Certificate Number: 5055.02

TEST REPORT FOR WLAN TESTING

Report No.: SRTC2019-9004(F)-19101501(F)

Product Name: Mobile Phone

Product Model: HLTE220E

Applicant: Hisense International Co., Ltd.

Manufacturer: Hisense Communications Co., Ltd.

Specification: FCC Part 15, Subpart C (2019)

FCC ID: 2ADOBHLTE220E

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

Beijing, P.R.China

Tel: 86-10-57996183 Fax: 86-10-57996388

CONTENTS

1. GENERAL INFORMATION **2**
1.1 NOTES OF THE TEST REPORT 2
1.2 INFORMATION ABOUT THE TESTING LABORATORY 2
1.3 APPLICANT'S DETAILS 2
1.4 MANUFACTURER'S DETAILS 2
1.5 TEST ENVIRONMENT 3
2 DESCRIPTION OF THE DEVICE UNDER TEST **4**
2.1FINAL EQUIPMENT BUILD STATUS 4
2.2 DESCRIPTION OF TEST MODES 6
2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL 6
2.3 DUTY CYCLE OF TEST SIGNAL 7
2.4 EUT OPERATING CONDITIONS 8
2.5 SUPPORT EQUIPMENT 8
3 REFERENCE SPECIFICATION **9**
4 KEY TO NOTES AND RESULT CODES **9**
5 RESULT SUMMARY **10**
6 TEST RESULT **11**
6.1 PEAK POWER OUTPUT 11
6.2 OCCUPIED BANDWIDTH 12
6.3 TRANSMITTER POWER SPECTRAL DENSITY 13
6.4 CONDUCTED OUT OF BAND EMISSION MEASUREMENT 14
6.5 BAND-EDGE MEASUREMENT 15
6.6 SPURIOUS RADIATED EMISSIONS 16
6.7 AC POWER LINE CONDUCTED EMISSION 21
7 MEASUREMENT UNCERTAINTIES **23**
8 TEST EQUIPMENTS **24**
APPENDIX A – TEST DATA OF CONDUCTED EMISSION **25**
APPENDIX B – TEST DATA OF RADIATED EMISSION **42**

1. GENERAL INFORMATION

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC). The test results relate only to individual items of the samples which have been tested. The certification and accreditation identifiers used in this report shall not be applicable to the tested or calibrated samples thereof. The manufacturer shall not mark the tested samples or items (or a separate part of the item) with the identifiers of certification and accreditation to mislead relevant parties about the tested samples or items.

1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
Contacted person:	Liu Jia
Tel:	+86 10 57996183
Fax:	+86 10 57996388
Email:	liujiaf@srtc.org.cn

1.3 Applicant's details

Company:	Hisense International Co., Ltd.
Address:	Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China
City:	Qingdao
Country or Region:	China
Contacted person:	Geng Ruifeng
Tel:	+86-532-80877742
Fax:	---
Email:	gengruifeng@hisense.com

1.4 Manufacturer's details

Company:	Hisense Communications Co., Ltd.
Address:	No.218 Qianwangang Road, Economic & Technological Development Zone, Qingdao, China
City:	Qingdao
Country or Region:	China
Contacted person:	Song Haibin
Tel:	+86-532-55753700
Fax:	---
Email:	songhaibin@hisense.com

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2019-10-15
Testing Start Date:	2019-10-15
Testing End Date:	2019-10-31

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	30

Normal Supply Voltage (V d.c.):	3.80

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1Final Equipment Build Status

Frequency Band	2.412GHz~2.462GHz
Number of Channel For 20MHz	11
Modulation Type	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM
Duplex Mode	TDD
Channel Spacing	5MHz
Data Rate	802.11b:1Mbps-11Mbps 802.11g:6Mbps-54Mbps 802.11n HT20:MCS0-MCS7
Power Supply	Battery/Charger
Hardware Version	YK680--MB-V0.1
Software Version	Hisense_HLTE220E_MX02_L201.01_20190926
IMEI	863501040484886
Antenna type	Refer to Note
Antenna connector	Refer to Note

Note: The antenna provide to the EUT, please refer to the following table:

Brand	Model	Antenna gain	Frequency range(GHz)	Antenna type	Connecter Type
N/A	N/A	-1.3dBi	2.412GHz~2.462GHz	Fixed Internal Antenna	N/A
Manufacturers ensure that their designs will not be modified by the user or third parties arbitrary antenna parameters and performance.					

Note: The equipments have two supplies, is different on the supplier of CTP/Earphone/Camera/Data cable.

Main Supply

Part Name	Model	Supplier(Brand)	Description
Camera	ST-CFKS816-5MFF-V2.0/ ST-CFKS816-30WFF-V2.0/	Union Image	Front CAM
Camera	ST-CFKS816BF-V2.0	Union Image	Rear CAM
CTP	CCF11700-6.0	Jiangxi Holitech Technology Co.,Ltd	CTP
Data cable	KLKS816AUSB	Dongguan Keling Electronic Technology Co., Ltd.	
Earphone	KLKS816A	Shenzhen Jinchuangju Electronic Technology Co.,Ltd.	

Secondary Supply

Part Name	Model Name	supplier	Remark
Camera	HTP1157/HTV1155	JIXIHOLITECH TECHNOLGY CO.LTD	Front CAM
Camera	HTV1156	JIXIHOLITECH TECHNOLGY CO.LTD	Rear CAM
CTP	Y152073B2-D-X	Dongguan Yuye Commumication Technology CO.,ted	CTP
Data cable	A106-0022-S	SHENZHEN KOAR ELECTIC CO.,LTD	
Earphone	W1G513A06S	Shenzhen Jinchuangju Electronic Technology Co.,Ltd.	

2.2 Description of Test Modes

11 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	---	---

2.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE ≥ 1G	RE<1G	PLC	APCM	-
-	√	√	√	√	-

Where **RE 1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Radiated Emission Test (Above 1GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
1 to 11	6	DBPSK/ BPSK	1,6,6.5

Radiated Emission Test (Below 1GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
1 to 11	6	DBPSK/ BPSK	1,6,6.5

Power Line Conducted Emission Test:

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
1 to 11	6	DBPSK	1

Antenna Port Conducted Measurement:

This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
1 to 11	1,3, 6,9, 11	DBPSK/ BPSK	1,6,6.5

2.3 Duty Cycle of Test Signal

Modulation Type	Data Rate	Duty Cycle	Correction factor
11b	1Mbps	99.7%	0.01dB
11g	6Mbps	97.6%	0.11dB
11n(HT20)	6.5Mbps	97.4%	0.11dB
Duty cycle of test signal is > 98 %, duty factor shall not be considered. Correction factor = 10* log (1/duty cycle)			

2.4 EUT Operating conditions

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

2.5 Support Equipment

The following support equipment was used to exercise the DUT during testing:

Equipment	Battery
Manufacturer	Shenzhen Tianjin New Energy Technology Co.,Ltd；
Model Number	KS816
Serial Number	---

Equipment	Charger
Manufacturer	Shenzhen Tianyin Electronics Co., Ltd
Model Number	TPA-97050100VU
Serial Number	---

Equipment	USB Cable1
Manufacturer	SHENZHEN KOAR ELECTIC CO.,LTD
Model Number	A106-0022-S
Serial Number	---

Equipment	USB Cable2
Manufacturer	Dongguan Keling Electronic Technology Co., Ltd.
Model Number	KLKS816AUSB
Serial Number	---

3 REFERENCE SPECIFICATION

Specification	Version	Title
15.35	2019	Measurement detector functions and bandwidths.
15.209	2019	Radiated emission limits; general requirements.
15.247	2019	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz.
15.203	2019	Antenna requirement
ANSI C63.10	2013	Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074D01 V05r02	April 2, 2019	GUIDANCE FOR PERFORMING COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEMS (DTS) OPERATING UNDER SECTION 15.247

4 KEY TO NOTES AND RESULT CODES

The following are the definition of the test result.

Code	Meaning
PASS	Test result shows that the requirements of the relevant specification have been met.
FAIL	Test result shows that the requirements of the relevant specification have not been met.
N/T	Test case is not tested.
NTC	Nominal voltage, Normal Temperature
HV	High voltage, Normal Temperature
LV	Low voltage, Normal Temperature
HTHV	high voltage, High Temperature
LTHV	High voltage, Low Temperature
HTLV	Low voltage, High Temperature
LTLV	Low voltage, Low Temperature

5 RESULT SUMMARY

No.	Test case	Reference	Verdict
1	Peak Power Output	15.247(a)(2)	Pass
2	Occupied Bandwidth	15.247(b)(3))	Pass
3	Transmitter Power Spectral Density	15.247(e))	Pass
4	Conducted Out of band emission measurement	15.247(d)	Pass
5	Band Edge	15.247(d)	Pass
6	Spurious Radiated Emissions	15.247(d)/15.35(b)/15.209	Pass
7	AC Power line Conducted Emission	15.207	Pass
8	Antenna requirement	15.203	Pass（refer to section 2.1）

This Test Report Is Issued by: Mr. Peng Zhen 彭振	Checked by: Mr. Li Bin 李彬
Tested by: Mr. He Dengshun 何邓顺	Issued date: 20191101

6 TEST RESULT

6.1 Peak Power Output

6.1.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	40%	101.5kPa

6.1.2 Test Description

A transmitter antenna terminal of EUT is connected to the power meter. Measurement is made using a broadband power meter capable of making peak and average measurements while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies.

6.1.3 Test limit

FCC Part15.247(b)(3)
The maximum permissible conducted output power is 1 Watt.
Used conversion factor: Limit (dBm) = 10 log (Limit (W)/1mW)
==> Maximum Output Power: 30.0 dBm

6.1.4 Test Procedure Used

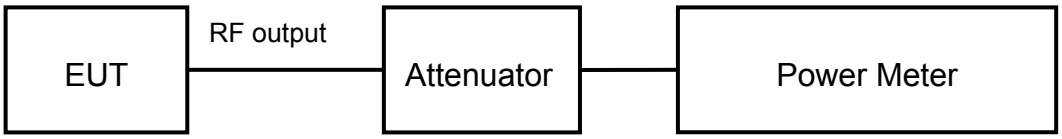
KDB 558074 D01 DTS Meas Guidance v05r02 – Section 9.1.3

6.1.5 Test Settings

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

6.1.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



6.1.7 Test result

The test results are shown in Appendix A .

6.2 Occupied Bandwidth

6.2.1 Ambient condition

Temperature	Relative humidity	Pressure
25°C	30%	101.5kPa

6.2.2 Test Description

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer and Bluetooth test set via a power splitter with a known loss. Which connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies. All modes of operation were investigated and the worst case configuration results are reported in this section.

6.2.3 Test limit

FCC Part15.247(a)(2)
The minimum permissible 6dB bandwidth is 500 kHz

6.2.4 Test Procedure Used

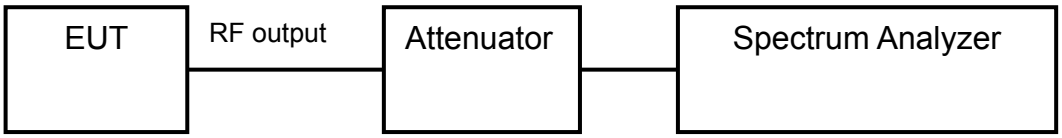
KDB 558074 D01 DTS Meas Guidance v05r02 – Section 8.1 Option 1

6.2.5 Test Settings

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 x RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.2.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



6.2.7 Test result

The test results are shown in Appendix A.

6.3 Transmitter Power Spectral Density

6.3.1 Ambient condition

Temperature	Relative humidity	Pressure
25°C	30%	101.5kPa

6.3.2 Test Description

The peak power density is measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated and the worst case configuration results are reported in this section.

6.3.3 Test limit

FCC Part15.247(e)
The maximum permissible power spectral density is 8.0 dBm in any 3 kHz band.

6.3.4 Test Procedure Used

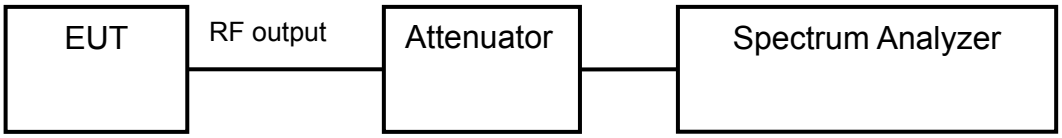
KDB 558074 D01 DTS Meas Guidance v05r02 Section 10.2.

6.3.5 Test Settings

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



6.3.7 Test result

The test results are shown in Appendix A.

6.4 Conducted Out of band emission measurement

6.4.1 Ambient condition

Temperature	Relative humidity	Pressure
25°C	30%	101.5kPa

6.4.2 Test Description

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration.

6.4.3 Test limit

FCC Part 15.247(d)
The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth.

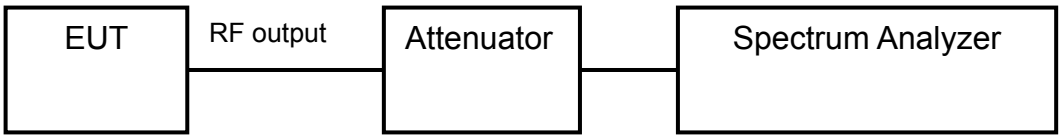
6.4.4 Test Procedure Used

KDB 558074 D01 DTS Meas Guidance v05r02 Section 11.3

6.4.5 Test Settings

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100kHz.
c) Set the VBW ≥ 300kHz.
d) Detector = peak.
e) Set span to encompass the spectrum to be examined
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level.

6.4.6 Test Setup



6.4.7 Test result

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

The test results are shown in Appendix A.

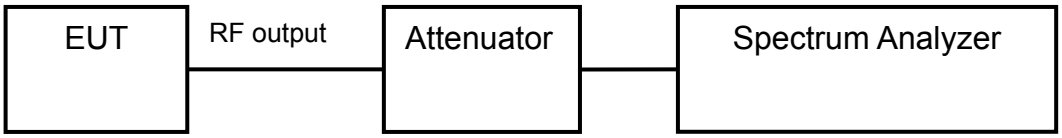
6.5 Band-edge measurement

6.5.1 Ambient condition

Temperature	Relative humidity	Pressure
25°C	30%	101.5kPa

6.5.2 Test Description

For the following out of band conducted spurious emissions plots, the EUT was set to transmit at maximum power with the largest packet size available. The worst case spurious emissions were found in this configuration.



6.5.3 Test limit

Part 15.247(d)

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth.

6.5.4 Test Procedure Used

KDB 558074 D01 DTS Meas Guidance v05r02 Section 12.1

6.5.5 Test Settings

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100kHz.
c) Set the VBW ≥ 300kHz.
d) Detector = peak.
e) Set span to encompass the spectrum to be examined
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level.

6.5.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

6.5.7 Test result

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement. The test results are shown in Appendix A .

6.6 Spurious Radiated Emissions

6.6.1 Ambient condition

Temperature	Relative humidity	Pressure
25°C	30%	101.5kPa

6.6.2 Test Description

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

6.6.3 Test limit

Part15.205, 15.209, 15.247(d)

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in below Table per Section 15.209.

Frequency [MHz]	Field strength [μV/m]	Measured Distance [meters]
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30～88	100	3
88～216	150	3
216～960	200	3
Above 960	500	3

Radiated Limits

Part15.35(b):

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit

Used conversion factor: Limit (dBμV/m) = 20 log (Limit (μV/m)/1μV/m)

Frequency [MHz]	Detector	Unit (dBμV/m)
30～88	Quasi-peak	40.0
88～216	Quasi-peak	43.5
216～960	Quasi-peak	46.0
960～1000	Quasi-peak	54.0
1000～5th harmonic of the highest frequency or 40GHz, whichever is lower	Average	54.0
	Peak	74.0

Conversion Radiated limits

6.6.4 Test Procedure Used

KDB 558074 D01 DTS Meas Guidance v05r02 – Section 12.2.7

For Radiated emission below 30MHz

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

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

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

For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement

antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

NOTE:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Average detection (AV) at frequency above 1GHz. If duty cycle of test signal is < 98%, the duty factor need added to measured value.
4. All modes of operation were investigated and the worst-case emissions are reported.

6.6.5 Test Settings

Average Field Strength Measurements per Section 12.2.7 of KDB 558074 (Part 15.35)
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz > 1/T
4. Averaging type was set to RMS to ensure that video filtering was applied in the power domain
5. Detector = average
6. Sweep time = auto
7. Trace mode = max hold
8. Trace was allowed to run for at least 50 times (1/duty cycle) traces

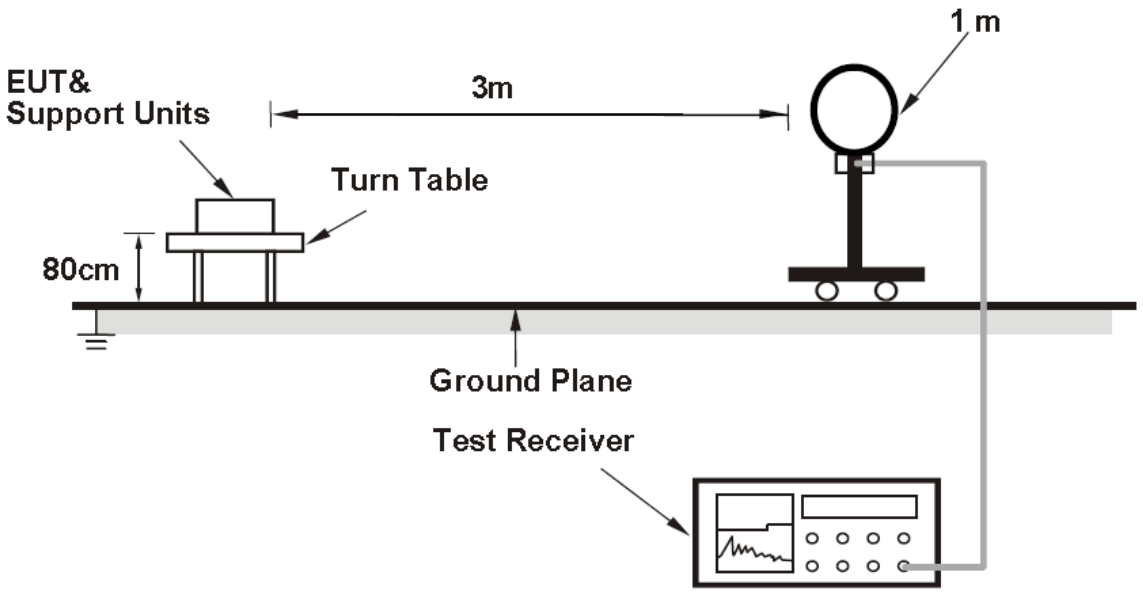
Peak Field Strength Measurements per Section 12.2.7of KDB 558074 (Part 15.35)
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW is set depending on measurement frequency, as specified in following table

Frequency	RBW
9-150kHz	200-300Hz
0.15-30MHz	9-10kHz
30-1000MHz	100-120kHz
>1000MHz	1MHz

