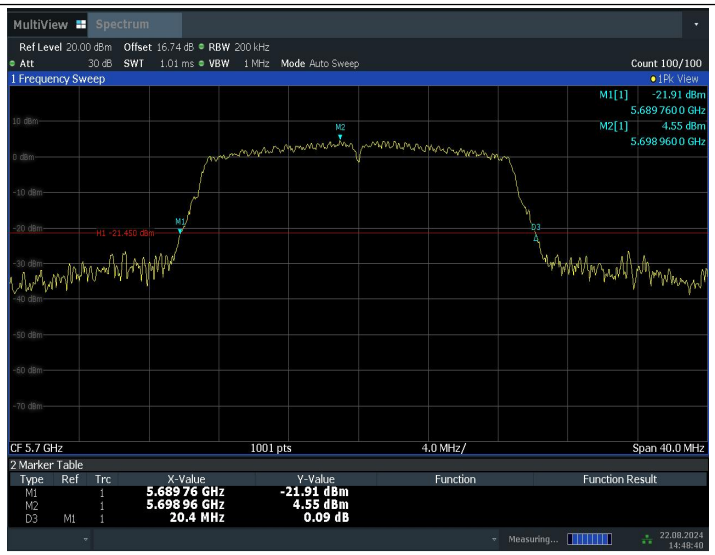

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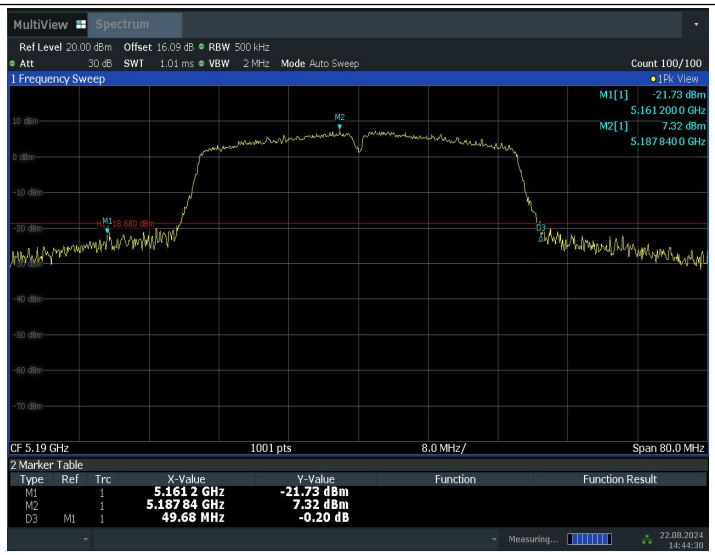

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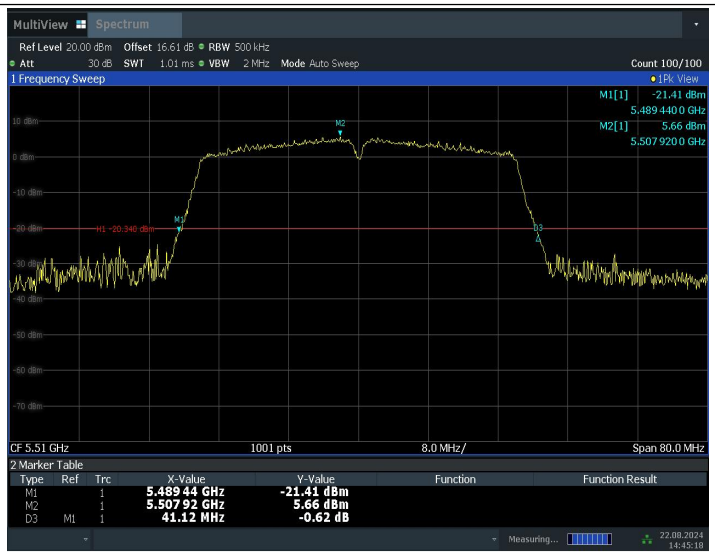
11N40_5310

14:44:55 22.08.2024

11N40_5510



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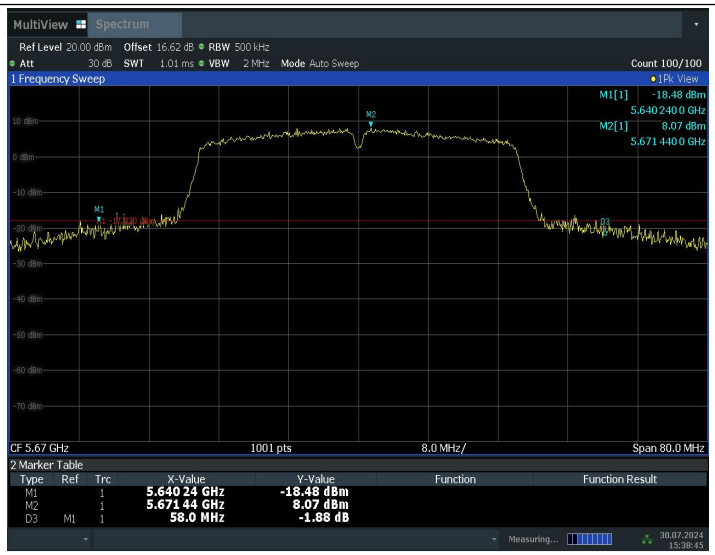

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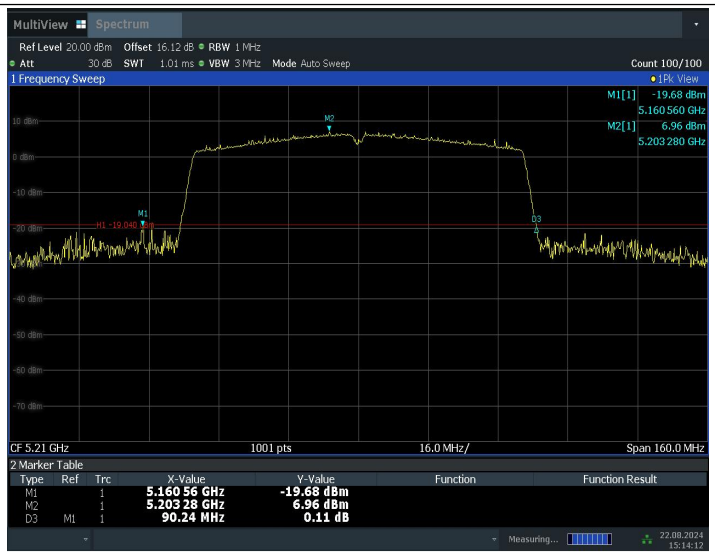
11AC80_5210



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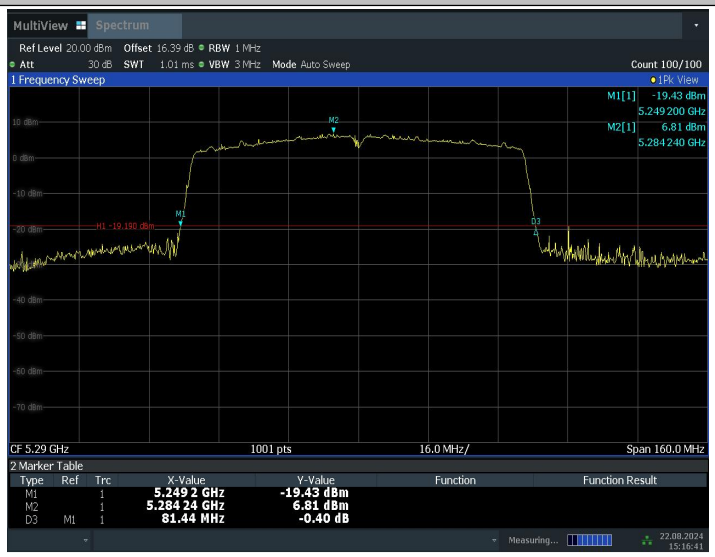

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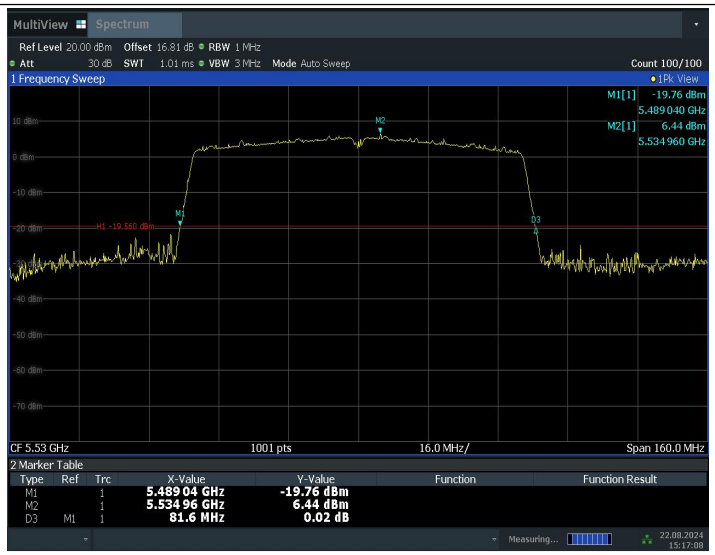

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11AC80_5610

15:51:08 30.07.2024

11AC80_5690

15:48:56 30.07.2024

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(μV/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 (uV/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

