RF

TEST REPORT

ISSUED BY Shenzhen BALUN Technology Co., Ltd.

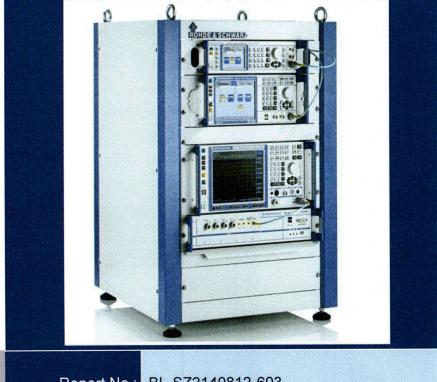


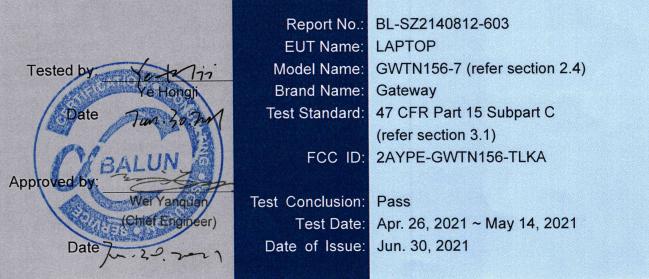
FOR

LAPTOP

ISSUED TO E&S INTERNATIONAL ENTERPRISES, INC.

7801 HAYVENHURST AVE. VAN NUYS, CA 91406





NOTE: This test report of test results only related to testing samples, which can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen BALUN Technology Co., Ltd. Any objections should be raised within thirty days from the date of issue. To validate the report, please contact us.

Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong, P. R. China 518055 TEL: +86-755-66850100, FAX: +86-755-61824271 Email: qc@baluntek.com www.baluntek.com



Revision History

Version <u>Rev. 01</u> Issue Date Jun. 30, 2021 Revisions Content Initial Issue

TABLE OF CONTENTS

1	ADMIN	ISTRATIVE DATA (GENERAL INFORMATION)	. 5
	1.1	Identification of the Testing Laboratory	. 5
	1.2	Identification of the Responsible Testing Location	. 5
	1.3	Laboratory Condition	. 5
	1.4	Announce	. 5
2	PRODU	JCT INFORMATION	. 6
	2.1	Applicant Information	. 6
	2.2	Manufacturer Information	. 6
	2.3	Factory Information	. 6
	2.4	General Description for Equipment under Test (EUT)	. 6
	2.5	Technical Information	. 7
	2.6	Additional Instructions	10
3	SUMMA	ARY OF TEST RESULTS	12
	3.1	Test Standards	12
	3.2	Verdict	12
4	GENER	AL TEST CONFIGURATIONS	13
	4.1	Test Environments	13
	4.2	Test Equipment List	13
	4.3	Measurement Uncertainty	13
	4.4	Description of Test Setup	14
	4.4.1	For Antenna Port Test	14
	4.4.2	For AC Power Supply Port Test	14
	4.4.3	For Radiated Test (Below 30 MHz)	15
	4.4.4	For Radiated Test (30 MHz-1 GHz)	15
	4.4.5	For Radiated Test (Above 1 GHz)	16



4	1.5	Measurement Results Explanation Example	. 17
	4.5.1	For conducted test items:	. 17
	4.5.2	For radiated band edges and spurious emission test:	. 17
5	TEST I	TEMS	. 18
Ę	5.1	Antenna Requirements	. 18
	5.1.1	Relevant Standards	. 18
	5.1.2	Antenna Anti-Replacement Construction	. 18
	5.1.3	Antenna Gain	. 18
Ę	5.2	Output Power	. 19
	5.2.1	Test Limit	. 19
	5.2.2	Test Setup	. 19
	5.2.3	Test Procedure	. 19
	5.2.4	Test Result	. 20
Ę	5.3	6dB Bandwidth	. 21
	5.3.1	Limit	. 21
	5.3.2	Test Setup	. 21
	5.3.3	Test Procedure	. 21
	5.3.4	Test Result	. 21
Ę	5.4	Conducted Spurious Emission	. 22
	5.4.1	Limit	. 22
	5.4.2	Test Setup	. 22
	5.4.3	Test Procedure	. 22
	5.4.4	Test Result	. 23
Ę	5.5	Band Edge (Authorized-band band-edge)	. 24
	5.5.1	Limit	. 24
	5.5.2	Test Setup	. 24
	5.5.3	Test Procedure	. 24
	5.5.4	Test Result	. 25
Ę	5.6	Conducted Emission	. 26
	5.6.1	Limit	. 26
	5.6.2	Test Setup	. 26
	5.6.3	Test Procedure	. 26



5.6.4	Test Result	
5.7	Radiated Spurious Emission	27
5.7.1	Limit	27
5.7.2	Test Setup	27
5.7.3	Test Procedure	27
5.7.4	Test Result	30
5.8	Band Edge (Restricted-band band-edge)	31
5.8.1	Limit	31
5.8.2	Test Setup	31
5.8.3	Test Procedure	31
5.8.4	Test Result	31
5.9	Power Spectral density (PSD)	32
5.9.1	Limit	32
5.9.2	Test Setup	32
5.9.3	Test Procedure	32
5.9.4	Test Result	32
ANNEX A	TEST RESULT	33
A.1	Output Power	33
A.2	Bandwidth	44
A.3	Conducted Spurious Emissions	59
A.4	Band Edge (Authorized-band band-edge)	130
A.5	Conducted Emissions	153
A.6	Radiated Emission	155
A.7	Band Edge (Restricted-band band-edge)	
A.8	Power Spectral Density (PSD)	228
ANNEX B	TEST SETUP PHOTOS	245
ANNEX C	EUT EXTERNAL PHOTOS	245
ANNEX D	EUT INTERNAL PHOTOS	245



1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road,
Address	Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.		
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road,		
Address	Nanshan District, Shenzhen, Guangdong Province, P. R. China		
Accreditation	The laboratory is a testing organization accredited by FCC as a		
Certificate	accredited testing laboratory. The designation number is CN1196.		
	All measurement facilities used to collect the measurement data are		
Description	located at Block B, FL 1, Baisha Science and Technology Park, Shahe		
Description	Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R.		
	China 518055		

1.3 Laboratory Condition

Ambient Temperature	20°C to 25°C
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4Announce

- (1) The test report reference to the report template version v6.4.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.



2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	E&S INTERNATIONAL ENTERPRISES, INC.		
Address	7801 HAYVENHURST AVE. VAN NUYS, CA 91406		

2.2 Manufacturer Information

Mar	nufacturer	E&S INTERNATIONAL ENTERPRISES, INC.		
Add	dress	7801 HAYVENHURST AVE. VAN NUYS, CA 91406		

2.3 Factory Information

Factory	HUNAN GREATWALL COMPUTER SYSTEM CO., LTD
Address	Tianyi Science and Technology Town, Xiangyun Road, Tianyuan
Audress	District, Zhuzhou, Hunan, P.R. China

2.4 General Description for Equipment under Test (EUT)

EUT Type	LAPTOP		
Model Name Under Test	GWTN156-7		
	GWTN156-7BK, GWTN156-7BL, GWTN156-7PR, GWTN156-7GR,		
Series Model Name	GWTN156-7**		
	(* can be 0-9, a-z, A-Z)		
Description of Model	Only with different shell colors.		
name differentiation			
Hardware Version	N14TRB110		
Software Version	20H1		
Dimensions (Approx.)	N/A		
Weight (Approx.)	N/A		



2.5 Technical Information

	Network and Wireless WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac and 802.11ax					
	connectivity	/	Bluetooth (BR+EDR+BLE)			
The req	uirement for	the following tec	hnical information of the EUT was tested in this report:			
·	Frequency Range		802.11b/g/n/ax(20 MHz): 2.412 GHz - 2.462 GHz f _c = 2412 MHz + (N-1)*5 MHz, where			
			- f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11. 802.11n/ax(40 MHz): 2.422 GHz - 2.452 GHz f_c = 2412 MHz + (N-1)*5 MHz, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 3 to 9.			
	Modulation	Type	DSSS, OFDM			
	Product Ty		 ☐ Mobile ➢ Portable ☐ Fix Location 			
	Antenna System (eg., MIMO, Smart Antenna)		Cyclic Delay Diversity (CDD) for 802.11n Basic methodology with <i>NANT</i> transmit antennas, each with the same directional gain <i>GANT</i> dBi for 802.11b/g			
	Categorization as Correlated or Completely Uncorrelated		Categorization as Correlated			
	Antenna Main Antenna Type Aux. Antenna		PIFA Antenna			
	Antenna Main Antenna Gain Aux. Antenna		2.5 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)			
	For power spectral density(PSD) measurement s		2.5 dBi Formulas: Directional gain = GANT + Array Gain, <i>Array Gain</i> = 10 <i>log(NANT/NSS) dB. NSS</i> =2, GANT set equal to the gain of the antenna having the highest gain.			
	Total directiona I gain	For power measurement s	2.5 dBi Formulas: Directional gain = GANT + Array Gain, <i>Array Gain</i> = 0, GANT set equal to the gain of the antenna having the highest gain.			
		For Conducted Out-of-Band and Spurious Measurement s	2.5 dBi Formulas: Directional gain = GANT + Array Gain, <i>Array Gain</i> = 10 <i>log(NANT/NSS) dB. NSS</i> =2, GANT set equal to the gain of the antenna having the highest gain.			
	About the Product		Only the WIFI 802.11b, 802.11g, 802.11n (HT20/40) and 802.11ax (HE20/40) was tested in this report.			



Antenna				
Main Antenna	Aux. Antenna	MIMO-Main Antenna	MIMO-Aux. Antenna	MIMO
\checkmark	\checkmark			
\checkmark				
\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
\checkmark	\checkmark			\checkmark
\checkmark	\checkmark			\checkmark
\checkmark				\checkmark
	Main Antenna $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$	Main AntennaAux. Antenna $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$	Main Antenna Aux Antenna MIMO-Main	Main Antenna Aux Antenna MIMO-Main MIMO-Aux.

Note: All the configurations were tested, but only the worst data was shown in this report.

Modulation technology	Modulation Type	Transfer Rate (Mbps)
	DBPSK	1
DSSS (802.11b)	DQPSK	2
	CCK	5.5/11
	BPSK	6/9
	QPSK	12/18
OFDM (802.11g)	16QAM	24/36
	64QAM	48 / 54
	BPSK	6.5/7.2
OFDM	QPSK	13/19.5/14.4/21.7
(802.11n-20MHz)	16QAM	26/39/28.9/43.3
	64QAM	52/58.5/65/57.8/65/72.2
	BPSK	13.5/15
OFDM	QPSK	27/40.5/30/45
(802.11n-40MHz)	16QAM	54/81/60/90
	64QAM	108/121.5/135/120/150
	BPSK	4
	QPSK	16/24/17/26
OFDMA	16QAM	33/49/34/52
(802.11ax-20 MHz)	64QAM	65/73/81/69/77/86
	256QAM	98/108/103/115
	1024QAM	122/135/129/143
	BPSK	8/9
	QPSK	33/49/34/52
OFDMA	16QAM	65/98/69/103
(802.11ax-40 MHz)	64QAM	130/146/163/138/155/172
	256QAM	195/217/207/229
	1024QAM	244/271/258/287

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.



Test Items	Mode	Data Rate	Cha	nnel
Output Bower	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
Output Power	ax20/ax40	Mbps	1/0/11	3/0/9
6dB Bandwidth	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
	ax20/ax40	Mbps	1/0/11	3/0/9
Conducted Spurious Emission	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
Conducted Spanous Emission	ax20/ax40	Mbps	1/0/11	3/0/9
Conducted Emission	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
Conducted Emission	ax20/ax40	Mbps	1/0/11	3/0/9
Radiated Spurious Emission	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
	ax20/ax40	Mbps	1/0/11	3/0/9
Band Edge	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
Band Edge	ax20/ax40	Mbps	1/0/11	3/0/9
Power spectral density (PSD)	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
Fower spectral defisity (FSD)	ax20/ax40	Mbps	1/0/11	3/0/9

Note: The above EUT information in section 2.4 and 2.6 was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.



2.6 Additional Instructions

EUT Software Settings:

	\square	Special software is used.
Mode		The software provided by client to enable the EUT under
Mode		transmission condition continuously at specific channel
		frequencies individually.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power level setup in software					
Test Software Version	DRTU				
		Soft Set			
Mode	Channel	Main	Aux.	MIMO-Main	MIMO-Aux.
		Antenna	Antenna	Antenna	Antenna
	CH1	13.0	13.0		
802.11 b	CH6	13.0	13.0		
	CH11	13.0	13.0		
	CH1	13.5	13.5	13.5	13.5
802.11 g	CH6	13.5	13.5	13.5	13.5
	CH11	13.5	13.5	13.5	13.5
	CH1	13.5	13.0	13.5	13.5
802.11 n20	CH6	13.5	13.0	13.5	13.5
	CH11	13.5	13.0	13.5	13.0
	CH3	12.0	12.0	12.5	12.0
802.11 n40	CH6	12.5	12.0	12.5	12.0
	CH9	12.5	12.0	12.5	12.0
	CH1	13.5	13.5	13.5	13.5
802.11 ax20 (SU)	CH6	13.5	13.0	13.5	13.5
	CH11	13.5	13.0	13.5	13.5
	CH3	11.5	12.0	12.5	12.5
802.11 ax40 (SU)	CH6	12.5	12.0	12.5	12.5
	CH9	12.5	12.0	12.5	12.5



Run software:

DRTU - Diagnostics and Regulatory	festing Utility	- 🗆 ×
File View AT@ Help		
📴 🚔 📕 🔜 😵 🛛 Remote address	localhost	Remote port: 8751 Disconnect
Work mode navigator Work mode navigator Harrison Peak Wi-Fi Wi-Fi Modulated Tx Continuous Rx Rx sensitivity Actual power table (frx NVM/OTP	Power mode Power control Automatic driver settings Transmit power (chain A): Transmit power (chain B):	Radio settings Transmit chains: ✓ A (1) B (2) Band: ● 2.4 GHz ⊂ 5 GHz Band width: 20 MHz ✓ Channel: 1 / 2412 MHz ✓ Control Ch.: ✓ ✓ ✓ Full Bandwidth Resource Unit: 242 Tone (20M) Specific Resource Unit: 0 ✓ ✓ Frame settings ✓
	Send Packets Settings Transmit Mode: Off C Burst C Unlimited Destination MAC Address: FF:FF:FF:FF:FF: Packet count: 0	Prame settings Rate: MCS0 Transmission Mode: SISO Duty cycle: Guard interval: 1600 uSec
	Regulatory information Current MCC: US Dusable regulatory limits in PAPD calibration:	LTF: HE 2xLTF Extended Range Inter Frame Interval: 40(us) Frame Size: 4176 (bytes) BF Emulation
4	Calibrate TX TX calibrated Send Stop Read Default	☐ Disable Calibrations
WiFi Modulated Tx configuration was wr	tten	power: Chain A (1) 12 dBm Modulated Tx



3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Miscellaneous Wireless Communications Services
		GUIDANCE FOR COMPLIANCE MEASUREMENTS ON
2	KDB Publication 558074	DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING
2	D01v05r02	SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES
		OPERATING UNDER SECTION 15.247 OF THE FCC RULES
3	KDB Publication	Emissions Testing of Transmitters with Multiple Outputs in the Same
3	662911 D01v02r01	Band (e.g., MIMO, Smart Antenna, etc)
4	ANGL C62 10 2012	American National Standard of Procedures for Compliance Testing of
4	ANSI C63.10-2013	Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC PART No.	Test Result	Verdict
1	Antenna Requirement	15.203; 15.247(b)	N/A	Pass ^{Note 1}
2	Output Power	15.247(b)	ANNEX A.1	Pass
3	6dB Bandwidth	15.247(a)	ANNEX A.2	Pass
4	Conducted Spurious Emission	15.247(d)	ANNEX A.3	Pass
5	Band Edge(Authorized-band band-edge)	15.209; 15.247(d)	ANNEX A.4	Pass
6	Conducted Emission	15.207	ANNEX A.5	Pass
7	Radiated Spurious Emission	15.209; 15.247(d)	ANNEX A.6	Pass
8	Band Edge(Restricted-band band-edge)	15.209; 15.247(d)	ANNEX A.7	Pass
9	Power spectral density (PSD)	15.247(e)	ANNEX A.8	Pass
10	Receiver Spurious Emissions	N/A	N/A	N/A Note 2
Note 1:	Please refer to section 5.1.		•	

Note ²: Only radio communication receivers operating in stand-alone mode within the band 30-960 MHz, as well as scanner receivers, are subject to Industry Canada requirements, so this test is not applicable.



