



FCC PART 15 TEST REPORT No. I23Z70138-IOT02

for

Samsung Electronics Co., Ltd.

Tablet with Bluetooth, WLAN

SM-X110

With

FCC ID: ZCASM110

Hardware Version: REV1.0

Software Version: X110.001

Issued Date: 2023-08-07

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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I23Z70138-IOT02	Rev.0	1st edition	2023-08-07

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1. TEST LATORATORY

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Conducted testing Location:

CTTL(Huayuan North Road)

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

Radiated testing Location:

CTTL(BDA)

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

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℃

Relative Humidity: 20-75%

1.4. Project date

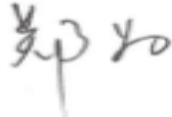
Testing Start Date: 2023-06-05

Testing End Date: 2023-08-01

1.5. Signature



Dong Jiaxuan
(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
City: New Jersey
Postal Code: /
Country: United States
Telephone: +1-201-937-4203
Fax: /

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
City: Suwon
Postal Code: /
Country: Korea
Telephone: +82-10-4376-0326
Fax: /

3. EQUIPMENT UNDER TEST (EUT) AND

ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	Tablet with Bluetooth, WLAN
Model name	SM-X110
FCC ID	ZCASM110
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.82V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
UT02a	/	REV1.0	X110.001
UT07a	/	REV1.0	X110.001

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

UT02a is used for Conduction test, UT07a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Name	Model	Manufacturer
AE1	Battery	HQ-3565S	SCUD(Fujian) Electronics Co., LTD.
AE2	Adapter	EP-T1510	DONGYANG
AE3	Date Cable C-C	EP-DN980BWE	Samsung Electronics Co.,Ltd
AE5	Headset	ESH61ASFWE	/

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

*AE2 and A5 are 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 Tablet 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. SUMMARY OF 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
Occupied 26dB Bandwidth	15.403	/	P
Band edge compliance (Radiated)	15.209	/	P
Transmitter spurious emissions (Radiated)	15.407	/	P
AC Powerline Conducted Emission (150kHz- 30MHz)	15.407	/	P
Frequency Stability	15.407	/	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 requested by the client/manufacturer 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 4.1.

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

Tablet with Bluetooth, WLAN, SM-X110, manufactured by SAMSUNG Electronics Co., Ltd. is a variant model of SM-X115 for testing; according to the declaration of changes provided by the applicant, all the test results are derived from test report No.I23Z70136-IOT04.

For detail differences between two models please refer the Declaration of Changes document.

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℃
Voltage	3.82V
Humidity	44%

7. TEST EQUIPMENTS 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	2024-07-04
2	LISN	ENV216	101200	Rohde & Schwarz	1 year	2024-07-04
3	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2024-02-21
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100376	R&S	1 year	2023-09-22
2	Test Receiver	ESW44	103015	R&S	1 year	2024-01-14
3	Test Receiver	ESW44	103144	R&S	1 year	2023-10-25
4	Test Receiver	FSV40	101047	R&S	1 year	2024-06-25
5	Loop Antenna	HFH2-Z2	829324/007	R&S	1 year	2023-12-22
6	EMI Antenna	VULB9163	01177	Schwarzbeck	1 year	2023-08-03
7	EMI Antenna	3117	00139065	ETS-Lindgren	1 year	2023-10-05
8	EMI Antenna	LB-180400 -25-C-KF	21100840000 06	A-INFO	1 year	2024-03-02

AC Power Line Conducted Emission

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	LISN	ENV216	101459	R&S	1 year	2024-02-29
2	Test Receiver	ESCI	100766	R&S	1 year	2024-03-30

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 Occupied Channel 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

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	4.92
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.73
$1\text{GHz} \leq f \leq 18\text{GHz}$	5.62
$18\text{GHz} \leq f \leq 40\text{GHz}$	3.37

8.6 AC Power-line Conducted Emission

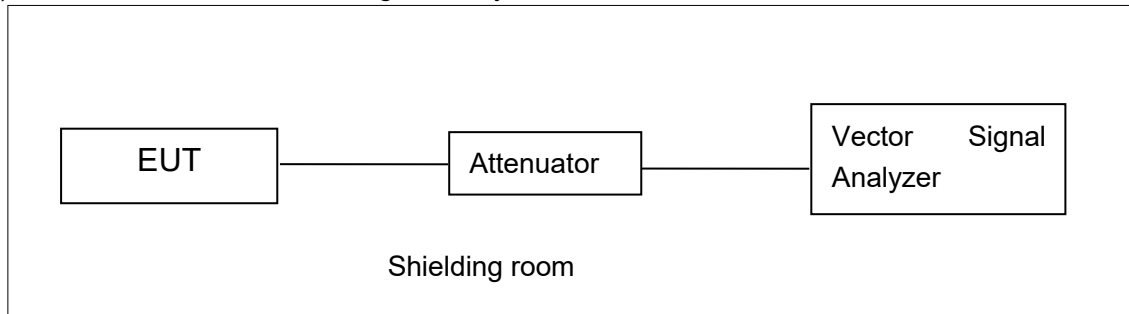
Measurement Uncertainty : 3.10, k=2

ANNEX A: MEASUREMENT 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

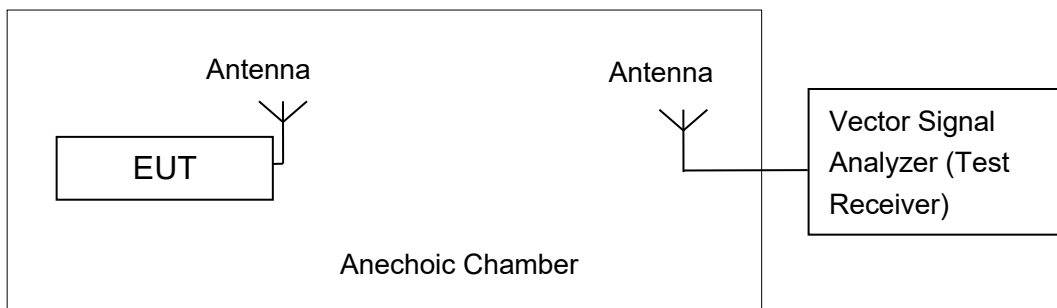


A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 3MHz;



The measurement is made according to KDB 789033

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. 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 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

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

Measurement Results:

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	15.56	15.53	15.55	15.54	15.50	15.16	14.70	14.22
	5200MHz	15.64	/	/	/	/	/	/	/
	5240MHz	15.93	/	/	/	/	/	/	/
	5260MHz	16.40	/	/	/	/	/	/	/
	5280MHz	16.48	/	/	/	/	/	/	/
	5320MHz	16.57	/	/	/	/	/	/	/
	5500MHz	12.05	/	/	/	/	/	/	/
	5580MHz	12.64	/	/	/	/	/	/	/
	5700MHz	12.74	/	/	/	/	/	/	/
	5720MHz	12.82	/	/	/	/	/	/	/

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	16.10	16.06	15.88	15.34	15.58	15.08	14.51	13.62
	5200MHz	16.05	/	/	/	/	/	/	/
	5240MHz	16.22	/	/	/	/	/	/	/
	5260MHz	16.81	/	/	/	/	/	/	/
	5280MHz	16.89	/	/	/	/	/	/	/
	5320MHz	16.97	/	/	/	/	/	/	/
	5500MHz	12.01	/	/	/	/	/	/	/
	5580MHz	12.62	/	/	/	/	/	/	/
	5700MHz	12.60	/	/	/	/	/	/	/
	5720MHz	12.63	/	/	/	/	/	/	/

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

this condition.

802.11ac-HT20 mode

Mode	Frequency	Test Result (dBm)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	5180MHz	12.62	12.50	12.57	12.60	12.47	11.49	11.17	11.25	11.34
	5200MHz	12.44	/	/	/	/	/	/	/	/
	5240MHz	12.51	/	/	/	/	/	/	/	/
	5260MHz	13.26	/	/	/	/	/	/	/	/
	5280MHz	13.32	/	/	/	/	/	/	/	/
	5320MHz	13.37	/	/	/	/	/	/	/	/
	5500MHz	11.52	/	/	/	/	/	/	/	/
	5580MHz	12.10	/	/	/	/	/	/	/	/
	5700MHz	12.25	/	/	/	/	/	/	/	/
	5720MHz	12.34	/	/	/	/	/	/	/	/

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	15.08	14.64	14.69	14.55	14.48	14.42	14.15	13.70
	5230MHz	15.18	/	/	/	/	/	/	/
	5270MHz	15.70	/	/	/	/	/	/	/
	5310MHz	15.63	/	/	/	/	/	/	/
	5510MHz	13.55	/	/	/	/	/	/	/
	5550MHz	13.33	/	/	/	/	/	/	/
	5670MHz	14.12	/	/	/	/	/	/	/
	5710MHz	13.92	/	/	/	/	/	/	/

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

802.11ac-HT40 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	5190MHz	12.67	12.51	12.62	12.58	12.60	11.26	11.10	11.03	11.40	11.01
	5230MHz	12.44	/	/	/	/	/	/	/	/	/
	5270MHz	13.18	/	/	/	/	/	/	/	/	/

	5310MHz	13.36	/	/	/	/	/	/	/	/	/
	5510MHz	12.03	/	/	/	/	/	/	/	/	/
	5550MHz	12.13	/	/	/	/	/	/	/	/	/
	5670MHz	12.45	/	/	/	/	/	/	/	/	/
	5710MHz	12.62	/	/	/	/	/	/	/	/	/

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

802.11ac-HT80 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	5210MHz	12.46	12.44	12.46	12.38	11.29	11.26	11.06	11.18	11.27	10.56
	5290MHz	13.04	/	/	/	/	/	/	/	/	/
	5530MHz	12.00	/	/	/	/	/	/	/	/	/
	5610MHz	12.55	/	/	/	/	/	/	/	/	/
	5690MHz	12.48	/	/	/	/	/	/	/	/	/

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%.

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

Measurement Results:

Mode	Frequency	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	6.56	P
	5200 MHz	6.71	P
	5240 MHz	7.25	P
	5260 MHz	7.82	P
	5280 MHz	7.82	P
	5320 MHz	7.78	P
	5500 MHz	3.24	P
	5580 MHz	3.40	P
	5700 MHz	3.59	P
	5720MHz	3.55	P
802.11n HT20	5180 MHz	6.61	P
	5200 MHz	6.74	P
	5240 MHz	6.82	P
	5260 MHz	7.51	P
	5280 MHz	7.23	P
	5320 MHz	7.29	P
	5500 MHz	2.63	P
	5580 MHz	3.15	P
	5700 MHz	3.18	P
	5720MHz	3.11	P
802.11n HT40	5190 MHz	2.20	P
	5230 MHz	2.50	P
	5270 MHz	2.91	P
	5310 MHz	2.85	P
	5510 MHz	0.64	P
	5550 MHz	0.68	P
	5670 MHz	1.51	P
	5710MHz	1.39	P
802.11ac VHT80	5210MHz	-3.60	P
	5290MHz	-3.27	P
	5530MHz	-4.18	P

	5610MHz	-3.41	P
	5690MHz	-3.86	P

Conclusion: PASS

A.4. Occupied 26dB 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
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Measurement Result:

Mode	Frequency	Occupied 26dB Bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.1	20.50	P
	5200 MHz	Fig.2	20.25	P
	5240 MHz	Fig.3	20.25	P
	5260 MHz	Fig.4	22.25	P
	5280 MHz	Fig.5	21.55	P
	5320 MHz	Fig.6	20.35	P
	5500 MHz	Fig.7	20.30	P
	5580 MHz	Fig.8	20.30	P
	5700 MHz	Fig.9	20.15	P
	5720 MHz	Fig.10	20.30	P
802.11n HT20	5180 MHz	Fig.11	20.55	P
	5200 MHz	Fig.12	20.55	P
	5240 MHz	Fig.13	20.50	P
	5260 MHz	Fig.14	20.50	P
	5280 MHz	Fig.15	20.70	P
	5320 MHz	Fig.16	20.45	P
	5500 MHz	Fig.17	20.40	P
	5580 MHz	Fig.18	20.60	P
	5700 MHz	Fig.19	20.65	P
	5720 MHz	Fig.20	20.60	P
802.11n HT40	5190 MHz	Fig.21	40.32	P
	5230 MHz	Fig.22	40.24	P
	5270 MHz	Fig.23	40.32	P
	5310 MHz	Fig.24	39.92	P
	5510 MHz	Fig.25	40.16	P
	5550 MHz	Fig.26	40.16	P
	5670 MHz	Fig.27	40.64	P
	5710 MHz	Fig.28	40.32	P
802.11ac VHT80	5210MHz	Fig.29	80.00	P
	5290MHz	Fig.30	79.84	P

	5530MHz	Fig.31	80.32	P
	5610MHz	Fig.32	80.32	P
	5690MHz	Fig.33	80.64	P

Conclusion: PASS

Test graphs as below:

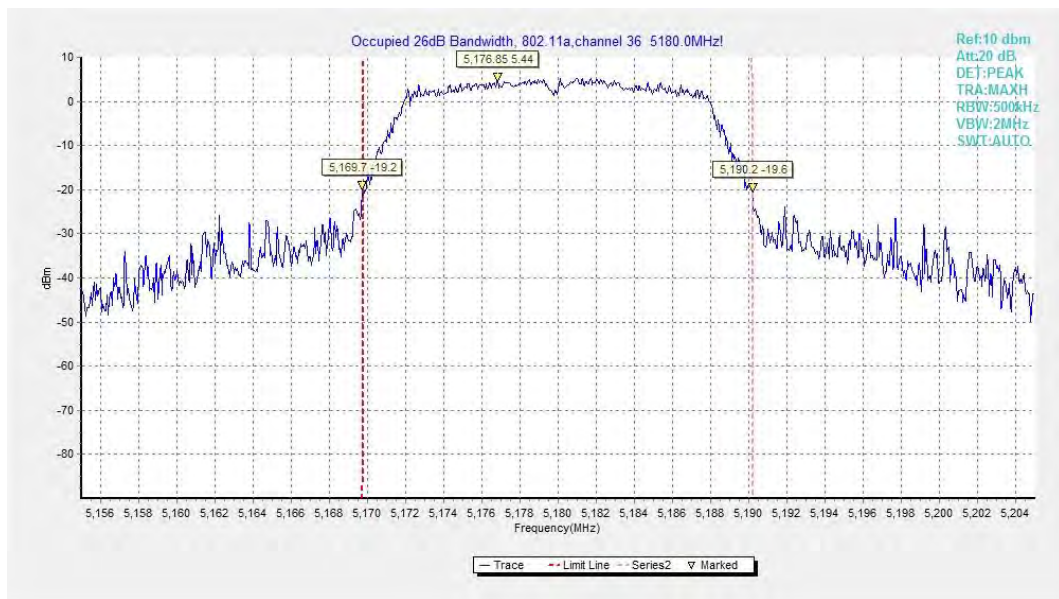


Fig.1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

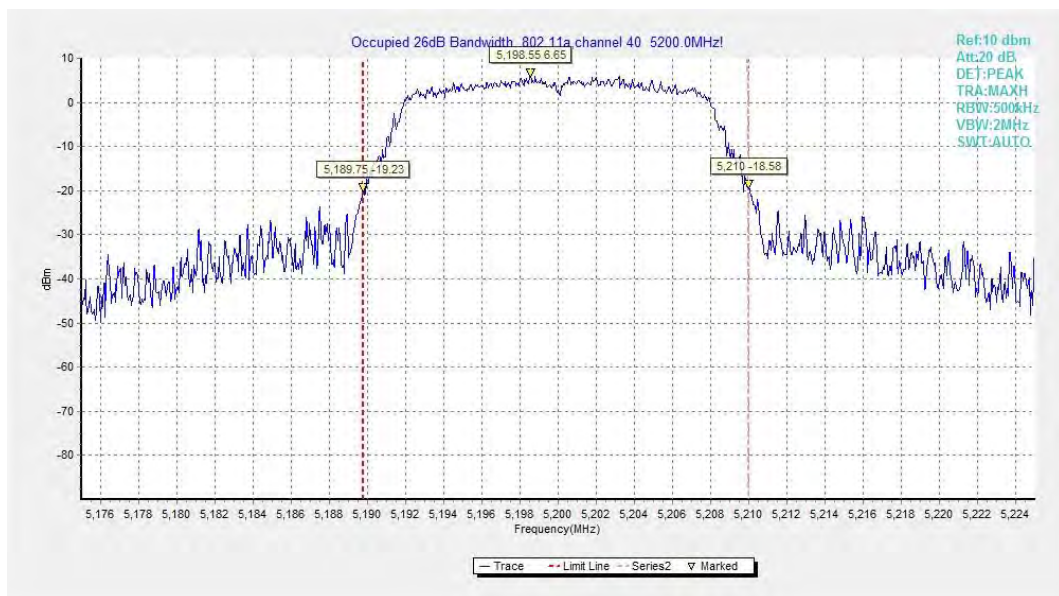


Fig.2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

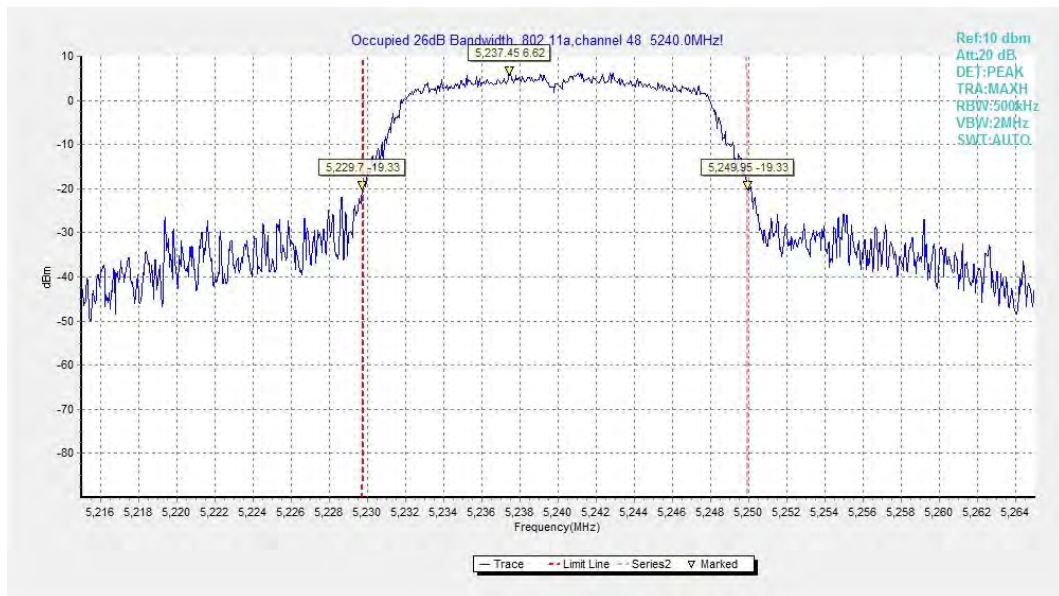


Fig.3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

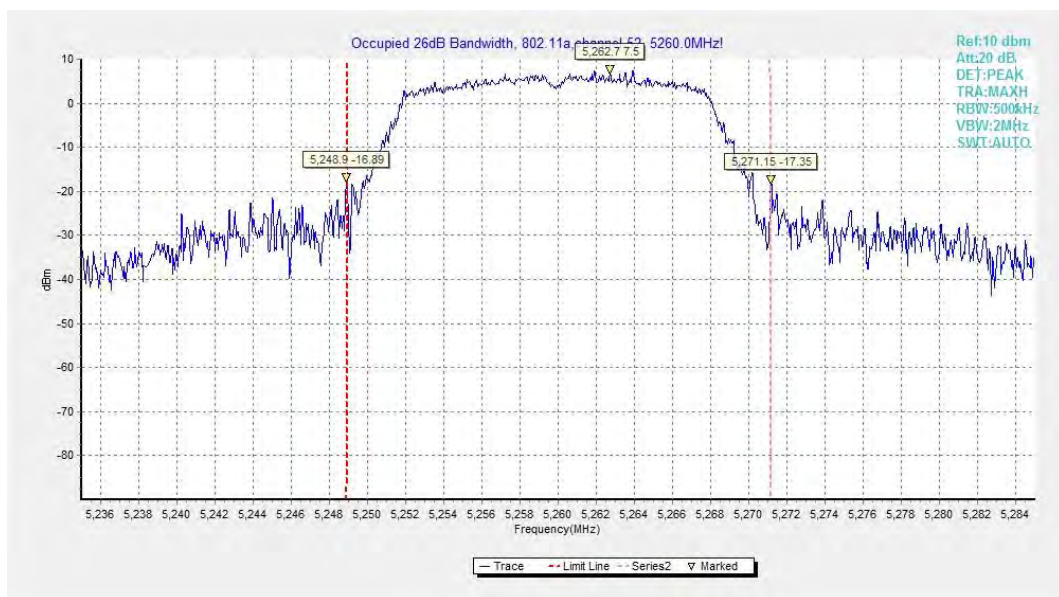


Fig.4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

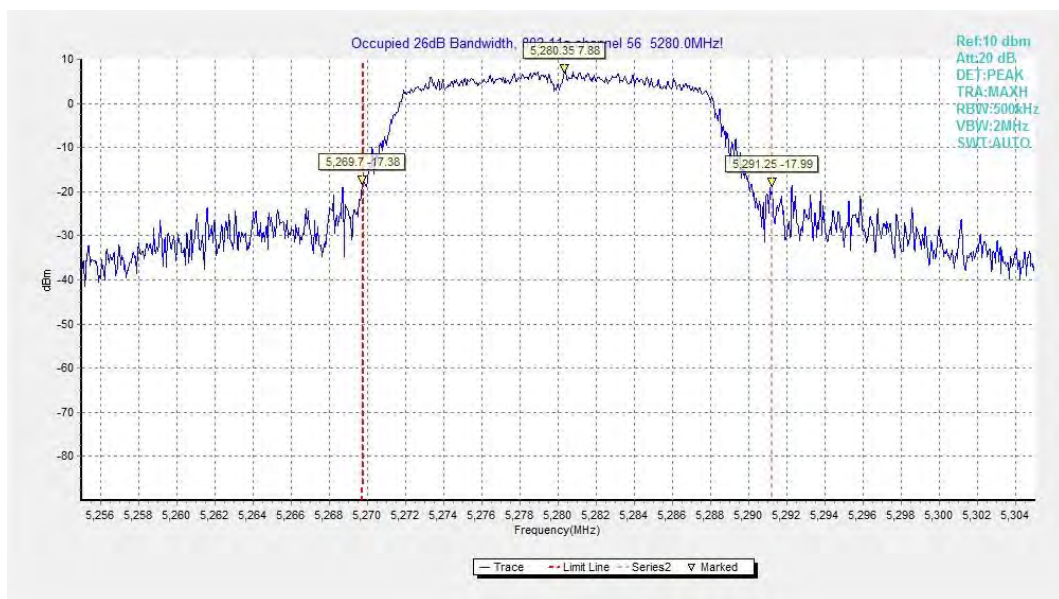


Fig.5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

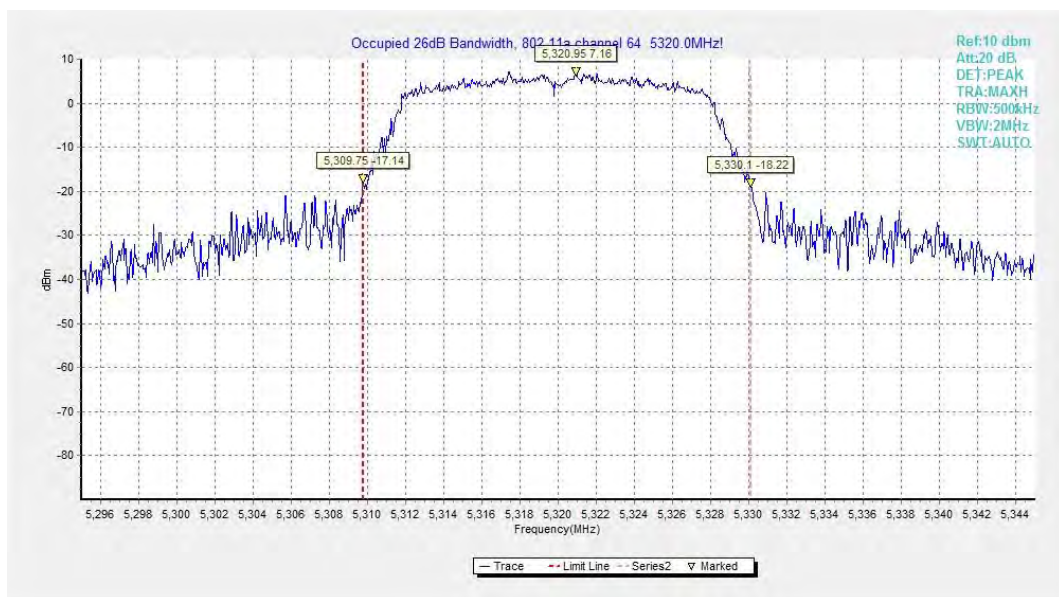


Fig.6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

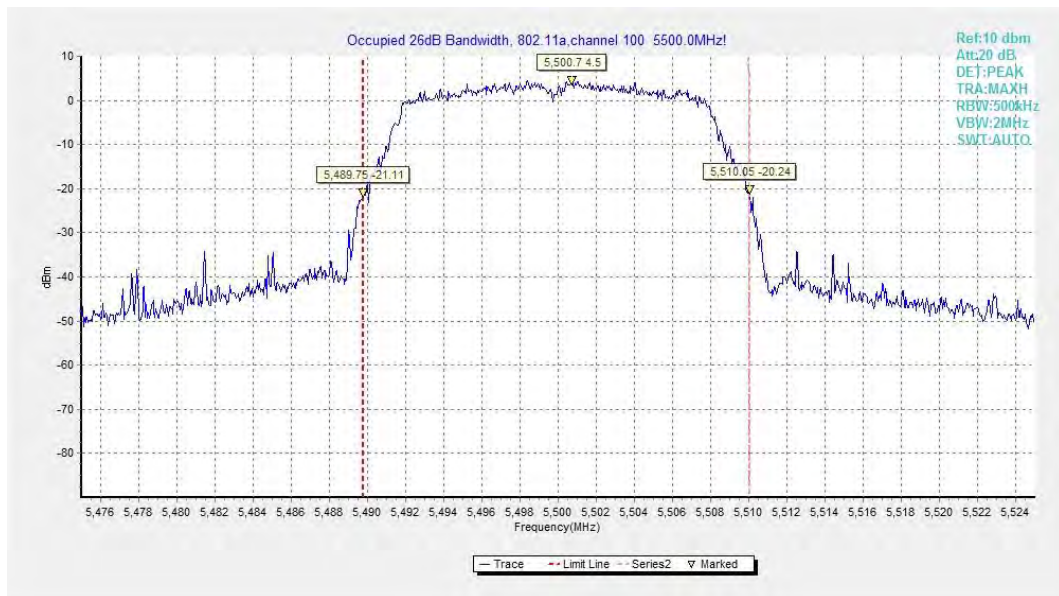


Fig.7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

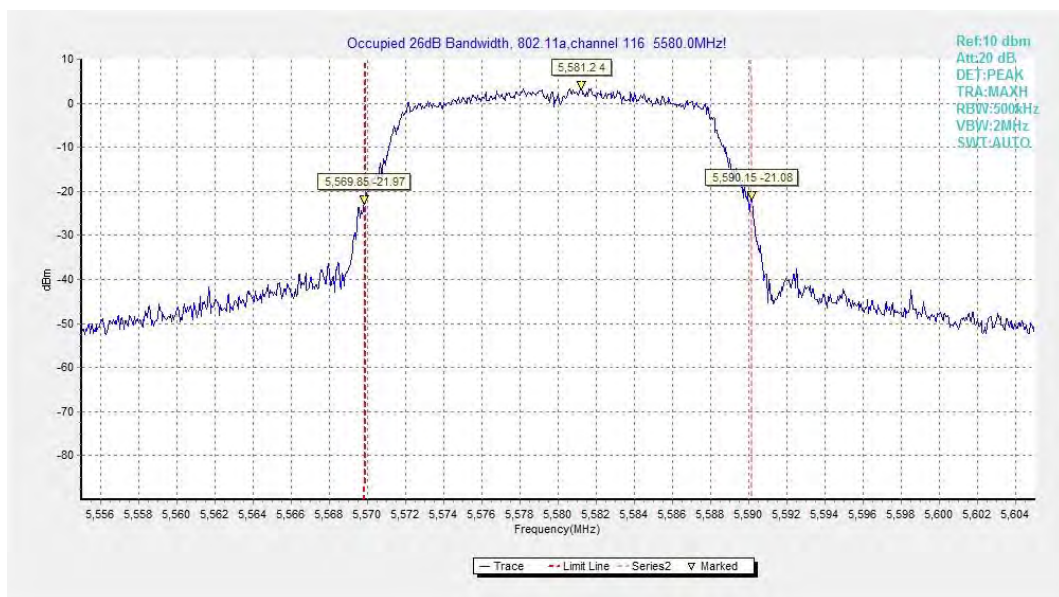


Fig.8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

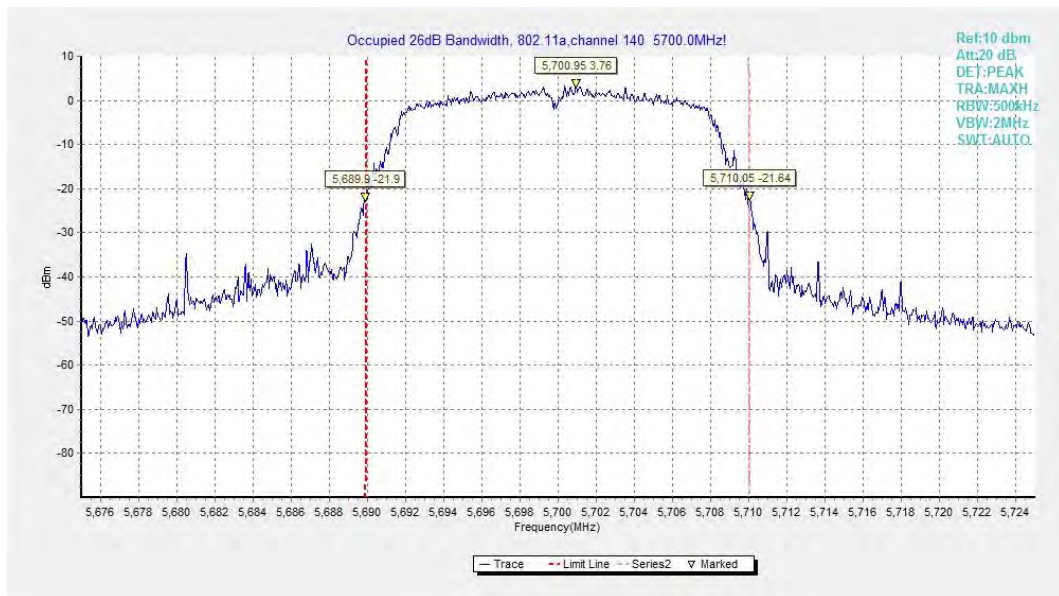


Fig.9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

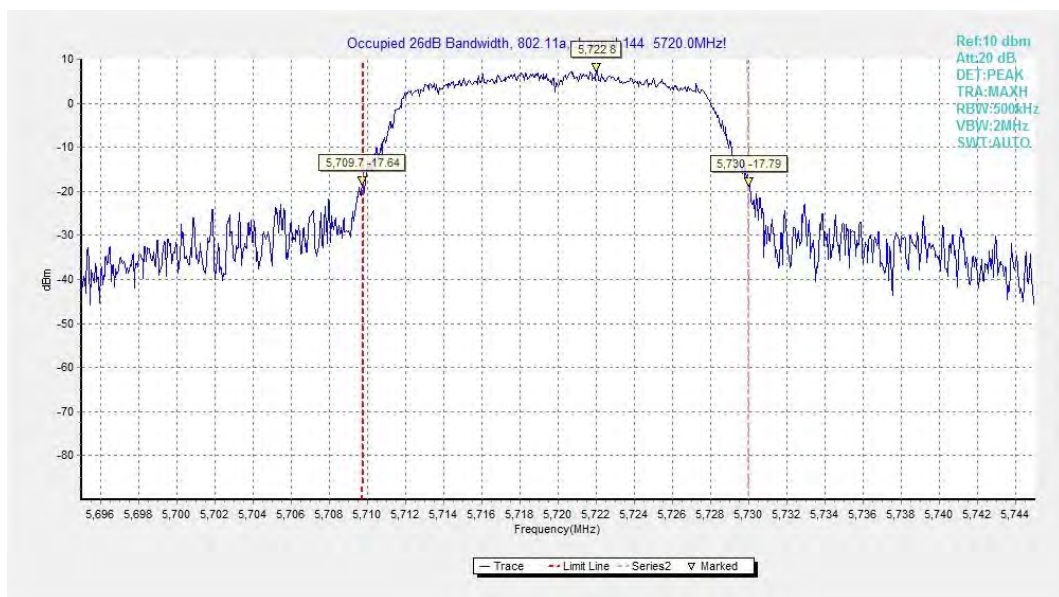


Fig.10 Occupied 26dB Bandwidth (802.11a, 5720MHz)

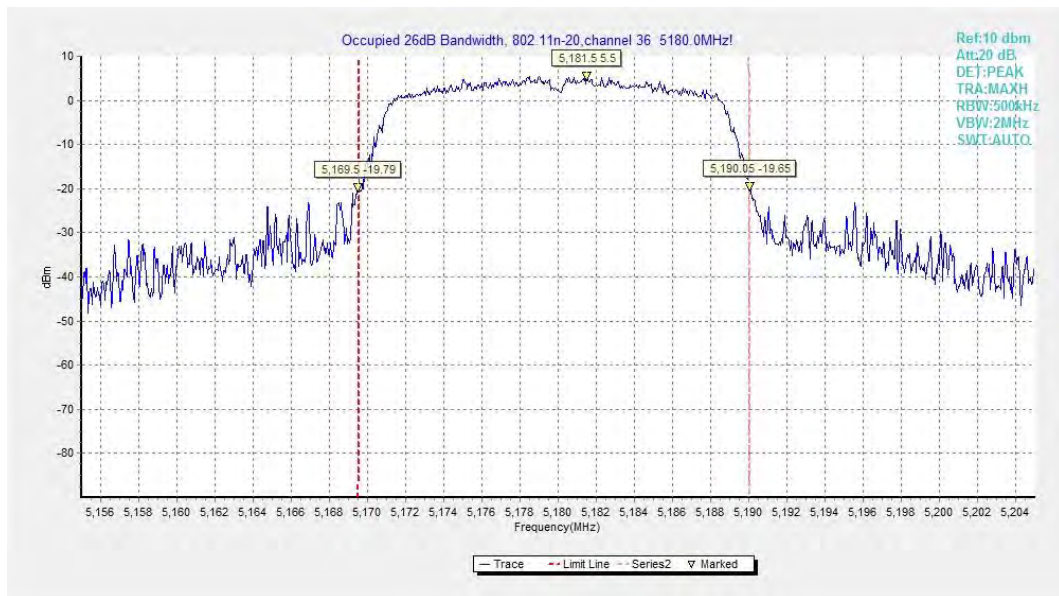


Fig.11 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

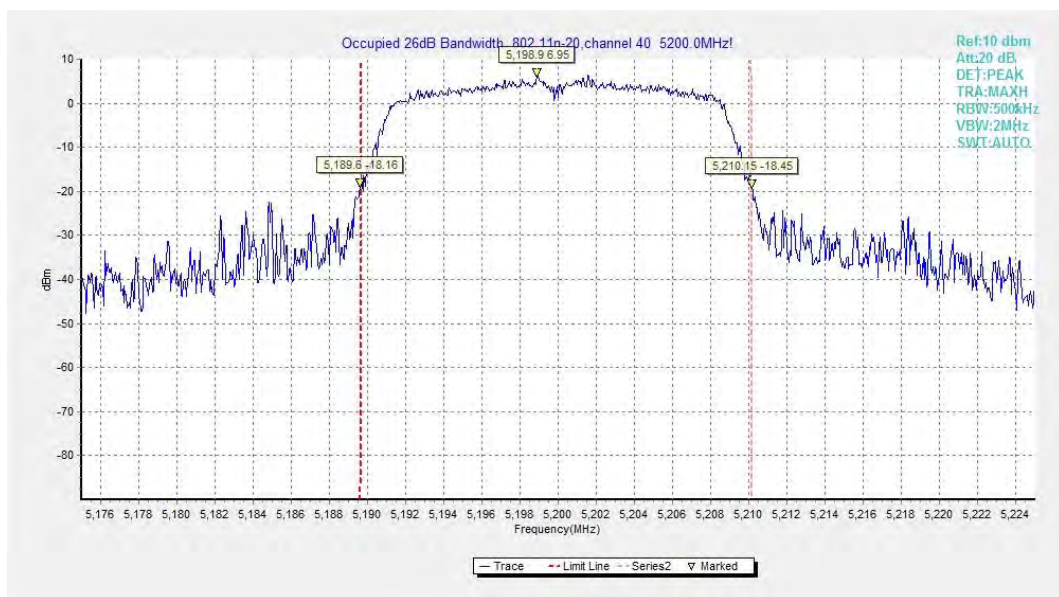


Fig.12 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

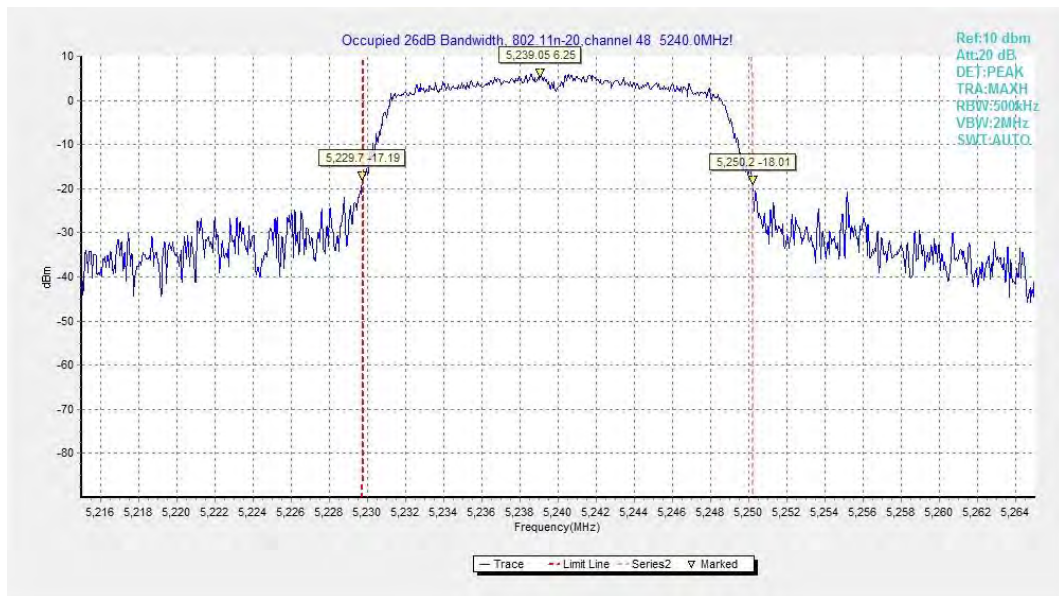


Fig.13 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)

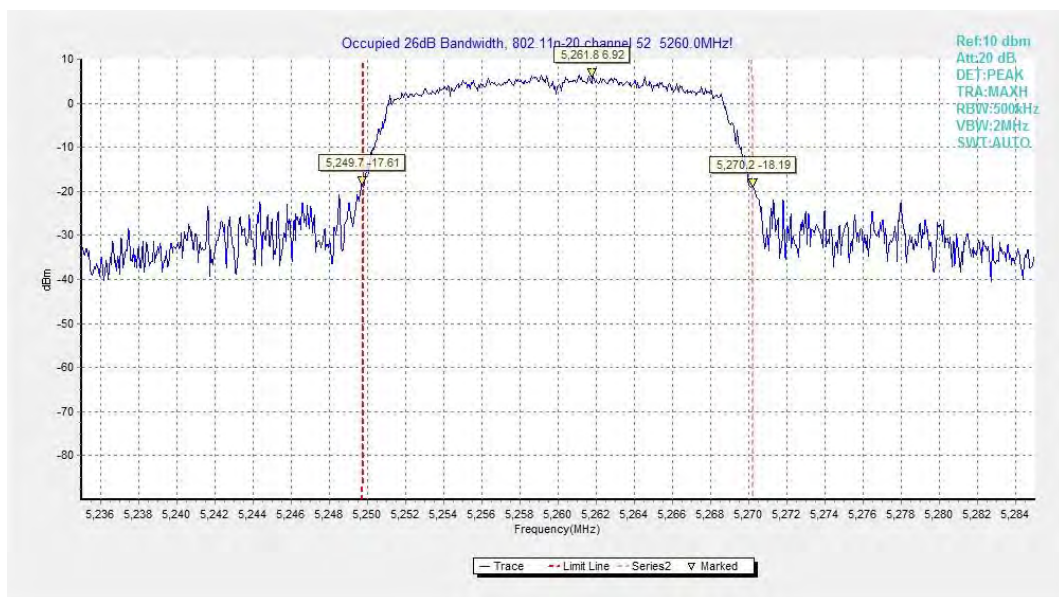


Fig.14 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

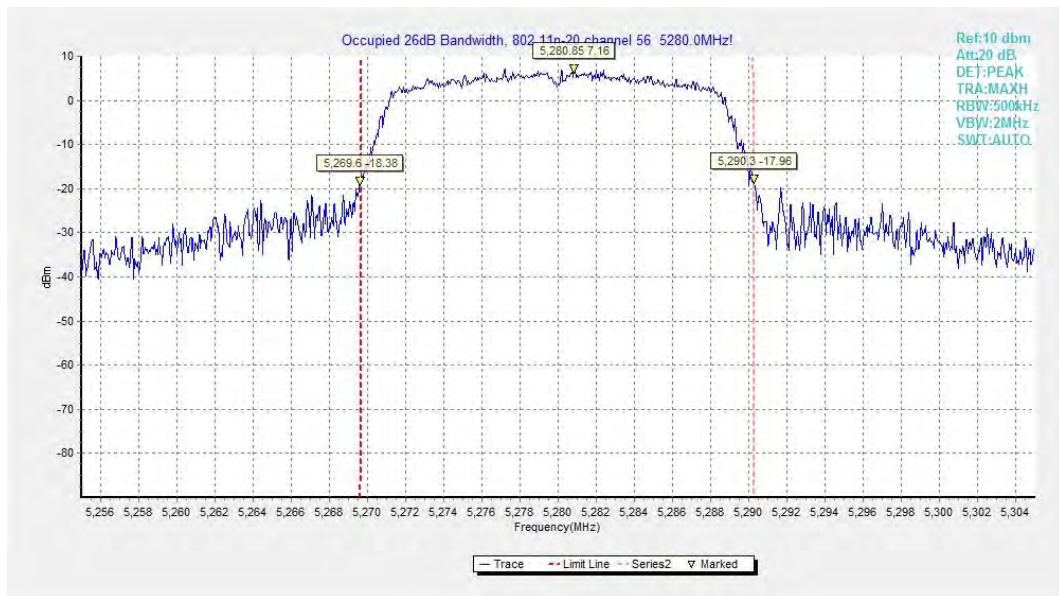


Fig.15 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)

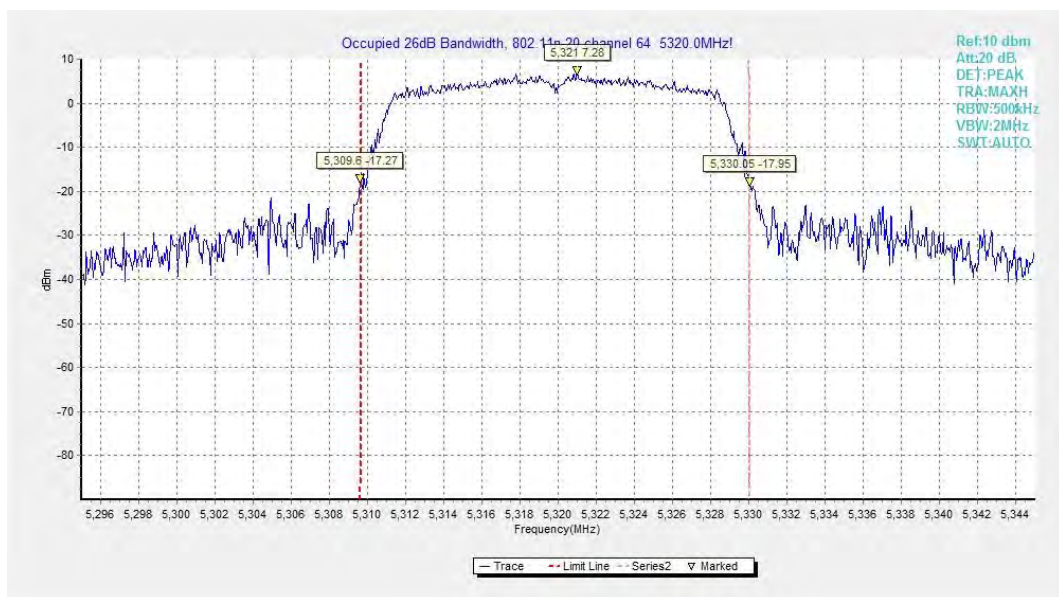


Fig.16 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

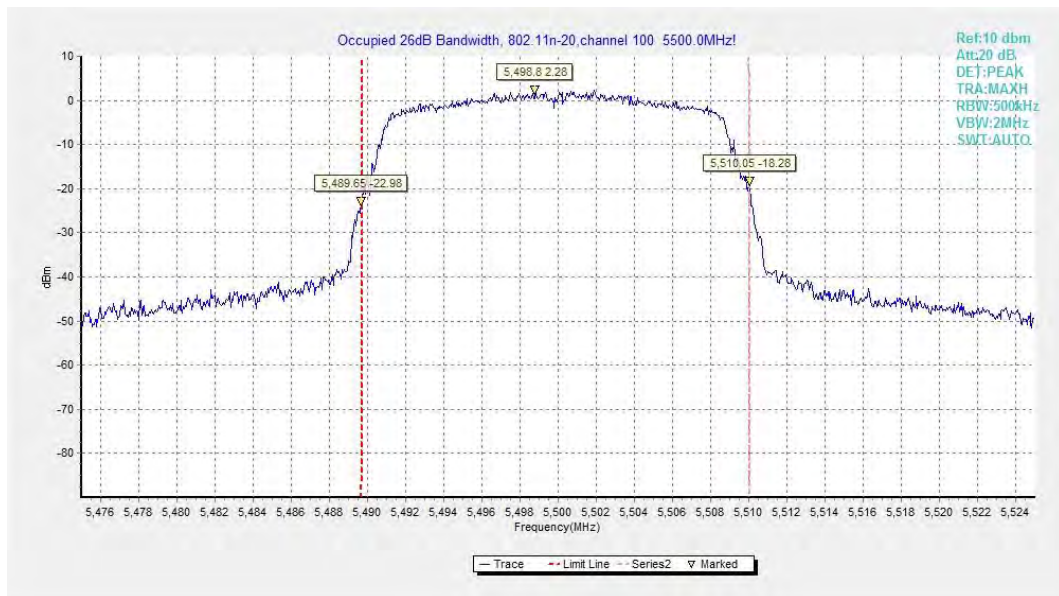


Fig.17 Occupied 26dB Bandwidth (802. 11n-HT20, 5500MHz)

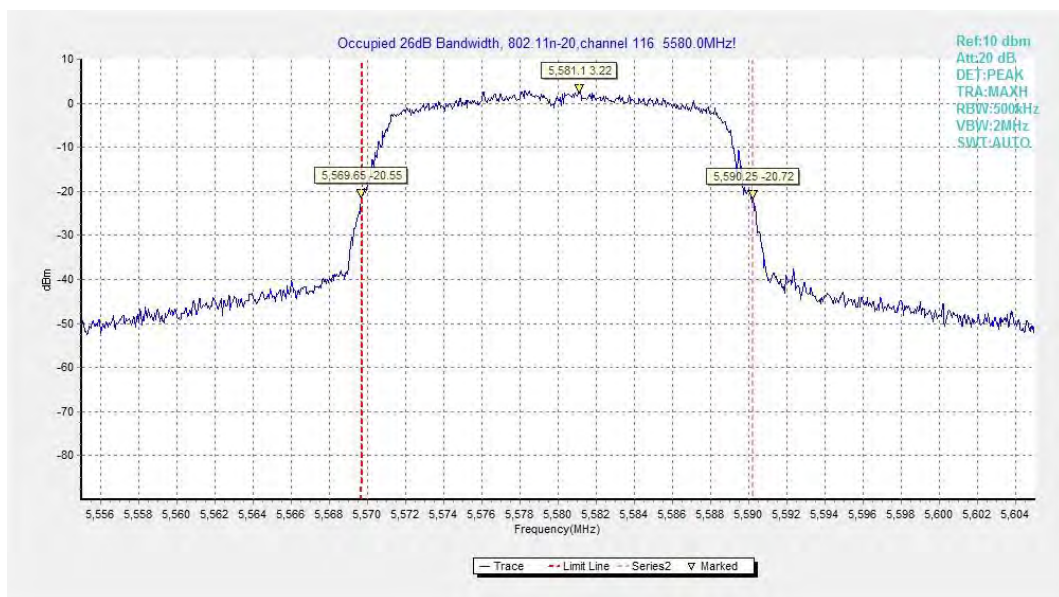


Fig.18 Occupied 26dB Bandwidth (802. 11n-HT20, 5580MHz)

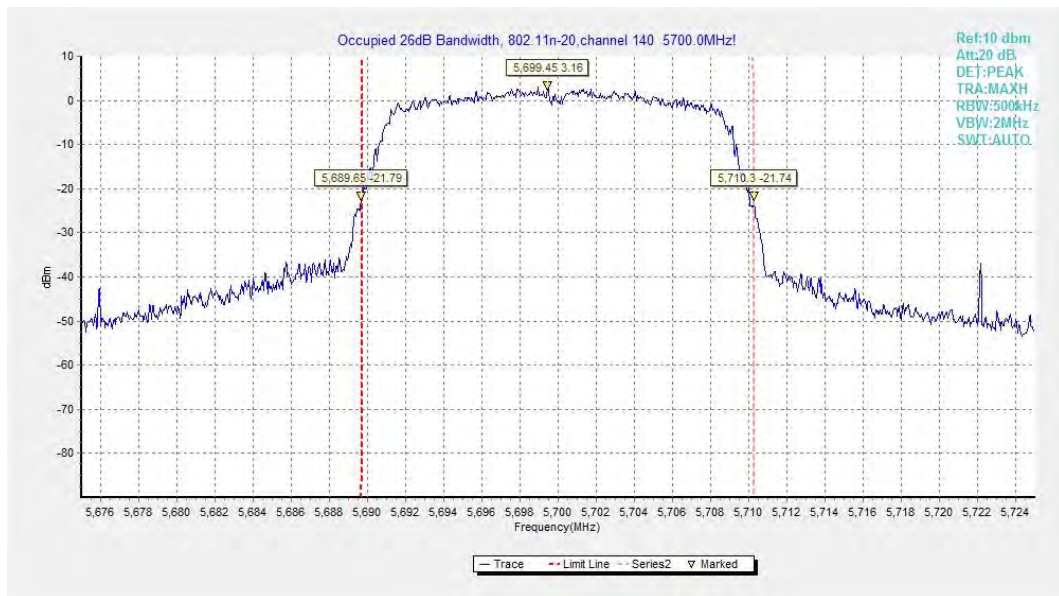


Fig.19 Occupied 26dB Bandwidth (802. 11n-HT20, 5700MHz)