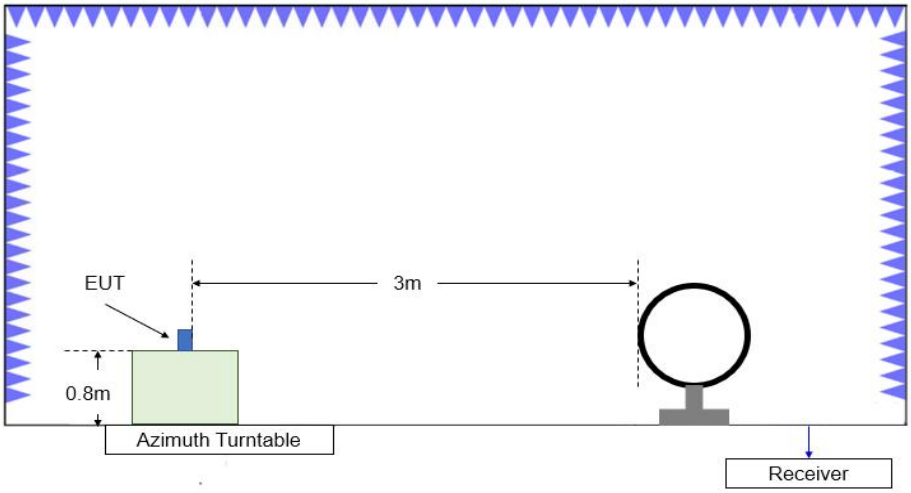

Figure A.5.1. Test Site Diagram (9kHz-30MHz)

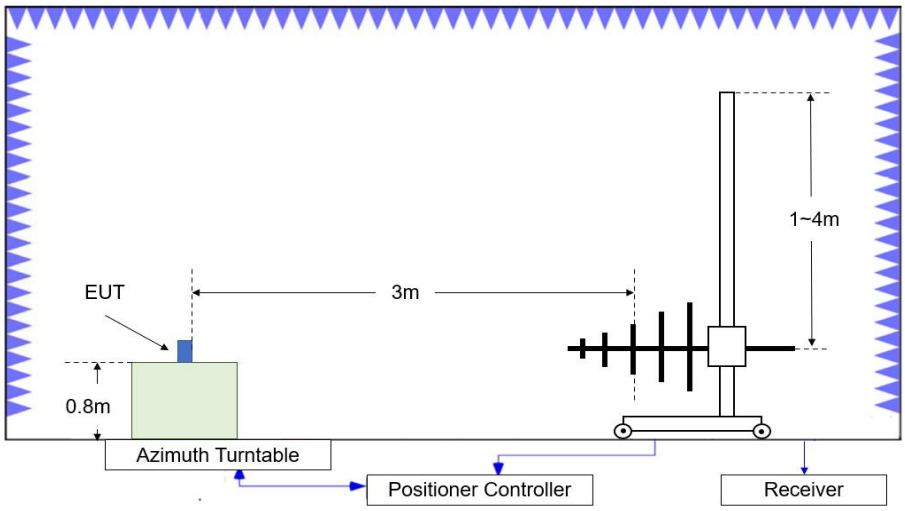

Figure A.5.2. Test Site Diagram (30MHz-1GHz)

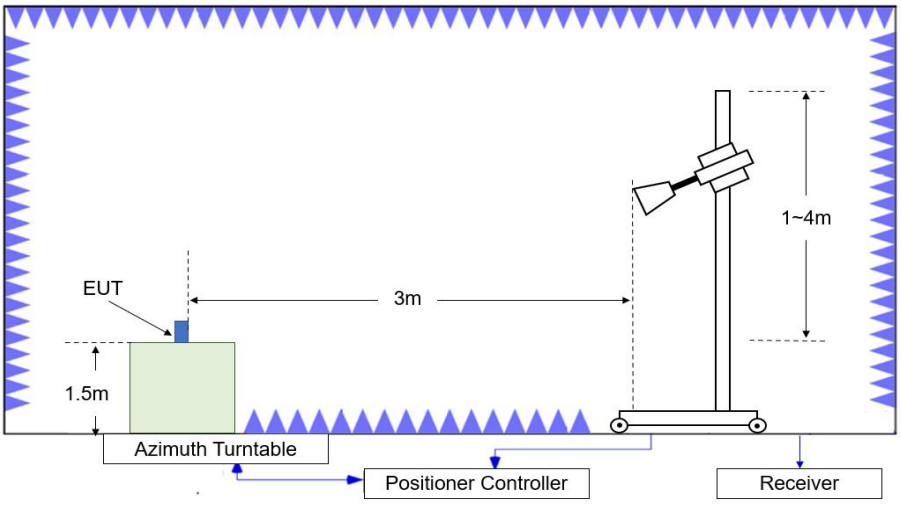

Figure A.5.3. Test Site Diagram (1GHz-40GHz)

A.5.3 Test Procedures

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

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 (dBμV/m) = $P_{measurement}$ (dBμV) + Cable Loss(dB) + Antenna Factor (dB/m)

Where: $P_{measurement}$ 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=EIRP- 20log (*D*) +104.77

Where:

E is the field strength in dBμV/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. Measurement frequencies were performed from 9 kHz to 40GHz.

A.5.5 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)
5149.000	46.4	-22.8	34.4	34.81	54.0	7.6	V
5450.000	46.5	-22.3	34.6	34.17	54.0	7.5	V
11288.000	37.0	-30.2	38.0	29.26	54.0	17.0	V
15540.000	39.6	-24.7	40.1	24.20	54.0	14.4	V
17800.000	41.6	-23.4	41.2	23.75	54.0	12.4	H
17947.500	41.3	-23.3	41.2	23.38	54.0	12.7	V

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)
5350.000	48.9	-22.3	35.0	36.20	54.0	5.1	V
5351.375	48.9	-22.4	35.0	36.22	54.0	5.1	V
10640.500	36.0	-29.6	37.7	27.85	54.0	18.1	H
15960.500	40.0	-25.3	40.8	24.42	54.0	14.0	V
17776.000	41.4	-23.9	41.2	24.10	54.0	12.6	V
17971.000	41.3	-23.4	41.2	23.49	54.0	12.7	V

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)
5434.625	45.0	-22.2	34.7	32.58	54.0	9.0	V
5456.250	45.2	-22.2	34.6	32.84	54.0	8.8	V
11003.500	36.5	-30.5	37.8	29.16	54.0	17.5	V
15926.500	40.7	-24.6	40.8	24.59	54.0	13.3	V
17745.500	41.6	-23.7	41.2	24.07	54.0	12.4	H
17892.500	41.9	-23.6	41.2	24.32	54.0	12.1	H

Channel 144

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)
5356.000	46.5	-22.4	35.0	34.00	54.0	7.5	V
5368.375	46.5	-22.4	35.0	33.89	54.0	7.5	V
11440.000	35.0	-29.8	38.2	26.60	54.0	19.1	V
15884.500	40.0	-24.8	40.7	24.14	54.0	14.0	H
17771.000	42.0	-24.0	41.2	24.85	54.0	12.0	H
17969.000	41.8	-23.4	41.2	24.03	54.0	12.2	V

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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)
5149.625	45.9	-22.8	34.4	34.29	54.0	8.1	V
5149.875	45.8	-22.8	34.4	34.11	54.0	8.2	V
11303.500	37.4	-30.1	38.0	29.46	54.0	16.6	H
15540.000	39.5	-24.7	40.1	24.01	54.0	14.5	H
17741.500	41.9	-23.6	41.2	24.24	54.0	12.1	H
17917.500	42.1	-23.6	41.2	24.45	54.0	11.9	V

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)
5371.375	46.0	-22.3	35.0	33.38	54.0	8.0	V
5382.375	45.6	-22.5	34.9	33.17	54.0	8.4	V
10783.500	36.2	-30.5	37.8	28.95	54.0	17.8	H
15960.000	39.5	-25.3	40.8	23.95	54.0	14.5	H
17794.000	41.6	-23.6	41.2	24.01	54.0	12.4	H
17972.500	42.1	-23.5	41.2	24.39	54.0	11.9	V

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)
5388.875	45.3	-22.3	34.9	32.74	54.0	8.7	V
5450.875	45.2	-22.3	34.6	32.90	54.0	8.8	V
11000.000	36.1	-30.3	37.8	28.61	54.0	17.9	H
15831.000	40.8	-25.1	40.6	25.31	54.0	13.2	V
17796.000	41.7	-23.5	41.2	24.07	54.0	12.3	H
17944.000	41.6	-23.4	41.2	23.78	54.0	12.4	H

Channel 144

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)
5373.375	46.3	-22.4	35.0	33.69	54.0	7.7	V
5408.000	46.1	-22.3	34.9	33.61	54.0	7.9	V
11440.000	34.6	-29.8	38.2	26.27	54.0	19.4	V
15907.500	40.7	-24.6	40.7	24.52	54.0	13.3	H
17754.500	41.5	-23.8	41.2	24.13	54.0	12.5	H
17868.000	41.3	-23.4	41.2	23.53	54.0	12.7	V

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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)
5149.375	49.1	-22.8	34.4	37.45	54.0	4.9	V
5149.875	49.5	-22.8	34.4	37.91	54.0	4.5	V
11291.500	37.1	-30.2	38.0	29.28	54.0	16.9	H
15566.000	40.3	-25.3	40.2	25.39	54.0	13.7	V
17713.000	41.8	-23.7	41.2	24.33	54.0	12.2	V
17846.500	42.1	-23.4	41.2	24.31	54.0	11.9	V

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)
5350.250	49.9	-22.3	35.0	37.26	54.0	4.1	V
5350.625	49.8	-22.3	35.0	37.11	54.0	4.2	V
10620.000	35.1	-29.6	37.7	26.99	54.0	18.9	H
15930.000	39.5	-24.6	40.8	23.34	54.0	14.5	V
17714.000	41.5	-23.7	41.2	24.03	54.0	12.5	H
17951.000	41.6	-23.2	41.2	23.68	54.0	12.4	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)
5454.000	45.2	-22.2	34.6	32.88	54.0	8.8	V
5456.125	45.2	-22.2	34.6	32.85	54.0	8.8	V
11024.500	35.9	-30.5	37.8	28.62	54.0	18.1	V
15882.500	40.7	-24.8	40.7	24.83	54.0	13.3	H
17757.500	41.4	-23.7	41.2	23.96	54.0	12.6	H
17952.500	41.9	-23.3	41.2	23.99	54.0	12.1	V