4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	45% - 55%		
Atmospheric Pressure	100 kPa - 102 kPa		
Temperature	NT (Normal Temperature)	+22°C to +25°C	
Working Voltage of the EUT	NV (Normal Voltage)	11.4 V	

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2021.04.01	2022.03.31
Bluetooth Signaling Unit	ROHDE&SCHWARZ	CMW500	142028	2021.06.01	2022.05.31
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2021.06.01	2022.05.31
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2021.06.01	2022.05.31
LISN	SCHWARZBECK	NSLK 8127	8127-687	2021.06.01	2022.05.31
Test Antenna- Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2019.10.29	2021.10.28
Test Antenna- Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2021.07.01
Test Antenna- Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2021.07.01
Test Antenna- Horn (18-40 GHz)	A-INFO	LB- 180400KF	J211060273	2021.01.05	2023.01.04
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2022.02.20
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2018.08.08	2021.08.07
Shielded Enclosure	ChangNing	CN-130701	130703		

4.3 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

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

Measurement	Value
Occupied Channel Bandwidth	±4%
RF output power, conducted	±1 .21 dB
Power Spectral Density, conducted	±1.25 dB
Unwanted Emissions, conducted	±1.26 dB
All emissions, radiated	±3.86 dB
Temperature	±1°C
Humidity	±4%

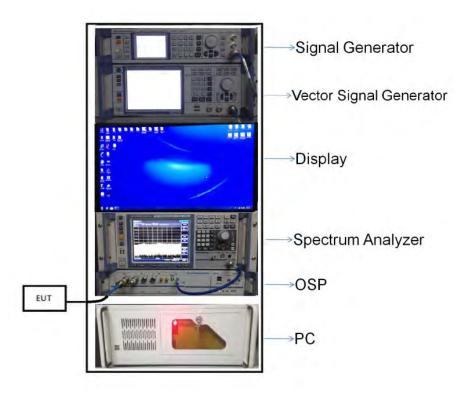


4.4 Description of Test Setup

4.4.1 For Antenna Port Test

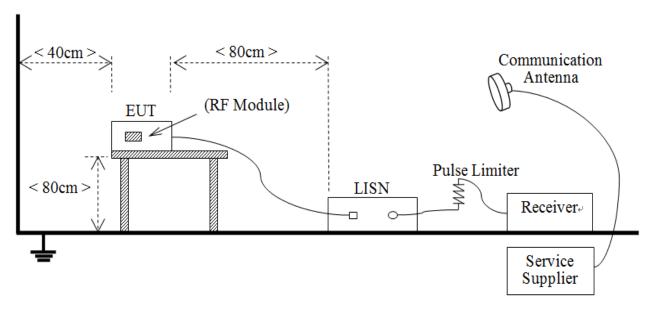
Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT: Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



(Diagram 1)

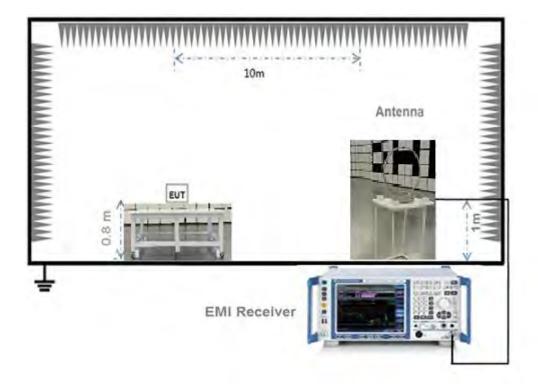




(Diagram 2)

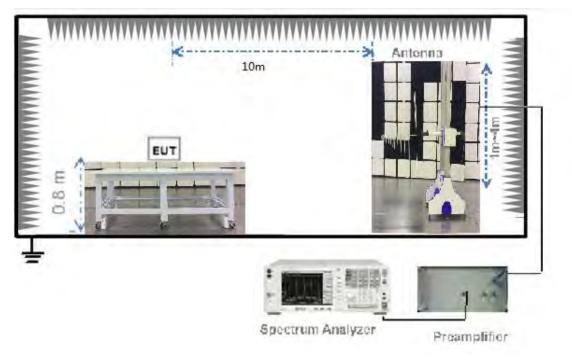


4.4.3 For Radiated Test (Below 30 MHz)



(Diagram 3)

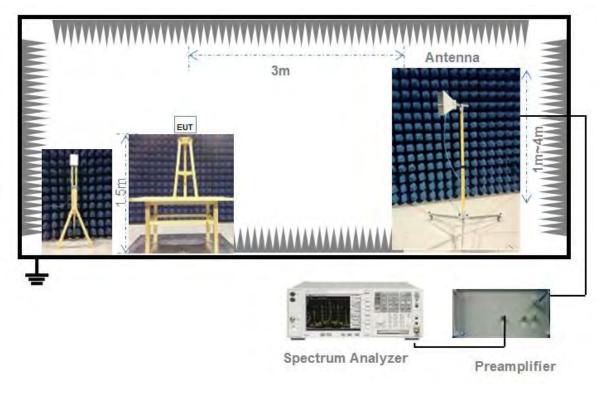
4.4.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)



4.4.5 For Radiated Test (Above 1 GHz)



(Diagram 5)



4.5 Measurement Results Explanation Example

4.5.1 For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

4.5.2 For radiated band edges and spurious emission test:

E = EIRP - 20log D + 104.8

where:

E = electric field strength in $dB\mu V/m$,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP= Measure Conducted output power Value (dBm) + Maximum transmit antenna gain (dBi) + the appropriate maximum ground reflection factor (dB)





5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203 & 15.247(b); RSS-247, 5.4 (f)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the	An embedded-in antenna design is used.
product.	

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



5.2 Output Power

5.2.1 Test Limit

FCC § 15.247(b); RSS-247, 5.4 (d)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antennas antennas and antennas and antennas and antennas and antennas and antennas and antennas antenn

5.2.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Maximum peak conducted output power

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.

Maximum conducted (average) output power (Reporting Only)

a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed

using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

1) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.

2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.

3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a

factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal as

described in Section 6.0.

c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

d) Adjust the measurement in dBm by adding 10log (1/x), where x is the duty cycle to the measurement result.

Measurements of duty cycle

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission.



Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value.

Set VBW \geq RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T \leq 16.7 microseconds.)

5.2.4 Test Result

Please refer to ANNEX A.1.



5.36dB Bandwidth

5.3.1 Limit

FCC §15.247(a); RSS-GEN, 6.7

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.

5.3.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Set RBW = 100 kHz.

Set the video bandwidth (VBW) \geq 3 RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

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.

5.3.4 Test Result

Please refer to ANNEX A.2.



5.4 Conducted Spurious Emission

5.4.1 Limit

FCC §15.247(d); RSS-247, 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.4.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The DTS rules specify that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

a) If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

 b) If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

c) In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.

The following procedures shall be used to demonstrate compliance to these limits. Note that these procedures can be used in either an antenna-port conducted or radiated test set-up. Radiated tests must conform to the test site requirements and utilize maximization procedures defined herein.

Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to \geq 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW \geq 3 x RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.



Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

Set the RBW = 100 kHz.

Set the VBW \geq 3 x RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

5.4.4 Test Result

Please refer to ANNEX A.3.



5.5 Band Edge (Authorized-band band-edge)

5.5.1 Limit

FCC §15.247(d); RSS-GEN, 8.9, RSS-247, 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.5.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The following procedures may be used to determine the peak or average field strength or power of an unwanted emission that is within 2 MHz of the authorized band edge. If a peak detector is utilized, use the procedure described in 13.2.1. Use the procedure described in 13.2.2 when using an average detector and the EUT can be configured to transmit continuously (i.e., duty cycle \geq 98%). Use the procedure described in 13.2.3 when using an average detector and the EUT cannot be configured to transmit continuously but the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent). Use the procedure described in 13.2.4 when using an average detector for those cases where the EUT cannot be configured to transmit continuously and the duty cycle is not constant (duty cycle variations equal or exceed 2 percent).

When using a peak detector to measure unwanted emissions at or near the band edge (within 2 MHz of the authorized band), the following integration procedure can be used.

Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

Set span to 2 MHz

RBW = 100 kHz.

VBW \geq 3 x RBW.

Detector = peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweep to continue until the trace stabilizes (required measurement time may increase for low duty cycle applications)

Compute the power by integrating the spectrum over 1 MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency (femission) \pm 0.5 MHz. If the instrument does not have a band power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by femission \pm 0.5 MHz.

Standard method(The 99% OBW of the fundamental emission is without 2 MHz of the authorized band):

Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.



Reference level: As required to keep the signal from exceeding the maximum instrument 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.

Attenuation: Auto (at least 10 dB preferred).

Sweep time: Coupled.

Resolution bandwidth: 100 kHz.

Video bandwidth: 300 kHz.

Detector: Peak.

Trace: Max hold.

5.5.4 Test Result

Please refer to ANNEX A.4.



5.6 Conducted Emission

5.6.1 Limit

FCC §15.207; RSS-GEN, 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μ H/ 50Ω line impedance stabilization network (LISN).

Frequency range	Conducted Limit (dBµV)			
(MHz)	Quai-peak	Average		
0.15 - 0.50	66 to 56	56 to 46		
0.50 - 5	56	46		
0.50 - 30	60	50		

5.6.2 Test Setup

See section 4.4.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.6.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.6.4 Test Result

Please refer to ANNEX A.5.



5.7 Radiated Spurious Emission

5.7.1 Limit

FCC §15.209&15.247(c); RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

- 1. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
- 2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.7.2 Test Setup

See section 4.4.3 to 4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all



chains in linear terms (e.g., Watts, mW).

e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

E = EIRP – 20log D + 104.8

where:

E = electric field strength in $dB\mu V/m$,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

f) Compare the resultant electric field strength level to the applicable limit.

g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 1.
- b) VBW \geq 3 x RBW.
- c) Detector = Peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.

f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be longer for low duty cycle applications).

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

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle \ge 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

a) The EUT shall be configured to operate at the maximum achievable duty cycle.

b) Measure the duty cycle, x, of the transmitter output signal as described in section 6.0.



c) RBW = 1 MHz (unless otherwise specified).

d) VBW ≥ 3 x RBW.

e) Detector = RMS, if span/(# of points in sweep) \leq (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.

f) Averaging type = power (i.e., RMS).

1) As an alternative, the detector and averaging type may be set for linear voltage averaging.

2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.

g) Sweep time = auto.

h) Perform a trace average of at least 100 traces.

i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.

2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $20 \log(1/x)$, where x is the duty cycle.

3) If a specific emission is demonstrated to be continuous (\geq 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.



Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured RBW = 1 MHz for $f \ge 1$ GHz, 100 kHz for f < 1 GHz VBW \ge RBW Sweep = auto Detector function = peak Trace = max hold

5.7.4 Test Result

Please refer to ANNEX A.6.



5.8 Band Edge (Restricted-band band-edge)

5.8.1 Limit

FCC §15.209&15.247(c); RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.8.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured RBW = 1 MHz for $f \ge 1$ GHz, 100 kHz for f < 1 GHz VBW \ge RBW Sweep = auto Detector function = peak Trace = max hold

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

For transmitters operating above 1 GHz repeat the measurement with an average detector.

5.8.4 Test Result

Please refer to ANNEX A.7.



5.9 Power Spectral density (PSD)

5.9.1 Limit

FCC §15.247(d); RSS-247, 5.2 (b)

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used.

5.9.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz \leq RBW \leq 100 kHz.

Set the VBW \geq 3 RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.9.4 Test Result

Please refer to ANNEX A.8.