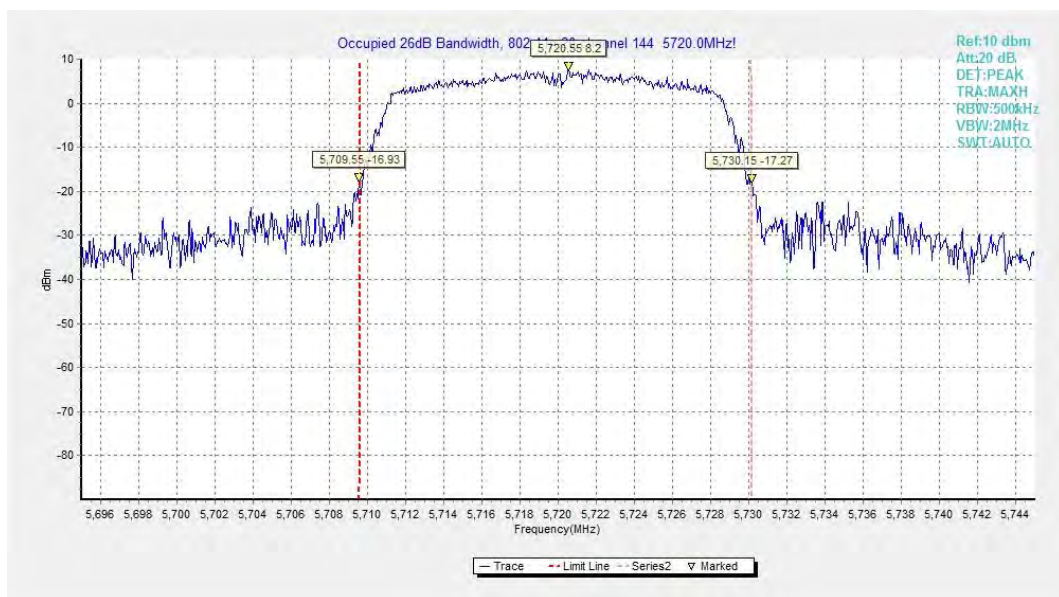


Fig.20 Occupied 26dB Bandwidth (802. 11n-HT20, 5720MHz)



Fig.21 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

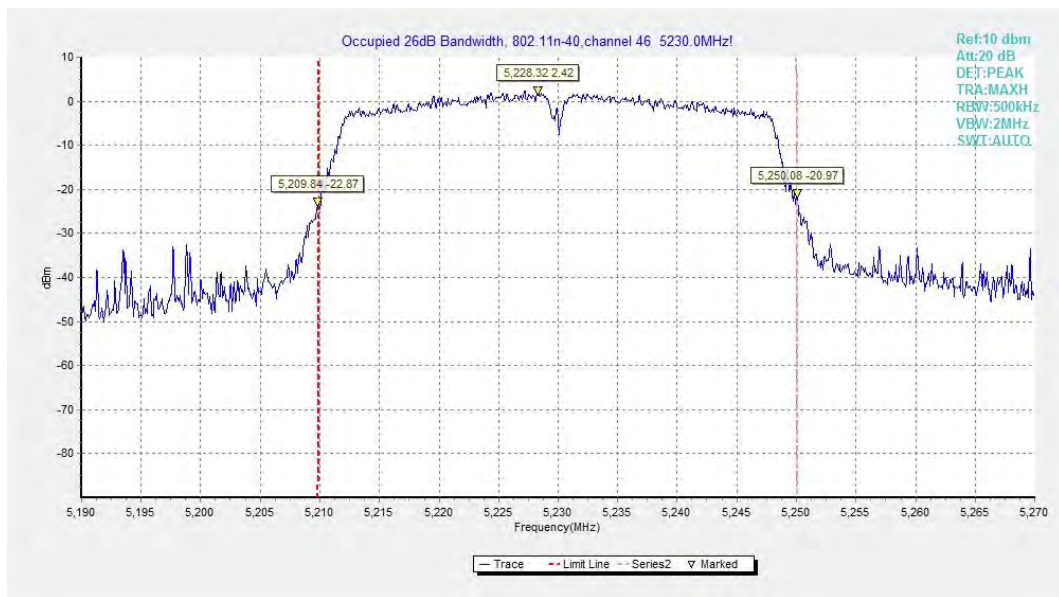


Fig.22 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

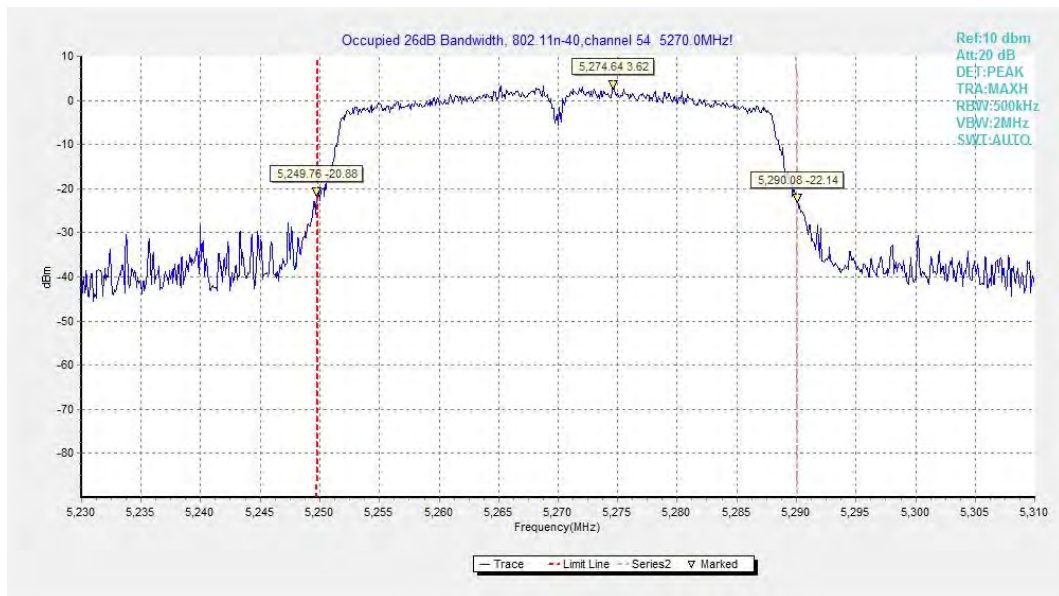


Fig.23 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

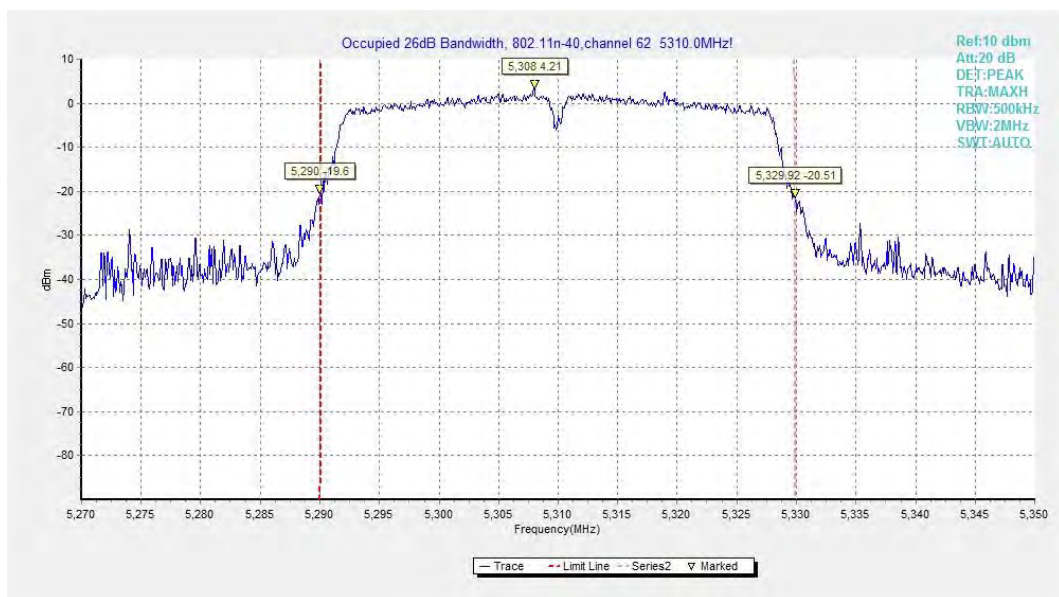


Fig.24 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

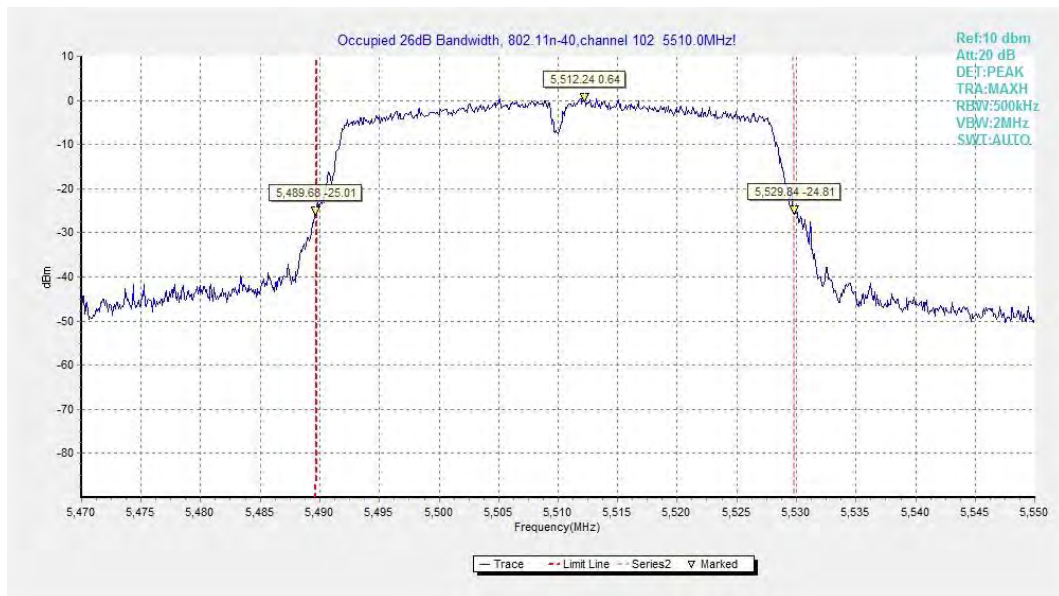


Fig.25 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)

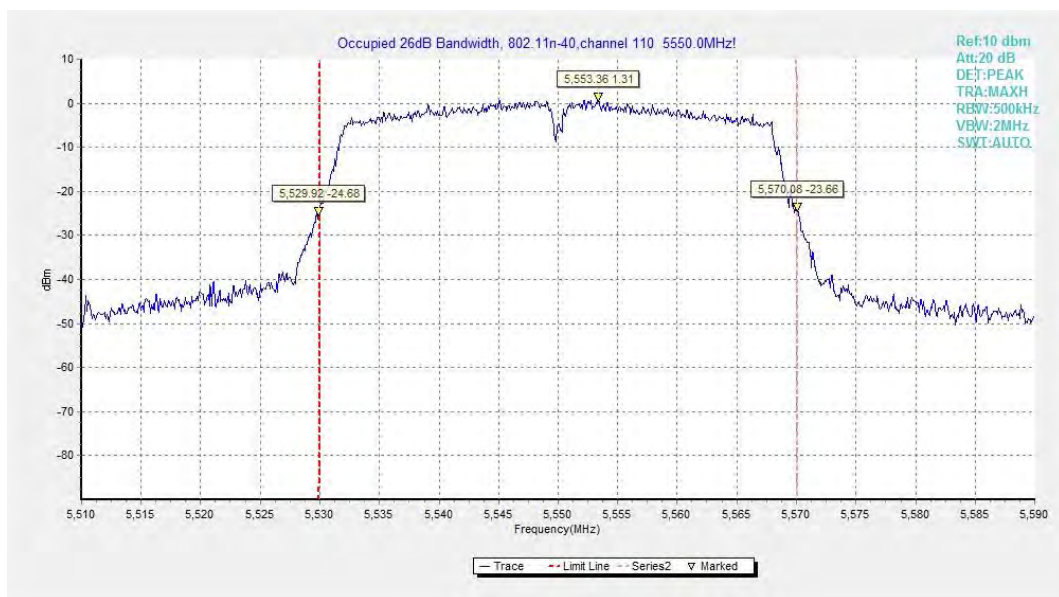


Fig.26 Occupied 26dB Bandwidth (802. 11n-HT40, 5550MHz)

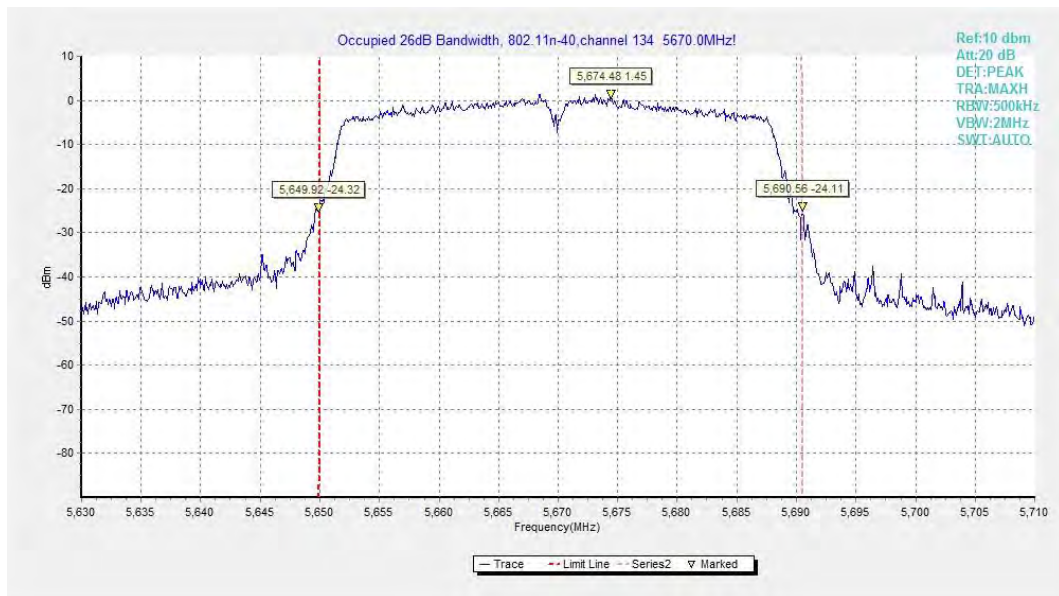


Fig.27 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

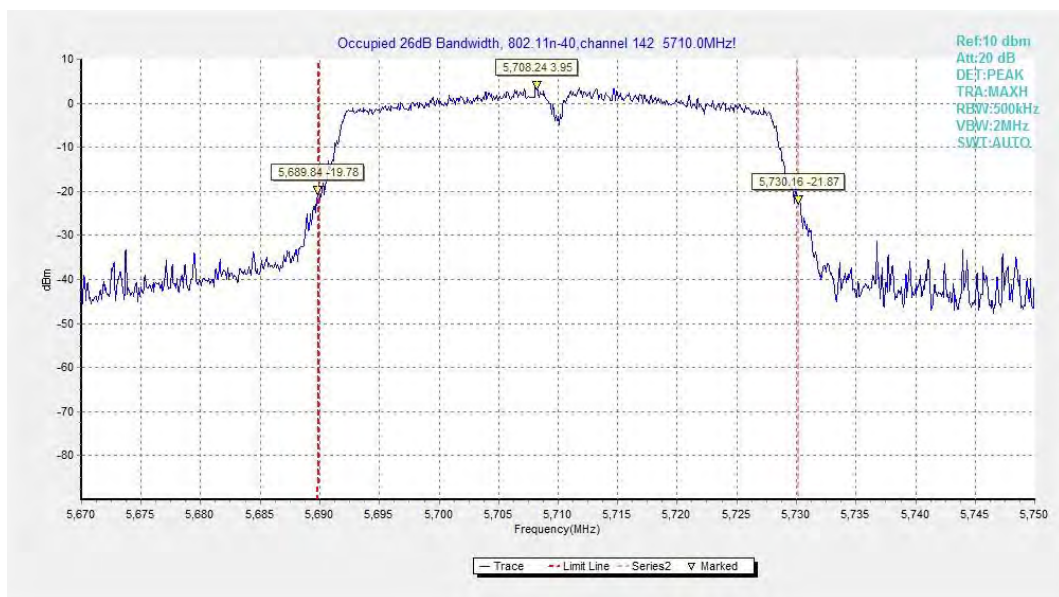


Fig.28 Occupied 26dB Bandwidth (802. 11n-HT40, 5710MHz)

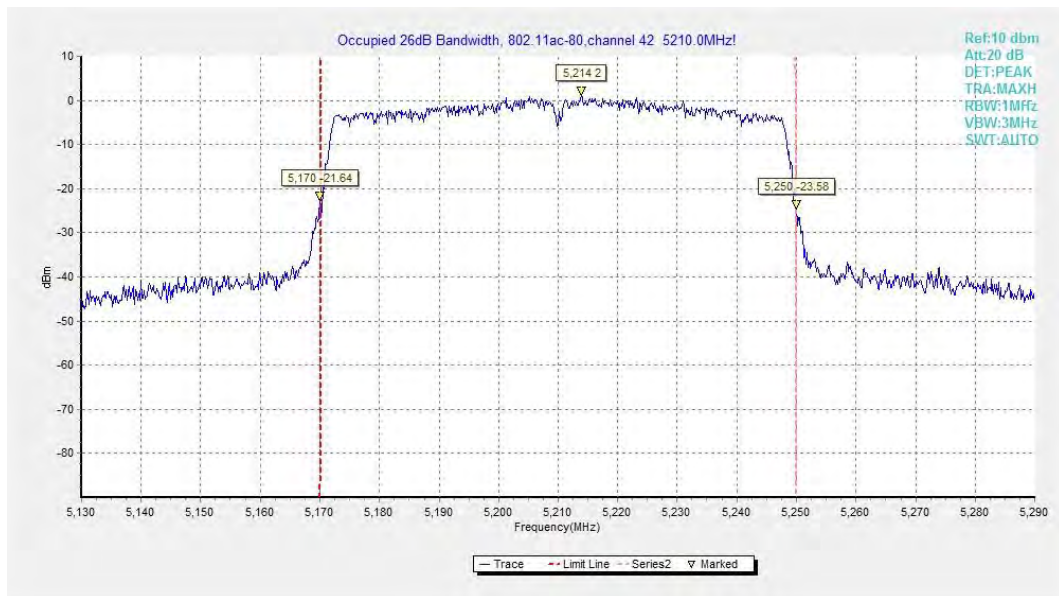


Fig.29 Occupied 26dB Bandwidth (802. 11ac-HT80, 5210MHz)

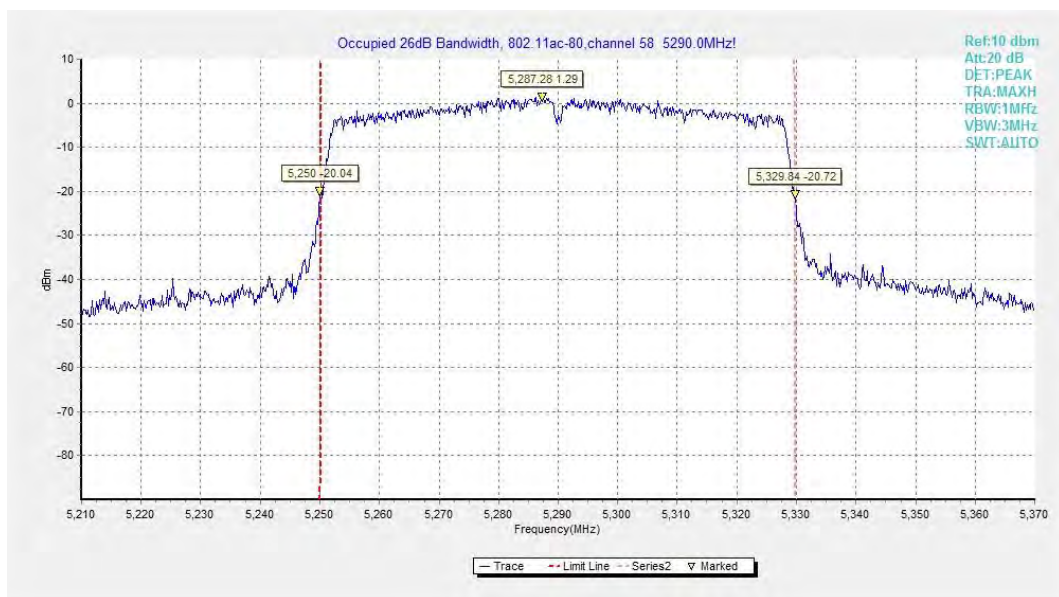


Fig.30 Occupied 26dB Bandwidth (802. 11ac-HT80, 5290MHz)

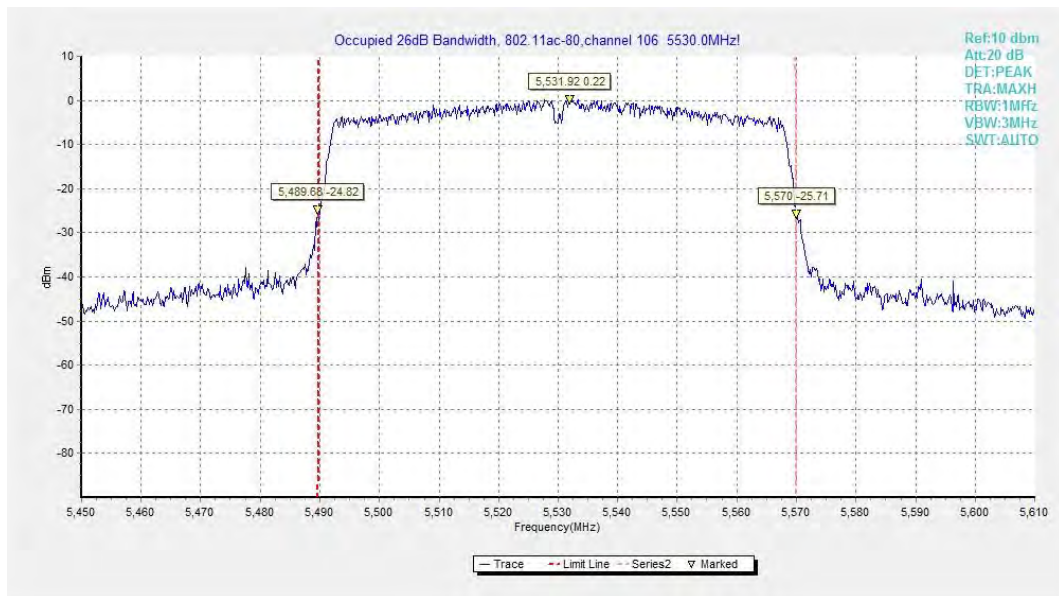


Fig.31 Occupied 26dB Bandwidth (802. 11ac-HT80, 5530MHz)

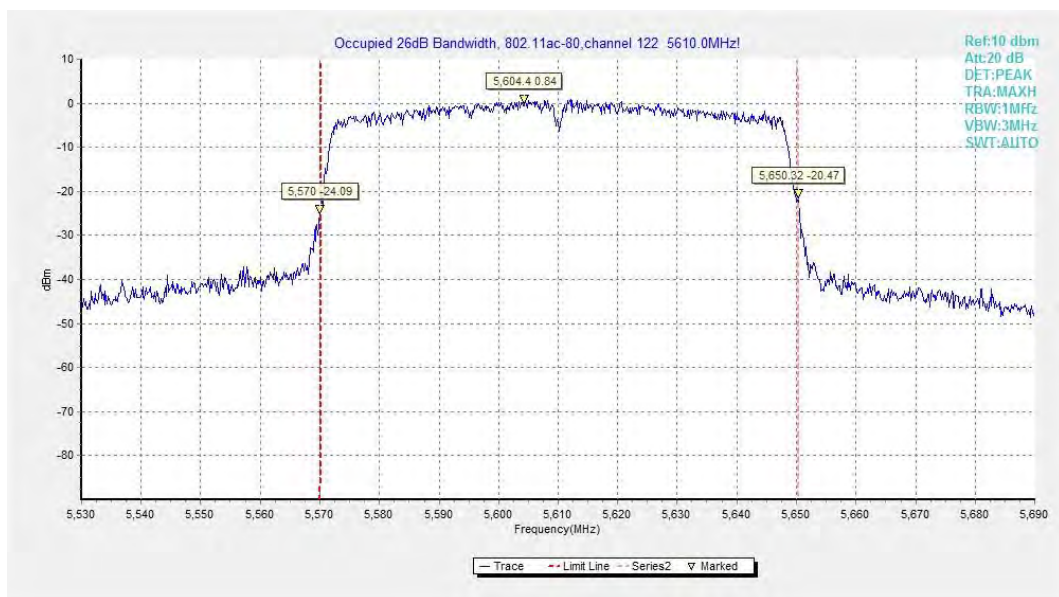


Fig.32 Occupied 26dB Bandwidth (802. 11ac-HT80, 5610MHz)

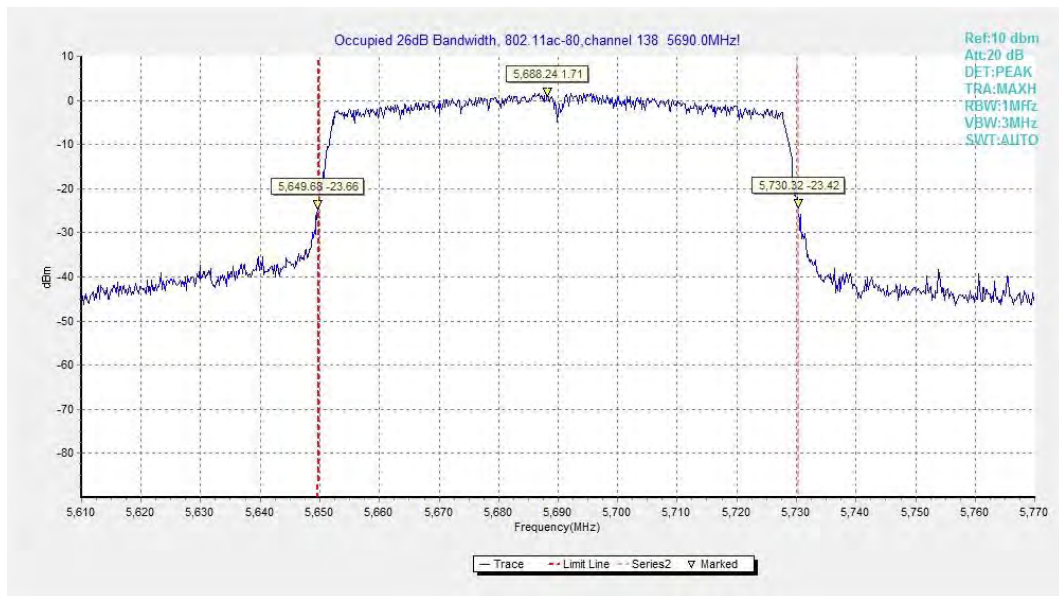


Fig.33 Occupied 26dB Bandwidth (802. 11ac-HT80, 5690MHz)

A.5. Band Edges Compliance

A5.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-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)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)	Measurement distance(m)
Above 960	500	54	3

The measurement is made according to ANSI C63.10 and KDB 789033

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m and the table height shall be 1.5 m.