Channel 142

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)
5357.000	46.7	-22.5	35.0	34.20	54.0	7.3	V
5413.875	46.2	-22.3	34.8	33.70	54.0	7.8	V
11420.000	35.7	-30.0	38.1	27.49	54.0	18.3	V
15900.000	41.0	-24.5	40.7	24.75	54.0	13.0	V
17710.000	42.3	-23.7	41.2	24.79	54.0	11.7	H
17956.000	42.4	-23.4	41.2	24.65	54.0	11.6	H

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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)
5149.500	46.2	-22.8	34.4	34.58	54.0	7.8	V
5149.875	46.3	-22.8	34.4	34.70	54.0	7.7	V
12684.500	39.3	-28.1	39.2	28.29	54.0	14.7	V
15540.000	39.7	-24.7	40.1	24.26	54.0	14.3	H
17892.500	42.2	-23.6	41.2	24.58	54.0	11.8	V
17938.500	41.9	-23.4	41.2	24.18	54.0	12.1	V

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)
5351.750	50.3	-22.4	35.0	37.69	54.0	3.7	V
5352.625	50.4	-22.4	35.0	37.80	54.0	3.6	V
10640.000	35.2	-29.6	37.7	27.07	54.0	18.8	V
15960.000	41.5	-25.3	40.8	25.99	54.0	12.5	V
17836.000	41.7	-23.5	41.2	24.07	54.0	12.3	H
17978.000	41.4	-23.8	41.2	23.96	54.0	12.6	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)
5453.000	46.5	-22.2	34.6	34.15	54.0	7.5	V
5455.625	46.4	-22.2	34.6	34.00	54.0	7.6	V
11000.000	35.3	-30.3	37.8	27.81	54.0	18.7	H
15861.500	40.0	-24.9	40.6	24.30	54.0	14.0	H
17754.500	41.4	-23.8	41.2	24.00	54.0	12.6	H
17982.500	41.3	-23.9	41.2	23.93	54.0	12.7	V

Channel 144

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)
5353.375	46.2	-22.4	35.0	33.59	54.0	7.8	V
5387.375	46.1	-22.4	34.9	33.54	54.0	7.9	V
11440.000	36.3	-29.8	38.2	27.94	54.0	17.7	V
15902.500	41.4	-24.5	40.7	25.20	54.0	12.6	V
17866.500	41.5	-23.4	41.2	23.78	54.0	12.5	H
17963.000	42.1	-23.5	41.2	24.38	54.0	11.9	H

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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)
5146.250	47.9	-22.8	34.4	36.24	54.0	6.1	V
5148.125	48.1	-22.8	34.4	36.45	54.0	5.9	V
12689.000	38.7	-28.2	39.2	27.72	54.0	15.3	V
15570.000	38.9	-25.4	40.2	24.08	54.0	15.1	H
17852.500	41.1	-23.3	41.2	23.28	54.0	12.9	H
17902.500	41.3	-23.5	41.2	23.65	54.0	12.7	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)
5354.500	48.5	-22.4	35.0	35.93	54.0	5.5	V
5359.500	47.9	-22.5	35.0	35.42	54.0	6.1	V
10620.000	35.3	-29.6	37.7	27.18	54.0	18.7	V
15930.000	39.6	-24.6	40.8	23.45	54.0	14.4	V
17861.000	41.6	-23.4	41.2	23.80	54.0	12.4	V
17938.000	41.5	-23.4	41.2	23.72	54.0	12.5	V

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)
5364.500	46.4	-22.4	35.0	33.83	54.0	7.6	V
5420.250	46.3	-22.4	34.8	33.84	54.0	7.7	V
11020.000	35.3	-30.3	37.8	27.76	54.0	18.7	V
15923.000	40.7	-24.6	40.7	24.60	54.0	13.3	V
17731.500	41.6	-23.8	41.2	24.14	54.0	12.4	H
17806.500	41.2	-23.6	41.2	23.62	54.0	12.8	H

Channel 142

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)
5367.125	46.4	-22.4	35.0	33.77	54.0	7.6	V
5385.125	46.1	-22.4	34.9	33.55	54.0	7.9	V
11420.000	35.6	-30.0	38.1	27.41	54.0	18.4	V
15894.000	41.0	-24.6	40.7	24.99	54.0	13.0	V
17843.000	42.1	-23.4	41.2	24.27	54.0	11.9	V
17930.000	41.7	-23.3	41.2	23.83	54.0	12.3	H

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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)
5145.750	49.9	-22.8	34.4	38.31	54.0	4.1	V
5149.750	50.3	-22.8	34.4	38.64	54.0	3.7	V
12680.000	39.0	-28.1	39.2	27.87	54.0	15.0	V
15630.000	39.3	-24.6	40.2	23.65	54.0	14.7	V
17888.500	42.3	-23.6	41.2	24.74	54.0	11.7	H
17953.000	42.3	-23.3	41.2	24.39	54.0	11.7	V

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)
5353.875	50.0	-22.4	35.0	37.46	54.0	4.0	V
5357.500	49.3	-22.5	35.0	36.80	54.0	4.7	V
12617.000	38.3	-28.9	39.1	28.08	54.0	15.7	V
15870.000	40.4	-25.1	40.6	24.89	54.0	13.6	V
17797.500	41.8	-23.5	41.2	24.06	54.0	12.2	V
17950.500	42.7	-23.2	41.2	24.69	54.0	11.3	V

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)
5456.875	48.0	-22.2	34.6	35.65	54.0	6.0	V
5459.375	48.1	-22.2	34.6	35.72	54.0	5.9	V
11060.000	35.6	-31.0	37.9	28.66	54.0	18.4	V
15887.000	41.3	-24.8	40.7	25.37	54.0	12.7	V
17864.500	42.1	-23.4	41.2	24.33	54.0	11.9	V
17939.000	42.6	-23.4	41.2	24.88	54.0	11.4	V

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)
5456.500	47.2	-22.2	34.6	34.85	54.0	6.8	V
5459.000	47.2	-22.2	34.6	34.83	54.0	6.8	V
11220.000	35.3	-30.7	37.9	28.12	54.0	18.7	H
15921.500	41.5	-24.7	40.7	25.45	54.0	12.5	V
17930.500	42.6	-23.3	41.2	24.73	54.0	11.4	H
17961.500	42.4	-23.5	41.2	24.67	54.0	11.7	H

Channel 138

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)
5357.875	46.2	-22.5	35.0	33.70	54.0	7.8	V
5385.000	46.2	-22.4	34.9	33.71	54.0	7.8	V
11380.000	36.6	-29.8	38.1	28.34	54.0	17.4	H
15892.500	41.0	-24.7	40.7	24.98	54.0	13.0	H
17865.500	42.5	-23.4	41.2	24.76	54.0	11.5	V
17940.500	42.2	-23.4	41.2	24.45	54.0	11.8	H

PEAK Results:

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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)
5148.750	66.3	-22.8	34.4	54.71	74.0	7.7	V
5149.750	65.1	-22.8	34.4	53.48	74.0	8.9	H
10360.000	47.1	-28.9	37.5	38.48	68.3	21.2	H
15540.000	48.7	-24.7	40.1	33.29	74.0	25.3	V
16753.000	52.5	-24.3	41.5	35.31	68.3	15.8	H
17297.000	52.8	-23.7	40.9	35.60	68.3	15.5	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)
5350.125	70.9	-22.3	35.0	58.21	74.0	3.1	V
5350.500	69.6	-22.3	35.0	56.95	74.0	4.4	H
10640.000	44.5	-29.6	37.7	36.40	74.0	29.5	H
16784.500	52.7	-24.0	41.5	35.20	74.0	21.3	H
15960.000	49.9	-25.3	40.8	34.37	68.3	18.4	V
17229.000	53.0	-24.1	41.0	36.19	68.3	15.3	V

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)
5434.625	45.0	-22.2	34.7	32.58	54.0	9.0	V
5456.250	45.2	-22.2	34.6	32.84	54.0	8.8	V
11003.500	36.5	-30.5	37.8	29.16	54.0	17.5	V
15926.500	40.7	-24.6	40.8	24.59	54.0	13.3	V
17745.500	41.6	-23.7	41.2	24.07	54.0	12.4	H
17892.500	41.9	-23.6	41.2	24.32	54.0	12.1	H

Channel 144

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)
5660.000	59.3	-21.9	34.7	46.55	68.3	9.0	H
5787.500	58.6	-21.6	34.9	45.34	68.3	9.7	V
11440.000	45.1	-29.8	38.2	36.77	74.0	28.9	V
17160.000	49.4	-23.5	41.1	31.85	68.3	18.9	V
17301.000	51.4	-23.7	40.9	34.19	68.3	16.9	V
17564.500	51.8	-23.5	41.0	34.26	68.3	16.5	V

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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)
5149.000	65.8	-22.8	34.4	54.12	74.0	8.2	V
5149.500	65.9	-22.8	34.4	54.23	74.0	8.1	H
10360.000	46.3	-28.9	37.5	37.74	68.3	22.0	H
15540.000	49.8	-24.7	40.1	34.35	74.0	24.2	V
16546.000	52.2	-24.2	41.4	35.01	68.3	16.1	V
17479.500	52.7	-23.7	41.0	35.37	68.3	15.6	V

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)
5352.386	69.4	-22.4	35.0	56.80	74.0	4.6	H
5353.345	66.8	-22.4	35.0	54.20	74.0	7.2	H
10640.000	45.1	-29.6	37.7	36.98	74.0	28.9	V
15960.000	49.8	-25.3	40.8	34.28	74.0	24.2	V
16552.500	51.7	-24.2	41.4	34.50	68.3	16.6	V
17405.000	52.7	-23.8	40.9	35.68	68.3	15.6	V

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)
5388.875	45.3	-22.3	34.9	32.74	54.0	8.7	V
5450.875	45.2	-22.3	34.6	32.90	54.0	8.8	V
11000.000	36.1	-30.3	37.8	28.61	54.0	17.9	H
15831.000	40.8	-25.1	40.6	25.31	54.0	13.2	V
17796.000	41.7	-23.5	41.2	24.07	54.0	12.3	H
17944.000	41.6	-23.4	41.2	23.78	54.0	12.4	H