ANNEX A TEST RESULT

A.1 Output Power

Note: All the configurations were pre tested, only the worst configuration has been reported in this report. <u>Duty Cycle</u>

Test Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle
802.11b	8.34090	8.39770	
802.11g	8.08334	8.13334	99.39%
802.11n-20 MHz	3.96739	4.02174	98.65%
802.11n-40 MHz	3.96739	4.01630	98.78%
802.11ax-20 MHz (SU)	3.95313	4.00521	98.70%
802.11ax-40 MHz (SU)	3.95500	4.01000	98.63%





Peak Power Test Data

Main Antenna

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	verdict		
Low	16.78	47.64	30			Pass	
Middle	16.62	45.92		1000	Pass		
High	16.85	48.42					

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdiet	
Channel	dBm	mW	dBm	mW	Verdict	
Low	22.03	159.59			Pass	
Middle	21.77	150.31	30	30 1000	Pass	
High	21.88	154.17			Pass	

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	Verdict		
Low	21.42	138.68	30				Pass
Middle	21.18	131.22		30 1000	Pass		
High	21.27	133.97					

802.11n-40 MHz Mode:

Channal	Measured Output Peak Power		Limit		Vordiot		
Channel	dBm	mW	dBm	mW	Verdict		
Low	20.67	116.68			Pass		
Middle	20.52	112.72	30	1000	Pass		
High	20.52	112.72					Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	22.55	179.89			Pass	
Middle	22.28	169.04	30	30 1000	Pass	
High	22.44	175.39				

802.11ax-40 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	Verdict		
Low	21.32	135.52	30				Pass
Middle	21.66	146.55		1000	Pass		
High	21.70	147.91		1			



<u>Aux. Antenna</u>

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict			
Channel	dBm	mW	dBm	mW	Verdict			
Low	16.97	49.77			Pass			
Middle	16.93	49.32	30	1000	Pass			
High	17.22	52.72						Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdici
Low	22.01	158.85			Pass
Middle	22.04	159.96	30	1000	Pass
High	22.37	172.58	-		Pass

802.11n-20 MHz Mode:

Chappel	Measured Output Peak Power		Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	21.26	133.66			Pass	
Middle	21.29	134.59	30	1000	Pass	
High	21.49	140.93			Pass	

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	20.52	112.72			Pass
Middle	20.57	114.02	30	1000	Pass
High	20.70	117.49			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	23.10	204.17			Pass
Middle	22.59	181.55	30	1000	Pass
High	22.87	193.64	-		Pass

802.11ax-40 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	21.88	154.17			Pass
Middle	21.90	154.88	30	1000	Pass
High	22.05	160.32			Pass



MIMO-Main Antenna

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	21.92	155.60			Pass	
Middle	21.50	141.25	30	1000	Pass	
High	21.69	147.57			Pass	

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	21.82	152.05			Pass
Middle	21.50	141.25	30	1000	Pass
High	21.67	146.89	•		Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	21.13	129.72			Pass
Middle	20.93	123.88	30	1000	Pass
High	20.93	123.88	-		Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	22.62	182.81			Pass
Middle	22.29	169.43	30	1000	Pass
High	21.45	139.64			Pass

802.11ax-40 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	21.90	154.88			Pass
Middle	21.67	146.89	30	1000	Pass
High	21.70	147.91			Pass





MIMO-Aux. Antenna

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	22.00	158.49			Pass
Middle	22.02	159.22	30	1000	Pass
High	22.29	169.43			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdici
Low	21.68	147.23			Pass
Middle	21.75	149.62	30	1000	Pass
High	21.54	142.56			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	20.55	113.50			Pass
Middle	20.52	112.72	30	30 1000	Pass
High	20.60	114.82			Pass

802.11ax-20 MHz (SU) Mode:

Channal	Measured Output Peak Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	22.89	194.54			Pass
Middle	22.97	198.15	30	1000	Pass
High	23.12	205.12			Pass

Channel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	Verdict		
Low	22.22	166.72					Pass
Middle	22.22	166.72	30	1000	Pass		
High	22.36	172.19			Pass		



<u>MIMO</u> 802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	24.97	314.09		1000	Pass
Middle	24.78	300.47	30		Pass
High	25.01	317.00			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	24.76	299.29			Pass
Middle	24.64	290.88	30	30 1000	Pass
High	24.62	289.45			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	23.86	243.22			Pass
Middle	23.74	236.60	30	30 1000	Pass
High	23.78	238.70			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	Verdict		
Low	25.77	377.35					Pass
Middle	25.65	367.59	30	1000	Pass		
High	25.38	344.75			Pass		

Channel	Measured Output Peak Power		Limit		Verdict			
Channel	dBm	mW	dBm	mW	Verdict			
Low	25.07	321.61						Pass
Middle	24.96	313.62	30	1000	Pass			
High	25.05	320.10			Pass			



Average Power Test Data

Main Antenna

802.11b Mode:

Channel	Measured Output Average Power		Limit		Vardiat
Channel	dBm	mW	dBm	mW	Verdict
Low	12.15	16.41			Pass
Middle	11.97	15.74	30	1000	Pass
High	11.98	15.78			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	12.18	16.52			Pass
Middle	11.94	15.63	30	1000	Pass
High	11.95	15.67			Pass

802.11n-20 MHz Mode:

Channel	Measured Outp	Measured Output Average Power		nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.91	15.52			Pass
Middle	11.56	14.32	30	1000	Pass
High	11.67	14.69			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	10.37	10.89			Pass
Middle	10.76	11.91	30	1000	Pass
High	10.71	11.78			Pass

802.11ax-20 MHz (SU) Mode:

Channel		Measured Outp	ut Average Power	Limit		Vordiot
Chan	lei	dBm	mW	dBm	mW	Verdict
Low	/	11.67	14.69			Pass
Middl	le	11.32	13.55	30	1000	Pass
High	1	11.41	13.84			Pass

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	9.56	9.04			Pass
Middle	10.44	11.07	30	1000	Pass
High	10.37	10.89			Pass



Aux. Antenna

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.14	16.37			Pass
Middle	12.17	16.48	30	1000	Pass
High	12.34	17.14			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.10	16.22			Pass
Middle	12.09	16.18	30	1000	Pass
High	12.27	16.87			Pass

802.11n-20 MHz Mode:

Channel	Measured Outp	Measured Output Average Power		nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.54	14.26			Pass
Middle	11.59	14.42	30	1000	Pass
High	11.67	14.69			Pass

802.11n-40 MHz Mode:

Channel	Measured Outp	red Output Average Power		nit	Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	10.71	11.78			Pass
Middle	10.81	12.05	30	1000	Pass
High	10.92	12.36			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Outp	Measured Output Average Power		nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.84	15.28			Pass
Middle	11.44	13.93	30	1000	Pass
High	11.58	14.39			Pass

Channal	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	10.59	11.46			Pass
Middle	10.53	11.30	30	1000	Pass
High	10.58	11.43			Pass



MIMO-Main Antenna

802.11g Mode:

Channel	Measured Outp	Measured Output Average Power		nit	Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	12.09	16.18			Pass
Middle	12.01	15.89	30	1000	Pass
High	11.98	15.78			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.80	15.14			Pass
Middle	11.52	14.19	30	1000	Pass
High	11.55	14.29			Pass

802.11n-40 MHz Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	10.92	12.36			Pass
Middle	10.61	11.51	30	1000 Pas	Pass
High	10.75	11.89			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.66	14.66			Pass
Middle	11.39	13.77	30	1000	Pass
High	11.39	13.77			Pass

Channel	Measured Outp	ut Average Power	Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	10.66	11.64			Pass	
Middle	10.55	11.35	30	1000	Pass	
High	10.48	11.17			Pass	



MIMO-Aux. Antenna

802.11g Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.07	16.11			Pass
Middle	12.13	16.33	30	1000 Pass	Pass
High	12.15	16.41			Pass

802.11n-20 MHz Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	11.87	15.38			Pass	
Middle	11.96	15.70	30	1000	Pass	
High	11.63	14.55			Pass	

802.11n-40 MHz Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	10.56	11.38			Pass
Middle	10.72	11.80	30	1000	Pass
High	10.75	11.89			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.83	15.24			Pass
Middle	11.82	15.21	30	1000	Pass
High	11.94	15.63			Pass

Channel	Measured Outp	ut Average Power	Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	10.89	12.27			Pass	
Middle	10.96	12.47	30	1000	Pass	
High	10.96	12.47			Pass	



<u>MIMO</u> 802.11g Mode:

Channel	Measured Output	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdici
Low	15.09	32.29			Pass
Middle	15.08	32.22	30	1000	Pass
High	15.08	32.18			Pass

802.11n-20 MHz Mode:

Channel		Measured Outp	ut Average Power	Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict	
Low		14.85	30.52			Pass
Middle		14.76	29.89	30	1000 F	Pass
High		14.60	28.84			Pass

802.11n-40 MHz Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	13.75	23.74			Pass
Middle	13.68	23.31	30	1000	Pass
High	13.76	23.77			Pass

802.11ax-20 MHz (SU) Mode:

Channal	Measured Outp	ut Average Power	Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	14.76	29.90			Pass	
Middle	14.62	28.98	30	1000	Pass	
High	14.68	29.40			Pass	

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	13.79	23.92			Pass
Middle	13.77	23.82	30	1000	Pass
High	13.74	23.64			Pass



A.2 Bandwidth

Note 1: All antenna were tested, but only the worst case has been reported in this report.

Note 2: All the configurations were pre tested, only the worst configuration has been reported in this report. <u>Test Data</u>

Main Antenna

802.11b Mode:

Channal	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Channel	(MHz)	(MHz)	Limits (kHz)
Low	8.660889	13.256151	≥500
Middle	9.111572	13.198263	≥500
High	9.161621	13.256151	≥500

802.11g Mode:

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Channel	(MHz)	(MHz)	Limits (kHz)
Low	15.218994	17.481910	≥500
Middle	15.218994	17.424023	≥500
High	15.218994	17.366136	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	15.118896	18.350217	≥500
Middle	15.218994	18.350217	≥500
High	15.168945	18.408104	≥500

802.11n-40MHz Mode:

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Channel	(MHz)	(MHz)	Limits (kHz)
Low	35.171875	36.200000	≥500
Middle	35.121826	36.100000	≥500
High	35.171875	36.200000	≥500

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Channel	(MHz)	(MHz)	Limits (kHz)
Low	15.369141	19.160637	≥500
Middle	17.421875	18.986975	≥500
High	16.270264	19.102750	≥500



802.11ax-40 MHz (SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	36.072510	37.500000	≥500
Middle	36.122559	37.600000	≥500
High	36.072510	37.600000	≥500

Aux. Antenna

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	8.610840	13.256151	≥500
Middle	9.111572	13.314038	≥500
High	9.161621	13.256151	≥500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	15.218994	17.424023	≥500
Middle	15.218994	17.366136	≥500
High	15.168945	17.424023	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Onanner	(MHz)	(MHz)	Limits (kHz)
Low	17.671875	18.697540	≥500
Middle	17.671875	18.755427	≥500
High	17.671875	18.639653	≥500

802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	36.372559	36.600000	≥500
Middle	36.422607	36.500000	≥500
High	36.422607	36.500000	≥500

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Channel	(MHz)	(MHz)	Limits (kHz)
Low	18.973633	19.334298	≥500
Middle	18.923584	19.392185	≥500
High	19.023682	19.334298	≥500



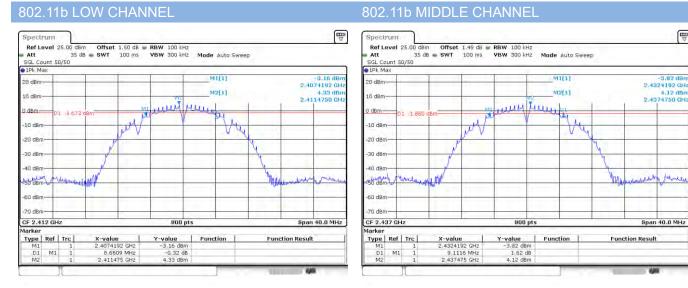
802.11ax-40 MHz (SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	37.973633	37.800000	≥500
Middle	38.073730	37.800000	≥500
High	38.023682	37.900000	≥500

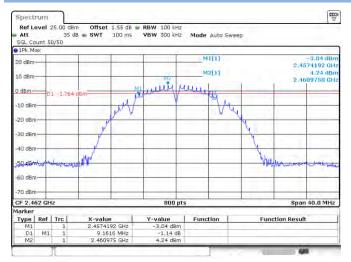
Test plots

6 dB Bandwidth

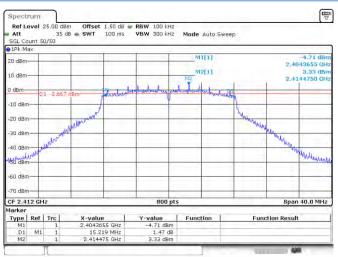
Main Antenna



802.11b HIGH CHANNEL

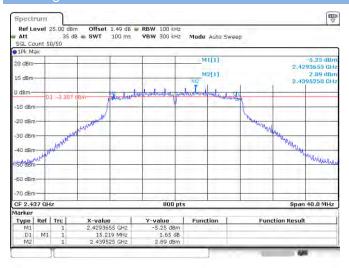


802.11g LOW CHANNEL

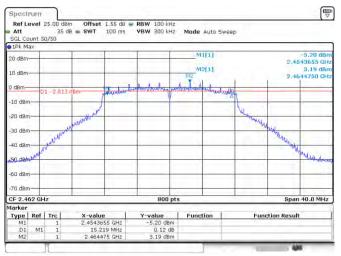




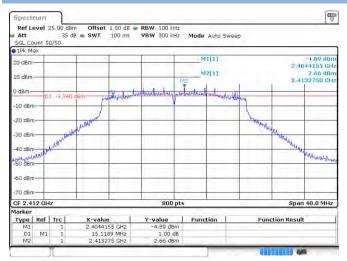
802.11g MIDDLE CHANNEL



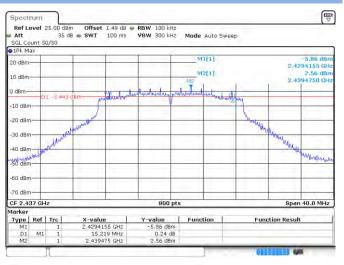
802.11g HIGH CHANNEL



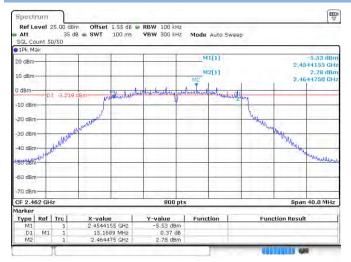
802.11n-20 MHz LOW CHANNEL



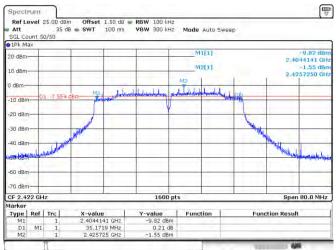
802.11 n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL

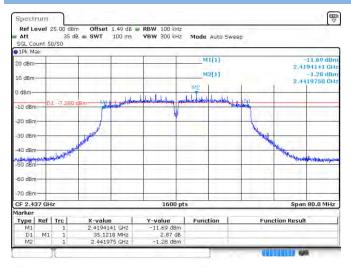


802.11n-40 MHz LOW CHANNEL



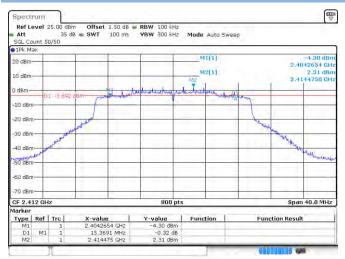


802.11n-40 MHz MIDDLE CHANNEL

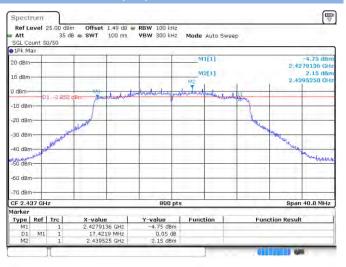


Spectrum Ref Level 25.00 dBm Att 35 dB 0 dBm Offset 1.51 dB RBW 100 kHz 35 dB SWT 100 ms VBW 300 kHz Mode Auto Sweep SGL Count 50/50 9 1Pk Max -9,64 dBn 2:4344141 GH -1.37 dBn 2:4569750 CH MI[1] 20 dBr M2[1] 16 dBm ME d8m under the bulle M1 1-7 374 -10 dBm 20 dBm 30 dBm 40 dBn he -50 dBm-60 dBm -70 dBm Span 80.0 MHz CF 2.452 GHz 1600 pts ark X-value 2.4344141 GH2 35,1719 MHz 2.456975 GHz Type | Ref | Trc | Y-value Function Function Result D1 M1 M2 -1.34 dB -1.37 dBm