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. 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 360° and the measurement antenna is moved from 1m to 4m to get the maximization result. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 40GHz, RBW = 1MHz, VBW = 3MHz

Sample Calculations

1. 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 dBμV/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.34	P
	5320 MHz	Fig.35	P
	5500 MHz	Fig.36	P
	5700 MHz	Fig.37	P
802.11n HT20	5180 MHz	Fig.38	P
	5320 MHz	Fig.39	P
	5500 MHz	Fig.40	P
	5700 MHz	Fig.41	P
802.11n HT40	5190 MHz	Fig.42	P
	5310 MHz	Fig.43	P
	5510 MHz	Fig.44	P
	5670 MHz	Fig.45	P
802.11ac HT20	5180 MHz	Fig.46	P
	5320 MHz	Fig.47	P
	5500 MHz	Fig.48	P
	5700 MHz	Fig.49	P
802.11ac HT40	5190 MHz	Fig.50	P
	5310 MHz	Fig.51	P
	5510 MHz	Fig.52	P
	5670 MHz	Fig.53	P
802.11ac HT80	5210MHz	Fig.54	P
	5290MHz	Fig.55	P
	5530MHz	Fig.56	P
	5610MHz	Fig.57	P

Conclusion: PASS
Test graphs as below:

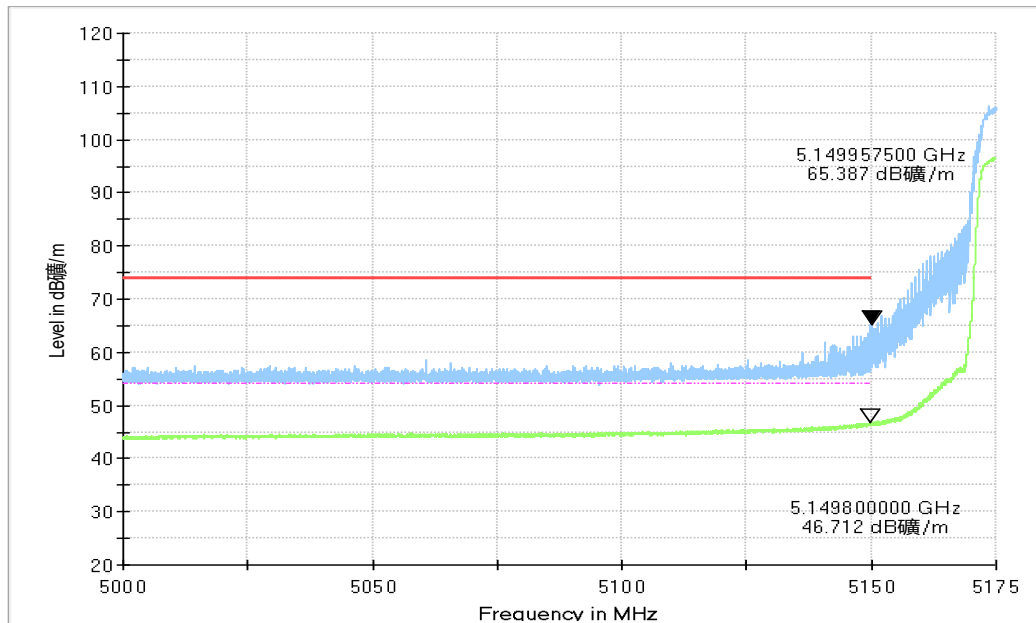


Fig.34 Band Edges (802.11a Ch36, 5180MHz)

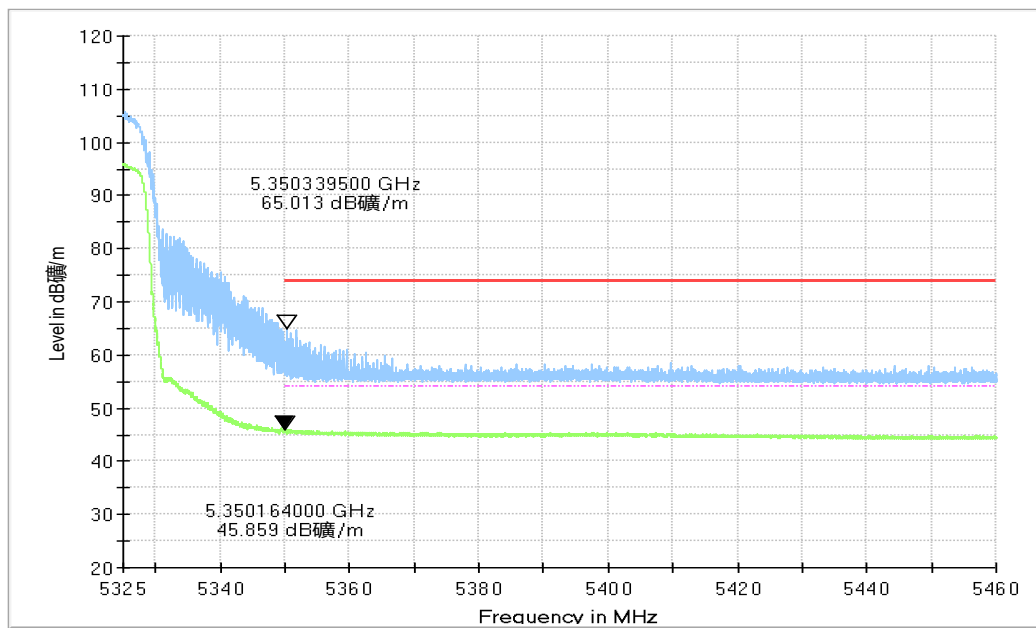


Fig.35 Band Edges (802.11a Ch64, 5320MHz)

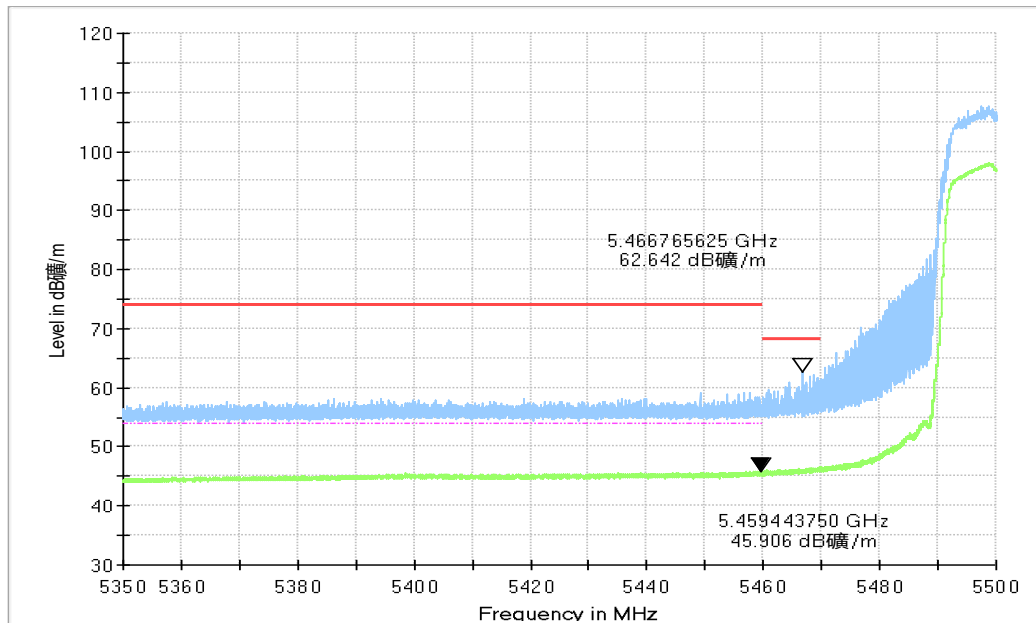


Fig.36 Band Edges (802.11a Ch100, 5500MHz)

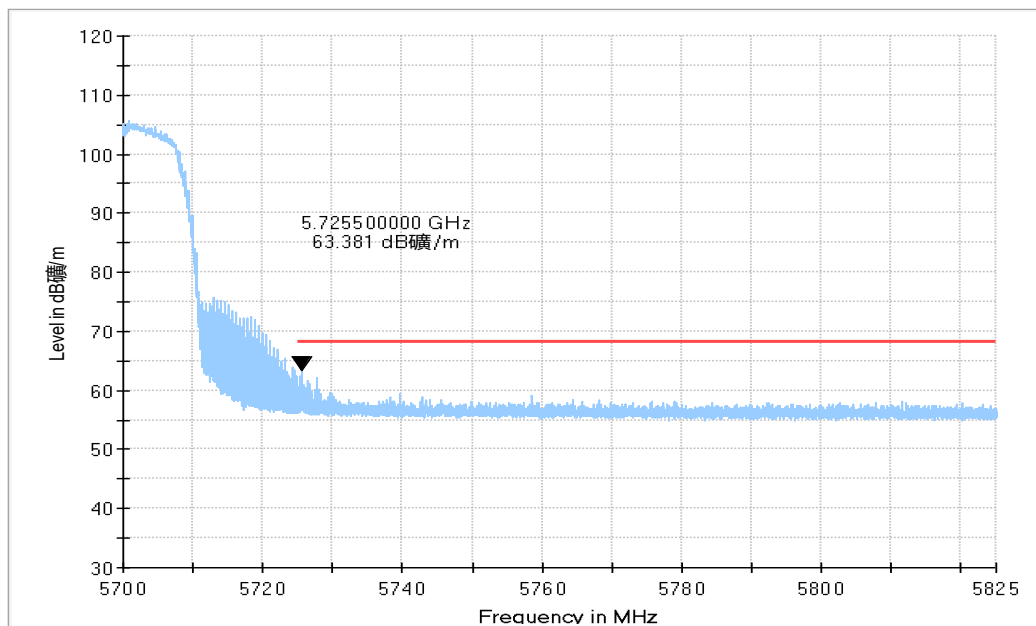


Fig.37 Band Edges (802.11a Ch140, 5700MHz)

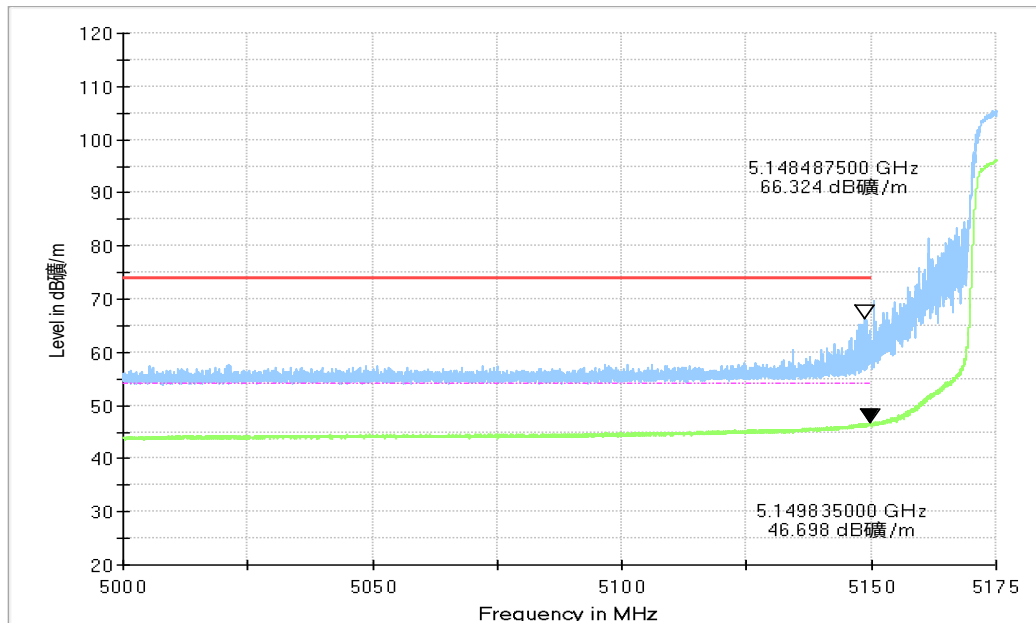


Fig.38 Band Edges (802.11n-HT20 Ch36, 5180MHz)

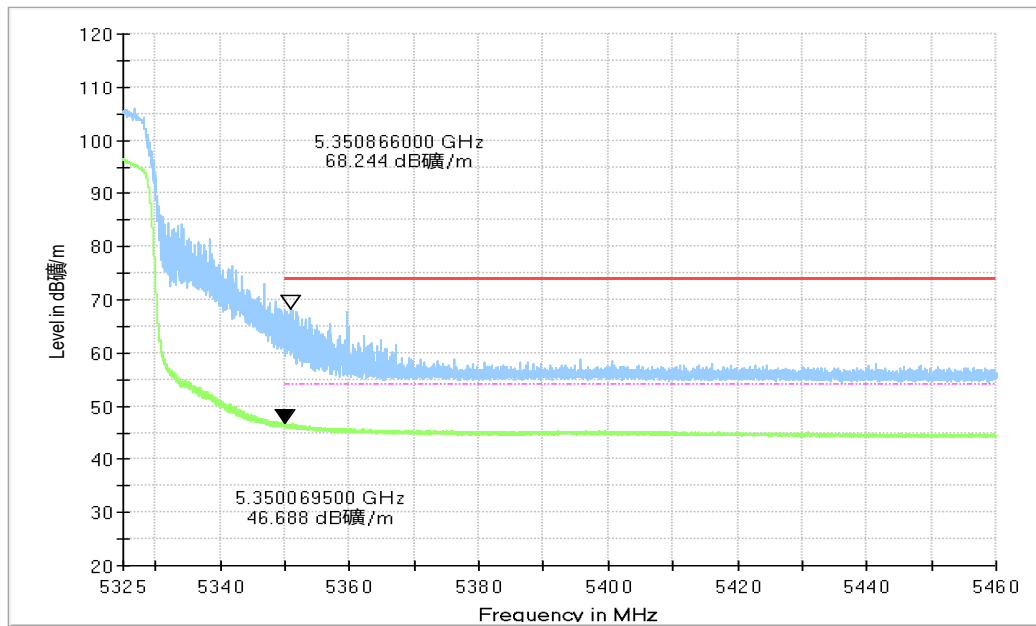


Fig.39 Band Edges (802.11n-HT20 Ch64, 5320MHz)

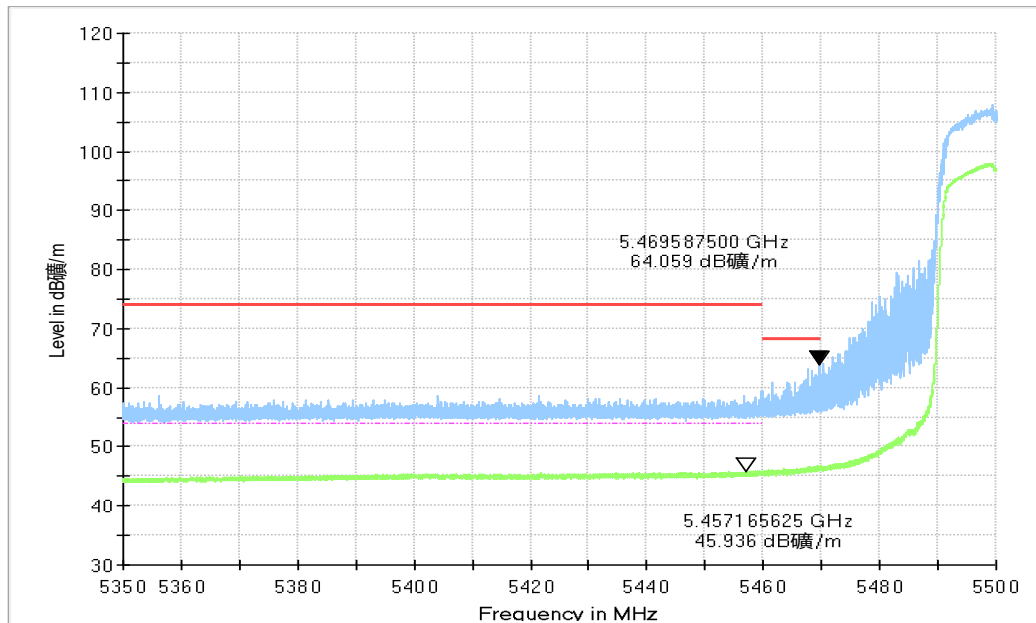


Fig.40 Band Edges (802.11n-HT20 Ch100, 5500MHz)

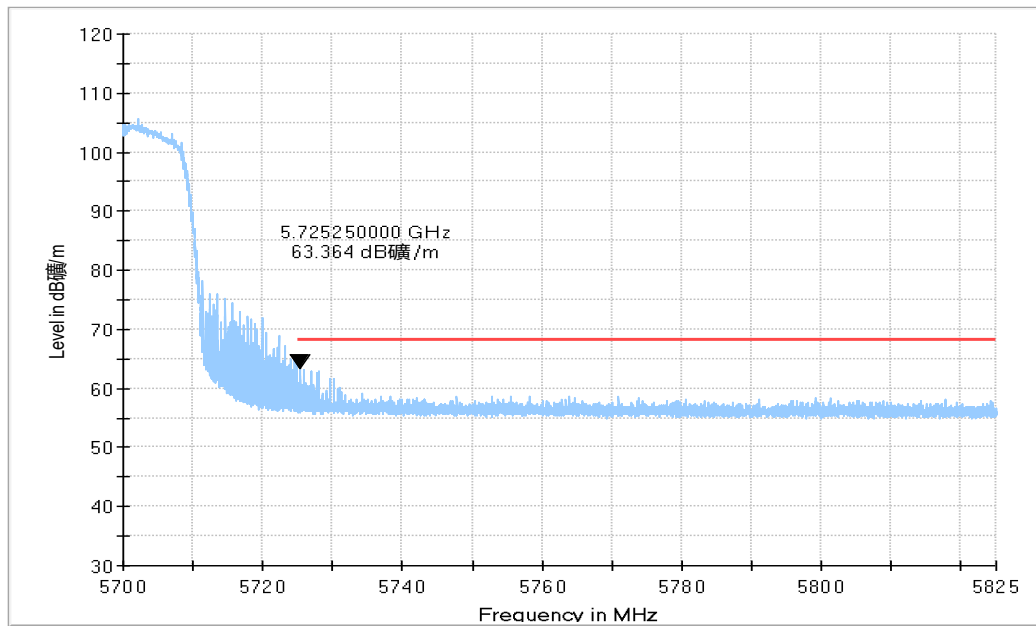


Fig.41 Band Edges (802.11n-HT20 Ch140, 5700MHz)

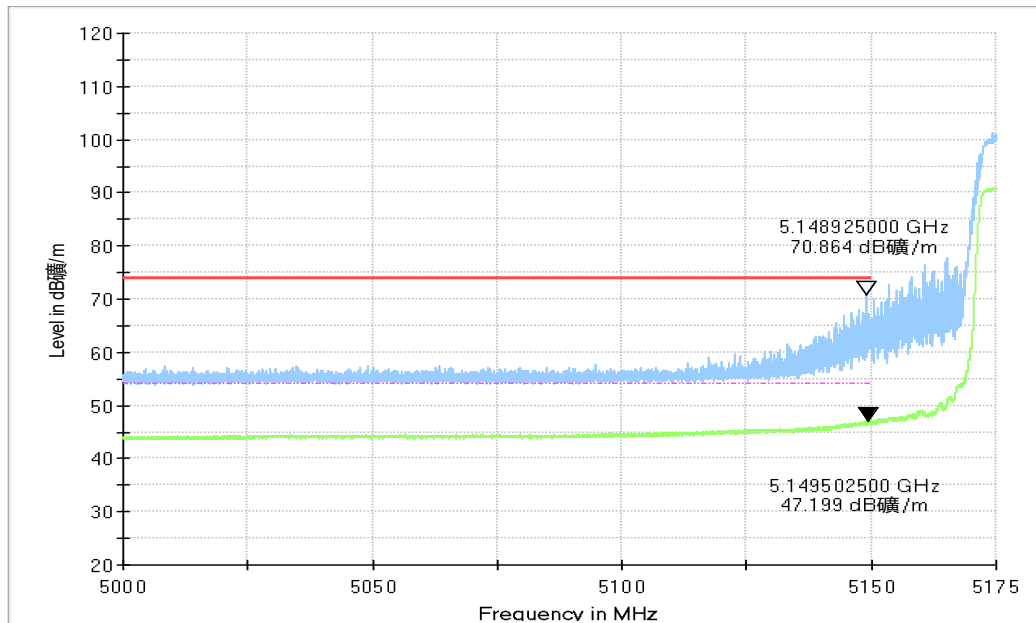


Fig.42 Band Edges (802.11n-HT40 Ch38, 5190MHz)

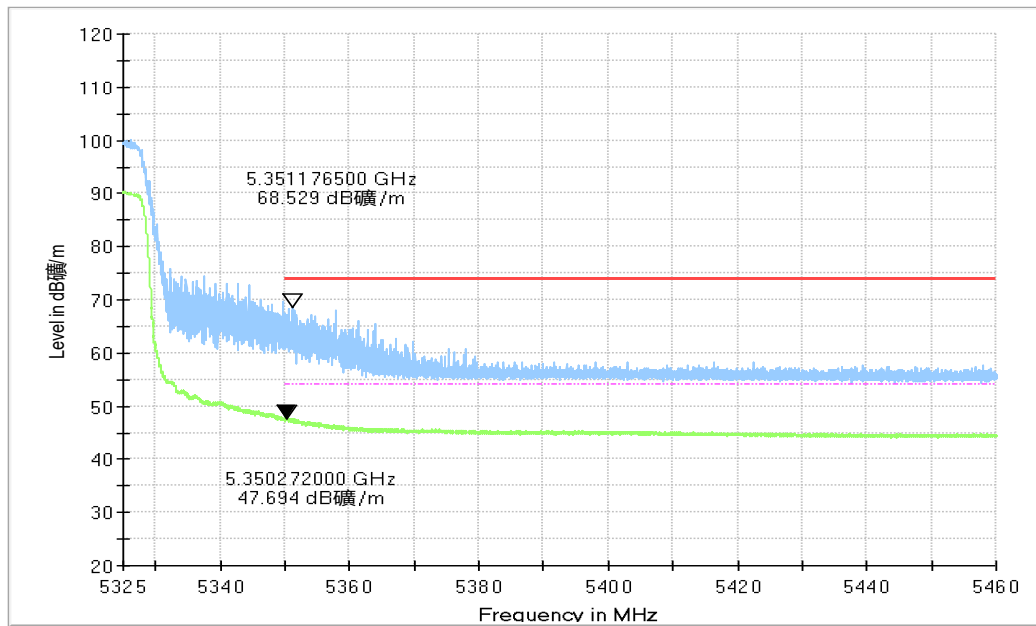


Fig.43 Band Edges (802.11n-HT40 Ch62, 5310MHz)

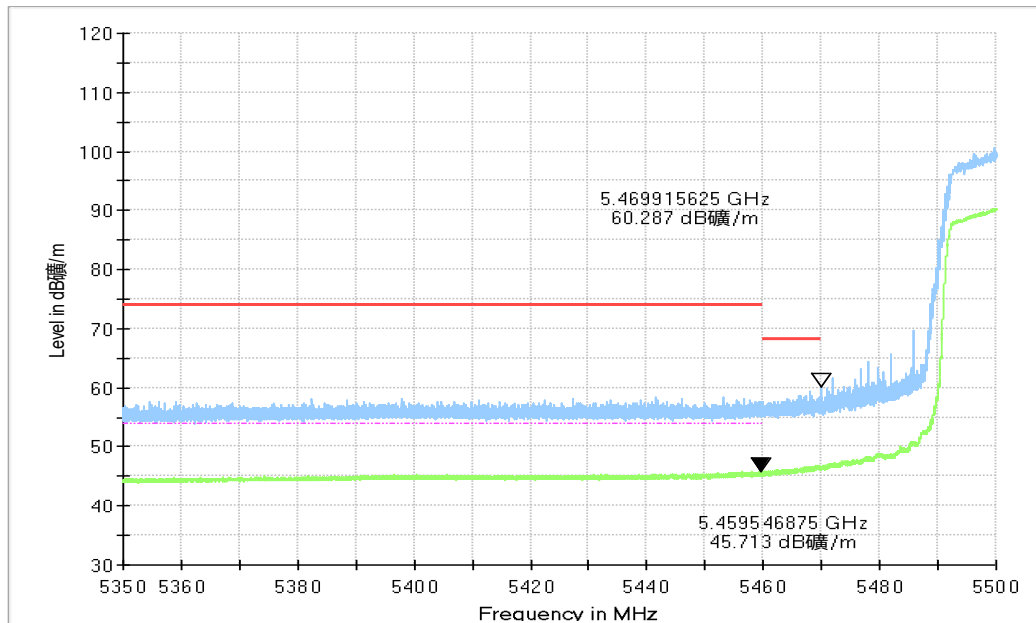


Fig.44 Band Edges (802.11n-HT40 Ch102, 5510MHz)