Channel 144

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)
5678.500	62.8	-21.9	34.7	50.06	68.3	5.5	H
5758.000	60.9	-21.8	34.8	47.86	68.3	7.4	V
11440.000	44.6	-29.8	38.2	36.29	74.0	29.4	V
17160.000	50.8	-23.5	41.1	33.24	68.3	17.5	H
17380.000	52.0	-23.9	40.9	35.08	68.3	16.3	H
17606.000	51.3	-23.9	41.0	34.13	68.3	17.0	H

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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)
5147.375	69.5	-22.8	34.4	57.88	74.0	4.5	H
5148.125	68.7	-22.8	34.4	57.09	74.0	5.3	H
10380.000	46.2	-29.2	37.5	37.92	68.3	22.1	H
15570.000	49.7	-25.4	40.2	34.90	74.0	24.3	V
16799.000	52.6	-23.5	41.5	34.60	68.3	15.7	V
17227.000	53.0	-24.1	41.0	36.17	68.3	15.3	V

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)
5350.125	70.7	-22.3	35.0	58.06	74.0	3.3	V
5352.875	70.2	-22.4	35.0	57.63	74.0	3.8	V
10620.000	45.5	-29.6	37.7	37.37	74.0	28.5	H
15930.000	50.0	-24.6	40.8	33.86	74.0	24.0	V
16815.000	53.1	-23.9	41.5	35.52	68.3	15.2	H
17612.500	52.3	-23.9	41.0	35.25	68.3	16.0	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)
5454.000	45.2	-22.2	34.6	32.88	54.0	8.8	V
5456.125	45.2	-22.2	34.6	32.85	54.0	8.8	V
11024.500	35.9	-30.5	37.8	28.62	54.0	18.1	V
15882.500	40.7	-24.8	40.7	24.83	54.0	13.3	H
17757.500	41.4	-23.7	41.2	23.96	54.0	12.6	H
17952.500	41.9	-23.3	41.2	23.99	54.0	12.1	V

Channel 142

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)
5635.000	60.7	-21.9	34.7	47.95	68.3	7.6	H
5768.500	63.0	-21.8	34.8	50.00	68.3	5.3	H
11420.000	44.8	-30.0	38.1	36.64	74.0	29.2	V
17130.000	49.6	-24.3	41.1	32.72	68.3	18.7	H
17481.500	52.6	-23.7	41.0	35.38	68.3	15.7	H
17601.000	51.8	-23.9	41.0	34.68	68.3	16.5	V

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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)
5144.750	64.5	-22.8	34.4	52.85	74.0	9.5	V
5149.750	64.4	-22.8	34.4	52.71	74.0	9.6	H
10360.000	46.2	-28.9	37.5	37.57	68.3	22.1	V
15540.000	49.0	-24.7	40.1	33.57	74.0	25.0	H
16817.500	53.0	-23.9	41.5	35.41	68.3	15.3	H
17239.000	53.1	-24.3	41.0	36.47	68.3	15.2	V

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)
5350.875	70.5	-22.4	35.0	57.82	74.0	3.5	V
5351.375	70.4	-22.4	35.0	57.75	74.0	3.6	V
10640.000	45.4	-29.6	37.7	37.25	74.0	28.6	V
15960.000	50.4	-25.3	40.8	34.86	74.0	23.6	V
16928.500	52.2	-23.6	41.4	34.43	68.3	16.1	H
17418.000	52.6	-23.8	40.9	35.49	68.3	15.7	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)
5453.000	46.5	-22.2	34.6	34.15	54.0	7.5	V
5455.625	46.4	-22.2	34.6	34.00	54.0	7.6	V
11000.000	35.3	-30.3	37.8	27.81	54.0	18.7	H
15861.500	40.0	-24.9	40.6	24.30	54.0	14.0	H
17754.500	41.4	-23.8	41.2	24.00	54.0	12.6	H
17982.500	41.3	-23.9	41.2	23.93	54.0	12.7	V

Channel 144

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)
5677.500	58.8	-21.9	34.7	45.99	68.3	9.5	H
5764.500	59.9	-21.8	34.8	46.90	68.3	8.4	V
11440.000	46.7	-29.8	38.2	38.36	74.0	27.3	V
17160.000	49.3	-23.5	41.1	31.73	68.3	19.0	H
17440.000	51.8	-23.2	40.9	34.02	68.3	16.5	H
17604.000	50.9	-23.9	41.0	33.73	68.3	17.4	H

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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)
5147.750	70.7	-22.8	34.4	59.11	74.0	3.3	V
5149.500	70.8	-22.8	34.4	59.20	74.0	3.2	H
10380.000	45.7	-29.2	37.5	37.39	68.3	22.6	H
15570.000	48.5	-25.4	40.2	33.70	74.0	25.5	V
16832.000	52.3	-23.9	41.5	34.76	68.3	16.0	H
17245.500	53.3	-24.3	41.0	36.61	68.3	15.0	V

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)
5351.000	69.6	-22.4	35.0	56.94	74.0	4.4	H
5352.875	69.4	-22.4	35.0	56.75	74.0	4.6	H
10620.000	44.2	-29.6	37.7	36.12	74.0	29.8	H
15930.000	49.4	-24.6	40.8	33.26	74.0	24.6	V
16827.000	52.9	-23.9	41.5	35.29	68.3	15.4	H
17222.500	51.9	-24.1	41.0	35.01	68.3	16.4	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)
5364.500	46.4	-22.4	35.0	33.83	54.0	7.6	V
5420.250	46.3	-22.4	34.8	33.84	54.0	7.7	V
11020.000	35.3	-30.3	37.8	27.76	54.0	18.7	V
15923.000	40.7	-24.6	40.7	24.60	54.0	13.3	V
17731.500	41.6	-23.8	41.2	24.14	54.0	12.4	H
17806.500	41.2	-23.6	41.2	23.62	54.0	12.8	H

Channel 142

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)
5638.500	59.7	-22.0	34.7	47.01	68.3	8.6	H
5767.500	63.7	-21.8	34.8	50.71	68.3	4.6	V
11420.000	44.5	-30.0	38.1	36.30	74.0	29.5	V
17130.000	49.9	-24.3	41.1	33.07	68.3	18.4	V
17484.000	52.8	-23.8	41.0	35.62	68.3	15.5	V
17625.500	51.9	-24.0	41.1	34.92	68.3	16.4	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)
5145.750	49.9	-22.8	34.4	38.31	54.0	4.1	V
5149.750	50.3	-22.8	34.4	38.64	54.0	3.7	V
12680.000	39.0	-28.1	39.2	27.87	54.0	15.0	V
15630.000	39.3	-24.6	40.2	23.65	54.0	14.7	V
17888.500	42.3	-23.6	41.2	24.74	54.0	11.7	H
17953.000	42.3	-23.3	41.2	24.39	54.0	11.7	V

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)
5353.875	50.0	-22.4	35.0	37.46	54.0	4.0	V
5357.500	49.3	-22.5	35.0	36.80	54.0	4.7	V
12617.000	38.3	-28.9	39.1	28.08	54.0	15.7	V
15870.000	40.4	-25.1	40.6	24.89	54.0	13.6	V
17797.500	41.8	-23.5	41.2	24.06	54.0	12.2	V
17950.500	42.7	-23.2	41.2	24.69	54.0	11.3	V

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)
5456.875	48.0	-22.2	34.6	35.65	54.0	6.0	V
5459.375	48.1	-22.2	34.6	35.72	54.0	5.9	V
11060.000	35.6	-31.0	37.9	28.66	54.0	18.4	V
15887.000	41.3	-24.8	40.7	25.37	54.0	12.7	V
17864.500	42.1	-23.4	41.2	24.33	54.0	11.9	V
17939.000	42.6	-23.4	41.2	24.88	54.0	11.4	V

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)
5456.500	47.2	-22.2	34.6	34.85	54.0	6.8	V
5459.000	47.2	-22.2	34.6	34.83	54.0	6.8	V
11220.000	35.3	-30.7	37.9	28.12	54.0	18.7	H
15921.500	41.5	-24.7	40.7	25.45	54.0	12.5	V
17930.500	42.6	-23.3	41.2	24.73	54.0	11.4	H
17961.500	42.4	-23.5	41.2	24.67	54.0	11.7	H

Channel 138

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)
5553.500	59.4	-22.1	34.6	46.89	68.3	8.9	V
5798.000	61.6	-21.6	34.9	48.35	68.3	6.7	H
11380.000	46.2	-29.8	38.1	37.96	74.0	27.8	H
17070.000	50.2	-24.0	41.3	32.89	68.3	18.1	H
17262.500	53.3	-24.1	40.9	36.43	68.3	15.0	H
17500.000	52.5	-23.9	41.0	35.43	68.3	15.8	V

Conclusion: PASS

Note:

1. The spurious emission above 18G is noise only.
2. All emissions below 30MHz are more than 20 dB below the limit

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:

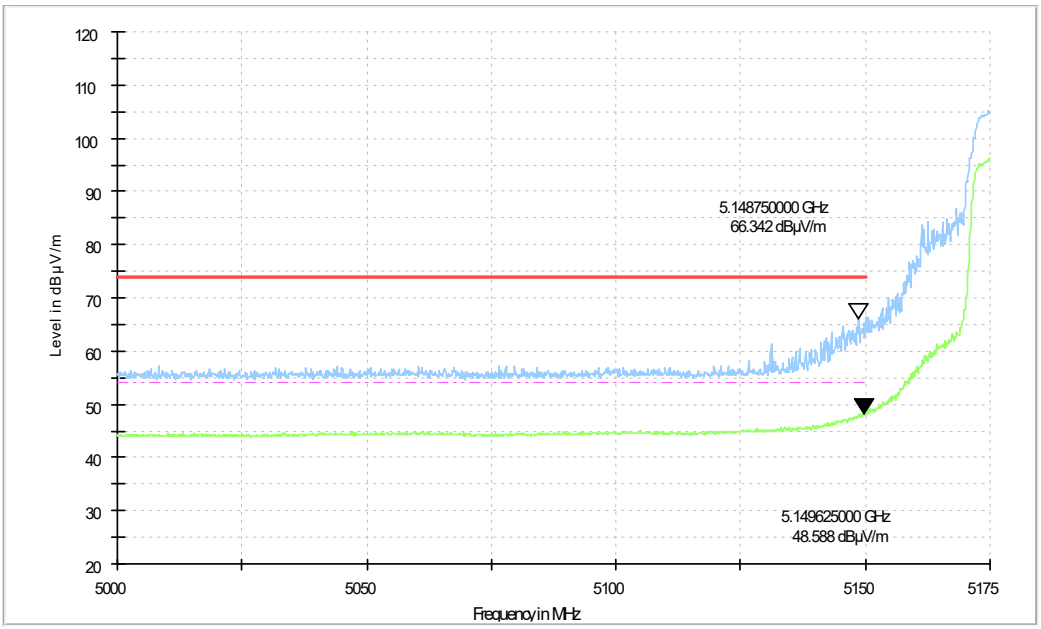

Fig. 1 Band Edges (802.11a Ch36, 5180MHz)

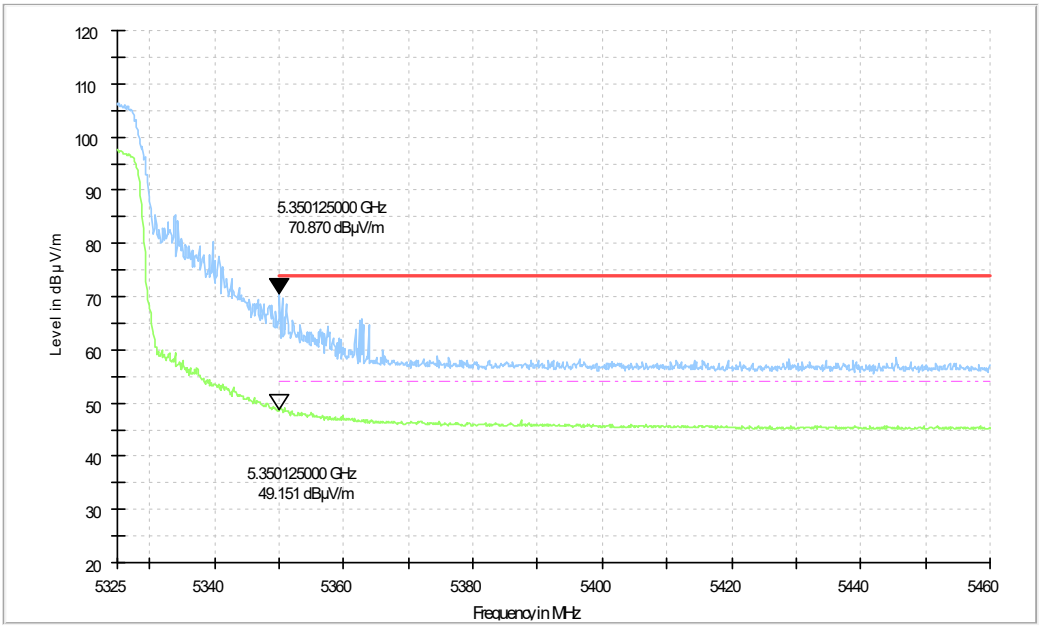

Fig. 2 Band Edges (802.11a Ch64, 5320MHz)

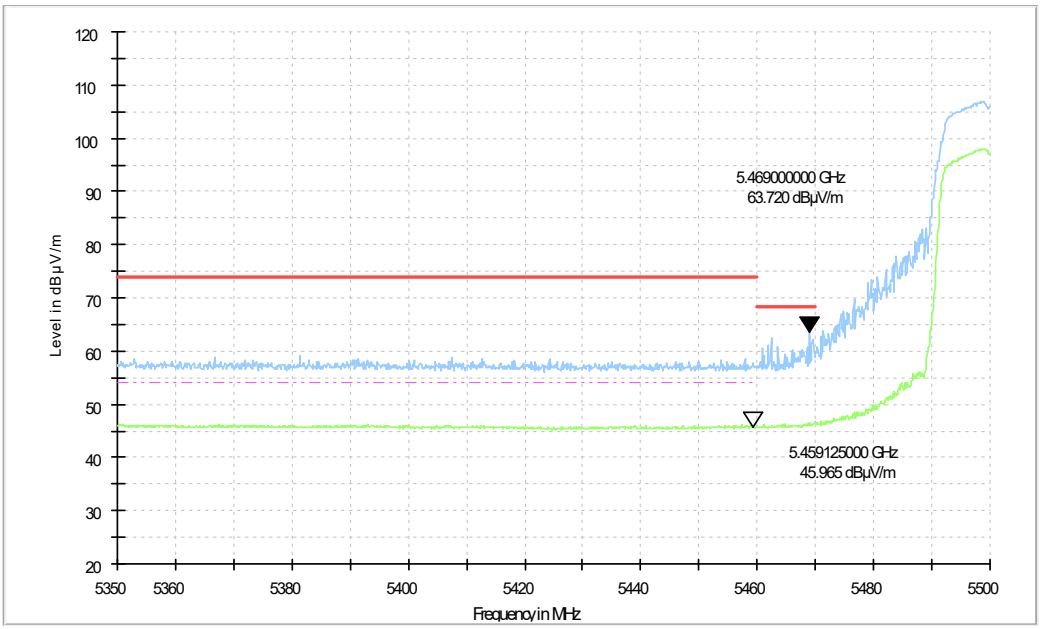

Fig. 3 Band Edges (802.11a Ch100, 5500MHz)

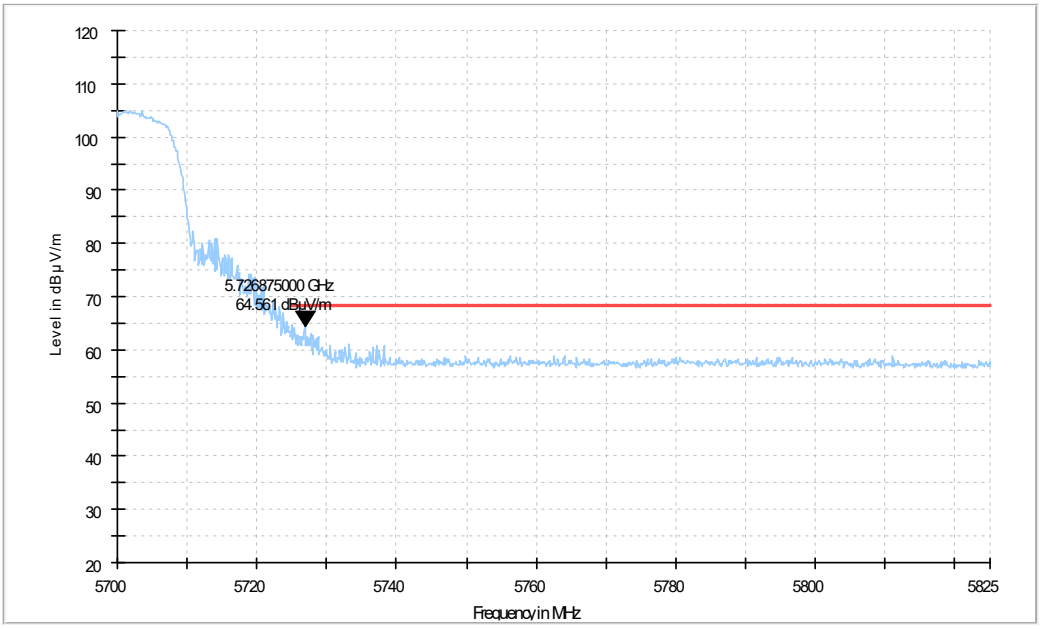

Fig. 4 Band Edges (802.11a Ch140, 5700MHz)

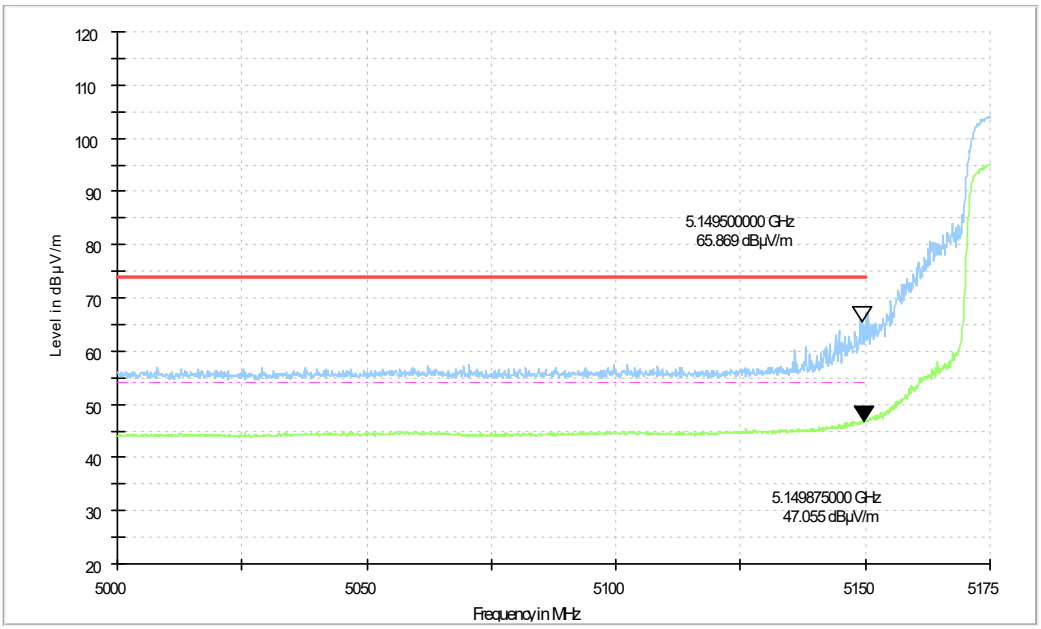

Fig. 5 Band Edges (802.11n-HT20 Ch36, 5180MHz)