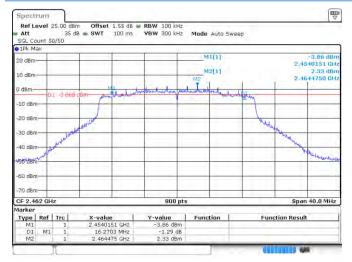
802.11ax-20 MHz (SU) LOW CHANNEL



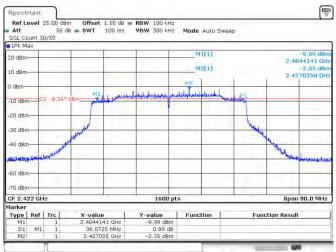
802.11ax-20 MHz (SU) MIDDLE CHANNEL



802.11ax-20 MHz (SU) HIGH CHANNEL

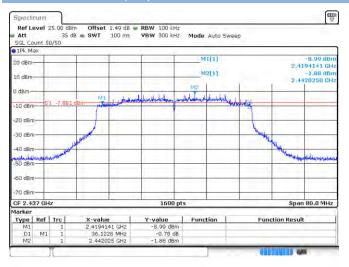


802.11ax-40 MHz (SU) LOW CHANNEL





802.11ax-40 MHz (SU) MIDDLE CHANNEL

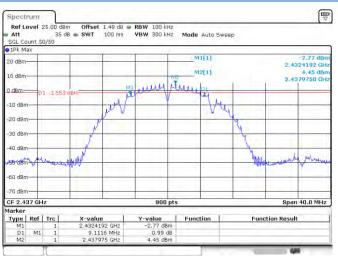




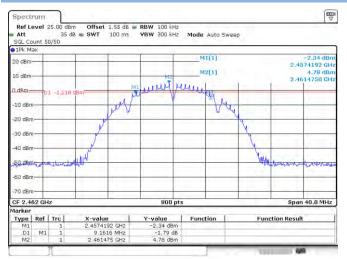
Aux. Antenna



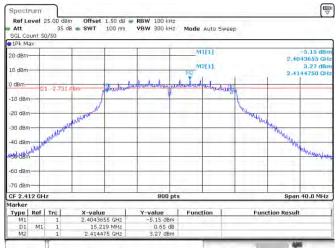
802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL

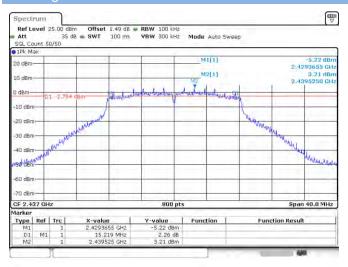


802.11g LOW CHANNEL

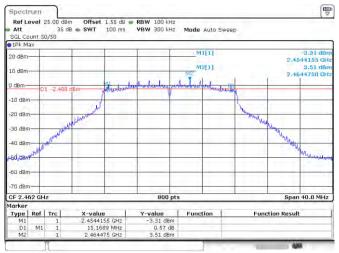




802.11g MIDDLE CHANNEL

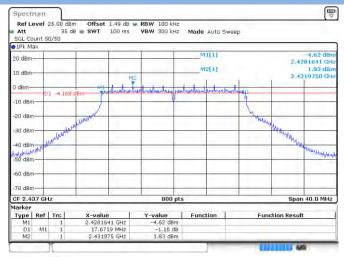


302.11g HIGH CHANNEL



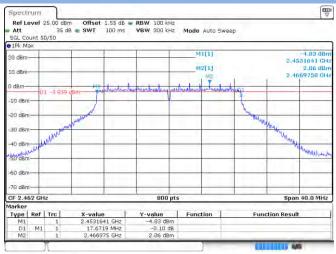
802.11n-20 MHz LOW CHANNEL E Spectrum Ref Level 25.00 dBr Att 35 d Offset 1.50 dB = RBW 100 k 35 dB 🖷 SWT 100 ms VBW 300 kHz Mode Auto Sweep Count 50/50 SGL Co -4.96 dBr 2.4031641 GH 1.80 dBr M1[1] 20 dBm M2[1] 16 dBm 2.4144750 GH dBmdust 01 -4.201 10 dBm-20 dBm 30 dBm und 40 dBm 1 thebriefly -50 dBm 60 dBm-70 dBm CF 2.412 GH 800 pts Span 40.0 MHz Marke Type Ref Trc Function X-value Y-value nction Result 2.4031641 GHz 17.6719 MHz 2.414475 GHz D1 M1 1 M2 1 -0.74 dB 1.80 dBm

802.11 n-20 MHz MIDDLE CHANNEL



Date: 7 MAY 2021 23:34:00

802.11n-20 MHz HIGH CHANNEI



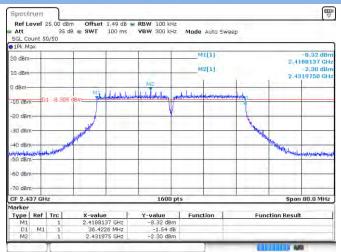
Date: 7 MAY 2021 23:38:59

Date: 7 MAY 2021 23:36:33



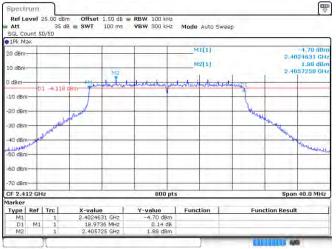


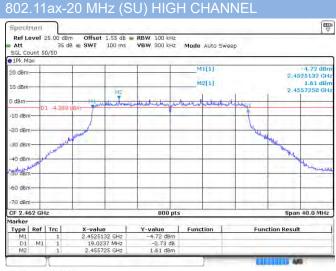
802.11n-40 MHz MIDDLE CHANNEL



Date: 7 MAY 2021 23:45:07

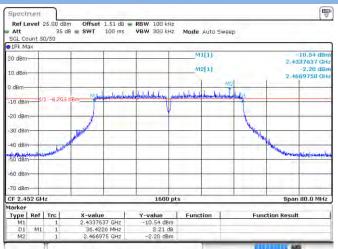
802.11ax-20 MHz (SU) LOW CHANNEL





Date: 7 MAY 2021 23:57:51

Date: 7 MAY.2021 23:51:22

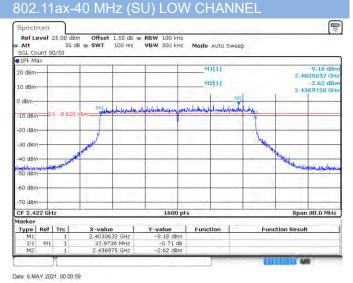


Date: 7 MAY.2021 23:48:12

802.11ax-20 MHz (SU) MIDDLE CHANNEL

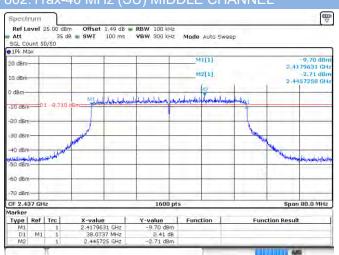


Date: 7 MAY 2021 23:55:20





802.11ax-40 MHz (SU) MIDDLE CHANNEL



 Spectrum
 RefLovel 25.00 dBm
 Offset 1.51 dB
 RBW 100 kHz

 Att
 35 dB
 SWT
 100 ms
 VBW 300 kHz
 Mode Auto Sweep

 SGL Count 50/50
 Image: Solution 100 ms
 VBW 300 kHz
 Mode Auto Sweep
 MI[1] -9,79 dBn 20 d8m--9,79 dBn 2,4330132 GH -2,70 dBn 2,4557250 GH M2[1] 16 d8m MZ dBm muldur aluer of all whether and a Millelaster handle have been and a standard with the second secon 01 -8.704 -10 dBm--20 dBm-30 dBm -40 dBmand the first Arrest. undisch. -50 dBm-60 dBm -70 dBm CF 2.452 GHz 1600 pts Span 80.0 MHz arker
 Y-value
 Function

 -9.79 dBm
 -0.04 dB

 -2.70 dBm
 -2.70 dBm
 X-value 2.4330132 GHz 38.0237 MHz 2.455725 GHz Type Ref Trc Function Result T M1 D1 M1 M2

Date: 8 MAY.2021 00:06:46

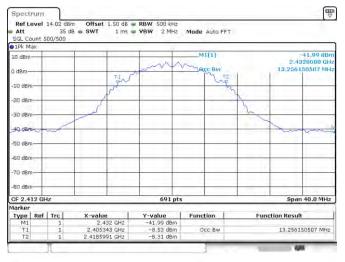
Date: 8 MAY 2021 00:03:39



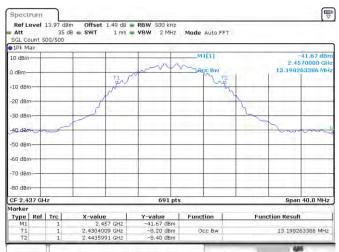
99% Bandwidth

Main Antenna

802.11b LOW CHANNEL



802.11b MIDDLE CHANNEL



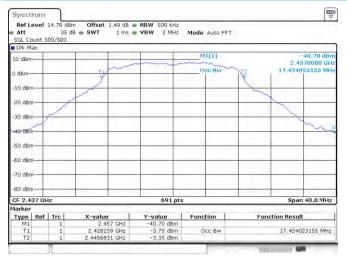
802.11b HIGH CHANNEL

Ref Lo Att SGL Co					RBW 500 k VBW 2 M		Mode Auto FET	r		
●1Pk M	ах		0			<i>a</i>				
10 dBm		_			in	N	MI[1]		2.4	-43.98 dBn 320000 GH
0 dBm-	-			TI C	MAC	-	TARC BW	1	13.256	505117 MH
-10 dBm		_		TIN P	-	-	re	5		-
-20 dBm		_	1	1	-	-		1	-	
-30 dBn	-		A	-	-	-		5		-
-40 dBm	h	1			-	-		-	The	m
-50 dBm			-		-	-		-	-	
-60 dBm			-	-	-	-		-		-
-70 dBn				-	-	-				-
-80 dBm	,	-		-				-	1	1.0
CF 2.4	62 GF	z	-		691	pts			Spar	40.0 MHz
Marker	1.00	1.000	1					-		-
Type	Ref	Trc	X-value	82 GHz	-43.98 dB	am.	Function	Fur	iction Resul	1
T1	-	1		43 GHz	-8.53 dt		Occ Bw		13.2561	50507 MHz
T2		1	2.46859		-8.31 de					

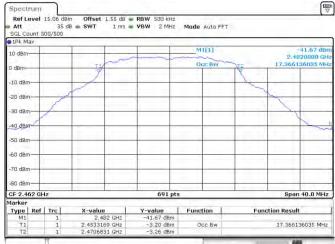
802.11g LOW CHANNEL

₽ Spectrum Ref Level 15.28 dBm Att 35 dB SGL Count 500/500 PPk Max Offset 1.50 dB - RBW 500 kHz SWT 1 ms - VBW 2 MHz 35 dB . SWT Mode Auto FET MI[1] 40.52 dB 10 dBm-2.432 Der Bw 17.481910275 MH 1 dAm -10 dBm 20 dBm 30 dBn HØ dBn 50 dB -60 dBn 70 dBn 80 dBm CF 2.412 GHz 691 pts Span 40.0 MHz arki X-value 2.432 GHz Y-value Type | Ref | Trc | Function Function Result 1 2.4032012 GHz 2.4206831 GHz 17.481910275 MHz -3.44 dBm -3.06 dBm Occ Bw

802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL





802.11n-20 MHz LOW CHANNEL

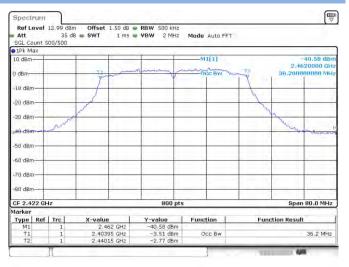


802.11 n-20 MHz MIDDLE CHANNEL Spectrum Ref Level 14.33 dBm Offse Att 35 dB SWT Offset 1.49 dB RBW 500 kHz SWT 1 ms VBW 2 MHz Mode Auto FFT SGL Count 500/500 -40.66 dl MI[1] 10 dBm-18.350217077 MH dBri 10 dBm 20 dBm 30 dBm La dam -50 dBm--60 dBm--70 dBm -80 dBm CF 2.437 GH Span 40.0 MHz 691 pts arke X-value 2,457 GHz 2,4277381 GHz 2,4460883 GHz Type | Ref | Trc | Y-value Function Function Result -3.65 dBm -3.01 dBm 18.350217077 MHz T1 T2 Occ Bw

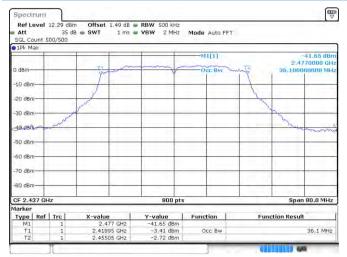
802.11n-20 MHz HIGH CHANNEL

Att SGL Co	unt 5	14.35 dBr 35 d 00/500	B . SWT		RBW 500 kHz VBW 2 MHz	Mode Auto F	FT	
10 dBm	9X		1		1 1	M1[1]		-42.40 dBm
10 dBm					man			2.4820000 GH
0 dBm-			TV	mun	1	Occ Bw	12	18,408104197 MH
a sale in t			Y				Y	
-10 dBn			1		-		1	
			pro l				~	A l
-20 dBn	-	5	-				_	12
-		7						1
-30 dBn	-	1						7
40 dBp	1							2
10 990	111							
-50 dBm			-	-	-			
			1.2					
-60 dBn	+		-	-				
-			1					
-70 dBn	-							
-80 dBm								
	20.00							
CF 2.4	52 GF	z	-		691 pt	s		Span 40.0 MHz
larker								
	Ref		X-value		Y-value	Function	Fu	nction Result
M1		1		82 GHz	-42.40 dBm			
T1 T2		1	2.45279		-3.09 dBm -3.15 dBm	Occ Bw		18.408104197 MHz

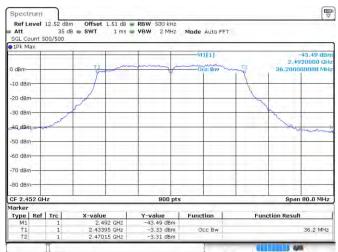
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