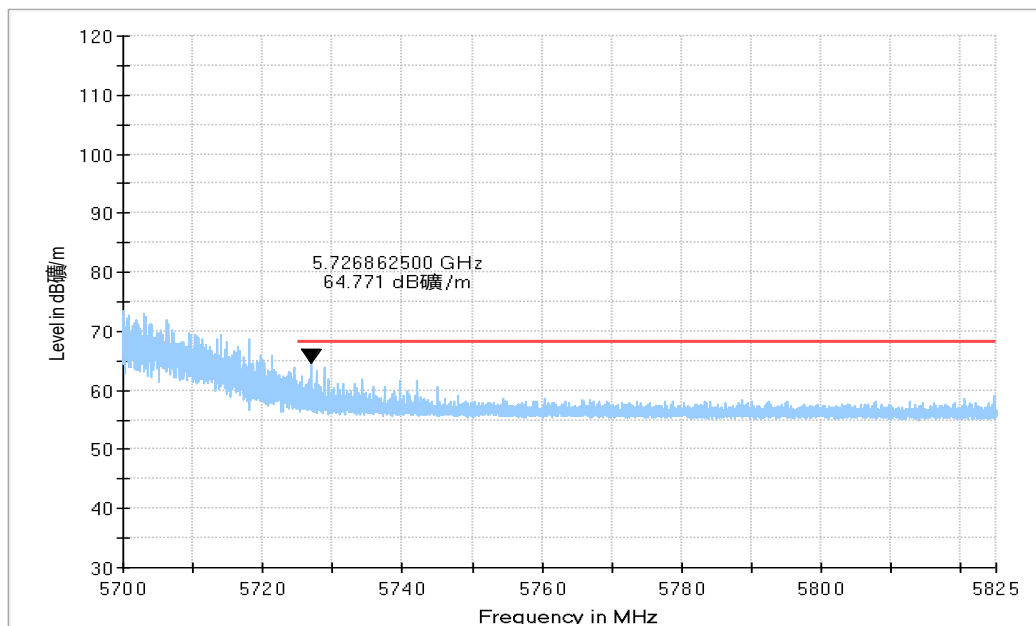


Fig.45 Band Edges (802.11n-HT40 Ch134, 5670MHz)

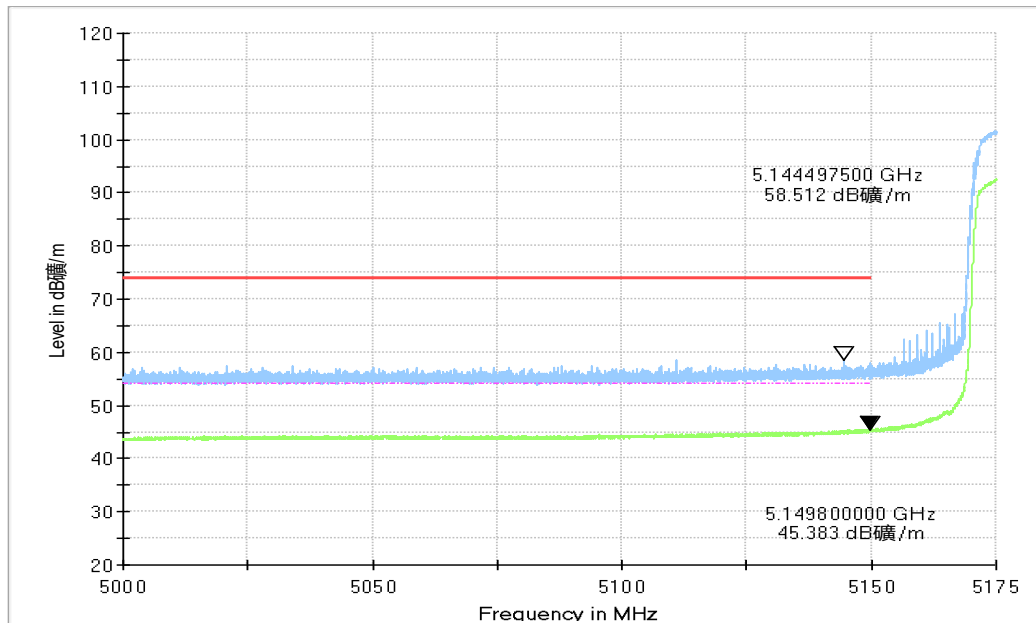


Fig.46 Band Edges (802.11ac-HT20 Ch36, 5180MHz)

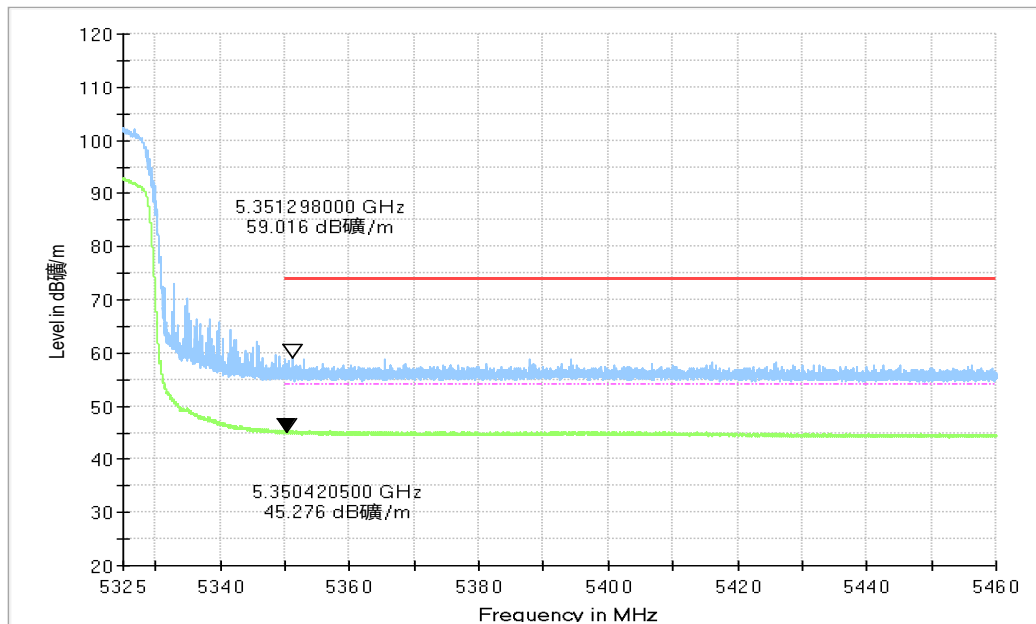


Fig.47 Band Edges (802.11ac-HT20 Ch64, 5320MHz)

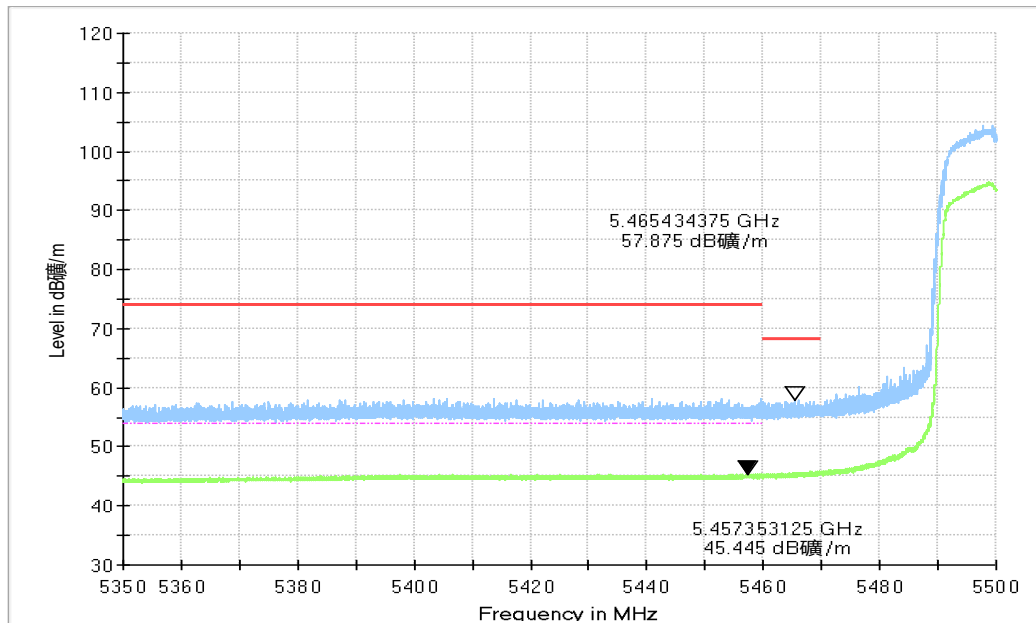


Fig.48 Band Edges (802.11ac-HT20 Ch100, 5500MHz)

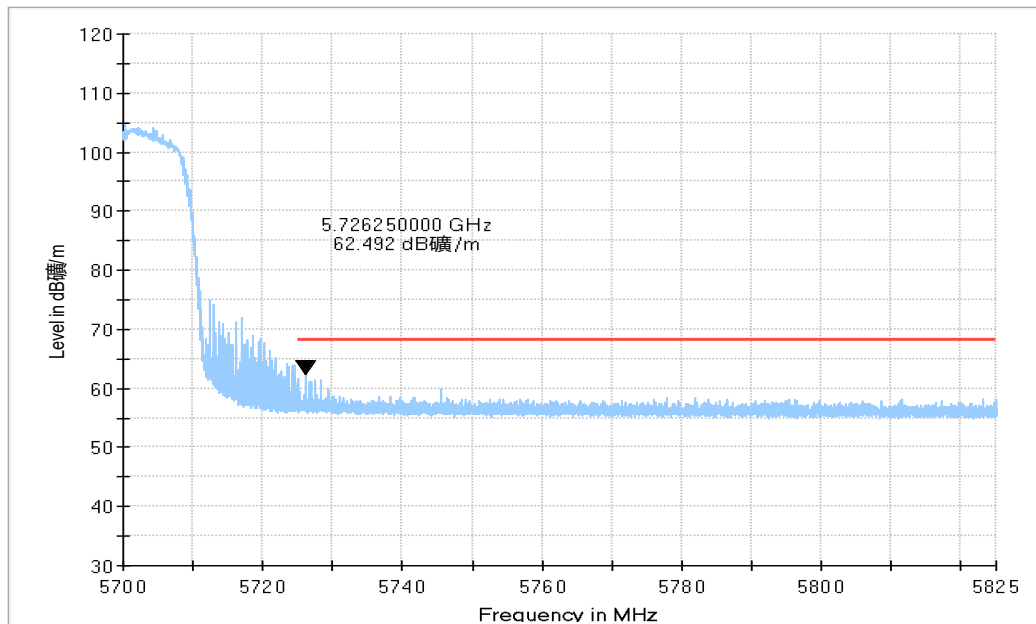


Fig.49 Band Edges (802.11ac-HT20 Ch140, 5700MHz)

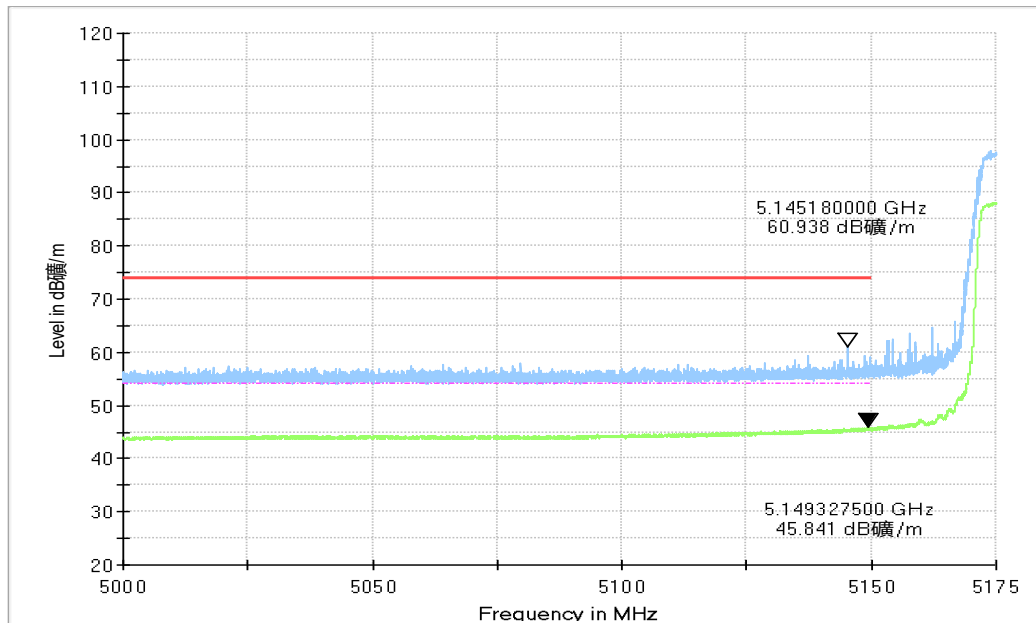


Fig.50 Band Edges (802.11ac-HT40 Ch38, 5190MHz)

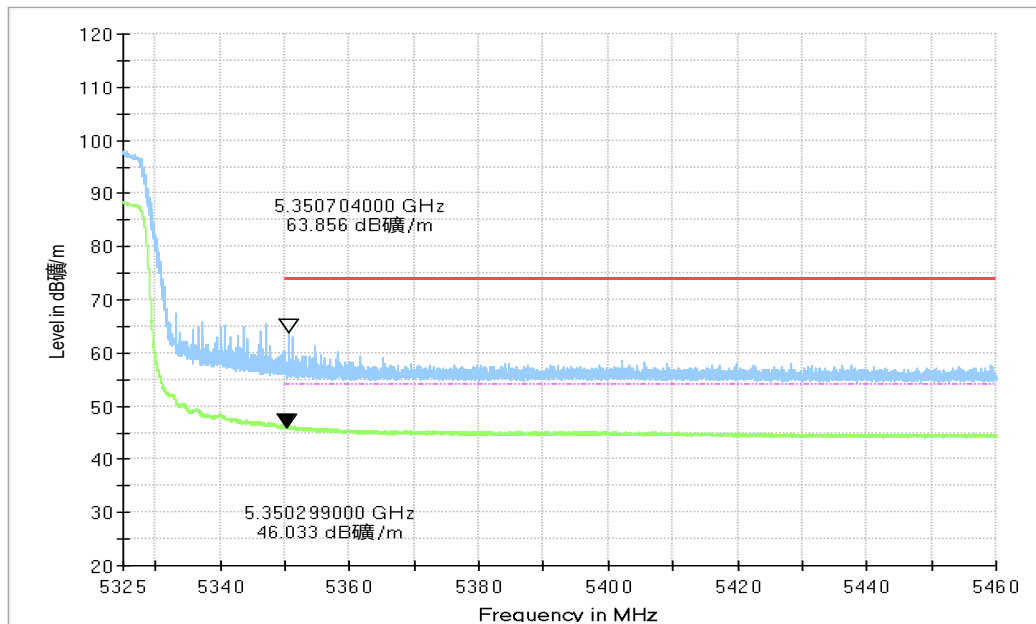


Fig.51 Band Edges (802.11ac-HT40 Ch62, 5310MHz)

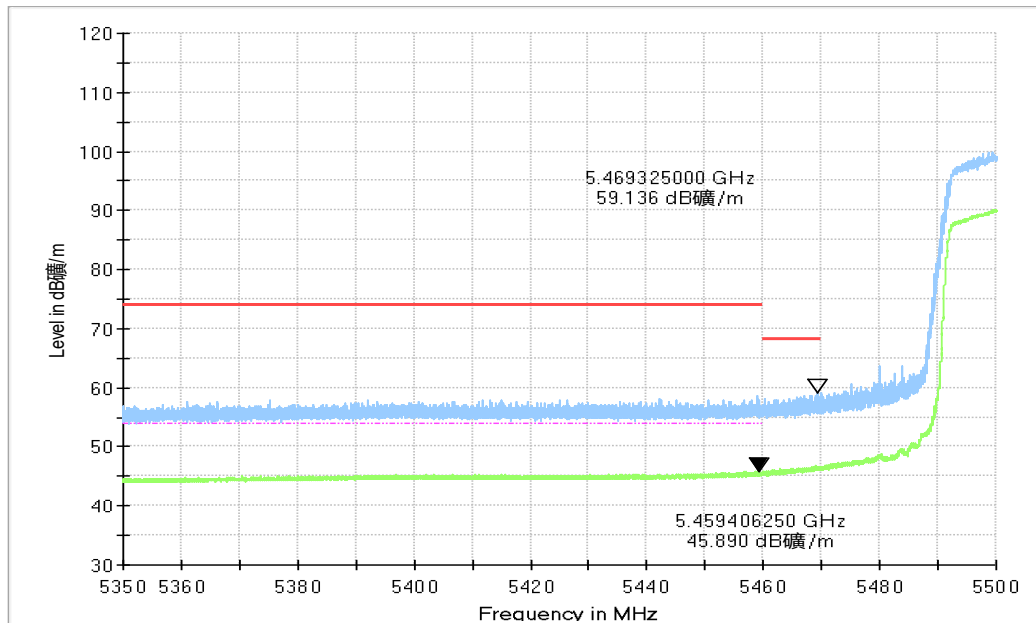


Fig.52 Band Edges (802.11ac-HT40 Ch102, 5510MHz)

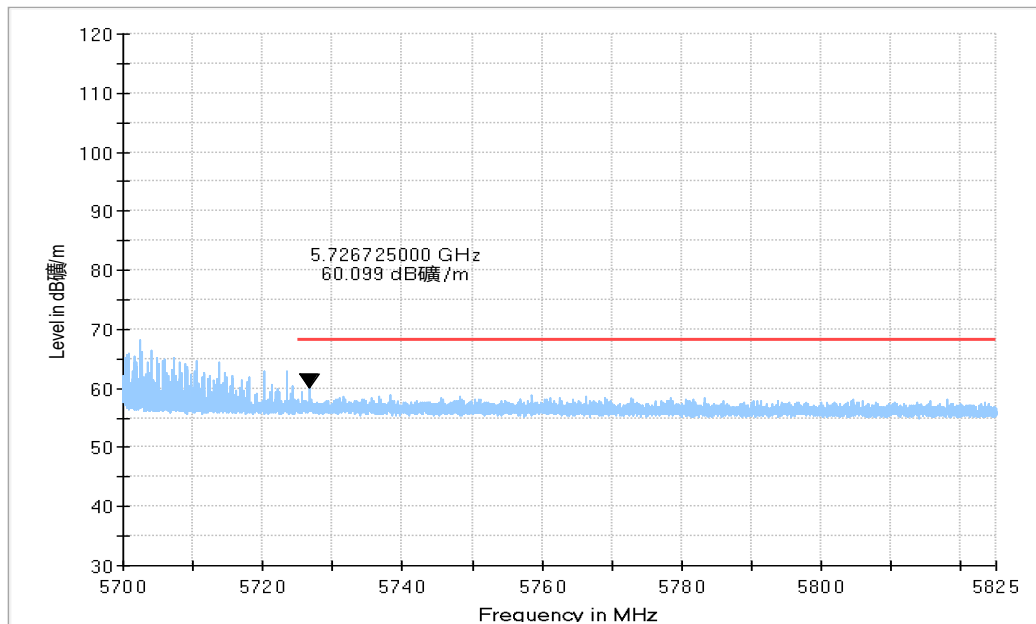


Fig.53 Band Edges (802.11ac-HT40 Ch134, 5670MHz)

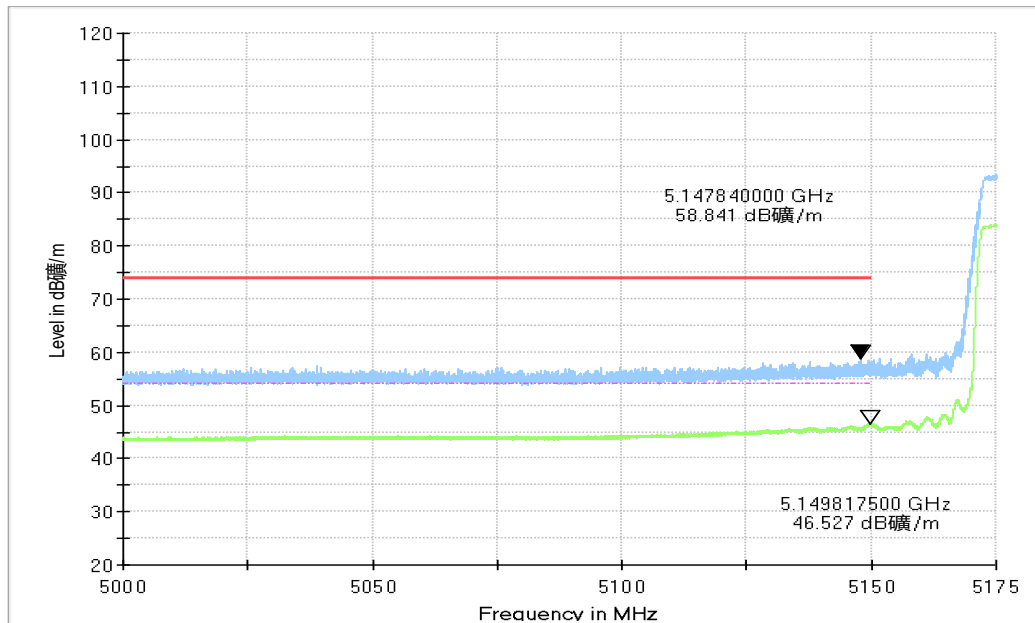


Fig.54 Band Edges (802.11ac-HT80 Ch42 , 5210MHz)

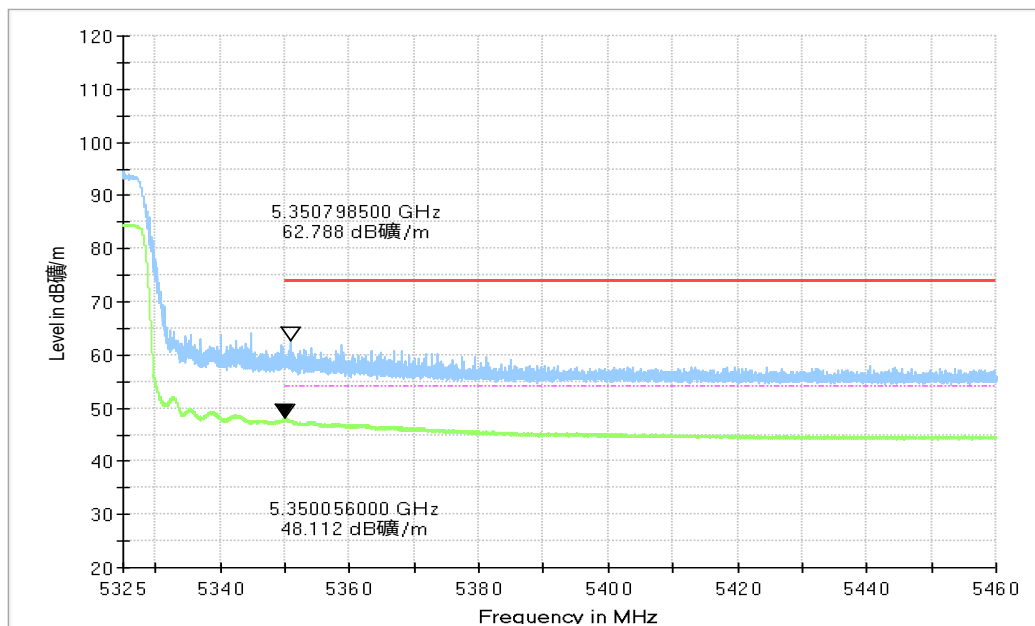


Fig.55 Band Edges (802.11ac-HT80 Ch58, 5290MHz)

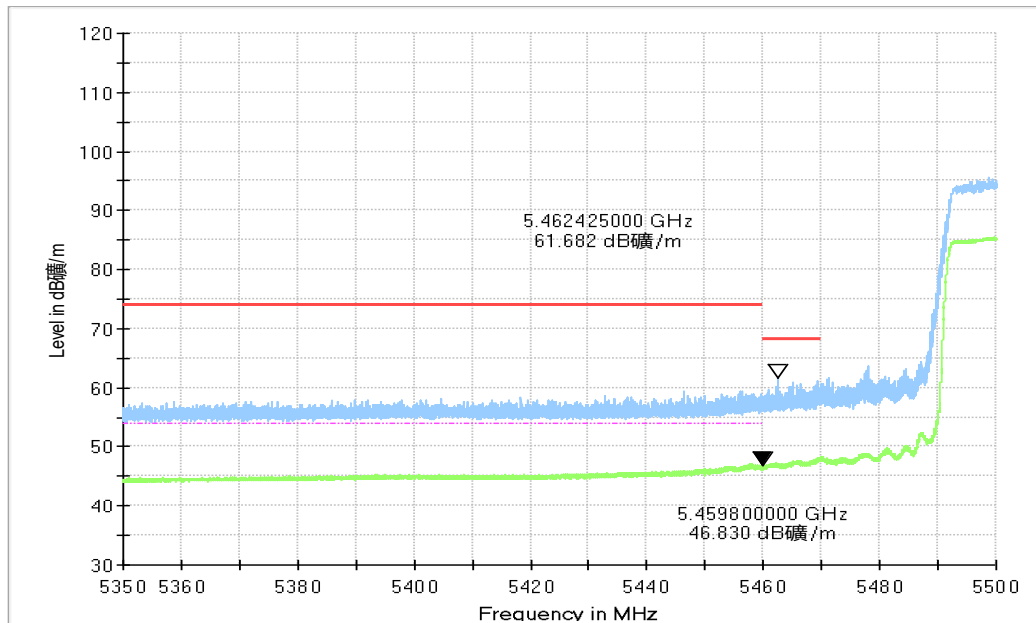


Fig.56 Band Edges (802.11ac-HT80 Ch106, 5530MHz)

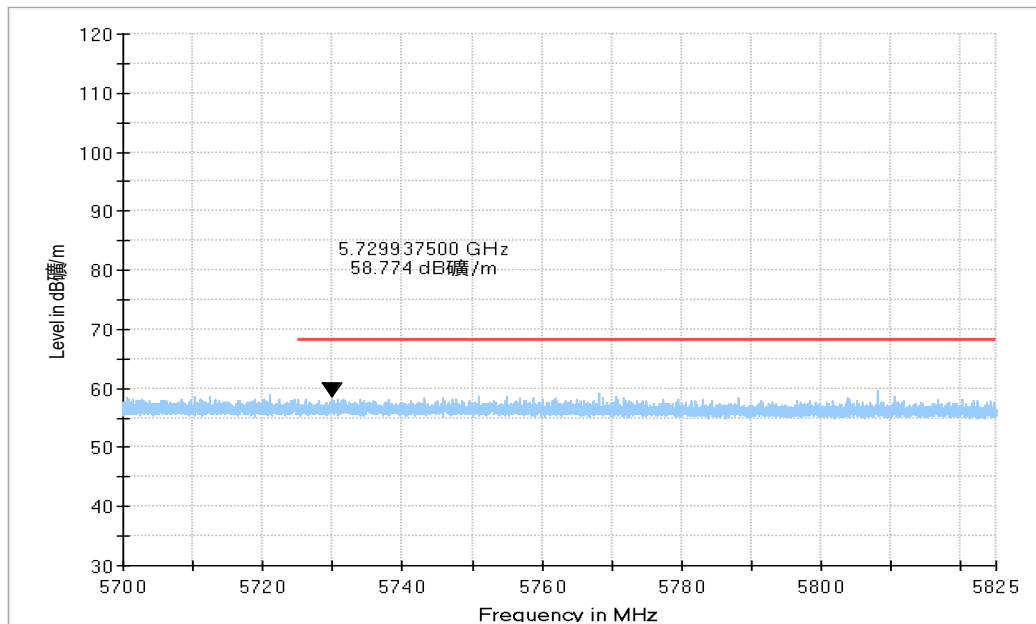


Fig.57 Band Edges (802.11ac-HT80 Ch122, 5610MHz)

A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-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)).

Limit in restricted band:

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

The measurement is made according to ANSI C63.10 and KDB 789033

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. 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 360° and the measurement antenna is moved from 1m to 4m to get the maximization result. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-7000	1MHz/3MHz	15
7000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Sample Calculations

1. 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

2. The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + \text{Cable Loss} + \text{Antenna Factor}$$

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

Note:

The range of evaluated frequency is from 9 kHz to 40GHz. Measurement value showed here only up to 6 maximum emissions noted.

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)
5137.200	44.85	-23.34	34.35	33.84	54.00	9.15	V
5145.400	45.36	-23.29	34.38	34.27	54.00	8.64	V
10818.500	33.89	-30.86	37.78	26.96	54.00	20.11	H
15849.000	38.51	-25.52	40.60	23.43	54.00	15.49	H
17913.500	39.03	-24.77	41.20	22.61	54.00	14.97	H
17968.500	39.84	-24.63	41.20	23.26	54.00	14.16	H

Channel 40

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)
5121.800	44.30	-23.44	34.29	33.45	54.00	9.70	V
5274.000	44.53	-23.57	34.65	33.45	54.00	9.47	V
10914.000	34.22	-31.12	37.71	27.62	54.00	19.78	V
15600.000	36.98	-25.98	40.20	22.76	54.00	17.02	V
17806.500	38.76	-25.05	41.29	22.51	54.00	15.24	H
17962.500	39.73	-24.65	41.20	23.17	54.00	14.27	V

Channel 48

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)
5272.200	43.82	-23.56	34.64	32.73	54.00	10.18	V
5299.200	43.62	-23.64	34.70	32.56	54.00	10.38	V
10905.000	34.12	-31.09	37.71	27.50	54.00	19.88	H
15720.000	37.26	-25.79	40.34	22.71	54.00	16.74	V
17811.500	38.80	-25.04	41.29	22.55	54.00	15.20	H
17976.500	39.71	-24.61	41.20	23.12	54.00	14.29	V

Channel 52

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)
5373.800	44.16	-23.31	34.50	32.97	54.00	9.84	V
5395.600	44.23	-23.05	34.50	32.78	54.00	9.77	V
10814.000	33.68	-30.86	37.79	26.76	54.00	20.32	V
15780.000	37.50	-25.64	40.46	22.67	54.00	16.50	V
17740.000	38.51	-25.07	41.30	22.28	54.00	15.49	V
17914.000	38.93	-24.77	41.20	22.50	54.00	15.07	V

Channel 56

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)
5361.200	44.20	-23.46	34.50	33.16	54.00	9.80	V
5393.200	44.21	-23.08	34.50	32.78	54.00	9.79	V
10851.000	33.62	-30.92	37.75	26.78	54.00	20.38	H
15840.000	38.14	-25.53	40.58	23.09	54.00	15.86	H
17756.500	38.68	-25.06	41.30	22.44	54.00	15.32	V
17893.000	38.94	-24.83	41.21	22.56	54.00	15.06	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)
5350.800	44.81	-23.59	34.50	33.90	54.00	9.19	V
5354.800	44.64	-23.54	34.50	33.68	54.00	9.36	V
10640.000	33.15	-30.88	37.68	26.35	54.00	20.85	H
15960.000	38.45	-25.39	40.76	23.08	54.00	15.55	H
17969.000	39.78	-24.63	41.20	23.21	54.00	14.22	V
17989.000	39.93	-24.60	41.20	23.33	54.00	14.07	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)
5455.400	44.40	-23.16	34.41	33.14	54.00	9.60	V
5458.000	44.63	-23.15	34.42	33.37	54.00	9.37	V
11000.000	34.77	-31.02	37.80	27.99	54.00	19.23	V
15900.000	38.59	-25.46	40.70	23.35	54.00	15.41	H
17965.500	39.63	-24.64	41.20	23.06	54.00	14.37	V
17990.500	40.00	-24.62	41.20	23.42	54.00	14.00	V

Channel 116

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)
5394.200	43.94	-23.06	34.50	32.51	54.00	10.06	V
5416.600	44.06	-23.09	34.47	32.68	54.00	9.94	V
11160.000	34.72	-30.90	37.86	27.76	54.00	19.28	V
15918.500	38.69	-25.44	40.72	23.40	54.00	15.31	V
17960.500	39.60	-24.65	41.20	23.05	54.00	14.40	V
17994.500	39.93	-24.68	41.20	23.42	54.00	14.07	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)
5399.000	43.87	-23.05	34.50	32.42	54.00	10.13	V
5412.000	43.79	-23.08	34.48	32.39	54.00	10.21	V
11400.000	33.80	-30.88	38.10	26.57	54.00	20.20	H
15901.500	38.66	-25.46	40.70	23.41	54.00	15.34	V
17969.000	39.76	-24.63	41.20	23.19	54.00	14.24	H
17990.000	39.89	-24.62	41.20	23.31	54.00	14.11	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)
5385.000	43.85	-23.17	34.50	32.52	54.00	10.15	V
5402.600	43.80	-23.05	34.49	32.36	54.00	10.20	V
11440.000	33.79	-30.92	38.14	26.57	54.00	20.21	V
15910.000	38.92	-25.45	40.71	23.65	54.00	15.08	H
17965.000	39.87	-24.64	41.20	23.31	54.00	14.13	H
17992.500	40.14	-24.65	41.20	23.60	54.00	13.86	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)
5138.400	43.75	-23.33	34.35	32.73	54.00	10.25	V
5149.200	43.84	-23.28	34.40	32.72	54.00	10.16	V
10884.500	34.25	-31.03	37.72	27.56	54.00	19.75	V
15540.000	37.32	-25.97	40.08	23.21	54.00	16.68	V
17748.000	38.82	-25.06	41.30	22.59	54.00	15.18	V
17960.000	39.51	-24.65	41.20	22.96	54.00	14.49	V

Channel 40

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)
5139.200	44.47	-23.33	34.36	33.44	54.00	9.53	V
5380.800	43.87	-23.23	34.50	32.60	54.00	10.13	V
10700.500	33.65	-30.96	37.80	26.80	54.00	20.35	H
15600.000	36.86	-25.98	40.20	22.64	54.00	17.14	V
17730.000	38.54	-25.07	41.30	22.31	54.00	15.46	V
17863.500	38.87	-24.90	41.24	22.54	54.00	15.13	H

Channel 48

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)
5282.400	45.02	-23.60	34.66	33.95	54.00	8.98	V
5344.400	43.96	-23.67	34.52	33.11	54.00	10.04	V
10698.000	33.64	-30.95	37.80	26.80	54.00	20.36	V
15720.000	37.32	-25.79	40.34	22.77	54.00	16.68	V
17794.500	38.77	-25.05	41.30	22.52	54.00	15.23	H
17937.500	39.05	-24.71	41.20	22.56	54.00	14.95	V

Channel 52

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)
5362.400	44.06	-23.45	34.50	33.01	54.00	9.94	V
5396.600	44.08	-23.04	34.50	32.62	54.00	9.92	V
11812.000	35.99	-29.84	38.71	27.11	54.00	18.01	V
15780.000	37.62	-25.64	40.46	22.79	54.00	16.38	V
17965.500	39.65	-24.64	41.20	23.09	54.00	14.35	V
17994.000	39.90	-24.68	41.20	23.37	54.00	14.10	V

Channel 56

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)
5366.600	44.20	-23.40	34.50	33.10	54.00	9.80	V
5397.800	44.13	-23.04	34.50	32.67	54.00	9.87	V
11836.500	35.99	-29.89	38.74	27.14	54.00	18.01	H
15840.000	38.22	-25.53	40.58	23.17	54.00	15.78	H
17965.500	39.69	-24.64	41.20	23.13	54.00	14.31	V
17989.000	39.94	-24.60	41.20	23.34	54.00	14.06	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)
5350.400	45.42	-23.60	34.50	34.52	54.00	8.58	V
5352.200	45.31	-23.57	34.50	34.39	54.00	8.69	V
10640.000	33.34	-30.88	37.68	26.54	54.00	20.66	H
15960.000	38.41	-25.39	40.76	23.03	54.00	15.59	H
17965.000	39.76	-24.64	41.20	23.20	54.00	14.24	V
17994.000	39.98	-24.68	41.20	23.46	54.00	14.02	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)
5454.800	44.42	-23.16	34.41	33.17	54.00	9.58	V
5459.200	44.59	-23.15	34.42	33.33	54.00	9.41	V
11000.000	34.81	-31.02	37.80	28.03	54.00	19.19	H
15868.500	38.60	-25.49	40.64	23.46	54.00	15.40	H
17961.000	39.49	-24.65	41.20	22.94	54.00	14.51	H
17987.500	39.98	-24.58	41.20	23.36	54.00	14.02	V

Channel 116

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)
5399.600	44.04	-23.05	34.50	32.59	54.00	9.96	V
5413.000	43.97	-23.08	34.47	32.57	54.00	10.03	V
11160.000	34.72	-30.90	37.86	27.76	54.00	19.28	V
15919.000	38.64	-25.43	40.72	23.35	54.00	15.36	V
17963.000	39.66	-24.64	41.20	23.10	54.00	14.34	H
17992.000	39.87	-24.65	41.20	23.31	54.00	14.13	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)
5374.200	43.74	-23.31	34.50	32.55	54.00	10.26	V
5400.200	43.75	-23.05	34.50	32.30	54.00	10.25	V
11400.000	33.74	-30.88	38.10	26.51	54.00	20.26	V
15929.500	38.72	-25.42	40.73	23.41	54.00	15.28	V
17963.000	39.52	-24.64	41.20	22.96	54.00	14.48	H
17995.000	39.91	-24.69	41.20	23.40	54.00	14.09	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)
5383.000	43.73	-23.20	34.50	32.43	54.00	10.27	V
5396.600	43.84	-23.04	34.50	32.38	54.00	10.16	V
11440.000	33.82	-30.92	38.14	26.60	54.00	20.18	V
15901.500	38.79	-25.46	40.70	23.55	54.00	15.21	H
17964.000	39.91	-24.64	41.20	23.35	54.00	14.09	V
17990.000	40.25	-24.62	41.20	23.67	54.00	13.75	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)
5144.200	45.56	-23.30	34.38	34.48	54.00	8.44	V
5148.000	45.85	-23.28	34.39	34.74	54.00	8.15	V
10838.000	34.11	-30.87	37.76	27.23	54.00	19.89	V
15570.000	37.21	-25.98	40.14	23.04	54.00	16.79	H
17732.500	38.60	-25.07	41.30	22.36	54.00	15.40	H
17958.500	39.56	-24.66	41.20	23.02	54.00	14.44	V

Channel 46

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)
5143.800	44.28	-23.30	34.38	33.21	54.00	9.72	V
5365.800	43.74	-23.41	34.50	32.65	54.00	10.26	V
10900.000	34.02	-31.08	37.70	27.39	54.00	19.98	H
15690.000	37.14	-25.88	40.29	22.73	54.00	16.86	H
17751.000	38.60	-25.06	41.30	22.36	54.00	15.40	V
17871.500	38.82	-24.88	41.23	22.48	54.00	15.18	V

Channel 54

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)
5360.600	44.12	-23.47	34.50	33.09	54.00	9.88	V
5374.200	44.13	-23.31	34.50	32.93	54.00	9.87	V
11825.500	36.01	-29.87	38.73	27.15	54.00	17.99	V
15810.000	37.65	-25.56	40.52	22.70	54.00	16.35	H
17963.000	39.70	-24.64	41.20	23.15	54.00	14.30	V
17989.000	39.97	-24.60	41.20	23.38	54.00	14.03	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)
5350.200	46.92	-23.60	34.50	36.02	54.00	7.08	V
5351.200	46.63	-23.59	34.50	35.72	54.00	7.37	V
10620.000	33.29	-30.85	37.64	26.50	54.00	20.71	V
15930.000	38.55	-25.42	40.73	23.24	54.00	15.45	H
17960.500	39.52	-24.65	41.20	22.97	54.00	14.48	H
17988.000	39.97	-24.59	41.20	23.36	54.00	14.03	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)
5458.400	44.47	-23.15	34.42	33.21	54.00	9.53	V
5459.800	44.55	-23.15	34.42	33.28	54.00	9.45	V
11020.000	34.59	-30.96	37.80	27.75	54.00	19.41	V
15922.000	38.69	-25.43	40.72	23.40	54.00	15.31	V
17960.500	39.47	-24.65	41.20	22.92	54.00	14.53	V
17987.000	39.97	-24.58	41.20	23.35	54.00	14.03	V

Channel 118

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)
5395.200	44.01	-23.05	34.50	32.56	54.00	9.99	V
5407.600	44.01	-23.07	34.48	32.59	54.00	9.99	V
11180.000	34.15	-30.82	37.88	27.08	54.00	19.85	H
15858.500	38.49	-25.51	40.62	23.38	54.00	15.51	H
17967.000	39.74	-24.63	41.20	23.17	54.00	14.26	H
17996.000	39.80	-24.70	41.20	23.31	54.00	14.20	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)
5369.800	43.77	-23.36	34.50	32.63	54.00	10.23	V
5397.800	43.89	-23.04	34.50	32.43	54.00	10.11	V
11340.000	34.21	-30.71	38.10	26.82	54.00	19.79	V
15915.000	38.67	-25.44	40.72	23.40	54.00	15.33	H
17961.000	39.47	-24.65	41.20	22.92	54.00	14.53	H
17993.500	39.95	-24.67	41.20	23.41	54.00	14.05	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)
5400.800	43.85	-23.05	34.50	32.41	54.00	10.15	V
5414.000	43.75	-23.08	34.47	32.36	54.00	10.25	V
11420.000	33.82	-30.90	38.12	26.60	54.00	20.18	V
15890.000	38.66	-25.47	40.68	23.45	54.00	15.34	V
17962.500	39.80	-24.65	41.20	23.25	54.00	14.20	V
17988.000	40.16	-24.59	41.20	23.55	54.00	13.84	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)
5137.400	43.75	-23.34	34.35	32.73	54.00	10.25	V
5149.200	43.84	-23.28	34.40	32.72	54.00	10.16	V
10837.500	33.99	-30.87	37.76	27.10	54.00	20.01	V
15540.000	37.02	-25.97	40.08	22.91	54.00	16.98	V
17812.000	38.83	-25.04	41.29	22.58	54.00	15.17	V
17942.000	38.98	-24.70	41.20	22.48	54.00	15.02	H

Channel 40

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)
5141.400	44.32	-23.31	34.37	33.27	54.00	9.68	V
5284.600	44.14	-23.60	34.67	33.07	54.00	9.86	V
10949.000	33.91	-31.16	37.75	27.32	54.00	20.09	H
15600.000	36.91	-25.98	40.20	22.69	54.00	17.09	V
17806.500	38.89	-25.05	41.29	22.65	54.00	15.11	H
17892.000	38.83	-24.83	41.21	22.45	54.00	15.17	H

Channel 48

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)
5289.400	44.19	-23.62	34.68	33.14	54.00	9.81	V
5333.600	43.95	-23.68	34.57	33.07	54.00	10.05	V
10916.000	33.90	-31.13	37.72	27.31	54.00	20.10	H
15720.000	37.13	-25.79	40.34	22.59	54.00	16.87	V
17743.000	38.46	-25.06	41.30	22.22	54.00	15.54	H
17879.000	38.75	-24.86	41.22	22.40	54.00	15.25	V

Channel 52

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)
5365.800	44.00	-23.41	34.50	32.91	54.00	10.00	V
5393.800	44.01	-23.07	34.50	32.58	54.00	9.99	V
11822.500	36.00	-29.86	38.72	27.14	54.00	18.00	V
15780.000	37.59	-25.64	40.46	22.77	54.00	16.41	H
17956.000	39.48	-24.66	41.20	22.94	54.00	14.52	V
17989.500	40.04	-24.61	41.20	23.45	54.00	13.96	V

Channel 56

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)
5372.000	44.09	-23.33	34.50	32.92	54.00	9.91	V
5392.400	44.03	-23.08	34.50	32.61	54.00	9.97	V
11874.500	35.95	-29.88	38.77	27.05	54.00	18.05	V
15840.000	38.12	-25.53	40.58	23.06	54.00	15.88	V
17928.500	39.13	-24.73	41.20	22.66	54.00	14.87	H
17991.500	39.93	-24.64	41.20	23.37	54.00	14.07	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)
5371.600	43.72	-23.34	34.50	32.56	54.00	10.28	V
5394.400	43.83	-23.06	34.50	32.39	54.00	10.17	V
10640.000	33.21	-30.88	37.68	26.40	54.00	20.79	H
15960.000	38.46	-25.39	40.76	23.09	54.00	15.54	V
17957.000	39.43	-24.66	41.20	22.89	54.00	14.57	V
17988.500	40.04	-24.60	41.20	23.44	54.00	13.96	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)
5395.400	44.09	-23.05	34.50	32.64	54.00	9.91	V
5402.600	44.09	-23.05	34.49	32.65	54.00	9.91	V
11000.000	34.26	-31.02	37.80	27.47	54.00	19.74	H
15908.500	38.67	-25.45	40.71	23.41	54.00	15.33	V
17959.000	39.39	-24.65	41.20	22.84	54.00	14.61	H
17988.500	39.85	-24.60	41.20	23.24	54.00	14.15	H

Channel 116

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)
5396.000	43.99	-23.04	34.50	32.53	54.00	10.01	V
5411.600	43.84	-23.07	34.48	32.44	54.00	10.16	V
11160.000	34.18	-30.90	37.86	27.22	54.00	19.82	H
15922.500	38.72	-25.43	40.72	23.43	54.00	15.28	H
17972.000	39.60	-24.62	41.20	23.02	54.00	14.40	H
17990.000	39.94	-24.62	41.20	23.36	54.00	14.06	V

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)
5375.600	43.80	-23.29	34.50	32.59	54.00	10.20	V
5394.600	43.84	-23.06	34.50	32.40	54.00	10.16	V
11400.000	33.73	-30.88	38.10	26.50	54.00	20.27	H
15919.500	38.76	-25.43	40.72	23.47	54.00	15.24	H
17967.000	39.70	-24.63	41.20	23.14	54.00	14.30	H
17995.000	39.96	-24.69	41.20	23.45	54.00	14.04	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)
5387.600	43.80	-23.14	34.50	32.45	54.00	10.20	V
5400.800	43.89	-23.05	34.50	32.44	54.00	10.11	V
11440.000	33.79	-30.92	38.14	26.57	54.00	20.21	H
15890.000	38.64	-25.47	40.68	23.43	54.00	15.36	V
17955.500	39.69	-24.66	41.20	23.15	54.00	14.31	H
17992.500	40.23	-24.65	41.20	23.68	54.00	13.77	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)
5137.200	44.37	-23.34	34.35	33.36	54.00	9.63	V
5148.000	44.95	-23.28	34.39	33.84	54.00	9.05	V
10702.000	33.59	-30.96	37.80	26.75	54.00	20.41	V
15570.000	37.16	-25.98	40.14	22.99	54.00	16.84	H
17763.500	38.61	-25.06	41.30	22.37	54.00	15.39	V
17889.500	38.85	-24.84	41.21	22.48	54.00	15.15	H

Channel 46

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)
5361.800	43.74	-23.46	34.50	32.70	54.00	10.26	V
5372.400	43.86	-23.33	34.50	32.69	54.00	10.14	V
10840.000	33.90	-30.88	37.76	27.02	54.00	20.10	V
15690.000	37.28	-25.88	40.29	22.87	54.00	16.72	H
17772.500	38.74	-25.06	41.30	22.50	54.00	15.26	V
17884.000	38.91	-24.85	41.22	22.54	54.00	15.09	H

Channel 54

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)
5362.200	44.01	-23.45	34.50	32.96	54.00	9.99	V
5395.000	44.04	-23.05	34.50	32.60	54.00	9.96	V
11816.000	36.03	-29.84	38.72	27.15	54.00	17.97	V
15810.000	37.61	-25.56	40.52	22.66	54.00	16.39	H
17967.000	39.72	-24.63	41.20	23.15	54.00	14.28	H
17992.500	40.05	-24.65	41.20	23.51	54.00	13.95	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	45.35	-23.59	34.50	34.44	54.00	8.65	V
5352.400	45.09	-23.57	34.50	34.16	54.00	8.91	V
10620.000	33.25	-30.85	37.64	26.46	54.00	20.75	H
15930.000	38.65	-25.42	40.73	23.34	54.00	15.35	H
17956.000	39.38	-24.66	41.20	22.84	54.00	14.62	V
17992.000	39.92	-24.65	41.20	23.37	54.00	14.08	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)
5456.200	44.55	-23.16	34.41	33.29	54.00	9.45	V
5460.000	44.60	-23.15	34.42	33.33	54.00	9.40	V
11020.000	34.80	-30.96	37.80	27.96	54.00	19.20	H
15852.500	38.78	-25.51	40.61	23.69	54.00	15.22	H
17963.500	39.89	-24.64	41.20	23.33	54.00	14.11	V
17991.000	40.20	-24.63	41.20	23.63	54.00	13.80	V

Channel 118

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)
5393.800	43.97	-23.07	34.50	32.54	54.00	10.03	V
5407.800	44.02	-23.07	34.48	32.60	54.00	9.98	V
11180.000	34.34	-30.82	37.88	27.27	54.00	19.66	V
15913.500	38.86	-25.44	40.71	23.58	54.00	15.14	H
17959.500	39.66	-24.65	41.20	23.12	54.00	14.34	H
17988.000	40.20	-24.59	41.20	23.59	54.00	13.80	V

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)
5393.800	43.88	-23.07	34.50	32.44	54.00	10.12	V
5416.800	43.76	-23.09	34.47	32.38	54.00	10.24	V
11340.000	34.55	-30.71	38.10	27.16	54.00	19.45	V
15878.000	38.90	-25.48	40.66	23.73	54.00	15.10	V
17926.500	39.30	-24.74	41.20	22.84	54.00	14.70	V
17993.500	40.14	-24.67	41.20	23.61	54.00	13.86	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)
5390.000	43.83	-23.11	34.50	32.45	54.00	10.17	V
5398.000	43.86	-23.04	34.50	32.40	54.00	10.14	V
11420.000	33.83	-30.90	38.12	26.60	54.00	20.17	V
15912.000	38.85	-25.44	40.71	23.58	54.00	15.15	H
17962.500	39.81	-24.65	41.20	23.25	54.00	14.19	V
17991.000	40.13	-24.63	41.20	23.56	54.00	13.87	V

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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)
5145.200	45.21	-23.30	34.38	34.12	54.00	8.79	V
5150.000	45.83	-23.27	34.40	34.70	54.00	8.17	V
11890.000	35.84	-29.86	38.79	26.91	54.00	18.16	V
15630.000	36.92	-25.98	40.23	22.67	54.00	17.08	H
17956.500	39.45	-24.66	41.20	22.91	54.00	14.55	V
17991.500	40.02	-24.64	41.20	23.46	54.00	13.98	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)
5350.200	46.87	-23.60	34.50	35.97	54.00	7.13	V
5354.000	46.37	-23.55	34.50	35.42	54.00	7.63	V
11801.000	35.71	-29.81	38.70	26.82	54.00	18.29	H
15870.000	38.59	-25.49	40.64	23.44	54.00	15.41	V
17969.500	39.80	-24.63	41.20	23.22	54.00	14.20	V
17997.000	39.96	-24.72	41.20	23.48	54.00	14.04	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)
5458.000	45.73	-23.15	34.42	34.47	54.00	8.27	V
5459.200	45.69	-23.15	34.42	34.42	54.00	8.31	V
11060.000	34.45	-30.89	37.80	27.54	54.00	19.55	H
15910.000	38.97	-25.45	40.71	23.70	54.00	15.03	V
17953.000	39.55	-24.67	41.20	23.02	54.00	14.45	H
17980.500	40.07	-24.60	41.20	23.47	54.00	13.93	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)
5395.000	43.84	-23.05	34.50	32.40	54.00	10.16	V
5417.000	43.83	-23.09	34.47	32.45	54.00	10.17	V
11220.000	33.99	-30.65	37.94	26.70	54.00	20.01	V
15892.000	38.66	-25.47	40.68	23.45	54.00	15.34	H
17927.000	39.29	-24.74	41.20	22.83	54.00	14.71	H
17993.000	40.10	-24.66	41.20	23.57	54.00	13.90	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)
5374.200	43.72	-23.31	34.50	32.53	54.00	10.28	V
5392.000	43.78	-23.09	34.50	32.37	54.00	10.22	V
11380.000	34.27	-30.85	38.10	27.02	54.00	19.73	H
15906.000	38.84	-25.45	40.71	23.59	54.00	15.16	H
17954.000	39.53	-24.67	41.20	23.00	54.00	14.47	H
17992.000	40.13	-24.65	41.20	23.58	54.00	13.87	V

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)
5149.800	65.15	-23.27	34.40	54.03	74.00	8.85	H
5149.957	65.39	-23.27	34.40	54.26	74.00	8.61	V
10360.000	46.16	-30.47	37.46	39.17	68.30	22.14	V
15540.000	49.48	-25.97	40.08	35.37	74.00	24.52	H
17493.500	52.62	-24.97	41.20	36.39	68.30	15.68	V
17722.500	52.17	-25.07	41.30	35.94	68.30	16.12	H

Channel 40

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)
5166.000	60.21	-23.19	34.43	48.97	68.30	8.09	V
5237.200	60.56	-23.43	34.57	49.42	68.30	7.74	V
10400.000	46.17	-30.34	37.50	39.01	68.30	22.13	V
15600.000	49.12	-25.98	40.20	34.90	74.00	24.88	V
17308.000	53.72	-24.69	41.20	37.21	68.30	14.58	H
17540.500	52.86	-25.01	41.20	36.68	68.30	15.44	V

Channel 48

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)
5187.000	58.30	-23.10	34.47	46.93	68.30	10.00	V
5281.200	59.25	-23.59	34.66	48.18	68.30	9.05	H
10480.000	46.95	-30.60	37.58	39.97	68.30	21.35	V
15720.000	49.37	-25.79	40.34	34.82	74.00	24.63	V
17117.000	53.13	-25.02	41.47	36.68	68.30	15.17	H
17237.500	52.93	-24.76	41.26	36.42	68.30	15.37	V

Channel 52

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)
5225.800	60.02	-23.36	34.55	48.83	68.30	8.28	V
5301.200	59.28	-23.64	34.70	48.23	68.30	9.02	V
10520.000	45.30	-30.73	37.60	38.44	68.30	22.99	V
15780.000	50.36	-25.64	40.46	35.53	74.00	23.64	V
17141.500	52.92	-24.96	41.42	36.47	68.30	15.38	V
17307.500	53.33	-24.69	41.20	36.82	68.30	14.97	H

Channel 56

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)
5237.600	58.81	-23.44	34.58	47.67	68.30	9.49	V
5323.200	60.72	-23.67	34.61	49.77	68.30	7.58	V
10560.000	45.25	-30.78	37.60	38.43	68.30	23.05	V
15840.000	50.81	-25.53	40.58	35.76	74.00	23.19	V
17207.000	52.66	-24.82	41.29	36.19	68.30	15.64	V
17510.000	52.27	-24.99	41.20	36.05	68.30	16.03	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)
5350.340	65.01	-23.60	34.50	54.11	74.00	8.99	H
5351.649	64.79	-23.58	34.50	53.87	74.00	9.21	V
10640.000	44.56	-30.88	37.68	37.76	74.00	29.44	H
15960.000	50.34	-25.39	40.76	34.97	74.00	23.66	V
16795.000	53.59	-25.28	41.80	37.07	68.30	14.71	V
17645.500	53.83	-25.09	41.25	37.68	68.30	14.47	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)
5466.766	62.64	-23.14	34.43	51.35	68.30	5.66	V
5468.706	62.17	-23.14	34.44	50.87	68.30	6.13	V
11000.000	45.47	-31.02	37.80	38.69	74.00	28.53	H
16500.000	50.73	-25.42	41.50	34.65	68.30	17.57	H
16903.500	53.41	-25.12	41.80	36.73	68.30	14.89	V
17241.500	53.32	-24.75	41.26	36.81	68.30	14.98	V

Channel 116

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)
5523.800	61.03	-23.15	34.55	49.63	68.30	7.27	V
5631.000	59.87	-22.96	34.66	48.17	68.30	8.43	V
11160.000	46.75	-30.90	37.86	39.79	74.00	27.25	V
16740.000	51.72	-25.25	41.80	35.17	68.30	16.58	H
17066.000	53.69	-25.03	41.60	37.12	68.30	14.61	V
17237.500	53.43	-24.76	41.26	36.93	68.30	14.87	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)
5725.500	63.38	-22.73	34.85	51.26	68.30	4.92	V
5727.837	62.17	-22.73	34.86	50.04	68.30	6.13	H
11400.000	46.13	-30.88	38.10	38.90	74.00	27.87	H
17100.000	50.74	-25.03	41.50	34.27	68.30	17.55	V
17401.500	52.67	-24.85	41.20	36.31	68.30	15.63	V
17646.000	52.30	-25.09	41.25	36.15	68.30	16.00	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)
5676.200	61.08	-22.77	34.75	49.10	68.30	7.22	H
5763.200	61.30	-22.92	34.95	49.27	68.30	7.00	V
11440.000	45.32	-30.92	38.14	38.10	74.00	28.68	V
17160.000	51.08	-24.92	41.38	34.63	68.30	17.22	V
17341.500	53.14	-24.75	41.20	36.69	68.30	15.16	H
17666.500	52.94	-25.08	41.27	36.76	68.30	15.36	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)
5144.497	58.51	-23.30	34.38	47.43	74.00	15.49	H
5144.690	57.05	-23.30	34.38	45.96	74.00	16.95	H
10360.000	47.40	-30.47	37.46	40.40	68.30	20.90	H
15540.000	50.26	-25.97	40.08	36.15	74.00	23.74	H
17240.000	53.39	-24.75	41.26	36.88	68.30	14.91	V
17558.500	53.02	-25.03	41.20	36.85	68.30	15.28	V

Channel 40

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)
5165.800	60.58	-23.19	34.43	49.33	68.30	7.72	V
5232.400	61.50	-23.40	34.56	50.33	68.30	6.80	V
10400.000	46.05	-30.34	37.50	38.90	68.30	22.25	V
15600.000	49.68	-25.98	40.20	35.46	74.00	24.32	H
17347.000	53.46	-24.76	41.20	37.02	68.30	14.84	H
17468.500	52.91	-24.95	41.20	36.66	68.30	15.38	V

Channel 48

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)
5279.600	58.13	-23.59	34.66	47.05	68.30	10.17	V
5280.800	58.16	-23.59	34.66	47.09	68.30	10.14	H
10480.000	46.76	-30.60	37.58	39.79	68.30	21.54	V
15720.000	49.95	-25.79	40.34	35.40	74.00	24.05	V
17035.000	53.17	-25.04	41.69	36.51	68.30	15.13	H
17432.500	52.55	-24.90	41.20	36.25	68.30	15.75	V

Channel 52

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)
5218.200	59.28	-23.31	34.54	48.05	68.30	9.02	H
5299.400	58.29	-23.64	34.70	47.23	68.30	10.01	H
10520.000	45.54	-30.73	37.60	38.67	68.30	22.76	V
15780.000	49.69	-25.64	40.46	34.87	74.00	24.31	H
17064.500	54.06	-25.03	41.61	37.49	68.30	14.24	V
17252.500	53.95	-24.73	41.25	37.43	68.30	14.35	V

Channel 56

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)
5235.000	60.19	-23.42	34.57	49.04	68.30	8.11	H
5324.800	60.10	-23.67	34.60	49.17	68.30	8.20	V
10560.000	45.53	-30.78	37.60	38.71	68.30	22.77	H
15840.000	51.14	-25.53	40.58	36.09	74.00	22.86	H
16481.500	53.08	-25.49	41.43	37.14	68.30	15.22	H
17077.500	53.13	-25.03	41.57	36.59	68.30	15.17	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)
5350.123	68.03	-23.60	34.50	57.13	74.00	5.97	V
5350.866	68.24	-23.59	34.50	57.33	74.00	5.76	H
10640.000	44.84	-30.88	37.68	38.03	74.00	29.16	H
15960.000	50.60	-25.39	40.76	35.23	74.00	23.40	V
16830.500	54.15	-25.23	41.80	37.58	68.30	14.15	V
17008.000	54.46	-25.04	41.78	37.73	68.30	13.84	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)
5467.788	63.17	-23.14	34.44	51.88	68.30	5.13	V
5469.587	64.06	-23.14	34.44	52.76	68.30	4.24	H
11000.000	47.29	-31.02	37.80	40.51	74.00	26.71	H
16500.000	51.18	-25.42	41.50	35.10	68.30	17.12	H
17276.500	53.27	-24.67	41.22	36.73	68.30	15.02	V
17603.000	53.22	-25.07	41.20	37.08	68.30	15.08	H

Channel 116

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)
5530.800	58.71	-23.16	34.56	47.31	68.30	9.59	V
5632.000	58.62	-22.96	34.66	46.91	68.30	9.68	V
11160.000	46.14	-30.90	37.86	39.18	74.00	27.86	H
16740.000	50.65	-25.25	41.80	34.10	68.30	17.65	V
17033.500	53.05	-25.04	41.70	36.39	68.30	15.25	H
17401.500	53.15	-24.85	41.20	36.79	68.30	15.15	V

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)
5725.250	63.26	-22.73	34.85	51.14	68.30	5.04	V
5725.913	63.09	-22.73	34.85	50.97	68.30	5.21	V
11400.000	45.47	-30.88	38.10	38.25	74.00	28.53	H
17100.000	51.97	-25.03	41.50	35.49	68.30	16.33	H
17469.000	53.26	-24.95	41.20	37.01	68.30	15.04	V
17637.500	52.47	-25.09	41.24	36.32	68.30	15.83	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)
5669.400	59.74	-22.78	34.74	47.78	68.30	8.56	V
5760.600	60.82	-22.91	34.94	48.79	68.30	7.48	H
11440.000	45.24	-30.92	38.14	38.02	74.00	28.76	H
17160.000	51.35	-24.92	41.38	34.89	68.30	16.95	H
17283.000	54.08	-24.66	41.22	37.53	68.30	14.22	H
17530.000	53.40	-25.00	41.20	37.20	68.30	14.90	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)
5147.595	68.07	-23.28	34.39	56.97	74.00	5.93	H
5148.925	70.86	-23.28	34.40	59.75	74.00	3.14	V
10380.000	46.67	-30.41	37.48	39.60	68.30	21.63	V
15570.000	49.55	-25.98	40.14	35.39	74.00	24.45	H
17290.500	52.63	-24.66	41.21	36.09	68.30	15.67	H
17517.500	52.50	-24.99	41.20	36.29	68.30	15.80	H

Channel 46

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)
5170.000	57.87	-23.17	34.44	46.60	68.30	10.43	H
5299.600	59.51	-23.64	34.70	48.44	68.30	8.79	H
10460.000	46.20	-30.53	37.56	39.17	68.30	22.10	V
15690.000	49.14	-25.88	40.29	34.72	74.00	24.86	H
17237.500	52.66	-24.76	41.26	36.15	68.30	15.64	V
17368.000	53.81	-24.79	41.20	37.40	68.30	14.49	H

Channel 54

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)
5217.800	61.32	-23.31	34.54	50.09	68.30	6.98	V
5324.400	60.89	-23.67	34.60	49.95	68.30	7.41	H
10540.000	46.12	-30.75	37.60	39.27	68.30	22.18	V
15810.000	49.55	-25.56	40.52	34.59	74.00	24.45	V
16603.500	53.76	-25.06	41.61	37.21	68.30	14.54	V
16959.000	53.45	-25.05	41.80	36.70	68.30	14.85	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)
5351.176	68.53	-23.59	34.50	57.62	74.00	5.47	H
5357.913	67.98	-23.50	34.50	56.99	74.00	6.02	H
10620.000	45.43	-30.85	37.64	38.64	68.30	22.87	V
15930.000	49.85	-25.42	40.73	34.55	74.00	24.15	H
16618.500	53.61	-25.04	41.64	37.01	68.30	14.69	H
17027.500	53.55	-25.04	41.72	36.87	68.30	14.75	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)
5468.134	59.40	-23.14	34.44	48.10	68.30	8.90	V
5469.916	60.29	-23.14	34.44	48.99	68.30	8.01	V
11020.000	45.98	-30.96	37.80	39.15	74.00	28.02	H
16530.000	50.95	-25.31	41.53	34.74	68.30	17.35	H
17010.000	52.56	-25.04	41.77	35.84	68.30	15.74	V
17508.000	54.31	-24.98	41.20	38.10	68.30	13.99	V

Channel 118

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)
5529.600	63.88	-23.16	34.56	52.48	68.30	4.42	V
5658.600	61.95	-22.83	34.72	50.07	68.30	6.35	V
11180.000	46.09	-30.82	37.88	39.02	74.00	27.91	V
16770.000	50.87	-25.30	41.80	34.37	68.30	17.43	V
17014.500	53.48	-25.04	41.76	36.76	68.30	14.82	H
17248.500	54.00	-24.73	41.25	37.49	68.30	14.30	V

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)
5726.863	64.77	-22.73	34.85	52.64	68.30	3.53	V
5728.925	63.93	-22.73	34.86	51.80	68.30	4.37	V
11340.000	46.30	-30.71	38.10	38.90	74.00	27.70	H
17010.000	51.64	-25.04	41.77	34.92	68.30	16.66	H
17304.000	52.84	-24.69	41.20	36.33	68.30	15.46	V
17590.000	52.93	-25.06	41.20	36.79	68.30	15.37	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)
5630.200	58.83	-22.97	34.66	47.14	68.30	9.47	V
5792.400	58.95	-23.05	35.07	46.93	68.30	9.35	H
11420.000	45.73	-30.90	38.12	38.51	74.00	28.27	V
17130.000	50.46	-24.99	41.44	34.01	68.30	17.84	H
17333.000	53.35	-24.73	41.20	36.88	68.30	14.95	V
17530.000	53.42	-25.00	41.20	37.22	68.30	14.88	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)
5140.472	57.25	-23.32	34.36	46.21	74.00	16.75	H
5144.497	58.51	-23.30	34.38	47.43	74.00	15.49	V
10360.000	45.22	-30.47	37.46	38.23	68.30	23.08	H
15540.000	48.83	-25.97	40.08	34.72	74.00	25.17	V
17261.000	52.98	-24.71	41.24	36.45	68.30	15.32	H
17501.500	52.77	-24.98	41.20	36.55	68.30	15.53	V

Channel 40

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)
5173.600	58.76	-23.15	34.45	47.47	68.30	9.54	H
5225.200	57.55	-23.35	34.55	46.35	68.30	10.75	H
10400.000	46.70	-30.34	37.50	39.54	68.30	21.60	H
15600.000	48.22	-25.98	40.20	34.00	74.00	25.78	V
17309.000	53.02	-24.69	41.20	36.51	68.30	15.28	H
17497.500	53.52	-24.97	41.20	37.30	68.30	14.78	V

Channel 48

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)
5259.800	59.99	-23.52	34.62	48.89	68.30	8.31	H
5265.600	57.26	-23.54	34.63	46.17	68.30	11.04	H
10480.000	45.74	-30.60	37.58	38.77	68.30	22.56	V
15720.000	49.38	-25.79	40.34	34.83	74.00	24.62	V
17019.000	53.28	-25.04	41.74	36.58	68.30	15.02	V
17367.000	52.41	-24.79	41.20	35.99	68.30	15.89	V

Channel 52

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)
5236.000	59.92	-23.43	34.57	48.77	68.30	8.38	V
5284.800	57.54	-23.61	34.67	46.47	68.30	10.76	H
10520.000	45.29	-30.73	37.60	38.42	68.30	23.01	H
15780.000	49.37	-25.64	40.46	34.55	74.00	24.63	V
16657.500	54.24	-25.11	41.72	37.63	68.30	14.06	H
16998.000	53.41	-25.05	41.80	36.65	68.30	14.89	V

Channel 56

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)
5258.000	62.02	-23.51	34.62	50.91	68.30	6.28	V
5305.800	60.04	-23.64	34.68	49.00	68.30	8.26	H
10560.000	45.22	-30.78	37.60	38.39	68.30	23.08	H
15840.000	50.27	-25.53	40.58	35.22	74.00	23.73	V
16603.000	53.50	-25.06	41.61	36.95	68.30	14.80	H
17225.500	53.17	-24.78	41.27	36.68	68.30	15.13	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)
5351.298	59.02	-23.59	34.50	48.10	74.00	14.98	H
5353.012	58.80	-23.56	34.50	47.86	74.00	15.20	V
10640.000	45.22	-30.88	37.68	38.42	74.00	28.78	V
15960.000	50.75	-25.39	40.76	35.38	74.00	23.25	V
16621.000	53.26	-25.05	41.64	36.66	68.30	15.04	H
17318.000	53.20	-24.71	41.20	36.71	68.30	15.10	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)
5463.841	57.66	-23.15	34.43	46.38	68.30	10.64	H
5465.434	57.88	-23.15	34.43	46.59	68.30	10.42	H
11000.000	45.97	-31.02	37.80	39.19	74.00	28.03	H
16500.000	51.14	-25.42	41.50	35.06	68.30	17.16	V
17034.500	53.27	-25.04	41.70	36.61	68.30	15.03	H
17540.000	53.29	-25.01	41.20	37.10	68.30	15.01	V

Channel 116

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)
5549.600	58.06	-23.21	34.60	46.67	68.30	10.24	H
5610.000	57.91	-23.06	34.62	46.35	68.30	10.39	H
11160.000	46.62	-30.90	37.86	39.65	74.00	27.38	V
16740.000	50.85	-25.25	41.80	34.29	68.30	17.45	V
17311.500	53.95	-24.70	41.20	37.45	68.30	14.35	H
17625.500	52.74	-25.09	41.23	36.60	68.30	15.56	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)
5726.250	62.49	-22.73	34.85	50.37	68.30	5.81	H
5728.262	61.44	-22.73	34.86	49.31	68.30	6.86	H
11400.000	45.73	-30.88	38.10	38.51	74.00	28.27	H
17100.000	50.84	-25.03	41.50	34.36	68.30	17.46	H
17318.500	53.52	-24.71	41.20	37.03	68.30	14.78	V
17599.500	52.10	-25.06	41.20	35.96	68.30	16.20	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)
5690.000	63.57	-22.76	34.78	51.55	68.30	4.73	V
5748.600	60.37	-22.84	34.90	48.31	68.30	7.93	H
11440.000	45.87	-30.92	38.14	38.65	74.00	28.13	V
17160.000	50.84	-24.92	41.38	34.39	68.30	17.46	H
17335.000	53.24	-24.74	41.20	36.78	68.30	15.05	V
17541.500	53.48	-25.01	41.20	37.29	68.30	14.82	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)
5137.350	59.38	-23.34	34.35	48.37	74.00	14.62	V
5145.180	60.94	-23.30	34.38	49.85	74.00	13.06	H
10380.000	49.08	-30.41	37.48	42.01	68.30	19.22	V
15700.000	49.08	-25.85	40.30	34.63	74.00	24.92	V
17417.500	52.73	-24.87	41.20	36.40	68.30	15.57	V
17716.000	51.84	-25.07	41.30	35.62	68.30	16.46	V

Channel 46

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)
5286.400	56.74	-23.61	34.67	45.67	68.30	11.56	V
5278.600	57.19	-23.58	34.66	46.11	68.30	11.11	V
10460.000	45.45	-30.53	37.56	38.42	68.30	22.85	H
15690.000	49.86	-25.88	40.29	35.45	74.00	24.14	V
17336.500	52.93	-24.74	41.20	36.47	68.30	15.37	H
17592.500	51.92	-25.06	41.20	35.78	68.30	16.38	H

Channel 54

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)
5236.200	60.27	-23.43	34.57	49.13	68.30	8.03	V
5305.600	60.47	-23.64	34.68	49.44	68.30	7.83	H
10540.000	45.51	-30.75	37.60	38.66	68.30	22.79	V
15810.000	49.60	-25.56	40.52	34.64	74.00	24.40	V
16857.500	53.08	-25.19	41.80	36.47	68.30	15.22	H
17293.000	53.37	-24.67	41.21	36.83	68.30	14.93	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)
5350.704	63.86	-23.59	34.50	52.95	74.00	10.14	V
5354.740	61.26	-23.54	34.50	50.31	74.00	12.74	V
10620.000	45.55	-30.85	37.64	38.77	74.00	28.45	H
15930.000	50.59	-25.42	40.73	35.28	74.00	23.41	H
16605.500	53.13	-25.05	41.61	36.57	68.30	15.17	H
17073.000	53.56	-25.03	41.58	37.01	68.30	14.74	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)
5469.325	59.14	-23.14	34.44	47.84	68.30	9.16	H
4569.944	58.79	-24.37	34.00	49.16	68.30	9.51	V
11020.000	47.26	-30.96	37.80	40.42	74.00	26.74	V
16530.000	51.84	-25.31	41.53	35.62	68.30	16.46	H
16905.500	53.55	-25.12	41.80	36.87	68.30	14.75	V
17602.000	53.70	-25.07	41.20	37.56	68.30	14.60	V

Channel 118

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)
5554.000	62.96	-23.22	34.60	51.58	68.30	5.34	V
5634.200	64.62	-22.95	34.67	52.90	68.30	3.68	H
11180.000	46.27	-30.82	37.88	39.21	74.00	27.73	V
16770.000	52.37	-25.30	41.80	35.86	68.30	15.93	H
16983.500	54.22	-25.05	41.80	37.47	68.30	14.08	H
17549.000	53.54	-25.02	41.20	37.36	68.30	14.76	V

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)
5726.725	60.10	-22.73	34.85	47.97	68.30	8.20	V
5738.375	58.94	-22.78	34.88	46.84	68.30	9.36	V
11340.000	46.00	-30.71	38.10	38.61	74.00	28.00	H
17010.000	51.31	-25.04	41.77	34.58	68.30	16.99	V
17306.500	53.01	-24.69	41.20	36.50	68.30	15.29	H
17620.000	53.04	-25.08	41.22	36.90	68.30	15.26	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)
5663.400	62.76	-22.81	34.73	50.84	68.30	5.54	H
5746.800	65.11	-22.83	34.89	53.04	68.30	3.19	H
11420.000	45.63	-30.90	38.12	38.40	74.00	28.37	H
17130.000	51.07	-24.99	41.44	34.62	68.30	17.23	V
17318.000	53.43	-24.71	41.20	36.94	68.30	14.87	V
17595.500	53.96	-25.06	41.20	37.82	68.30	14.34	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)
5147.840	58.84	-23.28	34.39	47.73	74.00	15.16	V
5149.538	58.42	-23.27	34.40	47.30	74.00	15.58	V
10420.000	46.44	-30.38	37.52	39.30	68.30	21.86	V
15630.000	49.78	-25.98	40.23	35.53	74.00	24.22	V
16624.500	53.36	-25.05	41.65	36.76	68.30	14.94	V
16908.000	53.80	-25.11	41.80	37.12	68.30	14.50	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)
5350.798	62.79	-23.59	34.50	51.88	74.00	11.21	V
5358.696	61.85	-23.50	34.50	50.85	74.00	12.15	H
10580.000	44.87	-30.80	37.60	38.08	68.30	23.43	V
15870.000	50.81	-25.49	40.64	35.67	74.00	23.19	H
16770.000	53.61	-25.30	41.80	37.11	68.30	14.69	H
17313.000	53.90	-24.70	41.20	37.40	68.30	14.40	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)
5462.425	61.68	-23.15	34.42	50.41	68.30	6.62	V
5465.219	60.83	-23.15	34.43	49.54	68.30	7.47	H
11060.000	46.04	-30.89	37.80	39.13	74.00	27.96	H
16590.000	51.19	-25.10	41.59	34.70	68.30	17.11	H
16961.000	53.17	-25.05	41.80	36.42	68.30	15.13	H
17245.000	53.97	-24.74	41.25	37.46	68.30	14.33	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)
5729.938	58.77	-22.74	34.86	46.65	68.30	9.53	V
5755.000	58.60	-22.88	34.92	46.56	68.30	9.70	H
11220.000	45.75	-30.65	37.94	38.46	74.00	28.25	V
16830.000	51.28	-25.23	41.80	34.71	68.30	17.02	V
17038.500	53.65	-25.04	41.68	37.00	68.30	14.65	V
17578.500	52.68	-25.05	41.20	36.53	68.30	15.62	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)
5610.200	58.15	-23.06	34.62	46.59	68.30	10.15	V
5766.400	60.26	-22.94	34.97	48.23	68.30	8.04	H
11380.000	46.33	-30.85	38.10	39.08	74.00	27.67	H
17070.000	54.36	-25.03	41.59	37.80	68.30	13.94	V
17341.000	53.54	-24.75	41.20	37.08	68.30	14.76	V
17507.500	53.20	-24.98	41.20	36.98	68.30	15.10	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

A.7. AC Powerline Conducted Emission (150kHz- 30MHz)

Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

Method of Measurement:

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver:
Quasi-Peak / Average Detector.

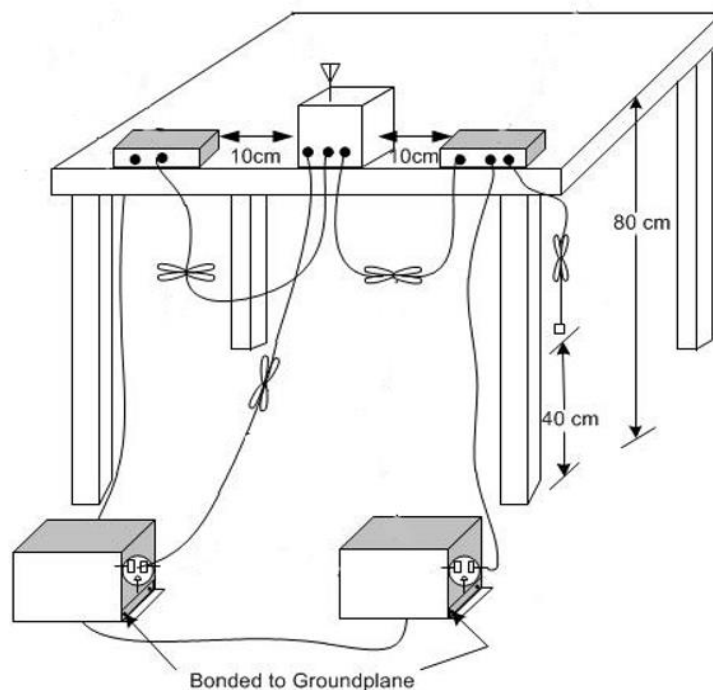
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Setup



Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.58	Fig.59	P
0.5 to 5	56			
5 to 30	60			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	67 56 to 46	Fig.58	Fig.59	P
0.5 to 5	46			
5 to 30	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Conclusion: PASS

Test graphs as below:

Traffic:

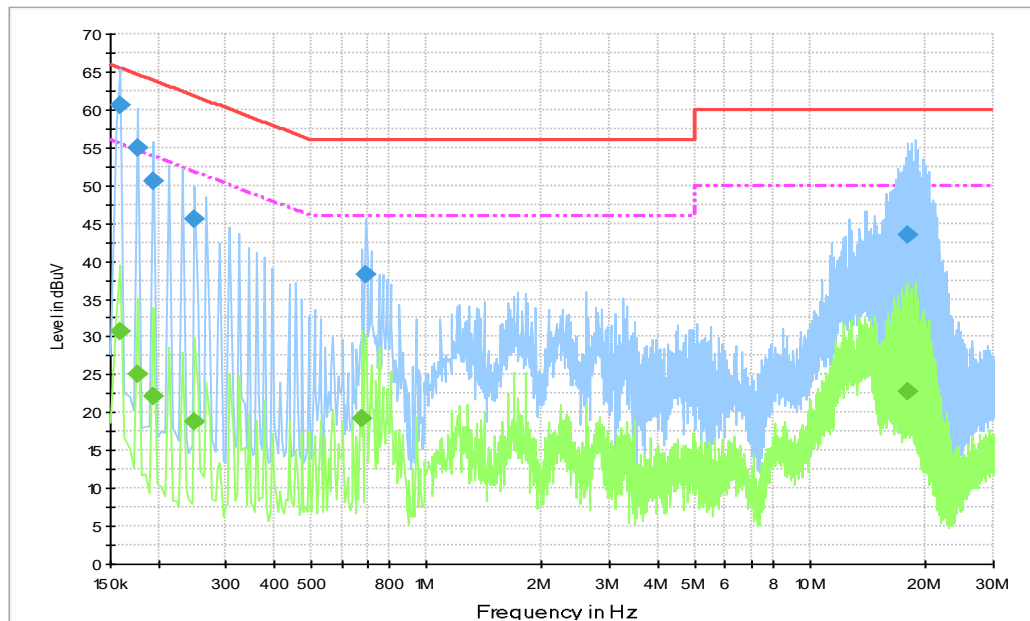


Fig.58 AC Powerline Conducted Emission-Traffic

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	60.7	2000.	9.000	L1	26.8	4.9	65.5
0.177000	54.9	2000.	9.000	L1	23.5	9.7	64.6
0.195000	50.5	2000.	9.000	N	20.5	13.3	63.8
0.249000	45.6	2000.	9.000	L1	19.7	16.2	61.8
0.694500	38.3	2000.	9.000	N	19.7	17.7	56.0
17.898000	43.4	2000.	9.000	L1	19.9	16.6	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	30.8	2000.0	9.000	L1	26.8	24.8	55.5
0.177000	25.2	2000.0	9.000	L1	23.5	29.5	54.6
0.195000	22.2	2000.0	9.000	L1	20.5	31.6	53.8
0.249000	18.7	2000.0	9.000	L1	19.7	33.1	51.8
0.681000	19.2	2000.0	9.000	N	19.7	26.8	46.0
17.898000	22.7	2000.0	9.000	L1	19.9	27.3	50.0

Idle

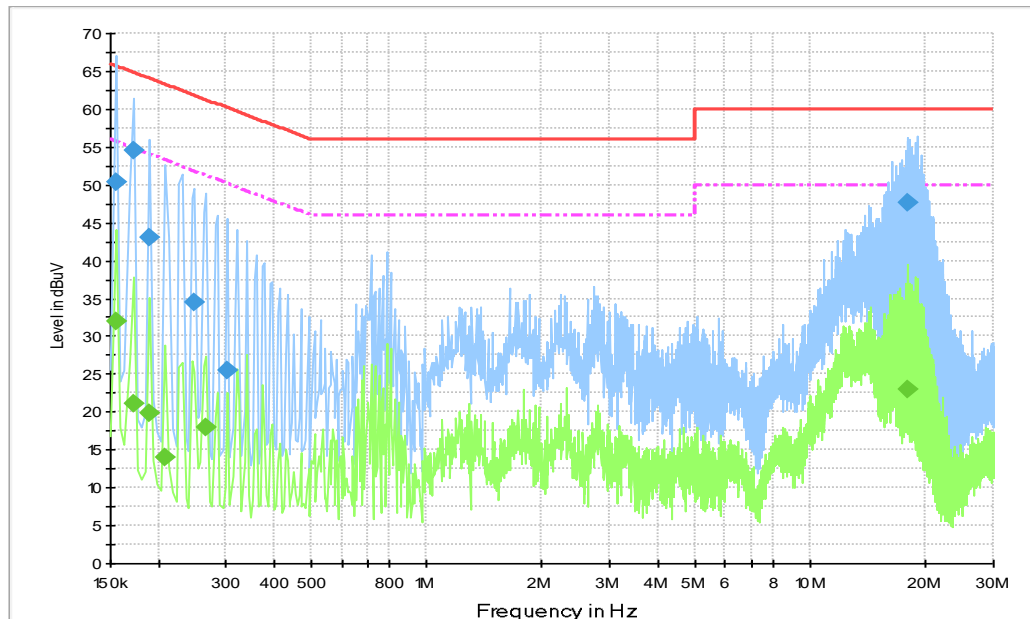


Fig.59 AC Powerline Conducted Emission-Idle

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	50.4	2000.	9.000	N	27.7	15.3	65.8
0.172500	54.6	2000.	9.000	L1	24.3	10.3	64.8
0.190500	43.1	2000.	9.000	N	21.2	21.0	64.0
0.249000	34.4	2000.	9.000	N	19.7	27.4	61.8
0.303000	25.4	2000.	9.000	N	19.7	34.7	60.2
18.033000	47.7	2000.	9.000	N	19.9	12.3	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	32.0	2000.0	9.000	L1	27.7	23.8	55.8
0.172500	21.1	2000.0	9.000	N	24.3	33.8	54.8
0.190500	19.9	2000.0	9.000	N	21.2	34.1	54.0
0.208500	14.0	2000.0	9.000	L1	19.7	39.3	53.3
0.267000	17.9	2000.0	9.000	N	19.7	33.3	51.2
18.015000	23.1	2000.0	9.000	L1	19.9	26.9	50.0

A.8. 99% Occupied bandwidth

Method of Measurement: See ANSI C63.10-2013-clause 12.4.2.

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Measurement Uncertainty:

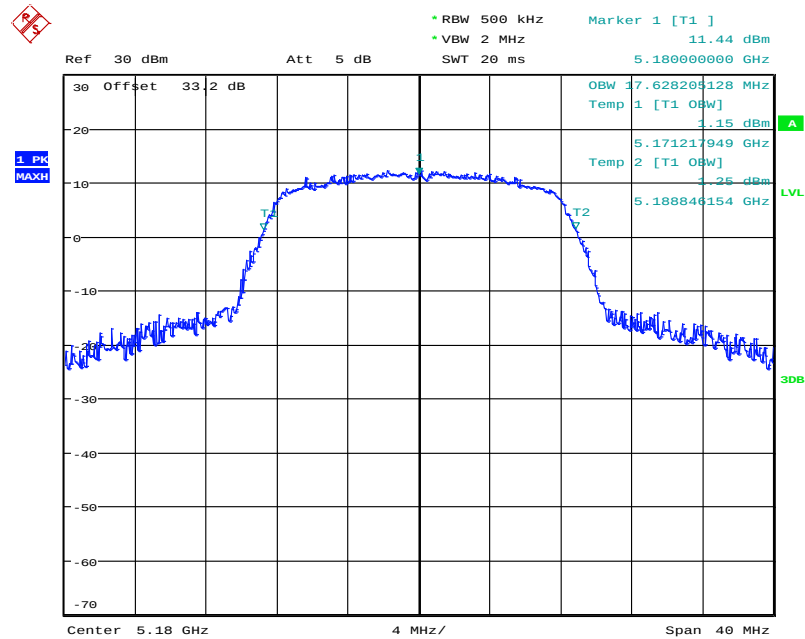
Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Frequency	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.60	17.63	P
	5200 MHz	Fig.61	17.63	P
	5240 MHz	Fig.62	17.63	P
802.11n HT20	5180 MHz	Fig.63	18.33	P
	5200 MHz	Fig.64	18.33	P
	5240 MHz	Fig.65	18.33	P
802.11n HT40	5190 MHz	Fig.66	36.28	P
	5230 MHz	Fig.67	36.41	P
802.11ac HT80	5210 MHz	Fig.68	75.38	P

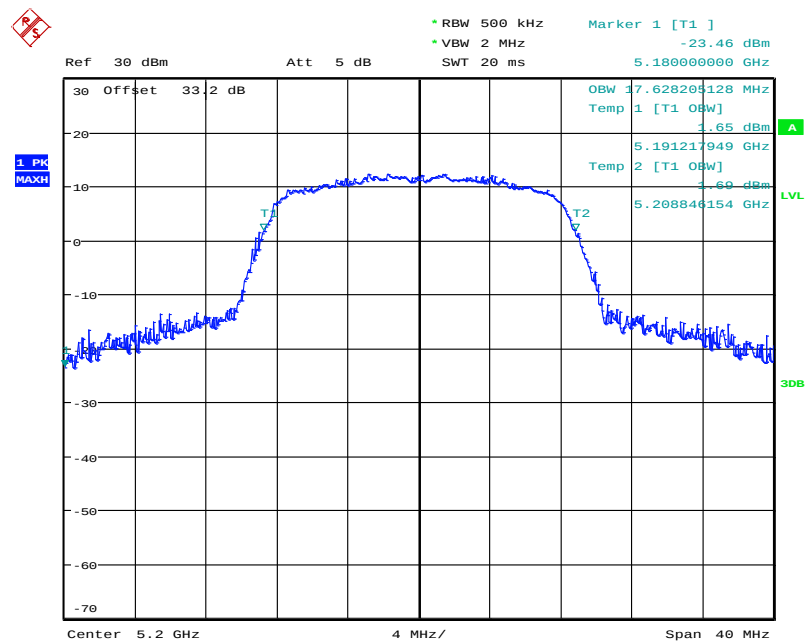
Conclusion: PASS

Test graphs as below:



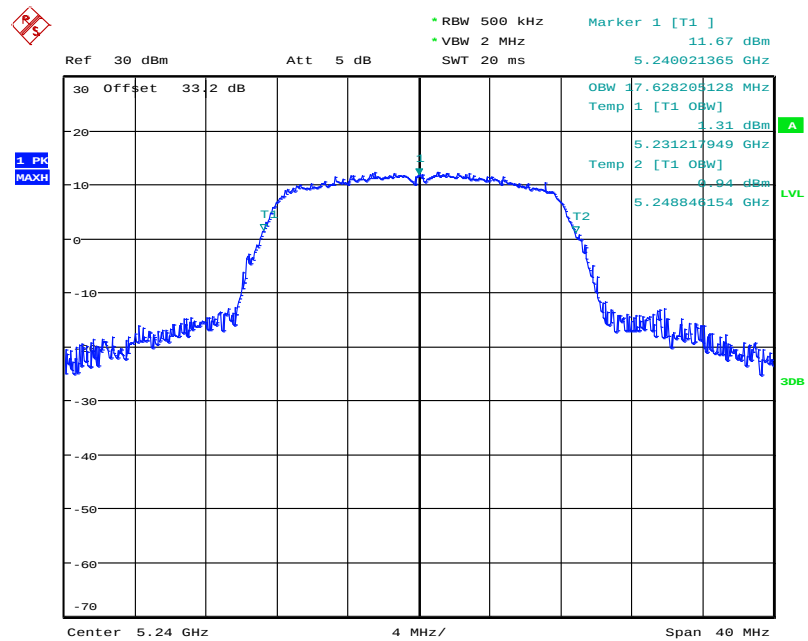
Date: 1 JAN 2003 04:35:46

Fig.60 99% Occupied bandwidth (802.11a, 5180MHz)



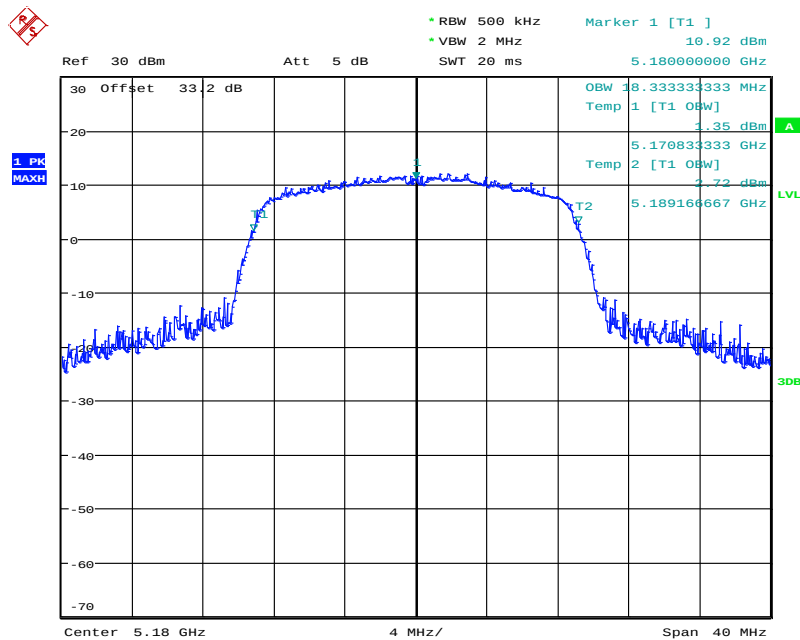
Date: 1 JAN 2003 04:36:25

Fig.61 99% Occupied bandwidth (802.11a, 5200MHz)



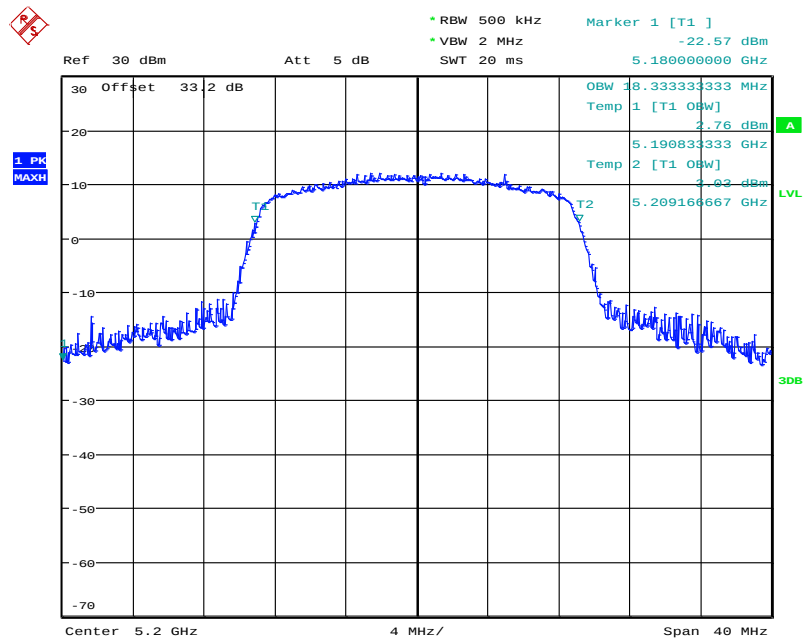
Date: 1.JAN.2003 04:38:15

Fig.62 99% Occupied bandwidth (802.11a, 5240MHz)



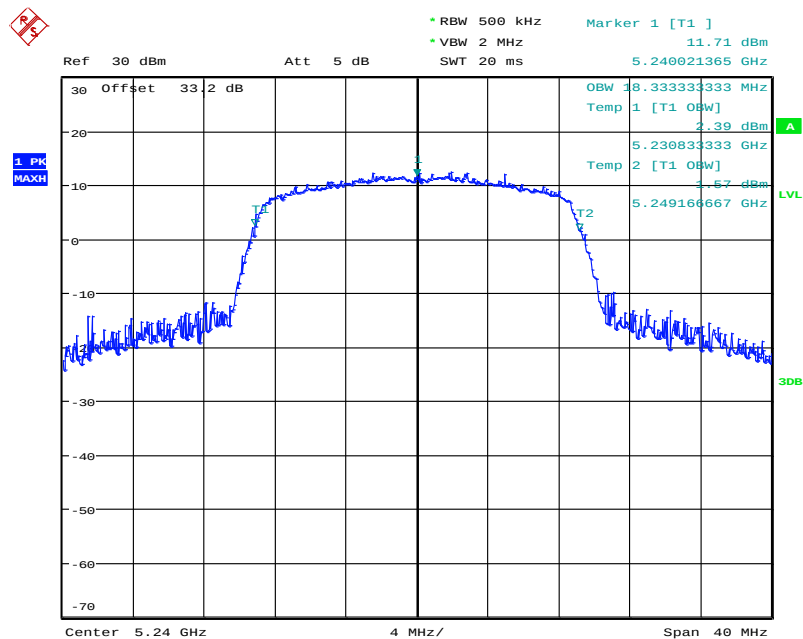
Date: 1.JAN.2003 05:32:15

Fig.63 99% Occupied bandwidth (802.11n-HT20, 5180MHz)



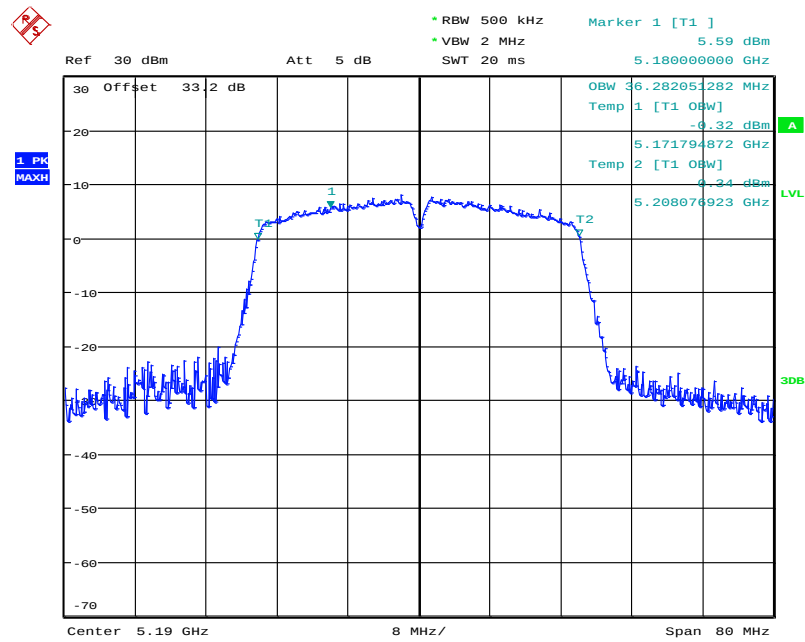
Date: 1.JAN.2003 05:34:11

Fig.64 99% Occupied bandwidth (802.11n-HT20, 5200MHz)



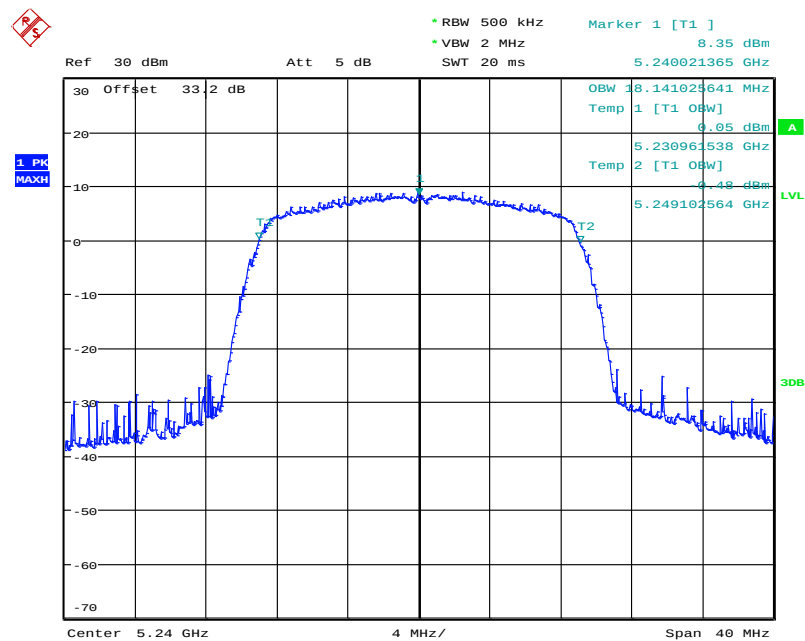
Date: 1.JAN.2003 05:36:01

Fig.65 99% Occupied bandwidth (802.11n-HT20, 5240MHz)



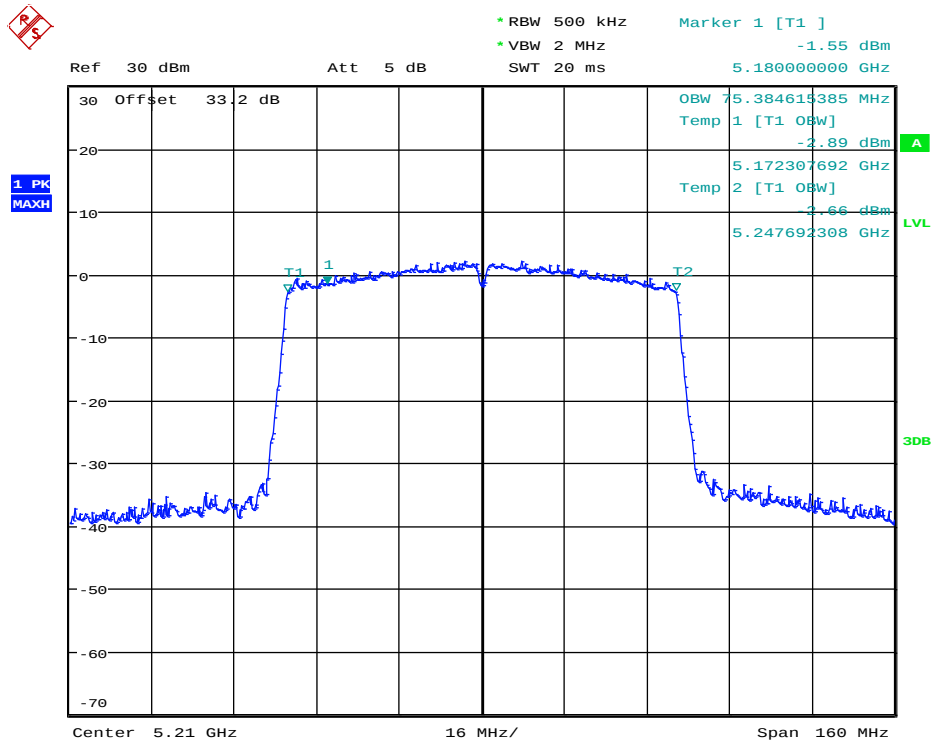
Date: 1 JAN 2003 05:51:08

Fig.66 99% Occupied bandwidth (802.11n-HT40, 5190MHz)



Date: 1 JAN 2003 04:57:16

Fig.67 99% Occupied bandwidth (802.11n-HT40, 5230MHz)



Date: 1.JAN.2003 05:26:33

Fig.68 99% Occupied bandwidth (802.11ac-HT80, 5210MHz)

A.9. Power control

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

ANNEX B: EUT parameters

Disclaimer: The antenna gain provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate



*** END OF REPORT BODY ***