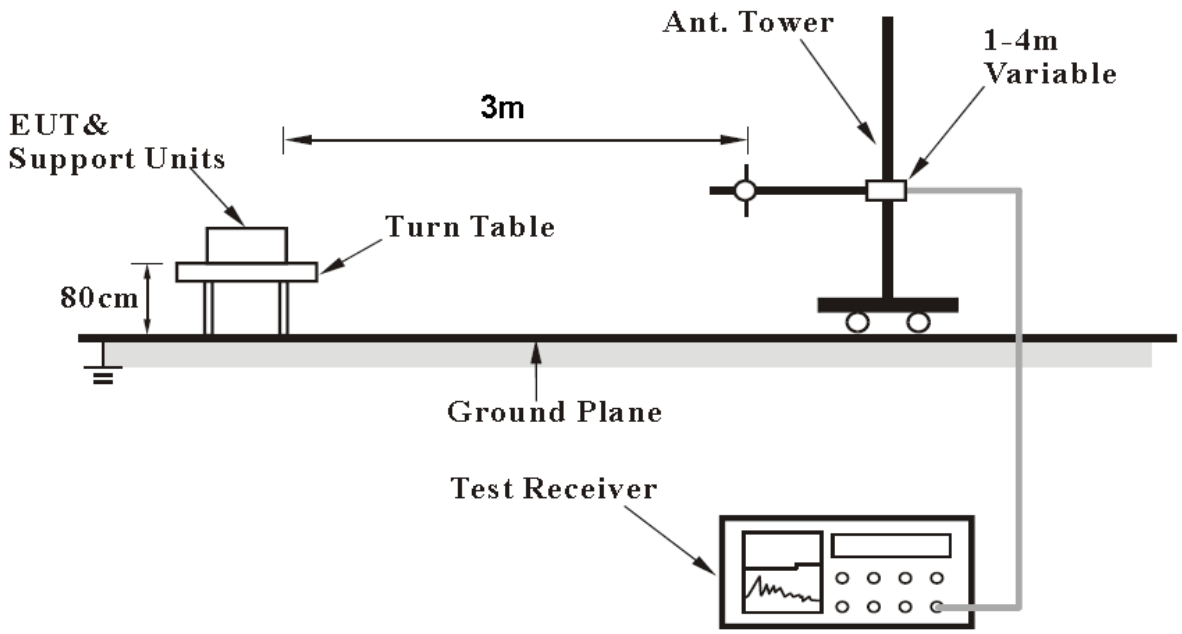
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.6.6 Test Setup

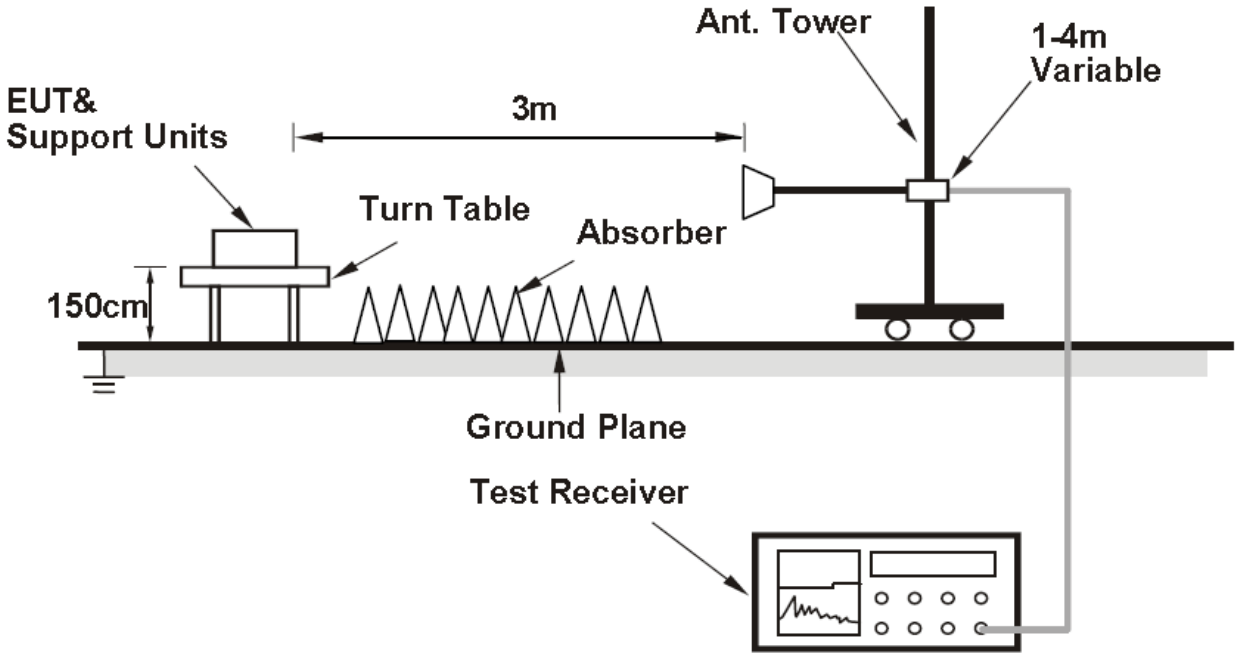
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



6.6.7 Test result

The test results are shown in Appendix B.

6.7 AC Power line Conducted Emission

6.7.1 Ambient condition

Temperature	Relative humidity	Pressure
25°C	30%	101.5kPa

6.7.2 Test limit

FCC Part15.207, RSS-247

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

The measurement is made according to ANSI C63.10-2013

6.7.3 Test Procedures

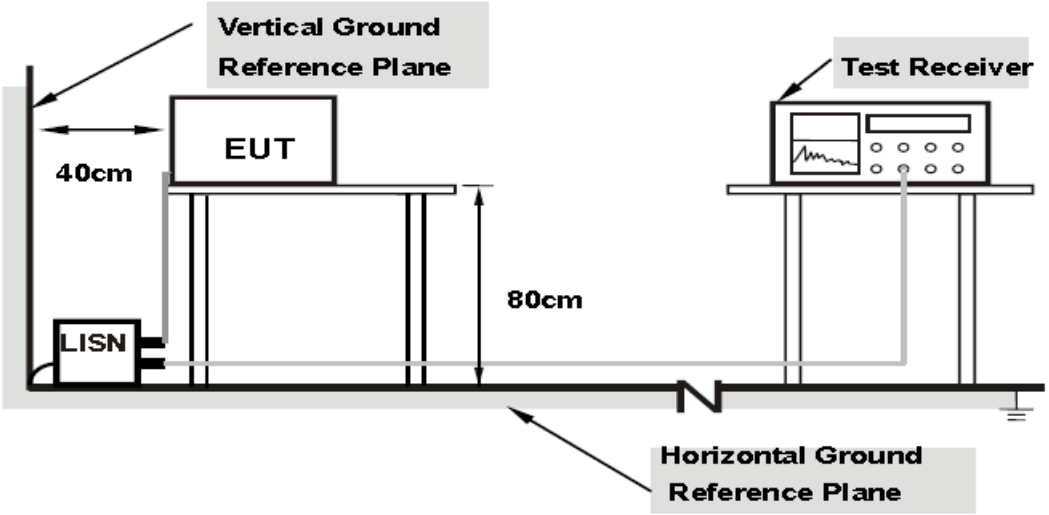
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit -20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.
The EUT shall test under the power AC120V/60Hz.

6.7.4 Test Setup



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

6.7.5 Test result

The test results are shown in AppendixB .

7 MEASUREMENT UNCERTAINTIES

Items	Uncertainty	
Occupied Bandwidth	3kHz	
Peak power output	0.67dB	
Band edge compliance	1.20dB	
Spurious emissions	30MHz～1GHz	2.83dB
	1GHz～12.75GHz	2.50dB
	12.75GHz～25GHz	2.75dB

8 TEST EQUIPMENTS

No.	Name/ Model	Manufacturer	S/N	Cal date	Cal Due date
1.	Spectrum Analyzer FSV	ROHDE&SCHWARZ	101065	2019.08.20	2020.08.19
2.	Power Meter E4416A	Agilent	MY52370013	2019.03.01	2020.02.29
3.	Power Sensor E9327A	Agilent	MY52420006	2019.03.01	2020.02.29
4.	Attenuator 6810.17.B	HUBER+SUHNER	768710	2019.08.20	2020.08.19
5.	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	---	-----	-----
6.	Turn table Diameter:5m	FRANKONIA	-----	-----	-----
7.	Antenna master SAC(MA4.0)	MATURO	-----	-----	-----
8.	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	-----	-----
9.	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	2019.08.20	2020.08.19
10.	3160-09 Receive antenna	SCHWARZ-BECK	002058-002	2019.08.20	2020.08.19
11.	ESI 40 EMI test receiver	R&S	100015	2019.08.20	2020.08.19
12.	ESCS30 EMI test receiver	R&S	100029	2019.08.20	2020.08.19
13.	HL562 Receive antenna	R&S	100167	2019.08.20	2020.08.19
14.	ENV216 AMN	R&S	3560.6550.12	2019.08.20	2020.08.19

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
802.11b	1Mbps
802.11g	6Mbps
802.11n HT20	MCS0(6.5 Mbps)

Conducted power

Modulation type	Peak power output (dBm)		
	2412MHz	2437MHz	2462MHz
11b	19.35	19.55	18.73
11g	20.95	21.71	20.85
11n HT20	21.00	21.57	20.17

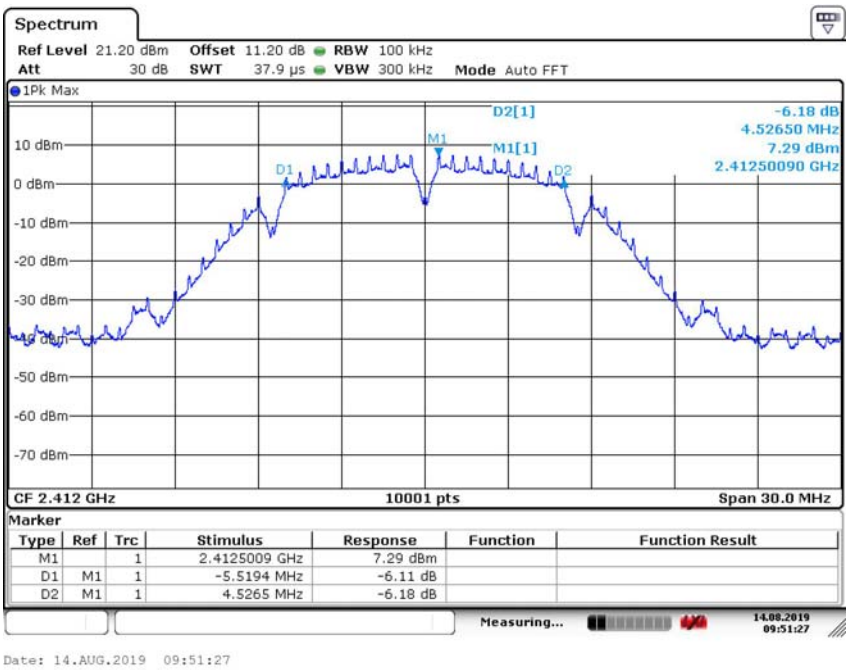
Modulation type	Average power output (dBm)		
	2412MHz	2437MHz	2462MHz
11b	17.06	17.28	16.44
11g	13.07	13.08	12.32
11n HT20	13.06	13.04	12.08

6dB Bandwidth

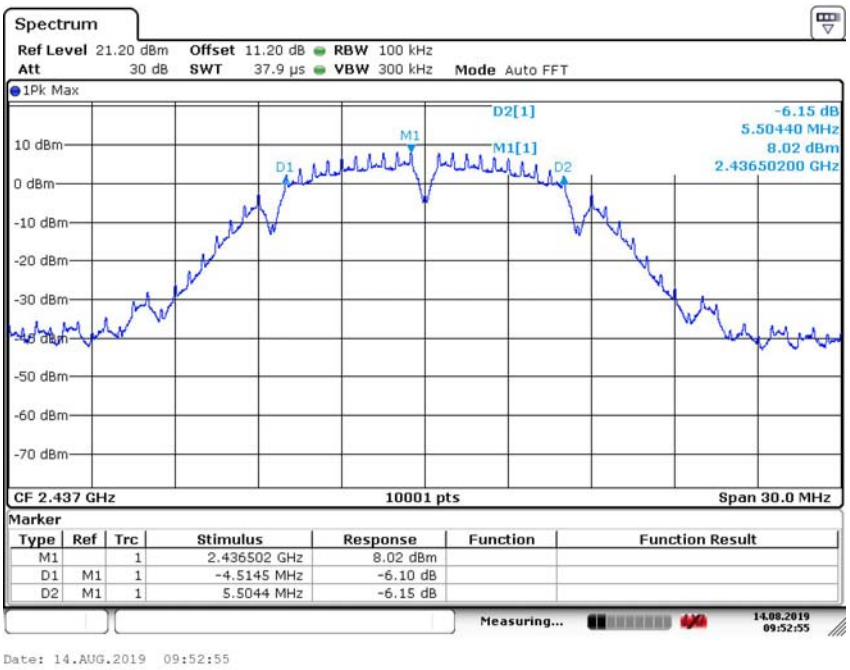
Offset 11.2dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1dB

Test Mode: 802.11b

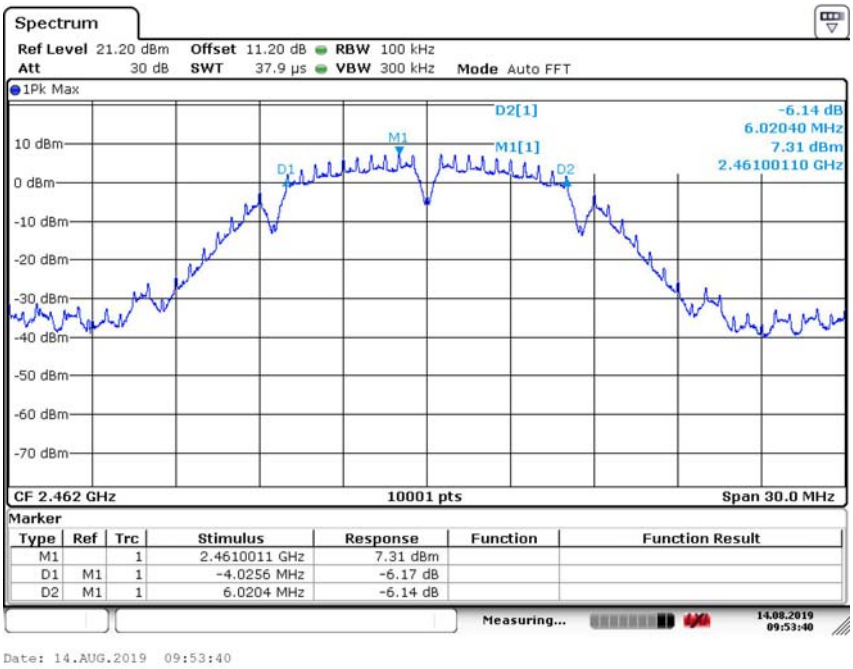
Carrier frequency (MHz)	Channel No.	6 dB bandwidth(kHz)
2412	1	10045.9
2437	6	10018.9
2462	11	10046.0



Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11b



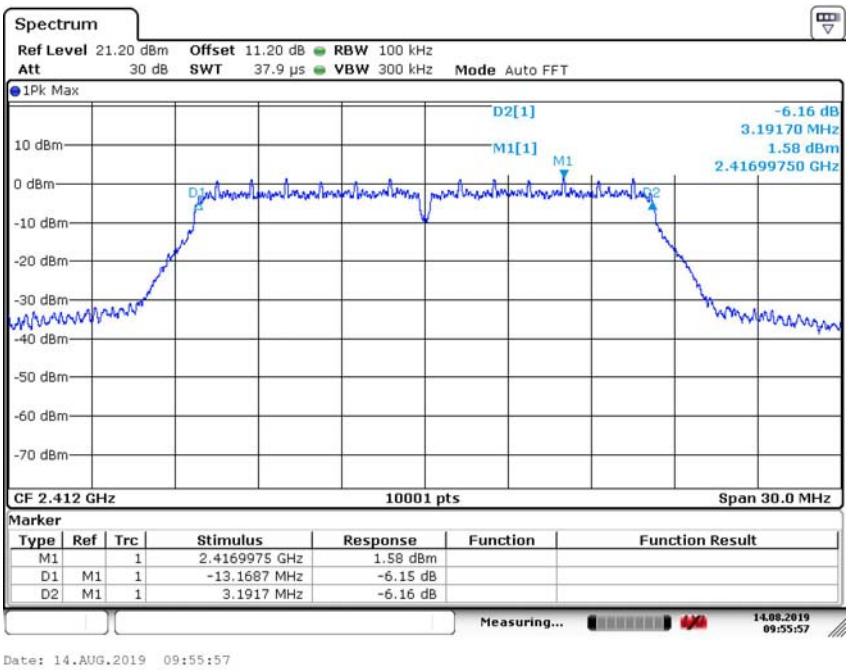
Carrier frequency (MHz): 2437
Channel No.:6
Test Mode: 802.11b



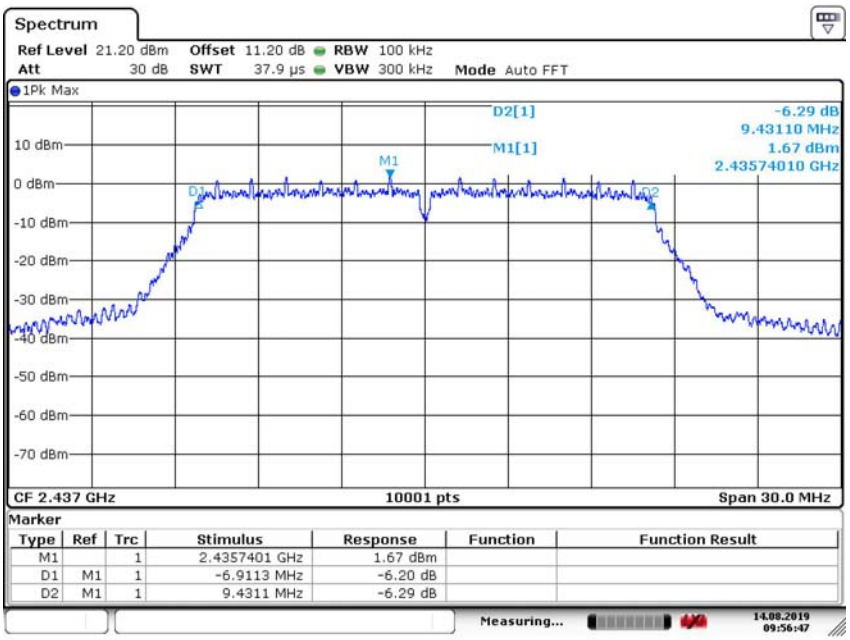
Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11b