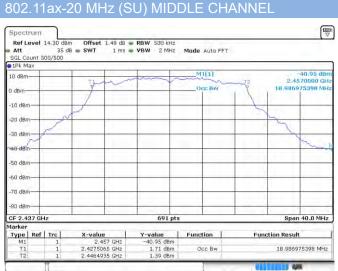
802.11n-40 MHz HIGH CHANNEL





802.11ax-20 MHz (SU) LOW CHANNEL

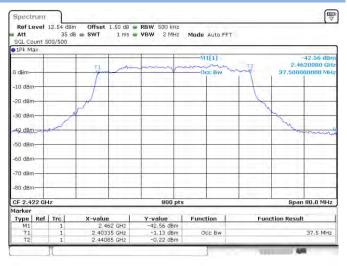




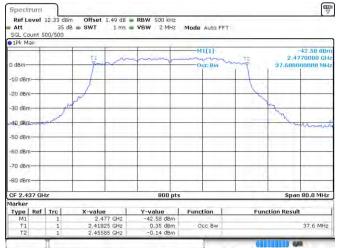
802.11ax-20 MHz (SU) HIGH CHANNEL

SGL Co	unt 5	14.24 dBi 35 d 00/500		VBW 2 MHz	Mode Auto FF	т	-
●1Pk M	ах				A 19 7		
10 dBm	-			man	M1[1]		-43.14 dBn 2.4820000 GH
- 14			1 mm		Occ Bw	{2	19.102749638 MH
0 dBm-	- 1			-			
-10 dBr							
			~				
-20 dBn	-	AN		-		_	2
-30 dBn		5				-	1
-30 001	X						
-40 dBm	~					-	
						-	
-50 dBn	1-1-1					-	
-60 dBn							
00 000			· · · · · · · · · · · · · · · · · · ·				
-70 dBn						-	
-						-	
-80 dBm							
CF 2.4	62 GH	z		691 pts	6		Span 40.0 MHz
Marker			- 12 - C		in the second second		
Туре	Ref		X-value	Y-value	Function	Fur	nction Result
M1 T1		1	2.482 GH2 2.4524486 GHz	-43.14 dBm 0.95 dBm	Occ Bw		19.102749638 MHz
T2		1	2.4715514 GHz	0.73 dBm	JCC DW		AP-406 (49000 MILE

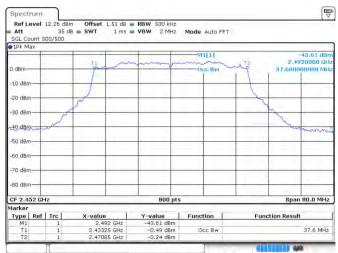
802.11ax-40 MHz (SU) LOW CHANNEL



802.11ax-40 MHz (SU) MIDDLE CHANNEL



802.11ax-40 MHz (SU) HIGH CHANNEL



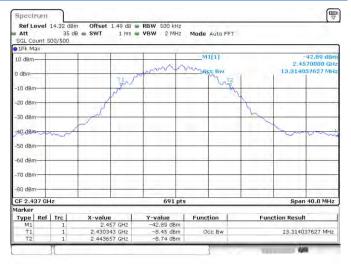


Aux. Antenna

802.11b LOW CHANNEL

Att SGL Co	unt 50		3 e SWT		RBW 500 kHz VBW 2 MHz		FFT	
1Pk Ma	x				1 7			
10 dBm-				TI C	m	M1[1]	T2	-43.15 dBn 2.4320000 GH 13.256 L50507 MH
-10 dBm				T1	-	6	17 C	
-20 dBm	-		1		-		4	
-30 dBm	-			-			has	
740 dBm	v	$ \rightarrow $			-			mound
-50 dBm	-	-	-	-			-	
-60 dBm		_	-	-				
-70 dBm			-		-			_
-80 dBm							_	the stand
CF 2.41	2 GHz	1	-		691 p	ts		Span 40.0 MHz
Marker Type	Pof	Trel	X-valu	. 1	Y-value	Function	1 6	unction Result
M1	nut.	1		H32 GH2	-43.15 dBm	- anction	1	unction result
T1 T2		1	2,4053	43 GHz	-8.41 dBm -8.18 dBm		1	13.256150507 MHz

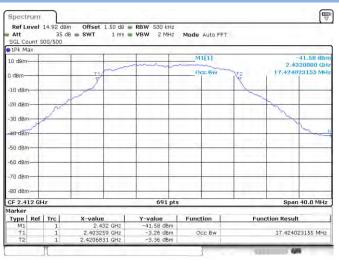
802.11b MIDDLE CHANNEL



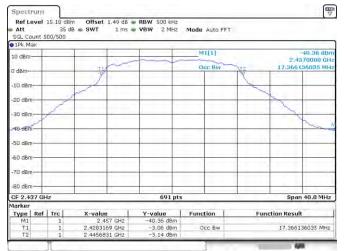
802.11b HIGH CHANNEL

SGL Co			dB 🖝 SWT 1 ms	WBW 2 MHz	Mode Auto FF	T	
1Pk Ma	1		1 1	1 1	MIEI		-43.00 dBn
10 dBm-	-				MILTI		2.4820000 GH
a dBm-				man and	ALE BW		13.256150507 MH
a aum			TIN		TE		
-10 dBm	-		1			2	
-			X	-		4	
-20 dBm						5	
-30 dBm	-		P	-		1	
		1					
40 dBm	-	int					mining
-50 dBm	1			-		-	
1.1	111			-			1 1 1 1 1 1 1 1
-60 dBm	-					-	
-70 dBm							· · · · · · · · · · · · · · · · · · ·
	111						
-80 dBm	-	_		-		_	
CF 2.46	2 GH	z	<u> </u>	691 pts		_	Span 40.0 MHz
Marker		10.00					
Type	Ref		X-value	Y-value	Function	Fune	ction Result
M1 T1	_	1	2.482 GHz 2.455343 GHz	-43.00 dBm -7,95 dBm	Occ Bw		13.256150507 MHz
T2		1	2,4585991 GHz	-7.84 dBm	OCC BW		13.230150507 MHZ

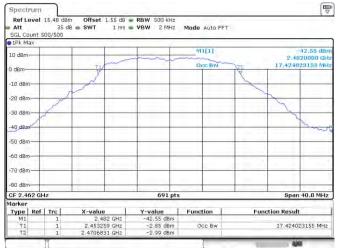
802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL





802.11n-20 MHz LOW CHANNEL

Att SGL Co	unt 5	35 d			RBW 500 kHz VBW 2 MHz	Mode Auto	FFT	
10 dBm	ax.	-	1	-	T T	M1[1]	-	-41,38 dBn
0 dBm-			y			Occ Bw	122	2.4320060 GH 18.697539797 MH
-10 dBm			1					
-20 dBn		P		-				2
-30 dBn	A	<u></u>						
-40 d8n								
-60 dBm								
-70 dBn	+	_			-		_	
-80 dBm	-	_		-				
CF 2.4	12 GH	z	4		691 pt	s	1	Span 40.0 MHz
Marker Type	Ref	Trc	X-value	- 1	Y-value	Function	Fur	iction Result
M1 T1		1	2.402623		-41,38 dBm -3,18 dBm	Occ Bw		18.697539797 MHz
T2		1	2.421319	98 GHz	-3.22 dBm	1		

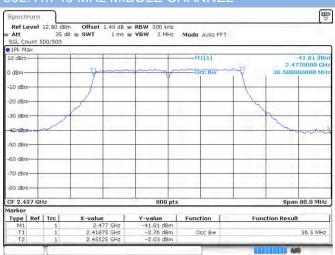
Date: 7 MAY 2021 23:34:10

802.11n-20 MHz HIGH CHANNEL

PIPk Ma	9X			_				
10 dBm	-	_	-			M1[1]		-41,26 dBn 2.4820060 GH
0 dBm—	-	_	¥			Occ Bw	T2	18.639652677 MH
-10 dBm	-	_	1				2	
-20 dBm	-	1	-				-	2
-30 dBm	1	1			-		-	1
-48-d8n	4	_	-	-			-	200
-50 dBm	-	_	-		-		-	
60 dBm	-		-	-			-	
-70 dBm	-		-				-	
-BU dBm	-		-				-	
CF 2.46	52 GH	z	1	-	691 pt	s		Span 40.0 MHz
larker			- Commin of a		- maintain a	· · · · · · · · · · · ·		
Type M1	Ref	Trc	X-value	82 GHz	-41.26 dBm	Function	Fun	ction Result
T1	-	1	2.45268		-41.26 dBm	Occ Bw		18.639652677 MHz
T2	-	1	2.47131		-2.59 dBm			and a second second second

Date: 7 MAY 2021 23:39:10

802.11n-40 MHz MIDDLE CHANNEL



Date: 7 MAY 2021 23:45:19

802.11 n-20 MHz MIDDLE CHANNEL



Date: 7 MAY 2021 23:36:43

802.11n-40 MHz LOW CHANNEL



Date: 7 MAY 2021 23:42:01



Date, 7 MA(1202



802.11ax-20 MHz (SU) LOW CHANNEL



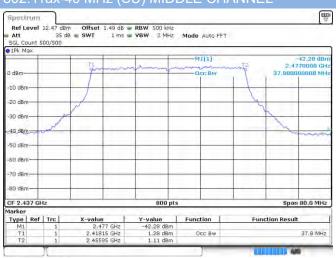
Date: 7 MAY.2021 23:51:32

802.11ax-20 MHz (SU) HIGH CHANNEL

- AC 1. 10	ах		-	-				
16 dBm	-			han	man	M1[1]		-40,03 dE 2,4020000 G
			¥.		The second secon	Occ Bw	F	19.334298119 M
0 dBm-			1	1.1			1	15.051250115.0
10 dBn								
10 000			V				1	
20 dBn		1	1	-	-		-	2
		N						1
30 dBn	1-p		-	-	-			
10 10	~							1 m
40 elBn								
50 dBn	n		-	-				
			1				1.1.1.1.1	
60 dBn	n		-	-	-			
	2.11		1.1.1				1 - 1	
70 dBn	0							
BO dBn	-						-	
CF 2.4	-			-	691 pts			Span 40.0 MH
larker	02 GF	2		_	oar pe		_	opbit 40.0 MH
Type	Ref	Trc	X-valu	e	Y-value	Function	Fun	ction Result
M1	1.461	1		182 GHz	-40.03 dBm		1 41	and the second
T1		1	2.4523	329 GHz	1.10 dBm	Occ Bw		19.334298119 MH
T2		1	2.4716	571 GHz	0.80 dBm			

Date: 7 MAY 2021 23:58:01

802.11ax-40 MHz (SU) MIDDLE CHANNEL



Date: 8.MAY.2021 00:03:51

802.11ax-20 MHz (SU) MIDDLE CHANNEL



Date: 7 MAY.2021 23:55:30

802.11ax-40 MHz (SU) LOW CHANNEL



Date: 8,MAY,2021 00:01:11



Date: 8 MAY 2021 00:06:58



A.3 Conducted Spurious Emissions

Note: All the configurations were pre tested, only the worst configuration has been reported in this report. <u>Test Data</u>

Main Antenna

802.11b Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-54.99	4.43	-15.57	Pass
Middle	-55.61	3.94	-16.06	Pass
High	-54.84	4.11	-15.89	Pass

802.11g Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-55.21	2.65	-17.35	Pass
Middle	-54.22	3.29	-16.71	Pass
High	-55.43	3.47	-16.53	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.71	3.03	-16.97	Pass
Middle	-50.68	2.72	-17.28	Pass
High	-49.94	2.96	-17.04	Pass

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-55.12	-1.22	-21.22	Pass
Middle	-50.56	-1.27	-21.27	Pass
High	-50.64	-1.16	-21.16	Pass

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		Carrier Lever	dBc Limit	
Low	-50.07	2.56	-17.44	Pass
Middle	-50.18	2.38	-17.62	Pass
High	-50.14	2.53	-17.47	Pass



802.11ax-40 MHz (SU) Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-54.18	-2.26	-22.26	Pass
Middle	-49.57	-1.81	-21.81	Pass
High	-50.29	-1.92	-21.92	Pass

Aux. Antenna

802.11b Mode:

	Measured Max. Out of	Limit (dBm)		Verdict Pass
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-55.37	3.79	-16.21	Pass
Middle	-56.00	3.81	-16.19	Pass
High	-55.20	4.57	-15.43	Pass

802.11g Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Lovel	Calculated 20	Verdict
		Carrier Level dBc Limit		
Low	-55.53	3.01	-16.99	Pass
Middle	-55.31	3.67	-16.33	Pass
High	-55.90	3.91	-16.09	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
			dBc Limit	
Low	-49.87	1.99	-18.01	Pass
Middle	-49.56	1.91	-18.09	Pass
High	-50.10	2.28	-17.72	Pass

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-49.96	-1.88	-21.88	Pass
Middle	-50.70	-1.76	-21.76	Pass
High	-50.13	-1.97	-21.97	Pass



802.11ax-20 MHz (SU) Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.43	2.07	-17.93	Pass
Middle	-50.04	1.61	-18.39	Pass
High	-49.99	2.03	-17.97	Pass

802.11ax-40 MHz (SU) Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.83	-2.68	-22.68	Pass
Middle	-50.53	-2.21	-22.21	Pass
High	-49.81	-2.16	-22.16	Pass

MIMO-Main Antenna

802.11g Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		dBc Limit		
Low	-55.62	3.21	-16.79	Pass
Middle	-55.24	3.24	-16.76	Pass
High	-55.56	3.36	-16.64	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		Carrier Lever	dBc Limit	
Low	-50.80	3.11	-16.89	Pass
Middle	-50.12	2.73	-17.27	Pass
High	-50.54	2.59	-17.41	Pass

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.86	-1.18	-21.18	Pass
Middle	-50.22	-1.26	-21.26	Pass
High	-49.67	-1.43	-21.43	Pass



802.11ax-20 MHz (SU) Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict	
Low	-50.30	2.57	-17.43	Pass	
Middle	-50.87	2.42	-17.58	Pass	
High	-51.01	1.59	-18.41	Pass	

802.11ax-40 MHz (SU) Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.29	-1.94	-21.94	Pass
Middle	-50.30	-1.70	-21.70	Pass
High	-50.57	-1.75	-21.75	Pass

MIMO-Aux. Antenna

802.11g Mode:

	Measured Max. Out of	Limit (dBm)	
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
			dBc Limit	
Low	-55.72	3.41	-16.59	Pass
Middle	-55.85	3.60	-16.40	Pass
High	-54.59	3.89	-16.11	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict	
		Carrier Lever	dBc Limit		
Low	-49.52	2.18	-17.82	Pass	
Middle	-50.15	2.37	-17.63	Pass	
High	-50.54	2.39	-17.61	Pass	

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict	
Low	-49.24	-1.98	-21.98	Pass	
Middle	-49.53	-1.82	-21.82	Pass	
High	-50.16	-2.00	-22.00	Pass	





802.11ax-20 MHz (SU) Mode:

	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict	
Low	-50.92	1.81	-18.19	Pass	
Middle	-50.13	2.03	-17.97	Pass	
High	-50.51	2.36	-17.64	Pass	

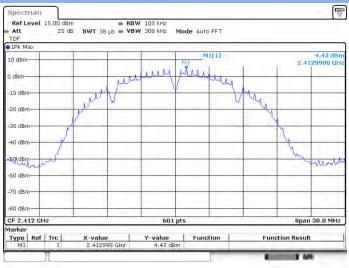
	Measured Max. Out of	Limit (dBm)		
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict	
Low	-49.86	-2.25	-22.25	Pass	
Middle	-50.28	-1.93	-21.93	Pass	
High	-50.97	-1.87	-21.87	Pass	