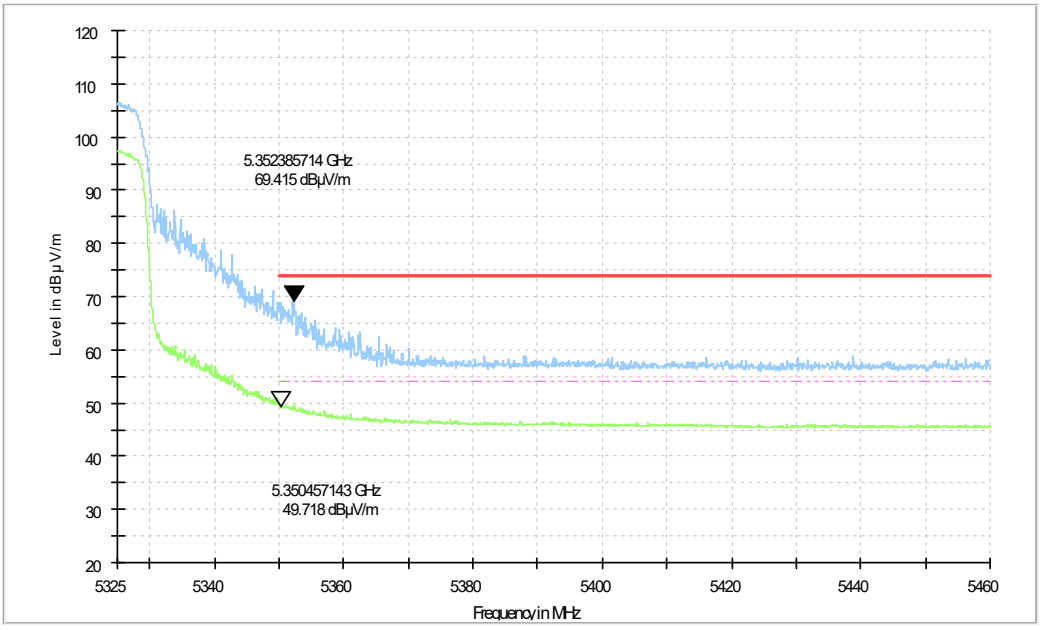

Fig. 6 Band Edges (802.11n-HT20 Ch64, 5320MHz)

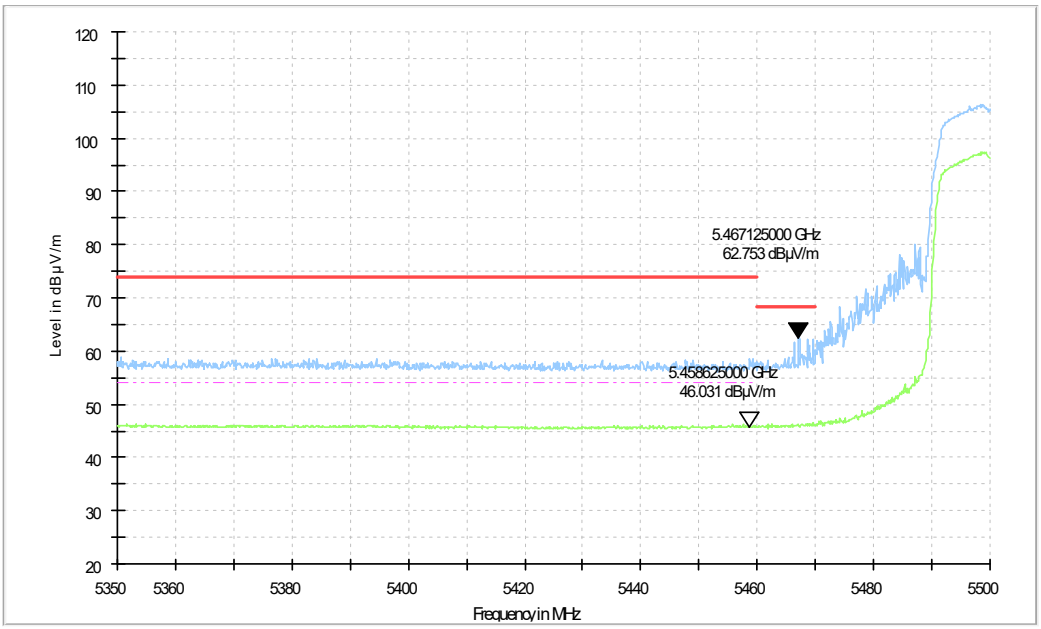

Fig. 7 Band Edges (802.11n-HT20 Ch100, 5500MHz)

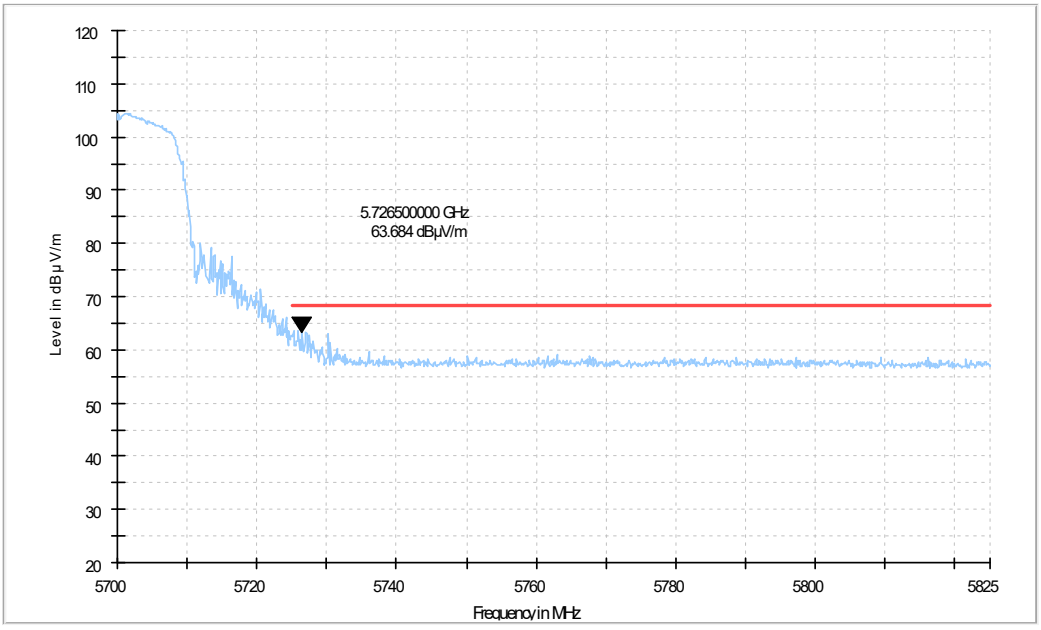

Fig. 8 Band Edges (802.11n-HT20 Ch140, 5700MHz)

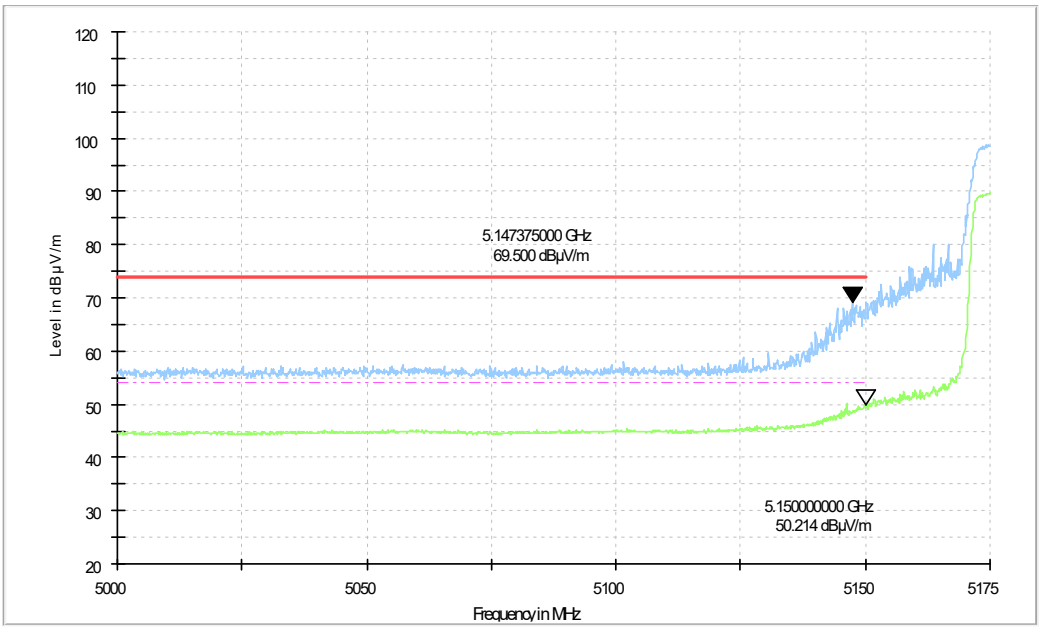

Fig. 9 Band Edges (802.11n-HT40 Ch38, 5190MHz)

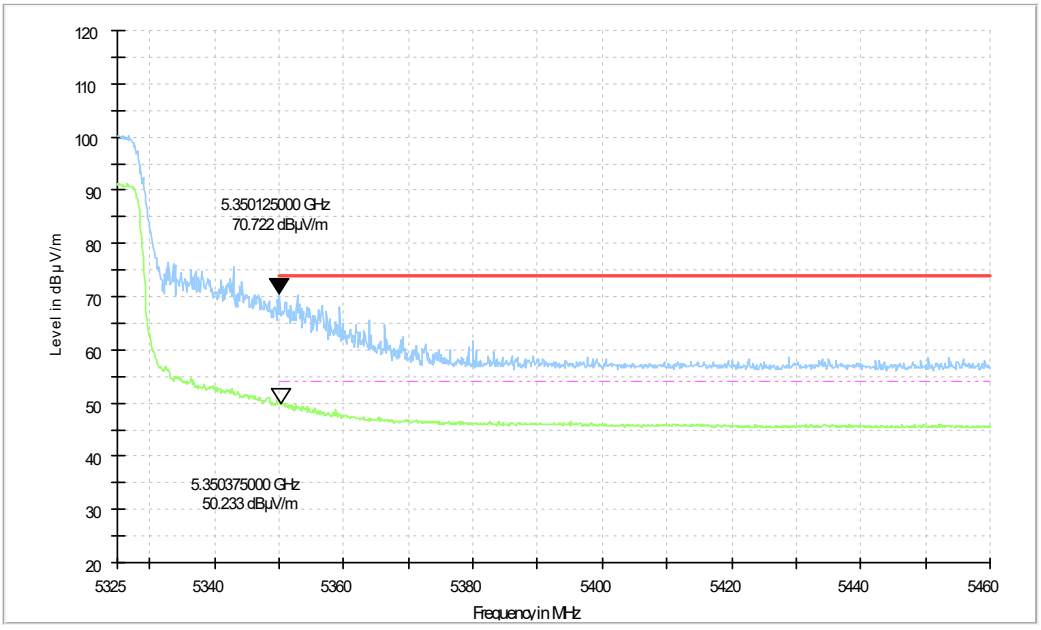

Fig. 10 Band Edges (802.11n-HT40 Ch62, 5310MHz)

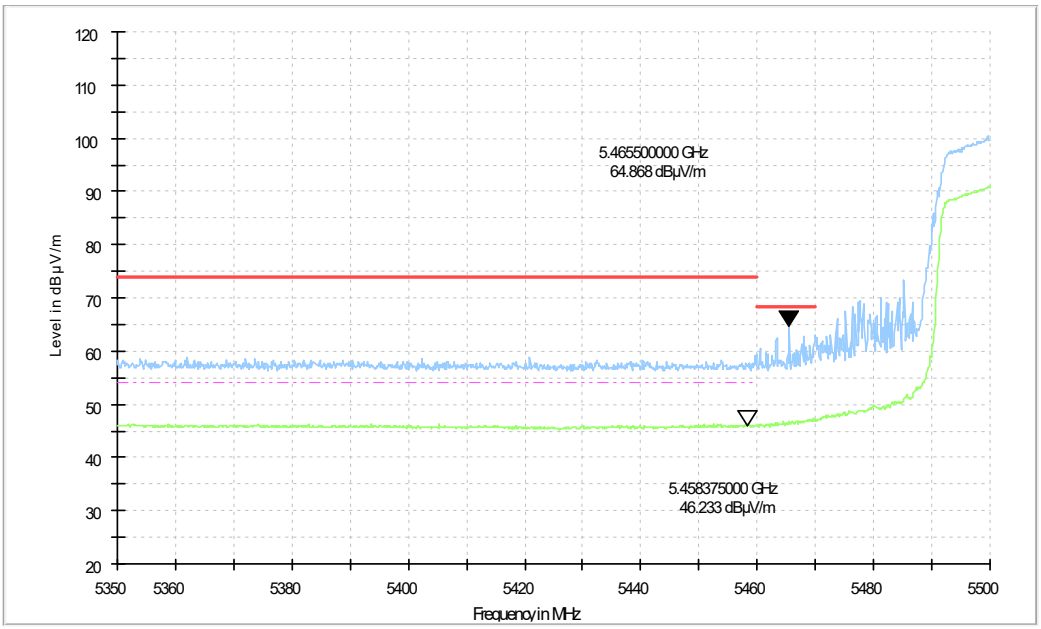

Fig. 11 Band Edges (802.11n-HT40 Ch102, 5510MHz)

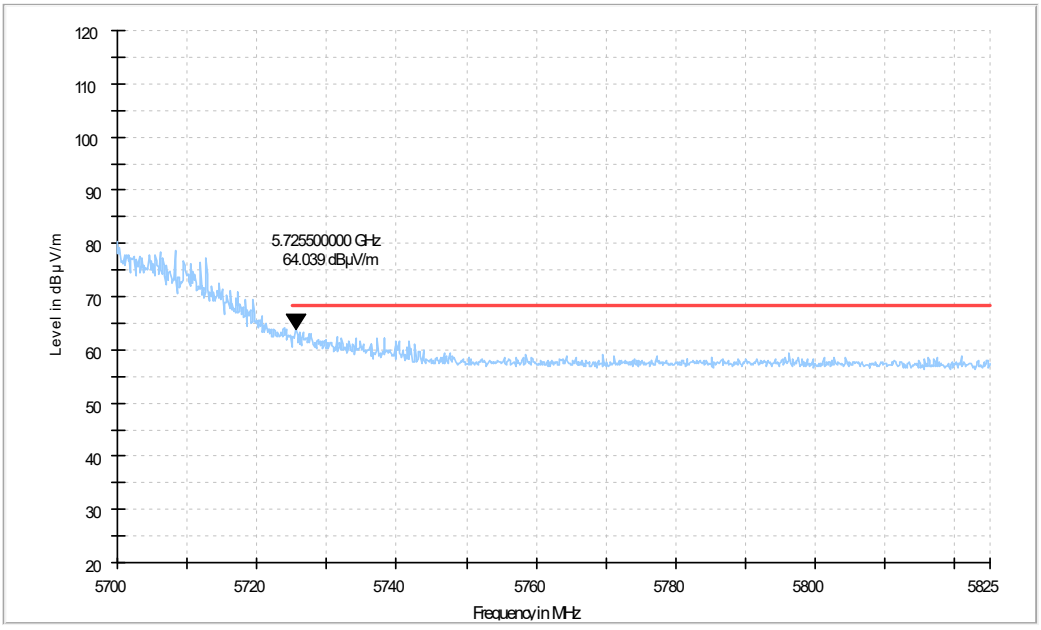

Fig. 12 Band Edges (802.11n-HT40 Ch134, 5670MHz)

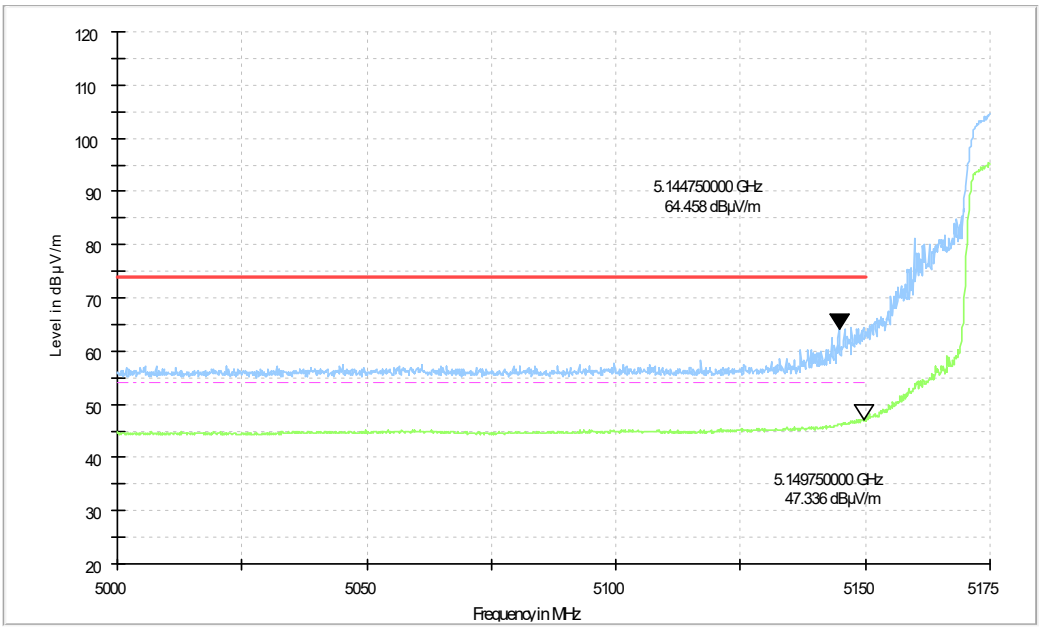

Fig. 13 Band Edges (802.11ac-HT20 Ch36, 5180MHz)

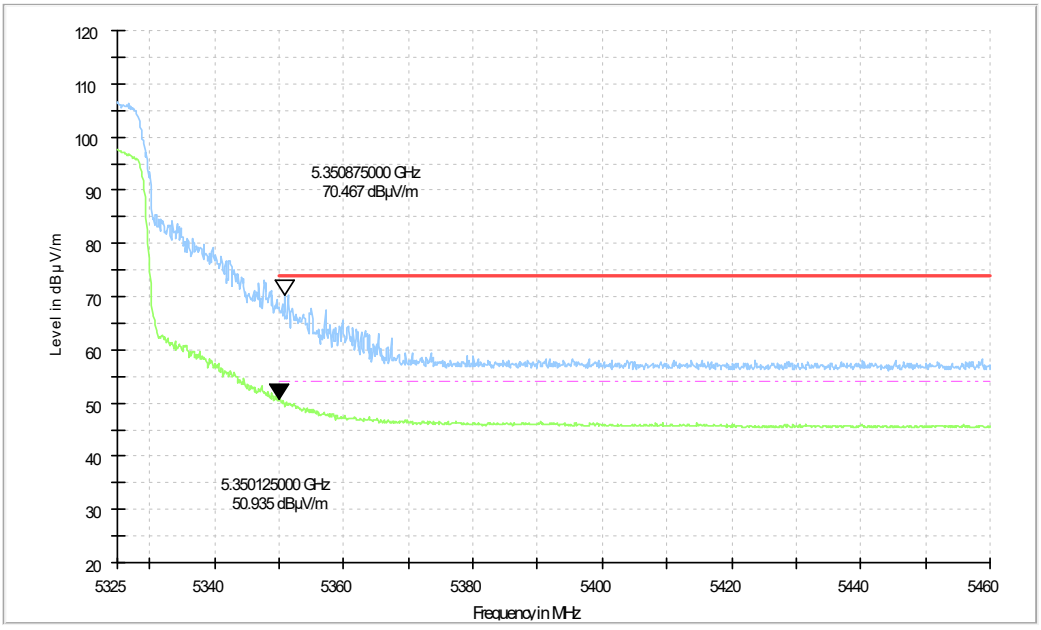

Fig. 14 Band Edges (802.11ac-HT20 Ch64, 5320MHz)

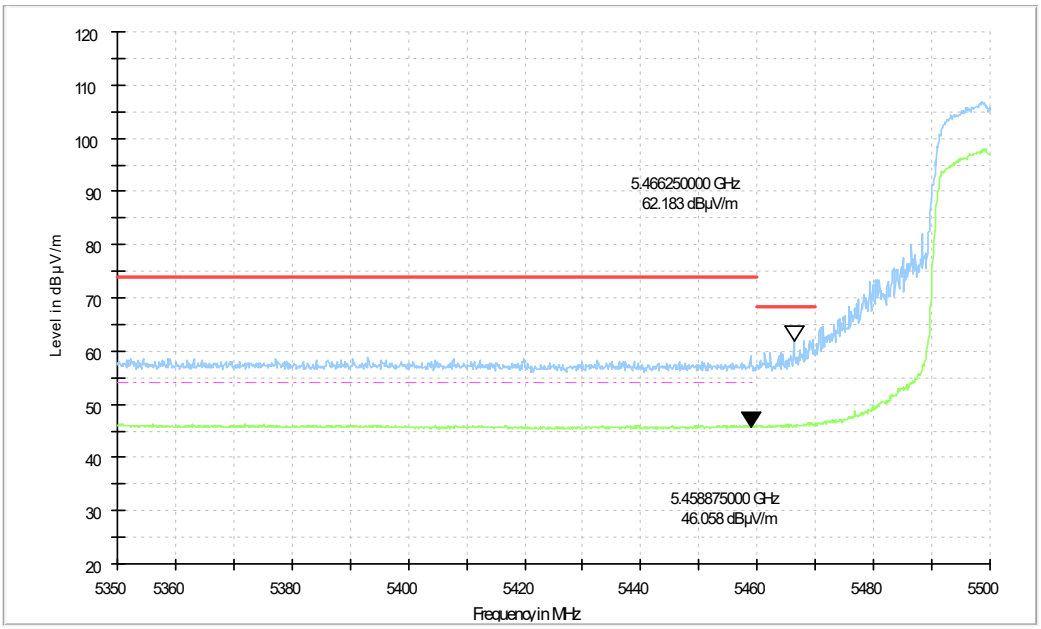

Fig. 15 Band Edges (802.11ac-HT20 Ch100, 5500MHz)

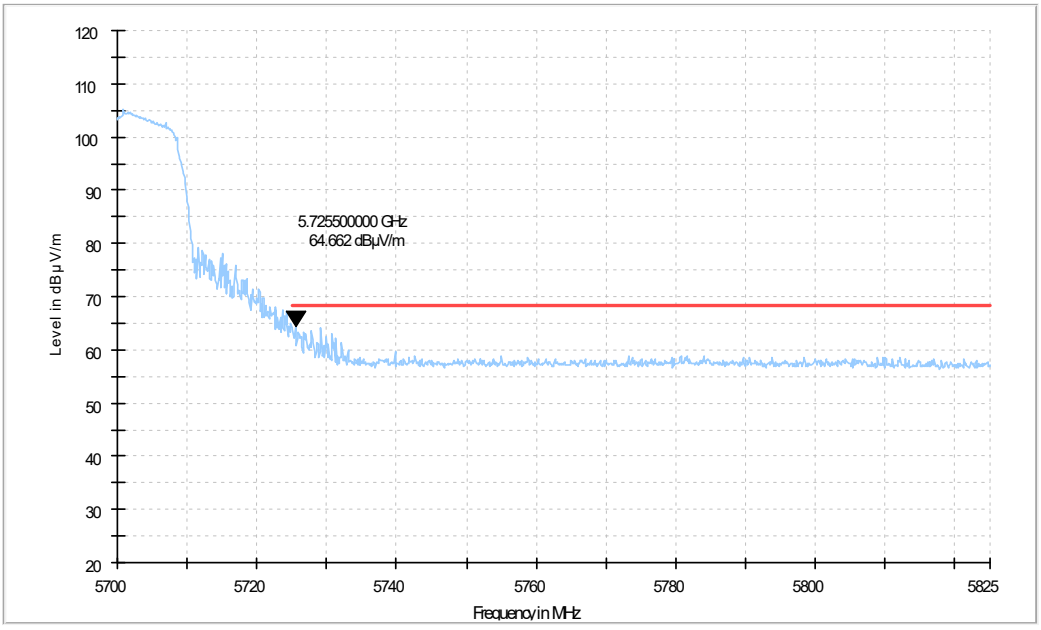

Fig. 16 Band Edges (802.11ac-HT20 Ch140, 5700MHz)

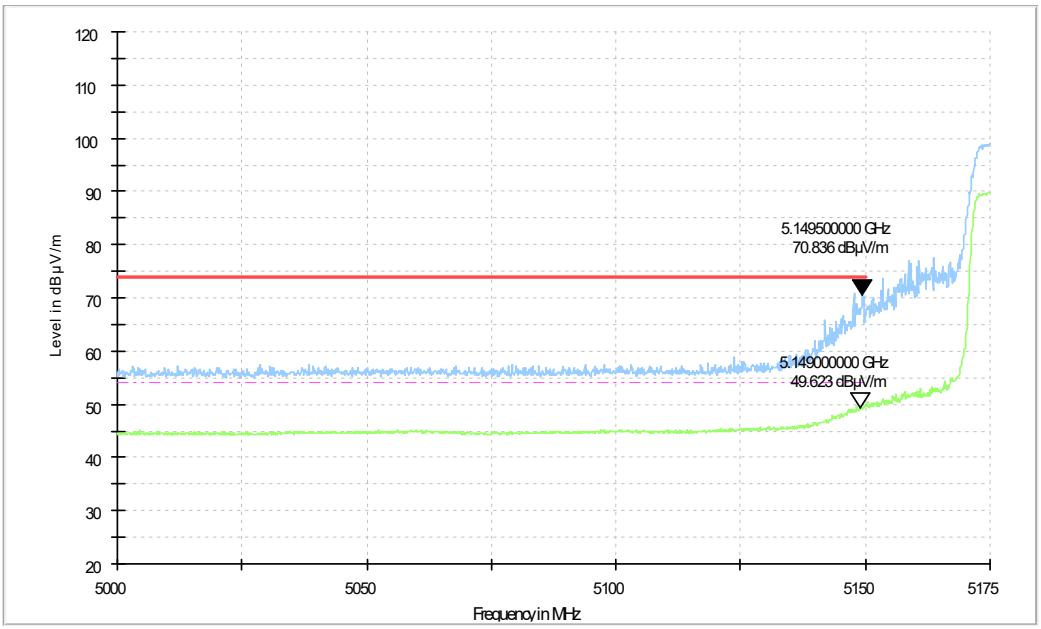

Fig. 17 Band Edges (802.11ac-HT40 Ch38, 5190MHz)

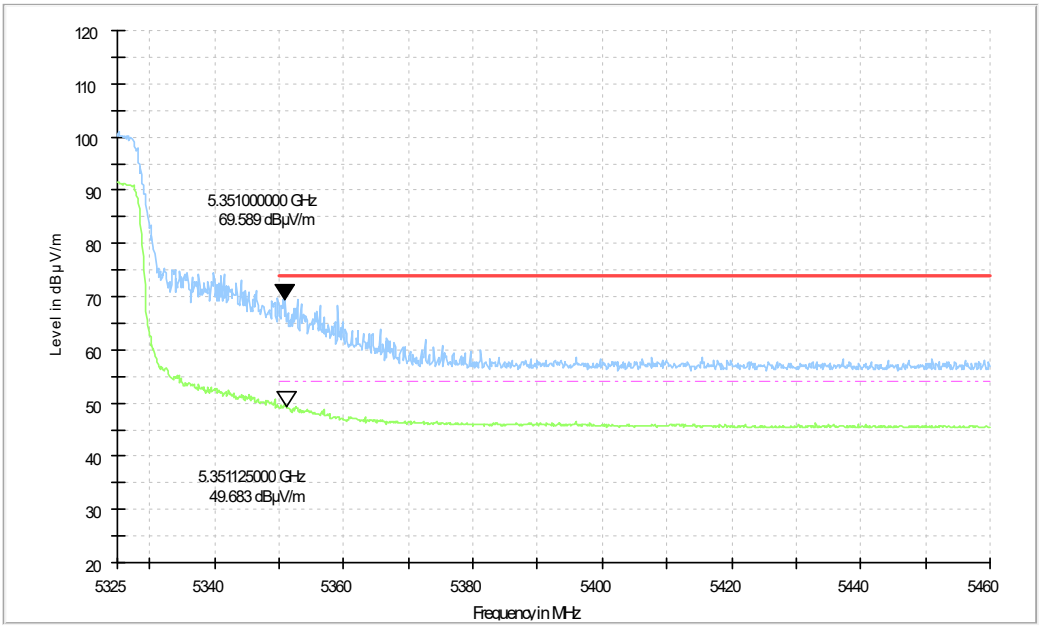

Fig. 18 Band Edges (802.11ac-HT40 Ch62, 5310MHz)