Test Mode: 802.11g

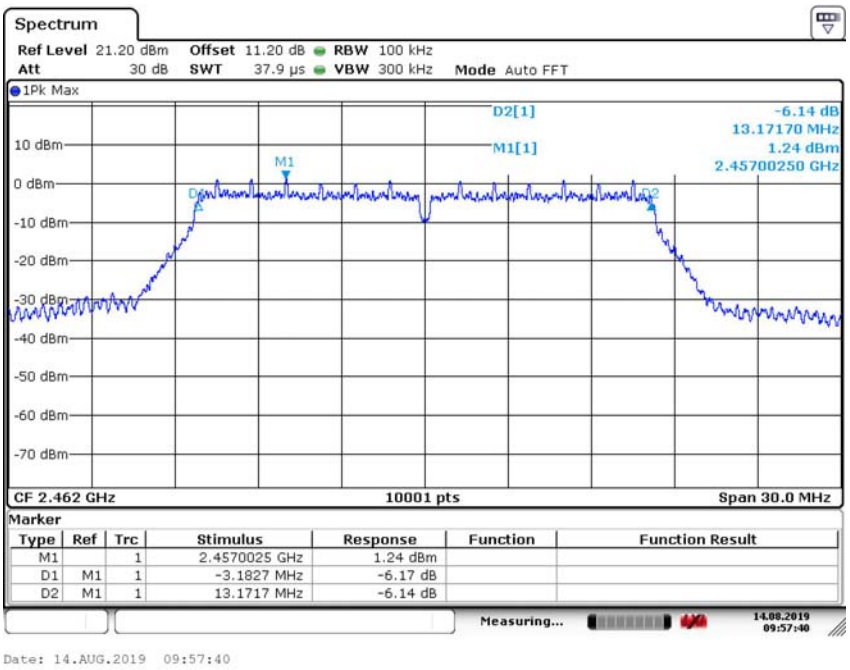
Carrier frequency (MHz)	Channel No.	6 dB bandwidth(kHz)
2412	1	16360.4
2437	6	16342.4
2462	11	16354.4



Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11g



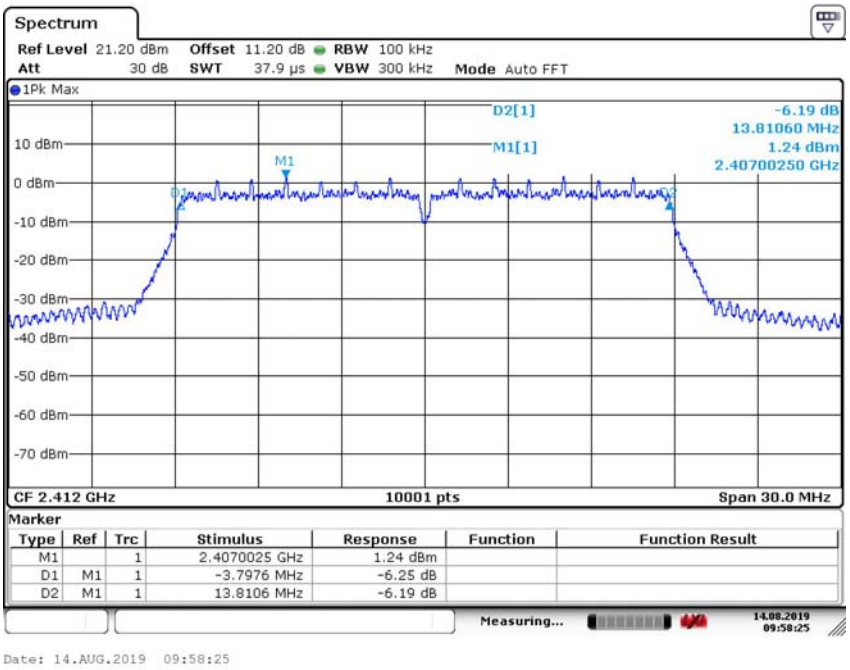
Carrier frequency (MHz): 2437
Channel No.:6
Test Mode: 802.11g



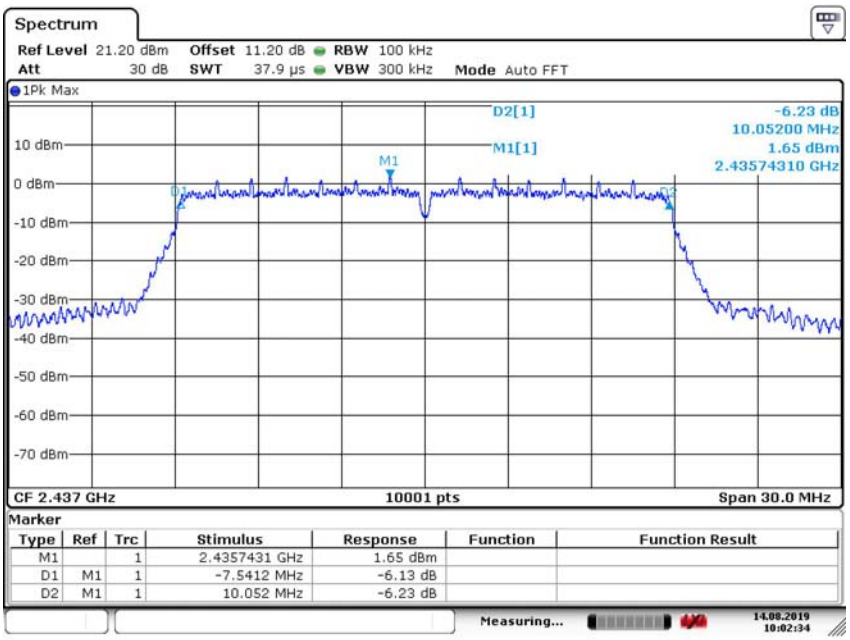
Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11g

Test Mode: 802.11n (HT20)

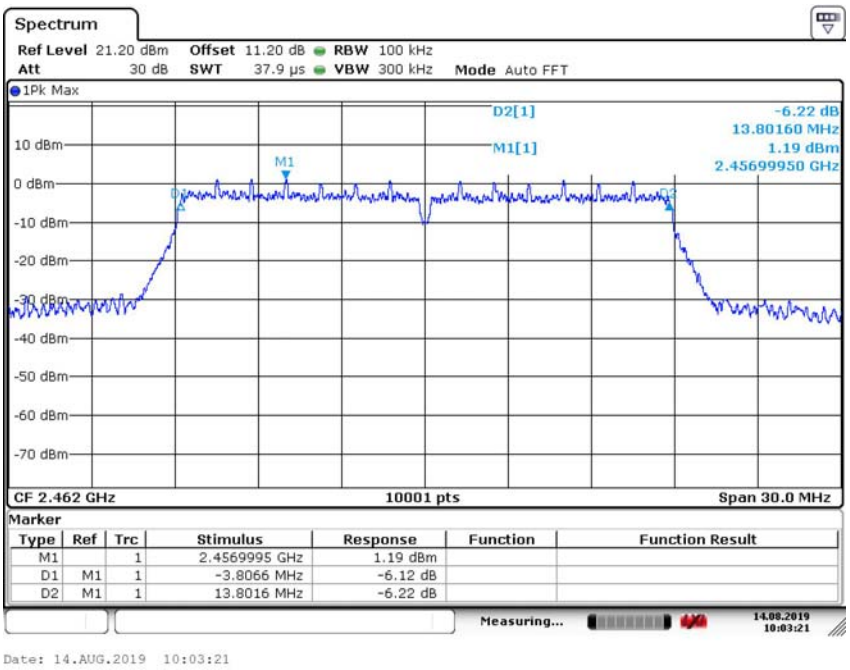
Carrier frequency (MHz)	Channel No.	6 dB bandwidth(kHz)
2412	1	17608.2
2437	6	17593.2
2462	11	17608.2



Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11n (HT20)



Carrier frequency (MHz): 2437
Channel No.:6
Test Mode: 802.11n (HT20)



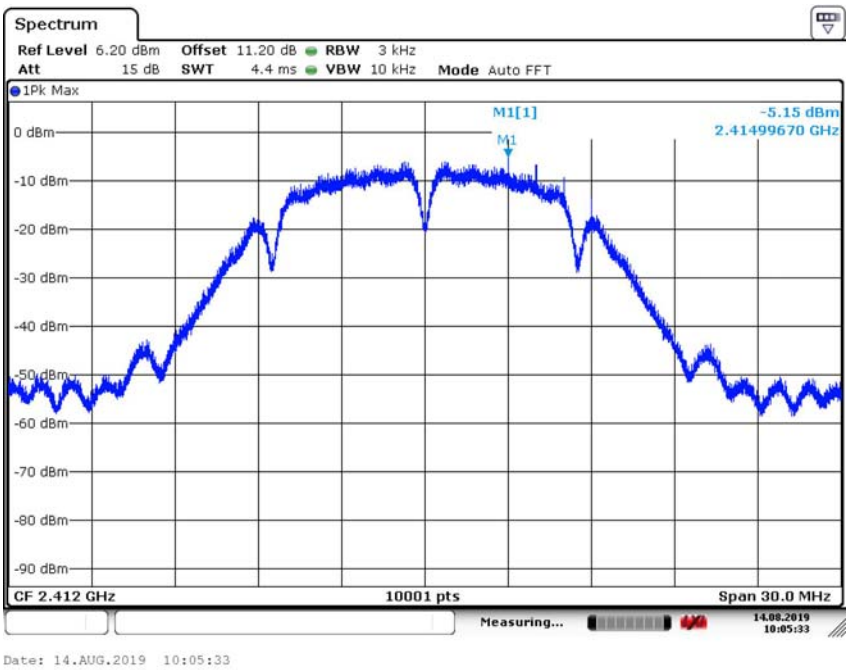
Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11n (HT20)

Transmitter Power Spectral Density

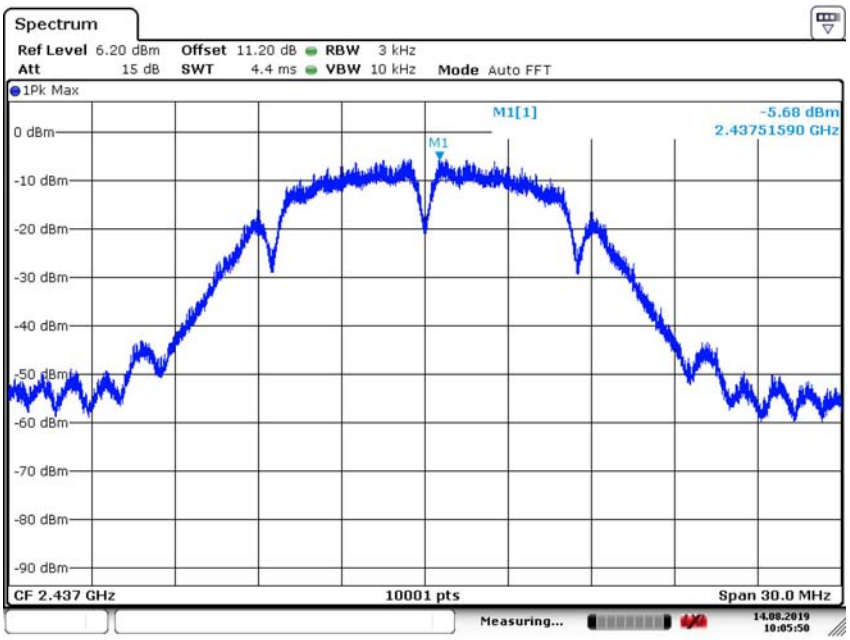
Offset 11.2dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1.0dB

Test Mode: 802.11b

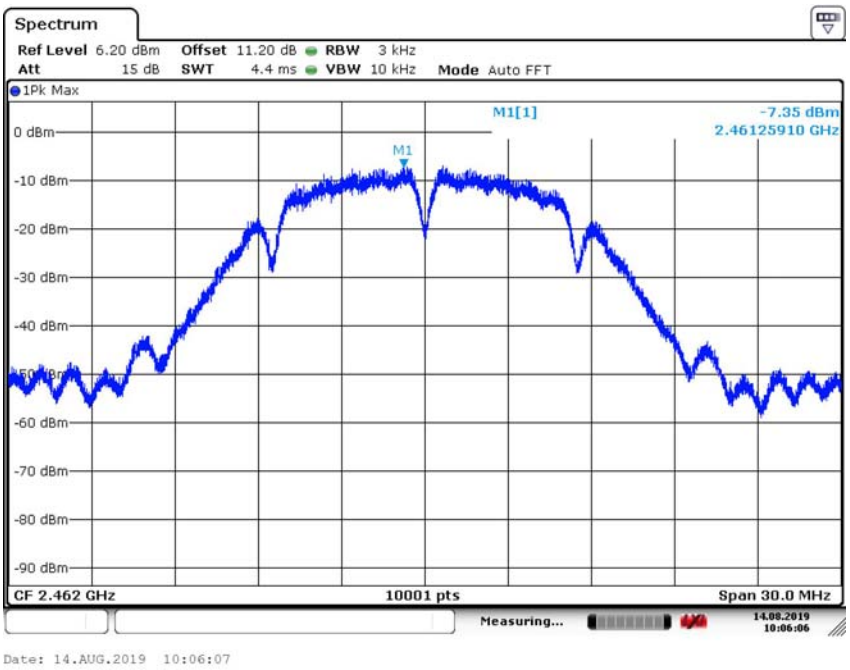
Carrier frequency (MHz)	Channel No	Power Density (dBm)
2412	1	-5.15
2437	6	-5.68
2462	11	-7.35



Carrier frequency (MHz): 2412
Channel No.1
Test Mode: 802.11b



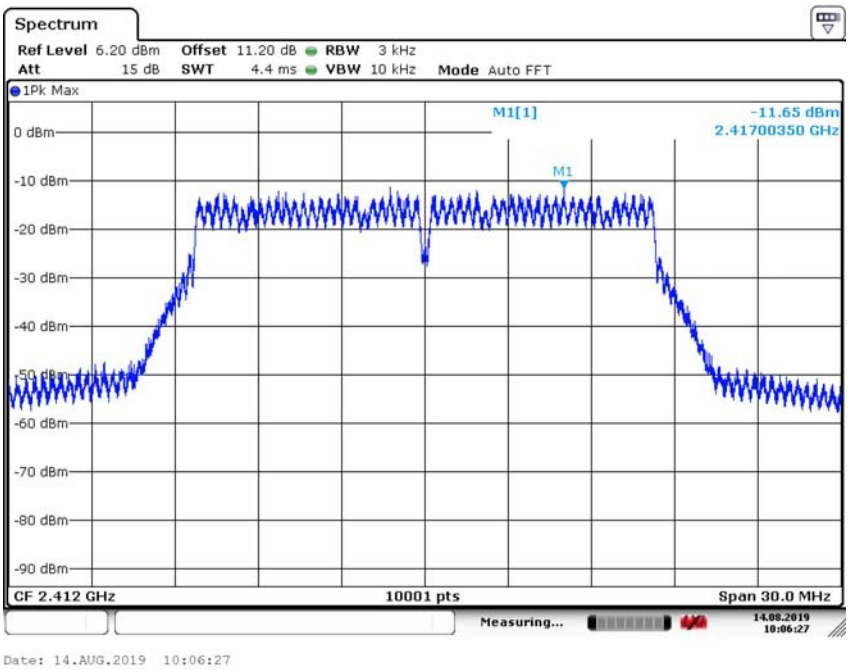
Carrier frequency (MHz): 2437
Channel No.6
Test Mode: 802.11b



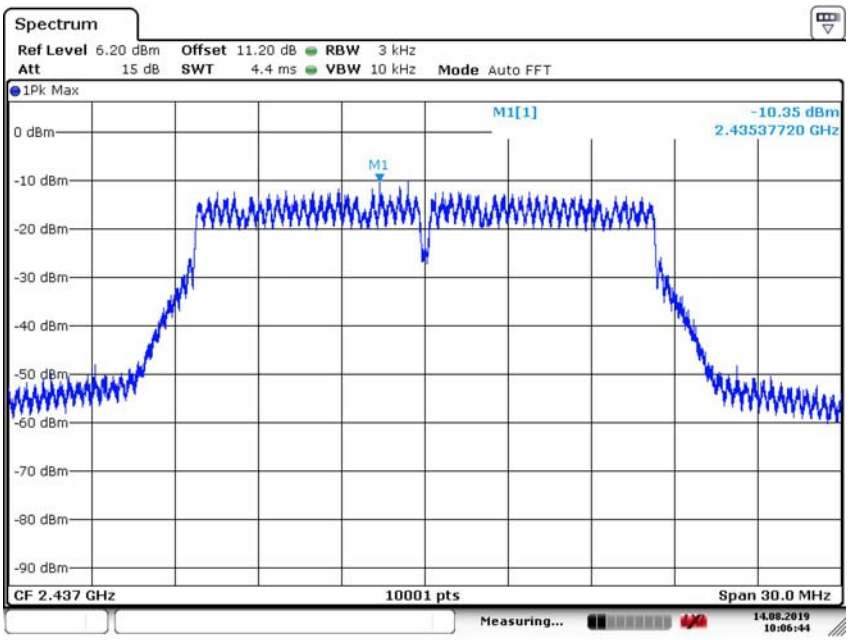
Carrier frequency (MHz): 2462
Channel No.11
Test Mode: 802.11b

Test Mode: 802.11g

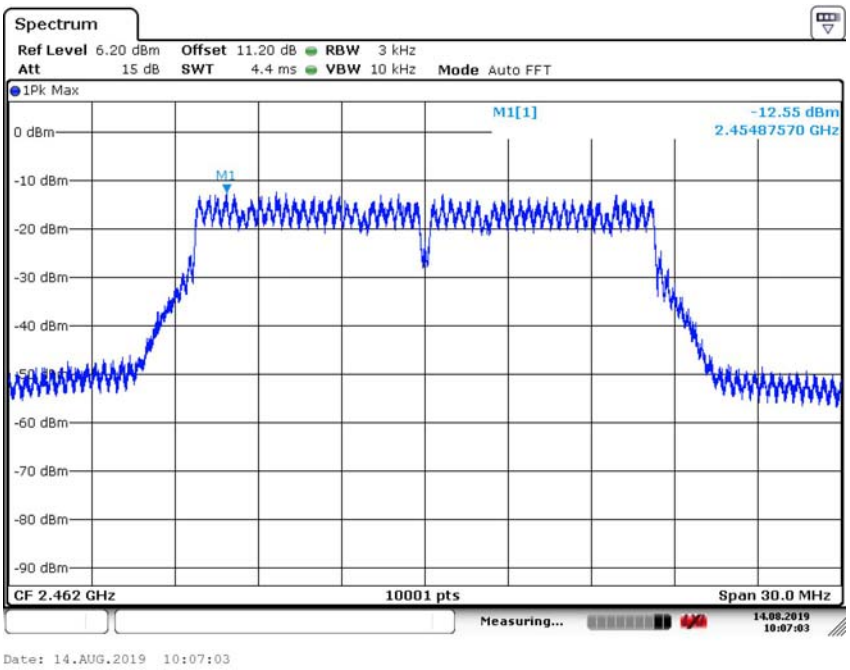
Carrier frequency (MHz)	Channel No	Power Density (dBm)
2412	1	-11.65
2442	6	-10.35
2472	11	-12.55



Carrier frequency (MHz): 2412
Channel No.1
Test Mode: 802.11g



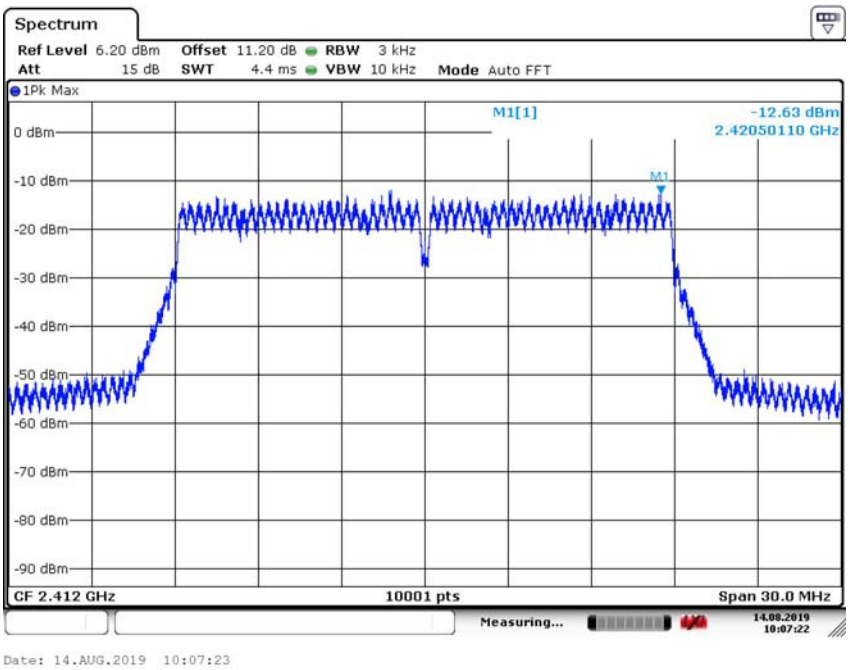
Carrier frequency (MHz): 2437
Channel No.6
Test Mode: 802.11g



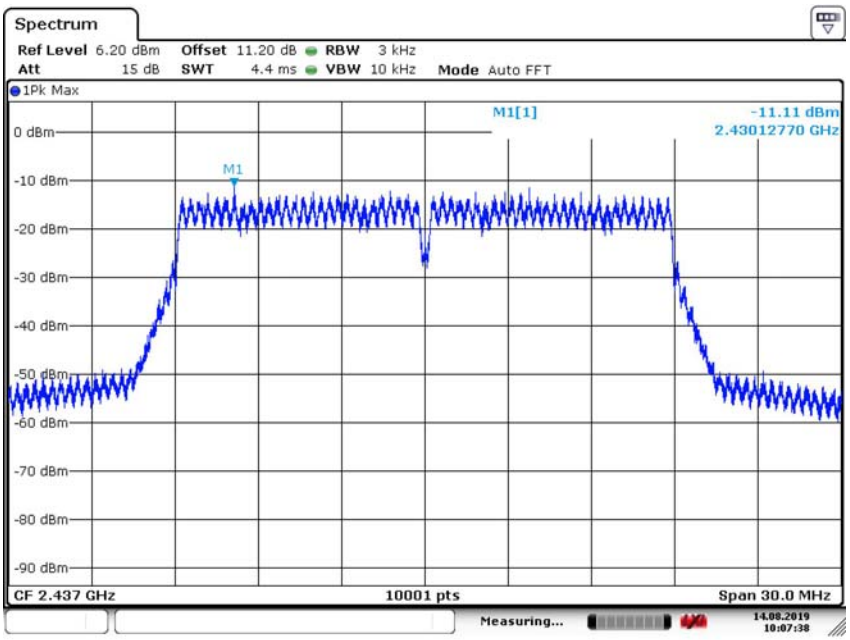
Carrier frequency (MHz): 2462
Channel No.11
Test Mode: 802.11g

Test Mode: 802.11n (HT20)

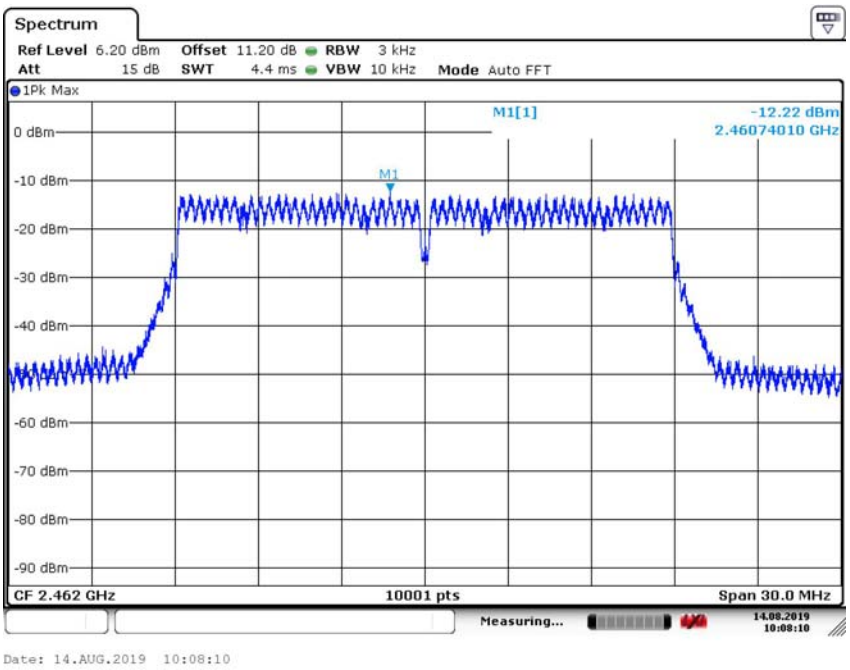
Carrier frequency (MHz)	Channel No	Power Density (dBm)
2412	1	-12.63
2437	6	-11.11
2462	11	-12.22



Carrier frequency (MHz): 2412
Channel No.1
Test Mode: 802.11n (HT20)



Carrier frequency (MHz): 2437
Channel No.6
Test Mode: 802.11n (HT20)



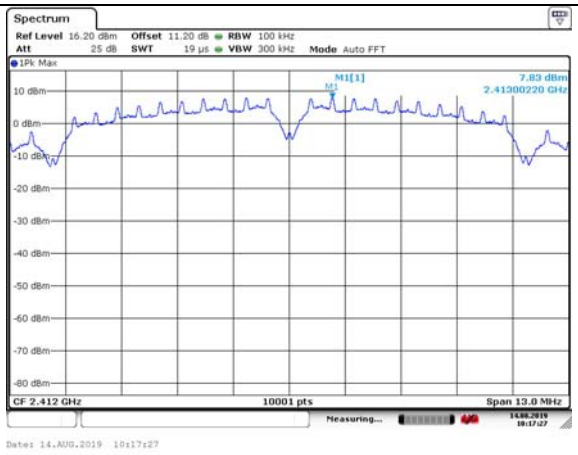
Carrier frequency (MHz): 2462
Channel No.11
Test Mode: 802.11n (HT20)

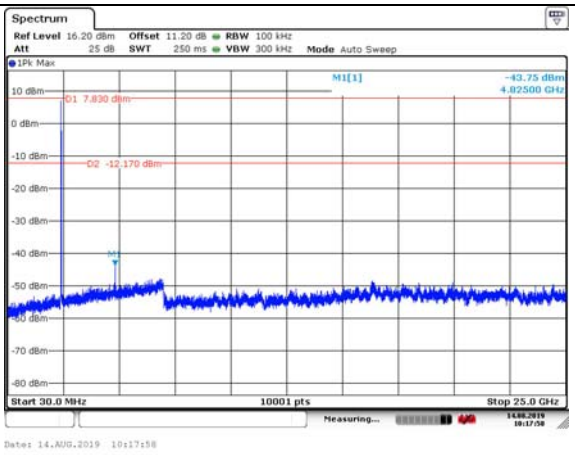
Conducted Out of band emission measurement

Offset 11.2dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1.0dB

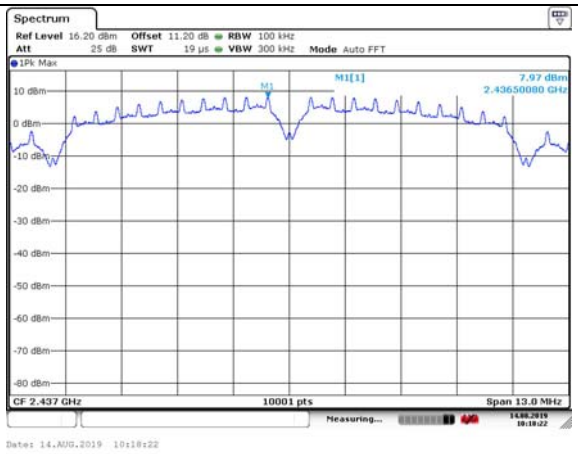
802.11b

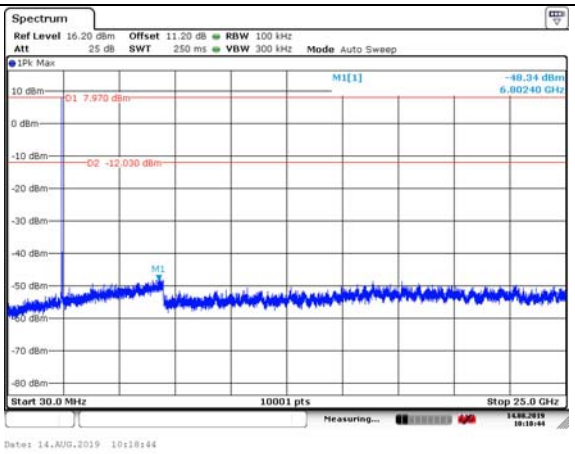
CH1



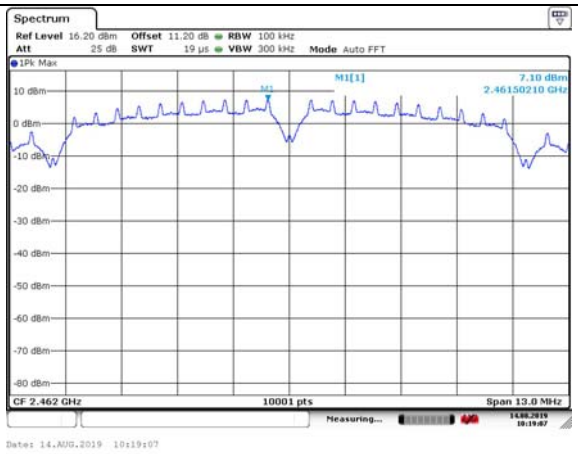


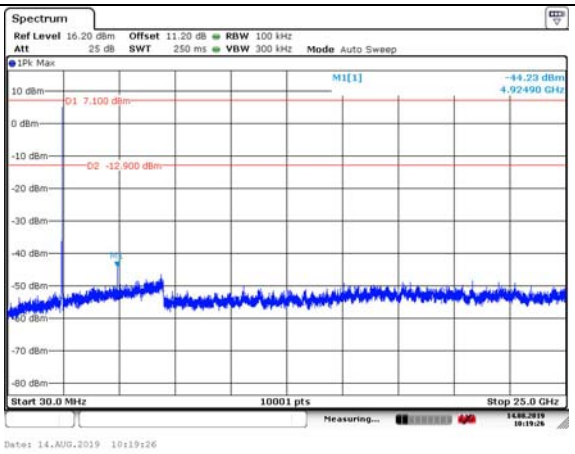
CH6





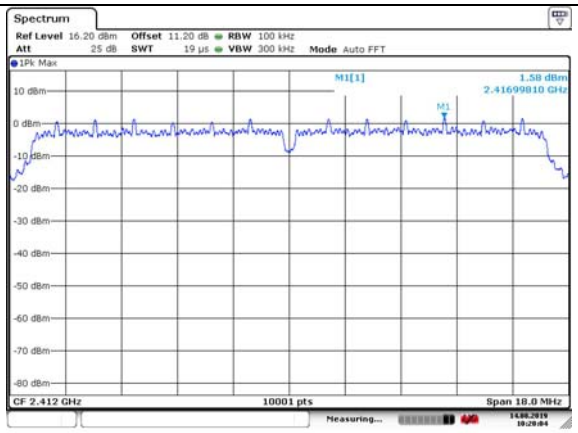
CH11

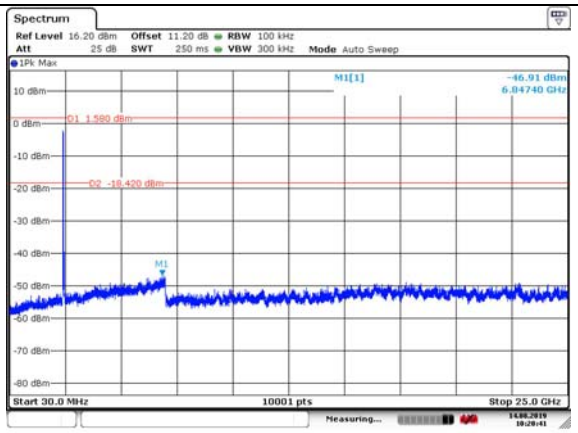




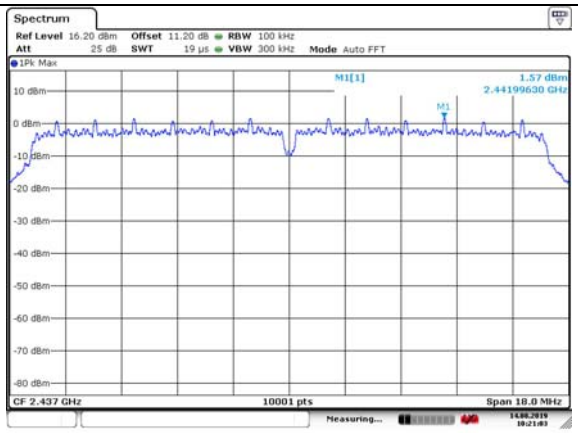
802.11g

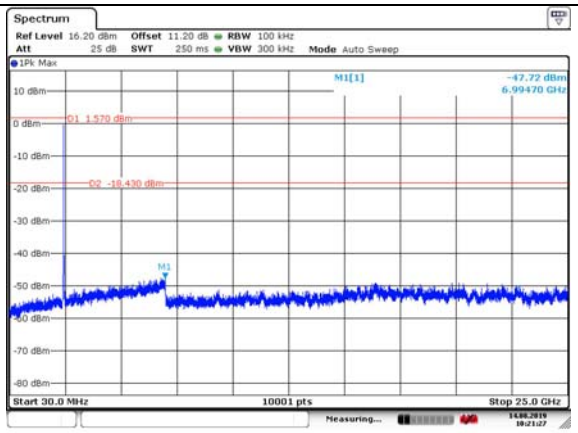
CH1



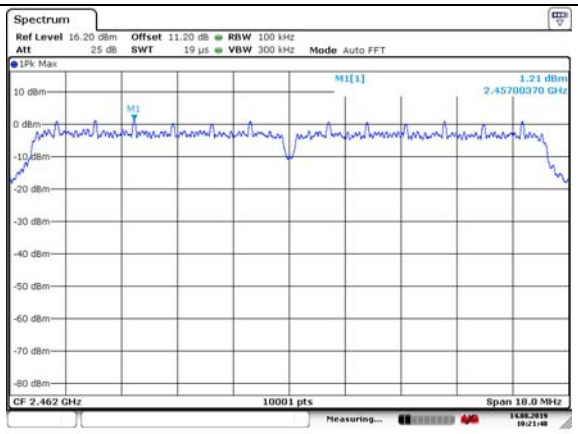


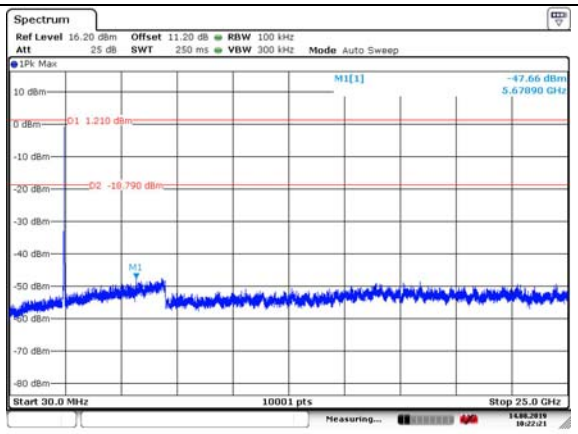
CH6





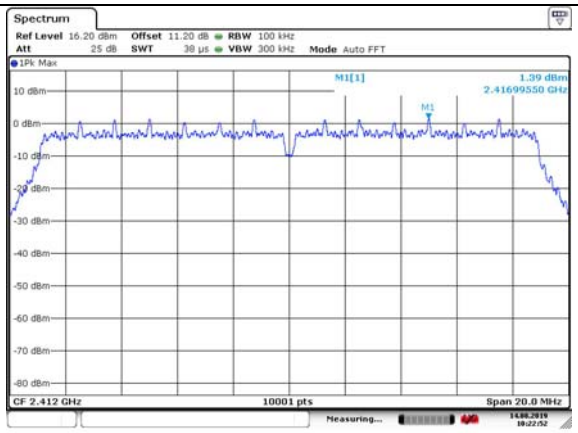
CH11

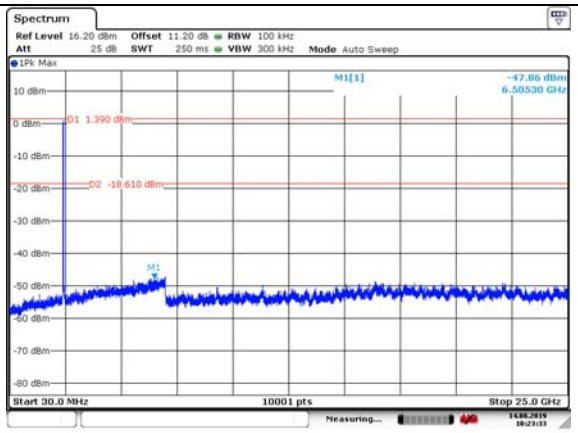




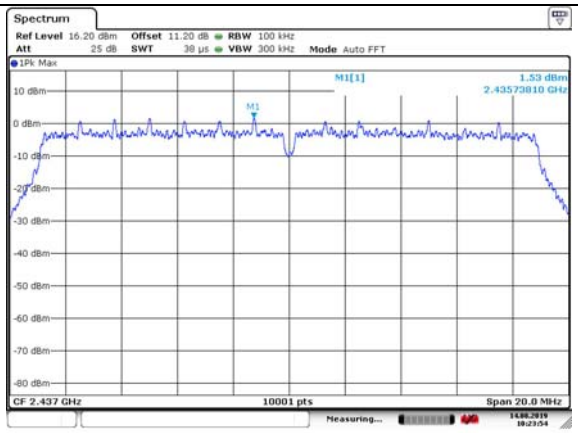
802.11n (HT20)

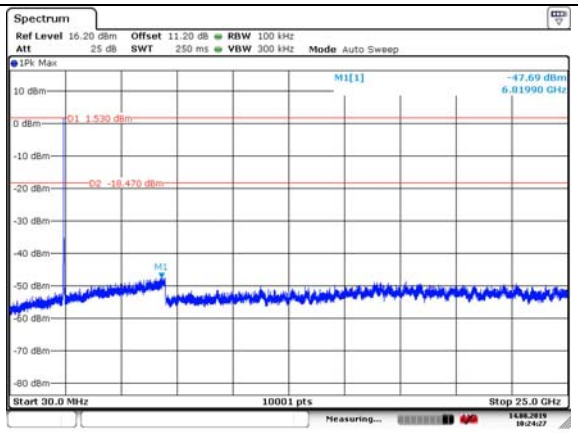
CH1



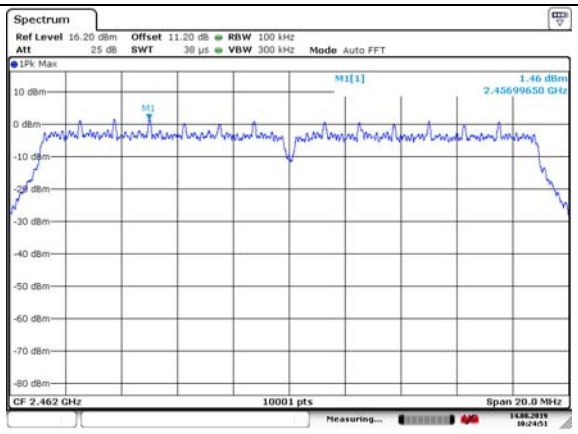


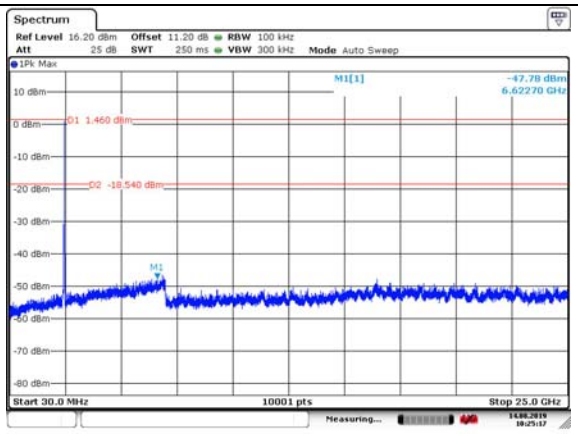
CH6





CH11

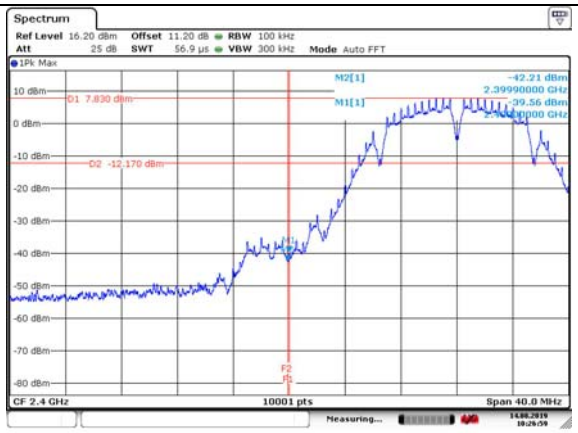
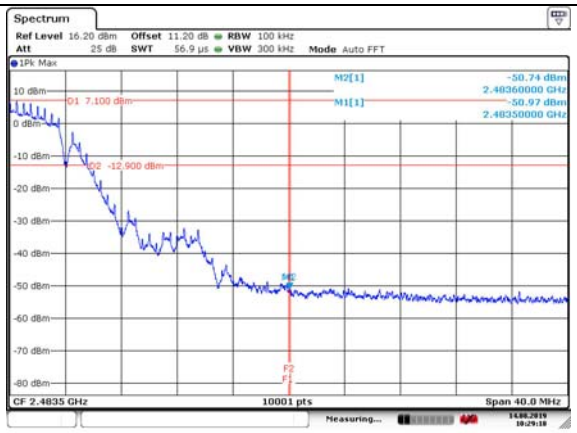




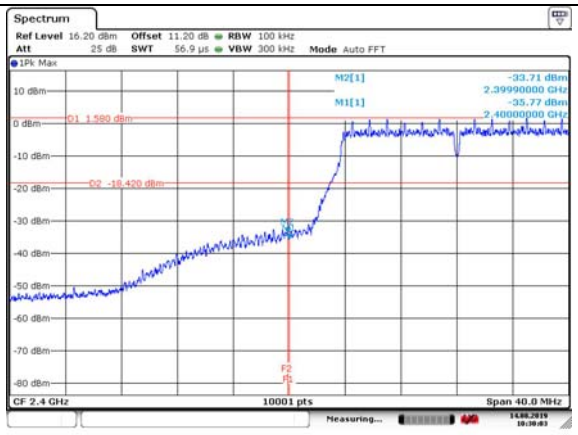
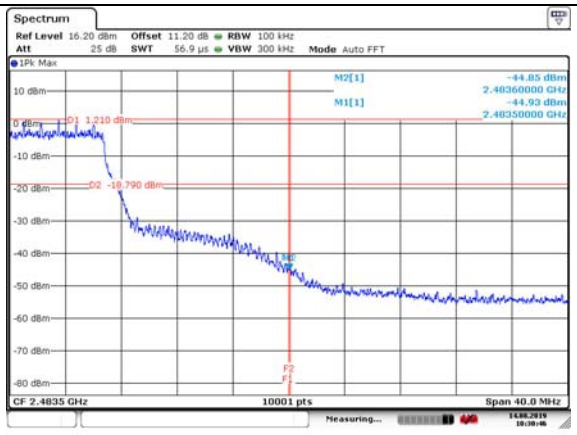
Band edge measurement (RF Conducted measurement)

Offset 11.2dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1.0dB

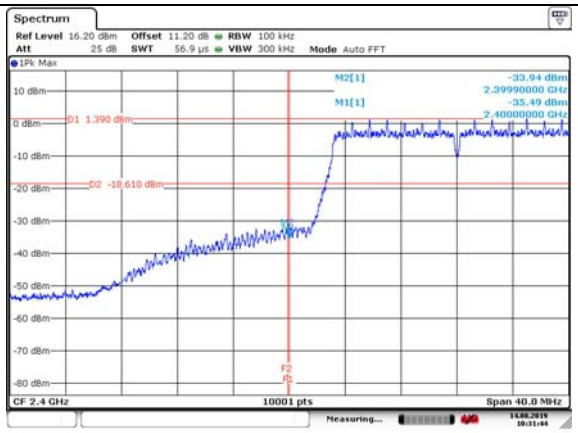
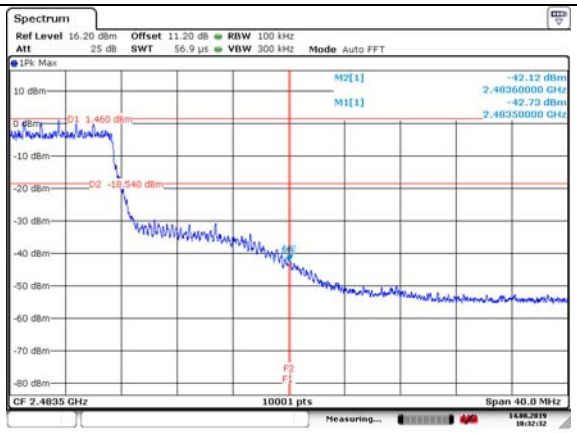
802.11b

CH1	CH11
	

802.11g

CH1	CH11
	

802.11n (HT20)

CH1	CH11
	

APPENDIX B – TEST DATA OF RADIATED EMISSION

Radiated Emission Band Edge

The worst case attitude: The mobile lay down.
The measurement results are obtained as described below:
Measure Level = Reading Level + cable loss + antenna factor
Sample calculation: (107.18 dBuV/m) = (73.18 dBμV) + (8.90 dB) + (25.10 dB), the corresponding frequency is 2412MHz.

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11b
Polarity:Vertical
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	107.18	73.18	N/A	N/A	8.90	25.10
2	2390	51.24	17.24	-22.76	74.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11b
Polarity:Horizontal
Detector: Peak

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	101.00	67.00	N/A	N/A	8.90	25.10
2	2390	50.70	16.70	-23.30	74.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11b
Polarity:Vertical
Detector: Average

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	93.84	59.84	N/A	N/A	8.90	25.10
2	2390	41.95	7.95	-12.05	54.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11b
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	90.83	56.83	N/A	N/A	8.90	25.10
2	2390	40.66	6.66	-13.34	54.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11b
Polarity:Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	105.55	71.55	N/A	N/A	8.90	25.10
2	2483.5	51.41	17.41	-22.59	74.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11b
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	101.54	67.54	N/A	N/A	8.90	25.10
2	2483.5	48.84	14.84	-25.16	74.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11b
Polarity:Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	93.42	59.42	N/A	N/A	8.90	25.10
2	2483.5	42.23	8.23	-11.77	54.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11b
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	91.23	57.23	N/A	N/A	8.90	25.10
2	2483.5	40.36	6.36	-13.64	54.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11g
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	107.65	73.65	N/A	N/A	8.90	25.10
2	2390	53.74	19.74	-20.26	74.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11g
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	101.09	67.09	N/A	N/A	8.90	25.10
2	2390	48.15	14.15	-25.85	74.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11g
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	94.27	60.27	N/A	N/A	8.90	25.10
2	2390	39.99	5.99	-14.01	54.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11g
Polarity:Horizontal
Detector: Average

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	91.19	57.19	N/A	N/A	8.90	25.10
2	2390	39.36	5.36	-14.64	54.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11g
Polarity: Vertical
Detector: Peak

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	106.42	72.42	N/A	N/A	8.90	25.10
2	2483.5	52.31	18.31	-21.69	74.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11g
Polarity:Horizontal
Detector: Peak

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	100.71	66.71	N/A	N/A	8.90	25.10
2	2483.5	47.67	13.67	-26.33	74.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11g
Polarity: Vertical
Detector: Average

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	93.98	59.98	N/A	N/A	8.90	25.10
2	2483.5	39.91	5.91	-14.09	54.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11g
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	89.33	55.33	N/A	N/A	8.90	25.10
2	2483.5	39.74	5.74	-14.26	54.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11n(HT20)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	107.17	73.17	N/A	N/A	8.90	25.10
2	2390	54.13	20.13	-19.87	74.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11n(HT20)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	100.39	66.39	N/A	N/A	8.90	25.10
2	2390	48.59	14.59	-25.41	74.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11n(HT20)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	91.43	57.43	N/A	N/A	8.90	25.10
2	2390	41.46	7.46	-12.54	54.00	8.90	25.10

Carrier frequency (MHz): 2412
Channel No.:1
Test Mode: 802.11n(HT20)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2412	88.65	54.65	N/A	N/A	8.90	25.10
2	2390	40.65	6.65	-13.35	54.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11n(HT20)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	104.52	70.52	N/A	N/A	8.90	25.10
2	2483.5	54.40	20.40	-19.60	74.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11n(HT20)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	101.72	67.72	N/A	N/A	8.90	25.10
2	2483.5	50.01	16.01	-23.99	74.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11n(HT20)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	93.22	59.22	N/A	N/A	8.90	25.10
2	2483.5	40.29	6.29	-13.71	54.00	8.90	25.10

Carrier frequency (MHz): 2462
Channel No.:11
Test Mode: 802.11n(HT20)
Polarity:Horizontal
Detector: Average

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	2462	91.44	57.44	N/A	N/A	8.90	25.10
2	2483.5	39.48	5.48	-14.52	54.00	8.90	25.10

Sample Calculations

Determining Spurious Emissions Levels

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.
The measurement results are obtained as described below:
Result= P_{mea} + A_{Rpl}
Sample calculation: (29.55 dBμV/m) = (56.55 dBμV) + (-27.0 dB/m), the corresponding frequency is 31.164000MHz.
The worst case attitude: The mobile lay down.

For 802.11b Channel No.:1

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.55	-27.0	56.55	Vertical	40.00
40.912500	35.38	-23.9	59.28	Vertical	40.00
59.827500	27.90	-24.2	52.1	Vertical	40.00
60.070000	26.41	-24.2	50.61	Vertical	40.00
60.652000	27.23	-24.4	51.63	Vertical	40.00
86.842000	28.99	-27.7	56.69	Vertical	40.00

For 802.11g Channel No.:1

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.56	-27.0	56.56	Vertical	40.00
40.912500	35.42	-23.9	59.32	Vertical	40.00
59.827500	27.81	-24.2	52.01	Vertical	40.00
60.118500	29.71	-24.2	53.91	Vertical	40.00
60.409500	30.01	-24.3	54.31	Vertical	40.00
85.484000	28.82	-28.3	57.12	Vertical	40.00

For 802.11n(HT20) Channel No.:1

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.49	-27.0	56.49	Vertical	40.00
40.815500	35.25	-23.9	59.15	Vertical	40.00
60.118500	29.70	-24.2	53.9	Vertical	40.00
60.361000	27.37	-24.3	51.67	Vertical	40.00
60.700500	28.56	-24.4	52.96	Vertical	40.00
85.775000	28.85	-28.1	56.95	Vertical	40.00

For 802.11b Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.52	-27.0	56.52	Vertical	40.00
40.912500	35.33	-23.9	59.23	Vertical	40.00
59.876000	28.14	-24.2	52.34	Vertical	40.00
60.409500	30.00	-24.3	54.3	Vertical	40.00
85.775000	28.87	-28.1	56.97	Vertical	40.00
86.793500	29.02	-27.8	56.82	Vertical	40.00

For 802.11g Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.115500	25.66	-27.0	52.66	Vertical	40.00
40.670000	34.85	-23.9	58.75	Vertical	40.00
60.118500	29.59	-24.2	53.79	Vertical	40.00
60.409500	29.98	-24.3	54.28	Vertical	40.00
60.700500	28.57	-24.4	52.97	Vertical	40.00
85.338500	28.65	-28.3	56.95	Vertical	40.00

For 802.11n(HT20) Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.53	-27.0	56.53	Vertical	40.00
40.961000	35.27	-23.8	59.07	Vertical	40.00
60.118500	29.64	-24.2	53.84	Vertical	40.00
60.409500	29.96	-24.3	54.26	Vertical	40.00
85.726500	28.68	-28.2	56.88	Vertical	40.00
86.793500	28.89	-27.8	56.69	Vertical	40.00

For 802.11b Channel No.:11

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.55	-27.0	56.55	Vertical	40.00
40.961000	35.32	-23.8	59.12	Vertical	40.00
60.118500	29.71	-24.2	53.91	Vertical	40.00
60.361000	27.19	-24.3	51.49	Vertical	40.00
84.611000	28.48	-28.6	57.08	Vertical	40.00
86.066000	28.66	-28.0	56.66	Vertical	40.00

For 802.11g Channel No.:11

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.54	-27.0	56.54	Vertical	40.00
41.009500	35.53	-23.8	59.33	Vertical	40.00
60.118500	29.84	-24.2	54.04	Vertical	40.00
60.409500	30.13	-24.3	54.43	Vertical	40.00
84.368500	28.90	-28.6	57.5	Vertical	40.00
85.920500	29.07	-28.1	57.17	Vertical	40.00

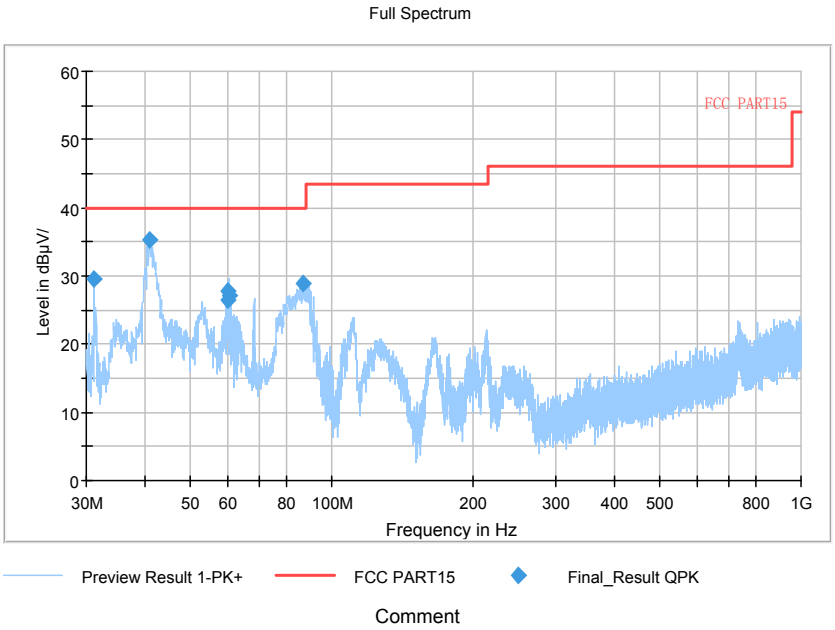
For 802.11n(HT20) Channel No.:11

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.57	-27.0	56.57	Vertical	40.00
40.815500	35.14	-23.9	59.04	Vertical	40.00
60.070000	26.51	-24.2	50.71	Vertical	40.00
60.409500	30.11	-24.3	54.41	Vertical	40.00
83.883500	28.63	-28.8	57.43	Vertical	40.00
87.133000	29.05	-27.6	56.65	Vertical	40.00

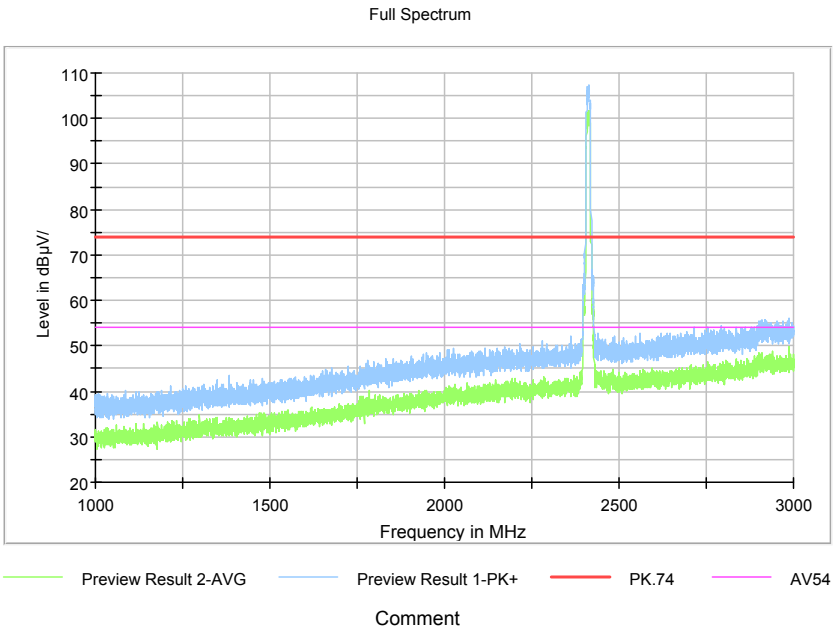
802.11g MODE Channel 6 is selected as the worst point for RSE.
Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
31.164000	29.54	-27.0	56.54	Vertical	40.00
40.961000	35.49	-23.8	59.29	Vertical	40.00
60.070000	26.46	-24.2	50.66	Vertical	40.00
60.409500	30.05	-24.3	54.35	Vertical	40.00
84.223000	28.88	-28.7	57.58	Vertical	40.00
86.066000	29.05	-28.0	57.05	Vertical	40.00

Carrier frequency (MHz): 2412
Channel No.:1

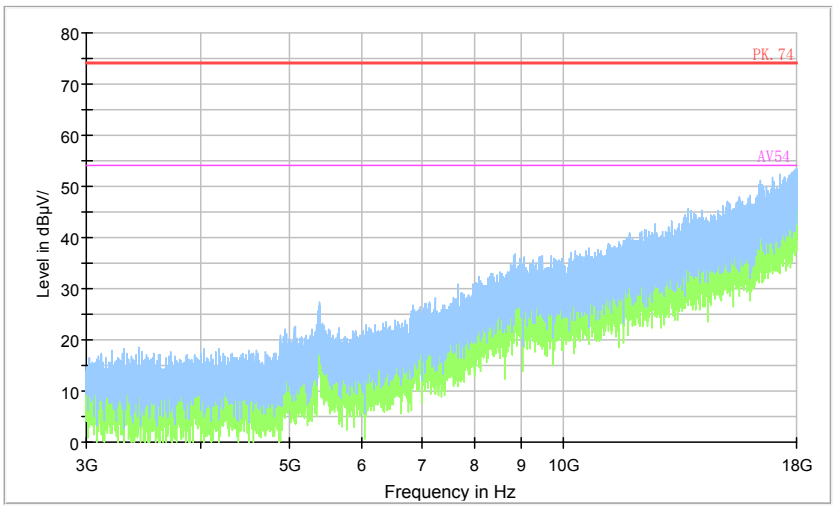


Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11b



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

Full Spectrum



Preview Result 2-AVG Preview Result 1-PK+ PK.74 AV54

Comment

Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

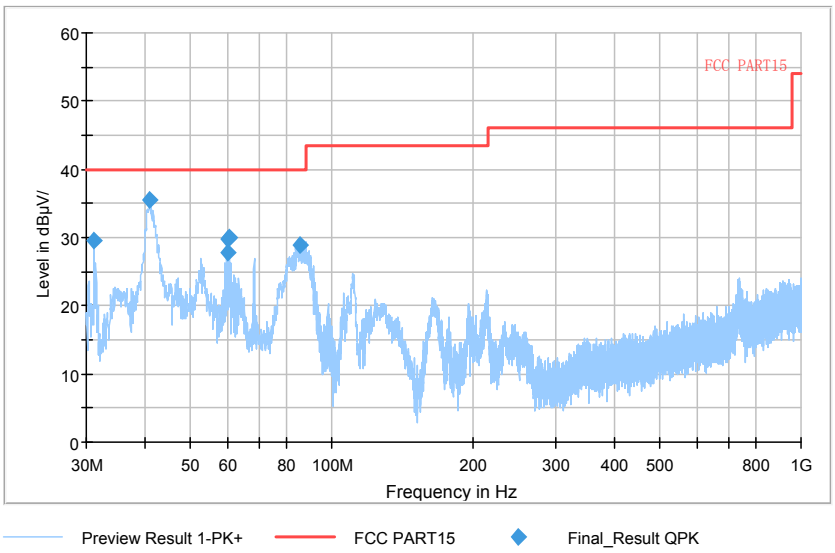
Full Spectrum

Preview Result 2-AVG Preview Result 1-PK+ PK70-74 AV50-54

Comment

Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

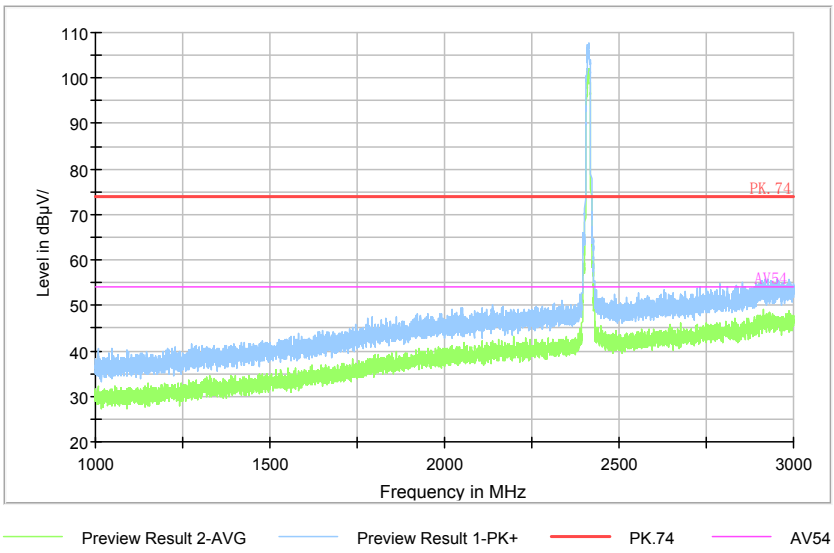
Full Spectrum



Comment

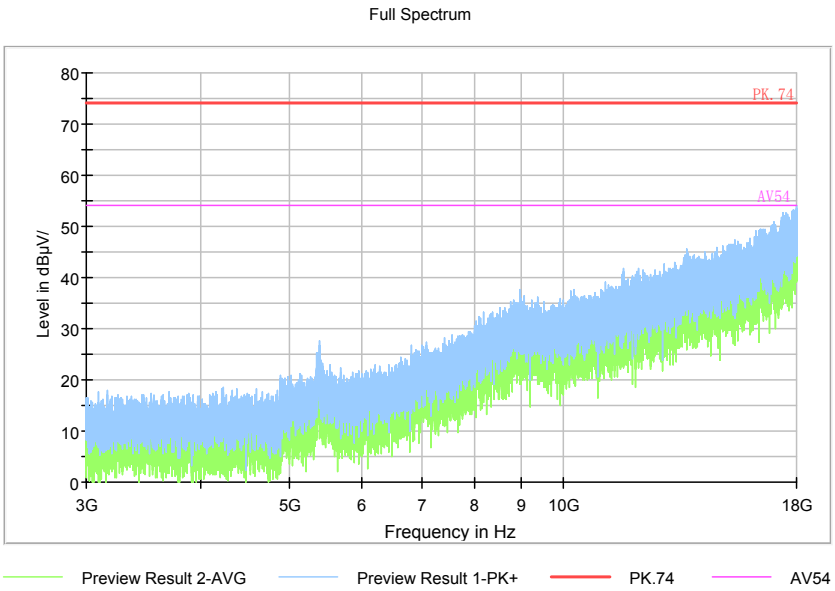
Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11g

Full Spectrum



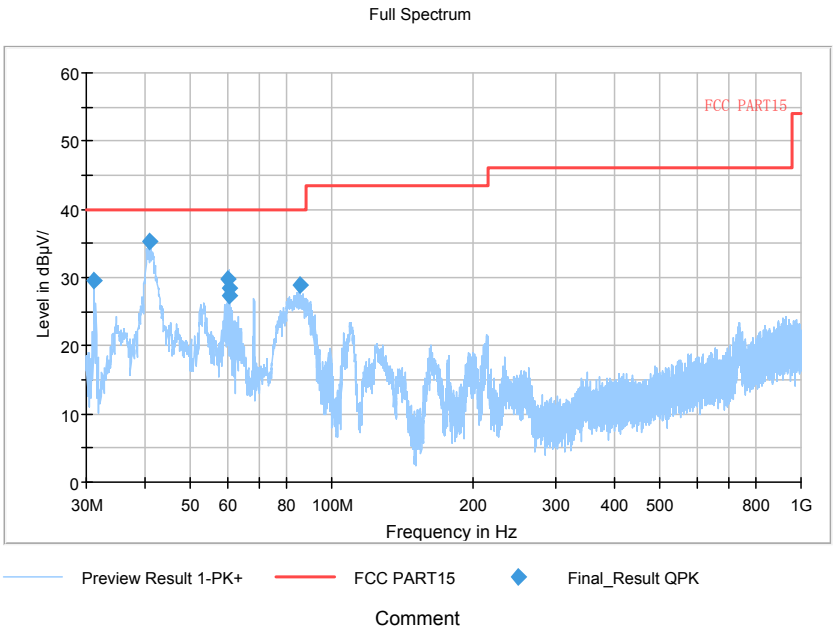
Comment

Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

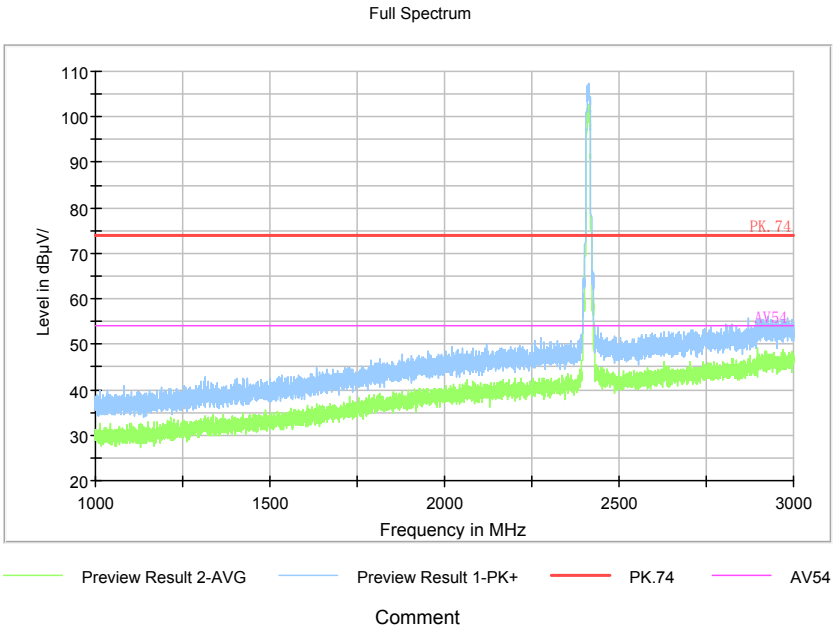


Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

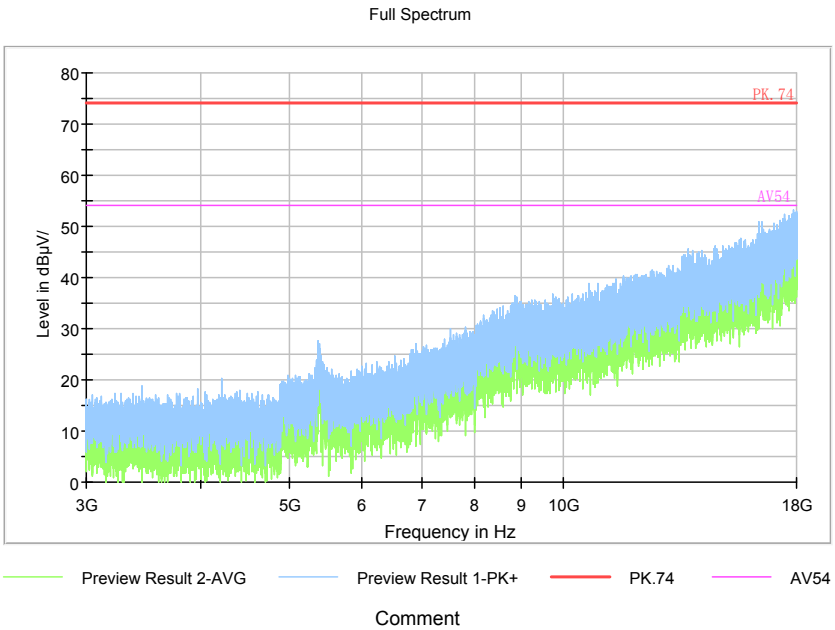
Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11g



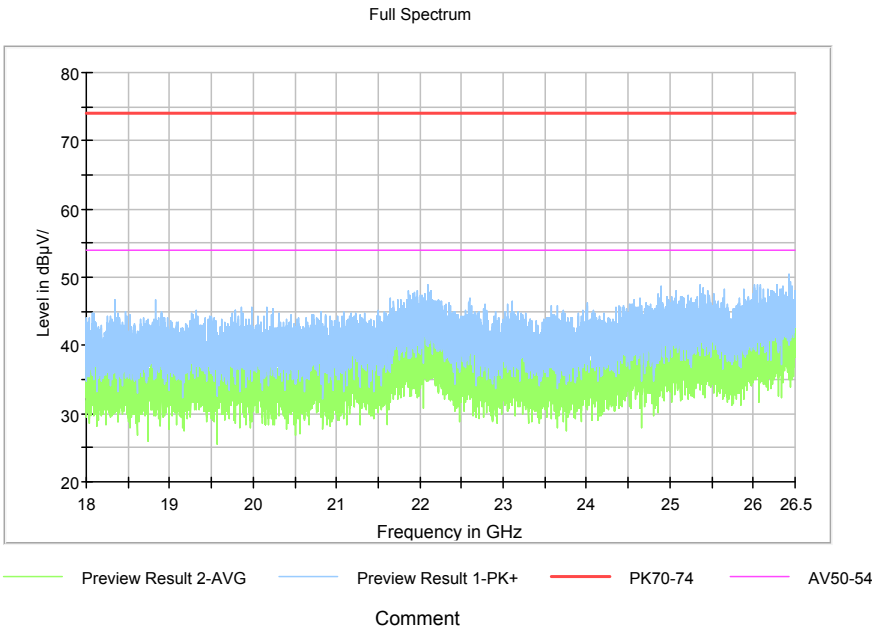
Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11n(HT20)



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

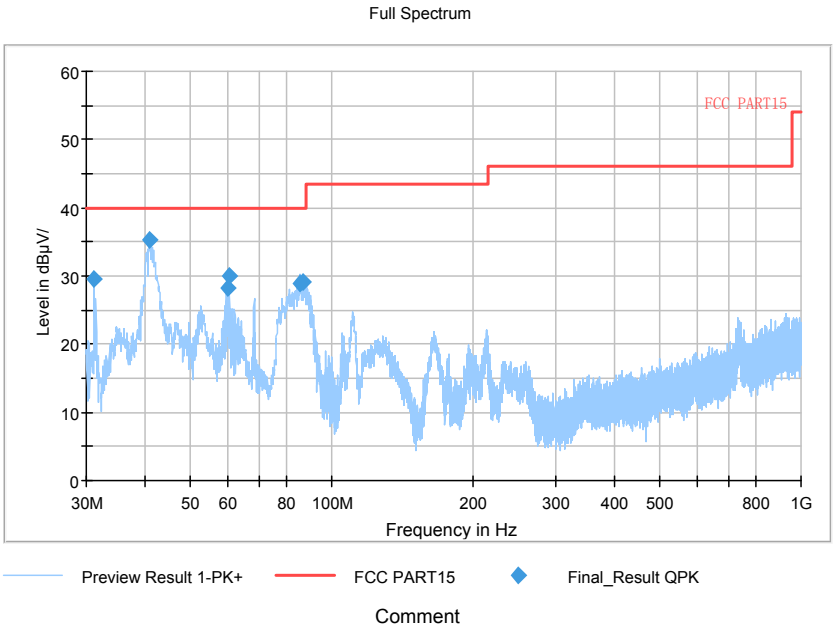


Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

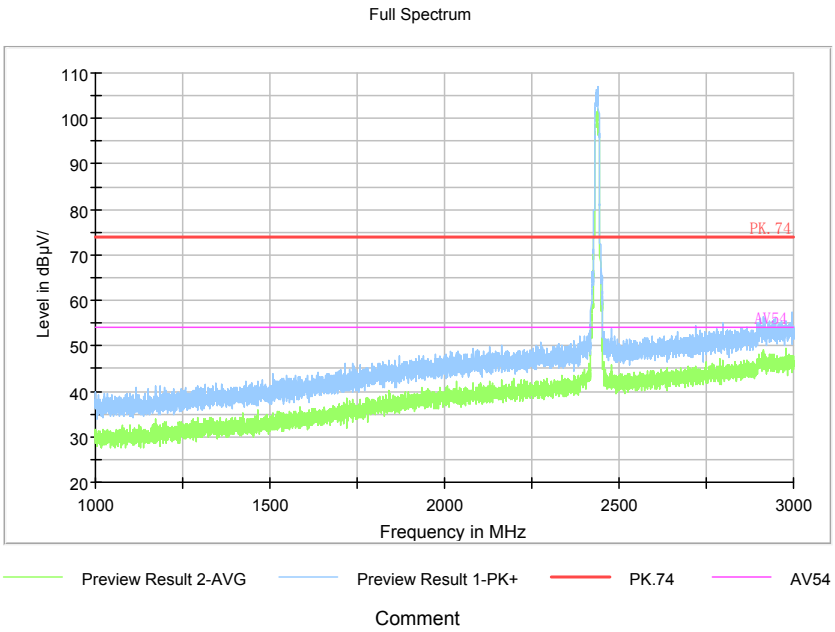


Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

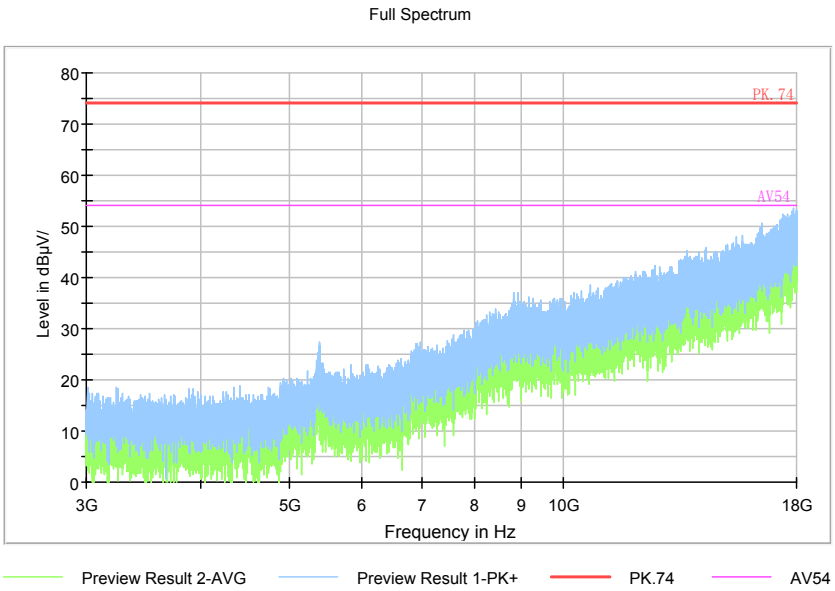
Carrier frequency (MHz): 2437
Channel No.:6



Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11b

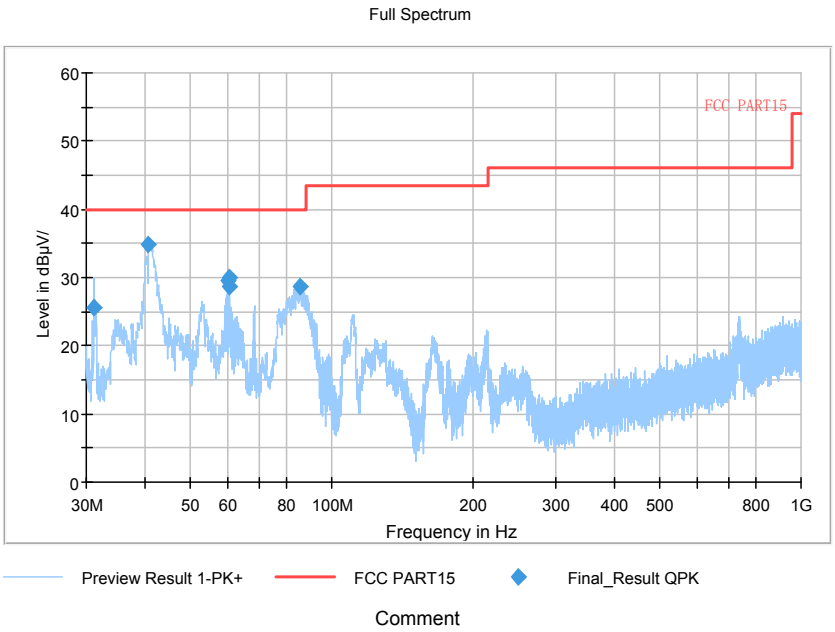


Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

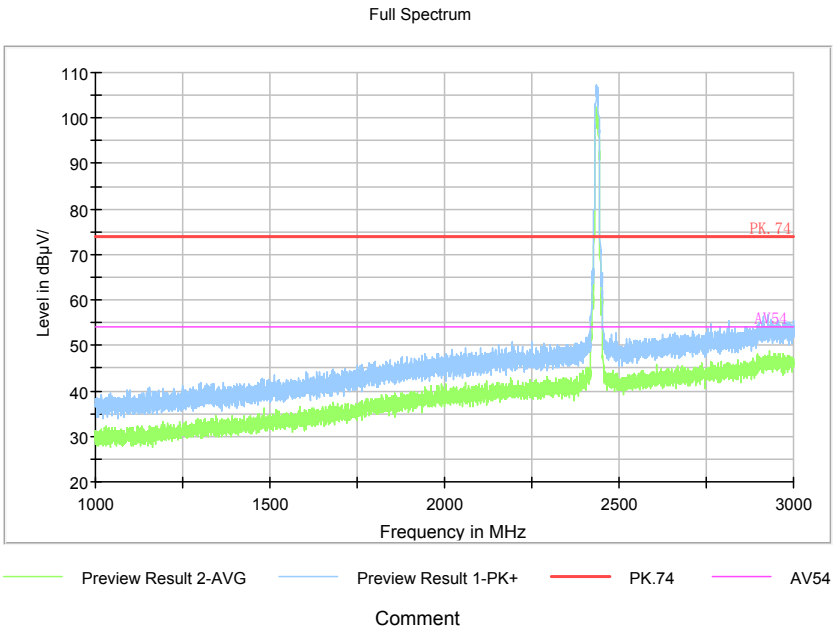


Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

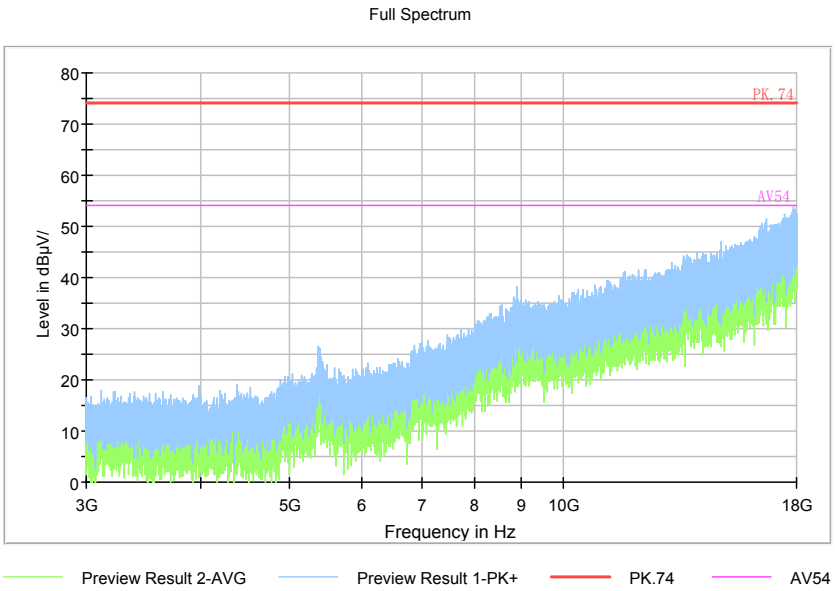
Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11b



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11g

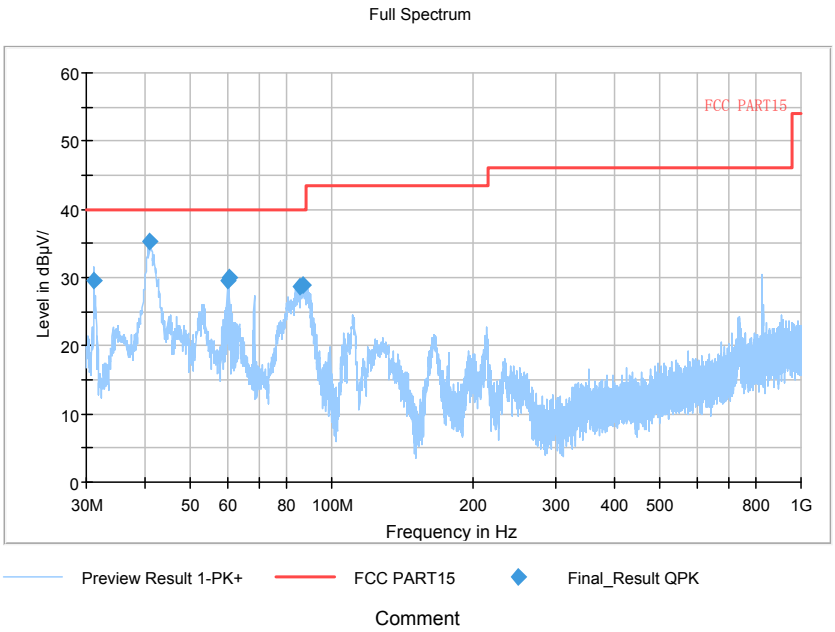


Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

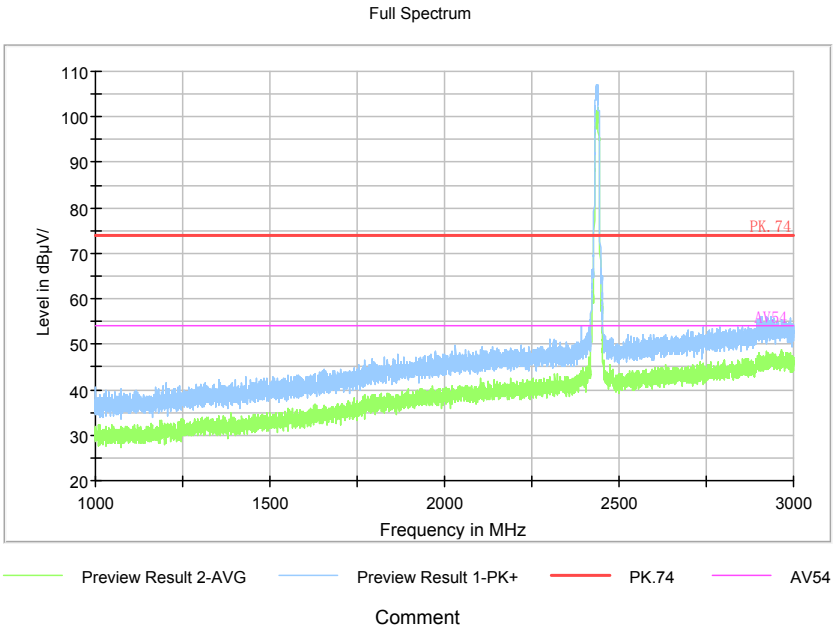


Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

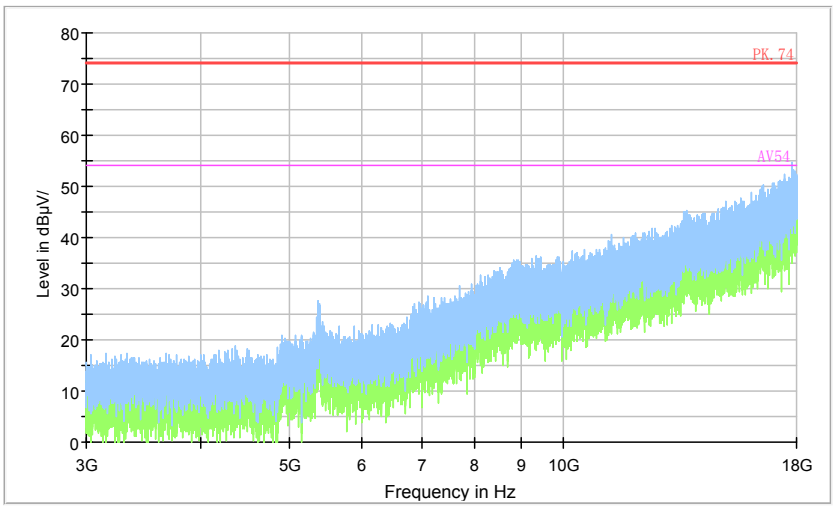


Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11n(HT20)



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

Full Spectrum

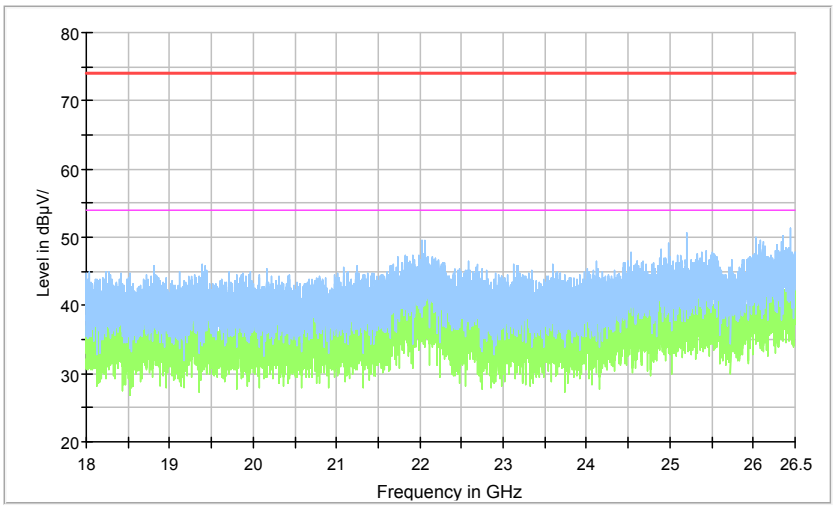


Preview Result 2-AVG Preview Result 1-PK+ PK.74 AV54

Comment

Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

Full Spectrum

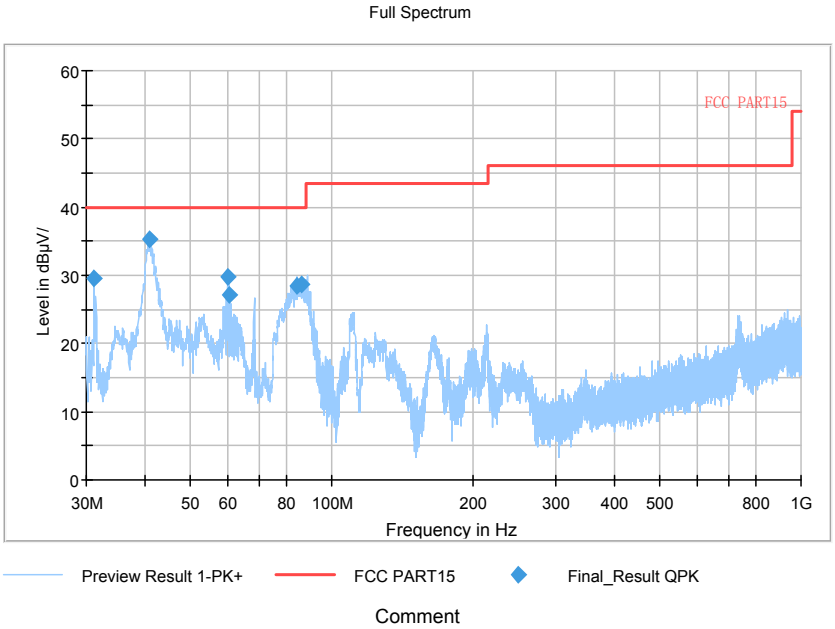


Preview Result 2-AVG Preview Result 1-PK+ PK70-74 AV50-54

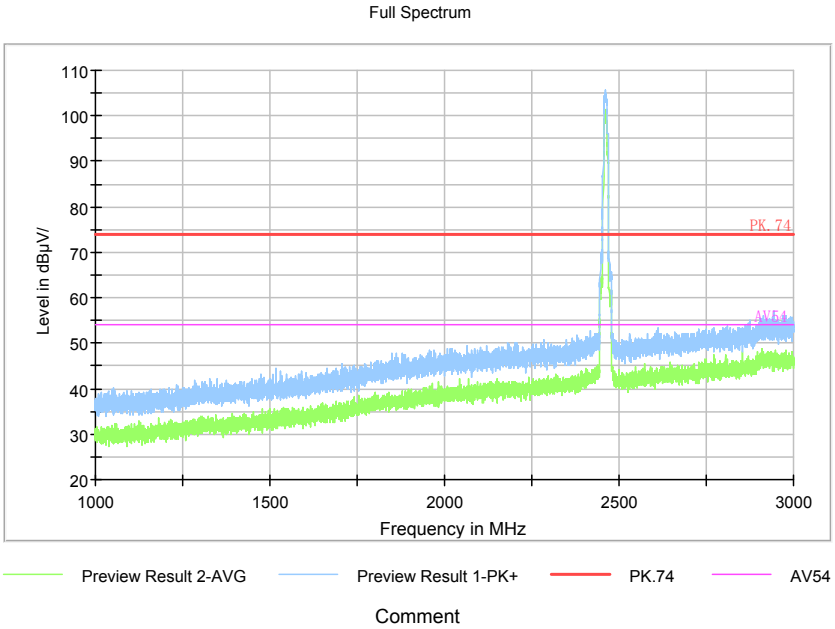
Comment

Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

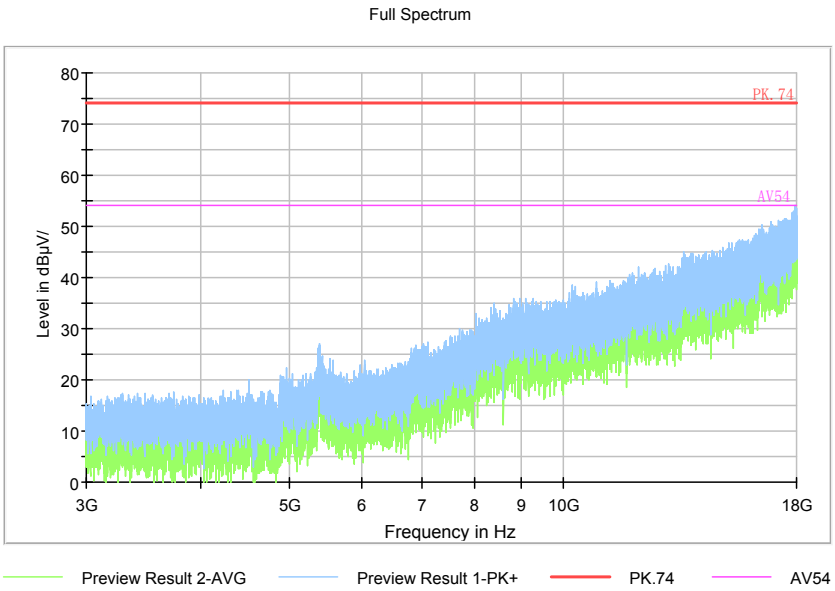
Carrier frequency (MHz): 2462
Channel No.:11



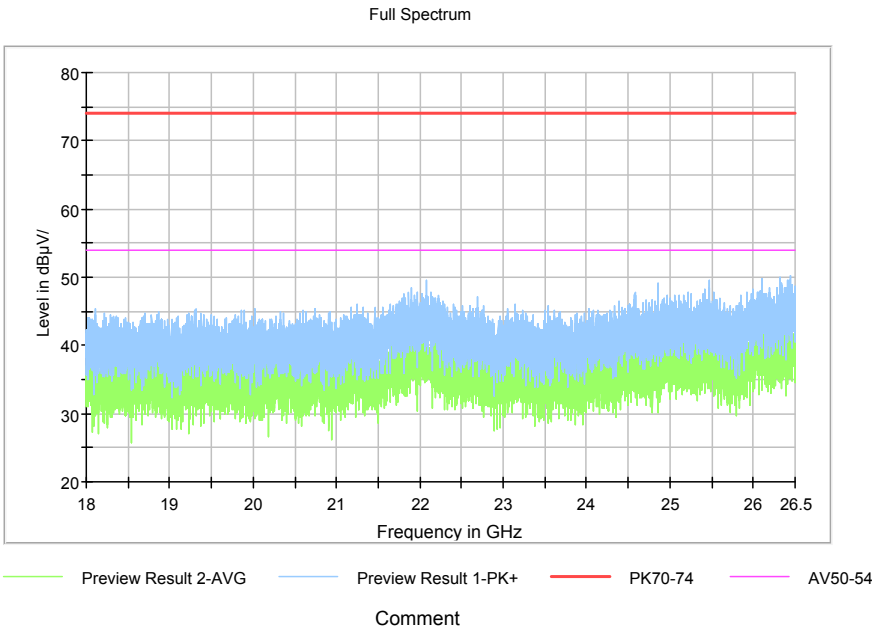
Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11b



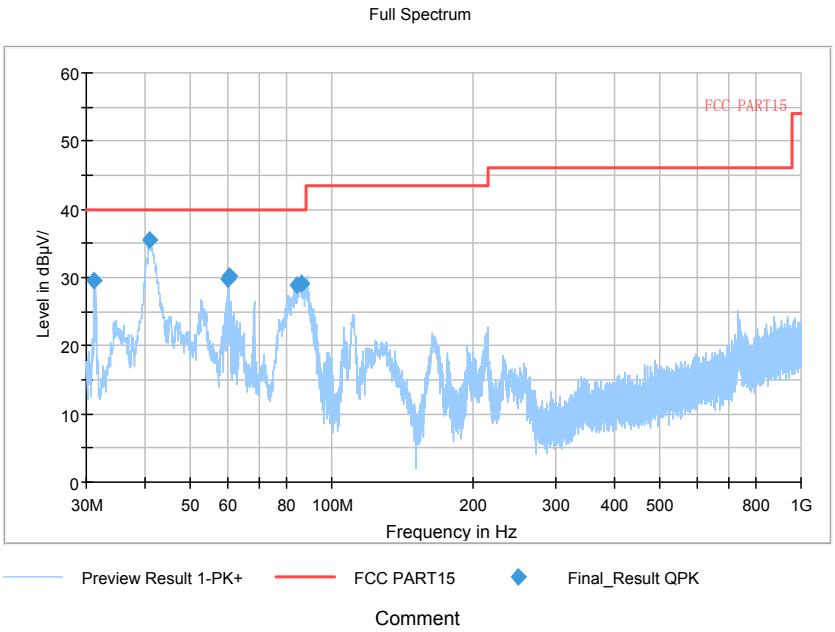
Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11b



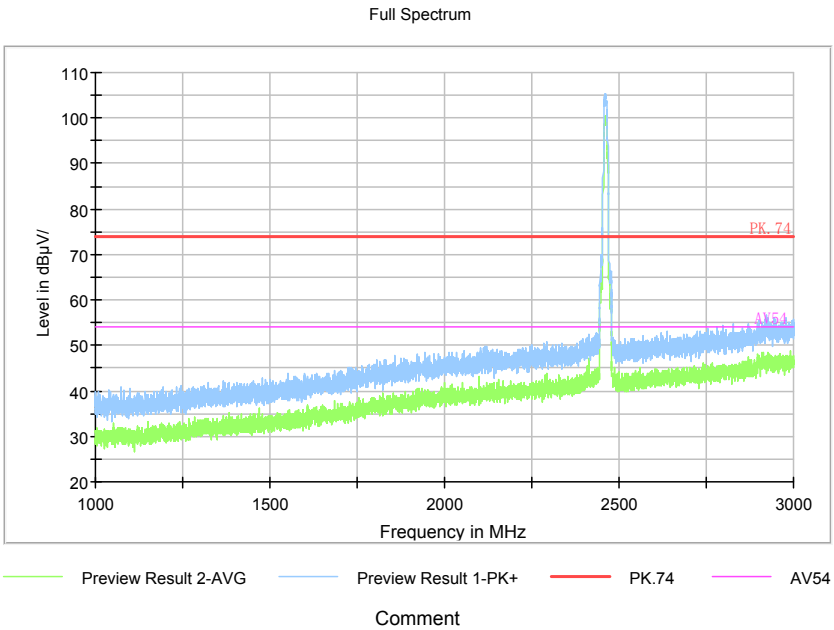
Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11b



Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

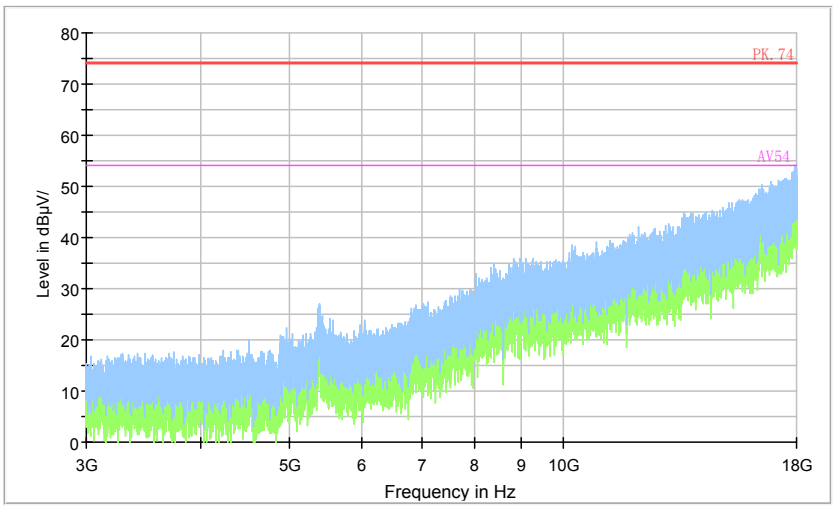


Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11g



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

Full Spectrum



Preview Result 2-AVG Preview Result 1-PK+ PK.74 AV54

Comment

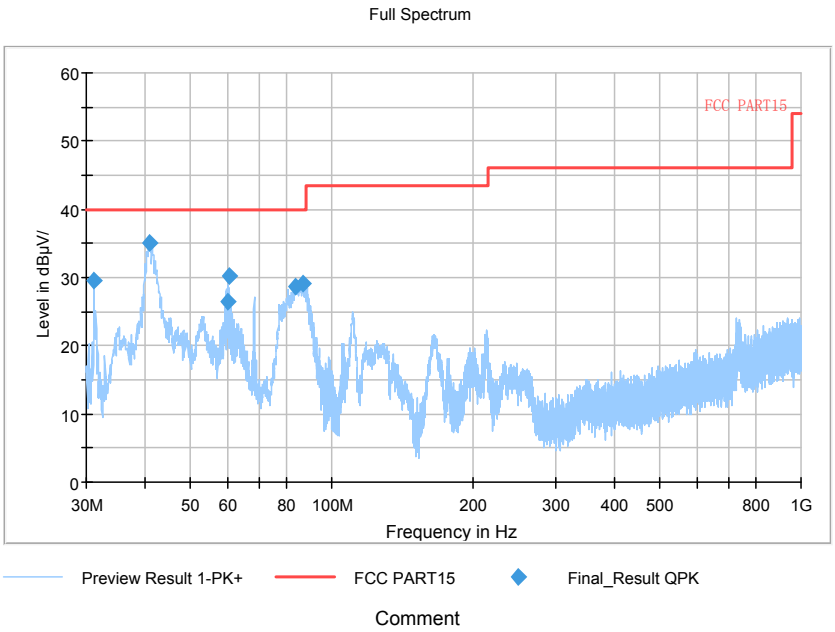
Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

Full Spectrum

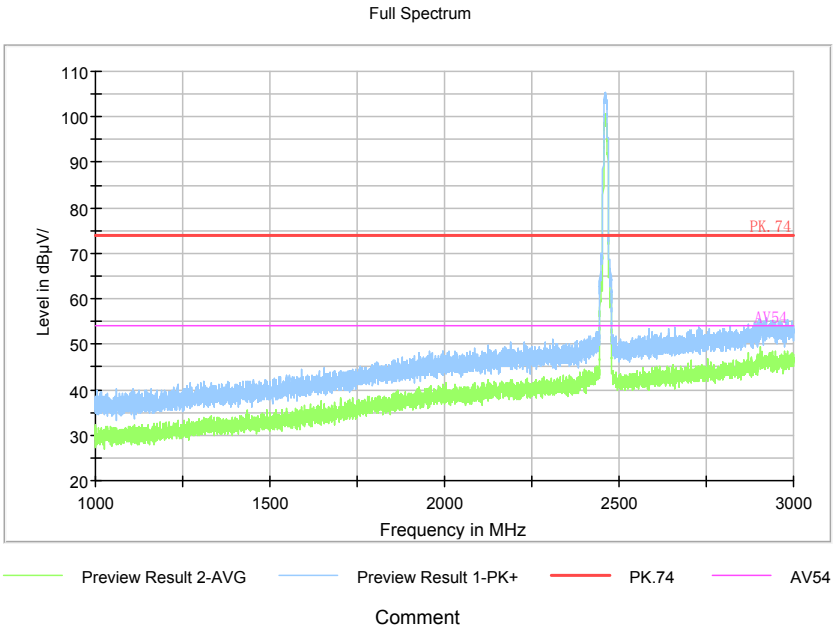
Preview Result 2-AVG Preview Result 1-PK+ PK70-74 AV50-54

Comment

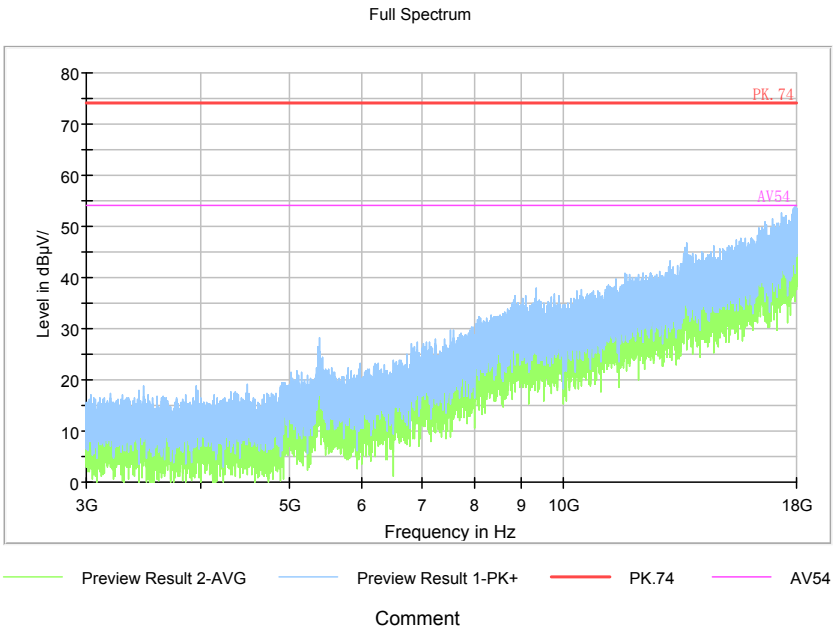
Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11g



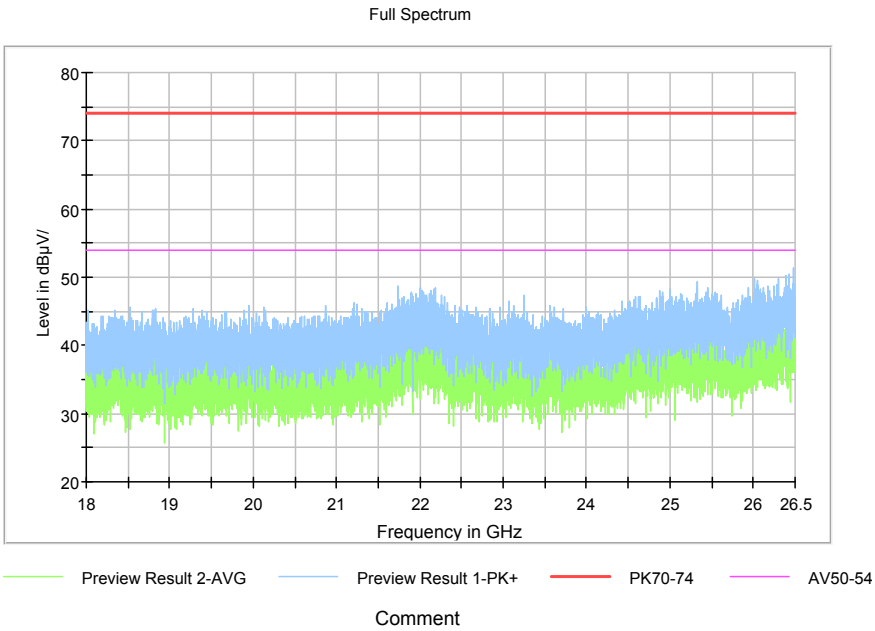
Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11n(HT20)



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

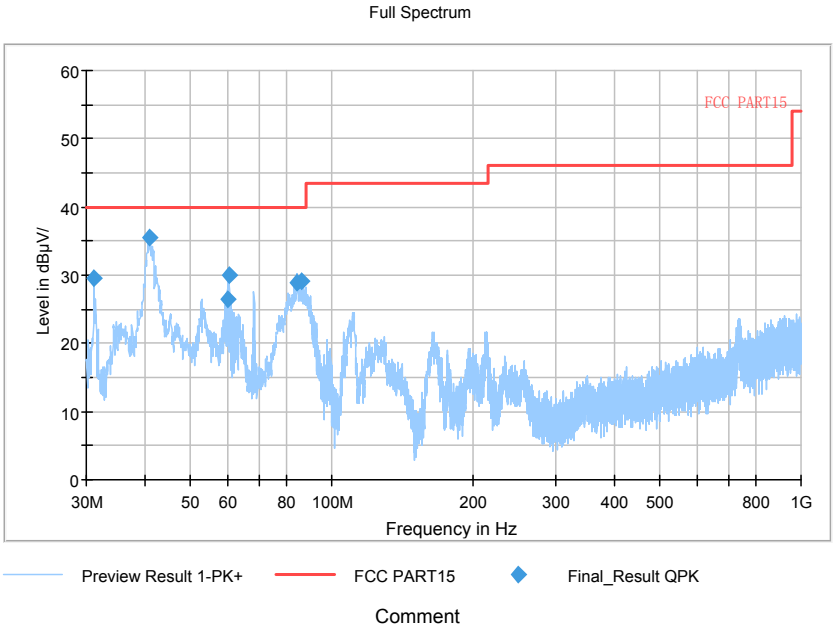


Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

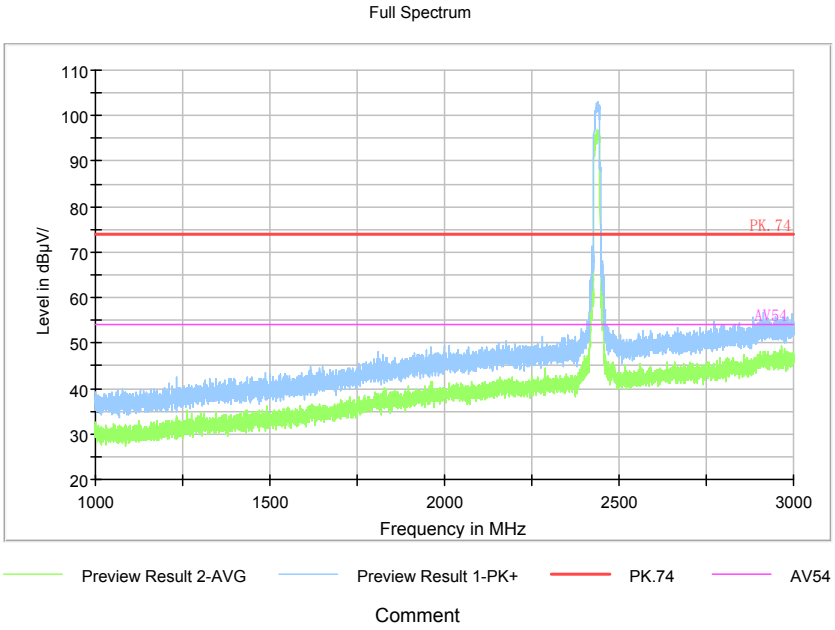


Frequency Range: 18GHz -25GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

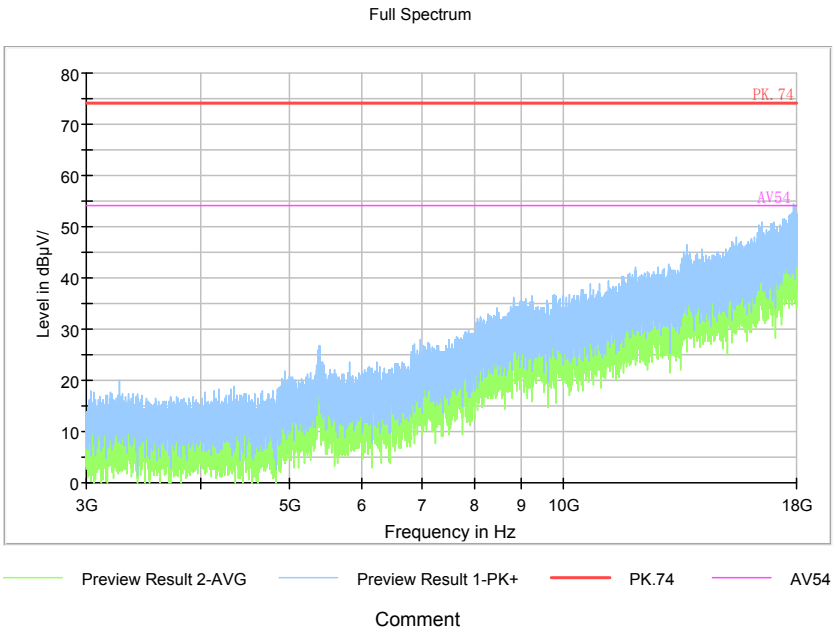
Carrier frequency (MHz): 2437 for secondary supply
Channel No.:6



Frequency Range: 30MHz-1000MHz
Detector: QP mode
Modulation type: 802.11g



Frequency Range: 1GHz-3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g



Frequency Range: 3GHz- 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

Frequency Range: 18GHz-25GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

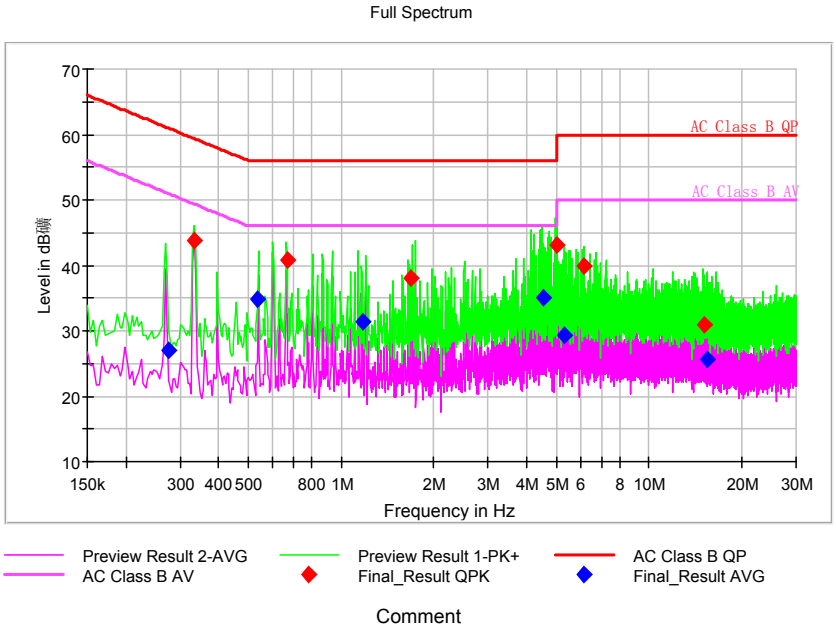
AC Power line Conducted Emission (11b + charge)

A “reference path loss” Corr.(dB) is established and the L_{cable}+ATT+VDF is the attenuation of ” reference path loss”, and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$P_{result}=P_{mea}$+ Corr.(dB)

Sample calculation: (27.00 dBμV) = (-2.7 dBμV) + (29.7 dB), the corresponding frequency is 0.273831MHz.



L+N Line

MEASUREMENT RESULT:

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBμV)	Pmea Average (dBμV)
0.273831	---	27.00	51.00	24.00	L1	29.7	---	-2.7
0.333831	43.69	---	59.36	15.67	L1	29.7	13.99	---
0.534481	---	34.72	46.00	11.28	L1	29.7	---	5.02
0.666481	40.71	---	56.00	15.29	L1	29.7	11.01	---
1.171781	---	31.45	46.00	14.55	L1	29.7	---	1.75
1.676244	38.14	---	56.00	17.86	L1	29.8	8.34	---
4.550712	---	34.95	46.00	11.05	L1	29.8	---	5.15
5.020581	43.14	---	60.00	16.86	L1	29.8	13.34	---
5.324662	---	29.28	50.00	20.72	L1	29.8	---	-0.52
6.162044	39.78	---	60.00	20.22	L1	29.8	9.98	---
15.059794	30.86	---	60.00	29.14	L1	29.9	0.96	---
15.465094	---	25.70	50.00	24.30	L1	29.9	---	-4.2

---End of Test Report---