Test Plots

Main Antenna





802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

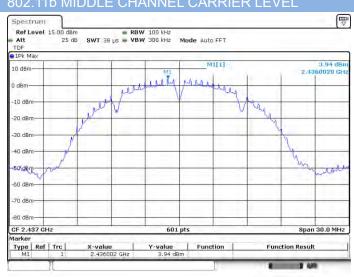
Ref Level 15.00 d Att 25 TDF		 RBW 100 kHz VBW 300 kHz 	Mode Auto Sweep	2			
91Pk Max							
10 dBm		-	M1[1]		-58.89 dBm 2.75720 GHz		
1 C		1.1.1	1	1.	2.75720 GH		
0 dBm							
5.5.1							
-10 dBm	1						
-20 dBm-	70 dBm						
-20 0Bm							
-30 dBm							
SC USI				1			
-40 dBm-				-			
-50 dBm							
					NI		
-60 dBm-	and an and a second second	all hundred was described and	new responsed on the maintainst	wayanis up well the	pallikana akaranganahanan a		
-70 dBm	1		The second se	1 1 1			
10 0011					CONTRACTOR OF A		
-90 dBm							
Start 30.0 MHz		1001	pts		Stop 3.0 GHz		
Marker		ACAL MARKED					
Type Ref Trc	X-value 2.7572 GHz	-58.89 dBr	Function	Funct	ion Result		

802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Att	el 15.00 dBn 25 dB			W 100 kHz W 300 kHz	Mode Au	to Sweep				
1Pk Max								_		
10 dBm-	-	-	1	· · · · ·	M	111	-54,99 dBm 6.29250 GHz			
diam'r				1.000			1 ·····			
0 dBm				21.00						
- 0 dBm-					_					
	D1 -15.570	dBm		-	-					
-20 dBm-										
-30 dBm-	-									
1.00							-			
-40 dBm-										
-50 dBm-	WI		-							
1000	A second	and the		Sec.	-			1 martin	1000	
AQ dBrow	Condition of the local division of the local	With what	and shaken and	ALL MALLANNIA AND	Contraction of the second	-	- Hand Place	Address of the state of the	A. 40. 4144	
-70 dBm-	-	_								
									1.0	
-80 dBm-			· ·					1		
Start 2.0	GHz			4001	pts	-		Stop	25.0 GHz	
Marker	tef Trc	X-value		Y-value	Func	alan 1	E.m.	tion Result		
M1	1		25 GHz	-54,99 dB		ciun I	Fund	LIOIT KESUIC		



802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS

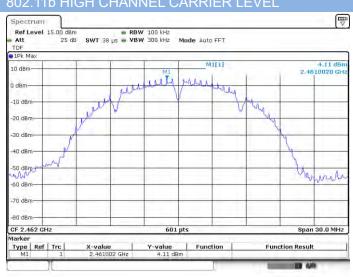
30 MHz ~ 3 GHz

Att	al 15.00 dBm 25 dB			3W 100 KHz 3W 300 KHz	Mode Au	to Sweep				
😋 1Pk Max										
10 dBm			-	1	M1[1]			-58.68 dBm 2.67340 GHz		
				11	1		1	2	17340 GH	
0 dBm			_		-					
-10 dBm						-				
-10 dBm	at and									
-20 dBm	D1 -16,060	dBm:								
-30 dBm				-	-					
10.1				1.000						
-40 dBm									-	
-50 dBm										
								MI		
-60 dBm		er or manual second second		and the strength of	and publikes	allabelte	mary man interest	havening	the towner where	
	and the amount of the second	A PARAMANA A	alter and							
-70 dBm										
-90 dBm										
Start 30.0	MUS			1001	nte		-	Pto	p 3.0 GHz	
Marker	UMITIZ		-	1001	pes	-	-	310	3.0 GH2	
	f Trc	X-value	1.	Y-value	Funct	ion 1	Funct	ion Result		

802.11b MIDDLE CHANNEL, SPURIOUS

Ref Lo Att	evel 15.00 de 25 (3m dB SWT 230		W 100 KHZ W 300 KHZ	Mode Au	to Sweep			
1Pk M	эх	s				_			
10 dBm		6 (e)		(M	1(1)	_		55.61 dBn 21660 GH
0 dBm-	-					-	-		1000 511
-10 dBn					-		-		
-30 dBm	D1 -16,88	50 dBm							
-30 dBm		-			-			-	
-40 dBm	1	-	-			-			
-\$0 dBr					-				
-dQ dBo	and a stand of the stand	Washington Barrier		lan and the part	inity production	New Manager	-	and the second second second second	e also also also
-70 dBn									
-90 dBm						-		1	
Start 2	0 GHz	-		4001	pts			Stop	25.0 GHz
Marker Type M1	Ref Trc	X-value	6 GHz	Y-value -55.61 dB	Func	tion	Fund	tion Result	





802.11b HIGH CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

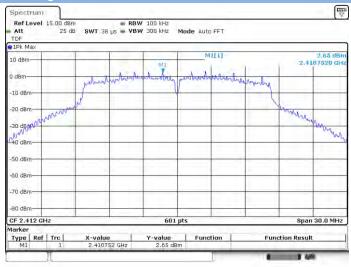
0 dBm	1 11			21				/	
-10 dBm	01 -15.890	dBm							
-20 dBm		-							
-40 dBm					-				
-S0 d8m			1					A	ML
-60 dBm 	Lugarlingar	ininkotophinas	ben have been been been been been been been be	gener respectively a	n-maken bendan	Malanan	mledennesseetenness	M Bison Boscycom	And a
-80 dBm		-			_				
Start 30.0 Marker	MHz			1001	pts			Sto	op 3.0 GH

802.11b HIGH CHANNEL, SPURIOUS

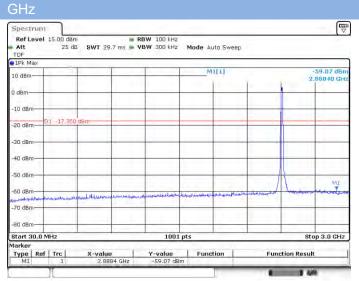
Att TDF	el 15.00 dBn 25 dB		0 ms - VB	W 100 kHz W 300 kHz	Mode Au	to Sweep			
🛛 1Pk Max	S								
10 dBm-	1		1	1	M	1[1]	-54.1		
1.00			1.01				· · · · · · ·		27500 611
0 dBm-				20.00			1		
-10 dBm-	-	-							
-20 dBm-	01 -15,890	dBm			_		-		
-30 dBm	-					_	_		_
-40 dBm-	-				_	-			
-SO dBm-						0.00	-		
-	والملجه التبينة فالمتجلط وم	Window	Allengenety	magnitude the state	ndu deserved	the second second	Anal Andrews	A Stranger	a linearity
-70 d8m-	-				_			_	
-80 dBm-									
Start 2.0	GHz			4001	ots			Stop	25.0 GHz
Marker Type I M1	tef Trc	X-value	98 GHz	Y-value	Fund	tion	Fund	tion Result	



802.11g LOW CHANNEL CARRIER LEVEL



802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3



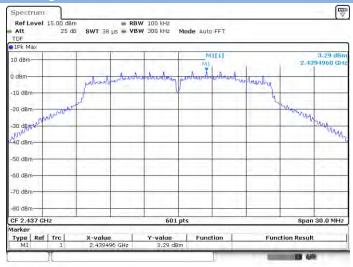
Spectrum Ref Level 15.00 dBm RBW 100 kH2 Att 25 dB SWT 230 ms VBW 300 kH2 Mode Auto Sweep TOP O IPK Max M1[1] 55.21 dBn 28560 GH 10 dBm ,dBr 0 dBm 1 -17.3 0 dBm n dBr 0 dBm 0 dBm L 70 dBm 90 dBm 4001 pts Stop 25.0 GHz Start 2.0 GHz larke Type Ref Trc X-value 6.2856 GHz Y-value -55.21 dBm Function Function Result 10 446 .

802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25

67 / 245



802.11g MIDDLE CHANNEL CARRIER LEVEL



802.11g MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

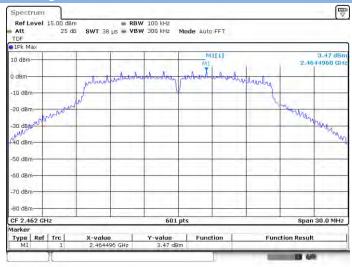
Att	15.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode Au	uto Sweep			
1Pk Max									
10 dBm	M1[1]								59.82 dBn 67690 GH
11. Y .Y.					1		() () () () () () () () () ()	2.0	37690 GH
0 dBm	-	-			-		-	1	
-10 dBm	S								
-20 dBm	01 +16.710	dBm							
-30 dBm									
1.1.1									
-40 dBm									
-50 dBm									
-30 UBIII-								643	
-60 dBm			1.000.00				and the second	the fit was a start	Colling Starteday
	exhibition which the	annuthal stracks	grade and the second of the	- here will re- mained	his shirt have the second	umana ana ang	Commercial of		
-70 dBm					-	-			-
-90 dBm									
Start 30.0	MHz			1001	pts		_	Sto	p 3.0 GHz
Marker	f Trc	X-value		Y-value	Fund			tion Result	

802.11g MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Att		15.00 dBn 25 df			W 100 KHz W 300 KHz	Mode Au	to Sweep			
1Pk M	ах			0						
10 dBm	-			1	1	M	111	54,22 dBr 82160 GH		
				1.1.1			1.	1		82100 GH
0 dBm-	-	_	-	-		-	-	-	-	
-10 dBn										
-10 080		and a stand								
-30 dBm	D	1 -16.710	dBm			-				
1.1										
-30 dBri	-							-		
-0 dBm										
- C GBI	·						1.1.1			11 7
-SO dBr	-		41		-				-	
100		-	1.		the second		diam'r alw	a characteristics	and a la	No. The
-th dBr	a state	Manager a	Lynd a Wigher	And a special first	-	and have an	A har water	A Station Alter	Sector and the sector	- Martin Provide
-70 dBm	-		1 - C - X	1000						11-1-1-1
										10.000
-80 dBm	-	-	-			-	-	-		
Start 2	O GH	z			4001	pts			Stop	25.0 GHz
Marker								-		
Type M1	Ref	Trc 1	X-valu	e 216 GHz	-54.22 dB	Func	tion	Fun	ction Result	-



802.11g HIGH CHANNEL CARRIER LEVEL



802.11g HIGH CHANNEL, SPURIOUS



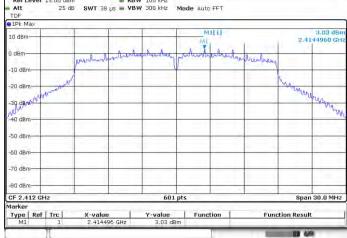
	15.00 dBm		• RBW 100 KHz	2.0.2		_		
Att TDF	25 dB	SWT 29.7 ms	• VBW 300 kHz	Mode Auto	5 Sweep			
PiPk Max	-				-		-	
10 dBm-	-	· · · · · · · · · · · · · · · · · · ·		M1[11			59.61 dBn
				1	1	1	2.	25680 GH
0 dBm	-	-				-	1	
-10 dBm	-							
-20 dBm-	01 -16 530	dBm	-					
					-			
-30 dBm						-		-
-40 dBm								
is sont				1			122.21	1.1
-S0 dBm-				-				
				1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		M1	1	
-60 dBm	Andrew Like way Ma	due shikun ingersildura migal	university of the second	depirent principle	Inconstructure del	are determined and the second	- MULTONICO	and and a contraction of the second
-70 dBm								
				_				
-90 dBm					-			
Start 30.0 M	MHz		1001	pts			Sto	p 3.0 GHz
Marker	1		1	1		-		
Type Ref	1 Trc	X-value 2.2568 GHz	-59.61 dB	Functio	m	Funct	ion Result	-

802.11g HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

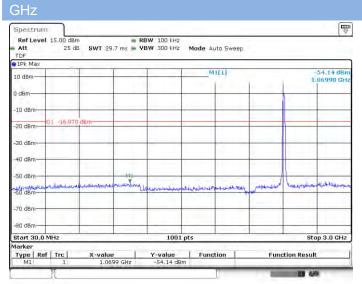
Ref Le Att	vel 15.00 dBn 25 dB	n 3 SWT 23		W 100 KHZ W 300 KHZ	Mode Au	to Sweep				
1Pk Ma	×									
10 dBm-	1			1	M	1[1]	-55.43			
			1.11	1		1	(07000 Gri	
0 dBm-	1	-				-				
-10 dBm-							-			
	01 -16.530	dBm								
-20 dBm-				-	-					
-30 dBm-	_									
- Co Gbillio										
-40 dBm-	-									
-SO dBm-		-			-	-				
20 Opin		2					1.00	1.1.1	1	
-da dem	and the second second second	With Mary	Martin Land	-	Martin Minth	-	ART AND A CONTRACTOR	territe the last of	and the states	
-70 d8m-			1000							
		1		1.1		1				
-80 dBm-	-									
Start 2.	0 GHz			4001	pts			Stop	25.0 GHz	
Marker					1			A	_	
Type M1	Ref Trc	X-value	65 GHz	-55,43 dB	Func	tion	Fund	tion Result		



802.11n-20 LOW CHANNEL CARRIER LEVEL



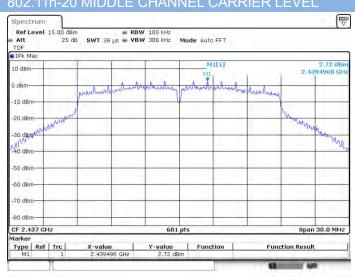
802.11n-20 LOW CHANNEL, SPURIOUS 30 MHz ~ 3



Ref Level 15.00 dBm RBW 100 kHz Att 25 dB SWT 230 ms YBW 300 kHz Mode Auto Sweep Spectrum TDF Pk Max M1[1] 58.71 dBr 94660 GH 10 dBm-0 dBm 0 dBm 01 -16.9 20 dBm n dam 0 dBm 0 dBm ukh. -60 dBm--70 dBm--90 dBm-4001 pts Stop 25.0 GHz Start 2.0 GHz larke Type Ref Trc X-value 6.9466 GHz Y-value -50.71 dBm Function Function Result 10 4.45 .

802.11n-20 LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz





802.11n-20 MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

15.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode Au	uto Sweep				
			_						
-			1	M1[1] -53.76 dB 1 11450 G					
-	-				-			-	
-	-					-			
01 -17.280	d9m								
				_					
				_					
	-	Ma		-	-	-	-		
un water and	advante autorite	have a second and the second sec	-Justimora and	mandulations	Munipular	a portugation have	humanault	and be seen and	
	-								
	_							-	
MHz		P	1001	pts	-		Sto	p 3.0 GHz	
f Trc	X-value		Y-value	Fund		-	ion Result		
	01 -17.260 Чагцын эн	101 -17,280 85m	01 -17.260 UBM	01 -17,280 d9m-	01 -17,280 dBm 	01 -17,280 dBm- 01 -17,280 dBm- 197.200 d	D1 -17.280 dSm	D3 -17,280 Bm	

802.11n-20 MIDDLE CHANNEL, SPURIOUS

Ref Leve Att TDF	el 15.00 dBn 25 di			BW 100 kHz BW 300 kHz	Mode Au	to Sweep					
1Pk Max			2								
10 dBm		-			M	1[1]	v		-50.68 dBr 6.17630 GH		
0 dBm					_	-	-				
-10 dBm			-		-	-					
-20 dBm	01 -17,290	d9m				-					
-30 dBm			-	-		-					
O dBm					-	-	-		-		
SO dBm-	M2			1.1.1.1.1		a mailes a	الم المام الم		to a selection de selece		
-60 dBm		- Lever and the	and a first state of the	anti-factorianter auto			and we can see a second second	Contraction of the local distribution of the			
-70 d8m	-			-			-				
-90 dBm					_	-					
Start 2.0	GHz	£.	t:	4001	pts			Stop	25.0 GHz		
larker Type R M1	ef Trc	X-value	53 GHz	Y-value	Func	tion	Fund	tion Result	t		





802.11n-20 HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

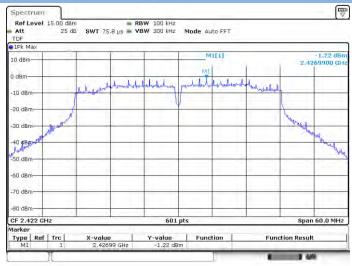
Att	15.00 dBm 25 dB	SWT 29.		W 100 KHz W 300 KHz	Mode Au	uto Sweep			
TDF 1Pk Max									
10 dBm	-				M	-54,64 dBr 1.15300 GH			
0 dBm					_			1	_
-10 dBm									
-20 dBm	01 -17.040 0	iBm			-	-	-		
-30 dBm			-	-					
-40 dBm			_		-				
-S0 dBm			MI						
-60 dBm	ukamman Ahuli	alutionstate	ana and and and	rodinicalitationsp	- Alexandre Alexandre	erannoway	normal the	. Manual Maria	and the second
-70 d8m			_			-		_	
					1				
-80 dBm				1001	ste			Sto	p 3.0 GHz

802.11n-20 HIGH CHANNEL, SPURIOUS

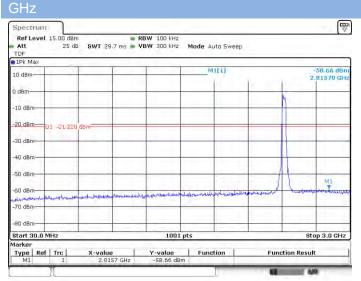
Ref Lo Att	evel 15		SWT 23		BW 100 kHz BW 300 kHz	Mode Au	to Sweep				
1Pk M	ах			ō.							
10 dBm					1	M	111		-49,94 dBr		
								(и.	18210 GH	
0 dBm-	_		_		-	_		_	-		
10 dBn				1	-	-		-	-		
-	01	17.040	dBm		-	_	_				
a0 dBm	-				-			-			
30 dBm											
au aen											
40 dBm	-										
		943			1						
SO dBr	-		-		-		1.1		-		
durin in	-	Human	backweit	hubing	And the second second	المطلبات الملقيت	And the Manua	entertainetes	and a state of the second	and the weather	
60 dBn		-								_	
									10.0		
70 dBm											
-90 dBm									100		
									÷		
	0 GHz				4001	pts			Stop	25.0 GHz	
larker						1					
Type M1	Ref T	1	X-valu	e 121 GHz	-49,94 dB	Func	tion	Fund	tion Result	_	

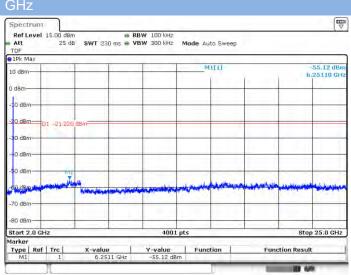


802.11n-40 LOW CHANNEL CARRIER LEVEL



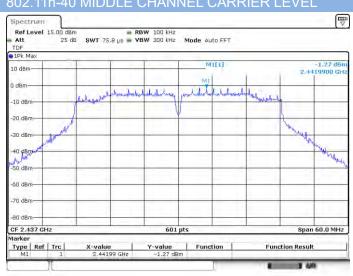
802.11n-40 LOW CHANNEL, SPURIOUS 30 MHz ~ 3





802.11n-40 LOW CHANNEL, SPURIOUS 2 GHz ~ 25





802.11n-40 MIDDLE CHANNEL, SPURIOUS

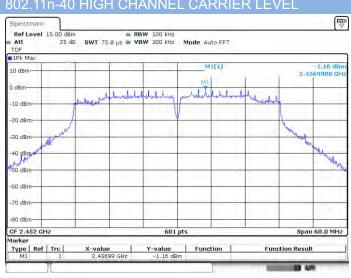
Spectrum									
Ref Level Att TDF	15.00 dBm 25 dB			W 100 kHz W 300 kHz	Mode Au	ito Sweep			
1Pk Max									
10 dBm					M	1[1]			-54,16 dB/ 939,40 MF
0 dBm	-	-			-				-
-10 dBm	-	-			-	-		<u> </u>	
-20 dBm-	01 -21 270	dBm				_		-	-
-30 dBm									
-40 dBm	_				-	-	_		
-S0 dBm-			11		-	-	-	1	
-80 dBm	hymmoshimmh	expression	Parson Braspanal Mar	A Manual Lange	homilationsellet	humanalay	winterfordation	handberthe	all and the local section of the sec
-70 d8m	-			-		_			
-80 dBm						-			
Start 30.0 M	1Hz	t		1001	nts			St	op 3.0 GH:

802.11n-40 MIDDLE CHANNEL, SPURIOUS

Att TDF	l 15.00 dBn 25 dB			BW 100 kHz BW 300 kHz	Mode Au	to Sweep			
1Pk Max			Q					_	
10 dBm					M	1[1]			50.56 dBn 91210 GH
0 dBm	-		-	-	_		-	-	
-: 0 dBm			-	-	_	-			
-20. dBm	01 -21 270	dBm		-		-	-		
-30 dBm			-					-	
-40 dBm					-			_	
-SO dBm		MI	20.00		a salite	م بالمعالي	the first		والمطارحة والرورية
-60 dBm		hubant	al an air an		Withour M		and any second second	A CONTRACTOR OF STREET	Shire and the play
-70 dBm		_	-	-					
-80 dBm				-		-		_	
Start 2.0 C	Hz		4	4001	pts			Stop	25.0 GHz
Marker Type Re M1	f Trc	X-valu	IE	Y-value -50.56 dB	Func	tion	Fund	tion Result	

10 000





802.11n-40 HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

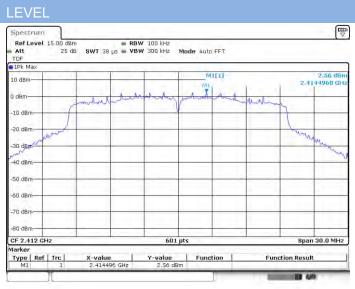
Ref Level 1 Att TDF	5.00 dBm 25 dB	SWT 29		3W 100 KHz 3W 300 kHz	Mode A	uto Sweep				
10Pk Max								-		
10 dBm	-		· · · · · · · · ·	1	M	1(1)				53.54 dBr 09960 GH
1 mar 1				1		(· · · ·	(m. 11)		-	03500 61
0 dBm		11						I.		
-10 dBm		_	-			-		1		
A Cart	100									-
-20 dBm-01	-21.160.6	dBm-					·	7		
-30 dBm	-	_		-			_			
-40 dBm-				-						
-40 GBII									11	
-S0 dBm			MT					-		
-S0 dBm -60 dBm	enterestede	Luss Humble Manager	workthaling	allowed with being	munullywhere	a particular and	multinin	1	- Anna there	Antochalthouta
oo dom										
-70 dBm	-						-			
-90 dBm										
Start 30.0 Mi	łz			1001	pts			-	Sto	p 3.0 GHz
Marker			-	100					12.12	-
Type Ref	Trc 1	X-value	96 GHz	-53,54 dB	Func	tion	Func	tio	n Result	

802.11n-40 HIGH CHANNEL, SPURIOUS

Att	evel	15.00 dBm 25 dB			BW 100 KH2 BW 300 KH2	Mode Au	to Sweep			
TDF 1Pk M	ax				_					
10 dBm	-				-	M	1[1]	_		58.64 dBr 98690 GH
0 dBm-	-		_			_				
-10 dBm	-				-	_		_		
-20 dBr	-0	1 -21 160	dBm		-	-		_		
-30 dBm	-	-			-				-	
-40 dBm		_		-	-	_		-	-	
-SO dBm		_	Ma			_			-	
-60 dBm	in the second	an international states	W Lawyork Harry	Mar and And Interesting States	and the second	فأطيان والمهادي	an a	al rest in the date in	William States	all and the state of the state
-70 dBm		_								
-80 dBm	-		-		-	_	-			
Start 2	,0 GH	z		-P	4001	pts			Stop	25.0 GHz
Marker Type M1	Ref	Trc	X-valu	e	Y-value -50.64 dB	Func	tion	Fun	ction Result	



802.11ax-20 MHz (SU) LOW CHANNEL CARRIER



802.11ax-20 MHz (SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

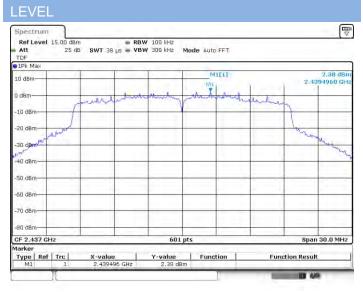
Att TDF	25 0	IB SWT 2	9.7 ms 🗯 VI	300 kHz	Mode Au	ito Sweep	_	
01Pk Ma	18		<u></u>					
10 dBm-	1	-		-	M	111		-54,12 dBm 1,03140 GHz
0 dBm—	-	-	-	-		-		
-10 dBm	-							
-20 dBm	D1 -17.94	8 dBm	-				_	
-30 dBm		-	-	-				
-40 dBm	-	-	-				_	
-S0 dBm	-	-	141					
-60 dBm	an and a construction of the second	nations that have been a	nun anderenander bet	hand a state of the second	annumbric	aunitialisty	Julashingsof	Journal had a stand and the second a
-70 dBm	-	-						
-90 dBm	-							
Start 3	0.0 MHz		40	1001	pts		-	Stop 3.0 GHz
larker Type	Ref Trc	X-valu	ie	Y-value	Func	tion	Func	tion Result

802.11ax-20 MHz (SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

TDF			230 ms 🖷 VE	10. 11. 1 C	Mode Aut					
10 dBm-	-				M	1[1]			58.07 dBn	
TO OBII						(· · · · ·		B ,	98110 GH	
0 dBm-	-	-		-						
10.10		-								
-10 dBm-	1									
-20 dBm-	D1 -17.440	dBm	-							
1.5-										
-30 dBm-									1	
-0 dBm-	-						-		_	
1.00		MI					-			
-50 dBm-	an miliater and here have			Norther Voter Party	and the state	-	manadada	والمر الفالي مرد ال		
-60 dBm-		- Minter March	WWW CLANDING	and the second se				10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
		1.1	1.1				- 1		1.00	
-70 dBm-										
-90 dBm-			-	-	-			_		
Start 2.0	GHz			4001	pts			Stop	25.0 GHz	
Marker										



802.11ax-20 MHz (SU) MIDDLE CHANNEL CARRIER



802.11ax-20 MHz (SU) MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

Ref Level 15			RBW 100 KHz	12.0 (C. C. C.		
Att TDF	25 dB S	WT 29.7 ms 🗯	VBW 300 kHz	Mode Auto Sweep	p	
PiPk Max	-	<u></u>				
10 dBm	-			M1[1]		-54,15 dBm 1.07290 GH
0 dBm					-	
					1 1 1	
-10 dBm-			-		-	
-20 dBm- D1	-17.620 dBm	_			-	
-30 dBm	_			_	_	
-40 dBm	_				_	
-S0 dBm	-	NA				
60 dBm	persphare of the particular	surproducer in	have proved to be a provided to be provided to be a provided to be a provided to be a provi	the wanter and the second second	ad internation	managelikhouterenteren
-70 dBm	_					
-80 dBm	-					
Start 30.0 MH:	z		1001 p	ts	-	Stop 3.0 GHz
larker					Sector d	
Type Ref 1 M1	rc x	-value 1.8729 GHz	-54.15 dBm	Function	Funct	tion Result

802.11ax-20 MHz (SU) MIDDLE CHANNEL SPURIOUS

2 GHz ~ 25 GHz

Ref Leve Att	1 15.00 dBn 25 dB			W 100 kHz W 300 kHz	Mode Au	to Sweep			
TDF 1Pk Max				8	10000				
10 dBm	·	1	1		M	111		-	50.18 dBr
10 dBm-						6	1	Đ,	97540 GH
dBm		-	-			-	_		
1.5				-		-			
-10 dBm									
-20 dBm	D1 -17.620	dBm							-
1.2	-	-							
30 dBm-		-		-					
-0 dBm-		-	_		_				_
1		MI							
0 dBm-	In the second	1A	Children and	1. No. 7	a a males	in the second	U. Harris	والد التركين والم	and the state
-60 dBm		- White office	and a state of the second	in wind them the part	Mana and	and the second s	The second s	A CONTRACTOR OF CONTRACTOR	
-70 dBm						-			
-90 dBm					-	_			
Start 2.0	Hz			4001	nts			Ston	25.0 GHz
larker						1000	- 0.7		
Type Re	f Trc	X-valu	754 GHz	Y-value -50,18 dB	Func	tion	Fun	tion Result	



802.11ax-20 MHz (SU) HIGH CHANNEL CARRIER



802.11ax-20 MHz (SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

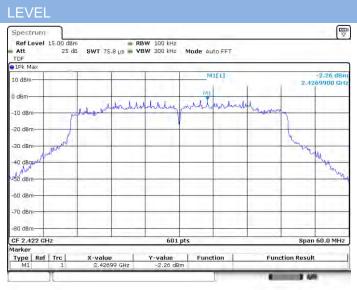
Att TDF	el 15.00 dBn 25 dB		9.7 ms 🕨 VI	3W 100 KHz 3W 300 KHz	Mode Au	to Sweep			
91Pk Max		-	~	-					
10 dBm-	-	-	-		M	1[1]			54.17 dBn 08480 GH
0 dBm					_		-	1	1
-10 dBm-		-				-			
-20 dBm	D1 -17.470	l dBm							
-30 dBm				-	_				_
-40 dBm						-		-	
-50 dBm-			-912		_				
-60 dBm-	and product the mode	. Unnandersed	in the second second	almonth and the	whilehelder	constantily a	Andrewsenhand	Henryamanta	lalaphininganaya ya
-70 d8m-					_	_			
-80 dBm					_	_			
Start 30.	0 MHz			1001	pts			Sto	pp 3.0 GHz
Marker Type R M1	ef Trc	X-valu	ie	Y-value -54.17 dB	Func	tion	Funct	ion Result	

802.11ax-20 MHz (SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

1Pk Max			Q						
10 dBm—					M	111			50.14 dBr 97540 GH
dBm-	-	_				-		1	
-10 dBm-		-			1				
-20 dBm	D1 -17.470	l dBm							
30 dBm-									
-40 dBm-		-					_		1
50 dBm-		MI	_						
60 dBm-	- HARRAN AND AND AND AND AND AND AND AND AND A	human	an and a standing stop	-	والبيديهانهان	terset to Mail and all is	hoteliketekeel	Wintersteinute	multiphototic
-70 dBm-				1.					
-90 dBm	1.1			1.1.1		1.11			11.0
Start 2.0	CH2		14	4001	t pts			Ston	25.0 GHz



802.11ax-40 MHz (SU) LOW CHANNEL CARRIER



802.11ax-40 MHz (SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

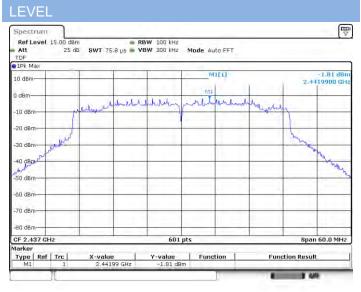
Att	el 15.00 dBr 25 di		.7 ms 👅 VB	W 100 kHz	Mode A	to Sweep			
TDF 1Pk Max									
10 dBm-	1			1	M	111			59.00 dBr 63770 GH
0 dBm	-	-	_				-		
-10 dBm-						-		μ	
-20 d8m	01 -22.260	l dBm							
-30 dBm-				-	_				
-40 dBm-					_	-			
-S0 dBm-	-				-	-		mi	
-60 dBm-	and the particul of the state	Law alter governation	ip analikan waidow	and in the line of the second	newwww.huch	uniopumbed	adamstered	Sperie astron	and the second second
-70 d8m-									
-80 dBm-							_		
	tart 30.0 MHz 100							Sto	p 3.0 GHz
Marker Type F M1	tef Trc	X-value	77 GHz	Y-value	Func	tion	Fund	tion Result	

802.11ax-40 MHz (SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Att TDF		25 di	SWT 2	30 ms 🖷 🗸	BW 300 kHz	Mode Au	to Sweep			
1Pk M	ax.	_		1	1	M	1[1]			54.18 dBn
10 dBm	-	-					111	X		75940 GH
0 dBm-										9
u sionin			11		121		1			
-: O dBr		-				-	-			
-20 dBm						-				
	0	1 -22:960	dBm							
-30 dBn	-				-					
-O dBri		_			-	_	-			
-50 dBm		-					101	-		
SO UBI		-	1				T	Sec. March	- 10-2	
-DEL dad	Male	the stand with	Minhilselligues	-	Conception and the send	manan	And the second second	and the second	AND CALIFICATION	a particular second
-70 dBm				10-0	1					
10.001					11100		S			
-80 dBm	-	-			-					
Start 2	O GH	z			4001	pts		1	Stop	25.0 GHz
Marker	17						100.00	- C	0.000	
Type M1	Ref	Trc 1	X-valu	94 GHz	-54.18 dB	Fund	tion	Functi	on Result	



802.11ax-40 MHz (SU) MIDDLE CHANNEL CARRIER



802.11ax-40 MHz (SU) MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

Ref Le Att TDF	vel 15.	25 dB	SWT 29		BW 100 KHz BW 300 KHz	Mode Au	ito Sweep			
🛛 1Pk Ma	ax.			-						
10 dBm-					-	M	1[1]			54.35 dBn 975.00 MH
0 dBm—	-	_	_	-				-	-	
-10 dBm	-	-	_		-		-		<u> </u>	
-20 dBm	-01 -	21.810	dBm		-	_	_	_		
-30 dBm	-		_		-			-		
-40 dBm	-	_	_		-		-	-	-	
-S0 dBm			an anticas data a	And	upped- where days to real income	10000			Latingard	historestature
-60 dBm	- Martineton		tur franchine	1.	again dar bertenainanne	(without work with the	manning	a planeter but		
-70 dBm		_			-					
-80 dBm	-						-			
Start 3	0.0 MHz	-			1001	pts			Sto	op 3.0 GHz
Marker Type M1	Ref Ti	rc 1	X-value	0 MHz	Y-value -54,35 dB	Func	tion	Fund	tion Result	1

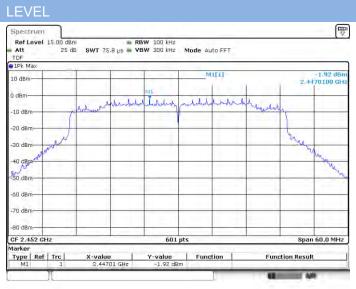
802.11ax-40 MHz (SU) MIDDLE CHANNEL SPURIOUS

2 GHz ~ 25 GHz

Att	vel 15.00 dBn 25 dB			W 100 kHz W 300 kHz	Mode Au	to Sweep			
TDF 1Pk Max		E 343.			1.1.1.0				
10 dBm—		-		-	M1[1] -49.57 0.99260				
0 dBm-	-		-		_		-		
-: 0 dBm	-				-		-		
-20 dBm-	01 -21,810	dBm			_				
-:0 dBm							-	-	-
-40 dBm-	-								
-SO dBm-	-	611	G. (1. 1. 1.)	ور المانينيون	an an aite dates	و بنار المام ا		L. Alterio	
-60 dBm-		1 Kingereistens	la provident formation		and the second s		A 161 A 161 A 161 A 161 A		
-70 d8m-	-	_			-	_			
-80 dBm-									
Start 2.0	GHz			4001	pts			Stop	25.0 GHz
Marker Type I M1	Ref Trc	X-value	e	Y-value -49.57 dB	Func	tion	Fund	tion Result	



802.11ax-40 MHz (SU) HIGH CHANNEL CARRIER



802.11ax-40 MHz (SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

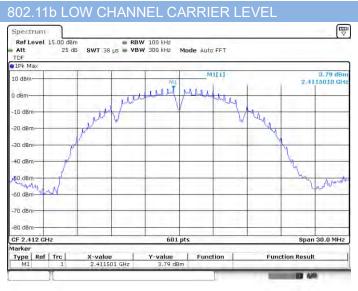
Ref Lo Att TDF	evel :	15.00 dBm 25 dB			BW 100 kHz		uto Sweep			
PiPk M	ах	-		-						
10 dBm	-					M	1[1]			-53.95 dBn 475.50 MH
0 dBm—	-	-	_		-			-		
-10 dBm	-			-	-	-			A	
-20 dBm	-	1 -21,920	d9m		-		_			-
-30 dBm	-	_					_			
40 dBm			_					_		
-SO dBm	+	M1	Card and	1		-			Н.,	all the Patrice barren da
-60 dBm	Adelahan	million and any	a anna anna anna anna anna anna anna a	manual	Monaldwara	weekeen have with	monome	a hailtaile	Sectionally	And the second s
-70 dBm	-	_			-					
-80 dBm	-									
Start 3	0.0 M	Hz			1001	pts			S	top 3.0 GHz
Marker Type M1	Ref	Trc	X-value	5 MHz	Y-value	Func	tion	Func	tion Resu	lt

802.11ax-40 MHz (SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

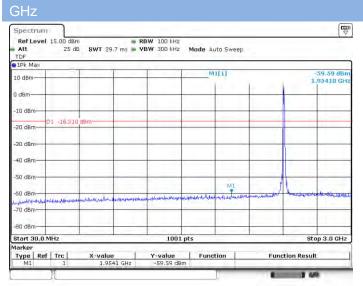
1Pk Max									
10 dBm	1				M	1(1)			50.29 dBi 14760 GH
0 dBm	-							1	1.1
1		11					-		
-10 dBm		-							
-20 dBm	01 -21,920	dBm			_		_		
-30 dBm				-					
-40 dBm	-						-		
-90 dBm	Ma			_			-	-	
-	a second and a second	Manual Astern	and the stand	-	and when when	- William Station	and the second second	بعرجال والتصغي	-
-60 dBm-									
-70 d8m	-							_	
-90 dBm					_		_		11
Start 2.0	011-	L .	e)	4001	nte			Ptor	25.0 GHz



Aux. Antenna



802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 $\,$

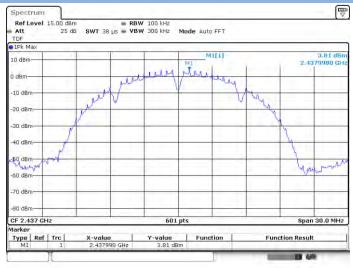


802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Att TDF	el 15.00 dBm 25 dB		10 ms - VB	W 100 KHZ W 300 KHZ	Mode Au	to Sweep				
🛾 1Pk Max			2							
10 dBm-		-	1	1	M	1111		-55.37 dBn 6.25110 GH		
0 dBm					_		-			
-10 dBm					-					
-20 dBm	01 -16:210	dBm								
-30 dBm					-		-			
-40 dBm			-			-				
-50 dBm	T					-				
AR depart	A statistic Pro	a de la construcción de la const	and the second second	in the second	-	Autorite Martine	Hit Harris	in the second second second	Manager 1	
-70 dBm						1			11.0.0	
-80 dBm— Start 2.0	GHz			4001	pts			Stor	25.0 GHz	
Marker		-			1.		-		-	
Type R M1	ef Trc	X-valu	e 11 GHz	-55.37 dB	Func	tion	Fund	tion Result		



802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

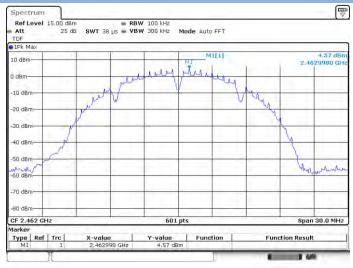
Ref Leve Att TDF	l 15.00 dBm 25 dB			3W 100 KHz 3W 300 KHz	Mode Au	uto Sweep			
10/ 1Pk Max		_			_	_			
10 dBm	-			M1[1]					59.70 dBn 30130 GH
0 dBm		_							
-10 dBm					-				-
-20 dBm	01 -16 190	dBm					-		
-30 dBm	-								
-40 dBm					_	_			
-50 dBm	_	-							
-60 dBm				- affer and an address of	- 1.0110		M1	Colectorayada	to Landa Bangaran
-70 dBm	بالمرابعة ومارية ألواريه والم	a manufaction thema	enter and the second	- Althoused in second	AND ALL COMPANY			0	
-80 dBm					-				
Start 30.0	MHz			1001	pts			Sto	p 3.0 GHz
Marker Type Re	f Trc	X-value		Y-value	Func	tion	Fund	tion Result	

802.11b MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Ref Lev Att TDF	el 15.00 dBr 25 di			BW 100 kHz BW 300 kHz	Mode Au	to Sweep				
1Pk Max			Q.			_				
10 dBm-					1[1]		-56.00 dBm 6.86040 GHz			
0 dBm	-	-		-	-	-	-	-		
-10 dBm-				-	_					
-20 dBm	01 -16.190	dBm-								
30 dBm	-									
-40 dBm				-		_				
\$0 dBm—		MI			_	-	-			
ag dem	A straining to the	i de la constitución	and a local la	-	WAR PARA	-	and the second	-	Martillian Martin	
-70 dBm		10.11			-					
-90 dBm—					_					
Start 2.0	GHz			4001	ots			Stop	25.0 GHz	
larker Type R M1	ef Trc	X-value	9 04 GHz	Y-value	Func	tion	Fund	tion Result		



802.11b HIGH CHANNEL CARRIER LEVEL



802.11b HIGH CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

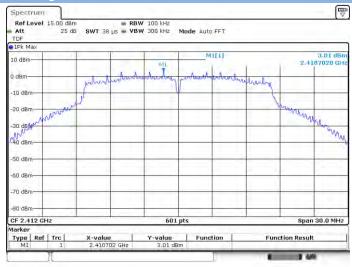
Att TDF	evel 1	5.00 dBm 25 dB			BW 100 KHz BW 300 KHz	Mode A	uto Sweep			
O 1Pk M	ах									
10 dBm-						M	1(1)			60.33 dBn 98830 GH
									1	bood an
0 dBm-	-					Sec. 1			1	
-10 dBm										
10 000		-15.430	dBm			<u> </u>			1	
-20 dBm					-				-	
-30 dBm								_		
-40 dBm			-		-	_				
-S0 dBm			_			_				
-60 dBm	- -				· · · · · · · · · ·		MI		14	1
-ou ubir	under	contrall	amale candade	manalianda	al maninistered by	Ulterrorutullitor	unable phone	and the shall be	- distantas	and conclusion that says
-70 dBm		1112				-				
-90 dBm	-	-			-	_	-		_	
Start 3	0.0 MH	z			1001	pts		-	Sto	p 3.0 GHz
Marker					1. C	1		S		
Type M1	Ref	Trc 1	X-value	B3 GHz	Y-value -60.33 dB	Func	tion	Fund	ion Result	

802.11b HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

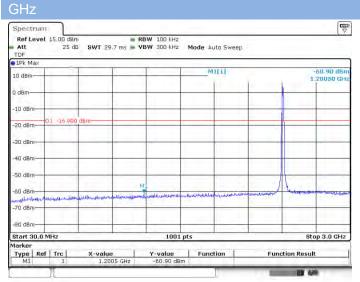
Ref Lo Att		15.00 dBm 25 dB		0 ms • VB	W 100 KHZ W 300 KHZ	Mode Au	to Sweep	<i></i>		
P1Pk M	ах			2						
10 dBm			-	· · · · ·	· · · · ·	M	111	-55.20 dBn 6.25110 GH		
o dam-	_	_				_	-			
-10 dBn						_				
-20 dBm		1 -15 430	dBm			-				
<0 dBn	r					-			-	
-40 dBm		_	-			-				
-S0 dBri	-	- MA				-				
-dq,den		-	with the state of the		-	with ministerio	Amonital Strengt	the stand and the stand	A francisco and a second	-
-70 dBm	-									
-80 dBm	-									
Start 2	.0 GH	z			4001	pts			Stop	25.0 GHz
Marker Type	Ref	Trel	X-value	. 1	Y-value	Func	tion 1	Fun	ction Result	
M1		1		11 GHz	-55.20 dB				action reasons	



802.11g LOW CHANNEL CARRIER LEVEL



802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3



Spectrum Ref Level 15.00 dBm RBW 100 kH2 Att 25 dB SWT 230 ms VBW 300 kH2 Mode Auto Sweep TOP O IPK Max M1[1] 55.52 dBn 83740 GH 10 dBm ,dBm 0 dBm 1 -16.9 0 dBm O dBm 0 dBm 0 dBm -70 dBm-90 dBm 4001 pts Stop 25.0 GHz Start 2.0 GHz larke Type Ref Trc X-value 6.8374 GHz Y-value -55.52 dBm Function Function Result 11 646

802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz